NEC

NDA-24307
Issue 1
STOCK #200789

NEAX® 2400 IPX

System Operations and Maintenance Manual (IPX-U Type)

OCTOBER, 2000

NEC America, Inc.

LIABILITY DISCLAIMER

NEC America, Inc. reserves the right to change the specifications, functions, or features, at any time, without notice.

NEC America, Inc. has prepared this document for use by its employees and customers. The information contained herein is the property of NEC America, Inc. and shall not be reproduced without prior written approval from NEC America, Inc.

NEAX and D^{term} are registered trademarks of NEC Corporation.

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
i	1							
ii	1							
iii	1							
iv	1							
v	1							
vi	1							
vii	1							
viii	1							
ix	1							
x	1							
xi	1							
xii	1							
xiii	1							
xiv	1							
xv	1							
xvi	1							
1	1							
2	1							
3	1							
4	1							
5	1							
6	1							
7	1							
8	1							
9	1							
10	1							
11	1							
12	1							
13	1							
14	1							
15	1							
16	1							
17	1							
18	1							
19	1							
20	1							
21	1							
22	1							

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
23	1							
24	1							
25	1							
26	1							
27	1							
28	1							
29	1							
30	1							
31	1							
32	1							
33	1							
34	1							
35	1							
36	1							
37	1							
38	1							
39	1							
40	1							
41	1							
42	1							
43	1							
44	1							
45	1							
46	1							
47	1							
48	1							
49	1							
50	1							
51	1							
52	1							
53	1							
54	1							
55	1							
56	1							
57	1							
58	1							
59	1							
60	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

NEAX2400 IPX
System Operations and Maintenance Manual (IPX-U Type)

PAGE No.	ISSUE No.								PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
61	1								99	1							
62	1								100	1							
63	1								101	1							
64	1								102	1							
65	1								103	1							
66	1								104	1							
67	1								105	1							
68	1								106	1							
69	1								107	1							
70	1								108	1							
71	1								109	1							
72	1								110	1							
73	1								111	1							
74	1								112	1							
75	1								113	1							
76	1								114	1							
77	1								115	1							
78	1								116	1							
79	1								117	1							
80	1								118	1							
81	1								119	1							
82	1								120	1							
83	1								121	1							
84	1								122	1							
85	1								123	1							
86	1								124	1							
87	1								125	1							
88	1								126	1							
89	1								127	1							
90	1								128	1							
91	1								129	1							
92	1								130	1							
93	1								131	1							
94	1								132	1							
95	1								133	1							
96	1								134	1							
97	1								135	1							
98	1								136	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
137	1							
138	1							
139	1							
140	1							
141	1							
142	1							
143	1							
144	1							
145	1							
146	1							
147	1							
148	1							
149	1							
150	1							
151	1							
152	1							
153	1							
154	1							
155	1							
156	1							
157	1							
158	1							
159	1							
160	1							
161	1							
162	1							
163	1							
164	1							
165	1							
166	1							
167	1							
168	1							
169	1							
170	1							
171	1							
172	1							
173	1							
174	1							

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
175	1							
176	1							
177	1							
178	1							
179	1							
180	1							
181	1							
182	1							
183	1							
184	1							
185	1							
186	1							
187	1							
188	1							
189	1							
190	1							
191	1							
192	1							
193	1							
194	1							
195	1							
196	1							
197	1							
198	1							
199	1							
200	1							
201	1							
202	1							
203	1							
204	1							
205	1							
206	1							
207	1							
208	1							
209	1							
210	1							
211	1							
212	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.								PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
213	1								251	1							
214	1								252	1							
215	1								253	1							
216	1								254	1							
217	1								255	1							
218	1								256	1							
219	1								257	1							
220	1								258	1							
221	1								259	1							
222	1								260	1							
223	1								261	1							
224	1								262	1							
225	1								263	1							
226	1								264	1							
227	1								265	1							
228	1								266	1							
229	1								267	1							
230	1								268	1							
231	1								269	1							
232	1								270	1							
233	1								271	1							
234	1								272	1							
235	1								273	1							
236	1								274	1							
237	1								275	1							
238	1								276	1							
239	1								277	1							
240	1								278	1							
241	1								279	1							
242	1								280	1							
243	1								281	1							
244	1								282	1							
245	1								283	1							
246	1								284	1							
247	1								285	1							
248	1								286	1							
249	1								287	1							
250	1								288	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No. 1	2	3	4	5	6	7	8	PAGE No.	ISSUE No. 1	2	3	4	5	6	7	8
289	1								327	1							
290	1								328	1							
291	1								329	1							
292	1								330	1							
293	1								331	1							
294	1								332	1							
295	1								333	1							
296	1								334	1							
297	1								335	1							
298	1								336	1							
299	1								337	1							
300	1								338	1							
301	1								339	1							
302	1								340	1							
303	1								341	1							
304	1								342	1							
305	1								343	1							
306	1								344	1							
307	1								345	1							
308	1								346	1							
309	1								347	1							
310	1								348	1							
311	1								349	1							
312	1								350	1							
313	1								351	1							
314	1								352	1							
315	1								353	1							
316	1								354	1							
317	1								355	1							
318	1								356	1							
319	1								357	1							
320	1								358	1							
321	1								359	1							
322	1								360	1							
323	1								361	1							
324	1								362	1							
325	1								363	1							
326	1								364	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
365	1							
366	1							
367	1							
368	1							
369	1							
370	1							
371	1							
372	1							
373	1							
374	1							
375	1							
376	1							
377	1							
378	1							
379	1							
380	1							
381	1							
382	1							
383	1							
384	1							
385	1							
386	1							
387	1							
388	1							
389	1							
390	1							
391	1							
392	1							
393	1							
394	1							
395	1							
396	1							
397	1							
398	1							
399	1							
400	1							
401	1							
402	1							

PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8
403	1							
404	1							
405	1							
406	1							
407	1							
408	1							
409	1							
410	1							
411	1							
412	1							
413	1							
414	1							
415	1							
416	1							
417	1							
418	1							
419	1							
420	1							
421	1							
422	1							
423	1							
424	1							
425	1							
426	1							
427	1							
428	1							
429	1							
430	1							
431	1							
432	1							
433	1							
434	1							
435	1							
436	1							
437	1							
438	1							
439	1							
440	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.								PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
441	1								479	1							
442	1								480	1							
443	1								481	1							
444	1								482	1							
445	1								483	1							
446	1								484	1							
447	1								485	1							
448	1								486	1							
449	1								487	1							
450	1								488	1							
451	1								489	1							
452	1								490	1							
453	1								491	1							
454	1								492	1							
455	1								493	1							
456	1								494	1							
457	1								495	1							
458	1								496	1							
459	1								497	1							
460	1								498	1							
461	1								499	1							
462	1								500	1							
463	1								501	1							
464	1								502	1							
465	1								503	1							
466	1								504	1							
467	1								505	1							
468	1								506	1							
469	1								507	1							
470	1								508	1							
471	1								509	1							
472	1								510	1							
473	1								511	1							
474	1								512	1							
475	1								513	1							
476	1								514	1							
477	1								515	1							
478	1								516	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.								PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
517	1								555	1							
518	1								556	1							
519	1								557	1							
520	1								558	1							
521	1								559	1							
522	1								560	1							
523	1								561	1							
524	1								562	1							
525	1								563	1							
526	1								564	1							
527	1								565	1							
528	1								566	1							
529	1								567	1							
530	1								568	1							
531	1								569	1							
532	1								570	1							
533	1								571	1							
534	1								572	1							
535	1								573	1							
536	1								574	1							
537	1								575	1							
538	1								576	1							
539	1								577	1							
540	1								578	1							
541	1								579	1							
542	1								580	1							
543	1								581	1							
544	1								582	1							
545	1								583	1							
546	1								584	1							
547	1								585	1							
548	1								586	1							
549	1								587	1							
550	1								588	1							
551	1								589	1							
552	1								590	1							
553	1								591	1							
554	1								592	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		**ISSUE 6**		**ISSUE 7**		**ISSUE 8**	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No.								PAGE No.	ISSUE No.							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
593	1								631	1							
594	1								632	1							
595	1								633	1							
596	1								634	1							
597	1								635	1							
598	1								636	1							
599	1								637	1							
600	1								638	1							
601	1								639	1							
602	1								640	1							
603	1								641	1							
604	1								642	1							
605	1								643	1							
606	1								644	1							
607	1								645	1							
608	1								646	1							
609	1								647	1							
610	1								648	1							
611	1								649	1							
612	1								650	1							
613	1								651	1							
614	1								652	1							
615	1								653	1							
616	1								654	1							
617	1								655	1							
618	1								656	1							
619	1								657	1							
620	1								658	1							
621	1								659	1							
622	1								660	1							
623	1								661	1							
624	1								662	1							
625	1								663	1							
626	1								664	1							
627	1								665	1							
628	1								666	1							
629	1								667	1							
630	1								668	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

PAGE No.	ISSUE No. 1	2	3	4	5	6	7	8
669	1							
670	1							
671	1							
672	1							
673	1							
674	1							
675	1							
676	1							
677	1							
678	1							
679	1							
680	1							
681	1							
682	1							
683	1							
684	1							
685	1							
686	1							
687	1							
688	1							
689	1							
690	1							
691	1							
692	1							
693	1							
694	1							
695	1							
696	1							

ISSUE 1		ISSUE 2		ISSUE 3		ISSUE 4	
DATE	OCTOBER, 2000	DATE		DATE		DATE	
ISSUE 5		ISSUE 6		ISSUE 7		ISSUE 8	
DATE		DATE		DATE		DATE	

NEAX2400 IPX
System Operations and Maintenance Manual
(IPX-U Type)

TABLE OF CONTENTS

Page

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

Page

TABLE OF CONTENTS (CONTINUED)

TABLE OF CONTENTS (CONTINUED)

Page

TABLE OF CONTENTS (CONTINUED)

Page

TABLE OF CONTENTS (CONTINUED)

Page

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF FIGURES (CONTINUED)

LIST OF TABLES

This page is for your notes.

CHAPTER 1 INTRODUCTION

1. GENERAL

This manual describes routine system maintenance and fault repair procedures. This chapter explains how to follow the manual and provides precautions pertaining to maintenance jobs as a whole. Be sure to read this chapter thoroughly before starting the required maintenance job.

2. HOW TO FOLLOW THE MANUAL

If technicians engage in a fault repair with a sufficient amount of knowledge of the system (system configurations, controlling systems, functions, etc.), the time spent repairing the system is minimized. This manual provides explanations about the system, while placing emphasis on system configurations, controlling systems, and functions. If faults of all conceivable cases are to be assumed for the explanations, the explanations may lack reality and be more difficult to understand. Therefore, this manual provides the explanations on the basis of the following points:

(1) It is very important to judge whether the fault has occurred in the system or at any of the peripheral equipment.

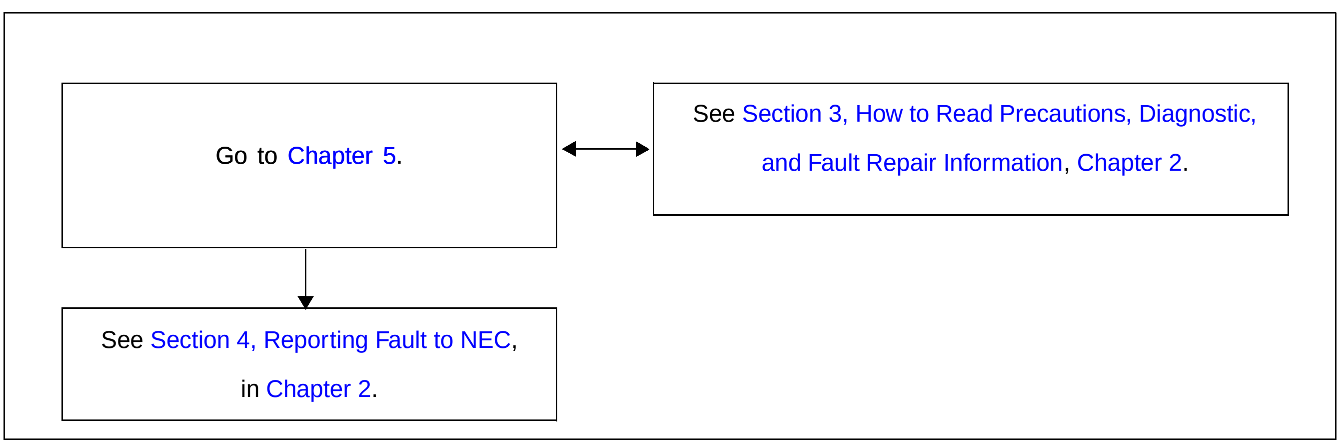
(2) In case the system is faulty, explanations will be given about the actions to be taken until you identify the faulty circuit card/cards.

(3) Explanations will be omitted pertaining to the following faults:

- Fault of peripheral equipment (MAT, telephone sets, etc.)
- Fault due to an error in office data assignment
- Fault due to an error in installation procedure (an error in circuit card switch setting, cross-connection, etc.)

(4) How to Read This Manual

- When a fault is to be repaired for the first time



- When only the contents of a system message needs to be known, or when a fault is to be diagnosed from a system message

Chapter 5

- When the range of faulty conditions has been specified and a faulty circuit card can be assumed

Chapter 5

↓

See Section 4, Reporting Fault to NEC, in Chapter 2.

- When investigating the system for the purpose of a fault repair

See Section 4, Reporting Fault to NEC, in Chapter 2.

↓

Chapter 5

- When replacing a unit/circuit card with a spare

Chapter 4

- When performing routine maintenance

Chapter 7

CHAPTER 2 SYSTEM MAINTENANCE OUTLINE

1. GENERAL

1.1 Purpose

This chapter explains the outline of fault diagnosis and duties necessary to maintain the PBX.

1.2 Administrative Management Procedures

Figure 2-1 shows the work flow of the administrative management procedures.

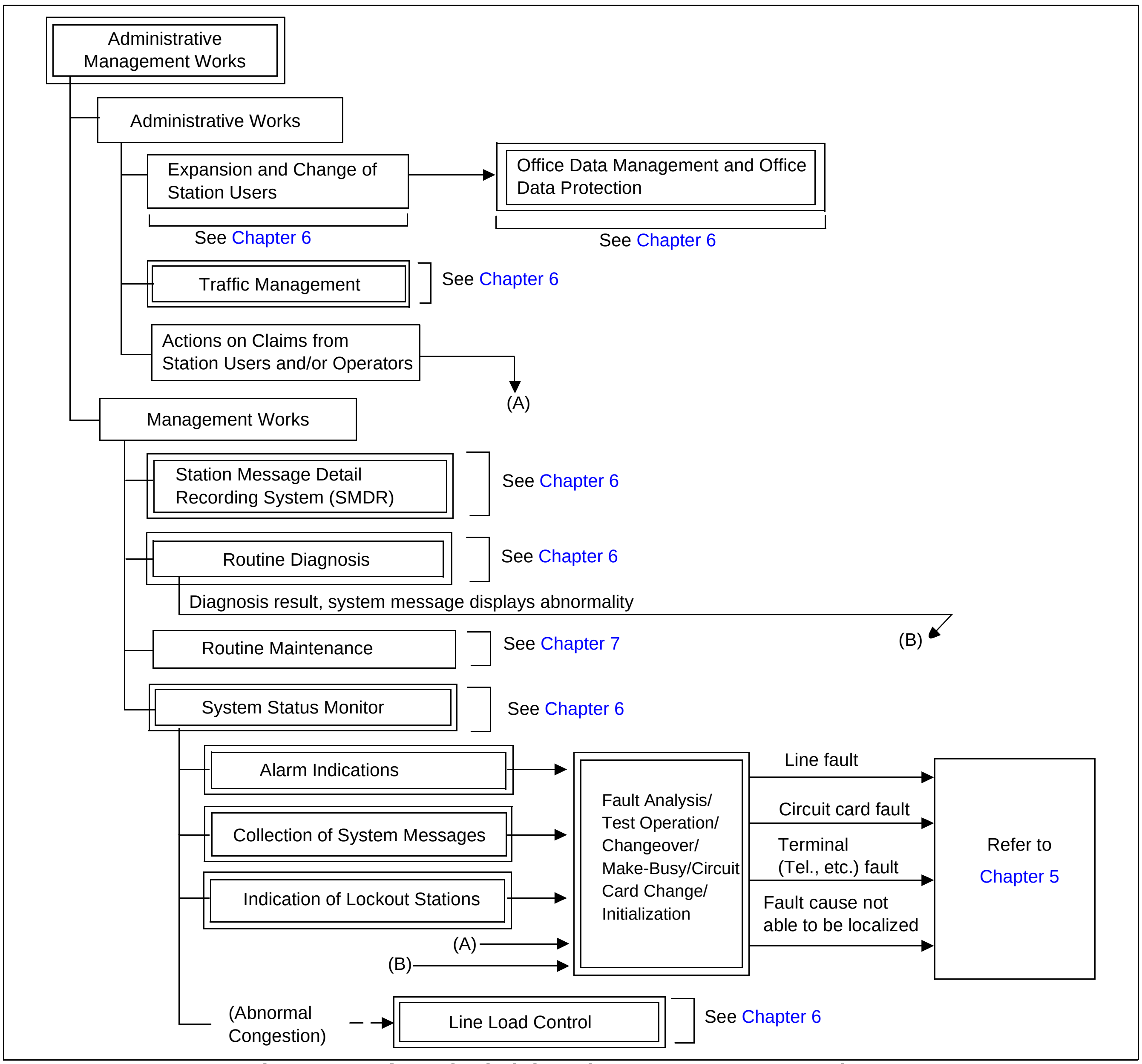


Figure 2-1 Flow of Administrative Management Procedures

1.3 How to Follow This Manual

Table 2-1 provides a brief description of the contents for each chapter in this manual.

Table 2-1 How to Follow This Manual Guide

CHAPTER	DESCRIPTION
2	See Section 2, Basic Knowledge. Explains basic knowledge of fault detection and indication, functions and fault range of the system, etc. See Section 3, How to Read Precautions, Diagnostic, and Fault Repair Information. Explains the methods of procedure performance and various symbols used in the description. See Section 4, Reporting Fault to NEC. Explains the method of forwarding faulty circuit cards, the method of creating a history record for future fault repair, and the method of reporting faults to NEC.
3	Explains how to read and analyze system messages.
4	Explains the method of replacing a unit/circuit card due to a fault.
5	Explains repair procedures corresponding to the faults of processors or equipment.
6	Explains how to control the system in service management functions and precautions required in the system control process.
7	Explains routine maintenance.
8	Explains the commands used in the system administrative management procedure.

2. BASIC KNOWLEDGE

This section identifies the information necessary for the system operations and maintenance procedures.

2.1 System Configuration

Figure 2-2 shows the system configuration of the fully expanded NEAX2400 IPX IPX-U.

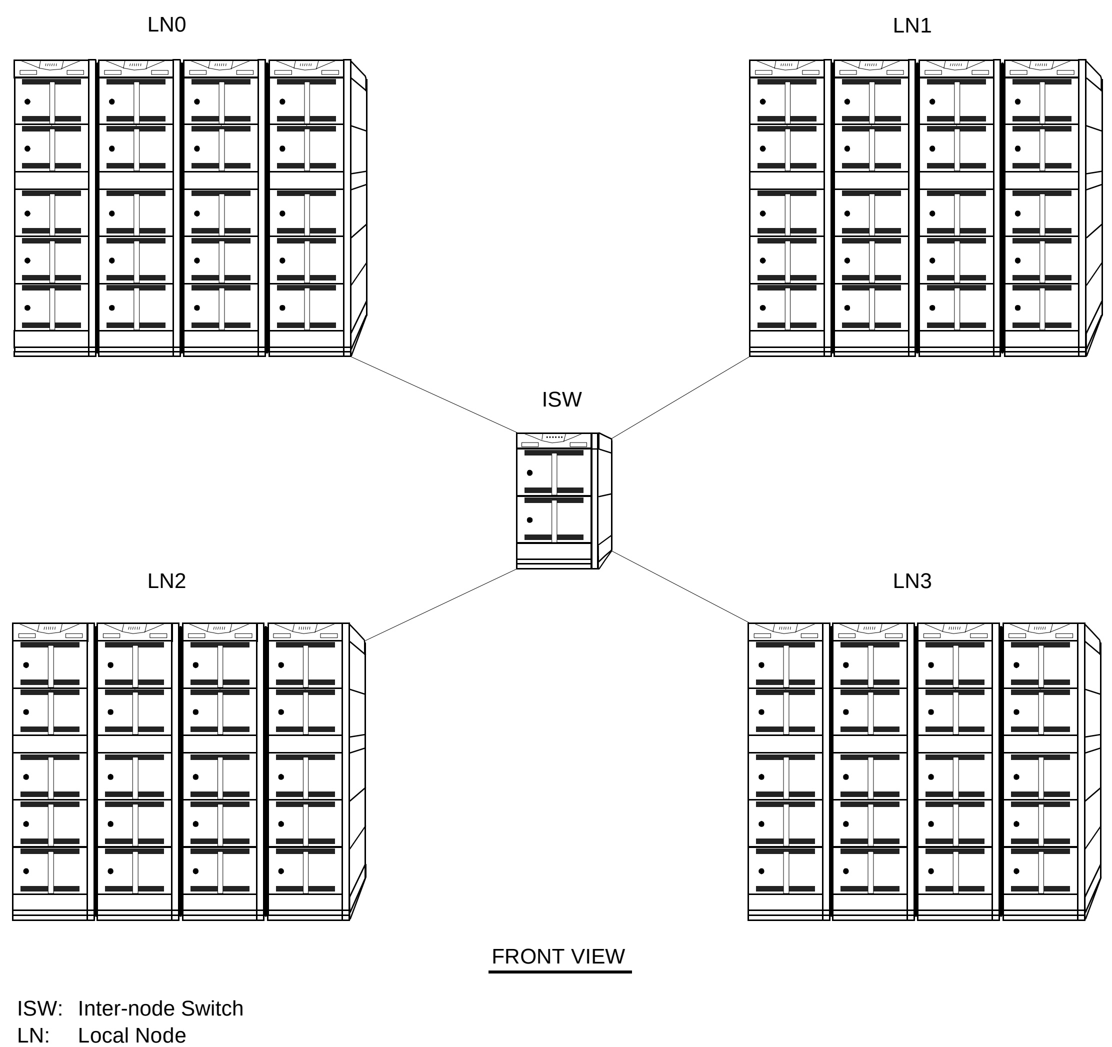


Figure 2-2 NEAX2400 IPX IPX-U

2.1.1 Configuration of the System

The NEAX2400 IPX IPX-U system (referred to in the remainder of this manual as “the system”) is configured by a single Inter-node Switch (ISW) and a maximum of 4 Local Nodes (LNs). Refer to figures in this section. The ISW and LNs are connected via the Fusion link, with Ethernet and physical PCM cables connected to each other. Figure 2-3 provides an overall image of system configuration. A two-module ISW and maximum four Local nodes compose a single network system via the Fusion link.

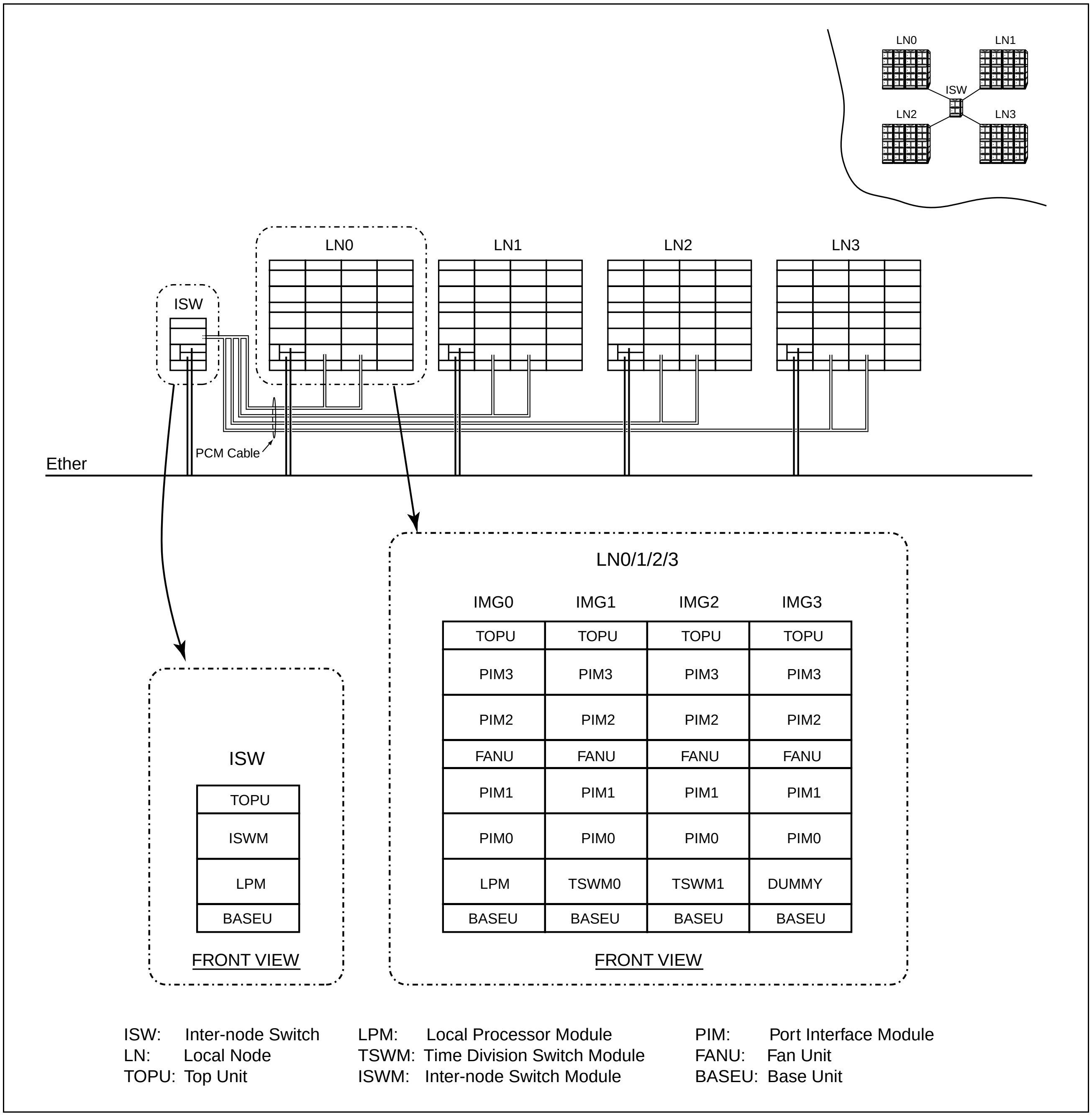


Figure 2-3 System Configuration

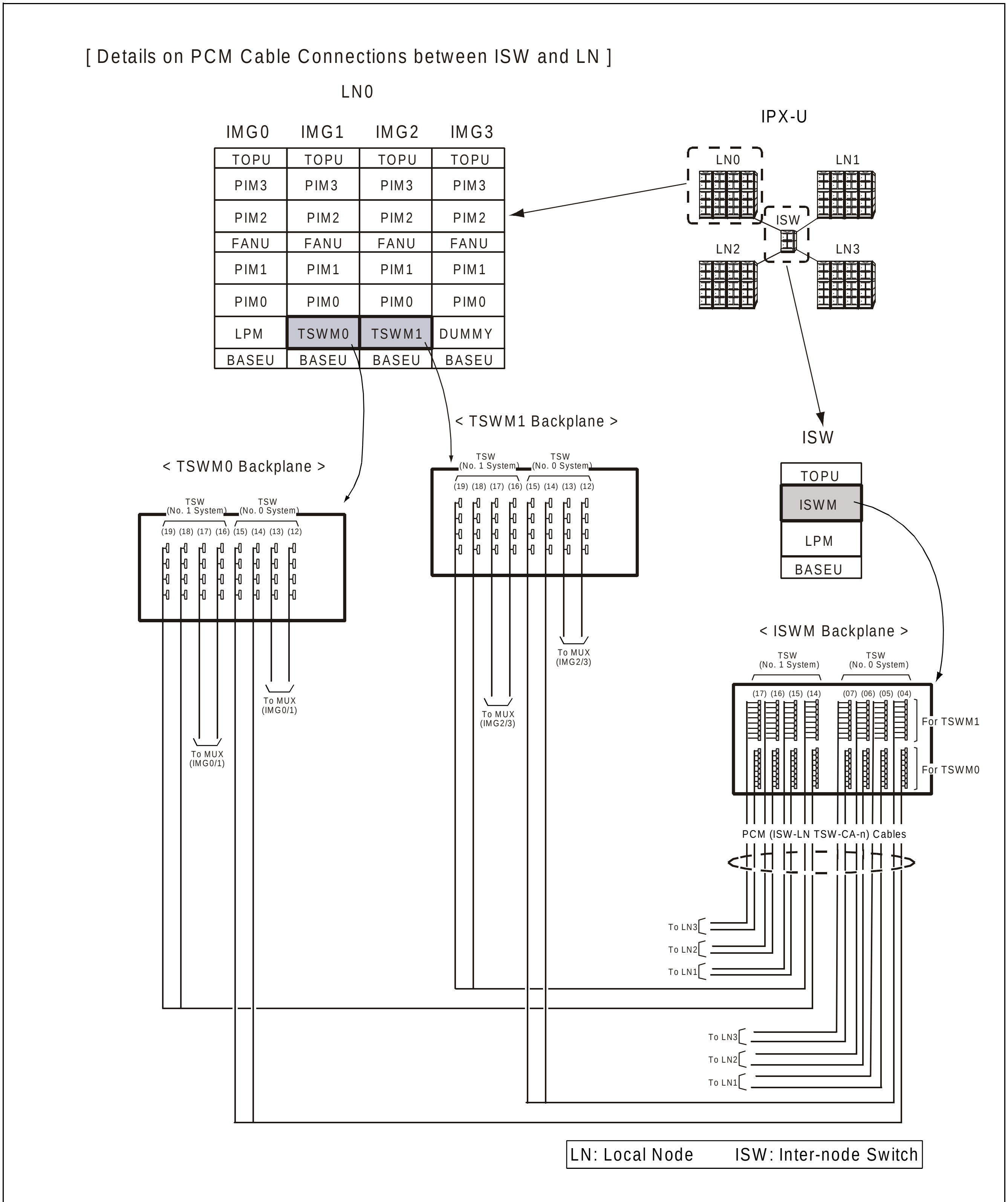
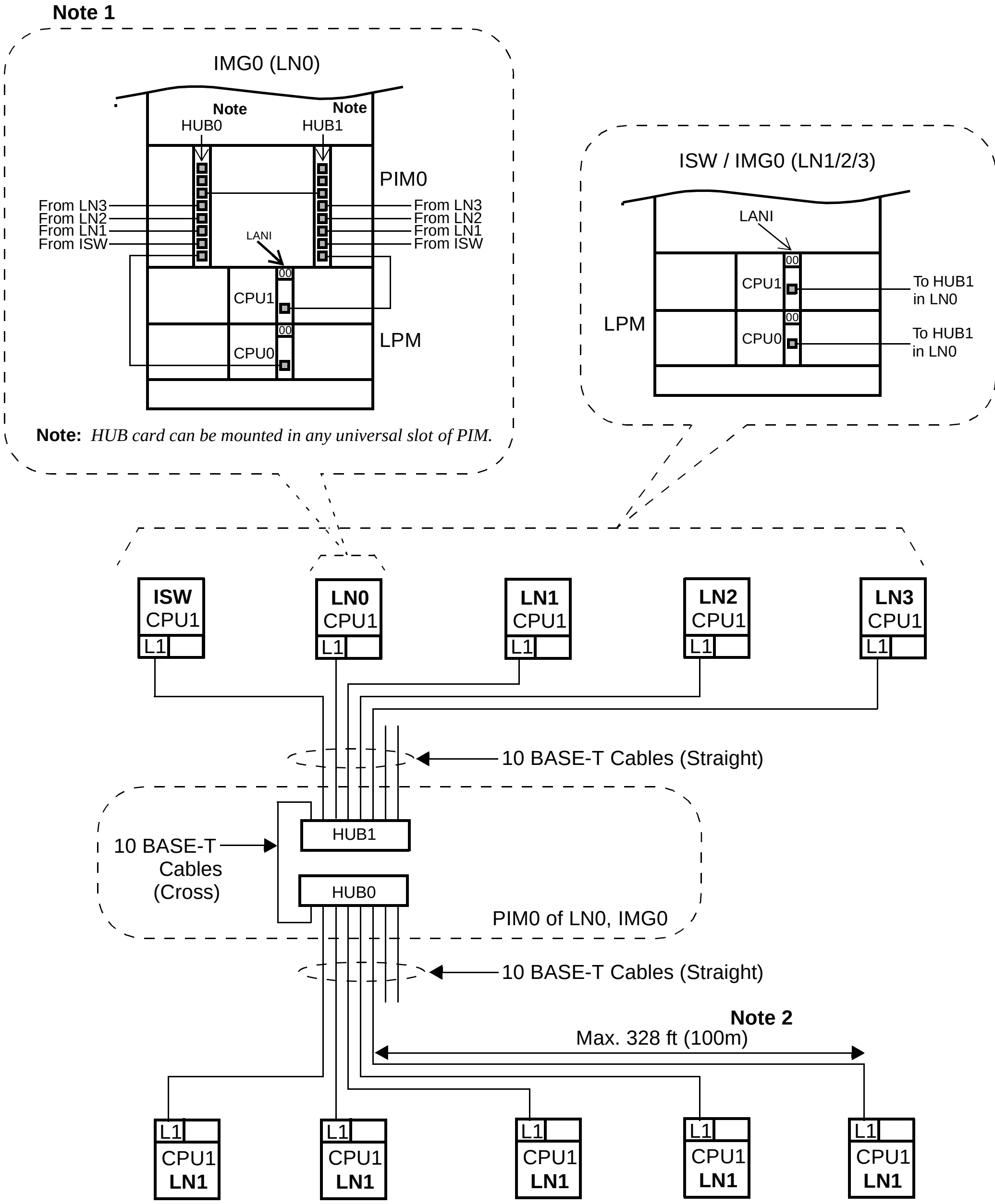


Figure 2-4 Details on Inter-node PCM Cable Connections

[Details on Ether Cable Connections]

ISW and each LN can achieve a Fusion link by physically connecting themselves via the 10 BASE-T cables. This figure shows an example where the CPR-accommodated LANI cards (internal LANI: PCI slot 00) are mutually connected via HUB0/HUB1 (PA-M96) cards in PIM0 of LN0, IMG0 (HUB0 for CPU0 of all nodes, HUB1 for CPU1 of all nodes.)



ISW: Inter-node Switch LN: Local Node LI: LANI (PZ-PC19) HUB: PA-M96 : 10 BASE-T connector

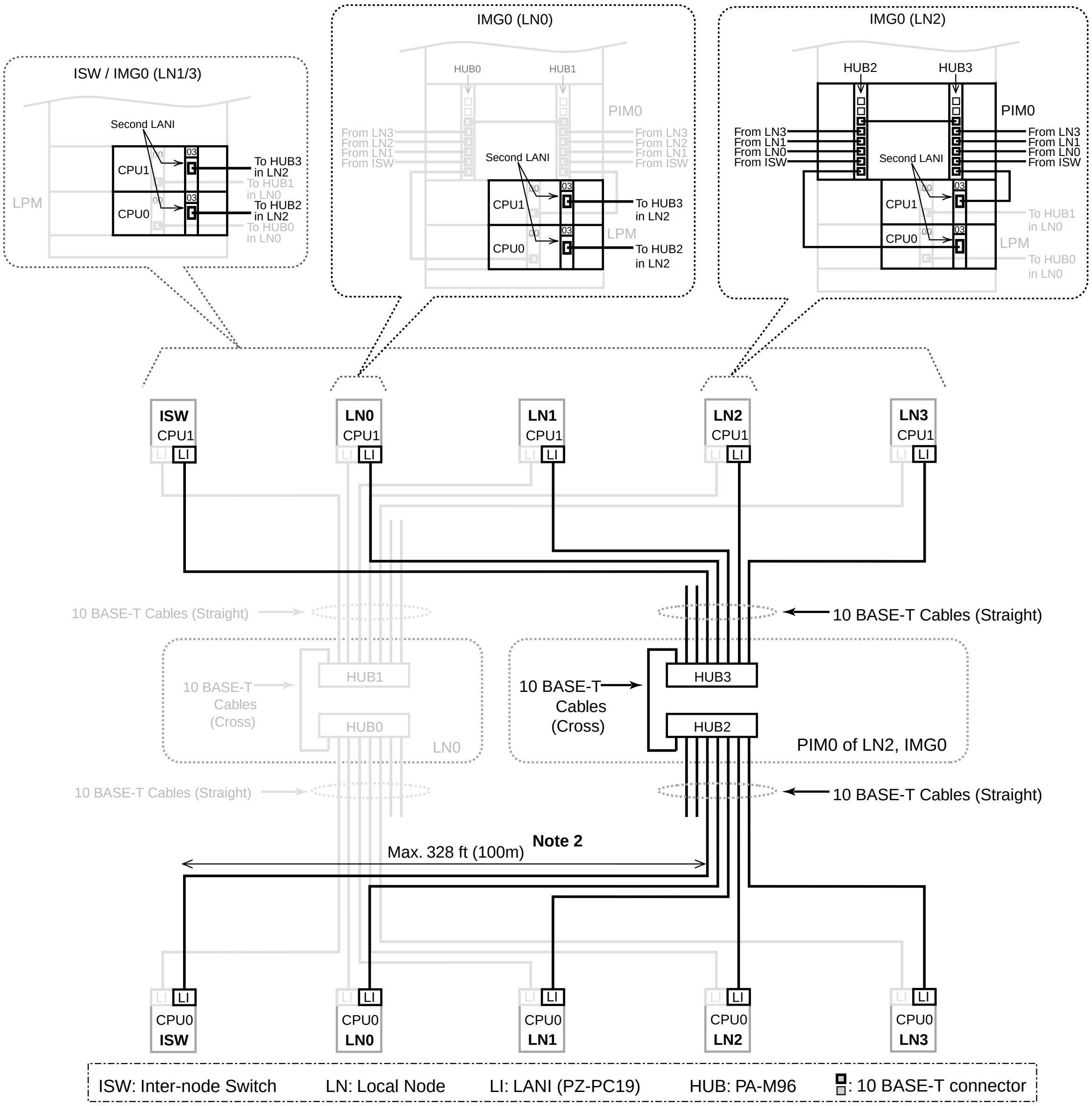
Note 1: *The connections, shown in this figure, are only an example. Actual cable runnings may vary, depending on your system configuration. (Refer to the "Installation Manual" for more details)*

Note 2: *The mutual 10 BASE-T (Ethernet) connections must be within 328 feet (100m) in their distance. If the distance is longer [e.g. , Fusion Link is provided also with other distant IPX node(s)], use FCH (PA-FCHA) card as a protocol converter for the Fusion-link data. For more details, refer to the "Fusion Network System Manual.*

Figure 2-5 Details on Ethernet Cable Connections (Establishment of Fusion Link) (1/2)

[Details on Ether Cable Connections: When Dual LANIs are used for each CPU]

When dual LANIs are used for each CPU, the whole second LANIs (external LANI: PCI slot 03) must also be connected in addition to the first LANIs explained on the previous page. This figure shows an example where the second LANIs are connected to the additional HUB2/HUB3 (PA-M96) cards in PIM0 of LN2, IMG0 (HUB2 for CPU0 of all nodes, HUB3 for CPU1 of all nodes). **Note 1**



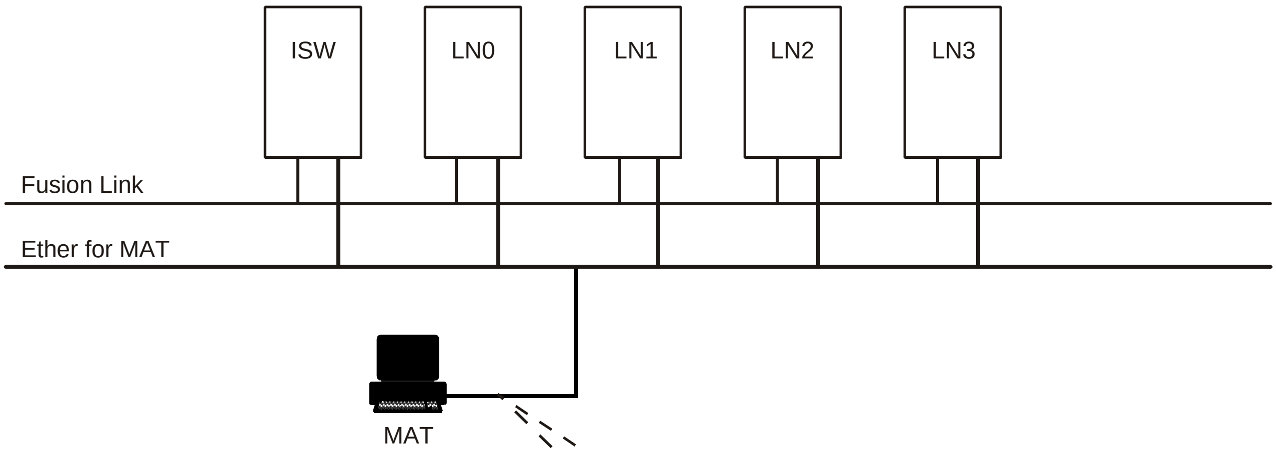
Note 1: *The above connections are only an example. Actual cable runnings may vary, depending on your system configuration (Refer to the "Installation Manual" for more details.)*

Note 2: *The mutual 10 BASE-T (Ethernet) connections must be within 328 ft (100m) in their distance. If distance is longer (e.g., Fusion link is provided with other distant IPX node(s), use FCH (PA-FCHA) card as a protocol converter for the Fusion link data. For more details, refer to the "Fusion Network System Manual."*

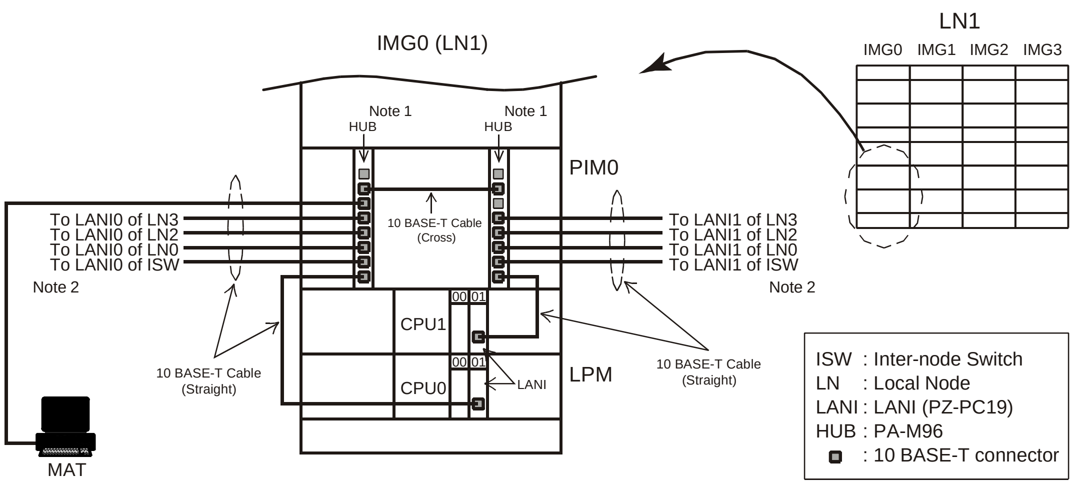
Figure 2-5 Details on Ethernet Cable Connections (Establishment of Fusion Link) (2/2)

[Details on Ether Cable Connections: When using MAT via Ethernet]

The IPX-U system can use both IOC (PH-IO24) card or each CPR-accommodated LANI (PZ-PC19) card as an interface for the connection to a MAT. This figure shows an example where a MAT is connected via the LANI card in PCI slot 01 of each LN/ISW.



This figure is an example where a MAT is connected to LN1 via the 10 BASE-T cables (Ethernet). As seen from this, the MAT, a single terminal connected to the Ether, can control the whole system status, thus capable of a single-point entry to each LN and ISW.

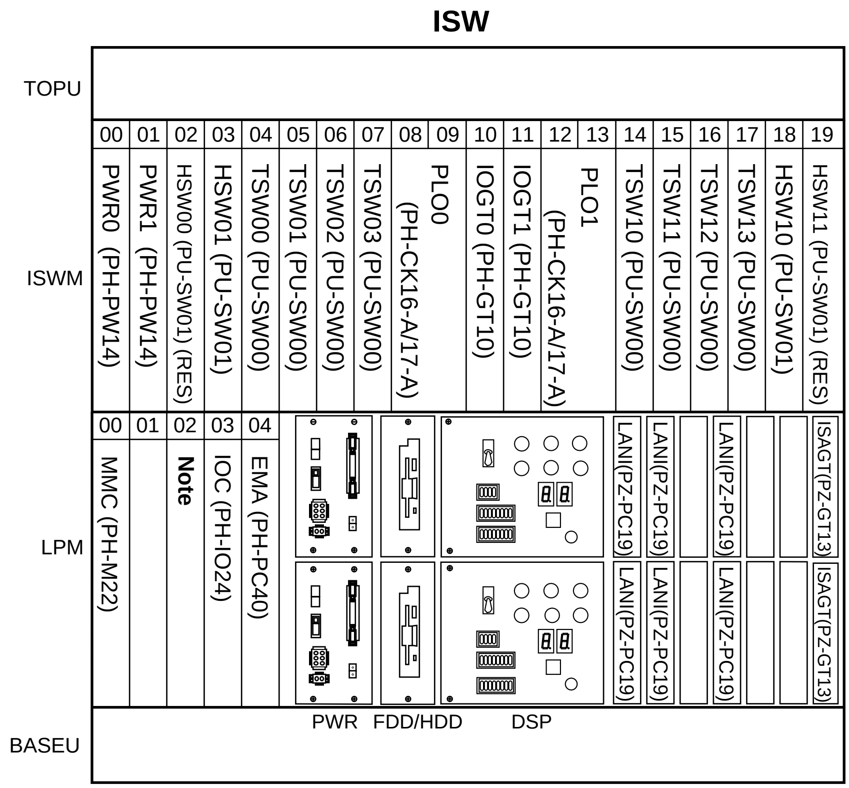


Note 1: *When connecting the MAT by this way, be sure to use dedicated HUB (PA-M96) card(s).*

Note 2: *Because ISW has no universal slot for external HUB cards, connect the 10 BASE-T cables (from the ISW) to a MAT-dedicated HUB in any of the LNs (LN0 - LN3). In this example, the cables are ISW) to a MAT-dedicated HUB in any of the LNs (LN0 - LN3). In this example, the cables are connected to HUB in LN1.*

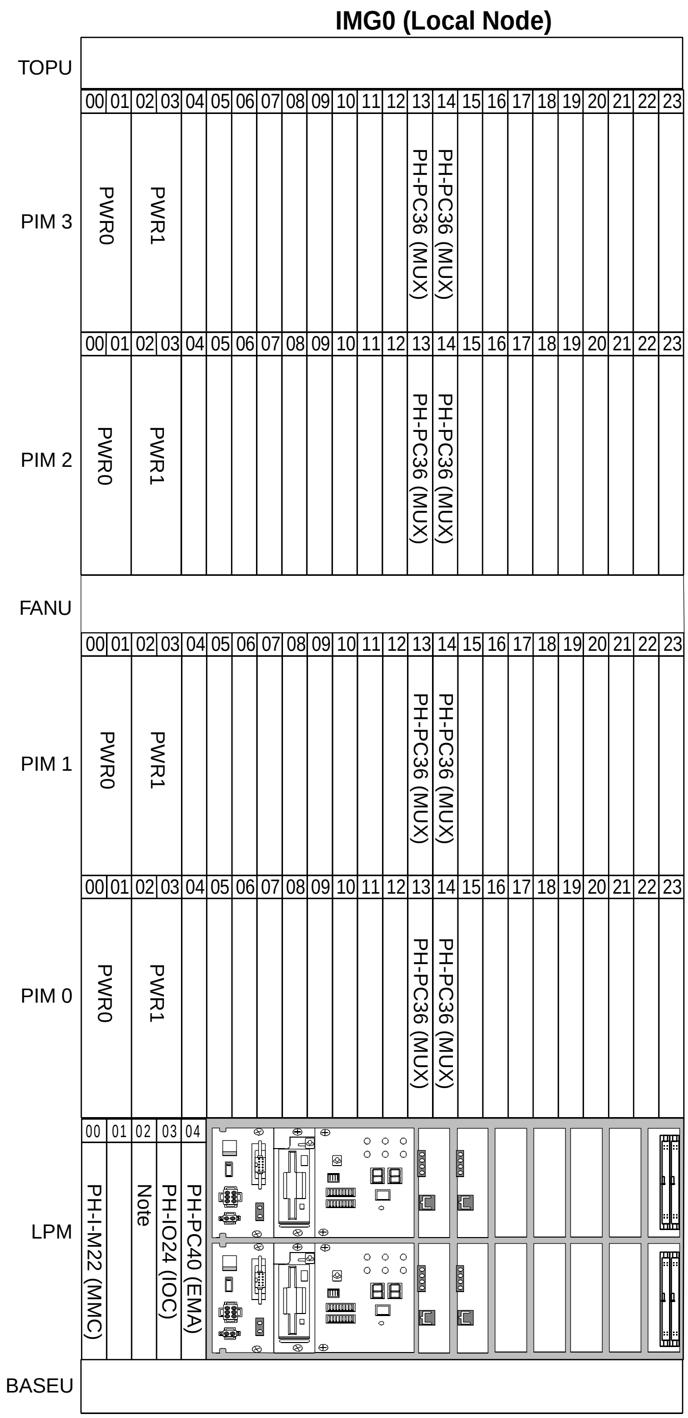
Note: *The LANI card for MAT connection is mounted in PCI slot No. 01 of each CPR.*

Figure 2-6 Details on Ethernet Cable Connections (Using MAT via Ethernet)



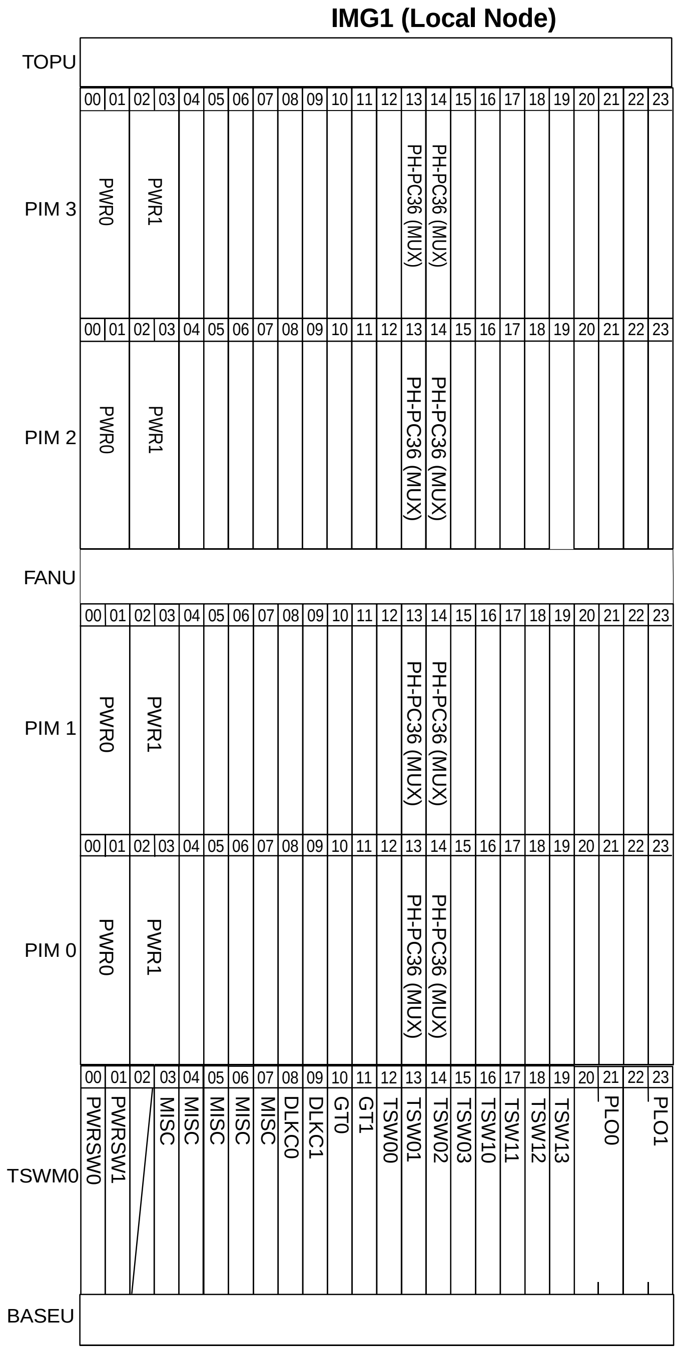
Note: *The 2nd IOC card (optional) may be mounted in this slot.*

Figure 2-7 Face Layout of ISW



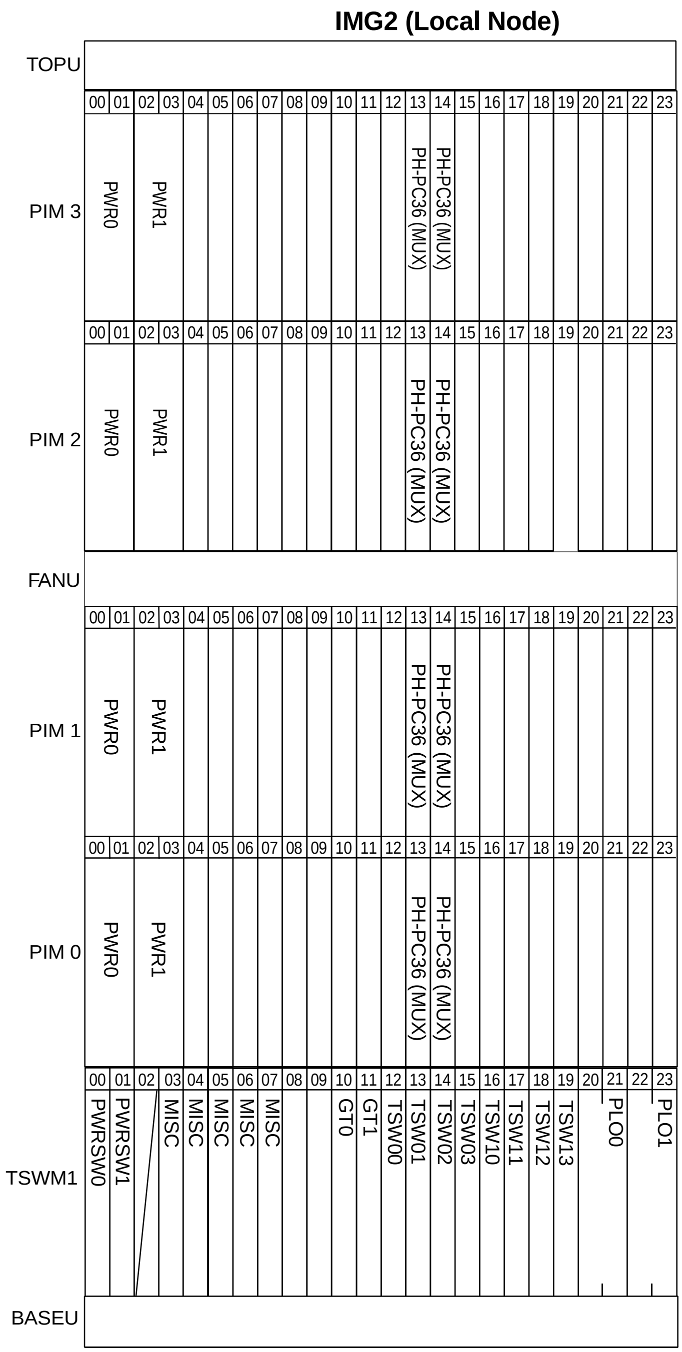
Note: *The 2nd IOC card (optional) may be mounted in this slot.*

Figure 2-8 Face Layout of IMG0 (Local Node)



Note: *No circuit card is mounted in Slot 02 of TSWM0.*

Figure 2-9 Face Layout of IMG1 (Local Node)



Note: *No circuit card is mounted in Slot 02 of TSWM1.*

Figure 2-10 Face Layout of IMG2 (Local Node)

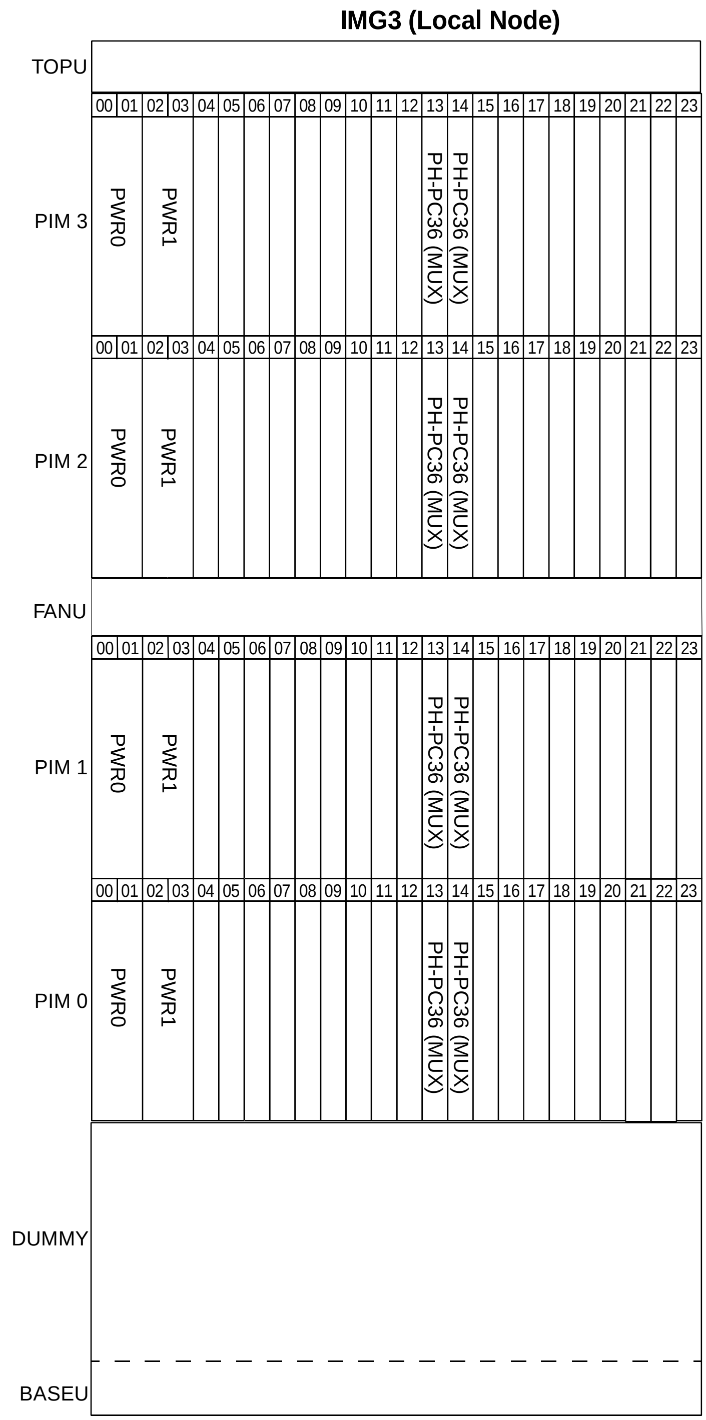
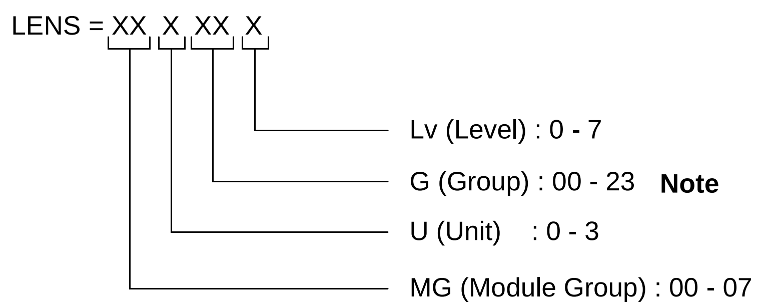


Figure 2-11   Face Layout of IMG3 (Local Node)

2.2 Line Equipment Numbers (LENS)

The Line Equipment Numbers (LENS) are used to specify the location of a circuit (trunk/port) in any of the PIM universal slots. Refer to the figures in this section, and confirm the LENS format used in the system.

As shown in Figure 2-12, the LENs consists of six digits: two digits for MG, one digit for U, two digits for G, and one digit for Lv.



Note: *In addition to Group No. 00-23, 24-31 can be used as the extended group numbers.*

Figure 2-12 LENS Format

2.2.1 Module Group

Figure 2-13 explains the Module Group (MG). In a fully expanded system, the MG number ranges from 00 to 07 in each local node.

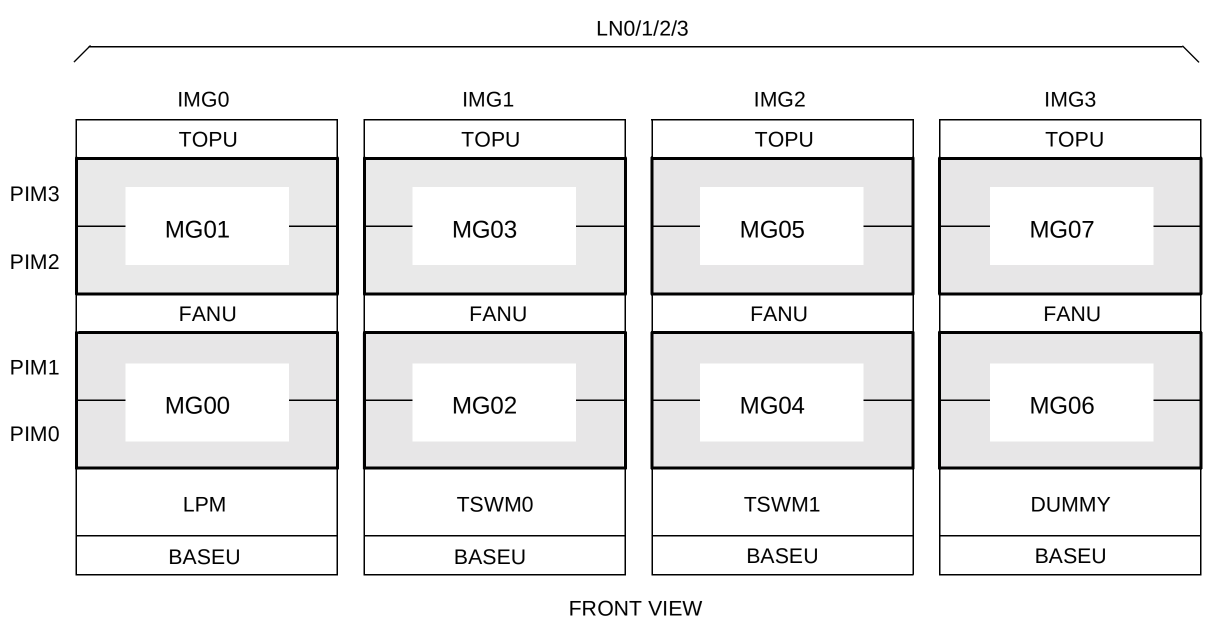


Figure 2-13 Module Group Allocations (LN0/1/2/3)

2.2.2 Unit

Details on Unit (U) numbers are shown in Figure 2-14. The numbers range from 0 to 3, and each unit represents the PIM universal slots, No. 04-12 (U 0/2) or No. 15-23 (U 1/3).

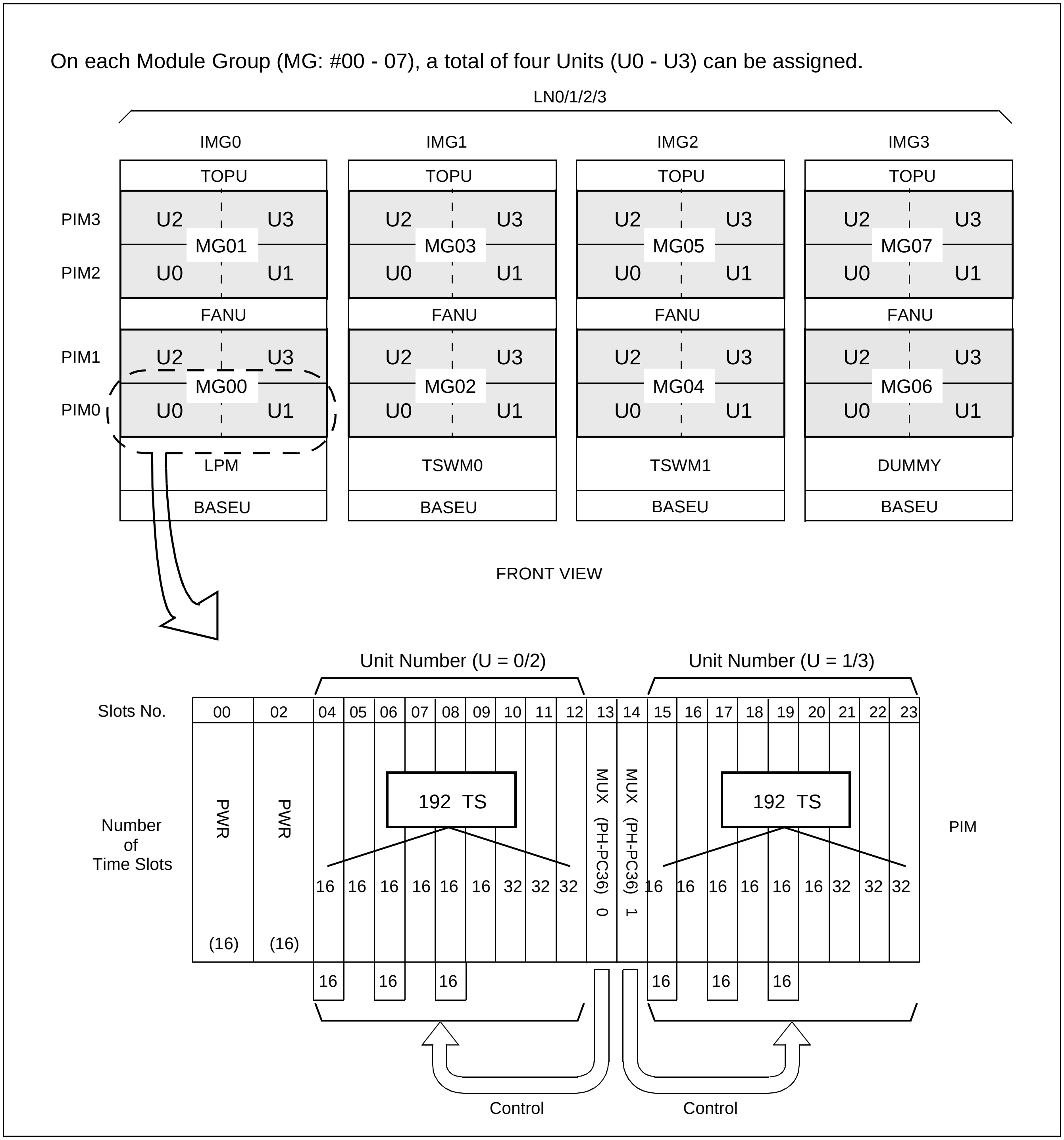
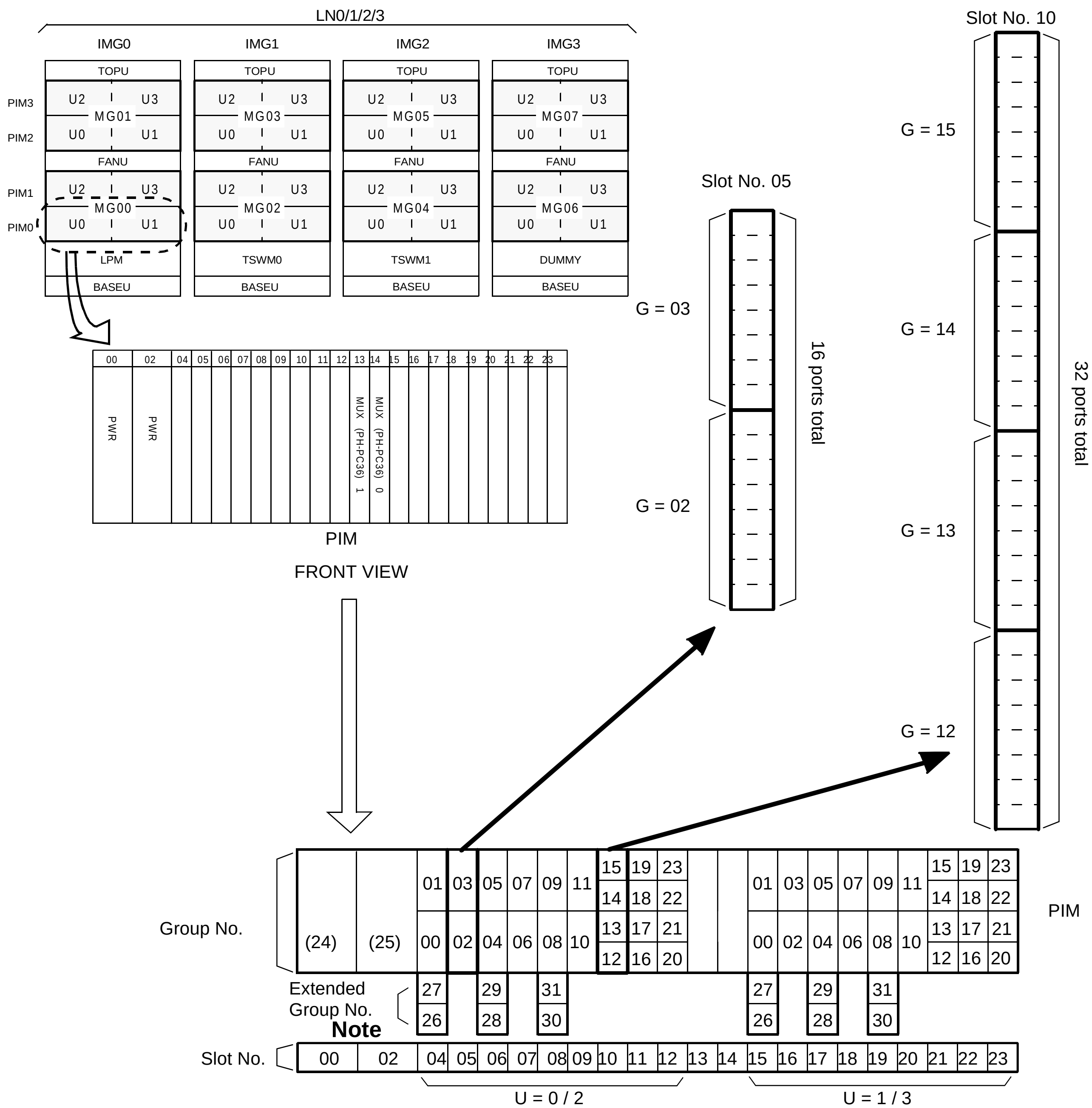


Figure 2-14 Unit Number Allocations (LN0/1/2/3)

2.2.3 Group

The Group (G) numbers are allocated as shown in Figure 2-15. A total of two Groups are assigned on each universal slots within the PIM. Slot numbers 10, 11, 12, 21, 22, 23 can contain a total of four Groups as an exception.

A total of two or four Groups (G) can be assigned on each PIM universal slot.



Note: *In addition to Group No. 00 - 23, the system can use No. 24 - 31 as theoretically valid numbers. Refer to the Fusion Network System Manual for information on Extended Group No. 26 - 31.*

Figure 2-15 Group Number Allocations (LN0/1/2/3)

2.2.4 Level

Figure 2-16 explains the Level (Lv) numbers. There are a total of eight Levels (Lv0 - Lv7) on every Group number, which ranges from 00 to 31.

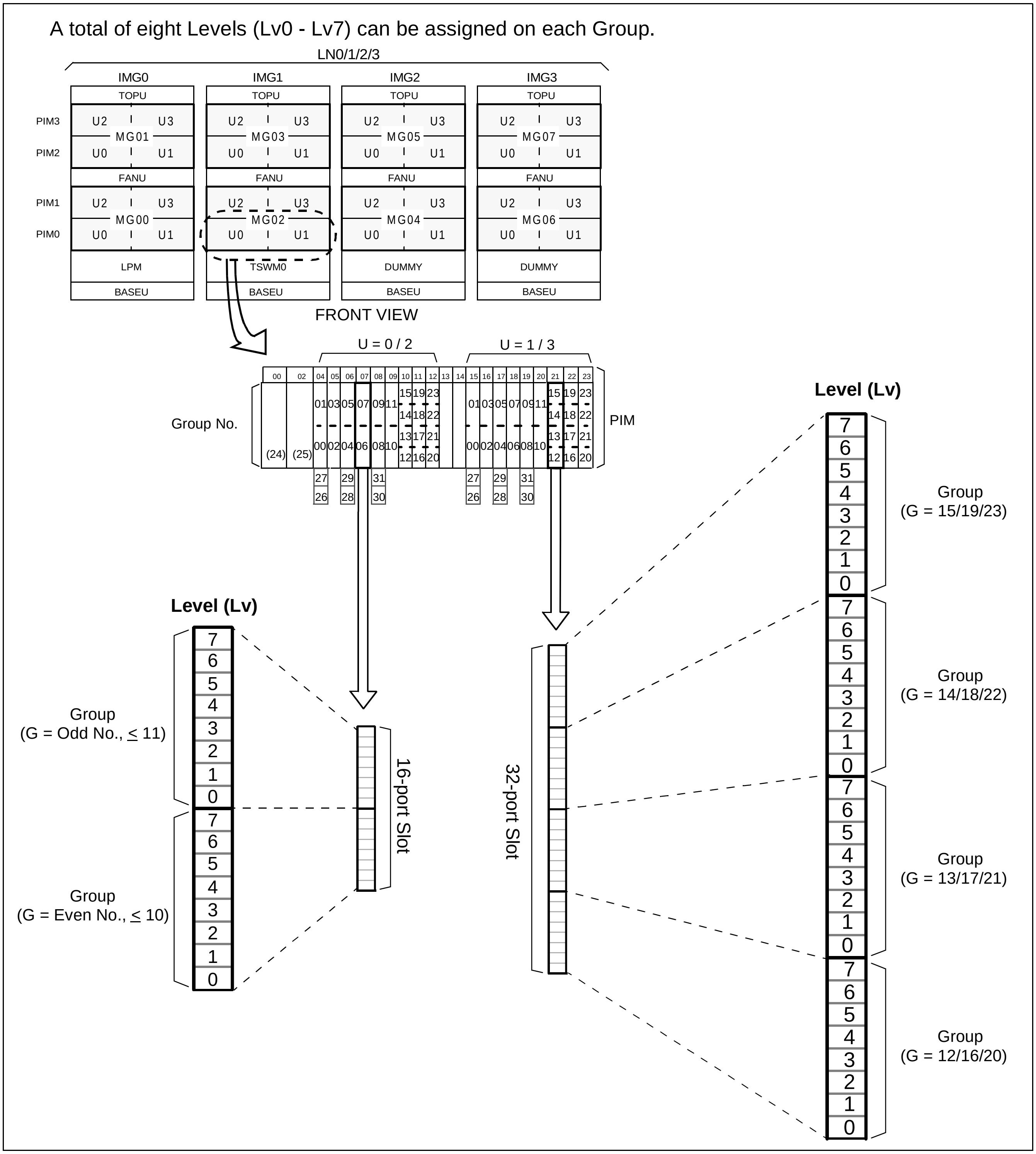


Figure 2-16 Level Number Allocations (LN0/1/2/3)

2.3 Local Partition (LP) Number

The Local Partition (LP) number refers to a logical local processor number, theoretically assigned for each IMG that consists of four (or less) Port Interface Modules (PIM). Though the local processor does not actually exist in any of the IMGs, except for IMG0, the system can apply the two-digit LP number to each IMG (see Figure 2-17) on its data memory program. The LP numbers are used primarily in the following cases:

- Display of system messages
- Assignment of line load control data (ALLC command)
- Backup for Call Forwarding/Speed Calling data (MEM_HDD command), etc.

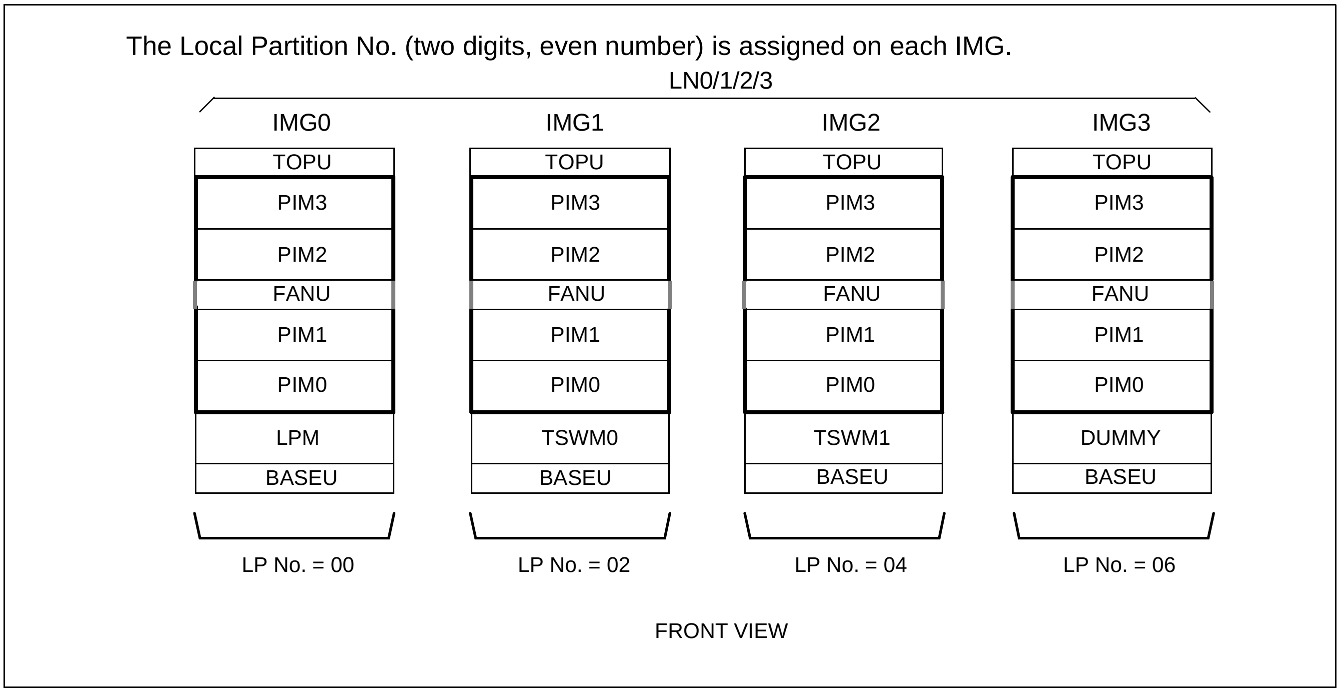


Figure 2-17 LP Number Allocations (LN0/1/2/3)

2.4 Assignment of Network Control Node (NCN)

The IPX-U system can be in service by dialing a Telephone Number assigned for each station at a Network Control Node (NCN). Because these network-level data (NDM data) can be assigned via the MAT dedicated to the NCN only, designate any of the following nodes as this network data manager (NCN):

- One of the Local Nodes (LN), excepting for the ISW, within the IPX-U system
- One of the belonging Fusion nodes outside the IPX-U system

For more details, refer to Figure 2-18.

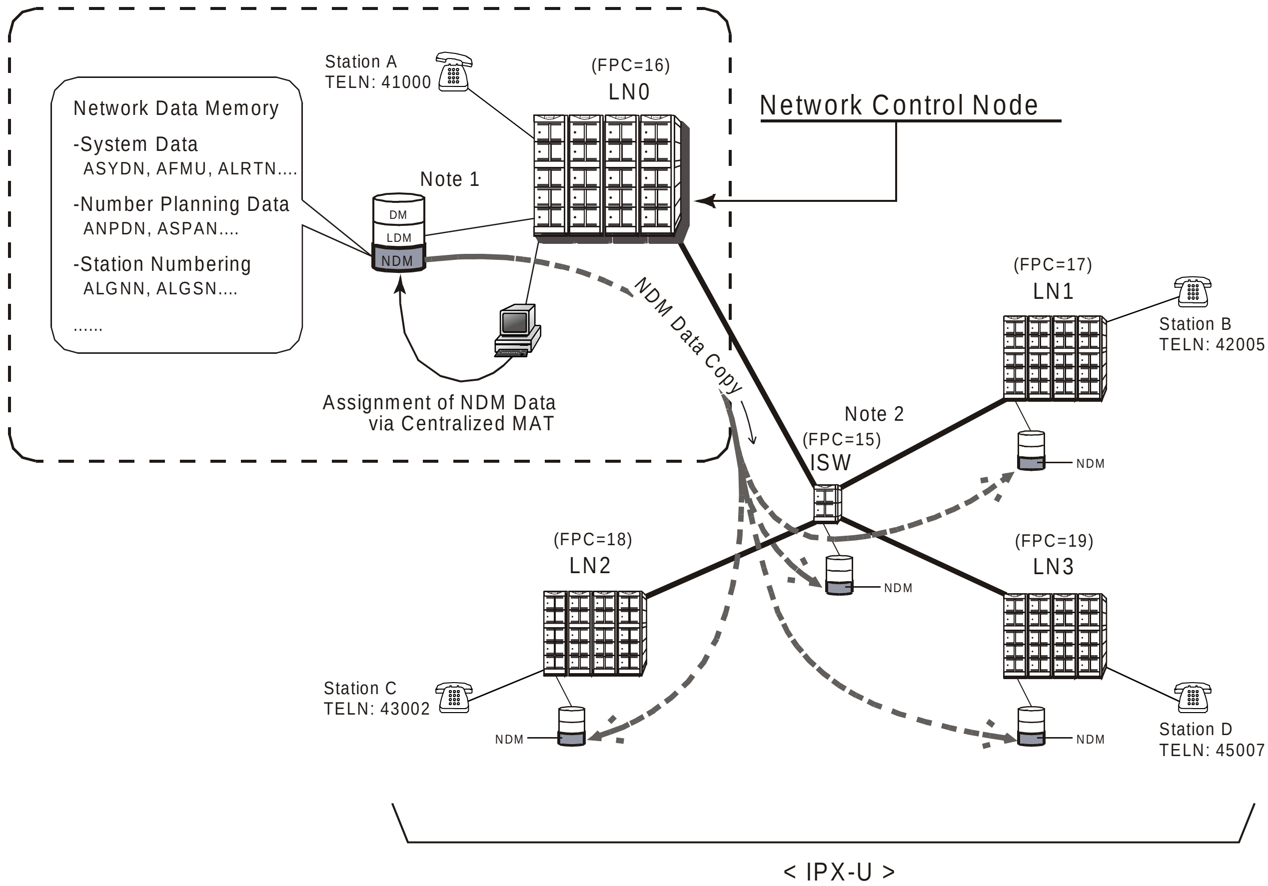
Note 1: *Within the IPX-U system, the NCN can be designated only from the Local Nodes (LN0-LN3). The ISW cannot be assigned as the NCN.*

Note 2: *On a Fusion network, assign only one NCN. Multiple nodes cannot be assigned as the NCN.*

Because the Fusion link can be established either independently within the system (IPX-U) or jointly with other outside IPX series, the assignment of NCN can differ, depending on the network configuration.

Pattern 1 When the system has a Fusion link independently of other systems

If the system has a Fusion link only within the system (i.e. no Fusion link is established with other IPX series), an NCN must be assigned from any of the existing Local Nodes, excepting the ISW. In this example, LN0 is assigned as the NCN.



ISW : Inter-node Switch	DM : Data Memory	FPC : Fusion Point Code
LN : Local Node	LDM: Local Data Memory	TELN: Telephone Number
NCN: Network Control Node	NDM: Network Data Memory	MAT : Maintenance Administration Terminal

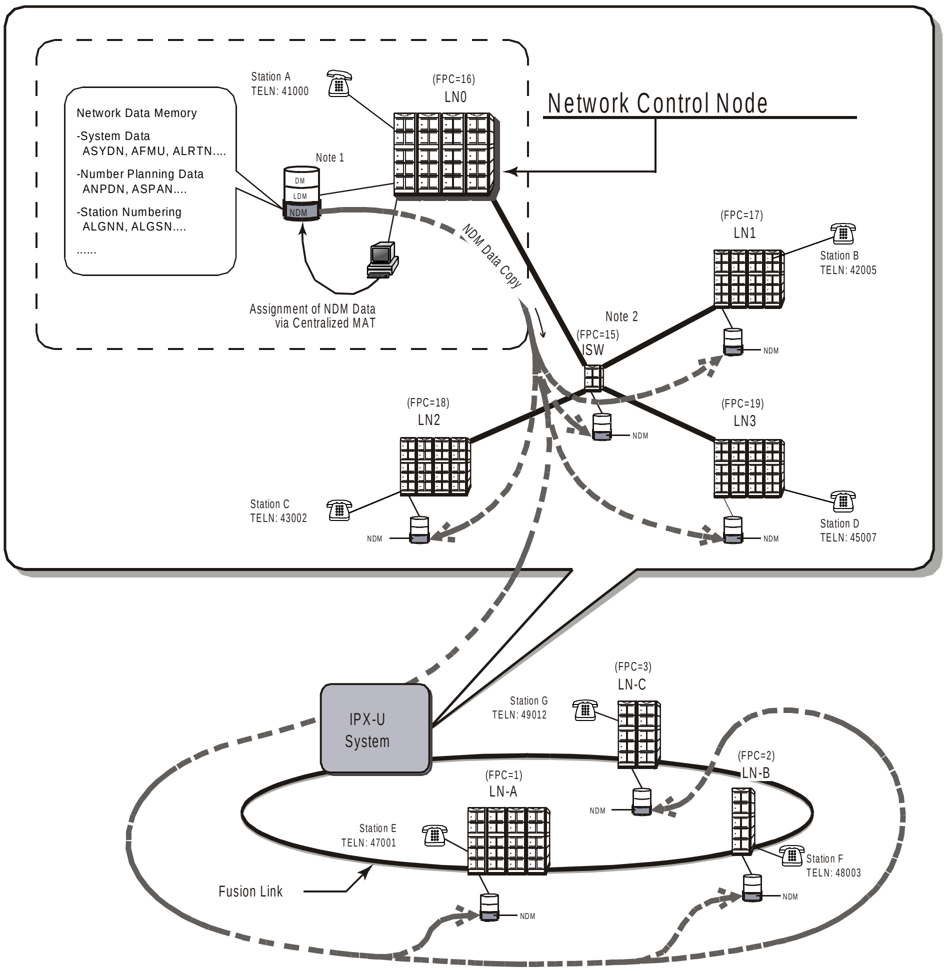
Note 1: *The network-level data (NDM data) can be assigned only at the NCN. However, other node-level data (LDM data) must also be assigned at each node (including ISW), depending on the requirements. For more details, refer to the "Installation Manual (IPX-U Type)" or the "Fusion Network System Manual."*

Note 2: *When the system is operated, the function to be performed by the ISW is only to provide the PCM time slot switching between the Local Nodes. However, an FPC (Fusion Point Code) must be assigned also for the ISW together with other Local nodes, by using the ASYDL command.*

Figure 2-18 Example of NCN Assignment (1/3)

Pattern 2 When the system has a Fusion link with other IPX series and an NCN exists within the system

If the system has a Fusion link also with other IPX series (i.e. the Fusion nodes exist also outside the system), an NCN can be assigned from either Local Nodes outside the system or the Local Nodes inside the system. In this example, LN0 of the IPX-U system is designated as the NCN.



ISW : Inter-node Switch	DM : Data Memory	FPC : Fusion Point Code
LN : Local Node	LDM: Local Data Memory	TELN: Telephone Number
NCN: Network Control Node	NDM: Network Data Memory	MAT : Maintenance Administration Terminal

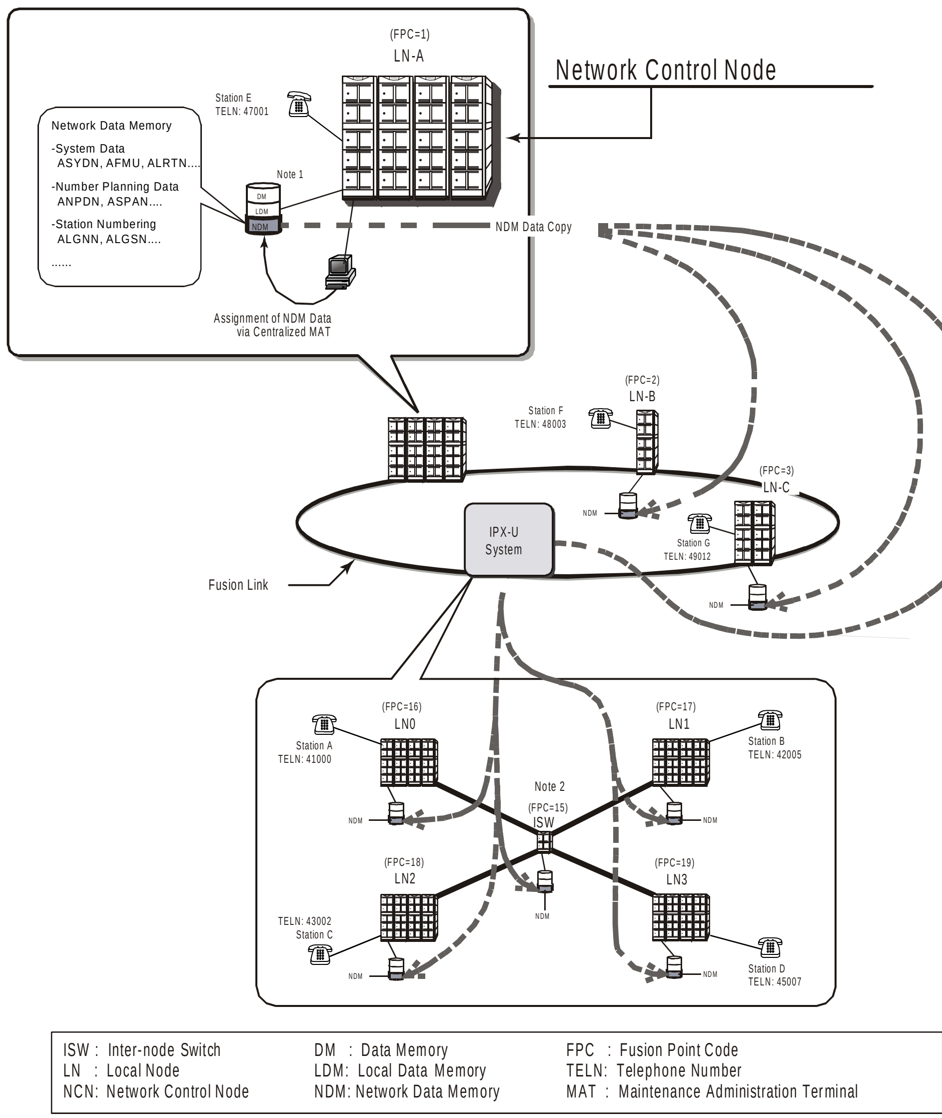
Note 1: *The network-level data (NDM data) can be assigned only at the NCN. However, other node-level data (LDM data) must also be assigned at each node (including ISW), depending on the requirements. For more details, refer to the "Installation Manual (IPX-U Type)" or the "Fusion Network System Manual."*

Note 2: *When the system is operated, the function to be performed by the ISW is only to provide PCM time slot switching between the Local Nodes. However, an FPC (Fusion Point Code) must be assigned also for the ISW together with other Local nodes, by using the ASYDL command.*

Figure 2-18 Example of NCN Assignment (2/3)

Pattern 3 When the system has a Fusion link with other IPX series and an NCN exists outside the system

If the system has a Fusion link also with other IPX series (i.e. the Fusion nodes exist also outside the system), an NCN can be assigned from either Local Nodes outside the system or the Local Nodes inside the system. In this example, LN-A (NEAX2400IPX series, 4-IMG type) outside the system is designated as the NCN.



Note 1: *The network-level data (NDM data) can be assigned only at the NCN. However, other node-level data (LDM data) must also be assigned at each node (including ISW), depending on the requirements. For more details, refer to the "Installation Manual (IPX-U Type)" or the "Fusion Network System Manual."*

Note 2: *When the system is operated, the function to be performed by the ISW is only to provide the PCM time slot switching between the Local Nodes. However, a FPC (Fusion Point Code) must be assigned also for the ISW together with other Local nodes, by using the ASYDL command.*

Figure 2-18 Example of NCN Assignment (3/3)

2.5 System Messages

System messages display during routine diagnosis, system operation status controlling, and fault occurrence. Figure 2-19 shows an example of a system message.

Refer to Chapter 3 for details on each message.

```
(1) → SYSTEM MESSAGE 3-E SUP LOCK UP FAILURE (TEMPORARY)
(2) →    NEC TOKYO  Note 1     JUL 24 09:35
(3) →    LP00-0-ACT
(4) → 1:1102 0000 0000 0000   2:0000 0000 0000 0000   3:0000 0000 0000 0000
      4:0000 0000 0000 0000   5:0000 0000 0000 0000   6:0000 0000 0000 0000
      7:0000 0000 0000 0000   8:0000 0000 0000 0000   9:0000 0000 0000 0000
```

Meaning:

(1) : SYSTEM MESSAGE 3-E SUP LOCK-UP FAILURE (TEMPORARY)

- LOCK-UP FAILURE (TEMPORARY): Meaning of the message
- SUP: System Message Level (Indicated by Alarm Lamp) **Note 2**
- 3-E: System Message Number

(2) : Office Name, Date and Time

(3) : LP00-0-ACT

- ACT: ACT/STBY indication for dual systems
- 0: No.0/No.1 system indication for dual systems
- LP00: Faulty processor/Related processor

(4) : Message detail data (notation by hexadecimal numbers)

Note 1: *The data here indicates the Office Name, uniquely assigned to each node and ISW. This can be set by using the ASYD (SYS1, Index 96-115) or AOFC command.*

Note 2: *There are four kinds of alarm information to be indicated by alarm lamps: MN, MJ, SUP, and NON indications.*

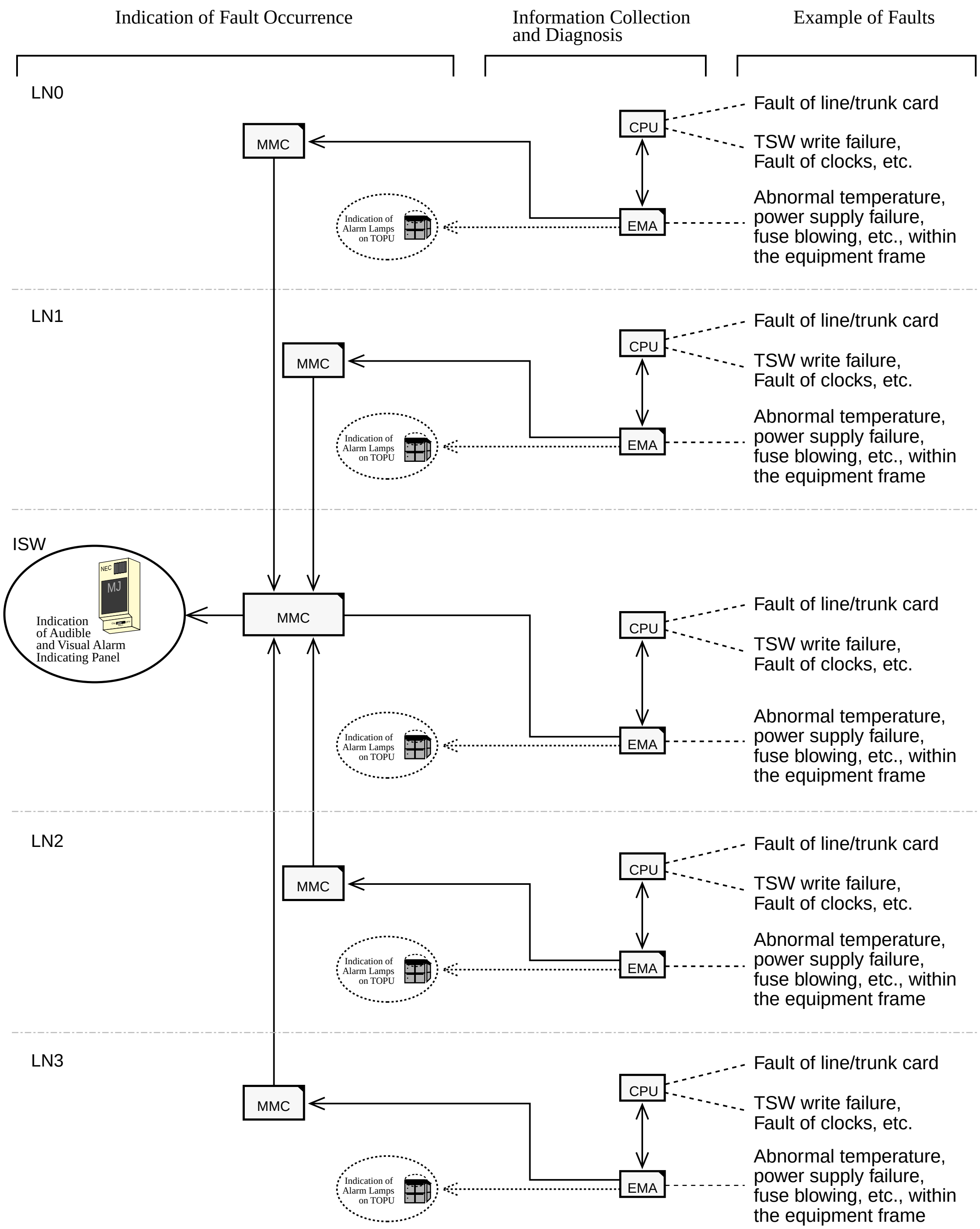
Figure 2-19 System Message Example

2.6 Fault Detecting Function

The system finds a fault by its fault detecting circuit and the fault detecting program. Once a fault occurs, the system initiates a remedial action such as system changeover, make-busy setting, or restart processing by the automatic diagnosis function. This action reduces the influence of the fault so that system servicing may be minimized. The result of the process taken and the fault situation are indicated for equipment concerned.

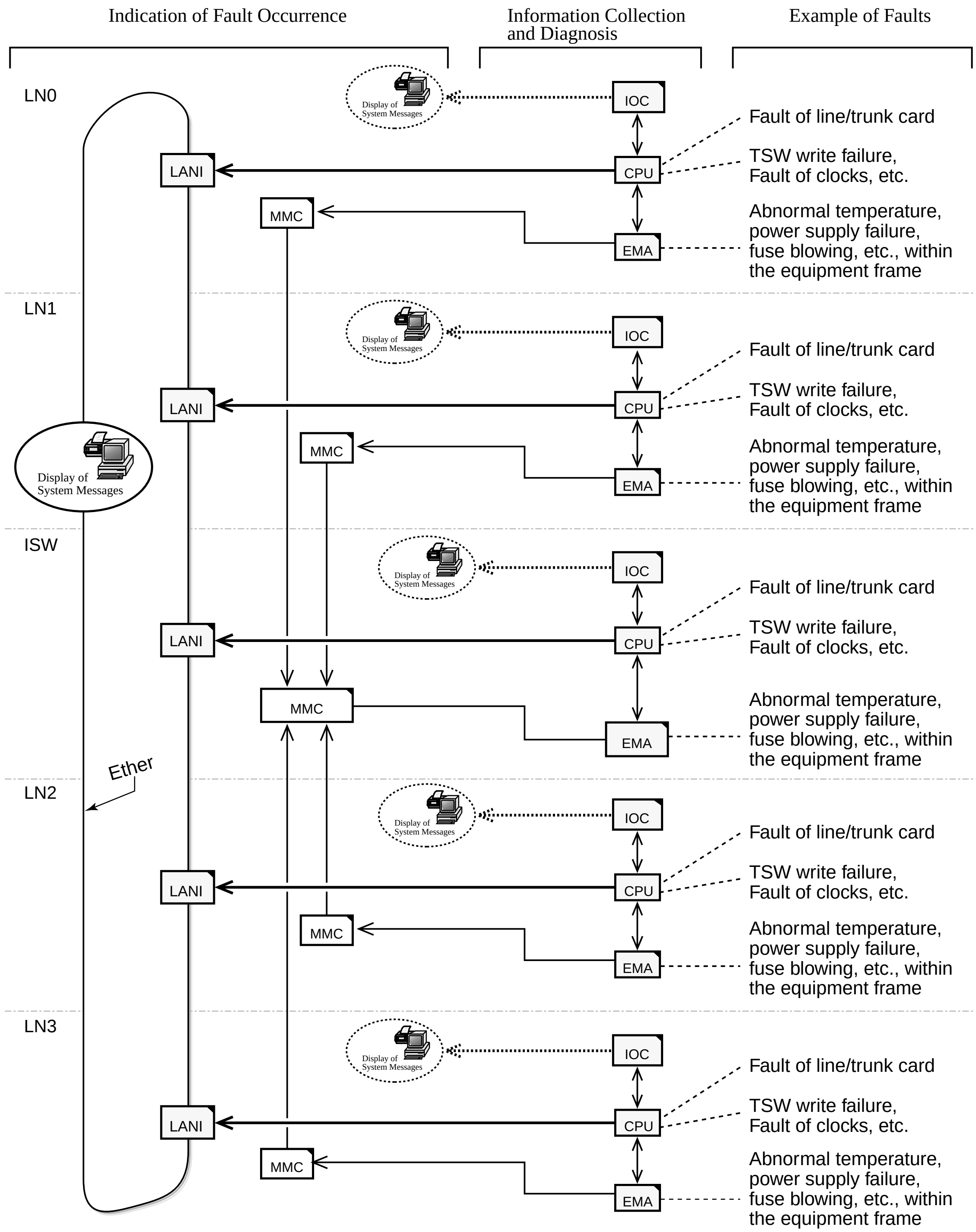
Among the faults, those related to speech path (noise, one-way speech, speech inability, etc.) are not detectable. Since these fault reports are to be obtained from a station or operator, periodic trunk tests must be performed without failure to detect the faults related to speech path.

Figure 2-20 and Figure 2-21 shows an outline of fault detection, and Figure 2-23 shows a block diagram of fault detection.



Note: *Alarm Indicating Panel indicates the fault information on both ISW and other Local Nodes (fault notification on a system basis). Meanwhile, alarm lamps on the TOPU for ISW and Local Nodes (indicated in dotted lines above) provide the fault indication only related to the belonging node. For more details, refer to CHAPTER 6.*

Figure 2-20 Fault Detection General Diagram (via Alarm Lamps on TOPU)



- Symbols -

EMA: PH-PC40 MMC: PH-M22 LANI: PZ-PC19 IOC: PH-IO24

Note: *In addition to the connection to a port of IOC (PH-IO24) circuit card, a MAT can be connected also to the Ethernet via LAN Interfaces (PZ-PC19: PCI Slot 01 of each CPR).*

Figure 2-21 Fault Detection Block Diagram (via Display of System Messages)

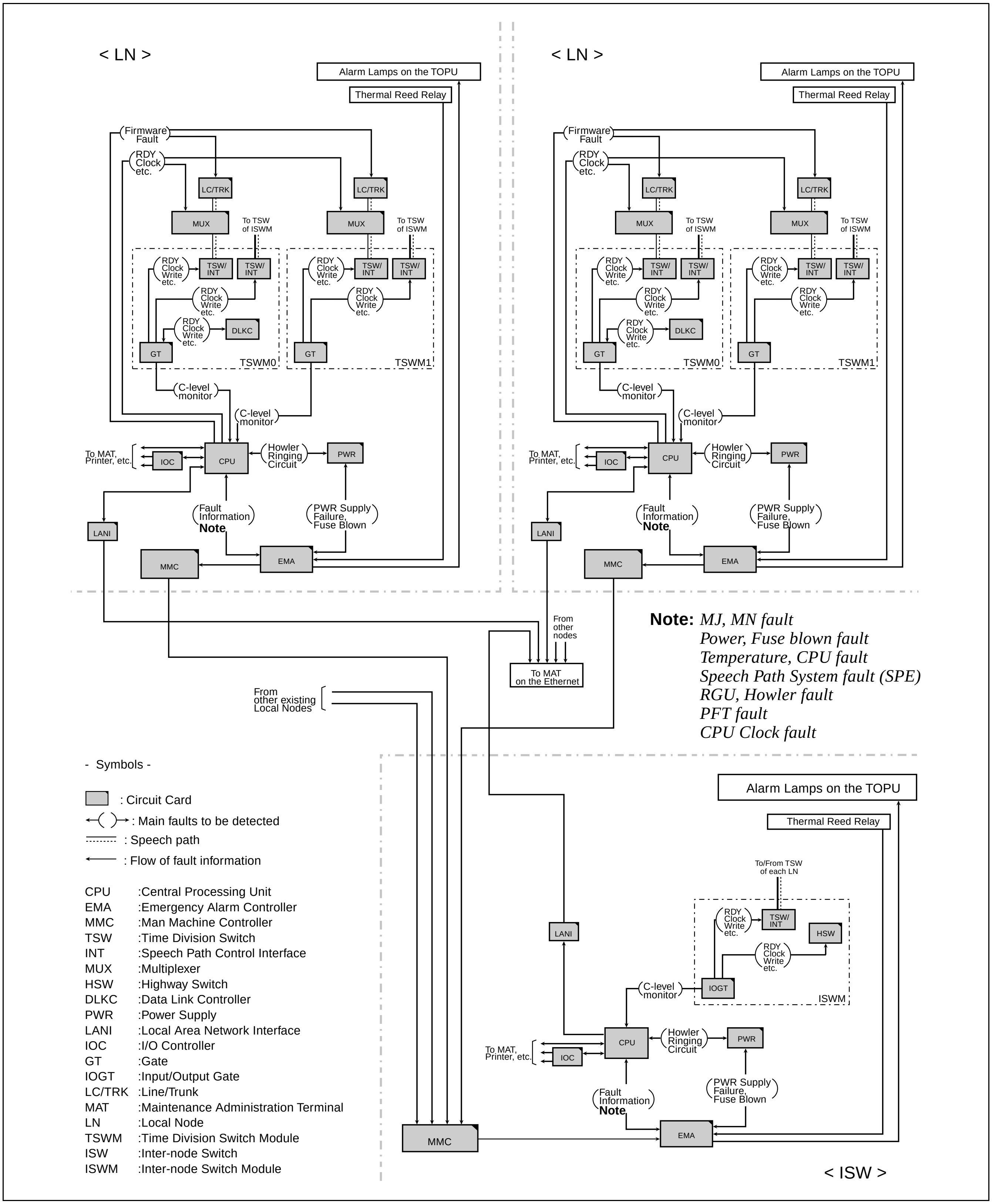


Figure 2-22 Fault Detection Block Diagram

(a) Main Faults

Faults that may occur in the system can be generally categorized into Processor System Fault, Speech Path System Fault, Line/Trunk Fault, etc.

- Processor System Fault

  The CPU alarm detecting circuit continuously monitors whether the CPU is working normally. If a fault is detected, the CPU calls up the diagnostic program, which identifies the cause of the fault and determines whether the fault is temporary or permanent. When the fault affects system operations, Active/Standby status of the CPU is changed over (provided that the system has dual configuration).

- Bus System Fault

  The CPU transfers line/trunk card control information to the associated peripheral circuits via IO Bus. When a parity error is detected in the transfer data or when the required information cannot be transferred from a circuit card, the CPU identifies the cause of the fault, changes over the CPU so that system operation is not affected, and executes restart processing.

- Speech Path Fault

  The CPU monitors the operating status of the TSW card, the occurrence of errors in writing data to the switch memory, and the basic clocks supplied to the speech path. Upon detecting a fault, the CPU identifies the cause of the fault, determines whether the fault is temporary or permanent, and executes required processing such as changeover of the TSW card.

- Others

  The alarm detecting circuit on the EMA card continuously monitors the occurrence of faults in the PWR supply cards, such as abnormal temperatures within the equipment frame, and lights the alarm lamp on the TOPU when a fault is detected.

(b) Lamp Indications on the TOPU

When a fault occurs, the corresponding lamp on the TOPU indicates the location of the fault. For the meaning of each lamp indication, refer to Chapter 6.

2.7 Range of Faults Specification

(1) Upon receiving a fault report from a station user or an operator, the technician can assume a faulty card exists if the range to be affected by the fault can be determined. For the detailed procedure, refer to Chapter 5. Use the following actions to check the MDF:

(a) Check the LENS of the reporter (Station or ATTCON/DESKCON).

(b) Check other circuits of the circuit card in which the reporter (station lineor ATTCON/DESKCON) is located.

(c) Check the other groups (other circuit cards mounted in the same module) in the module in which the reporter is located.

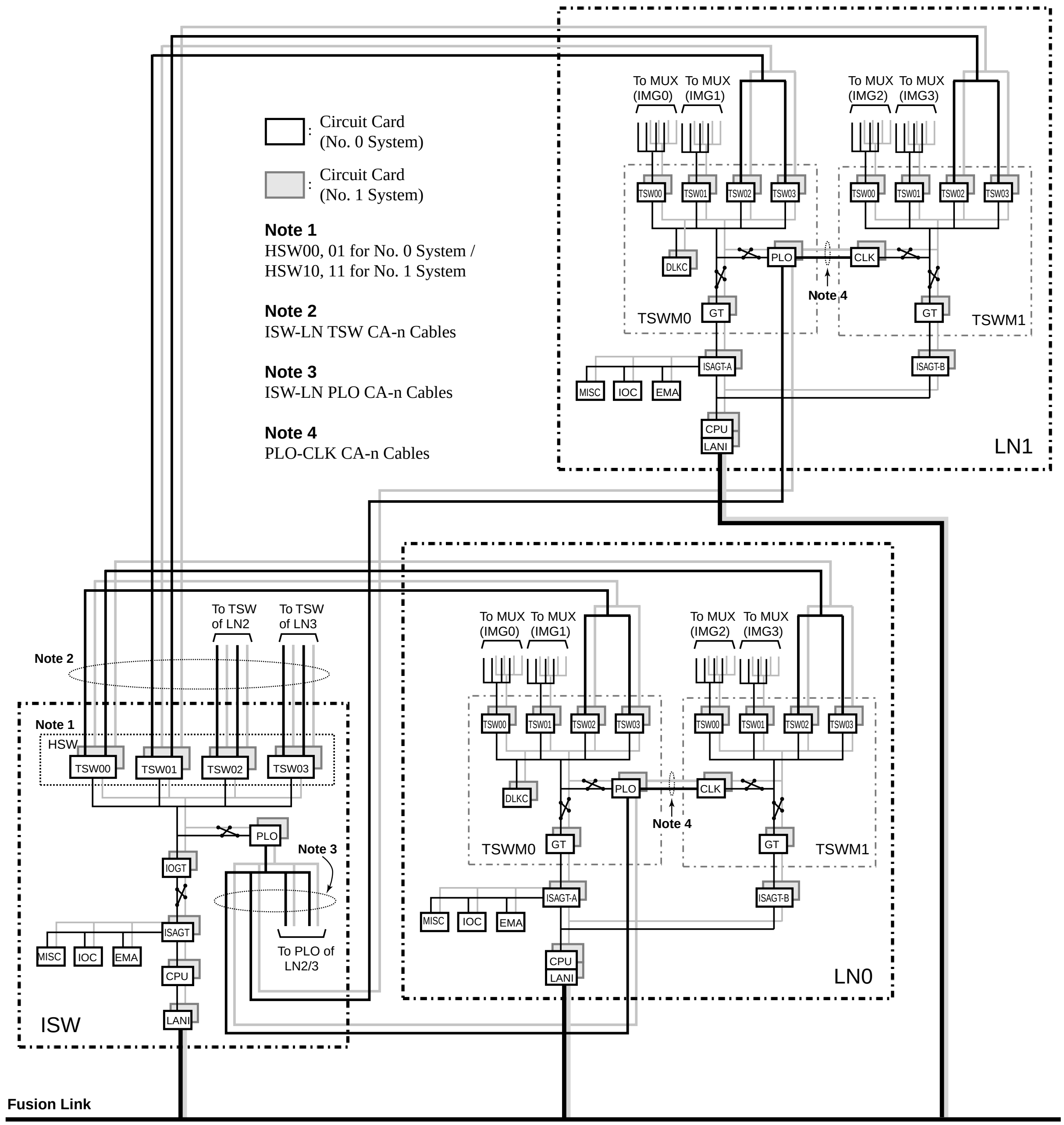
(d) Check lines in each of the other modules on the basis of plural lines.

(2) If the fault cannot be detected by the system (a fault related to the speech path such as noise during speech, one-way speech, speech inability), the range of (a) through (d) (itemized above) should be limited.

(3) When a major fault is detected in the dual systems, the CPU or TSW system automatically changes over if the fault range is (c) and (d). In this case, the whole module involved is placed into make-busy status even if the fault is partial, and the station lines currently operating normally become faulty status. Diagnose the fault from the content of the system message displayed and repair the fault as required.

(4) When limiting the range of faults, consider the system circuitry that consists of the control (see Figure 2-24 and Figure 2-25, where CPU 0 is active) and speech path systems (see Figure 2-26).

(5) As seen from the block diagrams in Figure 2-24 through Figure 2-27, if a fault occurs within the common portions to be controlled, all other associated portions are affected by that fault occurrence. If the range of faults is outside PIM fault, CPU/TSW system changeover is executed (only when the fault is detectable by the system).



< ISW (Inter-node Switch) >

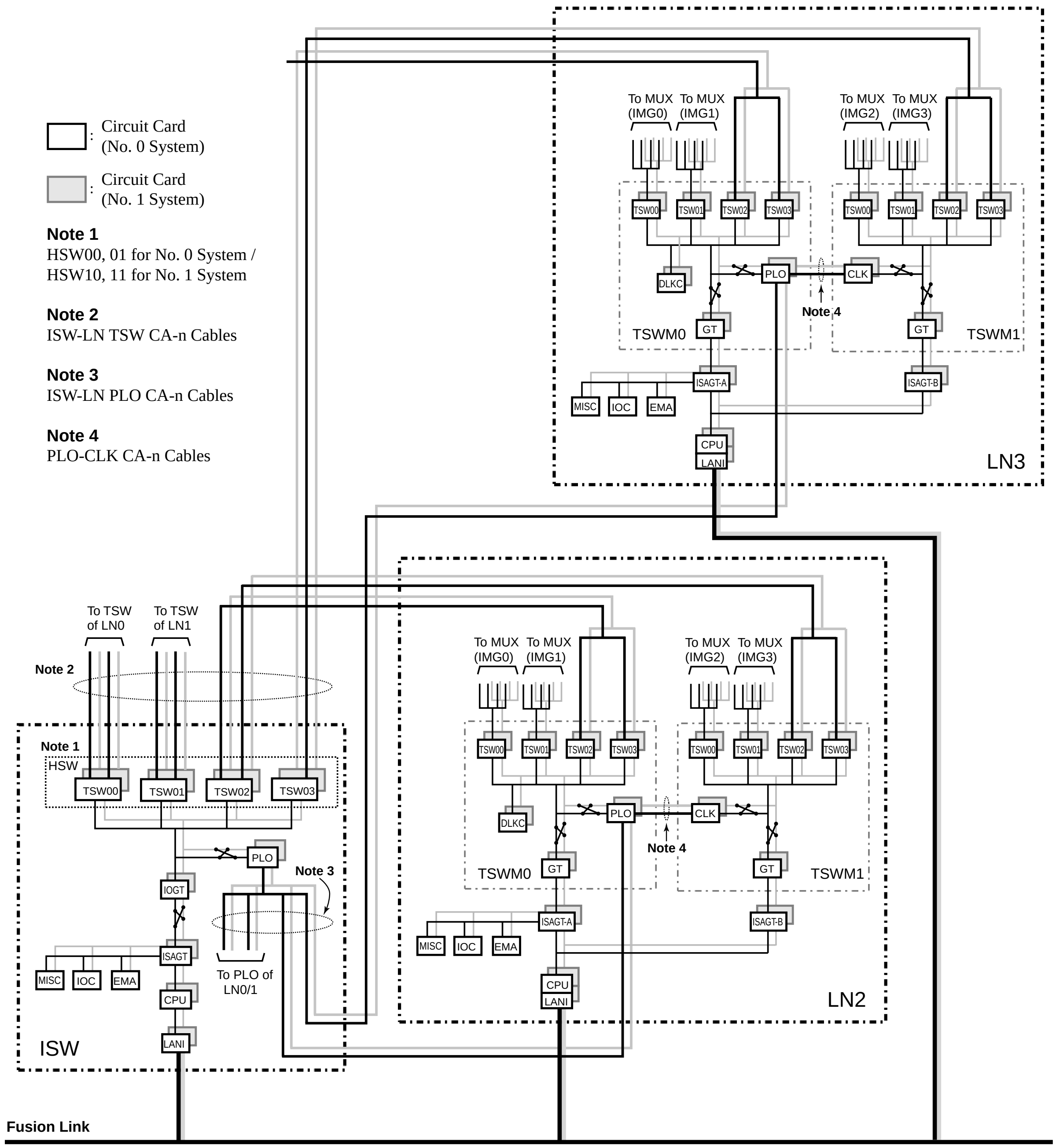
ISAGT: PZ-GT13	LANI: PZ-PC19	IOGT: PH-GT10	TSW: PU-SW00
HSW: PU-SW01	PLO: PH-CK16/17-A	EMA: PH-PC40	IOC: PH-IO24

< LN (Local Node) >

ISAGT-A: PZ-GT13	ISAGT-B: PZ-GT20	LANI: PZ-PC19	GT: PH-GT09	TSW: PH-SW12	MUX: PH-PC36
DLKC: PH-PC20	PLO: PH-CK16-A	CLK: PH-CK18	EMA: PH-PC40	IOC: PH-IO24	

Note: *For details on each equipment's switching network, see Chapter 6, System Control Procedures.*

Figure 2-23 General System Block Diagram (1/2)



< ISW (Inter-node Switch) >

ISAGT: PZ-GT13	LANI: PZ-PC19	IOGT: PH-GT10	TSW: PU-SW00
HSW: PU-SW01	PLO: PH-CK16/17-A	EMA: PH-PC40	IOC: PH-IO24

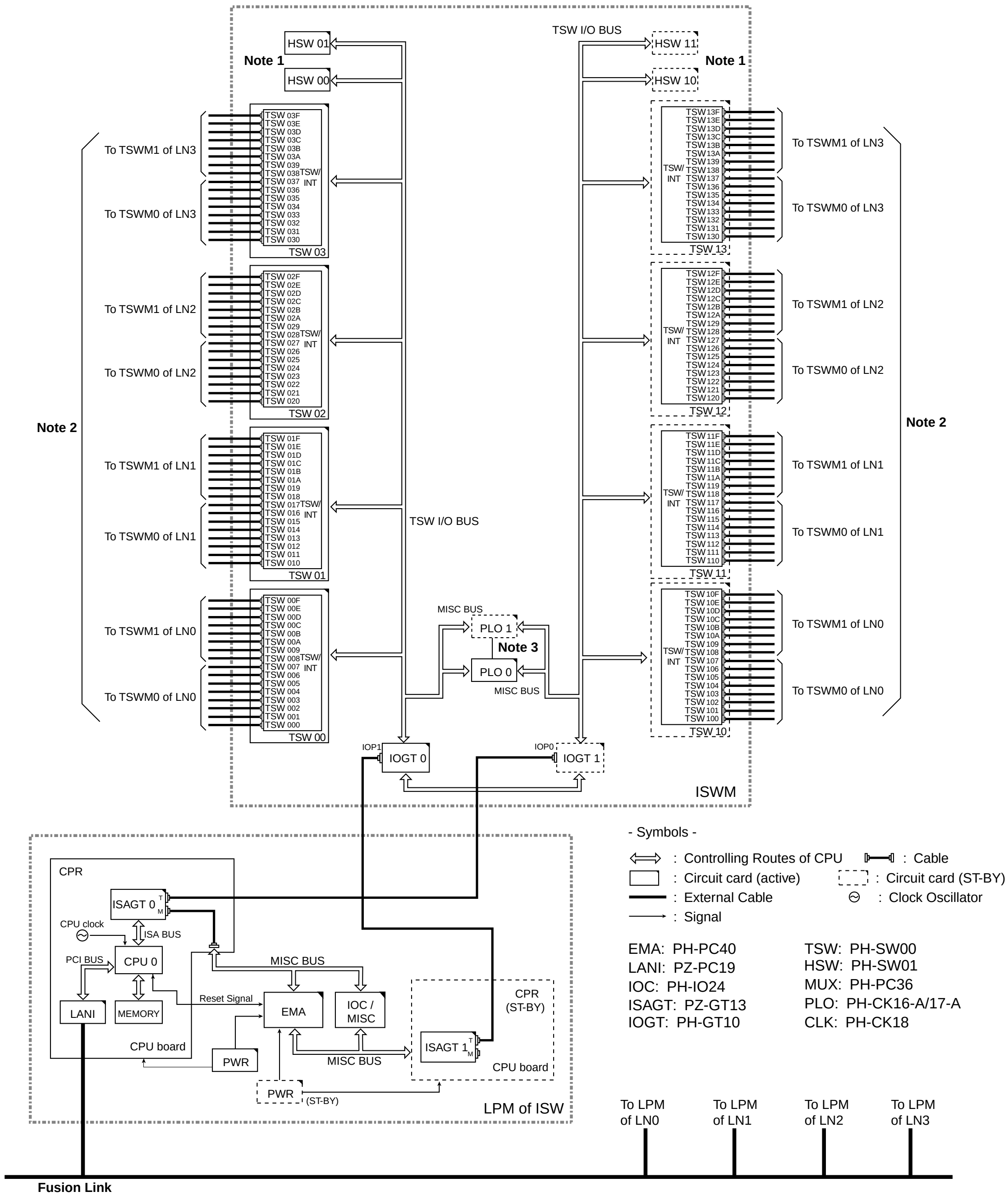
< LN (Local Node) >

ISAGT-A: PZ-GT13	ISAGT-B: PZ-GT20	LANI: PZ-PC19	GT: PH-GT09	TSW: PH-SW12	MUX: PH-PC36
DLKC: PH-PC20	PLO: PH-CK16-A	CLK: PH-CK18	EMA: PH-PC40	IOC: PH-IO24	

Note: *For details on each equipment's switching network, see Chapter 6, System Control Procedures.*

Figure 2-23 General Block Diagram of the Whole System (2/2)

This figure shows a block diagram of the CPU controlling block in ISW, where CPU 0 is active.



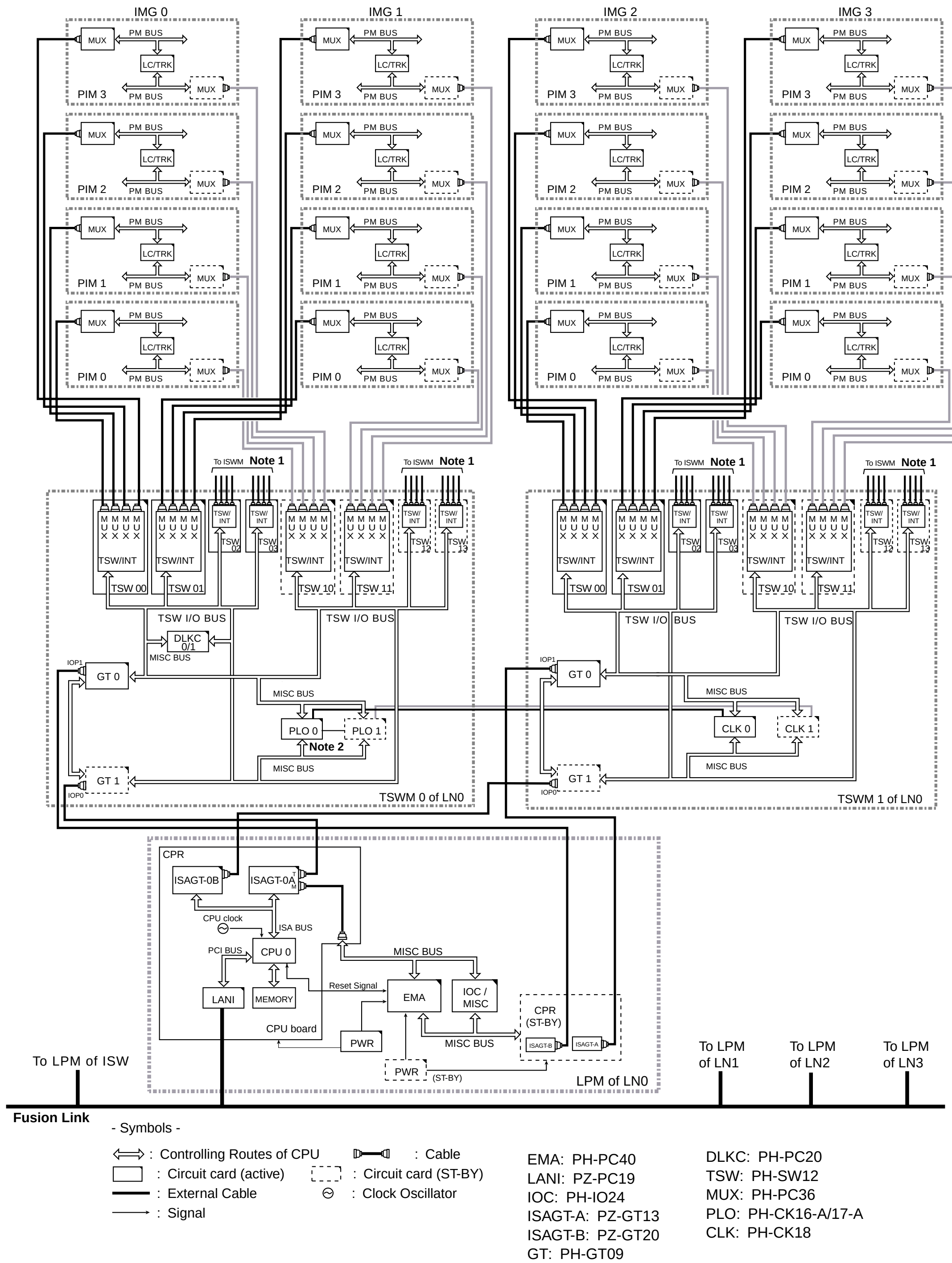
Note 1: *The two HSW cards here provide the space division switching for a maximum of 16 PCM highways from/to the TSW (PU-SW00) cards in ISWM. For more details, refer to NEAX2400 IPX IPX-U "Circuit Card Manual".*

Note 2: *See details in Figure 2-26, Speech Path Block Diagram.*

Note 3: *Multiple connection is provided on the backboard side between the PLOs here. For more details, refer to the "Circuit Card Manual".*

Figure 2-24 CPU Controlling Block Diagram (ISW)

This figure shows a block diagram of the CPU controlling block in LN0, where CPU 0 is active.



Note 1: *See details in Figure 2-26, Speech Path Block Diagram.*

Note 2: *Multiple connection is provided on the backboard side between the PLOs here. For more details, refer to the "Circuit Card Manual."*

Figure 2-25 CPU Controlling Block Diagram (LN)

This figure shows a block diagram of speech path.

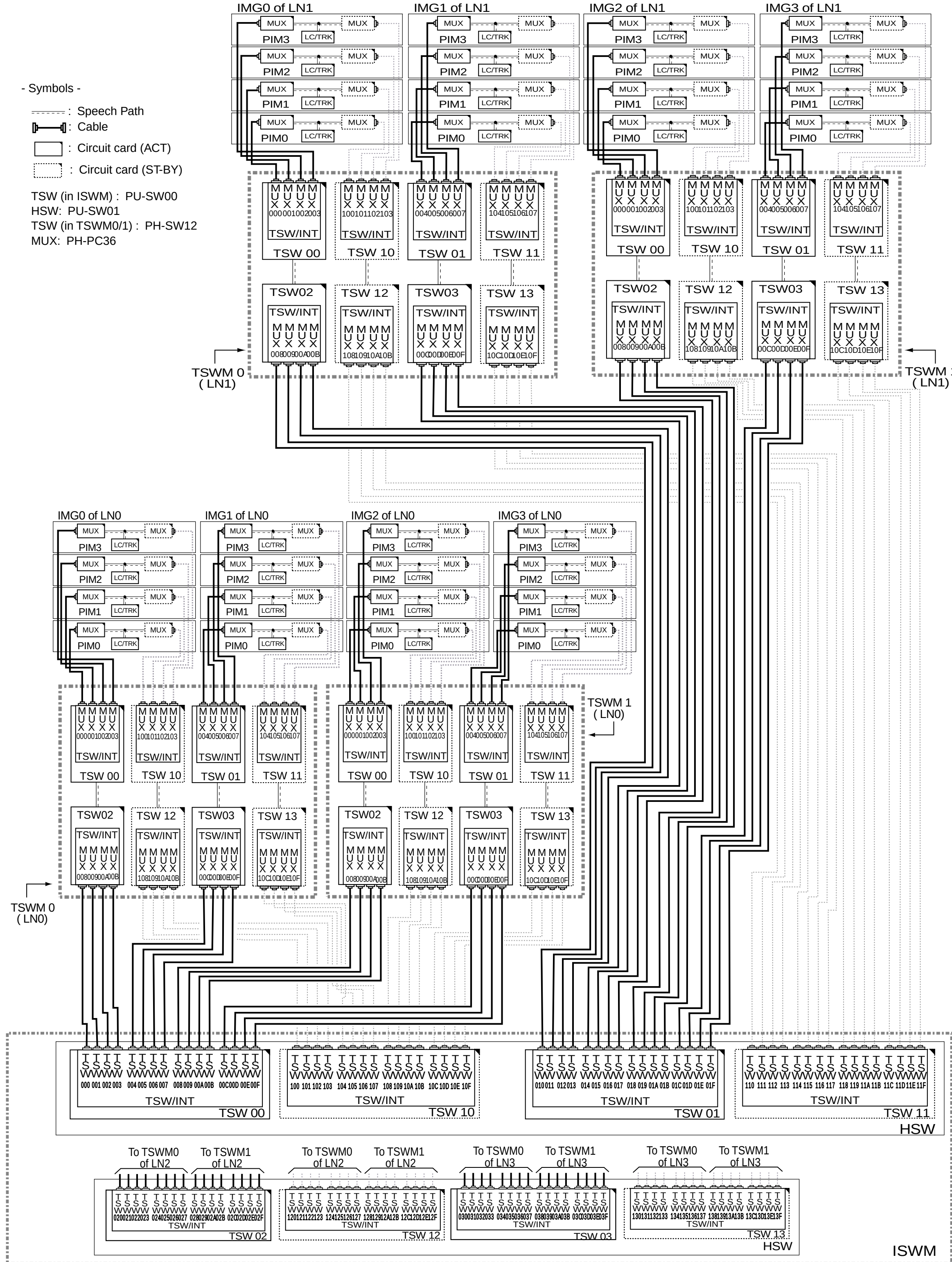


Figure 2-26 Speech Path Block Diagram (1/2)

This figure shows a block diagram of speech path.

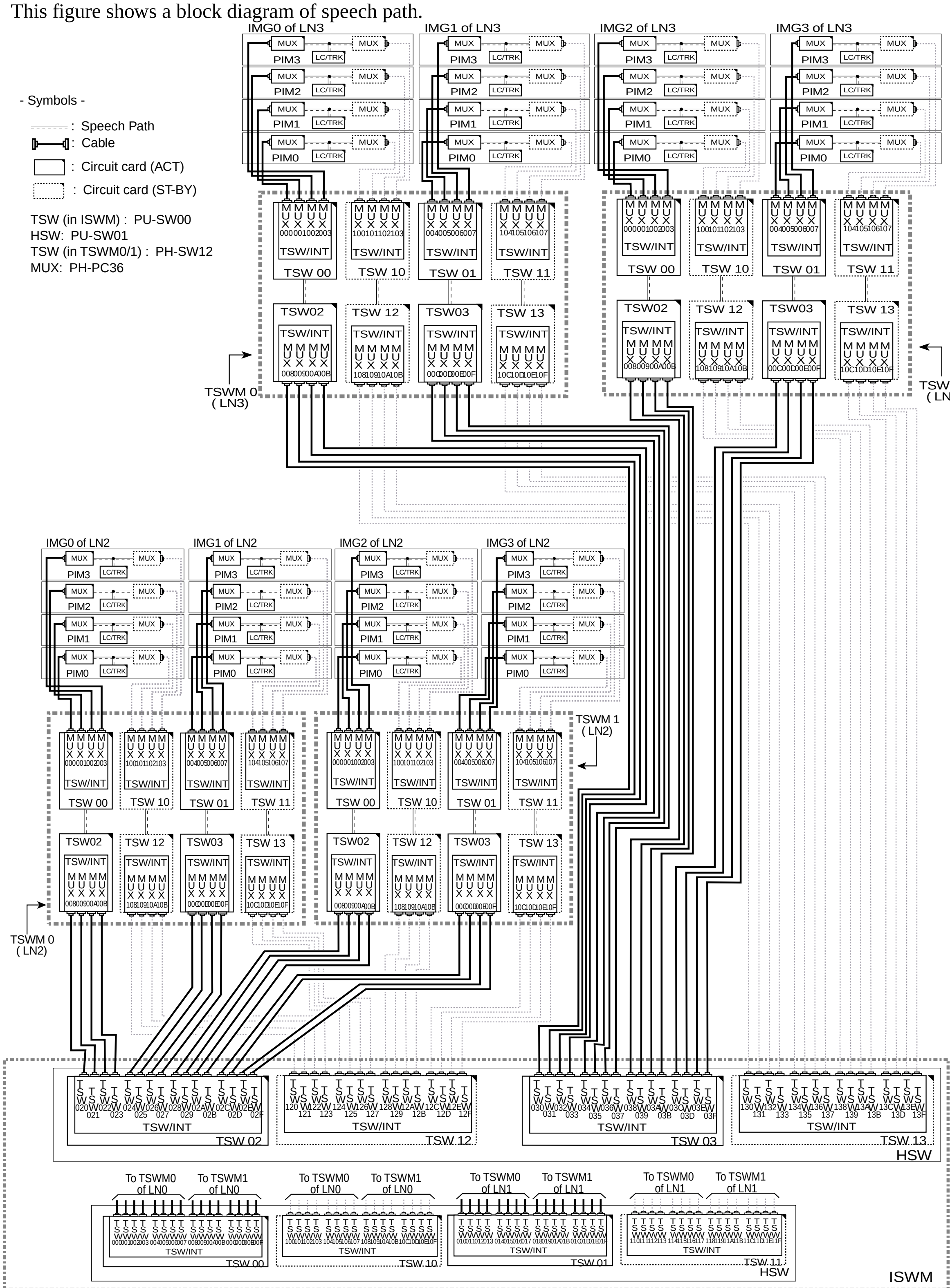


Figure 2-26 Speech Path Block Diagram (2/2)

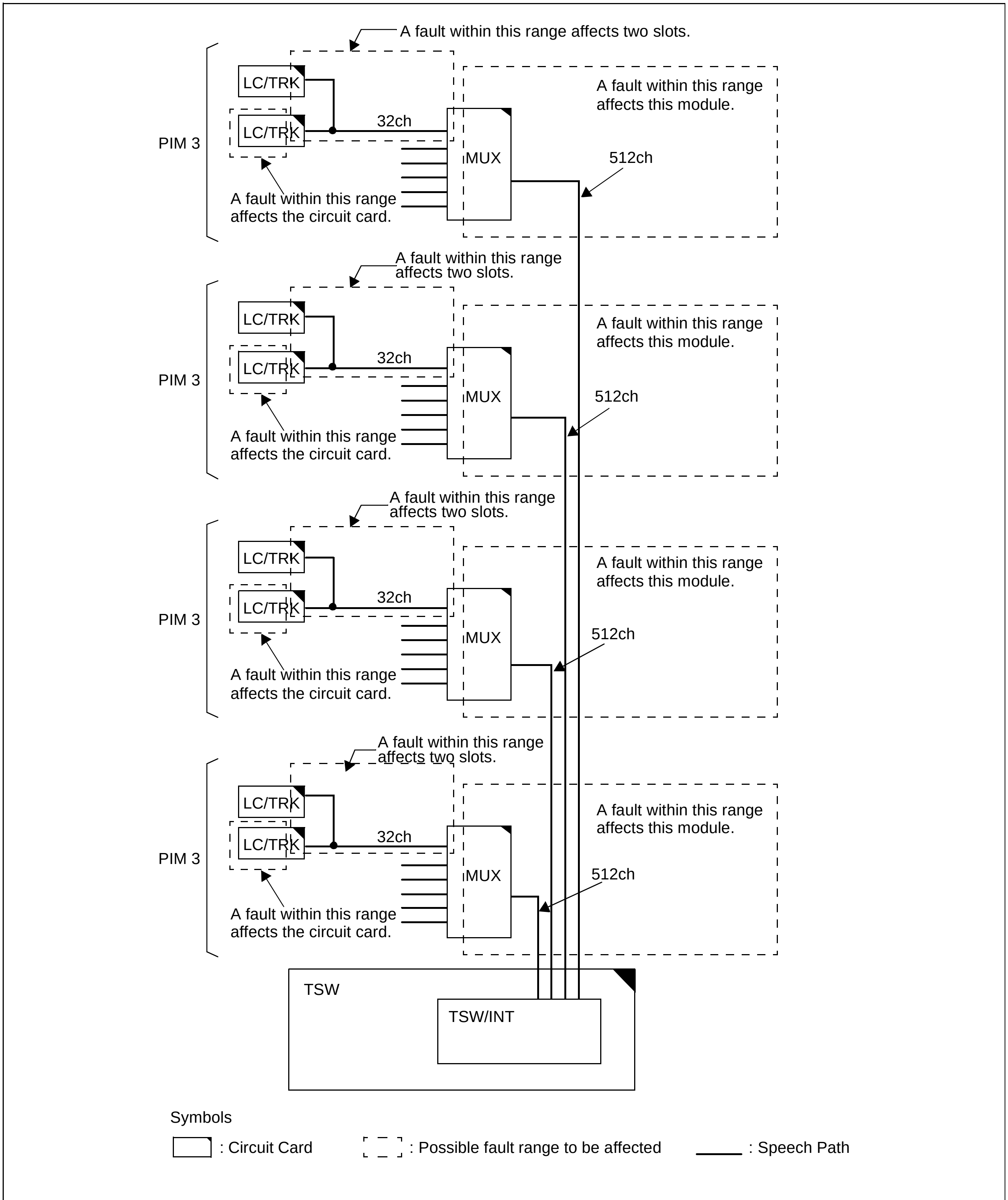


Figure 2-27 Speech Path Range of Fault

2.8 Explanation of Terms

- C-Level Infinite Loop

  The program repeatedly executes specific routines due to a fault of the main memory, data destruction, etc. The program is not able to be processed normally. This faulty condition is referred to as Program Infinite Loop. C-Level infinite loop is a state where a clock-level program, which runs under clock interrupt disable state, is in an infinite loop status.

- B-Level Infinite Loop

  This is a state where a program infinite loop has occurred during a connection processing and the connection for the next call is not able to be processed.

- PM (Port Microprocessor)

  Each line/trunk card mounted in the PIM is equipped with a processor called Port Microprocessor (PM), which continuously supervises the lines/trunks.

- Ready Error

  For acknowledging the connection between the CPU and a circuit card, an interface signal called Ready Signal is used. When the CPU has accessed a specific circuit card and the normality of the connection is acknowledged, the Ready Signal is returned to the CPU within 6 µs. If the Ready signal is not returned to the CPU within 6 µs after access, the situation is referred to as Ready Error.

- Parity Error

  For confirming the normality of data transfer between the CPU and the circuit card under the control of the CPU, parity check is made. When an error is detected in a parity check, it is referred to as Parity Error. Parity check means to confirm the normality of data by adding an error detecting parity bit to a set of data to be transferred.

  When a set of data is transferred, a parity bit is added to the data so that the data has an even-number of “1” bits (it is referred to as Even Parity). When there is an odd-number of “1” bits in the received one set of data, it is detected as an error.

- Monitor Restart

  Monitor restart processing suspends current processings in progress without applying any hardware controlling, allowing the system to restart its operations from the monitor program.

  The system abandons only the processings of the calls being handled by the program, and maintains all the connections that have already been established.

- Circuit Card Front Initializing Restart

  The whole system is forcibly initialized. However, the initialization varies with the setting of the SENSE switch on the DSP of CPU (see Table 2-2).

Table 2-2 Kinds of Circuit Card Front Restart

SENSE (0~F)	KIND OF RESTART	REMARKS
1	DM Clear Restart	
2	DM Load Restart	When the system is in operation
5	OAI Memory Clear Restart	
C	OFF-line Restart	

- PM (Line/Trunk Card) Make-Busy Restart

  In this processing, the faulty PM (Line/Trunk Card) is isolated from the system and, at the same time, the calls associated with that faulty PM (Line/Trunk Card) are released. No calls related to the faulty PM (Line/Trunk Card) are processed and the system normally runs without the faulty PM (Line/Trunk Card).

- Data Copy Restart

  In a system of dual CPU configuration, the RAM memory (including the data memory) is copied from the ACT side CPU into the STBY side CPU, and ACT/STBY is changed over and monitor restart is executed.

  In the case of this restart processing, only the ACT side CPU and the STBY side CPU are changed over without any effect on the current connections. However, no call processings are executed while the restart processing is in progress (from copying until the end of the changeover).

3. HOW TO READ PRECAUTIONS, DIAGNOSTIC, AND FAULT REPAIR INFORMATION

3.1 Precaution about Diagnostic Procedure/Fault Repair Procedure

When performing diagnostic procedures/fault repair procedures, be aware of the following actions:

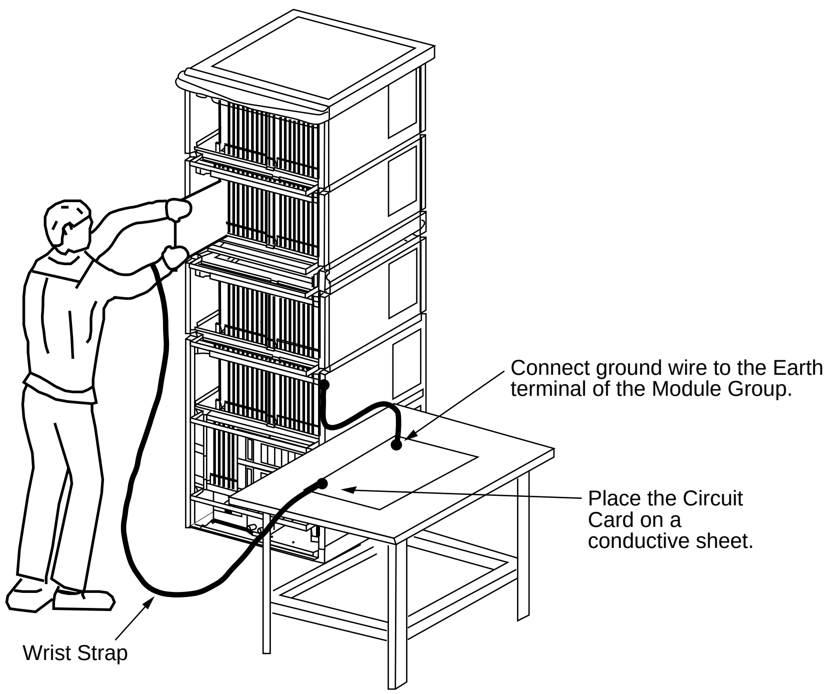
(1) When replacing a circuit card with a spare, handle the circuit card using the Field Service Kit.

(a) To protect the circuit card from static electricity, wear a wrist strap before handling the circuit card.

(b) Before extracting the circuit card from its mounting slot, set its MB switch to the UP side (ON).

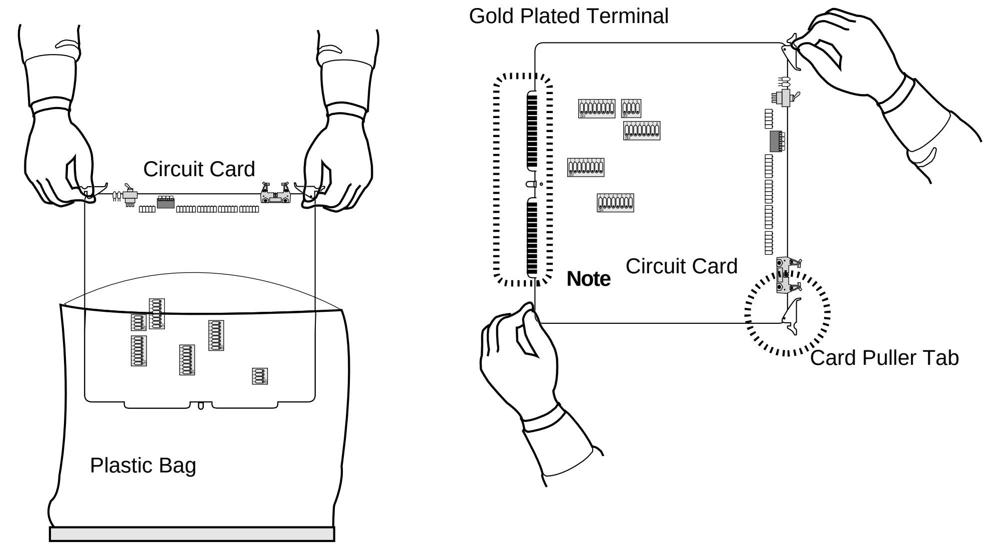
(2) **When holding a circuit card by hand, wear gloves and be careful not to touch mounted parts, gold-plated terminal, etc., on the circuit card**.

The 3M® Model 8012 Portable Field Service Kit, shown in Figure 2-28, is recommended as an effective countermeasure against static electricity.



Note: *3M® is a registered trademark of Minnesota Mining and Manufacturing, Inc.*

Figure 2-28 3M® Model 8012 Portable Field Service Kit



Note: *Do not touch the Gold PlatedTerminal with bare hands.*

Figure 2-29 How to Hold a Circuit Card

(3) When a circuit card appears to be faulty, check the following items before replacing it with a spare:

(a) Poor connector contact at the circuit card may be responsible for the fault. Repeat insertion and extraction of the circuit card a few times. Clean the connector portion, and recheck for proper operation.

(b) Check the lead wires of vertically-mounted parts (resistors, capacitors, etc.) to ensure they have not shorted each other or broken.

(c) Check the back side of the circuit card to see if there is any short-circuited soldered portion, or modified cross connection wires erroneously left unconnected.

(d) Check the ROMs to ensure proper seating in the IC socket. Figure 2-30 shows a leg that is bent and not set in the socket.

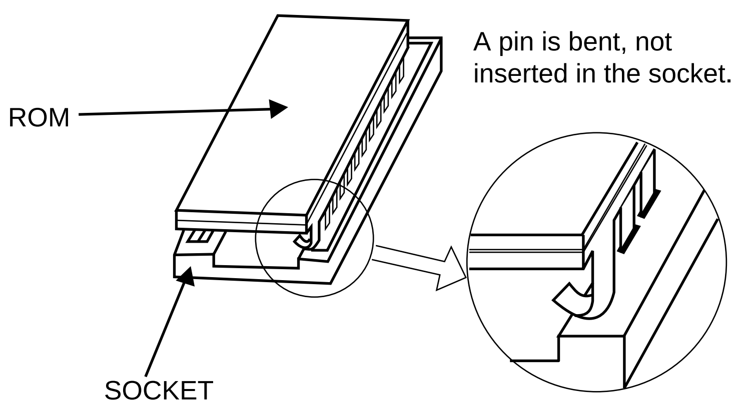


Figure 2-30 How to Set the ROM in IC Socket

(4) How to clean the connector portion (gold-plated terminal):

(a) Dip the gold-plated terminal portion in the cleaning fluid for 3 to 5 seconds (only PA-XX type circuit card), as shown in Figure 2-31.

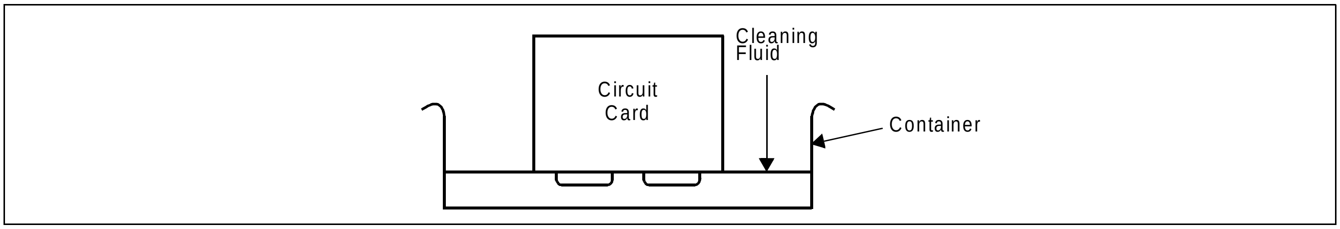


Figure 2-31 How to Clean the Connector Portion

Note 1: *Some of the parts are subject to damage if they come in contact with the cleansing liquid. Be careful to allow only the connector portion (gold-plated terminal) to contact the cleaning liquid.*

Note 2: *Be sure to use fresh cleaning fluid (FREON or isopropyl alcohol).*

(b) Using a soft cotton cloth, wipe both sides of the connector portion (gold-plated terminal) clean (only PA-XX type circuit card), as shown in Figure 2-32.

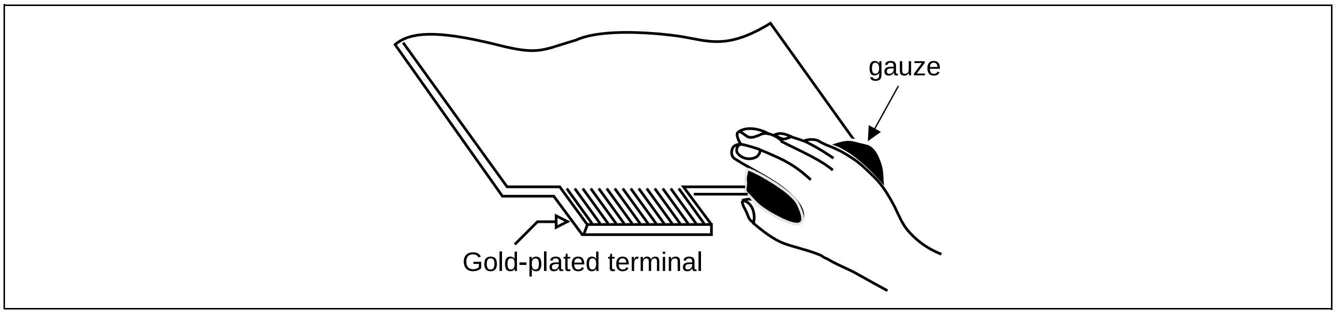


Figure 2-32 How to Clean Gold-Plated Terminal

Note 1: *Use cloth (gauze, etc.) to clean.*

Note 2: *After wiping, be careful not to leave lint on the surface of the circuit card.*

(5) When a check on the flat cable or LT cable is directed in the tree, check the following items:

(a) Make a visual check to see if the connector is properly connected.

(b) Poor connector contact may be responsible for the fault. Repeat connection and disconnection a few times, and check again to see if the connector is properly connected.

(c) Perform continuity test on the flat cable.

(6) When replacing the circuit card is directed in the tree, replace the circuit card with a spare as per Chapter 4.

(7) When multiple circuit cards appear to be faulty, before replacing them with spares, remount them (one at a time) into their slots, to determine which cards should be replaced.

The following is an example where the fault was recovered after the replacement of circuit cards:

START

- Set the 1st circuit card back into its mounting slot
  - If the fault recurs: Replace the circuit card.
- Set the 2nd circuit card back into its mounting slot
  - If the fault recurs: Replace the circuit card.
- Set the 3rd circuit card back into its mounting slot
  - If the fault recurs: Replace the circuit card.
- If a circuit card is found to be faulty, send the faulty circuit card for repair.
- The fault may be a temporary one, or due to poor contact of the circuit card. Observe the situation for a while.

END

(8) When a fault recovery is completed, use the RALM/RALMN command to clear all the alarm indications and registered system messages. If required, restore temporary cross connections and transient data for testing to the original ones.

3.2 How to Follow Diagnostic Procedure/Fault Repair Procedure

(a) Diagnostic Work

A fault diagnostic procedure by system message is explained in the "TREE" format on an individual system message basis.

- Proceed with judgment as to whether the fault status coincides with the indicated status, following the sequence beginning from START.
- How to proceed with the diagnosis work is explained in Figure 2-33.

STEP 1 Determine whether the fault coincides with the fault status (1) in Figure 2-33.

STEP 2 If the fault status does coincide, the fault is indicated by (2). Repair the fault by referring to the relevant section in Chapter 5. Otherwise, proceed to (3).

STEP 3 Perform the work indicated by (3). The result of the work (3) is broken down as indicated by (4).

STEP 4 Determine whether the result of work (3) coincides with the status indicated by (5). If so, the fault(s) is/are indicated either by (6) or by (7). If not, proceed to the next Step.

STEP 5 Perform the work indicated by (8), and if the result of the work is the same as the status indicated, the fault is indicated by (9). If the fault repair work indicated by (9) affects another normal line, recheck the work as indicated by (10).

(b) Fault Repair Procedure

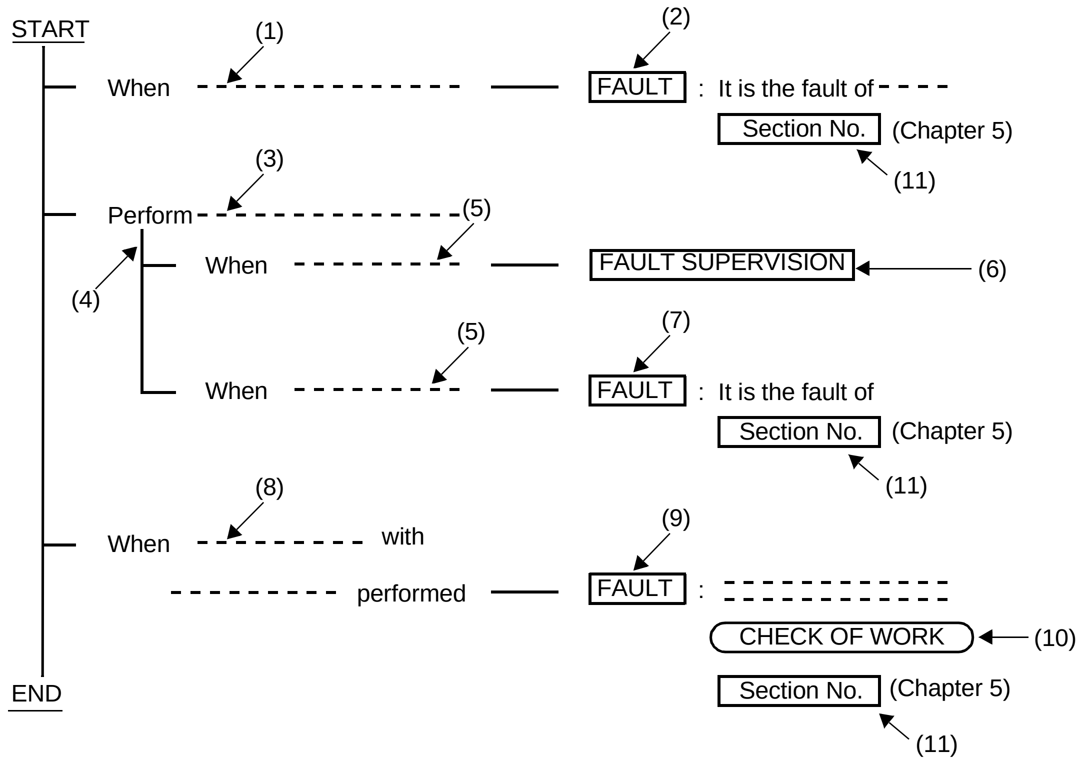
A fault repair procedure is explained by means of "TREE" format in Chapter 5. The following explains how to follow the "TREE" format and proceed with designated work. See Figure 2-34.

- Begin from START and proceed with the necessary repair work following the sequence.
- When a faulty circuit card (or circuit cards) is suspected, replace the faulty circuit card with a spare in accordance with the work procedure pertaining to that specific circuit card.

STEP 1 Replace the circuit card indicated by (A) with a spare and check it. Perform the detailed work as per (B). If the fault status is beyond repair, proceed to the next step.

STEP 2 If the range of the fault or the system configuration is as indicated by (C), perform a check as indicated by (D). If the fault status is beyond repair, proceed to the next step.

STEP 3 Replace the circuit card indicated by (E) with a spare and check it. The detailed procedure indicated by (G) varies with the system configuration indicated by (F).



Note:

(1):	*Judgment of fault status*
(2),(6),(7),(9):	*When the fault status coincides with the indication, the cause of the fault is indicated.*
(11):	*When repairing the fault, refer to the relevant section in Chapter 5.*
(3):	*Operating items for diagnosis*
(4):	*Branching of the result of the operation*
(5):	*Judgment of the status of the result of the operation*
(8):	*When operating method is unknown, refer to Chapter 6.*

Figure 2-33 Diagnostic Work Items and Symbols Example

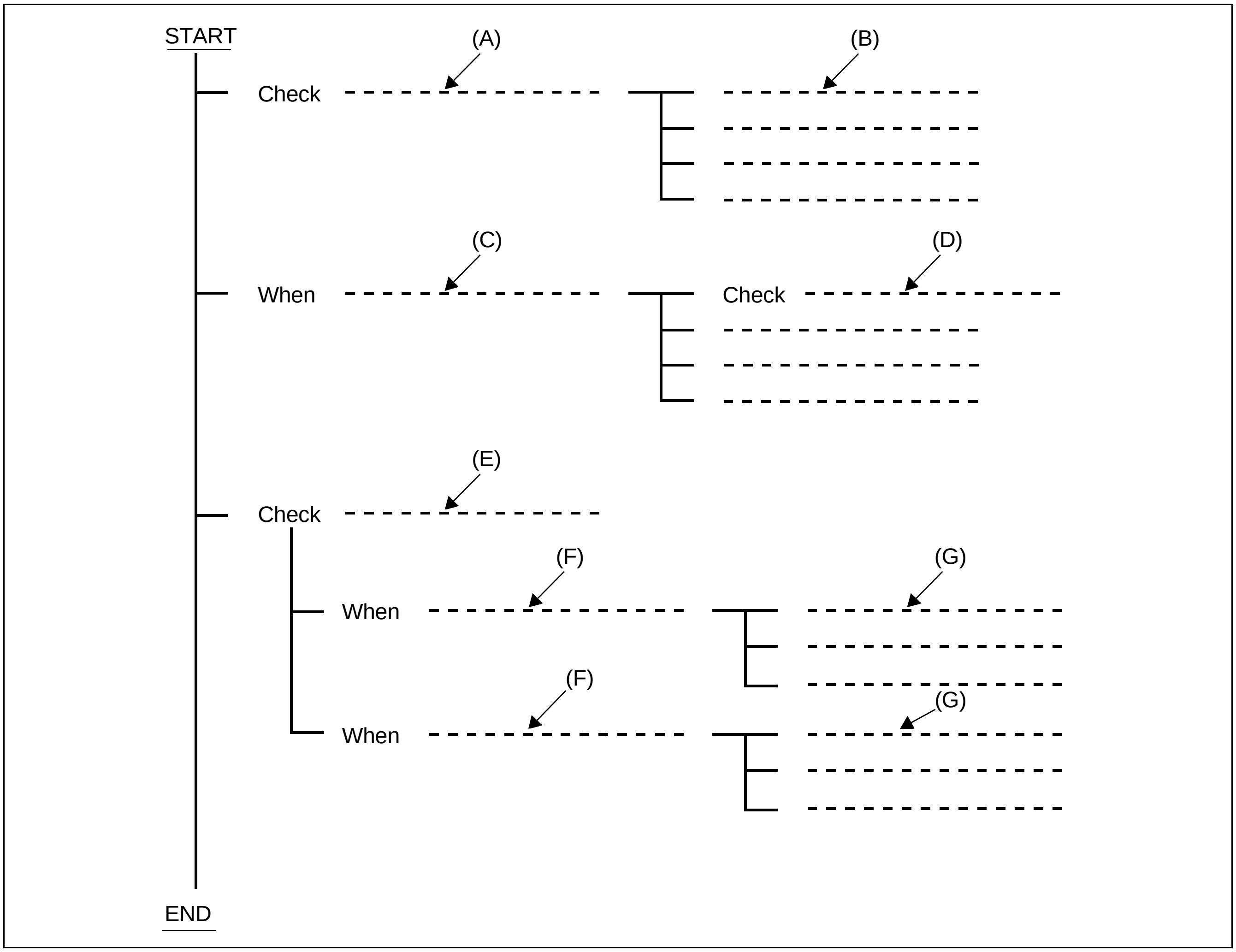


Figure 2-34 Recovery Procedure Example

4. REPORTING FAULT TO NEC

When the cause of a fault is uncertain, make note of the situation involved and report it to NEC. When forwarding faulty circuit cards to NEC, exercise caution to protect from static electricity.

4.1 Fault Reporting Method

The following three items must be included in the report without fail:

(1) Faulty situation (reports should be similar to “dial tone is not heard only on individual lines,” “incoming C.O. line calls are not able to be terminated only to a specific ATTCON/DESKCON,” etc.)

- Faulty phenomena

  On lifting the handset, dial tone is not heard but side tone is heard, etc.

- History of fault

  When did the fault occur? What kind of repair procedure has been executed? Does the fault still exist or not exist? etc.

- Range of fault

  Range of fault should be reported: Single line?, Specific trunk?, Specific circuit card?, Specific PIM?, Whole system?, etc.

(2) Circuit Card Version Number, Program Name, and Program Package Version Number of the circuit card. Figure 2-35 shows an example of PA-16LCBE circuit card.

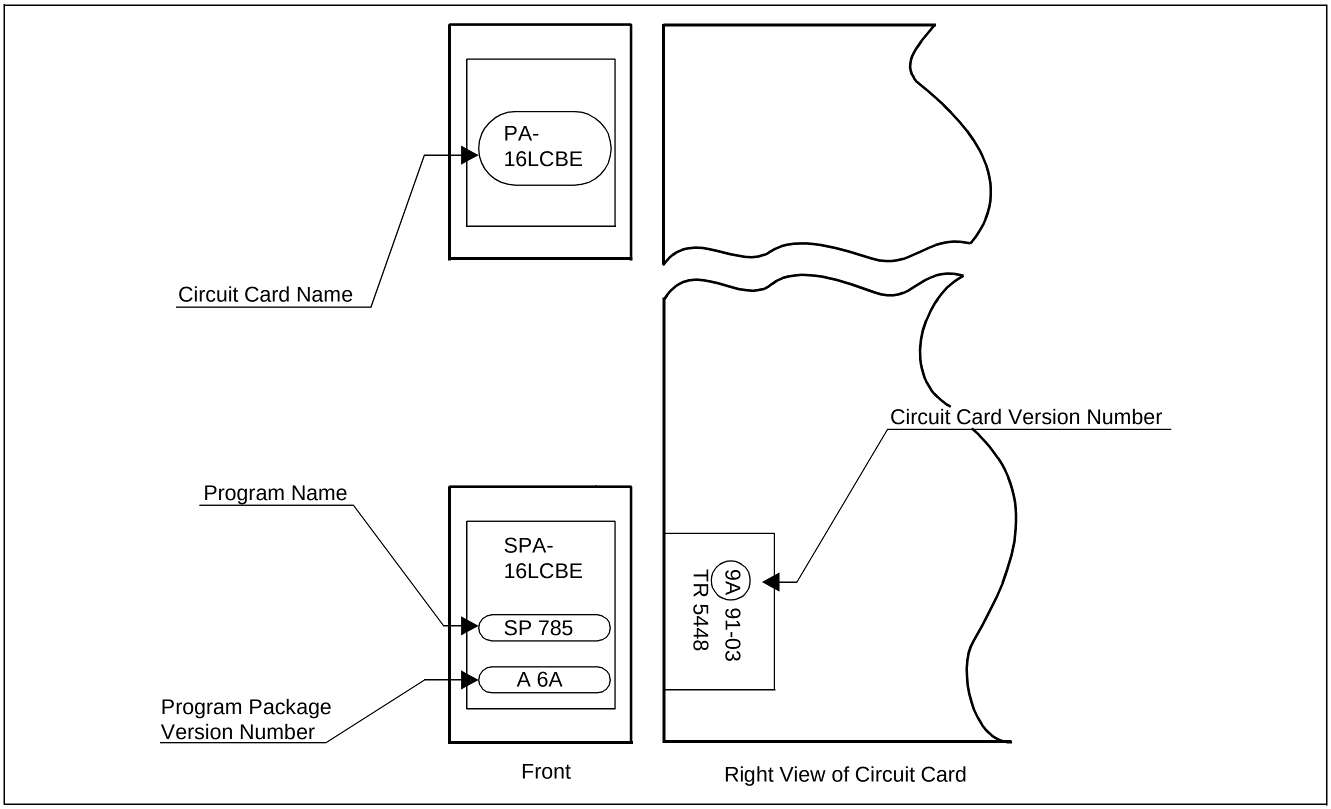


Figure 2-35 Circuit Card Version Number, Program Name, and Program Package Version Number

4.2 Forwarding Faulty Circuit Card Method

Send the faulty circuit card to the NEC agent to whom a request is made for a replacement card. Adhere to the following procedure for sending the faulty circuit card:

(1) Insert connector covers onto the circuit card terminals.

(2) Put the circuit card into a static electricity protective bag.

(3) Pack the circuit card with air cap, etc.

(4) Set the circuit card into the cardboard box for that specific circuit card.

(5) If multiple circuit cards are to be sent, set each circuit card in a separate cardboard box and stuff the box with shock absorbing material.

Note: *When sending a faulty circuit card, put it in a static guard bag. To prevent damage, NEVER place the circuit card in a vinyl bag or ship it without a protective bag.*

CHAPTER 3 SYSTEM MESSAGES

This chapter explains how to read and analyze system messages displayed during routine diagnosis, system operation status controlling, and occurrence of a fault within the system. Table 3-1 provides a list of system messages.

Table 3-1 List of System Messages

MESSAGE NO.	SYSTEM MESSAGE	PAGE
0-C	Reset Interrupt	56
0-D	CPU Clock Down	58
0-E	C-Level Infinite Loop	59
0-F	Memory Failure	61
0-G	B-Level Infinite Loop (Permanent)	63
0-H	B-Level Infinite Loop (Temporary)	64
0-I	Mate CPU Failure	65
0-J	Abnormal Interrupt	66
1-A	Both TSW Failure (Permanent)	67
1-B	TSW Failure (Permanent)	68
1-C	Both TSW Write Failure	69
1-D	TSW Write Failure	70
1-E	Both TSW Clock Failure	71
1-F	TSW Clock Failure	72
1-G	Both HSW Failure	73
1-H	HSW Failure	74
1-I	Both HSW Write Failure	75
1-J	HSW Write Failure	76
1-K	Both HSW CLK Failure	77
1-L	HSW CLK Failure	79
1-O	Both PLO Failure	81
1-P	PLO Failure	83
1-S	Module Group Down Failure	85
1-T	TSW ACT Change Report	86
1-U	DLKC Data Transfer Failure (Permanent)	88
1-V	DLKC Data Transfer Failure (Temporary)	89
1-W	PLO Restore	90
1-X	LN Æ ISW CLK/FH Failure	91

Table 3-1 List of System Messages (Continued)

MESSAGE NO.	SYSTEM MESSAGE	PAGE
1-Y	LN Æ ISW CLK/FH Failure (Both)	93
1-Z	LN Æ ISW CLK/FH Release	95
2-T	AP-INT Data Transfer Failure (Permanent) **Note 1**	-
2-U	AP-INT Data Transfer Failure (Temporary) **Note 1**	-
2-V	IP Data Transfer Failure (Permanent) **Note 1**	-
2-W	IP Data Transfer Failure (Temporary) **Note 1**	-
3-B	C-Level Infinite Loop (Permanent)	97
3-C	C-Level Infinite Loop (Temporary)	98
3-D	Lock-Up Failure (Permanent)	99
3-E	Lock-Up Failure (Temporary)	100
3-F	-48V Over Current	101
3-G	Ground Failure	102
3-H	Digital Line Warning	103
3-I	Digital Line Failure	104
3-J	Digital Line Restore	105
4-C	Both TSW Ready Failure	106
4-D	TSW Ready Failure	107
4-E	Both HSW Ready Failure	108
4-F	HSW Ready Failure	109
4-Q	DLKC Ready Failure	110
4-R	IO Ready Failure for UAP **Note 1**	-
4-S	MUX Ready Failure	111
4-T	Both MUX Ready Failure	112
4-U	PCI Card Failure	113
4-V	PCI Card Failure Recovered	114
6-A	System Failure	115
6-B	RGU and Howler Failure	116
6-C	Line Load Control Start	117
6-D	Line Load Control Stop	118
6-H	Bad Call Notification	119
6-I	STA-Test Connection Data	124
6-J	Emergency Call	127
6-L	Emergency Control Start	128

Table 3-1 List of System Messages (Continued)

Table 3-1 List of System Messages (Continued)

Table 3-1 List of System Messages (Continued)

MESSAGE NO.	SYSTEM MESSAGE	PAGE
23-P	Dch Back-Up Automatic Change Start/End	240
23-Q	Dch Back-Up Manual Change Start/End	242
23-R	ATM Interface Change Report **Note 2**	-
23-S	FCCH Failure **Note 1**	-
23-T	FCCH Failure Recovered **Note 1**	-
23-U	FCCH Status Notice **Note 1**	-
23-W	FCCH Advancing Start **Note 1**	-
23-X	FCCH Advancing End **Note 1**	-
23-Y	MUX Clock Failure	244
23-Z	Both MUX Clock Failure	245
25-J	ZT Operation Start **Note 3**	-
25-K	ZT Set Up NG **Note 3**	-
25-L	ZT Fault **Note 3**	-
25-M	ZT Fault Recovery **Note 3**	-
25-N	ZT Carrier Fault **Note 3**	-
26-N	MAT Log	246
26-R	Call Trace	247
26-V	LAN Interface Error Report	251
26-W	LAN Interface Release Report	255
27-C	ATM Interface Port MB Key ON **Note 2**	-
27-D	ATM Interface Port MB Key OFF **Note 2**	-
27-E	DLMX MBR Key Turn ON	257
27-F	DLMX MBR Key Turn OFF	258
27-G	DLMX ACT Change Report	259
33-A	MUX Clock Restore	260
33-B	SDT Alarm Warning	261
33-C	SDT Alarm Trouble	263
33-D	SDT Alarm Restore	266
33-E	SDT Interface Change Notify	267

Note 1: *Refer to "Fusion Network System Manual."*
Note 2: *Refer to the manual related to ATM.*
Note 3: *Refer to "Wireless System Manual."*
Note 4: *Refer to the manual related to OAI.*

0-C	Reset Interrupt			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the processor is reset due to a failure in the system.

```
1: XXXX XX00 XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③     ④
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Self-CPU Restart Information

b7	b6		b4	b3		b1	b0

b0: 0/1 = -/Monitor Restart
b1: 0/1 = -Phase 1 Restart **Note 1**
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart executed (for Dual-CPU system only)
b6: 0/1 = Program Load not executed/executed
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information (FF H: not mounted)

b7	b6		b4	b3		b1	b0

b0: 0/1 = -/Monitor Restart
b1: 0/1 = -Phase 1 Restart **Note 1**
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart executed (for Dual-CPU system only)
b6: 0/1 = Program Load not executed/executed
b7: 0/1 = ACT/STBY (active system indication after restart)

③ Related-call Release Result

b7							

b7: 0/1 = Call Release Processing after restart → “Normal End”/ “Abnormal End”

See Chapter 5 for repair procedure.

④ Data Load Result after restart processing

b7	b6	b5	b4	b3	b2	b1	b0

				b11		b9	b8

b0: 0/1 = Office Data Load → "Normal End"/"Abnormal End"
b1: 0/1 = Call Fowarding Data Load → "Normal End"/"Abnormal End"
b2: 0/1 = Individual Speed Calling data load → "Normal End"/"Abnormal End"
b3: 0/1 = RCF Data Load → "Normal End"/"Abnormal End"
b4: 0/1 = Name Display Data Load → "Normal End"/"Abnormal End"
b5: 0/1 = Network DM Load → "Normal End"/"Abnormal End"
b6: 0/1 = Local DM Load → "Normal End"/"Abnormal End"
b7: 0/1 = DM Load/Non Load
b8: 0/1 = User Assign Soft Key data load → "Normal End"/"Abnormal End"
b9: 0/1 = Number Sharing data load is "Normal End"/"Abnormal End" **Note 2**
b11: 0/1 = Call Block data load is "Normal End"/"Abnormal End"

Note 1: *Phase 1 Restart is executed when initializing the system without disrupting the following two-way connections that have already been established:*

- *Basic two-way connections (STN-STN, STN-TRK, TRK-TRK)*
- *Fixed connections*
- *Two-way connections established on a Fusion link*

For more details, see Chapter 6, Section 12.

Note 2: *The number sharing data load also affects the data load of Dual Station Calling Over-FCCS.*

0-D	CPU Clock Down			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a fault has occurred to the clock oscillator in the CPU.

```
1: XXXX  XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Self-CPU Restart Information

b7		b5	b4	b3			b0

b0: 0/1=-/Monitor Restart
b3: 0/1=-/Initialization
b4: 0/1=-/Data Copy restart (for Dual-CPU system only)
b5: 0/1=-/MB control
b7: 0/1=ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information (FF H: not mounted)

b7		b5	b4	b3			b0

b0: 0/1=-/Monitor Restart
b3: 0/1=-/Initialization
b4: 0/1=-/Data Copy restart (for Dual-CPU system only)
b5: 0/1=-/MB control
b7: 0/1=ACT/STBY (active system indication after restart)

③ Related Call Information

b7							

b7: 0/1=Released/Not released

See Chapter 5 for repair procedure.

0-E	C-Level Infinite Loop			
	Default Alarm: SUP	Default Grade: 2	Grade Modified:	Lamp Modified:

C-level infinite loop is a state where a clock-level program, running under clock interrupt disable state, is in an infinite loop. This message displays when the counter value to check the normality of the processing has become abnormal.

```
0-E C-level Infinite Loop
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
   ① ②  ③ ④  ⑤ ⑥  ⑦               ⑧
4: XXXX XXXX XXXX XXXX 5: XXXX XXXX XXXX XXXX 6: XXXX XXXX XXXX XXXX
                            ⑧
7: XXXX XXXX XXXX XXXX 8: XX00 0000 0000 0000 9: 0000 0000 0000 0000
              ⑧
```

① Self-CPU Restart Information after clock fault occurrence

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

③ NMI Factor

b6 b5 b4 b3 b2 b1 b0

b0: 0/1 = -/Reset by Power On
b1: 0/1 = -/Watchdog Timer timeout
b2: 0/1 = ISAGT is mounted/ISGAT is not mounted
b3: 0/1 = -/OSC clock interrupt on ISGAT
b4: 0/1 = -/IO parity Alarm
b5: 0/1 = -/IO ready Alarm
b6: 0/1 = -/External NMI

See Chapter 5 for repair procedure.

④ System Controlling Port B

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = Timer 2 Gate ON/OFF
b1: 0/1 = Speaker Gate ON/OFF
b2: 0/1 = Parity Check Enable/MASK
b3: 0/1 = Channel Check Enable/MASK
b4: 0/1 = -/RAM Refresh Pulse Output State
b5: 0/1 = -/Timer 2 Output State
b6: 0/1 = -/Channel Check Error Detected
b7: 0/1 = -/Parity Error Detected

⑤ CPU Alarm

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/ACT-side Processor CLK Alarm
b1: 0/1 = -/ACT-side Processor COP Alarm
b2: 0/1 = -/ACT-side Processor MEM Alarm
b3: 0/1 = -/ACT-side Processor Emergency Timer Overflow
b4: 0/1 = -/STBY-side Processor CLK Alarm
b5: 0/1 = -/STBY-side Processor COP Alarm
b6: 0/1 = -/STBY-side Processor MEM Alarm
b7: 0/1 = -/STBY-side Processor Emergency Timer Overflow

⑥ CPU Changeover Factors

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/CLK Alarm
b1: 0/1 = -/Emergency Timer Overflow
b2: 0/1 = -/SOFT EMA
b3: 0/1 = -/SOFT changeover
b4: 0/1 = -/Emergency Counter Overflow
b5: 0/1 = STBY/ACT
b6: 0/1 = Dual/Single
b7: 0/1 = CPU 0/CPU 1

⑦ System ALM

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Main Power Alarm
b1: 0/1 = -/Power Alarm
b2: 0/1 = -/FUSE Alarm
b3: 0/1 = -/TEMP MJ Alarm
b4: 0/1 = -/TEMP MN Alarm
b5: 0/1 = -/Parity Alarm
b6: 0/1 = Card is not mounted/mounted
b7: 0/1 = -/EMA CLK Alarm

⑧ Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

0-F	Memory Failure			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a CPU memory read/write error occurs.

```
0-F Memory Failure
1:  XXXX  XXXX  XXXX  XXXX  2:  XXXX  XXXX  XXXX  XXXX  3:  XXXX  XXXX  XXXX  XXXX
    ① ②   ③ ④   ⑤ ⑥   ⑦                        ⑧

4:  XXXX  XXXX  XXXX  XXXX  5:  XXXX  XXXX  XXXX  XXXX  6:  XXXX  XXXX  XXXX  XXXX
                                       ⑧

7:  XXXX  XXXX  XXXX  XXXX  8:  XX00  0000  0000  0000  9:  0000  0000  0000  0000
                  ⑧
```

① Information on Self-CPU Restart after detection of a clock fault

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

③ NMI Factor

b6 b5 b4 b3 b2 b1 b0

b0: 0/1 = -/Reset by Power On
b1: 0/1 = -/Watchdog Timer timeout
b2: 0/1 = ISGAT is mounted/ISGAT is not mounted
b3: 0/1 = -/OSC clock interrupt on ISGAT
b4: 0/1 = -/IO parity Alarm
b5: 0/1 = -/IO ready Alarm
b6: 0/1 = -/External NMI

See Chapter 5 for repair procedure.

④ System Controlling Port B

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = Timer 2 Gate ON/OFF
b1: 0/1 = Speaker Gate ON/OFF
b2: 0/1 = Parity Check Enable/MASK
b3: 0/1 = Channel Check Enable/MASK
b4: 0/1 = -/RAM Refresh Pulse Output State
b5: 0/1 = -/Timer 2 Output State
b6: 0/1 = -/Channel Check Error Detected
b7: 0/1 = -/Parity Error Detected

⑤ CPU Alarm

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/ACT-side Processor CLK Alarm
b1: 0/1 = -/ACT-side Processor COP Alarm
b2: 0/1 = -/ACT-side Processor MEM Alarm
b3: 0/1 = -/ACT-side Processor Emergency Timer Overflow
b4: 0/1 = -/STBY-side Processor CLK Alarm
b5: 0/1 = -/STBY-side Processor COP Alarm
b6: 0/1 = -/STBY-side Processor MEM Alarm
b7: 0/1 = -/STBY-side Processor Emergency Timer Overflow

⑥ CPU Changeover Factors

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/CLK Alarm
b1: 0/1 = -/Emergency Timer Overflow
b2: 0/1 = -/SOFT EMA
b3: 0/1 = -/SOFT changeover
b4: 0/1 = -/Emergency Counter Overflow
b5: 0/1 = STBY/ACT
b6: 0/1 = Dual/Single
b7: 0/1 = CPU 0/CPU 1

⑦ System ALM

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Main Power Alarm
b1: 0/1 = -/Power Alarm
b2: 0/1 = -/FUSE Alarm
b3: 0/1 = -/TEMP MJ Alarm
b4: 0/1 = -/TEMP MN Alarm
b5: 0/1 = -/Parity Alarm
b6: 0/1 = Card is not mounted/mounted
b7: 0/1 = -/EMA CLK Alarm

⑧ Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

0-G	B-Level Infinite Loop (Permanent)			
	Default Alarm: MN	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when a B-level infinite loop failure occurs.

```
0-F Memory Failure
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
   ① ②  ③                          ④
4: XXXX XXXX XXXX XXXX 5: XXXX XXXX XXXX XXXX 6: XXXX XXXX XXXX XXXX
                                  ④
7: XXXX XXXX XXXX XXXX 8: XX00 0000 0000 0000 9: 0000 0000 0000 0000
              ④
```

① Information on Self-CPU Restart after detection of a clock fault

b7		b5	b4	b3			b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information

b7		b5	b4	b3			b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

③ B-level Infinite Loop

						b1	b0

b0: 0/1 = -/B-level Infinite Loop
b1: 0/1 = -/Task Timer Timeout

④ Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

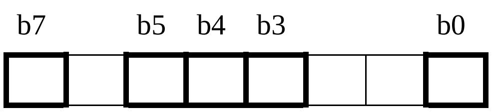
See Chapter 5 for repair procedure.

0-H	B-Level Infinite Loop (Temporary)			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when, in the CPU program processing, the counter value to check the normality of the processing has become abnormal.

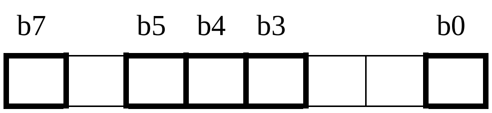
```
1: XXXX XXXX XXXX XXXX  2: XXXX XXXX XXXX XXXX  3: XXXX XXXX XXXX XXXX
   ①  ②  ③       ④              ④                    ④
4: XXXX XXXX XXXX XXXX  5: XXXX XXXX XXXX XXXX  6: XXXX XXXX XXXX XXXX
           ④                     ④                    ④
7: XXXX XXXX XXXX XXXX  8: XX00 0000 0000 0000  9: 0000 0000 0000 0000
           ④               ④
```

① Self-CPU Restart Information



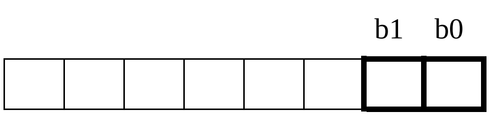
b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information
(FF H: not mounted)



b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

③



b0: 0/1 = -/B-level Infinite Loop
b1: 0/1 = -/Task Timer Timeout

④ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

0-I	Mate CPU Failure			
	Default Alarm: SUP	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a fault, such as the Clock down or C-level infinite loop error, has occurred.

```
1:  XX00  0000  0000  0000  2:  0000  0000  0000  0000  3:  0000  0000  0000  0000
     ①
4:  0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7:  0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① STBY-side CPU Fault Information

				b3	b2	b1	b0

b0: 0/1 = -/CPU clock down
b1: 0/1 = -/C-level infinite loop
b2: 0/1 = -/Memory error, Parity alarm
b3: 0/1 = -/Emergency Timer Overflow

See Chapter 5 for repair procedure.

0-J	Abnormal Interrupt			
	Default Alarm: SUP	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when the CPU detects abnormal interruption.

```
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
   ① ②  ③ ④     ④              ④                    ④
4: XXXX XXXX XXXX XXXX 5: XXXX XXXX XXXX XXXX 6: XXXX XXXX XXXX XXXX
          ④                    ④                    ④
7: XXXX XXXX XXXX XXXX 8: XX00 0000 0000 0000 9: 0000 0000 0000 0000
          ④               ④
```

① Self-CPU Restart Information

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information
(FF H: not mounted)

b7 b5 b4 b3 b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

③

b1 b0

b0: 0/1 = -/Abnormal Interruption (Hardware)
b3: 0/1 = -/Program Exception

④ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

1-A	Both TSW Failure (Permanent)			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when link information cannot be written into the switch memory of the TSW in both systems.

```
1:  XXXX  XXXX  XXXX  XXXX  2:  0000  0000  0000  0000  3:  0000  0000  0000  0000
     ①  ②          ③
4:  0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7:  0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① TSW system in which a fault is detected

b0: 0/1 = TSW No. 0/TSW No. 1

							b0

② Status at the time of fault detection

b0: 0/1 = TSW No. 0 system/TSW No. 1 system
b6: Speech Path in ACT status
0/1 = No. 0 system/No. 1 system

	b6						b0

③ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

1-B	TSW Failure (Permanent)			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

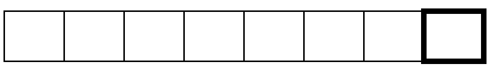
This message displays when link information cannot be written into the switch memory of the TSW card in one of the dual systems.

```
1: XXXX XXXX XXXX XXXX 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②       ③

4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW system in which a fault is detected

b0: 0/1 = TSW No. 0/TSW No. 1

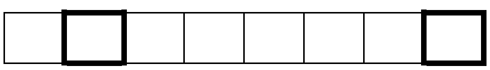
b0



② Status at the time of fault detection

b0: 0/1 = TSW No. 0/TSW No. 1
b6: 0/1 = Speech Path in ACT status No. 0 system/No. 1 system

b6 b0



③ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

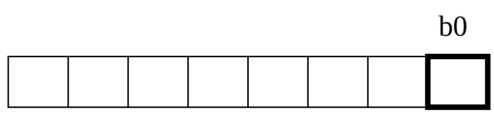
1-C	Both TSW Write Failure			
	Default Alarm: MN	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when the link information cannot be written into the switch memory of the TSW in both systems.

```
1: XXXX  XXXX  XXXX  XXXX  2: 0000  0000  0000  0000  3: 0000  0000  0000  0000
    ①  ②         ③

4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

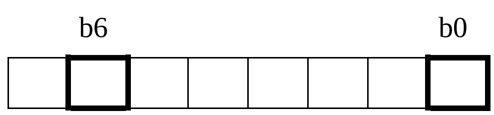
① TSW system in which a fault is detected

b0: 0/1 = TSW No. 0/TSW No. 1



②

b0: 0/1 = TSW No. 0/TSW No. 1
b6: 0/1 = Speech Path in ACT status No. 0 system/No. 1 system



③ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

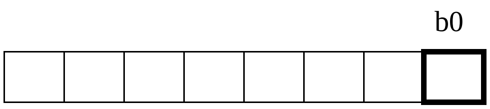
1-D	TSW Write Failure			
	Default Alarm: MN	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when the link information cannot be written into the switch memory of the TSW card in one of the dual systems.

```
1: XXXX  XXXX  XXXX  XXXX  2: 0000  0000  0000  0000  3: 0000  0000  0000  0000
    ①  ②          ③
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

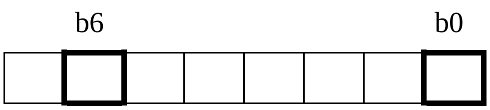
① TSW system in which a fault is detected

b0: 0/1 = TSW No. 0/TSW No. 1



② Status at the time of fault detection

b0: 0/1 = TSW No. 0/TSW No. 1
b6: 0/1 = Speech Path ACT status
TSW No. 0 system is ACT/TSW No. 1 system is ACT



③ Data analyzed by NEC Engineers

See Chapter 5 for repair procedure.

1-E	Both TSW Clock Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the system detects a clock failure, such as TSW internal clock down or Frame Head down, in both systems.

```
1: XXXX  XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②   ③
4: 0000  0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000  0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW card in which a fault is detected

						b1	b0

b0: 0/1 = -/Clock failure of No. 0 TSW
b1: 0/1 = -/Clock failure of No. 1 TSW

② Clock status of No. 0 TSW

b7	b6				b2		

b2: 0/1 = -/DTG output down
b6: 0/1 = -/External 32 ch Clock (PLO) No. 0 System down
b7: 0/1 = -/External 32 ch Clock (PLO) No. 1 System down

③ Clock status of No. 1 TSW

Note: *Refer to the meaning of ②.*

See Chapter 5 for repair procedure.

1-F	TSW Clock Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the system detects a clock failure, such as TSW internal clock down or Frame Head down in one of the dual systems.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①② ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW card in which a fault is detected

						b1	b0

b0: 0/1 = -/Clock failure of No. 0 TSW
b1: 0/1 = -/Clock failure of No. 1 TSW

② Clock status of No. 0 TSW

b7	b6				b2		

b2: 0/1 = -/DTG output down
b6: 0/1 = -/External 32 ch Clock (PLO) No. 0 System down
b7: 0/1 = -/External 32 ch Clock (PLO) No. 1 System down

③ Clock status of No. 1 TSW

Note: *Refer to the meaning of* ②.

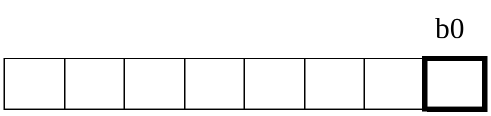
See Chapter 5 for repair procedure.

1-G	Both HSW Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the system detects any failure at the HSW in both systems.

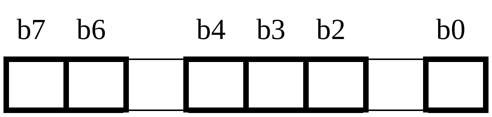
```
1: XXXX XXXX XXXX XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②   ③    ④    ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty



b0: 0/1 = No. 0 system / No. 1 system

② System status at the time of fault detection



b0: HSW No. (0-1)
b2-b3: Kind of TSW
10 = Second Switching
b4: HSW No. (0-1)
b6: Speech Path in ACT state
0/1 = No. 0 system/No. 1 system
b7: Base clock in ACT state

③ Wire Address
④ Write Data
⑤ Read Data

Data analyzed by NEC Engineers.

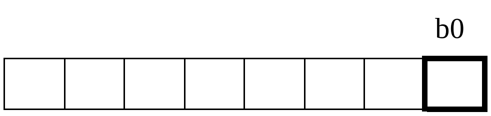
See Chapter 5 for repair procedure.

1-H	HSW Failure			
	Default Alarm: MN	Default Grade:	Grade Modified:	Lamp Modified:

This message displays when the system detects any failure at the HSW in one of the dual systems.

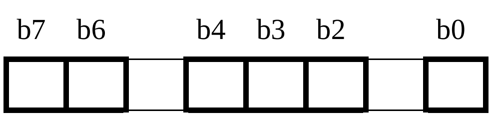
```
1: XXXX XXXX XXXX XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①②   ③    ④    ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty



b0: 0/1 = No. 0 system / No. 1 system

② System status at the time of fault detection



b0: HSW No. (0-1)
b2-b3: Kind of TSW
10 = Second Switching
b4: HSW No. (0-1)
b6: Speech Path in ACT state
0/1 = No. 0 system/No. 1 system
b7: Base clock in ACT state

③ Wire Address
④ Write Data
⑤ Read Data

Data analyzed by NEC Engineers.

See Chapter 5 for repair procedure.

1-I	Both HSW Write Failure			
	Default Alarm: MN	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when the link information cannot be written into the switch memory of the HSW card in both systems.

```
1: XXXX XXXX XXXX XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③    ④    ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty

							b0

b0: 0/1 = No. 0 system / No. 1 system

② System status at the time of fault detection

b7	b6		b4	b3	b2		b0

b0: HSW No. (0-1)
b2-b3: Kind of TSW
10 = Second Switching
b4: HSW No. (0-1)
b6: Speech Path in ACT state
0/1 = No. 0 system/No. 1 system
b7: Base clock in ACT state

③ Wire Address
④ Write Data
⑤ Read Data

Data analyzed by NEC Engineers.

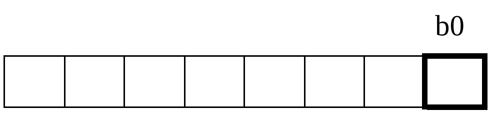
See Chapter 5 for repair procedure.

1-J	HSW Write Failure			
	Default Alarm: MN	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when the link information cannot be written into the switch memory of the HSW card in one of the dual systems.

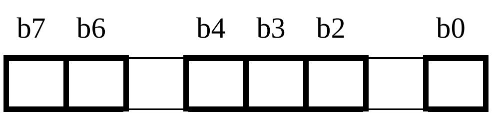
```
1: XXXX XXXX XXXX XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②  ③    ④    ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty



b0: 0/1 = No. 0 system / No. 1 system

② System status at the time of fault detection



b0: HSW No. (0-1)
b2-b3: Kind of TSW
10 = Second Switching
b4: HSW No. (0-1)
b6: Speech Path in ACT state
0/1 = No. 0 system/No. 1 system
b7: Base clock in ACT state

③ Wire Address
④ Write Data
⑤ Read Data

Data analyzed by NEC Engineers.

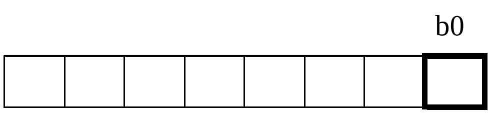
See Chapter 5 for repair procedure.

1-K	Both HSW CLK Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the system detects a clock failure such as HSW internal clock down or Frame Head down in both systems.

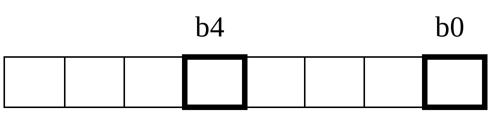
```
1: XXXX  XXXX  XXXX  0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②   ③ ④   ⑤ ⑥
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty



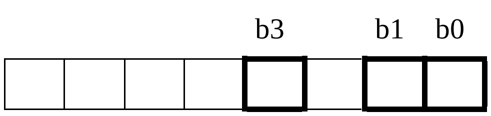
b0: 0/1 = No. 0 system / No. 1 system

② Details on failure



b0: 0/1 = -/Clock failure in HSW
b4: HSW No. (0-1)

③ Clock status of No. 0 HSW



b0: 0/1 = -/HSW card internal clock down
b1: 0/1 = -/External 32 ch Clock (PLO) down
b3: 0/1 = -/Frame Head Return down

④ Clock status of No. 1 HSW

Note: *Refer to the meaning of* ③.

⑤ Clock status of No. 2 HSW

Note: *Refer to the meaning of* ③.

⑥ Clock status of No. 3 HSW

Note: *Refer to the meaning of* ③.

See Chapter 5 for repair procedure.

1-L	HSW CLK Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the system detects a clock failure such as HSW internal clock down or Frame Head down in both systems.

```
1: XXXX XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③ ④  ⑤ ⑥
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW detected as faulty

							b0

b0: 0/1 = No. 0 system / No. 1 system

② Details on failure

			b4				b0

b0: 0/1 = -/Clock failure in HSW
b4: HSW No. (0-1)

③ Clock status of No. 0 HSW

				b3		b1	b0

b0: 0/1 = -/HSW card internal clock down
b1: 0/1 = -/External 32 ch Clock (PLO) down
b3: 0/1 = -/Frame Head Return down

④ Clock status of No. 1 HSW

Note: *Refer to the meaning of ③.*

⑤ Clock status of No. 2 HSW

Note: *Refer to the meaning of ③.*

⑥ Clock status of No. 3 HSW

Note: *Refer to the meaning of ③.*

See Chapter 5 for repair procedure.

1-O	Both PLO Failure			
	Default Alarm: MJ	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the system detects a fault, such as input clock all down or output clock down in the PLO/CLK cards (both systems).

```
1: XXXX XXXX XX00 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③ ④  ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected PLO number

b7	b6						b0

b0: 0/1 = No. 0 PLO/No. 1 PLO
b6: 0/1 = -/CLK card failure **Note 1**
b7: 0/1 = -/PLO card failure **Note 2**

Note 1: *For CLK in TSWM1 (used in LN only).*

Note 2: *For PLO in TSWM0 (used in LN only).*

② Valid Information bit for Scan Data 1

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: The bit position corresponding to the detected information in Scan Data 1 (④) is flagged “1”.

③ Valid Information bit for Scan Data 2

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: The bit position corresponding to the detected information in Scan Data 2 (⑤) is flagged “1”.

See Chapter 4 for the Circuit Card Replacement Procedure.

④ Scan Data 1: Current Status of the PLO card

b7	b6	b5	b4	b3	b2	b1	b0

b0: Clock status at the time of detection **Note 1**
0/1 = STBY/ACT

b1: Circuit Card status at the time of detection
0/1 = PLO synchronizing/PLO self running or drifting

b2: 0/1 = -/Input clock down

b3, b4: Route of Input clock

b3	b4	DCS Input Route	Route of Input Clock
0	0	0	0
0	1	1	1
1	0	-	2
1	1	-	3

b5: 0/1 = -/PLO input all down

b6: 0/1 = -/PLO output down **Note 2**

b7: 0/1 = -/Drifting

⑤ Scan Data 2: Current status of the PLO card

			b4			b1	b0

b0: 0/1 = -/5msec Burst Clock down

b1: 0/1 = -/Frame Synchronization from SYNC card is down

b4: 0/1 = -/Internal OSC clock down

Note 1: *The clock status includes that of PH-CK18 (CLK) card.*

Note 2: *This information includes the failure detected in PH-CK18 (CLK) card.*

1-P	PLO Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the system detects all the failures concerned with input clock down or output clock down in the PLO/CLK card (one of dual system).

```
1:  XXXX  XXXX  XX00  0000  2:  0000  0000  0000  0000  3:  0000  0000  0000  0000
    ① ②   ③ ④   ⑤
4:  0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7:  0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① Details on detected PLO

							b0

b0: 0/1 = No. 0 PLO/No. 1 PLO
b6: 0/1 = -/CLK card failure **Note 1**
b7: 0/1 = -/PLO card failure **Note 2**

Note 1: *For CLK in TSWM1 (used in LN only).*

Note 2: *For PLO in TSWM0 (used in LN only).*

② Valid Information bit for Scan Data 1

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: The bit position corresponding to the detected information in Scan Data 1 (④) is flagged “1”.

③ Valid Information bit for Scan Data 2

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: The bit position corresponding to the detected information in Scan Data 2 (⑤) is flagged “1”.

See Chapter 4 for the Circuit Card Replacement Procedure.

④ Scan Data 1: Status of the PLO card

b7	b6	b5	b4	b3	b2	b1	b0

b0: Clock status at the time of detection **Note 1**
0/1 = STBY/ACT
b1: Circuit card status at the time of detection
0/1 = PLO synchronizing/PLO self running or drifting
b2: 0/1 = -/Input clock down
b3, b4: Route of Input clock

b3	b4	DCS Input Route	Route of Input Clock
0	0	0	0
0	1	1	1
1	0	-	2
1	1	-	3

b5: 0/1 = -/PLO input all down
b6: 0/1 = -/PLO output down **Note 2**
b7: 0/1 = -/Drifting

⑤ Scan Data 2: Current status of the PLO card

			b4			b1	b0

b0: 0/1 = -/5msec clock down
b1: 0/1 = -/Frame signal from SYNC card is down
b4: 0/1 = -/Internal OSC clock down

Note 1: *The clock status includes that of PH-CK18 (CLK) card.*

Note 2: *This information includes the failure detected in PH-CK18 (CLK) card.*

1-S	Module Group Down Failure			
	Default Alarm: MJ	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a fault of the speech path system has occurred in a specific Module Group. The specific Module Group is placed into make-busy state.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MG number of fault detection

							b0

b0: 0/1 = Even-numbered MG/Odd-numbered MG

② The kind of failure

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: 00H/01H = -/ACT-side TSW fault

③ Speech Path/Clock System

						b1	b0

b0: ACT side speech path
0/1 = No. 0 system/No. 1 system
b1: ACT side clock
0/1 = No. 0 system/No. 1 system

See Chapter 4 for the Circuit Card Replacement Procedure.

1-T	TSW ACT Change Report			
	Default Alarm: NON	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when the changeover of the TSW system is executed.

```
1: XXXX 0000 XXXX XXXX 2: 0000 0000 0000 0000 3: 0000 0000 XXXX XXXX
   ① ②       ③ ④  ⑤ ⑥                                    ⑲ ⑳  ㉑ ㉒
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① ACT side Speech Path (TSW) after changeover

b0: 0/1 = No. 0 system/No. 1 system

							b0

② Reason for changeover

b7	b6	b5	b4	b3	b2	b1	b0

b7-b4	b3-b0	CARD	CONTENTS
0	1	TSW	I/O Alarm
	2		32 ch Clock down, FH down
	3		24 ch Clock down, FH down
	6		TSW SW Memory write failure
	9		I/O Alarm release
	10		32 ch Clock down recovered, FH down recovered
	11		24 ch Clock down recovered, FH down recovered
	13		TSW MBR key OFF
	15		TSW ACT/STBY changeover by the CMODI command
6	1	MUX	MUX circuit card Ready failure
	2		MUX circuit card Clock failure

③~⑥ Status of ACT side TSW card

b7	b6	b5	b4	b3	b2	b1	b0

	b7-b4	b3-b0
③	MG00	MG01
④	MG02	MG03
⑤	MG04	MG05
⑥	MG06	MG07

b0-b3, b4-b7: The status of TSW card in each MG (00~07)
0000 = Normal
0001 = Abnormal (Impossible to make links)

⑲ ~ ㉒ Status of STBY side TSW card

b7	b6	b5	b4	b3	b2	b1	b0

	b7-b4	b3-b0
⑲	MG00	MG01
⑳	MG02	MG03
㉑	MG04	MG05
㉒	MG06	MG07

b0-b3, b4-b7: The status of TSW card in each MG (00~07)
0000 = Normal
0001 = Abnormal (Impossible to make links)

1-U	DLKC Data Transfer Failure (Permanent)			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when DLKC data transfer failure (temporary), shown in message [1-V], occurs more than 16 times an hour. At this time, the faulty DLKC card is shut and its switching network automatically changes over.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① System status of faulty DLKC card

b0

b0: 0/1 = No. 0 system / No. 1 system

② Error Code

b7 b6 b5 b4 b3 b2 b1 b0

01H: Firmware fault
02H: Data transfer time out to DLKC
03H: No answer time out (at DLKC)
04H: Data parity error

③ Details on Switching Network

b1 b0

b0: Status of Speech Path System (including DLKC)
0/1 = No. 0 system is ACT/No. 1 system is ACT
b1: Status of basic clock
0/1 = No. 0 system is ACT/No. 1 system is ACT

1-V	DLKC Data Transfer Failure (Temporary)			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when a data sending error or no answer error occurs at the time of data transfer from CPU to DLKC card.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① System status of faulty DLKC card

							b0

b0: 0/1 = No. 0 system / No. 1 system

② Error Code

b7	b6	b5	b4	b3	b2	b1	b0

01H: Firmware fault
02H: Data transfer time out to DLKC
03H: No answer time out (at DLKC)
04H: Data parity error

③ Details on Switching Network

b7						b1	b0

b0: Status of Speech Path System (including DLKC)
0/1 = No. 0 system is ACT/No. 1 system is ACT
b1: Status of basic clock
0/1 = No. 0 system is ACT/No. 1 system is ACT
b7: Information on Reset of STBY DLKC **Note**
0/1 = - /STBY DLKC card was reset

Note: *This data displays when the STBY DLKC card is detected as faulty.*

1-W	PLO Restore			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a PLO/CLK-related failure, such as internal clock down is restored.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Restoration of PLO fault

							b0

b0: 0/1 = PLO No. 0 system/PLO No. 1 system

② Current status of PLO card

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = Clock is in STBY side/ACT side **Note 1**
b1: 0/1 = PLO synchronizing/PLO self running or drifting
b2: 0/1 = -/Input clock down
b3, b4: Route of input clock (see the table below)

b4	b3	Connected With Primary Oscillator (M-OSC)	Connected With External Clock
0	0	No. 0 M-OSC	Route 0
0	1	No. 1 M-OSC	Route 1
1	0	–	Route 2
1	1	–	Route 3

b5: 0/1 = -/PLO input all down
b6: 0/1 = -/PLO output down **Note 2**
b7: 0/1 = -/Drifting

③ Current status of the PLO card

			b4			b1	b0

b0: 0/1 = -/5msec clock down
b1: 0/1 = -/Frame Synchronization from SYNC card is down
b4: 0/1 = -/Internal OSC clock down

Note 1: *The status includes that of PH-CK18 (CLK) card.*

Note 2: *This information includes the failure detected in PH-CK18 (CLK) card.*

1-X	LN → ISW CLK/FH Failure			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message (for the ISW only) displays when a TSW card (one of the dual systems) of ISW fails to receive the CLK/FH signals, sent from the LN side.

```
1: XX00 XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①    ② ③  ④ ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW detected as faulty

						b1	b0

b0: 0/1 = -/No. 0 system
b1: 0/1 = -/No. 1 system

②,③ Details on the fault (TSW No. 0 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to “LN00” through “LN33” lamps, apiece, on a TSW (PU-SW00) card of No. 0 system. If “1” is set, the corresponding PCM traffic has encountered a CLK/FH failure.

②

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

③

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: LN → ISW CLK/FH Failure

Note 1: *This data is displayed when b0 of ① is set as “1.”*

Note 2: *For more information on each lamp, refer to the “Circuit Card Manual.”*

④,⑤ Details on the fault (TSW 1 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to "LN00" through "LN33" lamps, apiece, on a TSW (PU-SW00) card of No. 1 system. If "1" is set, the corresponding PCM traffic, once detected as faulty, has recovered.

④

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

⑤

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: LN → ISW CLK/FH Failure

Note 1: *This data is displayed when b1 of ① is set as "1."*

Note 2: *For more information on each lamp, refer to the "Circuit Card Manual."*

1-Y	LN → ISW CLK/FH Failure (Both)			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message (for the ISW only) displays when a TSW card (both systems) of ISW fails to receive the CLK/FH signals, sent from the LN side.

```
1: XX00 XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①    ② ③  ④ ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW detected as faulty

						b1	b0

b0: 0/1 = -/No. 0 system
b1: 0/1 = -/No. 1 system

Note: *Both b0 and b1 are displayed as "1."*

②,③ Details on the fault (TSW No. 0 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to "LN00" through "LN33" lamps, apiece, on a TSW (PU-SW00) card of No. 0 system. If "1" is set, the corresponding PCM traffic has encountered a CLK/FH failure.

②

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

③

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: LN → ISW CLK/FH Failure

④,⑤ Details on the fault (TSW No. 1 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to "LN00" through "LN33" lamps, apiece, on a TSW (PU-SW00) card of No. 1 system. If "1" is set, the corresponding PCM traffic has encountered a CLK/FH failure.

④

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

⑤

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: LN → ISW CLK/FH Failure

Note 1: *For more information on each lamp, refer to the "Circuit Card Manual."*

1-Z	LN → ISW CLK/FH Release			
	Default Alarm: NON	**Default Grade:** 0	**Grade Modified:**	**Lamp Modified:**

This message (for the ISW only) displays when LN → ISW CLK/FH failure has recovered and issues the [1-X, 1-Y] system messages.

```
1: XX00 XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①   ② ③  ④ ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① TSW detected as fault recovery

						b1	b0

b0: 0/1 = -/No. 0 system
b1: 0/1 = -/No. 1 system

Note: *When fault recovery is detected in both No. 0/No. 1 system, "1" is set in b0 and b1 simultaneously.*

②,③ Details on the recovered traffic (TSW No. 0 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to "LN00" through "LN33" lamps, apiece, on a TSW (PU-SW00) card of No. 0 system. If "1" is set, the corresponding PCM traffic, once detected as faulty, has recovered.

②

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

③

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: Recovery of LN → ISW CLK/FH Failure

Note 1: *This data is displayed when b0 of ① is set as "1."*

Note 2: *For more information on each lamp, refer to the "Circuit Card Manual."*

④,⑤ Details on the recovered traffic (TSW No. 1 side)

b7	b6	b5	b4	b3	b2	b1	b0

The bits here correspond to “LN00” through “LN33” lamps, apiece, on a TSW (PU-SW00) card of No. 1 system. If “1” is set, the corresponding PCM traffic, once detected as faulty, has recovered.

④

b7	b6	b5	b4	b3	b2	b1	b0
LN13	LN12	LN11	LN10	LN03	LN02	LN01	LN00

⑤

b7	b6	b5	b4	b3	b2	b1	b0
LN33	LN32	LN31	LN30	LN23	LN22	LN21	L200

0: -
1: LN → ISW CLK/FH Failure

Note 1: *This data is displayed when b1 of ② is set as “1.”*

Note 2: *For more information on each lamp, refer to the “Circuit Card Manual.”*

3-B	C-Level Infinite Loop (Permanent)			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a C-level program abnormal state is detected as permanent. When the Port Microprocessor (PM) on an LC/TRK card detects the abnormal state, the PM places the card into make-busy status. If the failure occurs more than 15 times an hour, the system judges the failure as permanent, and issues the [3-B] system message.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Circuit Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5-b6: Unit (0-3)
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

3-C	C-Level Infinite Loop (Temporary)			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when C-level program is detected as abnormal by the Port Microprocessor (PM) mounted on an LC/TRK card. If the failure occurs less than 15 times/hour, and a B-monitor/Initial restart executes as the result, the failure is judged as temporary and this message is created.

```
1: XX0X 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Circuit Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5-b6: Unit (0-3)
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

② PM Restart Type

							b0

b0: 0/1 = B-monitor/Initial Restart **Note**

Note: *B-monitor Restart: Ports whose link have already been established remain connected. Ports processing a call-origination may be released.*

Initial Restart: All ports on the circuit card are forcibly released to be placed in idle state.

3-D	Lock-Up Failure (Permanent)			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

At the periodic interval, the CPU sends diagnosis data to the Port Microprocessor (PM) on LC/TRK cards in order to monitor the PM. If the CPU cannot receive the return data within a predetermined period of time, the system displays this data. When the failure is detected more than 15 times per hour, the failure is judged as permanent.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Circuit Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5-b6: Unit (0-3)
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

See Chapter 5 for repair procedure.

3-E	Lock-Up Failure (Temporary)			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

At the periodic interval, the CPU sends diagnosis data to the Port Microprocessor (PM) on LC/TRK cards in order to monitor the PM. If the CPU cannot receive the return data within a predetermined period of time, the system displays this data. When the failure is detected less than 15 times per hour, the failure is judged as temporary.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Circuit Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5-b6: Unit (0-3)
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

② PM Restart Type

							b0

b0: 0/1 = B-monitor/Initial Restart

3-F	-48V Over Current			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when over current of the operating power (DC-48V) is supplied from the ATI/ELC circuit card to the Attendant Console/D^{term}. When this fault occurs, the related circuit card is placed into make-busy state and stops supplying power.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty PM Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5, b6: Unit
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

3-G	Ground Failure			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when a wire of the line between the LC circuit card and the telephone set is short-circuited with ground.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Circuit Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Circuit No. (0-7)
b3-b7: Circuit card No. (0-31)

② Faulty Circuit Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit No. (0-3)
b2-b7: MG No.

Note: *This message displays when using the specific LC card providing the above function.*

3-H	Digital Line Warning			
	Default Alarm: SUP	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when the DTI card detects abnormal state of a digital line but this failure has influence on the Speech path. When the status is getting worse, they system will issue [3-I] Digital Line Failure.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty PM (LENS) Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5, b6: Unit (0-3)
b7: 0/1 = Even numbered MG/Odd numbered MG

② Kind of Fault

b7	b6	b5	b4	b3	b2	b1	b0

01H = Frame alignment loss occurs three times a day
02H = Bit error rate is over 10^{-6}
03H = Slip occurs twice a day
04H = Multiframe alignment loss occurs three times a day
08H = Fault detection on the CCIS Bch

③ Fault Detection Time Slot No. (This data is valid only when the kind of fault is 08H)

			b4	b3	b2	b1	b0

b0-b4: Time Slot No. in which the Digital line failure is detected (1-16, 17-31)

3-I	Digital Line Failure			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays after [3-H] Digital Line Warning lasts in the DTI card over the particular time. This failure may cause a speech path fault to the DTI card.

```
1: XXXX 0000 XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
    ① ②        ③ ④   ③ ④       ③ ④   ③ ④   ③ ④   ③ ④       ③ ④   ③ ④   ③ ④   ③ ④
4: XXXX XXXX 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000
    ③ ④   ③ ④
7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty PM Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group
b5, b6: Unit
b7: Module Group
0/1 = Even-numbered MG/Odd-numbered MG

② Kind of fault

b7	b6	b5	b4	b3	b2	b1	b0

01H = Frame alignment loss occurs 100 times a day
03H = Slip occurs 50 times a day
04H = Multiframe alignment loss occurs 110 times a day
06H = Frame alignment loss lasts for 2 to 3 sec.
07H = Bit error rate is over 10^{-4}
09H = Warning signal (AIS) from the opposite office has been received for 1 sec. continuously.
0BH = Multiframe alignment loss lasts for 2 to 3 sec.
0FH = Digital Line is not restored

③ Faulty Circuit Card Location (This data is valid when ② is 0FH)

b7	b6	b5	b4	b3			

b3-b7: Group No.

④ Faulty Circuit Card Location (This data is valid when ② is 0FH)

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit No. (0-3)
b2-b7: MG No.

3-J	Digital Line Restore			
	Default Alarm: ON	**Default Grade:** 0	**Grade Modified:**	**Lamp Modified:**

This message displays when a digital line fault is restored.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Line Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: Module Group
0/1 = Even-numbered MG/odd-numbered MG

4-C	Both TSW Ready Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a Ready Failure occurs in both systems as a result of the TSW card having a failure or the card is not mounted properly.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty TSW Information

b7						b1	b0

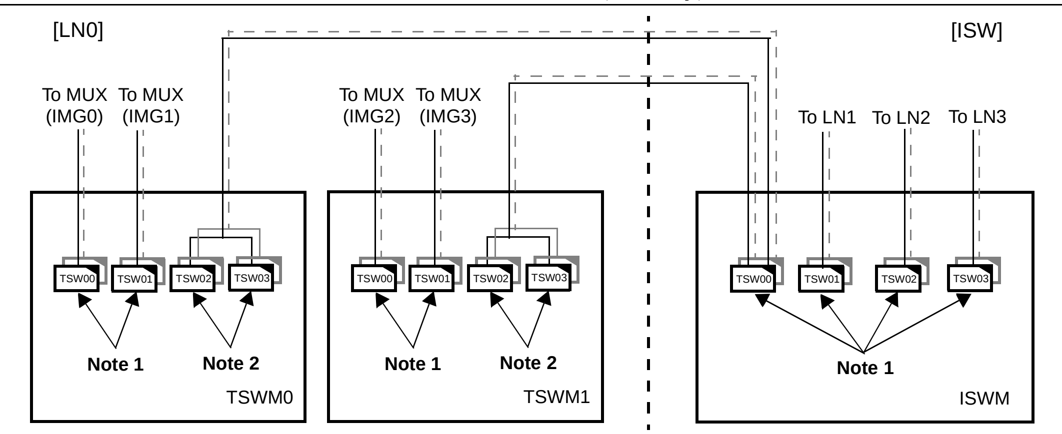
See Chapter 5 for repair procedure.

b0: 0/1 = TSW No. 0 system/TSW No. 1 system

Note: *When Ready Failure occurs in both systems, the [4-C] message is separately issued twice: "0" displays in one message, and "1" in the other message.*

b1: Details on faulty TSW card
0 = TSW card (LN) connection to MUX or TSW card within ISWM **Note 1**
1 = TSW card (LN) connected to TSW of ISWM **Note 2**

b7: Fault-detected circuit card
0 = PH-SW12 (LN) or PU-SW00 (ISW)
1 = PH-GT09 (LN only)



Note 1: *If a fault occurs in any of the TSW cards, "0" is set in bit 1 of ①.*

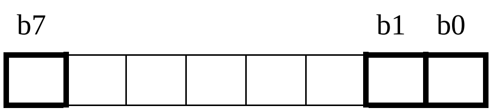
Note 2: *If a fault occurs in any of the TSW cards, "1" is set in bit 1 of ①.*

4-D	TSW Ready Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a TSW Ready Failure occurs in one of the dual systems because the TSW card fails or the card is not mounted properly.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

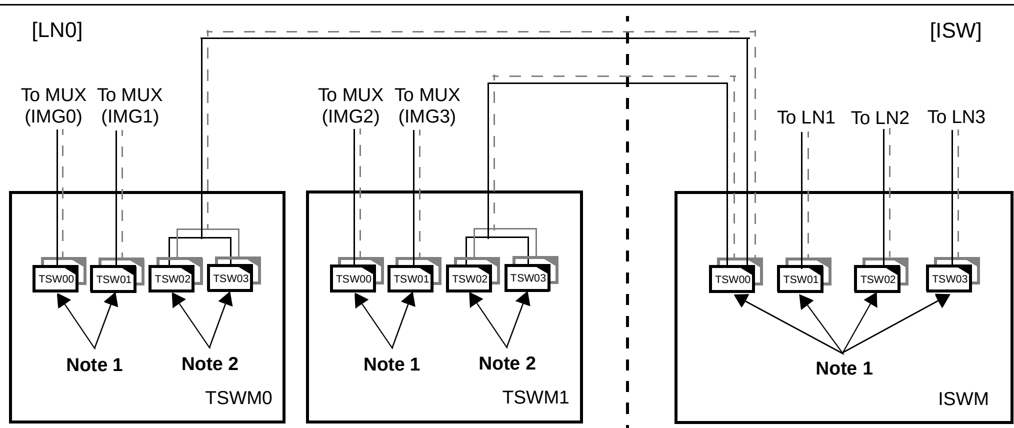
① Faulty TSW Information



b0: 0/1 = TSW No. 0 system/TSW No. 1 system

b1: Details on faulty TSW card
0 = TSW card (LN) connection to MUX or TSW card within ISWM **Note 1**
1 = TSW card (LN) connected to TSW of ISWM **Note 2**

b7: Fault-detected circuit card
0 = PH-SW12 (LN) or PU-SW00 (ISW)
1 = PH-GT09 (LN only)



Note 1: *If a fault occurs in any of the TSW cards, "0" is set in bit 1 of* ①.

Note 2: *If a fault occurs in any of the TSW cards, "1" is set in bit 1 of* ①.

See Chapter 5 for repair procedure.

4-E	Both HSW Ready Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when I/O Ready Failure occurs in both HSW systems.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW Fault Detected

b0

b0: 0/1 = No. 0 system/No. 1 system **Note**

Note: *When I/O ready failure ocurs simultaneously in both HSW systems, the [4-E] message is separately issued twice: “0” is displayed in one message and “1” in the other message.*

② Details on HSW No.

b4 b0

b0: 0/1 = -/Ready Fault in HSW
b4: HSW No. (0-1)

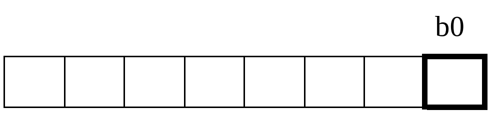
See Chapter 5 for repair procedure.

4-F	HSW Ready Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when I/O Ready Failure occurs in both HSW systems.

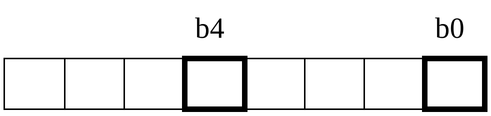
```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① HSW Fault Detected



b0: 0/1 = No. 0 system/No. 1 system

② Details on HSW No.



b0: 0/1 = -/Ready Fault in HSW
b4: HSW No. (0-1)

See Chapter 5 for repair procedure.

4-Q	DLKC Ready Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when I/O Ready Failure occurs on a DLKC card.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Details on faulty DLKC card

b7							b0

b0: 0/1 = No. 0 system/No. 1 system
b7: 0/1 = ACT/STBY

4-S	MUX Ready Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MUX (PH-PC36) card has a Ready Failure in one of the dual systems. When the card is not ready for service function because of the failure or because the card is not mounted properly, the system creates this message.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Unit and MG number for the faulty MUX card

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Even-numbered MG, Unit 0
b1: 0/1 = -/Even-numbered MG, Unit 1
b2: 0/1 = -/Even-numbered MG, Unit 2
b3: 0/1 = -/Even-numbered MG, Unit 3
b4: 0/1 = -/Odd-numbered MG, Unit 0
b5: 0/1 = -/Odd-numbered MG, Unit 1
b6: 0/1 = -/Odd-numbered MG, Unit 2
b7: 0/1 = -/Odd-numbered MG, Unit 3

② Faulty MUX card information

					b2	b1	b0

b0: MG
0/1 = Even number/Odd number
b1: 0/1 = No. 0 system/No. 1 system
b2: ACT or STBY status
0/1 = ACT/STBY

See Chapter 5 for repair procedure.

4-T	Both MUX Ready Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MUX (PH-PC36) card has a Ready Failure in both of the dual systems. When the card is not ready for service function because of the failure or because the card is not mounted properly, the system creates this system message.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Unit and MG number for the MUX card

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Even-numbered MG, Unit 0
b1: 0/1 = -/Even-numbered MG, Unit 1
b2: 0/1 = -/Even-numbered MG, Unit 2
b3: 0/1 = -/Even-numbered MG, Unit 3
b4: 0/1 = -/Odd-numbered MG, Unit 0
b5: 0/1 = -/Odd-numbered MG, Unit 1
b6: 0/1 = -/Odd-numbered MG, Unit 2
b7: 0/1 = -/Odd-numbered MG, Unit 3

② Faulty MUX card information

					b2	b1	b0

b0: MG
0/1 = Even number/Odd number
b1: 0/1 = No. 0 system/No. 1 system **Note 1**
b2: ACT or STBY status **Note 2**
0/1 = ACT/STBY

Note 1: *Though this message indicates the Ready Failure in both systems, the information displayed here only relates to the ACT-side MUX status. (Two messages are not displayed separately.)*

Note 2: *Fixed as "0 (=ACT)." See* **Note 1**.

See Chapter 5 for repair procedure.

4-U	PCI Card Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a PCI card failure occurs.

```
1: 0X0X  0X0X  0X00 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②   ③ ④   ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Fault detection on PCI card

b3 b2 b1 b0

b0: 0/1 = -/Error detection on PCI slot 0 (LANI-A)
b1: 0/1 = -/Error detection on PCI slot 1
b2: 0/1 = -/Error detection on PCI slot 2 (Not used)
b3: 0/1 = -/Error detection on PCI slot 3 (LANI-B)

② Error status on PCI slot 0

b1 b0

b0: 0/1 = -/Physical connection error **Note 1**
b1: 0/1 = -/Hardware Fault **Note 2**

③ Error status on PCI slot 1

b1 b0

b0: 0/1 = -/Physical connection error **Note 1**
b1: 0/1 = -/Hardware Fault **Note 2**

④ Not used

⑤ Error status on PCI slot 3

b1 b0

b0: 0/1 = -/Physical connection error **Note 1**
b1: 0/1 = -/Hardware Fault **Note 2**

Note 1: *Physical Connection Error*
- *Ethernet cable is disconnected.*
- *Ethernet cable has short-circuited.*
- *Ethernet straight/cross cable selection error*

Note 2: *Hardware Fault*
- *Transmitter failure*
- *Controller lock-up*

4-V	PCI Card Failure Recovered			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the PCI card, which was detected as faulty, is recovered.

```
1: 0X0X 0X0X 0X00 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②  ③ ④  ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detection of PCI restoration

				b3	b2	b1	b0

b0: 0/1 = -/Error restoration on PCI slot 0 (LANI-A)
b1: 0/1 = -/Error restoration on PCI slot 1
b2: 0/1 = -/Error restoration on PCI slot 2 (Not used)
b3: 0/1 = -/Error restoration on PCI slot 3 (LANI-B)

② Details on error restoration (PCI slot 0)

							b0

b0: 0/1 = -/Physical connection error restoration **Note**

③ Details on error restoration (PCI slot 1)

							b0

b0: 0/1 = -/Physical connection error restoration **Note**

④ Not used

⑤ Details on error restoration (PCI slot 3)

							b0

b0: 0/1 = -/Physical connection error restoration **Note**

Note: *Physical Connection Error*
- *Ethernet cable is disconnected.*
- *Ethernet cable has short-circuited.*
- *Ethernet straight/cross cable selection error*

6-A	System Failure			
	Default Alarm: NON	Default Grade: 3	Grade Modified: (FIXED) NON	Lamp Modified: (FIXED) 3

This message displays when any of the following faults are detected:

- Power failure
- Fuse blowing
- In-Frame abnormal temperature

```
1: XX00 XXXX 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①    ② ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Probable cause for the failure

			b4	b3	b2	b1	b0

b0: Input power (-48V) down or failure
b1: PWR Supply Fault
b2: PWR Supply Fuse Alarm
b3: Abnormal temperature MJ (70ºC (158ºF))
b4: Abnormal temperature MN (60ºC (140ºF))

② The frame in which a fault is detected

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Frame No. (0-3)
b4, b5: Frame Group No. (0 only)
b6, b7: Kind of frame
00 = IMG

③ Factor of the failure

			b4	b3	b2	b1	b0

b0: 0/1 = -/OBP Alarm 0 side
b1: 0/1 = -/OBP Alarm 1 side
b2: 0/1 = -/OBP Alarm MISC side
b3: 0/1 = -/Power Alarm 0 side
b4: 0/1 = -/Power Alarm 1 side

See Chapter 5 for repair procedure.

6-B	RGU and Howler Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a fault in either the ringer or howler tone occurs in the PWR card.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Unit and MG number of fault detection

					b2	b1	b0

b0, b1: Unit No. (0-3)
b2: 0/1 = Even-numbered MG/Odd-numbered MG

② Kind of the fault

						b1	b0

b0: 0/1 = -/RGU (Ringing Unit) Fault
b1: 0/1 = -/Howler Fault

6-C	Line Load Control Start			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the CPU usage (occupancy) rate exceeds the value assigned to ASYD, SYS1, INDEX56, and the call origination from the pre-selected group of stations is restricted (i.e. Line Load Control is set). This system message is always indicated as 0.

```
1: 0000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000

4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

6-D	Line Load Control Stop			
	Default Alarm: NON	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when the CPU usage (occupancy) rate becomes lower than the value assigned to ASYD, SYS1, INDEX57, and Line Load Control is cancelled. This system message is always indicated as 0.

```
1: 0000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000

4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

6-H	Bad Call Notification			
	Default Alarm: SUP	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays to indicate the result of Bad Call Notification.

```
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: 0000 0000 0000 0000
   ① ②  ③ ④  ⑤ ⑥  ⑦ ⑧      ⑨    ⑩    ⑪    ⑫
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Bad Call Notification

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Station number digit with the fault. (This data is always indicated as "0" when Type of connection is 2 (ACD Trunk).)

b4-b7: Type of connection
- 0 = Station connection
- 1 = Trunk connection
- 2 = ACD Trunk connection

When type of connection is intra-Station connection

② ~ ④ Station number (see table)

b7	b6	b5	b4	b3	b2	b1	b0

	b4-b7	**b0-b3**
②	DC0	DC1
③	DC2	DC3
④	DC4	DC5

⑤ Called station number

b0-b3: Number of digits for the called station number

				b3	b2	b1	b0

⑥ ~ ⑧ Called station number
(See table)

b7	b6	b5	b4	b3	b2	b1	b0

	b4-b7	**b0-b3**
⑥	DC0	DC1
⑦	DC2	DC3
⑧	DC4	DC5

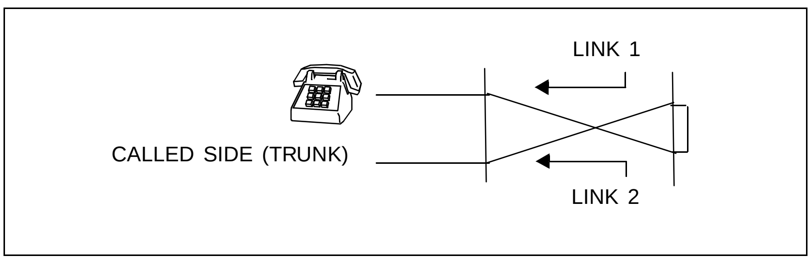
⑨ Time Slot Number of Link 1 **Note 1**

⑩ Not used

⑪ Time Slot Number of Link 2 **Note 1**

⑫ Not used

Note 1: *Station at which the operation was performed as shown in the figure below.*



When type of connection is Trunk connection

② ~ ④ Station number (See table)

b7	b6	b5	b4	b3	b2	b1	b0

	b4-b7	b0-b3
②	DC0	DC1
③	DC2	DC3
④	DC4	DC5

⑤ Remote Route No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b5: Route No. (1-63)
b6: OP
0/1 = Data in OPRT (⑥) is invalid/valid
b7: AC
0/1 = Internal trunk/External trunk

⑥ Remote Route No.

				b3	b2	b1	b0

b0-b3: OPRT Route No. (Over 64)

⑦ Called trunk No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: Trunk No.

⑧ Not used

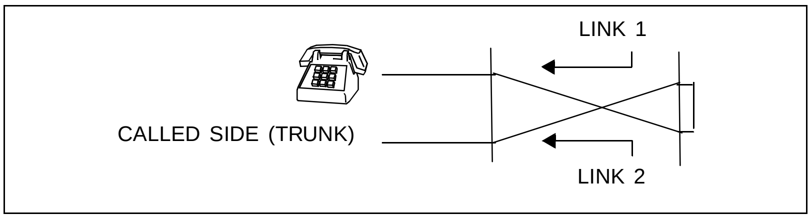
⑨ Time Slot Number of Link 1 **Note 1**

⑩ Not used

⑪ Time Slot Number of Link 2 **Note 1**

⑫ Not used

Note 1: *Station at which the operation was performed as shown below.*



When type of connection is ACD Trunk connection

② ACD Trouble Kind

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: ACD trouble kind
01H=ACD trunk trouble key **Note 1**
14H=ACD reset start **Note 2**
15H=Insufficient ACD memory
16H=Insufficient ACD call record
17H=Excessive business station on ACD calls
18H=Excessive calls queued
21H=Unknown Pilot No. called **Note 3**
24H=Illegal execution of ACD timeout procedure **Note 4**
30H=ACD pointer error detection and recovery **Note 5**
33H=ACDP reset completion **Note 6**
34H=Call recovery failure on unknown Pilot No. **Note 7**
37H=ACD Traffic (incoming) Capacity Over
99H=Illegal ACD processing-trace stored **Note 4**

Note 1: *When "② (ACD Trouble Kind)" is 01 Hex:*

③ ~ ⑥ Information on Calling Party

(a) Station
My Line No.

	b4-b7	b0-b3
③	DC0	DC1
④	DC2	DC3
⑤	DC4	DC5
⑥		

(b) Trunk
Route No.+Trunk No.

	b4-b7	b0-b3	
③		DC0	Route No.
④	DC1	DC2	
⑤		DC0	Trunk No.
⑥	DC1	DC2	

Example: RT125,TKl0
01 25 00 l0
③ ④ ⑤ ⑥

⑦ ⑧ Not Used
⑨ ⑩ Information on Calling Party
Refer to
⑪ ⑫ Information on Held Party or 3rd Station/Trunk in 3-Party Connection
Refer to

Note 2: *When "② (ACD Trouble Kind)" is 14 Hex:*

③ Issue of ACDP (First digit of decimal place)
④ Issue of ACDP (Second digit of decimal place)

Note 3: *When "② (ACD Trouble Kind)" is 21 Hex:*

③ ~ ⑥ Information on Calling Party
Refer to ③ ~ ⑥ of **Note 1**
⑦ ⑧ Not used
⑨ ⑩ Information on Unknown Pilot No.
Refer to ③ ~ ⑥, (a) Station of **Note 1**

Note 4: *When"② (ACD Trouble Kind)" is 24 or 99 Hex:*

③ ~ ⑥ Not used

⑦, ⑧ Error Counter

Note 5: *When"② (ACD Trouble Kind)" is 30 Hex:*

③ ~ ⑥ Pointer Address

⑦ Not used

⑧ Error Kind

Note 6: *When"② (ACD Trouble Kind)" is 33 Hex:*

③ ACDP Data Memory
00 = Used
01 = Not used

④ ACDP System Capacity
02 = 50 Agent Positions
04 = 200 Agent Positions
07 = 500 Agent Positions
12 = 900 Agent Positions
15 = 2,000 Agent Positions
Note

Note: *If other data is output, the ACD system may not be working correctly. In this case, be sure to install the ACD application again by using the MSVIP command.*

Note 7: *When"② (ACD Trouble Kind)" is 34 Hex:*

③ ~ ⑥ Information on Unknown Pilot No.
Refer to ③ ~ ⑥, (a) Station of **Note 1**

6-I	STA-Test Connection Data			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays to indicate the result of a designated connection test (Individual Trunk Access) from a station.

```
1: XXXX XXXX XXXX XXXX 2: XXXX 00XX XXXX XXXX 3: XXXX XXXX XXXX XX00
   ① ②  ③ ④  ⑤ ⑥  ⑦ ⑧     ⑨ ⑩    ⑪   ⑫   ⑫      ⑫   ⑫   ⑫   ⑫
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Test Item (b0-b3 is valid only for Outgoing trunk test)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Kind of Signal
- 2 = Second Dial Tone
- 6 = Sender (Delay Dial Start)
- 7 = Sender (Wink Start)

b3: 0/1 = Data is not valid/valid

b4-b7: Test item
- 1 = Outgoing Trunk Test
- 2 = ORT/IRT Test
- 3 = Sender Test
- 4 = Digital Conference
- 5 = Tone Test
- 6 = Ringing Signal test
- 0 = Test NG

②

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Number of digits of testing station No.
b4-b7: Error Numbers (see table below)

Error Numbers and Their Meanings

ERROR NO.	MEANING
0	---
1	Testing station is restricted from activating the service.
2	Route Number Error of the designated trunk
3	Trunk Number Error of the designated trunk
4	Trunk busy
5	Sender busy
6	SMDR failure
7	Call origination restriction
8	Register busy
9	Trunk Number Error - when the trunk has been designated by SHF.
A	Trunk busy - when the trunk has been designated by SHF.
B	Inter-digit timer expiration
C	Register or sender is defective with respect to DP, DP/PB
D	Register of sender is faulty with respect to PB
E	Tone fault
F	Test Processing Error

③ ~ ⑤ Station number of testing station (see table)

	b4-b7	b0-b3
③	DC0	DC1
④	DC2	DC3
⑤	DC4	DC5

⑥ Tenant No.

b7				b3	b2	b1	b0

b0-b3: Tenant No. (1-15)
b7: OP
0/1 = Data in OPTN (⑦) is invalid/valid

⑦ Tenant No.

b0-b3: Tenant No. (Over 15)

				b3	b2	b1	b0

⑧ Tested Route No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b5: Route No. (1-63) **Note**
b6: OP
0/1 = Data in OPRT (⑨) is invalid/valid
b7: AC
0/1 = Internal trunk/External trunk

Note: *When Logical Routes are assigned, Logical Route Numbers are displayed here.*

b0-b7: Route No. (> 64) **Note**

⑨ OPRT data

b7	b6	b5	b4	b3	b2	b1	b0

Note: *When Logical Routes are assigned, Logical Route Numbers are displayed here.*

⑩ (This data is not for Ringing Signal Test)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: Trunk No. for Outgoing trunk test, ORT/IRT Test, Sender Test and Digital Conference test
Tone Slot No. for Tone Test

0 = DT	1 = SPDT
2 = RBT	3 = CRBT, CWT
4 = BT	5 = RBT
6 = SST, WT	7 = SDT
8 = TRG	9 = SDTT
10 = CWRBT	14 = MSC

⑪ Digit of Dialed Number (for test)

b7			b4	b3	b2	b1	b0

b0-b4: Dialed number digit sent by the test Trunk/Sender
or
Dialed number digit received by the test Register

⑫ Dialed Number (for test)

b7	b6	b5	b4	b3	b2	b1	b0

(a) Dialed Number sent by the test Trunk/Sender

b4-b7	**b0-b3**	**b4-b7**	**b0-b3**
DC0	DC1	DC12	DC13
DC2	DC3	DC14	DC15
DC4	DC5	DC16	DC17
DC6	DC7	DC18	DC19
DC8	DC9	DC20	DC21
DC10	DC11		

b) Dialed Number received by the test Register

b4-b7	**b0-b3**
DC0	DC1
DC2	DC3
DC4	DC5
DC6	DC7
DC8	DC9
DC10	DC11

6-J	Emergency Call			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a call terminates to the Emergency Telephone.

```
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX 0000 0000 3: 0000 0000 0000 0000
   ①②   ③④   ⑤⑥   ⑦⑧      ⑨⑩   ⑪⑫
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① ~ ⑥ Called Station (Emergency Telephone) No. (ASCII Code)

b7	b6	b5	b4	b3	b2	b1	b0

① DC0 (1st digit)
② DC1 (2nd digit)
③ DC2 (3rd digit)
④ DC3 (4th digit)
⑤ DC4 (5th digit)
⑥ DC5 (6th digit)

⑦ ~ ⑫ Calling Station No. (ASCII Code)

b7	b6	b5	b4	b3	b2	b1	b0

⑦ DC0 (1st digit)
⑧ DC1 (2nd digit)
⑨ DC2 (3rd digit)
⑩ DC3 (4th digit)
⑪ DC4 (5th digit)
⑫ DC5 (6th digit)

6-L	Emergency Control Start			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the LCR-Attendant Manual Override is set at the Attendant/Desk Console.

```
1:  XX00  0000  0000  0000  2:  0000  0000  0000  0000  3:  0000  0000  0000  0000
    ①
4:  0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7:  0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① Route Selection Time Pattern No. assigned at Attendant/Desk Console

b0-b2: Pattern No. (1-7)

					b2	b1	b0

Note: *Route Selection Time Pattern 0-7 corresponds to TDPTN No. 0-7 in the AOPR command.*

6-M	Emergency Control Stop			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the LCR-Attendant Manual Override is cancelled at the Attendant/Desk Console.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Suspension of Emergency Control

							b0

b0: Fixed 0.
0 = Outgoing call restriction is released by Attendant/Desk Console

Note: *Route Selection Patterns 0-7 corresponds to TDPTN No. 0-7 in the AOPR command.*

6-N	Abnormal Call Duration Data			
	Default Alarm: NON	**Default Grade:** 0	**Grade Modified:**	**Lamp Modified:**

This message displays when the system detects abnormal duration in the line connection between the calling and called party. When the calling and called party establish a line connection and continue the hook-up for an extremely short or long period of time (predetermined by the ASYD command (SYS1, INDEX45, 46)), this message is created.

```
1: XXXX XXXX XXXX XX00 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XX00
   ①②   ②③   ③③   ③       ④⑤   ⑤⑤   ⑤⑤   ⑤⑤      ⑤⑤   ⑤⑤   ⑤⑤   ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Calling party information

b7				b3	b2	b1	b0

b0-b3: Type of Calling party
0 = Station
1 = Attendant console
2 = Trunk
b7: 0/1 = Short/Long Time

② Tenant No. of Calling/Called party (Hex.)

③ Calling party Information

When calling party is Station

Calling station No. (See table)

b7	b6	b5	b4	b3	b2	b1	b0

b4-b7	b0-b3
DC0	DC1
DC2	DC3
DC4	DC5

When calling party is ATTCON/DESKCON

Attendant/Desk console No. (See table.)

b7	b6	b5	b4	b3	b2	b1	b0

b4- b7	b0-b3
DC0	DC1

When calling party is Trunk

Route No. and Trunk No. (See table.)

	b0-b7
(a)	Route No. (Hex) **Note**
(b)	Route No. (Hex) **Note**
(c)	Trunk No. (Hex)
(d)	Trunk No. (Hex)

Note:

Route No. (a)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b5: Route No. (1-63)
b6: OP
0/1 = Data in OPRT is invalid/valid
b7: AC
0/1 = Internal trunk/External trunk

Route No. (b)

				b3	b2	b1	b0

b0-b3: OPRT
Route No. (Over 64)

④ Called party information

				b3	b2	b1	b0

b0-b3:
00 = Station-to-Station call
01 = Outgoing call to outside
02 = Incoming call from outside

⑤ Called Party Information

Station to Station Call

(a) Type of called party

00 = Station

b7	b6	b5	b4	b3	b2	b1	b0

b4-b7	b0-b3
(a)	
Tenant No.	
Tenant No.	
DC0	DC1
DC2	DC3
DC4	DC5

OG Call to outside

b4-b7	b0-b3
Route No. (Hex)	
Route No. (Hex)	
Trunk No. (Hex)	
Trunk No. (Hex)	
DC0	DC1
DC2	DC3
DC4	DC5
DC6	DC7
DC8	DC9
DC10	DC11
DC12	DC13
DC14	DC15
DC16	DC17
DC18	DC19

IC Call from outside

b0-b7
Route No. (Hex)
Route No. (Hex)
Trunk No. (Hex)
Trunk No. (Hex)

6-O	SMDR Output Buffer Overflow Alarm			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when the SMDR output buffer usage rate has exceeded the value assigned to ASYD, SYS1, INDEX249.

```
1: XXXX XXXX 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③ ④
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detail Information

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: FS
b4-b7: FE

This system message varies depending on the data at ①.

	FS	FE	MEANING
(a)	0	0	SMDR output buffer usage rate exceeds the value assigned by ASYD, SYS1, INDEX249.
(a)	0	1	After SMDR output buffer usage rate exceeds the value assigned by ASYD, SYS1, INDEX249, usage rate lowered less than the value assigned by INDEX250.
(b)	1	0	-
(c)	2	0	Data output is impossible due to SMDR apparatus failure.

(a) FS = 0, FE = 0/1

②

							b0

b0: 0/1 = Data assigned by the ASYD, SYS1, INDEX249, 250 is valid/ invalid

③ Buffer Usage Rate Assigned by ASYD, SYS1, INDEX249

b0-b3: Units
b4-b7: Tens

b7	b6	b5	b4	b3	b2	b1	b0

④ Buffer Usage Rate Assigned by ASYD, SYS1, INDEX250

b0-b3: Units
b4-b7: Tens

b7	b6	b5	b4	b3	b2	b1	b0

(b) FS = 1, FE = 0

②

b0, b1: Fault Grade by ALMG command

00 = NON CONT	01 = SUP
10 = MN	11 = MJ

						b1	b0

③ Overflow Rate

b0: 0/1 = -/100% Overflow

							b0

④ Overflow Rate

b4-b7: 1-9 = 10%-90% Overflow

b7	b6	b5	b4				

(c) FS = 2, FE = 0

② SMDR Group No.

b0-b3: SMDR Group No. to which failure occurred

				b3	b2	b1	b0

③ Port No.

b0-b7: Port No. allocated for SMDR Group to which failure occurred (0-7)

b7	b6	b5	b4	b3	b2	b1	b0

④ Not used

(d) FS = 3, FE = 0

②

b0-b3: SMDR Group No. to which failure occurred

				b3	b2	b1	b0

6-P	SMDR Output Buffer Overflow Release			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message displays when the SMDR output buffer usage rate has been lowered to less than the value assigned in the ASYD, SYS1, INDEX250 after the rate exceeds the value assigned by INDEX249.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detail Information

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: 00H = After SMDR output buffer usage rate exceeds the value assigned by ASYD, SYS1, INDEX249, the rate lowered less than the value assigned by INDEX250.

7-A	System Initialize With Data Load			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays after the office data is loaded and system initialization has executed.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①    ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

①

			b4	b3	b2	b1	b0

b0: 0/1 = IPL/PWR ON
b1: 0/1 = Load Key OFF/ON
b2: 0/1 = IPL KEY/MAT INITIAL
b3: 0/1 = Program load is executed/-
b4: 0/1 = -/Phase1 Restart **Note 1**

② Load Status

b7	b6	b5	b4	b3	b2	b1	b0

				b11		b9	b8

b0: Office Data Load Status
0/1 = Load OK/NG
b1: Call Forwarding Data Load Status
0/1 = Load OK/NG
b2: Individual Speed Calling Data Load Status
0/1 = Load OK/NG
b3: RCF Data Load Status
0/1 = Load OK/NG
b4: Name Display Data Load Status
0/1 = Load OK/NG
b5: Network DM Load Status
0/1 = Load OK/NG
b6: Local DM Load Status
0/1 = Load OK/NG
b7: 0/1 = DM Load/Non Load
b8: User assign Soft Key Data Load Status
0/1 = Load OK/NG
b9: Number Sharing Data Load Status
0/1 = Load OK/NG **Note 2**
b11: Call Block Data Load Status
0/1 = Load OK/NG

Note 1: *Phase 1 Restart is executed when initializing the system without disrupting the following two-way connections that have already been established:*

- *Basic two-way connections (STN-STN, STN-TRK, TRK-TRK)*
- *Fixed connections*
- *Two-way connections established on a Fusion link*

Note 2: *The Number Sharing data load also affects the data load of Dual Station Calling Over-FCCS .*

For more details, see Chapter 6, Section 12.

7-B	System Initialize			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when system initialization is activated.

```
1: XX00 XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③

4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

①

			b4	b3	b2		

b2: 0/1 = IPL KEY/MAT INITIAL
b3: 0/1 = Program Load/Non Load
b4: 0/1 = -/Phase1 Restart **Note 1**

② Details on Intialization **Note 2**

						b1	b0

b0: 0/1 = -/ISW → LN Remote Initialization Request
b1: 0/1 = -/ISW → LN Data Sending Error

③ FPC No. **Note 2**

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: FPC No. of LN where initialization request sent

Note 1: *Phase 1 Restart is executed when initializing the system without disrupting the following two-way connections that have already been established:*

- *Basic two-way connections (STN-STN, STN-TRK, TRK-TRK)*
- *Fixed connections*
- *Two-way connections established on a Fusion link*

Note 2: *When the whole system is initialized via key information from the ISW, this message is output in each LN/ISW. However, the data ② and ③ are displayed at the ISW only.*

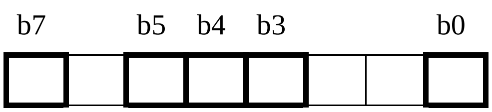
For more details, see Chapter 6, Section 12.

7-C	CPU MBR Key Turn ON			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the CPU Front Panel has been turned ON at the time of CPU changeover or speech path changeover.

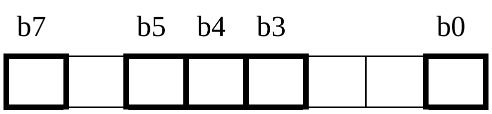
```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Self-CPU Restart Information



b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information



b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

7-D	CPU MBR Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the CPU Front Panel has been turned OFF at the time of CPU changeover or speech path changeover.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Self-CPU Restart Information

b7		b5	b4	b3			b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

② Mate-CPU Restart Information

b7		b5	b4	b3			b0

b0: 0/1 = -/Monitor Restart
b3: 0/1 = -/Initialization
b4: 0/1 = -/Data Copy Restart (for Dual-CPU system only)
b5: 0/1 = -/MB control
b7: 0/1 = ACT/STBY (active system indication after restart)

7-E	TSW MBR Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MBR switch on the TSW card has been turned ON at CPU changeover or speech path changeover.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① System Status of TSW Card

b7							b0

b0: 0/1 = No. 0 system/No. 1 system

b7: Kind of PKG
0/1 = SW12/GT09

7-F	TSW MBR Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the TSW card has been turned OFF at CPU changeover or speech path changeover.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① System Status of TSW Card

b7							b0

b0: 0/1 = No. 0 system/No. 1 system

b7: Kind of PKG
0/1 = SW12/GT09

7-I	ALMC MB Key Turn ON			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the EMA card has been turned ON when extracting or inserting a circuit card or at PM initialization. This message displays with the [7-J]: ALMC MB Key Turn OFF message.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Frame No. and its Kind

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Frame No. (0 only)
b4-b5: Frame Group No. (0 only)
b6-b7: Kind of Frame
00=IMG

7-J	ALMC MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the EMA card has been turned OFF when extracting or inserting a circuit card or at PM initialization.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Frame No. and its Kind

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Frame No. (0 only)
b4-b5: Frame Group No. (0 only)
b6-b7: Kind of Frame
00=IMG

7-K	PM MB Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MB switch on the line/trunk card has been turned ON when extracting or inserting a circuit card or at PM initialization.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Line/Trunk Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

7-L	PM MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the line/trunk card has been turned OFF when extracting or inserting a circuit card or at PM initialization.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Line/Trunk Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

7-M	NCU MB Key Turn ON			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the PFT card has been turned ON when extracting or inserting a circuit card or at PM initialization.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty PFT Card No.

					b2	b1	b0

b0-b2: Circuit card No. (0-7)

② Faulty PFT Card Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

7-N	NCU MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the PFT card has been turned OFF when extracting or inserting a circuit card, or at PM initialization.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty PFT Card No.

b0-b2: Circuit card No. (0-7)

					b2	b1	b0

② Faulty PFT Card Location

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

b7	b6	b5	b4	b3	b2	b1	b0

7-O	Cyclic Diagnosis Normal			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

In a specific time cycle, the system allows a routine diagnosis in its hardware and software to determine if they are operating properly. This message indicates that the system has been checked by the routine diagnosis program and the result of the diagnosis is normal.

```
1: XXXX XXXX XXXX XXXX 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①        Note
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

b7	b6	b5	b4	b3	b2	b1	b0

[00H] Routine Diagnosis Start
[10H] Program Memory Verification Normal End
[20H] Data Memory Verification Normal End
[30H] TSW ACT/STBY Changeover Normal End
[40H] CPU ACT/STBY Changeover Normal End
[50H] No Trunk Ineffective Hold
[70H] Call Forwarding Memory Clear Normal End
[A0H] Periodic Back-up Normal End
[C0H] Detection of Remaining Link Normal End

Note: *The data in this area will be diverse, according to the diagnosis specified in ①. For details on each item data, see the following pages.*

[00H] Routine Diagnosis Start

```
1: 00XX 0X0X XX00 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②  ③ ④  ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[00H] Routine Diagnosis Start (LN)
[01H] Routine Diagnosis Start (ISW)

② Diagnosis Menu (SYS1, Index 89)

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1=-/Program Memory Verification
b1: 0/1=-/Data Memory Verification
b2: 0/1=-/TSW ACT/STBY Changeover
b3: 0/1=-/CPU ACT/STBY Changeover
b4: 0/1=-/Trunk Ineffective Hold Check
b5: 0/1=-/Trunk Ineffective Hold Detection
b6: 0/1=-/Call Forwarding Memory Clear
b7: 0/1=-/IP ACT/STBY Changeover

③ Diagnosis Menu (SYS1, Index 90)

				b3		b1	

b1: 0/1 = -/Periodic Back-up
b3: 0/1 = -/Residual Link Detection

④ Call Forward Memory Clear Item
(SYS1, Index 232)

					b2	b1	b0

b0: 0/1 = -/Call Forward All Clear
b1: 0/1 = -/Call Forward Busy Clear
b2: 0/1 = -/Call Forward No Answer Clear

⑤ Periodic Back-up Item
(SYS1, Index 304)

		b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Individual Speed Calling Data Save
b1: 0/1 = -/Call Forwarding Data Save
b2: 0/1 = -/PCS Data Save
b3: 0/1 = -/Name Display Data Save
b4: 0/1 = -/User Assign Soft Key Data Save
b5: 0/1 = -/Number Sharing Data Save

[10H] Program Memory Verification Normal End

```
1: 10XX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[10H] Program Memory Verification Normal End

② Information on HD

						b1	b0

b0: 0/1 = -/HFD 0 is normal
b1: 0/1 = -/HFD 1 is normal

③ Verification of Drive Number

				b3	b2	b1	b0

b0: 0/1 = -/Drive Number 0
b1: 0/1 = -/Drive Number 1
b2: 0/1 = -/Drive Number 2
b3: 0/1 = -/Drive Number 3

[20H] Data Memory Verification Normal End

```
1: 20XX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[20H] Data Memory Verification Normal End

② Verification of HD

						b1	b0

b0: 0/1 = -/HFD 0 is normal
b1: 0/1 = -/HFD 1 is normal

③ Verification of Data Memory

					b2	b1	b0

b0: 0/1 = -/Data Memory
b1: 0/1 = -/Local Data Memory
b2: 0/1 = -/Network Data Memory

[30H] TSW ACT/STBY Changeover Normal End

```
1: 30XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item	[30H] TSW ACT/STBY Changeover Normal End
② Active TSW system after the changeover	b0: 0/1 = TSW No. 0 is ACT/TSW No. 1 is ACT

							b0

[40H] CPU ACT/STBY Changeover Normal End

```
1: 40XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[40H] CPU ACT/STBY Changeover Normal End

② Active status information after changeover

						b1	b0

b0: CPU
0/1 = No. 0 is ACT/No. 1 is ACT
b1: TSW
0/1 = No. 0 is ACT/No. 1 is ACT

[50H] No Trunk Ineffective Hold

```
1: 50XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[50H] No Trunk Ineffective Hold

② MG and Unit of No.

b7	b6	b5	b4	b3	b2	b1	b0

b0: Unit 0, Even-numbered MG
1 = No Trunk Ineffective Hold
b1: Unit 1, Even-numbered MG
1 = No Trunk Ineffective Hold
b2: Unit 2, Even-numbered MG
1 = No Trunk Ineffective Hold
b3: Unit 3, Even-numbered MG
1 = No Trunk Ineffective Hold
b4: Unit 0, Odd-numbered MG
1 = No Trunk Ineffective Hold
b5: Unit 1, Odd-numbered MG
1 = No Trunk Ineffective Hold
b6: Unit 2, Odd-numbered MG
1 = No Trunk Ineffective Hold
b7: Unit 3, Odd-numbered MG
1 = No Trunk Ineffective Hold

[70H] Call Forwarding Memory Clear Normal End

```
1: 7000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item	[70H] Call Forwarding Memory Clear Normal End

[A0H] Periodic Back-up Normal

```
1: A0XX XX00 0000 XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③         ④
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[A0H] Periodic Back-up Normal

② Information on Periodic Backup Normal End

						b1	b0

b0: 0/1 = HFD 0 Normal end/Abnormal end
b1: 0/1 = HFD 1 Normal end/Abnormal end

③ Backup Data to No. 0 system

	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Individual Speed Calling Data
b1: 0/1 = -/Call Forwarding Data
b2: 0/1 = -/RCF
b3: 0/1 = -/Name Display Data
b4: 0/1 = -/User Assign Soft Key Data
b5: 0/1 = -/Number Sharing Data **Note**
b6: 0/1 = -/Call Block Data

④ Backup Data to No. 1 system

	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Individual Speed Calling Data
b1: 0/1 = -/Call Forwarding Data
b2: 0/1 = -/RCF
b3: 0/1 = -/Name Display Data
b4: 0/1 = -/User Assign Soft Key Data
b5: 0/1 = -/Number Sharing Data **Note**
b6: 0/1 = -/Call Block Data

Note: *The Number Sharing data load also affects the data load of Dual Station Calling Over-FCCS.*

[C0H] Detection of Remaining Link Normal End

```
1: C000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

b7	b6	b5	b4	b3	b2	b1	b0

[C0H] Detection of Remaining Link Normal End

7-P	Cyclic Diagnosis Information (Error Detected)			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

In a specific time cycle, the system allows a routine diagnosis in its hardware and software to determine if they are operating properly. This message indicates that the system has been checked by the routine diagnosis program and the result of the diagnosis is not normal.

```
1: XXXX  XXXX  XXXX  XXXX  2: 0000  0000  0000  0000  3: 0000  0000  0000  0000
   ①          Note 3
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

① Detected Error Item

b7	b6	b5	b4	b3	b2	b1	b0

[10H] Program Memory Verification Discrepancy
[11H] Program Memory Verification Impossible (HFD Fault)
[12H] Program Memory Verification Impossible (Fault at CPU side)
[20H] Data Memory Verification Discrepancy
[21H] Data Memory Verification Impossible (HFD Fault)
[31H] TSW ACT/STBY Changeover Failure (ISW)
[32H] TSW ACT/STBY Changeover Failure (LN)
[41H] CPU ACT/STBY Changeover Failure
[42H] CPU ACT/STBY Changeover Failure (DM or PM Verification NG)
[43H] CPU ACT/STBY Changeover Failure (PCI Fault)
[44H] CPU ACT/STBY Changeover Failure (Changeover NG or CPU RAM Copy NG)
[50H] Trunk Ineffective Hold Detected
[51H] Trunk Ineffective Hold Detected and Released
[52H] Trunk Ineffective Hold Detected Impossible
[70H] Call Forwarding Memory Clear NG
[A0H] Periodic Backup Abnormal End
[C0H] Detection of Remaining Link Abnormal End

Note 1: *This data is output at the ISW.*

Note 2: *This data is collected and output at the ISW.*

Note 3: *The data in this area will be diverse, according to the diagnosis specified in ①. For details on each item data, see the following pages.*

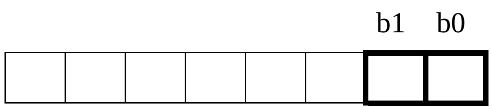
[10H] Program Memory Verification Discrepancy

```
1: 1000  XXXX  XXXX  XXXX  2:  XXXX  0000  0000  0000  3:  0000  0000  0000  0000
    ①      ② ③          ④
4: 0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7: 0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① Detected Error Item

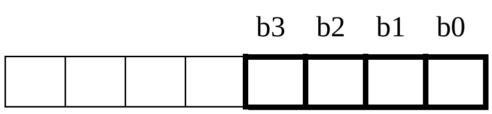
[10H] Program Memory Verification Discrepancy

② Faulty HFD number



b0: 0/1 = -/HFD 0
b1: 0/1 = -/HFD 1

③ Verification of Drive Number



b0: 0/1 = -/Drive Number 0
b1: 0/1 = -/Drive Number 1
b2: 0/1 = -/Drive Number 2
b3: 0/1 = -/Drive Number 3

④ Data analyzed by NEC Engineers

[11H] Program Memory Verification Impossible (HFD Fault)

```
1: 11XX XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③   ④  ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[11H] Program Memory Verification Impossible (HFD Fault)

② HFD No. (verification suspended)

						b1	b0

b0: 0/1 = -/HFD 0
b1: 0/1 = -/HFD 1

③ Error Type

b7	b6	b5	b4	b3	b2	b1	b0

00H: HD Processing NG
01H: HD Not Connected
02H: HD Busy
03H: HD Fault (Fault processing/No equipment, etc.)
04H: Transfer NG
05H: Response Timeout

④ Data analyzed by NEC Engineers

⑤ Error Drive **Note**

				b3	b2	b1	b0

b0: 0/1 = -/Drive Number 0
b1: 0/1 = -/Drive Number 1
b2: 0/1 = -/Drive Number 2
b3: 0/1 = -/Drive Number 3

Note: *This data is available when* ③ *is 00 Hex.*

[12H] Program Memory Verification Impossible (Fault at CPU side)

```
1: 12XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[12H] Program Memory Verification Impossible (Fault at CPU side)

② Cause for suspended verification

						b1	b0

01H: CPU-to-CPU communication failure
02H: Check sum file copy failure

[20H] Data Memory Verification Discrepancy

```
1: 20XX  XX00  XXXX  XXXX  2: XXXX  XXXX  XXXX  XXXX  3: XXXX  XXXX  XXXX  XXXX
    ① ②   ③                                      ④
4: XXXX  XXXX  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

① Detected Error Item

[20H] Data Memory Verification Discrepancy

② Faulty HFD

						b1	b0

b0: 0/1 = -/HFD 0
b1: 0/1 = -/HFD 1

③ Diagnosed Data Memory

					b2	b1	b0

b0: 0/1 = -/Data Memory (DM)
b1: 0/1 = -/Local Data Memory (LDM)
b2: 0/1 = -/Network Data Memory (NDM)

④ Data analyzed by NEC Engineers

[21H] Data Memory Verification Impossible (HFD Fault)

```
                         DM              LDM         NDM
1:  21XX  XX00  XXXX  XXXX  2:  XXXX  XXXX  XXXX  XXXX  3:  0000  0000  0000  0000
    ①  ②   ③     ④ ⑤   ⑥ ⑦      ④ ⑤   ⑥ ⑦   ④ ⑤   ⑥ ⑦
4:  0000  0000  0000  0000  5:  0000  0000  0000  0000  6:  0000  0000  0000  0000

7:  0000  0000  0000  0000  8:  0000  0000  0000  0000  9:  0000  0000  0000  0000
```

① Detected Error Item

[21H] Data Memory Verification Impossible (HFD Fault)

② Faulty HFD

						b1	b0

b0: 0/1 = -/HFD 0
b1: 0/1 = -/HFD 1

③ Diagnosed Data Memory

					b2	b1	b0

b0: 0/1 = -/Data Memory (DM)
b1: 0/1 = -/Local Data Memory (LDM)
b2: 0/1 = -/Network Data Memory (NDM)

④ Error Type

b7	b6	b5	b4	b3	b2	b1	b0

00H: HD Processing NG
01H: HD Connection NG
02H: HD Busy
03H: HD Fault (Fault processing/No equipment etc.)
04H: Transfer NG
05H: Response Timeout

⑤ Signal Code

b7	b6	b5	b4	b3	b2	b1	b0

51H: Data Transfer starts
53H: File Transfer starts
55H: Data Load

⑥ Data analyzed by NEC Engineers

⑦ Error Drive

				b3	b2	b1	b0

b0: 0/1 = -/Drive Number 0
b1: 0/1 = -/Drive Number 1
b2: 0/1 = -/Drive Number 2
b3: 0/1 = -/Drive Number 3

Note: *When ④ (Error Type) is 00H, ⑤ Signal Code, ⑥ and ⑦ Error Drive are valid.*

[31H] TSW ACT/STBY Changeover Failure (ISW)

```
1: 31XX XX00 XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③    ④ ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

Note: *This data is output at the ISW*

① Detected Error Item

[31H] TSW ACT/STBY Changeover Failure (ISW)

② Active TSW No.

b0: 0/1=TSW No. 0 is ACT/No. 1 is ACT

							b0

③ FPC No. of ISW

b7	b6	b5	b4	b3	b2	b1	b0

④ Number of MUX cards (ACT side) **Note**

b0-b7: Total number of MUX cards mounted in all LNs

b7	b6	b5	b4	b3	b2	b1	b0

⑤ Number of MUX cards (STBY side) **Note**

b0-b7: Total number of MUX cards mounted in all LNs

b7	b6	b5	b4	b3	b2	b1	b0

Note: *This data is displayed when MUX failure occurs in LN side.*

[32H] TSW ACT/STBY Changeover Failure (LN)

```
1: 32XX XX00 XXXX XXXX 2: XXXX XXXX 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③    ④ ⑤  ⑥ ⑦     ⑧ ⑨  ⑩ ⑪
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

Note: *This data is collected and output at the ISW.*

① Detected Error Item

[32H] TSW ACT/STBY Changeover Failure (LN)

② Active TSW No.

b0: 0/1 = TSW No. 0 is ACT/No. 1 is ACT

							b0

③ FPC No. of LN

b7	b6	b5	b4	b3	b2	b1	b0

④,⑤, ⑥, ⑦ MUX card (ACT side) linkage condition

As shown in the table below, each bit represents the Unit number allocated for each MUX card position. When “1” is set, the corresponding MUX card (status: ACT) has a functional failure.

b7	b6	b5	b4	b3	b2	b1	b0

	MG1				MG0			
④	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG3				MG2			
⑤	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG5				MG4			
⑥	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG7				MG6			
⑦	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0

0: -
1: MUX connection error (functional fault/not mounted)

⑧, ⑨, ⑩, ⑪ MUX card (STBY side) linkage condition

b7	b6	b5	b4	b3	b2	b1	b0

As shown in the table below, each bit represents the Unit number allocated for each MUX card position. When “1” is set, the corresponding MUX card (status: ACT) has a functional failure.

	MG1				MG0			
⑧	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG3				MG2			
⑨	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG5				MG4			
⑩	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0
	MG7				MG6			
⑪	Unit 3	Unit 2	Unit 1	Unit 0	Unit 3	Unit 2	Unit 1	Unit 0

0: -
1: MUX connection error (functional fault/not mounted)

[41H] CPU ACT/STBY Changeover Failure

```
1: 41XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[41H] CPU ACT/STBY Changeover Failure

② ACT Status Information

						b1	b0

b0: CPU
0/1 = No. 0 is ACT/ No. 1 is ACT

b1: TSW
0/1 = No. 0 is ACT/ No. 1 is ACT

[42H] CPU ACT/STBY Changeover Failure (DM Verification NG or PM Verification NG)

```
1: 42XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[42H] CPU ACT/STBY Changeover Failure (DM or PM Verification NG)

② ACT Status Information

						b1	b0

b0: CPU
0/1 = No. 0 is ACT/No. 1 is ACT

b1: TSW
0/1 = No. 0 is ACT/No. 1 is ACT

[43H] CPU ACT/STBY Changeover Failure (PCI Fault)

```
1: 43XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[43H] CPU ACT/STBY Changeover Failure (PCI Fault)

② ACT Status Information

						b1	b0

b0: CPU
0/1 = No. 0 is ACT/No. 1 is ACT

b1: TSW
0/1 = No. 0 is ACT/No. 1 is ACT

[44H] CPU ACT/STBY Changeover Failure (Changeover NG or CPU RAM Copy NG)

```
1: 44XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[44H] CPU ACT/STBY Changeover Failure
Changeover NG or CPU RAM Copy NG)

② ACT Status Information

						b1	b0

b0: CPU
0/1 = No. 0 is ACT/No. 1 is ACT

b1: TSW
0/1 = No. 0 is ACT/No. 1 is ACT

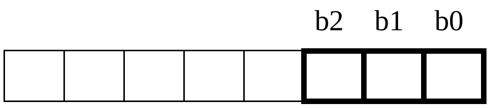
[50H] Trunk Ineffective Hold Detected

```
1: 50XX 00XX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
   ①②       ③                    ③                        ③
4: XXXX XXXX XXXX XXXX 5: XXXX XX00 0000 0000 6: 0000 0000 0000 0000
          ③                   ③
7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[50H] Trunk Ineffective Hold Detected

② LENS of Trunk Ineffective Hold (MG, U)

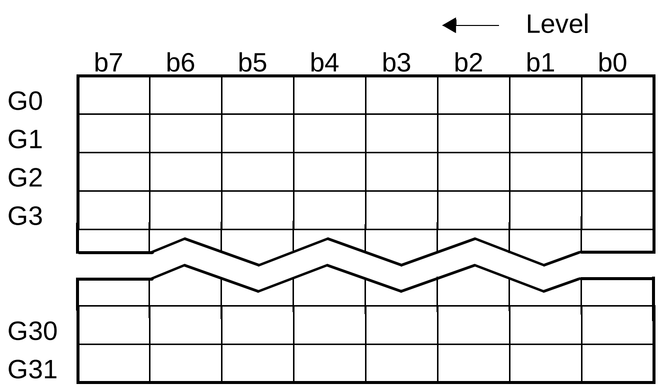


b1	b0
0	0 = Unit 0
0	1 = Unit 1
1	0 = Unit 2
1	1 = Unit 3
b2:	0/1 = Even No./Odd No. Module

③ LENS of Ineffective Hold Trunk (G, LV)

```
Group No.
1: 500X 00XX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
Group ──►   0   ① ②  ③ ④     ⑤ ⑥  ⑦ ⑧  ⑨ ⑩  ⑪⑫     ⑬⑭  ⑮⑯  ⑰⑱  ⑲⑳
Number
4: XXXX XXXX XXXX XXXX 5: XXXX XX00 0000 0000 6: 0000 0000 0000 0000
   ㉑㉒  ㉓㉔  ㉕㉖  ㉗㉘     ㉙㉚  ㉛
7: 0000 0000 0000 0000 8: 000  0000 0000 0000 9: 0000 0000 0000 0000
```

<Level>



0/1 = -/Ineffectively held

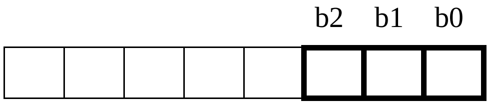
[51H] Trunk Ineffective Hold Detected and Released

```
1: 51XX  00XX  XXXX  XXXX  2: XXXX  XXXX  XXXX  XXXX  3: XXXX  XXXX  XXXX  XXXX
    ① ②          ③                    ③                         ③
4: XXXX  XXXX  XXXX  XXXX  5: XXXX  XX00  0000  0000  6: 0000  0000  0000  0000
             ③                   ③
7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

① Detected Error Item

[51H] Trunk Ineffective Hold Detected and Released

② LENS of Trunk Ineffective Hold Detected and Released (MG, U)

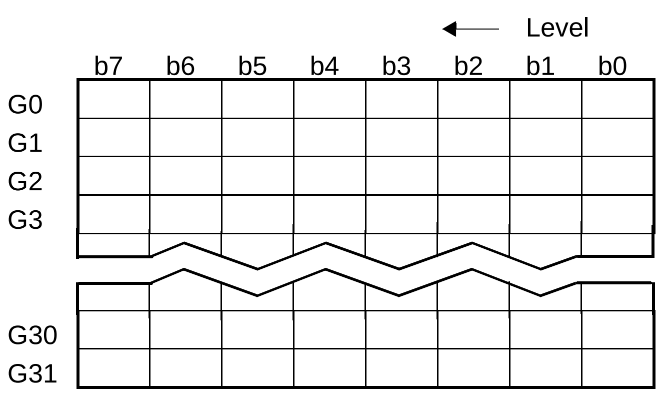


b1	b0
0	0 = Unit 0
0	1 = Unit 1
1	0 = Unit 2
1	1 = Unit 3
b2:	0/1 = Even No./Odd No. Module

③ LENS of Ineffective Hold Trunk (G, LV)

```
Group No.
1: 500X  00XX  XXXX  XXXX  2: XXXX  XXXX  XXXX  XXXX  3: XXXX  XXXX  XXXX  XXXX
Group ──►   ①   ① ②   ③ ④      ⑤ ⑥   ⑦ ⑧   ⑨ ⑩   ⑪ ⑫      ⑬ ⑭   ⑮ ⑯   ⑰ ⑱   ⑲ ⑳
Number
4: XXXX  XXXX  XXXX  XXXX  5: XXXX  XX00  0000  0000  6: 0000  0000  0000  0000
    ㉑ ㉒  ㉓ ㉔  ㉕ ㉖  ㉗ ㉘      ㉙ ㉚  ㉛
7: 0000  0000  0000  0000  8: 000   0000  0000  0000  9: 0000  0000  0000  0000
```

<Level>



0/1 = -/Ineffectively held

[52H] Trunk Ineffective Hold Detected Impossible

```
1: 5200 XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①    ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item

[52H] Trunk Ineffective Hold Detected Impossible

② Cause for the Suspended Detection

						b1	b0

b1	b0
0	1 = The CPU to detect is abnormal
1	0 = Data transfer error
1	1 = No Answer error

[70H] Call Forwarding Memory Clear NG

```
1: 7000 0X00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①    ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Detected Error Item — [70H] Call Forwarding Memory Clear NG

② Cause for which the Transfer Memory has been stopped

						b1	b0

b1	b0
0	1 = CPU is abnormal
1	0 = Data Transfer error

[A0H] Periodic Backup Abnormal End

```
1: A0XX  XX00  XXXX  XX00  2: XXXX  XXXX  XXXX  XX00  3: 0000  0000  0000  0000
   ① ②   ③     ④ ⑤   ⑥        ⑦ ⑧      ⑨       ⑩
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

① Error detection by Routine Diagnosis

[A0H] Periodic Backup Abnormal End

② Periodic Backup Abnormal End Information

						b1	b0

b0: 0/1 = HFD 0 Normal end/Abnormal end
b1: 0/1 = HFD 1 Normal end/Abnormal end

③ Backup Data to No. 0 system

	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = -/Individual Speed Calling Data
b1: 0/1 = -/Call Forwarding Data
b2: 0/1 = -/RCF
b3: 0/1 = -/Name Display Data
b4: 0/1 = -/User Assign Soft Key Data
b5: 0/1 = -/Number Sharing Data **Note**
b6: 0/1 = -/Call Block Data

④ Error Code of No. 0 system HD

b7	b6	b5	b4	b3	b2	b1	b0

Parameter:
21H:
40H~47H:
53H:
57H:
59H~5BH:
80H~84H:

HD Fault:
A0H:
A2H~A6H:
BDH:

C0H: Failed installation
01H: HD being used by another program
02H: HD not equipped

Note: *The Number Sharing data load also affects the data load of Dual Station Calling Over-FCCS.*

⑤ Error Status of No. 0 System HD

b7				b3	b2	b1	b0

Error occurs;
b0: 0/1 = -/At the time data transfer started
b1: 0/1 = -/At the time data saved
b2: 0/1 = -/At the time data transfer ended
b3: 0/1 = -/At the time file transfer started

⑥ Backup Data to No. 1 System

Refer to No. ③

b7	b6	b5	b4	b3	b2	b1	b0

⑦ Error Code of No. 1 System HD

Refer to No.④

b7	b6	b5	b4	b3	b2	b1	b0

⑧ Error Status of No. 1 System HD

Refer to No.⑤

b7				b3	b2	b1	b0

⑨ [Data analyzed by NEC Engineers]

⑩ [Data analyzed by NEC Engineers]

[C0H] Detection of Remaining Link Abnormal End

```
1: C000 XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①    ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Performed Diagnosis Item

[C0H] Detection of Remaining Link Abnormal End

b7	b6	b5	b4	b3	b2	b1	b0

② Error Data

						b1	b0

b1	b0
0	1 = CPU is not normal
1	0 = Data transfer error
1	1 = No Answer error

7-U	PLO MB Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MB switch on the PLO/CLK card is turned ON when extracting or inserting a circuit card.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Switched PLO system

b0: 0/1 = PLO No. 0 system/PLO No. 1 system

							b0

7-V	PLO MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the PLO/CLK card has been turned off when extracting or inserting a circuit card.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①②   ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Switched PLO System

							b0

b0: 0/1 = PLO No. 0 system/PLO No. 1 system

② Status of the PLO card at the time of the fault detection (Scan Data 1)

b7	b6	b5	b4	b3	b2	b1	b0

b0: 0/1 = Clock STBY/ACT
b1: 0/1 = PLO Synchronizing/PLO self-running or drifting
b2: 0/1 = -/Input clock down
b3, b4: Route of Input clock (see table)
b5: 0/1 = -/PLO input all down

b4	b3	Connected With Primary Oscillator (M-OSC)	Connected With External Clock
0	0	No. 0 M-OSC	Route 0
0	1	No. 1 M-OSC	Route 1
1	0	-	Route 2
1	1	-	Route 3

b6: 0/1 = -/PLO output down **Note**
b7: 0/1 = -/Drifting

Note: *This information includes the failure detected in PH-CK18 (CLK) card.*

③ Status of the PLO card at the time of the failure detection (Scan Data 2)

			b4			b1	b0

b0: 0/1 = -/n × 5msec clock down
b1: 0/1 = -/Frame Synchronization down from SYNC card
b4: 0/1 = -/Internal OSC clock down

13-A	CCH Clock Failure			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a clock down failure occurs in the CCH/DCH circuit card. When this message is indicated, the related CCH/DCH card is placed into make-busy status.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-B	CCH C-Level Infinite Loop Failure (Permanent)			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when C-level infinite loop of the Port Microprocessor (PM) in the CCH/DCH circuit card has occurred.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-C	CCH C-Level Infinite Loop Failure (Temporary)			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when C-level infinite loop of the Port Microprocessor (PM) in the CCH/DCH circuit card has occurred.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-D	CCH Lock-Up Failure (Permanent)			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a Port Microprocessor (PM) of the CCH/DCH card did not send an answer to the CPU.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-E	CCH Lock-Up Failure (Temporary)			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when a Port Microprocessor (PM) of the CCH/DCH card did not send an answer to the CPU.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-F	CCH B-Level Infinite Loop Failure (Permanent)			
	Default Alarm: SUP	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when B-level infinite loop of the Port Microprocessor (PM) in the CCH/DCH circuit card has occurred.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-G	CCH B-Level Infinite Loop Failure (Temporary)			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when B-level infinite loop of the Port Microprocessor (PM) in the CCH/DCH circuit card has occurred.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-H	CCS Link Failure (Permanent)			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when a failure has occurred numerous times to a common channel signaling link and the link has been placed into make-busy state.

```
1: XXXX  XX00  0000  0000  2: 0000  0000  0000  0000  3: 0000  0000  0000  0000
    ①  ②    ③
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

① Location of Faulty CCH/DCH Card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

② Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

③ Probable cause for the failure

				b3	b2	b1	b0

b0-b3: See Table:

FLT ID	CCITT ERROR	FACTOR
00	A	S (F = 1) frame is received.
01	B	DM (F = 1) response is received.
02	C	UA (F = 1) response is received.
03	D	UA (F = 0) response is received.
04	E	DM (F = 0) response is received.
05	F	SABME command is received.
06	G	N200 Timeout (Link is set)
07	H	N200 Timeout (Link is disconnected)
08	I	N200 Timeout (Link failure is restored to normal)
09	J	N (R) frame error is received.
0A	K	FRMR frame is received (Link is re-setup).
0B	L	Undefined frame is received.
0C	M	-
0D	N	Improper long frame is received.
0E	O	I frame with I field which exceeds N201 is received.
0F	-	-
10	-	Layer 1 down (for ILC)
40	-	FRMR frame is received. (Link is not re-setup)

13-I	CCS Link Failure (Temporary)			
	Default Alarm: NON	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when a failure has occurred numerous times to a common channel signaling link and the link has been placed into make-busy state. When this fault lasts over three minutes, the system message changes to [13-H] CCS Link Failure (Permanent).

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

② Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

③ Probable cause for the failure

				b3	b2	b1	b0

b0-b3: See Table.

FLT ID	CCITT ERROR	FACTOR
00	A	S (F = 1) frame is received.
01	B	DM (F = 1) response is received.
02	C	UA (F = 1) response is received.
03	D	UA (F = 0) response is received.
04	E	DM (F = 0) response is received.
05	F	SABME command is received.
06	G	N200 Timeout (Link is set)
07	H	N200 Timeout (Link is disconnected)
08	I	N200 Timeout (Link failure is restored to normal)
09	J	N (R) frame error is received.
0A	K	FRMR frame is received (Link is re-setup).
0B	L	Undefined frame is received.
0C	M	-
0D	N	Improper long frame is received.
0E	O	I frame with I field which exceeds N201 is received.
0F	-	-
10	-	Layer 1 down (for ILC)
40	-	FRMR frame is received. (Link is not re-setup)

13-J	Restoration From CCS Link Failure			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the faults pertaining to CCIS/ISDN Link are restored to normal.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

② Data to be Analyzed by NEC Engineers

b7	b6	b5	b4	b3	b2	b1	b0

13-K	CCH Reset Interrupt Failure			
	Default Alarm: SUP	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a fault occurred to the Port Microprocessor (PM) within the CCH/DCH circuit card and the restart processing is executed.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of faulty CCH/DCH card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-N	Digital Line Warning			
	Default Alarm: SUP	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when a digital line failure occurs on the DAI circuit card.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① DAI Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② Kind of Fault

			b4	b3	b2	b1	b0

b0-b4: Kind of Fault (HEX)
00 = -
01 = Frame alignment loss PCM down
02 = Bit error rate is over 10^{-6}
03 = Slip is detected
04 = -
05 = Dch down
06 = Multi-frame alignment loss
07 = -
10 = -
11 = Frame alignment loss PCM down (frequently)
12 = Bit error rate is over 10^{-4}
13 = Slip is detected (frequently)
14 = Opposite office alarm is detected
15 = -
16 = Multi-frame alignment loss (frequently)
17 = Frame alignment loss PCM down (continuously)
18 = Multi-frame alignment loss (continuously)

13-O	Digital Line Failure			
	Default Alarm: SUP	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when a digital line failure occurs in succession on the DAI circuit card.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① DAI Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② Kind of Fault

			b4	b3	b2	b1	b0

b0-b4: Kind of Fault (HEX)
00 = -
01 = Frame alignment loss PCM down
02 = Bit error rate is over 10^{-4}
03 = Slip is detected
04 = Opposite office alarm (AIS) is detected
05 = -
06 = Multi-frame alignment loss
07 = Frame alignment loss PCM down (continuously)
08 = Multi-frame alignment loss (continuously)

13-P	Digital Line Restore			
	Default Alarm: NON	**Default Grade:** 0	**Grade Modified:**	**Lamp Modified:**

This message displays when a digital line failure is restored to normal.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① DAI Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② Kind of Fault

			b4	b3	b2	b1	b0

b0-b4: Kind of Fault (HEX)
00 = -
01 = Frame alignment loss PCM down
02 = Bit error rate is over 10^{-4}
03 = -
04 = Opposite office alarm (AIS) is detected
05 = Dch restores to normal
06 = Multi-frame alignment loss

13-Q	DAU Battery Operation			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when the battery is operated in the due to the Digital Access Unit (DAU) power down.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① DAI Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

13-R	DAU Line Operation			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message displays when the main power of the Digital Access Unit (DAU) system is restored to normal, ending the temporary power acceptance from the battery observed in the message [13-Q] DAU Battery Operation."

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① DAI Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

13-Z	Power Failure			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when a PWR circuit card failure is detected.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Power Circuit Card Location

					b2	b1	b0

b0, b1: Unit No. (0-3)
b2: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② Fault Information

			b4	b3	b2	b1	

b1: 0/1 = -/-5V Power Failure
b2: 0/1 = -/+12V Power Failure
b3: 0/1 = -/+5V Power Failure
b4: 0/1 = -/-48V Power Failure

③ Power Card Classification

							b0

b0: 0/1 = Group 24 (0 side) / Group 25 (1 side)

See Chapter 4 for the Circuit Card Replacement Procedure.

15-A VPS Failure (Temporary)

Default Alarm:	Default Grade:	Grade Modified:	Lamp Modified:
SUP	1		

This message displays when a VPS failure is detected.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Probable cause for the failure

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: 0 = -
1 = Sector error
FF = Other than above

② LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group

③ LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit
b2-b7: Module Group

See Chapter 4 for the Circuit Card Replacement Procedure.

15-B	VPS Failure (Permanent)			
	Default Alarm: MN	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when a VPS failure is detected.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Probable cause for the failure

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: 0 = -
01H = Sector error
FF = Other than above

② LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group

③ LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit
b2-b7: Module Group

15-C	VPS Restore			
	Default Alarm: NON	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when a VPS failure, observed in the message [15-B], is restored to normal.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group

② LENS of VPS

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit
b2-b7: Module Group

16-A	Inside Trunk All Busy			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when Intra-Office Trunks (ATI, RST, etc.) have all become busy.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Details on Trunk name and its Route number

See table on the following page

b7	b6	b5	b4	b3	b2	b1	b0

ROUTE NO.	DATA (HEX.)	TRUNK NAME	ROUTE NO.	DATA (HEX.)	TRUNK NAME
901	01	Attendant Console	917	11	MFC Sender
902	02	Originating Register Trunk	918	12	Not used
903	03	Incoming Register Trunk	919	13	MODEM
904	04	MF Receiver	920	14	MODEM
905	05	Sender Trunk DP/PB	921	15	MODEM
906	06	PB Receiver for Automated Attendant Service	922	16	MODEM
907	07	AMP	923	17	MODEM
908	08	Not used	924	18	MODEM
909	09	Three-Way Conference Trunk	925	19	MODEM
910	0A	Not used	926	1A	MODEM
911	0B	Not used	927	1B	Not used
912	0C	Originating Register Trunk for ATTCON/DESKCON	928	1C	Not used
913	0D	Three-Way Conference Trunk for ATTCON/DESKCON	929	1D	Data Signaling Trunk-Option
914	0E	Not used	930	1E	Rate Adaptation Conversion Trunk
915	0F	Night ATTCON/DESKCON	931	1F	Not used
916	10	MFC Register			

16-B	Virtual Tie Line Set Report			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when Virtual Tie Line setup has completed.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Counter

b7	b6	b5	b4	b3	b2	b1	b0

b0: 00=-
01=Re-setup

② Virtual Tie Line Call Header Location

					b2	b1	b0

b0,b1: Unit No.
b2: Module Group No.

③ Virtual Tie Line Call Header Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group No.

16-C	Virtual Tie Line Cancel Report			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when Virtual Tie Line Cancel has completed.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Counter

b0: 0/1=-/Re-setup

							b0

② Virtual Tie Line Call Header Location

b0,b1: Unit No.
b2: Module Group No.

					b2	b1	b0

③ Virtual Tie Line Call Header Location

b0-b2: Level
b3-b7: Group No.

b7	b6	b5	b4	b3	b2	b1	b0

16-E	Virtual Tie Line Set Time Out		
Default Alarm: NON	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when Virtual Tie Line Setup has failed due to a fault in the network of the terminating office concerned.

```
1: 00XX XX8X XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
      ①  ② ③  ④ ⑤
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Virtual Tie Line Call Header Location

b0,b1: Unit No.
b2: Module Group No.

					b2	b1	b0

② Virtual Tie Line Call Header Location

b0-b2: Level
b3-b7: Group No.

b7	b6	b5	b4	b3	b2	b1	b0

③ Virtual Tie Line Call Header Location

b7 b6 b5 b4 b3 b2 b1 b0

b0-b3: Call Source

DATA	CALL SOURCE
0	User
1	Private network to which the user is directly connected. (Self side)
2	National network to which the user is directly connected. (Self side)
3	Tie-Line Network
4	National network to which the opposite party is directly connected. (Opposite party's side)
5	Private network to which the opposite party is directly connected. (Opposite party's side)
7	International Network
A	Network from Interworking
Other	Spare

b4-b7: "8" is always indicated.

④ Fault Cause

b6 b5 b4 b3 b2 b1 b0

b0-b3: Reason Kind
b4-b6: Class
0=No Answer
Other than 0=Refer to the following table

	CLASS	REASON KIND VALUE	DATA	REASON KIND
Reason Kind Class Value X X 8765 4321(bit) -000 xxxx -001 Normal Event Class	000	0001	1	Dead Number
	000	0010	2	No route to the designated transit network
	000	0011	3	No route to the opposite Party
	000	0110	6	Use of channel not allowed
	000	0111	7	Call terminated to a setup channel
	001	0000	16	Normal disconnection
	001	0001	17	Called user busy
	001	0010	18	No response from called user
	001	0011	19	Called party being rung/no answer
	001	0101	21	Communication denied
	001	0110	22	Opposite party's terminal number changed
	001	1010	26	Disconnection and release of the user not selected
	001	1011	27	Opposite party's terminal out of order
	001	1100	28	Invalid number format (Incomplete Number)
	001	1101	29	Facility denied
	001	1110	30	Answer to status inquiry
	001	1111	31	Other normal class

	CLASS	REASON KIND VALUE	DATA	REASON KIND
010 xxxx Classes not allowed use of resources	010	0010	34	No usable channel/line
	010	0110	38	Network failure
	010	1001	41	Temporary failure
	010	1010	42	Switching system congested
	010	1011	43	Access information discarded
	010	1100	44	Use of requested line/channel not allowed
	010	1111	47	Class not allowed use of other resources
Reason Kind Class Value X X 8765 4321(bit) 011 xxxx Classes not allowed use of services	011	0001	49	Use of QOS not allowed
	011	0010	50	Requested facility not contracted
	011	1001	57	Bearer capability not allowed
	011	1010	58	Bearer capability not allowed at present
	011	1111	63	Class not allowed to use other services or options
100 xxxx Classes not provided with services	100	0001	65	Unprovided bearer capability designated
	100	0010	66	Unprovided channel kind designated
	100	0101	69	Unprovided facility requested
	100	0110	70	Restricted digital information bearer capability
	100	1111	79	Class unprovided with other services or options
101 xxxx Invalid message class	001	0001	81	Invalid call number used
	101	0010	82	Invalid channel number used
	101	0011	83	Designated transit call ID number unused
	101	0100	84	Transit call ID number being used
	101	0101	85	No transit call
	101	0110	86	Designated transit call disconnected and released
	101	1000	88	Terminal attributes unmatch
	101	1011	91	Invalid transit network selected
	101	1111	95	Other invalid message class
110 xxxx Procedure error (ex: unrecognized message) class	110	0000	96	Mandatory information elements inadequate
	110	0001	97	Message kind undefined or unprovided
	110	0010	98	Call status and message unmatching or message kind undefined
	110	0011	99	Information element undefined
	110	0100	100	Content of information element invalid
	110	0101	101	Call status and message unmatching
	110	0110	102	Recovery due to timer over
	110	1111	111	Class of other procedure errors
111 xxxx Interworking class	111	111	127	Other interworking class
Others	Reserved			

16-F	Sender Start Time Out			
	Default Alarm: NON	**Default Grade:** 0	**Grade Modified:**	**Lamp Modified:**

This message indicates that an outgoing call (by connection acknowledge system) has not received an acknowledgment signal from the opposite office. As a result, the attempted outgoing call is routed to Reorder Tone (ROT) connection.

```
1: XXXX XXXX XX0X XX0X 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
   ①②   ③④   ⑤⑥   ⑦⑧      ⑨    ⑩    ⑪   ⑫              ⑫
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

In Case of Station OG/ATT OG/ATT Tandem Connection

① Type of connection and station number digits

b7 b6 b2 b1 b0

b0-b2: Digits of station number (origination)

b6-b7:

0 0 = Station OG connection

0 1 = ATT OG connection

1 1 = ATT Tandem connection

② ~ ④ Calling station number (See table)

b7 b6 b5 b4 b3 b2 b1 b0

	b4-b7	**b0-b3**
②	DC0	DC1
③	DC2	DC3
④	DC4	DC5

⑤ Tenant No. of calling station (Hex.)

b7	b6				b2	b1	b0

b7: OP data (0/1)
When OPTN data of ⑥ is valid, "1" displays.

b0-b3: Tenant No. of calling station
- bit7=0 → Tenant No. ≤ 15
- bit7=1 → 15 < Tenant No.≤ 255

Refer to the OPTN data of ⑥

⑥ OPTN data

				b3	b2	b1	b0

b0-b3: OPTN data **Note**

Note: *This data displays when the Tenant No. of the calling station is larger than 15, and bit7 of ⑤ displays as "1" (otherwise, "0" displays at any time). While the four-bit data of ⑤ is self-sufficient in verifying the Tenant No. "1-15," this OPTN data provides a supportive role to cover the larger Tenant No. ranging from 16 to 255. Use the following method to analyze the data:*

Tenant No. of Calling Station (1-15) =

0	0	0	0	Tenant No.
OPTN data (0: fixed)				bit 0 - bit 3 of ⑤

Tenant No. of Calling Station (16-255) =

OPTN data	Tenant No.
OPTN data (variable)	bit 0 - bit 3 of ⑤

⑦ OG route number (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

b7: AC data
0/1=Internal trunk/External trunk

b6: OP data (0/1)
When OPRT data of ⑧ is valid, "1" displays,

b0-b5: OG route number
- bit 6=0 → Route No. ≤ 64
- bit 6=1 → 63 < Route No.

Refer to the OPTN data of ⑧

⑧ OPRT data

b0-b3: OPRT data **Note**

				b3	b2	b1	b0

Note: *This data displays when the OG Route No. is larger than 63, and bit6 of ⑦ displays as "1" (otherwise, "0" displays at any time). While the six-bit data of ⑦ is self-sufficient in verifying the Route No. "1-63," this OPRT data provides a supportive role to cover the Route No., which is larger than 63. Use the following method to analyze the data:*

$$\text{OG Route No. (1-63)} = \underbrace{\boxed{0}\boxed{0}\boxed{0}\boxed{0}}_{\text{OPTN data (0:fixed)}}\underbrace{\boxed{\text{OG Route No.}}}_{\text{bit0 - bit5 of ⑦}}$$

$$\text{OG Route No. (64 or larger)} = \underbrace{\boxed{\text{OPTN data}}}_{\text{OPTN data (variable)}}\underbrace{\boxed{\text{OG Route No.}}}_{\text{bit0 - bit5 of ⑦}}$$

⑨ Trunk No. of OG trunk

b0-b7: Trunk No. of OG trunk

b7	b6	b5	b4	b3	b2	b1	b0

⑩ Trunk No. of the sender

b0-b7: Trunk No. of the sender

b7	b6	b5	b4	b3	b2	b1	b0

⑪ Number of digits dialed by the caller

b0-b4: Number of digits dialed by the caller

			b4	b3	b2	b1	b0

⑫ Number dialed by the caller (See table)

b7	b6	b5	b4	b3	b2	b1	b0

b4-b7	b0-b3
DC0	DC1
DC2	DC3
DC4	DC5
DC6	DC7
DC8	DC9
DC10	DC11
DC12	DC13
DC14	DC15
DC16	DC17
DC18	DC19
DC20	DC21

In Case of Tandem Connection

① Type of connection

b7	b6						

b7	b6
1	0 = Tandem connection

② IC route number (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

b7: AC data
0/1=Internal trunk/External trunk
b6: OP data (0/1)
When OPRT data of ③ is valid, "1" displays.
b0-b5: IC route number
- bit 6=0 → Route No. ≤ 64
- bit 6=1 → < 63 Route No.

Refer to the OPTN data of ③

③ OPRT data

b0-b3: OPRT data **Note**

				b3	b2	b1	b0

Note: *This data displays when the IC Route No. is larger than 63, and bit6 of ② displays as "1" (otherwise, "1" displays at any time). While the six-bit data of ② is self-sufficient in verifying the Route No. "1-63," this OPRT data provides a supportive role to cover the Route No., which is larger than 63. Use the following method to analyze the data:*

IC Route No. (1-63) = $\underbrace{\boxed{0}\boxed{0}\boxed{0}\boxed{0}}_{\text{OPRT data (0:fixed)}}\underbrace{\boxed{\text{IC Route No.}}}_{\text{bit0 - bit5 of ②}}$

IC Route No. (64 or larger) = $\underbrace{\boxed{\text{OPRT data}}}_{\text{OPRT data (variable)}}\underbrace{\boxed{\text{IC Route No.}}}_{\text{bit0 - bit5 of ②}}$

④ ~ ⑤ Trunk No. of IC trunk

b0-b7: Trunk No. of IC trunk

b7	b6	b5	b4	b3	b2	b1	b0

⑥ Not used

⑦ OG route number (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

b7: AC data
0/1=Internal trunk/External trunk
b6: OP data (0/1)
When OPRT data of ⑧ is valid, "1" displays,
b0-b5: OG route number
• bit 6=0 → Route No. ≤ 64
• bit 6=1 → < 63 Route No.
Refer to the OPTN data of ⑧

⑧ OPRT data

b0-b3: OPRT data **Note**

				b3	b2	b1	b0

Note: *This data displays when the OG Route No. is larger than 63, and bit6 of ⑦ displays as "1" (otherwise, "0" is displays at any time). While the six bit data of ⑦ is self-sufficient in verifying the Route No. "1-63," this OPRT data provides a supportive role to cover the Route No., which is larger than 63. Use the following method to analyze the data:*

OG Route No. (1-63) = $\underbrace{\boxed{0}\boxed{0}\boxed{0}\boxed{0}}_{\text{OPRT data (0: fixed)}}\underbrace{\boxed{\text{OG Route No.}}}_{\text{bit 0 - bit 5 of ⑦}}$

OG Route No. (64 or larger) = $\underbrace{\boxed{\text{OPRT data}}}_{\text{OPRT data (variable)}}\underbrace{\boxed{\text{OG Route No.}}}_{\text{bit 0 - bit 5 of ⑦}}$

⑨ Trunk No. of OG trunk

b0-b7: Trunk No. of OG trunk

b7	b6	b5	b4	b3	b2	b1	b0

⑩ Trunk No. of the sender

b0-b7: Trunk No. of the sender

b7	b6	b5	b4	b3	b2	b1	b0

⑪ Number of digits dialed by the caller

b0-b4: Number of digits dialed by the caller

			b4	b3	b2	b1	b0

⑫ Number dialed by the caller (See table)

b7	b6	b5	b4	b3	b2	b1	b0

b4-b7	b0-b3
DC0	DC1
DC2	DC3
DC4	DC5
DC6	DC7
DC8	DC9
DC10	DC11
DC12	DC13
DC14	DC15
DC16	DC17
DC18	DC19
DC20	DC21

16-K	I/O Port Line OFF			
	Default Alarm: NON	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when the DR signal of the RS-232C, connected to the port designated by the system data, remains OFF for 30 consecutive seconds while the system is in service (immediately after startup in the case of system start-up).

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Port No.

b7	b6	b5	b4	b3	b2	b1	b0

0/1 = -/Link Down

b0:	Port 0	IOC0	b4:	Port 4	IOC1
b1:	Port 1	IOC0	b5:	Port 5	IOC1
b2:	Port 2	IOC0	b6:	Port 6	IOC1
b3:	Port 3	IOC0	b7:	Port 7	IOC1

16-L	I/O Port Line Restore			
	Default Alarm: NON	**Default Grade:** 1	**Grade Modified:**	**Lamp Modified:**

This message displays when [16-K] I/O Port Line Down Failure is restored to normal.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Faulty Port No.

b7	b6	b5	b4	b3	b2	b1	b0

0/1 = -/Link Down

b0:	Port 0	IOC0	b4:	Port 4	IOC1
b1:	Port 1	IOC0	b5:	Port 5	IOC1
b2:	Port 2	IOC0	b6:	Port 6	IOC1
b3:	Port 3	IOC0	b7:	Port 7	IOC1

16-M	Hard Clock Failure			
	Default Alarm: SUP	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the timer circuit on the EMA card becomes faulty and stops functioning and 64-Hz clock alarm is output.

```
1: 0000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Message Detail Data

This system message is always indicated as 0000.

16-N	Hard Clock Restore			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when [16-M] Hard Clock Failure is restored to normal.

```
1: 0000 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Message Detail Data

This system message is always indicated as 0000.

16-T	IOC Failure (Temporary)			
	Default Alarm: SUP	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when the IOC card fails.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① IOC circuit card No.

							b0

b0: 0/1 = No. 0/No. 1

② Cause for the fault

			b4	b3	b2	b1	b0

b0: 0/1 = -/COP Alarm
b1: 0/1 = -/CLK Alarm
b2: 0/1 = -/MEM bus CLK Alarm
b3: 0/1 = -/Abnormal Interruption
b4: 0/1 = -/Infinite Loop Detected

16-U	IOC Failure (Permanent)			
	Default Alarm: SUP	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when the IOC card failure, observed in the message [16-T], is detected more than eight times a day.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① IOC circuit card No.

							b0

b0: 0/1 = No. 0/No. 1

② Cause for the fault

			b4	b3	b2	b1	b0

b0: 0/1 = -/COP Alarm
b1: 0/1 = -/CLK Alarm
b2: 0/1 = -/MEM bus CLK Alarm
b3: 0/1 = -/Abnormal Interruption
b4: 0/1 = -/Infinite Loop

See Chapter 4 for the Circuit Card Replacement Procedure.

16-X	Station Exchanged Report			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message displays when the user uses Follow Phone (SWAP) service.

```
1: XXXX XXXX XXXX XX00 2: XXXX XXXX XXXX 00XX 3: XXXX 0000 0000 0000
   ①②   ③④   ⑤⑥   ⑦       ⑧⑨   ⑩⑪   ⑫⑬    ⑭       ⑭
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Error code

b0-b7: See table

b7	b6	b5	b4	b3	b2	b1	b0

ERROR CODE (HEX)	FAILURE	ERROR CODE (HEX)	FAILURE
00	Normal End	16	Called station is busy
01	MG unmatch	17	MW has been set to Calling or Called station
02	Called party is not the station	18	Call Back/OG queuing has been set to Calling or Called station
03	TEC of Calling or Called station is abnormal	19	Call Forwarding - All Calls has been set to Calling or Called station
04	TEC unmatch	20	Call Forwarding - Busy Line has been set to Calling or Called station
05	Hunting group unmatch	21	Call Forwarding - Don’t Answer has been set to Calling or Called station
06	Call Pick Up group unmatch	22-31	-
07	Calling or Called station is Night station	32	Under processing of Data Memory Back Up
08	Call Pick Up Expand group unmatch	33	• Collision of swap service • Under swapping of One Touch Memory • Memory overflow (Max. 4 stations)

ERROR CODE (HEX)	FAILURE	ERROR CODE (HEX)	FAILURE
09	-	34	Data Memory read error
10	Calling or Called D^{term} has Data Line	35	Data Memory swap failure
11	Calling or Called D^{term} has OAI function key	36	OAI Terminal Information swap failure (CM Data)
12	Calling or Called station is Agent/ Supervisor (ACD)	37	OAI Terminal Information swap failure (LP Data)
13-15	-	38	SST Time out

② Tenant No. of the calling station

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Tenant No. (1-15)
b0-b7: Tenant No. (over 15)

③ Accommodated location of the calling station after Follow Phone service

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group (0-22)

④ Accommodated location of the calling station after Follow Phone service

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit No. (0-3)
b2-b7: MG No.

⑤ ~ ⑦ Station No. of the calling station

b7	b6	b5	b4	b3	b2	b1	b0

	b4-b7	b0-b3
⑤	DC0	DC1
⑥	DC2	DC3
⑦	DC4	DC5

⑧ Tenant No. of the called station

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Tenant No. (1-15)
b0-b7: Tenant No. (over 15)

⑨ Accommodated location of the called station

b7	b6	b5	b4	b3	b2	b1	b0

b0-b2: Level
b3-b7: Group

⑩ Accommodated location of the called station

b7	b6	b5	b4	b3	b2	b1	b0

b0, b1: Unit No. (0-3)
b2-b7: MG No.

⑪ ~ ⑬ Station No. of the called station

b7	b6	b5	b4	b3	b2	b1	b0

	b4-b7	b0-b3
⑪	DC0	DC1
⑫	DC2	DC3
⑬	DC4	DC5

⑭ Data Analyzed by NEC Engineers

17-A	CCH MBR Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MBR switch on the CCH/DCH card has turned ON.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① CCH/DCH Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② CKT No.

						b1	b0

b0, b1: CKT No. (0-3)

17-B	CCH MBR Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the CCH/DCH card has turned OFF.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① CCH/DCH Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② CKT No.

						b1	b0

b0, b1: CKT No. (0-3)

17-C	CCH MB Key Turn ON			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the CCH/DCH card has turned ON when extracting or inserting a circuit card or at PM initialization, etc.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① CCH/DCH Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

17-D	CCH MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the CCH/DCH card has turned OFF when extracting or inserting a circuit card or at PM initialization, etc.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① CCH/DCH Card Mounting Location

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

17-H	Day/Night Change Information			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message displays when the NIGHT switch on the ATTCON/DESKCON has been operated or when the DAY/NIGHT change has been executed by the external switch operation.

```
1: XXXX XXXX 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③ ④
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Tenant No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Tenant No. (1-15)
b4-b7: Tenant No. (over 15)

② Changing Method

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7:
1=Night Key on theATTCON/DESKCON
2=External Key

③ Day/Night Mode Specification

b7	b6	b5	b4	b3	b2	b1	b0

b0-b3: Mode after changing (Refer to table below)
b4-b7: Mode before changing (Refer to table below)

b0 / **b4**	**b1** / **b5**	**b2** / **b6**	**b3** / **b7**	**MEANING**
0	0	0	0	Day Mode
0	0	0	1	Night Mode 1
0	0	1	0	Night Mode 2 (*available only for Japan)*
0	0	1	1	Night Mode 3 (DIT-Night Connection Fixed) **Note**

Note: *This data is programmed as initial data.*

④ External Switch Status

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7:

01=Not used
02=Day/Night Change
03=Not used

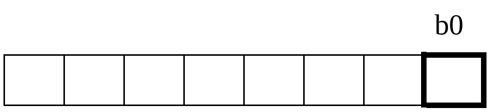
17-O	IOC MB Key Turn ON			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the IOC card has turned ON when extracting or inserting a circuit card.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Circuit Card No.

b0: 0/1 = IOC 0/IOC 1



17-P	IOC MB Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MB switch on the IOC card has turned OFF.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Circuit Card No.

b0: 0/1 = IOC 0/IOC 1

							b0

17-Q	IOC MBR Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MBR switch on the IOC card has turned ON at the time of CPU changeover or speech path changeover.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Circuit Card No.

b0: 0/1 = IOC 0/IOC 1

							b0

17-R	IOC MBR Key Turn OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the IOC card has turned OFF at the time of CPU changeover or speech path changeover.

```
1: XX00 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Circuit Card No.

b0: 0/1 = IOC 0/IOC 1

							b0

17-Y	GATE-HSW MBR Key ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MBR switch on the IOGT (PH-GT10) card in ISW is turned ON.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① IOGT card system status

b0: 0/1 = No. 0 system/No. 1 system

b0

② IOGT card system status after key operation

b7: 0/1 = Normal/MB **Note 1**

b7

Note 1: *If the MBR key on the active IOGT card is flipped, the ACT/STBY of Speech Path Systems within the whole system is totally changed over. For more details, refer to Chapter 6, Chapter 12.*

Note 2: *"1" is always displayed in the bit data.*

17-Z	GATE-HSW MBR Key OFF			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MBR switch on the IOGT (PH-GT10) card in ISW is turned OFF.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① IOGT card system status

b0: 0/1 = No. 0 system/No. 1 system

							b0

② IOGT card system status after key operation

b7: 0/1 = Normal/MB **Note**

b7							

Note: *If failure occurs on the HSW card side, the IOGT card is placed in Make-Busy state and "1" is displayed in the bit. Otherwise, "0" is displayed.*

23-P	Dch Back-Up Automatic Change Start/End			
	Default Alarm: NON	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when the Primary Dch fails, Dch Back-Up function is operated automatically.

```
1: XXXX XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②  ③ ④  ⑤ ⑥
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Condition of the Dch

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7:
- 1 = Back-up Start
- 2 = Back-up End
- 3 = Back-up Failed

② Location of the Dch (Primary)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

③ Location of the Dch (Back-up)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

④ Changeover Information

				b3	b2	b1	b0

b0, b1:
- 00 = Change from Primary Dch to Dch for Back-up
- 01 = Change from Dch for Back-up to Primary Dch
- 10 = Place Primary Dch to ACT status
- 11 = Place Dch for Back-up to ACT status

b2, b3:
- 00 = Change signal is received
- 01 = Change signal is sent

⑤ Status of the Primary/Back-up Dch

		b5	b4	b3	b2	b1	b0

b0-b2: Status of Primary Dch
- 0 = In service (ACT status)
- 1 = STBY
- 2 = Out of Service
- 3 = Make Busy
- 4 = Changing the status from STBY to In Service
- 5 = Manual Changeover out of service

b3-b5: Status of Primary Dch
- 0 = In service (ACT status)
- 1 = STBY
- 2 = Out of Service
- 3 = Make Busy
- 4 = Changing the status from STBY to In Service
- 5 = Manual Changeover out of service

⑥ EVENT No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: EVENT No.

23-Q	Dch Back-Up Manual Change Start/End			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the Primary Dch fails, and the Dch Back-Up function is operated manually.

```
1: XXXX XXXX XXXX 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②  ③  ④  ⑤  ⑥
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Condition of the Dch

b7 b6 b5 b4 b3 b2 b1 b0

b0-b7:
1 = Back-up Start
2 = Back-up End
3 = Back-up Failed

② Location of the Dch (Primary)

b7 b6 b5 b4 b3 b2 b1 b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

③ Location of the Dch (Back-up)

b7 b6 b5 b4 b3 b2 b1 b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: 0/1 = Even-numbered MG/Odd-numbered MG

④ Detailed information on changing Dch

				b3	b2	b1	b0

b0, b1:
00 = Change from Primary Dch to Dch for Back-up
01 = Change from the Dch for Back-up to Primary Dch
10 = Primary Dch Changeover to ACT status
11 = Back-up Dch Changeover to ACT status

b2, b3: The way of changing
00 = Changed by the MAT
01 = Changed by the MB switch of the circuit card
02 = Changed by placing Dch to Make-Busy
03 = Unknown

⑤ Status of the Primary/Back-up Dch

		b5	b4	b3	b2	b1	b0

b0-b2: Status of Primary Dch
0 = In service (ACT status)
1 = STBY
2 = Out of Service
3 = Make Busy
4 = Changing the status from STBY to In Service
5 = Manual Changeover out of service

b3-b5: Status of Back-up Dch
0 = In service (ACT status)
1 = STBY
2 = Out of Service
3 = Make Busy
4 = Changing the status from STBY to In Service
5 = Manual Changeover out of service

⑥ EVENT No.

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: EVENT No.

23-Y	MUX Clock Failure			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MUX (PH-PC36) card has a clock failure in one of the dual systems.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MUX Card Location and System Status

			b4	b3	b2	b1	b0

b0-b1: Unit number
b2: MG number
b3: 0/1 = MUX No. 0 system/MUX No. 1 system
b4: 0/1 = ACT/STBY

② Scan Data

				b3	b2	b1	

Scan Data:Clock alarm information on the faulty MUX card
b1: 0/1 = -/FH failure for 2M PCM Highway
b2: 0/1 = -/CLK failure for 2M PCM Highway
b3: 0/1 = -/4M CLK failure for PM

See Chapter 5 for repair procedure.

23-Z	Both MUX Clock Failure			
	Default Alarm: MN	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message displays when the MUX (PH-PC36) card has a clock failure in both of the dual systems.

```
1: XXXX XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
    ① ②  ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MUX Card Location

					b2	b1	b0

b0-b1: Unit No.
b2: MG No.

② Scan Data 1

				b3	b2	b1	

Scan Data 1:Details on clock alarm information (ACT side)
b1: 0/1 = -/FH failure for 2M PCM Highway
b2: 0/1 = -/CLK failure for 2M PCM Highway
b3: 0/1 = -/4M CLK failure for PM

③ Scan Data 2

				b3	b2	b1	

Scan Data 2:Details on clock alarm information (STBY side)
b1: 0/1 = -/FH failure for 2M PCM Highway
b2: 0/1 = -/CLK failure for 2M PCM Highway
b3: 0/1 = -/4M CLK failure for PM

See Chapter 4 for the Circuit Card Replacement Procedure.

26-N	MAT Log			
	Default Alarm: NON	Default Grade: 0	Grade Modified:	Lamp Modified:

This message displays when the MAT is log-in or log-out.

```
1: XX00 XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
    ①    ② ②  ② ②  ② ②     ③ ③  ③ ③  ③ ③  ③ ③     ③ ③  ③ ③  ③ ③  ③ ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① I/O Port No. and MAT Status

b7	b6	b5	b4		b2	b1	b0

b0-b2: I/O Port No.
000 = Port 0 001 = Port 1
010 = Port 2 011 = Port 3
100 = Port 4 101 = Port 5
110 = Port 6 111 = Port 7
b4-b7: 0000 = Login
0001 = Logout
0010 = Command is startup
0011 = Command exit

② Command Name

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: Command name

③ User Name

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: MAT user name

26-R	Call Trace			
	Default Alarm: NON	Default Grade: 2	Grade Modified:	Lamp Modified:

This massage is issued when a call, originated via a station/trunk, is judged as malicious, and then, the details on the call is traced with the called party pressing an access code or the “Call Trace” key.

[When a call is originated from a station]

```
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
     ①    ②     ③      ④               ⑤            ⑥    ⑦    ⑧    ⑨
4: XXXX XXXX XXXX XXXX 5: XXXX XX00 0000 0000 6: 0000 0000 0000 0000
        ⑩              ⑪
7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

- Information on Called Party (Informer)

① Fusion Point Code (FPC) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
①	dc0	dc1
	dc2	dc3

② Tenant No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
②	dc0	dc1
	dc2	dc3

③ Physical Station No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
③	dc0	dc1
	dc2	dc3
	dc4	dc5

④ User Group No. (UGN) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
④	dc0	dc1
	dc2	dc3

⑤ Telephone No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3	b4 - b7	b0 - b3
⑤	dc0	dc1	dc8	dc9
	dc2	dc3	dc10	dc11
	dc4	dc5	dc12	dc13
	dc6	dc7	dc14	dc15

- Information on Malicious call

⑥ Kind of Call (Hex.) **Note** 10H=Call from a station

b7	b6	b5	b4	b3	b2	b1	b0

⑦ Fusion Point Code (FPC) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑦	dc0	dc1
	dc2	dc3

⑧ Tenant No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑧	dc0	dc1
	dc2	dc3

⑨ Physical Station No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑨	dc0	dc1
	dc2	dc3
	dc4	dc5

⑩ User Group No. (UGN) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑩	dc0	dc1
	dc2	dc3

⑪ Telephone No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3	b4 - b7	b0 - b3
⑪	dc0	dc1	dc8	dc9
	dc2	dc3	dc10	dc11
	dc4	dc5	dc12	dc13
	dc6	dc7	dc14	dc15

Note: *Each No./code is output in hexadecimal. Detailed meanings are as follows:*

Output Data (Hex.)		Actual Meaning
1~9	→	1~9
A	→	0
B	→	*
C	→	#
0	→	blank

When a call is originated from a trunk

```
1: XXXX XXXX XXXX XXXX 2: XXXX XXXX XXXX XXXX 3: XXXX XXXX XXXX XXXX
    ①    ②     ③       ④              ⑤              ⑥
4: XXXX XXXX XXXX XXXX 5: XXXX 0000 0000 0000 6: 0000 0000 0000 0000
              ⑦
7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

- Information on Called Party (Informer)

① Fusion Point Code (FPC) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
①	dc0	dc1
	dc2	dc3

② Tenant No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
②	dc0	dc1
	dc2	dc3

③ Physical Station No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
③	dc0	dc1
	dc2	dc3
	dc4	dc5

④ User Group No. (UGN) (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
④	dc0	dc1
	dc2	dc3

⑤ Telephone No. (Hex.) **Note**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑤	dc0	dc1
	dc2	dc3
	dc4	dc5
	dc6	dc7
	dc8	dc9
	dc10	dc11
	dc12	dc13
	dc14	dc15

- Information on Malicious Call

⑥ Kind of Call (Hex.) **Note** 20H=Call from a trunk

b7	b6	b5	b4	b3	b2	b1	b0

⑦ Calling No. of Trunk Call (Caller ID) (Hex.) **Note**, **Note 1**

b7	b6	b5	b4	b3	b2	b1	b0

	b4 - b7	b0 - b3
⑦	dc0	dc1
	dc2	dc3
	dc4	dc5
	dc6	dc7
	dc8	dc9
	dc10	dc11
	dc12	dc13
	dc14	dc15
	dc16	dc17
	dc18	dc19
	dc20	dc21
	dc22	dc23
	dc24	dc25
	dc26	dc27
	dc28	dc29
	dc30	dc31

Note: *Each No./code is output in hexadecimal. Detailed meanings are as follows:*

Output Data (Hex.)		Actual Meaning
1~9	→	1~9
A	→	0
B	→	*
C	→	#
0	→	blank

Note 1: *If the number of the trunk call (Caller-ID) cannot be identified, the data here is output as “0”.*

26-V	LAN Interface Error Report			
	Default Alarm: SUP	Default Grade:	Grade Modified:	Lamp Modified:

This message is issued when the connection error related to external LAN Interface equipment occurs in the system.

```
        TCP/IP Part                               Application Part
1: XXXX  XXXX  XXXX  XXXX  2: XXXX  XXXX  XXXX  XXXX  3: XXXX  XXXX  XXXX  XXXX
   ① ②   ③ ④   ⑤ ⑥   ⑦ ⑧      ⑨ ⑩   ⑪ ⑫   ⑬ ⑭   ⑮ ⑯      ⑰ ⑱   ⑲ ⑳   ㉑ ㉒   ㉓ ㉔
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

①~④ IP Address for external equipment in which error has been detected. (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑤, ⑥ Port No. (Client Port No.) (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑦ Socket No. (Used Socket No.) (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑧ Error Code (TCP/IP Error Code) (Hex.) See Table 3-2.

b7	b6	b5	b4	b3	b2	b1	b0

Table 3-2 Error Code

Output Data (Hex.)	Definition	Output Data (Hex.)	Definition
BSD SOCKET ERROR		58	Address family not supported
10	User parameter error	PROTOCOL FAMILY	
11	Host not reachable	59	Address already in use
12	Timeout	60	Can't assign requested address
14	Protocol error	61	Network is down
15	No buffer space	62	Network is unreachable
16	Connection block invalid	63	Network dropped connection
17	Invalid pointer argument	RESET	
18	Operation would block	65	Connection reset by peer
19	Message too long	67	Socket is already connected
20	Protocol not available	68	Socket is not connected
50	Destination address required	69	Can't send after socket shutdown
52	Protocol wrong type for socket	72	Connection refused
54	Protocol not supported	73	Host is down
55	Socket type not supported	76	Operation already in progress
56	Operation not supported on socket	77	Operation now in progress
57	Protocol family not supported		

⑨ Application Type

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7 : (Hex)
01=SUPER SERVER
02=MAT
03=SMDR
04=MCI
05=OAI
06=PMS
07=MIS

[When ⑨=03 (SMDR) / 04 (MCI)]

⑩ Device Number of Error-detected client PC

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: (Hex)
Device Number of error-detected Client PC.
If the Machine Number is not determined, “FF” is output.

⑪ Kind of Error

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: (Hex)
01=SEND Execution Error
02=RECEIVE Execution Error
03=SEND Execution Count Over
04=RECEIVE Execution Count Over
05=System Data is not assigned
06=Time Over
07=Parity Error
08=Connection Error
09=Connection Port Capacity Over
0A=Detection of B-level Infinite Loop
0B~FF=Not used

⑫ Details on Detected Error

b7	b6	b5	b4	b3	b2	b1	b0

-When 01/02 is output at ⑪
b0-b7: Cause of error (Hex)
-When 05 is output at ⑪
b0-b7: 01=Data (Data Output via LAN) not assigned
02=Device No. not assigned
-When 07 is output at ⑪
b0-b7: 00H=No Parity is set
01H=Odd Parity is set
02H=Even Parity is set
-When 08 is output at ⑪
b0-b7: Cause of error (Hex)

⑬~㉔ Not used

When ⑨=05 (OAI) / 07 (MIS)

⑩ Faulty Logical Port No. (Hex)

b7	b6	b5	b4	b3	b2	b1	b0

⑪ Error Kind (ERRK)

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7 : Error Kind (Hex)
Refer to Table 3-3:

Table 3-3 Error Kind (ERRK)

Output Data	Error Situation	Required Check
01H	SEND Execution Error TCP/IP connection is down because the text is not transmitted continuously.	[1] Check the TCP/IP Transmission capacity on the UAP side is proper or not. [2] Check the operation status on the UAP side is normal.
02H	RECEIVE Execution Error Incorrect text format is received.	[1] Check the software operation on the MIS or Host side. [2] Check the LAN cable connection status.
03H	TCP/IP Connection Error TCP/IP connection is released due to the TCP port disconnection order from the MIS or Host.	Re-start the MIS or HOST computer.
04H	Connection Error (B-level Infinite Loop, etc.) TCP port is released due to the detection of abnormal state in the MIS or HOST operation.	Re-check the operation status of MIS or Host.
05H	TCP/IP Port Capacity Over TCP/IP connection cannot be established due to the connection port capacity over.	The number of allowed ports for application use via TCP/IP must be 16 or less. Adjust the used application number not to exceed “16” in total.

⑫~㉔ Not used

26-W	LAN Interface Release Report			
	Default Alarm: NON	Default Grade:	Grade Modified:	Lamp Modified:

This message is issued when the LAN Interface Connection Failure, detected in Message [26-V], recovers. This message is displayed when the LAN Interface Connection Failure is restored, and then the first data is normally sent/received by the recovered application equipment.

```
         TCP/IP Part                              Application Part
1: XXXX  XXXX  XXXX  XXXX  2: XXXX  XXXX  XXXX  XXXX  3: XXXX  XXXX  XXXX  XXXX
   ① ②   ③ ④   ⑤ ⑥   ⑦ ⑧      ⑨ ⑩   ⑪ ⑫   ⑬ ⑭   ⑮ ⑯      ⑰ ⑱   ⑲ ⑳   ㉑ ㉒   ㉓ ㉔
4: 0000  0000  0000  0000  5: 0000  0000  0000  0000  6: 0000  0000  0000  0000

7: 0000  0000  0000  0000  8: 0000  0000  0000  0000  9: 0000  0000  0000  0000
```

①~④ IP Address for external equipment in which error has been detected. (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑤, ⑥ Port No. (Client Port No.) (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑦ Socket No. (Used Socket No.) (Hex.)

b7	b6	b5	b4	b3	b2	b1	b0

⑧ Error Code (TCP/IP Error Code) (Hex.) See Table 3-2.

b7	b6	b5	b4	b3	b2	b1	b0

⑨ Application Type

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7 : (Hex)
01=SUPER SERVER
02=MAT
03=SMDR
04=MCI
05=OAI
06=PMS
07=MIS

When ⑨=03 **(SMDR) / 04 (MCI)**

⑩ Device Number of recovered client PC

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: (Hex)
Device Number of recovered Client PC for external LAN Interface.

⑪ Recovery Information

b7	b6	b5	b4	b3	b2	b1	b0

b0-b7: (Hex)
01=Recovered
02~FF=Not defined

27-E	DLMX MBR Key Turn ON			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message is issued when the MBR switch on the DLMX card has been turned ON at the time of DLMX ACT/ST-BY changeover, etc.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of the DLMX card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② System status of DLMX card

b7						b1	b0

b0: 0/1 = System #0/#1
b1: 0/1 = ACT/SY-BY

27-F	DLMX MBR Key Turn OFF			
	Default Alarm: NON	**Default Grade:** 3	**Grade Modified:**	**Lamp Modified:**

This message is issued when the MBR switch on the DLMX card has been turned OFF at the time of DLMX ACT/ST-BY changeover, etc.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①  ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Location of the DLMX card

b7	b6	b5	b4	b3	b2	b1	b0

b0-b4: Group No.
b5, b6: Unit No. (0-3)
b7: MG No.
0/1 = Even-numbered MG/Odd-numbered MG

② System status of DLMX card

b7						b1	b0

b0: 0/1 = System #0/#1
b1: 0/1 = ACT/SY-BY

27-G	DLMX ACT Change Report			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message is issued when a DLMX card is placed to ACT state due to a mode changeover.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ①
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① Reason for changeover

b7					b2	b1	b0

b2	b1	b0	
0	0	0	= MBR key operation
0	0	1	= Circuit Card Make Busy
0	1	0	= Detection of fault (on the DLMX card)

33-A	MUX Clock Restore			
	Default Alarm: NON	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when the MUX (PH-PC36) card, whose clock function was detected as faulty, is recovered.

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MUX Card Location and System Status

			b4	b3	b2	b1	b0

b0-b1: Unit number
b2: MG number
b3: 0/1 = MUX No. 0 system / MUX No. 1 system
b4: 0/1 = ACT/STBY

② RLS Data

				b3	b2	b1	

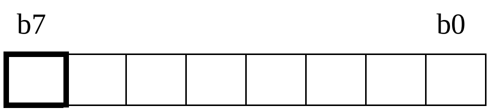
RLS Data:Clock alarm information on the recovered MUX card
b1: 0/1 = -/FH failure for 2M PCM Highway
b2: 0/1 = -/CLK failure for 2M PCM Highway
b3: 0/1 = -/4M CLK failure for PM

33-B	SDT Alarm Warning			
	Default Alarm: SUP	Default Grade: 2	Grade Modified:	Lamp Modified:

This message displays when an abnormal state is detected temporarily on the SDT (PA-SDTA/B) card.

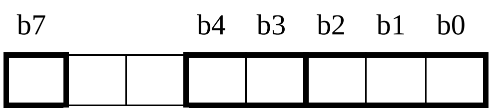
```
1: X0XX 00XX XXXX XX00 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②        ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MG (Module Group)



b7: 0/1 = Even-number MG/Odd-number MG

② Details on alarm



b4, b3	b2-b0		
0 0	0 0 0	——	SDT Card Trouble
0 0	0 0 1	Hardware Failure	
0 0	0 1 0	Optical Line Failure	
0 0	0 1 1	Onboard Power Alarm	
0 1	0 0 0	——	52M Interface Alarm
0 1	0 0 1	PCM Loss	
0 1	0 1 0	Frame Alignment Loss	
0 1	0 1 1	Receiving Section Failure	
0 1	1 0 0	Mistake Rate Degradation	
0 1	1 0 1	Sending Section Failure	
0 1	1 1 0	Mistake Detection	
1 0	0 0 0	——	VC-11 Path Trouble **Note**
1 0	0 0 1	Receiving Path Failure	
1 0	0 1 0	Pointer Failure	
1 0	0 1 1	Sending Path Failure	
1 0	1 0 0	Receiving Path Error	
1 0	1 0 1	Sending Path Error	

b7: SDT Card Status
0/1=No. 0 System/No.1 System

Note: *Alarm-detected HW is specified in ③ (next page).*

③ Alarm-detected HW

b7	b6	b5	b4	b3	b2	b1	b0

The data here specifies the HW, on which any of the VC-11 Path Trouble was detected in data ② (see **Note**). Refer to the table below:

b7	b6	b5	b4	b3	b2	b1	b0	
-	-	-	-	28	27	26	25	0/1=-/VC-11 Path Trouble
24	23	22	21	20	19	18	17	
16	15	14	13	12	11	10	9	
8	7	6	5	4	3	2	1	

Note: *This data displays only when b4 is "1" and b3 is "0" in data ②.*

Repair Procedure

Basically, fault repair work is not required by the display of this message. However, if the message is created frequently, it is recommended that the repair work be performed as shown in the message [33-C] SDT Alarm Trouble.

33-C	SDT Alarm Trouble			
	Default Alarm: MN	Default Grade: 3	Grade Modified:	Lamp Modified:

This message displays when a grave failure occurs on the SDT (PA-SDTA/B) card. If this is issued, remember the ACT/STBY change of the SDT card may be followed, as a result of fault detection in the optical fiber line (see [33-E] message).

```
1: XXXX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MG (Module Group)

b7							b0

b7: 0/1 = Even-number MG/Odd-number MG

② Details on alarm

b7			b4	b3	b2	b1	b0

b4, b3	b2-b0		
0 0	0 0 0	——	SDT Card Trouble
0 0	0 0 1	Hardware Failure	
0 0	0 1 0	Optical Line Failure	
0 0	0 1 1	Onboard Power Alarm	
0 0	1 0 0	Abnormal MB Key Operation	
0 1	0 0 0	——	52M Interface Alarm
0 1	0 0 1	PCM Loss	
0 1	0 1 0	Frame Alignment Loss	
0 1	0 1 1	Receiving Section Failure	
0 1	1 0 0	Mistake Rate Degradation	
0 1	1 0 1	Sending Section Failure	
0 1	1 1 0	Mistake Detection	
1 0	0 0 0	——	VC-11 Path Trouble
1 0	0 0 1	Receiving Path Failure	
1 0	0 1 0	Pointer Failure	
1 0	0 1 1	Sending Path Failure	
1 0	1 0 0	Receiving Path Error	
1 0	1 0 1	Sending Path Error	

Note

b7: SDT Card Status
0/1=No. 0 System/No.1 System

Note: *Fault repair procedure on each alarm is shown on the next page.*

Repair Procedure

Depending on the fault status shown in data ②, perform necessary repair work:

(1) Hardware Failure/Onboard Power Alarm

SDT (PA-SDTA/B) card is faulty. Replace the card with a spare by referring to Chapter 4, Section 3.3.3, SDT Card Replacement Procedure.

(2) Optical Line Failure

Diagnosis: In addition to this alarm, is the “PCM Loss” alarm also indicated?

YES → Optical line side is faulty.

Verify that the SDT card in the distant node is not placed into make-busy state. Also, perform the light level check of the optical fiber cables.

NO → SDT card is faulty.

Replace the SDT card with a spare by referring to Chapter 4, Section 3.3.3, SDT Card Replacement Procedure.

(3) Abnormal MB Key Operation

This alarm is indicated when the MB key on the PA-SDTA card is turned ON, even though the MBR key has been on the OFF side. Place the MBR key UP (=ON) and then turn ON the MB key.

(4) PCM Loss

Abnormal state is detected on the optical line side. Verify that the SDT card in the distant node is not placed into make-busy state. Also, perform the light level check of the optical fiber cables.

(5) 52M Interface Alarm

- Frame Alignment Loss
- Receiving Section Failure
- Mistake Rate Degradation
- Sending Section Failure
- Mistake Detection

Clock synchronization with the distant node might be lost, or a trouble might occur on the optical line side. Check the PLO cards first in both self-node and distant node. When no fault is found, proceed with the light level check of the optical fiber cables.

(6) Receiving Path Failure/Receiving Path Error

Abnormal state is detected in the process of multiplexing the “Receive” signals. To restore this, perform the following:

STEP 1 Initialization of SDT card (distant node)

Initialize the SDT card in the distant node, and observe the situation. If the fault is not restored, proceed with STEP 2.

STEP 2 Initialization of SDT card (self-node)

Initialize the SDT card in the self-node, and observe the situation. If the fault is not restored, proceed with STEP 3.

STEP 3 Replacement of SDT card

It cannot be confirmed which node side (self-node or distant node) is faulty. By referring to Chapter 4, Section 3.3.5, SDT Card Replacement Procedure, first replace the SDT card only in one of the nodes. When the fault does not recover, then also replace the SDT card in other side of the nodes.

(7) Pointer Failure/Sending Path Failure/Sending Path Error

Abnormal state is detected in the process of multiplexing the “Send” signals. To restore this, perform the following:

STEP 1 Initialization of SDT card

Initialize the SDT card in the self-node, and observe the situation. If the fault is not restored, proceed with STEP 2.

STEP 2 Replacement of SDT card

By referring to Chapter 4, Section 3.3.5, SDT Card Replacement Procedure, replace the SDT card in the self-node with a spare.

33-D	SDT Alarm Restore			
	Default Alarm: NON	Default Grade: 1	Grade Modified:	Lamp Modified:

This message displays when the SDT (PA-SDTA/B) card or optical fiber line, which was once detected as faulty, recovers.

```
1: X0XX 0000 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MG (Module Group)

b7							b0

b7: 0/1 = Even-number MG/Odd-number MG

② Details on the fault

b7			b4	b3	b2	b1	b0

b4, b3	b2-b0		
0 0	0 0 0	——	SDT Card Trouble
0 0	0 0 1	Hardware Failure	
0 0	0 1 0	Optical Line Failure	
0 0	0 1 1	Onboard Power Alarm	
0 0	1 0 0	Abnormal MB Key Operation	
0 1	0 0 0	——	52M Interface Alarm
0 1	0 0 1	PCM Loss	
0 1	0 1 0	Frame Alignment Loss	
0 1	0 1 1	Receiving Section Failure	
0 1	1 0 0	Mistake Rate Degradation	
0 1	1 0 1	Sending Section Failure	
0 1	1 1 0	Mistake Detection	
1 0	0 0 0	——	VC-11 Path Trouble
1 0	0 0 1	Receiving Path Failure	
1 0	0 1 0	Pointer Failure	
1 0	0 1 1	Sending Path Failure	
1 0	1 0 0	Receiving Path Error	
1 0	1 0 1	Sending Path Error	

b7: SDT Card Status
0/1=No. 0 System/No.1 System

33-E	SDT Interface Change Notify			
	Default Alarm: NON	**Default Grade:** 2	**Grade Modified:**	**Lamp Modified:**

This message displays when the ACT/STBY of the SDT (PA-SDTA) card is changed over as a result of fault detection in the optical fiber line. When the ACT/STBY change cannot be performed, this message also indicates the cause for the changeover execution failure.

```
1: X0XX  XX00 0000 0000 2: 0000 0000 0000 0000 3: 0000 0000 0000 0000
   ① ②   ③
4: 0000 0000 0000 0000 5: 0000 0000 0000 0000 6: 0000 0000 0000 0000

7: 0000 0000 0000 0000 8: 0000 0000 0000 0000 9: 0000 0000 0000 0000
```

① MG (Module Group)

b7 b0

b7: 0/1 = Even-number MG/Odd-number MG

② Detailed information

b7 b6 b5 b4 b3 b2 b1 b0

b0: Active SDT after Changeover
0/1=No.0 System/No.1 System
b1: Operating Status of SDT
0/1=In service/Out of service
b2, b3: Result of Changeover
0/1=Success/Failure

b7-b4	Cause for Changeover
0001	SDT had a serious failure
0010	MB key on SDT card was turned ON

③ Cause for changeover execution failure

b7 b6 b5 b4 b3 b2 b1 b0

0H: (Changeover Success)
1H: Optical interface isn't dual
2H: Optical interface has a serious failure in each No.0/No.1 system

Repair Procedure

Once this message displays, be sure to check other messages, such as [33-C] SDT Alarm Trouble, and review the cause for the changeover. If any fault is implicated, repair the whole fault(s) according to the situation.

This page is for your notes.

CHAPTER 4 UNIT/CIRCUIT CARD REPLACEMENT PROCEDURE

1. LPM ACCOMMODATING UNIT/CIRCUIT CARD REPLACEMENT PROCEDURE

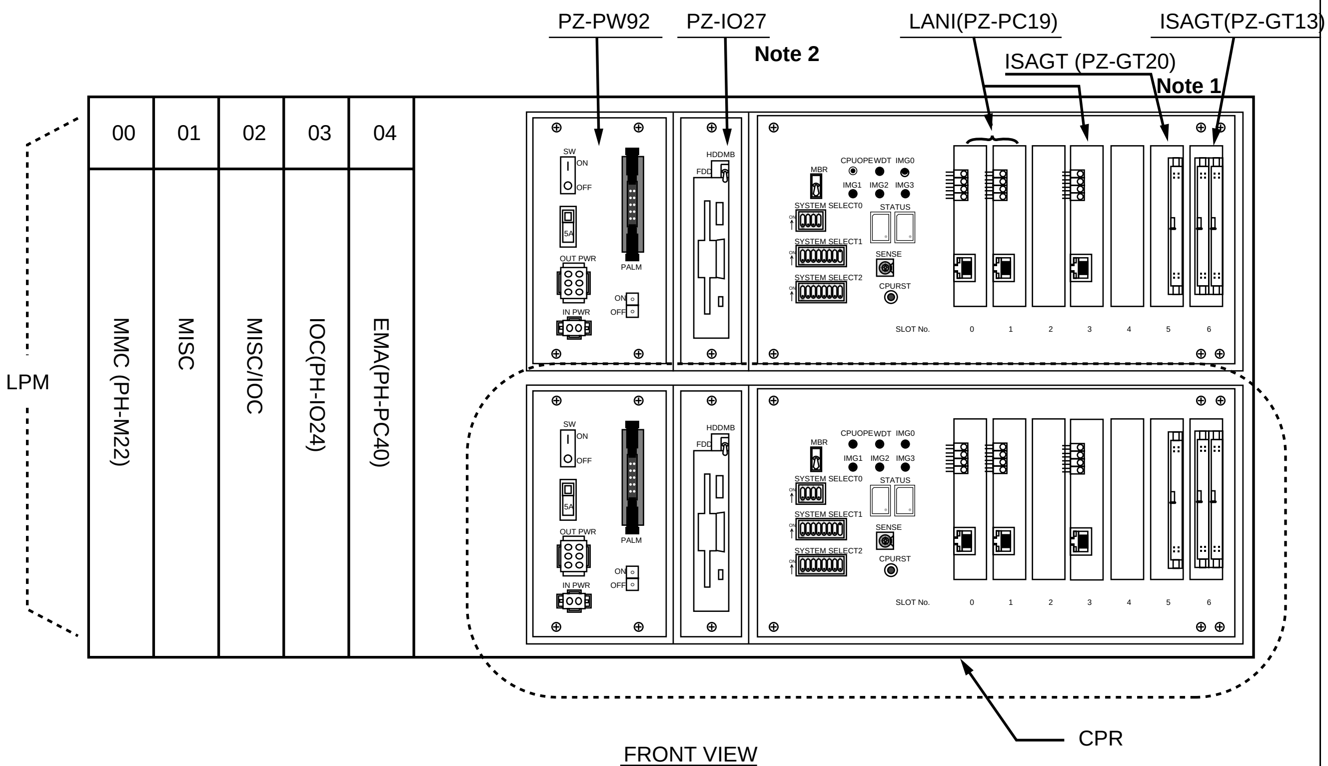
This section explains how to replace unit/circuit cards mounted in the LPM (ISW/IMG 0).

1.1 Precautions

- Use this procedure to replace a faulty unit/circuit card with a spare or to check a spare card.
- There are functional switches (having set the default switch) on some of the circuit cards to be replaced. As for switch setting on the circuit cards, confirm the circuit card mounting face layout for the LPM. When a circuit card with a default switch setting is replaced with a spare card, always make the switch setting on the new circuit card the same as on the replaced card. Otherwise, electronic components on the circuit card may be destroyed, or the circuit card itself may fail to function normally.
- When handling a circuit card, always use the field service kit for countermeasures against static electricity. Touching a circuit card without using the field service kit may destroy the card due to static electricity on the human body.

1.2 Circuit Card Mounting Face Layout

Figure 4-1 shows the face layout of circuit cards mounted in the LPM.



Note 1: *This card (PZ-GT20) is mounted in the CPR of LN(s) only.*

Note 2: *In place of PZ-IO27, the CPR may be equipped with PZ-IO28, which does not have the MB key.*

Figure 4-1 Circuit Card Mounting Face Layout of LPM

1.3 Operating Procedures

The following paragraphs provide operating procedures to replace unit/circuit cards of the LPM. Perform the operations that correspond to each reference item specified in Table 4-1.

Table 4-1 LPM Unit/Circuit Cards and Reference Items

UNIT/CIRCUIT CARD	REFERENCE ITEM	REMARKS
CPR	Section 1.3.1, CPR Replacement Procedure	CPU, ISAGT, LANI, HFD
EMA Card	Section 1.3.2, EMA Card Replacement Procedure	
IOC Card	Section 1.3.3, IOC Card Replacement Procedure	
PWR Unit	Section 1.3.4, Power Supply Unit Replacement Procedure	
MISC Card	Section 1.3.5, MISC Card Replacement Procedure	

WARNING

Improper key operations may result in a system down. Operate the key using extreme care.

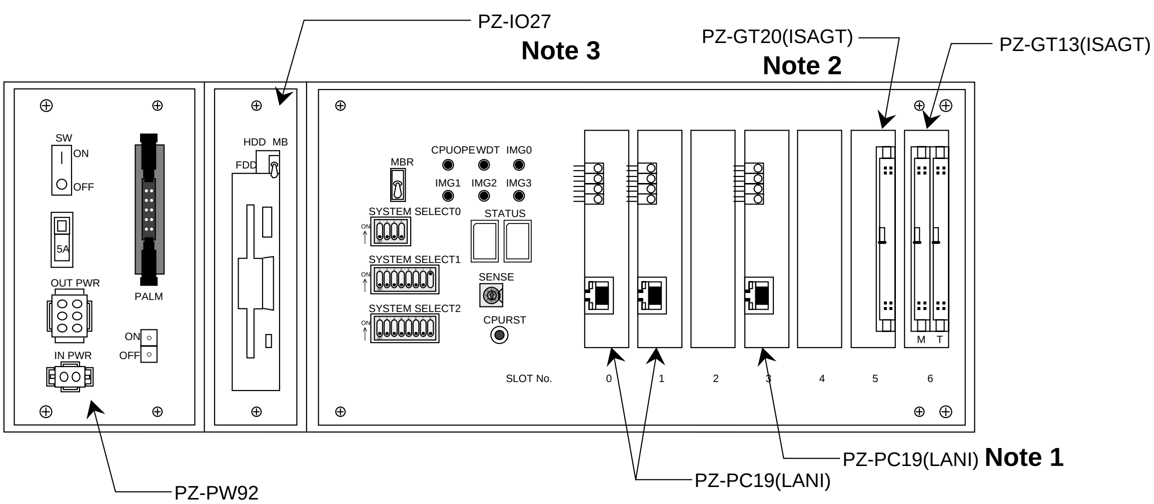
During replacement of a circuit card, the system issues system messages and activates the related alarm. Reset the indicated alarm after completing the replacement procedure.

If the indicated alarm is cleared via the RALM/RALMN command, the system also clears the contents of the system message. ***Before*** using the RALM/RALMN command, print the messages using the DFTD command.

Use the ALM RST button on the TOPU only to reset the alarm lamps.

1.3.1 CPR Replacement Procedure

This section explains how to replace the Control Processor Rack (CPR). The CPR is mounted in IMG 0 of LN and ISW. Before starting the procedures, make a backup copy of the main data, such as office data, Call Forwarding (CF) data and Speed Calling (SPD) data, on to the hard disk of the HFD. Figure 4-2 shows the front view of the CPR. Operate the related keys and connectors to replace the CPU with a new one. Using a Phillips screwdriver, remove the four screws and extract the CPR with care, as shown in Figure 4-3.



Note 1: *This card (secondary LANI for Fusion Link) is optional.*

Note 2: *This card is mounted in the CPR of LN only.*

Note 3: *In place of PZ-IO27, the CPR may be equipped with PZ-IO28, which does not have the MB key.*

Figure 4-2 CPR Face Layout

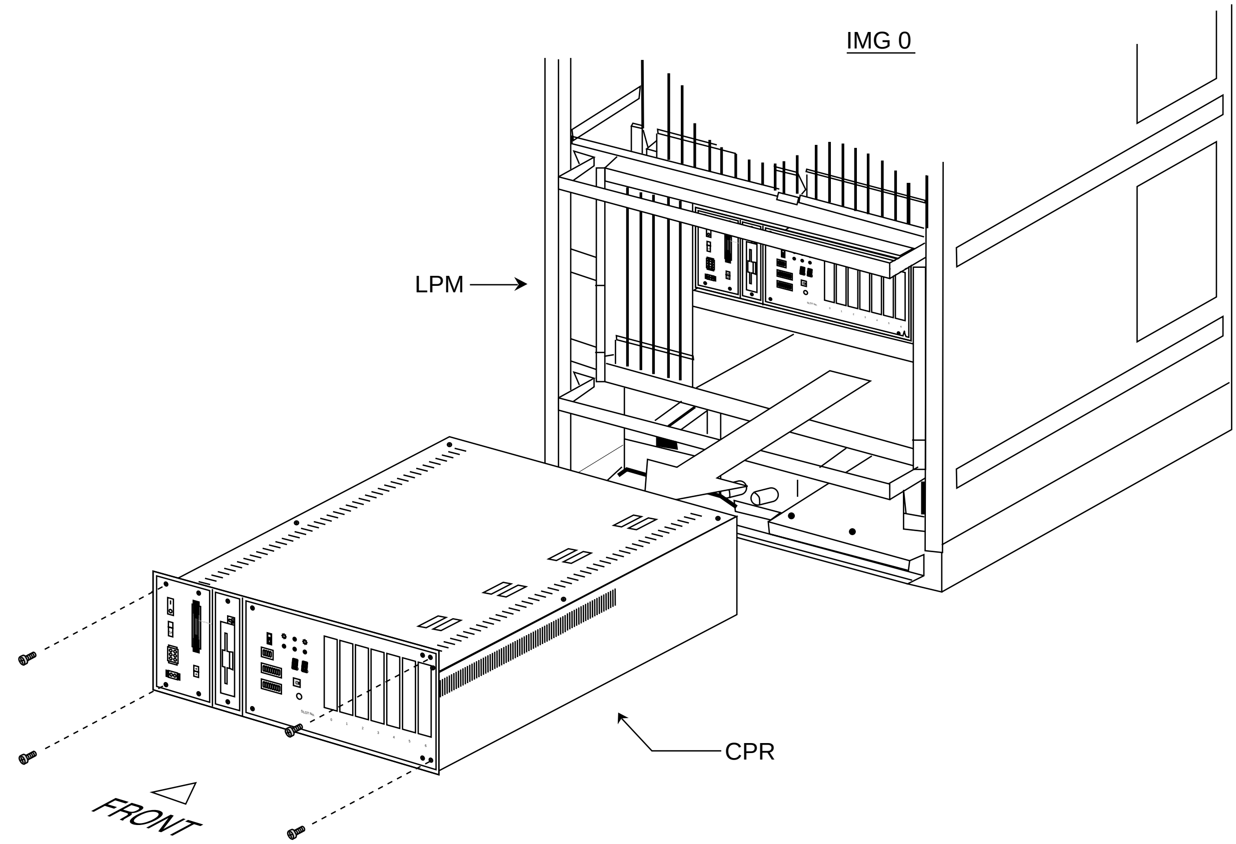


Figure 4-3 How to Replace the CPU

Replacement Procedure

START

↓

Make a backup copy of the main data (office data, CF/SPD data, etc.) onto the hard disk of the HFD.

↓

Turn ON the MBR key on the DSP of the CPU to be replaced. Then turn OFF the MBR key again.

↓

Confirm the mate CPU's ACT mode.

↓

Turn ON the EMA SUP key on the EMA (PH-PC40) card.

↓

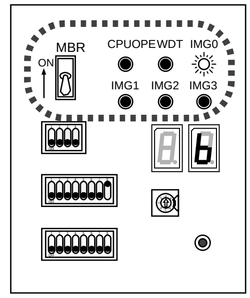
Disconnect the power alarm cable from the PALM connector on PZ-PW92.

↓

Cable Name to be disconnected
CPU 0: 10AL-(110) FLT CA
CPU 1: 10AL-(130) FLT CA

A

DSP



FRONT VIEW

- System Changeover of the CPU from ACT to STBY mode.

↓

- IMG0 lamp on the DSP begin to flash green.
- Check the mate CPU's lamp indications:

↓

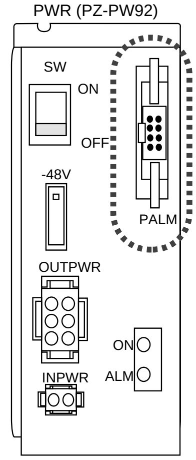
At the ISW
- CPU OPE=Steady green
- IMG0 ~ IMG3=Steady green

at the LN
- CPU OPE=Steady green
- IMG0 ~ IMG3=Flash green

  Note: *IMG2 - IMG3 lamps may be OFF depending on the system configuration*

- EMA SUP lamp on the EMA card lights green.

PWR (PZ-PW92)



FRONT VIEW

Note: *ACT/STBY of CPR can also be performed by using the CMODI/CMOD command. For details, refer to* *Chapter 8**, Maintenance Commands.*

A

Turn OFF the SW key on PZ-PW92.

Disconnect power cables from the OUTPWR connector and INPWR connector on PZ-PW92.

Cable to be disconnected from OUTPWR
CPU 0: 6P-(4P-3P) PWR CA-A
CPU 1: 6P-(4P-3P) PWR CA-B

Cable to be disconnected from INPWR
CPU 0: 4P-2P PWR CA-A
CPU 1: 4P-2P PWR CA-B

Disconnect bus cables from the front connectors on the PZ-GT13/PZ-GT20 (ISAGT).

Cables to be disconnected from front connector of PZ-GT13
EXGT BUS CA-A for CN-M connector
34PH 50AL CA-A for CN-T connector

Cables to be disconnected from front connector of PZ-GT20
34PH 50AL CA-B (in LN only)

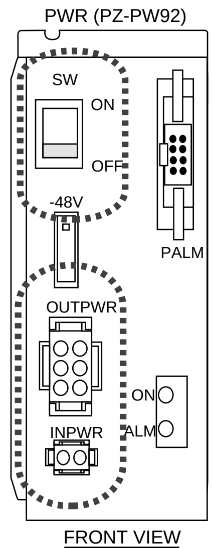
Disconnect Ethernet cables from the front connectors on the PZ-PC19 (LANI).

Cables to be disconnected
Ether cable: UTP CTG5 ST CA-n

Note: *The kind of Ethernet cable may vary, depending on its connecting conditions.*

Remove the four screws fastened onto the CPR. (Keep the removed screws.)

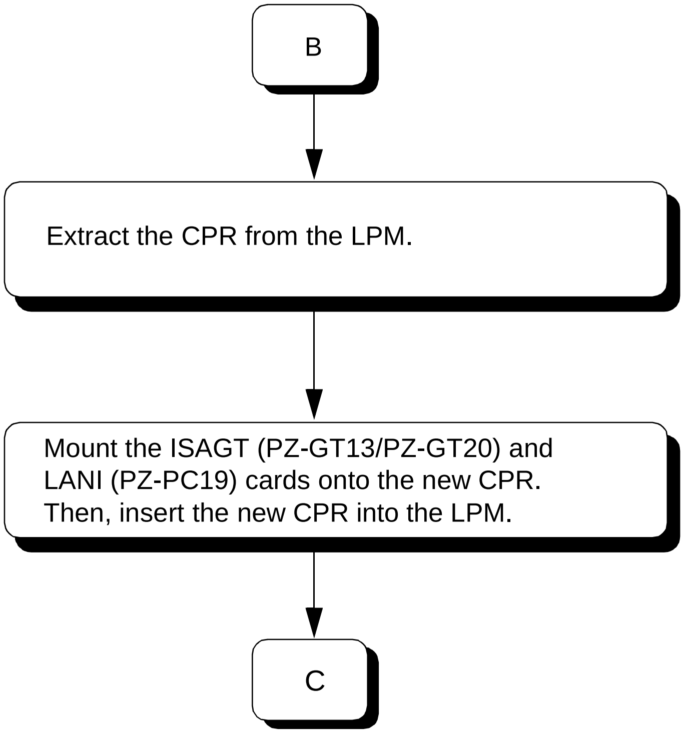
B



- Refer to Figure 4-2 for CPR face layout.

- Refer to Figure 4-2 for CPR face layout.

- Refer to Figure 4-3 to replace the CPU.



- Refer to Figure 4-3 to replace the CPU.
- Refer to Circuit Card Installation Into New CPR procedure in this section.

C

Connect the disconnected Ethernet cables to the connectors on the PZ-PC19.

Connect the disconnected bus cables to the front connectors on the PZ-GT13/PZ-GT20.

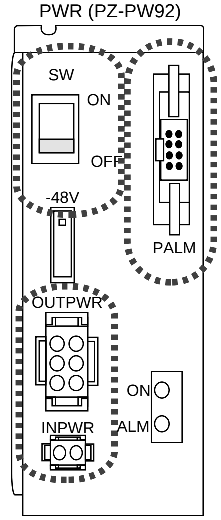
Connect the disconnected power cables to the OUTPWR and INPWR connectors.

Note: *Do not connect the cable for the PALM connector yet.*

Turn ON the SW key on PZ-PW92.

Connect the disconnected power alarm cable to the PALM connector on PZ-PW92.

D



FRONT VIEW

D

Turn OFF the EMA-SUP key on the EMA (PH-PC40) card.

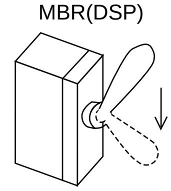
Flip the MBR key on the DSP of the new CPR from ON to OFF.

Confirm that IPL has completed successfully.

END

- EMA SUP lamp on the EMA card goes OFF.

MBR(DSP)

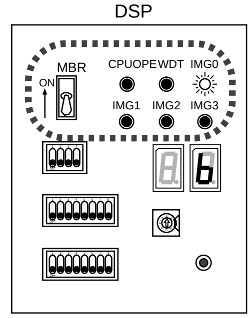


⇩

Initial Program Load (IPL) starts automatically.

- IMG0 lamp on the DSP flashes green.

DSP



FRONT VIEW

Circuit Card Installation Into New CPR

This procedure shows how to install the new CPR into the LPM.

(1) Detach the front panel of the new CPR by using the Phillips screwdriver to remove the four screws, as shown in Figure 4-4. Then, lift the top cover by removing the eight screws.

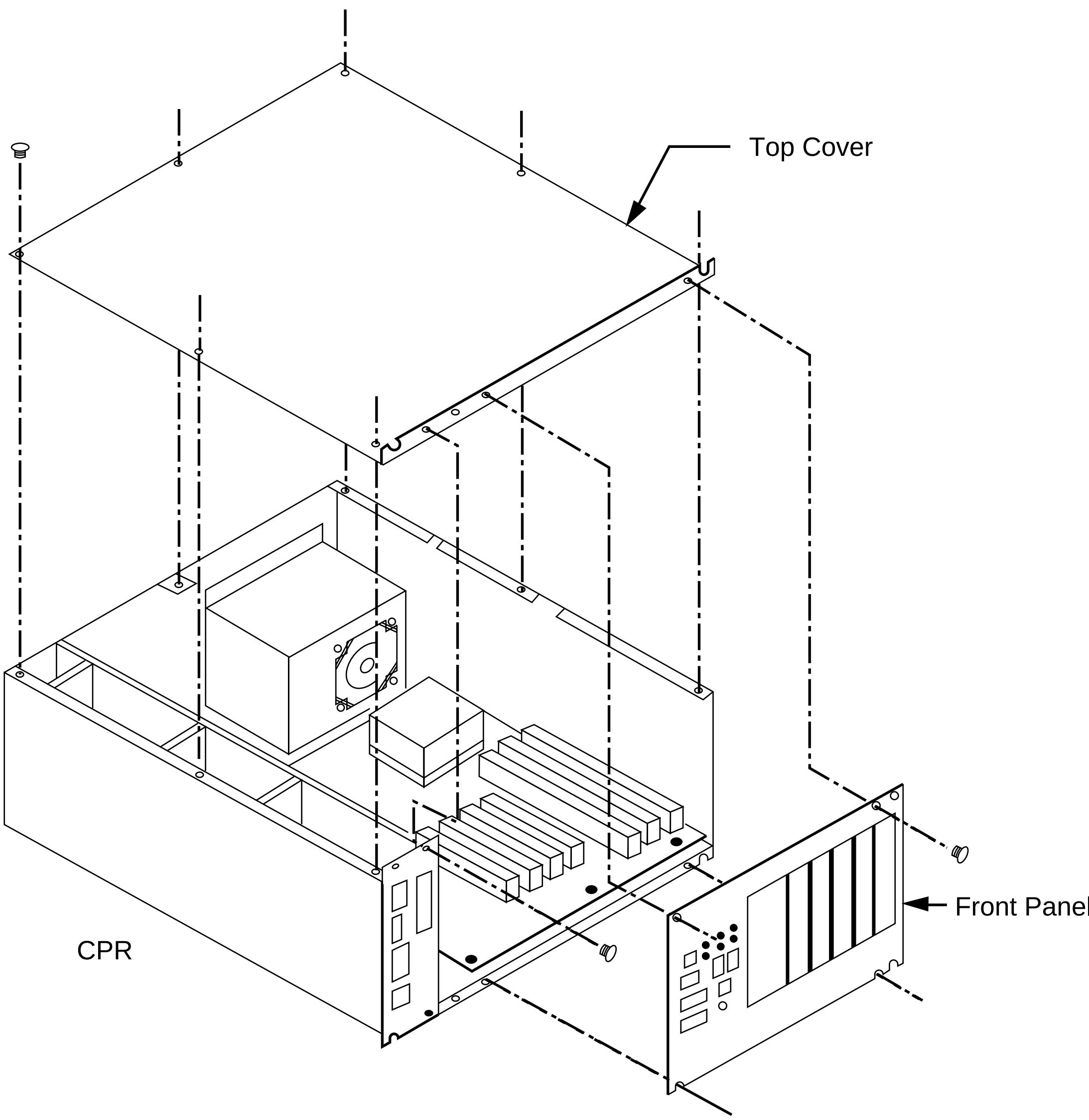


Figure 4-4 Removal of Front Panel and Top Cover From CPR

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(2) Insert the ISAGT (PZ-GT13/PZ-GT20) and LANI (PZ-PC19) cards into the following slots of the new CPR (refer to Figure 4-5):

ISAGT (PZ-GT13) → Slot 6 (ISA)

ISAGT (PZ-GT20) → Slot 5 (ISA) (When LN has more than two IMGs) **Note**

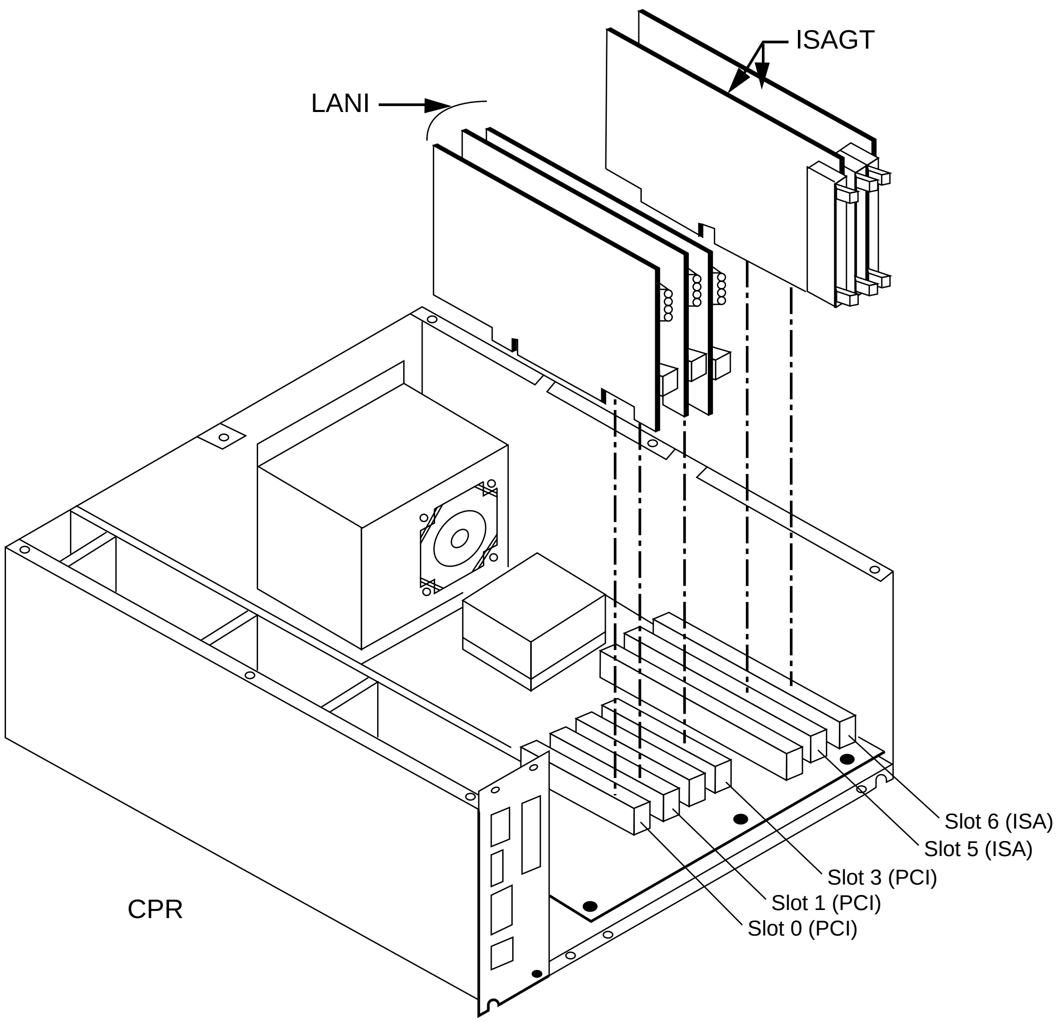
LANI (PZ-PC19) → Slot 0 (PCI) (For Fusion Link)

LANI (PZ-PC19) → Slot 1 (PCI) (When connecting MAT via 10-BASE T and PCI buses)

LANI (PZ-PC19) → Slot 3 (PCI) (When LANI for Fusion Link is in dual configuration)

Figure 4-5 shows how to insert the ISAGT and LANI cards into the PCI slots 5 and 6, 0 and 1 and 3 of the CPR, respectively.

Note: *This card is mounted in LN only.*



Note: *Actual installation of the LANI card may differ, depending on your system configuration.*

Figure 4-5 Insertion of ISAGT and LANI Cards

(3) Reattach the top cover by fastening the removed eight screws. Then, reattach the front panel by fastening the removed four screws. Refer to Figure 4-6).

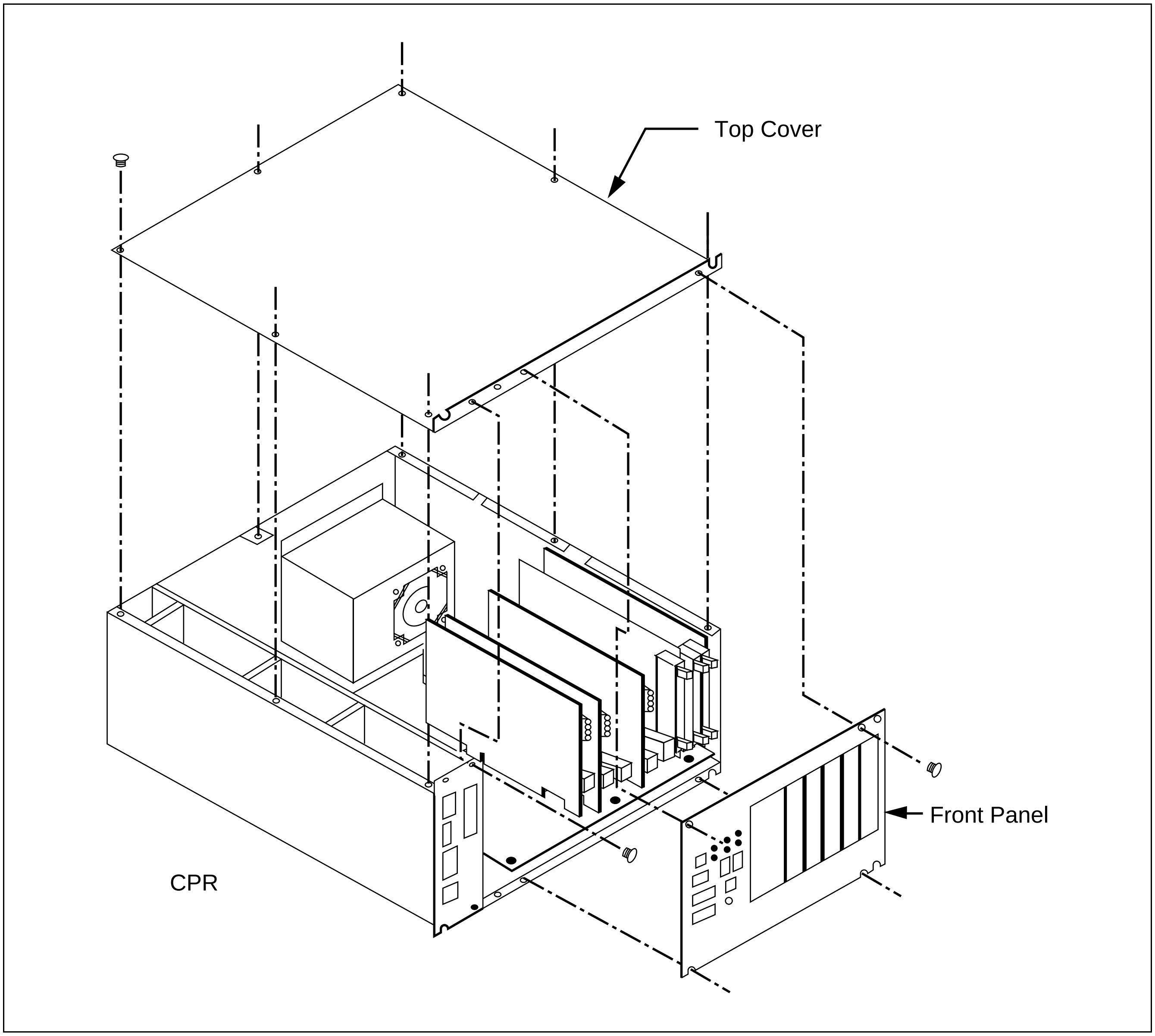


Figure 4-6 Reattachment of CPR Top Cover and Front Panel

(4) After turning ON the MBR key on the DSP of the new CPR, insert the new CPR into the LPM as shown in Figure 4-7. Then, fasten the retained four screws.

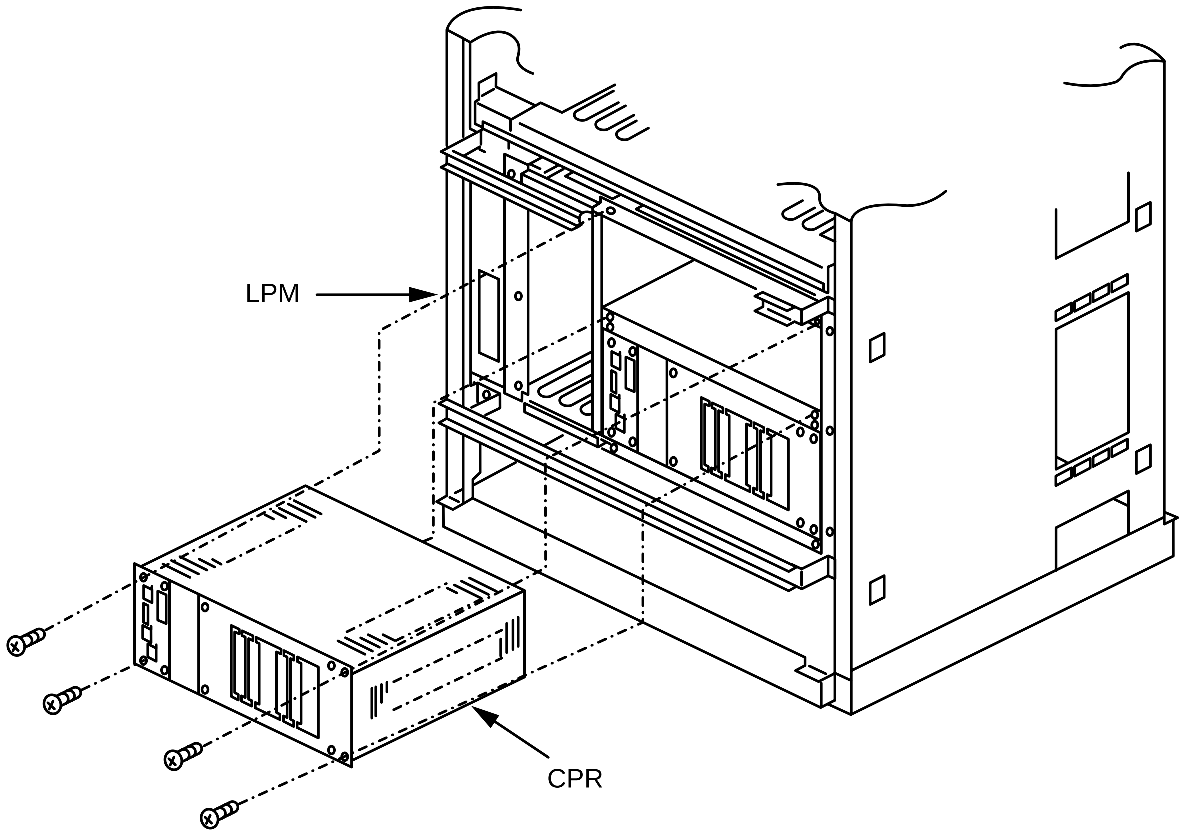


Figure 4-7 Accommodation of New CPR Into LPM

(5) Insert the new HFD (PZ-IO27) into the CPR. Then, fasten the two screws as shown in Figure 4-8.

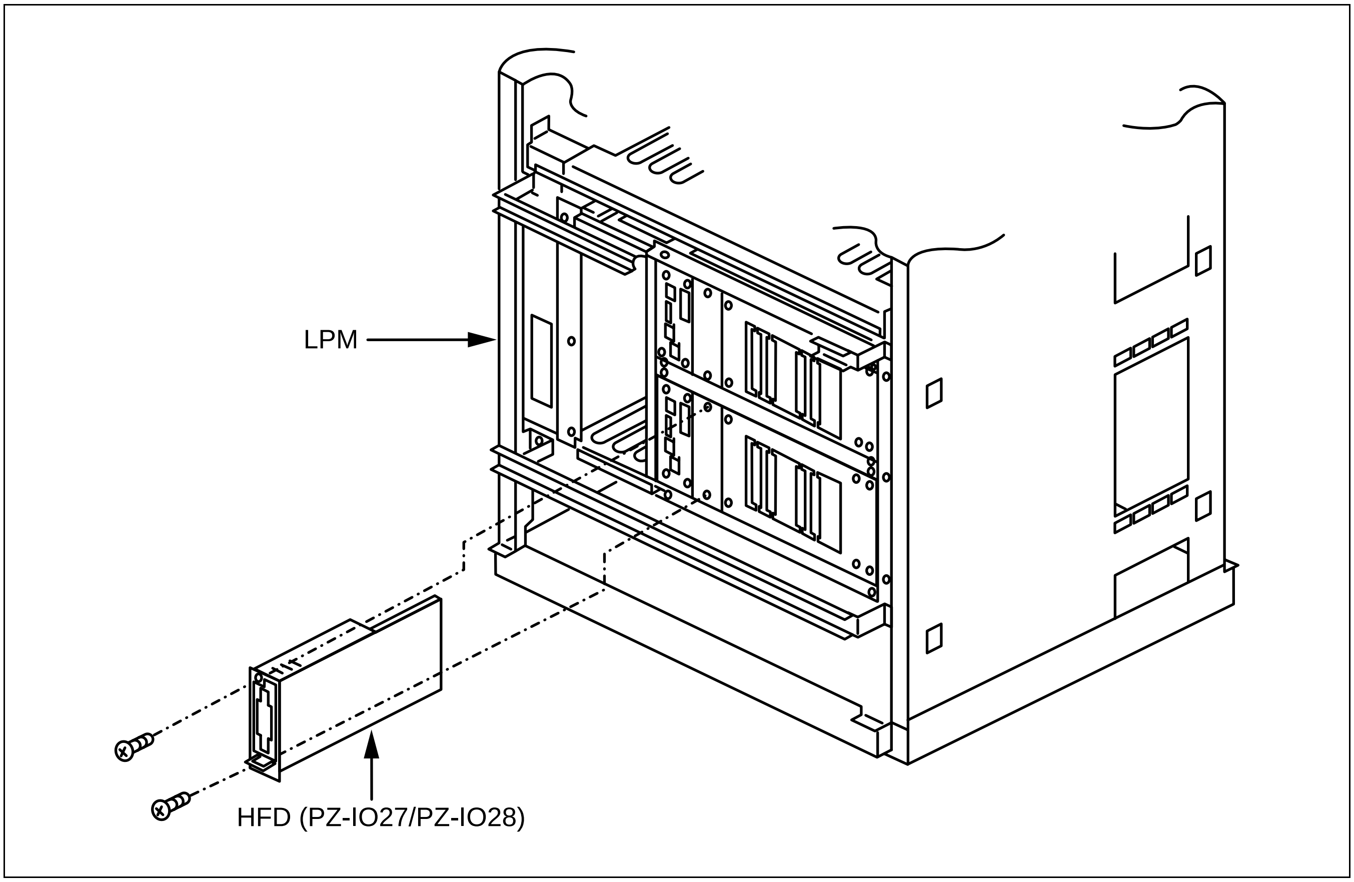
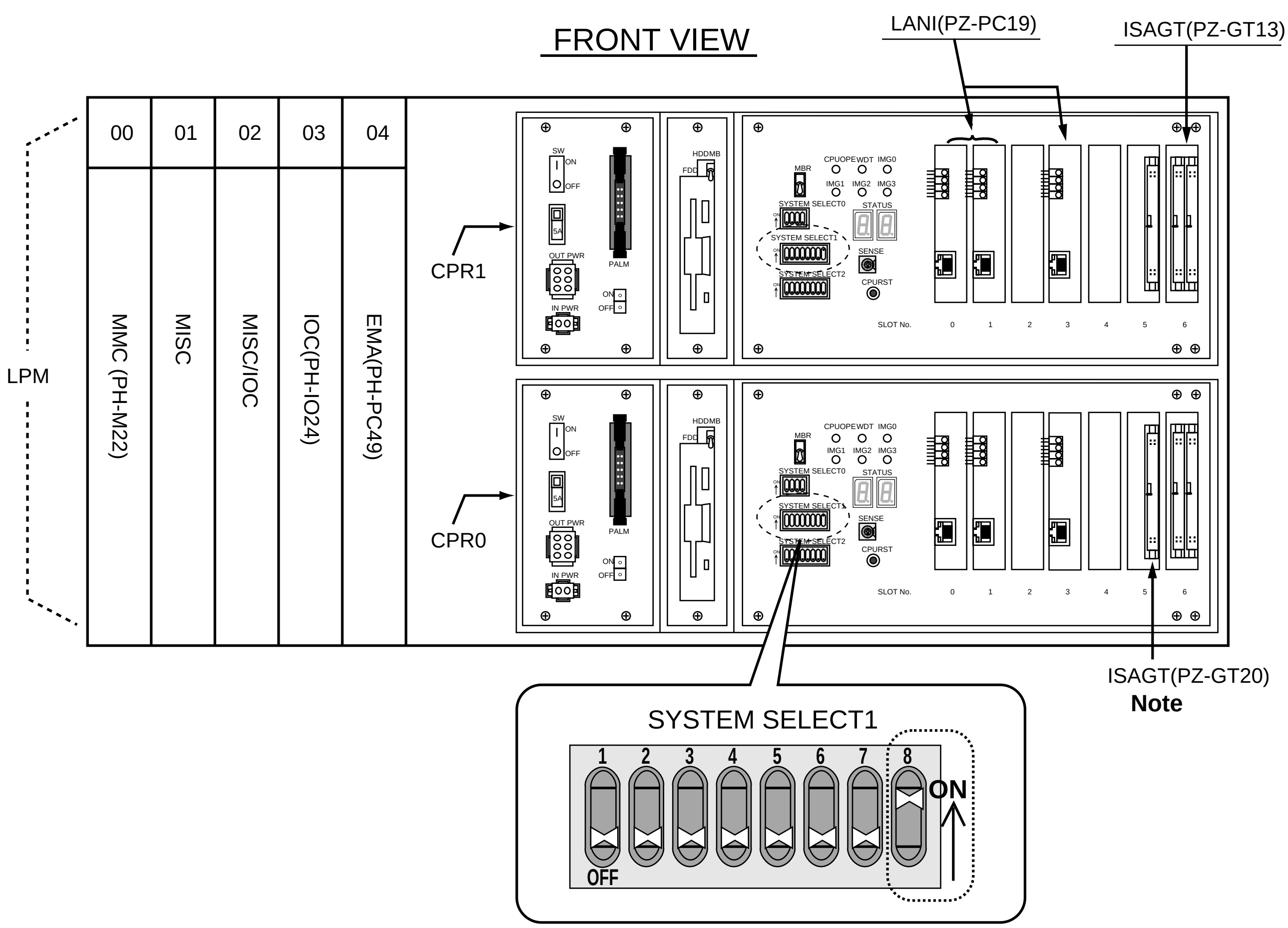


Figure 4-8   Insertion of New HFD Into CPR

(6) Make sure Switch 8 of SYSTEM SELECT 1 (DIP Switch) on each CPU Front Panel is set to ON. (Do this for all LNs and ISW: Refer to Figure 4-9.)



Note: *PZ-GT20 card is mounted in LN only.*

Figure 4-9 Switch Setting on the CPU Front Panel

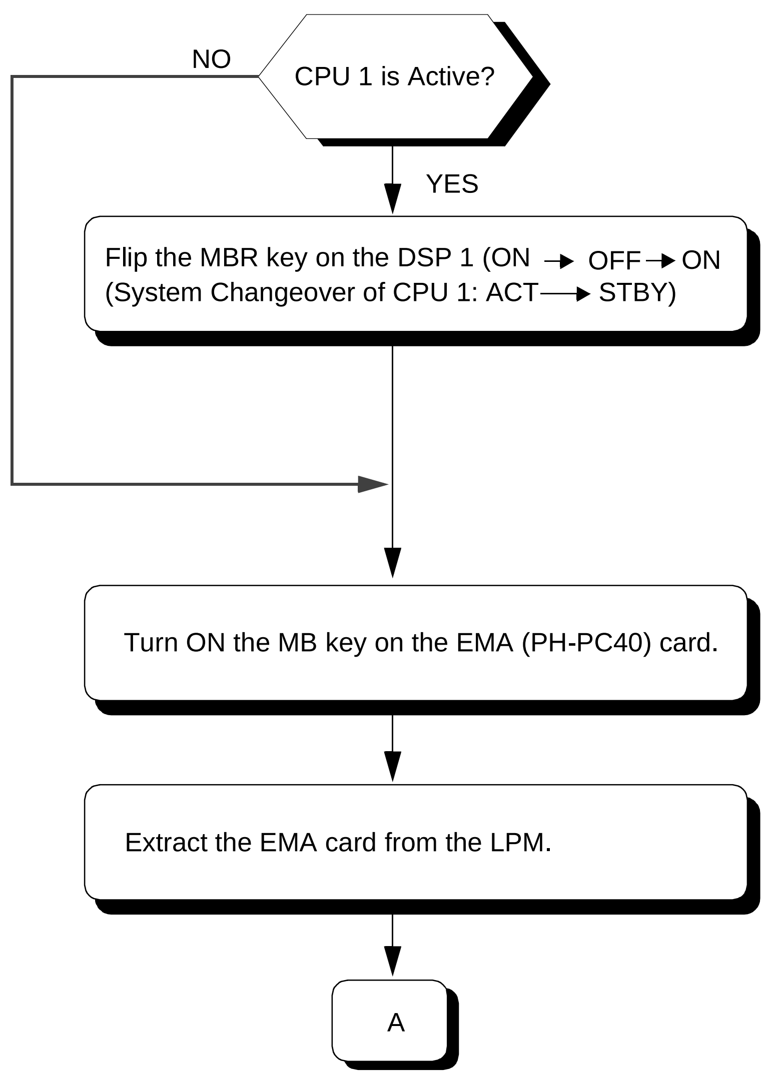
1.3.2 EMA Card Replacement Procedure

The EMA (PH-PC40) card is mounted in slot No. 04 of the LPM. The main functions of the card are as follows:

- Designation of ACT/STBY status of the CPU and forced changeover of the system
- Shutoff of the system's power supply and detection of rising temperature within the system
- Control of the NCU (PA-M53) card

WARNING Before replacing the EMA card, check the CPU 0's ACT mode. Attempting to replace the card when the CPU 1 is active will result in the system being initialized.

Replacement Procedure



- Check the CPU OPE lamp of DSP 1. When the lamp is steady-green, perform the system changeover.

- OPE/MB Lamp on the EMA card lights red from green.

↓

- When NCU (PA-M53) cards are mounted, Power Failure Transfer (PFT) is activated.

A

↓

Set the keys on the new card by referring to the card being replaced.

↓

Turn ON the MB and EMA SUP keys on the new card.

↓

Insert the new card into the LPM.

↓

Turn OFF the MB and EMA SUP keys on the card.

↓

Assign the time data by using the ATIM/ATIMN command.

↓

END

- OPE/MB Lamp on the EMA card lights steady-green.

↓

- The PFT service is cancelled: resumption of normal operation.

1.3.3 IOC Card Replacement Procedure

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

The IOC (PH-IO24) card is mounted in slot No. 02 and/or 03 of the LPM. The card's main function is to provide a serial interface between the system and its external equipment, such as the Maintenance Administration Terminal (MAT), Station Message Detail Recording System (SMDR), Message Center Interface (MCI), Property Management System (PMS), etc.

ATTENTION The equipment connected to the I/O ports of each card (MAT, SMDR, etc.) cannot be used while replacing the IOC card.

START

↓

Turn ON the MBR key on the IOC (PH-IO24) card to be replaced.

- OPE lamp on the IOC card first flashes and then lights red.

↓

Turn ON the MB key on the card.

- All I/O ports are closed and the equipment, such as MAT and SMDR, loses connections.

  Note: *The text data (such as billing information), registered before this step, will be safely transmitted later. However, the data, recorded after this step, will not be sent out, and instead is stored in the buffer.*

↓

Extract the card from the LPM.

- OPE lamp on the IOC card goes OFF.

↓

Set the keys on the new card, referring to the card to be replaced.

↓

A

A

↓

Turn ON the MB and MBR keys on the new card.

↓

Insert the new card into the LPM.

↓

Turn OFF the MB key on the card.

- OPE lamp on the IOC card lights red.

↓

Turn OFF the MBR key on the card.

- Release of I/O ports: new IOC card is initialized, and I/O port channels reopens.

↓

- OPE lamp lights green.

↓

END

1.3.4 Power Supply Unit Replacement Procedure

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

Set the mode of the PWR UNIT (PZ-PW92) to be replaced into STBY mode.

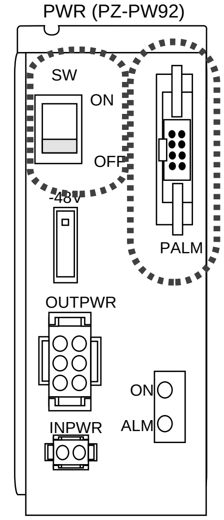
- CPU System Changeover
  Refer to Section 12, Chapter 6.

On the EMA (PH-PC40) card, set EMA SUP switch UP.

Disconnect the power alarm cable from the PALM connector on the PZ-PW92.

Cable Name to be disconnected
CPU 0: 10AL-(110) FLT CA
CPU 1: 10AL-(130) FLT CA

Turn OFF the SW key on the PWR UNIT.



FRONT VIEW

Disconnect the power cables from the OUTPWR connector and INPWR connector on the PZ-PW92.

Cable to be disconnected from OUTPWR
CPU 0: 6P-(4P-3P) PWR CA-A
CPU 1: 6P-(4P-3P) PWR CA-B

Cable to be disconnected from INPWR
CPU 0: 4P-2P PWR CA-A
CPU 1: 4P-2P PWR CA-B

A

A

↓

Unscrew the PWR UNIT from the CPR.

↓

Insert the new PWR UNIT into the CPR.

↓

Reattach power cables to OUTPWR
and INPWR connectors on the PZ-PW92.

↓

Turn ON the SW key on the PWR UNIT.

↓

Reattach power alarm cable to the PALM
connector on the PZ-PW92.

↓

On the EMA card, set EMA SUP switch DOWN.

↓

END

1.3.5 MISC Card Replacement Procedure

START

↓

On the MISC card, set MB switch UP.

↓

Extract the MISC card from its mounting slot.

↓

Insert the new circuit card into the same mounting slot.

- Keep MB switch UP.

↓

On the MISC card, set MB switch DOWN.

↓

END

1.3.6 MMC Card Replacement Procedure

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

The MMC (PH-M22) card is mounted in slot No. 00 of the LPM. The card's main functions are:

- To collect key setting information on the TOPU of each LN/ISW. **Note**
- To collect alarm information on LN or the entire system (in case of MMC in ISW), thereby activating MJ/MN LED on the TOPU display.

Note: *If the key setting affects the entire system (i.e. the SYSTEM side is selected by the INITIAL SELECT key on the ISW TOPU). The information is broadcast to the MMC of ISW including the MMC of all existing LNs.*

Replacement Procedure

START

Set the MB key to UP on the MMC (PH-M22) card the be replaced.

- OPE lamp on the MMC goes off.

Disconnect the cable from the KEY connector on the MMC card.

Cable to be disconnected
10AL-(400) FLT CA

Disconnect the whole cable(s) from the CNx connector(s) on the MMC card.

Note: *The connector and cable names vary depending on it's connecting conditions.*

Cable to be disconnected
MT24 MISC CA-n

Extract the MMC card from the LPM.

A

A

↓

Set the MB key on the MMC card UP.

↓

Insert the MMC card into the LPM.

- OPE lamp on the MMC card goes OFF.

↓

Connect the disconnected cable to the KEY connector on the MMC card.

↓

Connect the disconnected cable(s) to the CNx connector(s) on the MMC card.

↓

Set the MB key on the MMC card DOWN.

- OPE lamp on the MMC card lights a steady green.

↓

END

2. TSWM ACCOMMODATING CIRCUIT CARD REPLACEMENT PROCEDURE

This section explains the procedure for replacing circuit cards mounted in the TSWM (TSWM0 in IMG1, TSWM1 in IMG2).

2.1 Precautions

- Use this procedure to replace a faulty circuit card with a spare or to check a spare card.
- There are the functional switches (having set the default switch) on some of the circuit cards to be replaced. As for switch setting on the circuit cards, confirm the circuit card mounting face layout for the TSWM. When a circuit card with a default switch setting is replaced with a spare card, always make the switch setting on the new circuit card the same as on the replaced card. Otherwise, electronic components on the circuit card may be destroyed, or the circuit card itself may fail to function normally.
- When handling a circuit card, always use the field service kit for countermeasures against static electricity. Touching a circuit card without using the field service kit may destroy the card due to static electricity on the human body.

2.2 Circuit Card Mounting Face Layout

Figure 4-10 shows the face layout of the circuit cards mounted in the TSWM. The circuit cards marked with * are optional.

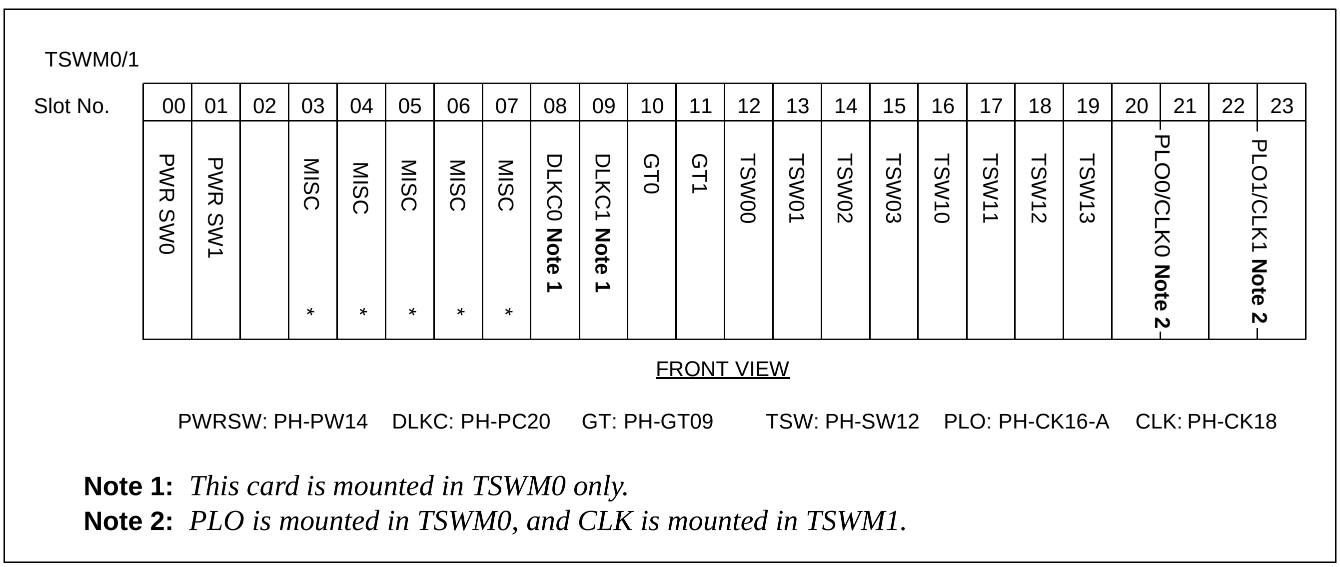


Figure 4-10 Circuit Card Mounting Face Layout of TSWM

WARNING Improper key operations may result in a system down. Operate the key using extreme care.

During replacement of a circuit card, the system issues system messages and activates the related alarm. Reset the indicated alarm after completing the replacement procedure.

If the indicated alarm is cleared via the RALM/RALMN command, the system also clears the contents of the system message. ***Before*** using the RALM/RALMN command, print the messages using the DFTD command.

Use the ALM RST button on the TOPU only to reset the alarm lamps.

2.3 Operating Procedures

The following paragraphs explain the operating procedures to replace unit/circuit cards located in the TSWM. Perform the operations corresponding to each Reference Item specified in Table 4-2.

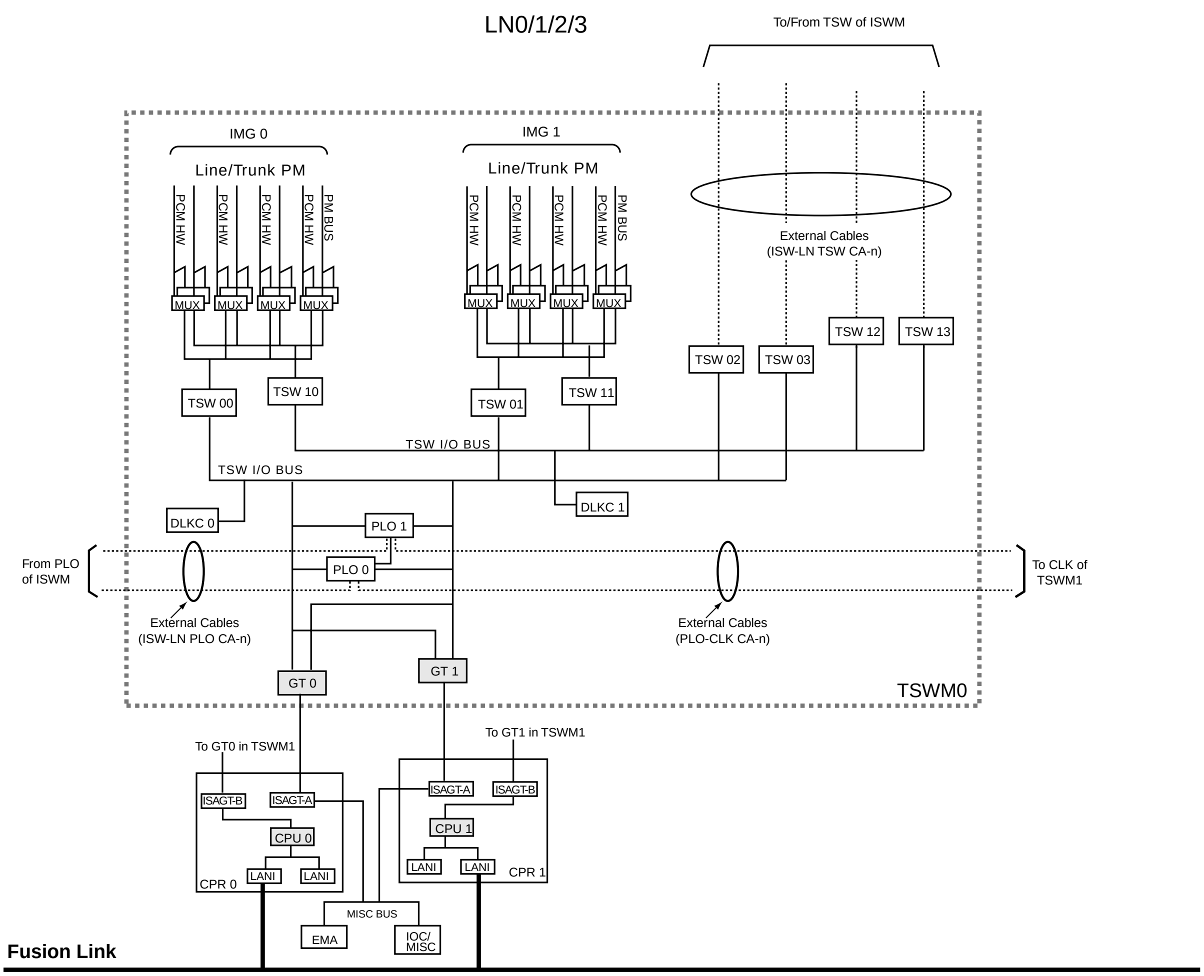
Table 4-2 TSWM Circuit Cards and Reference Items

CIRCUIT CARD FUNCTION NAME	REFERENCE ITEM	REMARKS
GT	Section 2.3.1, GT Card Replacement Procedure	
TSW	Section 2.3.2, TSW Card Replacement Procedure	
DLKC	Section 2.3.3, DLKC Card Replacement Procedure	
PLO	Section 2.3.4, PLO Card Replacement Procedure	
CLK	Section 2.3.5, CLK Card Replacement Procedure	
PWR SW	Section 2.3.6, PWR SW Card Replacement Procedure	
MISC	Section 2.3.7, MISC Card Replacement Procedure	

2.3.1 GT Card Replacement Procedure

The GT (PH-GT09) card is mounted in Slot No. 10 or 11 within the TSWM0 and TSWM1. The card's main function is to provide both MISC and I/O Local bus interface between the microprocessor of CPU and other lower echelons, such as DLKC, TSW and MUX cards. Follow the procedures below to replace a GT card with a spare.

Note: *To replace the GT card, the ACT/STBY status of GT must be changed over first. This must be done by operating the MBR key (or by using the CMOD/CMOD1 command) on the DSP of active CPR. Figure 4-11 shows a system block diagram centering upon the CPU and its controlling GT. If the ACT/STBY of GT is to be changed over, the system of CPU must be manually changed over. For more details on the GT changeover, refer to Section 12, Chapter 6.*



ISAGT-A: PZ-GT13 ISAGT-B: PZ-GT20 LANI: PZ-PC19 GT: PH-GT09 TSW: PH-SW12
MUX: PH-PC36 DLKC: PH-PC20 PLO: PH-CK16-A EMA: PH-PC40 IOC: PH-IO24 CLK: PH-CK18

Note 1: *CLK (PH-CK18) card is mounted in TSWM1 in place of PLO card.*
Note 2: *DLCK (PH-PC20) card is not mounted in TSWM1.*

Figure 4-11 System Block Diagram (Connections Between GT and CPU)

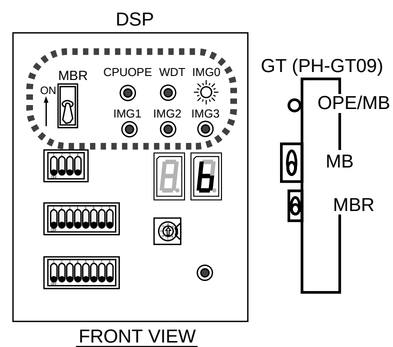
GT Card Replacement Procedure

WARNING Use extreme care when operating the keys on the DSP of CPR and PH-GT09 card.

START

On the DSP of active CPR in the LN, turn ON the MBR key. Turn OFF the MBR key again.

- System Changeover of GT from ACT to STBY mode.



Check the following lamp indications on the GT card to be replaced and on the DSP CPR that controls the GT:

- OPE/MB (GT card) = OFF
- CPU OPE (CPU DSP) = OFF
- IMG0 (CPU DSP) = Flash (green)
- IMG1-3 (CPU DSP) = OFF

Confirm the mate GT's ACT mode.

Check the following lamp indications on the mate GT card and the DSP of the mate CPR:

- OPE/MB (GT card) = Steady-green
- CPU OPE (CPU DSP) = Steady-green
- IMG0-3 (CPU DSP) = Flash (green)

Note: *Lamp indications of IMG 2-3 vary depending on the system configuration.*

On the EMA (PH-PC40) card, set the EMA SUP key UP.

EMA SUP lamp on the EMA card lights steady-green.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

↓

On the GT card to be replaced, set the MBR switch UP.

↓

On the GT card to be replaced, set the MB switch UP.

- OPE/MB lamp on the GT card remains OFF.

↓

Extract the GT card to be replaced from the TSWM0/1.

↓

Set the MBR and MB keys on the new card UP.

↓

Insert the new GT card into the TSWM.

↓

Set the MB key on the new card DOWN.

- OPE/MB lamp on the new card is OFF.

↓

Set the MBR Key on the new card DOWN.

- OPE/MB lamp on the new card remains OFF.

↓

B

B

On the EMA card, set the EMA SUP switch DOWN.

- EMA SUP lamp on the EMA card goes OFF.

Flip the MBR key on the DSP of CPU which controls the mate GT. Confirm the new GT functions normally.

System Changeover

- Replaced GT: STBY to ACT
- Mate GT: ACT to STBY

↓

Check the following lamp indications on the new GT card and the DSP of the CPR which controls the GT.

- OPE/MB (GT card) = Steady-green
- CPU OPE (CPU DSP) = Steady-green
- IMG0 (CPU DSP) = Flash (green)
- IMG1-3 (CPU DSP) = Flash (green)

Note: *IMG2-3 lamp indications may vary depending on the system configuration.*

Check the following lamp indications on the mate GT card and the DSP of the mate CPR:

- OPE/MB (GT card) = OFF
- CPU OPE (CPU DSP) = OFF
- IMG0 (CPU DSP) = Flash (green)
- IMG1-3 (CPU DSP) = OFF

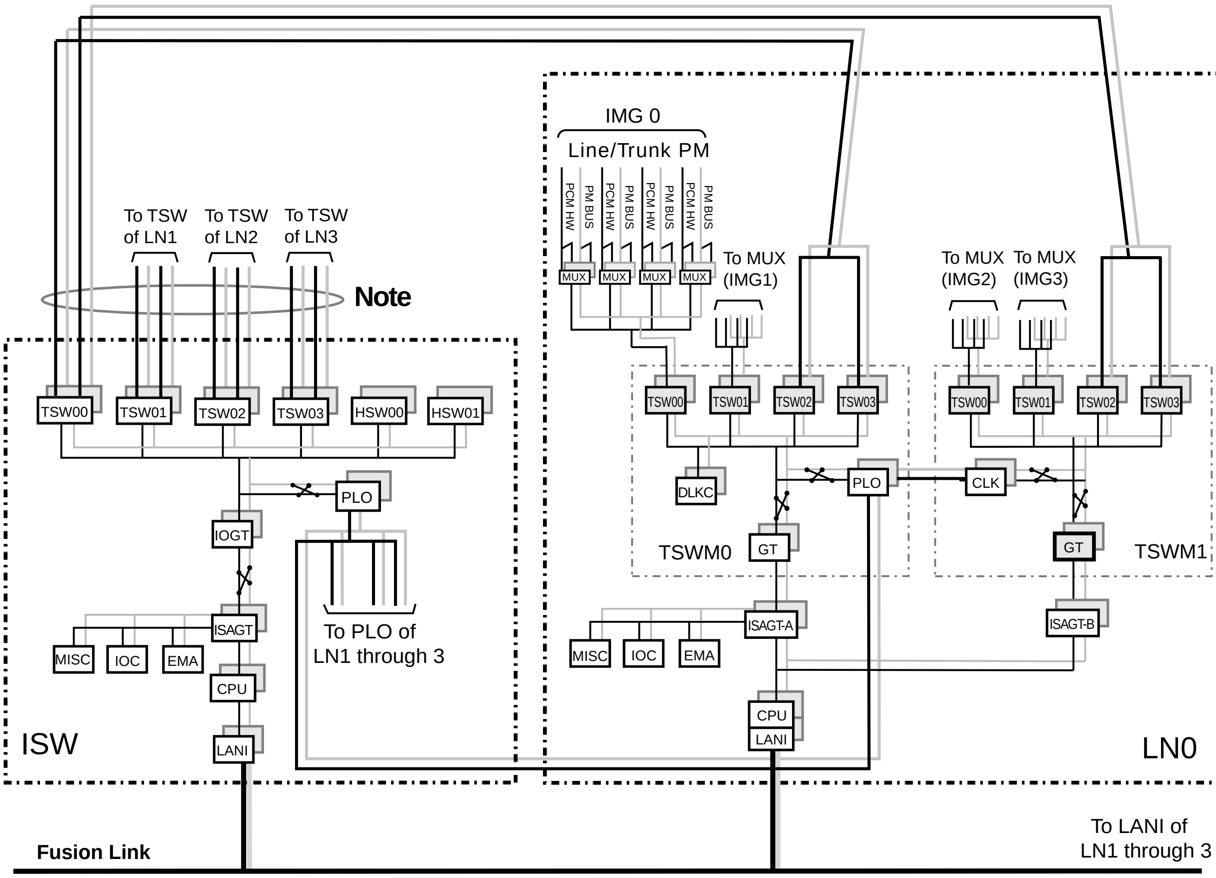
END

2.3.2 TSW Card Replacement Procedure

The TSW (PH-SW12) card is mounted in the Slot Nos. ranging from 12 to 19 within the TSWM0/1. Equipped with the Time Division Switch (TSW) and Speech Path Controlling Interface (INT), the card's main function is to provide the Time Slot (TS) switching for a specific IMG or to provide the PCM data link with the ISW. If the TSW card is used in a dual configuration, the card's replacement procedures are as follows:

Note: *To replace a TSW card in dual configuration, the system of the card must be changed over from ACT to STBY mode. The changeover can be done by flipping the MBR key on the active IOGT (PH-GT10) card in ISWM or by using the CMODI command. For more details, refer to Section 12, Chapter 6.*

Figure 4-12 provides the system block diagram centering upon the speech path between ISW and LN. If the system of TSW in ISW is changed over, the ACT/STBY of IOGT, HSW (mounted in ISW) and TSW, DLKC and MUX (mounted in the LN) in the same switching block are also changed over.



Note : *ISW-LN TSW CA-n Cables*

< ISW (Inter-node Switch) >

ISAGT: PZ-GT13	LANI: PZ-PC19	IOGT: PH-GT10	TSW: PU-SW00
HSW: PU-SW01	PLO: PH-CK16-A/17-A	EMA: PH-PC40	IOC: PH-IO24

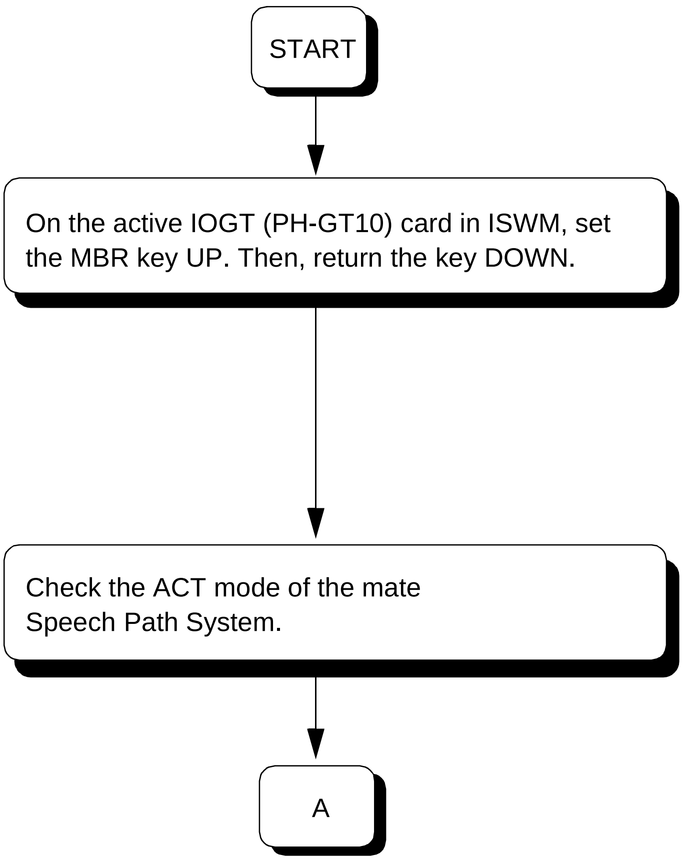
< LN (Local Node) >

ISAGT-A: PZ-GT13	ISAGT-B: PZ-GT20	LANI: PZ-PC19	GT: PH-GT09	TSW: PH-SW12	MUX: PH-PC36
DLKC: PH-PC20	PLO: PH-CK16-A	CLK: PH-CK18	EMA: PH-PC40	IOC: PH-IO24	

Figure 4-12 System Block Diagram (TSW and Other Speech Path Echelons)

TSW Card Replacement Procedure

WARNING Use extreme care when operating the keys on the circuit card.



System Changeover. Check the following lamp indications on the circuit cards to be affected and ensure that they are all OFF:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card) **Note**
- MUX ACT (MUX cards)

> **Note:** *If the TSW card to be replaced represents system status 0, all the circuit cards with 0 status are totally affected. Check the whole cited cards' lamp indications. (See Figure 4-12 and Figure 4-13.)*

Check the following lamp indications on the mate Speech Path block and ensure that they are all steady-green:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

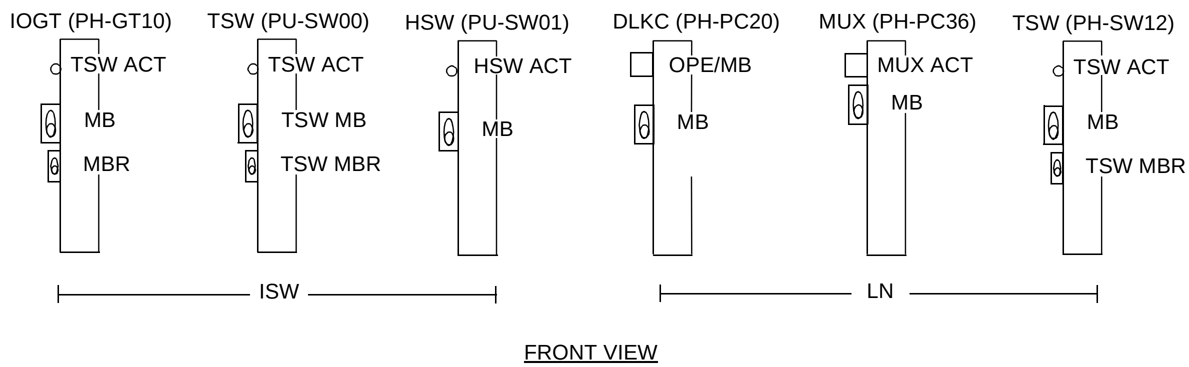
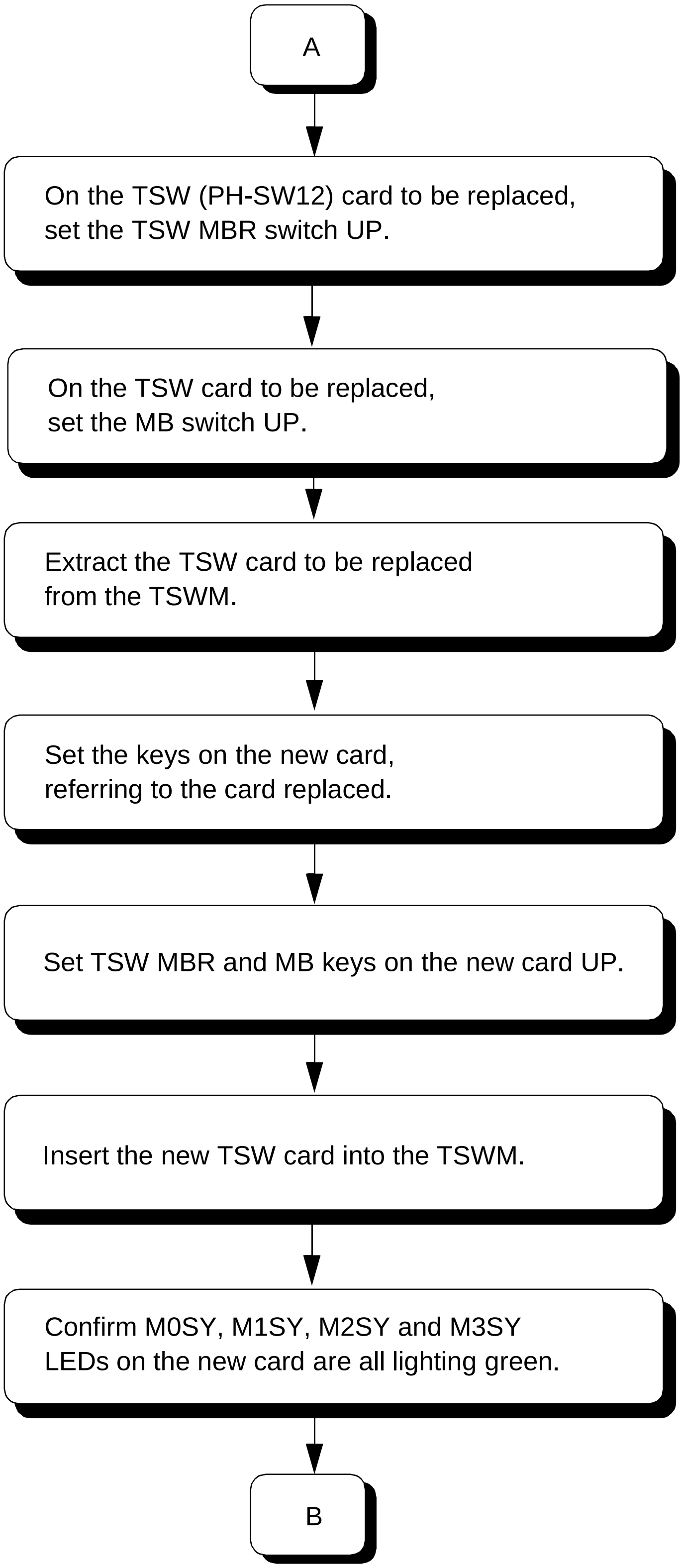


Figure 4-13 LEDs and Switches for TSW Changeover



- TSW ACT lamp on the TSW card remains OFF.
- TSW ACT lamp on the TSW card lights red.
- TSW ACT lamp on the new card lights red.

B

Set the MB key on the new card DOWN.

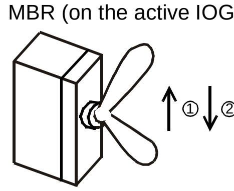
- TSW ACT lamp on the new card goes OFF.

Set the TSW MBR key on the new card DOWN.

- TSW ACT lamp on the new card remains OFF.

Flip the MBR key on the active IOGT card. Confirm the new TSW card functions normally.

MBR (on the active IOGT card of ISW)



System Changeover
- Replaced TSW: STBY to ACT
- Mate TSW: ACT to STBY

Check the following lamp indications on the Speech Path block to which the new TSW card belongs and ensure that they are all steady-green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate Speech Path block and ensure that they are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

(Refer to Figure 4-12 and Figure 4-13.)

END

Note: *This procedure assumes the Speech Path mode change is executed totally on a system basis. If the change is required on a node basis, use the MBR key on that node's GT (PH-GT09) card or CMODI/CMOD command. For more details, refer to Section 12, Chapter 6.*

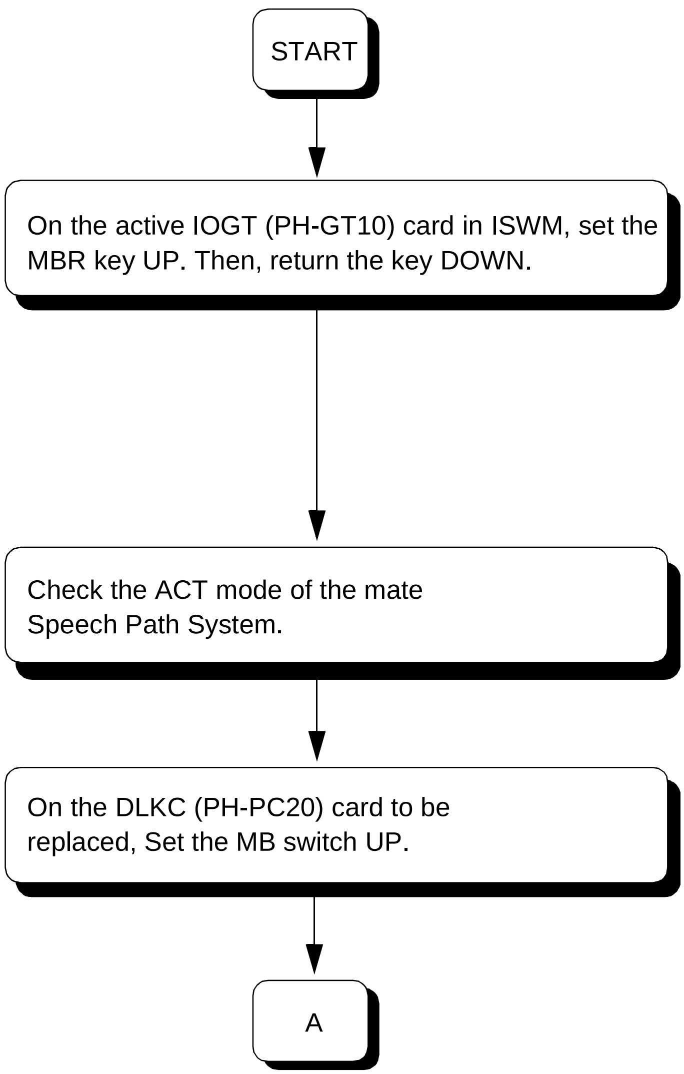
2.3.3 DLKC Card Replacement Procedure

The DLKC (PH-PC20) card is mounted in Slot No. 08 or 09 within the TSWM0. The card's main function is to provide all the Attendant/Desk Consoles with information such as termination/answer/release (abandoned) of ATT calls or idle/busy status of a station via the link of the TSW system. Use the following procedures to replace the DLKC card with a spare.

Note: *The system changeover of DLKC must be executed by the MBR key operation on the active IOGT (PH-GT10) card or by using the CMODI command. Before starting this work, confirm the system block diagram shown in Figure 4-12, or Section 12, Chapter 6.*

Replacement Procedure

WARNING Use extreme care when operating the keys on the circuit card.



System Changeover. Check the following lamp indications on the circuit cards to be affected and ensure that they are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card) **Note**
- MUX ACT (MUX cards)

Note: *If the DLKC card to be replaced represents system status 0, all the circuit cards with 0 status are totally affected. Check the whole cited cards' lamp indications. (See Figure 4-12 and Figure 4-13.)*

Check the following lamp indications on the mate Speech Path block and ensure that at ISW they are all OFF and at LN all are a steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

OPE/MB lamp on the DLKC card lights red.

A

↓

Extract the DLKC card to be replaced from the TSWM.

- OPE/MB lamp on the new card lights red.

↓

On the new DLKC card, set the MB switch UP.

- OPE/MB lamp on the new card goes OFF.

↓

Insert the new DLKC card into the TSWM.

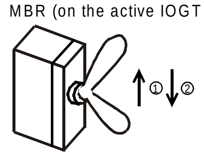
↓

On the new DLKC card, set the MB key DOWN.

↓

Flip MBR key on the active IOGT card. Confirm the new DLKC card functions normally.

MBR (on the active IOGT card of ISW)



System Changeover

- Replaced DLKC: STBY to ACT
- Mate DLKC: ACT to STBY

↓

Check the following lamp indications on the Speech Path block to which the new DLKC card belongs and ensure that they are all steady-green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate Speech Path block and ensure that they are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

(Refer to Figure 4-12 and Figure 4-13.)

↓

END

Note: *The changeover of Speech Path system can be performed also by using the CMODI command. For details, refer to Chapter 8, Maintenance Commands.*

2.3.4 PLO Card Replacement Procedure

The PLO (PH-CK16-A) card is mounted in Slot No. 21 or 23 within the TSWM0. Used together with a direct digital interface circuit card, the card's main function is to set up the clock synchronization on the network. With this circuit card, the Local Node can be a clock subordinate office of the digital network. Use the procedures below to replace the PLO card with a spare.

Note: *The ACT/STBY of PLO can be changed over via a single MB key operation on the circuit card (ACT side). Though its circuit is controlled by the GT (PH-GT09) card in TSWM0 via TSW I/O bus, the switching system of PLO (LN) is not affected by the speech path system changeover, differing from other echelons such as TSW, MUX, DLKC. Refer to Section 12, Chapter 6. If the system of PLO in TSWM0 is once changeover, the ACT/STBY of CLK in TSWM1 is also changed over.*

Replacement Procedure

START

↓

On the active PLO (PH-CK16-A) card, set the MB key UP.

↓

Check the mate PLO's ACT mode.

↓

Extract the PLO card to be replaced from the TSWM0.

↓

Set the keys on the new card according to the card replaced.

↓

A

- PLO system is changed over from ACT to STBY mode.

↓

- OPE lamp on the PLO and CLK cards in the same LN goes OFF.

Check the following lamp indications on the mate PLO and CLK cards in the same LN.

- OPE = Steady-green

A

On the new PLO card, set the MB key UP.

Insert the new PLO card into the TSWM0.

- OPE lamp on the new card is OFF.

Set the MB key on the new card DOWN.

- OPE lamp on the new card remains OFF.

  (Mate PLO = ON [green])

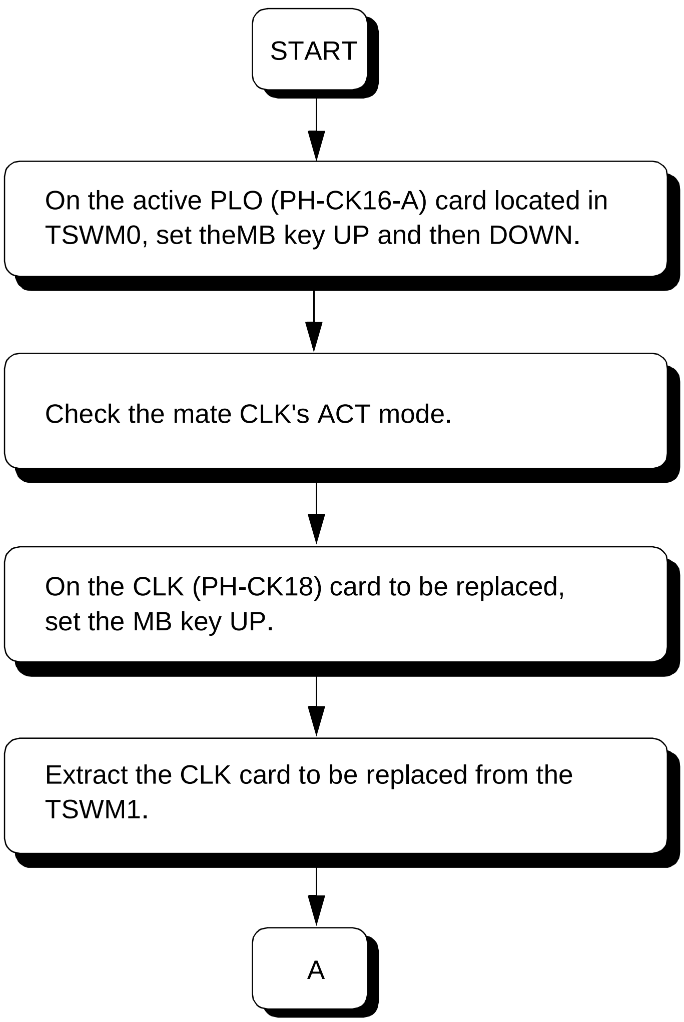
END

2.3.5 CLK Card Replacement Procedure

The CLK (PH-CK18) card is mounted in Slot No. 21 or 23 within the TSWM1. The card's main function is to supply basic clock signals to IMG2/3. This card receives clock signs from the PLO located in TSWM0, thereby distributing the supplied 32,768 MHz CLK, 8 KHz FH (5msec x "n" FH [for Wireless system]), PLO ACT signals and Hold tone to the TSW located in TSWM1. Use the procedures below to replace the CLK card with a spare.

Note: *The ACT/STBY of CLK(s) can be changed over when the PLO in TSWM0 is changed over (by flipping the MB key on the active PLO card).*

Replacement Procedure



- OPE lamps on the CLK and PLO cards goes OFF.
- OPE lamps on the mate CLK and PLO cards are steady green.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

On the new CLK card, set the MB key UP.

Insert the new CLK card into the TSWM1.

- OPE lamp on the new card is OFF.

Set the MB key on the new card DOWN.

- OPE lamp on the new card remains OFF.

  (Mate CLK = ON [green])

END

2.3.6 PWR SW Card Replacement Procedure

The PWR SW (PH-PW14) card is mounted in Slot No. 00 or 01 within the TSWM0/1. The card's main function is to supply DC -48V operating power to the same TSWM circuit cards and also DC +5, -5 V and +12 V output power to the MISC slots. Use the following procedures to replace the card with a new one.

Replacement Procedure

START

On the PWR SW (PH-PW14) card, set the SW key DOWN.

- P-ON lamp on the PWR SW card goes OFF.
- ALM lamp on the PWR SW card lights red.

Extract the PWR SW card to be replaced from the TSWM.

On the new PWR SW card, set the SW key DOWN.

- P-ON lamp on the new card is OFF.
- ALM lamp on the PWR SW card lights red.

Insert the new PWR SW card into the TSWM.

On the new PWR SW card, set the SW key UP.

- P-ON lamp on the new card lights steady-green.
- ALM lamp on the PWR SW goes OFF.

END

2.3.7 MISC Card Replacement Procedure

START

↓

On the MISC card, set MB switch UP.

↓

Extract the MISC card from its mounting slot.

↓

Insert the new circuit card into the same mounting slot.

- Keep MB switch UP.

↓

On the MISC card, set MB switch DOWN.

↓

END

3. PIM ACCOMMODATING CIRCUIT CARD REPLACEMENT PROCEDURE

This Section covers the procedures for replacing circuit cards accommodated in the PIM (IMG0/1/2/3).

3.1 Precaution

- This procedure is applied when replacing a faulty circuit card with a spare. It is also able to be applied when checking a spare card.
- There are functional switches (having set the default switch) on some of the circuit cards to be replaced. As for switch setting on the circuit cards, confirm the circuit card mounting face layout for the PIM. When a circuit card which has default switch setting has been replaced with a spare card, be sure to make switch setting on the new circuit card in the same way as on the replaced card. Otherwise, electronic components on the circuit card may be destroyed or the circuit card itself may fail to function normally.
- When handling a circuit card, be sure to use the field service kit as countermeasures against static electricity. If you touch a circuit card without using the field service kit, electronic components like an IC on the card may be destroyed by the static electricity electrified on the human body.

3.2 Circuit Card Mounting Face Layout

The face layout of circuit cards mounted in the PIM is shown in Figure 4-14.

PIM

					Universal Slots										Universal Slots									
Slot No.	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PWR0		PWR1		LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	MUX0	MUX1	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK	LC/TRK

Note: *This Section also covers the procedure to replace the SDT (PA-SDTA/PA-SDTB) card. The card can be mounted in any of the universal slots (slots 04-12 or 15-23).*

Figure 4-14 Circuit Card Mounting Face Layout of PIM

WARNING Improper key operations may result in a system down. Operate the keys with extreme care.

By replacing a circuit card, the system will issue system messages and activate the related alarm. Be sure to reset the indicated alarm after the replacement procedure is complete.

If the indicated alarm is cleared via the RALM/RALMN command, the system also clears the whole contents of the system message. Be sure to print out the messages (by using the DFTD command) BEFORE using the RALM/RALMN command.

ALM RST button on the TOPU is used to reset the alarm lamps only.

3.3 Operating Procedures

The following sections provide operating procedures to replace circuit cards mounted in the PIM. Perform the operations corresponding to each Reference Item specified in Table 4-3. The procedures assume that the system adopts the dual configuration.

Table 4-3 PIM Circuit Cards and Reference Items

CIRCUIT CARD FUNCTION NAME	REFERENCE ITEM	REMARKS
LC/TRK	Section 3.3.1, LC/TRK Circuit Card Replacement Procedure	
MUX	Section 3.3.2, MUX Card Replacement Procedure	
PWR	Section 3.3.3, PWR Card Replacement Procedure	
HUB	Section 3.3.4, HUB Circuit Card Replacement Procedure	
SDT	Section 3.3.5, SDT Card Replacement Procedure	

3.3.1 LC/TRK Circuit Card Replacement Procedure

START

↓

On the circuit card to be replaced, set the MB switch UP.

↓

Extract the circuit card from its mounting slot.

↓

Insert the new card into its mounting slot.

- Keep MB switch set at UP.

↓

On the new card, set MB switch DOWN.

↓

END

3.3.2 MUX Card Replacement Procedure

The MUX (PH-PC36) card is mounted in Slot No. 13 and/or 14 of each Port Interface Module (PIM). The card's main function is to provide an interface between the CPR and Port Microprocessor (PM) of the line/trunk circuit, and also to provide an interface for multiplexing/de-multiplexing of voice Pulse Code Modulation (PCM) information and digital data information. Use the procedures below to replace the MUX card with a spare:

Note: *Execute the system changeover of MUX by using the MBR key operation on the active IOGT (PH-GT10) card or by using the CMODI command. Before starting this task, be sure to confirm the system block diagram shown in Figure 4-12, or Section 12, Chapter 6.*

MUX Card Replacement Procedure

WARNING Apply extreme care when operating the keys on the circuit cards.

START

On the active IOGT (PH-GT10) card in ISWM, set the MBR key UP. Then, return the key DOWN.

System Changeover. Check the following lamp indications on the circuit cards to be affected and ensure that they are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card) **Note**
- MUX ACT (MUX cards)

Note: *If the MUX card to be replaced represents system status 0, all the circuit cards with 0 status are totally affected. Check the whole cited cards' lamp indications. (See Figure 4-12 and Figure 4-13.)*

Check the ACT mode of the mate Speech Path System.

Check the following lamp indications on the mate Speech Path block and ensure that they are all a steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

On the MUX (PH-PC36) card to be replaced, Set the MB switch UP.

MUX ACT lamp on the MUX card lights red.

A

A

Disconnect the cable for the MUX front connector on the card to be replaced.

Extract card to be replaced from the mounted PIM.

Referring to the replaced card, set the keys on the new card.

On the new card, set the MB key UP.

- MUX ACT lamp on the new card lights red.

Insert the new card into the PIM.

Connect the disconnected cable to the MUX front connector on the new card.

B

B

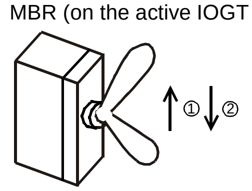
Verify that the SYNC LED on the new card lights green.

On the new MUX card, set the MB key DOWN.

Flip the MBR key on the active IOGT card. Confirm the new MUX card functions normally.

END

MBR (on the active IOGT card of ISW)



System Changeover

- Replaced MUX: STBY to ACT
- Mate MUX: ACT to STBY

Check the following lamp indications on the Speech Path block to which the new MUX card belongs and ensure that they are all steady-green:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate Speech Path block and ensure that they are all OFF:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

(Refer to Figure 4-12 and Figure 4-13.)

Note: *This procedure assumes the Speech Path mode change is executed totally on a system basis. If the change is required on a node basis, use the MBR key on that node's GT (PH-GT09) card or CMODI/CMOD command. For more details, refer to Section 12, Chapter 6.*

3.3.3 PWR Card Replacement Procedure

The PWR (PA-PW55-A/PA-PW55-B) and DPWR (PA-PW54-A/PA-PW54-B) cards are mounted respectively in Slot No. 1 and Slot No. 3 of each PIM. The card's main function is to provide operating power to the circuit cards accommodated in the PIM. The procedures to replace the PWR/DPWR card are as follows.

Replacement Procedure

Turn ON the MB key on the PWR/DPWR card to be replaced.

↓

Turn OFF the -48V SW on the card to be replaced.

- OPE lamp on the card goes OFF.

↓

Disconnect the power cable from the -48V IN connector.

↓

Extract the card to be replaced.

↓

Turn OFF the -48V SW on the new card.

↓

A

A

Turn ON the MB key on the new card.

Insert the new card into the PIM.

- OPE lamp on the new card is OFF.

Connect the power cable to the -48V IN connector.

Turn ON the -48V SW on the new card.

Turn OFF the MB key on the card.

- OPE lamp on the new card lights green.

END

3.3.4 HUB Circuit Card Replacement Procedure

The HUB (PA-M96) card is mounted in any universal slot of the PIM. This card provides the repeater function based on ANSI/IEEE820.3.8. This card is also equipped with eight ports for 10 BASE-T cable connection used for establishing Ethernet Link and/or connecting the MAT.

WARNING Replacement of a HUB card may result in a temporary shutoff of the Ethernet link. If this is the case, take appropriate measures, such as CPU mode changeover, arrangement of 10 BASE-T cable connection, etc, may be necessary.

HUB Card Replacement Procedure

WARNING Use extreme care when operating the keys on the circuit cards.

START

↓

If replacement affects current Ethernet status, ensure CPU mode change or arrangement of 10 BASE-T cable connection.

- CPU mode change: Refer to Section 12, Section 6.

↓

On the HUB (PA-M96) card to be replaced, set the MB key up.

- OPE lamp on the card goes OFF.

↓

Check the lamp indication of the mate HUB card.

- OPE lamp on the mate HUB card lights steady-green.

↓

Disconnect the 10 BASE-T cables from the front connectors of the HUB card to be replaced

↓

A

A

↓

Extract the HUB card from the universal slot of the PIM.

↓

Set the key on the new card, referring to the card replaced.

↓

Set the MB key on the new card UP.

↓

Insert the new card into the PIM.

- OPE lamp on the new card goes OFF.

↓

Connect the disconnected 10 BASE-T cable(s) to the connector(s) on the new card.

↓

Set the MB key on the new DOWN.

↓

Confirm STxx lamp(s) on the new card is lighting green.

- OPE lamp on the new card lights green.

↓

END

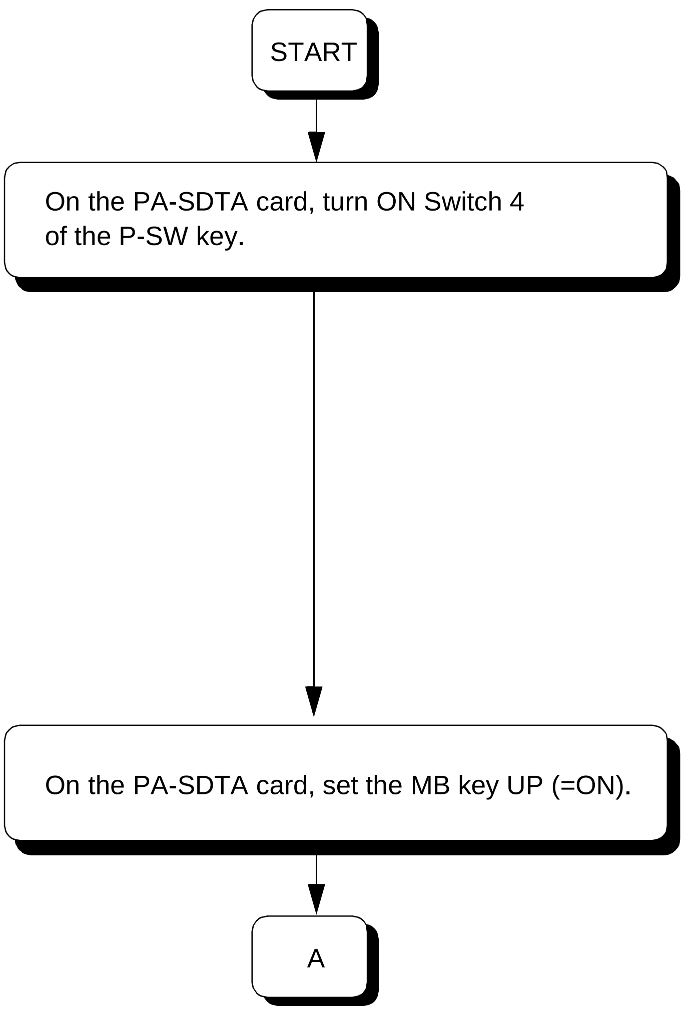
3.3.5 SDT Card Replacement Procedure

The SDT (PA-SDTA/PA-SDTB) card, mounted in a universal slot of a PIM, is used to provide a 52M interface for the optical fiber lines. Use the following procedure to replace the SDT card with a spare.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

WARNING While this card is being replaced, the connected optical fiber line cannot be used.

Optical Fiber Cable Replacement Procedure



ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

- ACT lamp on the PA-SDTA card goes OFF. (When the card is provided in a dual configuration, the card becomes stand-by.)

The following occurs in call processing:

When card is provided in dual configuration

All calls (including already established calls plus newly attempted calls) can normally be handled by the mate card.

When card is in single configuration, or mate card is faulty in dual configuration

Though any call attempt is rejected, already established calls are not affected. When any connection link exists, the link is still maintained.

- OPE lamp on the PA-SDTA card lights red.

The following occur in call processing:

When card is in single configuration, or mate card is faulty in dual configuration

Already established calls (while in speech) lose voice/tone. Any connection link is severed after a few seconds.

A

↓

Remove the optical fiber cable from the front connector on the PA-SDTA card.

↓

Connect the new optical fiber cable to the front connector on the PA-SDTA card.

↓

On the PA-SDTA card, set the MB key DOWN (=OFF) and turn OFF Switch 4 of the P-SW key.

- OPE lamp on the PA-SDTA card lights steady-green.

↓

END

PA-SDTA/PA-SDTB Card Replacement Procedure

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

On the PA-SDTA card, turn ON Switch 4 of the P-SW key.

- ACT lamp on the PA-SDTA card goes OFF.
- Though any call attempt is rejected, already established calls are safely maintained. When any connection link exists, the link is maintained.

Note: *When the card is in a dual configuration, perform this for both system sides, in the order of STBY → ACT.*

By using the SPTS command, verify that no calls are being handled by the SDT card.

On the PA-SDTA card, set the MB key UP (=ON).

- OPE lamp on the PA-SDTA card lights red.
- When already established calls exist, the connections lose voice/tone. When any connection link exists, the link is severed after a few seconds.

Note: *When the card is in a dual configuration, perform this for both system sides (ACT and STBY).*

A

A

↓

On the PA-SDTB card, set the MB key UP (=ON).

- OPE lamp on the PA-SDTB card lights red.
- When any connection link exists, the nailed-down connection between the FCH (PA-FCHA) and SDT (PA-SDTB) cards is cut off. Already established calls, while in speech, are all disconnected.

↓

Extract both PA-SDTA/PA-SDTB cards, simultaneously.

↓

Remove the flat cables from the front connectors, I/O and PCM, on both PA-SDTB and PA-SDTA cards.

↓

When replacing the PA-SDTB, also remove MT24 TSW cables from all the front connectors on the card.

↓

Referring to the card removed, perform the switch settings on the new card.

- Confirm that the MB key on the new card is set UP (=ON). If the new card is PA-SDTA, also confirm that Switch 4 of the P-SW key is ON.

↓

B

B

↓

Connect the disconnected flat cables to the connectors on the new card and other PA-SDTA/PA-SDTB cards.

- OPE lamp on the new card lights red.

↓

When the new card is PA-SDTB, also connect the MT 24 TSW cables to all the required front connectors.

↓

Insert both PA-SDTA/PA-SDTB cards (including new card) simultaneously into the same slots of the PIM.

↓

On the PA-SDTA card, set the MB key DOWN (=OFF).

Note: *When the card is in a dual configuration, perform this action for both system sides (ACT and STBY).*

↓

On the PA-SDTA card, turn OFF Switch 4 of the P-SW key.

Note: *When the card is in a dual configuration, perform this action for both system sides, in the order of STBY → ACT.*

↓

On the PA-SDTB card, set the MB key DOWN (=OFF).

- OPE lamp on the new card lights steady-green.

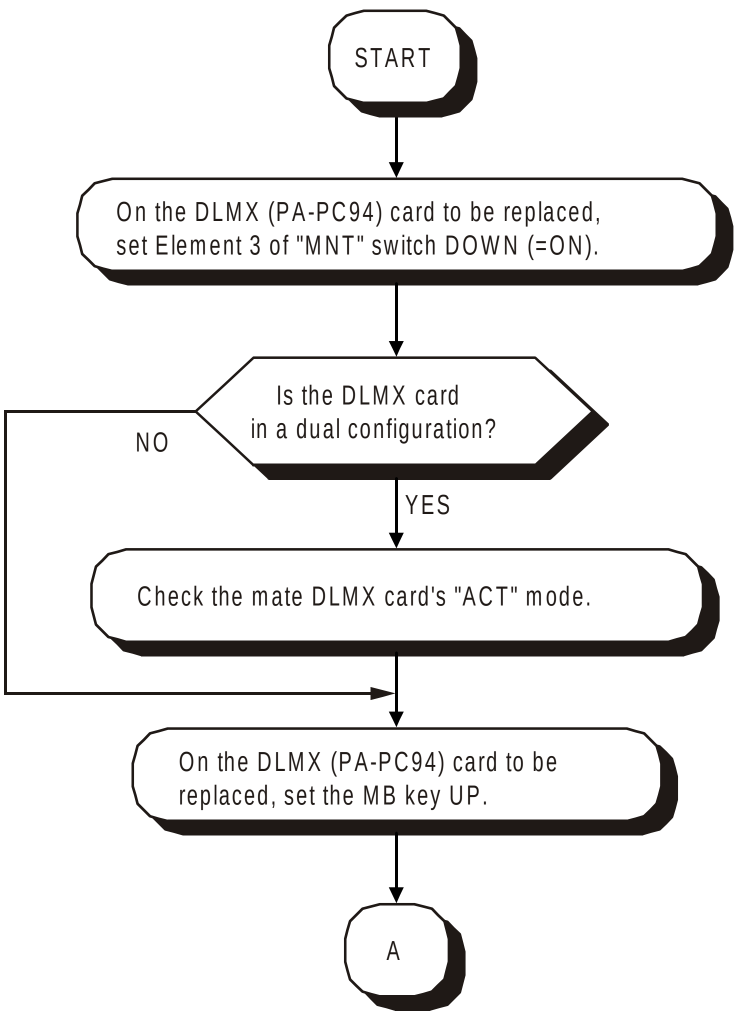
↓

END

3.3.6 DLMX Card Replacement Procedure

The DLMX (PA-PC94) card, accommodated in a universal slot of a PIM, is used to collect the BLF information (associated with Attendant/Desk Console operation) from DLKC cards of all nodes in the IPX-U system, and to send the collected data to ATI cards of all nodes. When replacing this card, take the procedure below:

Replacement Procedure



- ACT lamp on the card goes/ remains OFF.

  (When the card is formally active in a dual configuration, the card is placed to ST-BY

ACT lamp on the mate card lights steady-green.

- OPE lamp on the card goes OFF.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

Extract the DLMX card to be replaced from the universal slot of the PIM.

On the new DLMX (PA-PC94) card, set the switch setting, referring to the card replaced.

On the new DLMX (PA-PC94) card, set the MB key UP.

Insert the new DLMX (PA-PC94) card into the PIM.

Set the MB key on the new card DOWN.

- OPE lamp on the card lights steady-green.

END

4. ISWM ACCOMMODATING CIRCUIT CARD REPLACEMENT PROCEDURE

This section explains the procedure for replacing circuit cards mounted in the ISWM.

4.1 Precautions

- Use this procedure to replace a faulty circuit card with a spare or to check a spare card.
- There are the functional switches (having set the default switch) on some of the circuit cards to be replaced. As for switch setting on the circuit cards, confirm the circuit card mounting face layout for the PIM. When a circuit card with a default switch setting is replaced with a spare card, always make the switch setting on the new circuit card the same as on the replaced card. Otherwise, electronic components on the circuit card may be destroyed, or the circuit card itself may fail to function normally.
- When handling a circuit card, always use the field service kit for countermeasures against static electricity. Touching a circuit card without using the field service kit may destroy the card due to static electricity on the human body.

4.2 Circuit Card Mounting Face Layout

Figure 4-10 shows the face layout of the circuit cards mounted in the TSWM. The circuit cards marked with * are optional.

ISWM

Slot No.	0	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
	PWR0	PWR1	HSW00	HSW01	TSW00	TWS01	TSW02	TSW03		PLO0	IOGT0	IOGT1		PLO1	TSW10	TSW11	TSW12	TSW13	HSW10	HSW11

FRONT VIEW

PWRSW: PH-PW14 HSW: PU-SW01 TSW: PU-SW00 PLO: PH-CK16-A17-A IOGT: PH-GT10

Figure 4-15 Circuit Card Mounting Face Layout of ISWM

WARNING Improper key operations may result in a system down. Operate the key using extreme care.

During replacement of a circuit card, the system issues system messages and activates the related alarm. Reset the indicated alarm after completing the replacement procedure.

If the indicated alarm is cleared via the RALM/RALMN command, the system also clears the contents of the system message. ***Before*** using the RALM/RALMN command, print the messages using the DFTD command.

Use the ALM RST button on the TOPU only to reset the alarm lamps.

4.3 Operating Procedures

The following section provide operating procedures to replace circuit cards mounted in the ISW. Perform the operations corresponding to each reference item specified in Table 4-4. The procedures assume that the system adopts the dual configuration.

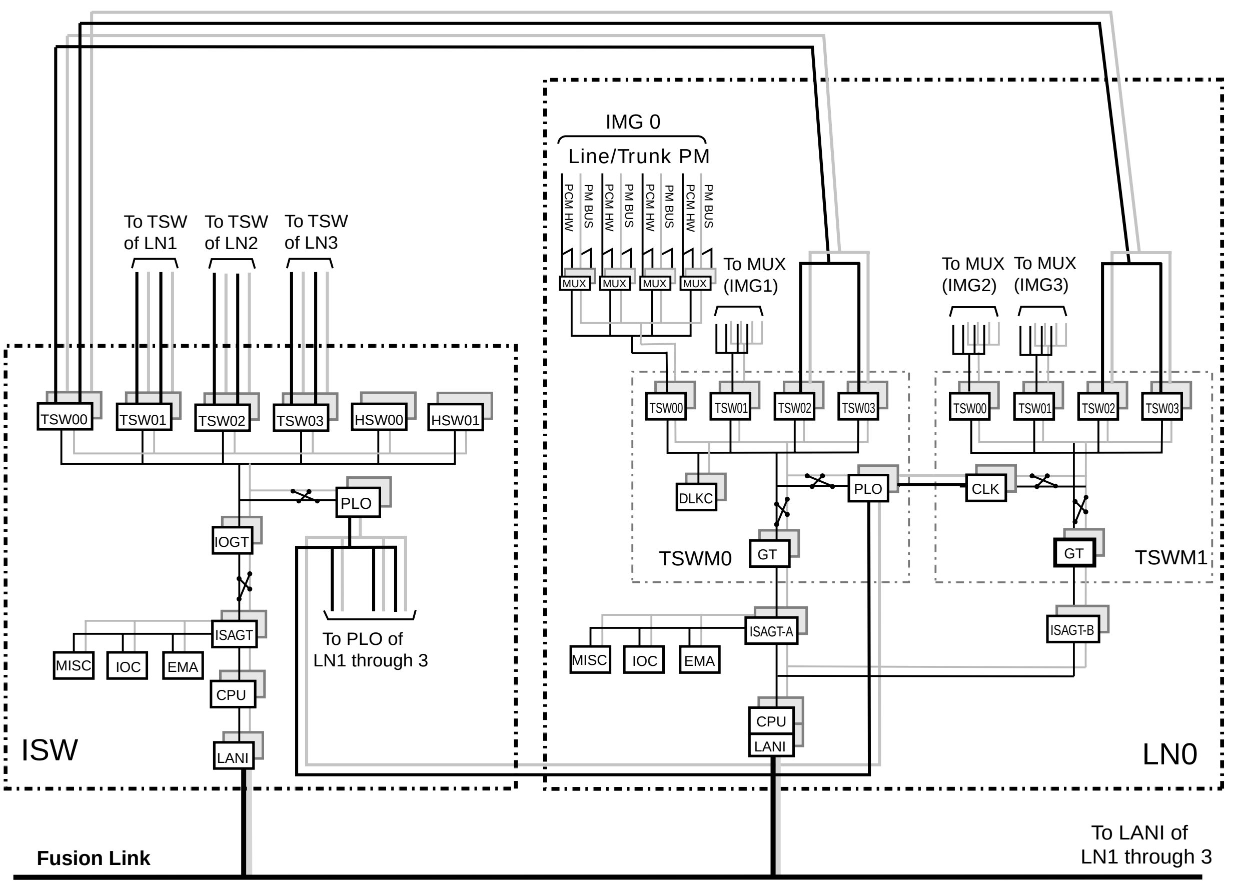
Table 4-4 ISW Circuit Cards and Reference Items

CIRCUIT CARD FUNCTION NAME	REFERENCE ITEM	REMARKS
IOGT	Section 4.3.1, IOGT Card Replacement Procedure	
TSW	Section 4.3.2, TSW Card Replacement Procedure	
HSW	Section 4.3.3, HSW Card Replacement Procedure	
PLO	Section 4.3.4, PLO Card Replacement Procedure	
PWR SW	Section 4.3.5, PWR SW Card Replacement Procedure	

4.3.1 IOGT Card Replacement Procedure

The IOGT (PH-GT10) card is mounted in Slot No. 10 or 11 within the ISWM. This card provides MISC/TSW I/O bus interfaces between the CPU and TSW, HSW, PLO cards within the ISWM. Figure 4-16 shows a system block diagram centering upon the CPU and it's controlling IOGT. If the ACT/ STBY of IOGT is changed over, those of TSW, HSW (in ISW) and TSW, MUX, DLKC (in all LNs) are also totally changed over. Follow the procedures below to replace an IOGT card with a spare.

Note: *To replace the IOGT card, the STBY mode of the card (to be replaced) must be first confirmed. The mode changeover is available by using the MBR key on the active IOGT card or by using the CMODI command. See Figure 4-16.*



< ISW (Inter-node Switch) >

ISAGT: PZ-GT13	LANI: PZ-PC19	IOGT: PH-GT10	TSW: PU-SW00
HSW: PU-SW01	PLO: PH-CK16-A/17-A	EMA: PH-PC40	IOC: PH-IO24

< LN (Local Node) >

ISAGT-A: PZ-GT13	ISAGT-B: PZ-GT20	LANI: PZ-PC19	GT: PH-GT09	TSW: PH-SW12	MUX: PH-PC36
DLKC: PH-PC20	PLO: PH-CK16-A	CLK: PH-CK18	EMA: PH-PC40	IOC: PH-IO24	

Figure 4-16 System Block Diagram (IOGT and Other Speech Path Echelons)

IOGT Card Replacement Procedure

WARNING Use extreme care when operating the keys on the DSP of CPR and PH-GT09 card.

START

↓

If the card to be replaced is active, flip the MBR key on the card OFF → ON → OFF

↓

Confirm the mate IOGT's ACT mode.

↓

On the IOGT card to be replaced, set the MBR key UP.

↓

A

System Changeover: Check the following lamp indications on the IOGT and other circuit cards in the same Switching block and ensure they are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate IOGT card and other circuit cards in the same mate block and ensure they are all a steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

TSW ACT lamp on the IOGT card remains OFF.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

↓

On the IOGT card to be replaced, set the MB key UP.

↓

Extract the IOGT card to be replaced from the ISWM.

- TSW ACT lamp on the IOGT card lights red.

↓

On the new IOGT card, set the MB/MBR key UP,

↓

Insert the new card into the ISWM.

- TSW ACT lamp on the new card lights red.

↓

Set the MB key on the new card DOWN.

- TSW ACT lamp on the IOGT card goes OFF.

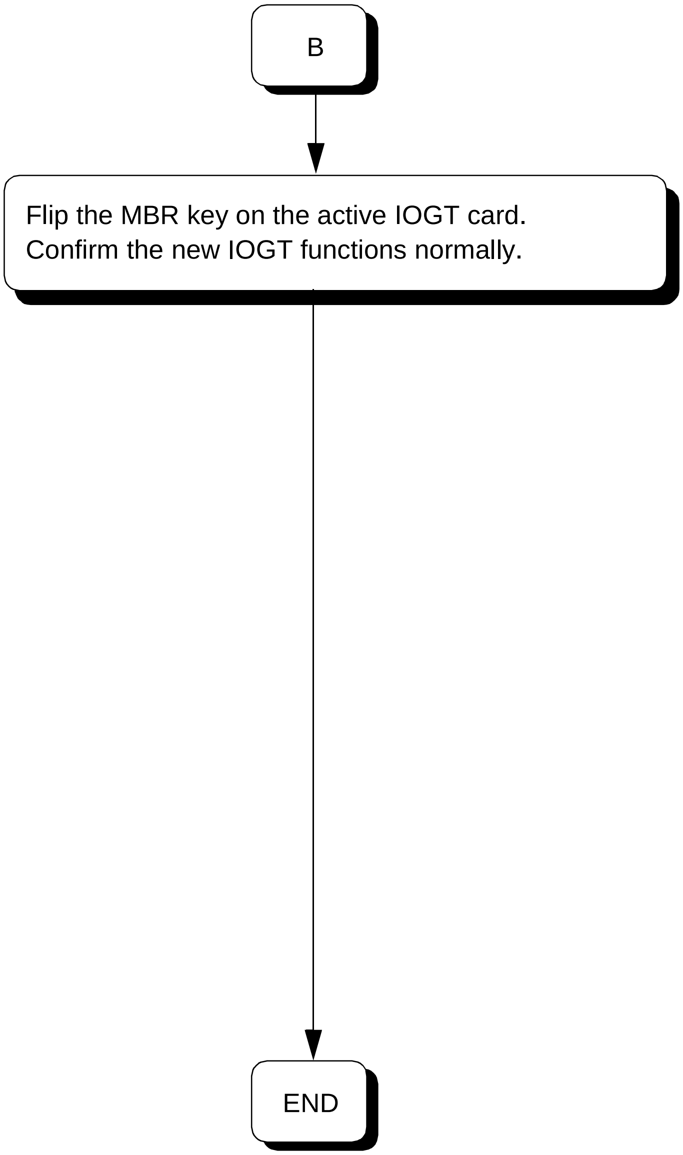
↓

Set the MBR key on the new card DOWN.

- TSW ACT lamp on the IOGT card goes OFF.

↓

B



System Changeover: Check the following lamp indications on the IOGT and other circuit cards in the same Switching block are all steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate IOGT card and other circuit cards in the same mate block are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Note: *The system changeover of Speech Path system can be executed also by using the CMODI command. For details, refer to Chapter 8, Maintenance Commands.*

4.3.2 TSW Card Replacement Procedure

The TSW (PH-SW00) card is mounted in the Slot Nos. ranging from 04 to 07 and Slot Nos. 14 to 17 within the ISWM. Equipped with the Time Division Switch (TSW) and INT function, each circuit card provides Time Slot (TS) switching for one Local Node (LN). In addition, used together with two PU-SW01 (HSW) cards in pair, four PU-SW00 (TSW) cards achieve a maximum of 32,768 TS switching for four LNs.

Note: *To replace the TSW card, the STBY mode of the card (to be replaced) must be first confirmed. The mode changeover is available by using the MBR key on the active IOGT card or by using the CMODI command. See Figure 4-16.*

TSW Card Replacement Procedure

WARNING Use extreme care when operating the keys on the circuit card.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

If the card to be replaced is active, flip the MBR key on the active IOGT (PH-GT10) card OFF→ON→OFF

System Changeover: Check the following lamp indications on the TSW and other circuit cards in the same Switching block are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the ACT mode of the mate Speech Path System.

Check the following lamp indications on the mate TSW card and other circuit cards in the same mate block are all a steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

On the TSW card to be replaced, set the TSW MBR key UP.

- TSW ACT lamp on the TSW card remains OFF.

On the TSW card to be replaced, set the TSW MB key UP.

- TSW ACT lamp on the TSW card lights red.

A

A

Extract the TSW card from the ISWM.

Set the key on the new card, referring to the card replaced.

Set the TSW MBR and TSW MB keys on the new card UP.

Insert the new card into the ISWM.

- TSW ACT lamp on the TSW card lights red.

Confirm LN00~LN03, LN10~LN13, LN20~23, and LN30~LN33 LEDs on the new card are lighting green.

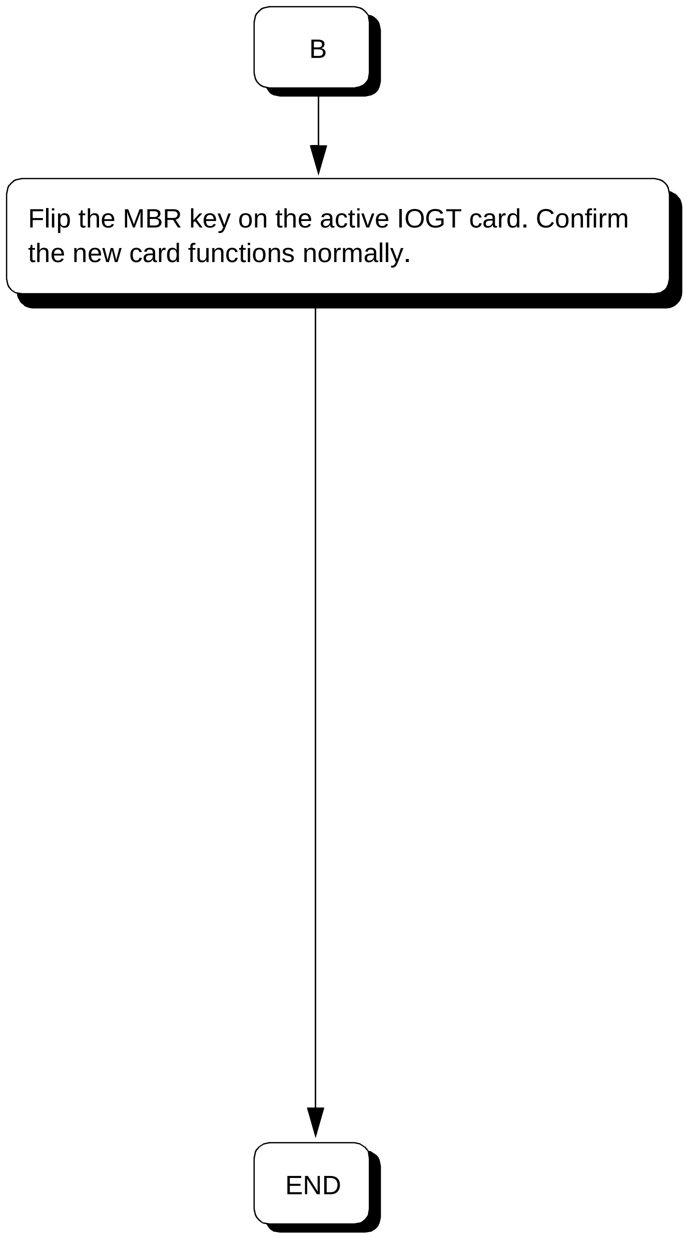
Set the TSW MB key on the new card DOWN.

- TSW ACT lamp on the TSW card goes OFF.

Set the TSW MBR key on the new card DOWN.

- TSW ACT lamp on the TSW card goes OFF.

B



System Changeover: Check the following lamp indications on the TSW and other circuit cards in the same Switching block are all steady green:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate TSW card and other circuit cards in the same mate block are all OFF:

At the ISW:

- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:

- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Note: *The system changeover of Speech Path system can be executed also by using the CMODI command. For details, refer to Chapter 8, Maintenance Commands.*

4.3.3 HSW Card Replacement Procedure

The HSW (PH-SW01) card is mounted in the Slot Nos. 03, 04 and Slot Nos. 18 and 19. The main functions of this card are as follows:

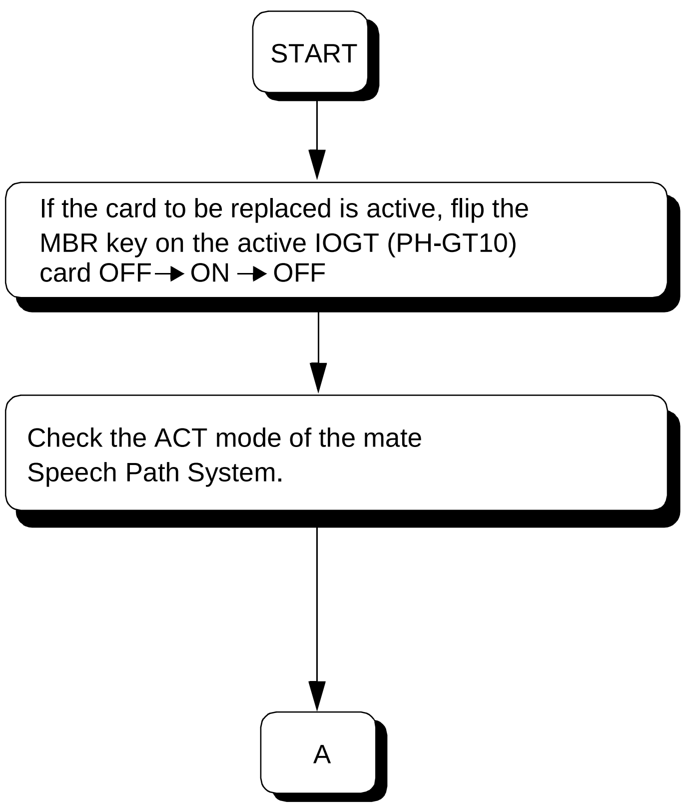
(a) The swithc omposition is T-T-S-T (T:Time division, S: Space division, T: Time division), and the space division is composed with this circuit card.

(b) This circuit card collects the 16 highways of PCM data from TSW cards and sends 8 highways to TSW cards by one card. It is used to perform 16 highways switching by two PU-SW01 cards.

Note: *To replace the HSW card, the STBY mode of the card (to be replaced) must be first confirmed. The mode changeover is available by using the MBR key on the active IOGT card or by using the CMODI command. See* *Figure 4-16**.*

HSW Card Replacement Procedure

WARNING Use extreme care when operating the keys on the circuit card.



System Changeover: Check the following lamp indications on the HSW and other circuit cards in the same Switching block are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate HSW card and other circuit cards in the same mate block are all a steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

↓

On the HSW card to be replaced, set the MB key UP.

- HSW ACT lamp on the HSW card lights red.

↓

Extract the HSW card from the ISWM.

↓

Set the HSW MB keys on the new card UP.

↓

Insert the new card into the ISWM.

- HSW ACT lamp on the HSW card goes OFF.

↓

Set the HSW MB keys on the new card DOWN.

- HSW ACT lamp on the HSW card goes OFF.

↓

B

B

Flip the MBR key on the active IOGT card in the same block. Confirm the new card functions normally.

END

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

System Changeover: Check the following lamp indications on the TSW and other circuit cards in the same Switching block are all steady green:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Check the following lamp indications on the mate TSW card and other circuit cards in the same mate block are all OFF:

At the ISW:
- TSW ACT (IOGT cards)
- TSW ACT (TSW cards)
- HSW ACT (HSW cards)

At the LN:
- TSW ACT (TSW cards)
- OPE/MB (DLKC card)
- MUX ACT (MUX cards)

Note: *The system changeover of Speech Path system can be executed also by using the CMODI command. For details, refer to Chapter 8, Maintenance Commands.*

4.3.4 PLO Card Replacement Procedure

The PLO (PH-CK16-A/17-A) card is located in Slot No. 09 or 13 within the ISWM. Used together with a different direct digital interface circuit card, the card's main function is to set up the clock synchronization on the network. Use the procedures below to replace the PLO card with a spare.

Note: *The ACT/STBY of PLO can be changed over via a single MB key operation on the circuit card (ACT side). Though its circuit is controlled by the IOGT (PH-GT10) card via TSW I/O bus, the switching system of PLO (ISW) is not affected by the Speech Path system changeover, differing from other echelons such as IOGT, TSW, and HSW. Refer to Section 12, Chapter 6.*

Replacement Procedure

START

↓

On the active PLO (PH-CK16-A/17-A) card, set the MB key UP.

↓

Check the mate PLO's ACT mode.

↓

Extract the PLO card to be replaced from the ISWM.

↓

Set the keys on the new card according to the card replaced.

↓

A

- PLO system is changed over from ACT to STBY mode.

↓

- OPE lamp on the PLO card goes OFF.

Check the following lamp indications on the mate PLO cards:

- OPE = Steady-green

A

↓

On the new PLO card, set the MB key UP.

↓

Insert the new PLO card into the ISWM.

- OPE lamp on the new card is OFF.

↓

Set the MB key on the new card DOWN.

- OPE lamp on the new card remains OFF.

↓

END

4.3.5 PWR SW Card Replacement Procedure

The PWR SW (PH-PW14) card is mounted in Slot No. 00 or 01 within the ISWM. The card's main function is to supply DC -48V operating power to the same ISWM circuit cards and also DC +5, -5 V and +12 V output power to the PLO cards. Use the following procedures to replace the card with a new one.

Replacement Procedure

START

↓

On the PWR SW (PH-PW14) card, set the SW key DOWN.

- P-ON lamp on the PWR SW card goes OFF.
- ALM lamp on the PWR SW card lights red.

↓

Extract the PWR SW card to be replaced from the ISWM.

↓

On the new PWR SW card, set the SW key DOWN.

↓

Insert the new PWR SW card into the ISWM.

- P-ON lamp on the new card is OFF.
- ALM lamp on the PWR SW card lights red.

↓

On the new PWR SW card, set the SW key UP.

- P-ON lamp on the new card lights steady-green.
- ALM lamp on the PWR SW goes OFF.

↓

END

5. FAN UNIT REPLACEMENT

This section explains how to replace the Fan Unit (FANU), which is fastened on the TOPU or inside the dedicated fan box within the system. Because the fan is a vital device to protect the system from heated air, it is recommended that the fan (a total of three per unit) be replaced at least every two years to guarantee its high performance.

The mounting location of FANU differs, depending on the module configuration of each cabinet. When the system consists of a total of three modules or less, the FANU is mounted on the TOPU of the cabinet. Otherwise, the FANU is housed in the dedicated fan box in the center of the cabinet.

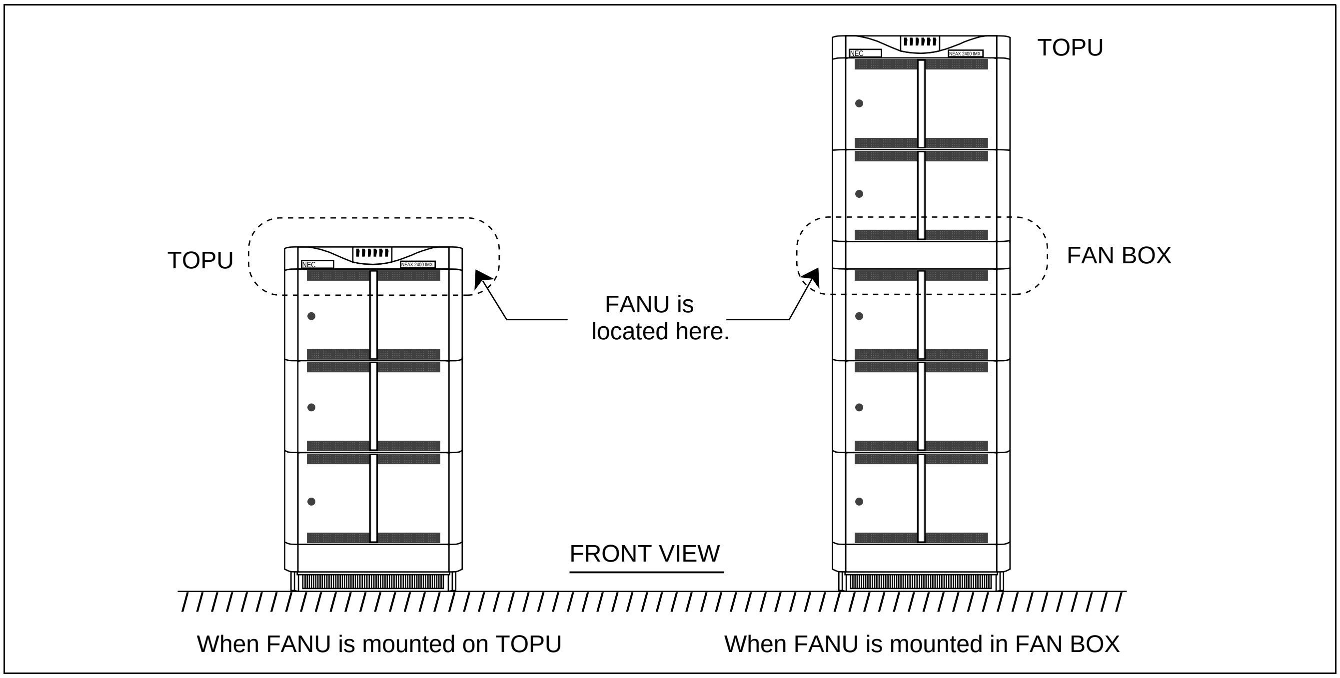


Figure 4-17 FANU Locations

Replacement Procedure: FANU on TOPU

When the FANU is mounted on the TOPU, perform the following replacement procedure. (Refer to Figure 4-18.):

STEP 1 Using a Phillips screwdriver, remove the four screws. Lift away the top cover.

STEP 2 Turn OFF the PWR SW on the PZ-M369.

STEP 3 Remove the fan fuse (5A) on the PZ-M369.

STEP 4 Remove the fan cables from the fan connector and the connector(s) corresponding to the fan to be replaced (for example, when replacing fan 0, disconnect the FC0 connector together with the fan connector).

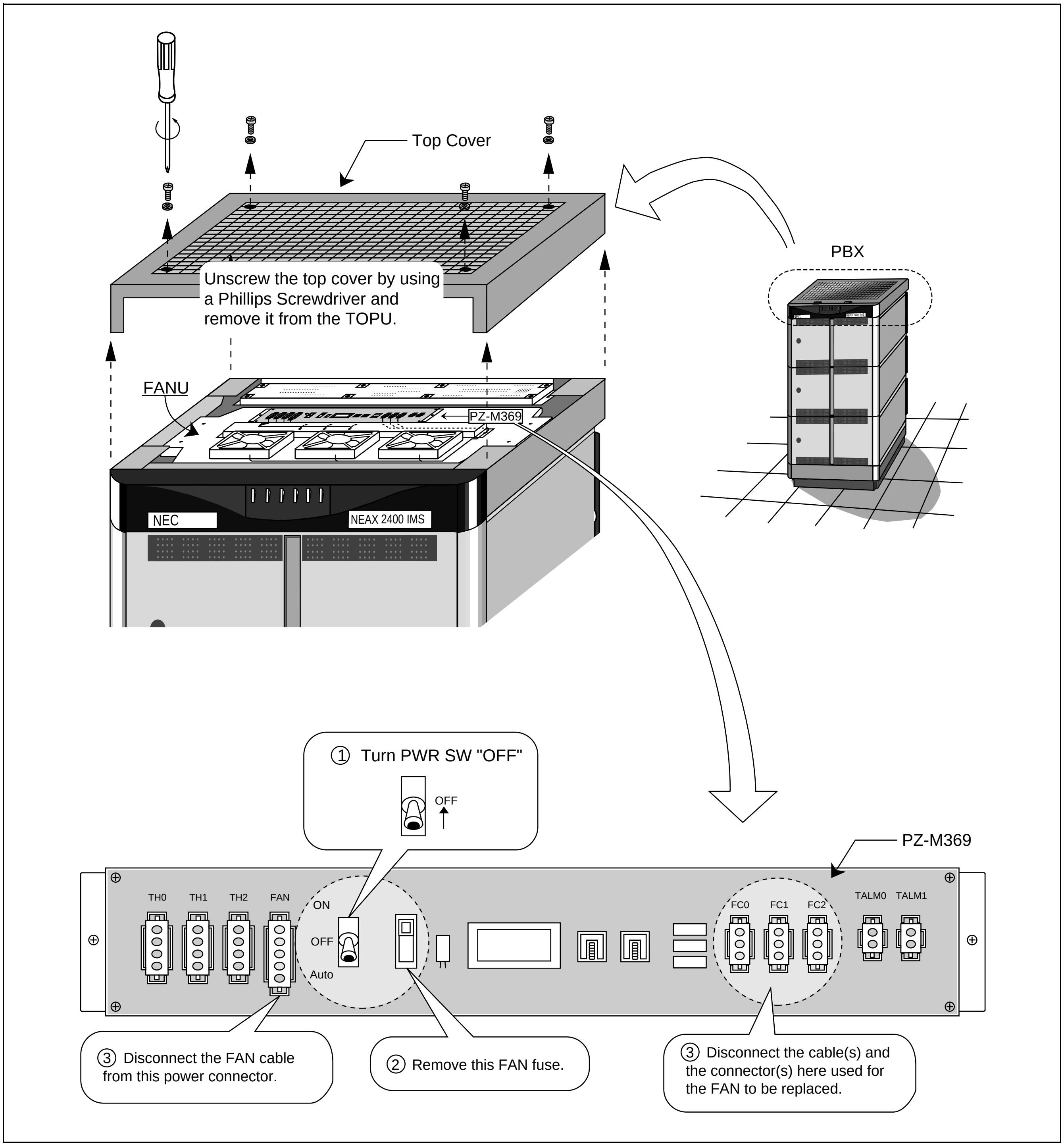


Figure 4-18 Preparation for FANU Replacement (Fans on TOPU)

STEP 5 Remove the four screws fastening the fan to be replaced. Refer to Figure 4-19.

Note: *The removed screws are used in STEP 7 again. Do not dispose of them when unscrewing the fan here.*

STEP 6 Remove the unscrewed fan from the FANU.

STEP 7 Fasten the new fan with the removed screws.

STEP 8 Connect the new fan cables to the fan connector and the connector(s) disconnected in STEP 4.

STEP 9 Fix the fan fuse (5A) onto the PZ-M369.

STEP 10 Set the PWR SW on the PZ-M369 to the AUTO position.

Note: *The switch setting of the PWR SW can be ON, depending on the location conditions of the system.*

STEP 11 Attach the top cover again to the original location.

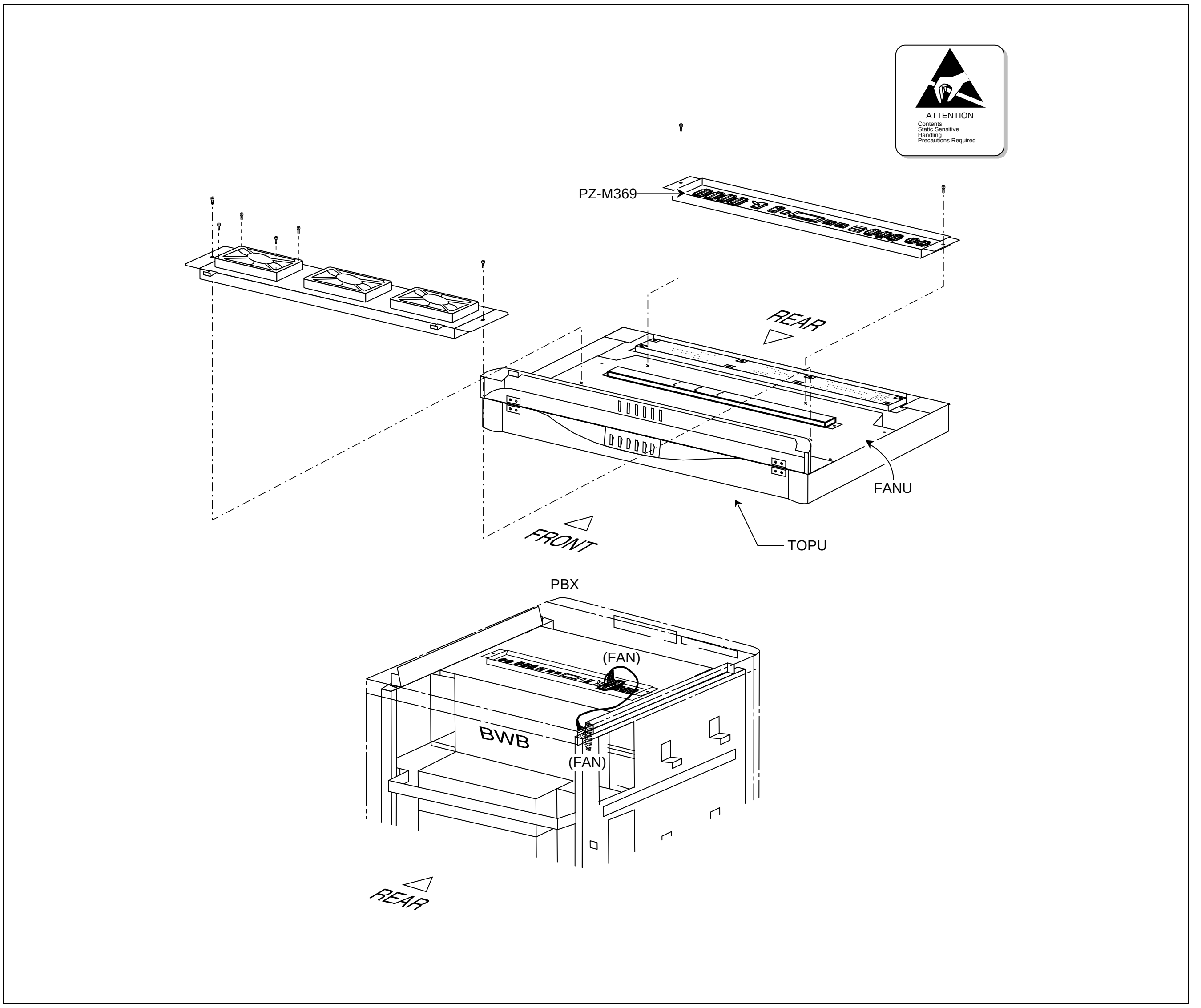


Figure 4-19 How to Replace FANU (Fans on TOPU)

Replacement Procedure: FANU in Fan Box

When the FANU is mounted in the fan box, perform the following replacement procedures:

STEP 1 Remove the front cover of the fan box. Then, extract the FANU.

STEP 2 Turn OFF the PWR SW on the PZ-M369. (Refer to Figure 4-20.)

STEP 3 Remove the fan fuse (5A) on the PZ-M369.

STEP 4 Remove the fan cables from the fan connector and the connector(s) corresponding to the fan to be replaced (for example, when replacing Fan 1, disconnect the FC0 connector together with the fan connector).

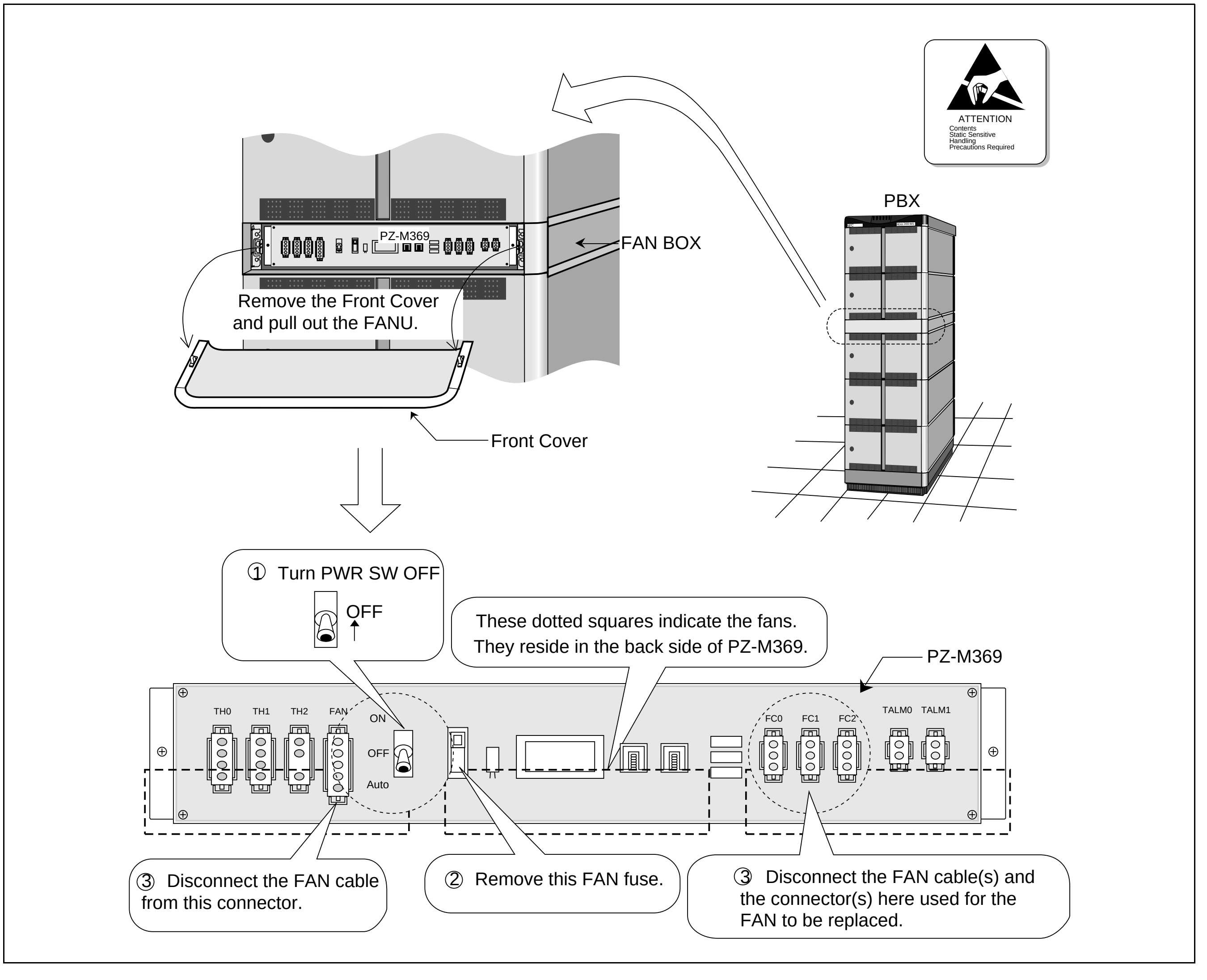


Figure 4-20 Preparation for FANU Replacement (Fans in Fan Box)

STEP 5 Take off the four screws fastening the fan to be replaced. (Refer to Figure 4-21.)

Note: *The removed screws are used in STEP 7 again. Do not dispose of them when unscrewing the fan here.*

STEP 6 Remove the unscrewed fan from the FANU.

STEP 7 Fasten the new fan with the removed screws.

STEP 8 Connect the new fan cables to the fan connector and the connector(s) disconnected in STEP 4.

STEP 9 Fix the fan fuse (5A) again onto the PZ-M369.

STEP 10 Insert the FANU into the fan box and fasten it with the two screws.

STEP 11 Set the PWR SW on the PZ-M369 to the AUTO position.

Note: *The switch setting of the PWR SW can be ON, depending on the location conditions of the system.*

STEP 12 Attach the front cover to the original location.

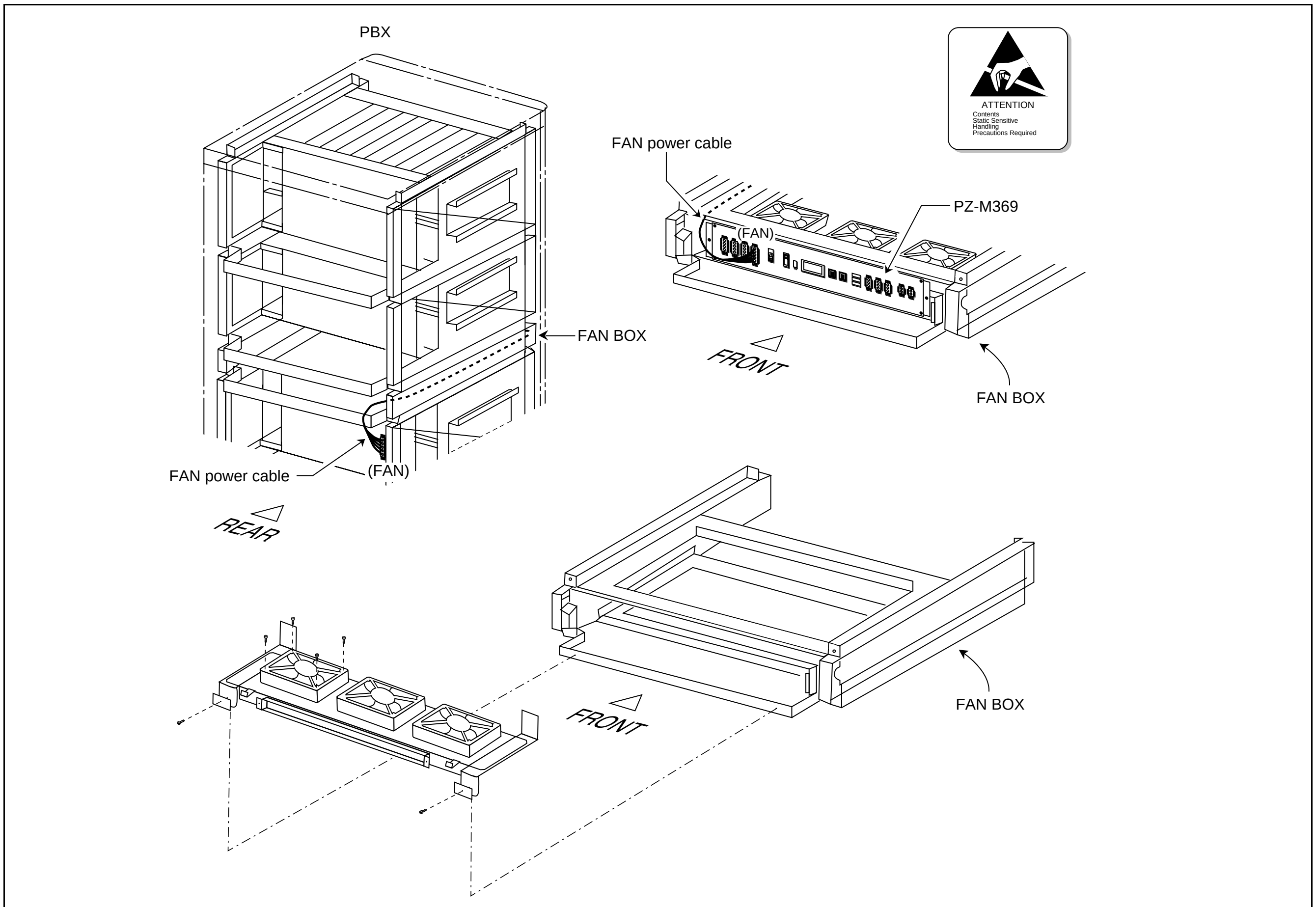


Figure 4-21 How to Replace FANU (Fans in Fan Box)

6. CPR COOLING FAN REPLACEMENT

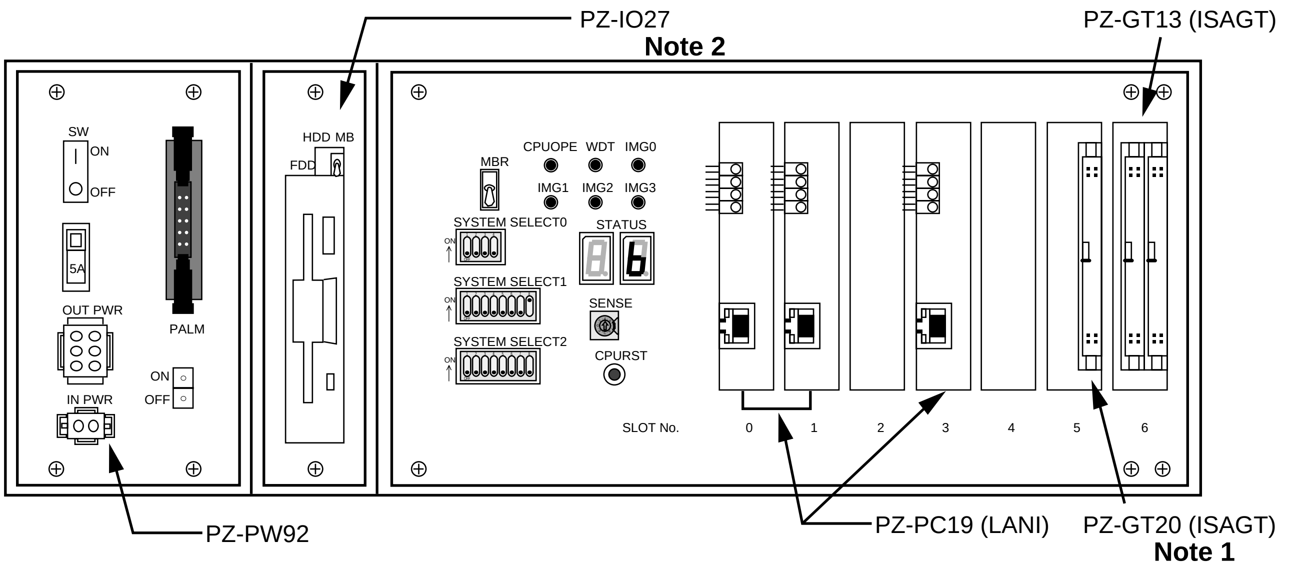
This section explains how to replace a Cooling Fan in the back side of the CPR. This procedure is necessary when a fault is detected in the Cooling Fan. Because the fan is a vital device to protect the CPR from heated air, it is also recommended that the fan be replaced at least every two years, even if a fault is not detected.

STEP 1 Set the CPU, whose rack houses the fan to be replaced, in STBY mode via the MBR key on the DSP (Refer to Figure 4-22.) **Note**

Note: *For the ACT/STBY changeover of the CPU, see Chapter 6.*

STEP 2 Disconnect the power alarm cable from the PALM connector on PZ-PW92.

STEP 3 Turn OFF the PWR SW on the PZ-PW92 (Refer to Figure 4-22.)



Note 1: *PZ-GT20 is located in LN only.*
Note 2: *In place of PZ-I027, the CPR may be equipped with PZ-I028 which does not have the MB key.*

Figure 4-22 CPR Face Layout

STEP 4 Disconnect the power, bus, and Ethernet cables from the relevant connectors.

- Power cables from OUTPWR, INPWR connectors on PZ-PW92
- Bus cables from the front connectors on PZ-GT13/PZ-GT20
- Ethernet (UTP CTG5 ST CA-n) cables from the front connectors on the PZ-PC19.

STEP 5 Remove the front bracket, and then take off the four screws fastened onto the CPU. (Refer to Figure 4-23.)

STEP 6 Extract the CPR from the LPM. (Refer to Figure 4-23.)

By using the Phillips screwdriver, remove the four screws. Then, extract the CPR with particular care.

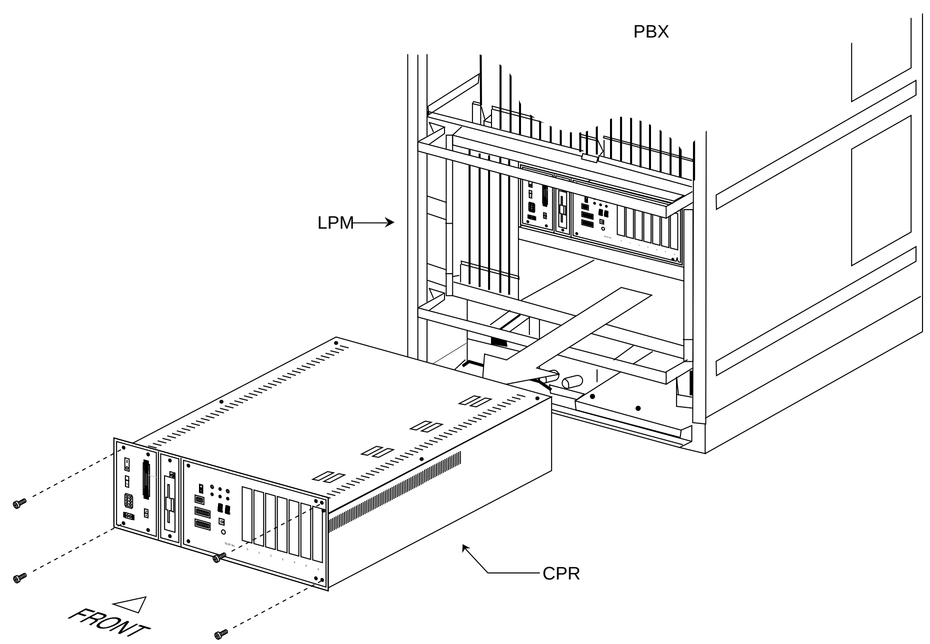


Figure 4-23 Extraction of CPR from LPM

STEP 7 Disconnect the fan cable from the connector in the backbone of CPR.

Note: *The Cooling Fan is located in the backbone of CPR and the cable connector lies in its right side. Refer to Figure 4-24.*

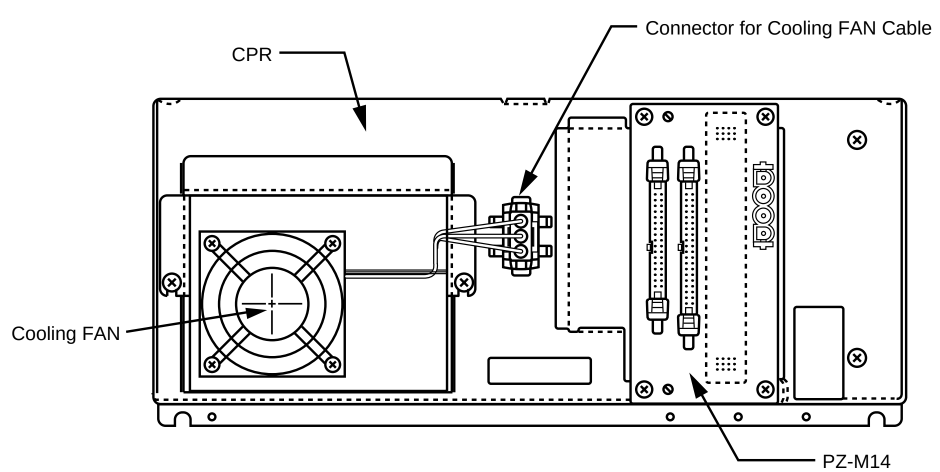


Figure 4-24 Rear View of CPR

STEP 8 Loosen the two screws fastening the box that contains the fan inside. Slightly lift the box and remove it from the CPR. Refer to Figure 4-24 and Figure 4-25.

STEP 9 Take off the four screws and remove the Cooling Fan from the CPR. Refer to Figure 4-25.

STEP 10 Fasten the new Cooling Fan and CPR with the removed screws. Then, connect the fan cable again. Refer to Figure 4-25.

STEP 11 Connect the fan cable again and insert the CPR back into the LPM. Refer to Figure 4-23 and Figure 4-24.

STEP 12 Fasten the CPR and LPM with the four screws.

STEP 13 Connect the disconnected power, bus, and Ethernet cables to the relevant connectors.

STEP 14 Turn ON the SW key on the PZ-PW92.

STEP 15 Connect the disconnected power alarm cable to the PALM connector on the PZ-PW92.

STEP 16 Analyze the indicated system message. The message displayed when the PWR SW on the PZ-PW92 was turned OFF.

STEP 17 Clear the indicated ALM and confirm that the ALM lamp is lit again, indicating that the Cooling Fan is replaced securely.

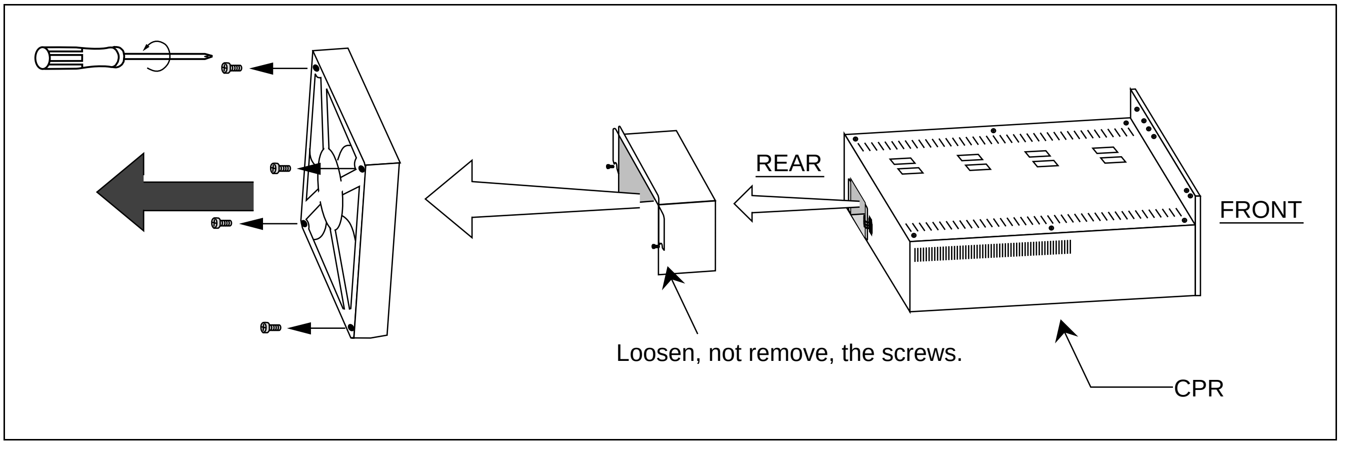


Figure 4-25 How to Remove the Cooling Fan

7. FUSE REPLACEMENT

The system uses the fuses shown in Figure 4-26 as a protection against an overload resulting from a short circuit.

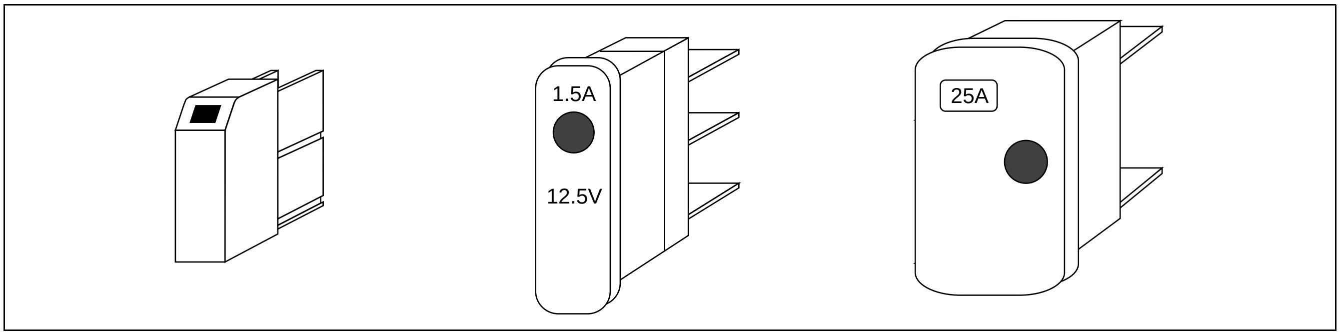


Figure 4-26 Kind of Fuse

When excessive current is applied to a PWR circuit card, the related fuse is blown. The blown fuse after a fault can be confirmed as shown in Figure 4-27.

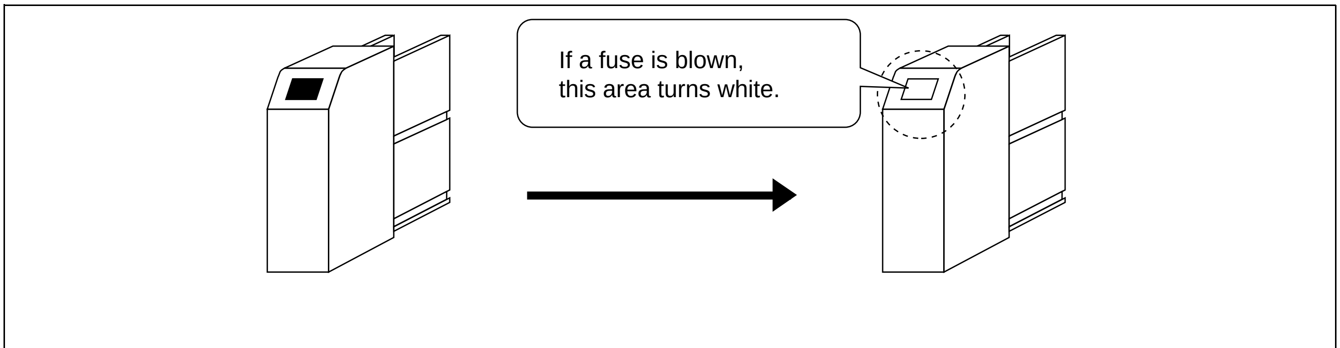


Figure 4-27 Fuse After Blown Fault

The purpose of fuses is to let them blow before the components are damaged. If any fuse gets blown, replace it immediately with a new one using the following procedure:

(1) Confirm the blown fuse via the system message [6-A] or MJ lamp on the top of IMG 0/ISW.

(2) Replace the fuse with a new one, referring to Figure 4-28 and Figure 4-29.

(3) Determine the cause of the blown fault, referring to Figure 4-30 (case of RGU fuse) or Figure 4-31 (DC-48V fuse.)

The following figures show the location of fuses within the system. In the figures, the fuses are indicated by ▯ or ●.

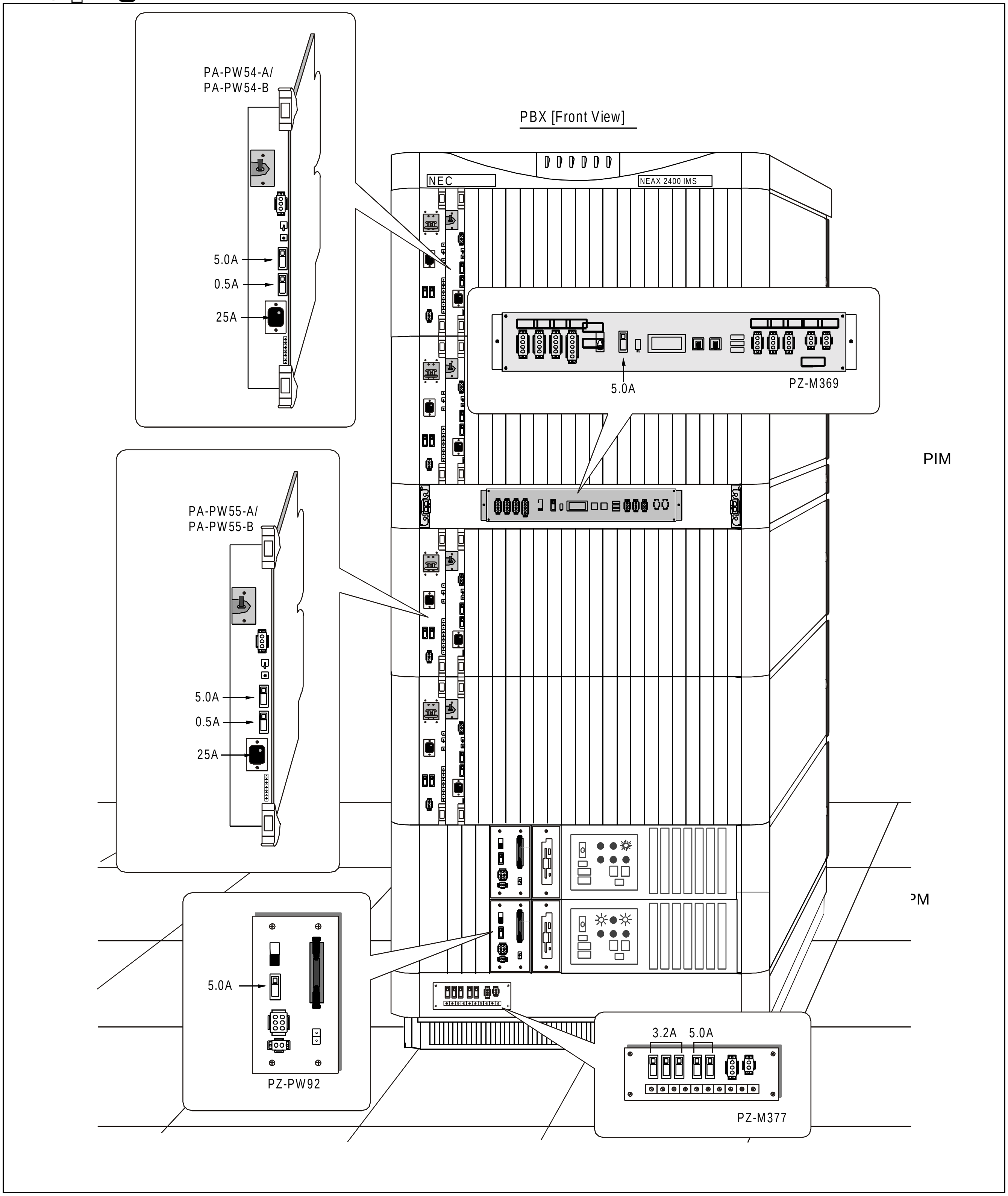


Figure 4-28   Fuse Locations in LPM/PIM/FANU/BASEU

In the TSWM, the fuse shown in Figure 4-29 is used for the PWR SW (PH-PW14) card, which is housed in Slot No. 00 and/or 01.

Note: *The PH-PW14 card is also used in Slot No. 00 and/or 01 of ISWM.*

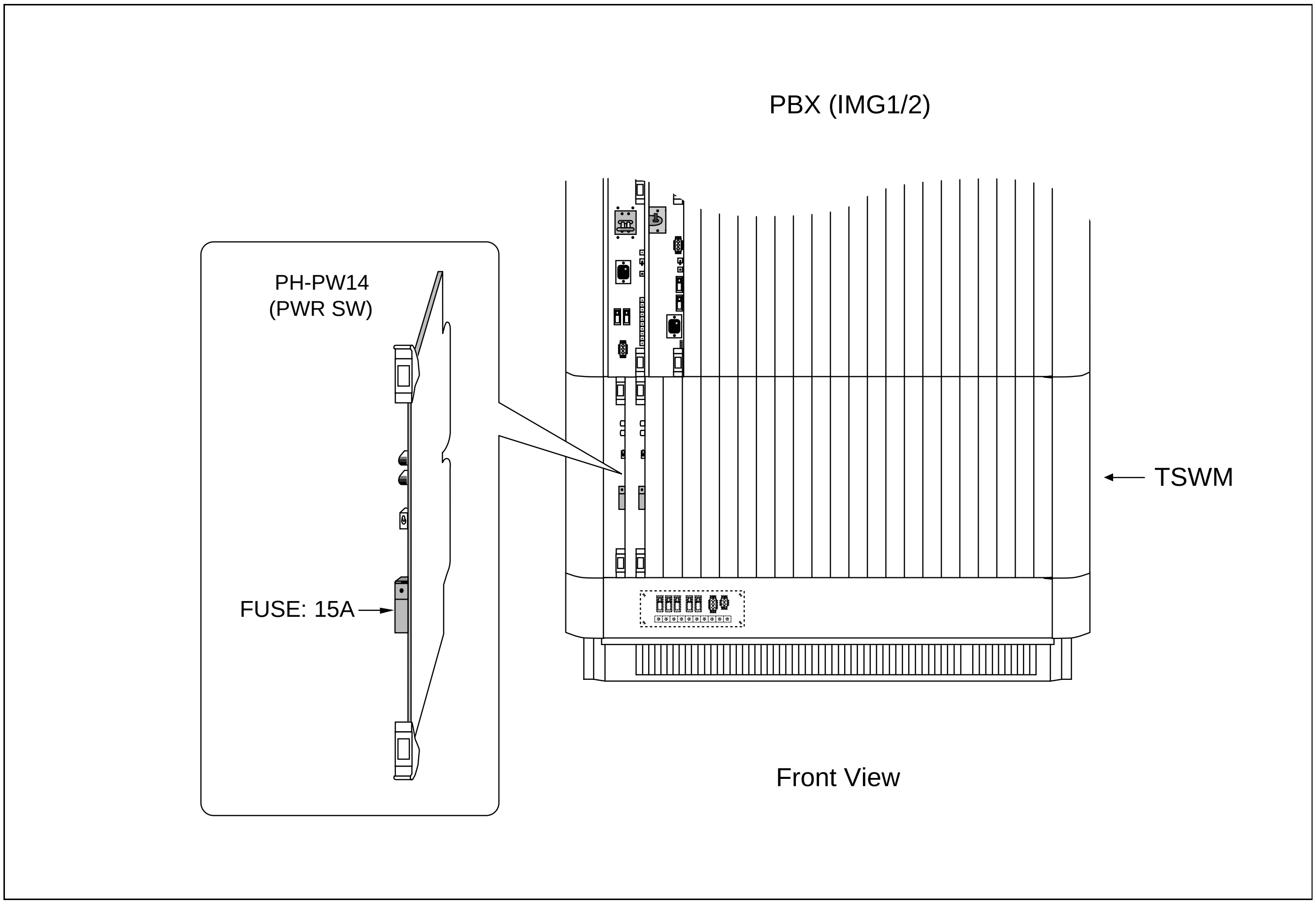


Figure 4-29 Fuse Location on PWR SW Card (TSWM/ISWM)

Perform the procedure in Figure 4-30 to confirm the cause of the RGU fuse blown fault.

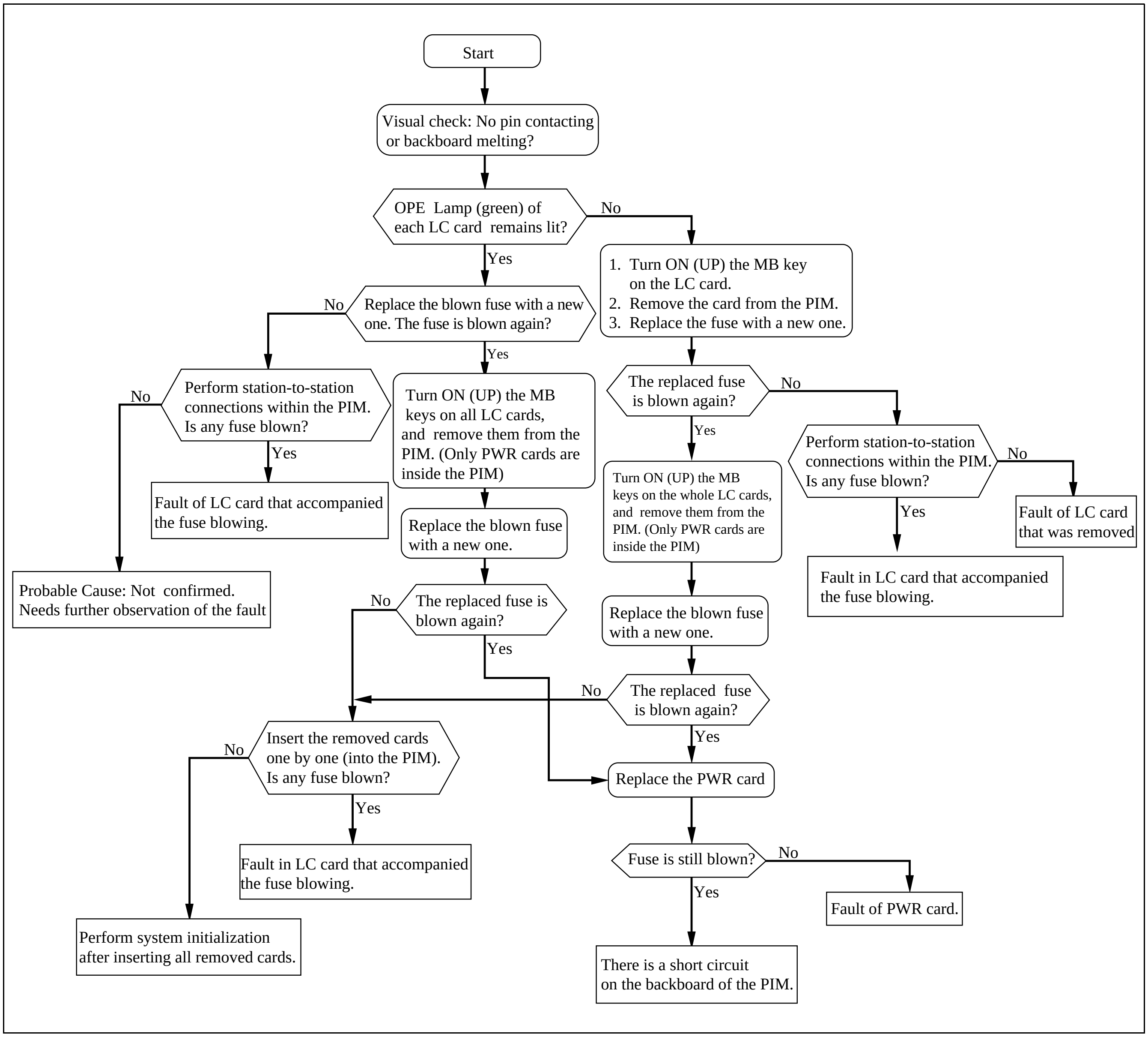


Figure 4-30 RGU Fuse Blown Fault Flowchart

Perform the procedure in Figure 4-31 to confirm the cause of the DC-48V fuse blown fault.

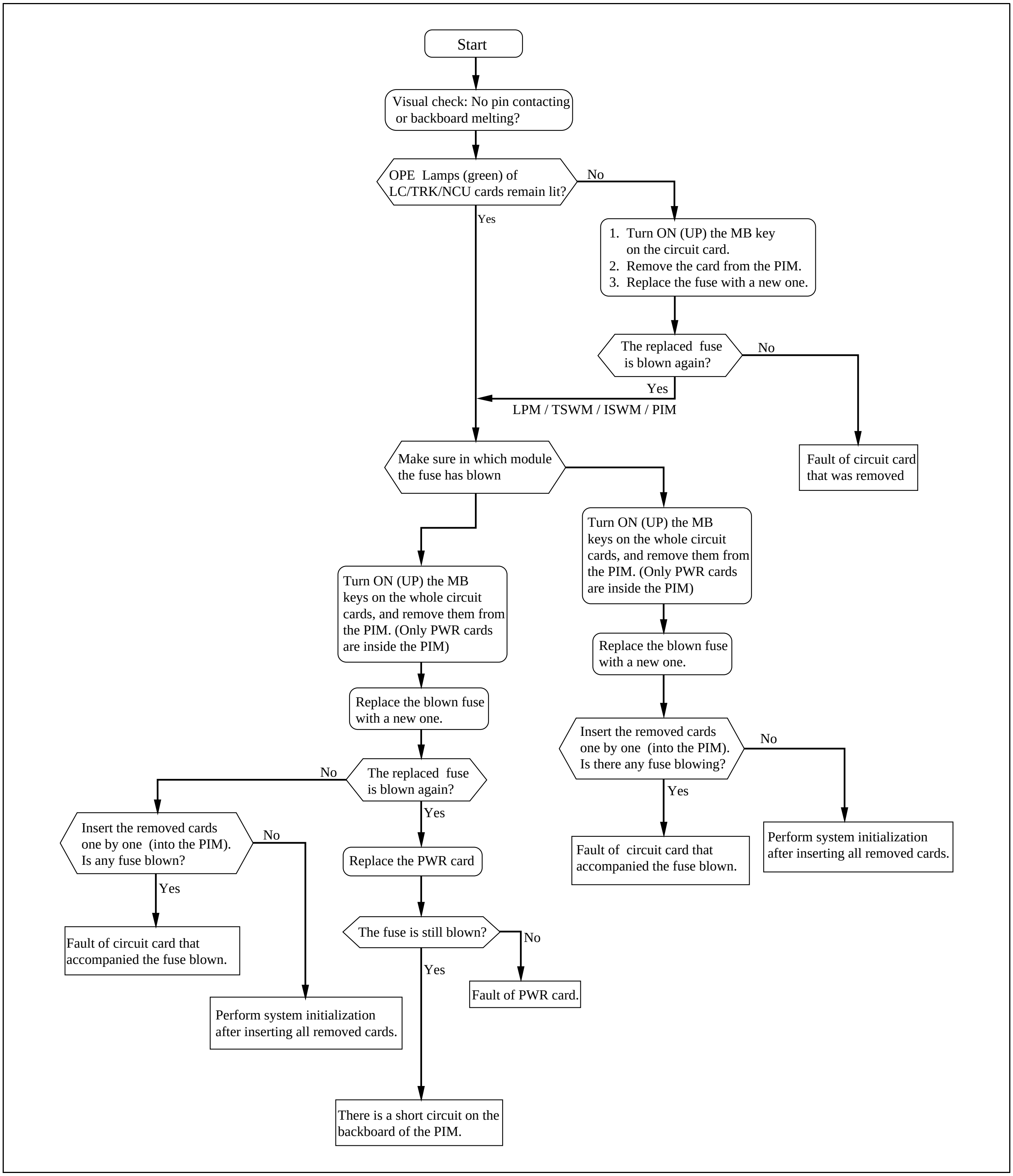


Figure 4-31 DC -48V Fuse Blown Fault Flowchart

CHAPTER 5 FAULT REPAIR PROCEDURES

This chapter provides information on how to repair the fault(s) within the system. If any of the components or equipment listed in Table 5-1 has a failure, move on to the repair procedure explained for each faulty condition.

Table 5-1 Fault Repair Procedure Quick Referenc e

FAULTY ITEM	FAULTY SITUATION		REFERENCE SECTION
Line Fault	DP/PB Telephone	Dial tone is not heard.	Section 1.3, Line Fault - When Dial Tone (DT) Cannot Be Heard
		Dialing results in a wrong connection.	Section 1.4, Line Fault - When Dialing Results in a Wrong Connection
		Bell does not ring.	Section 1.5, Line Fault - When Bell Does Not Ring
		Answer/speech cannot be made.	Section 1.6, When Call Cannot Be Answered and Speech Cannot Be Made
	D^{term}	• D^{term} cannot be operated. • Operations are abnormal.	Section 1.7, Dterm Fault
Trunk Fault	• No connections can be set up. • PB/DP signals are erroneously received or set out from ORT/SND. • No three-way calling can be made on CFT, or noise gets in a established connection. • A connection results in no speech. • Noise gets in a established connection.		Section 2.3, Trunk (ORT, SND, CFT) Fault and Section 2.4, Trunk (COT, TLT, DTI) Fault
ATTCON/DESKCON	• No speech can be made. • No control operations can be made.		Section 3.3, ATTCON/DESKCON Fault
Unit Fault	Faults related to speech.		Section 4.2, Unit Fault - Fault Related to Speech
	Dial tone is not heard.		Section 4.3, Unit Fault - When Dial Tone (DT) Cannot Be Heard
	The ACT MUX card side has become faulty and system changeover has been executed.		Section 4.4, Unit Fault - ACT-Side MUX Card Is Faulty and System Has Changed Over

Table 5-1 Fault Repair Procedure Quick Reference (Continued)

FAULTY ITEM	FAULTY SITUATION	REFERENCE SECTION
Speech System Fault (LN)	Faults related to speech.	Section 5.2, Speech Path System Fault - Fault Related to Speech
	Dial tone is not heard.	Section 5.3, Speech Path System Fault - When Dial Tone (DT) Cannot Be Heard
	STBY side is faulty.	Section 5.4, Speech Path System Fault (LN) - STBY Side Has Become Faulty
Speech Path System Fault (Whole System/ISW)	Fault related to speech.	Section 6.2, Speech Path System Fault (Whole System/ISW) - Fault Related to Speech
	ACT side becomes faulty intermittently.	Section 6.3, Speech Path System Fault (Whole System/ISW) - ACT side becomes Faulty Intermittently
	STBY side becomes faulty intermittently.	Section 6.4, Speech Path System Fault (Whole System/ISW) - STBY side becomes Faulty Intermittently
	Clock is faulty.	Section 6.5, PLO Fault
Control System Fault	Fault occurs occasionally at the ACT side.	Section 7.2, Control System Fault - Fault Occurs Intermittently
	STBY side is faulty.	Section 7.3, Control System Fault - STBY Side is Faulty
Alarm Indication Fault	No fault indication is made on the Alarm Indicator Panel.	Section 8.2, Fault of Alarm Indicating Panel
	Fault is not detected.	Section 8.3, Fault That Cannot Be Detected
Power Supply Fault	Fuse for RGU/-48V has blown.	Section 9.2, Fuse Blown Fault
	The circuit breaker of PWR supply is off.	Section 9.3, Circuit Breaker OFF Fault in PWR Supply
	Alarm lamp on the PWR supply is lit.	Section 9.4, Fault of Alarm Lamps on PWR Supply
Fan Unit (FANU) Fault	• Fans are not activated even if the temperature has risen higher than a predetermined degree. • Fans are not activated even if the FAN START switch is set to AUTO position.	Section 10.2, Fan Unit Fault
Tone Fault	Tone is distorted.	Section 11.2, Tone Fault

Table 5-1 Fault Repair Procedure Quick Reference (Continued)

FAULTY ITEM	FAULTY SITUATION	REFERENCE SECTION
System Down Fault	Cause for the fault cannot be identified.	Section 12.1, When Cause for Fault Cannot Be Identified
	The faulty circuit card can be detected.	Section 12.2, When Faulty Circuit Cards Can Be Assumed From System Message
CCIS Line Fault	• A Specific CCH/CCT card is faulty. When the signal transmission line is a digital line, transmission/receiving of control signals cannot be performed. • When the signal transmission line is an analog line, transmission/receiving of control signals cannot be performed.	Section 13.3, Specific CCH/CCT Card Is Faulty and Section 13.4, Fault of CCH, DTI and Related Flat Cable
ISDN Line Fault	• A specific DCH/PRT card is faulty. • When the signal transmission line is a digital line, transmission/receiving of control signals cannot be performed.	Section 14.3, Specific DCH/PRT Card Is Faulty Section 14.4, Fault of DCH, DTI and Related Flat Cable
Hard Time Clock Fault	EMA card is faulty.	Section 15, Hard Time Clock Fault

1. LINE FAULT

This section explains the fault repair procedure in a case where only one specific station line is in any of the faulty conditions listed in Table 5-2.

Table 5-2 Line Fault Situation

FAULTY SITUATION	REFERENCE SECTION
When Dial Tone cannot be heard	Section 1.3, Line Fault - When Dial Tone (DT) Cannot Be Heard
When dialing results in a wrong connection	Section 1.4, Line Fault - When Dialing Results in a Wrong Connection
When the bell does not ring	Section 1.5, Line Fault - When Bell Does Not Ring
When call cannot be answered and speech cannot be made	Section 1.6, When Call Cannot Be Answered and Speech Cannot Be Made
D^{term} Fault	Section 1.7, D^{term} Fault

1.1 Check Point

When repairing a line fault, consider the following items:

(1) Check alarm lamps on line circuit cards.

(2) When an outgoing call cannot be originated to a specific line/trunk or when an incoming call cannot be terminated from a specific line/trunk, check Tenant Restriction Data (assigned via ATNR command) and Route Restriction Data (assigned via ARSC/ARSCN command).

1.2 Line Control

Each line in a specific Line circuit (LC/ELC) card is controlled by the PM in that line circuit card. The line circuit cards are controlled from the CPU via the MUX. Figure 5-1 shows the control route of line circuit cards.

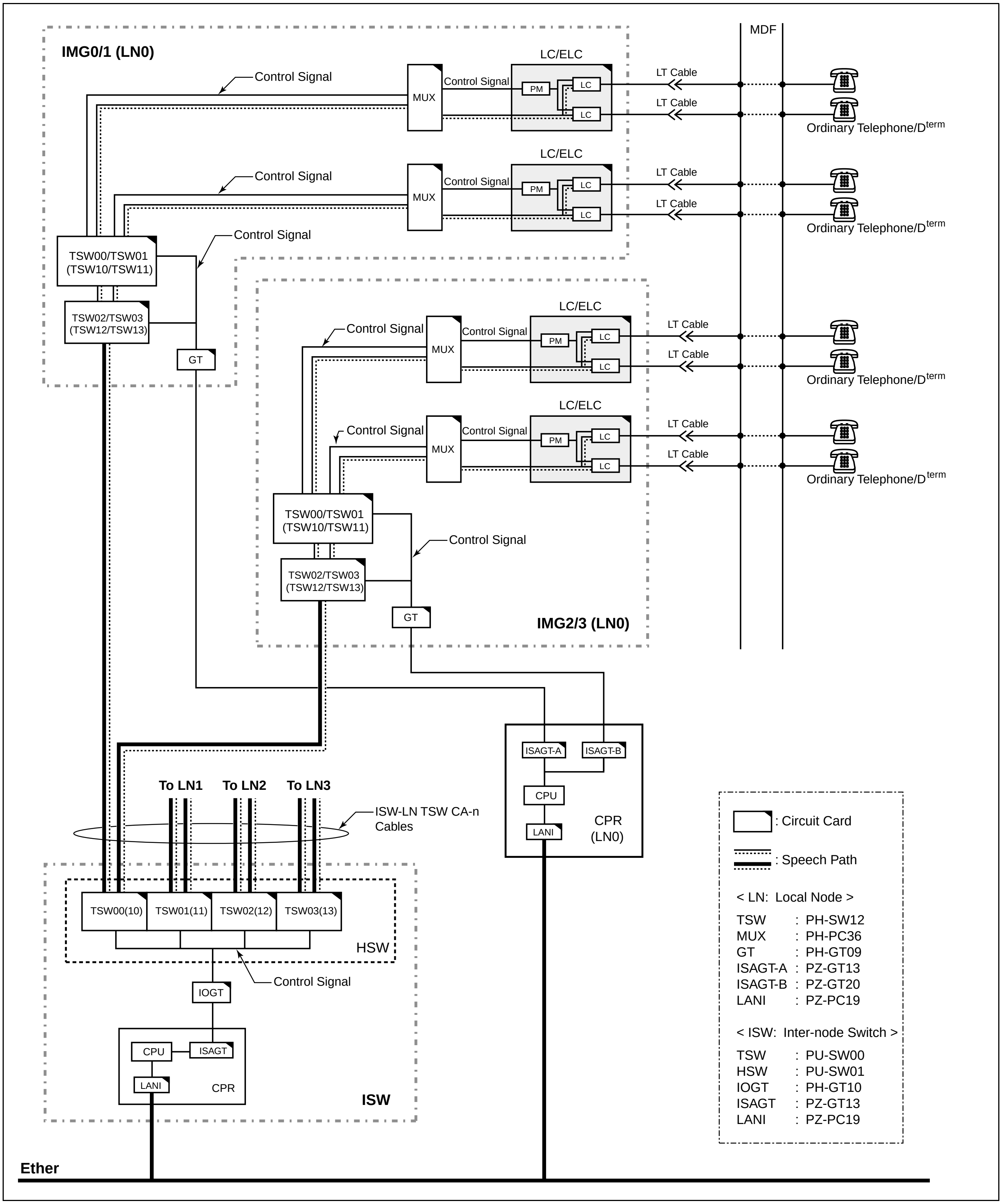


Figure 5-1 Controlling LC/ELC Circuit Cards and Speech Path

1.3 Line Fault - When Dial Tone (DT) Cannot Be Heard

Note: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- When OPE lamp on the LC circuit card does not illuminate
  - Confirm MB switch of the LC circuit card is in ON position (UP).
  - Use ASDT command to confirm that station data in the LC circuit card is assigned.
  - Replace the LC circuit card with a spare.
- When BL lamp for each line is flashing or illuminating on the LC circuit card
  - Confirm MB switch of the LC circuit card is in ON position (UP side).
  - Use MBST command to confirm LC circuit card has not been placed into make-busy state.
  - Use ASDT command to check the station data assignment.
  - Replace the LC circuit card with a spare.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

- Check the faulty line on the MDF.
  - Isolate the faulty line to the in-house wiring side and to the system side.
  - Connect the test telephone to the system side and check to see if dial tone can be heard.
  - When Dial Tone (DT) is heard
    - Check the in-house wirings.
    - Replace the station telephone set with a spare.
  - When no DT or side tone is heard
    - Check LT cables.
    - Replace the LC circuit card with a spare.
  - When DT is not heard, but side tone can be heard.
    - Replace the LC circuit card with a spare.

END

1.4 Line Fault - When Dialing Results in a Wrong Connection

Note: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- When a call addressed to a specific station has terminated to another station — Check to see if Call Forwarding-All Calls data has been deleted.
- Check the faulty line on the MDF.
  - On the MDF, isolate the faulty line to the in-house wiring side and to the system side.
  - Connect the test telephone to the system side.
  - Repeat station-to-station connections and check to see if the connection is established normally.
    - When the dialed station is called — The station telephone set is faulty. Replace the station telephone set with a spare.
    - When a wrong connection occurs — Replace the LC circuit card with a spare.

END

1.5 Line Fault - When Bell Does Not Ring

Note: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- Call the faulty station line by Station-to-Station calling and check to see if the bell of the telephone rings.
  - Replace the telephone set and check to see if its bell rings.
- Check the faulty line on the MDF.
  - Isolate the faulty line to the in-house wiring side and to the system side.
  - Connect the test telephone to the system side.
  - Call the faulty line by station-to-station calling and check to see if the bell rings.
  - When the bell does not ring
    - Replace the LC circuit card with a spare.
  - When the bell rings
    - The in-house wiring side is faulty. Confirm that the A wire is not short-circuiting with ground.

END

1.6 When Call Cannot Be Answered and Speech Cannot Be Made

Note: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- Check the faulty line on the MDF.
  - Isolate the faulty line to the in-house wiring side and to the system side.
  - Connect the test telephone to the system side.
  - Call the faulty line by station-to-station calling.
  - When speech can be made — Replace the telephone set with a spare.
  - When speech cannot be made — Replace the LC circuit card with a spare.

END

1.7 D^{term} Fault

Note 1: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- When OPE lamp on the ELC circuit card does not illuminate
  - Confirm that MB switch of the ELC circuit card is in ON position (UP).
  - Use ASDT command to confirm that station data in the ELC circuit card is assigned.
  - Replace the ELC circuit card with a spare.
- When BL lamp for each line is flashing or illuminating on the ELC circuit card
  - Confirm that MB switch of the ELC circuit card is in ON position (UP).
  - Use MBST command to confirm that ELC circuit card has not been placed into make-busy state.
  - Use ASDT command to check the station data assignment.
  - Replace the ELC circuit card with a spare.

END

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

- Check the faulty line on the MDF.
  - Isolate the faulty line to the in-house wiring side and to the system side.
  - Connect the test D^{term} to the system side.
  - Confirm speech by Station to Station calling.
  - When no speech can be made
    - Check LT cables.
    - Replace ELC circuit card with a spare.
  - When speech can be made
    - Check to see if the modular plug is firmly connected with the D^{term}.
    - Check the wiring inside the rosette.
    - Check the in-house wiring for any abnormality.
    - Replace the D^{term} with a spare.

END

2. TRUNK FAULT

This paragraph explains the fault repair procedure when a fault, shown in Table 5-3, has occurred to a specific trunk.

Table 5-3 Trunk Fault Situation

TRUNK	FAULTY SITUATION	REFERENCE SECTION
ORT	No connection can be set up. PB/DP signals are erroneously received or cannot be received.	Section 2.3, Trunk (ORT, SND, CFT) Fault
SND	No connections can be set up. PB/DP signals are erroneously sent out or cannot be sent out.	
CFT	No connections can be set up. No three-way calling can be made. Noise gets in a established connection.	
COT TLT DTI	No connections can be set up. A connection results in no speech. Noise gets in an established connection.	Section 2.4, Trunk (COT, TLT, DTI) Fault

2.1 Check Point

When repairing a trunk fault, consider the following items:

(1) Check alarm lamps on trunk circuit cards.

(2) When an outgoing call cannot be originated to a specific trunk or when an incoming call cannot be terminated from a specific trunk, check Tenant Restriction Data (assigned via ATNR command) and Route Restriction Data (assigned via ARSC/ARSCN command).

(3) Three-Way Conference Trunk (CFT) is on the MUX (PH-PC36) circuit cards. If a three-way conference call cannot be established, check the MUX cards.

(4) If the present timing for supervising the trunk/sender status is considered to be responsible for the fault, change the timing. The specifications for timings that can be changed with respect to trunks and senders are shown in Table 5-4 and Table 5-5.

Table 5-4 Timings for Trunks

	ITEMS FOR STATUS SUPERVISION	CONDITIONS FOR SUPERVISION	TIMING SPECIFICATIONS
1	Detection of Call Termination	• Ring Down System Detection by ringing signal (20Hz) from the opposite office. • Loop System Detection by loop from the opposite office. • E&M System Detection by incoming signal (ground or –48V) on E (RG2) lead.	Ringing signal of more than four cycles is detected within 800 ms. Detection within 16 ms after call termination.
2	Acknowledge Signal Sending	• Wink Signal • Delay Start	160 ms (standard) Timing can be assigned using ARTD/ ARTDN command.
3	Detection of Release at the time of Incoming Connection	• E&M System • Loop System	288 ms (standard) 160 ms (standard) Timing can be assigned using ARTD/ ARTDN command.
4	Timing for Restricting Call Origination after Release	After release of the user's trunk or the trunk at the opposite office has been detected, a new call origination is restricted.	3070 ms (standard) Timing can be assigned using ARTD/ ARTDN command.
5	Seizure of Opposite Office	• Loop System Closure of DC loop. • E&M System Supply of outgoing call signal (ground or –48V) onto M (DL) lead.	
6	Detection of Acknowledge Signal	• Wink Signal • Delay Start	Timing is assigned using ARTD/ ARTDN command.
7	Trunk Hold Time	Even if answer signal has not reached from the opposite office, the call is regarded as answered.	• If DP Signal is 10 sec. (standard) after dial pulses are sent out Timing can be assigned using ARTD/ARTDN command. • If PB Signal is 30 sec. (standard) after seizure of the trunk Timing can be assigned using ASYD SYS 1 Index 156 (only when 2nd Dial Tone System).
8	Detection of Release at the time of Outgoing Connection	• Loop System Detection of polarity reversal across tip and ring. • E&M System Detection of Release Signal (ground or –48V) on E lead.	608 ms (standard) Timing can be assigned using ARTD/ ARTDN command.

Table 5-5 Timings for Senders

	ITEMS FOR STATUS SUPERVISION	CONDITIONS FOR SUPERVISION	TIMING SPECIFICATIONS
1	Sender Acknowledge Wait Timer	Timing limit for waiting to receive connection acknowledgement signal from the opposite office after seizing the opposite office.	4 sec. (standard) Timing can be assigned using ASYD SYS 1 Index 130 command.
2	Sender Prepause Timer	Time from sender seizure till sending of the 1st digit where connection acknowledgment is made by interface with the opposite office.	DP: 3 sec. (standard) PB: 2.5 sec. (standard) Timing can be assigned using ASYD SYS 1 Index 131 command.
3	Sender Inter-digit Timer	Inter-digit timing for the numbers to be sent out by the sender.	• For DP 10 pps: 860 ms (standard) 20 pps: 460 ms (standard) Timing can be assigned using ASYD SYS 1 Index. 132 command. • For PB 60 ms/120 ms (to be selected by ONSG of ARTD/ARTDN command.) Timing can be changed using ASYD SYS 1 Index 133 command.

2.2 Trunk Control

Trunk circuit cards are controlled from the CPU via the MUX. Each trunk line in a specific trunk circuit card is controlled by the Port Microprocessor (PM) in a trunk circuit card. Figure 5-2 shows the control route of the trunk circuit card.

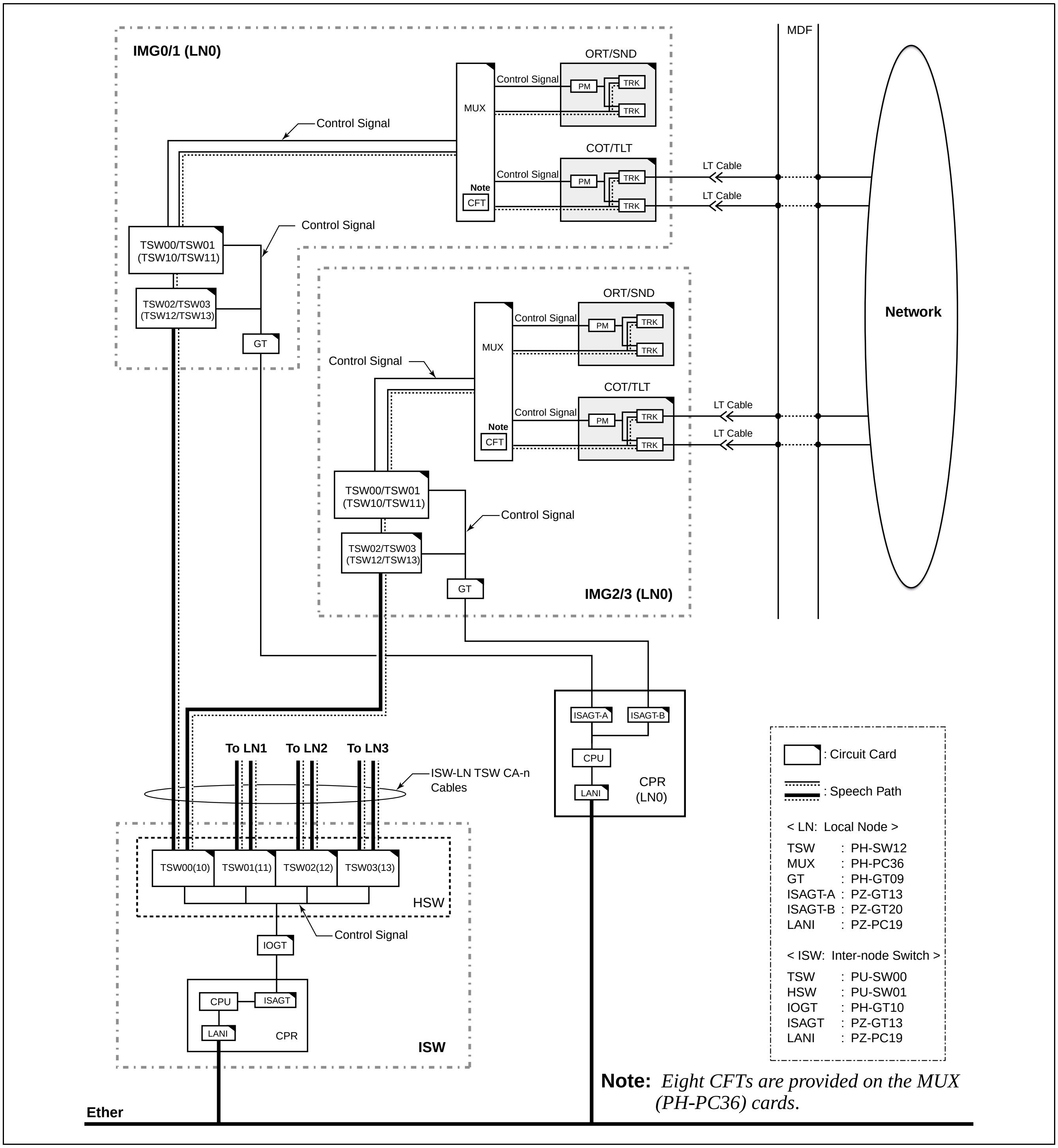


Figure 5-2 Controlling Trunk Circuit Cards and Speech Path

2.3 Trunk (ORT, SND, CFT) Fault

Note: *If a circuit card is replaced because only one line is faulty, no other lines in that circuit card can be used until the replacement is complete.*

START

- When only one line is faulty — Place the faulty line into make-busy state.
  - For ORT/SND, set MB switch of each circuit to ON position.
  - For CFT, place it into make-busy state using command MBTK.
- Replace the circuit card with spare.
  - Set MB switch UP and extract the circuit card from its mounting slot.
  - Set MB switch of the new circuit card UP and insert the circuit card into its mounting slot.
  - Set MB switch DOWN.
  - If the line is under make-busy state, cancel it.

END

2.4 Trunk (COT, TLT, DTI) Fault

Note 1: *If a circuit card is replaced because only one line is faulty, any other lines in that circuit card cannot be used until the replacement is complete.*

Note 2: *If the polarities of the external line is reversed, it is detected in the form of Trunk Ineffective Hold.*

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

- When OPE lamp on the trunk circuit card does not illuminate
  - Confirm that MB switch of the trunk circuit card is in ON position (UP side).
  - Use ATRK command to confirm that trunk data in the trunk circuit card is assigned.
  - Replace trunk circuit card with a spare.
- When BL lamp is flashing or illuminating on the trunk circuit card
  - Confirm that MB switch of trunk circuit card is in ON position (UP side).
  - Use MBTK command to confirm that trunk circuit card has not been placed into make-busy state.
  - Use ATRK command to check trunk data assignment.
  - Replace trunk circuit card with a spare.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

Check the faulty line on the MDF.

If the C.O./Tie Line is in Loop Start system:

- Isolate the faulty line to C.O. side and to the system side.
- Connect the test telephone to the C.O. side.
- Confirm that Dial Tone (DT) is heard and the call is connected to the destination party at the opposite office.

Note 3: *Check can be made only on temporarily opened C.O./Tie Lines.*

If C.O./Tie Line is any other type than Loop Start:

- By cross connections on the MDF, connect the faulty line to a normal trunk.
- By a designated connection from the ATTCON/DESKCON, seize the trunk connected with the faulty line.
- After the trunk has been seized, check to see if a call can be originated.

Note 4: *Cross connection methods are explained on the following pages.*

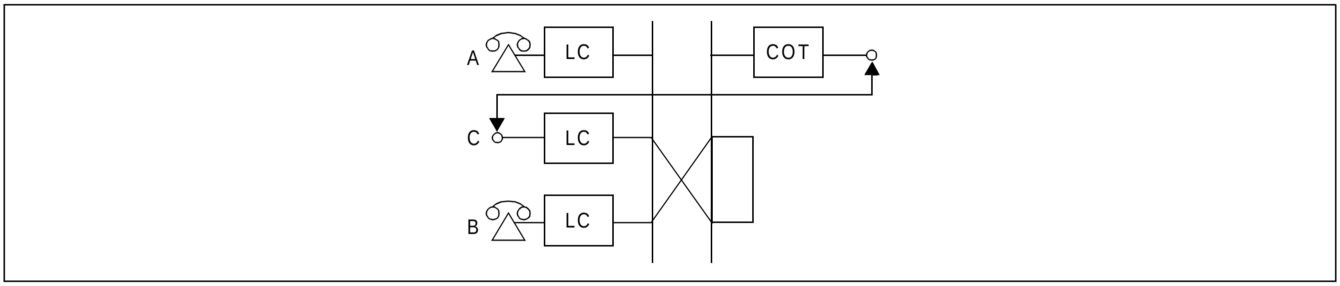
When the connection is not set up, the C.O./Tie Line is faulty

When the connection is set up — Replace the D^{term} with a spare.

END

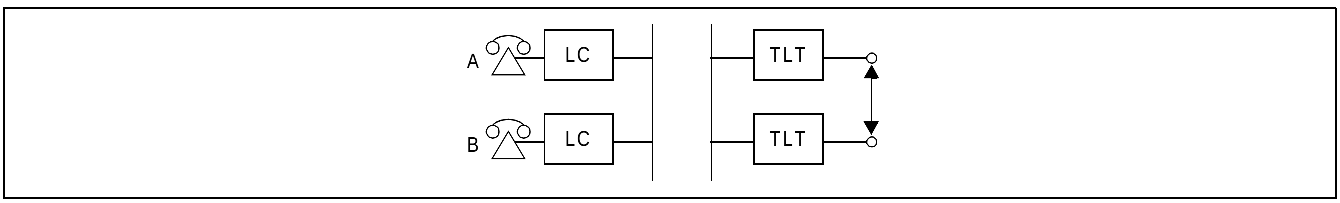
Note: *When performing loop-back connection tests on the trunks at the user's office, provide cross connection as follows:*

(1) For a COT

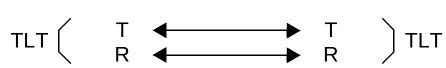


- Set up a loop-back connection between the C.O. Trunk (COT) to be tested and station line.
- The trunk route must be assigned for Loop Start.

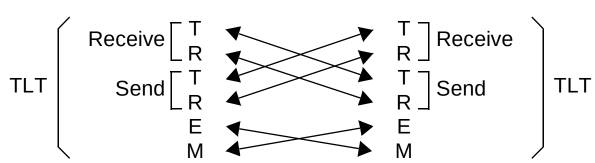
(2) For a TLT (for DID)



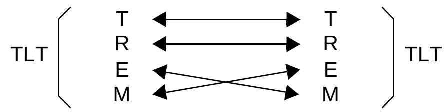
- Set up a loop-back connection between the Tie Line Trunk (TLT) to be tested and another TLT.
- If the TLT is a Direct Inward Dialing (DID) Trunk, connect the related leads as shown below:



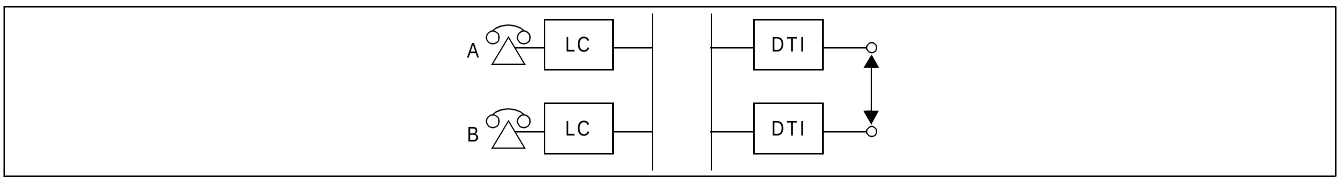
- If the TLT is a 4-wire E & M System, connect the related leads as shown below:



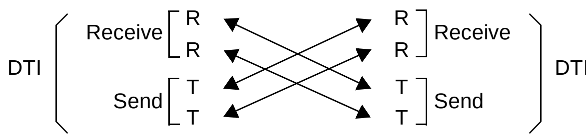
- If the TLT is a 2W E & M System, connect the related leads as shown below:



(3) For a DTI

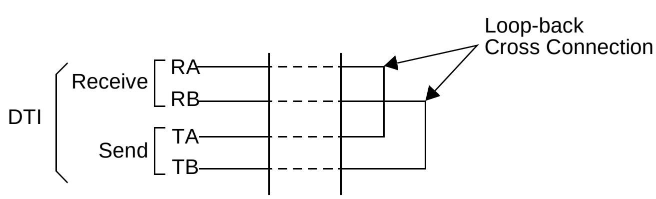


- Set up a loop-back connection between the DTI Trunk to be tested and another DTI Trunk as shown below:



- When the loop-back test is performed at the time of PCM LOSS, FRM LOSS, or MERM LOSS alarm lamp (red) illuminates. If the alarm lamp goes out, the DTI circuit card side is normal.

- When only one DTI circuit card is to be checked, make the following connections and confirm that no alarm lamps illuminates.



3. ATTCON/DESKCON FAULT

This section explains the fault repair procedure when a specific Attendant/Desk Console is in any of the following faulty conditions.

- No speech can be made.
- No operations can be made.

3.1 Check Point

When repairing an ATTCON/DESKCON fault, consider the following items:

(1) Check the cable connections on the backplane.

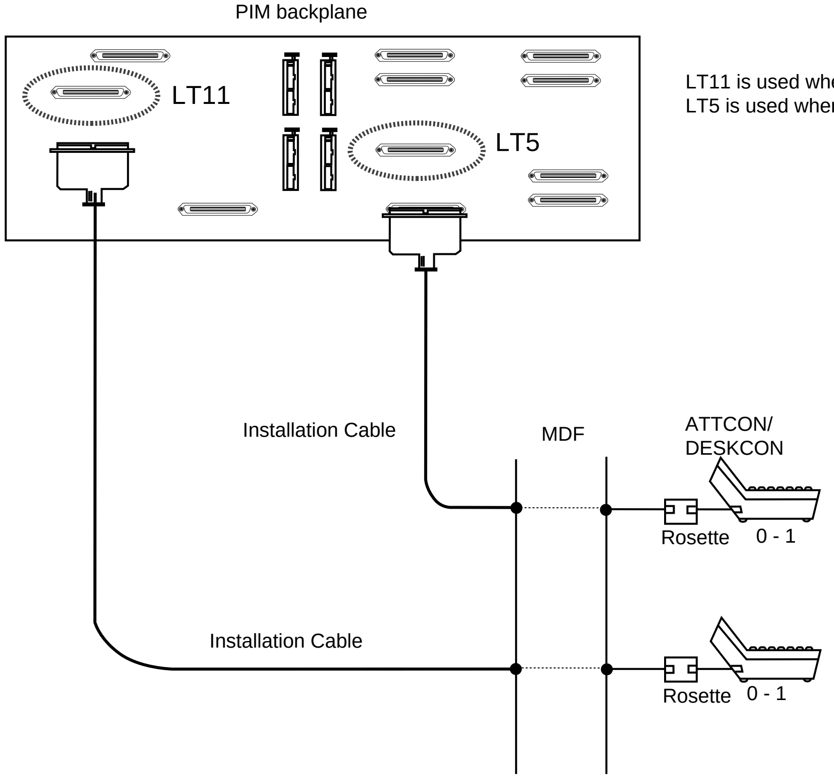
(2) When replacing the ATI circuit card for master ATTCON/DESKCON, the system is placed under Night Mode during replacement procedure.

(3) When replacing the master ATTCON/DESKCON, the system is placed under Night Mode during replacement procedure.

3.2 ATTCON/DESKCON Control

Each ATTCON/DESKCON is controlled from an ATI (PA-CS33) circuit card. The ATI circuit card is controlled from the CPU card via the INT on the TSW card. Figure 5-3 shows the control route of the ATI circuit card.

The ATI (PA-CS33) circuit card is used as an interface card between the PBX and ATTCON/DESKCON. The card is mounted in slot numbers 12 or 23.



LT11 is used when PA-CS33 is mounted in slot 23.
LT5 is used when PA-CS33 is mounted in slot 12.

PA-CS33 Pin Assignment

for ATTCON/DESKCON 0	34	BN4800	9	BN4801
	35		10	
	36	BN4820	11	BN4821
	37		12	
	38	TAS1B	13	TAS1A
for ATTCON/DESKCON 1	39	BN4810	14	BN4811
	40	TAS0B	15	TAS0A
	41	BN4830	16	BN4831
for ATTCON/DESKCON 0	42		17	
	43		18	
	44	B2	19	A2
	45		20	
for ATTCON/DESKCON 1	46		21	
	47		22	
	48	B3	23	A3

Figure 5-3 ATT Connector Cabling and Connector Leads Accommodation

3.3 ATTCON/DESKCON Fault

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Note: *No speech can be made. While replacement of the ATI circuit card for the master ATTCON/DESKCON is in progress, the system is placed under Night Mode.*

START

- On the ATTCON/DESKCON, Lamp Check (LCHK) key has been pressed but no lamps have illuminated.
  - Check the ATT connector cable between the ATTCON/DESKCON and the PBX.
- When OPE lamp of the ATI (PA-CS33) circuit card does not illuminate
  - Check to see if MB switch of the ATI circuit card is at ON position (UP side).
  - Use ATRK command to confirm that the trunk data in the ATI circuit card are assigned.
  - Replace the ATI circuit card with a spare.
- When BL lamp of the ATI circuit card is flashing or illuminating
  - Check to see if MB switch of the ATI circuit card is at ON position (UP side).
  - Use MBTK command to see if ATI circuit card is placed into MB state.
  - Use ATRK command to check ATI data assignment.
  - Replace the ATI circuit card with a spare.
- When keys cannot be operated
  - Replace the operators headset.
  - Replace the ATI circuit card with a spare.

END

Note: *No operations can be made.*

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

- Replace the ATTCON/DESKCON with a spare.
  - Set the MB switch of ATI PA-CS33 circuit card UP.
  - If the circuit card is equipped with a fuse, remove the fuse.
  - Disconnect the CHAMP connector of the ATTCON/DESKCON and replace the ATTCON/DESKCON.
  - If the circuit card is equipped with a fuse, insert the fuse into its position.
  - Set the MB switch of the ATI circuit card DOWN.
  - Confirm the PA lamp illuminates on the ATTCON/DESKCON.

END

4. UNIT FAULT

This section explains the fault repair procedure in a case where any of the faults shown in Table 5-6, has occurred to all the line/trunk circuit cards mounted in a specific unit. Figure 5-4 shows the range of units.

Table 5-6 Unit Fault Situation

FAULT SITUATION	REFERENCE SECTION
• Noise, one-way speech, no tone. • Even if dialing has been made, dial tone does not stop.	Section 4.2, Unit Fault - Fault Related to Speech
Dial Tone cannot be heard.	Section 4.3, Unit Fault - When Dial Tone (DT) Cannot Be Heard
The MUX card has become faulty and, as a result the CPU has been changed over.	Section 4.4, Unit Fault - ACT-Side MUX Card Is Faulty and System Has Changed Over

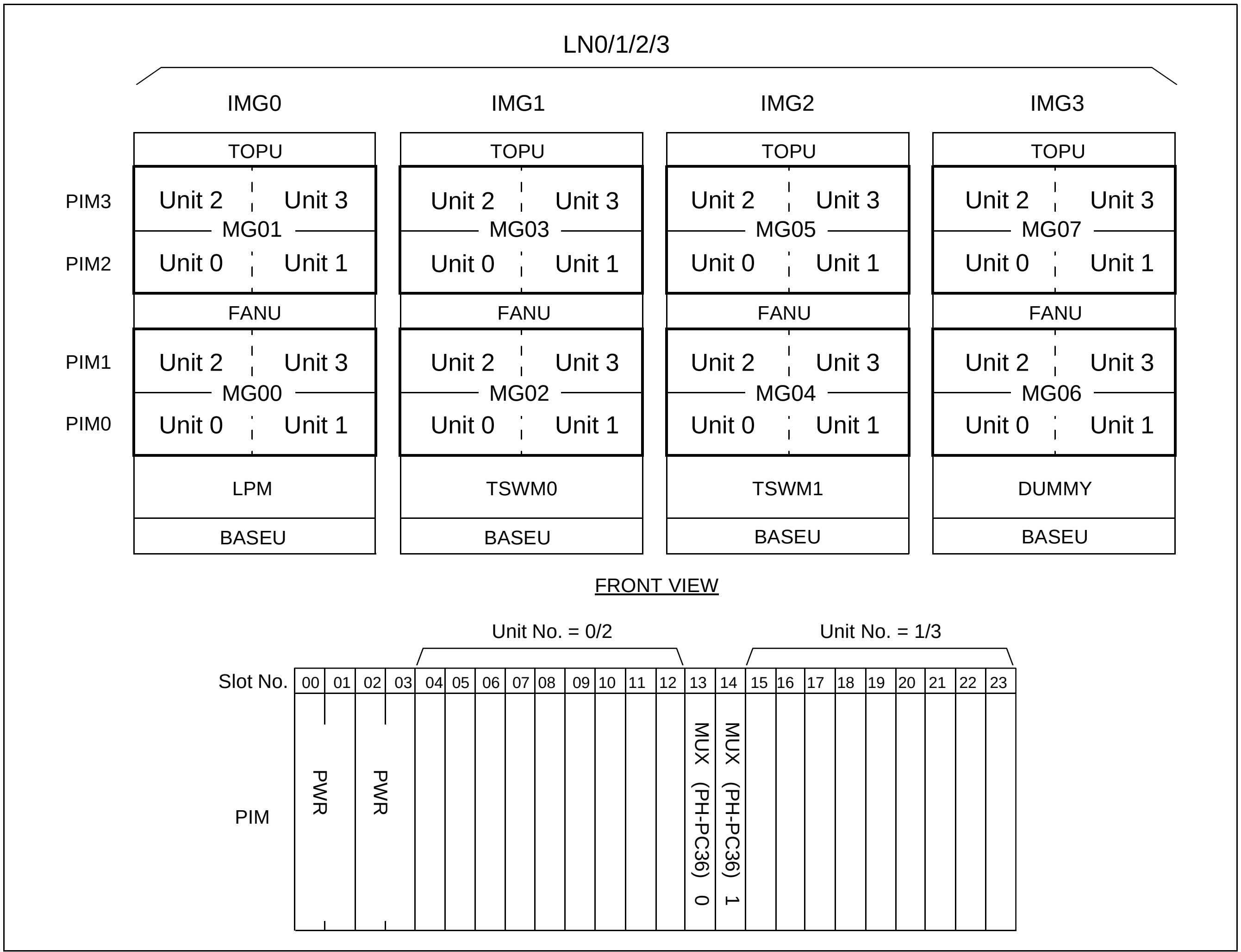


Figure 5-4 Range of Units (LN0/1/2/3)

4.1 Check Point

When repairing a unit fault, consider the following items:

(1) Speech paths and control paths in the unit are connected to line/trunks via the MUX circuit cards. Be sure to check the alarm lamps on the MUX circuit cards, and check to see if the front cable between each MUX circuit card and TSW circuit card is connected correctly. Figure 5-5 and Figure 5-6 show the block diagram within the unit.

(2) The MUX circuit cards are operating in the ACT/STBY modes under control of the CPU circuit. When the ACT-side CPU has detected a fault in the ACT-side MUX circuit card, CPU changeover is executed and the ACT/STBY mode of the Speech Path System is also changed over. When both of the MUX circuit cards have become faulty, all the lines/trunks in that unit are placed into make-busy state. (If a PFT circuit card is located in that specific unit, the PFT is activated.) Figure 5-7 shows the location of the MUX cards.

(3) When both units in a specific PIM are faulty, it is possible that the PWR circuit card mounted in that specific PIM is faulty. In such a case, refer to Section 9, Power Supply Fault.

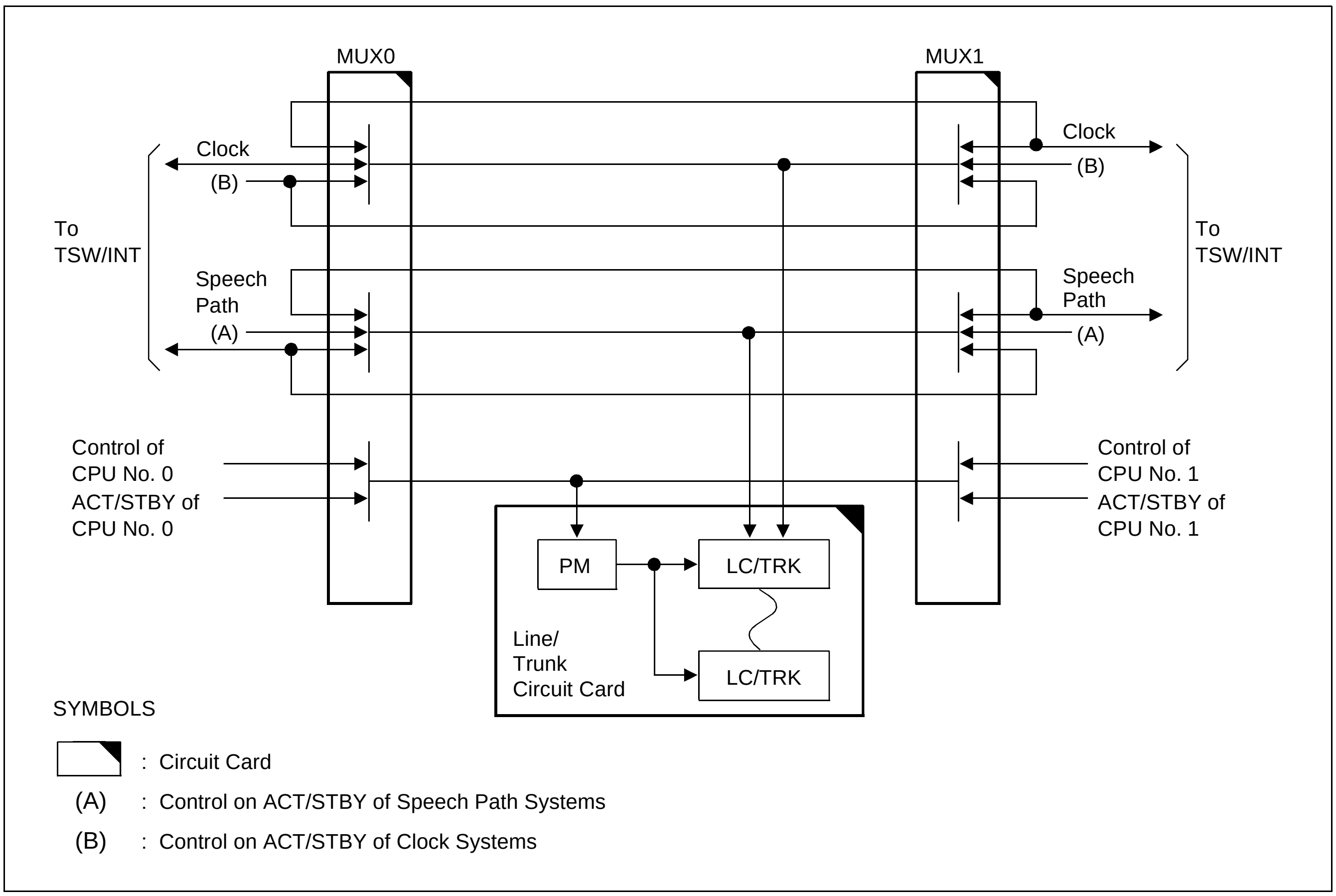


Figure 5-5 Unit Control Block Diagram (Dual Configuration)

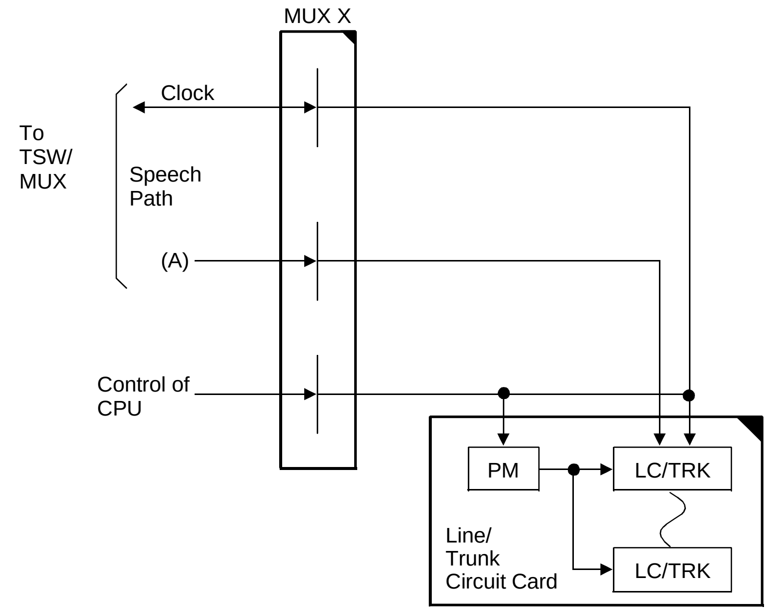


Figure 5-6 Unit Control Block Diagram (Single Configuration)

MUX (PH-PC36) card is mounted in Slot No. 13 and/or 14 of each PIM.

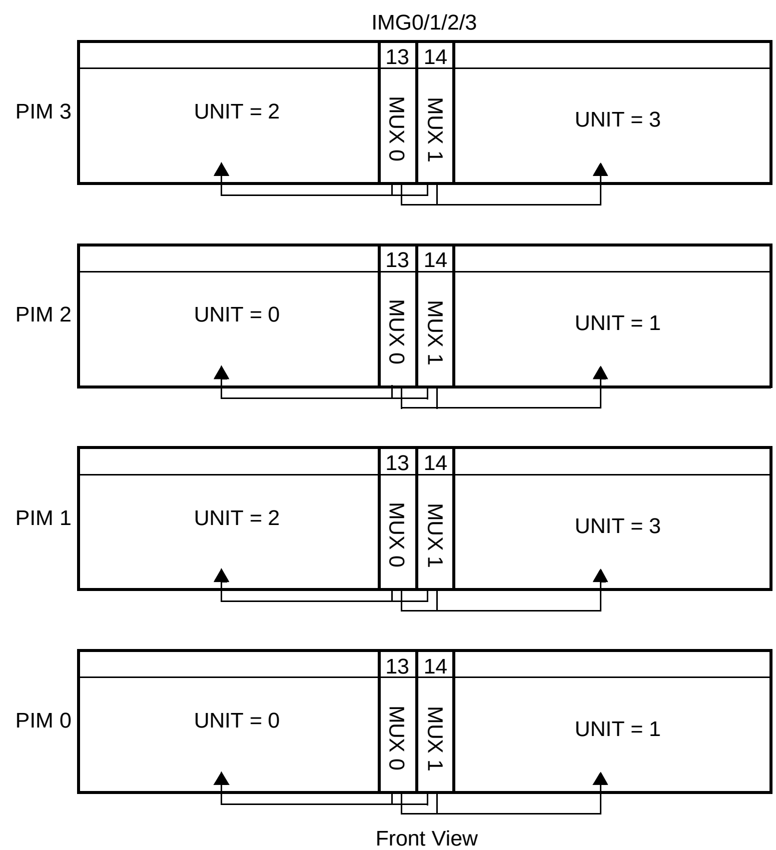


Figure 5-7 MUX Card Locations (LN0/1/2/3)

4.2 Unit Fault - Fault Related to Speech

Faulty Situation:

- Noise, one-way speech, no tone, etc. occurs only within a unit.
- Even if dialing has started, dial tone does not stop.

(1) For Dual Configuration

START

- Check by replacing the MUX (PH-PC36) circuit card. — Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - After replacement of the MUX circuit card, make a station-to-station call in the faulty unit and see if speech is normal. — Place the MUX circuit card into ACT mode. Refer to Section 12, Chapter 6.
- Check by replacing the TSW circuit card. — Replace the TSW circuit card by referring to Section 2.3.2, TSW Card Replacement Procedure, Chapter 4.
  - After replacement of the TSW circuit card, make a station-to-station call in the faulty unit and see if speech is normal. — Place the TSW circuit card into ACT mode. Refer to Section 12, Chapter 6.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

Check the line/trunk circuit cards mounted in the unit to see if t ey are faulty.

Set the MB switch of the line/trunk circuit card UP and extract it from its mounting slot.

Make a station-to-station call and see if a fault occurs.

Perform this check on an individual basis.

If the fault has stopped occurring, the circuit card extracted at that time is faulty. Replace the circuit card with a spare.

If the fault continues, check the next circuit card.

END

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(2) For Single Configuration

START

- Check by replacing the MUX (PH-PC36) circuit card. — Replace the MUX circuit card by referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - After replacement of the MUX circuit card, make a station-to-station call in the faulty unit and see if speech is normal.
- Check by replacing the TSW circuit card. — Replace the TSW circuit card referring to Section 2.3.2, TSW Card Replacement Procedure, Chapter 4.
  - After replacement of the TSW circuit card, make a station-to-station call in the faulty unit and see if speech is normal.

A

A

Check the line/trunk circuit cards mounted in the unit to see if they are faulty.

Set the MB switch of the line/trunk circuit card UP and extract it from its mounting slot.

Make a station-to-station call and see if a fault occurs.

Perform this check on an individual basis.

If the fault has stopped, the circuit card extracted at that time is faulty. Replace the circuit card with a spare.

If the fault continues, check the next circuit card.

END

4.3 Unit Fault - When Dial Tone (DT) Cannot Be Heard

Faulty Situation:

- Dial Tone (DT) cannot be heard except within a unit.
- [4-T] Both MUX Failure / [4-S] MUX Ready Failure
- [23-Y] MUX Clock Failure

Note: *For dual system configuration, if a system message indicates that both systems are faulty, first repair the fault in the indicated system and then proceed to repair the PIM in the other system.*

(1) For Dual Configuration

START

- Check to see if the MUX (PH-PC36) circuit card is making poor contact.
  - Set the faulty MUX circuit card into STBY mode. Refer to Section 12, Chapter 6.
  - Set the MB switch of the MUX circuit card UP.
  - Extract the MUX circuit card from its mounting slot and clean the contact portion. If cleaning cannot be done, repeat insertion and extraction of the circuit card two or three times.
  - Set the MB switch of the MUX circuit card UP and insert the circuit card into its mounting slot.
  - Set the MB switch of the MUX circuit card DOWN.
  - Check to see if a station-to-station connection can be set up within the faulty unit.
- Check by replacing the MUX circuit card with a spare.
  - Place the faulty MUX circuit card into STBY mode. Refer to Refer to Section 12, Chapter 6.
  - Replace the MUX circuit card. Refer to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - B
- A

A

B

- Place the MUX circuit card into ACT mode. Refer to Section 12, Chapter 6.
- Check to see if a station-to-station connection can be set up to identify the circuit card responsible for the fault.

Extract all the line/trunk circuit cards from their mounting slots in the unit. Insert the cards back into their slots one after another and see if the dial tone is heard each time.

- If Dial Tone (DT) is heard, check the next circuit card.
- If DT is not heard, replace the circuit card with a spare.

- Extract all the line/trunk circuit cards from their slots.
  Note: *Set the MB switch of the line/trunk circuit card UP and extract.*
- Confirm the MUX ACT lamp on the MUX circuit card illuminates.
- Set the MB switch of an extracted line/trunk circuit card UP and insert the circuit cards into their mounting slots one by one.
- Confirm the OPE lamp of the inserted circuit card illuminates by setting the MB switch DOWN.
- Make a station-to-station call and see if DT can be heard.
  Note: *Perform this check on the rest of the circuit cards by inserting them into their slots individually.*

END

(2) For Single Configuration

START

- Check to see if the MUX (PH-PC36) circuit card is making poor contact.
  - Set the MB switch of the MUX circuit card UP.
  - Extract the MUX circuit card from its mounting slot and clean the contact portion.
    If cleaning cannot be done, repeat insertion and extraction of the circuit card two or three times.
  - Set the MB switch of the MUX circuit card UP and insert the circuit card into its mounting slot.
  - Set the MB switch of the MUX circuit card DOWN.
  - Check to see if a station-to-station connection can be set up within the faulty unit.
- Check by replacing the MUX circuit card with a spare.
  - Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - Place the MUX circuit card into ACT mode. Refer to Section 12, Chapter 6.
  - Check to see if a station-to-station connection can be set up to identify a circuit card responsible for the fault.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

Extract all the line/trunk circuit cards from their mounting slots in the unit. Insert the cards back into their slots one after another and see if the dial tone is heard each time.

- Extract all the line/trunk circuit cards from their slots.

  Note: *Set the MB switch of the line/trunk circuit card UP and extract.*

- Confirm the MUX ACT lamp on the MUX circuit card illuminates.
- Set the MB switch of an extracted Line/Trunk circuit card UP and insert the circuit cards into their mounting slots one by one.
- Confirm the OPE lamp of the inserted circuit card illuminates by setting the MB switch DOWN.
- Make a station-to-station call and see if DT is heard.

  Note: *Perform this check on the reset of the circuit cards by inserting them into their slots individually.*

- If DT is heard, check the next circuit card.
- If DT is not heard, replace the circuit card with a spare.

END

4.4 Unit Fault - ACT-Side MUX Card Is Faulty and System Has Changed Over

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Faulty Situation:

- The ACT side has become faulty and the system changeover has executed in the dual configuration system.
- [4-S] MUX Ready Failure / [4-T] Both MUX Failure
- [23-Y] MUX Clock Failure

START

- Check to see if the MUX (PH-PC36) circuit card of the STBY side is making poor contact.
  - Set the MB switch of the MUX circuit card UP.
  - Extract the MUX circuit card from its mounting slot and clean the contact portion.

    If cleaning cannot be done, repeat insertion and extraction of the circuit card two or three times.
  - Set the MB switch of the MUX circuit card UP and insert the circuit card into its mounting slot.
  - Set the MB switch of the MUX circuit card DOWN.
  - Set the faulty system to ACT side. Refer to Section 12, Chapter 6.
  - Check to see if a station-to-station connection can be set up within the faulty unit.
  - If the connection is set up, set the faulty system into STBY side. Refer to Section 12, Chapter 6.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

Replace the MUX circuit card with a spare, and check it.

Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.

Place the MUX circuit card into ACT mode. Refer to Section 12, Chapter 6.

Check to see if a station-to-station connection can be set up and identify a circuit card responsible for the fault.

Perform the above check by extracting each MUX circuit card individually.

If the connection is set up, set the faulty system into STBY side. Refer to Section 12, Chapter 6.

END

5. SPEECH PATH (TSW) SYSTEM FAULT (LN)

This paragraph explains the fault repair procedure when any of the faults shown in Table 5-7 has occurred in a LN.

Table 5-7 Speech Path (TSW) System Fault Situation (LN)

FAULTY SITUATION	REFERENCE SECTION
• Noise, one-way speech, no tone • Even if dialing has been made, dial tone does not stop.	Section 5.2, Speech Path System Fault - Fault Related to Speech
Dial tone cannot be heard.	Section 5.3, Speech Path System Fault - When Dial Tone (DT) Cannot Be Heard
A fault occurring in the STBY side TSW is indicated by a system message or an alarm lamp.	Section 5.4, Speech Path System Fault (LN) - STBY Side Has Become Faulty

5.1 Check Point

When repairing a speech path fault, consider that when any of the faults shown in Table 5-7 have occurred in a LN, it is possible that the TSW circuit card is at fault. Always check the alarm lamps on the TSW circuit card. Refer to Figure 5-8.

This figure shows a block diagram of speech path.

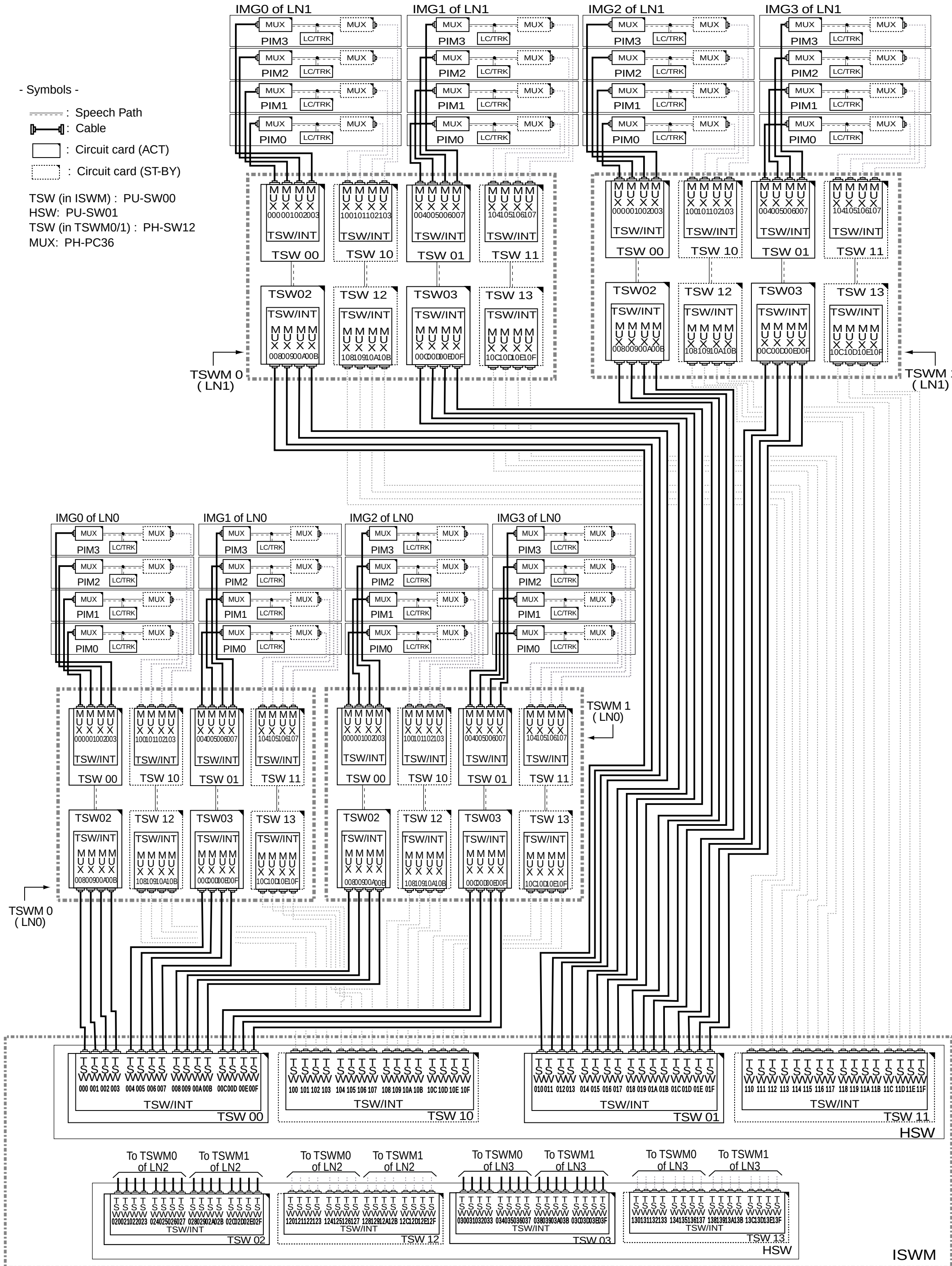


Figure 5-8 Speech Path Block Diagram (1/2)

This figure shows a block diagram of speech path.

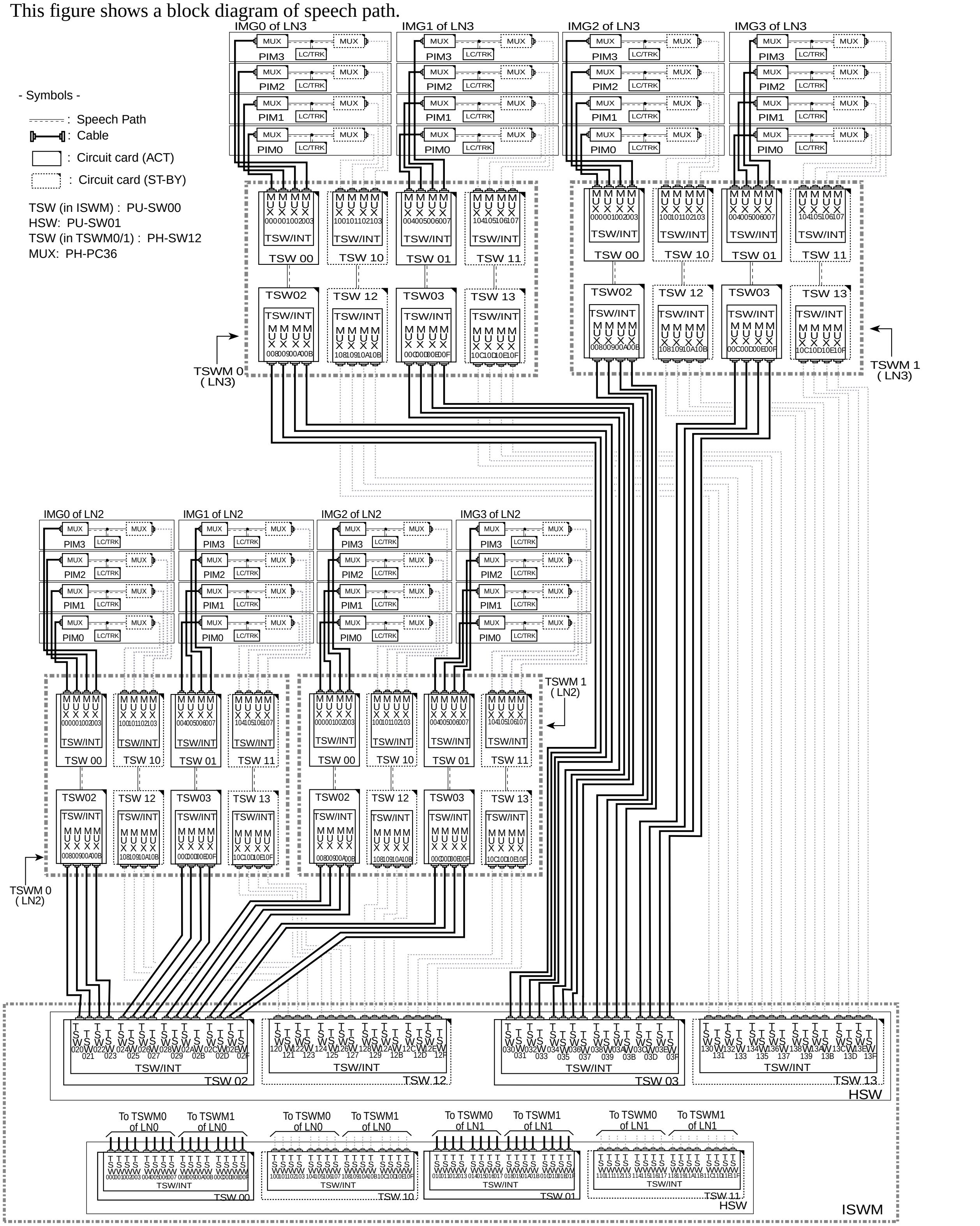


Figure 5-8 Speech Path Block Diagram (2/2)

5.2 Speech Path System Fault - Fault Related to Speech

Faulty Situation:

- Fault related to speech such as noise, one-way speech, no-speed, etc. occurs.
- Even if dialing started, Dial Tone (DT) does not stop.
- [1-C] Both TSW Write Failure
- [1-D] TSW Write Failure

(1) For Dual Configuration

START

- Check to see if fault occurs by replacing TSW circuit cards one by one.
  - Replace the TSW circuit card referring to Section 2.3.2, TSW Card Replacement Procedure, in Chapter 4.
  - Place the TSW circuit card into ACT mode. Refer to Section 12, Chapter 6.
  - Check to see if a station-to-station connection can be set up and identify a TSW circuit card responsible for the fault.
  - Perform the above check by extracting the TSW circuit cards individually.
- Check to see if fault occurs by replacing MUX circuit cards one by one.
  - Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - Place the MUX circuit card into ACT mode. Refer to Section 12, Chapter 6.
  - B

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

B

- Check to see if a station-to-station connection can be set up and identify a circuit card responsible for the fault.
- Perform the above check by extracting the MUX circuit cards individually.

- When the PLO (PH-CK16-A/17-A)/CLK (PH-CLK18) circuit card is mounted for digital interface, replace PLO/CLK circuit card with a spare and check.
  - Set MB switch of the PLO/CLK circuit card to UP side.
  - Confirm OPE lamp on the PLO/CLK circuit card of the mate system illuminates.
  - Extract PLO/CLK circuit card from its mounting slot.
  - Set MB switch UP and insert the new PLO/CLK circuit card into its mounting slot.
  - Set MB switch DOWN.
  - Set MB switch of the ACT-side PLO/CLK circuit card UP.
  - Confirm that the new PLO/CLK circuit card becomes the ACT side (OPE lamp on the new card lights green).
  - Set MB switch of the STBY side PLO/CLK DOWN.
  - Confirm that speech can be carried out normally by a station-to-station call.
- Set the faulty speech path system to STBY side. Refer to Section 12, Chapter 6.

END

(2) For Single Configuration

START

- Check to see if the fault occurs by replacing TSW circuit cards one by one.
  - Replace the TSW circuit card referring to Section 2.3.2, TSW Card Replacement Procedure, Chapter 4.
  - Check to see if a station-to-station connection can be set up and identify a TSW circuit card responsible for the fault.
  - Perform the above check by extracting the TSW circuit cards individually.
- Check to see if the fault occurs by replacing MUX circuit cards one by one.
  - Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - Initialize the system by pressing the START button on the TOPU.
  - Check to see if a station-to-station connection can be set up and identify a TSW circuit card responsible for the fault.
  - Perform the above check by extracting the TSW circuit cards individually.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

A

When the PLO (PH-CK16-A/17-A)/CLK (PH-CK18) circuit card is mounted for digital interface, replace the PLO circuit card with a spare and check it.

- Set MB switch of the PLO/CLK circuit card to UP side.
- Confirm OPE lamp on the PLO/CLK circuit card goes out.
- Extract PLO/CLK circuit card from its mounting slot.
- Set MB switch UP and insert the new PLO/CLK circuit card into its mounting slot.
- Set MB switch DOWN.
- Confirm the OPE lamp on the new PLO/CLK circuit card illuminates.
- Confirm that speech can be carried out normally by a station-to-station call.

END

5.3 Speech Path System Fault - When Dial Tone (DT) Cannot Be Heard

Faulty Situation:

- Dial Tone (DT) cannot be heard.
- [1-A] Both TSW Failure (Permanent)
- [1-E] Both TSW Clock Failure
- [4-C] Both TSW Ready Failure
- [23-Y] MUX Clock Failure

Note: *For dual system configuration, if a system message indicates that both systems are faulty, first repair the fault in the indicated system and then proceed to repair the PIM in the other system.*

START

- Check to see if the TSW circuit card is making poor contact.
  - Set TSW circuit card into STBY mode. Refer to Section 12, Chapter 6.
  - Set TSW MBR switch on the TSW card UP.
  - Set MB switch of the TSW circuit card UP.
  - Extract the TSW circuit card from its mounting slot and clean the contact portion. If cleaning cannot be done, repeat insertion and extraction of the circuit card two or three times.
  - Set TSW MBR and MB switches on the TSW circuit card UP and insert the circuit card into its mounting slot.
  - Set MB switch of the TSW circuit card DOWN.
  - Set TSW MBR switch DOWN.
  - Check if a station-to-station connection can be set up.
- Check PCM cables.
  - Check the PCM cables. (See Figure 5-8).
  - Initialize the system by pressing the START button on the TOPU and see if a station-to-station connection can be set up.

END

5.4 Speech Path System Fault (LN) - STBY Side Has Become Faulty

Faulty Situation:

- A fault occurred in the STBY side of the dual configuration system.
- [1-B] TSW Failure (Permanent)
- [1-D] TSW Write Failure
- [1-F] TSW Clock Failure
- [4-D] TSW Ready Failure

START

- Check to see if the TSW circuit card (STBY) is making poor contact.
  - Set the TSW MBR switch of the TSW circuit card UP.
  - Set the MB switch of the TSW circuit card UP and extract the circuit card from its mounting slot.
  - Extract the TSW circuit card from its mounting slot and clean the contact portion. If cleaning cannot be done, repeat insertion and extraction of the circuit card two or three times.
  - Set the TSW MBR and MB switches of the TSW circuit card UP and insert the circuit card into its mounting slot.
  - Set the MB switch of the TSW circuit card DOWN.
  - Set the TSW MBR switch DOWN.
  - Check if a station-to-station connection can be set up.
- Check PCM cables.
  - Check the PCM cables. See Figure 5-8.
  - Initialize the system by pressing the START button on the TOPU and see if a station-to-station connection can be set up.

A

Faulty Situation:

- Fault related to speech such as noise, one-way speech, no-speed, etc. occurs.
- Even if dialing started, Dial Tone (DT) does not stop.
- [1-C] Both TSW Write Failure
- [1-D] TSW Write Failure

A

- Check to see if fault occurs by extracting TSW circuit cards one by one.
  - Replace the TSW circuit card referring to Section 2.3.2, TSW Card Replacement Procedure, Chapter 4.
  - Set the TSW circuit card into ACT mode. Refer to Section 12, Chapter 6.
  - Check to see if a station-to-station connection can be set up to identify a TSW circuit card responsible for the fault.
  - Perform the above check by extracting the TSW circuit cards individually.
- Check to see if the fault occurs by extracting MUX circuit cards one by one.
  - Replace the MUX circuit card referring to Section 3.3.2, MUX Card Replacement Procedure, Chapter 4.
  - Set the MUX circuit card into ACT mode. Refer to Perform the above check by extracting the TSW circuit cards individually.
  - Check to see if a station-to-station connection can be set up and identify a TSW circuit card responsible for the fault.
  - Perform the above check by extracting the MUX circuit cards individually.

END

6. SPEECH PATH SYSTEM FAULT (WHOLE SYSTEM/ISW)

This section explains the fault repair procedure when any of the fault shown in Table 5-8 has occurred in a whole system.

6.1 Check Point

System messages pertaining to whole system fault are shown in Figure 5-9. Check the system messages.

Table 5-8 Speech Path (TSW) System Fault Situation (LN)

FAULTY SITUATION	REFERENCE SECTION
• Noise, one-way speech, no tone • Even after dialing a digit, dial tone is still heard. • Dial tone cannot be heard.	Section 6.2, Speech Path System Fault (Whole System/ISW) - Fault Related to Speech
• The system message that indicates a fault occurrence to the active Speech Path System (Whole System /ISW) is intermittently printed out. • The alarm lamp on the circuit card of the active Speech Path System (Whole System /ISW) lights up intermittently.	Section 6.3, Speech Path System Fault (Whole System/ISW) - ACT side becomes Faulty Intermittently
• The system message that indicates a fault occurrence to the STBY Speech Path System (Whole System /ISW) is intermittently printed out. • The alarm lamp on the circuit card of the STBY Speech Path System (Whole System /ISW) lights up intermittently.	Section 6.4, Speech Path System Fault (Whole System/ISW) - STBY side becomes Faulty Intermittently
• Clock (CALK, PLOT) is faulty.	

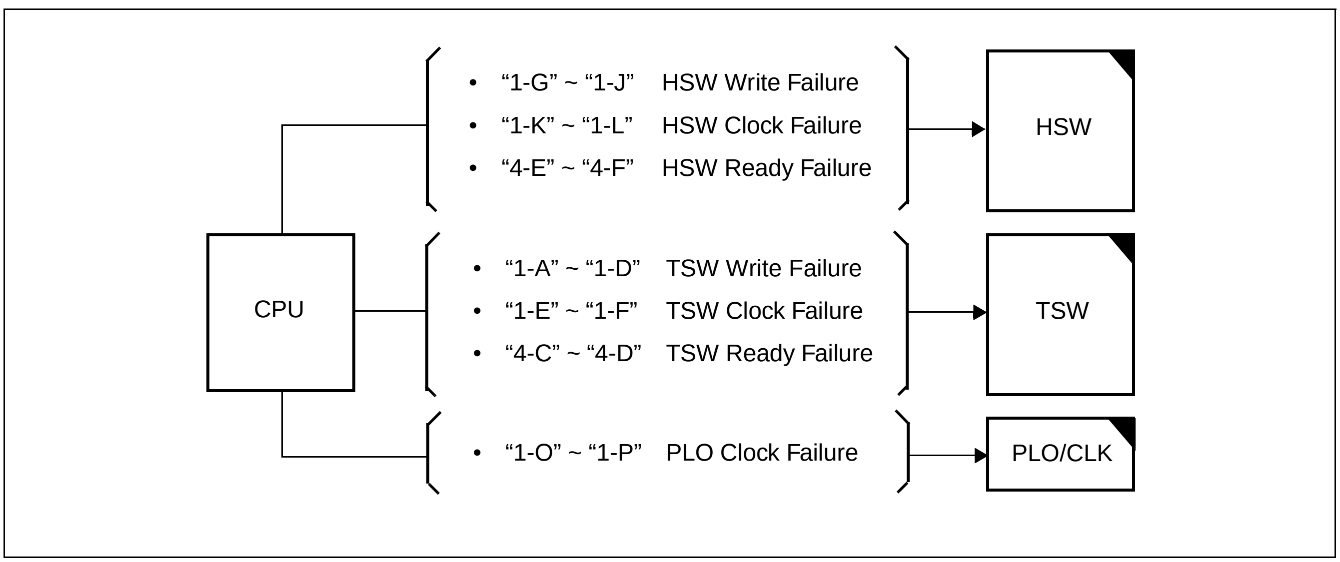


Figure 5-9 System Messages Related to Speech Path System Fault (Whole System/ISW)

6.2 Speech Path System Fault (Whole System/ISW) - Fault Related to Speech

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

- Replace the TSW card mounted in the ISWM with a spare.
  - Replace the TSW card by referring to Section 4.3.2, TSW Card Replacement Procedure, Chapter 4.
  - Place the TSW circuit card on the ACT mode. Refer to Section 12, Chapter 6.
  - After replacement of the TSW card, make a station to station call and check and see if a fault occurs.
- When a fault occurs in the whole system, replace the HSW card with a spare.
  - Replace the HSW card by referring to Section 4.3.3, HSW Card Replacement Procedure, Chapter 4.
  - Place the HSW card on the ACT mode. Refer to Section 12, Chapter 6.
  - After replacement of the HSW card, make a station to station call, and check and see if a fault occurs.

END

6.3 Speech Path System Fault (Whole System/ISW) - ACT side becomes Faulty Intermittently

Faulty Situation:

- ACT-side Speech Path System becomes faulty intermittently in ISW/Whole System.
- [1-I] HSW Write Temporary Failure (Both Systems)
- [1-J] HSW Write Temporary Failure (One System)

START

- Check by replacing related circuit cards of the ACT mode with a spare.
  - Related circuit cards:
    IOGT (Section 4.3.1, Chapter 4)
    TSW (Section 4.3.2, Chapter 4)
    HSW (Section 4.3.3, Chapter 4)
  - Set the faulty system on the STBY mode. Refer to Section 12, Chapter 6.
  - On the circuit card, set its MB switch UP and extract the circuit card out of its mounting slot.
  - Make switch setting on the new circuit card.
  - On the new circuit card, set its MB switch UP and insert the circuit card into its mounting slot.
  - Set MB switch DOWN.
  - Set the faulty system on the ACT mode. Refer to Section 12, Chapter 6.
  - Check and see if a fault indication is made.
- If a fault occurs, set the faulty system on the STBY mode. Refer to Section 12, Chapter 6.

END

6.4 Speech Path System Fault (Whole System/ISW) - STBY side becomes Faulty Intermittently

Faulty Situation:

- STBY-side Speech Path System becomes faulty intermittently in ISW/Whole System.
- [1-I] HSW Write Temporary Failure (Both Systems)

START

- Check by replacing related circuit cards of the STBYmode with a spare.
  - Related circuit cards:
    IOGT (Section 4.3.1, Chapter 4)
    TSW (Section 4.3.2, Chapter 4)
    HSW (Section 4.3.3, Chapter 4)
  - Set the faulty system on the STBY mode. Refer to Section 12, Chapter 6.
  - On the circuit card, set its MB switch UP and extract the circuit card out of its mounting slot.
  - Make switch setting on the new circuit card.
  - On the new circuit card, set its MB switch UP and insert the circuit card into its mounting slot.
  - Set MB switch DOWN.
  - Set the faulty system on the ACT mode. Refer to Section 12, Chapter 6.
  - Check and see if a fault indication is made.
- If a fault occurs, set the faulty system on the STBY mode. Refer to Section 12, Chapter 6.

END

6.5 PLO Fault

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Faulty Situation:

- Both PLOs have become faulty, and the system is in operation by clocks from the HSW.
- One of the two PLOs has become faulty and the other PLO has been set on the ACT mode.
- [1-O], [1-P] PLO Clock Failure
- [1-K], [1-L] HSW Clock Failure

START

- Replace the faulty PLO circuit card with a spare.
  - Set MB switch of the PLO circuit card UP and extract the circuit card from its mounting slot.
  - Make necessary switch settings on the new PLO circuit card.
  - Set MB switch UP and insert the circuit card into its mounting slot.
  - Set MB switch DOWN.
  - If the system has been operated by the STBY side, set MB switch on the ACT-side PLO circuit card UP and execute system changeover. Refer to Section 12, Chapter 6.
  - OPE lamp (Green) illuminates on the PLO circuit card.
- Confirm that no noise generates in a station-to-station connection.
- Confirm that digital interface connection can be set up.

END

7. CONTROL SYSTEM FAULT

This section explains the fault repair procedure for the control system listed in Table 5-9.

Table 5-9 Control System Fault Situation

FAULTY SITUATION	REFERENCE SECTION
Fault occurs occasionally at the ACT side.	Section 7.2, Control System Fault - Fault Occurs Intermittently
STBY side is faulty.	Section 7.3, Control System Fault - STBY Side is Faulty

7.1 Check Point

When repairing the control system, check the status of the following lamps:

LN

- CPR
- GT
- TSW
- MUX
- EMA

ISW

- CPR
- IOGT
- TSW
- HSW
- EMA

Figure 5-1 and Figure 5-2 shows a block diagram of the control system.

7.2 Control System Fault - Fault Occurs Intermittently

Faulty Situation:

- Fault occurs intermittently at ACT side in the dual configuration system.
- Fault occurs intermittently in the single configuration system.
- [0-C] ~ [0-K] CPU Failure
- [1-C] Both TSW Write Failure
- [1-D] TSW Write Failure
- [3-D], [3-E] Lock-Up Failure (Permanent/Temporary)

(1) For Dual Configuration

START

Replace ACT-side related circuit card with a spare, and check.

Replace the circuit cards individually referring to the following sections in Chapter 4:

LN

- Section 1.3.1, CPR Replacement Procedure
- Section 1.3.2, EMA Card Replacement Procedure
- Section 2.3.1, GT Card Replacement Procedure
- Section 2.3.2, TSW Card Replacement Procedure
- Section 3.3.2, MUX Card Replacement Procedure

ISW

- Section 1.3.1, CPR Replacement Procedure
- Section 1.3.2, EMA Card Replacement Procedure
- Section 4.3.1, IOGT Card Replacement Procedure
- Section 4.3.2, TSW Card Replacement Procedure
- Section 4.3.3, HSW Card Replacement Procedure

Place the replaced circuit card into ACT mode individually by executing CPU or Speech Path System changeover. Refer to Section 12, Chapter 6.

Check to see if a station-to-station connection can be set up and identify a circuit card responsible for the fault.

After all the steps are complete, place the whole circuit card examined above to the ACT mode. Refer to Section 12, Chapter 6.

Check to see if a fault is indicated.

When a fault is not indicated, set the faulty system to STBY mode. Refer to Section 12, Chapter 6.

A

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

(2) For Single Configuration

A

Replace the related circuit card with a spare, and check.

Replace the circuit cards individually by referring to the following sections in Chapter 4:

LN

- Section 1.3.1, CPR Replacement Procedure
- Section 1.3.2, EMA Card Replacement Procedure
- Section 2.3.1, GT Card Replacement Procedure
- Section 2.3.2, TSW Card Replacement Procedure
- Section 3.3.2, MUX Card Replacement Procedure

ISW

- Section 1.3.1, CPR Replacement Procedure
- Section 1.3.2, EMA Card Replacement Procedure
- Section 4.3.1, IOGT Card Replacement Procedure
- Section 4.3.2, TSW Card Replacement Procedure
- Section 4.3.3, HSW Card Replacement Procedure

Initialize the system by pressing the START button on the TOPU and check to see if a station-to-station connection can be set up and identify a circuit card responsible for the fault.

END

7.3 Control System Fault - STBY Side is Faulty

Faulty Situation:

- Fault has occurred in the STBY side of dual configuration system.
- [0-I] STBY CPU Failure
- The ACT side has become faulty, and system changeover has executed.
- [0-C], [0-H], [0-J] Processor Failure (ACT side)

START

- Replace STBY side related circuit cards with a spare, and check.
  - Replace the circuit cards individually by referring to the following paragraphs in Chapter 4:

    LN
    - Section 1.3.1, CPR Replacement Procedure
    - Section 1.3.2, EMA Card Replacement Procedure
    - Section 2.3.1, GT Card Replacement Procedure
    - Section 2.3.2, TSW Card Replacement Procedure
    - Section 3.3.2, MUX Card Replacement Procedure

    ISW
    - Section 1.3.1, CPR Replacement Procedure
    - Section 1.3.2, EMA Card Replacement Procedure
    - Section 4.3.1, IOGT Card Replacement Procedure
    - Section 4.3.2, TSW Card Replacement Procedure
    - Section 4.3.3, HSW Card Replacement Procedure
  - Place the circuit cards into ACT mode by executing CPU changeover. Refer to Section 12, Chapter 6.
  - Check to see if a station-to-station connection can be set up to identify the circuit card responsible for the fault.
  - When a fault is not indicated, set the faulty systems to STBYmode. Refer to Section 12, Chapter 6.

END

8. ALARM INDICATION FAULT

This section explains the fault repair procedure where any of the faults shown in Table 5-10 occur.

Table 5-10 Alarm Indication Fault Situation

FAULTY SITUATION	REFERENCE SECTION
A fault is indicated on the TOPU, but it is not indicated on the Alarm Indicating Panel (External Alarm Indicating Panel).	Section 8.2, Fault of Alarm Indicating Panel
• A system message is indicated, but no alarm indication is made on the TOPU. • An alarm lamp on the circuit card is lighting, but no alarm indication is made on the MAT or on the TOPU.	Section 8.3, Fault That Cannot Be Detected

8.1 Check Point

When repairing an alarm indication fault, check the alarm cable route shown in Figure 5-10 and Figure 5-11.

8.2 Fault of Alarm Indicating Panel

START

- Confirm lamps and power supply circuit of the Alarm Indicating Panel.
- Confirm cross connections on the MDF.
- Confirm that the connector of 16 PH EXMISC CA is firmly plugged in the MISC 0A connector on the backplane of LPM.

END

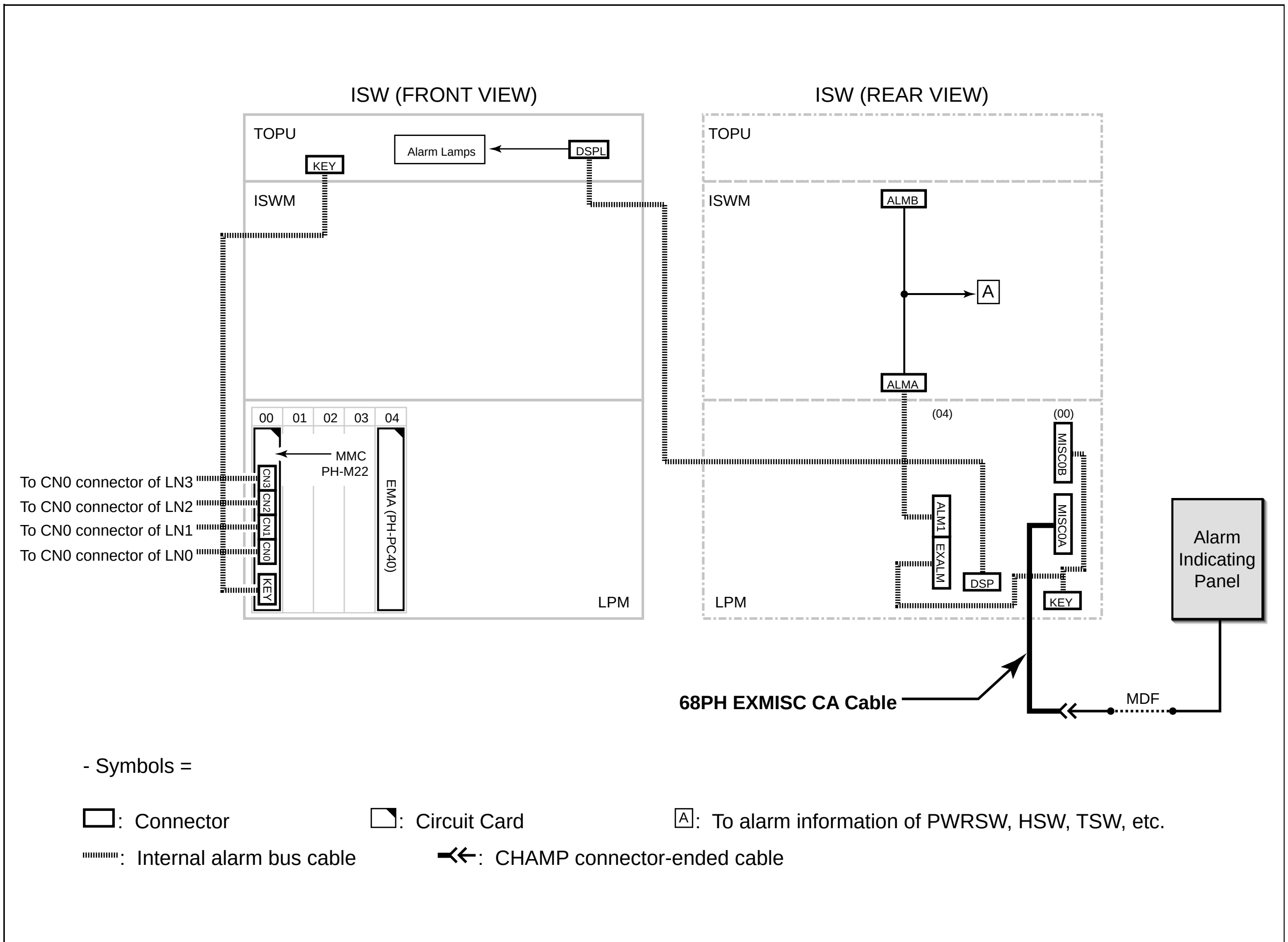


Figure 5-10 Cable Routing for Alarm Indications

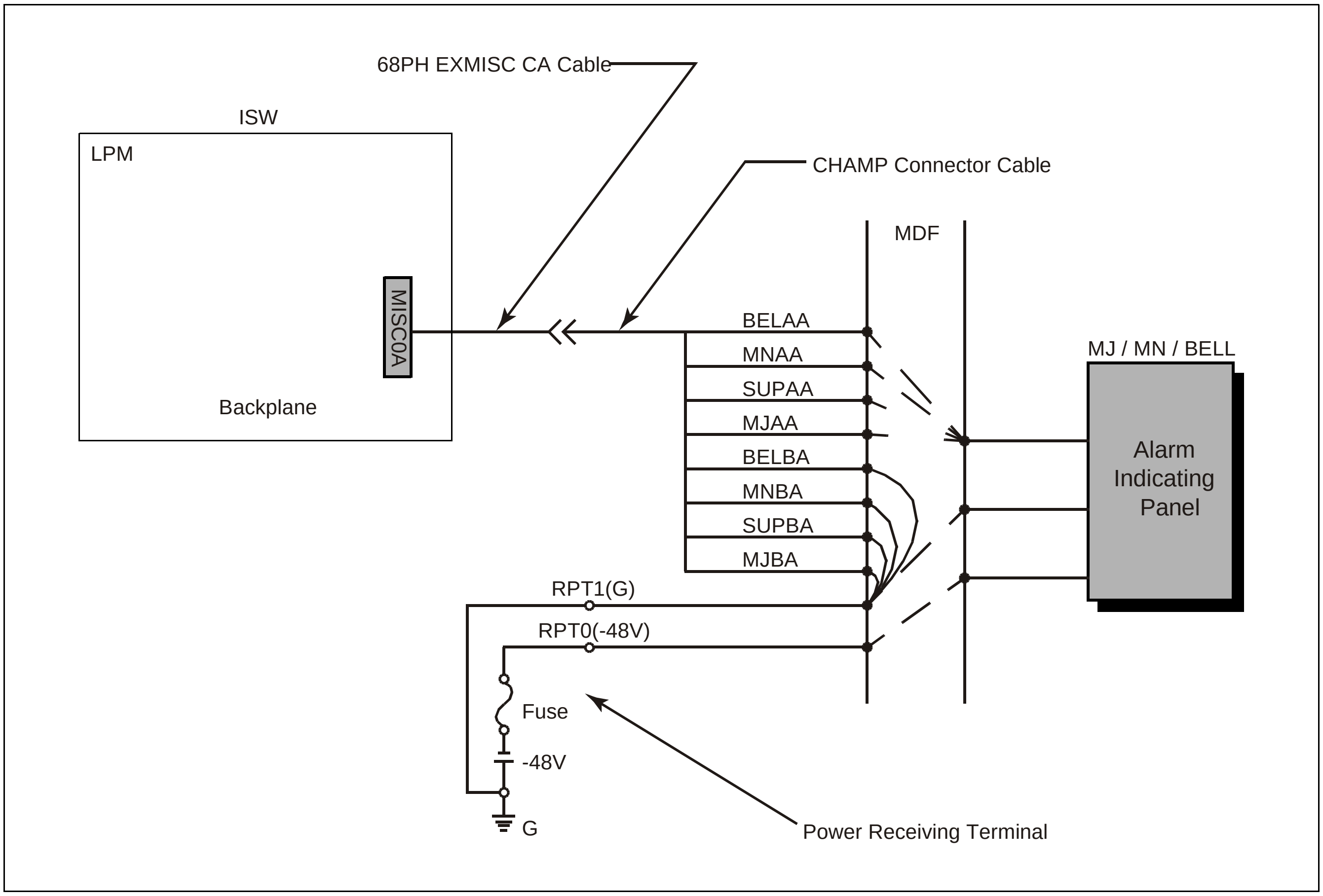


Figure 5-11 Cabling Related to Alarm Indicating Panel

Table 5-11 PIN Location of External Alarm

1		26	
2	MPALM	27	
3		28	
4	EXTAA	29	
5		30	
6	BELAA	31	
7		32	
8	MNAA	33	MNBA
9	SUPAA	34	SUPBA
10	MJAA	35	MJBA
11		36	
12		37	

This figure shows the flow of alarm and key information between ISW and each LN.

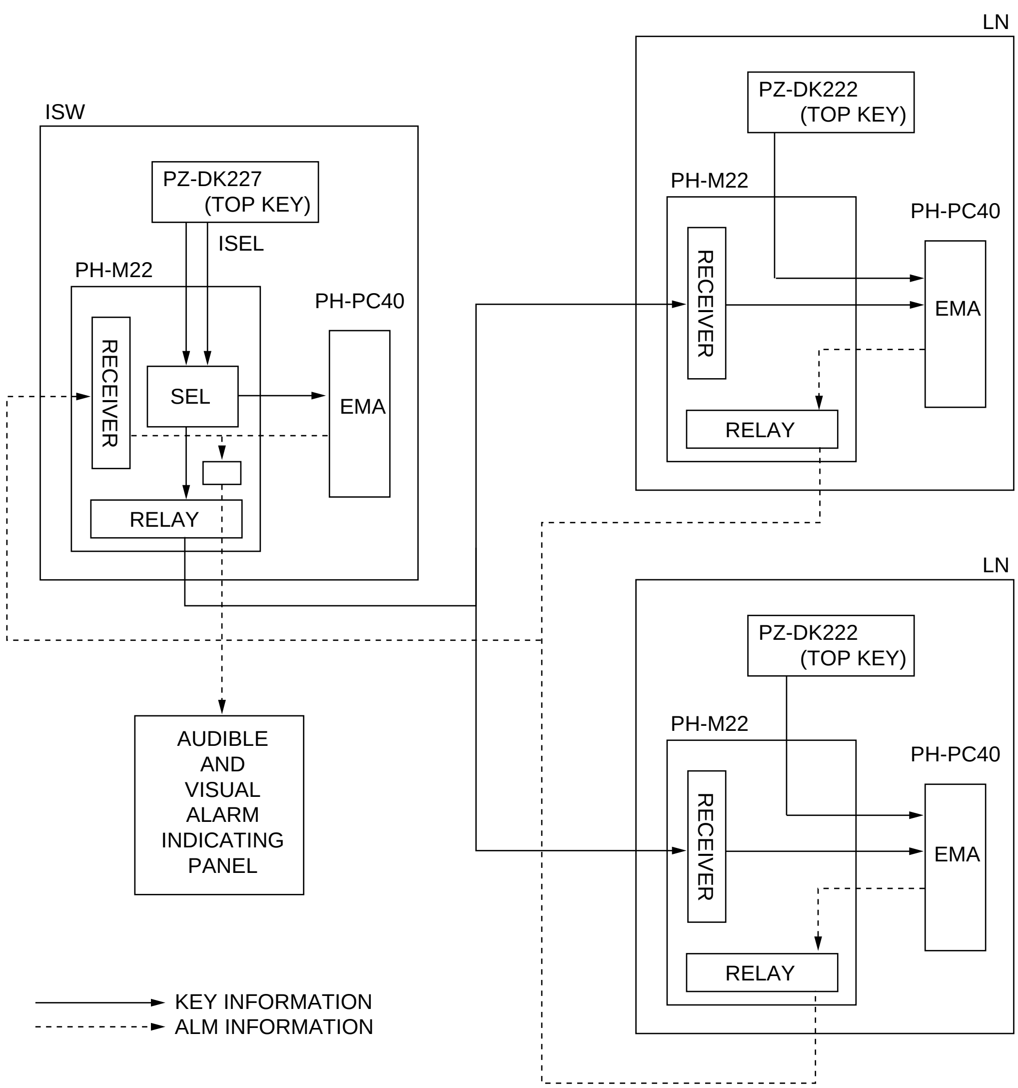
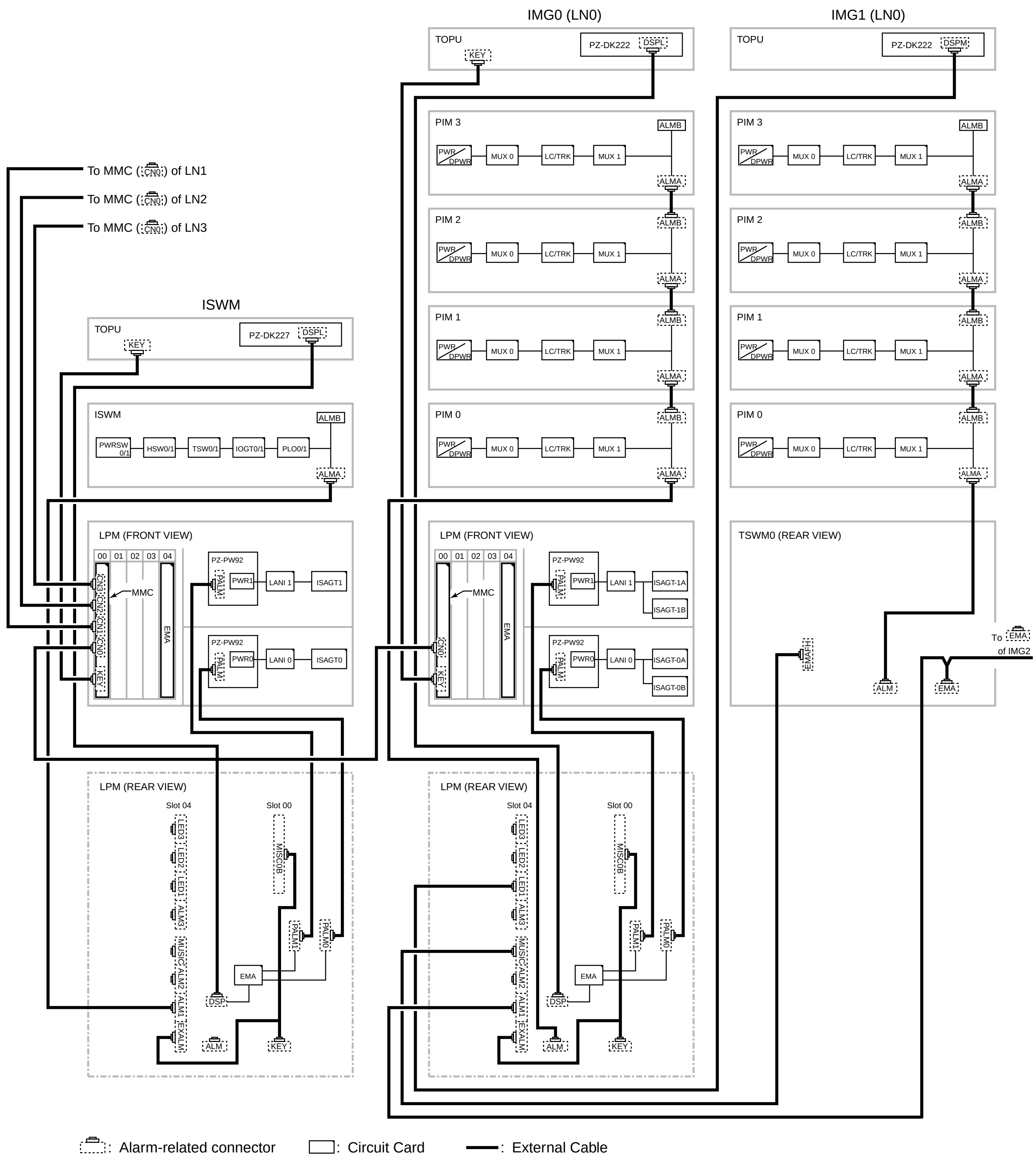


Figure 5-12 Distribution/Collection of Key/Alarm Information within the System

This figure shows the alarm bus cable connections diagram.



< ISW: Inter-node Switch >
MMC : PH-M22 EMA: PH-PC40 PWRSW: PH-PW14 HSW: PU-SW01 TSW: PU-SW00 LANI: PZ-PC19
ISAGT : PZ-GT13 IOGT: PH-GT10 PLO: PH-CK16-A/PH-CK17-A

< LN: Local Node >
MMC: PH-M22 EMA: PH-PC40 ISAGT-A: PZ-GT13 ISAGT-B: PZ-GT20 MUX: PH-PC36 LANI: PZ-PC19

Figure 5-13 Alarm Bus Cable Connections Diagram (1/2)

This figure shows the alarm bus cable connections diagram.

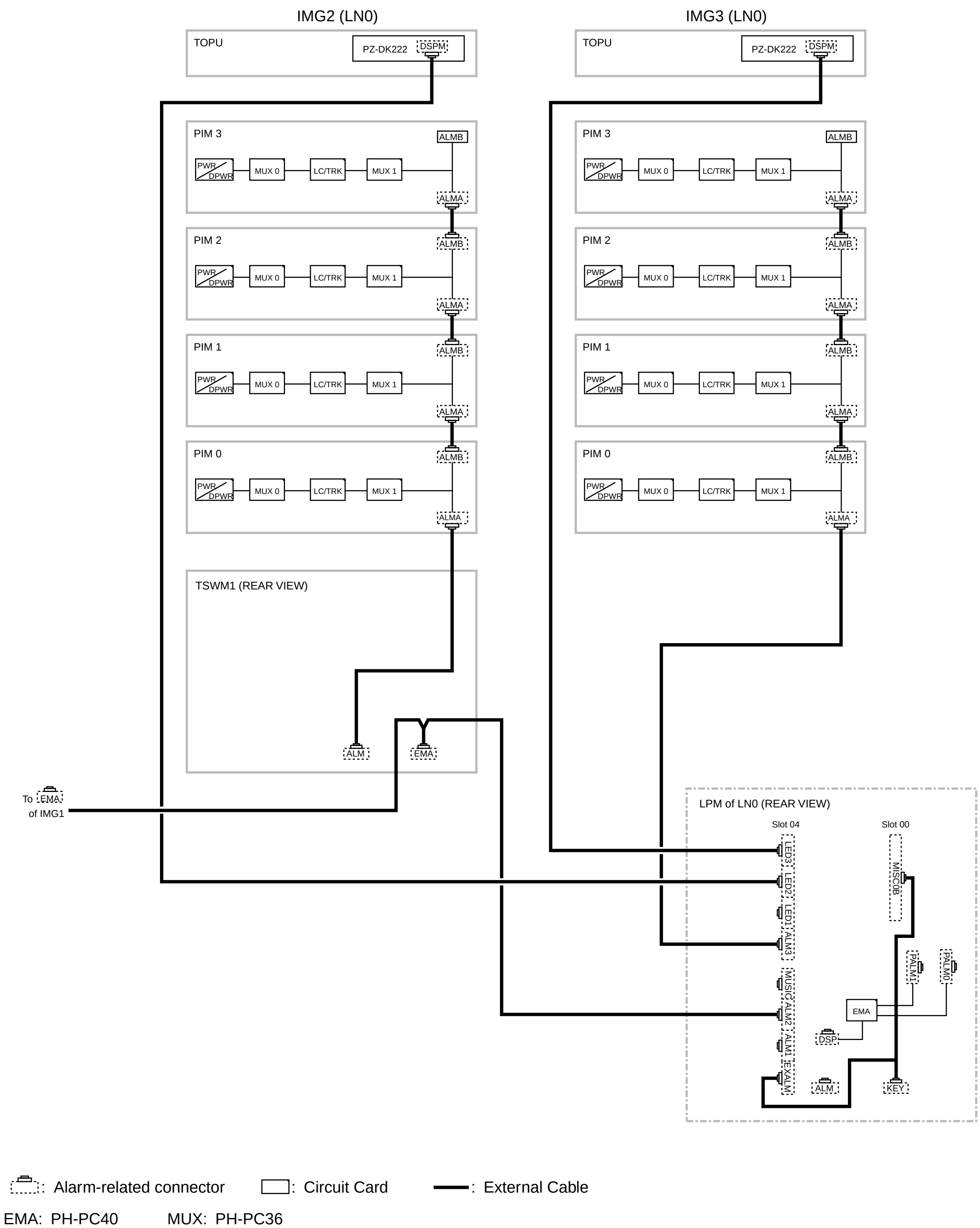


Figure 5-13 Alarm Bus Cable Connections Diagram (2/2)

8.3 Fault That Cannot Be Detected

START

- Check the DSP flat cable (See Figure 5-13.).

  WARNING If the EMA card is removed from the system while the system is in operation under the control of the CPU 1, the system will reset and stop all call processing. See Section 1.3.2, EMA Card Replacement Procedure, Chapter 4 for detailed instructions.

- Replace the EMA circuit card with a spare.
  - Set the MB switch of the EMA circuit card UP, and extract the circuit card from its mounting slot.
  - Make necessary switch settings on the new circuit card, referring to the card extracted.
  - Set MB switch UP and insert the circuit card into its mounting slot.
  - Set the MB switch DOWN.
  - Check to see if a fault is detected.

END

9. POWER SUPPLY FAULT

This section explains the fault repair procedure when any of the faults shown in Table 5-12 occur.

Table 5-12 PWR Supply Fault Situation

FAULTY SITUATION	REFERENCE SECTION
Fuse Blown Fault	Section 9.2, Fuse Blown Fault
Circuit Breaker OFF, Fault in PWR Supply	Section 9.3, Circuit Breaker OFF Fault in PWR Supply
Fault of Alarm Lamps on PWR Supply	Section 9.4, Fault of Alarm Lamps on PWR Supply

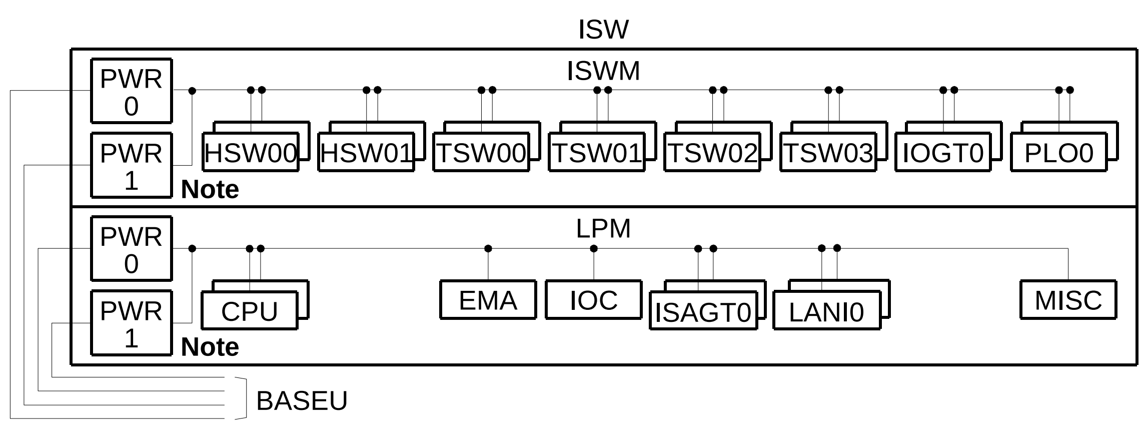
9.1 Check Point

When repairing a power supply fault, consider the following items:

(1) Before checking the system, check the rectifier, battery, and power cables.

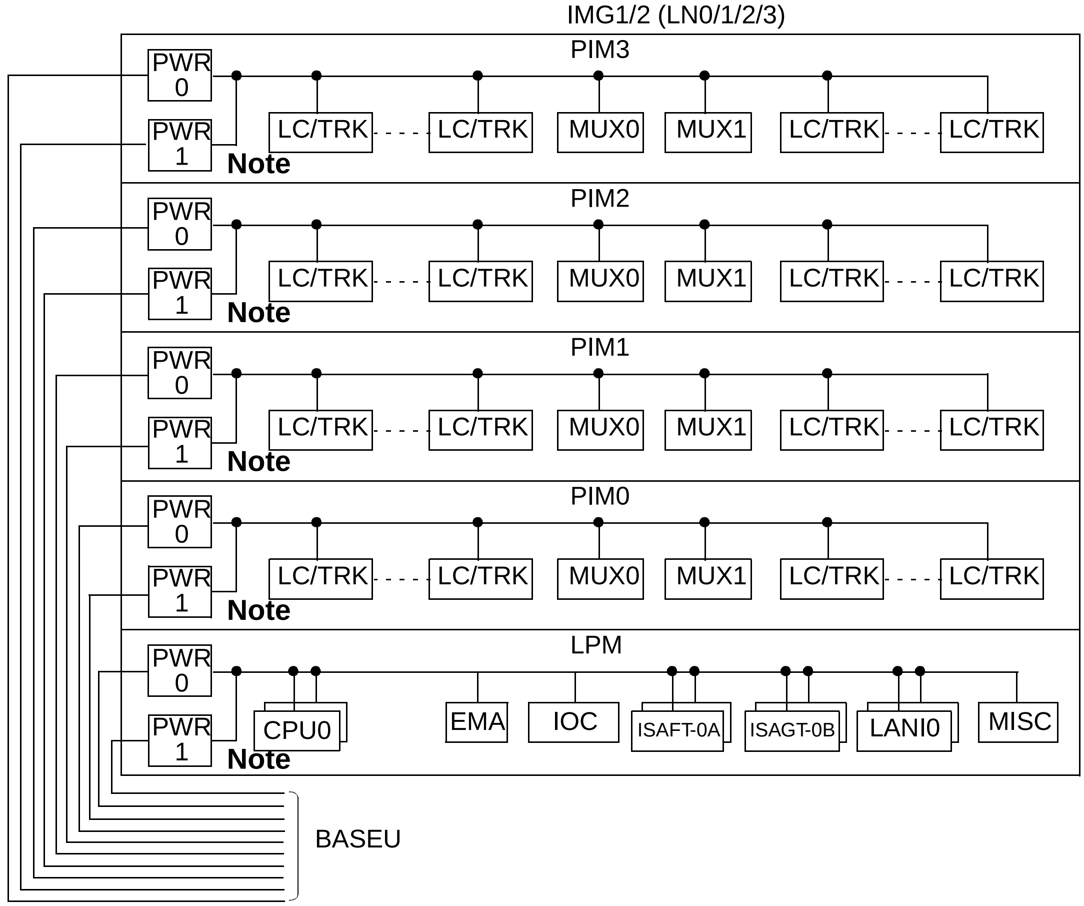
(2) The PWR circuit card is equipped with the circuits to supply ringing signal and howler tone. When a fault occurs that causes the bell of the telephone not to ring, or howler tone cannot be heard, etc., check the alarm lamp on the PWR circuit card.

(3) Figure 5-14 through Figure 5-17 show the block diagrams for the power supply to each module.



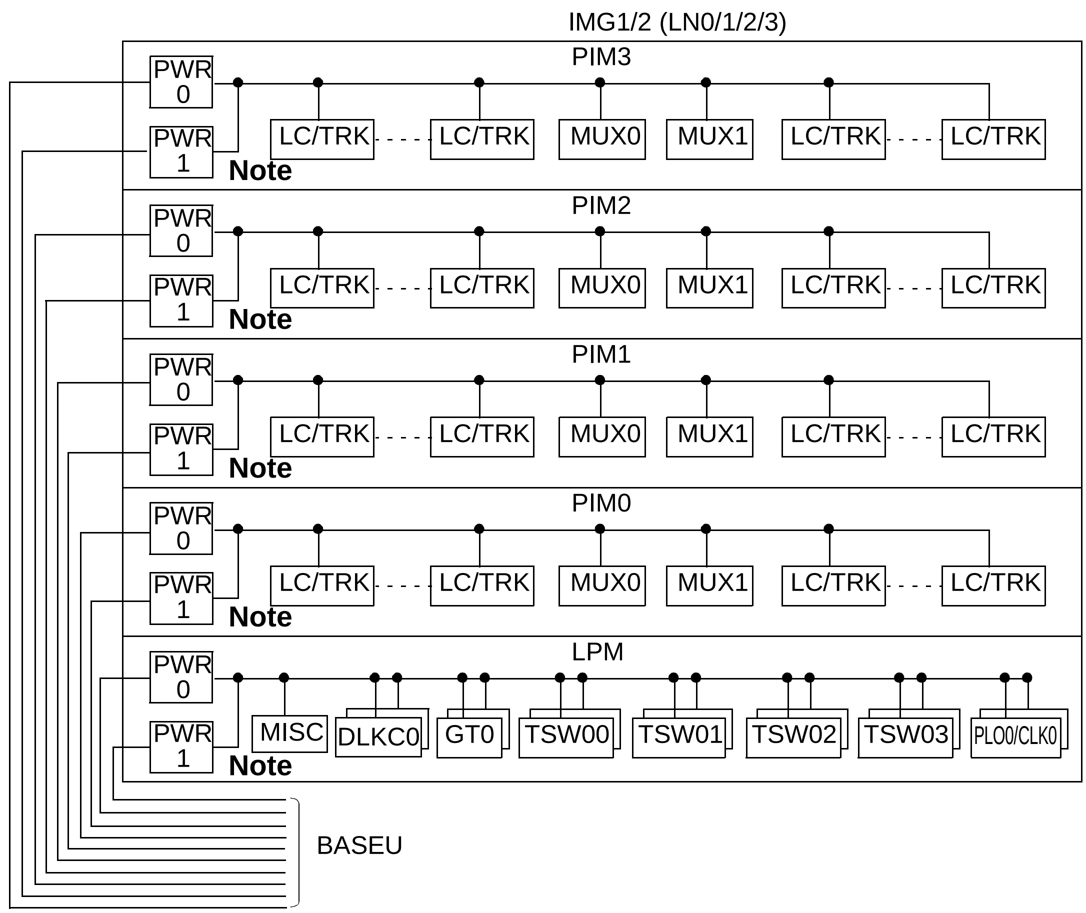
Note: *PWR1 is mounted when power supply system is a dual system configuration.*

Figure 5-14 Block Diagram of Power Supply System (ISW)



Note: *PWR1 is mounted when power supply system is a dual system configuration.*

Figure 5-15 Block Diagram of Power Supply System (IMG0)

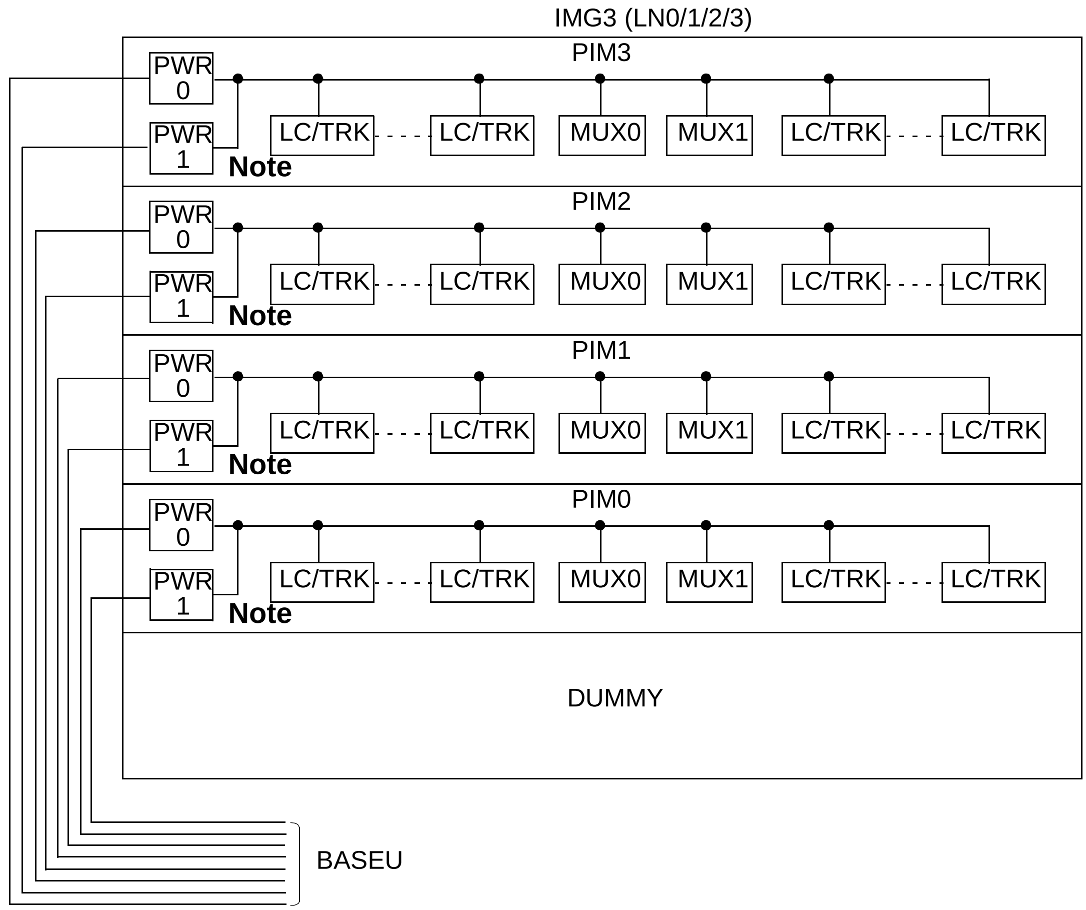


Note 1: *PWR1 is mounted when power supply system is a dual system configuration.*

Note 2: *DLKC is not mounted in TSWM1 of IMG2.*

Note 3: *PLO for IMG1 (TSWM0); CLK for IMG2 (TSWM1)*

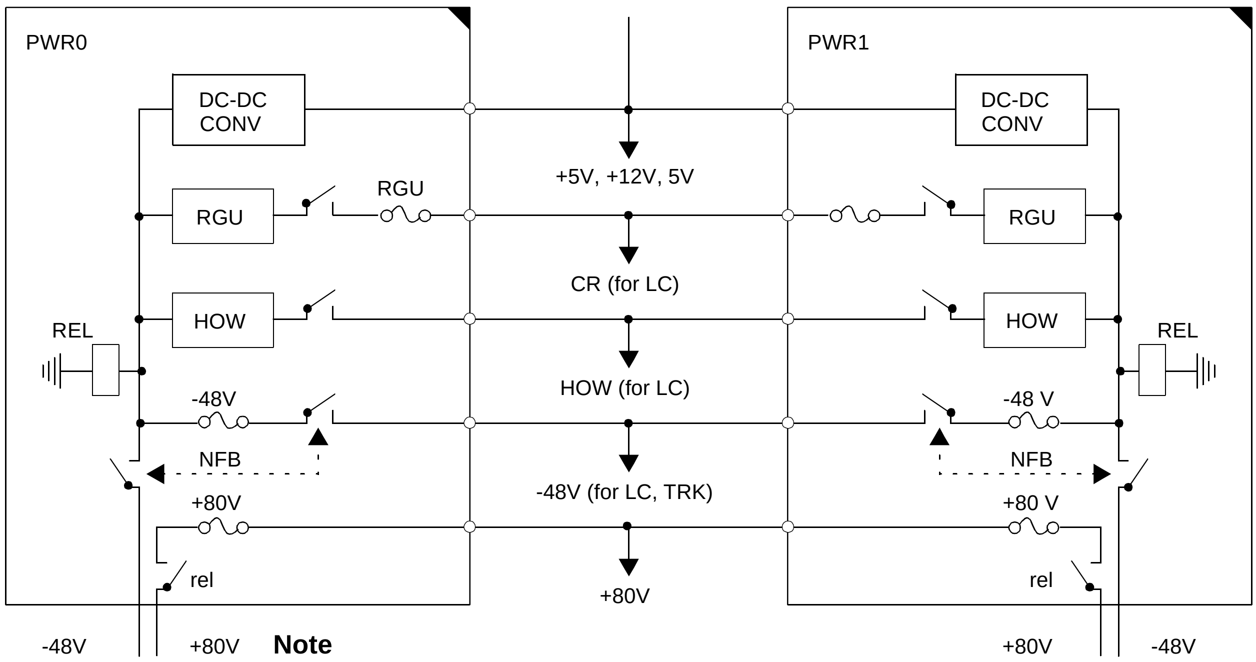
Figure 5-16 Block Diagram of Power Supply System (IMG1/IMG2)



Note: *PWR1 is mounted when power supply system is a dual system configuration.*

Figure 5-17 Block Diagram of Power Supply System (IMG3)

(4) Figure 5-18 shows the power supply system for PIM.



Note: *+80V is for message waiting lamp.*

Figure 5-18 Power Supply to PIM

(5) Figure 5-19 shows the power supply system for LPM.

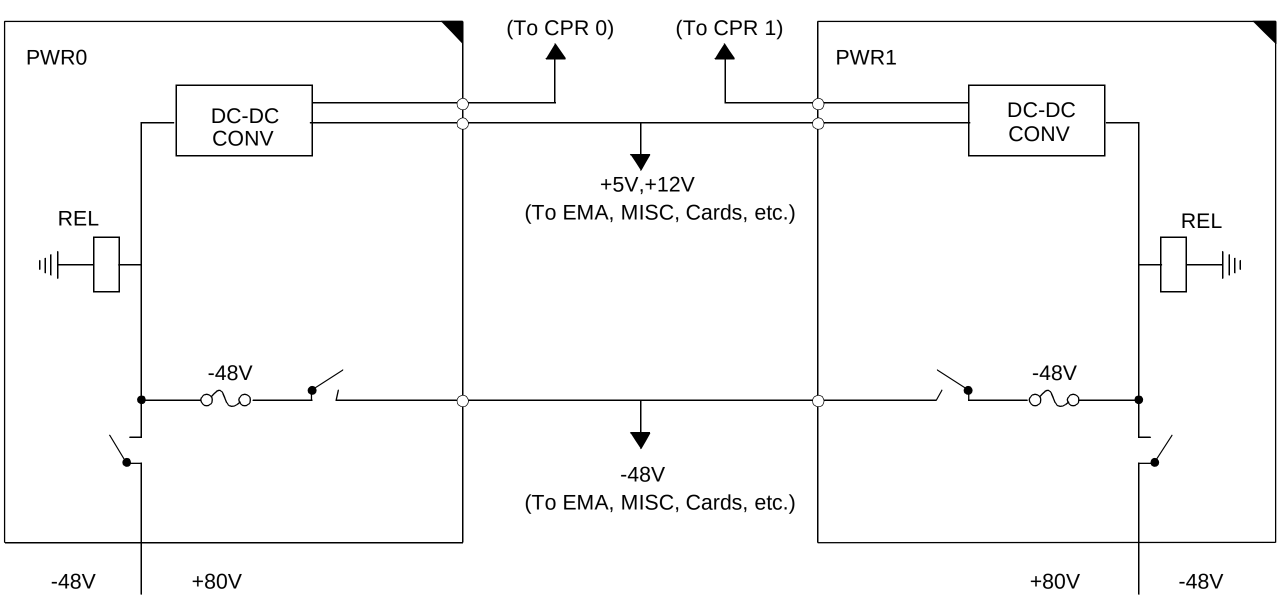


Figure 5-19 Power Supply to LPM (LN/ISW)

(6) Figure 5-20 shows the power supply system for TSWM/ISWM.

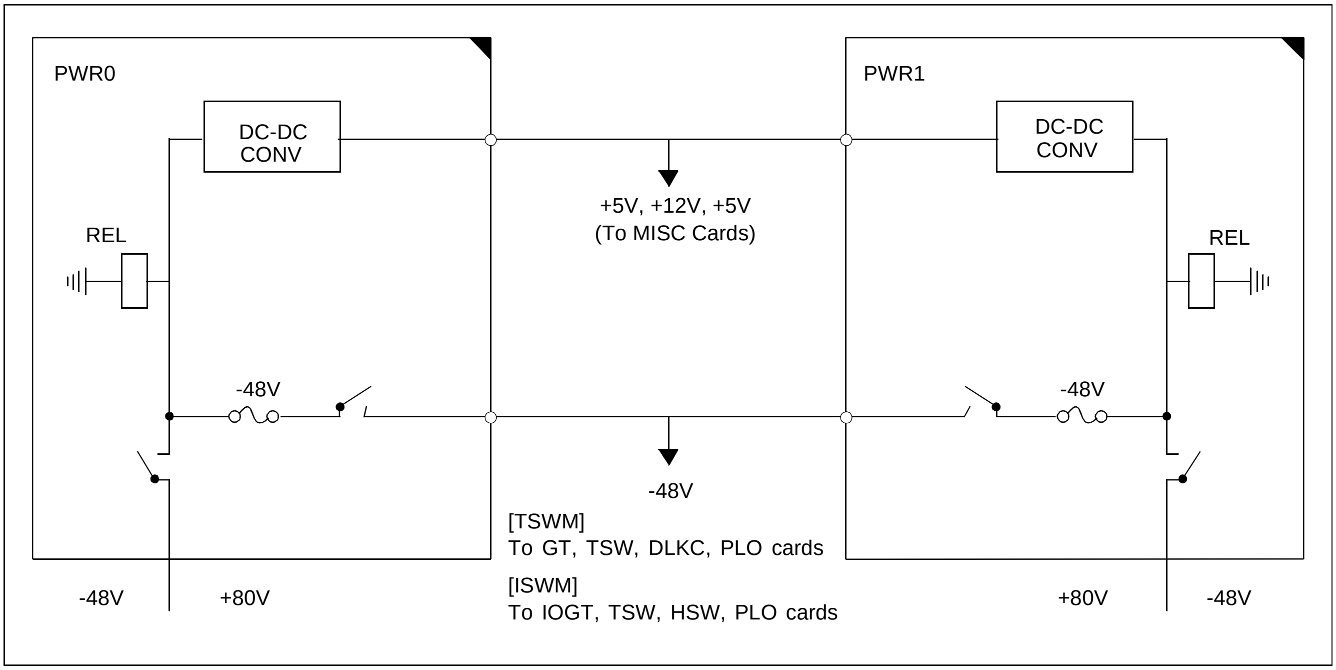


Figure 5-20 Power Supply to TSWM/ISWM

9.2 Fuse Blown Fault

START

- Check the backplane of the PIM.
  - Make a visual check on the backplane for pin contacting, melting or burn, etc.
- Extract all the circuit cards from the PIM, and insert them back into their slots individually to see if the fuse blows.
  - Set the MB switch of the PWR supply UP.
  - Set the circuit breaker of the PWR supply DOWN.
  - Extract all the circuit cards from their mounting slots, except PWR supply.
  - Replace the fuse with spare.
  - Set the circuit breaker of the PWR supply UP side.
  - Set the MB switch of the PWR supply DOWN.
  - Insert the circuit cards into their mounting slots individually, with their MB switch to UP side.
  - Check to see if the fuse blows when the MB switch has been set to DOWN.

END

9.3 Circuit Breaker OFF Fault in PWR Supply

START

- Check the backplane of the PIM.
  - Make a visual check on the backplane for pin contacting, melting or burning, etc.
- Extract all the circuit cards from the PIM, and make a visual check of the circuit cards.
  - Set MB switch of the PWR supply UP.
  - Set the circuit breaker of the PWR supply DOWN.
  - Extract all circuit cards out of their mounting slots.
  - Make a visual check of the extracted circuit cards.
    - Check ICs, resistors, and capacitors to see if any are burned.

END

9.4 Fault of Alarm Lamps on PWR Supply

START

- Press RESET button of the PWR supply.
  - Alarm lamp goes out. — **FAULT SUPERVISION**
  - Alarm lamp illuminates again.
    - Set the MB switch on the PWR supply UP.
    - Turn circuit breaker OFF.
    - Set MB switch on all the circuit cards, except PWR supply.
    - Extract all circuit cards from their mounting slots.
    - Turn circuit breaker ON.
    - Set the MB switch to DOWN side.
    - Check to see if the alarm lamp illuminates.
      - If the alarm lamp illuminates, replace the PWR supply with a spare.
      - If the alarm lamp does not illuminate, insert the circuit cards into their mounting slot individually to see if the alarm lamp illuminates.

END

Note: *Insert each PWR supply with its MB switch to UP side, and then set it back to DOWN side.*

10. FAN UNIT FAULT

This section explains the fault repair procedure where a fan in the Fan Unit (FANU) does not operate.

10.1 Check Point

(1) When repairing a FANU fault, exercise care about the following conditions. The fans (a total of 3) are activated by operating the PWR SW key located on the PZ-M369. The conditions for starting the fan are as follows:

- With PWR SW key for the fan set to ON position: Always operating
- With PWR SW key for the fan set to AUTO position: Starts operating if the in-frame temperature is higher than 40°C (104°F); stops operating at temperatures lower than 32°C (90°F). See Figure 5-21.

(2) When replacing the FANU with a spare, refer to Section 4, Chapter 4.

10.2 Fan Unit Fault

START

- Set the PWR SW key on the PZ-M369 to the ON position.
  - When the fan spins
    - Set PWR SW key to AUTO position, and short the thermal relay of the thermal unit.
      - If the fan does not operate —— Check the connector cable between the FANU and the thermal unit.
      - If the fan operates —— Replace thermal relay with a spare.
        - Disconnect the fan connector of the cable for the thermal unit.
        - Replace thermal relay with a spare.
        - Connect the fan connector.
  - If the fan does not operate
    - Check the voltage (DC -48 V) at connectors FC0 through FC2.
      - If the voltage is less than -48 V —— Check the connector cable (fan connector) between the FANU and the PIM.
      - If the voltage is -48 V —— Replace the fan with a spare. Refer to Section 4, Chapter 4.
- After the fault is corrected, set PWR SW key to the AUTO position. If the fans are to continue operating constantly, set PWR SW to the ON position.

END

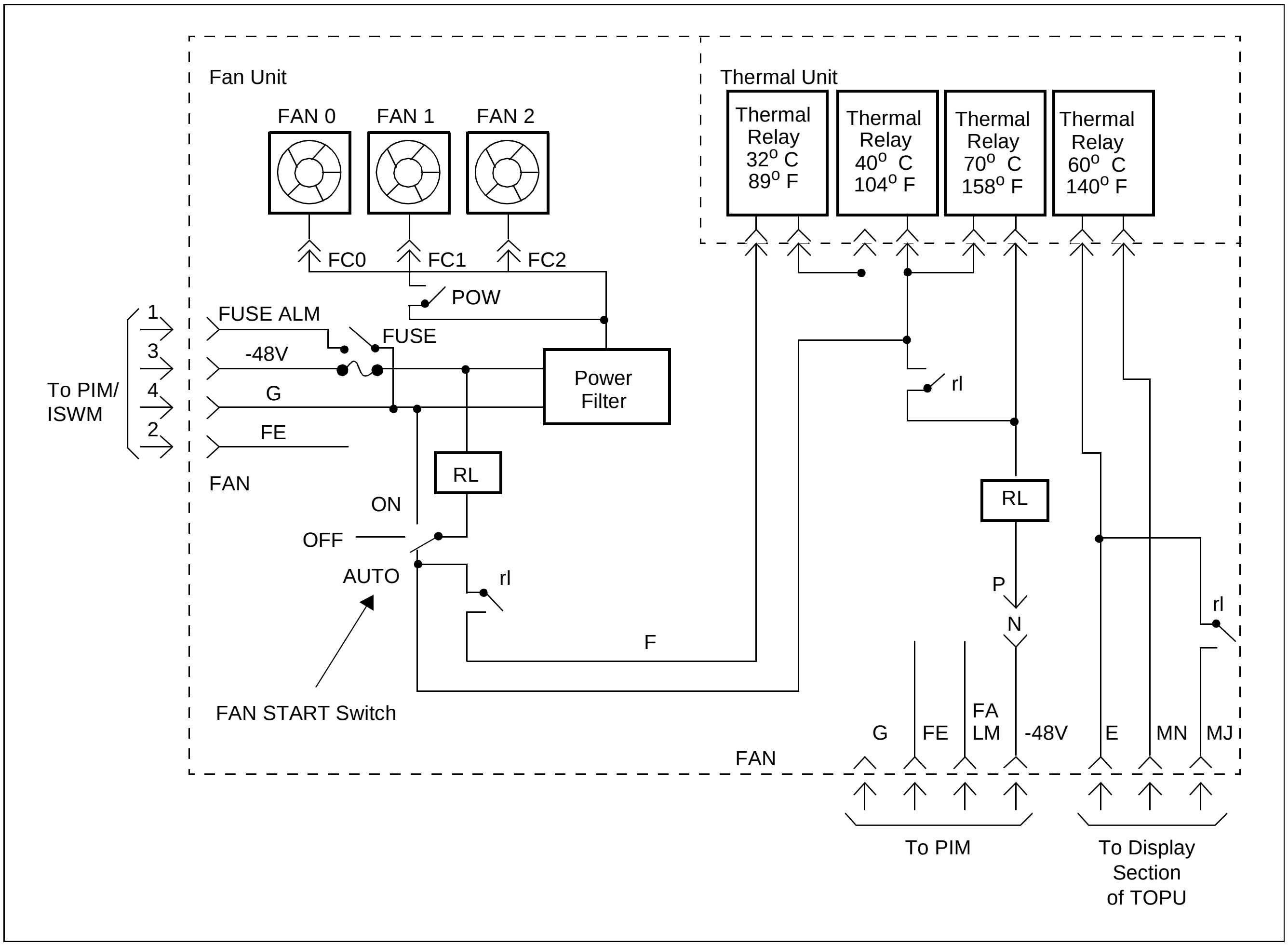


Figure 5-21   Circuit Diagram of Fan Unit and Thermal Unit

11. TONE FAULT

This section explains the fault repair procedure when any of the various tones cannot be heard in the whole system.

11.1 Check Point

When repairing a tone fault, consider that the tone generator circuit is equipped in the TSW circuit card and supplies tone. Check the alarm lamps of the TSW circuit card.

Figure 5-22 shows an example of the related trunking for dial tone connection.

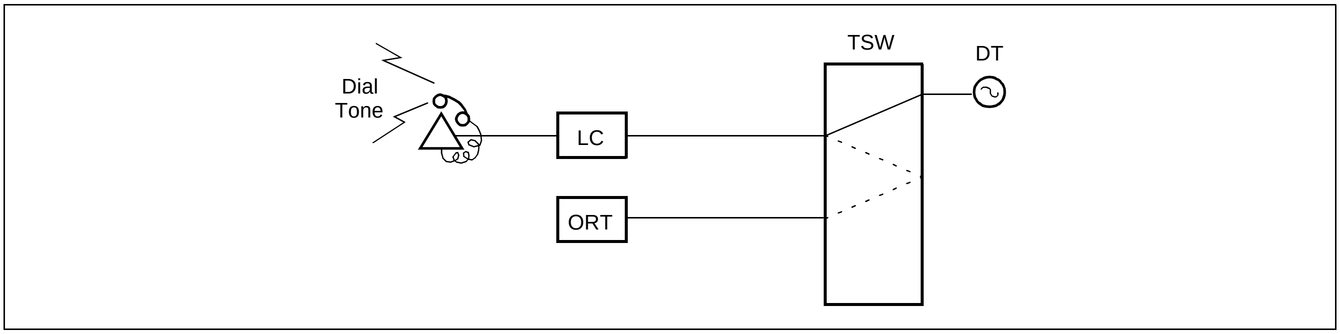


Figure 5-22 Dial Tone Connection

11.2 Tone Fault

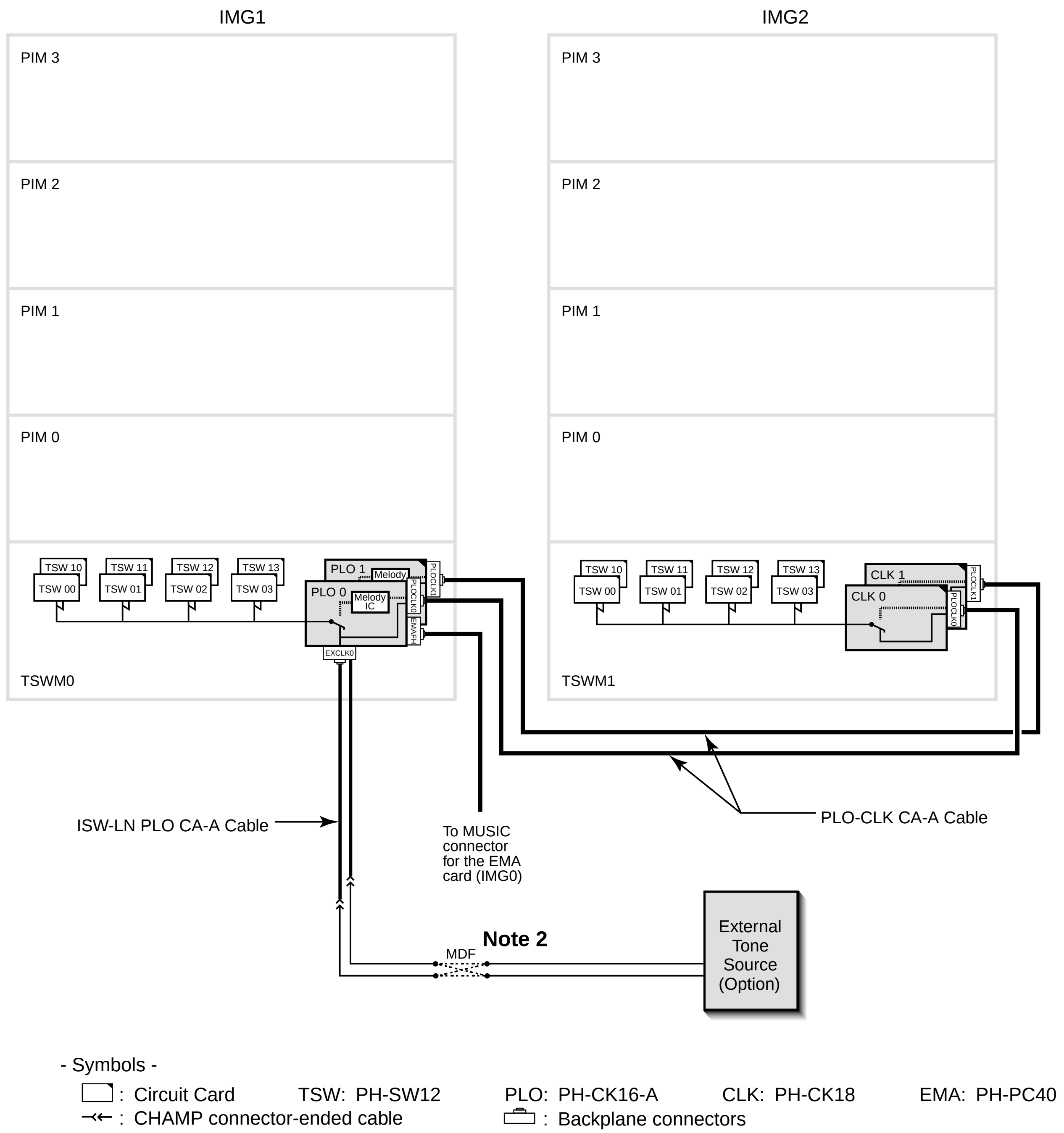
ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

START

- Replace the TSW circuit card with a spare and check.
- When only Hold Tone is faulty.
  - If External Hold Tone source is in use.
    - Check the external equipment which sends out hold tone.
    - Check cross connections on the MDF. Figure 5-23 shows a block diagram of external hold tone supply (optional).
  - Replace the PLO circuit card with a spare.
    - Set the MB switch of the PLO circuit card to UP side and extract the circuit card from its mounting slot.
    - Make necessary switch settings on the new circuit card, referring to the card extracted.
    - Set the MB switch of the new circuit card UP and insert the circuit card into its mounting slot.
    - Set the MB switch DOWN.
    - Initialize the system and confirm the tone.

END

This figure shows a block diagram of external hold tone supply (optional) in each Local Node (LN0 - LN3). **Note 1**



Note 1: *External hold tone is supplied to the PLO of local nodes only (all LN0-LN3 except ISW)*
Note 2: *Multiple connection is provided on the MDF also between PLO No. 0 and No. 1 systems.*

Figure 5-23 External Hold Tone Supply Block Diagram

12. SYSTEM DOWN FAULT

This section explains the fault repair procedure when both the CPU and TSW systems are faulty. Figure 5-24 shows the sequence of repair for system down fault.

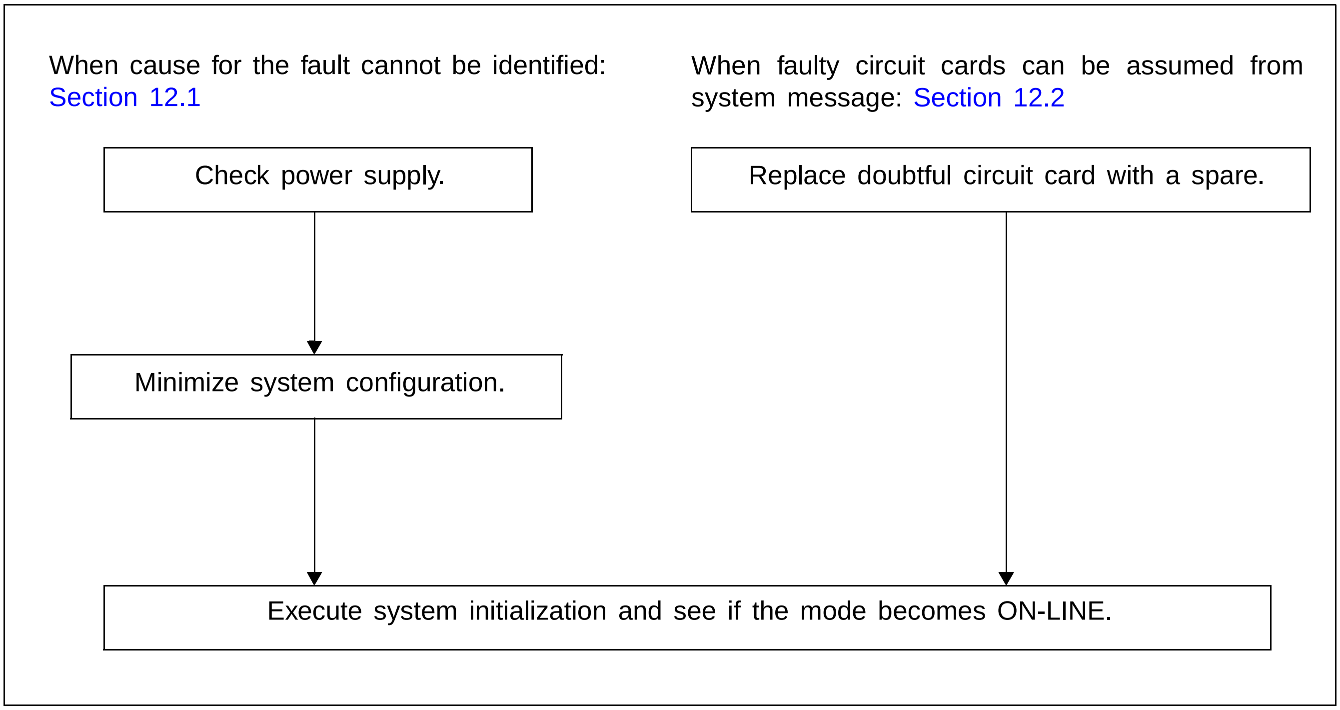


Figure 5-24 System Down Fault Repair Sequence

12.1 When Cause for Fault Cannot Be Identified

START

- Check power supply circuits.
  - Check voltage (DC: -48 V ±5 V) at LOAD side of the rectifier.
  - Confirm that NFB (circuit breaker) on all PWR supplies is at ON position (UP side).
  - Check to see if there is any PWR supply to which the alarm lamp illuminates.
- System Initialization by loading office data and program data from the hard disk (Refer to Section 12, Chapter 6.)
  - Service connections such as station-to-station connection cannot be set up. — See "Check by Minimizing the System Configuration" on the next page.
  - Service connections such as station-to-station connection can be set up. — The data in the memory has been temporarily destroyed. Observe the situation for a while.

END

(1) Check by minimizing the system configuration

- Mount only the basic circuit cards in CPU No. 0 system and initialize.
  - Remove all circuit cards from CPU No. 0 system except the basic circuit cards.

    The circuit cards to be mounted are as follows:
    - LN
      CPU, EMA, GT, TSW, MUX
    - ISW
      CPU, EMA, IOGT, TSW, HSW
  - On the CPU Display Panel (DSP), set its SENSE switch to “1.”
  - Press Reset (RST) button on the DSP.
  - CPU OPE lamp should be illuminated on the DSP.
- Initialization cannot be made.
  - Check by replacing the basic circuit cards individually.
    - Set MB switch of the circuit card UP and extract the circuit card from its mounting slot.
    - Make necessary switch settings on the new circuit card.
    - Set MB switch of the new circuit card UP and insert the circuit card into its mounting slot.
    - Set MB switch DOWN.
  - On the DSP (CPU), set SENSE switch to “1.”
  - Press RST button on the DSP.
  - CPU OPE lamp should illuminate on the DSP.
  - If CPU OPE lamp of the DSP does not illuminate, replace next circuit card and check it. (Repeat the above steps for all basic circuit cards.)

A

A

- Initialize by loading the office data and Program Data from hard disk using command "MEM_HDD."
  - Set SYSTEM DATA key on the TOPU to LOAD position
  - Using "MEM_HDD," load the office data and Program Data from the Hard Disk into the data memory.
  - Confirm the SENSE switch is set at "2" on the DSP (CPU).
  - Press RST on the DSP.
  - Confirm OPE lamp illuminates on each basic circuit card.
- Insert removed control circuit cards of CPU No. 0 and line/trunk circuit cards into their slots and see if a fault occurs.
  - Set MB switch of the circuit card UP and insert it into its mounting slot. (Repeat this for all the circuit cards.)
  - Set MB switch DOWN and see if a fault occurs.
- Insert control circuit cards of CPU No. 1 system into their mounting slots, and see if a fault occurs.
  - Insert the following control circuit cards of CPU No. 1 system.
    - LN
      CPU, EMA, GT, TSW, MUX
    - ISW
      CPU, EMA, IOGT, TSW, HSW
  - Set MB switch of the circuit card UP and insert the circuit card into its mounting slot. (Repeat this for all the circuit cards.)
  - Set MB switch DOWN and see if a fault occurs.
- After the fault repair, mount all the circuit cards into their mounting slots and execute system initialization. Refer to Section 12, Section 6.
- Confirm that service connections such as Station to Station Connection can be set up between LNs.

END

12.2 When Faulty Circuit Cards Can Be Assumed From System Message

Faulty Situation:

- When the system is down with message [0-C] ~ [0-J] indicated, faulty circuit cards can be assumed from the message detail data. Replace circuit cards with spares.

START

- Replace faulty circuit card with a spare.
  - Set MB switch UP and extract the circuit card from its mounting slot.
  - Make necessary switch settings on the new circuit card.
  - Set the MB switch UP and insert the circuit card into its mounting slot.
  - Set the MB switch DOWN.
- Confirm that service connections such as station-to-station connection can be set up.

END

13. COMMON CHANNEL INTEROFFICE SIGNALING (CCIS) LINE FAULT

This section explains the fault repair procedure when any of the faults shown in Table 5-13 occur to a specific CCIS line.

Table 5-13 CCIS Line Fault Situation

FAULTY SITUATION	REFERENCE SECTION
A specific CCH/CCT card is faulty.	Section 13.3, Specific CCH/CCT Card Is Faulty
When the signal transmission line is a digital line, transmitting/receiving of control signals cannot be performed.	Section 13.4, Fault of CCH, DTI and Related Flat Cable

13.1 Check Point

When repairing a CCIS Line fault, consider the following:

(1) Check alarm lamps on the CCH or CCT circuit card.

(2) Refer to Figure 5-25, and check the cable connection.

13.2 CCIS Line Control

The CCH/CCT circuit card controls the signal link (digital) of the interoffice common channel signaling system and transmitting/receiving call processing information. The signal link controls permit normal transmission and reception of call processing information.

A break in signal links is detected, then restored to establish signal links. The call processing information is converted into No. 7 signal format for channel 1 (any channel) of the DTI before being transmitted to a distant office. Figure 5-25 shows the CCIS line control route.

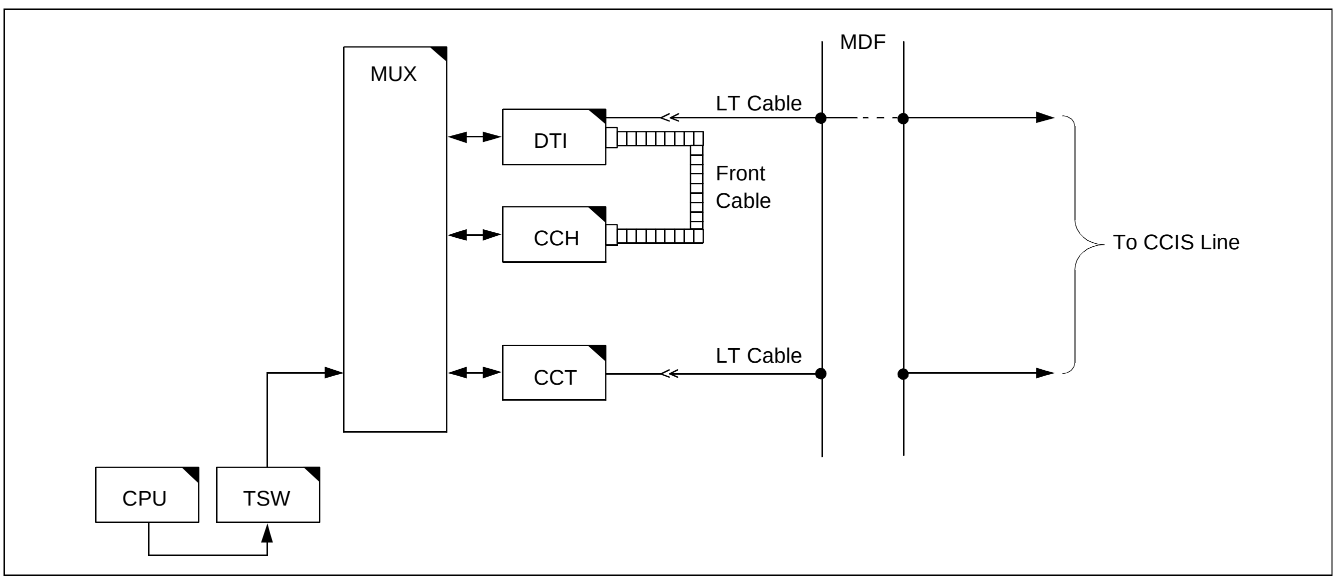


Figure 5-25 Controlling CCIS Line

13.3 Specific CCH/CCT Card Is Faulty

START

- Check by replacing CCH/CCT card with a spare.
  - On CCH/CCT card, set the MBR switch UP.
  - On CCH/CCT card, set MB switch UP and extract the card from its mounting slot.
  - Make switch settings on a new CCH/CCT card, referring to the card extracted.
  - On new CCH/CCT card, set MBR and MB switches UP and insert the card into its mounting slot.
  - On new CCH/CCT card, set MB switch DOWN.
  - On new CCH/CCT card, set MBR switch DOWN.
  - Check whether the fault is still indicated.

END

13.4 Fault of CCH, DTI and Related Flat Cable

START

- Check connectors and flat cables between DTI and CCH.
  - On DTI cards, set MB switch UP. On CCH card, set MBR switch UP.
  - Check the connector.
    - Check whether the connector is correctly connected or not. If the connection is found improper, plug and unplug the connector a few times.
    - On DTI cards, set MB switch DOWN. On CCH card, set MBR switch DOWN.
    - Check whether the fault is still indicated.
  - Check the flat cable.
    - On DTI cards, set MB switch UP. On CCH card, set MBR switch UP.
    - Test the continuity of the flat cable. If found to be abnormal, replace the flat cable with a spare.
    - On DTI cards, set MB switch DOWN. On CCH card, set MBR switch DOWN.
    - Check whether the fault is still indicated.
- Check by replacing the DTI card with spare.
  - On DTI card, set MB switch UP and extract the card from the mounting slot.
  - On a new DTI card, make the switch setting, referring to the replaced card.
  - On new DTI card, set MB switch UP and insert the card into the mounting slot.
  - On new DTI card, set MB switch DOWN.
  - Check whether the fault is still indicated.

END

14. INTEGRATED SERVICE DIGITAL NETWORK (ISDN) LINE FAULT

This section explains the fault repair procedure when any of the faults shown in Table 5-14 occur to a specific ISDN.

Table 5-14 ISDN Line Fault Situation

FAULTY SITUATION	REFERENCE SECTION
A specific CCH/CCT card is faulty.	Section 14.3, Specific DCH/PRT Card Is Faulty
When the signal transmission line is a digital line, transmitting/ receiving of control signals cannot be performed.	Section 14.4, Fault of DCH, DTI and Related Flat Cable

14.1 Check Point

When repairing an ISDN line fault, consider the following items:

(1) Check alarm lamps on the DCH or PRT circuit card.

(2) Refer to Figure 5-26, and check the cable connection.

14.2 ISDN Line Control

The DCH/PRT circuit card controls the signal link (digital) of the ISDN line and transmits/receives call processing information.

The signal link controls permit normal transmission and reception of call processing information. Figure 5-26 shows the ISDN line control route.

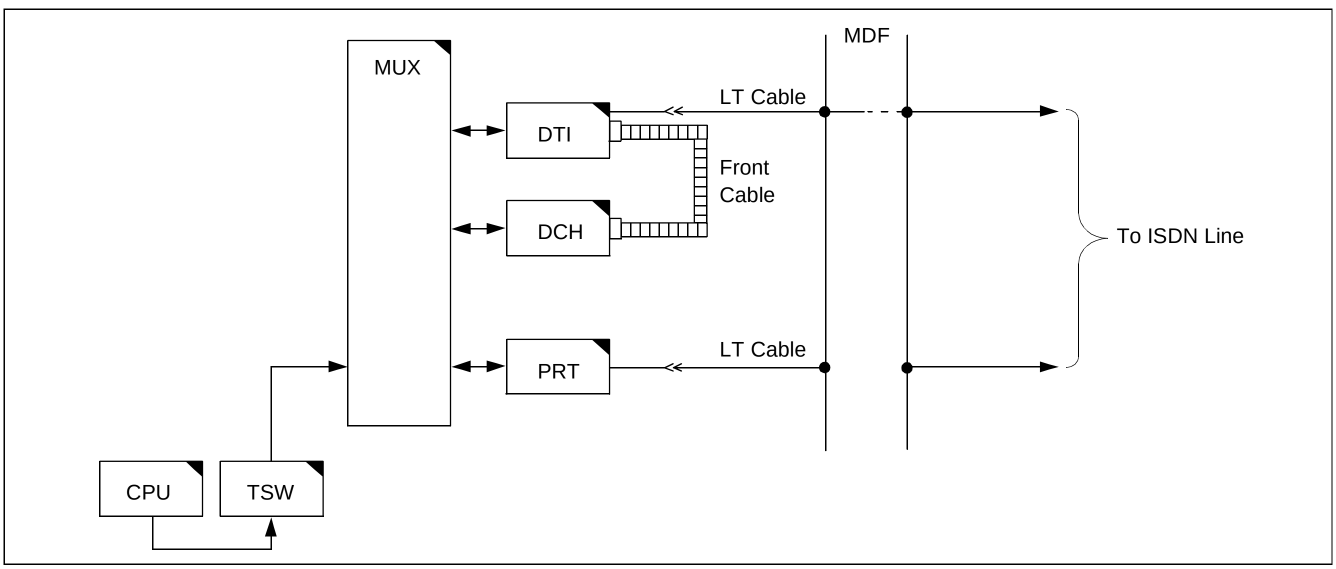


Figure 5-26 Controlling ISDN Line

14.3 Specific DCH/PRT Card Is Faulty

START

- Check by replacing the DCH/PRT card with a spare.
  - On DCH/PRT card, set MBR switch UP.
  - On DCH/PRT card, set MB switch UP and extract the card from its mounting slot.
  - Make switch setting on a new DCH/PRT card, referring to extracted card.
  - On new DCH/PRT card, set MBR and MB switches UP and insert the card into its mounting slot.
  - On new DCH/PRT card, set MB switch DOWN.
  - On new DCH/PRT card, set MBR switch DOWN.
  - Check whether the fault is still indicated.

END

14.4 Fault of DCH, DTI and Related Flat Cable

START

- Check the connectors and flat cables between DTI and DCH.
  - Check the connector.
    - On DTI cards, set MB switch UP. On DCH card, set MBR switch UP.
    - Check whether the connector is correctly connected. If the connection is found improper, plug and unplug the connector a few times.
    - On DTI cards, set MB switch DOWN. On DCH card, set MBR switch DOWN.
    - Check whether the fault is still indicated.
  - Check the flat cable.
    - On DTI cards, set MB switch UP. On DCH card, set MBR switch UP.
    - Test the continuity of the flat cable. If abnormal, replace the flat cable with spare.
    - On DTI cards, set MB switch DOWN. On DCH card, set MBR switch DOWN.
    - Check whether the fault is still indicated.
- Check by replacing the DTI card with a spare.
  - On DTI card, set MB switch UP and extract the card from the mounting slot.
  - On a new DTI card, make switch setting.
  - On new DTI card, set MB switch UP and insert the card into the mounting slot.
  - On new DTI card, set MB switch DOWN.
  - Check whether the fault is still indicated.

END

15. HARD TIME CLOCK FAULT

This section explains the procedure for repairing a hard time clock failure which occurs within the EMA card.

START

- Replace the EMA card. — Replace the EMA card referring to Section 1.3.2, EMA Card Replacement Procedure, Chapter 4.

  WARNING If the EMA card is removed from the system while the system is in operation under the control of the CPU 1, the system will reset and stop all call processing. See Section 1.3.2, EMA Card Replacement Procedure, Chapter 4, for detailed instructions.

END

CHAPTER 6 SYSTEM OPERATIONS

To maintain the system in a normal state, maintenance technicians need to monitor the servicing status of the system. Figure 6-1 shows the flow of the system status monitor.

When trouble occurs in any part of the system or to any phase of system operations, maintenance technicians are alerted by an alarm indication or by a report from a station user or an operator. When the system becomes overloaded, maintenance technicians can execute Line Load Control.

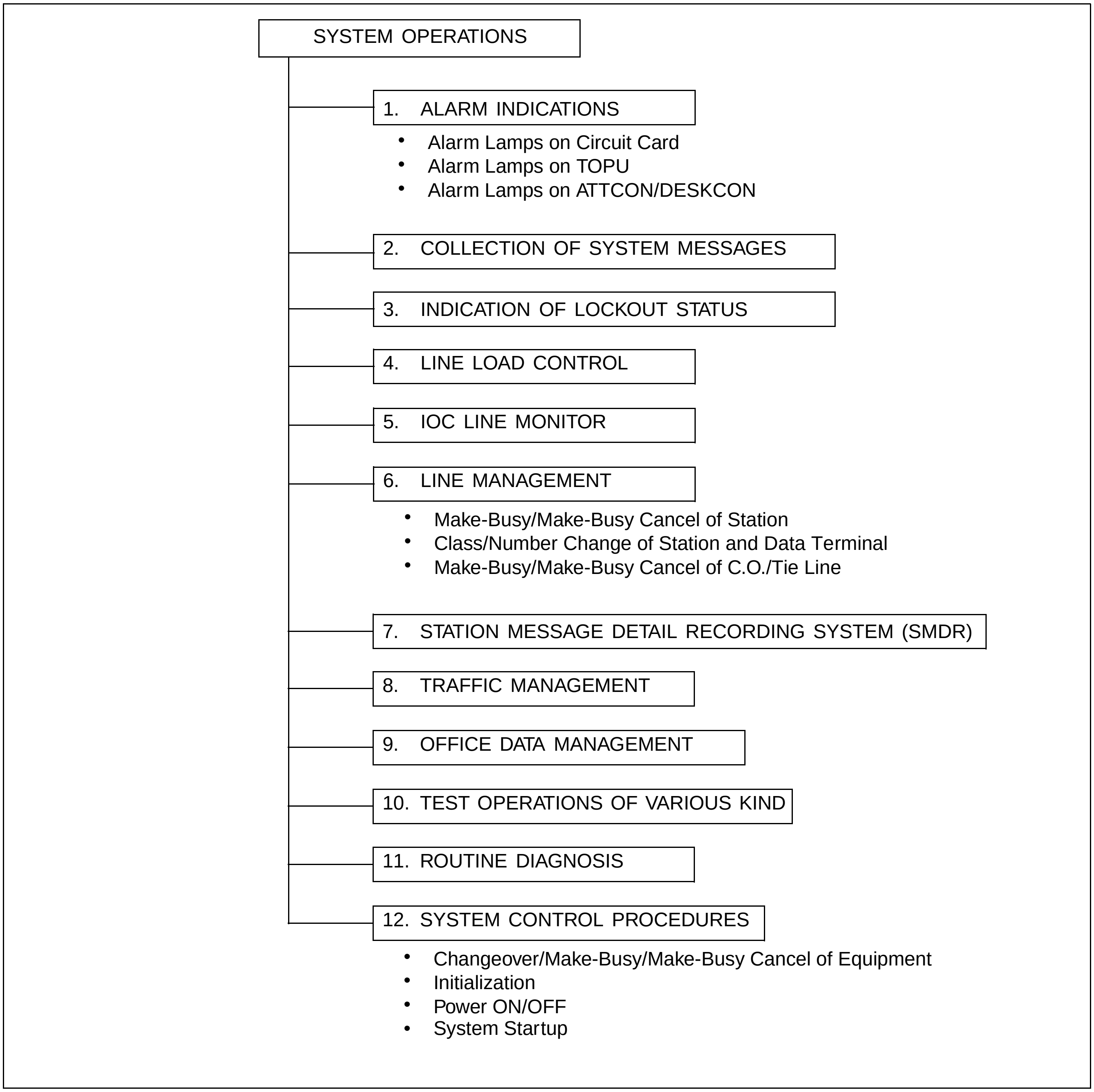


Figure 6-1 System Status Monitor

1. ALARM INDICATIONS

When trouble occurs in the system, the system activates an appropriate remedial action (system changeover, make-busy shift of the circuit card, restart processing, etc.) by executing the automatic diagnostic function. Results of the action taken and the faulty situation are displayed.

1.1 Kinds of Alarm Indications

Figure 6-2 shows the kinds of alarm indications.

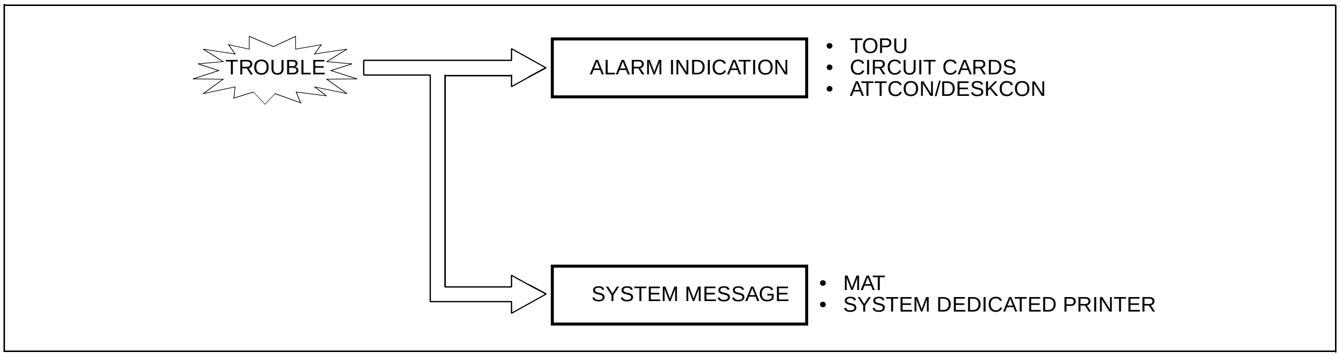


Figure 6-2 Alarm Indications

1.2 How to Stop Alarm Indications

To stop the alarm indication, press ALM RST key on the TOPU or use the RALM/RALMN command.

Note: *If the RALM/RALMN command is executed, the system messages that show the reason for the failure will be cleared. Always print the indicated system message before using this command.*

1.3 Alarm Indications on TOPU

The system has alarm lamps on the TOPU as shown in Figure 6-3. Table 6-1 lists the meaning of each lamp.

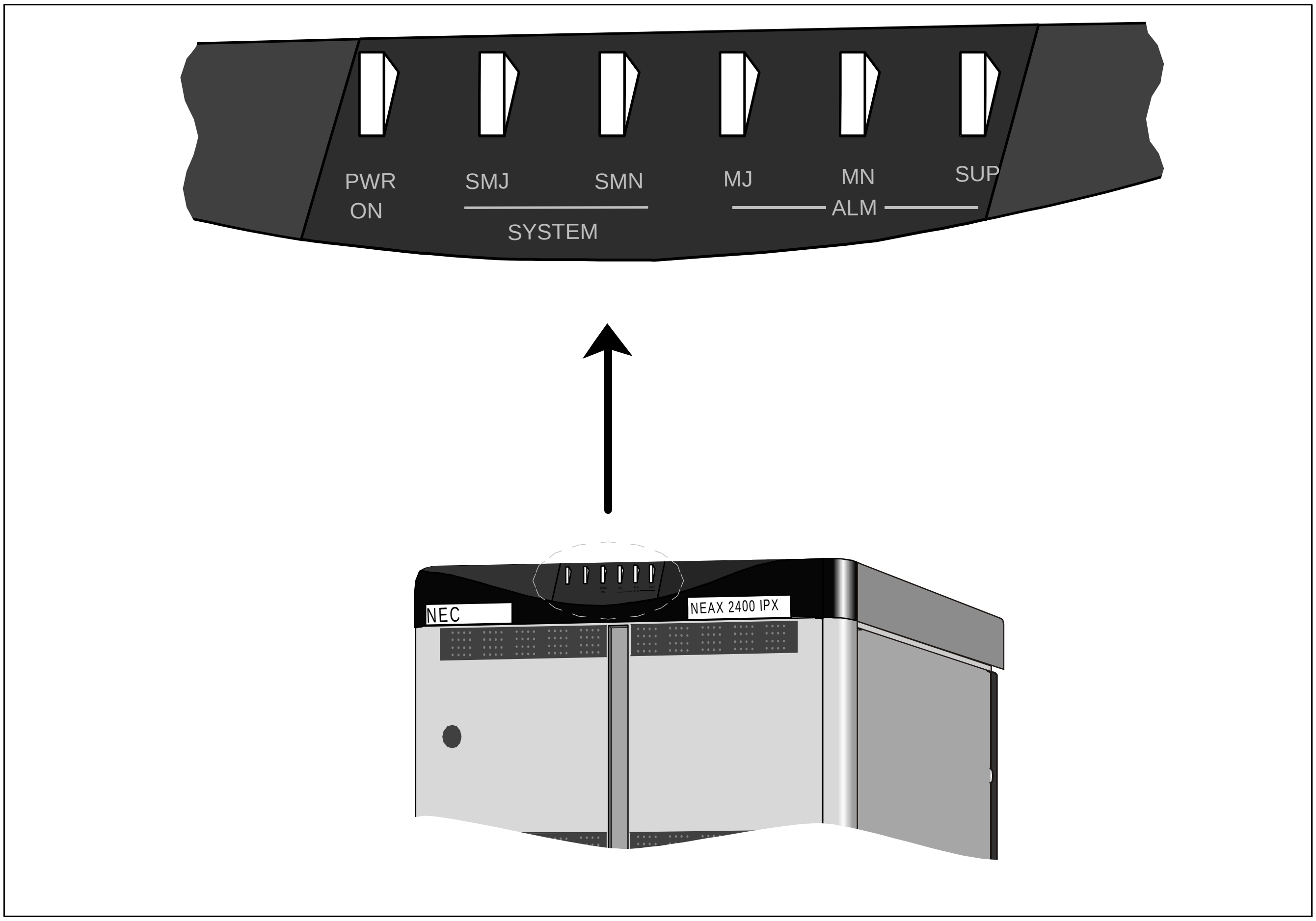


Figure 6-3 Alarm Indications on TOPU

Table 6-1 Description of Alarm Indications on TOPU

LAMP	COLOR	FUNCTION	CONTENTS
PWR ON	Green	Power ON Indication	Lights when the power is turned ON to the LPM (EMA card mounted)
ALM MJ	Red	Alarm urgency level indicating lamps for each IMG/ISW	The kind of lamp indications are programmable by variable alarm indication. Refer to Section 1.4, Variable Alarm Indication.
ALM MN	Red		
ALM SUP	Yellow		
SMJ	Red	Alarm urgency level indicating lamps for IMG0 of LN/ISW	LN: Lights when any abnormal state is detected within the node. ISW: Lights when any abnormal state is detected with ISW.
SMN	Red		

1.4 Variable Alarm Indication

This feature allows PBX users to make a flexible change of system message output grades which range 0 to 3 and alarm lamp grades which consist of MJ, MN, SUP and NONE. Thus, the PBX users can give a proper alarm grade to each system message according to their requirements. When assigning no data, the default alarm grades are automatically adopted.

COMMAND	COMMAND FULL NAME
ALMG	Assignment of Alarm Grade Data

2. COLLECTION OF SYSTEM MESSAGES

System messages are collected in the following ways:

- Automatic printout to the system message dedicated printer
- Automatic printout to the MAT printer
- Printout by DFTD command

2.1 Automatic Printout to System Message Dedicated Printer

Figure 6-4 shows the operating procedure.

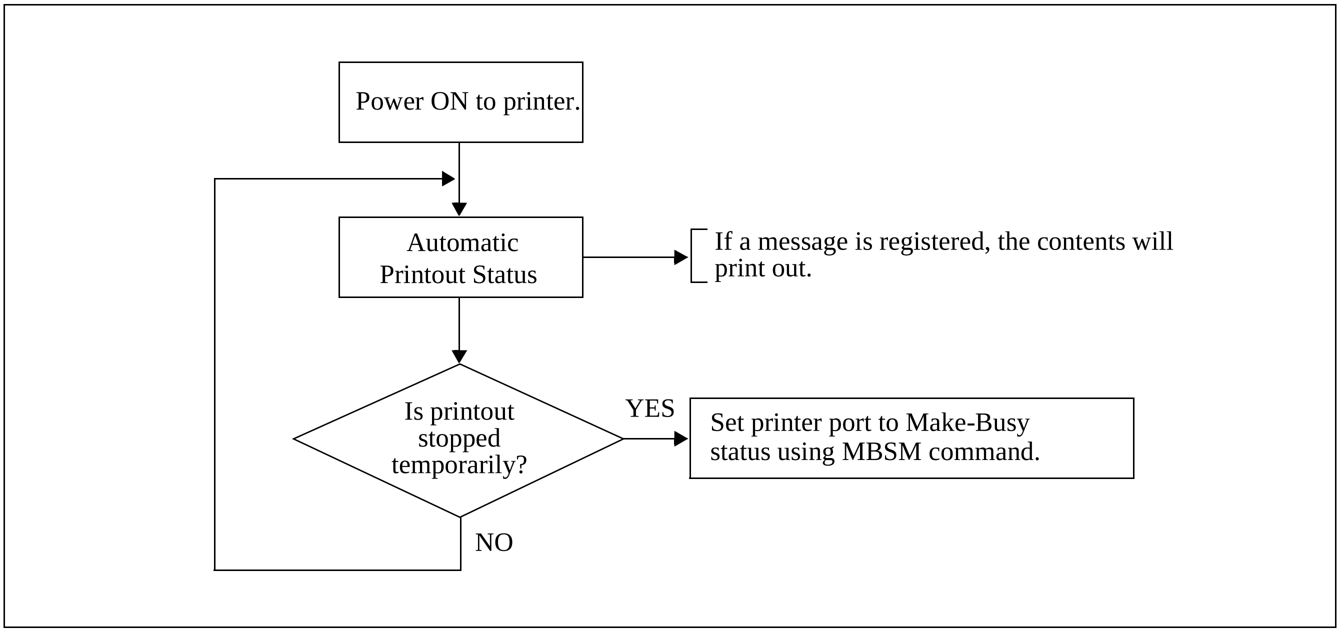


Figure 6-4 Automatic Printout to System Message Dedicated Printer Operating Procedure

COMMAND	COMMAND FULL NAME
MBSM	Make Busy of System Message Printout

2.2 Display on MAT

Set Scanning to Scanning ON (default) on the Scanning PBX form to collect system messages. If any message is collected, the information is displayed in the text box on the DFTD command form.

3. INDICATION OF LOCKOUT STATIONS

When a station is in lockout status (permanent signaling state, shorting across speech wires, etc.), it can quickly be discovered, preventing the situation from developing into serious trouble.

3.1 Indicating Method

By entering the following commands from the MAT, information pertaining to the lockout station concerned will display.

COMMAND	COMMAND FULL NAME
DLSL	Display of Lockout Station - LENS
DLSS	Display of Lockout Station - Number

3.2 Recovery Procedure

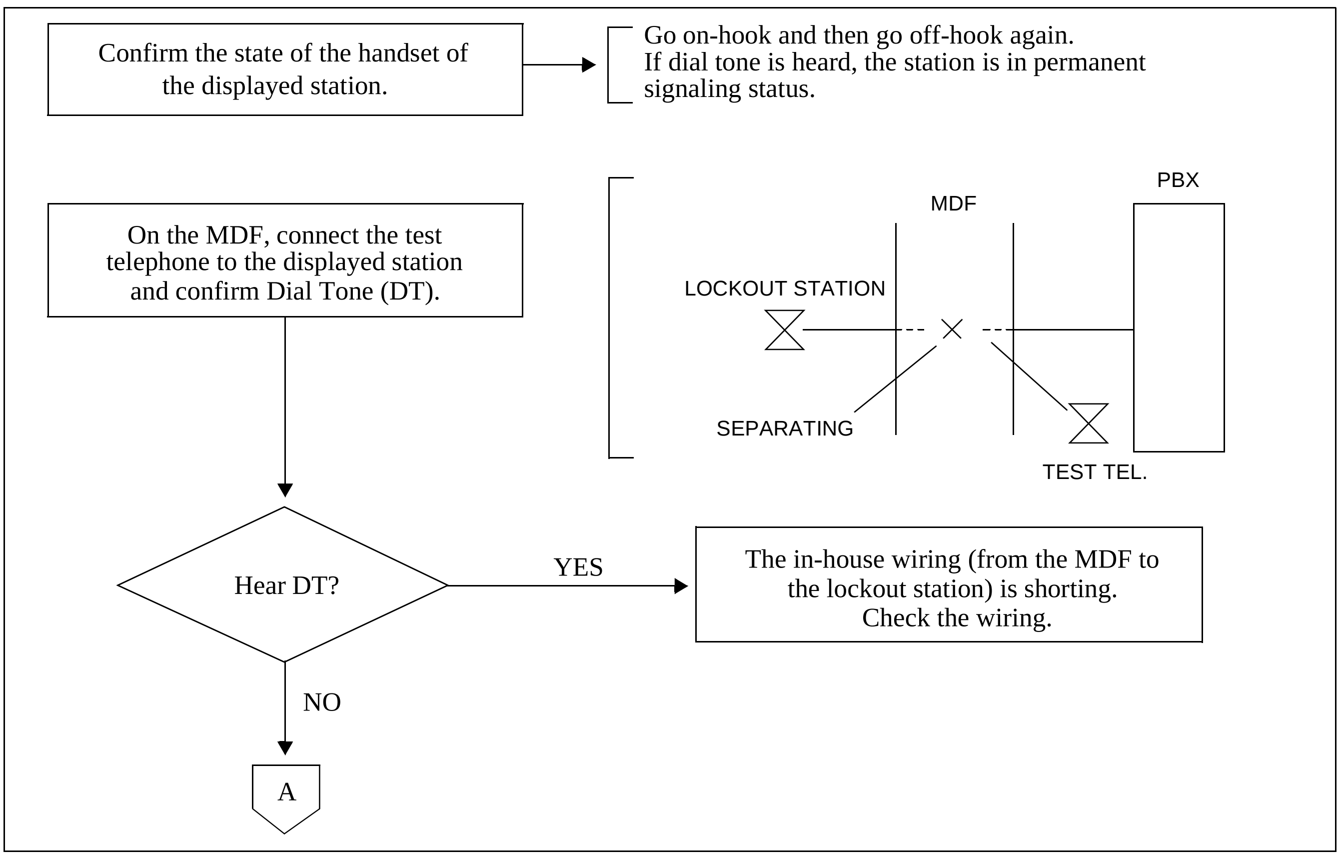


Figure 6-5 Recovery Procedure From Lockout Station (1/2)

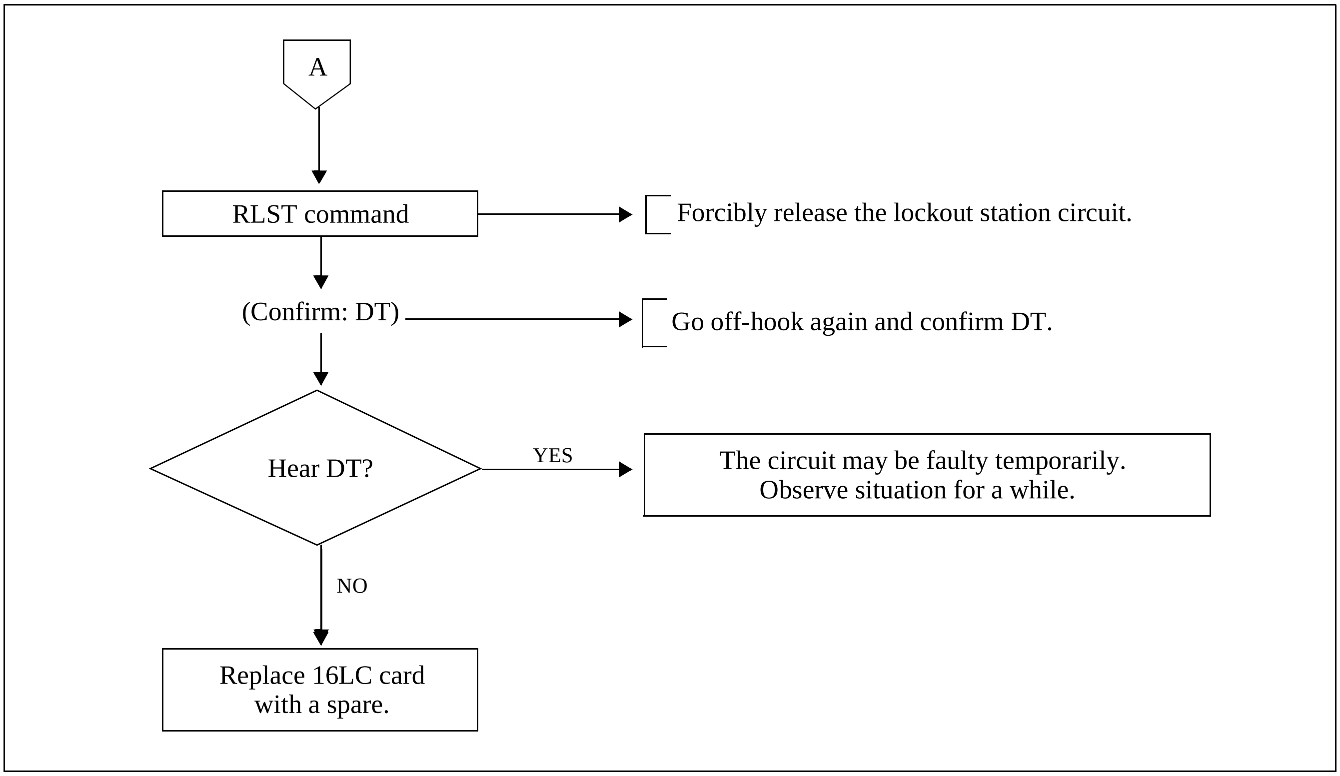


Figure 6-5 Recovery Procedure From Lockout Station (2/2)

COMMAND	COMMAND FULL NAME
RLST	Release Station/Trunk

4. LINE LOAD CONTROL

In the PBX, Line Load Control can be activated automatically or manually as a countermeasure against abnormal traffic congestion.

In the case of automatic control, the system automatically monitors an overloaded situation and restricts outgoing calls from stations and incoming calls from trunks.

In the case of manual control, the operator at an Attendant/Desk Console or the MAT restricts outgoing calls from stations and incoming calls from trunks.

This section covers the following methods to activate Line Load Control:

- Control by dialing an access code from theATTCON/DESKCON
- Control by entering command data from the MAT
- System Automatic Monitoring

4.1 Operating Procedure

(1) Key operations on the Attendant Console (ATTCON)

By the operations on the ATTCON, restriction is effected on an outgoing call from a station having SFC in which the SFI = 16 (Line Load Control) of ASFC command is set as RES=0 (incoming calls to that station are allowed). For restricting incoming calls from a trunk, system data ASYD, SYS1, INDEX59, b0=1 should be assigned.

- Setting

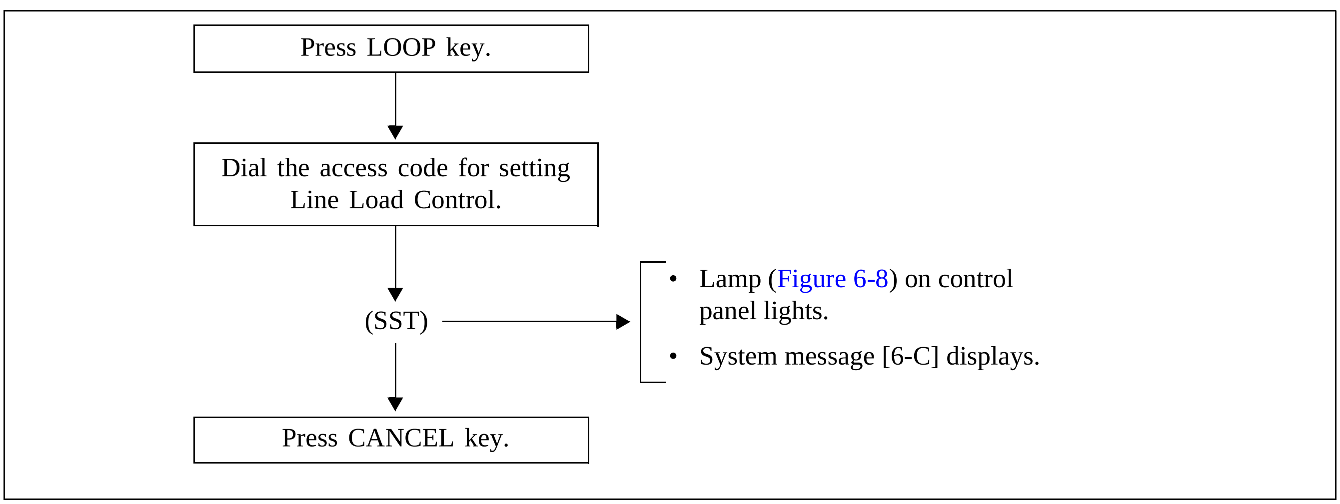


Figure 6-6 Line Load Control Operations on ATTCON—Setting

- Cancelling

Press LOOP key.

↓

Dial the access code for cancelling Line Load Control.

↓

(SST) →
- Lamp (Figure 6-8) on control panel lights.
- System message [6-D] displays.

↓

Press CANCEL key.

Figure 6-7 Line Load Control Operations on ATTCON—Cancelling

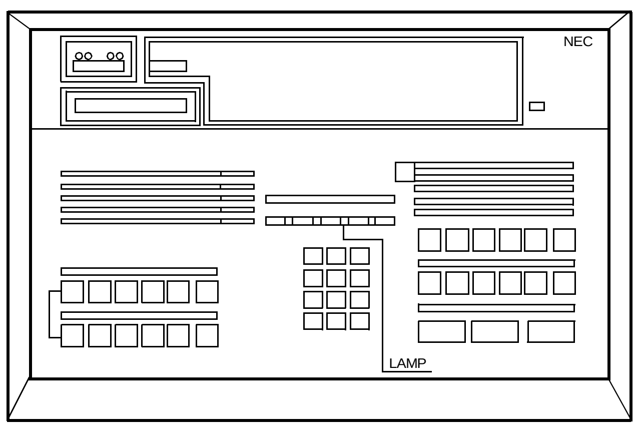


Figure 6-8 Line Control Indication (ATTCON)

(2) Key Operations on the Desk Console (DESKCON)

By the operations on the Desk Console, restriction is applied on an outgoing call from a station having SFC in which the SFI = 16 (Line Load Control) of ASFC command is set as RES=0 (incoming calls to that station are allowed). For restricting incoming calls from a trunk, system data ASYD, SYS1, INDEX59, b0=1 should be assigned.

- Setting

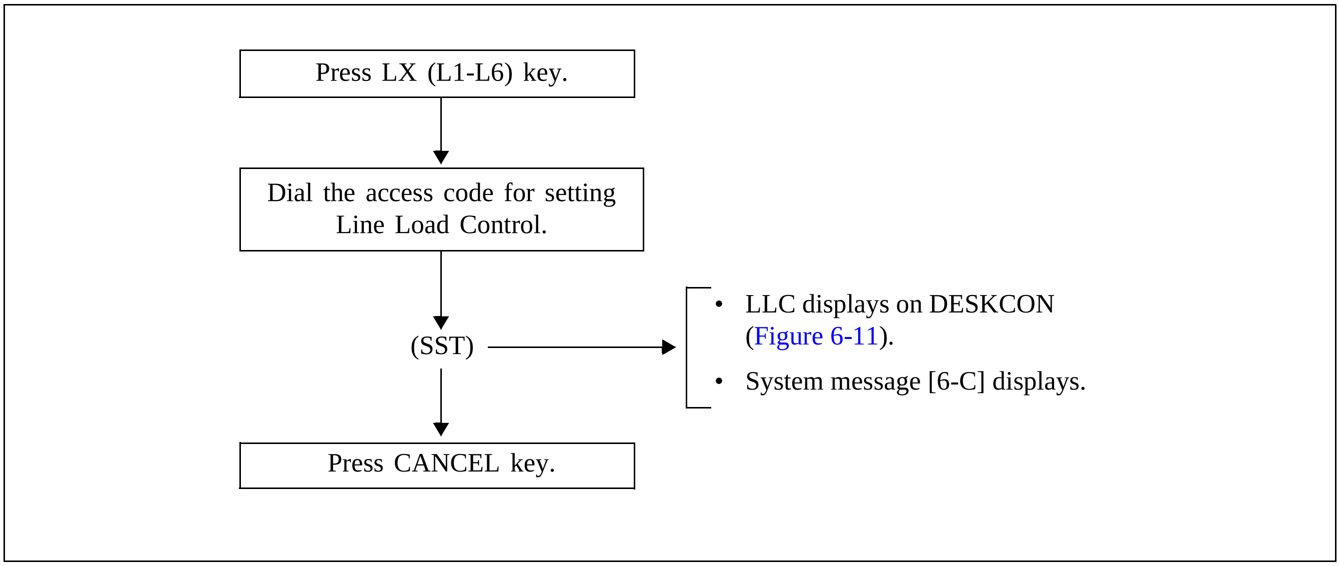


Figure 6-9 Line Load Control Key Operations on DESKON—Setting

- Cancelling

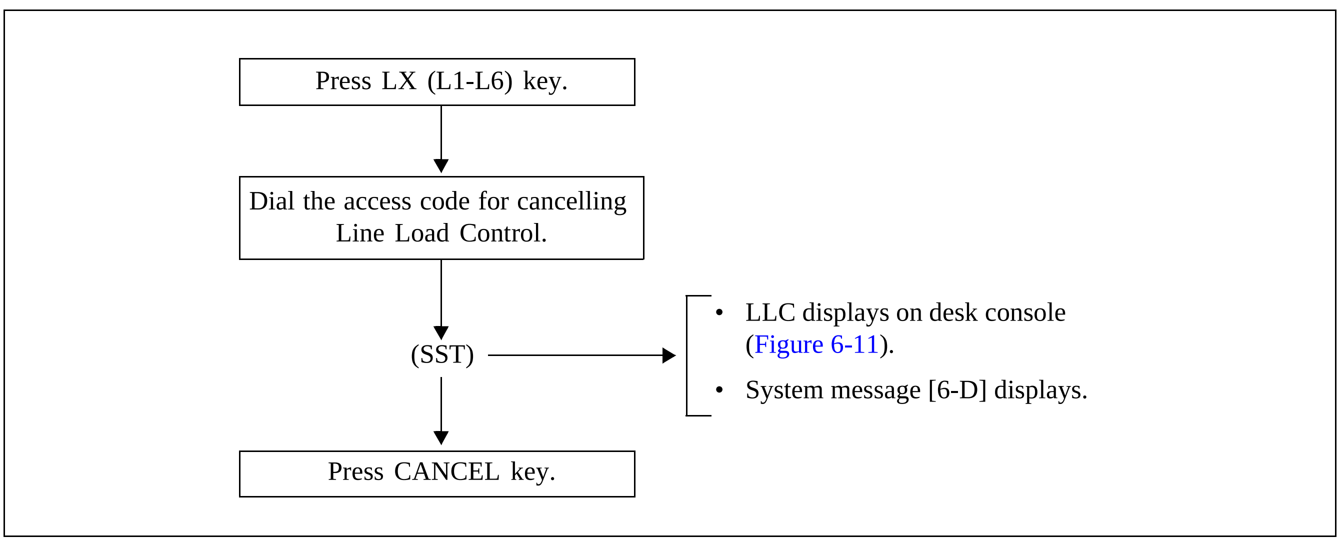


Figure 6-10 Line Load Control Key Operations on DESKON—Cancelling

LLC is displayed on a Desk Console, when Line Load Control starts.

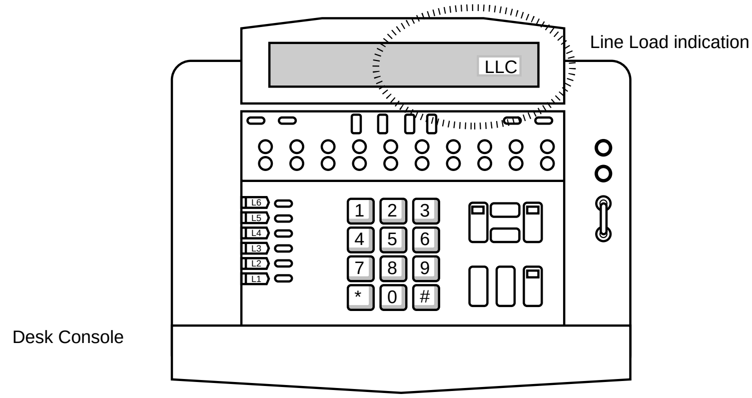


Figure 6-11 Line Load Control Indication (DESKCON)

(3) Operations on the MAT

By entering ALLC command from the MAT, Line Load Control executes. The station to be controlled and the contents of the Line Load Control executed on the MAT are the same as those in Step (1), Key operations on the Attendant Console (ATTCON).

COMMAND	COMMAND FULL NAME
ALLC	Assignment of Line Load Control

(4) Automatic Setting

If the usage rate of the CPU exceeds the system data usage rate, Line Load Control is automatically set. In this case, system message [6-C] displays. The station to be controlled and the contents of the Automatic Line Load Control are the same as those in Step (1), Key operations on the Attendant Console (ATTCON).

If the usage rate of the CPU drops below the system data usage rate, the Line Load Control is automatically cancelled. In this case, system message [6-D] displays. While the Line Load Control is set, the lamps on the control panel of theATTCON/DESKCON remain lit.

5. IOC LINE MONITOR

(1) Functional Outline

This function monitors the IOC port status. As a result of the monitoring by this function, the following is executed:

- When the connection with a port has been disconnected, it is reported by a message.
- When the connection with a port is set up, it is reported by a message.
- The port status is stored in the memory and updated continuously.

(2) Message Judgment Criteria

Message Judgement Criteria are as described in Table 6-2.

Table 6-2 Message Judgment Criteria

MESSAGE	CONTENT
Port Normal	System data is assigned, and DR signal is ON.
Port Abnormal	System data is assigned, and DR signal is OFF.
Output of Port Disconnected	This message is output when Port Abnormal status has lasted for 30 seconds. This message is immediately output if port abnormal occurs after the IOC card is initialized.
Output of Port Status Restored	This message is output when DR signal is ON for the port about which Output of Port Disconnected message is output.

6. LINE MANAGEMENT

The following explanations apply to line management:

- Make-Busy/Make-Busy Cancel of Station and Data Terminal
- Class Change and Number Change of Station and Data Terminal
- Make-Busy/Make-Busy Cancel of C.O. Line/Tie Line

6.1 Make-Busy/Make-Busy Cancel of Station and Data Terminal

Stations can be put into make-busy state by the following operations:

(1) On each station basis using the MBST command.

- Assign the station number in the STN parameter and choose “1” for the MB box of the MBST command.
- For the make-busy cancellation, choose “0” for the MB box.

(2) On each circuit basis using the MBLE command.

- Assign LENS number in the LENS parameter and choose “1” for the MB box of the MBLE command.
- For the make-busy cancellation, choose “0” for the MB box.

(3) On each circuit card basis using the MBPM command or operating the MB (toggle) key on the card.

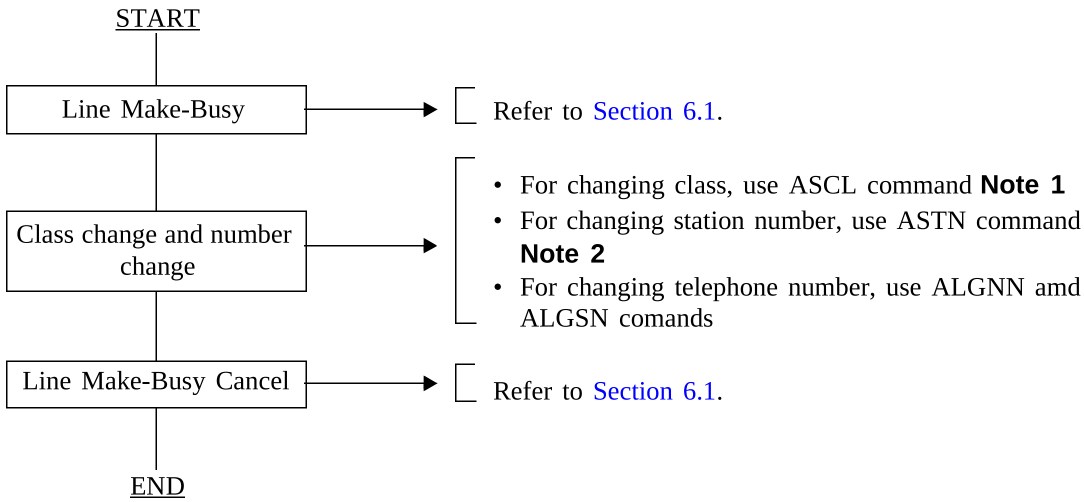
- Assign the required LENS number in the MG, UNIT and Group parameters and choose “3” for the MB box of the MBPM command.
- For the make-busy cancellation, choose “2” for the MB box.

or

- Set to UP the MB key on the circuit card (= ON).
- For make-busy cancellation, return the MB key down (= OFF).

6.2 Class Change and Number Change of Station and Data Terminal

Figure 6-12 shows the procedure for class change and number change of station and data terminal.



Note 1: *For guest station of Hotel System, use AGCL command.*

Note 2: *For guest station of Hotel System, use AGSN command.*

Figure 6-12 Class Change and Number Change of Station and Data Terminal Procedure

6.3 Make-Busy/Make-Busy Cancel of C.O. Line/Tie Line

Figure 6-13 shows the procedure to make-busy/make-busy cancel of C.O. line/tie line.

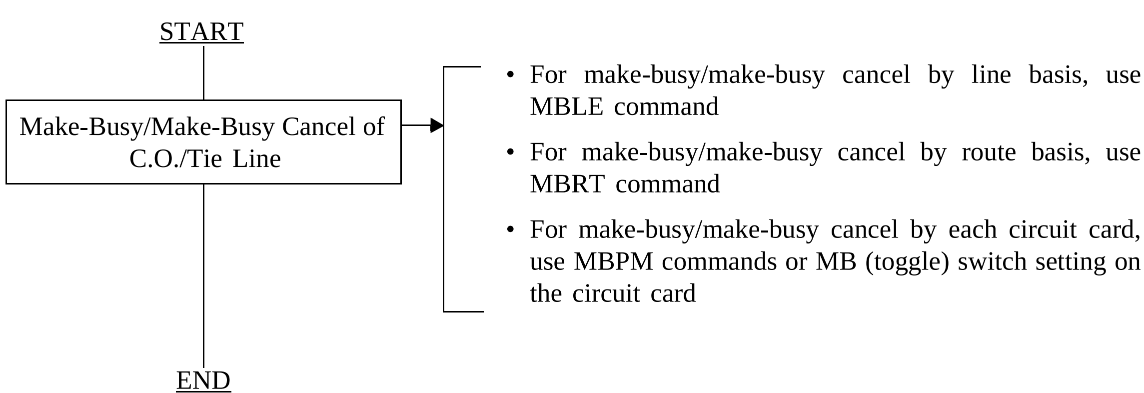


Figure 6-13 Make-Busy/Make-Busy Cancel of C.O. Line/Tie Line Procedure

6.4 Line Management Commands

COMMAND	COMMAND FULL NAME
AGCL	Assignment of Guest Station Class
AGSN	Assignment of Alternated Guest Station Number
ASCL	Assignment of Station Class Data
ASTN	Assignment of Station Number
ALGNN	Assignment of Telephone Number Data for NDM
ALGSN	Allocation of Telephone Number Data for NDM
MBLE	Make Busy of LENS
MBPM	Make Busy of Port Microprocessor
MBRT	Make Busy of Route
MBST	Make Busy of Station
MBTK	Make Busy of Trunk
DLEN	Display of LENS Data

7. STATION MESSAGE DETAIL RECORDING SYSTEM (SMDR)

Billing information can be managed by connecting the PBX system and an external computer (SMDR equipment).

Note: *The SMDR equipment and its software must be provided by the user.*

The PBX system provides the SMDR equipment with the following information:

- Calling Party Information
- Called Party Number
- Call Start Time
- Call End Time
- Authorization Code/Account Code

Upon receiving the above information from the PBX system, the SMDR equipment performs editing and management of the information and outputs the resulting information.

7.1 Transmission Data to SMDR Equipment

(1) Transmission Format

As seen in the figure below, the basic information to be transmitted (Transmission Message) is a block which begins with Start of Text (STX) and ends with End of Text (ETX). When the call ends, the whole contents of this information is transmitted to the SMDR equipment.

STX	SA	UA	TRANSMISSION MESSAGE	ETX

STX:	START OF TEXT
ETX:	END OF TEST
SA:	SYSTEM ADDRESS
UA:	UNIT ADDRESS

(2) Transmission Message

One transmission message consists of 128 bytes of data. Each byte represents by ASCII codes the data to be transmitted (Refer to Table 6-3). The contents of the data to be transmitted vary with the kind of call, but the first byte is always transmitted by ASCII code K (4B hex.). The second byte to be transmitted is the data which specifies the kind of call.

Note: *In case the Fusion service is involved, the message can consist of more than 128 byte data.*

Table 6-3 ASCII Code

CHARACTER	ASCII CODE									REMARKS
	HEX.	BINARY DIGIT								
		b7	b6	b5	b4	b3	b2	b1	b0	
0	30	0	0	1	1	0	0	0	0	
1	31	0	0	1	1	0	0	0	1	
2	32	0	0	1	1	0	0	1	0	
3	33	0	0	1	1	0	0	1	1	
4	34	0	0	1	1	0	1	0	0	
5	35	0	0	1	1	0	1	0	1	
6	36	0	0	1	1	0	1	1	0	
7	37	0	0	1	1	0	1	1	1	
8	38	0	0	1	1	1	0	0	0	
9	39	0	0	1	1	1	0	0	1	
SPACE	20	0	0	1	0	0	0	0	0	Special Characters Code
STX	02	0	0	0	0	0	0	1	0	
ETX	03	0	0	0	0	0	0	1	1	
SA	30	0	0	1	1	0	0	0	0	
UA	21	0	0	1	0	1	0	1	1	
*	2A	0	0	1	0	1	0	1	0	
#	23	0	0	1	0	0	0	1	1	

(3) Text Format

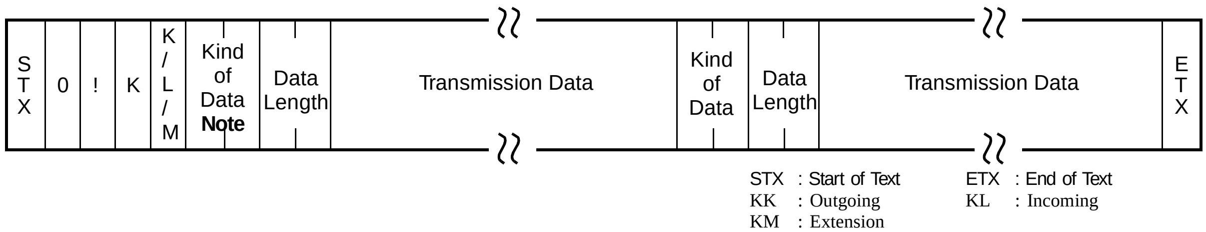
Text formats can be selected by system data. For information on data assigment for SMDR, refer to the “Feature Programming Manual.” Text formats used in the system are as follows:

- IPX format: This format used for both IOC and TCP/IP interface. Refer to Section 7.2
- ICS format: This format used for IOC interface. Refer to Section 7.3.

For detailed information on SMDR TCP/IP interface, refer to Section 7.4.9.

7.2 IPX Format (Text Format of Centralized Billing - Fusion)

Below is the IPX format of billing information to be transmitted to the SMDR equipment. Figure 6-14 shows the transmission message of an outgoing call. Figure 6-15 shows the transmission message of an incoming call. Also, Figure 6-16 shows the transmission message of a station-to-station call.

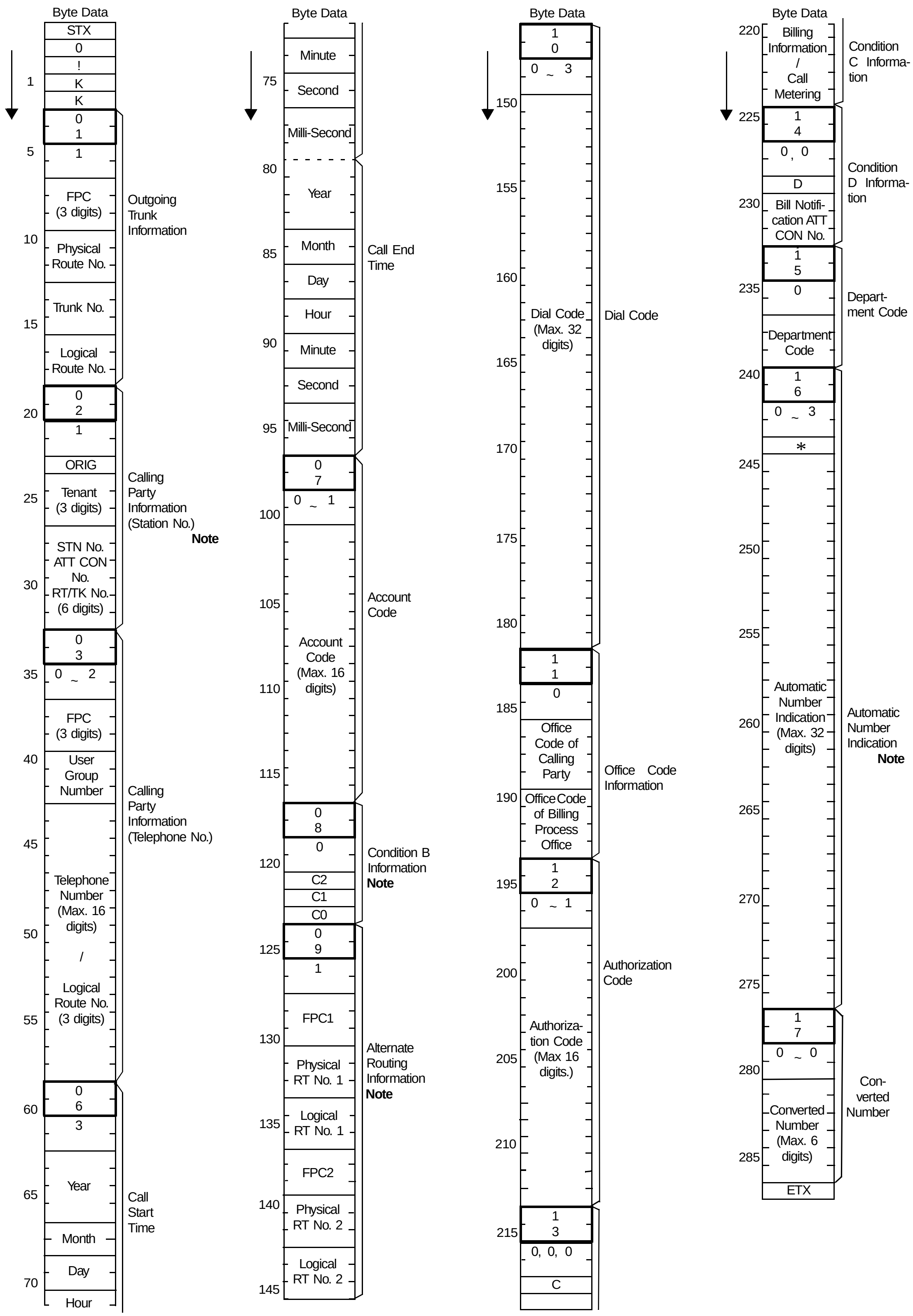


Note: *For details on the Kind of Data, see Table 6-4.*

Table 6-4 Kind of Data

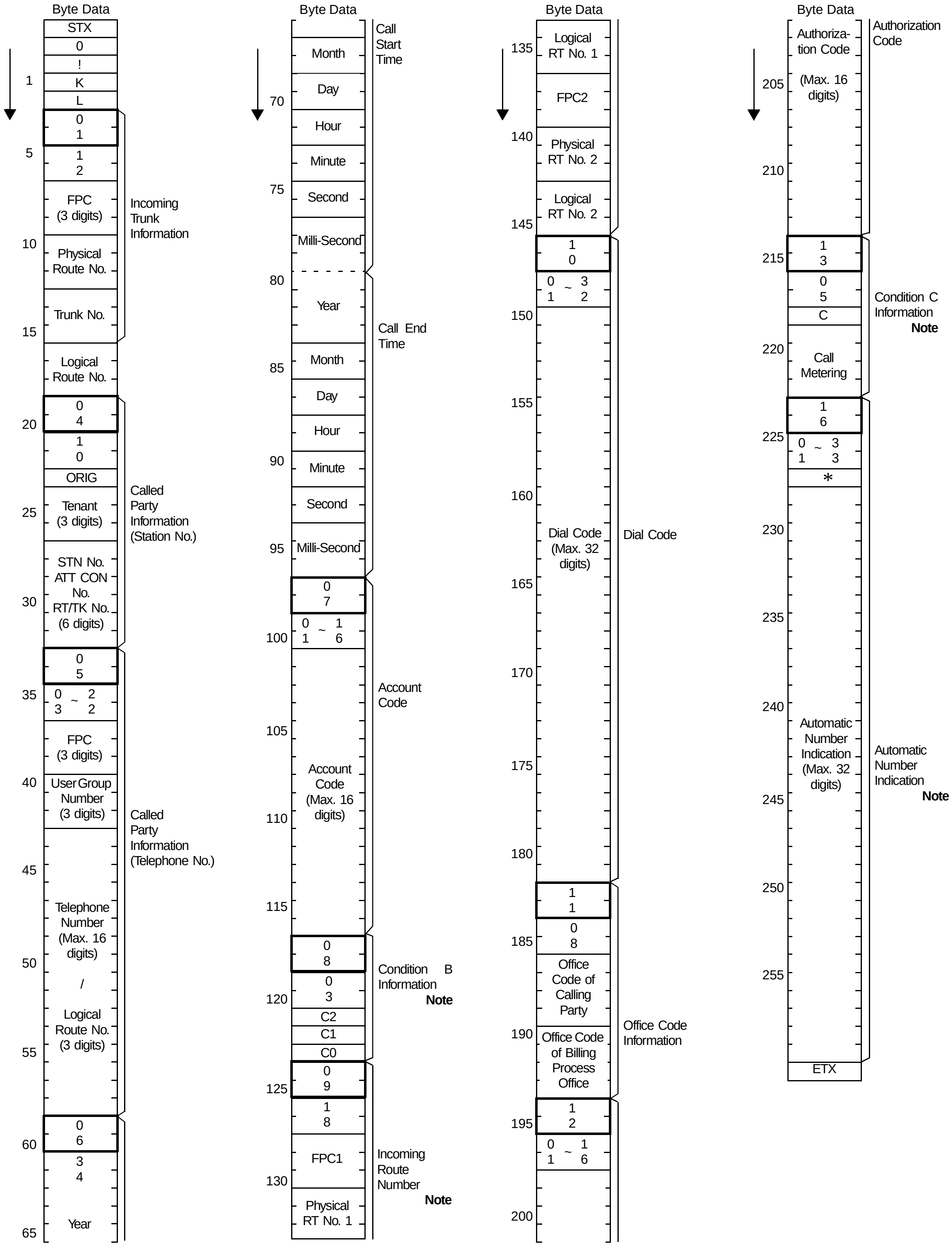
KIND OF DATA	CONTENTS	KK (OUTGOING)	KL (INCOMING)	KM (STATION)
00	Not Used			
01	Outgoing Trunk/Incoming Trunk Information	Provided	Provided	-
02	Calling Party Information (Station Number)	Provided	-	Provided
03	Calling Party Information (Telephone Number)	Conditionally Provided	-	Conditionally Provided
04	Called Party Information (Station Number)	-	Provided	Provided
05	Called Party Information (Telephone Number)	-	Conditionally Provided	Conditionally Provided
06	Call Start/Call End Time	Provided	Provided	Provided
07	Account Code	Conditionally Provided	Conditionally Provided	Conditionally Provided
08	Condition B Information	Provided	Provided	Provided
09	Alternate Routing Information/Incoming Route Number	Provided	Provided	-
10	Dial Code	Provided	Conditionally Provided	-
11	Office Code Information (For CCIS)	Conditionally Provided	Conditionally Provided	-
12	Authorization Code	Conditionally Provided	Conditionally Provided	-
13	Condition C Information + Billing Info/Call Metalling Info	Provided	Conditionally Provided	-
14	Condition D Information + Bill Notification Attendant Console Number	Conditionally Provided	-	-
15	Department Code	Conditionally Provided	-	-
16	Automatic Number Indication	Conditionally Provided	Conditionally Provided	-
17	Converted Number	Conditionally Provided	-	-
18-99	Not Used			

Note: *Conditionally Provided: Information is provided when data is effective.*
Provided: Information is provided on every call with no exception.
-: Not available.



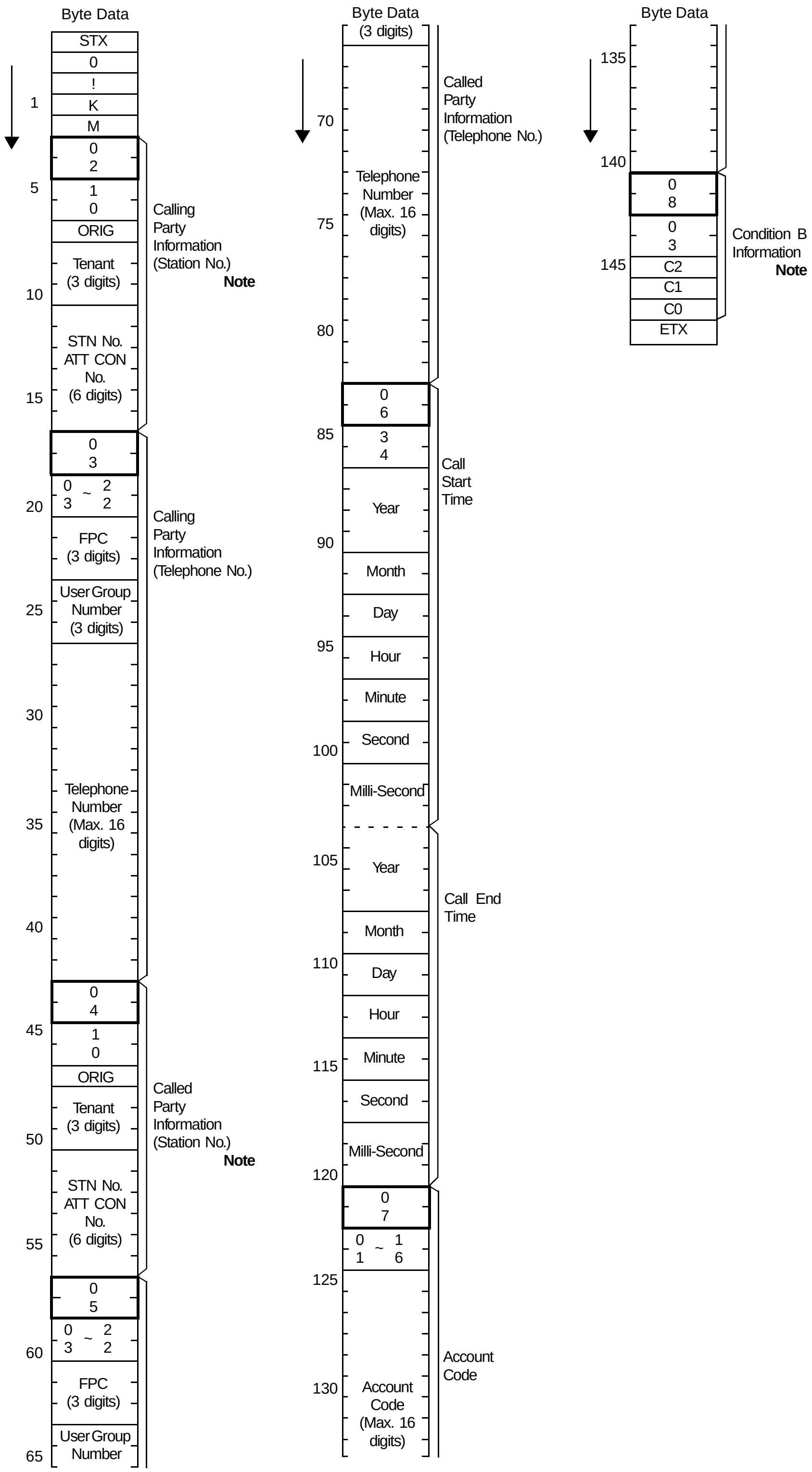
Note: *See Reference 1.*

Figure 6-14 Message Format for Outgoing Call - IPX Format



Note: *See Reference 1.*

Figure 6-15 Message Format for Incoming Call - IPX Format



Note: *See Reference 1.*

Figure 6-16 Message Format for Station-to-Station Call - IPX Format

Reference 1

Data = 02: Calling Party Information (Station Number)
Data = 04: Called Party Information (Station Number)

02 or 04	10	ORIG	Tenant (3 digits)	Station No. ATTCON No. RT / TK No. (6 digits)

ORIG: Originating Source Identification
ORIG = 0: Information on Station
ORIG = 1: Information on Attendant Console
ORIG = 2: Information on Trunk

Data = 08: Condition B Information

08	03	C2	C1	C0

C0 = 0: Call Origination - Direct
1: Call Origination - via ATTCON
2: Call Origination - Direct (Alternate Routing)
3: Call Origination - via ATTCON (Alternate Routing)
4: Call Origination - Direct (LCR Routing)
5: Call Origination - via ATTCON (LCR Routing)
6: Call Origination - Direct (Called No. - first 6 digits of change code)
7: Call Origination - via ATTCON (Called No. - first 6 digits of change code)

C1 = 0: -
1: Call Origination by OG Queuing
2: Call Origination by dialing with Accounted Code
3: Call Origination by OG Queuing & dialing with Accounted Code
4: Call Origination by Call Forwarding Outside
5: -
6: Call Origination by Call Forwarding Outside & dialing with Accounted Code

C2 = 0: -
1: Call was transferred
2: Billing is continued
3: Call was transferred & billing is continued
4: Call was transferred to last called party

Data = 09: Alternate Routing Information (KK) / Incoming Route Number (KL)

09	18	FPC1 (3 digits)	Physical RT No. 1	Logical RT No. 1	FPC2 (3 digits)	Physical RT No. 2	Logical RT No. 2

FPC1:	FPC actually used
Physical Route No. 1:	Physical route actually used
Logical Route No. 1:	Logical route actually used
FPC2:	FPC first selected
Physical Route No. 2:	Physical route first selected
Logical Route No. 2:	Logical route first selected

Data = 13: Condition C Information + Billing Info / Call Metering Info.

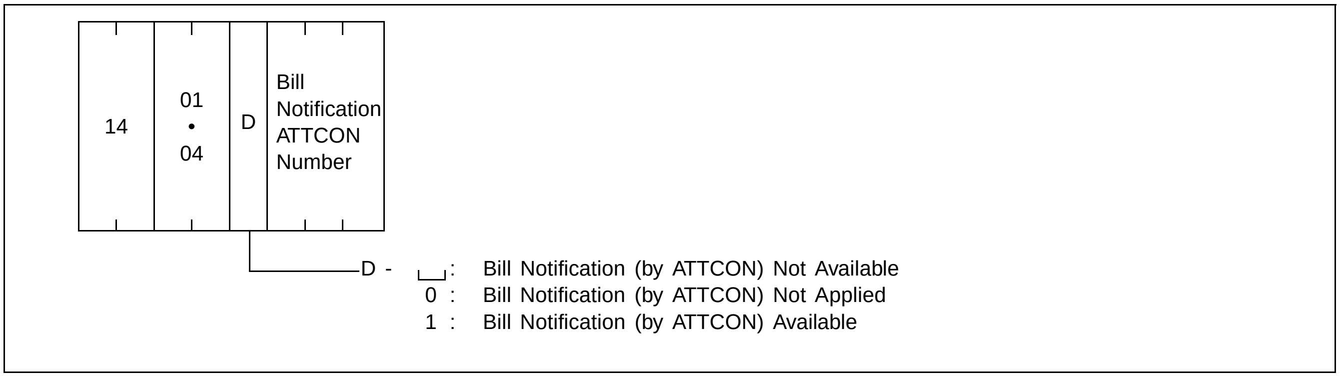
13	01 • 05 • 07	C	Billing Info / Call Metering

Charge Data (Basic Charge Unit x 10^0)
Charge Data (Basic Charge Unit x 10^1)
Charge Data (Basic Charge Unit x10^2)
Charge Data (Basic Charge Unit x10^3)
Charge Data (Basic Charge Unit x10^4)
Charge Data (Basic Charge Unit x10^5)

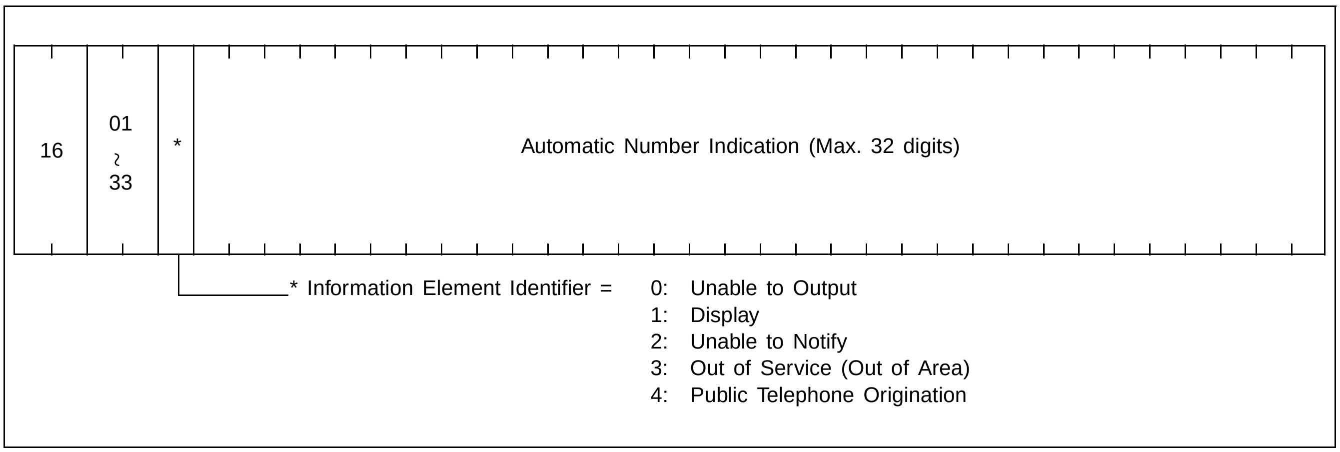
In case of Billing Information

0: No Charge Information
1: Charge Information for 1 cent unit
2: Charge Information for 0.1 cent unit
3: Charge Information for 10 cent unit
4: Charge Information for $1 unit
5: Charge Information for $10 unit
6: Calling Metering (4 digits)
F: Charge Information Error

Data = 14: Condition D Information + Bill Notification ATTCON Number

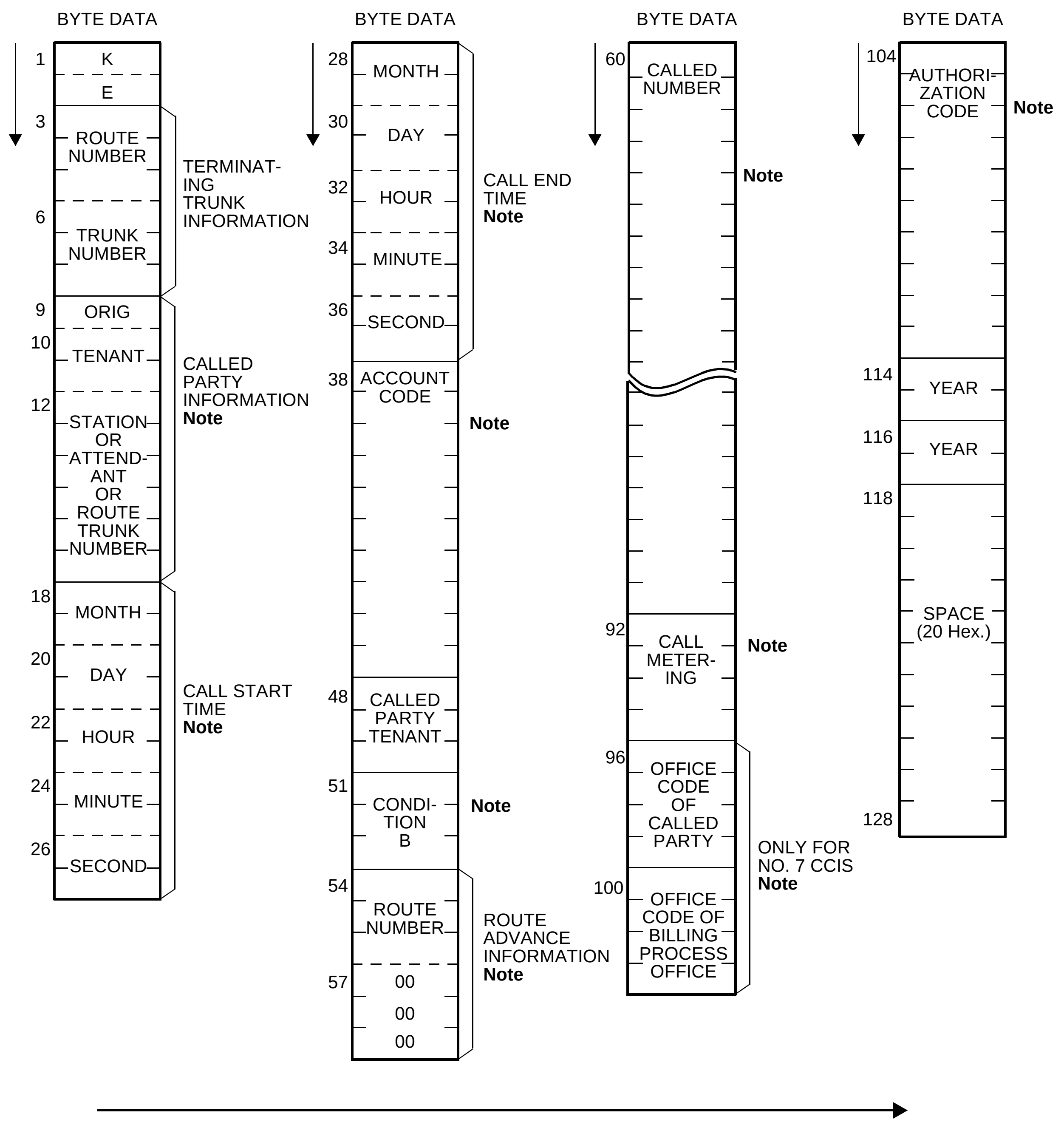


Data = 16: Automatic Number Indication



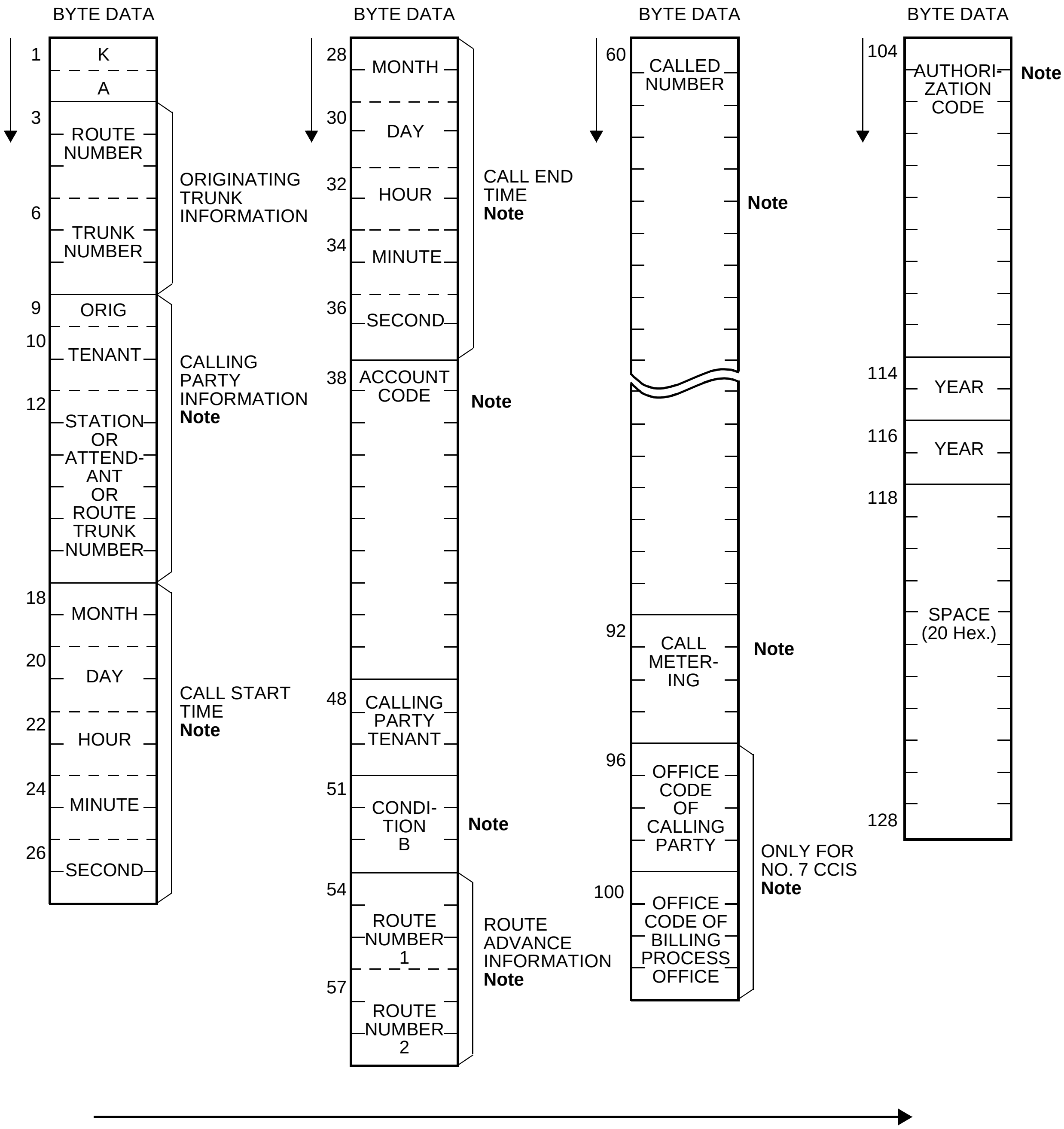
7.3 ICS Format

Below is the ICS format to be transmitted to the SMDR equipment. Figure 6-18 shows the Transmission Message of an outgoing call, and Figure 6-17 shows the Transmission Message of an incoming call. Also, Figure 6-19 shows the Transmission Message of a station-to-station call.



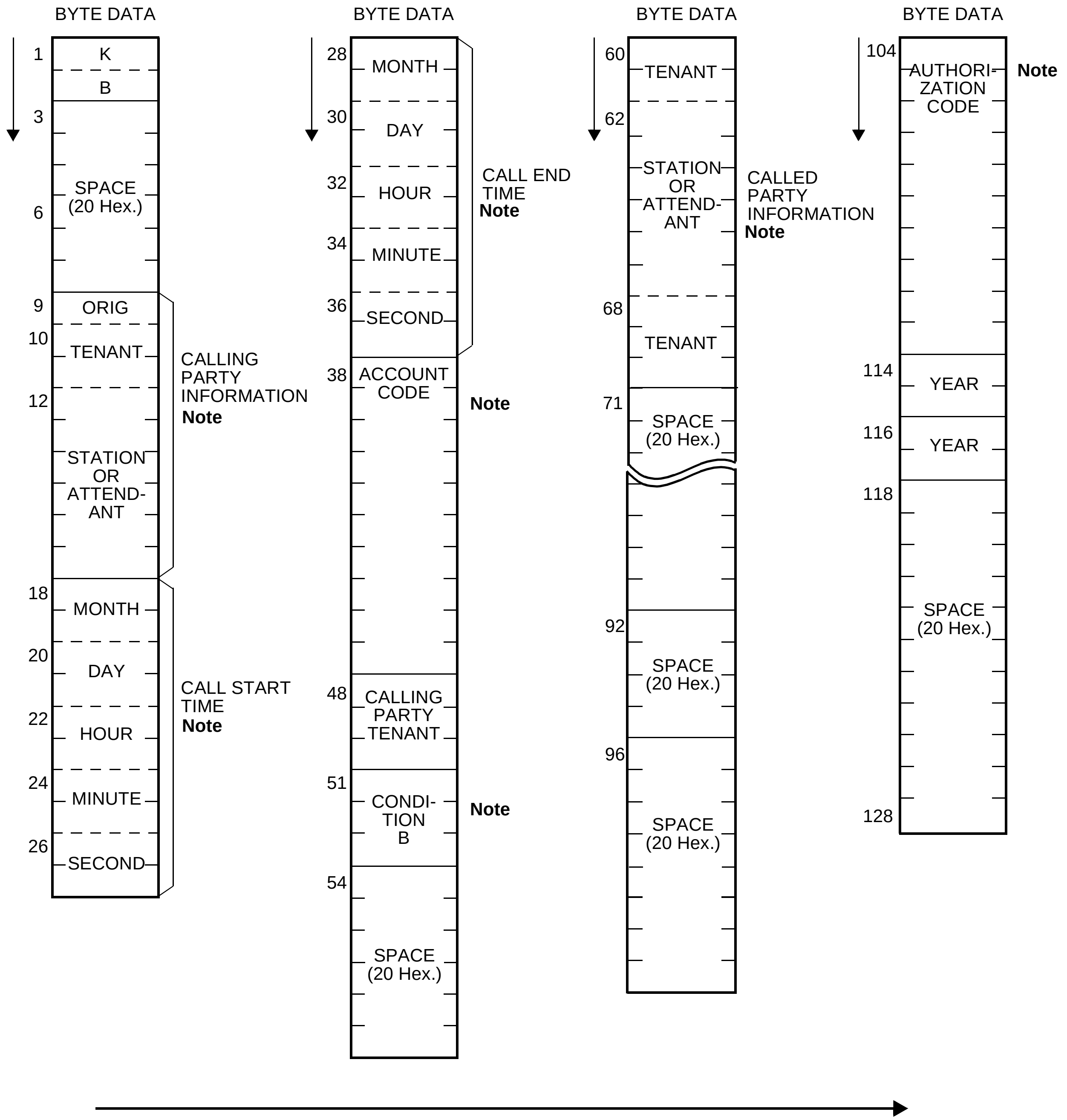
Note: *See Reference 2.*

Figure 6-17 Message Format for Incoming Call - ICS Format



Note: *See Reference 2.*

Figure 6-18 Message Format for Outgoing Call - ICS Format



Note: *See Reference 2.*

Figure 6-19 Message Format for Station-to-Station Call - ICS Format

Reference 2

7.4 Details on Transmission Data

7.4.1 Calling Party Information/Called Party Information

- The 9th byte indicates the type of the calling (or called) party. The 10th through 17th bytes are data pertaining to this calling (or called) party.

  ORIG (Originating Source Identification):
  0 = Calling (or called) Party is a station
  1 = Calling (or called) Party is an Attendant
  2 = Calling (or called) Party is an outside (inside) party

- The contents of 12th through 17th bytes vary with the type of the calling (or called) party.

(1) For a station (ORIG = 0): Data showing Station Number

BYTE	DATA	EXAMPLE
12	1st DIGIT	4
13	2nd DIGIT	0
14	3rd DIGIT	0
15	4th DIGIT	1
16	5th DIGIT	SPACE
17	6th DIGIT	SPACE

(2) For an Attendant (ORIG = 1): Data showing Attendant Number

BYTE	DATA	EXAMPLE
12	1st DIGIT	1
13	2nd DIGIT	0
14	3rd DIGIT	SPACE
15	4th DIGIT	SPACE
16	5th DIGIT	SPACE
17	6th DIGIT	SPACE

(3) For a trunk (ORIG = 2): Data showing Route Number and Trunk Number

Byte	Data		Example	
12	1st DIGIT	Route Number	0	
13	2nd DIGIT		0	RT No. = 1
14	3rd DIGIT		1	
15	1st DIGIT	Trunk Number	0	
16	2nd DIGIT		5	TR No. = 50
17	3rd DIGIT		0	

7.4.2 Call Start/Call End Time Information

- The data which indicates Call Start Time is as follows:

BYTE	DATA	EXAMPLE	
18	MONTH	0	
19	(01-12)	6	
20	DAY	0	
21	(01-31)	1	THIS INFORMATION SHOWS THAT THE CALL STARTED AT 1 O'CLOCK P.M. ON JUNE 1st, 1998
22	HOUR	1	
23	(00-23)	3	
24	MINUTE	0	
25	(00-59)	0	
26	SECOND	0	
27	(00-59)	0	
114	YEAR	9	YEAR INFORMATION IS SENT OUT ONLY BY THE LAST TWO DIGITS AS IN '98 FOR 1998.
115	(00-99)	8	

- The data which indicates Call End Time is as follows:

BYTE	DATA	EXAMPLE	
28	MONTH	1	
29	(01-12)	0	
30	DAY	2	
31	(01-31)	0	THIS INFORMATION SHOWS THAT THE CALL ENDED AT 9 O'CLOCK 10 MIN. 30 SEC. A.M. ON OCT. 20, 1998.
32	HOUR	0	
33	(00-23)	9	
34	MINUTE	1	
35	(00-59)	0	
36	SECOND	3	
37	(00-59)	0	
116	YEAR	9	YEAR INFORMATION IS SENT OUT ONLY BY THE LAST TWO DIGITS AS IN '98 FOR 1998.
117	(00-99)	8	

7.4.3 Called Number

- The data which indicates the Called Number is as follows:

BYTE	DATA	EXAMPLE	
60	1st DIGIT	0	
61	2nd DIGIT	4	
62	3rd DIGIT	7	9-0471-83-0351 HAS BEEN DIALED.
63	4th DIGIT	1	
64	5th DIGIT	8	9: OG ACCESS CODE
65		3	
66		0	
67		3	
68		5	
69		1	
70		SPACE	
71	12th DIGIT	SPACE	
90	30th DIGIT	SPACE	
91	32nd DIGIT	SPACE	

7.4.4 Account Code/Authorization Code

- The data which indicates the Account Code is as follows:

BYTE	DATA	EXAMPLE
38	1st DIGIT	1
39	2nd DIGIT	1
40	3rd DIGIT	1
41	4th DIGIT	5
42	5th DIGIT	SPACE
↓		
46	9th DIGIT	SPACE
47	10th DIGIT	SPACE

ACCOUNT CODE: 1115 HAS BEEN DIALED.

Note: *An Account Code is a numerical code to be dialed (up to 10 digits) by a station user with the capability to enter a cost accounting.*

- The data which indicates the Authorization Code is as follows:

BYTE	DATA	EXAMPLE
104	1st DIGIT	4
105	2nd DIGIT	0
106	3rd DIGIT	0
107	4th DIGIT	1
108	5th DIGIT	SPACE
↓		
112	9th DIGIT	SPACE
113	10th DIGIT	SPACE

AUTHORIZATION CODE: 4001 HAS BEEN DIALED

Note: *An Authorization Code is a numerical code to be dialed (up to 10 digits) by station users which will override the station's class (RSC or SFC) for facilities access restriction.*

7.4.5 Route Advance Information

When a call has been originated by route advancing, the following data is transmitted.

BYTE	DATA		EXAMPLE
54	1st DIGIT	ROUTE NUMBER 1	0
55	2nd DIGIT		0
56	3rd DIGIT		3
57	1st DIGIT	ROUTE NUMBER 2	0
58	2nd DIGIT		3
59	3rd DIGIT		0

THE CALL ORIGINATES VIA NO. 3 ROUTE BECAUSE NO. 30 ROUTE IS BUSY.

ROUTE NUMBER 1: The route which was actually used.
ROUTE NUMBER 2: The route which should have been selected first.

7.4.6 Condition B Information

The 51st through 53rd bytes are Condition B Information. The Condition B Information indicates the following data:

BYTE	DATA	OUTPUT NUMBER
51	C2	→ 0, 1 or SPACE
52	C1	→ 0–3 or SPACE
53	C0	→ 0–5 or SPACE

C2:
0 = Call is not transferred
1 = Call is transferred

C1:
0 = Normal Call
1 = Call originated by OG trunk queuing
2 = Call originated by dialing with Account Code
3 = Call originated by OG trunk queuing and dialing with Account Code

C0:
0 = Regular Call (Direct Dialing from a station)
1 = Regular Call (Call is made through an ATTCON/DESKCON)
2 = Call through route advance (Direct Dialing from a station)
3 = Call through route advance (Call is made through an ATTCON/DESKCON)
4 = Call through Least Cost Routing (Direct Dialing from a station)
5 = Call through Least Cost Routing (Call is made through an ATTCON/DESKCON)

7.4.7 Call Metering Information

The value of call metering from the Central Office is transmitted via the data from the 92nd byte to 95th byte.

BYTE	DATA	EXAMPLE	
92	1000	5	WHEN 5200 METERING PULSES ARE RECEIVED FROM C.O.
93	100	2	
94	10	0	
95	1	0	

7.4.8 Office Code of Calling (Called) Party and Billing Process Office

The 96th byte through 99th byte indicates the Office Code of Calling (Called) Party terminated via CCIS Line.

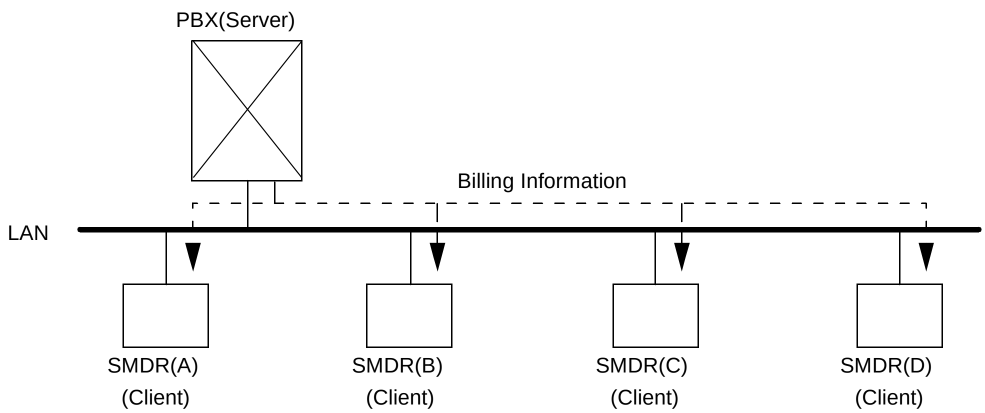
The 100th byte through 103rd byte indicates the Office Code of the office processing centralized Billing for CCIS Network.

Note: *Office Code includes the CCIS line access code.*

BYTE	DATA		EXAMPLE	
96	1st DIGIT	OFFICE CODE OF CALLING (CALLED) PARTY	8	OFFICE CODE = 812
97	2nd DIGIT		1	
98	3rd DIGIT		2	
99	4th DIGIT		SPACE	
100	1st DIGIT	OFFICE CODE OF BILLING PROCESS OFFICE	8	OFFICE CODE = 813
101	2nd DIGIT		1	
102	3rd DIGIT		3	
103	4th DIGIT		SPACE	

7.4.9 Text Format of SMDR - TCP/IP Interface

When using SMDR - TCP/IP interface, billing information is output to the billing output devices connected by an external LAN in the form of socket interface as shown in Figure 6-20.



Note: *A maximum of 4 clients can be designated as SMDR equipment for each LN.*

Figure 6-20 SMDR—TCP/IP Interface Billing Output Devices

Details on the text format for SMDR - TCP/IP Interface are explained below.

(1) Identifier 1: Data Request Text

A text to be sent by the client when it requests the server to send billing data.

S Y N	Text identifier (1)	Data length (00002)	Device No.	Parity

Text sending direction: Client → Server

(2) Identifier 2: Sending Data Text

A text for sending billing data in response to "(1) Data Request Text" from the client.

SYN	Text identifier (2)	Data length (XXXXX)	Device No.	Sequence No.	Billing data (IPX Format) **Note**	Parity

Note: *Text format of billing data is IPX format only. (Refer to Section 7.2.)*

Text sending direction: Client ← Server

The number of billing data records is 64 or less.

(3) Identifier 3: Server Response Text

A text to be sent to the client when there is no billing data to send in response to "(1) Data Request Text" or as a response to a "(5) Status Monitoring Text."

SYN	Text identifier (3)	Data length (00003)	Device No.	Response No.	Parity

Text sending direction: Client ← Server

(4) Identifier 4: Client Response Text

A response text to be sent to the server by the client which has received the data by a "(2) Sending Data Text."

SYN	Text identifier (4)	Data length (00002)	Device No.	Response No.	ACK/ NAK	Parity

Text sending direction: Client → Server

(5) Identifier 5: Status Monitoring Text

A text for use in monitoring the server status from the client's viewpoint or the client from the server's viewpoint. At the same time, the text is used to notify the server of the client status.

SYN	Text identifier (5)	Data length (00005)	Device No.	Client device information	ACK/ NAK	Parity

Text sending direction: Client → Server

(6) Identifier 6: Connection Disconnect Text

A text to be sent from the client to the server to disconnect the connection. In response to this text, the server promptly performs processing to disconnect the connection.

SYN	Text identifier (6)	Data length (00003)	Device No.	ACK/ NAK	Parity

Text sending direction: Client → Server

8. TRAFFIC MANAGEMENT

To obtain the value of common equipment usage, the system provides traffic measurement feature. It can improve the system efficiency.

8.1 The Kind of Traffic Measurement

Table 6-5 shows the kinds of traffic measurements.

Table 6-5 Traffic Measurement Type s

TYPE	KIND OF MEASUREMENT	DESCRIPTION
1*	Terminal Traffic Measurement	Measurement of traffic on a per LENS basis, and measurement of the total traffic on a PIM basis.
2*	Route Traffic Measurement	Measurement of traffic on a per route basis.
3*	Station Peg Count	Measurement of the number of outgoing connections, intra-office calls, outgoing C.O. line calls, Tie Line calls, etc. originated by each station.
4*	ATTCON Peg Count	Measurement of the number of each type of call handled at theATTCON/ DESKCON.
5*	Route Peg Count	Measurement of the number of various types of call connections on a per route basis.
6	Service Peg Count	Measurement of the number of times the following services are operated: Call Hold Call Back Executive Right of Way Call Waiting Call Pickup - Group Call Pickup - Direct Call Forwarding - All Calls Call Forwarding - Busy Line Call Forwarding - Don't Answer Speed Calling - System Speed Calling - Station Off-Hook Outgoing Trunk Queuing Outgoing Trunk Queuing Consultation Hold - All Call Call Transfer - All Calls Three-Way Calling
8	UCD Route Peg Count	Measurement of the number of incoming calls, answered calls, and abandoned calls handled at UCD Groups on a per route basis.
9	UCD Group Peg Count	Measurement of the number of incoming calls, answered calls and abandoned calls on a UCD Group basis.
10	UCD Station Peg Count	Measurement of the number of incoming calls, answered calls and abandoned calls for each station on a UCD Group basis.

Table 6-5 Traffic Measurement Types (Continued)

TYPE	KIND OF MEASUREMENT	DESCRIPTION
15	ATT Answer Peg Count	Measurement of the number of answered calls handled by each attendant.
18	Connection Route Peg Count	Measurement of the number of various type of call connection on a connection route basis.
19	Connection Route Traffic	Measurement of traffic on a connection route basis.

Note: *Asterisk(*) identifies the traffic measurements that can be saved on the HD of the MAT.*

8.2 Operating Procedure

8.2.1 Procedure for Set-up and Start

The procedure to set up and start the traffic measurement is as follows:

(1) By using the ASYD/ASYDN command, assign the necessary system data as follows:

START

ASYD

When performing traffic measurement ***on a node basis***:

- SYS1, INDEX8 (Number of Tenants)
- SYS1, INDEX9 (Number of Attendant Consoles)
- SYS1, INDEX47, bit 0 (Unit of Traffic Measurement): 0/1 = CCS/Erlang
- SYS1, INDEX47, bit 7 (Traffic Measurement Service): 0/1 = Out/In Service Assign “1.”

ASYDN

When performing traffic measurement ***on a network basis (via TCP/IP)***:

- SYS1, INDEX8 (Number of Tenants)
- SYS1, INDEX9 (Number of Attendant Consoles)
- SYS1, INDEX47, bit 0 (Unit of Traffic Measurement): 0/1 = CCS/Erlang
- SYS1, INDEX47, bit 7 (Traffic Measurement Service): 0/1 = Out/In Service Assign “1.”

END

(2) By using the ATRF/ATRFN command, assign the traffic measurement programs as follows:

START

ATRF

When performing traffic measurement ***on a node basis***:

- Assign traffic measurement “TYPE” (**Note 1**), “PORT” number to be used, and the output “INTERVAL” and “Time (HOUR/MINUTE),” etc. For more details, see the ATRF command in CHAPTER 8.

ATRFN

When performing traffic measurement ***on a network basis (via TCP/IP)***:

- Assign traffic measurement “TYPE” (**Note 1**), “PORT” number to be used, and the output “INTERVAL” and “Time (HOUR/MINUTE),” etc. For more details, see the ATRFN command in CHAPTER 8.

END

Note 1: *You can select one measurement “TYPE” at a time. If you need two or more measurement “TYPE,” repeat the same steps, following the entry of this command.*

(3) Terminate all the MAT commands.
An image of IPX “MAT Menu” is shown in Figure 6-21. Terminate all MAT commands, and make sure no commands are currently running via the “Processes” button.

(4) Set the programmed Traffic Measurement in routine operation.
Click the “Scan New Alarms/Traffic” and “Collect New Alarms” buttons on the IPX “MAT Menu” (confirm the clicked buttons remain in the pressed state). Then, the Traffic Measurement is activated as programmed.

This Figure shows the IPX "MAT Menu" display image. The display should look similar to the following:

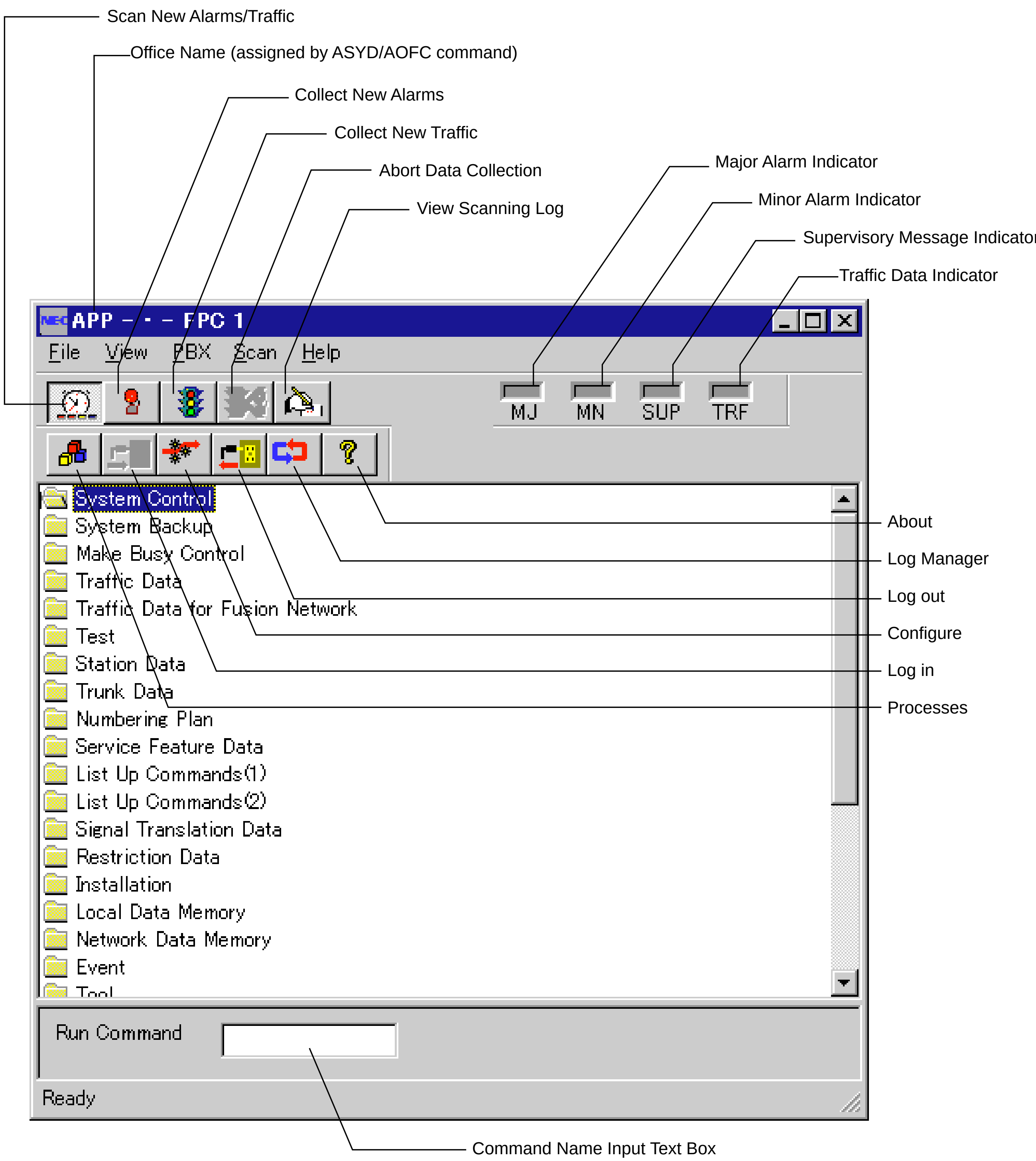


Figure 6-21 IPX "MAT Menu" Display Image (Example)

8.2.2 Data Output - Details on DTFD/DTFDN Command

To obtain the collected Traffic data, you can use the "DTFxxx" or "DTFxxxN" command as shown below. The commands can be activated by your direct log-in operation onto the MAT, but in normal cases, the commands are to be activated automatically at predetermined intervals assigned by the ATRF/ATRFN command.

Also, each command below corresponds to the Traffic Measurement "TYPE" assigned by the ATRF/ATRFN command.

When performing traffic measurement ***on a node basis***:

Measurement "TYPE" (by ATRF Command)		Command Name	Full Command Name
1	Terminal Traffic	**DTF101**	Display of Terminal Traffic Data
2	Route Traffic	**DTF102**	Display of Route Traffic Data
3	Station Peg Count	**DTF103**	Display of Station Peg Count Data
4	ATTCON Peg Count	**DTF104**	Display of Attendant Peg Count Data
5	Route Peg Count	**DTF105**	Display of Route Peg Count Data
6	Service Peg Count	**DTF201**	Display of Service Peg Count Data
8	UCD Route Peg Count	**DTF301**	Display of UCD Route Peg Count Data
9	UCD Group Peg Count	**DTF302**	Display of UCD Group Peg Count Data
10	UCD Station Peg Count	**DTF303**	Display of UCD Station Peg Count Data
15	ATT Answer Peg Count	**DTF501**	Display of Attendant Answering Peg Count Data
18	Connection Route Peg Count	**DTF601**	Display of Connection Route Peg Count Data
19	Connection Route Traffic	**DTF602**	Display of Connection Route Traffic Data

When performing traffic measurement ***on a node network basis*** :

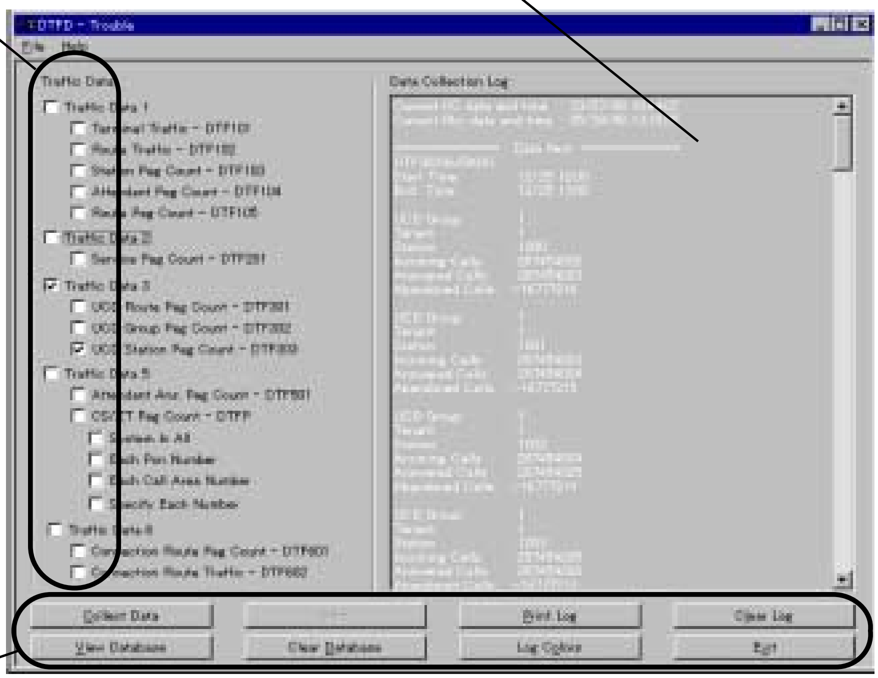
Measurement "TYPE" (by ATRFN Command)		Command Name	Full Command Name
1	Terminal Traffic	**DTF101N**	Display of Terminal Traffic Data for Fusion Network
2	Route Traffic	**DTF102N**	Display of Route Traffic Data for Fusion Network
3	Station Peg Count	**DTF103N**	Display of Station Peg Count Data for Fusion Network
4	ATTCON Peg Count	**DTF104N**	Display of Attendant Peg Count Data for Fusion Network
5	Route Peg Count	**DTF105N**	Display of Route Peg Count Data for Fusion Network
6	Service Peg Count	**DTF201N**	Display of Service Peg Count Data for Fusion Network
8	UCD Route Peg Count	**DTF301N**	Display of UCD Route Peg Count Data for Fusion Network
9	UCD Group Peg Count	**DTF302N**	Display of UCD Group Peg Count Data for Fusion Network
10	UCD Station Peg Count	**DTF303N**	Display of UCD Station Peg Count Data for Fusion Network
15	ATT Answer Peg Count	**DTF501N**	Display of Attendant Answering Peg Count Data for Fusion Network
18	Connection Route Peg Count	**DTF601N**	Display of Connection Route Peg Count Data for Fusion Network
19	Connection Route Traffic	**DTF602N**	Display of Connection Route Traffic Data for Fusion Network

Note: *For information on the command display images, see Figure 6-22, Figure 6-23, and Figure 6-24.*

This Figure shows the DTFD command display image (example). The DTFD/DTFDN command should look similar to this.

Data Collecting Log
This area displays the current Traffic Measurement data, based on the selected "Traffic Data" TYPE.

Traffic Data
Check box to specify the "Traffic Data" TYPE.



Tool Buttons

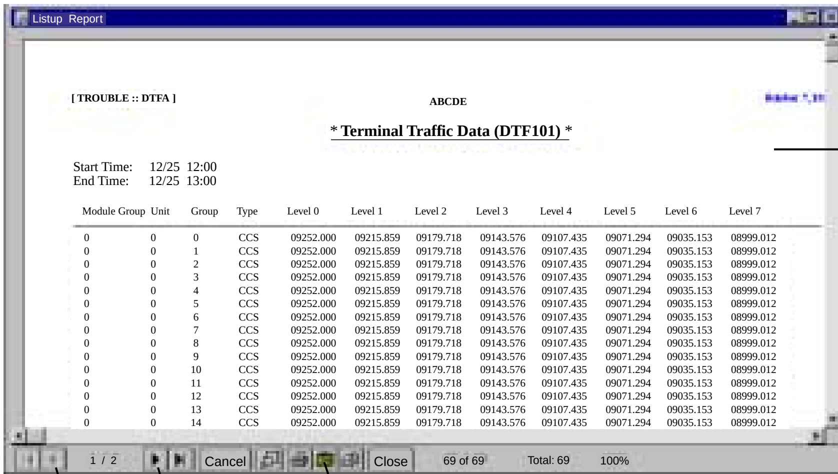
- Collect Data
  Used to collect the Traffic report with regard to the selected "Traffic Data" TYPE. The result text is shown in the "Data Collection Log" display area.
- Stop
  Used to quit the currently performed Traffic Data collection.
- Print Log
  Used to print out the text data now displayed in the "Data Collection Log" area.
- Clear Log
  Used to delete (clear) the text data now in the display of the "Data Collection Log" area.
- View Database
  Used to view the whole data (based on the selected data "Traffic Data" TYPE), so far stored in the database. More details are shown in Figure 6-11-3.
- Clear Database
  Used to delete (clear) the whole data (based on the selected "Traffic Data" TYPE), so far stored in the database.
- Log Colors
  Used to designate/change the text font color of the "Data Collection Log" display area.
- Exit
  Used to exit this command. (Note that the database contents are not cleared by pressing this button.)

Figure 6-22 DTFD Command Display Image (Example)

This Figure shows a sample image of the "Listup Report" window for the DTFD/DTFDN command. This window appears by taking the following operations, and is used to obtain a sequence of Traffic data, so far collected and stored in the database. The window is also used to save the Traffic data text (now displayed in the window) onto your desired PC directory.

- To activate this window:

1. Designate a specific "Traffic Data" TYPE out of the DTFD/DTFDN command check boxes (see Figure 6-11-2).
2. Press the "View Database" button on the left-bottom part of the DTFD/DTFDN command (see Figure 6-11-2).



[TROUBLE :: DTFA]

ABCDE

* Terminal Traffic Data (DTF101) *

Start Time: 12/25 12:00
End Time: 12/25 13:00

Module Group	Unit	Group	Type	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
0	0	0	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	1	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	2	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	3	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	4	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	5	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	6	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	7	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	8	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	9	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	10	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	11	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	12	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	13	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012
0	0	14	CCS	09252.000	09215.859	09179.718	09143.576	09107.435	09071.294	09035.153	08999.012

Display Area

This area displays the details on the Traffic report, specified by the "Page (UP)/Page (DOWN)" buttons.

Shown here is an example of a certain first page of "Terminal Traffic Data (DTF101)".

Save Text File

When saving the currently displayed text page, press this button. Then, a dialog box, as shown in Figure 6-11-4, appears.

Page (UP)

Page (DOWN)

Any Traffic data, now in the database, can easily be found via these buttons. Select "UP" or "DOWN", according to the text display pattern: "the newest the first, the oldest the last."

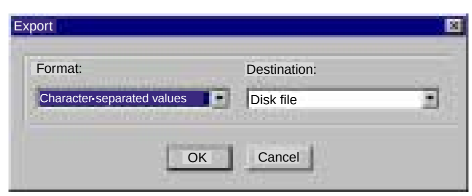
Note

Note: *When thiswindow is activated, the initial text to appear is the newest file data, out of a sequence of Traffic reports. Like this, the newest text (in the database) appears on the first page, and the next new, the next page.*

Figure 6-23 "Listup Report" Window when "View Database" Is Selected (Example)

The dialog box, as shown below, appears, if the "Save Text File" button is selected on the "Listup Report" window (see Figure 6-11-3 above). If the file is to be saved:

1. Select **"Character-separated values"** on the "Format" list box.
2. Select **"Disk file"** on the "Destination" list box.
3. Click **OK**.



After these steps, a new dialog, asking the saved file name and directory, also appears. Then, complete the data saving by filling out these necessary items.

Figure 6-24 "Export" Dialog for Traffic Report Text File Saving

8.2.3 Service Conditions (when performing Traffic Measurement via TCP/IP)

(a) The NDM (network-level) data for the traffic measurement order is replaced/updated, at each time the system is initialized or data change is requested from the ATRFN command.

(b) When the network-level data is once assigned via the ATRFN command, the node-level data for ATRF command cannot be changed or modified.

(c) When the network-level data is once assigned via the ATRFN command, the already assigned data by the ATRF command is not cleared, but becomes ineffective.

(d) When a data transfer error occurs, the following are performed in order:

→ Traffic measurement is suspended momentarily and system message is displayed (notification of fault)

→ Traffic measurement, concerning all the remaining data except for the fault-involved one, is resumed

→ Retry is made repeatedly for the transfer of fault-involved data, until the fault has been eradicated

→ If the fault hasn't been eradicated still until the time of next measurement routine, the data is finally discarded, and next traffic measurement routine starts

(e) When the same Individual ATT Numbers exist on the network, the traffic measurement concerning the ATTCON/DESKCON cannot be performed correctly.

9. OFFICE DATA MANAGEMENT

This section explains how to manage various kinds of data such as Call Forwarding Data, Individual Speed Calling Data, and Office Data, etc.

9.1 Office Data Stored Locations

The office data is stored in the Memory (MEM) and on the Hard Disk (HD). While the system is in service, it operates by the office data stored in the memory. Should the contents of the office data be destroyed due to trouble, the system restarts its operations by loading the office data from the hard disk into the memory. The office data of the system in operation is being backed up by the hard disk.

9.2 Office Data Preservation

Since the PBX keeps operating by the assigned office data, be sure to preserve the latest office data. If the office data is not preserved, all office data must be reassigned if the contents of the data memory have been destroyed, because of trouble occurrence, etc. The system will remain in a system down state until reassignment of the office data is complete.

Practice to verify and confirm the valid office data by routine maintenance is considered an effective means to prevent loss of the office data and occurrence of trouble due to the office data. For this reason, be sure to keep the following items near the system at all times so that they may be available when needed.

(1) Office Data Programming Sheets

As the most up-to-date data must be recorded in the sheets, be sure to make entries by pencil.

(2) Floppy Disks for Data Saving

To back up the office data stored on the HD, use floppy disks. The necessary number of Floppy Disks (FD) is determined by the following factors:

- Mounting capacity of office data depends upon the system data (ASYD-SYS1, Index30, ASYDL-SYS1, Index 513, 514).

- Each floppy disk can save 1MB of data. After a large-scale office data change, in particular which includes system data, unpredictable failures might occur. To deal with such failures, prepare an FD for saving the office data before the changing. In addition, prepare an FD for saving the latest office data.

9.3 Office Data Management Procedure

The procedure generally taken when changing the office data is shown below.

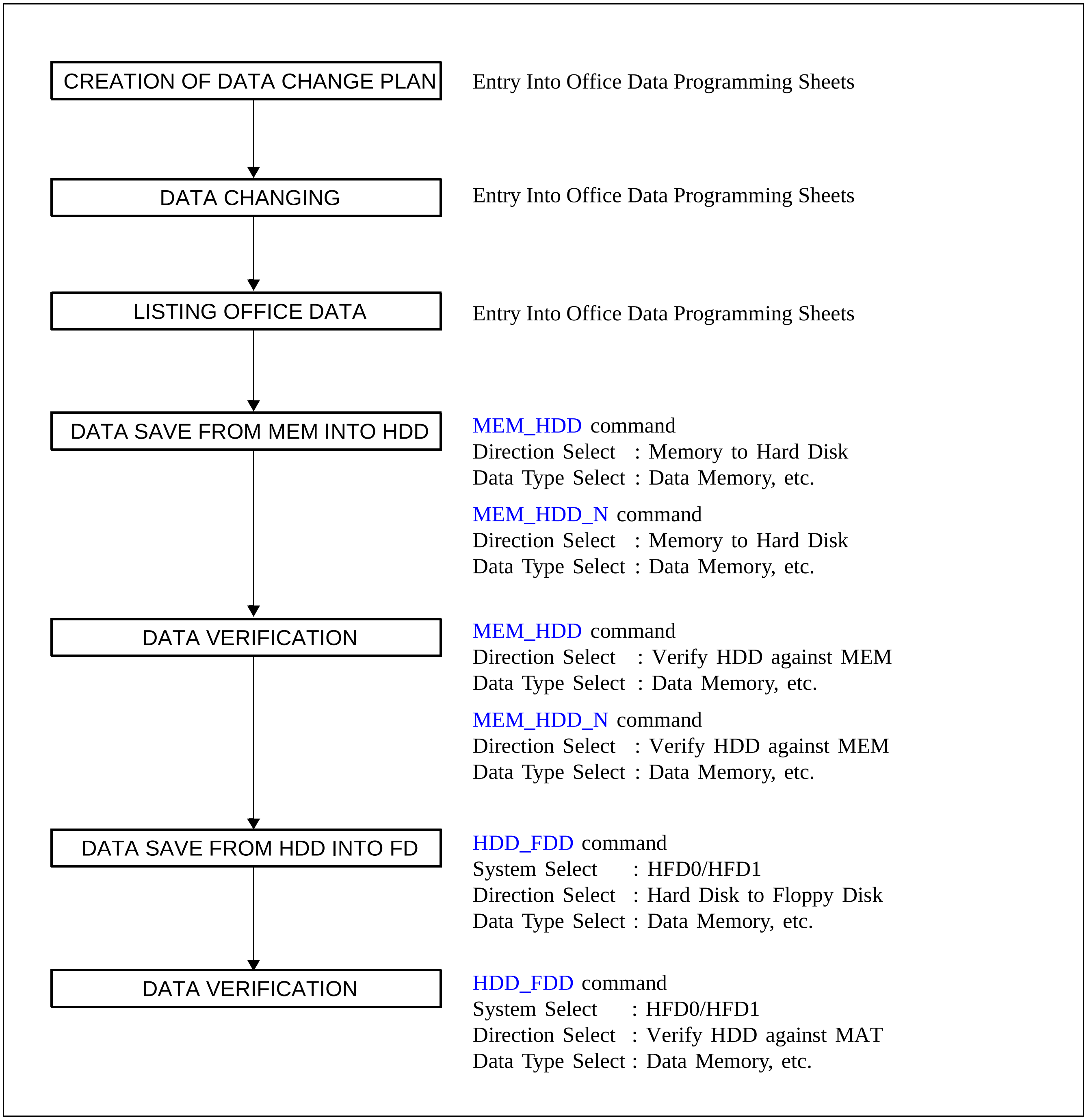
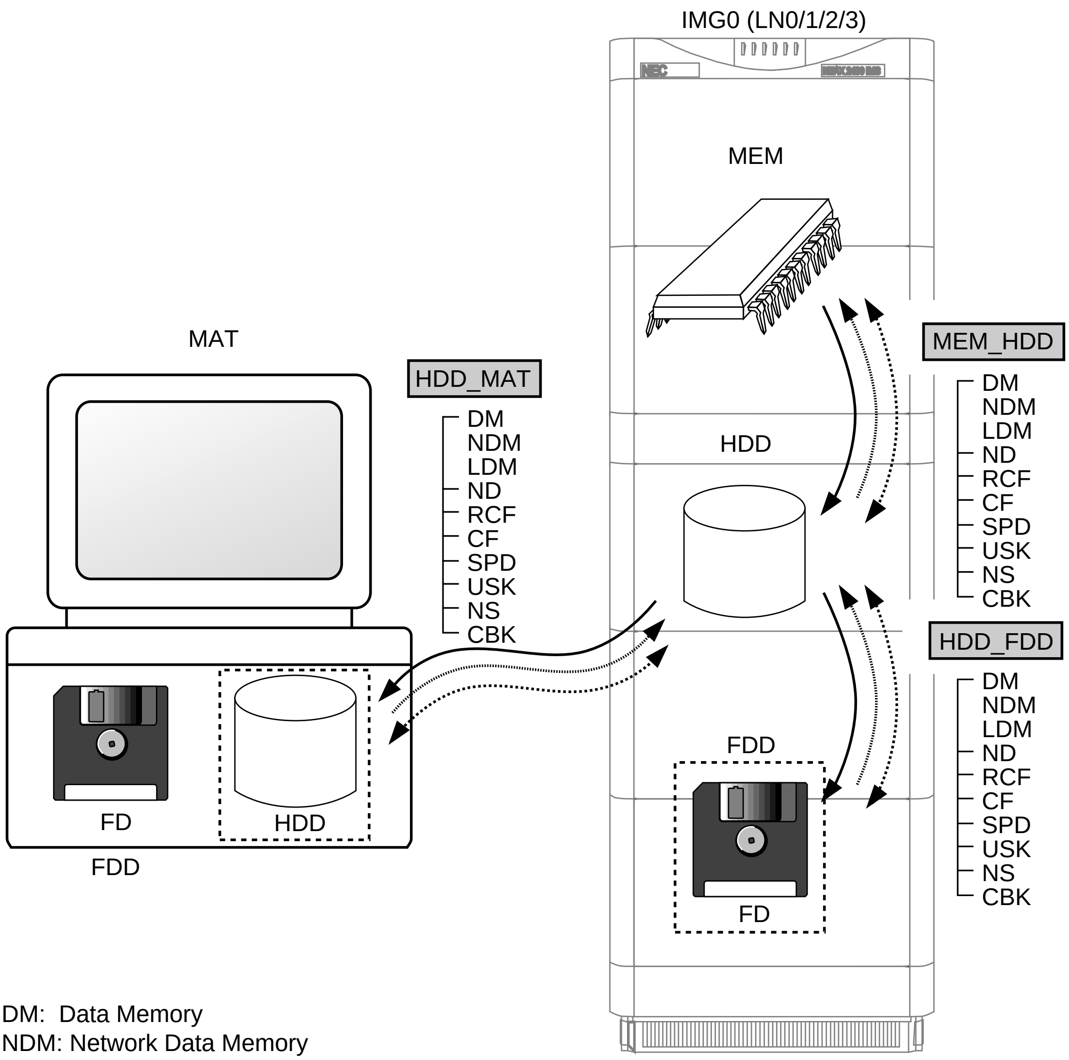


Figure 6-25 Office Data Change Procedure

Figure 6-26 shows the function of three backup commands: HDD to FDD, HDD to MAT, and MEM to HDD. These commands are available when logging in to each Local Node.



DM: Data Memory
NDM: Network Data Memory
LDM: Local Data Memory
ND: Name Display Data
RCF: Wireless Call Forwarding Data
CF: Call Forwarding Data
SPD: Speed Calling-System Data
USK: User Assign Soft Key Data
NS: Number Sharing Data **Note**
CBK: Call Block Data (for Release 5 or later)
: Command

Note: *The Number Sharing data load/back-up also affects the data load/back-up of Dual Station Calling Over-FCCS.*

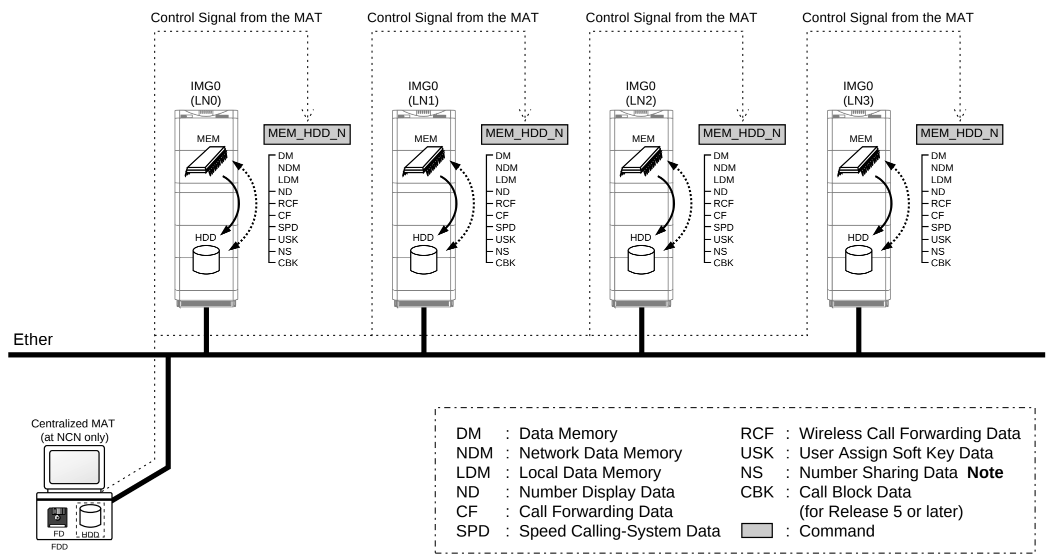
Figure 6-26 Node-Level Commands for Data Management

In addition to the three backup commands on the previous page, the IPX-U system also can use "MEM_HDD_N" and "HDD_MAT_N" commands, which are available at the NCN (Network Control Node) only. Figure 6-27 shows the function of these network-level data management commands.

Note: *Service conditions for these commands are shown on the next page.*

< MEM_HDD_N >

This command is used to save/verify a series of Office Data from the Memory of all Local Nodes to the HDD of the same nodes.



Note: *The Number Sharing data load/back-up also affects the data load/back-up of Dual Station Calling Over-FCCS (for Release 5 or later).*

< HDD_MAT_N >

This command is used to install (overwrite) the updated Program data, which has been already saved on the HDD of the centralized MAT, onto the HDD of all Local Nodes.

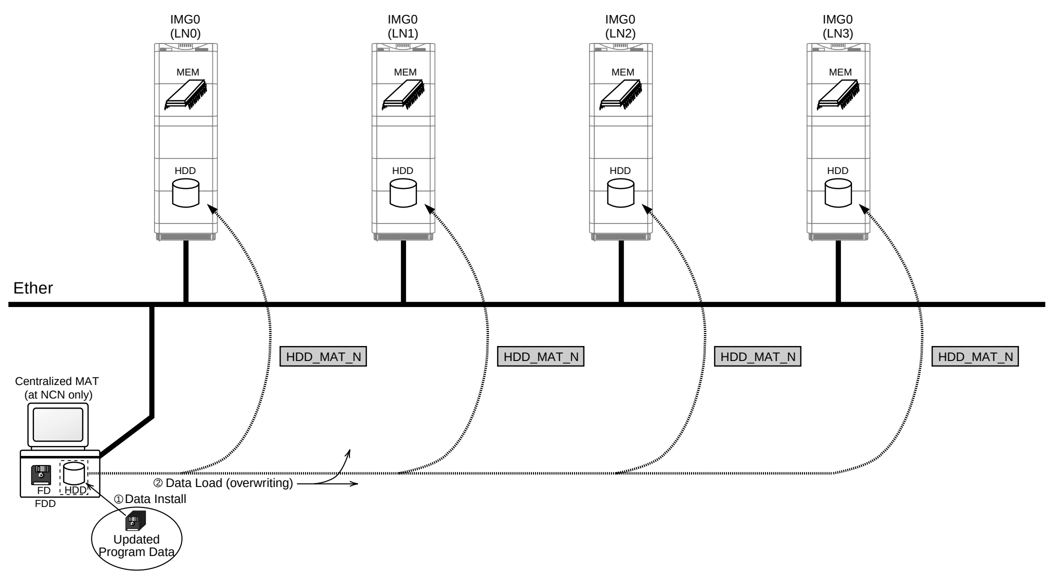


Figure 6-27 Network-level Commands for Data Management

Service Conditions for MEM_HDD_N Command

This feature is made available by broadcasting the same back-up request signal toward all the nodes. If a failure occurs in any of the process, the MEM<=>HDD back-ups on a network level cannot be executed any more. (Retry of signal broadcasting is not made.)

Service Conditions for HDD_MAT_N Command

When an error occurs in the process of data transfer, the updated program data is no more installed onto the HDD of the node(s) which is/are involved in the fault.

9.4 Call Forwarding Data/Individual Speed Calling Data Management

Call Forwarding Data and Individual Speed Calling Data are changed at any time because these services are set/cancelled from the station involved. In the PBX, these data are backed up by FD.

Call Forwarding Data: HDD_MAT command
Individual Speed Calling Data: HDD_MAT command

9.5 One-Touch Speed Call Memory Data Management

One-Touch Speed Call Memory data of D^{term} is destroyed when ELC circuit card has been replaced with a spare or its mounting slot has been changed. The data can be backed up onto FD before replacement or mounting slot change of ELC card.

Backup: BOSD command

9.6 Commands for Data Management

COMMAND	COMMAND FULL NAME
BOSD	Back Up One-Touch Speed Call Memory Data
HDD_FDD	Data Control between HDD and FDD
HDD_MAT	Data Control between HDD and MAT
HDD_MAT_N	Data Control between HDD and MAT for NDM
MEM_HDD	Data Control between Memory and HDD
MEM_HDD_N	Data Control between Memory and HDD for NDM

10. TEST OPERATIONS OF VARIOUS KINDS

This section explains the methods of test operations (shown in Figure 6-28) to be performed in case a fault recovery occurs.

Display of connection status of designated station/trunk

COMMAND	COMMAND FULL NAME
DCON	Display of Connection Status

Test connection by designating trunks, tones, and ringback tone from test station

10.1 Designated Connection Test (Station)

Test connection by designating trunks (outgoing only) from ATTCON/DESKCON

10.2 Designated Connection Test (ATTCON/DESKCON)

Display of line failure indication when faulty condition occurred while a call is in progress

10.3 Bad Call Notification

Figure 6-28 Test Operation Method Examples

10.1 Designated Connection Test (Station)

(1) General

The purpose of this test is to confirm the operations related to a trunk or tone that is designated from the test station. Refer to Table 6-6. The test result displays on the MAT screen as system message [6-I].

Table 6-6 Designated Connection Test (Station) Operations

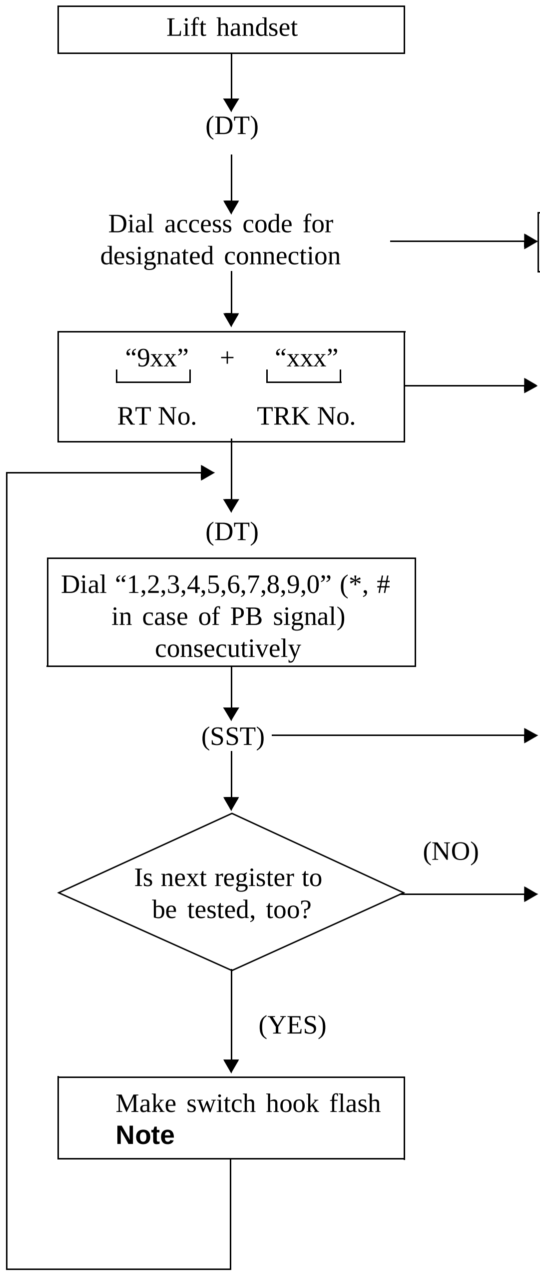
ITEM	TEST ITEM	CONTENT OF CONFIRMATION	REMARKS
1	Register (ORT/IRT)	Whether the dialed numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, #) can be received correctly is to be confirmed.	
2	Sender	Whether the numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, #) can all be sent out is to be confirmed.	
3	3-Party Conference Trunk	By connecting the test tone to each port of a 3-Party Conference Trunk, whether the test tone can be heard is to be confirmed.	
4	Tone	Various kinds of tone are to be confirmed.	
5	Interrupted Ringing (IR)	Interrupt ringing (IR) is to be confirmed.	
6	Trunk	Connections of trunks are to be confirmed.	

(2) Precaution

Designated connection to a trunk—A designated connection to trunk is limited only to an individual line of either 2nd DT system or sender system.

(3) Designated Connection Test Procedure

(a) Register Test Procedure

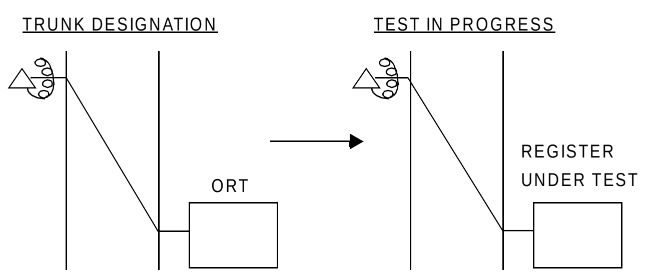


- Access code is assigned by ASPA command, CI=N, SRV=SSC, SID=17

- Route numbers to be designated are as follows.:

RT NUMBER	TRUNK NAME
902	Originating Register Trunk
903	Incoming Register Trunk

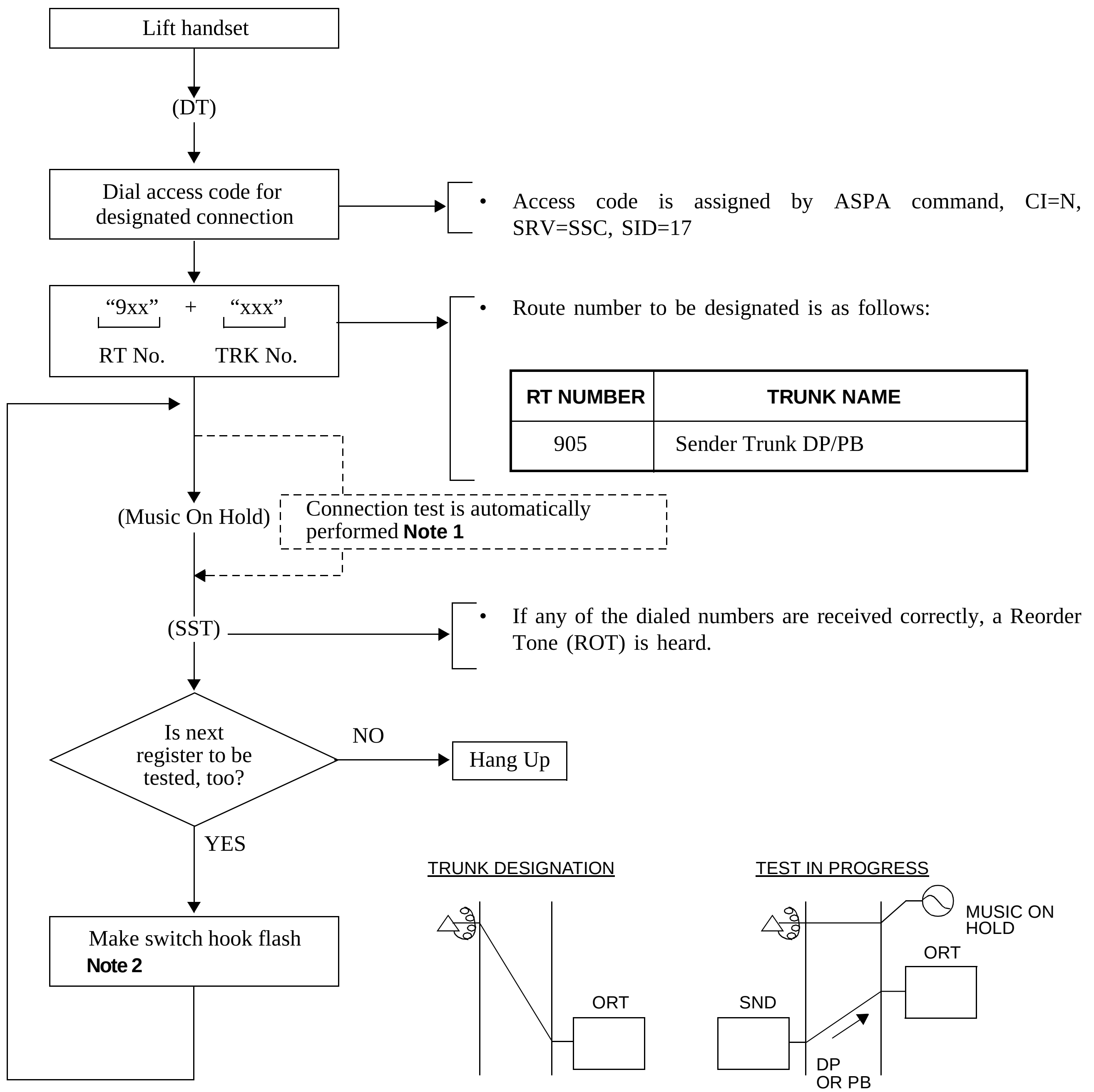
- If any of the dialed numbers are not received correctly, a Reorder Tone (ROT) is heard.



Note: *If the Trunk Number of the next register is not assigned, the test ends.*

Figure 6-29 Register Test Procedure/Connection Diagram

(b) Sender Test Procedure



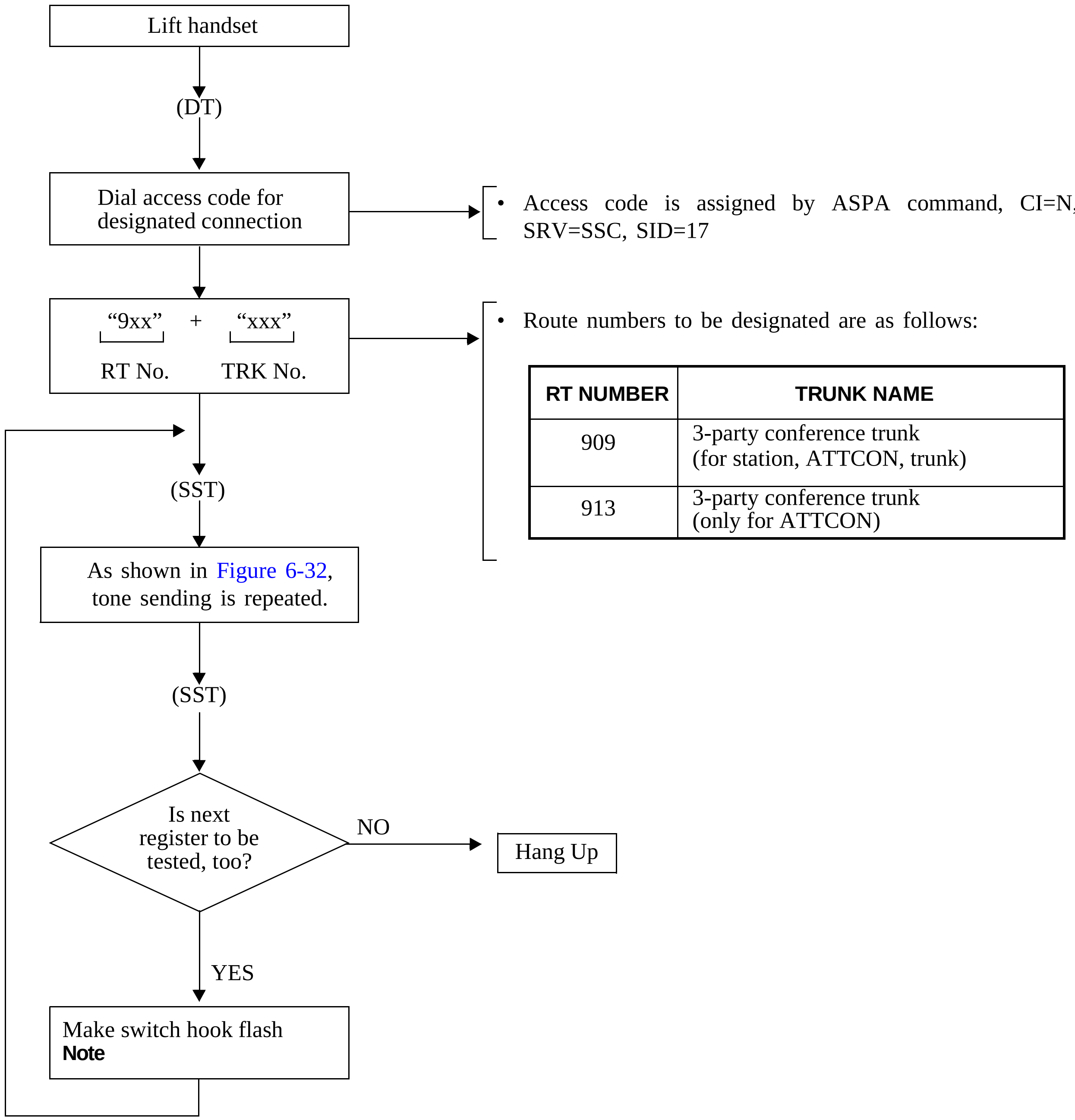
RT NUMBER	TRUNK NAME
905	Sender Trunk DP/PB

Note 1: *After the sender to be tested is connected to the register, the sender sends out 1 ~ 9, 0 by DP signals and 1 ~ 9, 0, *, # by PB signals, thus checking to see if the dialed numbers are sent out correctly.*

Note 2: *If the trunk number of the next sender is not assigned, the test ends.*

Figure 6-30 Sender Test Procedure/Connection Diagram

(c) 3-Party Conference Trunk Test Procedure



RT NUMBER	TRUNK NAME
909	3-party conference trunk (for station, ATTCON, trunk)
913	3-party conference trunk (only for ATTCON)

Note: *If the trunk number of the next 3-Party Conference Trunk is not assigned, the test ends.*

Figure 6-31 3-Party Conference Test Procedure

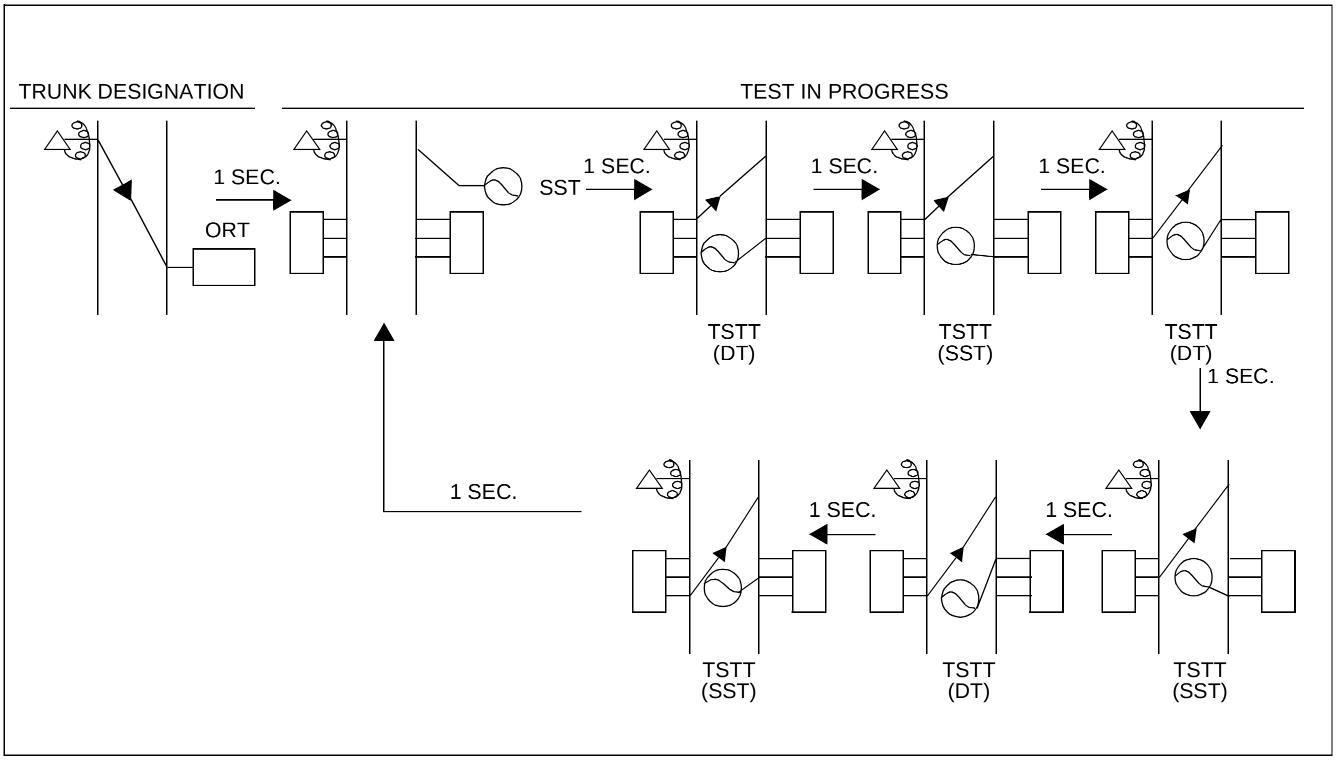


Figure 6-32   3-Party Conference Test Connection Diagram

(d) Tone Test Procedure

Lift handset

↓

(DT)

↓

Dial access code for designated connection → • Access code is assigned by ASPA command, CI=N, SRV=SSC, SID=17

↓

Dial “000”

↓

(DT)

↓

Dial $\underbrace{\text{“x x”}}_{\text{Tone Number}}$ → • For Tone No. to be designated, refer to Table 6-7.

↓

(Tone) • Tone designated by Tone No. is heard.

↓

Hang Up

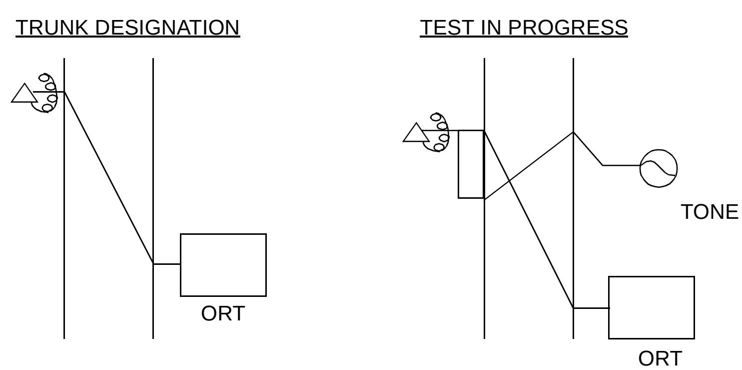


Figure 6-33 Tone Test Procedure/Connection Diagram

Table 6-7 Tone Numbers

Tone No.	Kind Of Tone	Remarks
00	Dial Tone (DT)	
01	Special Dial Tone (SPDT)	
02	Ring Back Tone (RBT)	
03	Continuous Ring Back Tone (CRBT)	
04	Busy Tone (BT)	
05	Reorder Tone (ROT)	
06	Service Set Tone (SST)	
07	Second Dial Tone (SDT)	
08	No Tone	
09	Sender Transmitting Tone (SDTT)	
10	Call Waiting Ring Back Tone (CWRBT)	
11	No Tone	
12	No Tone	
13	Test Tone (TSTT)	
14	Music On Hold (MSC)	
15	No Tone	

(e) Interrupt Ringing (IR) Test Procedure

Lift handset

↓

(DT)

↓

Dial access code for designated connection → • Access code is assigned by ASPA command, CI=N, SRV=SSC, SID=17

↓

Dial "999"

↓

(SST)

↓

Hang Up

↓

Bell Rings

↓

Lift handset and answer

↓

(SST)

↓

Hang Up

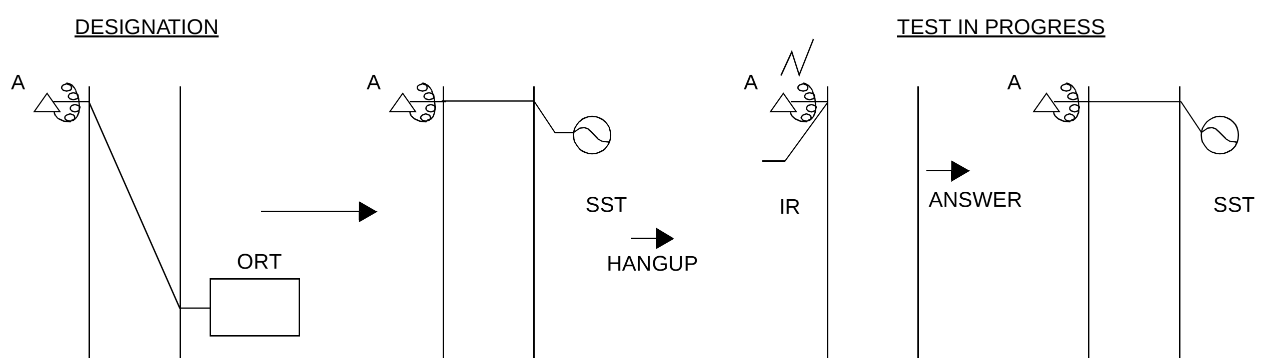
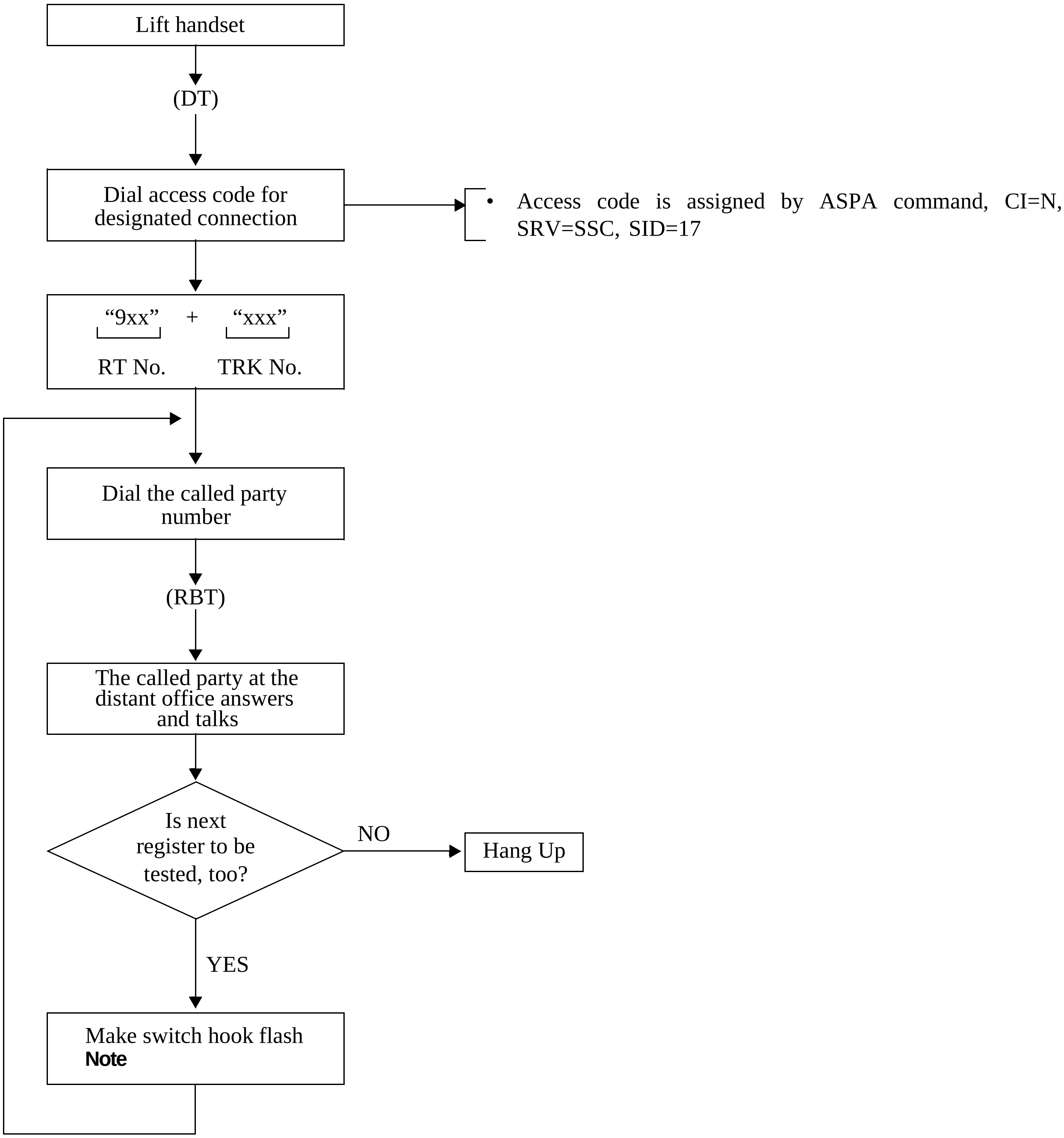


Figure 6-34 Interrupt Ringing (IR) Test Procedure/Connection Diagram

(f) Trunk Test Procedure



Note: *If the trunk number of the next trunk is not assigned, the test ends.*

Figure 6-35 Trunk Test Procedure

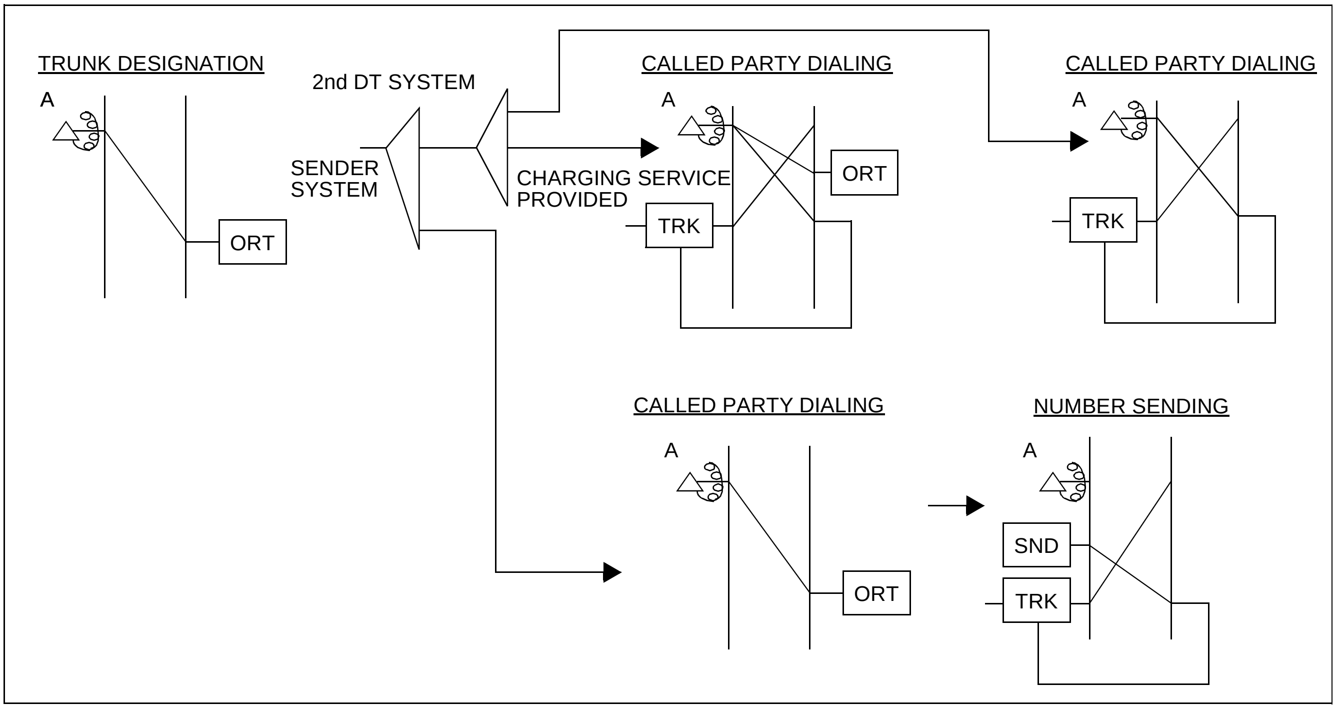


Figure 6-36   Trunk Test Connection Diagram

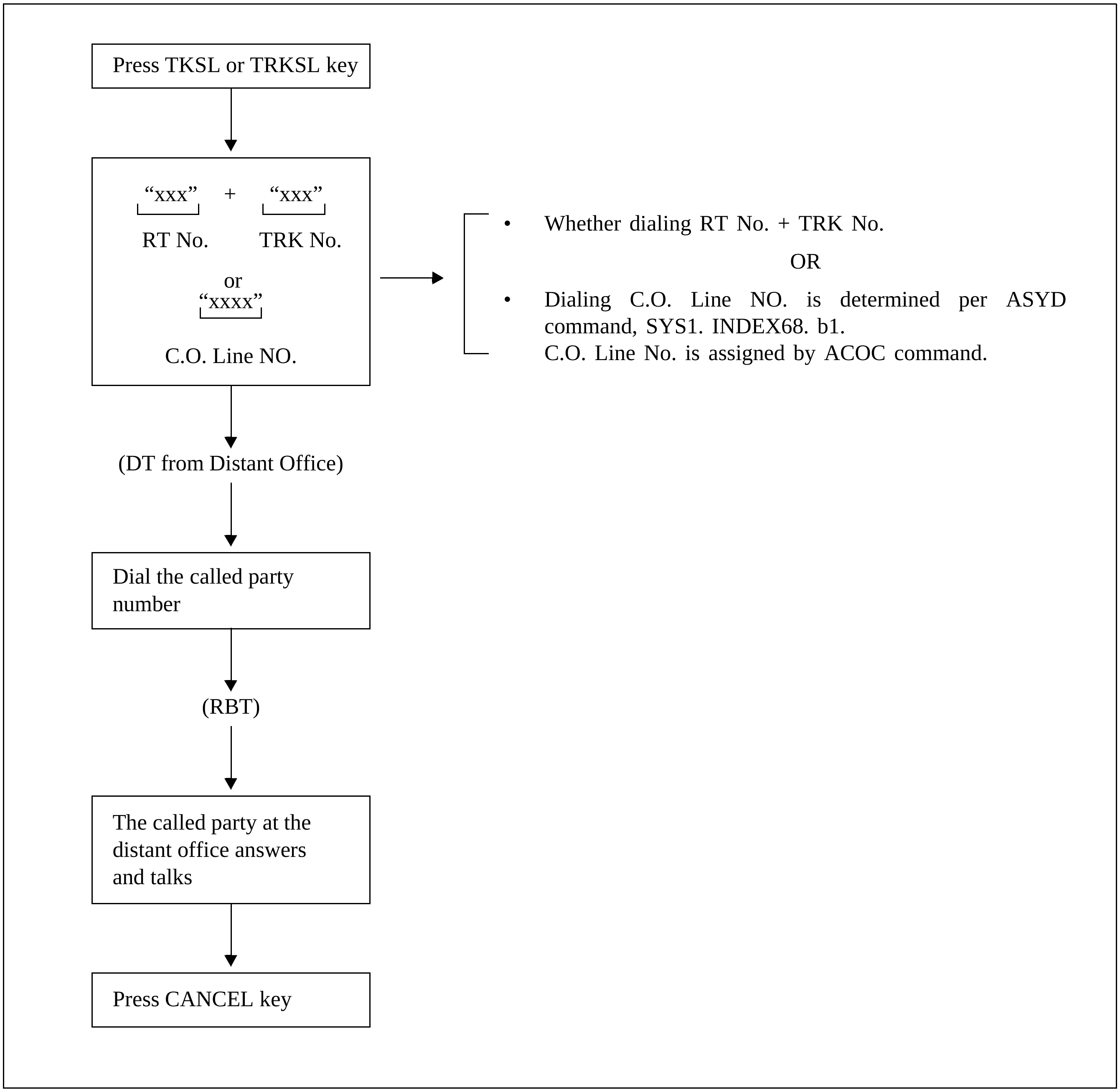
10.2 Designated Connection Test (DESKCON/ATTCON)

(1) General

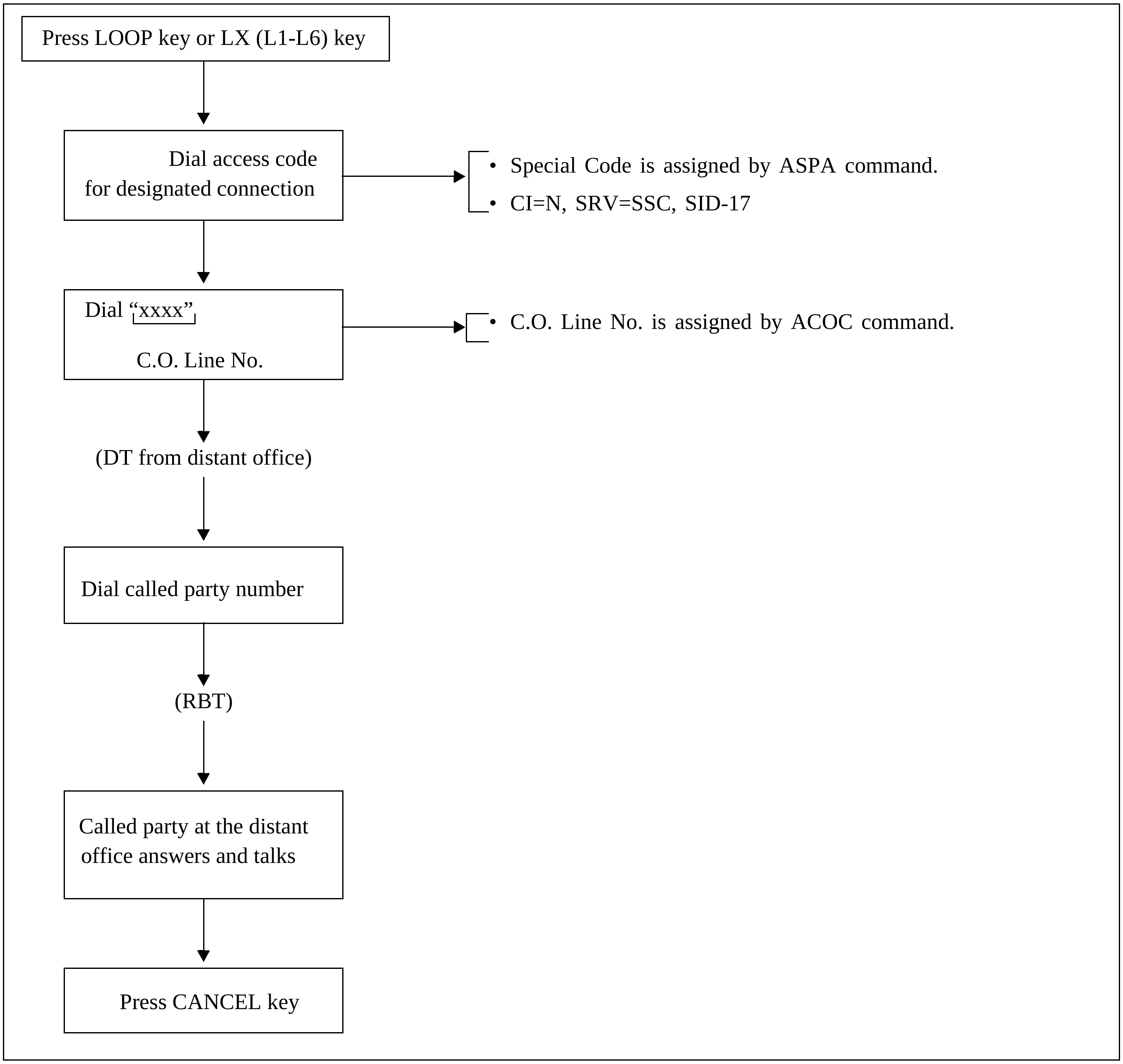
The purpose of this test is to confirm the operations related to a trunk which has been designated from the DESKCON/ATTCON.

(2) Test Procedure

(a) Trunk seizure with TKSL key



(b) Trunk seizure by access code dialing



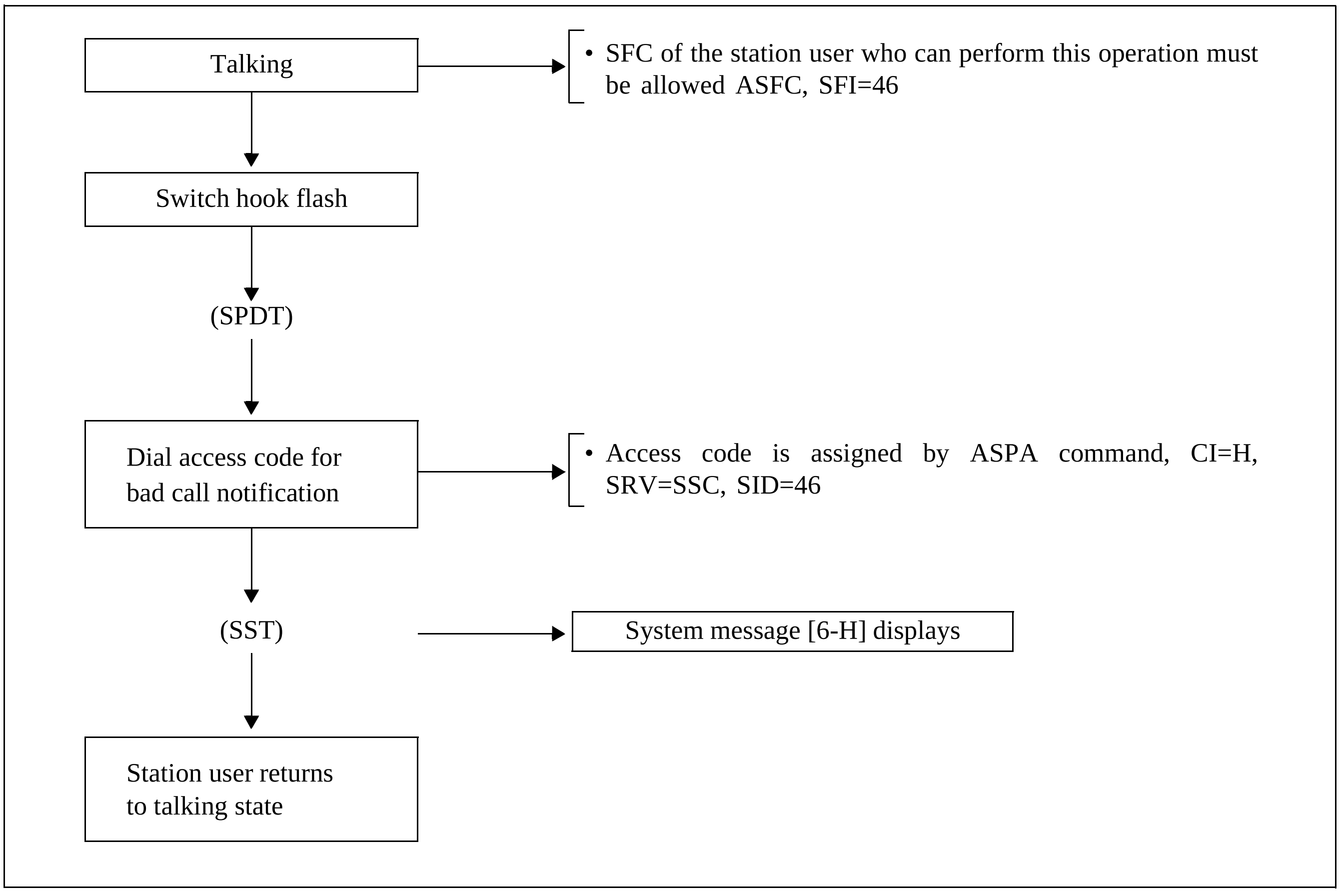
10.3 Bad Call Notification

(1) General

When a station user has trouble because of hearing noise during a call, or has other difficulty having a normal call, the line involved is recorded as a bad call notification.

The record displays on the MAT screen as system message [6-H], which indicates the recording source (Station Number), Called Station Number or Trunk Number, etc.

(2) Operating Procedure



11. ROUTINE DIAGNOSIS

For confirming its own servicing status, the system automatically executes self diagnosis every day, and displays the result of the diagnosis on a system message. By this function, possible causes for trouble can be discovered in an early stage and possible trouble can be prevented from remaining undetected.

11.1 Related System Data

- ASYD, INDEX62 b6, b7 - Routine Diagnosis ACT/STBY Changeover

b7	b6
0	0 = Every time
0	1 = Once a week (on Sunday)
1	0 = Once a month (on the 1st Sunday of the month)

Note: *When Routine Diagnosis is simultaneously executed at all nodes (see SYS1, INDEX87, 88), all nodes execute ACT/STBY changeover according to the data assigned in ISW.*

- ASYD, SYS1, INDEX86,

b0 – When routine diagnosis starts, and the result of the routine diagnosis is normal, the result displays as system message [7-O].

0/1: Not displayed/To display

b1 – When the result of the routine diagnosis is abnormal, it displays as system message [7-P].

0/1: Not displayed/To display

b3, b2 – Processing at the time when Trunk Ineffective Hold is detected. **Note 1**

Bit		Except the trunks being held on two-way calls (station-to-station call, station-to-trunk, trunk-to-trunk call), the trunks being held at present are forcibly released	All trunks being held at present are forcibly released	LENS of the trunk detected display as system message [7-P]
b3	**b2**			
0	0	X	—	X
0	1	—	—	X
1	0	—	X	X

Note 1: *Trunk Ineffective Hold is a continuous state other than idle state within a predetermined duration while routine diagnosis is in progress. Whether it is to be detected/not detected is assigned by ASYD, SYS1, INDEX89.*

Note 2: *When Routine Diagnosis is simultaneously executed at all nodes (see SYS1, INDEX87, 88), all nodes execute ACT/STBY changeover according to the data assigned in ISW.*

- SYS1, INDEX87, 88 - Routine Diagnosis Start Time: Assign Routine Diagnosis Start Time only in ISW. Regarding LNs, set indexes to FF so that all nodes simultaneously start/stop Routine Diagnosis.
  Note

  Start time should be such a time at which the traffic of the office is the lowest.

INDEX 87	0 2	(Hour)	2:00 a.m. is the start time.
INDEX 88	0 0	(Minute)	

  To stop the routine diagnosis, set FF respectively to INDEX87, 88.

Note: *If the data other than FF is assigned in a LN, Routing Diagnosis is independently activated in the LN.*

- SYS1, INDEX89, 90 — Routine Diagnosis Items: The item corresponding to each bit is to execute once a day.

Note: *When Routine Diagnosis is simultaneously executed at all nodes (see SYS1, INDEX87, 88), all nodes execute the same Routine Diagnosis Items according to the data assigned in ISW. However, when Call Forwarding Data Clear/Save is to be executed, the corresponding data (Index 232 b0-b3/INDEX304, b0, b1, b3-b5) must be assigned on a LN basis*

- INDEX89 b0 — Main Memory Check (MM Program Memory)
  0/1 = No/Yes

  b1 — DM Check (DM = Data Memory)
  0/1 = No/Yes

  b2 — TSW ACT/STBY Changeover (for Dual Systems)
  0/1= No/Yes **Note**

  Note: *This data fixed to 0 in LNs.*

  b3 — CPU ACT/STBY Changeover (for Dual Systems)
  0/1= No/Yes

  b4 — Trunk Ineffective Hold Check
  0/1= No/Yes

  b5 — Trunk Ineffective Hold Detection
  0/1 = No/Yes

  b6 — Call Forwarding Data Clear (See Index 232)
  0/1 = No/Yes

- INDEX90 b1 — Backup of Call Forwarding, Individual Speed Data, Name Display Data, User Assign Soft Key Data and Number Sharing Data to HDD (see Index 304)
  0/1 = No/Yes

  b3 — Residual Link Detection
  0/1 = No/Yes

- INDEX232 b0 — Call Forwarding - All Calls Data Clear
  0/1 = No/Yes (This data is valid when SYS1, INDEX232, b6=1)

  b1 — Call Forwarding - Busy Line Data Clear
  0/1 = No/Yes (This data is valid when SYS1, INDEX232, b6=1)

  b3 — Call Forwarding - Don't Answer Data Clear
  0/1 = No/Yes (This data is valid when SYS1, INDEX232, b6=1)

- INDEX304 b0 — Individual Speed Calling Data Saving
  0/1 = Out/In Service (This data is valid when SYS1, INDEX90, b1=1)

  b1 — Call Forwarding Data Saving
  0/1 = Out/In Service (This data is valid when SYS1, INDEX90, b1=1)

  b3 — Name Display Data Saving
  0/1 = Out/In Service (This data is valid when SYS1, INDEX90, b1=1)

  b4 — User Assign Soft Key Data Saving
  0/1 = Out/In Service (This data is valid when SYS1, INDEX90, b1=1)

  b5 — Number Sharing Data Saving
  0/1 = Out/In Service (This data is valid when SYS1, INDEX90, b1=1)

11.2 Routine Diagnosis Result

The result of routine diagnosis displays as a system message.

Normally ended: [7-O]

Abnormality detected [7-P] Refer to Chapter 3 for more details.

In case an abnormality is detected, initiate necessary processing explained in Chapter 5.

12. SYSTEM CONTROL PROCEDURES

Although the system is remarkably maintenance free, maintenance technicians occasionally may confront a situation in which they have to manually control the system. This chapter describes system control procedures focusing on the following four items.

- Changeover/Make-busy/Make-busy Cancel of Equipment
- Initialization
- How to Turn ON/OFF the Whole System
- System Start-up

Note: *Changeover of equipment is available for common control equipment, which is provided in a dual configuration.*

12.1 Changeover/Make-Busy/Make-Busy Cancel of Equipment

12.1.1 General

This section explains system operations which are necessary for Changeover/Make-Busy/Make-Busy Cancel of equipment dividing them into the following two blocks.

- CPU Block
- Switching Block (TSW/HSW/DLKC/MUX, PLO/CLK)

Prior to performing these operations, see Figure 6-37 through Figure 6-44 to obtain general understanding on the system configuration.

This figure shows a system block diagram of ISW, which adopts a dual configuration. As seen in the figure, ISW has the following terminals for the ACT/STBY changeover of dual system equipment:

CPU: If the ACT/STBY of CPU (ISW) is once changed over, the whole controlling block (including CPU, ISAGT, LANI in ISW) are also changed over.

IOGT: If the ACT/STBY of IOGT (ISW) is once changed over, the whole switching block within the system (IOGT, TSW, HSW in ISW and TSW, MUX, DLKC in all LNs) are also changed over. However, PLO (in both ISW and each LN) is not affected.

PLO: If the ACT/STBY of PLO in ISW is once changed over, only the PLOs in ISW are solely changed over.

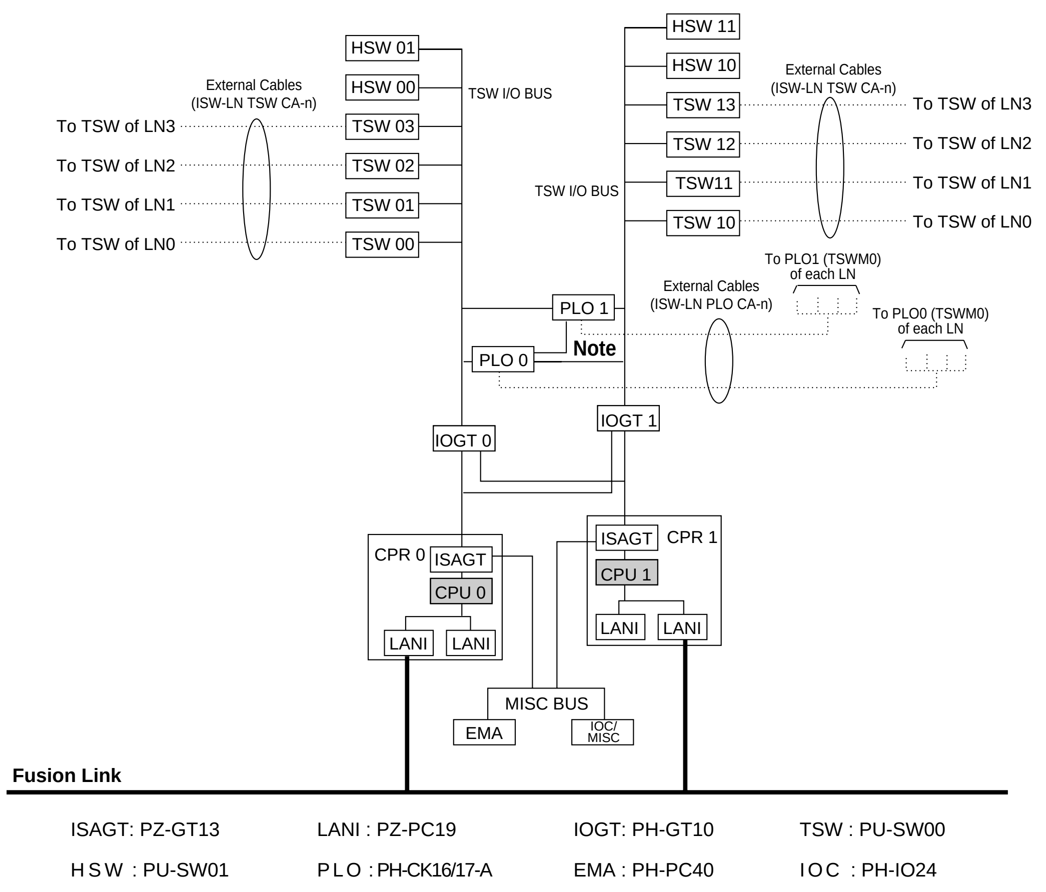


Figure 6-37 System Block Diagram for ISW Switching Network

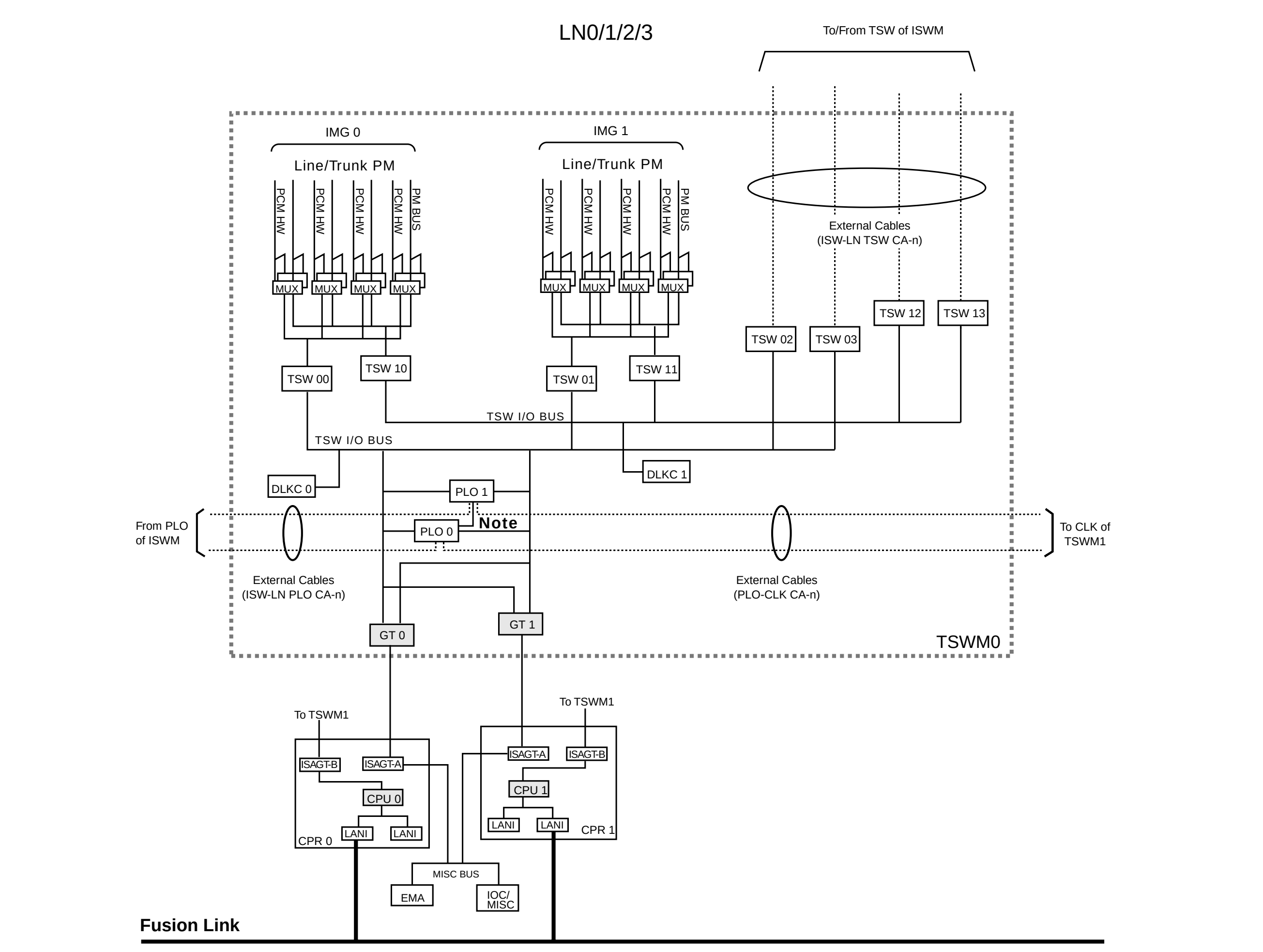
Note: *Even though the ACT/STBY of PLO in ISW is once changed over, the PLO/CLK in each LN are not changed over. This is because the PLOs in ISW and each LN (TSWM0) have multiple connections, respectively, via the backboard bus. For more details, refer to the "Circuit Card Manual."*

This figure shows a system block diagram of LN, which adopts a dual configuration. As seen in the figure, each LN has following terminals for the ACT/STBY changeover of dual system equipment:

CPU : If the ACT/STBY of CPU is once changed over, the whole controlling block in the same node (including CPU, ISAGT, LANI) and GT in both TSWM0 and TSWM1 are also changed over.

GT (TSWM0) : If the MBR key is flipped on the active GT (PH-GT09) card in TSWM0, the whole switching block in IMG0/1 (TSW, MUX, DLKC) and IMG2/3 (TSW, MUX) are totally changed over. However, PLO (in TSWM0) and CLK (in TSWM1) are not affected.

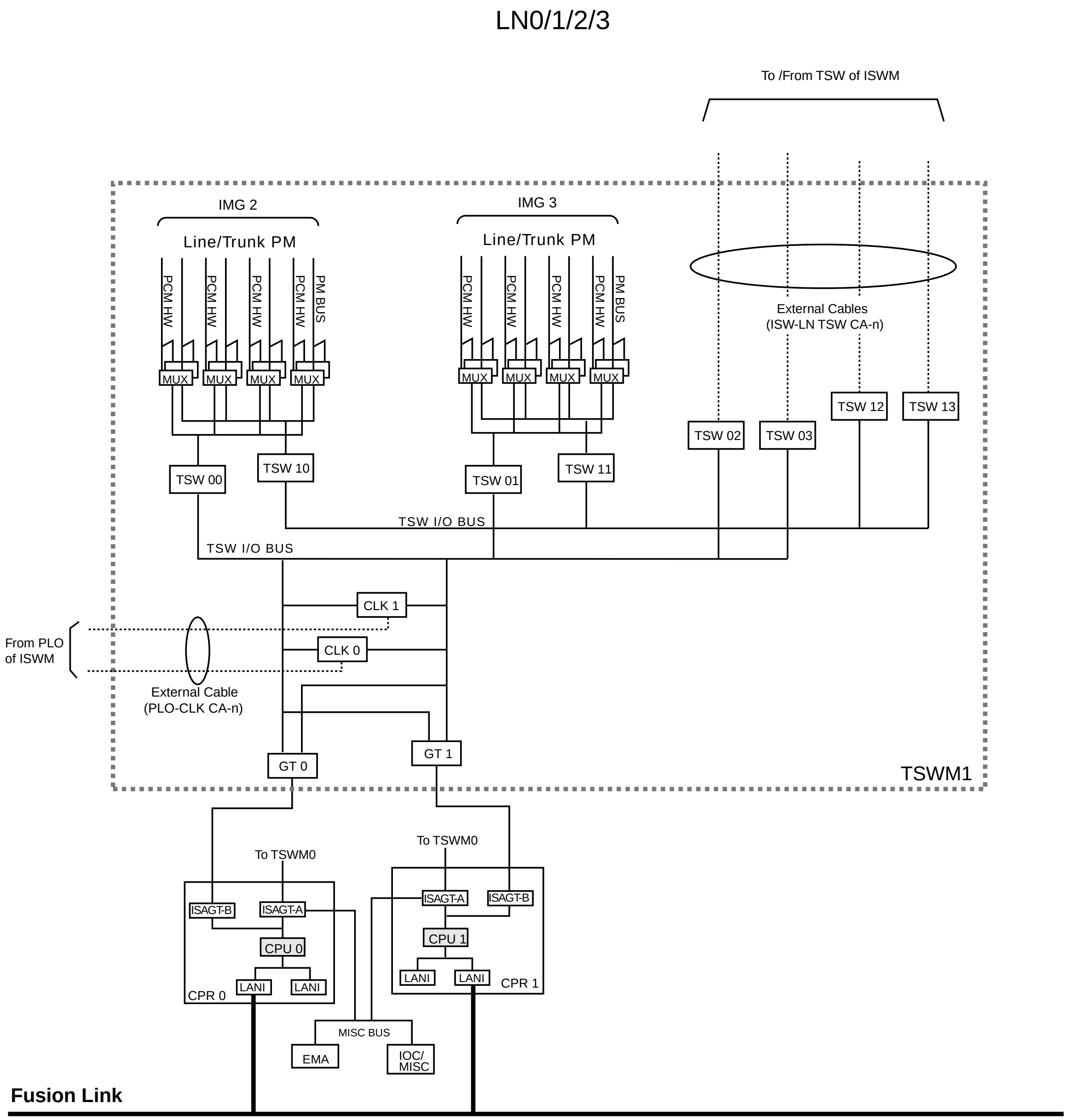
PLO (TSWM0): If the MB key is flipped on the active PLO (PH-CK16-A) card (in TSWM0), the ACT/STBY of both PLO (in TSWM0) and CLK (in TSWM1) are totally changed over.



ISAGT-A: PZ-GT13 ISAGT-B: PZ-GT20 LANI: PZ-PC19 GT: PH-GT09 TSW: PH-SW12
MUX: PH-PC36 DLKC: PH-PC20 PLO: PH-CK16-A EMA: PH-PC40 IOC: PH-IO24

Figure 6-38 System Block Diagram for LN Switching Network (1/2)

Note: *See "***Note***" on the previous page.*



ISAGT-A: PZ-GT13 ISAGT-B: PZ-GT20 LANI: PZ-PC19 GT: PH-GT09 TSW: PH-SW12
MUX: PH-PC36 CLK: PH-CK18 EMA: PH-PC40 IOC: PH-IO24

Figure 6-38 System Block Diagram for LN Switching Network (2/2)

To perform the ACT/STBY system changeover, check the lamp indicators shown in Figure 6-39, and then operate the related key.

Note 1: *LED indications cited in Figure 6-39 are only an example. The indicating pattern (ON/Flash/OFF) can differ, depending on each system setting.*

Note 2: *STATUS 7-seg. LED provides information on ACT/STBY status of the belonging CPU. For details on the LED's checking method, refer Figure 6-44.*

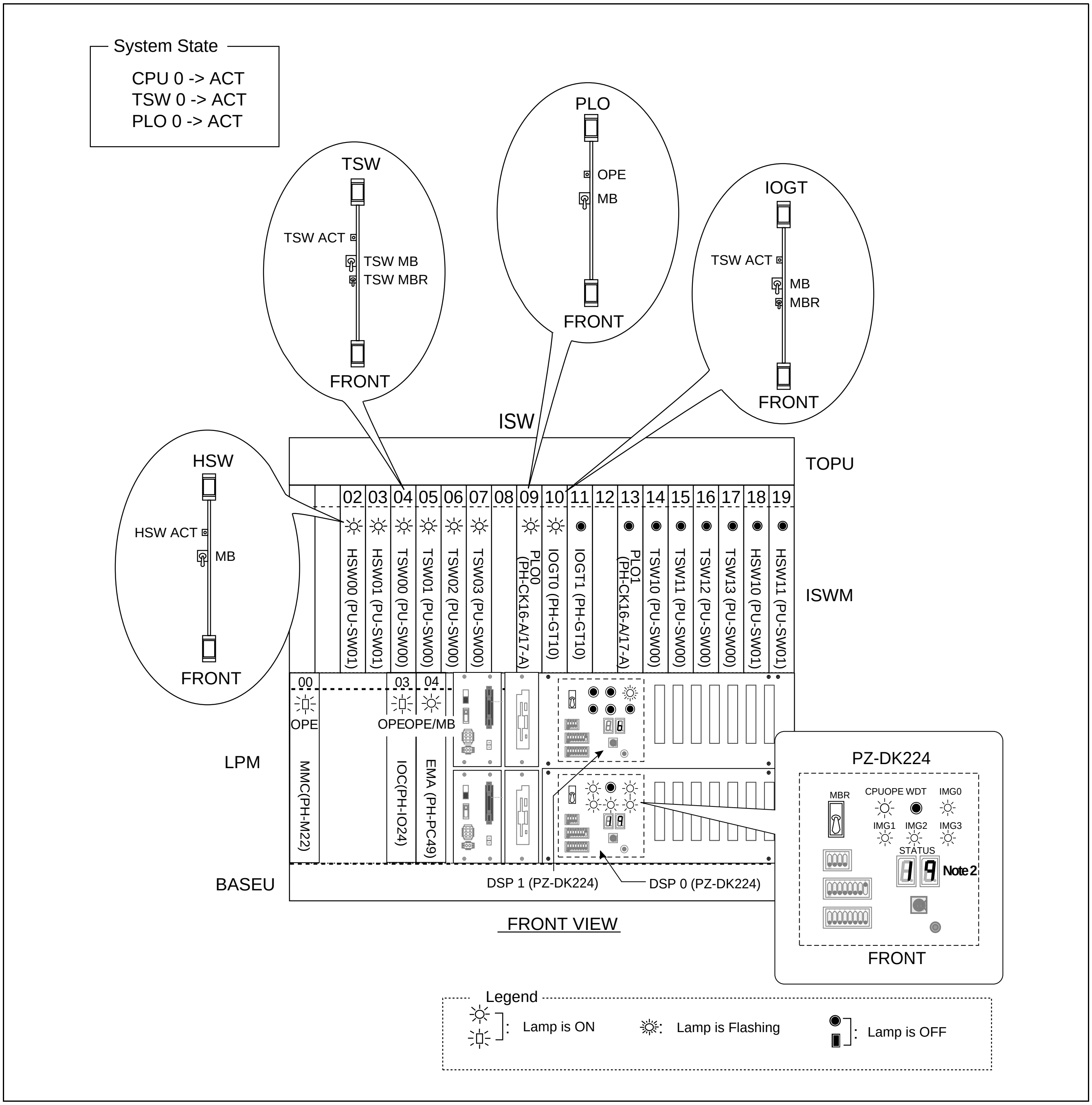


Figure 6-39 How to Check the LEDs and SW Keys for System Changeover (ISW)

To perform the ACT/STBY system changeover, check the lamp indicators shown in Figure 6-40, and then operate the related key.

Note 1: *LED indications cited in Figure 6-40 are only an example. The indicating pattern (ON/Flash/OFF) can differ, depending on each system setting.*

Note 2: *STATUS 7-seg. LED provides information on ACT/STBY status of the belonging CPU. For details on the LED's checking method, refer Figure 6-44.*

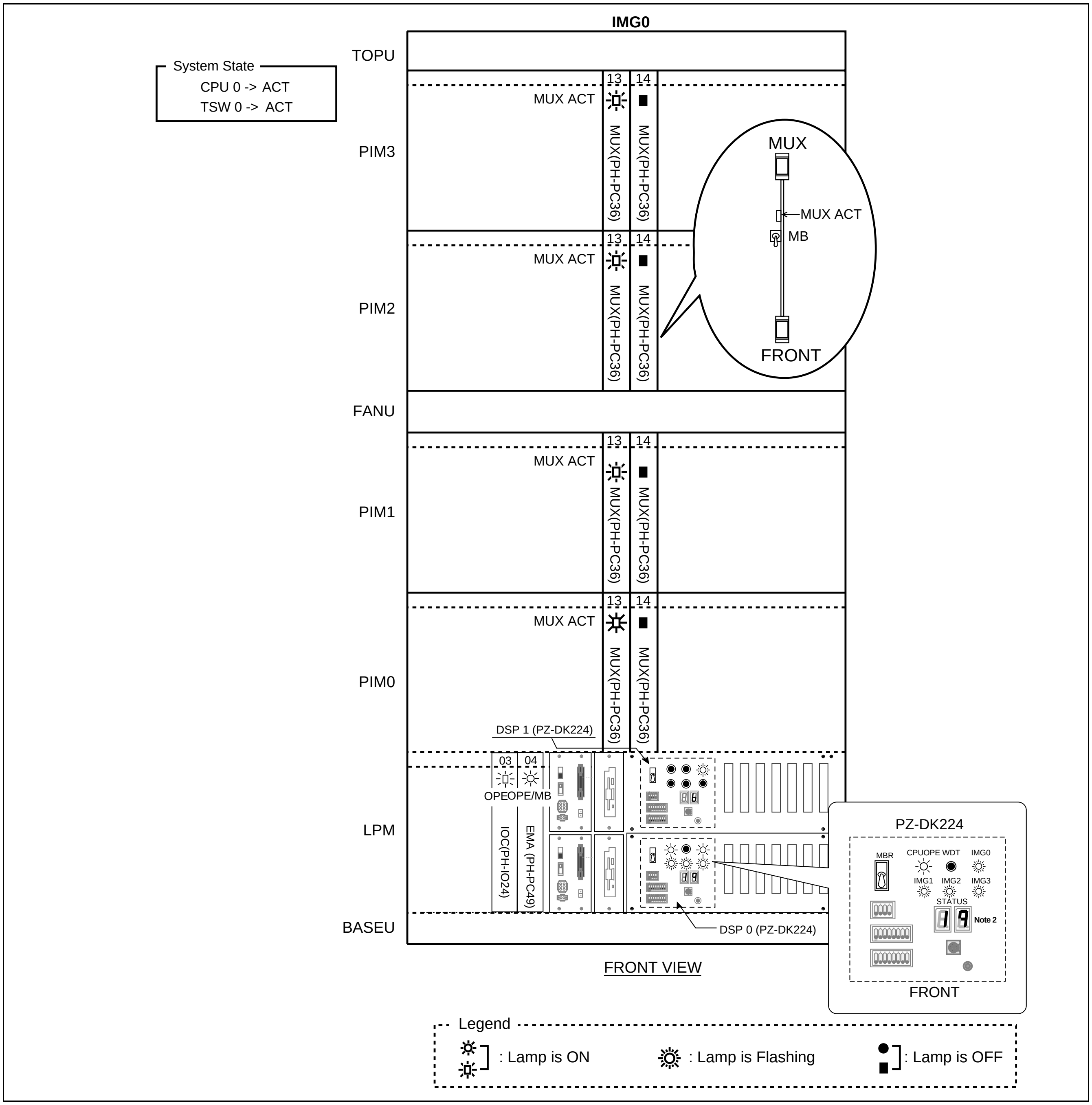


Figure 6-40 How to Check the LEDs and SW Keys for System Changeover (IMG0)

To perform ACT/STBY system changeover, check the lamp indicators shown in Figure 6-41, and then operate the related key.

Note: *LED indications cited in Figure 6-41 are only an example. The indicating pattern (ON/Flash/OFF) can differ, depending on each system setting.*

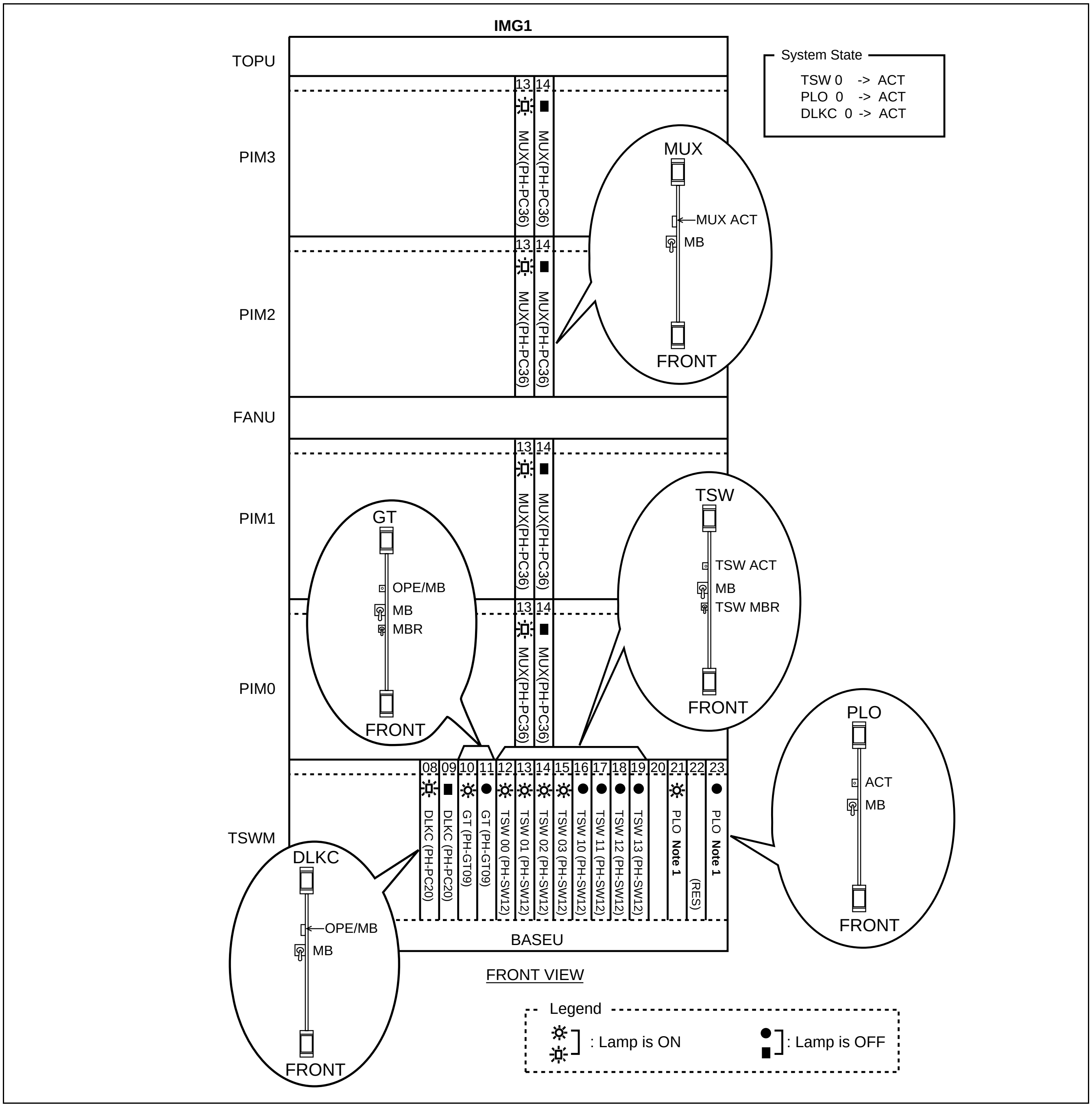


Figure 6-41 How to Check the LEDs and SW Keys for System Changeover (IMG1)

To perform the ACT/STBY system changeover, check the lamp indicators shown in Figure 6-42, and then operate the related key.

Note: *LED indications cited in Figure 6-42 are only an example. The indicating pattern (ON/Flash/OFF) can differ, depending on each system setting.*

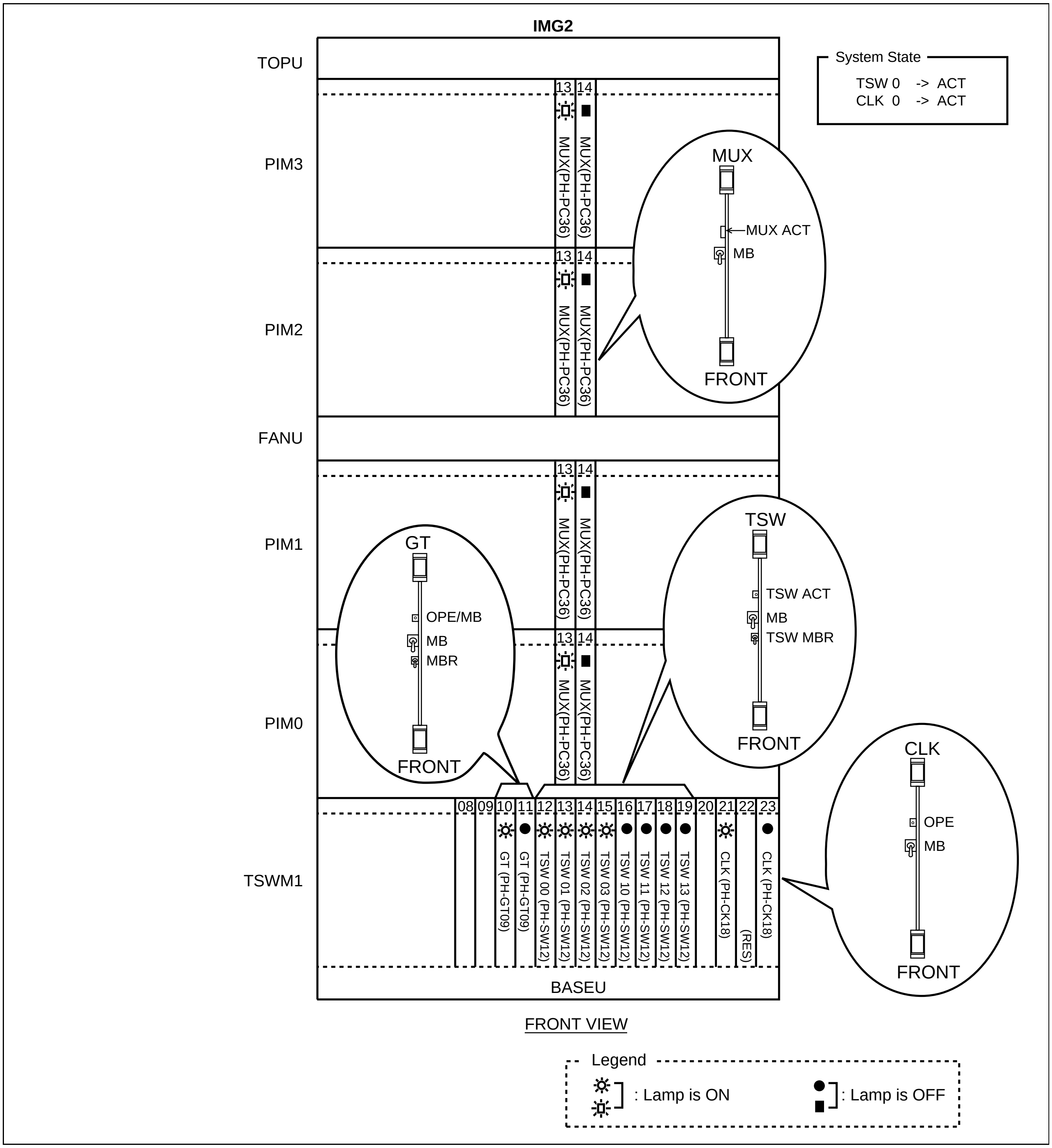


Figure 6-42 How to Check LEDs and SW Keys for System Changeover (IMG2)

To perform the ACT/STBY system changeover, check the lamp indicators shown in Figure 6-43, and then operate the related key.

Note: *LED indications cited in Figure 6-43 are only an example. The indicating pattern (ON/Flash/OFF) can differ, depending on each system setting.*

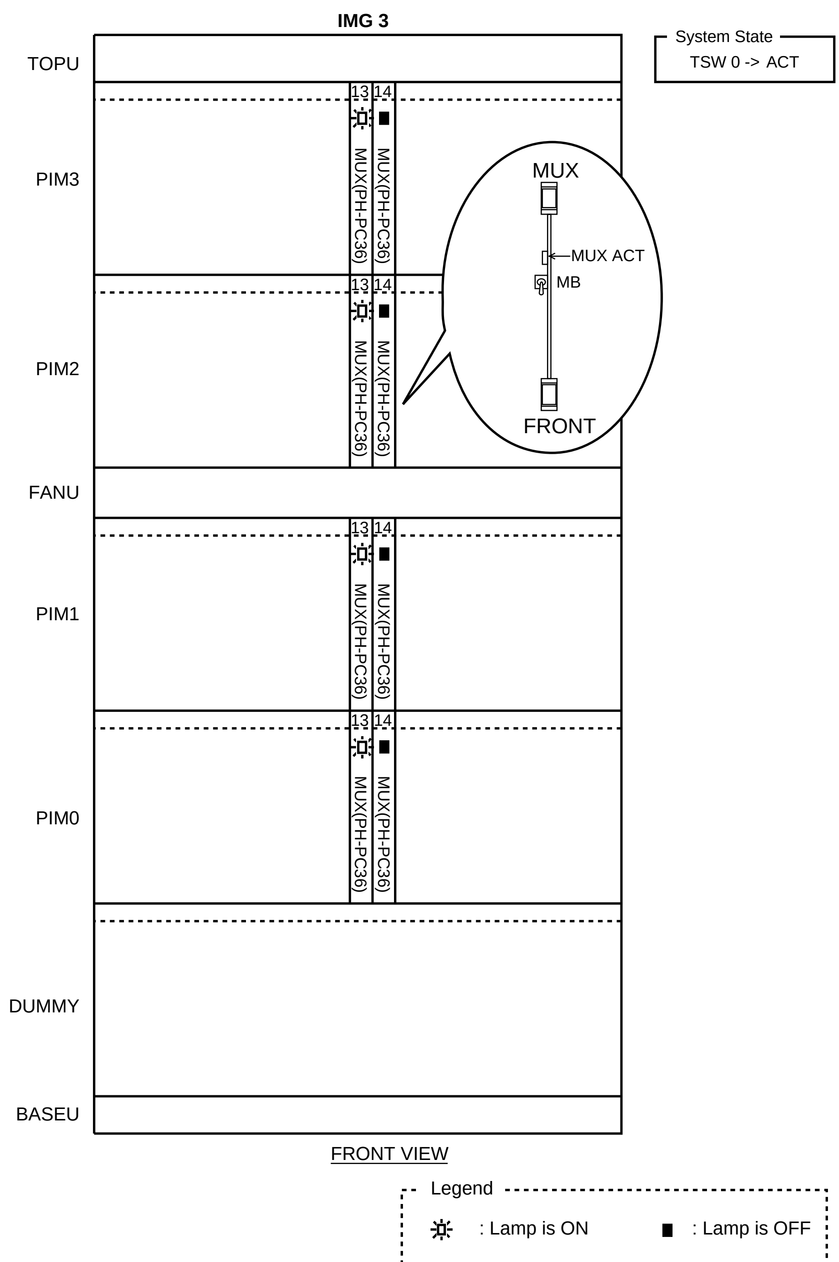
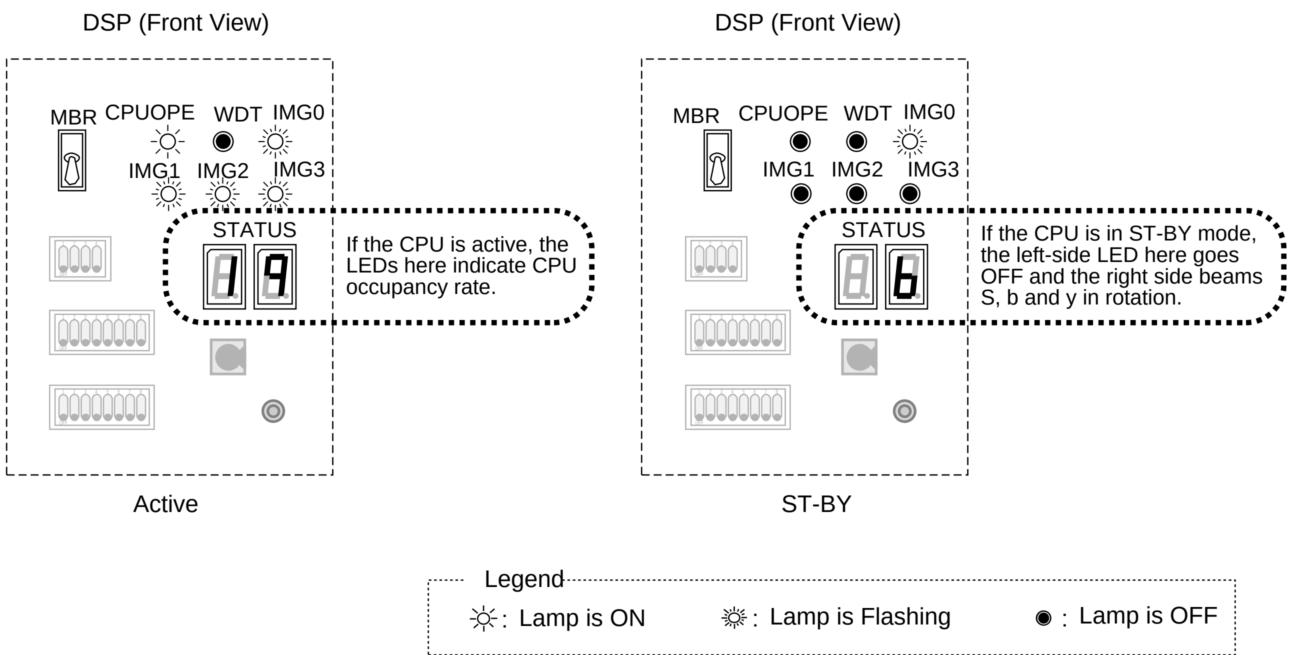


Figure 6-43 How to Check LEDs and SW Keys for System Changeover (IMG3)

- How to check the STATUS 7-seg. LEDs

  The ACT/STBY status of CPU can be confirmed by viewing the STATUS 7-seg. LEDs. Visually check the LED indications and confirm which CPU is active in your system.

  When the STATUS LEDs display any of the two-digit numbers (00 - 99), the belonging CPU is active. If the LEDs display the three letters (S, B and Y) in rotation, the CPU system is in STBY mode. Note that the numbers (00 - 99), displayed on the active CPU front panel (DSP), conform to the percentage points showing CPU occupancy rate.



Note 1: *The figure above shows an example of lamp indications on the DSP mounted in the ISW.*

Note 2: *In addition to the indication of "STATUS" 7-seg. LEDs, the ACT/ST-BY of the CPU also can be confirmed via the "CPU OPE" and "IMGn" lamps. Lamp indications on CPR for the fully expanded system (one ISW and four LNs) are shown below:*

LED NAME	ISW		LN (IMG0)	
	ACT	STBY	ACT	STBY
CPU OPE	Steady-green	OFF	Steady-green	OFF
IMG0	Steady-green	Flash green	Flash green	Flash green
IMG1	Steady-green	OFF	Flash green	OFF
IMG2	Steady-green	OFF	Flash green	OFF
IMG3	Steady-green	OFF	Flash green	OFF

Figure 6-44 How to Check STATUS LEDs

12.1.2 How to Control CPU Block

The ACT/STBY of CPU, when it is provided in a dual configuration, can be switched over by one of the operations shown in Table 6-8. If the system of CPU in the LN is changed over, the ACT/STBY of GT (in TSWM) also changes over. See Figure 6-45.

Table 6-8 Changeover of CPU Block

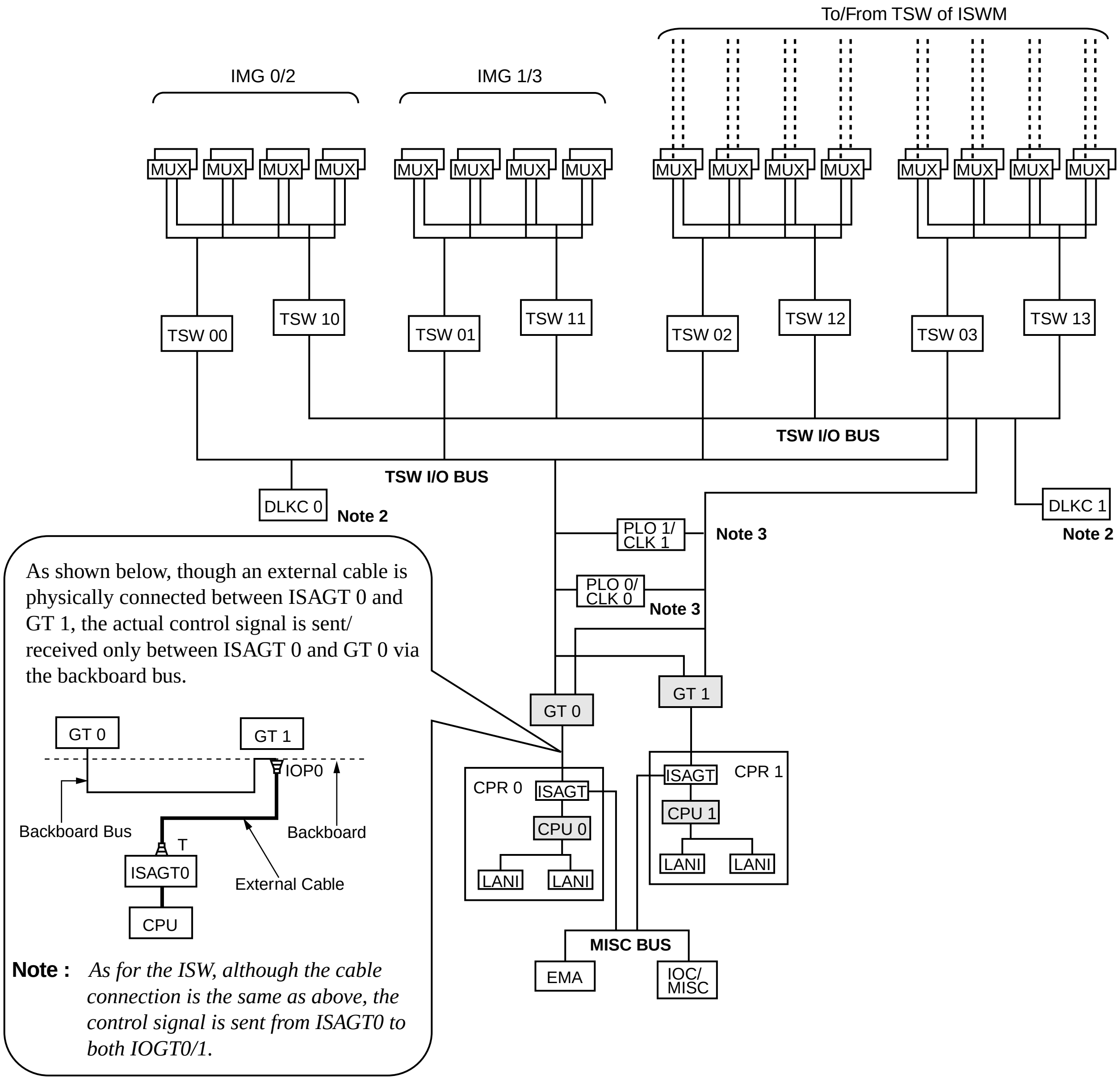
TYPE	OPERATIONS	REMARKS
Changeover by CMODI/CMOD **Note 1**	Use the CMODI/CMOD command. See Chapter 8.	CPU OPE lamp lights steady green on the DSP of the CPU, which is placed into ACT-mode by this operation. OPE/MB lamp of GT (PH-GT09) card, which is in the controlling route, lights green. **Note 3**
Changeover by key operation **Note 1**	Turn ON the MBR key on the DSP of the active CPU. After a few seconds, return the MBR key to the previous position. See Section 12.1.3, Manual System Changeover of CPU.	
Forced Changeover **Note 2**	ACT/STBY mode of CPU can be controlled by CPU SEL key operation on the EMA (PH-PC40) card. UP- No. 0 system (ACT) DOWN- No. 1 system (ACT) Normally, this key must be placed in the center position when the CPU is provided in a dual configuration. See Section 12.1.4, Forced Changeover of CPU.	

Note 1: *While changeover of the CPU is in progress, any call attempt is rejected. Already established calls, however, will not be affected.*

Note 2: *When the forced changeover is executed, the entire system is initialized. For this reason, do not use this operation except in unavoidable circumstances.*

Note 3: *Except in the case of ISW, the CPU mode change (in LN) affects the ACT/STBY of GT (PH-GT09) card. See Figure 6-45.*

Figure 6-45 shows a system block diagram centering upon the CPU and its controlling GT in a LN. Though the two sides have a complicated cable connection, the controlling route of CPU 0 directly goes to GT 0, and that of CPU 1 to GT 1. Therefore, if the system of CPU is changed over, the ACT/STBY of GT also changes over (for LN only: IOGT is not changed over in the the case of ISW.)



ISAGT: PZ-GT13/PZ-GT20	LANI: PZ-PC19	GT : PH-GT09	TSW: PH-SW12	MUX: PH-PC36
DLKC : PH-PC20	PLO : PH-CK16-A/17-A	CLK : PH-CK18	EMA: PH-PC40	IOC : PH-IO24

Note 1: *This figure shows the Switching Network diagram only related to the LNs. For the diagram regarding the ISW. See Figure 6-37.*
Note 2: *This card is mounted in TSWM0 only.*
Note 3: *PLO card is mounted in TSWM0 and CLK card is mounted in TSWM1.*

Figure 6-45 System Block Diagram in LN (Switching Network Between CPU and GT)

12.1.3 Manual System Changeover of CPU

To change over the CPU system, the CMODI/CMOD command is normally used. However, if the command cannot be used for some reason, use the key operations listed below:

Note: *For system changeover via the command, see Chapter 8.*

WARNING Improper key operations may result in a system down. Operate the related keys, applying extreme care.

Changeover Procedure for CPU of ISW

STEP 1 Determine which CPU is active.

(1) Check the lamp indications on the CPU Display Panel (DSP).

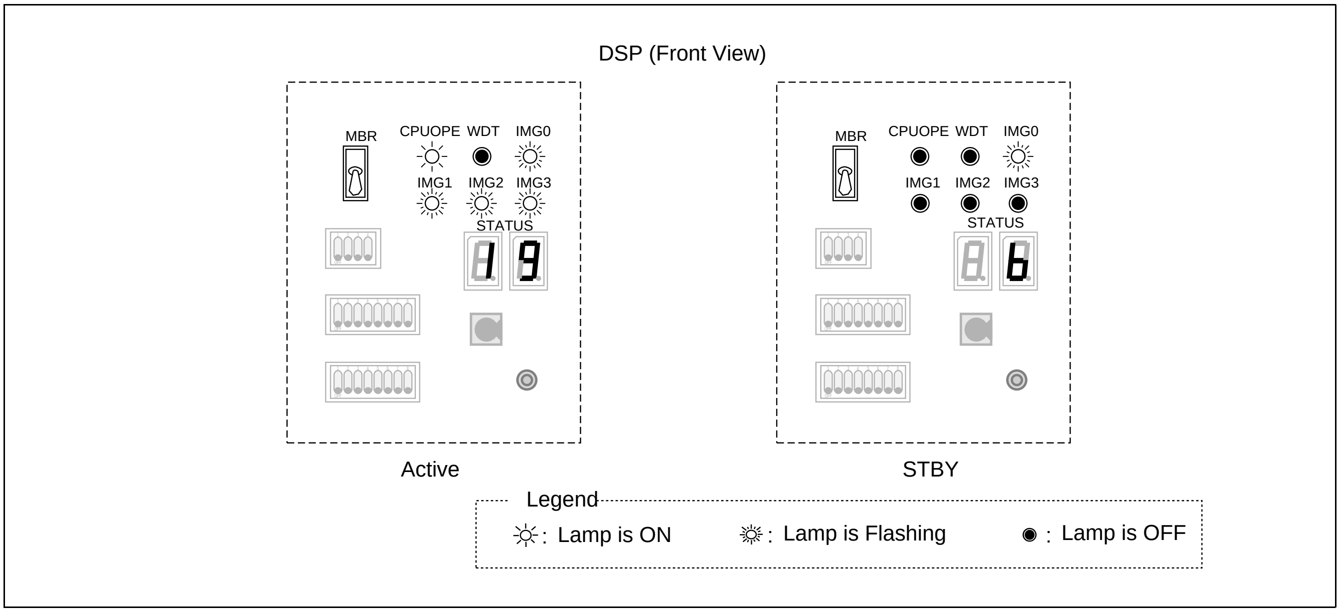


Figure 6-46 CPU in ACT/STBY Mode (ISW)

(2) Check the mate CPU's STBY mode.

WARNING The system changeover of CPU can be done only when the mate CPU is in STBY mode. Do not attempt the changeover if the mate CPU is closed.

STEP 2 Flip the MBR key on the DSP of the active CPU.

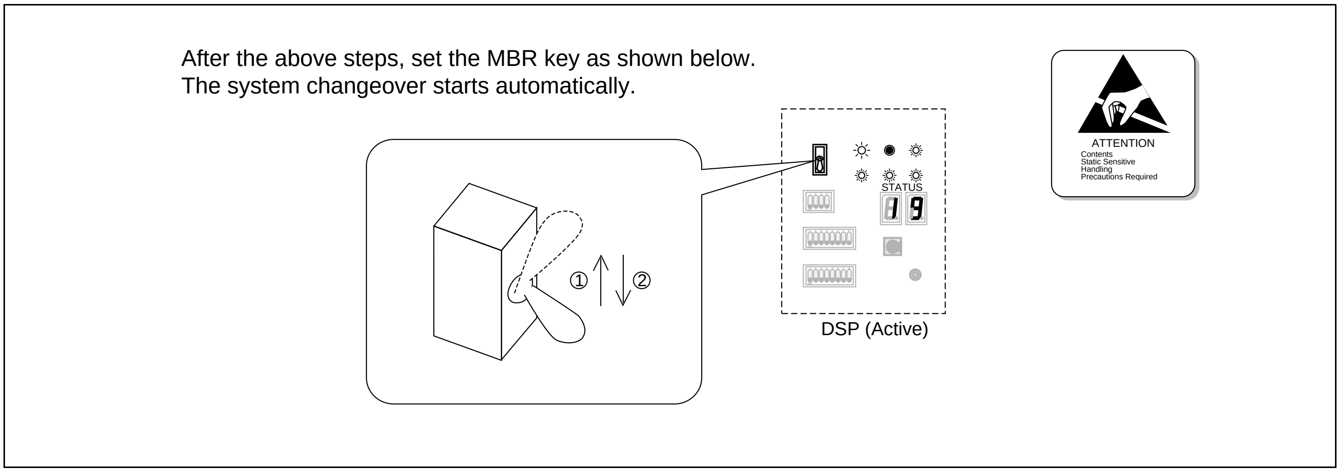


Figure 6-47 CPU Changeover via MBR Key (ISW)

Note: *If the MBR key remains in the UP position, the CPU stays in its make-busy status. Be sure to return the key to the DOWN position except in the case of a special purpose.*

STEP 3 Confirm the changed lamp indications.

To confirm the CPU changeover, check the lamps on both DSPs. LED indications must change as shown when the CPU system has been correctly changed over.

CPU Formerly Active			After Changeover
CPU OPE	: Steady-ON (green)	→	OFF
IMG0	: Flash (green)	→	Flash (green)
IMG1-3	: Flash (green)	→	OFF
MB/OPE (GT Card)	: Steady-ON (green)	→	OFF

CPU Formerly in STBY Mode			After Changeover
CPU OPE	: OFF	→	Steady-ON (green)
IMG0	: Flash (green)	→	Steady-ON (green)
IMG1-3	: OFF	→	Flash (green)
MB/OPE (GT Card)	: OFF	→	Steady-ON (green)

Figure 6-48 LED Indications Before and After CPU Changeover (ISW)

STEP 4 Analyze the displayed system messages.

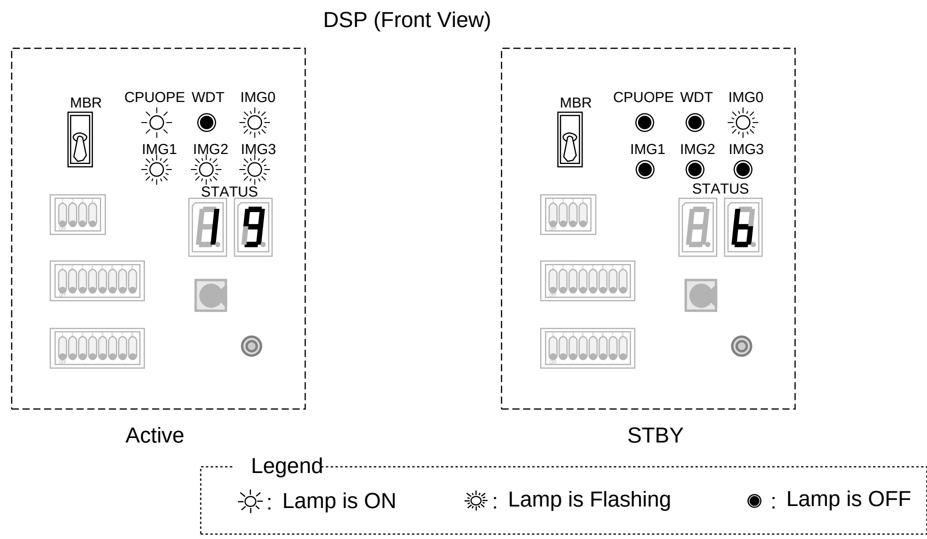
After STEPs 1 through 3 are performed, the system messages [7-C] and [7-D] automatically display. Confirm that no errors occurred during the CPU changeover process.

Note: *When the CPU mode change executes, the MAT (TCP/IP) is once disconnected. Then, log in to the system again.*

Changeover Procedure for CPU of LN

STEP 1 Determine which CPU is active.

(1) Check the lamp indications on the CPU Display Panel (DSP).



Note: *IMG1 through IMG3 lamp indication may differ depending on the system configuration.*

Figure 6-49 CPU in ACT/STBY Mode (LN)

The CPU changeover also affects the ACT/ST-BY of GT(s) in the TSWM(0/1). Referring to Figure 6-50, check the lamp indications on the GT (PH-GT09) card(s).

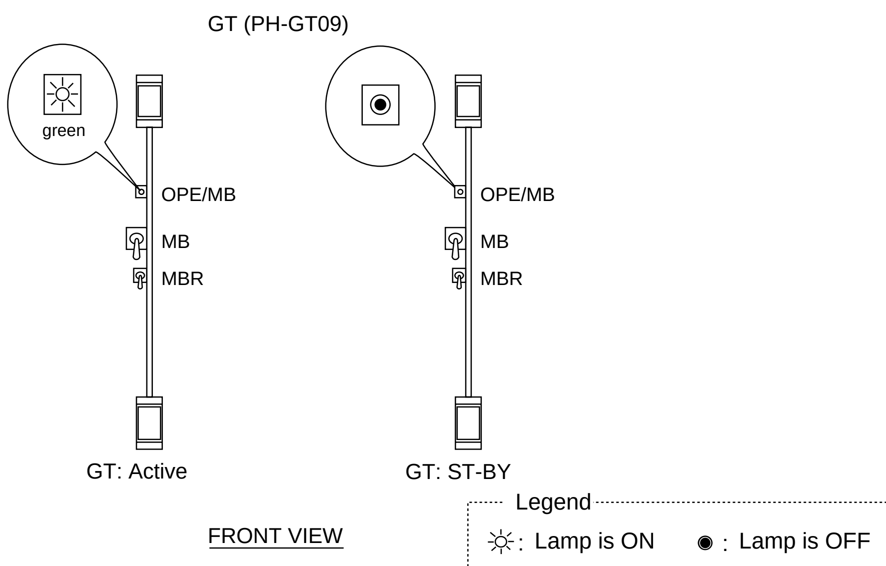


Figure 6-50 GT in ACT / STBY Mode (LN)

(2) Check the mate CPU's STBY mode. Also check the mate GT's STBY mode. Refer to Figure 6-50.

WARNING The system changeover of CPU can be done only when the mate CPU is in STBY mode. Do not attempt the changeover if the mate CPU is closed.

STEP 2 Flip the MBR key on the DSP of the active CPU.

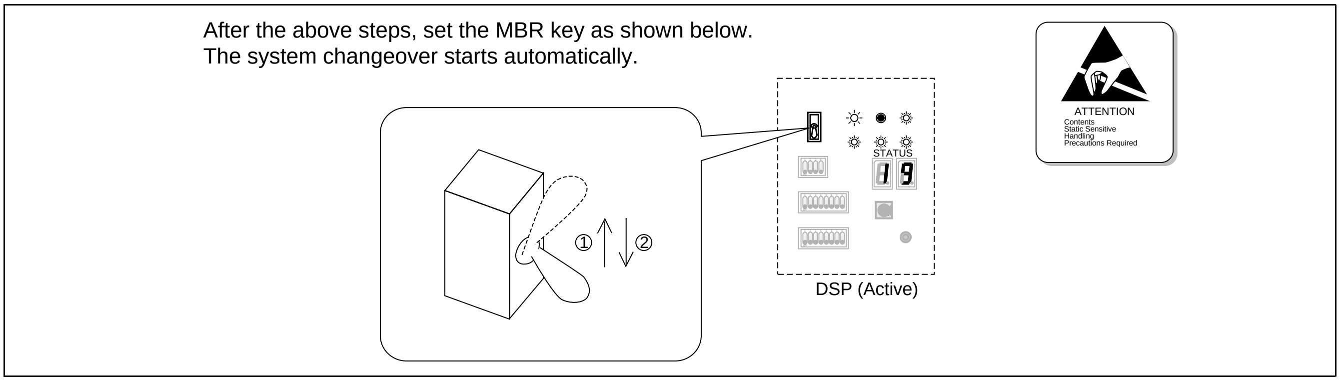


Figure 6-51 CPU Changeover via MBR Key (LN)

Note: *If the MBR key remains in the UP position, the CPU stays in its make-busy status. Be sure to return the key to the DOWN position except in the case of a special purpose.*

STEP 3 Confirm the changed lamp indications.

To confirm the CPU changeover, check the lamps on both DSPs. LED indications must change as shown when the CPU system has been correctly changed over.

CPU Formerly Active			After Changeover
CPU OPE	: Steady-ON (green)	→	OFF
IMG0	: Flash (green)	→	Flash (green)
IMG1-3	: Flash (green)	→	OFF
MB/OPE (GT Card)	: Steady-ON (green)	→	OFF

CPU Formerly in STBY Mode			After Changeover
CPU OPE	: OFF	→	Steady-ON (green)
IMG0	: Flash (green)	→	Steady-ON (green)
IMG1-3	: OFF	→	Flash (green)
MB/OPE (GT Card)	: OFF	→	Steady-ON (green)

Figure 6-52 LED Indications Before and After CPU Changeover (LN)

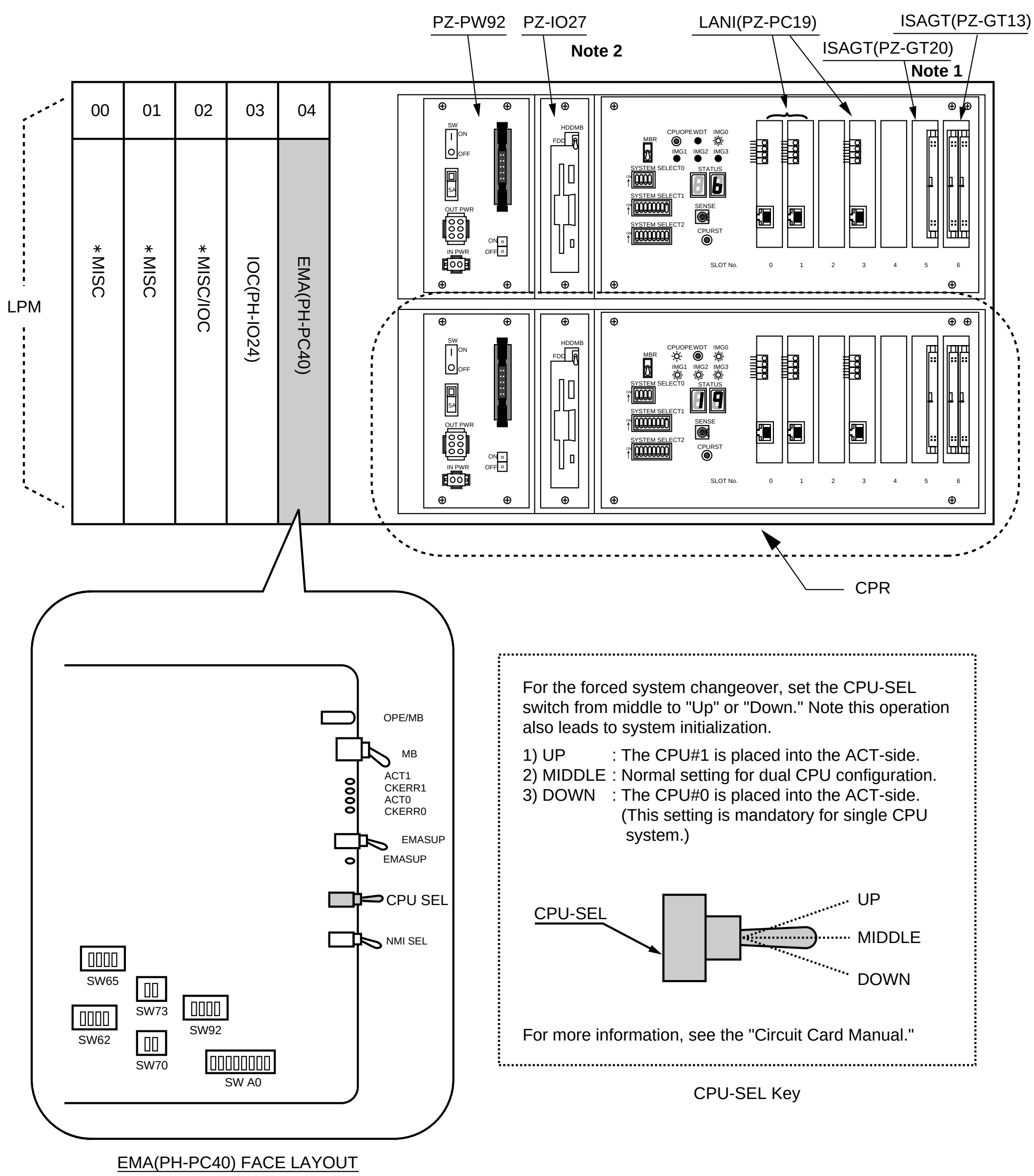
STEP 4 Analyze the displayed system messages.

After STEPs 1 through 3 are performed, the system messages [7-C] and [7-D] automatically display. Confirm that no errors occurred during the CPU changeover process.

Note: *When the CPU mode change executes, the MAT (TCP/IP) is once disconnected. Then, log in to the system again.*

12.1.4 Forced Changeover of CPU

Figure 6-53 shows how to perform the forced changeover of CPU by key operation on the EMA (PH-PC40) card. Because the key operation will cause the entire system to initialize, do not rely on this method except as a last resort. The LPM is mounted in the LN as as example.



Note 1: *PZ-GT20 card is mounted in the CPR of LN only.*

Note 2: *In place of PZ-IO27, the CPR may be quipped with PZ-IO28, which does not have the MB key.*

Figure 6-53 Forced CPU Changeover

12.1.5 How to Control Switching Block

The Switching Block denoted here includes the following system equipment:

In LN	**In ISW**
TSW (PH-SW12)	IOGT (PH-GT10)
MUX (PH-PC36)	TSW (PU-SW00)
DLKC (PH-PC20)	HSW (PU-SW01)
PLO (PH-CK16-A)	PLO (PH-CK16-A/17-A)
CLK (PH-CK18)	
GT (PH-GT09)	

Perform the required system changeover by using the CMODI/CMOD command or by operating the relevant key on the IOGT/PLO card. Refer to Table 6-9.

Note: *The changeover of IOGT completely affects the whole system denoted in this section, except for the GT, PLO, and CLK. If the Speech Path System is changed over, be sure to make a follow-up check to see if the whole related systems (TSW, HSW, MUX, DLKC) are securely changed over. (The check can be made by a simple glimpse at the OPE or ACT lamps on each circuit card)*

Table 6-9 Changeover of Switching Block

Type	Operations	Remarks
• Speech Path Changeover by the CMODI command **Note 1**	Use the CMODI command (for the changeover on both system/node basis by logging in to ISW) or Use CMOD (for the changeover only on a node basis) See Chapter 8.	All the OPE or ACT lamps on the Speech Path System, except the GT, PLO and CLK cards, which were formerly active, go OFF. All the OPE or ACT lamps on the Speech Path System, except the GT, PLO and CLK cards, which were formerly STBY, light steady-green.
• Speech Path System Changeover by Key Operation on the active IOGT card **Note 1**	On the active IOGT card, turn the MBR key UP. **Note 2** Return the MBR key to the original position (DOWN) after the TSW ACT lamp goes OFF on the IOGT card. See Section 12.1.6, Manual System Changeover of Speech Path System.	All the OPE or ACT lamps on the Speech Path system, except GT, PLO and CLK cards, which were formerly active, go OFF. All the OPE or ACT lamps on the other side Speech Path System, except the GT, PLO and CLK cards light steady-green.

Table 6-9 Changeover of Switching Block (Continued)

Type	Operations	Remarks
• PLO and CLK Changeover in the ISW/LN by Key Operation **Note 1**	On the active PLO card in ISW/LN, turn the MBR key UP. Return the MB key to the original position (DOWN) after the OPE lamp goes OFF on the PLO card. See Section 12.1.7, Manual System Changeover of PLO/CLK.	The OPE lamp on the PLO/CLK card, which was formerly active, goes OFF. The OPE lamp on the PLO/CLK card, which was formerly STBY, goes steady-green.

Note 1: *These operations cause a momentary interruption in speech paths. It can be ignored as far as ordinary telephone calls are concerned. Since interruption might cause bit errors, care should be take when data communications are involved.*

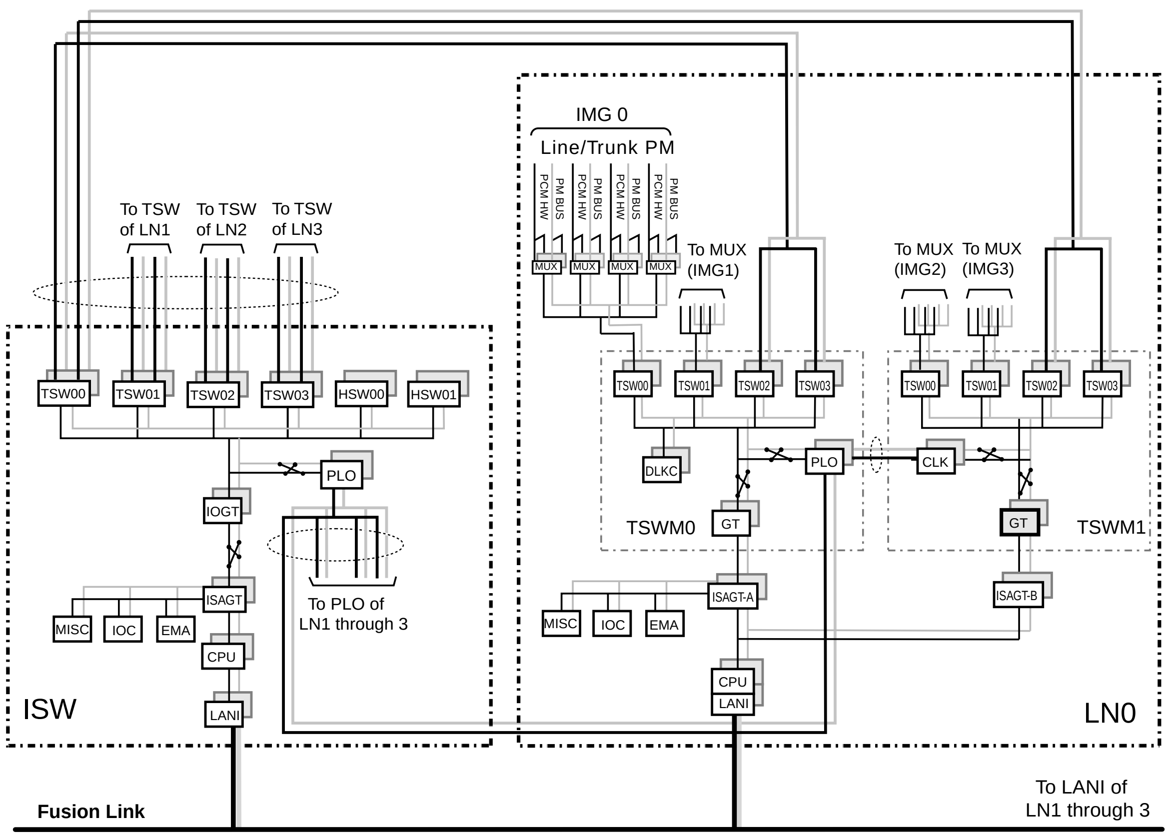
Note 2: *When changing over the Speech Path System on a node basis, flip the MBR key on that node's GT (PH-GT09) card. Refer to Figure 6-38.*

12.1.6 Manual System Changeover of Speech Path System

To changeover the ACT/STBY of Speech Path System, the CMODI/CMOD command is normally used. However, if for some reason the command cannot be used, use the key operations listed below.

Note 1: *The command CMOD cannot be used to change over the Speech Path mode on a system basis. This command is only for the changeover on each node basis.*

Note 2: *This section gives a detail on how to change the Speech Path mode on a system basis. When the mode change is necessary on a node basis, flip the MBR key on the GT (PH-GT09) card in that node's TSWM0. For more information, refer to Figure 6-38 or the Installation Manual.*



< ISW (Inter-node Switch) >
ISAGT: PZ-GT13 LANI: PZ-PC19 IOGT: PH-GT10 TSW: PU-SW00
HSW: PU-SW01 PLO: PH-CK16-A/17-A EMA: PH-PC40 IOC: PH-IO24

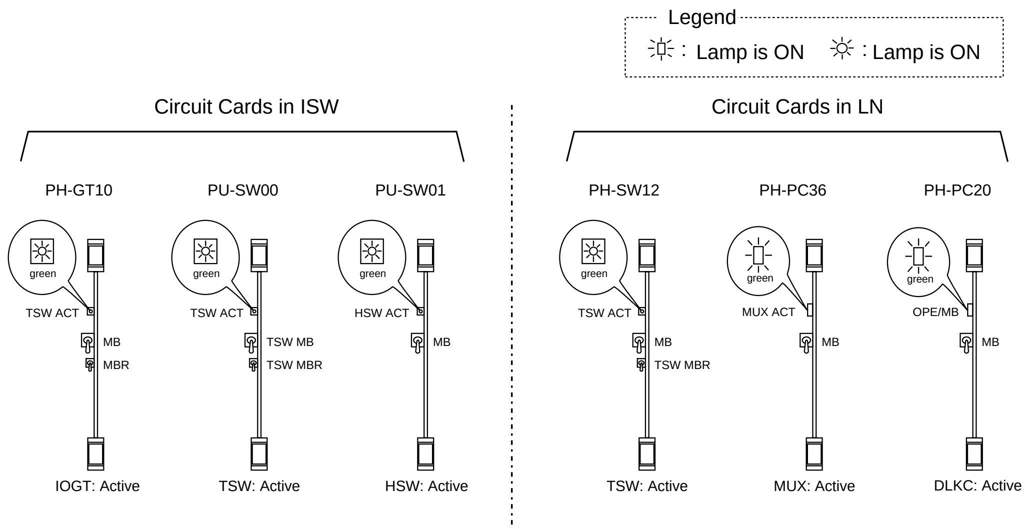
< LN (Local Node) >
ISAGT-A: PZ-GT13 ISAGT-B: PZ-GT20 LANI: PZ-PC19 GT: PH-GT09 TSW: PH-SW12 MUX: PH-PC36
DLKC: PH-PC20 PLO: PH-CK16-A CLK: PH-CK18 EMA: PH-PC40 IOC: PH-IO24

Note: *If the MBR key is once flipped on the active IOGT card, all the Speech Path related systems (TSW, HSW, DLKC and MUX) in the same switching block are totally changed over. However, the ACT/STBY of GT (PH-GT09 in LN) and PLO/CLK in both ISW and LNs are not affected.*

Figure 6-54 System Block Diagram (Switching Network for Speech Path System)

STEP 1 Confirm the active Speech Path System.

(1) Check all the lamp indications below, which are in the same switching block.

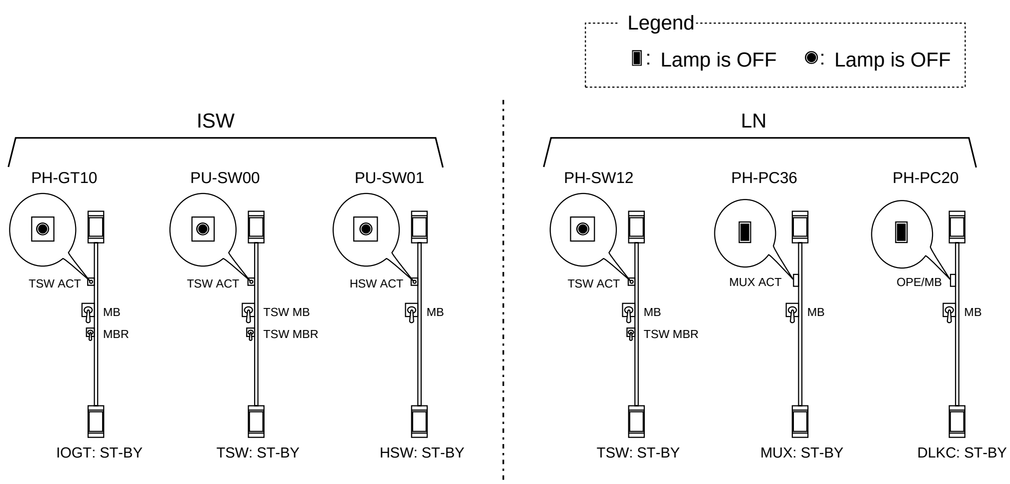


Note: *Be sure to check* **all** *the circuit cards in the same Switching Block referring to the lamp indications above.*

Figure 6-55 IOGT/TSW/HSW/DLKC/MUX in ACT Mode

(2) Confirm the STBY mode of mate Speech Path System. Check all the lamp indications below, which are in the same switching block.

WARNING The ACT/STBY of Speech Path System can be changed over only when the mate system is in STBY mode. Do not attempt the changeover if the mate Speech Path System is closed.



Note: *Be sure to check* **all** *the circuit cards in the same Switching Block referring to the lamp indications above.*

Figure 6-56 IOGT/TSW/HSW/DLKC/MUX in STBY Mode

WARNING Improper key operations may result in a system down. Operate the related keys, using extreme care.

STEP 2 Flip the MBR key on the active IOGT card in ISW.

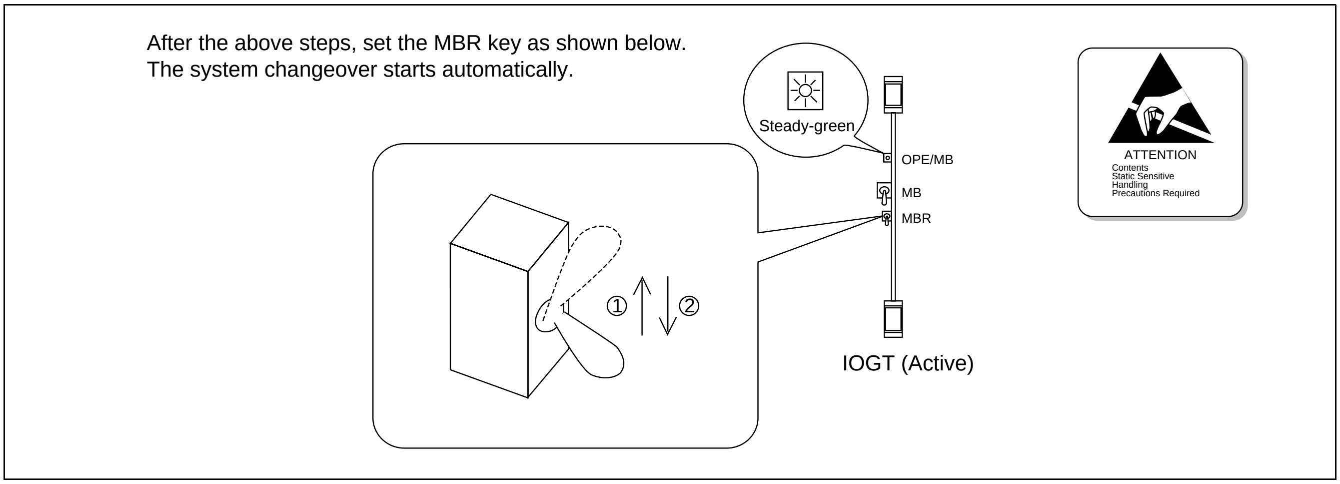


Figure 6-57 Speech Path System Changeover via Active IOGT MBR Key

Note: *If the MB key is turned ON (UP), the IOGT card is forcibly placed in a make-busy status. Therefore, do not operate the MB key by mistake. Also, after the MBR key is flipped, be sure to return the key to the original position (DOWN).*

STEP 3 Confirm the changed lamp indications.

(1) To confirm the imposed Speech Path System changeover, check all the lamps on the cards shown in Figure 6-58, which are in the relevant switching blocks.

LED Indications at the ISW

Switching Block Formerly Active			After Changeover
TSW ACT (IOGT card):	Steady-ON (green)	→	OFF
TSW ACT (TSW card) :	Steady-ON (green)	→	OFF
HSW ACT (HSW card):	Steady-ON (green)	→	OFF

Switching Block Formerly stby			After Changeover
TSW ACT (IOGT card):	OFF	→	Steady-ON (green)
TSW ACT (TSW card) :	OFF	→	Steady-ON (green)
HSW ACT (HSW card):	OFF	→	Steady-ON (green)

LED Indications at the LNs

Switching Block Formerly Active			After Changeover
TSW ACT (TSW card) :	Steady-ON (green)	→	OFF
MUX ACT (MUX card) :	Steady-ON (green)	→	OFF
OPE/MB (DLKC card) :	Steady-ON (green)	→	OFF

Switching Block Formerly stby			After Changeover
TSW ACT (TSW card) :	OFF	→	Steady-ON (green)
MUX ACT (MUX card) :	OFF	→	Steady-ON (green)
OPE/MB (DLKC card) :	OFF	→	Steady-ON (green)

Figure 6-58 LED Indications Before and After Speech Path System Changeover

STEP 4 Analyze the displayed system messages.

After STEPs 1 through 3 are performed, the system messages [7-E], [7-F], and [1-T] will automatically display. Confirm that no errors occurred during the Speech Path System changeover process.

Note: *When the Speech Path System changeover is executed in each LN independently, the system messages to be displayed at this time are 7-E, 7-F, and 1-T.*

12.1.7 Manual System Changeover of PLO

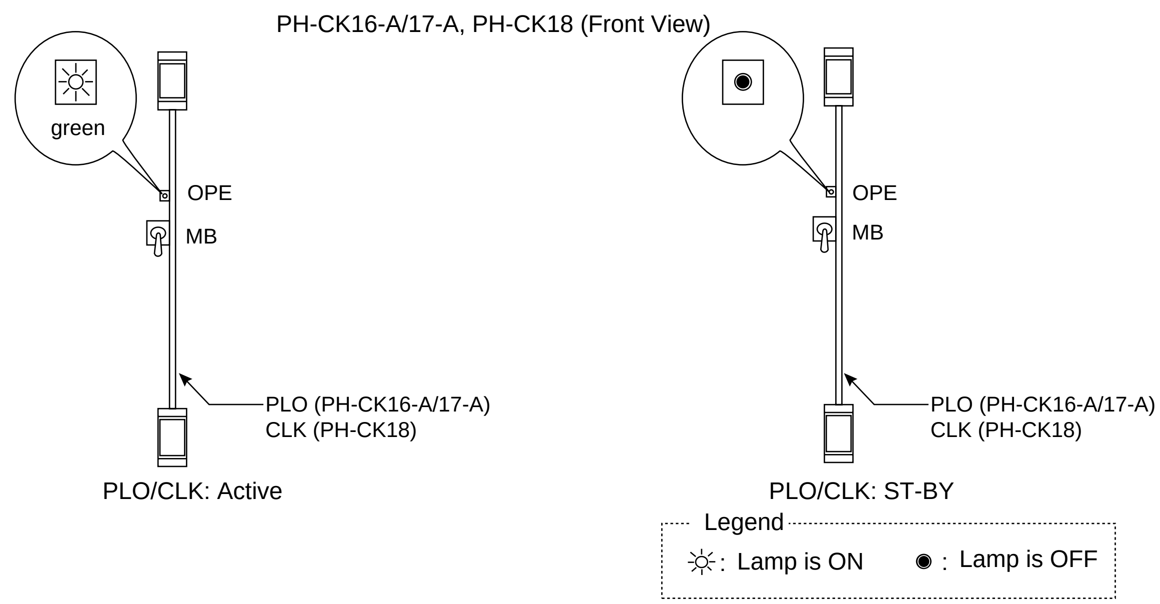
To change over the system of Phase Lock Oscillator (PLO)/Clock (CLK), use the key operations listed below at a specific LN/ISW.

Note: *Though the PLO/CLK belongs to the Switching Block as explained in Section 12.1.5, its ACT/STBY Switching Network is separate from that of the Speech Path System. Therefore, the changeover of the PLO/CLK must be independently performed at each LN/ISW.*

WARNING Improper key operations may result in a system down. Operate the related keys, using extreme care.

STEP 1 Confirm the active PLO. When performing the changeover at the LN, also check the active CLK.

(1) Check the lamp indications.



Note: *ACT/STBY of PLO can be changed over on a node basis, not on a network/system basis. Therefore, check the PLO/CLK cards only in that specific LN/ISW. Refer to Figure 6-37 and Figure 6-38.*

Figure 6-59 PLO/CLK in ACT/STBY Mode

(2) Check the mate PLO’s STBY mode. When performing the changeover at the LN, check the mate’s CLK’s STBY mode.

WARNING The changeover of PLO/CLK system can be done only when the mate PLO/CLK is in STBY mode. Do not attempt the changeover if the mate PLO/CLK is closed.

STEP 2 Flip the MB key on the PLO card.

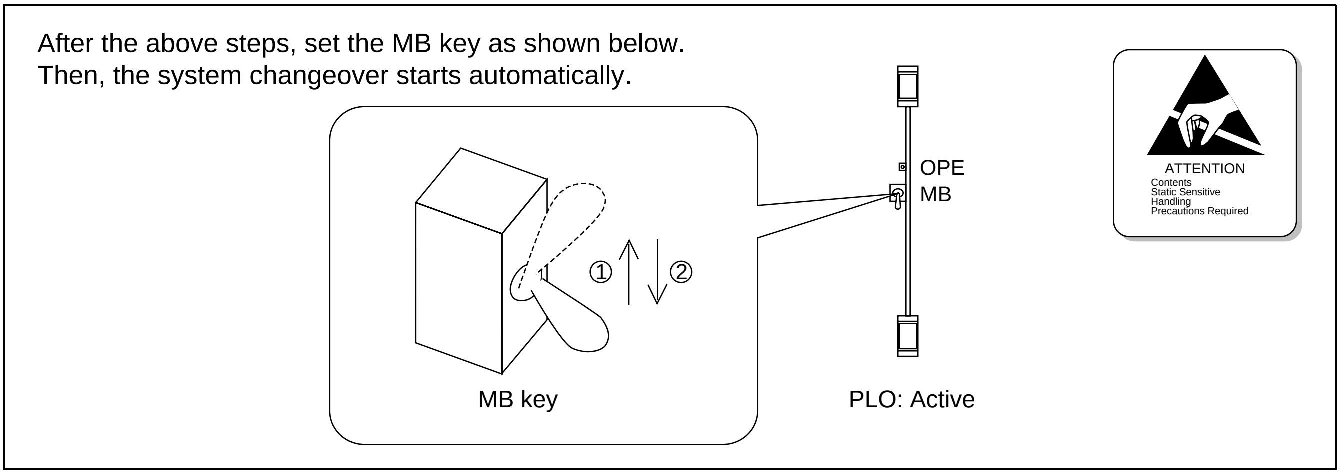


Figure 6-60 PLO Changeover via MB Key

Note: *If the MB key remains in the UP position, the PLO system also stays in its make-busy status. Be sure to return the key DOWN except in the case of a special purpose.*

STEP 3 Confirm the changed lamp indications.

(1) To affirm the imposed PLO changeover, check the following lamps on both PLO cards. The LED indications must change as follows when the PLO system has been correctly changed over. When performing the changeover at the LN, check the CLK's lamps.

PLO/CLK Formerly Active		After Changeover
OPE: Steady-ON (green)	→	OFF

PLOCLK Formerly in STBY Mode		After Changeover
OPE: OFF	→	Steady-ON (green)

Figure 6-61 LED Indications Before and After PLO/CLK Changeover

STEP 4 Analyze the displayed system messages.

After STEPs 1 through 3 are performed, the system messages [7-U] and [7-V] will automatically display. Make sure that no errors occurred during the PLO changeover process.

12.2 Initialization

12.2.1 General

This section explains the initialization types:

System Initialization

- System Initialization by turning ON the Power Supply, Section 12.2.2
- System Initialization by Key Operations on the TOPU, Section 12.2.3
  Procedure #1 through Procedure #5
- System Initialization by the keys on the CPU Front Panel, Section 12.2.4
- System Initialization by the SINZ/SINZ1 Command, Section 12.2.5

Peripheral Equipment Initialization (Line/Trunk Initialization), Section 12.2.6

12.2.2 System Initialization by Turning ON the Power Supply

This initialization executes when the power supply to a node (ISW/LN) has stopped. Follow the procedure in Figure 6-62.

START

↓

Confirm all switches in the node are turned "OFF" on PWR cards.

MODULE	CIRCUIT CARDS
LPM:	PWRU 0/PWRU 1 (PZ-PW92)
PIM:	PWR 0(PA-PW55-A)/ PWR 1(PA-PW54-A)
ISWM/TSWM:	PWR SW 0/ 1(PH-PW14)

↓

<The power supply to the node is restored.>

↓

Confirm input source power to the node is normal.

Check the INPUT voltage is normal at the power terminals.

↓

Turn "ON" the power supply at PWR cards.

Turn ON the power supply referring to Section 12.3.

↓

<Execution of Initialization>

↓

Confirm lamp indications on the DSP of CPR.

Refer to ① or ③ of Table 6-10 for DSP 0, and ② or ④ of the table for DSP 1.

↓

Clear the alarm by pressing the ALM RST key on the TOPU.

↓

Use the ATIM/ATIMN command to adjust the date and time.

↓

END

Figure 6-62 System Initialization by Turning ON the Power Supply

Table 6-10 Lamp Indications on DSP of CPR

NODE	ACT/ ST-BY	LAMP ON DSP	STATE
ISW	ACT ①	CPU OPE	Lights Green
		IMG 0	Lights Green
		IMG 1	Lights Green
		IMG 2	Lights Green (when LN 2 exists)
		IMG 3	Lights Green (when LN 3 exists)
	STBY ②	CPU OPE	OFF
		IMG 0	Flashes Green
		IMG 1	OFF
		IMG 2	OFF
		IMG 3	OFF
LN	ACT ③	CPU OPE	Lights Green
		IMG 0	Flashes Green
		IMG 1	Flashes Green
		IMG 2	Flashes Green (when IMG 2 exists)
		IMG 3	Flashes Green (when IMG 3 exists)
	STBY ④	CPU OPE	OFF
		IMG 0	Flashes Green
		IMG 1	OFF
		IMG 2	OFF
		IMG 3	OFF

12.2.3 System Initialization by Key Operations on TOPU

Table 6-11 shows the system initialization procedure. Figure 6-63 shows the initial program load conceptional diagram.

Table 6-11 System Initialization Procedure Types

<table>
<tr><th colspan="2">TYPE</th><th>DESCRIPTION</th></tr>
<tr><td>Procedure 1
(Table 6-12)</td><td>System Initialization without Loading</td><td>The whole system or a specific node (ISW/LN) is initialized. All communications are forcibly released. System restarts with current Main Memory Files and Office Data Files that exist on DRAM.</td></tr>
<tr><td>Procedure 2
(Table 6-13)</td><td>System Initialization with Office Data Loading</td><td>The whole system or a specific node (ISW/LN) is initialized. All communications are forcibly released. System transfers Office Data Files from HDD to DRAM. System restarts with the transferred Office Data Files and the current Main Memory Files.</td></tr>
<tr><td>Procedure 3
(Table 6-14)</td><td>System Initialization with Program Loading</td><td>The whole system or a specific node (ISW/LN) is initialized. All communications are forcibly released. System transfers Main Memory Files from HDD to DRAM. System restarts with the transferred Main Memory Files and the current Office Data Files.</td></tr>
<tr><td>Procedure 4
(Table 6-15)</td><td>System Initialization with Office Data and Program Loading</td><td>The whole system or a specific node (ISW/LN) is initialized. All communications are forcibly released. System transfers both Main Memory Files and Office Data Files from HDD to DRAM. System restarts with the transferred Main Memory Files and the transferred Office Data Files.</td></tr>
<tr><td>Procedure 5
(Table 6-16)</td><td>System Initialization by Phase 1 Restart</td><td>The whole system or a specific node (ISW/LN) is initialized. All communications, except for the following two-way connections that have already been established, are forcibly released:
• Basic two-way connections (STN-STN, STN-TRK, TRK-TRK)
• Fixed connections
• Two-way connections established on a Fusion Link

Note 1: STN-ATT connection is not included in the two-way connection list cited above. These kind of calls are forcibly released once the initialization executes.

Note 2: When a calling party hears the Ring Back Tone, the ORT is additionally provided, and the call is placed into the Dial Tone (DT) connection.</td></tr>
</table>

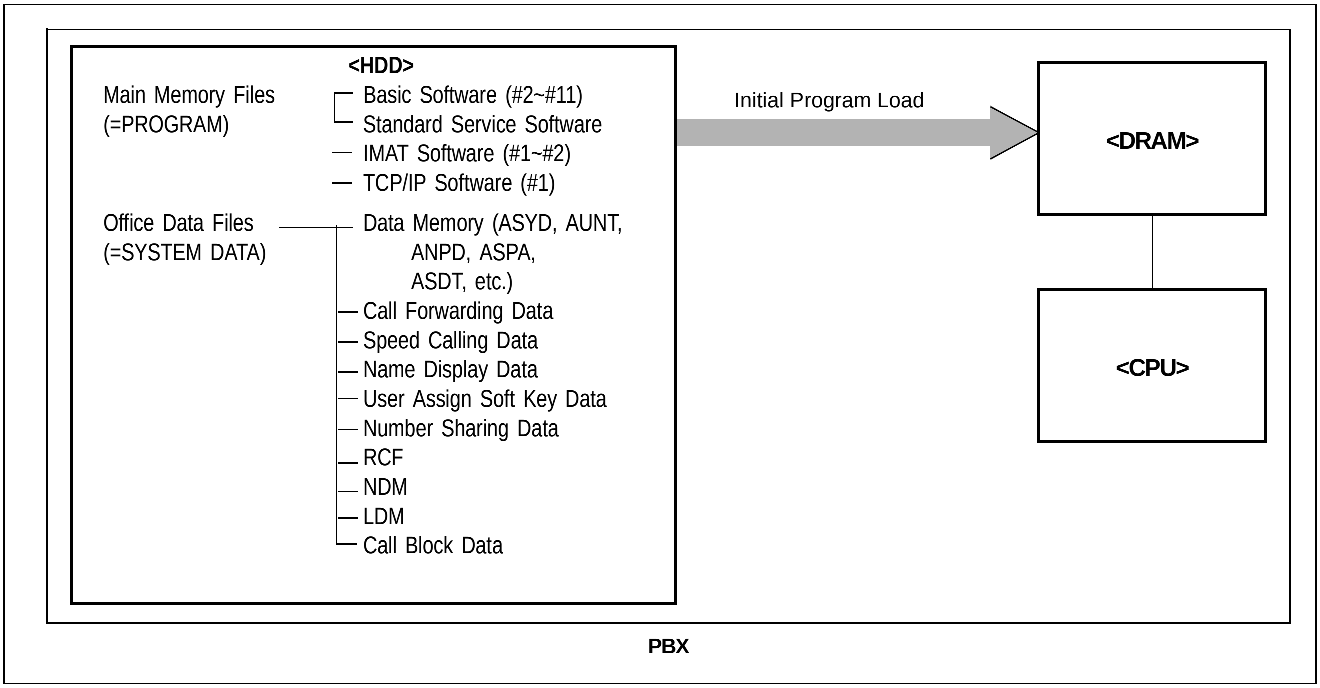


Figure 6-63 Conceptional Diagram of Initial Program Load

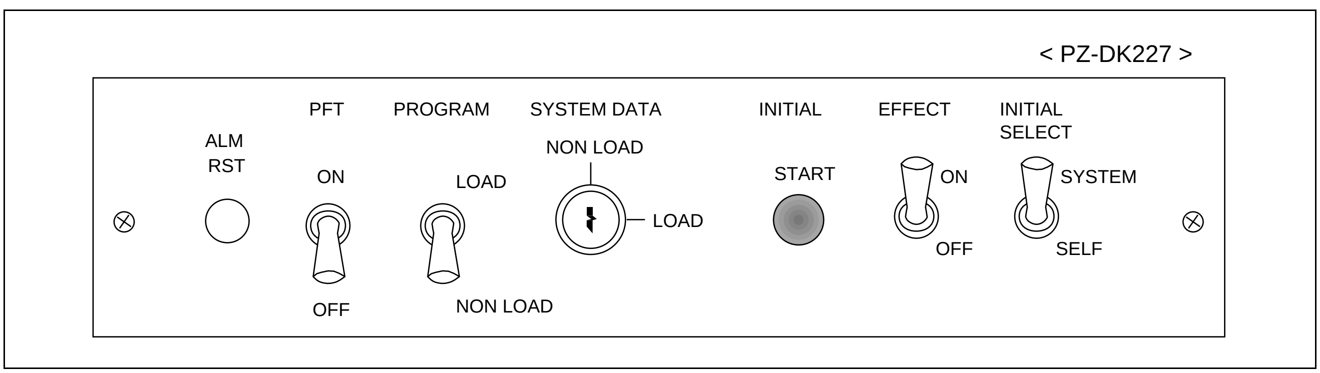


Figure 6-64 Keys on the TOPU (ISW)

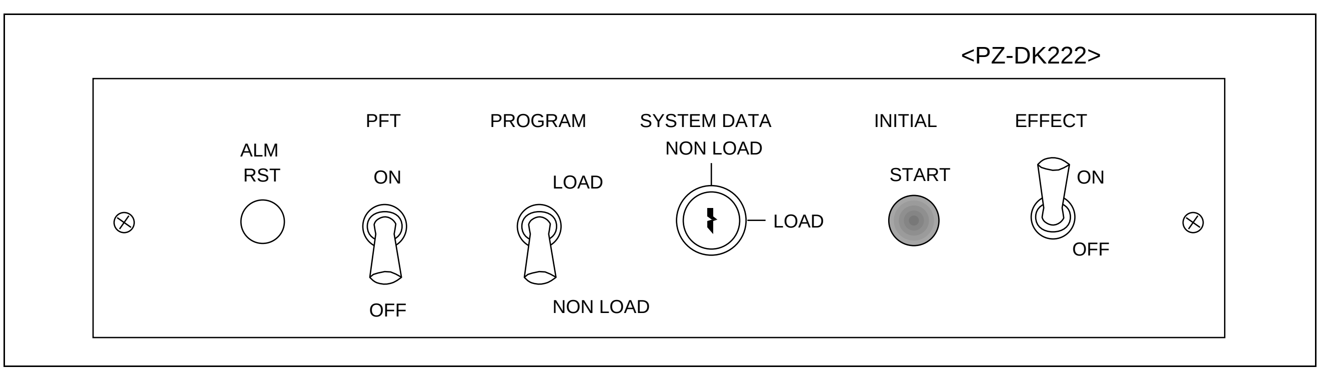
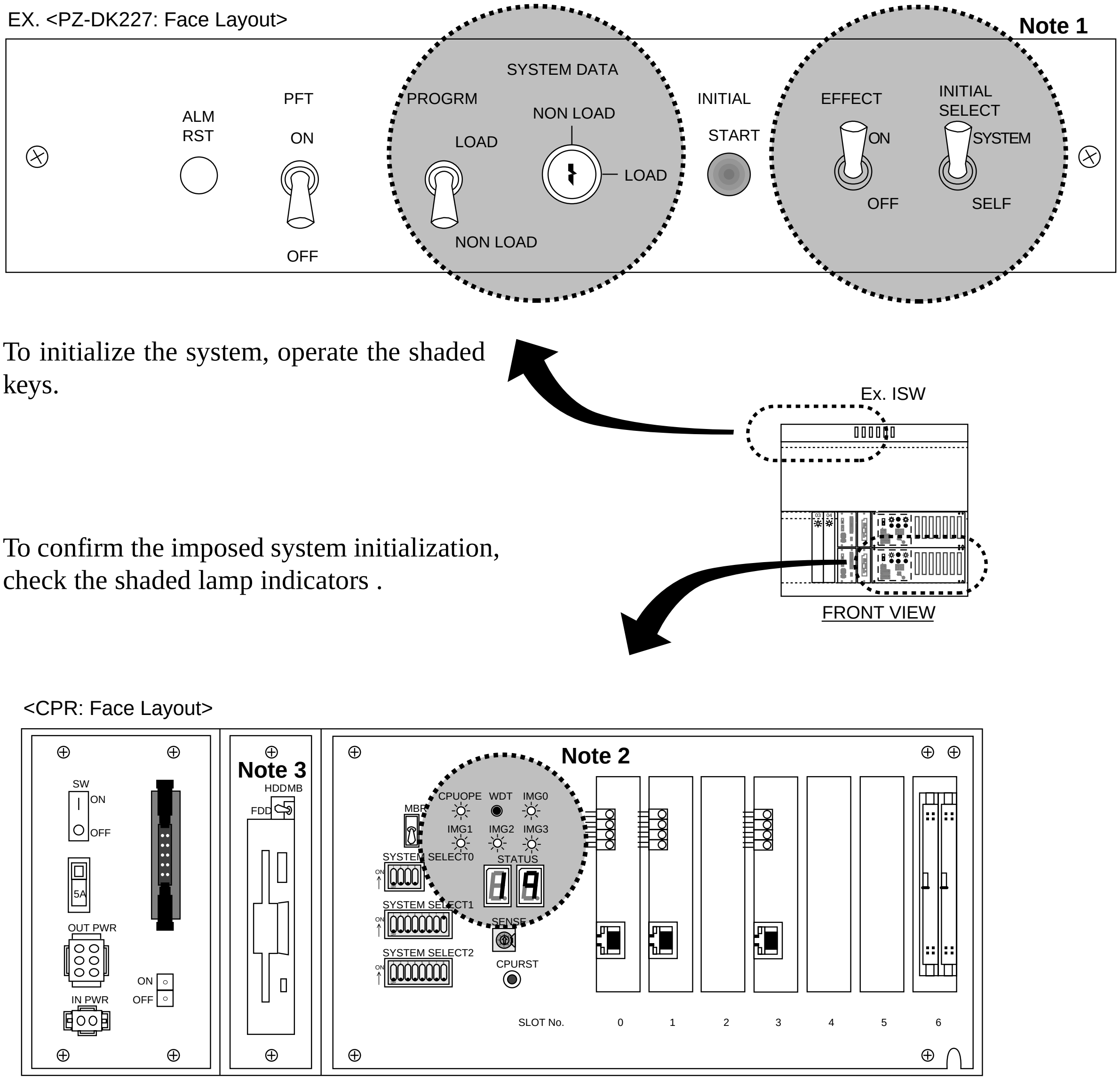


Figure 6-65 Keys on the TOPU (LN)

To initialize the system, check the lamp indications in Figure 6-66, and operate the keys on the TOPU.



Note 1: *The Initial Select key exists only on the TOPU of ISW (PZ-DK227). Refer to Figure 6-64 and Figure 6-65.*

Note 2: *The LED indication cited above is only an example. The actual indicating patterns (ON/ Flash/OFF) may vary, depending on the system configuration.*

Note 3: *This figure assumes the CPR is equipped with PZ-I027 (HDD/FDD), in place of PZ-IO28. If PZ-IO28 is used, the MB key is not furnished on the card.*

Figure 6-66 Related Keys and LEDs for System Initialization

Table 6-12 System Initialization Without Loading Procedure

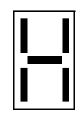
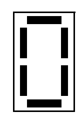
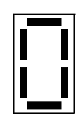
ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
Note: *The TOPU used for intialization varies depending on the type of initialization.* *Initialization of Whole System: TOPU of ISW* *Initialization of ISW: TOPU of ISW* *Initialization of LN: TOPU of IMG0 (each LN)*	For lamp indication on DSP, refer to Table 6-10. For the face layout of TOPU, refer to for ISW and for LN. ISW: Figure 6-64 LN: Figure 6-65
START ↓ Confirm the system is operating normally. ↓	
Set the INITIAL SELECT keys as follows. • Initialization of Whole System → Set the key to SYSTEM side • Initialization of ISW → Set the key to SELF side • Initialization of LN → Skip this step ↓	
Turn ON the EFFECT key on the TOPU. ↓	
Set the keys on the TOPU as follows. • PROGRAM KEY → NON LOAD • SYSTEM DATA KEY → NON LOAD ↓	CPU OPE and IMGn lamps on both DSP go OFF. STATUS LED (right) on the CPU is ON. 
Press the INITIAL START button on the TOPU.	
• HD Initial	STATUS LED (right) on the DSP of CPU is ON. 
• System Initialization	For lamp indication on DSP, refer to Table 6-10.
• System starts up again.	STATUS LED (right) on the DSP of active CPU is ON. (ON LINE) 
↓ END	

Table 6-13 System Initialization With Office Data Loading Procedure

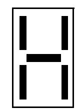
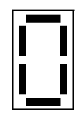
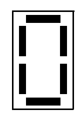
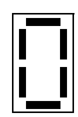
ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
Note: *The TOPU used for intialization varies depending on the type of initialization.* *Initialization of Whole System: TOPU of ISW* *Initialization of ISW: TOPU of ISW* *Initialization of LN: TOPU of IMG0 (each LN)*	For lamp indication on DSP, refer to Table 6-10. For the face layout of TOPU, refer to for ISW and for LN. ISW: Figure 6-64 LN: Figure 6-65
START ↓ Confirm the system is operating normally. ↓	
Set the INITIAL SELECT keys as follows. • Initialization of Whole System → Set the key to SYSTEM side • Initialization of ISW → Set the key to SELF side • Initialization of LN → Skip this step ↓	CPU OPE and IMGn lamps on both DSP go OFF.
Turn ON the EFFECT key on the TOPU. ↓	STATUS LED (right) on the CPU is ON. 
Set the keys on the TOPU as follows. • PROGRAM KEY → NON LOAD • SYSTEM DATA KEY → NON LOAD ↓	STATUS LED (right) on the DSP of CPU is ON. 
Press the INITIAL START button on the TOPU.	STATUS LED (right) on the DSP of active CPU is ON. 
• HD Initial • Office Data LOAD • System Initialization • System starts up again. ↓ END	For lamp indication on DSP, refer to Table 6-10. STATUS LED (right) on the DSP of active CPU is ON. (ON LINE) 

Table 6-14 System Initialization with Program Loading Procedure

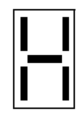
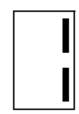
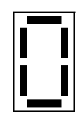
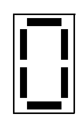
ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
Note: *The TOPU used for intialization varies depending on the type of initialization.* *Initialization of Whole System: TOPU of ISW* *Initialization of ISW: TOPU of ISW* *Initialization of LN: TOPU of IMG0 (each LN)*	For lamp indication on DSP, refer to Table 6-10. For the face layout of TOPU, refer to for ISW and for LN. ISW: Figure 6-64 LN: Figure 6-65
START ↓ Confirm the system is operating normally.	
↓ Set the INITIAL SELECT keys as follows. • Initialization of Whole System → Set the key to SYSTEM side • Initialization of ISW → Set the key to SELF side • Initialization of LN → Skip this step	CPU OPE and IMGn lamps on both DSP go OFF.
↓ Turn ON the EFFECT key on the TOPU.	STATUS LED (right) on the DSP of CPU is ON. 
↓ Set the keys on the TOPU as follows. • PROGRAM KEY → NON LOAD • SYSTEM DATA KEY → NON LOAD	STATUS LED (right) on the DSP of CPU is ON. 
↓ Press the INITIAL START button on the TOPU. • HD Initial • Program LOAD • System Initialization • System starts up again.	STATUS LED (right) on the DSP of active CPU is ON.  For lamp indications on DSP, refer to Table 6-10. STATUS LED (right) on the DSP of active CPU is ON. (ON LINE) 
↓ END	

Table 6-15 System Initialization With Office Data And Program Loading Procedure

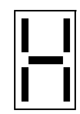
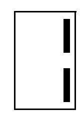
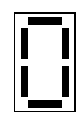
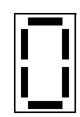
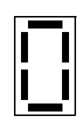
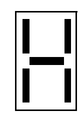
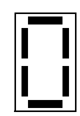
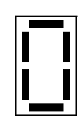
ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
Note: *The TOPU used for intialization varies depending on the type of initialization.* *Initialization of Whole System: TOPU of ISW* *Initialization of ISW: TOPU of ISW* *Initialization of LN: TOPU of IMG0 (each LN)*	For lamp indication on DSP, refer to Table 6-10. For the face layout of TOPU, refer to for ISW and for LN. ISW: Figure 6-64 LN: Figure 6-65
START ↓ Confirm the system is operating normally. ↓	
Set the INITIAL SELECT keys as follows. • Initialization of Whole System → Set the key to SYSTEM side • Initialization of ISW → Set the key to SELF side • Initialization of LN → Skip this step ↓	CPU OPE and IMGn lamps on both DSP go OFF.
Turn ON the EFFECT key on the TOPU. ↓	
Set the keys on the TOPU as follows. • PROGRAM KEY → NON LOAD • SYSTEM DATA KEY → NON LOAD ↓	STATUS LED (right) on the DSP of CPU is ON.  STATUS LED (right) on the DSP of CPU is ON. 
Press the INITIAL START button on the TOPU. • HD Initial • Program LOAD • Office Data LOAD • System Initialization • System starts up again. ↓ END	STATUS LED (right) on the DSP of CPU is ON.  STATUS LED (right) on the DSP of active CPU is ON.  For lamp indications on DSP, refer Table 6-10. STATUS LED (right) on the DSP of active CPU is ON. (ON LINE) 

Table 6-16 System Initialization by Phase 1 Restart Procedure

ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
Note: *The TOPU used for intialization varies depending on the type of initialization.* *Initialization of Whole System: TOPU of ISW* *Initialization of ISW: TOPU of ISW* *Initialization of LN: TOPU of IMG0 (each LN)*	For lamp indication on DSP, refer to Table 6-10. For the face layout of TOPU, refer to for ISW and for LN. ISW: Figure 6-64 LN: Figure 6-65
START ↓ Confirm the system is operating normally. ↓	
Set the INITIAL SELECT keys as follows. • Initialization of Whole System → Set the key to SYSTEM side • Initialization of ISW → Set the key to SELF side • Initialization of LN → Skip this step ↓	CPU OPE and IMGn lamps on both DSP go OFF.
Set SENSE Switch on the DSP of CPR to 3. ↓	STATUS LED (right) on the CPU is ON. 
Turn ON the EFFECT key on the TOPU. ↓	STATUS LED (right) on the DSP of CPU is ON. 
Set the keys on the TOPU as follows. • PROGRAM KEY → NON LOAD • SYSTEM DATA KEY → NON LOAD ↓	
Press the INITIAL START button on the TOPU.	For lamp indications on DSP, refer to Table 6-10.
• HD Initial • System Initialization • System starts up again. ↓ END	STATUS LED (right) on the DSP of active CPU is ON. (ON LINE) 

12.2.4 System Initialization by Keys on CPU Front Panel

This initialization executes on a node (ISW/LN) basis when the keys on the TOPU cannot be used. The CPU's active status must be confirmed before executing this type of initialization.

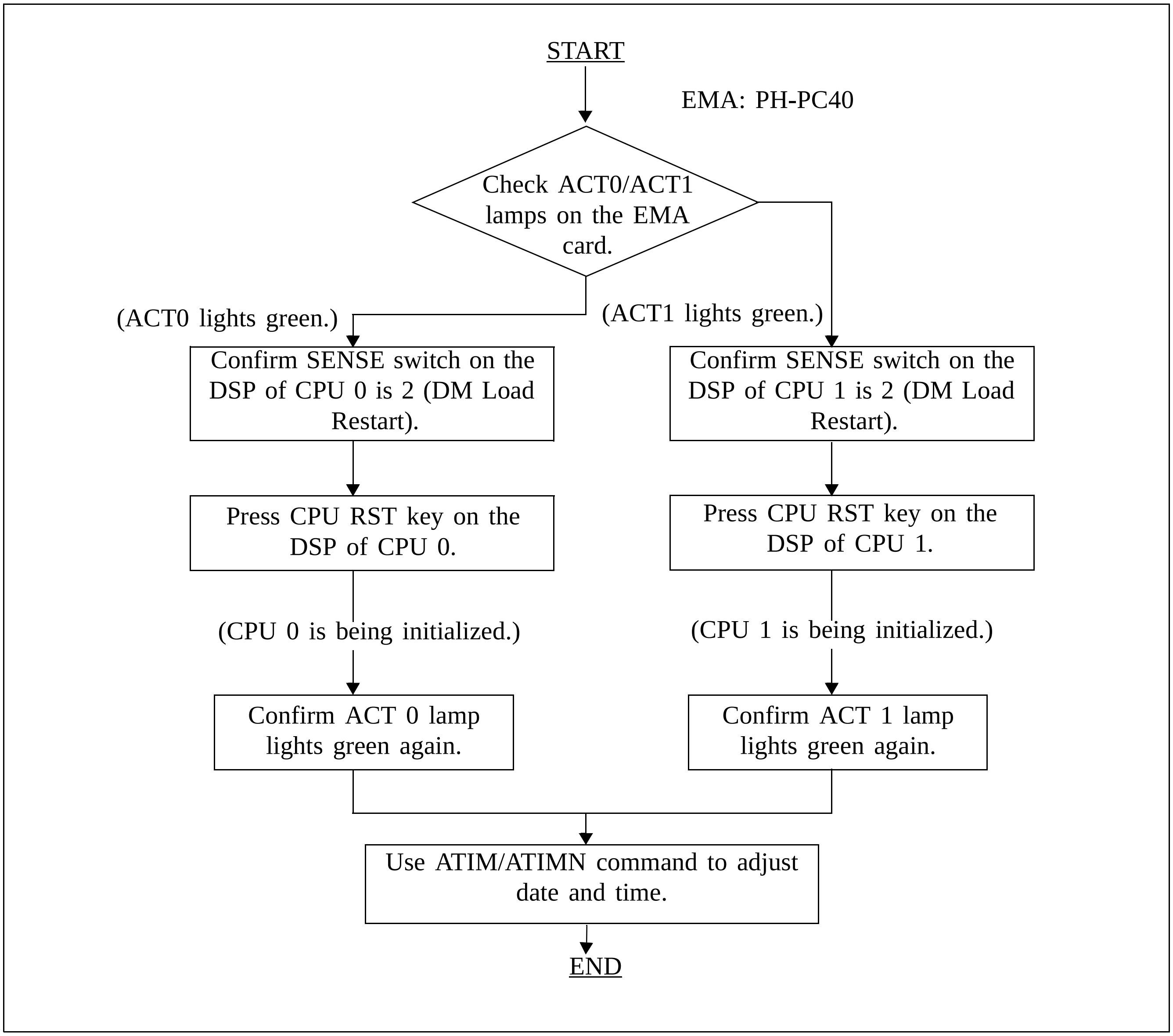
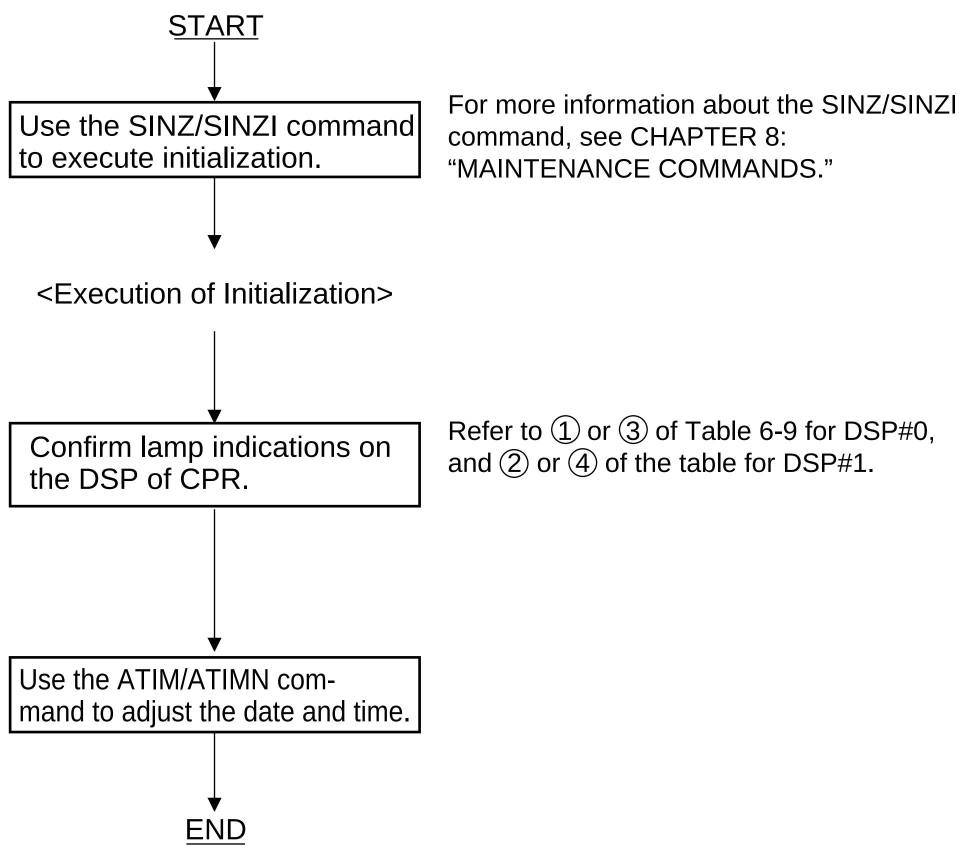


Figure 6-67 System Initialization by Keys on CPU Front Panel

12.2.5 System Initialization by SINZ/SINZ1 Command

The entire system can be initialized by execution of the SINZ/SINZ1 command from the MAT, which is useful for maintenance technicians who have to control the system from a distant location. When initializing the system on a node (ISW/LN) basis, use SINZ command. When initializing the whole system, use SINZI command.



Note: *When the system is initialized, the MAT is once disconnected. Then, log in to the system again.*

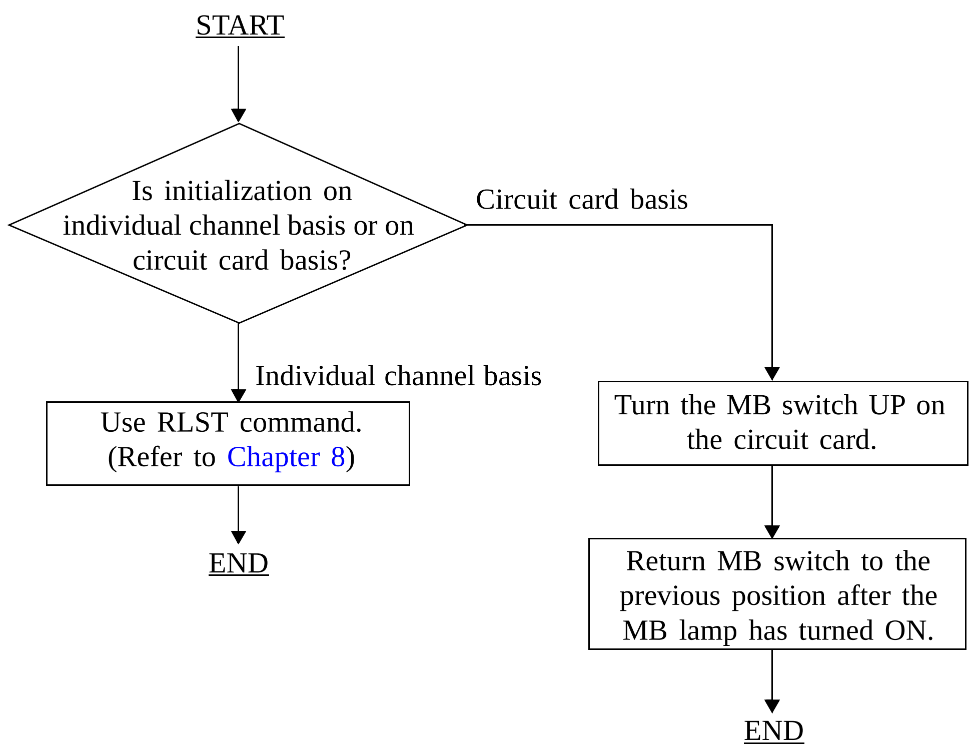
Figure 6-68 System Initialization by SINZ Command

12.2.6 Peripheral Equipment Initialization (Line/Trunk Initialization)

Line/trunk initialization can be divided into two types: initialization on an individual channel basis and initialization on a circuit card basis. Follow the procedure in Table 6-17.

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

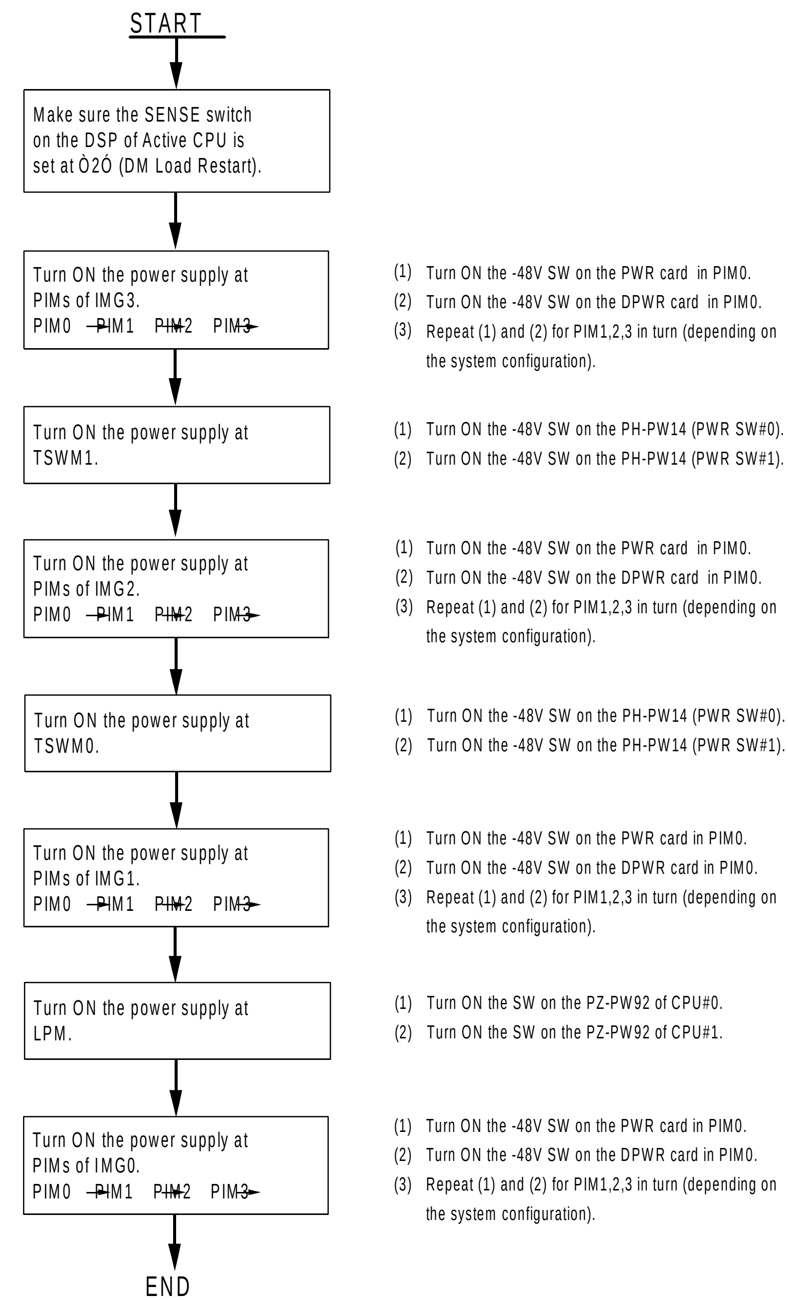
Table 6-17 Line/Trunk Initialization Procedure

ACTION	REMARKS
	**Note:** *When initialization executes on a circuit card basis, all channels on the circuit card are placed into make-busy state.*

12.3 How to Turn ON/OFF Whole System

A switching system, once put into service, is seldom stopped. However, there may be a case when a switching system, while in service, must be stopped due to module expansion work, etc. In preparation for such a case, this Section explains the procedure for turning ON the power supply.

12.3.1 How to Turn ON a LN



Note: *Start from bigger number IMG stack (i.e. IMG3 → IMG2 → IMG1 → IMG0).*

Figure 6-69 How to Turn ON a LN

12.3.2 How to Turn ON the ISW

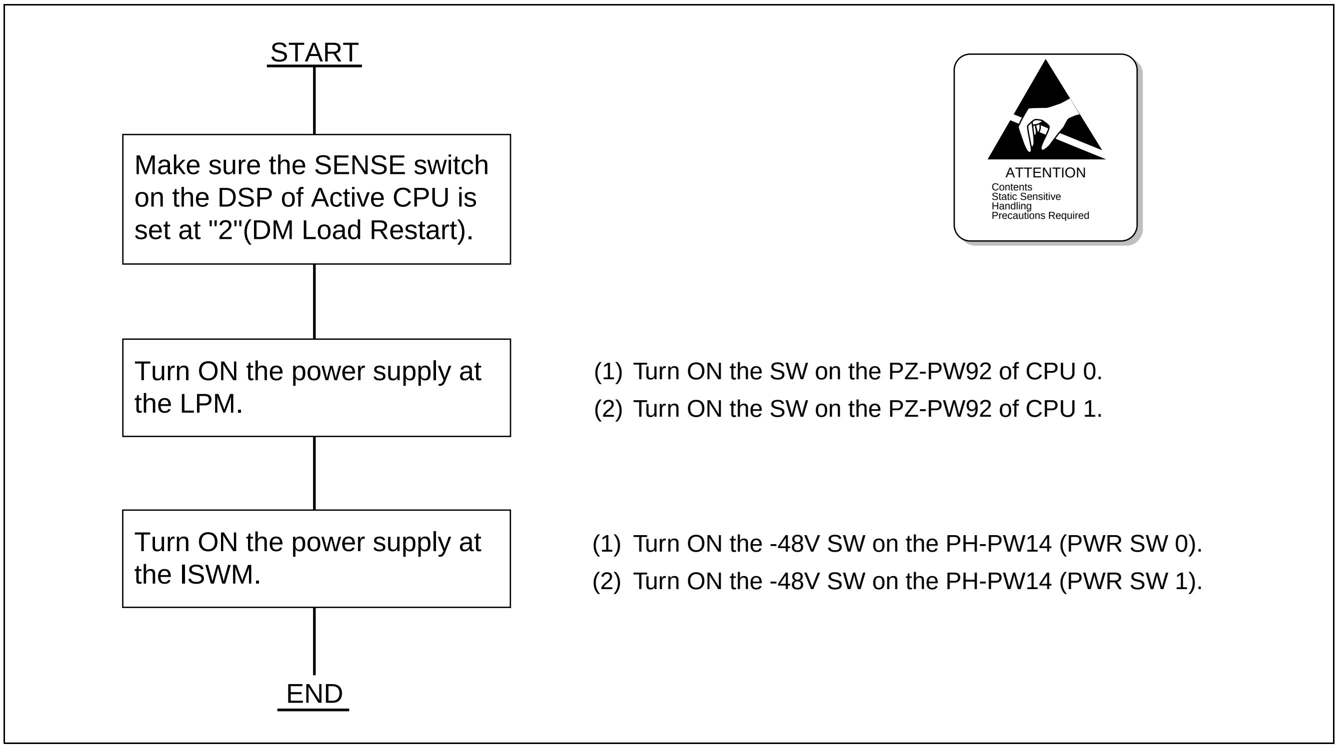


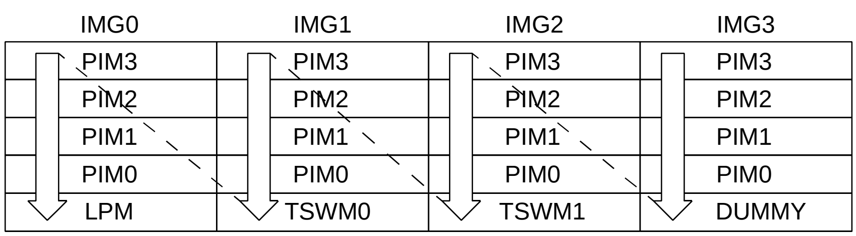
Figure 6-70 How to Turn ON the ISW

12.4 How to Turn OFF Whole System

Be sure to confirm the memory data has been backed up on the HD before turning OFF the system power. When turning OFF the power supply, follow the procedure shown below.

12.4.1 How to Turn OFF a LN

As shown in the figure, turn OFF the power supply first in the uppermost PIM of the IMG stack whose number is bigger.Then, move on to the bottommost PIM and repeat it for the smaller IMGs.



[Procedure]

(1) Turn OFF the -48V SW on the DPWR (first) and PWR (next) cards in PIM3 of IMG3.

(2) Repeat (1) for PIM2, PIM1, PIM0 (IMG3) in turn.

(3) Turn OFF the -48V SW on the DPWR (first) and PWR (next) cards in PIM3 of IMG2.

(4) Repeat (3) for PIM2, PIM1, PIM0 (IMG2) in turn.

(5) Turn OFF the SW on the PH-PW14 (both PWR SW #1 and #0) in TSWM1.

(6) Turn OFF the -48V SW on the DPWR (first) and PWR (next) cards in PIM3 of IMG1.

(7) Repeat (6) for PIM2, PIM1, PIM0 (IMG1) in turn.

(8) Turn OFF the SW on the PH-PW14 (both PWR SW #1 and #0) in TSWM0.

(9) Turn OFF the -48V SW on the DPWR (first) and PWR (next) cards in PIM3 of IMG0.

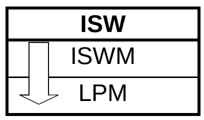
(10)Repeat (9) for PIM2, PIM1, PIM0 (IMG0) in turn.

(11)Turn OFF the SW on the PZ-PW92 of CPU#1.

(12)Turn OFF the SW on the PZ-PW92 of CPU#0.

Figure 6-71 How to Turn OFF a LN

Table 6-18 How to Turn OFF the ISW Procedure

ACTION	REMARKS
 (1) Turn OFF -48V SW on PA-PW14 (both PWR SW 1 and PWR SW 0) in ISWM. (2) Turn OFF SW on the PZ-PW92 of CPU 1. (3) Turn OFF SW on the PZ-PW92 of CPU 0.	

12.5 System Start-Up

12.5.1 System Start-Up Procedures

The system start-up procedures consist of the following types.

Procedure 1 (see Table 6-19)

Executes when the Basic Software and Application Software are already installed in the HD. Office Data is not installed.

Procedure 2 (see Table 6-20)

Executes when the Basic Software, Application Software and Office Data are already installed in the HD.

Note: *For the start-up procedure in case any Basic Software, Application Software and Office Data have not been installed in the HD, refer to the Installation Manual (IPX-U Type).*

Table 6-19 Start-Up Procedure When Basic and Application Software is Installed

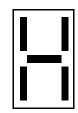
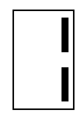
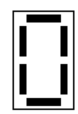
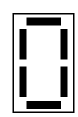
ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
① **When Power is OFF** START Set the SENSE switch at “1” (DM Clear Restart) on the DSP of CPU 0. Turn ON the SW on the PZ-PW92 of CPU 0. ② **When Power is ON and OFF LINE** START Set the SENSE switch at “1” (DM Clear Restart) on the DSP of active CPU. Press the CPU RST button on the DSP of active CPU. or Turn OFF the SW on the PZ-PW92 of active CPU and turn it ON again.	
• HD Initialization	STATUS LED (right) on the DSP of CPU is ON. 
• Program Load	STATUS LED (right) on the DSP of CPU is ON. 
• System Initial	STATUS LED (right) on the DSP of CPU is ON.  CPU OPE lamp on the DSP of active CPU lights steady green. IMG0-3 lamps flash.
The system starts up, clearing the Office Data on the HD.	For lamp indications, refer to Table 6-10.
• The system starts up again ③ when Power is ON and ON LINE START A	STATUS LED (right) on the DSP of CPU is ON (ON LINE). 

Table 6-19 Start-Up Procedure When Basic and Application Software is Installed (Continued)

ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
A ↓ Set the SENSE switch at “2” (DM Load Restart) on the DSP of active CPU. ↓ Enter your Office Data. ↓ Back up your Office Data using the MEM_HDD/MEM_HDD_N command. ↓ If necessary, repeat the above steps for all remaining nodes. ↓ To perform necessary system intialization, refer to Table 6-13, System Initialization with Office Data Loading. ↓ END	

Table 6-20 Start-Up Procedure When Basic, Application Software and Office Data is Installed

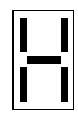
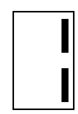
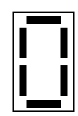
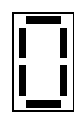
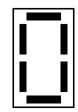
ACTION		7SEG LED/OPE LAMP/KEY SETTINGS
① **When Power is OFF**	② **When Power is ON and OFF LINE**	
START	START	
Set the SENSE switch at "2" (DM Load Restart) on the DSP of CPU 0.	Set the SENSE switch at "2" (DM Load Restart) on the DSP of active CPU.	
Turn ON the SW on the PZ-PW92 of CPU 0.	Press the CPU RST button on the DSP of active CPU. or Turn OFF the SW on the PZ-PW92 of active CPU and turn it ON again.	
• HD Initial		STATUS LED (right) on the DSP of CPU is ON. 
• Program Load		STATUS LED (right) on the DSP of CPU is ON. 
• Office Data Load		STATUS LED (right) on the DSP of CPU is ON. 
• System Initial		STATUS LED (right) on the DSP of CPU is ON. 
A		

Table 6-20 Start-Up Procedure When Basic, Application Software and Office Data is Installed (Continued)

ACTION	7SEG LED/OPE LAMP/KEY SETTINGS
A • The system starts up again. If necessary, repeat the previous steps for all remaining nodes. END	 For lamp indications, refer to Table 6-10. STATUS LED (right) on the DSP of CPU is ON. (ON LINE) 

CHAPTER 7 ROUTINE MAINTENANCE PROCEDURE

1. GENERAL

When a fault has occurred in the system, (for example when a fault has occurred to No. 1 circuit on the 16LC card), the stations connected to No. 1 circuit become unserviceable. When the 16LC card has been replaced with a spare to analyze the cause of the fault or to repair the fault, other normal lines also become unserviceable. As in this example, even when the fault is restricted to a single component, it very often harms the system operations as a whole.

Even if the system is operating normally, it is necessary to perform a routine check to prevent a fault occurrence before it is too late to discover any latent cause of a fault.

This chapter categorizes the routine maintenance procedures of the PBX into the following three types, and explains the minimum required work steps and precautions pertaining to each of the three procedures.

- Daily Maintenance Procedure
- Monthly Maintenance Procedure
- Quarterly Maintenance Procedure

1.1 Flow of Procedures

The scheduling of routine maintenance (daily, monthly, quarterly) will vary with each installation and organization. Figure 7-1 shows the flow of the routine maintenance procedures.

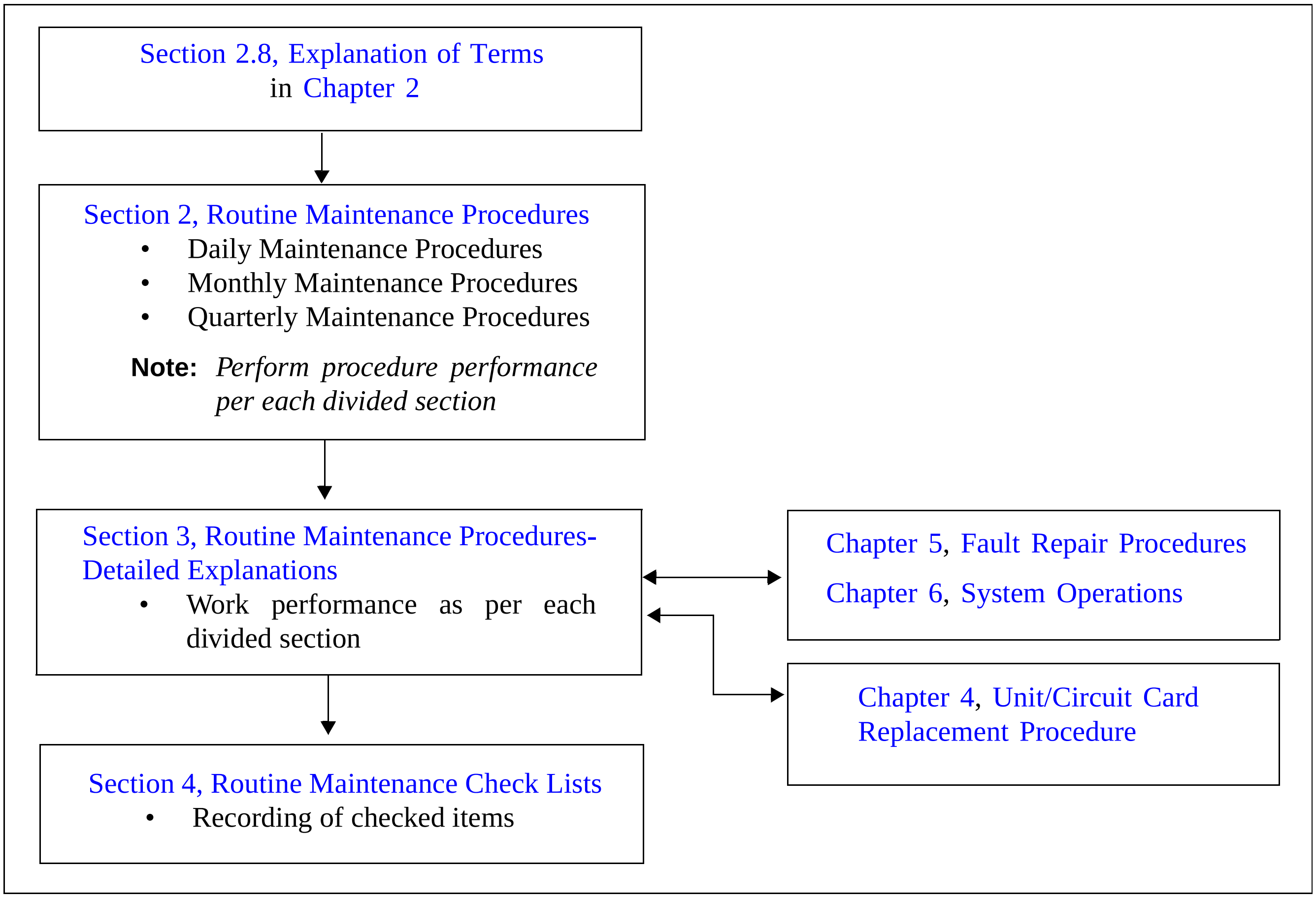


Figure 7-1 Flow of Procedures

1.2 Required Test Equipment and Tools

Table 7-1 shows the tools and equipment required for test procedures.

Table 7-1 Test Equipment and Tools

NO.	TEST EQUIPMENT/TOOLS	PURPOSE	REMARKS
1	Telephone Set	A telephone set is used when performing connection tests on trunks, etc.	
2	Blown Fuse	A blown fuse is used when performing alarm tests.	
3	VOM Digital Meter	VOM digital meter is used when checking output voltages of the rectifier and the battery.	
4	Phillips Screwdriver	A screwdriver is used when replacing the fan with a spare.	

2. ROUTINE MAINTENANCE PROCEDURES

This section explains general routine maintenance procedures to be performed on a daily, monthly, and quarterly basis. Table 7-2 lists each procedure according to the time each procedure is to be performed. Use the Reference Section to locate the detailed procedure.

Table 7-2 List of Routine Maintenance Procedures

TIME	PROCEDURE	REFERENCE SECTION	REMARKS
Daily	Check the temperature and relative humidity in the switch room.	Section 3.1, Check of Ambient Conditions in Switch Room	
	Check to see if any of the alarm indicator lamps on the TOPU are lit.	Section 3.2, Alarm Check	
	Check the operating status of the MAT and the printer, remaining quantity of paper, etc.	Section 3.3, MAT/Printer Check	
	Check to see if a system message indicating a fault is displayed.	Section 3.4, Collection of System Messages	
	Check whether any station is in lockout state.	Section 3.5, Display of Locked-out Station	
	Check whether the FANU is operating normally.	Section 3.6, Fan Unit Check	
Monthly	Generate an alarm and check whether an indication appears on the TOPU.	Section 3.7, Alarm Tests	
	Check the conditions of the rectifier and batteries.	Section 3.8, Main Power System Check	
	Check trunk circuits individually. Also check the RGU circuit in the PWR Supply of each Module.	Section 3.9, Trunk RGU Check	
	Check each operation and lamps of ATTCON/ DESKCON.	Section 3.10, ATTCON/ DESKCON Check	
Quarterly	Check the CPU, TSW, and line/trunk Port Microprocessors (PMs).	Section 3.11, System Check	

3. ROUTINE MAINTENANCE PROCEDURES-DETAILED EXPLANATIONS

This Section provides detailed explanations of the routine maintenance procedures.

Table 7-3 List of Routine Maintenance Procedures

SECTION NO.	CONTENTS OF WORK	REMARKS
3.1	Check of Ambient Conditions in the Switch Room	
3.2	Alarm Check	
3.3	MAT/Printer Check	
3.4	Collection of System Messages	
3.5	Display of Locked-out Station	
3.6	FAN Unit Check	
3.7	Alarm Tests	
3.8	Main Power System Check	
3.9	Trunk/RGU Check	
3.10	ATTCON/DESKCON Check	
3.11	System Check	

3.1 Check of Ambient Conditions in Switch Room

START

- Check the room temperature. — Check whether the room temperature is within the range of 5°C (41°F) to 30°C (86°F).
- Check the humidity in the room. — Check whether the relative humidity in the room is within the 15% to 65% range.
- If the temperature or the humidity is outside the allowable range, adjust the air conditioner.

END

3.2 Alarm Check

START

- Check alarm indications on the TOPU.
  - If an alarm is indicated
    - Check whether the alarm lamp on the power supply of any module is lit.
    - Check whether an alarm lamp is lit on any circuit card(s).
- Alarm recovery
  - Refer to Chapter 5, diagnose the alarm and perform the indicated recovery procedures.

END

3.3 MAT/Printer Check

START

- Check the MAT.
  - Turn ON the MAT's power.
  - Confirm that the menu appears on the screen.
- System messages are automatically sent to the MAT HD for output.
  - Leave the MAT power ON continuously (lower the CRT brightness when not in use).
- System messages are automatically sent to the external printer for output.
  - Confirm that printer power is ON and that the SEL lamp is lit.
  - Check the remaining quantity of printer paper.

END

3.4 Collection of System Messages

START

- Cause system messages to be displayed. — Refer to Chapter 3, System Messages.
- When a system message is displayed. — If the system message indicates a fault, diagnose the fault by referring to Chapter 5, and perform fault recovery.
- Check the results of routine diagnosis.
  - System message [7-O] indicates that the system is normal.
  - System message [7-P] indicates that the system is abnormal. Perform fault recovery by referring to Chapter 3 or Chapter 5.
- When the system is operating normally or after a fault has been restored — Use the RALM/RALMN command to clear the alarm indication and registered system message.

END

3.5 Display of Locked-out Station

START

- Check the displays of relevant commands to locate any locked-out stations. — Check the displays of the following commands:
  - DLSL: Display in the order of LENS.
  - DLSS: Display in the order of Station Numbers
  - When any station in locked-out state is displayed — Recover the locked-out station(s) referring to Section 3, Indication of Lockout Stations, Chapter 6.

END

3.6 Fan Unit Check

START

- When the fan is set for automatic start
  - Pull the FAN START switch toward the front and set it to ON (UP) position.
  - Confirm that the fan has started running.
  - Pull the FAN START switch toward the front and set it to AUTO (DOWN) position.
- When the fan is set for constant operation
  - Confirm that the fan is running.
- When the fan is out of order
  - Refer to Section 10, Fan Unit Fault, Chapter 5.
  - Replace the fan with a spare by referring to Section 5, Fan Unit Replacement, Chapter 4.

END

3.7 Alarm Tests

START

- An alarm is to be generated which will be displayed at the DESKCON/ATTCON. Be sure to inform the attendant of the test in advance.
- Replace the –48V fuse in the FANU with a blown fuse.
- Confirm that an alarm is indicated on the TOPU.
- Replace the blown fuse with the original –48V fuse.
- Using the RALM/RALMN command, reset all alarm indications.

END

3.8 Main Power System Check

START

- Check the load voltage (DC –48V ±5 V) of the rectifier.
- Check the batteries.
  - Check the forced-charge voltage and floating voltage.
  - Check the specific gravity, liquid level and rated capacity of each battery.

END

Note: *For a longer battery life, observe the following items:*

- *Place the batteries in a dark, cool place.*
- *Keep the room temperature within the range of 10°C to 35°C (40°F to 85°F).*
- *Floating voltage must be kept within the range of the battery specification at all times.*
- *After discharging, perform equalized charging as per the battery specification.*

3.9 Trunk RGU Check

START

- Check alarm lamps on the line/trunk circuit cards.
- Check to see if a system message pertaining to a circuit card has been output.
- Check the speech path for each PIM and also check ringing signal.

END

3.10 ATTCON/DESKCON Check

(1) Attendant Console Check

START

- Ask the operator at each ATTCON if the ATTCON is operating normally.
- Each operator presses the LCHK button on the ATTCON and confirms that all the lamps on the control panel light up.
- When the ATTCON is equipped with a Time Indicator Section, the operator also checks the displayed time.

END

Note: *Adjusting Time Method*

- *If the Hour (H) button is pushed once, the time will advance one hour. (To push the button, use a thin object, such as a toothpick.)*
- *If the H button is held continuously, the time will advance one hour each second.*
- *If the Minute (M) button is pushed once, the time will advance one minute.*
- *If the M button is held continuously, the time will advance one minute each second.*

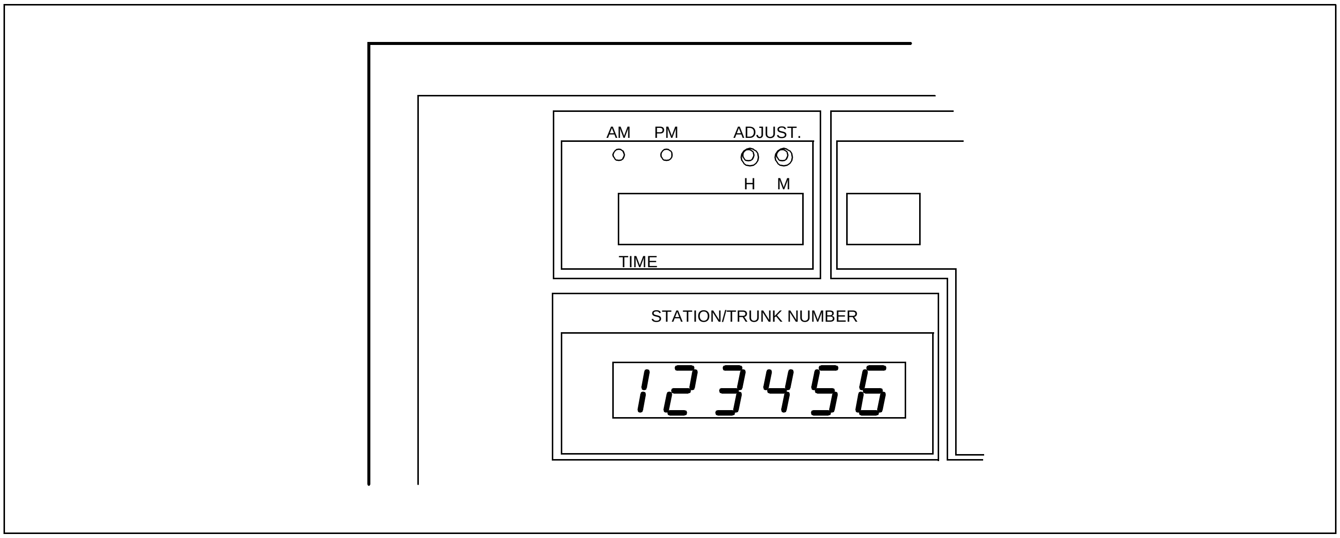


Figure 7-2 Adjusting Time on ATTCON

(2) Desk Console Check

START

- Ask the operator at each DESKCON if the DESKCON is operating normally.
- On the DESKCON control panel, each operator presses the L3, SRC, and Release keys simultaneously and confirms that all the lamps on the control panel light red.
- Operator presses the # key and confirms that all the lamps on the same transverse line between the EMG and Mute lamps light green. Refer to the figure below.
- Operator presses the # key and confirms that all the green lamps (in the step above) go OFF and the LCD on the DESKCON displays black.
- Operator presses the # key and confirms the black LCD display is cleared and a ringing tone is heard.
- Operator presses the # key and confirms the provided ringing tone has suspended.
- Operator presses the keys on the DESKCON one by one and confirms that each lamp, corresponding to the pressed key, emits a light and the name of the key displays on the LCD, respectively.
- Operator presses the * button and completes the lamp checks. **Note1**
- Operator checks the displayed time on the right part of LCD. **Note 2**

END

Note 1: *The lamp checks can be suspended any time when the * key on the control panel is pressed.*

Note 2: *The DESKCON obtains time information only from the PBX side. Therefore, adjust the time and date using the MAT command.*

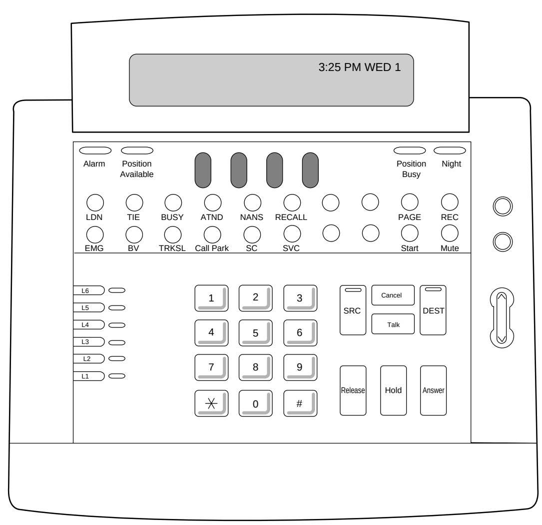


Figure 7-3 Desk Console

3.11 System Check

START

- Check the OPE lamps (green) on all circuit cards.
- Check whether a system message pertaining to the CPU/TSW has been output.
- Check speech conditions by establishing a station-to-station connection at each PIM.
  - If the condition is abnormal, determine the nature of the problem (dial tone cannot be heard, no speech can be established, etc.)
  - Does the condition occur in No. 0 TSW or in No. 1 TSW?
  - Does the condition occur in No. 0 CPU or in No. 1 CPU?
- Using MEM_HDD/MEM_HDD_N command, check the data memory.

END

4. ROUTINE MAINTENANCE CHECK LISTS

This section provides check lists (Maintenance Procedure Reports) to be used when performing routine maintenance. The Routine Maintenance Check Lists consists of the following items:

- Maintenance Procedure Report
- C.O. Trunk/Tie Line
- Register/Sender Trunk (RST)
- Digital Conference Function (8 CFT)
- Speech Path for each PIM, and Ringing Generator Unit
- Attendant/Desk Console

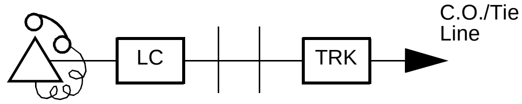
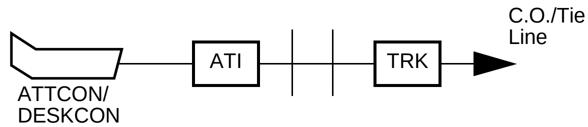
<table>
<tr><th>USER NAME</th><th colspan="2">SIGNATURE OF SUPERVISOR</th><th colspan="3">WORK TIME
(FROM -   )</th></tr>
<tr><td rowspan="2" colspan="1">Name of User (Company)</td><td colspan="2">Date:</td><td colspan="2">Maintenance Classification</td><td rowspan="2">Routine/
Non-routine</td></tr>
<tr><td colspan="2">Control No.</td><td colspan="2">Maintenance Company</td></tr>
<tr><td colspan="2">Name of Equipment</td><td colspan="2">Room Temperature - °C °F & humidity %</td><td colspan="2">Name of Worker</td></tr>
</table>

Reference Section	Item	Detail	Check	Reference Section	Item	Detail	Check
3.1	Check of Ambient Conditions in the Switch Room	Ambient Temperature		3.9	Trunk RGU Check	SND Trunk	
		Relative humidity				DCF Function	
3.2	Alarm Check	TOPU				Tone	
3.3	MAT/Printer Check	MAT				MAT	
		Printer		3.10	ATTCON Check	Ringing Signal	
3.4	Collection of System Messages	Related to Fault		3.11	System Check		
		Result of Routine Diagnosis				CPU	
3.5	Display of Locked-out Station	Locked out Stations				TSW	
3.6	Fan Unit Check					PM	
3.7	Alarm Tests	TOPU					
3.8	Main Power System Check	Rectifier					
		Battery					
3.9	Trunk RGU Check	C.O. Trunk					
		Tie Trunk					
		ORT					
		IRT					

Condition And Cause

Procedure and Parts Used

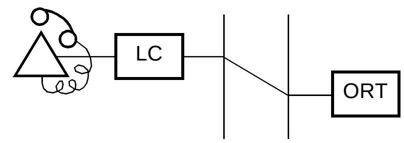
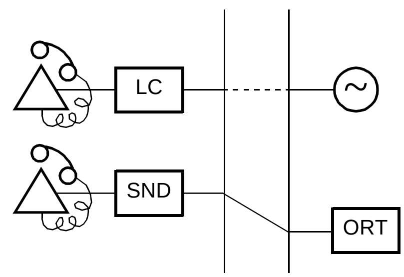
C.O. Trunk Tie Line

TEST TYPE	TEST ITEM	CONNECTION DIAGRAM
C.O. Trunk/Tie Line Speech Path Test	• Set up a speech path test by seizing a trunk using the Station or ATTCON/DESKCON connection test diagrammed to the right.	• Connection Test-Station  • Connection Test-ATTCON/DESKCON 

C.O. Trunk/Tie Line

NAME OF TRUNK ROUTE	ACCESS NUMBER	ROUTE NUMBER	TRUNK NUMBER	CHECK	REMARKS

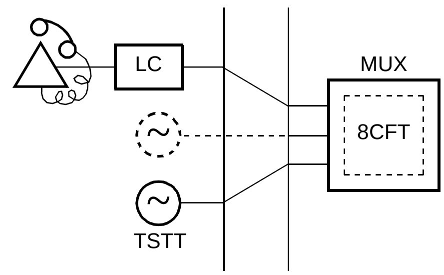
Register/Sender Trunk (RST)

TEST TYPE	TEST ITEM	CONNECTION DIAGRAM
ORT Function	• Perform the test by specifying an ORT using the Connection Test-Station. • Confirm that [6-I] system message displays as a result of the test.	DP/PB 
SENDER Function	• Perform the test by specifying an ORT using the Connection Test-Station. • Confirm that [6-I] system message displays as a result of the test.	

RST (/)

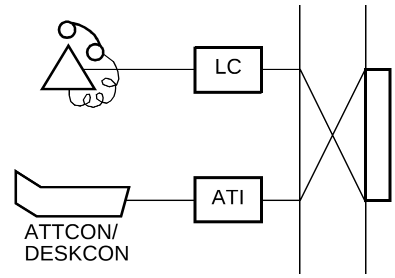
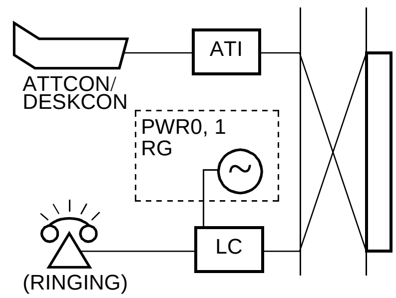
TRUNK NO. \ FUNCTION			ORT		SENDER	REMARKS
			PB RECEIVING	DP RECEIVING		
RST No.	ORT0	SND0				
	1	1				
	2	2				
	3	3				
	4	4				
	5	5				
	6	6				
	7	7				
RST No.	0	0				
	1	1				
	2	2				
	3	3				
	4	4				
	5	5				
	6	6				
	7	7				
RST No.	0	0				
	1	1				
	2	2				
	3	3				
	4	4				
	5	5				
	6	6				
	7	7				
RST No.	0	0				
	1	1				
	2	2				
	3	3				
	4	4				
	5	5				
	6	6				
	7	7				

Digital Conference Function

TEST TYPE	TEST ITEM	CONNECTION DIAGRAM
Three-way Conversation	• Perform the test by specifying an 8CFT using the Connection Test-Station. • Confirm that [6-I] system message displays as a result of the test.	

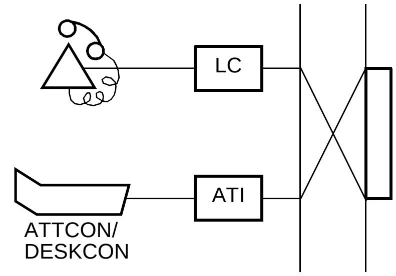
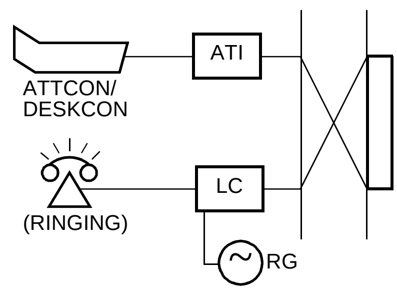
FUNCTION / TRUNK NO.	SPEECH	RELEASE	REMARKS
CFT0			
1			
2			
3			
4			
5			
6			
7			

Speech Path for Each PIM, and Ringing Generator Unit

NO.	TEST TYPE	TEST ITEM	CONNECTION DIAGRAM
1	The ATTCON/ DESKCON is called from one station in each PIM.	Normal speech path is confirmed by calling the attendant from a station located in each PIM.	
2	The operator calls the station back.	After normal speech path has been confirmed, the attendant calls the station back. Confirm that the station rings.	

MOUNTING LOCATION		CHECK	REMARKS
MODULE NAME	UNIT NAME		
PIM0	0		
	1		
	2		
	3		
PIM1	0		
	1		
	2		
	3		
PIM2	0		
	1		
	2		
	3		
PIM3	0		
	1		
	2		
	3		

Attendant/Desk Console (ATTCON/DESKCON)

TEST TYPE	TEST ITEM	CONNECTION DIAGRAM
Call Termination Test	• A station dials the operator access code and confirm that the call termination is indicated at all the ATTCON/ DESKCON. • A station dials the operator access code. An attendant answers and speaks with the caller. This process is repeated at all the ATTCON/ DESKCON.	
Call Origination Test	• The attendant originates a call to the station by pressing LOOP keys one after another.	

FUNCTION / ATTCON/ DESKCON NO.	CALL TERMINATION			CALL ORIGINATION		REMARKS
	INCOMING CALL INDICATION	SPEECH	RELEASE	SPEECH	RELEASE	
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

CHAPTER 8 MAINTENANCE COMMANDS

This chapter explains various commands used in the system administrative management procedure. Table 8-1 shows a list of maintenance commands.

Table 8-1 Command Lis t

COMMAND	COMMAND FULL NAME
ALLC	Assignment of Line Load Control
ALMG	Assignment of Alarm Grade Data
ATRF	Assignment of Traffic Measurement Order
ATRFN	Assignment of Traffic Measurement Order for Fusion Network
BOSD	Back Up One-Touch Speed Call Memory Data
CADSD	Continuous Assignment of Station Data
CATK	Continuous Assignment of Trunk Data
CBCN	Control of Broadcasting for NDM
CCSE	Change of Common Signaling Channel Equipment
CDBU	Change of Dch Backup
CMOD	Change of System Mode
CMODI	Change of System Mode for ISW
CMWL	Control Message Waiting Lamp
CMWL_T	Control Message Waiting Lamps - Telephone Number
CPRS	Controlled Alternate PRSCs
CSCL	Continuous Change of Station Class
CSTN	Continuous Change of Station Number
DCBD	Display of Call Block Entry Data
DCEN	Display of Connection Trunk LENS Data for LDM
DCON	Display of Connection Status
DFTD	Display of System Message Details
DISS	Display of Program Issue
DLEN	Display of LENS Data
DLSL	Display of Lock Out Station - LENS
DLSS	Display of Lockout Station - Number
DLSS_T	Display of Lock Out Station - Number- Telephone Number

Table 8-1 Command List (Continued)

COMMAND	COMMAND FULL NAME
DLTEL	Display of Telephone Number from LENS for LDM
DNTEL	Display of Telephone Number from LENS for NDM
DPKG	Display of Setting Port Package
DPSW	Display Package Switch Status
DSTN	Display of Station Data
DTELN	Display of Telephone Number Data for NDM
DTF101	Display of Terminal Traffic Data
DTF102	Display of Route Traffic Data
DTF103	Display of Station Peg Count Data
DTF104	Display of Attendant Peg Count Data
DTF105	Display of Route Peg Count Data
DTF201	Display of Service Peg Count Data
DTF301	Display of UCD Route Peg Count Data
DTF302	Display of UCD Group Peg Count Data
DTF303	Display of Station Peg Count Data
DTF501	Display of Attendant Answering Peg Count Data
DTF601	Display of Connection Route Peg Count Data
DTF602	Display of Connection Route Traffic Data
DTF101N	Display of Terminal Traffic Data for Fusion Network
DTF102N	Display of Route Traffic Data for Fusion Network
DTF103N	Display of Station Peg Count Data for Fusion Network
DTF104N	Display of Attendant Peg Count Data for Fusion Network
DTF105N	Display of Route Peg Count Data for Fusion Network
DTF201N	Display of Service Peg Count Data for Fusion Network
DTF301N	Display of UCD Route Peg Count Data for Fusion Network
DTF302N	Display of UCD Group Peg Count Data for Fusion Network
DTF303N	Display of Station Peg Count Data for Fusion Network
DTF501N	Display of Attendant Answering Peg Count Data for Fusion Network
DTF601N	Display of Connection Route Peg Count Data for Fusion Network
DTF602N	Display of Connection Route Traffic Data for Fusion Network

Table 8-1 Command List (Continued)

COMMAND	COMMAND FULL NAME
FLINST	File Install
HDD_FDD	Data Control Between HDD and FDD
HDD_MAT	Data Control Between HDD and MAT
HDD_MAT_N	Data Control Between HDD and MAT for NDM
HDFP	HDD Format of PBX
MBCT	Make Busy of Connection Trunk for LDM
MBLE	Make Busy of LENS
MBPM	Make Busy of Port Microprocessor
MBRT	Make Busy of Route
MBSM	Make Busy of System Message Printout
MBST	Make Busy of Station
MBST_T	Make Busy of Station - Telephone Number
MBTC	Make Busy of Trunk-Continuous
MBTK	Make Busy of Trunk
MEM_HDD	Data Control Between Memory and HDD
MEM_HDD_N	Data Control Between Memory and HDD for NDM
MFCH	Make Busy of FCCH
PMBU	Port Microprocessor Back Up
RALM	Release Alarm
RALMN	Release Alarm for NDM
RLST	Release Station/Trunk
RLST_T	Release Station/Trunk - Telephone Number
SINZ	System Initialization
SINZI	System Initialization for ISW
SPTS	Scanning of Port Status
SRTS	Scanning of Route Status
XHFD	X-RAY HD or FDD Diagnosis

ALLC: Assignment of Line Load Control

1. Functional Outline

This command designates the start and stop of line load control.

2. Parameters

Input Data

ALL/ONE: Operation Mode Selection (1,2)

O/A=Only One LP/All LPs

LP: Local Partition (LP) Number **Note**

STATUS: Line Load Control Status (0-3)

0=Stop Line Load Control

1=Start Line Load Control

2=Automatic Line Load Control is in effect (display only)

3=Status of all LPs do not match (display only)

Note: *This parameter appears when 0 (only one LP) is set in ALL/ONE input data.*

ALMG: Assignment of Alarm Grade Data

1. Functional Outline

This command makes a flexible change of system message output grades. Thus, the PBX user can give a proper alarm grade to each system message according to their requirements. When no data is assigned, the default alarm grades are automatically adopted.

Note: *This command cannot change the alarm grade for [6-A] system message.*

2. Parameters

Input data

FK: Fault Message Kind (0-7, 10-17, 20-27, 30-37)

FI: Fault Message Index (A-Z)

LMP: Fault Message Lamp Data (0-3)

0=Lamp OFF

1=SUP Lamp ON

2=MN Lamp ON

3=MJ Lamp ON

GRD: Printout Grade (0-3)

TYPE: List-up Type)

1=All Data

2=Changed Data

3=Default Data

SYSM GRD: System Message Output Grade

0=All Messages

1=Not Used

2=MN/MJ Grade Massages

3=MJ Grade Massages

ATRF: Assignment of Traffic Measurement Order

1. Functional Outline

This command is used to assign and delete node-level traffic measurement programs. A request for traffic measurement is performed on each node basis when a traffic measurement instruction has been assigned by this command. The collected traffic measurement data can be stored on the HD of the MAT, which can be designated on the basis of traffic measurement type.

2. Parameters

Input Data

TYPE: Type of Traffic Measurement (1-19)

DATA	MEANING	DATA	MEANING
1	Terminal Traffic	2	Route Traffic
3	Station Peg Count	4	ATT Peg Count
5	Route Peg Count	6	Service Peg Count
8	UCD Route Peg Count	9	UCD Group Peg Count
10	UCD Station Peg Count	15	ATT Answering Peg Count
18	Connection Route Peg Count	19	Connection Route Traffic

PORT: Traffic Information Output Terminal Number (0-7: IOC, 8: LAN, 9: NMS)

INTERVAL: Output interval (0, 30-120)
Assign the data (30-120) in 10 minute increments. When assigning 0 (available when any of TYPE 3-18 is selected), instead specify your desired output time in the OUTPUT HOUR/MINUTE parameters below.

START HOUR **Note**

START MINUTE **Note**

END HOUR **Note**

END MINUTE **Note**

OUTPUT HOUR: This data is valid only when “INTERVAL”=0.

OUTPUT MINUTE: This data is valid only when “INTERVAL”=0.

START RT: Start External Route Number (available when TYPE 2/5/8 is selected)

END RT: End External Route Number (available when TYPE 2/5/8 is selected)

START C_RT:	Start Connection Route Number (available when TYPE 18/19 is selected)
END C_RT:	End Connection Route Number (available when TYPE 18/19 is selected)

Note: *Assign the traffic measurement time period between START HOUR/MINUTE and END HOUR/MINUTE longer than an hour. Also, if the measurement should be executed throughout a day, assign the same data in both START HOUR/MINUTE and END HOUR/MINUTE parameter*

ATRFN: Assignment of Traffic Measurement Order for Fusion Network

1. Functional Outline

This command is used to assign and delete traffic measurement programs available on the Ethernet. A request for traffic measurement is performed on a network basis when a traffic measurement instruction has been assigned by this command. The collected traffic measurement data can be stored on the HD of the MAT (connected to the NCN: Network Control Node), which can be designated on the basis of traffic measurement type. Note that this command can be used at the NCN only.

2. Parameters

Input Data

TYPE: Type of Traffic Measurement (1-19) **Note 1**

DATA	MEANING	DATA	MEANING
1	Terminal Traffic	2	Route Traffic
3	Station Peg Count	4	ATT Peg Count
5	Route Peg Count	6	Service Peg Count
8	UCD Route Peg Count	9	UCD Group Peg Count
10	UCD Station Peg Count	15	ATT Answering Peg Count
18	Connection Route Peg Count	19	Connection Route Traffic

PORT: Traffic Information Output Terminal Number (0-7: IOC, 8: LAN, 9: NMS)

INTERVAL: Output interval (0, 30-120)
Assign the data (30-120) in 10 minute increments. When assigning 0 (available when any of TYPE 3-18 is selected), instead specify your desired output time in the “OUTPUT HOUR/MINUTE” parameters below.

START HOUR **Note 2, Note 3**

START MINUTE **Note 2, Note 3**

END HOUR **Note 2, Note 3**

END MINUTE **Note 2, Note 3**

OUTPUT HOUR: This data is valid only when “INTERVAL”=0.

OUTPUT MINUTE: This data is valid only when “INTERVAL”=0.

START LGRT: Start Logical Route Number (available when TYPE 2/5/8 is selected)

END LGRT: End Logical Route Number (available when TYPE 2/5/8 is selected)

START C_RT: Start Connection Route Number (available when TYPE 18/19 is selected)

END C_RT: End Connection Route Number (available when TYPE 18/19 is selected)

Note 1: *The selected traffic measurement data, except for TYPE 1 (Terminal Traffic), is collected with the whole network systems as a single unit.*

Note 2: *When time difference exists between the nodes, confirm that the related time difference data, based on the UCT (Universal Coordinated Time) standard, has been assigned at each node via the ATDF command.*

Note 3: *Assign the traffic measurement time period between START HOUR/MINUTE and END HOUR/MINUTE longer than an hour. Also, if the measurement should be executed throughout a day, assign the same data in both START HOUR/MINUTE and END HOUR/MINUTE parameters.*

Note 4: *If the data for this command is once assigned, the node-level data by the ATRF command is not cleared, but loses its validity (the network-level data takes precedence).*

BOSD: Back Up One-Touch Speed Call Memory Data

1. Functional Outline

- Save Function

  Saves the data residing in the One-Touch Speed Call Memory of ELC card onto a floppy disk.

- Verify Function

  Verifies the One-Touch Speed Call Memory data saved on the floppy disk with the data residing in the One-Touch Speed Call Memory of ELC card.

- Load Function

  Loads the One-Touch Speed Call Memory data saved in the floppy disk into the One-Touch Speed Call Memory of ELC card.

2. Parameters

Input data

Direction Select:	PBX Memory to MAT/MAT to PBX Memory / Verify MAT against MEM
Data Type Selection:	by Station / by LEN
Begin TN:	**Note 1**
End TN:	**Note 1**
Begin STN:	**Note 1**
End STN:	**Note 1**
Begin LEN:	**Note 2**
End LEN:	**Note 2**
Auto Verify Afterward:	Click ON/OFF=Checked/Unchecked
File Name and Path	

Note 1: *When "by Station" is designated*

Note 2: *When "by LEN" is designated*

CADSD: Continuous Assignment of Station Data

1. Functional Outline

This command can assign/delete many station data simultaneously which have consecutive numbers.

2. Parameters

Type: Assign/Delete

[When "*Assign*" is selected in the "Type" selection list box]

Input data

TN(START):	Start Tenant Number
TN(END):	End Tenant Number
STN(START):	Start Station Number [Max. 6 digits] **Note 1**
STN(END):	End Station Number [Max. 6 digits] **Note 1**
STEP:	Station Count-up Step **Note 2** If using "*" and "#" → [1-12] If not using "*" and "#" → [1-10]
LENS(START):	First Line Equipment Number [6 digits]
LENS(END):	Last Line Equipment Number [6 digits]
GROUP(START):	First Group Number [0-31]
GROUP(END):	Last Group Number [0-31]
LEVEL(START):	First Level Number [0-7]
LEVEL(END):	Last Level Number [0-7]

Note 1: *In the bottom part of the display, a check box is provided to determine whether to use "*" and "#" as a part of the Station Number. If necessary, check the box.*

Note 2: *In the parameter here, specify the size of increment between the consecutive station numbers to be assigned. See the example below:*

Example:

[Input data]
STN(START)=100
STN(END)=200
STEP=10

→

[Result]
Station Number is assigned by 10 increments:
∇ *When * and # are not used as part of STN*
100 110 120 130 ... 190 200
∇ *When * and # are used as part of STN*
10* 118 126 134 ... 1** 1#8

TEC: Telephone Equipment Class [1-31]

1=DP (10pps)	2=PB
3=DP/PB	4=DP (20pps)
5-11=Not used	12=D^{term}
13=Data Terminal via D^{term}	14=Hot Line
15=CAS Line	16=Data Terminal via Data Module
17=Not used	18=Virtual Line Appearance (for D^{term} Multi-Line)
19-22=Not used	23=ISDN Terminal
24-26=Not used	27=8 Conference Equipment
28-31=Not used	

RSC: Route Restriction Class [0-15]

SFC: Service Feature Class [0-15]

Buttons

Execute: Click to make the input data valid.

Cancel: Click to cancel the input data.

Exit: Click to exit this command.

Display data (after “Execute” button is pressed)

TN: Tenant Number

STN: Assigned Station Number

LENS: Line Equipment Number

STATUS: Data Entry Result
OK=Data Assignment Is Successful **Note**

Note: *If not OK (i.e. the data entry is not successful), related error message is displayed here.*

[When "*Delete*" is selected in the "Type" selection list box]

Input data

TN(START):	First Tenant Number
TN(END):	Last Tenant Number
STN(START):	First Station Number [Max. 6 digits]
STN(END):	Last Station Number [Max. 6 digits]
STEP:	:Station Count-up Step **Note 1** If using "*" and "#" → [1-12] If not using "*" and "#" → [1-10]

Note 1: *In the parameter here, specify the size of increment between the consecutive station numbers to be deleted. See the example below:*

Example:

[Input data]
STN(START)=100
STN(END)=200
STEP=10

→

[Result]
Station Number is deleted by 10 increments:
∇ *When * and # are not used as part of STN*
100 110 120 130 ... 190 200
∇ *When * and # are used as part of STN*
10* 118 126 134 ... 1** 1#8

Buttons

Execute:	Click to delete the input data.
Cancel:	Click to cancel the deletion.
Exit:	Click to exit this command.

Display data

TN:	Tenant Number
STN:	Station Number
STATUS:	Result of Deletion **Note 2**

Note 2: *When the deletion is successful, "OK" is displayed here. Otherwise (i.e. the deletion is rejected), related error message is displayed.*

CATK: Continuous Assignment of Trunk Data

1. Functional Outline

This command can assign/delete many trunk data simultaneously which have consecutive numbers.

2. Parameters

Type/KIND (**Note**): Assign/Delete

Note: *Type*
KIND

[When "*Assign*" is selected in the "Type/KIND" selection list box]

Input data

RT:	Route Number
TK (START):	First Trunk Number [1-768]
TK (END):	Last Trunk Number [1-768]
STEP:	Trunk Count-up Step [1-10] **Note 1**
LENS (START):	First Line Equipment Number [6 digits]
LENS (END):	Last Line Equipment Number [6 digits]
TN:	Tenant Number
RSC:	Route Restriction Class [0-15] **Note 2**
SFC:	Service Feature Class [0-15] **Note 2**
GROUP (START):	First Group Number [0-31]
GROUP (END):	Last Group Number [0-31]
LEVEL (START):	First Level Number [0-7]
LEVEL (END):	Last Level Number [0-7]
TYPE:	Count-up Type [1-6] **Note 3**
	1 = LEVEL → GROUP → UNIT
	2 = LEVEL → UNIT → GROUP
	3 = GROUP → UNIT → LEVEL
	4 = GROUP → LEVEL → UNIT
	5 = UNIT → LEVEL → GROUP
	6 = UNIT → GROUP → LEVEL

Note 1: *In the parameter here, specify the size of increment between the consecutive trunk numbers to be assigned. See the example below:*

Example: [Input data] [Result]

TN(START)=1
TN(END)=21
STEP=2

→ Trunk Number is assigned by 2 increments:
1 3 5 7 9 11 ... 19 21

Note 2: *Data entry for this parameter is necessary when "RT" is "901" or "915."*

Note 3: *"TYPE" parameter here determines how to arrange the trunk data. See **[Details on Trunk Arrangement "TYPE"]** (later pages) for details.*

Buttons

Execute:	Click to make the input data valid.
Cancel:	Click to cancel the input data.
Exit:	Click to exit this command.

Display data

TK:	Assigned Trunk Number
LENS:	Line Equipment Number
STATUS:	Data Entry Result OK=Data Assignment Is Successful **Note 4**

Note 4: *If not OK (i.e. the data entry is not successful), related error message is displayed here.*

[When "*Delete*" is selected in the "Type/KIND" selection list box]

Input data

RT:	Route Number
TK(START):	First Trunk Number [1-768]
TK(END):	Last Trunk Number [1-768]
STEP:	Trunk Count-up Step [1-10] **Note 1**

Buttons

Execute:	Click to delete the input data.
Cancel:	Click to cancel the deletion.
Exit:	Click to exit this command.

Display data

TK:	Trunk Number
STATUS:	Result of Deletion OK=Deletion Success **Note 2**

Note 1: *In the parameter here, specify the size of increment between the consecutive trunk numbers to be deleted. See the example below:*

Example:

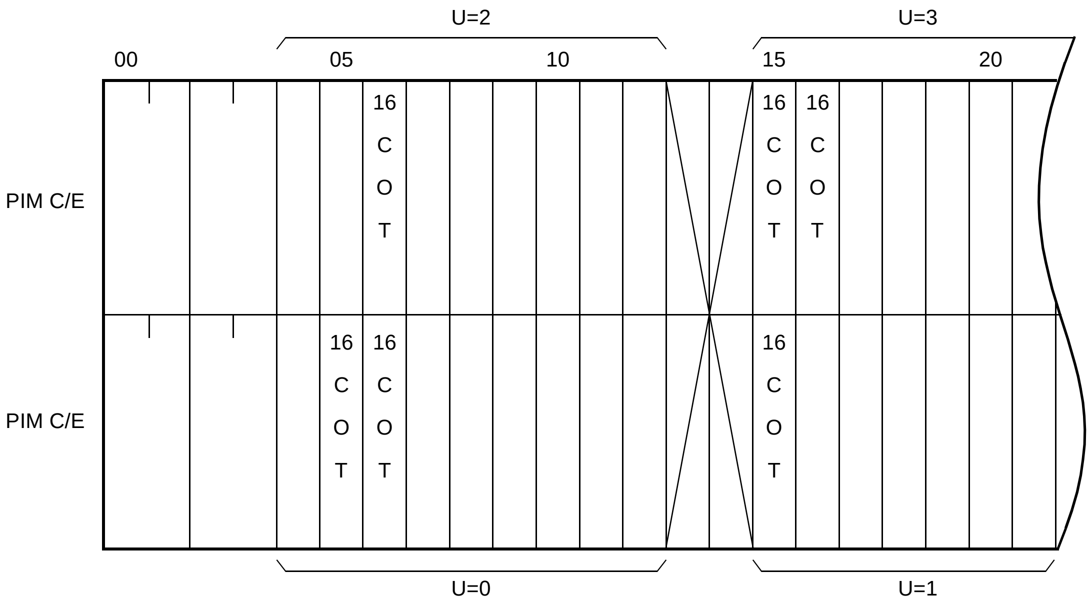
[Input data]		[Result]
TK(START)=1 TK(END)=21 **STEP=2**	→	Trunk Number is deleted by 2 increments: 1 3 5 7 9 11 ... 19 21

Note 2: *When the deletion is successful, "OK" is displayed here. Otherwise (i.e. the deletion is rejected), related error message is displayed.*

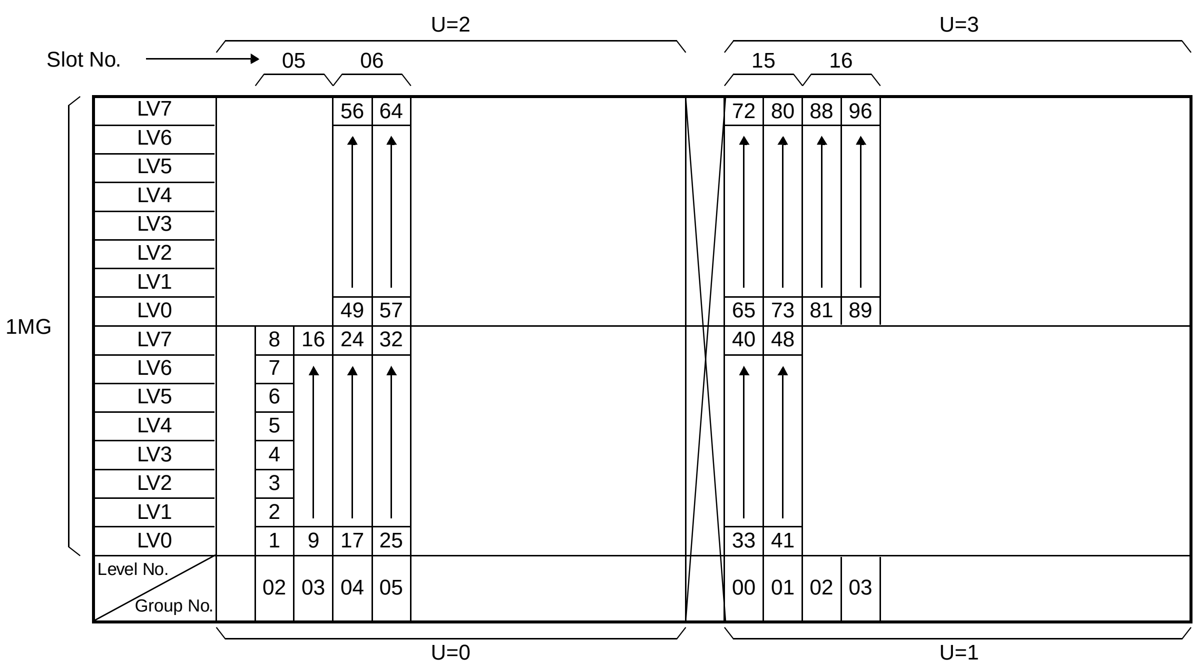
[Details on Trunk Arrangement "TYPE"]

When assigning the consecutive trunk data by using the CATK command, you must select the trunk arrangement type (1-6) in the "TYPE" parameter. See the detailed examples below:

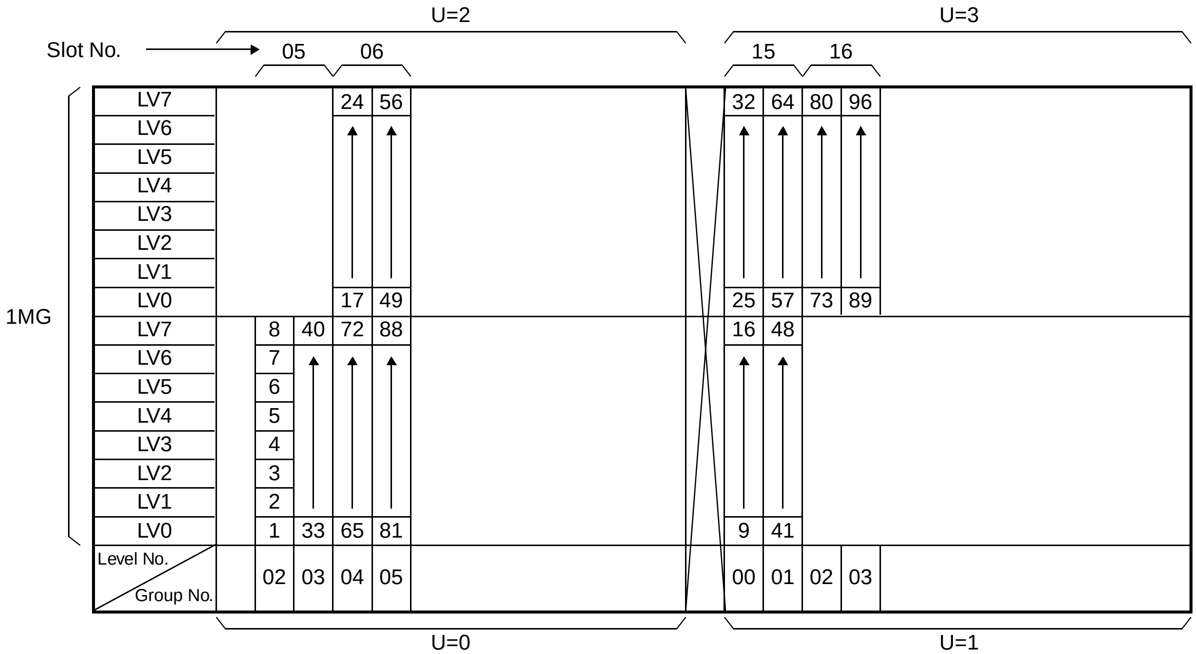
The following are the examples when the 16 COT circuit cards are accommodated as shown below.



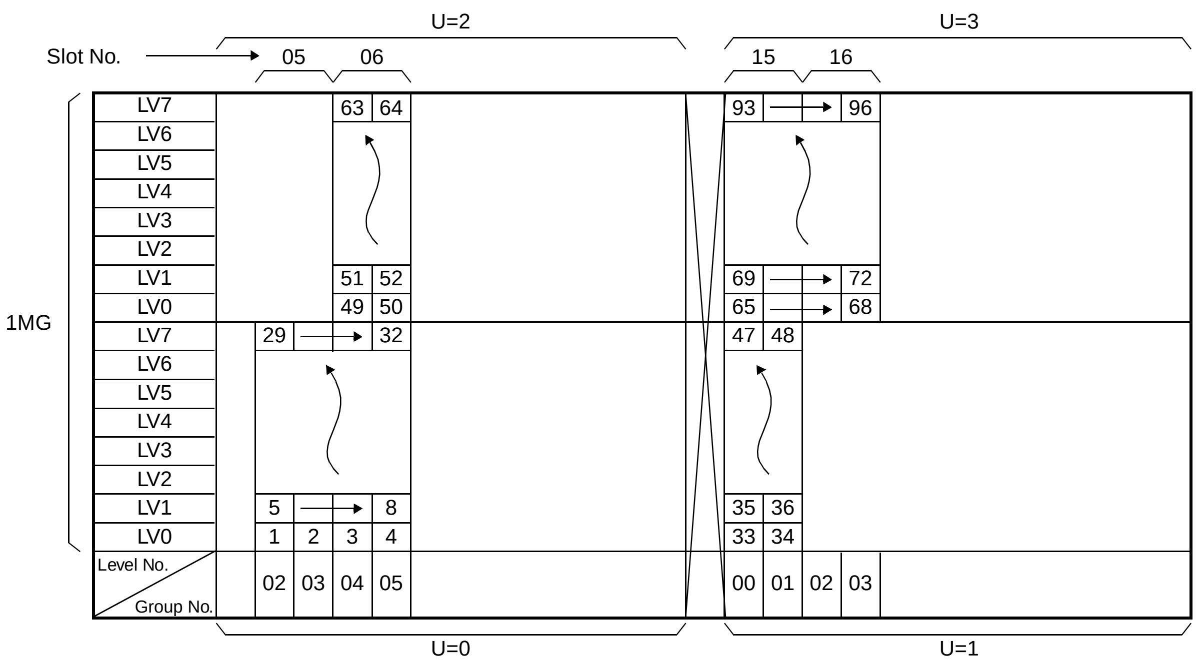
- TYPE=1 (Level → Group → Unit)
  Trunk data is arranged in the following numerical order.



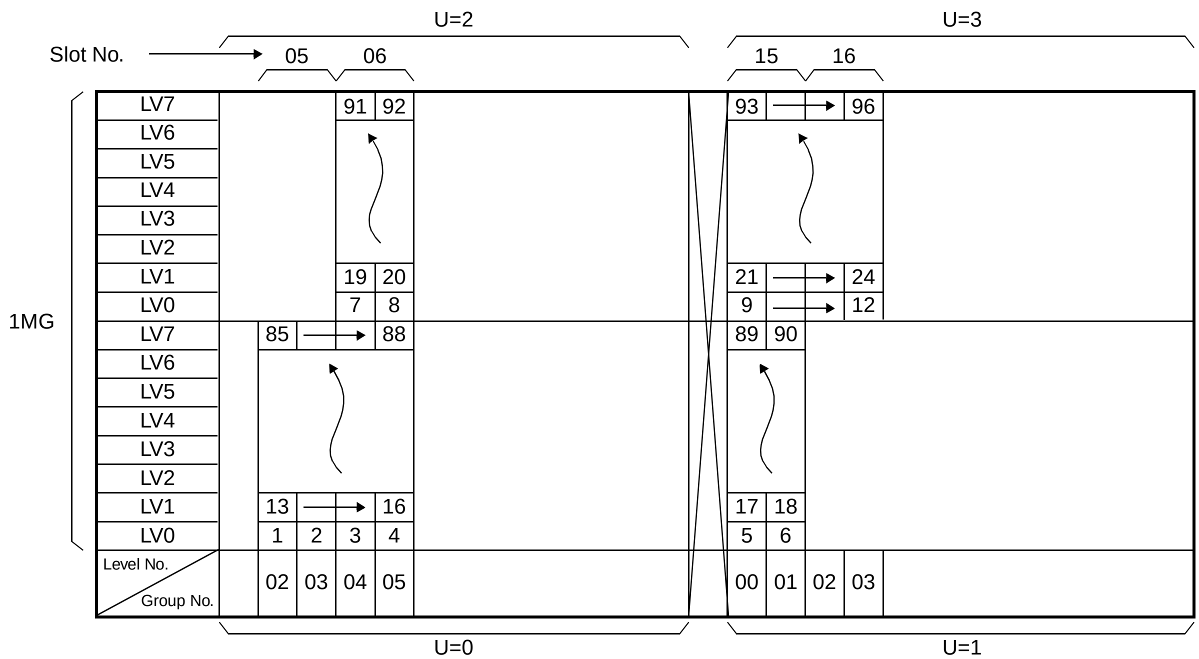
- TYPE=2 (Level → Unit → Group)
  Trunk data is arranged in the following numerical order.



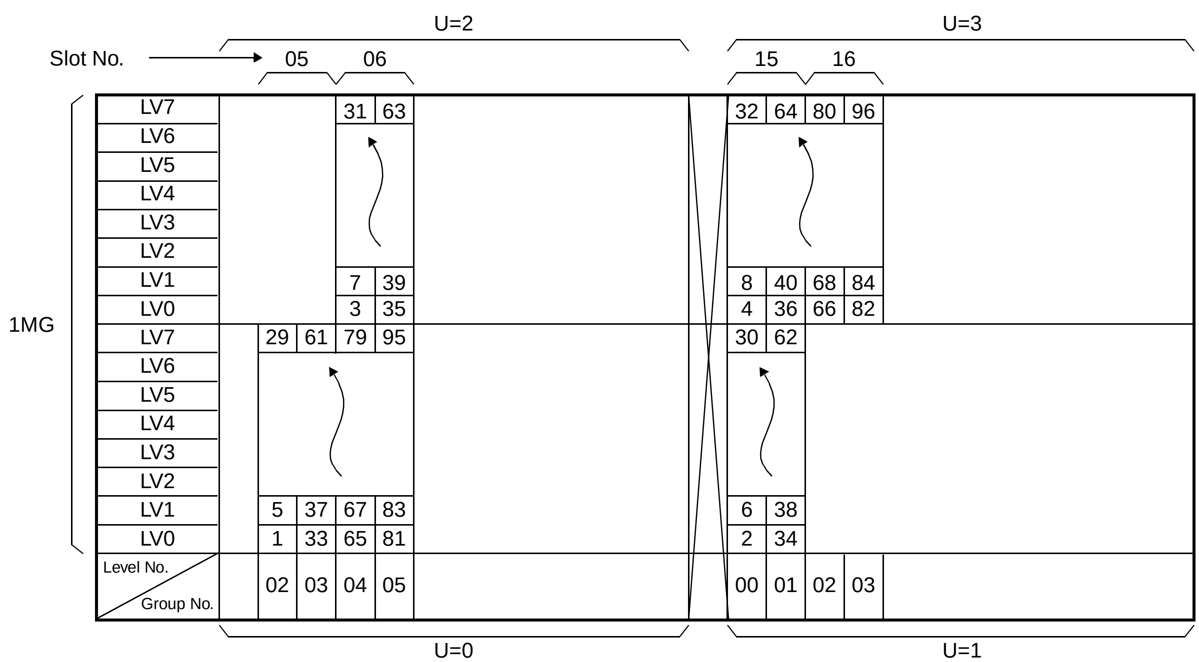
- TYPE=3 (Group → Level → Unit)
  Trunk data is arranged in the following numerical order.



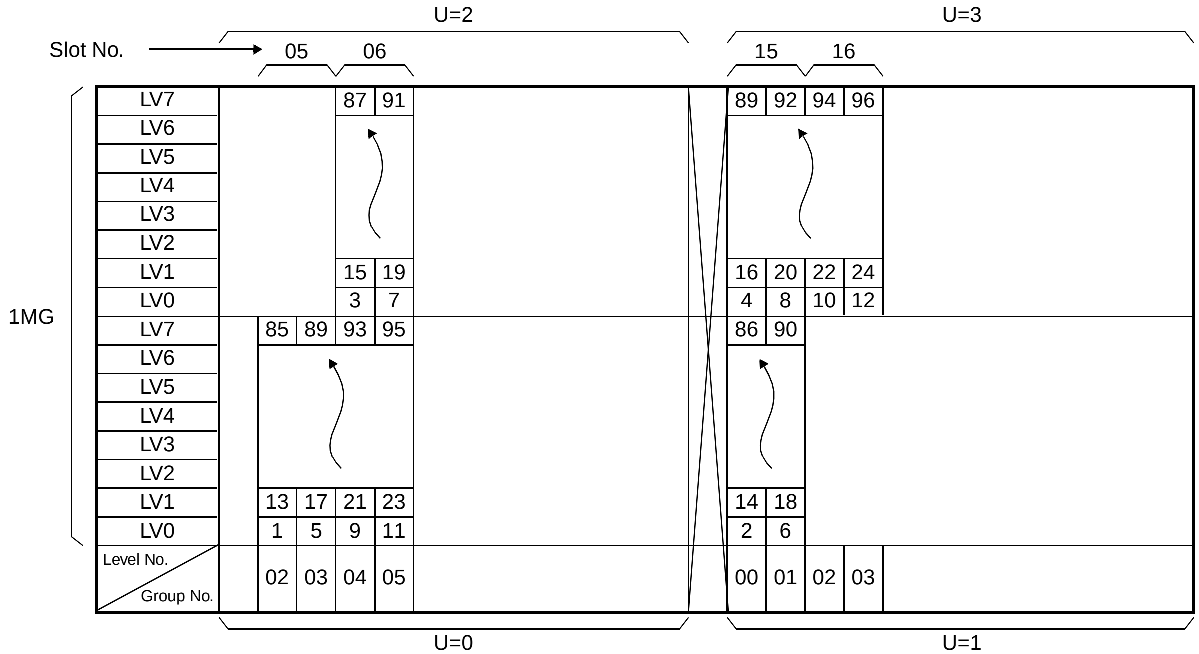
- TYPE=4 (Group → Unit → Level)
  Trunk data is arranged in the following numerical order.



- TYPE=5 (Unit → Level → Group)
  Trunk data is arranged in the following numerical order.



- TYPE=6 (Unit → Group → Level)
  Trunk data is arranged in the following numerical order.



CBCN: Control of Broadcasting for NDM

1. Functional Outline

This command specifies the destination of NDM data broadcast from the NCN. This command is available only at the NCN (Network Control Node).

2. Parameters

Input data

TYPE:	ALL (All the Nodes)/ONE (One designated Node)
FPC:	FPC of the designated Node **Note**
Interval:	Broadcasting Interval

Note: *This parameter appears when one node is selected.*

CCSE: Change of Common Signaling Channel Equipment

1. Functional Outline

This command is used to set/reset the make busy state of CCH circuit card.

2. Parameters

CCH LENS:	Line Equipment Number of CCH circuit card [5 digits] MG=XX, UNIT=X, GROUP=XX
LINK:	Link Status [0-2] 0=Link Open 1=Link Close 2=Not Available
MB:	Make Busy Information [0-2] 0=Make Idle 1=Make Busy 2=Not Available

Note: *This command cannot be used for the ISDN-related circuit card (such as PRT, DCH card).*

CDBU: Change of Dch Backup

1. Functional Outline

This command is used to execute the D-channel route changeover, associated with the D-CHANNEL BACK-UP-PRI feature (for AT&T/NT/N-ISDN2).

2. Parameters

Input data

MG:	Module Group Number [00-07] **Note**
CNT:	Number of Dch Backup Route [1-32] **Note**

Buttons

Get:	Click to get information on the Dch Routes.
Change:	Click to execute the Dch route changeover.
Stop:	Click to cancel the Dch route changeover.
Exit:	Click to exit this command.

Display data

RT:	External Route Number
STS0:	Primary-side DCH Status [ACT/ST-BY/OOS (out of service)]
STS1:	Backup-side DCH Status [ACT/ST-BY/OOS (out of service)]
P-LENS:	Primary DCH LENS (6 digits)
B-LENS:	Backup DCH LENS (6 digits)
CHG-STS:	Change Status [Completed/Executing]

Note: *Data entry procedure by this command is as follows:*

1. *Specify the Module Group No. in the "MG" parameter.*
2. *Click the "Get" button. Then, the related Dch data appears in the display data field.*
3. *Referring to the display data, enter the "CNT" No. attached to the Dch to be changed over.*
4. *Click the "Change" button.*

→ *Now, the Dch changeover starts automatically.*

CMOD: Change of System Mode

1. Functional Outline

This command is used to execute ACT/ST-BY change of the processor (CPU) / TSW and display the status of CPU/CLK/TSW/PLO.

2. Parameters

Input data

TYPE:	Type of Process (1,2)	
	1/2=Change Operating Mode/Make Busy of TSW	
DEVICE:	Device to be changed (1,2)	**Note 1**
	1=CPU	**Note 2**
	2=TSW	
SW:	Type of Switch	**Note 3**
	1=TSW(fixed)	
SYSTEM:	System of Switch (0,1)	**Note 3**
	0/1=System 0/System 1	

Note 1: *This parameter appears only when "TYPE"=1.*

Note 2: *When the CPU mode change is executed, the MAT (TCP/IP) is once disconnected. Then, log in to the system again.*

Note 3: *This parameter appears only when "TYPE"=2.*

Display data

Status:	CPU 0/1, TSW 0/1, PLO 0/1(0-3)
	0=Not Mounted
	1=Stand By
	2=ACT
	3=Make Busy

CMODI: Change of System Mode for ISW

1. Functional Outline

This command is used to execute ACT/ST-BY change of the CPU/TSW and display the status of CPU/TSW/PLO. To use this command, the MAT must be connected to ISW.

2. Parameters

Input data

FPC: FPC of designated Node

Note: *When TSW changeover is executed, be sure to assign FPC of ISW.*

TYPE SELECT: 1=ACT/ST-BY change of CPU/TSW
2=MB Control of TSW

[When TYPE 1 is selected]

DEVICE: 1=CPU **Note**
2=TSW

Execution Button: ACT/ST-BY change to be executed

[When TYPE 2 is selected]

SYSTEM: 0/1=TSW No.0 System/TSW No.1 System

Execution Button: MB ON/MB OFF

Note: *When the CPU mode change is executed, the MAT (TCP/IP) is once disconnected. Then, log in to the system again.*

Display data

FPC: FPC of each Node

STATUS: Result of ACT/ST-BY change

SYSTEM: No.0 System/No.1 System

CPU: ACT/ST-BY state of CPU No.0/1

TSW: MB ON/MB OFF state of TSW No.0/1

PLO: ACT/ST-BY state of PLO No.0/1

CMWL: Control Message Waiting Lamp

1. Functional Outline

This command indicates ON/OFF status and controls the Message Waiting Lamp ON/OFF (MW Lamp) at the station. If the station is a D^{term}, this command can also control Message Waiting Display on the D^{term}.

2. Parameters

Input Data

TYPE:	Type of Input (1,2)	
	1/2=Designation by Station Number/Designation by LEN	
TN:	**Note 1**	
STN:	Maximum 5 digits for Business system, and 6 digits for Hotel system. **Note 1**	
LENS:	**Note 2**	
MCI:	Message Center MW Status (0,1)	
	0/1=OFF/ON	
ATT:	Attendant Console MW Status (0,1)	See the parameter MCI.
STA:	Station MW Status (0,1)	See the parameter MCI.
VMM:	Voice Mail Module MW Status (0,1)	See the parameter MCI.

Note 1: *This parameter appears when TYPE= 1.*

Note 2: *This parameter appears when TYPE= 2.*

CMWL_T: Control Message Waiting Lamps - Telephone Number

1. Functional Outline

This command is used to control/display the Message Waiting Lamp's ON/OFF status, by using Telephone Numbers. When the station is a D^{term}, this command can also be used to control the Message Waiting Lamp Display. This command is available at NCN (for Fusion network) only. **Note**

Note: *This command is available for PBX program software.*

2. Parameters

Input Data

TYPE:	Designation by Telephone Number/Designation by LEN
UGN:	User Group Number **Note 1**
TELN:	Telephone Number (max. 16 digits) **Note 1**
LENS:	Line Equipment Number **Note 2**
MWLAMP:	MW Lamp Status OFF/ON
MCI:	Message Center MW Status OFF/ON
ATT:	Attendant Console MW Status OFF/ON
STA:	Station MW Status OFF/ON
VMM:	Voice Mail Module MW Status OFF/ON

Note 1: *This parameter is valid when "Type = 1" is selected.*

Note 2: *This parameter is valid when "Type = 2" is selected.*

Display Data

FPC:	Fusion Point Code (1-253) **Note 3**
TN:	Tenant Number **Note 3**
STN:	Physical Station Number (max. 5 digits for Business/max. 6 digits for Hotel system) **Note 3**

Note 3: *These parameters are for display only.*

Buttons

Get:	Click to get information on the MW status.
Set:	Click to execute the assigned MW lamp control.
Exit:	Click to exit this command.

CPRS: Controlled Alternate PRSCs

1. Functional Outline

This command is necessary for the Controlled Alternate PRSCs function. It either selects the class used between two priority restriction classes (Normal or Urgent), or indicates the class used. This command is allowed only when bit1 of SYS 1, INDEX 59 is "1" (Controlled Alternate PRSCs in service).

2. Parameters

N/U: Priority Restriction Class [N/U]

N=Normal

U=Urgent

CSCL: Continuous Change of Station Class

1. Functional Outline

This command can change the station class information (RSC, SFC) continuously by designating the consecutive range of the station numbers.

2. Parameters

Input data

TN:	Tenant Number
STN(START):	First Station Number [0-9, #, * (Max. 6 digits)] **Note 1**
STN(END):	Last Station Number [0-9, #, * (Max. 6 digits)] **Note 1**
TEC(OLD):	Telephone Equipment Class before change [1-31] **Note 2, Note 3**
TEC(NEW):	Telephone Equipment Class after change [1-31] **Note 2**
RSC(OLD):	Route Restriction Class before change [0-15] **Note 3**
RSC(NEW):	Route Restriction Class after change [0-15]
SFC(OLD):	Service Feature Class before change [0-15] **Note 3**
SFC(NEW):	Service Feature Class after change [0-15]

Note 1: *In the bottom part of the display, a check box is provided to determine whether to use "*" and "#" as a part of the Station Number. If necessary, check the box.*

Note 2: *Details on TEC (Telephone Equipment Class) are shown below:*

1=DP (10pps)	2=PB
3=DP/PB	4=DP (20pps)
5-11=Not used	12=D^{term}
13=Data Terminal via D^{term}	14=Hot Line
15=CAS Line	16=Data Terminal via Data Module
17=Not used	18=Virtual Line Appearance (for D^{term} Multi-Line)
19-22=Not used	23=ISDN Terminal
24-26=Not used	27=8 Conference Equipment
28-31=Not used	

Note 3: *If you want to change all classes of all specified stations, enter "**" for this parameter.*

Buttons

Execute:	Click to make the input data valid.
Cancel:	Click to cancel the input data.
Exit:	Click to exit this command.

Display data

STN:	Station Number
STATUS:	Data Entry Result
	OK=Data Assignment is successful **Note**

Note: *If not OK (i.e. the data entry is not successful), related error message is displayed here.*

CSTN: Continuous Change of Station Number

1. Functional Outline

This command can change a consecutive range of physical station numbers.

2. Parameters

Input data

TN: Tenant Number

OLD STN(START): First Station Number before change [0-9, #, * (Max. 6 digits)] **Note**

OLD STN(END): Last Station Number before change [0-9, #, * (Max. 6 digits)] **Note**

NEW STN(START): First Station Number after change [0-9, #, * (Max. 6 digits)] **Note**

NEW STN(END): Last Station Number after change [0-9, #, * (Max. 6 digits)] **Note**

Note: *In the bottom part of the display, a check box is provided to determine whether to use "*" and "#" as a part of the Station Number. If necessary, check the box.*

Buttons

Execute: Click to make the input data valid.

Cancel: Click to cancel the input data

Exit: Click to exit this command.

Display data

OLD STN: Station Number before change

NEW STN: Station Number after change

STATUS: Data Entry Result
OK=Data Assignment is successful **Note**

Note: *If not OK (i.e. the data entry is not successful), related error message is displayed here.*

DCBD: Display of Call Block Entry Data

1. Functional Outline

This command is used to display the following Call Block data, assigned to a station:

- Number of station/trunk whose call is to be blocked (in the remainder of this page, denoted as "Restriction Number")
- Registered "Restriction Numbers" in total

These data can be obtained by entering any of the station's Telephone Number (TYPE 1), Physical Station Number (TYPE 2) or LENS (TYPE 3) in the parameters below:

2. Parameters

Input Data

TYPE: Selection of Input Data Type

TYPE 1 (Input Data = UGN, TELN) **Note**

TYPE 2 (Input Data = FPC, TN, STN) **Note**

TYPE 3 (Input Data = FPC, LENS) **Note**

READ (button to view the Display Data)

EXIT (button to exit)

Note: *When using this command, first choose the input data type (Type 1 - 3) in the "TYPE" selection list box. Then the following parameters appear, according to the selected data type.*

• When TYPE 1 is selected:	UGN	(User Group Number)
	TELN	(Telephone Number [Max.16 digits])
• When TYPE 2 is selected:	FPC	(Fusion Point Code [1-253])
	TN	(Tenant Number [Max.3 digits])
	STN	(Physical Station Number [Max.6 digits])
• When TYPE 3 is selected:	FPC	(Fusion Point Code [1-253])
	LENS	(Line Equipment Number)

Display Data

CNT: Registered “Restriction Numbers” in total (1-5)

DC: Each “Restriction Number”

- When Physical Station Number is registered – Max.6 digits
- When Telephone Number is registered – Max.16 digits
- When Trunk Call Number is registered – Max.32 digits

DCEN: Display of Connection Trunk LENS Data for LDM

1. Functional Outline

This command is used to display the registered connection trunk/route data by designating LENS.

2. Parameters

Input data

C_LENS:	Line Equipment Number [6 digits]

Display data

C_RT:	Connection Route Number [1-1023]
C_TK:	Connection Trunk Number [1-4095]
RT:	External Route Number
TK:	Trunk Number [1-255]
TN:	Tenant Number

DCON: Display of Connection Status

1. Functional Outline

This command displays the connection status of the station and trunks. If the specified station or trunk is busy, the connected party is displayed.

2. Parameters

Input data

TYPE:	Kind of Connection Status (1-4)
	1=Station of Connection Status
	2=Trunk of Connection Status
	3=LENS of Connection Status
	4=Connection Trunk of Connection Status (Fusion Network)
TN:	**Note 1**
STN:	Maximum number of digits is 5 for Business system, and 6 for Hotel system. **Note 1**
RT:	**Note 2**
TK:	**Note 2**
LEN:	**Note 3**
C_RT:	Connection Route Number (1-1023) **Note 4**
C_TK:	Connection Trunk Number (1-4095) **Note 4**

Note 1: *This data is valid when Type= 1.*

Note 2: *This data is valid when Type= 2.*

Note 3: *This data is valid when Type= 3.*

Note 4: *This data is valid when Type= 4.*

DFTD: Display of System Message Details

1. Functional Outline

This command is necessary to print the system messages detected by the Fault Diagnostic programs.

When the fault scanning (Scanning PBX) is effective, the MAT can scan the PBX status by polling every 20 sec, (default setting is Effective.)

If the PBX has faults, this command executes automatically.

2. Parameters

Input data

New/Old

Show Details: YES/NO

DISS: Display of Program Issue

1. Functional Outline

This command outputs to the printer and displays at the MAT, the program information (version, issue No. and date) in the main memory, and the program information (SP No.and issue No.) in the port microprocessor memory mounted in each circuit card in the PBX.

2. Parameters

Input data

Type of Issue: Main Memory/Port Microprocessor

Module Group: **Note 1**

Unit: **Note 1**

Display data

Type: Main Memory/Boot ROM/IP/ACDP **Note 2**

Version: **Note 2**

Issue: **Note 2**

Date: **Note 2**

Group: 00-23 **Note 1**

SP No.: 4 digits **Note 1**

Issue: ASCII 2 digits **Note 1**

Note 1: *This data is valid when Port Microprocessor is designated.*

Note 2: *This data is valid when Main Memory is designated.*

DLEN: Display of LENS Data

1. Functional Outline

This command displays the data (station data or trunk data) assigned for a designated LEN. For Hotel system, Room Class and Floor Service Data [Annex (ANX), Ground/Underground (G), Floor (FLR)] displays also.

2. Parameters

Input data

LENS

Display data

TN

STN: Maximum 6 digits

TEC: Telephone Equipment Number (1-31)

DATA	MEANING	DATA	MEANING
1	DP (10pps)	2	PB
3	DP/PB	4	DP (20 pps)
5-11	Not used	12	D^{term}
13	Data Terminal via D^{term}	14	Hot Line
15	CAS Line	16	Data Terminal via Data Module
17	Not used	23	ISDN Terminal
18	Virtual Line Appearance (for D^{term} Multi-Line)	19-22	Not used
24-26	Not used	27	Eight Conference Equipment
28-31	Not used		

RSC: Route Restriction Class (0-15)

SFC: Service Feature Class (0-15)

ROOM CLASS: (0-15)

ANX: Annex (0-3)

G: 0/1=Ground/Underground

FLR: Floor (1-127)

RT: The Internal Route Number

DATA	MEANING	DATA	MEANING
901	Attendant Console	902	Originating Register Trunk
903	Incoming Register Trunk	904	MF Receiver
905	Sender Trunk DP/PB	906	PB Receiver for Automated Attendant Service
907	AMP	908	Not used
909	Three-Way Conference Trunk	910-912	Not used
913	Three-Way Conference Trunk for ATTCON	914	Not Used
915	Night Attendant Console	916	MFC Register
917	MFC Sender	918	Not used
919-926	Modem	927, 928	Not used
929	Data Signaling Trunk-Option	930	Rate Adapter Conversion Trunk
931-947	Not used		

TK

C_RT: Connection Route Number (1-1023)

C_TK: Connection Trunk Number (1-4095)

DLSL: Display of Lock Out Station - LENS

1. Functional Outline

This command prints the LENS of stations in lockout state.

2. Parameters

Input data

TYPE:	Type of Printout (1-3)
	1=Printout of all LEN in lockout
	2=Printout of locked out LEN in the designated Module Group
	3=Printout of locked out LEN in the designated Unit
MG:	**Note 1, Note 2**
UNIT:	**Note 2**

Note 1: *The parameter is valid only when Type = 2.*

Note 2: *The parameter is valid only when Type = 3.*

Display data

LENS

DLSS: Display of Lockout Station - Number

1. Functional Outline

This command prints the stations in lockout state by station number.

2. Parameters

Input data

TYPE:	Type of Printout (1-3)	
	1=Printout of all lockout stations	
	2=Printout of lockout stations by tenant	
	3=Printout of lockout stations within a specified range of station number.	
TN:	**Note 1, Note 2**	
START STN:	Maximum 6 digits	**Note 2**
END STN:	Maximum 6 digits	**Note 2**

Note 1: *The parameter is valid only when Type = 2.*

Note 2: *The parameter is valid only when Type = 3.*

Display data

CNT: Count

TN

STN

LENS

DLSS_T: Display of Lock Out Station - Number- Telephone Number

1. Functional Outline

This command is used to print out stations in lockout state, by using Telephone Numbers. This command is available at NCN (for Fusion network) only. **Note**

Note: *This command is available for PBX program software.*

2. Parameters

Input data

Type:	Printout of all lockout stations
	Printout of lockout stations by tenant
	Printout of lockout stations within a specified range of station number
UGN:	User Group Number **Note 1, Note 2**
Start TELN:	First Telephone Number (max. 16 digits) **Note 2**
End TELN:	End Telephone Number (max. 16 digits) **Note 2**

Note 1: *This parameter is valid when "Type = Printout of lockout stations by tenant" is selected.*

Note 2: *This parameter is valid when "Type = Printout of lockout stations within a specified range of station number" is selected.*

Display data

FPC:	Fusion Point Code (1-253)
TN:	Tenant Number
Start STN:	First Physical Station Number (max. 5 digits for Business/max. 6 digits for Hotel system)
End STN:	End Physical Station Number (max. 5 digits for Business/max. 6 digits for Hotel system)
CNT:	Count
UGN:	User Group Number
TELN:	Telephone Number (max. 16 digits)
LENS:	Line Equipment Number

Buttons

Get:	Click to get information on the lockout station
Exit:	Click to exit this command.

DLTEL: Display of Telephone Number from LENS for LDM

1. Functional Outline

This command, available at each Local Node (LN), is used to display the Telephone Number or other station data by designating a specific LEN.

2. Parameters

Input data

LENS:	Line Equipment Number [6 digits]

Display data

UGN:	User Group Number
TELN:	Telephone Number [Max. 16 digits]
TN:	Tenant Number
STN:	Station Number [Max. 6 digits]
TEC:	Telephone Equipment Class [1-31]
RSC:	Route Restriction Class [0-15]
SFC:	Service Feature Class [0-15]

DNTEL: Display of Telephone Number from LENS for NDM

1. Functional Outline

This command, available at Network Control Node (NCN) only, is used to display the Telephone Number or other station data by designating a specific FPC and LEN.

2. Parameters

Input data

FPC:	Fusion Point Code [1-253]
LENS:	Line Equipment Number [6 digits]

Display data

UGN:	User Group Number
TELN:	Telephone Number [Max. 16 digits]
NID:	Network ID **Note**
TN:	Tenant Number
STN:	Station Number [Max. 6 digits]
TEC:	Telephone Equipment Number [1-31]
RSC:	Route Restriction Class [0-15]
SFC:	Service Feature Class [0-15]

Note: *Network ID (NID) is allocated automatically when the Module Group/Unit data is assigned by the AFMU command. Refer to the "Fusion Network System Manual" for more information.*

DPKG: Display of Setting Port Package

1. Functional Outline

This command is used to display the circuit card name accommodated in each Group of a specific UNIT.

Note 1: *When using this command, make sure that each circuit card related database files have already been installed to your MAT. (See FLINST command for more information.)*

2. Parameters

Input data

MG: Module Group (MG) number [00-07]

UNIT: Unit (U) number [0-3]

Buttons

Get: Click to get information on mounted circuit cards.

Close: Click to exit this command.

Note: *When the Input Data above is entered and the "Get" button is pressed, the related circuit card name is displayed on a Group basis. However, if the name is not found for some reasons, the following mark may appear in the relevant display field.*

- # → *Unidentifiable firm ware type.*
- ## → *Data not found in the FMID (database).*
- ### → *Group data not assigned.*
- * → *Circuit card name not found (for the card is in make-busy state, etc.).*

DPSW: Display Package Switch Status

1. Functional Outline

This command is used to display the following information on a Line/Trunk or Control circuit card:

[When MAT is in On-Line Mode (=connected to the system)]

- Current status of each switch
- Explanation of each switch function

[When MAT is in Off-Line Mode (= not connected to the system)]

- Explanation of each switch function

Note 1: *When using this command, make sure that each circuit card related database files have already been installed to your MAT. (See FLINST command for more information.)*

2. Parameters

Input data

KIND:	Display Kind (selection) • (MAT=) On-Line Mode • (MAT=) Off-Line Mode
TYPE:	Circuit Card Type (selection) • Line Trunk Package • Control Package
PMN:	Port Micro Processor Number
PKG NAME:	Circuit Card Name
LP/ISW:	Local Partition Number [00-06 (Even Number only)] or ISW Number **Note**
SYSTEM:	System **Note** 0=No.0 System 1=No.1 System
MG:	Module Group Number [00-07] **Note**
UNIT:	Unit Number [0-3] **Note**
ACT/ST-BY:	ACT/ST-BY information **Note** 0=ACT 1=ST-BY 2=Not used
NODE:	Node Number [0-3]
CLINE:	Collection Line **Note** 0=Out of Service 1=In Service
No:	IOC Card Number [0/1] **Note**

Note: *This parameter may appear when "Control Package" is selected in the "TYPE" parameter.*

Buttons

Get: Click to view the display data

Page Up: Click to view the next page data (when next page exists).

Page Down: Click to return to the previous page data.

Exit: Click to exit this command.

Display data

PKG Name: Circuit Card Name

Firm Name/Issue: Firm Name/Issue of the circuit cardEach switch data is also displayed on the dedicated display page.

Each switch data is also displayed on the dedicated display page.

DSTN: Display of Station Data

1. Functional Outline

This command is used to display the registered Station Data corresponding to the designated Tenant and Station Number. In addition, the information of Hot Line, D^{term} Key Layout, Hunting, and Call Pickup, etc., can also be displayed as the data related to the designated stations.

2. Parameters

Input data

TN:	Tenant Number
STN:	Station Number [0-9, #, * (Max. 6 digits)]

Buttons
[For display data selection]

SHP:	Station Hunting Group-Pilot **Note**
KYD:	Key Data for D^{term} **Note**
CPG:	Call Pickup Group **Note**
CPE:	Call Pickup Expand Group **Note**
PHN:	Phantom Station Number **Note**
SHC:	Station Hunting-Circular **Note**
SHU:	Station Hunting-UCD **Note**
HLS:	Hot Line Station **Note**

Note: *When the designated station has any of these data, the corresponding button(s) can be selected. If the data is necessary, click the button(s).*

[For execution order]

Get:	Click to view the display data.
Close:	Click to exit this command.

Display data (by Parameters)

ETN:	Effective Tenant Number	
LENS:	Line Equipment Number (6 digits)	
TEC:	Telephone Equipment Class [1-31]	
	1=DP (10pps)	2=PB
	3=DP/PB	4=DP (20pps)
	5-11=Not used	12=D^{term}
	13=Data Terminal via D^{term}	14=Hot Line
	15=CAS Line	16=Data Terminal via Data Module
	17=Not used	18=Virtual Line Appearance (for D^{term} Multi-Line)
	19-22=Not used	23=ISDN Terminal
	24-26=Not used	27=8 Conference Equipment
	28-31=Not used	
RSC:	Route Restriction Class [0-15]	
SFC:	Service Feature Class [0-15]	

DTELN: Display of Telephone Number Data for NDM

1. Functional Outline

This command is used to display the registered station data corresponding to specified User Group Number (UGN) and Telephone Number (TELN). The following data related to Number Group can be displayed by clicking the selection button for each data. This command can be used only when logging in to Network Control Node (NCN).

- ACPGN: Call Pickup Group (NDM)
- ACPEN: Call Pickup Expand Group (NDM)
- ASHUN: Station Hunting Group-UCD (NDM)
- ASHCN: Station Hunting Group-Circular (NDM)
- AHLSN: Hot Line Station (NDM)
- ASHPN: Station Hunting Group-Pilot (NDM)
- AKYD: Key Data for D^{term}

2. Parameters

Input Data

UGN: User Group Number
TELN: Telephone Number

Display Data

FPC: Fusion Point Code (1-253)
TN: Tenant Number
STN: Station Number
LENS: Line Equipment Number (6 digits)
MG: Module Group Number
UNIT: Unit Number
G: Group Number
LV: Level Number
TEC: Telephone Class (1-31)
RSC: Route Restriction Class (0-15)
SFC: Service Feature Restriction Class (0-15)

Selection Button

CPGN :Call Pickup Group (NDM)
CPEN :Call Pickup Expand Group (NDM)
SHUN :Station Hunting Group-UCD (NDM)
SHCN :Station Hunting Group-Circular (NDM)
HLSN :Hot Line Station (NDM)
SHPN :Station Hunting Group-Pilot (NDM)
KYD :Key Data for D^{term}

DTF101: Display of Terminal Traffic Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 1 (Terminal Traffic) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF102: Display of Route Traffic Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 2 (Route Traffic) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF103: Display of Station Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 3 (Station Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF104: Display of Attendant Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 4 (ATT Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF105: Display of Route Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 5 (Route Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF201: Display of Service Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 6 (Service Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF301: Display of UCD Route Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 8 (UCD Route Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF302: Display of UCD Group Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 9 (UCD Group Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF303: Display of Station Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 10 (UCD Station Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF501: Display of Attendant Answering Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type= 15 (ATT Answering Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF601: Display of Connection Route Peg Count Data

1. Functional Outline

This command displays the result of traffic measurement data for Type=18 (Connection Route Peg Count) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF602: Display of Connection Route Traffic Data

1. Functional Outline

This command displays the result of traffic measurement data for Type=19 (Connection Route Traffic) assigned by the ATRF command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF101N: Display of Terminal Traffic Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 1 (Terminal Traffic) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF102N: Display of Route Traffic Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 2 (Route Traffic) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF103N: Display of Station Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 3 (Station Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF104N: Display of Attendant Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 4 (ATT Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF105N: Display of Route Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 5 (Route Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101
	Route Traffic-DTF102
	Station Peg Count-DTF103
	Attendant Peg Count-DTF104
	Route Peg Count-DTF105
Traffic Data 2:	Service Peg Count-DTF201
Traffic Data 3:	UCD Route Peg Count-DTF301
	UCD Group Peg Count-DTF302
	UCD Station Peg Count-DTF303
Traffic Data 5:	Attendant Answering Peg Count-DTF501
Traffic Data 6:	Connection Route Peg Count-DTF601
	Connection Route Traffic-DTF602

DTF201N: Display of Service Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 6 (Service Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF301N: Display of UCD Route Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 8 (UCD Route Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF302N: Display of UCD Group Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 9 (UCD Group Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF303N: Display of Station Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 10 (UCD Station Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF501N: Display of Attendant Answering Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type= 15 (ATT Answering Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF601N: Display of Connection Route Peg Count Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type=18 (Connection Route Peg Count) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

DTF602N: Display of Connection Route Traffic Data for Fusion Network

1. Functional Outline

This command displays the result of traffic measurement data for Type=19 (Connection Route Traffic) assigned by the ATRFN command.

2. Parameters

Traffic Data 1:	Terminal Traffic-DTF101N
	Route Traffic-DTF102N
	Station Peg Count-DTF103N
	Attendant Peg Count-DTF104N
	Route Peg Count-DTF105N
Traffic Data 2:	Service Peg Count-DTF201N
Traffic Data 3:	UCD Route Peg Count-DTF301N
	UCD Group Peg Count-DTF302N
	UCD Station Peg Count-DTF303N
Traffic Data 5:	Attendant Answering Peg Count-DTF501N
Traffic Data 6:	Connection Route Peg Count-DTF601N
	Connection Route Traffic-DTF602N

FLINST: File Install

1. Functional Outline

This command is used to install the DPSW-dedicated database files to your MAT. This command is necessary to provide each circuit card's various information (such as circuit card name, equipped switch names, etc.) when your system uses the DPSW/DPKG command.

2. Parameters

Input data

None

Buttons

Copy: Click to start the data file install.

Exit: Click to exit this command.

<Data Install Procedure>

(1) Start up the FLINST command from the Start menu.

(2) Initial Display of the FLINST command appears. Make sure the proper FD drive name is selected in the "FDD" parameter.

(3) Click the "Copy" button. Then, a message, requiring to insert the first FD into the FDD drive, appears.

(4) Insert the first FD into the FDD of the MAT. Then, click **OK**.

(5) File copy starts automatically, and the "Copy End" message appears upon completion.

(6) Click **OK**. Then, another message asks you whether the next FD is to be installed or not.

(7) Click **OK**.

(8) A message, requiring to insert the second FD into the FDD drive, appears. Insert the second FD into the FDD, and click **OK**.

(9) File copy starts automatically, and the "Copy End" message appears upon completion.

(10) Click **OK**. Then, a message asks you whether the next (fourth) FD is to be installed or not.

(11) Click **Cancel**.

HDD_FDD: Data Control Between HDD and FDD

1. Functional Outline

This command is used to install the program data from FDD of PBX to HDD of PBX, and to verify the program data between FDD of PBX and HDD of PBX.

2. Parameters

Input data

System Select:	HFD 0/HFD 1	
Direction Select:	Floppy Disk to Hard Disk/Verify HDD against FDD/Hard Disk to Floppy Disk	
Data Type Selection:	Data Memory	**Note 1**
	Name Display	
	Wireless Call Forwarding	
	Program data	**Note 2**
	Call Forwarding	
	Speed Calling	
	User Assign Soft Key	
	Number Sharing	**Note 3**
	Call Block	
	ACD Data Memory	
LP Select:	This data appears when Call Forwarding, Speed Calling, User Assign Soft Key, Number Sharing, or Call Block data is designated.	
File Name Select		
Auto Verify Afterward		

Note 1: *When “Data Memory” is selected, Local Data Memory (LDM) and Network Data Memory (NDM) are also saved/verifed simultaneously.*

Note 2: *“Program data” can be valid when you select “Floppy Disk to Hard Disk” or Verify HDD against FDD” in the “Direction Select” list box.*

Note 3: *By saving the Number Sharing data, the data concering “Dual Station Calling Over-FCCS” is also saved/verifed automatically.*

HDD_MAT: Data Control Between HDD and MAT

1. Functional Outline

This command is used to save the following data from HDD of PBX to MAT.

2. Parameters

Input data

Direction Select: PBX Hard Disk to MAT/MAT to PBX Hard Disk/Verify HDD againstMAT

Data Type Selection: Data Memory **Note 1**

Name display

Wireless Call Forwarding

Program data **Note 2**

Call Forwarding

Speed Calling

User Assign Soft Key

Number Sharing **Note 3**

Call Block

ACD Data Memory

LP Select: This data appears only when Call Forwarding, Speed Calling, User Assign Soft Key, Number Sharing, or Call Block data is designated.

Auto Verify Afterward

Note 1: *When "Data Memory" is selected, Local Data Memory (LDM) and Network Data Memory (NDM) are also saved/verifed simultaneously.*

Note 2: *"Program data" can be valid when you select "MAT to PBX Hard Disk" in the "Direction Select" list box.*

Note 3: *By saving the Number Sharing data, the data concering "Dual Station Calling Over-FCCS" is also saved/verifed automatically.*

HDD_MAT_N: Data Control Between HDD and MAT for NDM

1. Functional Outline

This command, available at the NCN only, installs (overwrites) the updated Program data from the centralized MAT onto the HDD of all local nodes. To use this command, first install the updated program data on the HDD of the MAT and then execute the program installing onto the HDD of each LN.

2. Parameters

Input data

Data Type Selection: Select all the listed program data

Execution Button: Installing of program data is to be executed

HDFP: HDD Format of PBX

1. Functional Outline

This command is used to execute the formatting of the HDD of PBX.

2. Parameters

Input data (Selection by check)

0 System:	HDD of No.0 System
1 System:	HDD of No.1 System

Buttons

Execute:	Click to execute the formatting.
Close:	Click to exit this command.

MBCT: Make Busy of Connection Trunk for LDM

1. Functional Outline

This command is used to set/reset the make busy state of the connection trunk.

2. Parameters

Input data

C_RT:	Connection Route Number [1-1023]
C_TK:	Trunk Number [1-4095]
MB:	Make Busy Information [0/1]
	0=Make Idle
	1=Make Busy (Outgoing)

MBLE: Make Busy of LENS

1. Functional Outline

This command assigns the Idle/Busy status of Line Equipment Numbers (LENS).

2. Parameters

Input data

LENS

MB: 0/1=Make Idle/Make Busy

MBPM: Make Busy of Port Microprocessor

1. Functional Outline

This command sets or resets the make-busy state of the circuit card that contains the port microprocessor. This setting and resetting is performed individually for each circuit card. If the location of the circuit card containing the port microprocessor is specified in this command, the operating state of all circuit cards mounted in the associated unit is displayed.

2. Parameters

Input data

MG

Unit

Group

MB

Display data

MB:	(0-1)
	0=Make Idle
	1=Make Busy

Note: *The Idle/Busy status can be displayed and assigned by the MB parameter.*

MBRT: Make Busy of Route

1. Functional Outline

This command assigns Idle/Busy status for all the trunks in the route designated.

2. Parameters

Input data

RT: Route Number of the external route/internal route. The Internal Route Number and its meaning is shown in the table below.

DATA	MEANING	DATA	MEANING
901	Attendant/Desk Console	902	Originating Register Trunk
903	Incoming Register Trunk	904	MF Receiver
905	Sender Trunk DP/PB	906	PB Receiver for Automated Attendant Service
907	AMP	908	Not used
909	Three-Way Conference Trunk	910-912	Not used
913	Three-Way Conference Trunk for ATTCON	914	Not used
915	Night Attendant Console	916	MFC Register
917	MFC Sender	918	Not used
919-926	Modem	927, 928	Not used
929	Data Signaling Trunk-Option	930	Rate Adapter Conversion Trunk
931-947	Not used		

MB: 0/1=Make Idle/Make Busy

MBSM: Make Busy of System Message Printout

1. Functional Outline

This command allows or inhibits the system message printer to output system messages.

2. Parameters

Input data

PORT NO.:	Port Number of the printer
MB:	0/1=Make Idle/Busy

MBST: Make Busy of Station

1. Functional Outline

This command assigns the Idle/Busy status of stations.

2. Parameters

Input data

TN

STN: Maximum 5 digits for Business system/maximum 6 digits for Hotel system.

MB: 0/1=Make Idle/Make Busy

MBST_T: Make Busy of Station - Telephone Number

1. Functional Outline

This command is used to assign the IDLE/BUSY status of stations, by using Telephone Numbers. This command is available at NCN (for Fusion network) only. **Note 1**

Note 1: *This command is available for PBX program software.*

2. Parameters

Input Data

UGN: User Group Number

TELN: Telephone Number (max. 16 digits)

MB: Make Busy/Make Idle

Display Data

FPC: Fusion Point Code (1-253) **Note 2**

TN: Tenant Number **Note 2**

STN: Physical Station Number (max. 5 digits for Business system/max. 6 digits for Hotel system) **Note 2**

Note 2: *This data is for display only.*

Buttons

Get: Click to get information on the station

Set: Click to execute the BUSY/IDLE performance.

Exit: Click to exit this command.

MBTC: Make Busy of Trunk-Continuous

1. Functional Description

This command is used to assign the IDLE/BUSY status of trunks. By using this command, plural trunks can be placed into IDLE/BUSY state simultaneously per a route designated in "RT" parameter.

2. Parameters

RT:	Route Number
TK:	Trunk Number **Note 1**
MB:	0=Make Idle
	1=Make Busy(Outgoing)
	2=Make Busy (Bothway) **Note 2**

Note 1: *Plural trunks can be assigned simultaneously per a route designated in "RT" parameter.*

Note 2: *2=Make Busy (Bothway) is not used.*

MBTK: Make Busy of Trunk

1. Functional Outline

This command assigns the Idle/Busy status of trunks.

2. Parameters

RT:	Route Number
TK:	Trunk Number
MB:	0=Make Idle
	1=Make Busy (Outgoing)

MEM_HDD: Data Control Between Memory and HDD

1. Functional Outline

This command is used to save the following data from MEM of PBX to HDD of PBX, and vice versa.

2. Parameters

Input data

Direction Select:	Memory to Hard Disk/Hard Disk to Memory/Verify HDD against MEM	
Data Type Selection:	Data Memory	**Note 1**
	Name Display	
	Wireless Call Forwarding	
	Call Forwarding	
	Speed Calling	
	User Assign Soft Key	
	Number Sharing	**Note 2**
	Call Block	
	ACD Data Memory	
LP Select:	This data is valid when Call Forwarding, Speed Calling, User Assign Soft Key, Number Sharing or Call Block data is designated.	
Auto Verify Afterward		

Note 1: *When "Data Memory" is selected, Local Data Memory (LDM) and Network Data Memory (NDM) are also saved/verified simultaneously.*

Note 2: *By saving the Number Sharing data, the data concerning "Dual Station Calling Over-FCCS is also saved/verified automatically.*

MEM_HDD_N: Data Control Between Memory and HDD for NDM

1. Functional Outline

This command, available at the NCN only, is used to save/verify a series of Office Data from the Memory of all Local Nodes to the HDD of the same node.

2. Parameters

Input data

Direction Select:	MEM to HDD/Verify HDD against MEM	
Data Type Selection:	Data Memory	**Note 1**
	Name Display	
	Wireless Call Forwarding	
	Call Forwarding	
	Speed Calling	
	User Assign Soft Key	
	Number Sharing	**Note 2**
	Call Block	
	ACD Data Memory	
LP Select:	The parameter is valid when Call Forwarding, Speed Calling, User Assign Soft Key, Number Sharing, or Call Block data is designated.	
Auto Verify Afterward		

Note 1: *When "Data Memory" is selected, Local Data Memory (LDM) and Network Data Memory (NDM) are also saved/verified simultaneously.*

Note 2: *By saving the Number Sharing data, the data concerning "Dual Station Calling Over-FCCS is also saved/verified automatically.*

Display data

Information:	FPC of Node in which saving/verifying is executed
	Result of the execution
Direction:	MEM to HDD/Verify HDD against MEM
Data Type:	Selected Data Type

MFCH: Make Busy of FCCH

1. Functional Outline

This command is used to set or reset the make busy state of the FCH card.

2. Parameters

Input data

FCHN: FCH Number [1-255]

MB: Make Busy Information [0/1]

0=Make Idle

1=Make Busy

PMBU: Port Microprocessor Back Up

1. Functional Outline

This command saves the contents of Port Microprocessor (PM) onto Floppy Disk (FD) or verifies them. Information of firmware (Program Code) also appears on the screen.

2. Parameters

Input data

Direction Select: Port Microprocessor to MAT/Verify Port Microprocessor/Verify PM with Error List Auto Verify Afterward can be performed when designating Port Microprocessor to MAT.

PM Information: Module Group/Unit/Group/Data Size(1-6) See the following data:

1=2 Kbytes

2=4 Kbytes

3=8 Kbytes

4=16Kbytes

5=32Kbytes

6=64Kbytes

Display data

Office

SP Number: Information of firmware (Program Code)

SP Issue: Information of firmware (Program Code)

RALM: Release Alarm

1. Functional Outline

This command clears the fault indications.

2. Parameters

Input data

WRT:	Y/N=Alarm is released/Not released
RETURN TO MENU?:	Y/N=Return to MENU/Start operation again

Display data

Alarms Released

RALMN: Release Alarm for NDM

1. Functional Outline

This command, available at the NCN only, clears the fault indications of all the nodes by clicking the release button on the display.

2. Parameters

Display data

FPC:	FPC of alarm released nodes
Status:	Result of releasing the alarm
	OK/NG

RLST: Release Station/Trunk

1. Functional Outline

This command releases a station or trunk.

2. Parameters

Input data

TYPE:	Type of Select (1-4)
	1=Stations
	2=Trunk
	3=LENS
	4=Connection Trunk
TN:	**Note 1**
STN:	Maximum 6 digits **Note 1**
RT:	**Note 2**
TK:	**Note 2**
LENS:	**Note 3**
Connection RT:	(1-1023) **Note 4**
Connection TK:	(1-4095) **Note 4**

Note 1: *This parameter is valid only when TYPE= 1.*

Note 2: *This parameter is valid only when TYPE= 2.*

Note 3: *This parameter is valid only when TYPE= 3.*

Note 4: *This parameter is valid only when TYPE= 4.*

Display data

STATUS:	Status of Station/Trunk(1-4)
	1=Idle
	2=Busy
	3=Lockout
	4=Make Busy
FPC:	Fusion Point Code (1-253)
INFORMATION:	Information of the connected party **Note**

Note: *This parameter appears only when STATUS= 2.*

RLST_T: Release Station/Trunk - Telephone Number

1. Functional Outline

This command is used to release a station/trunk, by using Telephone Numbers. This command is available at NCN (for Fusion network) only. **Note**

Note: *This command is available for PBX program software.*

2. Parameters

Input Data

TYPE:	Telephone Number Trunk LENS Connection Trunk
UGN:	User Group Number **Note 1**
TELN:	Telephone Number (max. 16 digits) **Note 1**
RT:	External/Internal Route Number **Note 2**
TK:	Trunk Number **Note 2**
LENS:	Line Equipment Number **Note 3**
C_RT:	Connection Route Number (1-1023) **Note 4**
C_TK:	Connection Trunk Number (1-4095) **Note 4**

Note 1: *This parameter is valid when "Telephone Number" is designated in the "TYPE" selection list box.*
Note 2: *This parameter is valid when "Trunk" is designated in the "TYPE" selection list box.*
Note 3: *This parameter is valid when "LENS" is designated in the "TYPE" selection list box.*
Note 4: *This parameter is valid when "Connection Trunk" is designated in the "TYPE" selection list box.*

Display Data

FPC:	Fusion Point Code (1-253)
TN:	Tenant Number **Note 5**
STN:	Physical Station Number (max. 5 digits for Business/max. 6 digits for Hotel system) **Note 5**
STATUS:	Status of Station/Trunk (1-5) 1 = Idle 2 = Busy 3 = Lockout 4 = Make Busy 5 = Now Calling
INFORMATION:	Information on the connected party **Note 6**
ERN:	Area Number (1-32) **Note 7**
GRN:	Group Number (1-8) **Note 7**
CSN/ZTN:	CS/ZT Number (1-32) **Note 7**
PCN:	PHS Community Number (1-1024) **Note 7**

Note 5: *This data is displayed when "Telephone Number" is designated in the "TYPE" selection list box.*
Note 6: *This data is displayed when "STATUS" = 2 (Busy).*
Note 7: *This data is for Wireless system only.*

Buttons

Get:	Click to get information on the station/trunk
Release:	Click to execute the station/trunk release.
Exit:	Click to exit this command

SINZ: System Initialization

1. Functional Outline

This command initializes the PBX from the MAT. At the time of system initialization, this command allows the programs and the office data to be loaded from a Hard Disk of PBX into the RAM of PBX.

2. Parameters

Input data

TYPE: Kind of Initialization (1-4)

1=System Initialize

2=System Initialize Office Data Load & System Initialize

3=System Initialize Program Load & System Initialize

4=System Initialize Program & Office Data Load & System Initialize

Note: *When the system is intialized, the MAT is disconnnected. Then, log in to the system again.*

SINZI: System Initialization for ISW

1. Functional Outline

This command is used to initialize ISW and all the LNs in IPX-U system from the MAT. Also, at the time of system initialization, this command allows the programs and the office data to be loaded from a Hard Disk of PBX into the RAM of PBX. To use this command, the MAT must be connected to ISW.

2. Parameters

Input data

TYPE SELECT: Kind of Initialization(1-4)

1=Non Load

2=Program Load

3=DM Load

4=Program Load & DM Load

EXECUTION BUTTON : Initialization is to be executed

Display data

FPC: FPC of executed Node

RESPONSE: Result of initialization

OK/NG

Note: *When the system is initialized, the MAT is once disconnected. Then, log in to the system again.*

SPTS: Scanning of Port Status

1. Functional Outline

This command displays momentarily the working status of Port Microprocessor (PM) on Module Group (MG), Unit and Group basis.

2. Parameters

Input data

MG

Unit

Group

Interval: The unit for this parameter is second

Display data

PKG TYPE: (0-255)

PKG Status: 1/2=On Line/Make Busy

DATA	MEANING	DATA	MEANING	DATA	MEANING	DATA	MEANING
0	LC	1	TRK	2	RST	3	ATI
4	DLC	5	Not used	6	CFT	7	MASTER T
8	SMI	9	MODEM T	10-15	Not used	16	DATA LC
17	DTI	18	HDT	19	GWT	20	DST
21-254	Not used	255	Not assigned				

SP No.: Program information (1-3999)

ISSUE: Firmware Issue (0-4)

LEVEL STATUS

PORT STATUS:	when TYPE= "1"
	0=circuit card is not mounted or Make Busy
	1=More than one port in a group is Idle
	2=All port in a group is busy
	3=All port in a group is Hard Make Busy or Soft Make Busy
	4= —
	when TYPE= "2"/"3"
	0=Not assigned
	1=Line Idle
	2=Line Busy
	3=Make Busy
	4=Lockout
PORT DATA	
KIND:	Type of Port (1,2)
	1/2=Station/Trunk
TN:	**Note 1**
STN:	Maximum 6 digits **Note 1**
TEC:	Telephone Equipment Number (1-31) **Note 1**

RT: **Note 2**

DATA	MEANING	DATA	MEANING
1	DP (10pps)	2	PB
3	DP/PB	4	DP (20pps)
5-11	Not used	12	D^{term}
13	Data Terminal via D^{term}	14	Hot Line
15	CAS Line	16	Data Terminal via Data Module
17	Not used	18	Virtual Line Appearance (for D^{term} Multi-Line)
19-20	Not used	21	ACD (MIS)
22	Not used	23	ISDN Terminal
24-26	Not used	27	Eight Conference Equipment
28-31	Not used		

TK: **Note 2**

TCL: Trunk Class (1-31) **Note 2**

DATA	MEANING	DATA	MEANING
1	DDD Line	2	FX
3	WATS	4	Tie Line
5	CCSA	6	Toll Terminal
7	CAS Line	8	Paging
9	Code Call Trunk	10	Dictation Trunk
11	Radio Paging Trunk	12-31	Not used

RT: Route Number

DATA	MEANING	DATA	MEANING
901	Attendant Console	902	Originating Register Trunk
903	Incoming Register Trunk	904	MF Receiver
905	Sender Trunk DP/PB	906	PB Receiver for Automated Attendant Service
907	AMP	908	Not used
909	Three-Way Conference Trunk	910-912	Not used
913	Three-Way Conference Trunk for ATTCON	914	Not used
915	Night Attendant	916	MFC Register
917	MFC Sender	918	Not used
919-926	Modem	927, 928	Not used
929	MFC Sender	930	Rate Adapter Conversion Trunk
931	Not used	932-947	Not used

Note 1: *The parameter is only for KIND = 1.*

Note 2: *The parameter is only for KIND= 2.*

SRTS: Scanning of Route Status

1. Functional Outline

This command displays the designated trunk status (Busy/Idle) at predetermined intervals. A maximum of 15 routes can be scanned.

2. Parameters

Input data

RT: Route Number

Interval Time

Display data

Number of Idle TK

Number of Busy

XHFD: X-RAY HD or FDD Diagnosis

1. Functional Outline

This command is used to execute the following diagnoses.

- Hard Disk Diagnosis
  By executing read/write check on the files in the hard disk of the PBX, this command diagnoses the hard disk for its normality.
  If an error has been found as a result of the diagnosis, this command displays the information on the faulty logical drive and the number of faulty sectors on the MAT screen. The information can also be output by the printer.

- Floppy Disk Diagnosis
  By executing cleaning of the floppy disk drive in the PBX, this command diagnoses the floppy disk drive for its normality.
  If the cleaning has not finished normally, a diagnosis error has been found as a result of the diagnosis. The result message may be displayed on theMAT screen or printed out by the printer.

2. Parameters

Input data

FUNCTION:	HD/FDD Designation [1/2]
	1=Diagnosis of HD (Hard Disk)
	2=Diagnosis of FDD (Floppy Disk Drive)
AREA:	Area Designation [0/l] **Note**
	0=All Files
	1=Program Files
SYSTEM:	System (0/1)
	0=No.0 System
	1=No.1 System

Note: *"AREA" parameter appears only when "1(=HD)" is selected in the "FUNCTION" parameter.*

Buttons

Exe:	Click to execute the diagnosis.
Close:	Click to exist this command.

Display data

FAULT DRIVE: Fault Drive Number [0-4]

0=-

1=#0

2=#1

3=#2

4=#3

FAULT SECTOR: Number of Fault Sector [0-65535]

MESSAGE: Result of diagnosis [0-255]

0=Normal End

1=Hard disk read test practice error

2=Floppy disk drive cleaning practice error

3=Common part parameter error (Data length error)

4=FDD cleaning abnormal end (FD not in drive)

5=Individual part parameter error (Function error)

6=Individual part parameter error (Sub function error)

7=Individual part parameter error (Device error)

8=Individual part parameter error (Drive selection error)

9=Individual part parameter error (Data ID error)

10=Individual part parameter error (Processor ID error)

11=Individual part parameter error (File ID error)

12=Individual part parameter error (File name error)

13=Request order error (Health check send error)

14=Request order error (Data send signal error)

15=Internal error (File open error)

16=Internal error (File read error)

17=Internal error (File close error)

18=Internal error (FAT error)

19=Internal error (SCSIC error)

20=Internal error (other)

21=Hard interface abnormal end

22-255=-