5.8 GHz 15/28/50 MB
PDH DIGITAL MICROWAVE RADIO SYSTEM
NLite L
(PDH 1+0/1+1 SYSTEM)

SECTION II OPERATION

CONTENTS

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1. GENERAL

This section provides operating instructions for the 5.8 GHz 15/28/50 MB NLite L digital microwave radio system.

This part describes the interface terminals and jacks, controls, indicators, test jacks, equipment start-up, and equipment shut-down. Setting, controls and monitoring using the LCT are required for local operation.

This manual is described for the firmware version of as follows.
       SW UNIT: 1.0.1
       MD UNIT: 1.0.2

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2. INTERFACE TERMINALS AND JACKS

The MDP and TRP have interface terminals and jacks to interconnect data signals, alarm, IF signals and line power with the associated equipment. These interface terminals and jacks are located on front of the equipment as shown in Fig. 2-1 and Fig. 2-2. The details of terminals and jacks for signal interface are described in Table 2-1 and Table 2-2.
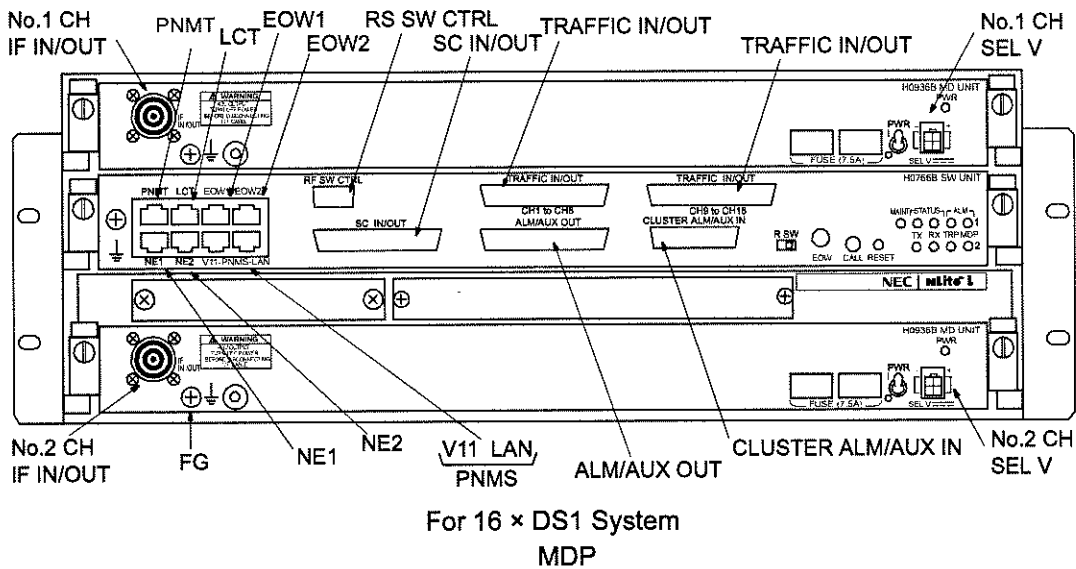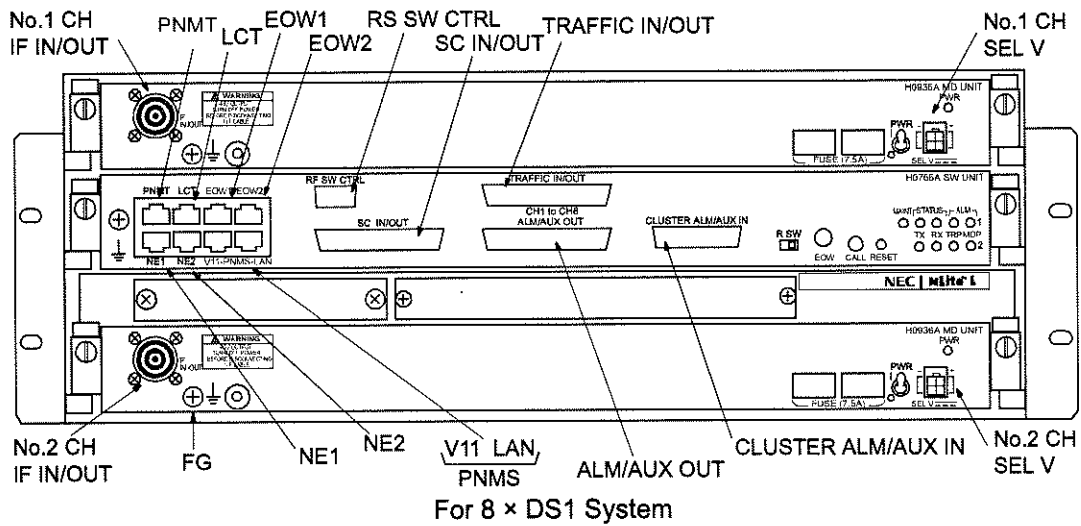
For 8 × DS1 System

For 16 × DS1 System

MDP

Fig. 2-1 MDP, Interface Terminals and Jacks

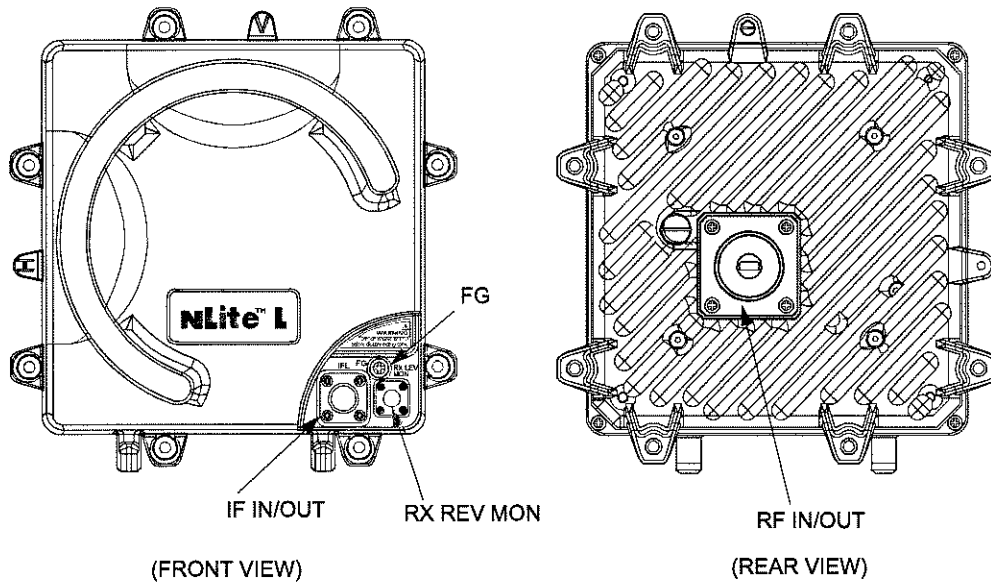FG

IF IN/OUT   RX REV MON

(FRONT VIEW)

RF IN/OUT

(REAR VIEW)

Fig. 2-2 TRP, Interface Terminal and Jacks

Table 2-1 Interface Terminals and Jacks on the MDP (1/8)

Terminal	Description
TRAFFIC IN/OUT CH1-8 (1.5M INTFC) (D-sub Connector, 37 Pins)	DS1 data input/output from/to DTE (CH1 to CH8)
Pins 1 (+) and 2 (−)	CH8 data input
Pins 3 (+) and 4 (−)	CH7 data input
Pins 6 (+) and 7 (−)	CH6 data input
Pins 8 (+) and 9 (−)	CH5 data input
Pins 11 (+) and 12 (−)	CH4 data input
Pins 13 (+) and 14 (−)	CH3 data input
Pins 16 (+) and 17 (−)	CH2 data input
Pins 18 (+) and 19 (−)	CH1 data input
Pins 20 (+) and 21 (−)	CH8 data output
Pins 22 (+) and 23 (−)	CH7 data output
Pins 25 (+) and 26 (−)	CH6 data output
Pins 27 (+) and 28 (−)	CH5 data output
Pins 29 (+) and 30 (−)	CH4 data output
Pins 31 (+) and 32 (−)	CH3 data output
Pins 34 (+) and 35 (−)	CH2 data output
Pins 36 (+) and 37 (−)	CH1 data output
Pins 5,10,15,24 and 33	Ground
TRAFFIC IN/OUT CH9-16 (1.5M INTFC) (D-sub Connector, 37 Pins)	DS1 data input/output from/to DTE (CH 9 to CH 16) (for 16 x 1.5 MB system only)
Pins 1 (+) and 2 (−)	CH16 data input
Pins 3 (+) and 4 (−)	CH15 data input
Pins 6 (+) and 7 (−)	CH14 data input
Pins 8 (+) and 9 (−)	CH13 data input
Pins 11 (+) and 12 (−)	CH12 data input
Pins 13 (+) and 14 (−)	CH11 data input
Pins 16 (+) and 17 (−)	CH10 data input
Pins 18 (+) and 19 (−)	CH9 data input
Pins 20 (+) and 21 (−)	CH16 data output

Table 2-1 Interface Terminals and Jacks on the MDP (2/8)

Terminal	Description
Pins 22 (+) and 23 (−)	CH15 data output
Pins 25 (+) and 26 (−)	CH14 data output
Pins 27 (+) and 28 (−)	CH13 data output
Pins 29 (+) and 30 (−)	CH12 data output
Pins 31 (+) and 32 (−)	CH11 data output
Pins 34 (+) and 35 (−)	CH10 data output
Pins 36 (+) and 37 (−)	CH9 data output
Pins 5,10,15,24 and 33	Ground
CLUSTER ALM/AUX IN (D-sub Connector, 25 Pins)	Alarm and transmission network surveillance auxiliary input/ output
Pins 1 (NO) and 14 (COM)	Cluster alarm 2 output Normal state : Open Control/Event state : Closed
Pins 2 (+) and 15 (−)	Cluster alarm 2 input *1, *3 Normal state : Open Control/Event in : Closed
Pins 3, 16 (G)	Ground
Pins 4 (NO) and 17 (COM)	Cluster alarm 1 output Normal state : Open Control/Event state : Closed
Pins 5 (+) and 18 (−)	Cluster alarm 1 input *1, *3 Normal state : Open Control/Event in : Closed
Pins 6, 19 (G)	Ground
Pins 7 (+), 20 (−)	House keeping (HK)6 alarm input *1, *3 Normal state : Open Control/Event in : Closed
Pins 8 (+), 21 (−)	HK5 alarm input *1, *3 Normal state : Open Control/Event in : Closed
Pins 9 (+), 22 (−)	HK4 alarm input *1, *3 Normal state : Open Control/Event in : Closed
Pins 10 (+), 23 (−)	HK3 alarm input *1, *3 Normal state : Open Control/Event in : Closed

Table 2-1 Interface Terminals and Jacks on the MDP (3/8)

Terminal	Description
Pins 11 (+), 24 (−)	HK2 alarm input *1, *3 Normal state : Open Control/Event in : Closed
Pins 12 (+), 25 (−)	HK1 alarm input *1, *3 Normal state : Open Control/Event in : Closed
Pin 13 (G)	Ground
ALM OUT (D-sub Connector, 37 Pins)	Alarm output
Pins 18 (COM), 36 (NC) and 37 (NO) — RL1	Maintenance alarm output <table><tr><td></td><td>Between Pins 18 and 36</td><td>Between Pins 18 and 37</td></tr><tr><td>Normal state :</td><td>Closed</td><td>Open</td></tr><tr><td>Alarm state :</td><td>Open</td><td>Closed</td></tr></table>
Pins 35 (COM), 16 (NC) and 17 (NO) — RL2	Power supply alarm 1/Power supply alarm 2 output <table><tr><td></td><td>Between Pins 35 and 16</td><td>Between Pins 35 and 17</td></tr><tr><td>Normal state :</td><td>Closed</td><td>Open</td></tr><tr><td>Alarm state :</td><td>Open</td><td>Closed</td></tr></table>
Pins 15 (COM), 33 (NC) and 34 (NO) — RL3	CPU alarm output <table><tr><td></td><td>Between Pins 15 and 33</td><td>Between Pins 15 and 34</td></tr><tr><td>Normal state :</td><td>Closed</td><td>Open</td></tr><tr><td>Alarm state :</td><td>Open</td><td>Closed</td></tr></table>
Pins 13 (COM), 31 (NC) and 32 (NO) — RL4	TRP alarm 1/TRP alarm 2 output *2 or equipment alarm output <table><tr><td></td><td>Between Pins 13 and 31</td><td>Between Pins 13 and 32</td></tr><tr><td>Normal state :</td><td>Closed</td><td>Open</td></tr><tr><td>Alarm/Event state :</td><td>Open</td><td>Closed</td></tr></table>
Pins 30 (COM), 11 (NC) and 12 (NO) — RL5	MDP alarm 1/MDP alarm 2 output *2 or equipment alarm output <table><tr><td></td><td>Between Pins 30 and 11</td><td>Between Pins 30 and 12</td></tr><tr><td>Normal state :</td><td>Closed</td><td>Open</td></tr><tr><td>Alarm/Event state :</td><td>Open</td><td>Closed</td></tr></table>

Table 2-1 Interface Terminals and Jacks on the MDP (4/8)

Terminal	Description

Pins 10 (COM), 28 (NC) and 29 (NO) — RL6	High BER alarm 1/High BER alarm 2 output *2 or equipment alarm output
	
	                              Between Between
	                         Pins 10 and 28 Pins 10 and 29
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 8 (COM), 26 (NC) and 27 (NO) — RL7	MAIN INTFC loss of signal alarm output *2 or equipment alarm output
	
	                              Between Between
	                         Pins 8 and 26 Pins 8 and 27
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 25 (COM), 6 (NC) and 7 (NO) — RL8 *4	HK4 alarm output *2 or equipment alarm output
	                              Between Between
	                         Pins 25 and 6 Pins 25 and 7
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 5 (COM), 23 (NC) and 24 (NO) — RL9 *4	HK3 alarm output *2 or equipment alarm output
	                              Between Between
	                         Pins 5 and 23 Pins 5 and 24
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 3 (COM), 21 (NC) and 22 (NO) — RL10 *4	HK2 alarm output *2 or equipment alarm output
	                              Between Between
	                         Pins 3 and 21 Pins 3 and 22
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 20 (COM), 1 (NC) and 2 (NO) — RL11 *4	HK1 alarm output *2 or equipment alarm output
	                              Between Between
	                         Pins 20 and 1 Pins 20 and 2
	Normal state : Closed Open
	Alarm/Event state : Open Closed

Pins 4, 9, 14, 19 (G)	Ground
PNMT (Modular Connector)	Pasolink network management terminal (PNMT) data input/output (RS-232C)
Pin 1	PNMT DCD
Pin 2	PNMT TXD
Pin 3	PNMT RXD
Pin 4	PNMT DSR

Table 2-1 Interface Terminals and Jacks on the MDP (5/8)

Terminal	Description
Pin 5	Ground
Pin 6	PNMT DTR
Pin 7	PNMT CTS
Pin 8	PNMT RTS
LCT (Modular Connector)	Local craft terminal (LCT) data input/output (RS-232C)
Pin 2	LCT TXD
Pin 3	LCT RXD
Pin 5	Ground
Pin 7	LCT CTS
Pin 8	LCT RTS
EOW1 (Modular Connector)	Engineering orderwire (EOW)1 signal extension terminal for branching connection between MDPs (VF and CALL signal)
Pin 1	EXT EOW1 input (+)
Pin 2	EXT EOW1 input (−)
Pin 3	EXT CALL1 input
Pin 4	EXT EOW1 output (+)
Pin 5	EXT EOW1 output (−)
Pin 6	Ground
Pin 7	EXT CALL1 output
Pin 8	Ground
EOW2 (Modular Connector)	EOW2 signal extension terminal for branching connection between MDPs (VF and CALL signal)
Pin 1	EXT EOW2 output (+)
Pin 2	EXT EOW2 output (−)
Pin 3	EXT CALL2 output
Pin 4	EXT EOW2 input (+)
Pin 5	EXT EOW2 input (−)
Pin 6	Ground
Pin 7	EXT CALL2 input
Pin 8	Ground

Table 2-1 Interface Terminals and Jacks on the MDP (6/8)

Terminal	Description
NE1 (Modular Connector)	Pasolink network management system (PNMS) data input/output for back-to-back connection between MDPs (RS-485)
Pin 1	TXD +/RXD+
Pin 2	TXD–/RXD–
Pin 3	RXD +/TXD +
Pin 4	CK +
Pin 5	CK –
Pin 6	RXD–/TXD–
Pin 7	Ground
Pin 8	Ground
NE2 (Modular Connector)	PNMS data input/output for back-to-back or branching connection between MDPs (RS-485)
Pin 1	TXD+/RXD+
Pin 2	TXD–/RXD–
Pin 3	RXD+/TXD+
Pin 4	N.C
Pin 5	N.C
Pin 6	RXD–/TXD–
Pin 7	Ground
Pin 8	Ground
PNMS V11 (Modular Connector)	PNMS data (V11) input/output
Pin 1	NMS TXD +
Pin 2	NMS TXD –
Pin 3	NMS RXD +
Pin 4	N.C
Pin 5	N.C
Pin 6	NMS RXD –
Pin 7	Ground
Pin 8	Ground

Table 2-1 Interface Terminals and Jacks on the MDP (7/8)

Terminal	Description
PNMS LAN (Modular Connector)	PNMS data (LAN) input/output
Pin 1	NMS TD +
Pin 2	NMS TD −
Pin 3	NMS RD +
Pin 4	N.C
Pin 5	N.C
Pin 6	NMS RD −
Pin 7	N.C
Pin 8	N.C
SC IN/OUT (D-sub Connector, 37 Pins)	Service channel data input/output (V11* : 2CH, RS-232C : 1CH)
Pin 1	OH3 RTS
Pin 2	OH3 DTR
Pin 4	OH3 TXD
Pin 21	OH3 CTS
Pin 23	OH3 RXD
Pins 6 (+) and 25 (−)	OH2 DFP
Pins 7 (+) and 26 (−)	OH2 DCK
Pins 8 (+) and 27 (−)	OH2 DDT
Pins 9 (+) and 28 (−)	OH2 IFP
Pins 10 (+) and 29 (−)	OH2 ICK
Pins 11 (+) and 30 (−)	OH2 IDT
Pins 13 (+) and 32 (−)	OH1 DFP
Pins 14 (+) and 33 (−)	OH1 DCK
Pins 15 (+) and 34 (−)	OH1 DDT
Pins 16 (+) and 35 (−)	OH1 IFP
Pins 17 (+) and 36 (−)	OH1 ICK
Pins 18 (+) and 37 (−)	OH1 IDT
Pins 5, 12, 19, 20, 22, 24 and 31 (G)	Ground
	Note: Either Co- or Contra-directional of V11 is selectable by LCT.

Table 2-1 Interface Terminals and Jacks on the MDP (8/8)

Terminal	Description
IF IN/OUT (N-J Connector)	TX IF signal, DC power output to the TRP and RX IF signal input from the TRP *Caution: Do not connect other cables to this jack, because the −43 V DC power is superimposed on this jack.* *Caution: Do not connect/disconnect the IF line cable before turning off the power switch.* *Danger: Do not touch the jack core before turning off the power switch.*
FG	Frame ground
G	Wrist band ground
SEL V (Molex M5557-4R Connector, 4 Pins)	−36 V to −60 V DC (or +36 V to +60 V DC) power input
Pins 1 and 3	0 V (or +48 V)
Pins 2 and 4	−48 V (or 0 V)

Notes: *1 Photocoupler interface.

*2 These alarm item are assigned at the factory (default setting) and can change the setting by the LCT as shown in Table 2-2 (Alarms may be selectively assigned to RL4 to RL11).

*3 Resistance of opened input terminal is more than 200 kilo ohms. Closed input terminal is less than 50 ohms.

*4 The relay is rated at 0.2 A.

Table 2-2 Summarized External Alarms (Form-C)

ALARM ITEM	INTERFACE TERMINAL							
	ALM OUT							
	RL4	RL5	RL6	RL7	RL8	RL9	RL10	RL11
TRP ALM 1/2	●	○	○	○	○	○	○	○
MDP ALM 1/2	○	●	○	○	○	○	○	○
TX PWR ALM 1/2	○	○	○	○	○	○	○	○
TX IN ALM 1/2	○	○	○	○	○	○	○	○
RX LEV ALM 1/2	○	○	○	○	○	○	○	○
APC ALM 1/2	○	○	○	○	○	○	○	○
CABLE ALM 1/2	○	○	○	○	○	○	○	○
MOD ALM 1/2	○	○	○	○	○	○	○	○
DEM ALM 1/2	○	○	○	○	○	○	○	○
HIGH BER 1/2	○	○	○	○	○	○	○	○
LOW BER 1/2	○	○	●	○	○	○	○	○
LOF 1/2	○	○	○	○	○	○	○	○
MAIN INTFC LOS ALM	○	○	○	●	○	○	○	○
HK1 OUT	—	—	—	—	—	—	—	●
HK2 OUT	—	—	—	—	—	—	●	—
HK3 OUT	—	—	—	—	—	●	—	—
HK4 OUT	—	—	—	—	●	—	—	—

Notes: 1. ● *marks are set at factory. (default setting)*
       2. ○ *marks can be set by the LCT. Each relay can be setup so that they will be assigned two or more alarm items output.*
       3. *Alarms items can be assigned from RL8 to RL11 when the relays have not been designated for HK control.*
       4. *The number after an alarm item shows a channel number.*
       5. *While the CPU is initialized by depressing the RESET switch, alarm(s) is in normal condition. After initialization, the alarm information is properly provided through relay contacts.*

Table 2-3 Interface Terminals and Jacks for TRP

| Terminal/Jack	Description
IF IN/OUT (N-J Connector)	TX IF signal input and RX IF signal output *Warning: Do not connect/disconnect the coaxial cable while the MDP is powered on.*
FG	Frame ground
RF IN/OUT (10.5 GHz : PBR-100)	RF signal input/output from/to antenna. The optional RF adapter is used for waveguide connection and NEC original interface is used for antenna direct connection.

3. CONTROLS, INDICATORS AND TEST JACKS

The controls, indicators and test jacks of the MDP and TRP are described in this chapter.

3.1 MDP

The controls, indicators and jacks of the MDP are shown in Fig. 3-1. Their functions are described as follows:
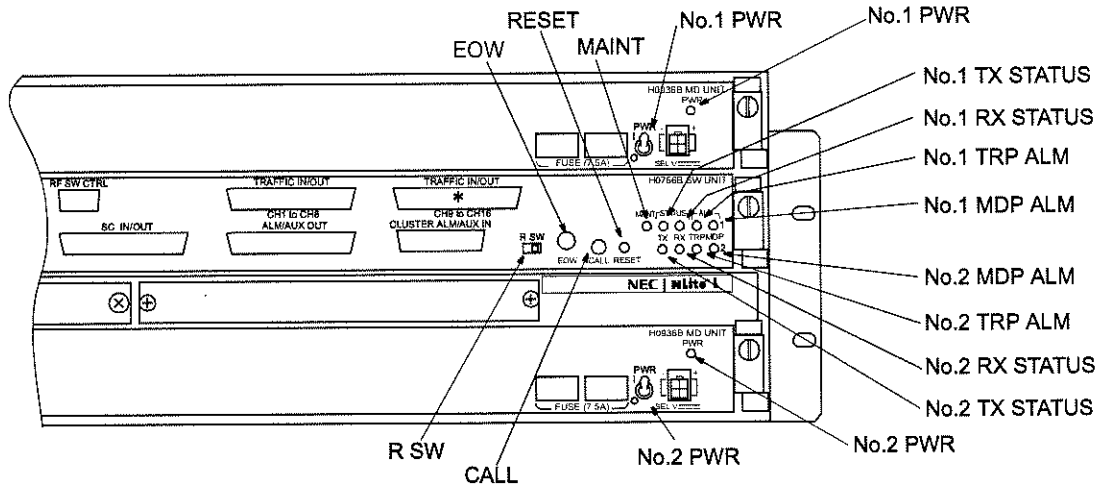
Note: * CH9-16 IN/OUT interface connector is not provided for 8 x DS1 system.

Fig. 3-1 MDP Controls, Indicators and Test Jacks

No.1 PWR indicator:

Lights when the PWR switch of No.1 CH is turned on.

No.2 PWR indicator:

Lights when the PWR switch of No.2 CH is turned on.

No.1 PWR switch:

Turns on or off the input DC power for No.1 CH.

No.2 PWR switch:

Turns on or off the input DC power for No.2 CH.

No.1 MDP ALM indicator:

Lights when:

- INTFC clock of TX side is lost — Main board
- INTFC signal/clock of RX side is lost — Main board
- Input data of main CH (CH1-16) is lost — Main board
- 1.5M INTFC module failure — 1.5M INTFC
- MOD IF output level down or TX DPU failure — No.1 MODEM
- Input IF signal is lost — No.1 MODEM
- Frame synchronization is lost — No.1 MODEM
- BER is worse than preset value — No.1 MODEM
- DC power failure — No.1 DC-DC CONV or external power supply (When No.2 MDP is provided.)

No.2 MDP ALM indicator (in 1+1 system) :

Lights when:

- Interface (INTFC) clock of TX side is lost — Main board
- INTFC signal/clock of RX side is lost — Main board
- Input data of main CH (CH1-16) is lost — Main board
- Main INTFC module failure — Main board
- MOD IF output level down or TX DPU failure — No.2 MODEM
- Input IF signal is lost — No.2 MODEM
- Frame synchronization is lost — No.2 MODEM
- BER is worse than preset value — No.2 MODEM
- DC power failure — No.2 DC-DC CONV (When No.1 MDP is provided.)

No.1 TRP ALM indicator:

Lights when:

- Transmit RF power of No.1 CH TRP deviates approx. +/–3 dB from normal

- Receiver input level of the No.1 CH TRP falls below squelch level

- APC loop of local oscillator in No.1 CH TRP is unlocked

- IF signal from the MDP at No.1 CH TRP is lost

- Communication between the No.1 CH TRP and No.1 CH MDP is lost

No.2 TRP ALM indicator (in 1+1 system) :

Lights when:

- Transmit RF power of No.2 CH TRP deviates approx. +/–3 dB from normal

- Receiver input level of No.2 CH TRP falls below squelch level

- APC loop of local oscillator in No.2 CH TRP is unlocked

- IF signal from the MDP at No.2 CH TRP is lost

- Communication between the No.2 CH TRP and No.2 CH MDP is lost

No.1 TX STATUS indicator :

Lights when the modulator and transmitter of No.1 CH is selected.

No.2 TX STATUS indicator :

Lights when the modulator and transmitter of No.2 CH is selected.

No.1 RX STATUS indicator :

Lights when the receiver and demodulator of No.1 CH is selected.

No.2 RX STATUS indicator :

Lights when the receiver and demodulator of No.2 CH is selected.

MAINT indicator

Lights when the equipment is set to maintenance mode by the LCT.

RESET switch:

RESET switch initializes the CPU.

Note: When the indication on the LCT is frozen or the CPU is abnormal, press the RESET switch.

CALL switch:

Transmits the calling signal, to sound the buzzer at the opposite station.

EOW jack:

Connects the headset to use EOW.

R SW switch:

Slide the switch from the current position to the other position to use to the former program version after the MDP program is updated. Then press the RESET switch.

Caution: Contact NEC before R SW operation. Equipment may not function correctly with improper operation.

3.2 TRP

The controls, indicators and test jacks of the TRP are shown in Fig. 3-2.

TRP
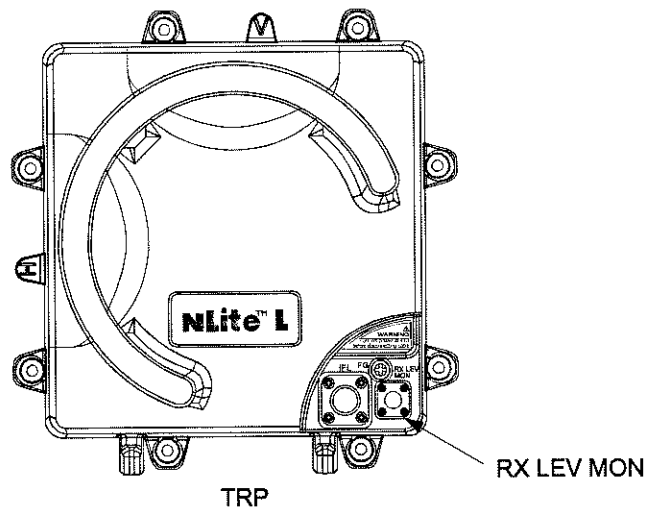
RX LEV MON

Fig. 3-2 TRP Controls, Indicators and Test Jacks

Their functions are described as follows:

RX LEV MON jack:

- Gives access to monitor receive level voltage.

- Facilitate the transmission of EOW signal between MDPs and TRPs by connecting the OW/RX LEV Monitor and headset.

The X0818A OW/RX LEV Monitor (optional) is used for operation and maintenance and is shown in Fig. 3-3. The operation range of the OW/RX LEV Monitor is 0 °C to +45 °C and its functions are described as follows:

METER:
    Indicates a DC voltage proportional to the receiving RF level.

OW indicator:
    Lights when the OW ON-OFF switch is set to ON. If the OW indicator is not lit even after setting the OW switch to ON, replace the battery (6F22(UB)/9V).

OW ON-OFF switch:
    Enables transmission of EOW signal between TRPs and MDPs by setting the switch to ON.

VOL control:
    Adjusts receive OW voice level.

RX LEV/OW IN jack:
    Provide a DC voltage for RX LEV monitoring and EOW signal from/to the TRP.

HEADSET jack:
    Connects the orderwire headset to communicate between TRPs and MDPs.

OW SWITCH

VOL CONTROL

BATTERY
(6F22(UB)/9V)

METER

OW INDICATOR

V
NEC
ANTENNA POINTING MONITOR
OW

RX LEV/OW IN

HEADSET JACK
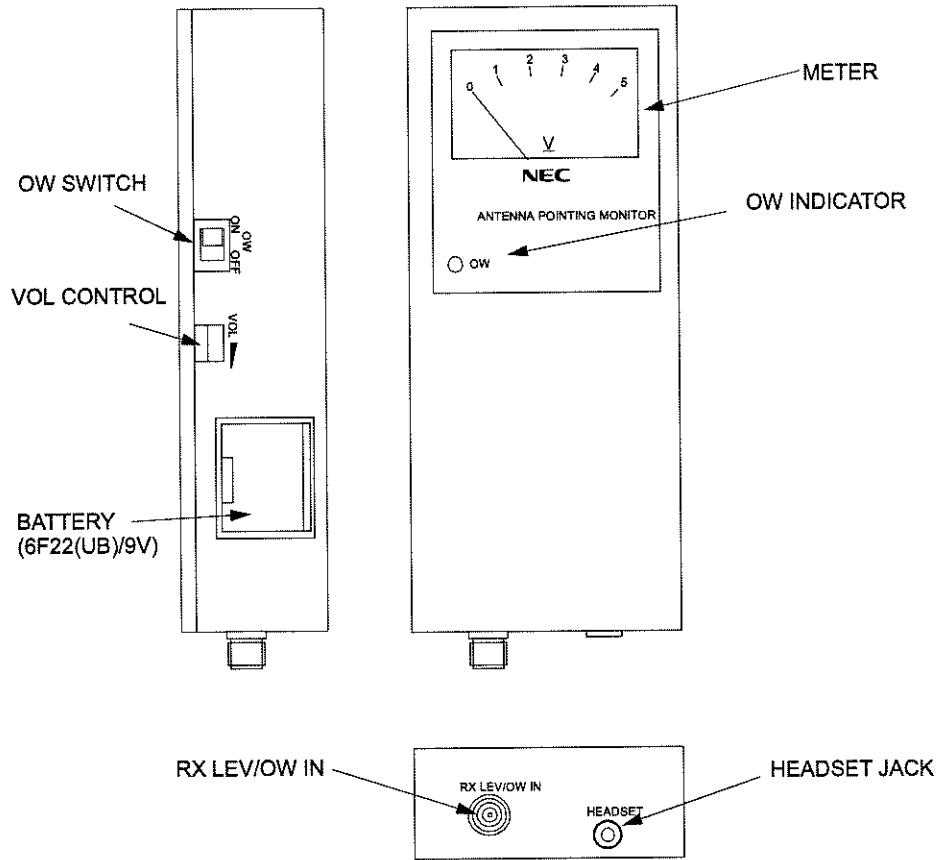
Fig. 3-3 Controls, Indicators and Test Jacks of OW/RX LEV Monitor

4. EQUIPMENT START-UP AND SHUT-DOWN

Procedures for equipment start-up and shut-down are described below.

Warning: After turning ON the equipment, wait at least 1 minute before turning it OFF again. Repeatedly turning the power ON and OFF within a short interval may cause the MDP to fail.

4.1 Start-up

The start-up procedure for the equipment is described in Chart 4-1.

Chart 4-1 Start-up

This procedure describes how to turn the power on/off after the initial lineup is completed and the configuration of frequency and transmit output level is also completed.

Caution: Do not apply to the equipment a voltage that varies sharply. The equipment may operate wrongly.

Apparatus:
   Suitable Screwdriver
   Digital Multimeter

Step	Procedure

Notes: 1. The TRP power is supplied from the MDP.
2. Power turn on procedures for No.1 and No.2 are identical.

1   Check that the IF line cable between the MD UNIT and the TRP is firmly connected,

2   Turn on the PWR switch on the MDP (see Fig. 4-1),

3   Confirm that the PWR indicator on the MD UNIT is lighted and that all alarm indicators for corresponding channel are unlighted.
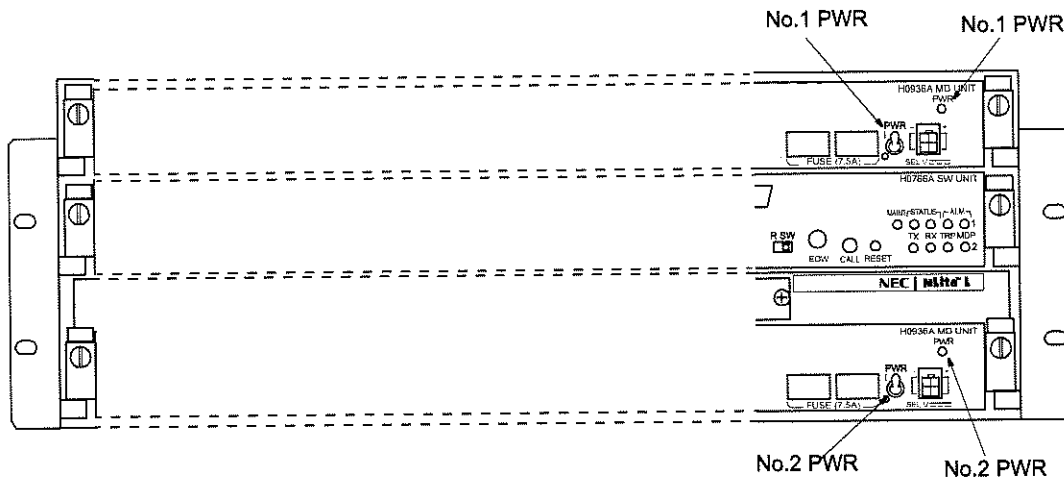

No.1 PWR   No.1 PWR

No.2 PWR   No.2 PWR

Fig. 4-1 Power Switch and Indicator Location

4.2 Shut-down

The shut-down procedure for the equipment is shown in Chart 4-2.

Chart 4-2 Shut-down	
Step	**Procedure**
1	Turn off the PWR switch on the front of the MD UNIT (see Fig. 4-1).

5. SETTING, CONTROL AND MONITORING WITH LCT

This chapter outlines the local craft terminal (LCT) operation, system configuration setting/monitoring, and provisioning setting.

The operation for maintenance, alarm/status monitoring and performance monitoring are referred to the Section IV Maintenance.

5.1 General

The LCT operator must have the security system privilege to access/ control systems. The system privilege menu item are listed as follows.

Login Level	Administrator	User
Menu		
Login	Admin	User
Password	12345678	(no use)
Alarm /Status	O	O
Performance Monitor		
• Display Metering/BER	O	O
• Display Performance Monitor	O	O
• Display Threshold Data	O	O
• Set Threshold Data	O	—
• RSL Monitor	O	—
Provisioning Data		
• Display Current Data	O	O
• Set Provisioning Data	O	—
System Configuration		
• Display Radio Equipment Configuration	O	O
• Setup Radio Equipment Configuration	O	—
Inventory Data		
• Display Inventory Data	O	O
Relay/House Keeping		
• Display Current State	O	O
• Relay Configuration	O	—
• Output Control	O	—
Maintenance		
• MAINT Mode	O	—
• Control	O	—
• Reset CPU	O	—
• Set Calendar	O	—
• Password Setting	O	—
• Program Download	O	—
Logout	O	O

Note: O ; possible, —; impossible

The password can be changed when "Admin" level is logged in. For procedures to change the password, refer to Chapter 5 in Section IV Maintenance.

Note: Do not forget the changed password. If you forget a password, report to NEC.

Equipment setting in provisioning data can not be changed in "User" level.

5.2 LCT Menu Items

General of menu tree for the 1+0/1+1 system is shown below.

Main Menu No.	LCT Menu				Login Level	
					Administrator	User
0	Logout				○	○
1	Alarm/Status				○	○
2	Performance Monitor	Display Metering/ BER			○	○
		Display Performance Monitor	15 min Register		○	○
			1 day Register		○	○
		Display Threshold Data			○	○
		Set Threshold Data	15 min Register		○	—
			1 day Register		○	—
		RSL Monitor			○	—
3	Provisioning Data	Display Current Data			○	○
		Set Provisioning Data	Main/LAN Signal Configuration	LAN (Main/WS/SC) function	○	—
				Main Interface	○	—
			BER Threshold	High BER	○	—
				Low BER	○	—
			SC Assignment	RS232C	○	—
				V11-1	○	—
				V11-2	○	—
			MTPC TX PWR	No. 1	○	—
				No. 2	○	—
			ATPC Range	No. 1	○	—
				No. 2	○	—
			RX Threshold *1	No. 1	○	—
				No. 2	○	—
			Additional ATT	No. 1	○	—
				No. 2	○	—
			TRP ALM Mode		○	—
			TXSW Priority		○	—
			RXSW Priority		○	—
			Channel Usage Error		○	—
			AIS Activation Condition		○	—
			AIS Activation Delay Time		○	—
			AIS Generated Report	Main INTFC	Set CH	Report	○	
						Not Report	○	
			AIS Received Report	Main INTFC	Set CH	Report	○	
						Not Report	○	

Main Menu No.	LCT Menu					Login Level	
						Administrator	User
4	System Configuration	Display Radio Equipment Configuration				○	○
		Setup Radio Equipment Configuration				○	—
5	Inventory Data	Display Inventory Data				○	○
6	Relay/ House keeping	Display Current State				○	○
		Relay Configuration				○	—
		Output Control				○	—
7	Maintenance	MAINT Mode		On		○	—
				Off		○	—
		Control	RF Frequency	No. 1	RF Frequency	○	—
				No. 2		○	—
			ATPC Manual Control	No. 1	Manual (Value [dB])	○	—
					Auto	○	—
				No. 2	Manual (Value [dB])	○	—
					Auto	○	—
			TXSW Manual Control	No. 1		○	—
				No. 2		○	—
				AUTO		○	—
			TX Mute	No. 1	On	○	—
					Off	○	—
				No. 2	On	○	—
					Off	○	—
			RXSW Manual Control	No. 1		○	—
				No. 2		○	—
				AUTO		○	—
			CW	No. 1	On	○	—
					Off	○	—
				No. 2	On	○	—
					Off	○	—
			IF Loopback	No. 1	On	○	—
					Off	○	—
				No. 2	On	○	—
					Off	○	—
			Main Signal Loopback (Near End)	CH	On	○	—
					Off	○	—
				ALL CH Off		○	—

Main Menu No.	LCT Menu					Login Level	
						Administrator	User
7	Maintenance	Control	Main Signal Loopback (Far End)	CH	On	O	—
					Off	O	—
				ALL CH Off		O	—
			LAN Device Reset *2	Port1		O	—
				Port2		O	—
			Linearizer Control *3	No. 1	Auto	O	—
					Reset	O	—
				No. 2	Auto	O	—
					Reset	O	—
			Antenna Alignment Mode	No. 1	On	O	—
					Off	O	—
				No. 2	On	O	—
					Off	O	—
		Reset CPU	IDU / CTRL			O	—
			IDU / MODEM *4			O	—
			ODU			O	—
		Set Calendar				O	—
		Passworod Setting				O	—
		Program Download	IDU / CTRL			O	—
			IDU / MODEM			O	—
			ODU			O	—

Notes: No. 1 or No. 2 in the table signifies CH number in the 1+1 system. In the 1+0 system, CH number is not displayed.

O ; possible, —; impossible

*1 ; A –50 dBm is fixed as default value on the Firmware Version 1.01.

*2 ; This control is only available for the LAN INTFC module which will be supplied in future as optional module.

*3; Normally, the Auto mode is selected and will be applied without change. When set to Reset, perform once to reset the IDU/Main Board with the Reset CPU control.

*4; When you performed the CPU reset control for the IDU/MODEM, perform also reset control for the ODU.
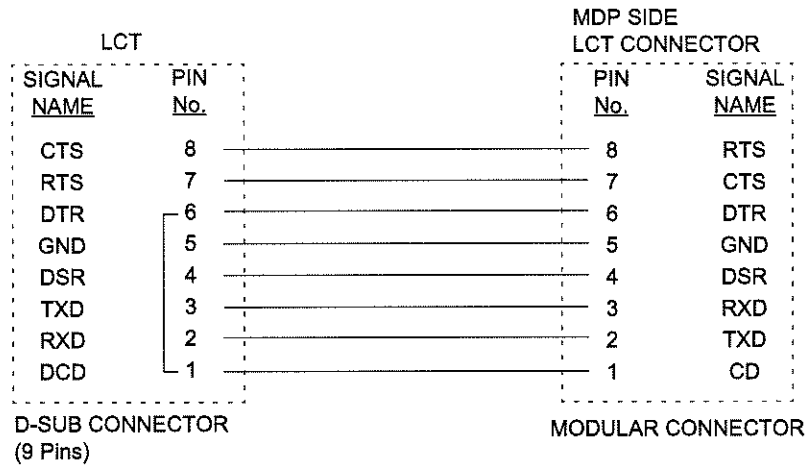
5.3 LCT Connection
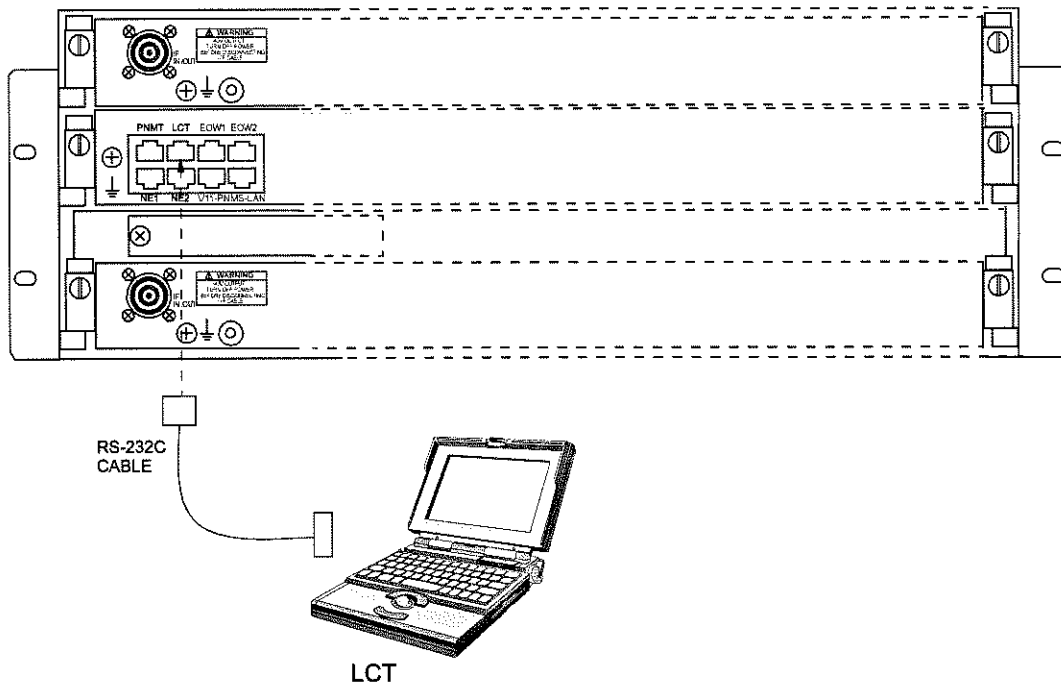

Fig. 5-1 RS-232C Cable Pin Assignment

Fig. 5-2 LCT Setup

Table 5-1 Initial Setting Items

	Item	Remarks
1.	System Configuration	Chart 5-1 in this Section
2.	Date and Time Setting	Chart 5-2 in this Section
3.	Provisioning Setting	Chart 5-3 in this Section
4.	Relay/House Keeping Setting	Chart 5-4 in this Section

The communication/serial port settings of the personal computer used as local craft terminal (LCT) is listed below.

- Bits per second: 19200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: Hardware
- Emulation: VT100 Video Terminal
- Transmission: Add CR at end of line : No
  (ASCII Sending)*   (Send line ends with line feeds:No)*
                       Local echo : No
                       (Echo typed characters locally : No)*
- Receiving: CR: No
  (ASCII Receiving)*   (Append line feeds to incoming line ends
                       : No)*
                       Return on the right edge: Yes
                       (Wrap lines that exceed terminal width
                       : Yes)*
                       Force incoming data to 7-bit ASCII: No

  * Windows HyperTerminal settings.

  Microsoft and Windows are either registered trademark of Microsoft Corporation in the United States and other countries.

These display screens are shown in Fig. 5-3.

Notes:1. For operating the LCT properly, do not use the arrow keys "→, ↑, etc." (as generates the ESC code).

2. The operation check by HyperTerminal attached to Windows is performed by Windows 2000.

The cable connector pin assignments are shown in Fig. 5-1. The length of the RS-232C cable between the personal computer and MDP should be less than 15 m.
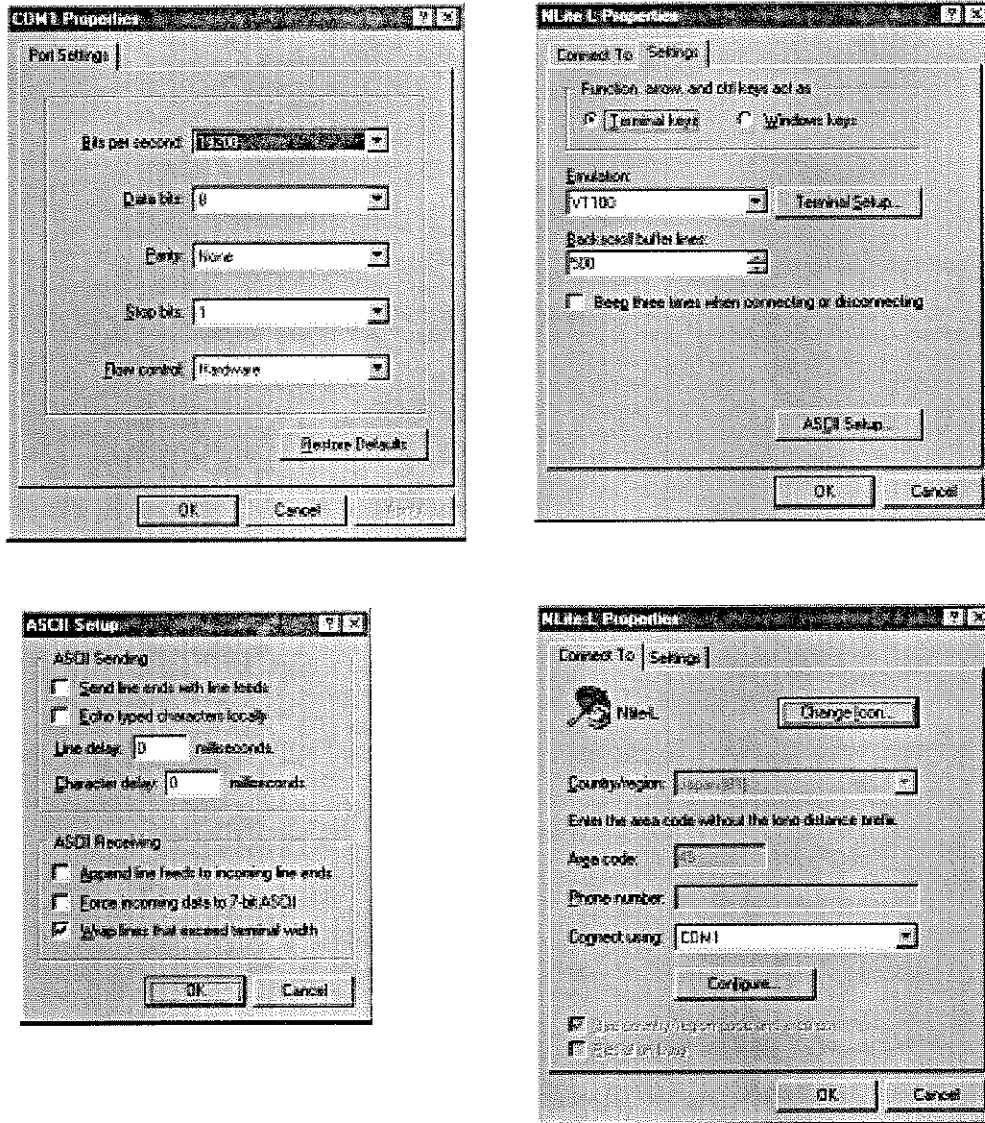
Note: *Please refer to the above screenshots as an example for the HyperTerminal Setting.*

Fig. 5-3 Display Screens

5.4 LCT System Configuration Setting

Chart 5-1 System Configuration

This chart describes the procedure for setting the system configuration.
The items to be set are as follows:
- Equipment Configuration
- Main Interface
- RF Frequency
- TX Power Control
- Frame ID

Setting of the system configuration should be performed in following order.

Step	Procedure

---

1   Referring to Fig. 3-5, connect the RS-232C cable between the LCT and the MDP,

2   Open the Terminal software (e.g; HyperTerminal),

3   Enter Login name "Admin" and press the "Enter" key,

4   Enter password "12345678" and press the "Enter" key,

   Note: The factory default setting is "12345678". For procedures to change the password, refer to the Appendix in Maintenance section.

```
Login   : Admin
Password : ********

--- NEC PDH RADIO  VER. X.XX.XX ---
0. Logout
1. Alarm / Status
2. Performance Monitor
3. Provisioning Data
4. System Configuration
5. Inventory Data
6. Relay / House Keeping
7. Maintenance
Enter Selection :
```

Chart 5-1 System Configuration (Cont'd)

Step   **Procedure**

---

5   Press the "4" key for setting the System Configuration and press the "Enter" key,

```
Enter Selection : 4

--- System Configuration ---
1. Display Radio Equipment Configuration
2. Setup Radio Equipment Configuration
Enter Selection :
```

Following is an explanation of each item under the System Configuration menu.

- Display Radio Equipment Configuration
  Selects to display radio equipment configuration.

- Setup Radio Equipment Configuration
  Selects to set radio equipment configuration.

6   Press the "1" key for setting the Display Radio Equipment Configuration and press the "Enter" key,

```
Enter Selection : 4

--- System Configuration ---
 1. Display Radio Equipment Configuration
 2. Setup Radio Equipment Configuration
Enter Selection : 1

--- Display Radio Equipment Configuration ---
System Configuration      : 1+0(Expandable)
TX Frequency              : XXXXX.XXX[MHz]
RX Frequency              : XXXXX.XXX[MHz]
TX Power Control          : ATPC
Frame ID                  : 1
Main Interface            : 8*1.5M
Modulation                : 32QAM

--- System Configuration ---
 1. Display Radio Equipment Configuration
 2. Setup Radio Equipment Configuration
Enter Selection :
```

Note: Modulation squema is related to the Main INTFC and is fixed as shown below.

8*1.5M :   32 QAM
16*1.5M :   128 QAM

Chart 5-1 System Configuration (Cont'd)

Step   Procedure

---

7   Press the "2" key for setting the Setup Radio Equipment
     Configuration and press the "Enter" key,

```
--- Equipment Configuration ---
  1. 1+0   (Expandable)
  2. 1+1   (Hot Standby)
Current Setting : 1
Enter Selection ([RET]=No Change) : 1
```

8   Press the "1" key for 1+0 system and press the "Enter" key,

```
--- RF Frequency ---
  Current  TX Frequency = XXXXX.XXX[MHz]
  Current RX Frequency = XXXXX.XXX[MHz]
  Start     TX Frequency = XXXXX.XXX[MHz]
  Stop      TX Frequency = XXXXX.XXX[MHz]
  Shift        Frequency = XXXXX.XXX[MHz]
Enter TX Frequency ([RET] = No Change) :
```

It is necessary to set frequencies of the TRPs. When the
transmitting frequency is set, the receiving frequency is
automatically set. The actual transmit frequency setting that
is entered should be within the TX frequency band of the TRP
(see Appendix in Description section). The frequency setting
should be at least + 21 MHz away from the band's "Start"
frequency and at least − 21 MHz away from the band's
"Stop" frequency. The band's "Start" and "Stop" frequency
are displayed on the LCT.

9   Enter transmit frequency and press the "Enter" key,

```
TX Frequency =  XXXXX.XXX[MHz]
RX Frequency =  XXXXX.XXX[MHz]
Are You Sure ? (Y/N) : Y
```

*Note: The receive frequency is automatically decided by entered
transmit frequency.*

Chart 5-1 System Configuration (Cont'd)

Step	Procedure

---

10   When prompted "Are You Sure? (Y/N)", press the "Y" and press the "Enter" key,

```
--- TX Power Control ---
1. MTPC
2. ATPC
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

An operation mode of transmission power control is selected from the following two modes.

ATPC : Automatic Transmission Power Control

MTPC : Manual Transmission Power Control

Note: Set the MTPC mode during antenna orientation. Set to the ATPC mode after antenna orientation has been completed.

11   After setting, press the "Enter" key for setting the Frame ID,

```
--- Frame ID ---
Current Setting : 1
Enter ID No. (1-32) ([RET] = No Change) :
```

The frame ID is set in order to discriminate the channel. As a signal with a different ID cannot be received, the ID of the opposite station should be the same. The number of IDs which can be set up from/to 32; ID1 through ID32.

12   After setting the Frame ID, press the "Enter" key. When prompted "Are You Sure? (Y/N)", press the "Y" and press the "Enter" key,

13   After setting the System Configuration, proceed to Chart 5-2 for time setting.

Chart 5-2 Date and Time Setting

This chart describes the procedure for setting date and time. When the MDP is turned off for an extended period (i.e. approx. 1 week), the equipment time setting could have been cleared. In such case, verify and re-enter the time setting after turning on the MDP.

Step   **Procedure**

---

1   Press the "ESC" key to go back to the following Main menu,

```
--- NEC PDH RADIO  VER. X.XX.XX ---
0. Logout
1. Alarm / Status
2. Performance Monitor
3. Provisioning Data
4. System Configuration
5. Inventory Data
6. Relay / House Keeping
7. Maintenance
Enter Selection :
```

2   Press the "7" key for Maintenance and press the "Enter" key,

```
Enter Selection : 7

--- Maintenance ---
1. MAINT Mode (OFF)
2. Control
3. Reset CPU
4. Set Calendar
5. Password Setting
6. Program Download
Enter Selection : 4

--- Set Calendar ---
Enter Year    : 2003
Enter Month  : 10
Enter Day    : 28
Enter Hour   : 18
Enter Min    : 20
Enter Sec    : 40

Are You Sure ? (Y/N) :  Y

Success !!
```

3   Press the "4" key for setting the Set Calendar and press the "Enter" key,

4   Set all calendar items according to display of the LCT,

Chart 5-2 Date and Time Setting (Cont'd)

Step	Procedure
5	When prompted "Are You Sure? (Y/N)", press the "Y" and press the "Enter" key,
6	After setting the time, proceed to Chart 5-3 for the Provisioning setting.

5.5 Provisioning Setting

Chart 5-3 Provisioning Setting

This chart describes the procedure for setting the provisioning data.

Step   **Procedure**

---

1   Press the "ESC" key to go back to the following menu,

```
--- NEC PDH RADIO  VER. X.XX.XX ---
0. Logout
1. Alarm / Status
2. Performance Monitor
3. Provisioning Data
4. System Configuration
5. Inventory Data
6. Relay / House Keeping
7. Maintenance
Enter Selection :
```

2   Press the "3" key for Provisioning Data and press the "Enter" key,

```
--- Provisioning Data ---
1. Display Current Data
2. Set Provisioning Data
Enter Selection :
```

Following is an explanation of each item of Provisioning item.

- Display Current Data
  Selects to display current provisioning data.

- Set Provisioning Data
  Selects to set provisioning data.

3   Press the "1" key to display provisioning current data,

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

```
--- Provisioning Data ---
 1.Display Current Data
 2.Set Provisioning Data
Enter Selection : 1

--- Display Current Data ---
--- Main INTFC ---
Channel Usage              (CH01-08) : ########
                           (CH09-16) : *--**--*
Bipolar Code               (CH01-04) : -
                           (CH05-08) : -
                           (CH09-12) : AMI
                           (CH13-16) : B8ZS
Line Length                (CH01-04) : -
                           (CH05-08) : -
                           (CH09-12) : 133-266ft ( 40- 81m)
                           (CH13-16) : 266-399ft ( 81-121m)
Next Data ? (Y/N) :  y

--- Main INTFC ---
AIS Generated Report       (CH01-08) : ########
                           (CH09-16) : *--**--*
AIS Received Report        (CH01-08) : ########
                           (CH09-16) : *--**--*

Next Data ? (Y/N) :  y

---- SC Assignment ---
RS232C Setting             : Not Used
V11-1 Setting              : DSC1
V11-1 Direction Type       : Contra-directional
V11-2 Setting              : DSC2
V11-2 Direction Type       : Contra-directional
Next Data ? (Y/N) :  y

--- MDP ---
AIS Activation Condition : LOF or High BER
AIS Activation Delay Time : Include
MTPC TX PWR                :  -15dB )*1
ATPC Maximum PWR           :    0dB )
ATPC Minimum PWR           :  -23dB ) *2
RX Threshold               :  -55dBm
Additional ATT             :    0dB
TRP ALM Mode               : HOLD

--- Provisioning Data ---
 1.Display Current Data
 2.Set Provisioning Data
Enter Selection :
```

Notes: *1. Indicates when the MTPC is selected in system configuration.*
2. Indicates when the ATPC is selected in system configuration.

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

4　　Press the "2" key and press the "Enter" key,

```
--- Provisioning Data ---
 1. Display Current Data
 2. Set Provisioning Data
Enter Selection : 2

--- Set Provisioning Data ---
 1. Main / Lan Signal configuration
 2. BER Threshold
 4. SC Assignment
 5. MTPC TX PWR ........ *1
 6. ATPC Range     ........ *2
 8. RX Threshold
 9. Additional ATT
 10. TRP ALM Mode
 13. Channel Usage Error
 16. AIS Activation Condition
 17. AIS Activation Delay Time
 18. AIS Generated Report
 19. AIS Received Report
Enter Selection :
```

　　　　　Notes: Setting items displayed on the LCT depend on setting condition of "System Configuration".

　　　　　　　　*1. Displays when the MTPC is selected in system configuration.

　　　　　　　　*2. Displays when the ATPC is selected in system configuration.

5　　Press the "1" key for setting the Main Interface setting and press the "Enter" key. Then select the channel number to be set,

　　　Note: Applies only to 8/16 × 1.5 MB 1+0 system.

```
--- LAN (Main / WS / SC) function ---
 1. Used
 2. Not Used
Current Setting : 2
Enter Selection ([RET]=No Change) : 2
```

6　　Press the "Enter" key when LAN is not provided,

Chart 5-3 Provisioning Setting (Cont'd)

Step   **Procedure**

```
--- Main Interface Setting ---
--- CH01 Usage ---
1. Used
2. Not Used
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

The main channel signal to be used is selected from the following items.

Used :   When the 1.5 Mbps signal is applied, select the "Used" in corresponding channel.

Not Used : When the 1.5 Mbps signal is not applied select the "Not Used" in corresponding channel.

7   After setting, press the "Enter" key for continue other channels,

```
--- CH01-04 Bipolar Code Select ---
1. AMI
2. B8ZS
Current Setting : 1
Enter Selection ([RET] = No Change) : 2
```

Set AMI or B8ZS and line length for each 4 CH block.

8   Press the "2" key and press the "Enter" key,

```
--- CH01-04 Line Length Select ---
1.    0 -  133ft (   0 -  40m )
2.  133 -  266ft (  40 -  81m )
3.  266 -  399ft (  81 - 121m)
4.  399 -  533ft ( 121 - 162m)
5.  533 -  655ft ( 162 - 199m)
Current Setting : 1
Enter Selection ([RET] = No Change) : 2
```

Set AMI or B8ZS and line length for each 4 CH block.

9   After setting, press the "Enter" key to go back to the menu shown in step 4,

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

10   Press the "2" key for setting the BER Threshold and press the "Enter" key,

```
--- BER Threshold ---
1. High BER
2. Low BER
Enter Selection : 1
```

11   Press the "1" key and "Enter" key for setting the High BER threshold level,

```
--- High BER ---
1. 3E-4
2. 3E-5
3. 3E-6
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

12   After setting the High BER, press the "Enter" key,

13   Press the "2" key for setting the BER Threshold and press the "Enter" key,

```
--- BER Threshold ---
1. High BER
2. Low BER
Enter Selection : 1
```

14   Press the "2" key for setting of Low BER threshold,

```
--- Low BER ---
1. 3E-6
2. 3E-7
3. 3E-8
4. 3E-9
5. 3E-10
6. 3E-11
7. 3E-12
Current Setting : 2
Enter Selection ([RET] = No Change) :
```

15   Press the "Enter" key, the menu shown in step 4 is displayed,

16   Press the "4" key for setting the SC Assignment and press the "Enter" key,

---

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

```
--- RS232C Setting ---
0.  Not Used
1.  DSC1
2.  DSC2
Current Setting : 0
Enter Selection ([RET] = No Change) : 1
```

SC Assignment sets Used/Not Used for service channel and signal assignment. As service channel, two digital V11 (9.6K) signals, two digital V11 (64K) signals and one CLSTR alarm* channel can be used.

SC items which are not assigned for Main interface appear at No.1 and No.2.

Notes: 1. If V11 (64k) sub interface is mounted, the two V11 channels can be used either 64k or 9.6k. But in case 9.6k is used, "contra directional" should be selected as clock direction.

*2. * Optional.*

17   After setting, to go back to the menu shown in step 4,

18   Press the "5" key for setting the MTPC TX PWR and press the "Enter" key,

```
--- MTPC TX PWR ---
Current (-23 to 0dB) :  0
Enter Selection ([RET] = No Change) :
```

MTPC TX PWR sets the transmission power in MTPC operation. If the attenuation is set to 0 dB, maximum output power is obtained. The level is not indicated in the ATPC mode.

The MTPC range depends channel capacity as
        8 × 1.5MB   : −23 dB to 0 dB system.
        16 × 1.5MB : −20 dB to 0 dB system.

19   After setting, press the "Enter" key to go back to the menu shown in step 4 is displayed,

---

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

---

20   Press the "6" key for setting the ATPC Range and press the "Enter" key,

```
--- ATPC Maximum PWR ---
Current (-23 to 0dB) : 0
Enter Selection ([RET] = No Change) :

--- ATPC Minimum PWR ---
Current (-23 to [MAX]dB) : -10
Enter Selection ([RET] = No Change) :
```

ATPC Range sets the maximum or minimum transmission power during ATPC operation. If the ATPC Maximum PWR is set to 0 dB, the maximum output power is obtained. In the MTPC mode, ATPC menu will not appear.

Note: Example of ATPC setting.
Where ATPC MAXIMUM PWR of ATPC Range is set to 0 dB, ATPC MINIMUM PWR is set to -10 dB and RX Threshold to -60 dBm. In this case, if RX level is smaller than -60 dBm, monitor/control is performed with the interval of 8 msec. RX level is monitored in 1 dB step, and TX output is controlled in 1 dB step.
However, a fixed hysteresis of 5 dB referred to the RX Threshold is implemented for ATPC operation.
Example: If RX Threshold is set to -60 dBm, no output control is made unless the RX level goes below -60 dBm or goes above -55 dBm, so that the receive level is maintained within -60 to -55 dBm.


```
                                               —————— -55 dBm

       5 dB
   (ATPC                                        —————— RX LEVEL
   HYSTERESIS)
                                               —————— -60 dBm
                                                      (RX THRESHOLD
                                                      LEVEL)
```
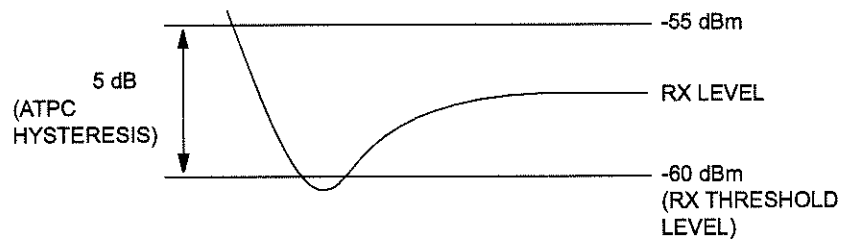
21   After setting, the menu shown in step 4 is displayed,

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

---

22   Press the "8" key for setting the RX Threshold and press the "Enter" key,

```
--- RX Threshold---
Current (-70 to -30dBm) : -55
Enter Selection ([RET] = No Change) :
```

        RX Threshold sets the threshold value of receiving level.

23   After setting, the menu shown in step 4 is displayed,

24   Press the "9" key for setting the Additional ATT and press the "Enter" key,

```
--- Additional ATT ---
Current (0 to 5dB) : 0
Enter Selection ([RET] = No Change) :
```

        The additional ATT is a span attenuator that is used to reduce the transmit power like in cases where the transmission length is short. First, the transmit output power is adjusted by setting the MTPC TX Power. If the MTPC TX Power setting is insufficient, then set the Additional ATT. The available setting range is from 0 to 5 dB.

25   After setting, the menu shown in step 4 is displayed,

26   Press the "1", "0" key for setting the TRP ALM Mode and press the "Enter" key,

```
--- TRP ALM Mode ---
 1. MAX Hold
 2. MIN Hold
 3. Hold
Current Setting : 3
Enter Selection ([RET] = No Change) :
```

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

This item defines the TRP transmit power level when communication between MDP and TRP is lost. This function is not used when the equipment is set in MTPC mode and is not displayed.

MAX Hold : Selects this to control the TRP output level for the ATPC Maximum PWR setting level.

MIN Hold : Selects this to control the TRP output level for the ATPC Minimum PWR setting level.

Hold : Selects this to keep the TRP to output level to maintain the level at the time of failure has occurred.

27   After entering number press the "Enter" key, the menu shown in step 4 is displayed,

28   Press the "1", "3" key for setting the Channel Usage Error and press the "Enter" key,

Note: Applies only to 8/16 × 1.5 MB system.

```
--- Channel Usage Error ---
1. Report
2. Not Report
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

This item sets the whether Main Interface Usage alarm is displayed, or it does not displayed.

Report: In Main Interface Setting item, when 1.5 MB bipolar signal is inputted into the channel which has chosen "Not Used", alarm is displayed.

Not Report: In Main Interface Setting item, when 1.5 MB bipolar signal is inputted into the channel which has chosen "Not Used", alarm is not displayed.

Note: The alarm of Channel Usage Error is displayed on the Channel Usage Error item of Alarm/Status. And the MDP ALM indicator on the front of the MDP is lighted.

29   After setting, the menu shown in step 4 is displayed,

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

---

30   Press the "1", "6" key for setting the AIS Activation Condition
         and press the "Enter" key,

```
--- AIS Activation Condition ---
1. LOF or High BER
2. LOF
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

AIS Activation Condition sets the whether AIS signal for main
1.5 MB is by LOF, High BER or both alarm conditions.

LOF or High BER:
           When the High BER or LOF ALM is occurred, Main
           1.5 MB AIS signal is generated.

   *Note: Setting point of High BER ALM can be set by
            BER threshold item in 3×10^{-4} to 1×10^{-6}.*

LOF: When the LOF ALM is occurred, Main 1.5 MB AIS
        signal is generated.

31   After setting, the menu shown in step 4 is displayed,

32   Press the "1", "7" key for setting the AIS Activation Delay Time
         and press the "Enter" key,

```
--- AIS Activation Delay Time ---
1. Exclude
2. Include
Current Setting : 1
Enter Selection ([RET] = No Change) :
```

AIS Activation Delay Time sets the whether AIS signal
generation for main 1.5 MB has delay time or it has not.

Chart 5-3 Provisioning Setting (Cont'd)

Step	Procedure

---

33   After setting, the menu shown in step 4 is displayed,

34   Press the "1", "8" key for setting the AIS Generated Report and press the "Enter" key,

```
--- AIS Generated Report ---
CH Select         (CH01-08) : 6

--- AIS Generated Report ---
1. Report
2. Not Report
Current Setting : 1
Enter Selection ([RET]=No Change) :
```

AIS Generated Report sets the whether AIS signal generation for main 1.5 MB is reported or not reported.

Note : *CH Select (CH01-08) for 8 × 1.5MB system*
         CH Select (CH01-16) for 16 × 1.5MB system

35   After setting, the menu shown in step 4 is displayed,

36   Press the "1", "9" key for setting the AIS Received Report and press the "Enter" key,

```
--- AIS Received Report ---
CH Select         (CH01-08) : 6

--- AIS Received Report ---
1. Report
2. Not Report
Current Setting : 1
Enter Selection ([RET]=No Change) :
```

AIS Received Report sets the whether AIS signal generation for main 1.5 MB is reported or not reported.

Note : *CH Select (CH01-08) for 8 × 1.5MB system*
         CH Select (CH01-16) for 16 × 1.5MB system

37   After setting the Provisioning data, proceed to Chart 5-4 for the optional relay house keeping setting, as required. Otherwise, press the "ESC" key to go back to the menu shown in step 1.

5.6 Relay/House Keeping Setting

Chart 5-4 Relay/House Keeping Setting

This chart describes the procedure for setting the parallel alarm output and the control input/output of House Keeping.

The procedure in this chart is to be performed, if required.

Step   **Procedure**

---

1   Press the "ESC" key twice to go back to the following Main menu,

```
--- NEC PDH RADIO  VER. X.XX.XX ---
0. Logout
1. Alarm / Status
2. Performance Monitor
3. Provisioning Data
4. System Configuration
5. Inventory Data
6. Relay / House Keeping
7. Maintenance
Enter Selection :
```

2   Press the "6" key for Relay/House Keeping and press the "Enter" key,

```
Enter Selection : 6

--- Relay / House Keeping ---
1. Display Current State
2. Relay Configuration
3. Output Control
Enter Selection :
```

The relay configuration setting and alarm output selection is explained below.

Display Current State

Selects to display House Keeping current state.

Chart 5-4 Relay/House Keeping Setting (Cont'd)

Step	Procedure

3   Press the "1" key and press the "Enter" key to display Relay/ House Keeping Current state,

```
--- Display Current State ---
HK-IN1     HK-IN2    HK-IN3    HK-IN4    HK-IN5    HK-IN6
Open       Open      Open      Open      Open      Open


HK-OUT1    HK-OUT2   HK-OUT3   HK-OUT4
On         Off       Off       Off
```

HK-OUT appears, only when relay output is assigned.

4   Press the "2" key for setting the Relay Configuration and press the "Enter" key,
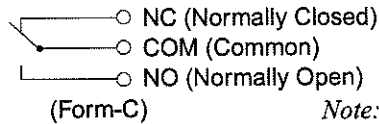
Relay Configuration

Eleven (11) relays are provided to the parallel alarm/control outputs. The relays from RL1 to RL3 are fixed as MAINT, PS and CPU alarm and are not be able to change the setting. The relays from RL4 to RL7 are assigned for equipment alarm outputs by default value. The relays from RL8 to RL11 are defined as HK CONT outputs by default value. The relays RL8 to RL11 are possible to assign as alarm outputs instead of HK CONT outputs as shown in the table below. The alarm items which are assignable alarm output through RL4 to RL11 are referred to Table 2-2 in chapter 2 of Operation.

Relay		RL08	RL09	RL10	RL11
1. HK-OUT 1/2/3/4	Enable	HK-OUT4	HK-OUT3	HK-OUT2	HK-OUT1
2. HK-OUT 1/2/3	Enable	ALM	HK-OUT3	HK-OUT2	HK-OUT1
3. HK-OUT 1/2	Enable	ALM	ALM	HK-OUT2	HK-OUT1
4. HK-OUT 1	Enable	ALM	ALM	ALM	HK-OUT1
5. HK-OUT	Disable	ALM	ALM	ALM	ALM

RL1 to RL11 are Form-C relays. In the normal or control off conditions, between COM and NC terminals of the relays makes and between COM and NO terminals breaks. In the alarm or control on conditions, between COM and NC terminals of the relays breaks and between COM and NO terminals makes.

Chart 5-4 Relay/House Keeping Setting (Cont'd)

Step	Procedure

─────○ NC (Normally Closed)
─────○ COM (Common)
─────○ NO (Normally Open)
(Form-C)   *Note: The relay is rated at 0.2 A.*

If the four HK control output are required, press the "1" key and press the "Enter" key,

```
--- Relay Configuration ---
1. HK-OUT 1/2/3/4    Enable
2. HK-OUT 1/2/3      Enable
3. HK-OUT 1/2        Enable
4. HK-OUT 1          Enable
5. HK-OUT            Disable
Enter Selection ([RET] = No Change) : 1
```

5   Then, select the number corresponding to the desired alarm name,

	RL01	RL02	RL03	RL04	RL05	RL06	RL07	RL08	RL09	RL10	RL11
HK-OUT1	–	–	–	–	–	–	–	–	–	–	HK
HK-OUT2	–	–	–	–	–	–	–	–	–	HK	–
HK-OUT3	–	–	–	–	–	–	–	–	HK	–	–
HK-OUT4	–	–	–	–	–	–	–	HK	–	–	–

	RL01	RL02	RL03	RL04	RL05	RL06	RL07	RL08	RL09	RL10	RL11
MAINT	Out	Mask	Mask	Mask	Mask	Mask	Mask	HK	HK	HK	HK
PS ALM 1	–	Out	–	–	–	–	–	HK	HK	HK	HK
PS ALM 2	–	Out	–	–	–	–	–	HK	HK	HK	HK
CPU ALM	–	–	Out	–	–	–	–	HK	HK	HK	HK
1.TRP ALM1	–	–	–	Out	–	–	–	HK	HK	HK	HK
2.TRP ALM2	–	–	–	Out	–	–	–	HK	HK	HK	HK
3.MDP ALM1	–	–	–	–	Out	–	–	HK	HK	HK	HK
4.MDP ALM2	–	–	–	–	Out	–	–	HK	HK	HK	HK

Enter Selection([RET]=No Change):

displayed when HK-OUT are selected to enable

Chart 5-4 Relay/House Keeping Setting (Cont'd)

Step	Procedure

Mask : Indicates that no alarm is issued at Maintenance.

Out : Indicates that an alarm is issued from the corresponding relay.

– : No relation

HK : Indicates that the Relay is assigned for HK control.

Note: While the CPU is initialized by pressing the RESET switch, alarm(s) is in normal conditions. After initialization, the alarm information is properly provided through relay contacts.

```
--- Relay Configuration ---
4. RL04 (Out)
5. RL05 (Out)
6. RL06 (Out)
7. RL07 (Out)
8. RL08 (Out)
9. RL09
10. RL10
11. RL11
Enter Selection([RET]=No Change):
```

Notes: 1. "Out" is appended to a relay that has already been assigned to the alarm, selecting it unassigns the alarm to the relay.

2. If "Are You Sure? (Y/N)" is displayed, press the "Y" key. Otherwise, it is not registered.

Chart 5-4 Relay/House Keeping Setting (Cont'd)

Step	Procedure

---

6   If required, press the "3" key to control external equipment connected to the relays assigned as HK-OUT,

```
--- Output Control ---
 1. HK-OUT1 (CONT Off)
 2. HK-OUT2 (CONT Off)
 3. HK-OUT3 (CONT On)
 4. HK-OUT4 (CONT Off)
Enter Selection : 1
```

- Output Control

  This function can be used to remotely control external apparatus in the station (e.g. A/C on/off).

  CONT Off:

  COM and NC terminals of relay are connected.

  CONT On:

  COM and NO terminals of relay are connected.

  Notes: 1. Output control item is displayed only when the HK-OUT Enable is selected in the relay configuration (step 4).

  2. A setup will be cleared if a power supply is turned off.

7   After setting the Relay/House Keeping setting, press the "ESC" key to go back to the Main menu.