7 Service Explorer

Confirm "RAM-Drive Last Error" in Service Mode

Execute Service Mode

1. Press [STOP], [TIME SLIP] and [OPEN/CLOSE] simultaneously for 5 seconds when P-off.

   FL Display:

SERVICE MODE

   *After finishing display "(7). Factor of Drive Error occurring", press [0] [2] ~[9] [9] keys of the Remote Controller so that 99 memories can be displayed as maximum.

2. Press [4] [2] keys of remote controller.

   Example of FL Display:

   (1) Error Number is displayed for 5 seconds.

NO 01

   (2) Time when the error has occurred is displayed for 5 seconds.

40216191526

   The error has occurred at 2004(year)/Feb.(month)/16(day)/19(hour):15(minute):26(second)

   (3) Last Drive Error (1/2) is displayed for 5 seconds.

03 1000

   Error Sense Key
   - 00: Bad disc
   - 03: Bad disc
   - 04: Bad disc or RAM-Drive malfunction

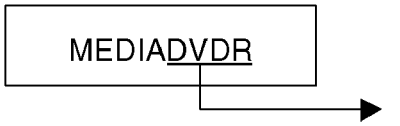
When above error codes are displayed, confirm operation with Panasonic RAM disc or Panasonic DVD-R disc.
***If the operation is OK, judge the error is due to media.**
***If the operation is NG and symptom as BLOCK NOISES and so on that are particular symptom of Digital appears, judge the error is due to RAM-Drive or Digital PCB.**

   (4) Last Drive Error (2/2) is displayed for 5 seconds.

00 13 00 00

   *This error code is unnecessary for service.

(5) Error occurring Disc type is displayed for 5 seconds.



Disc type
*The error disc cannot be specified, display as "DVD".

(6) Disc Maker´s ID is displayed for 5 seconds.

Example of Disc Maker´s ID:

DVD-R Disc

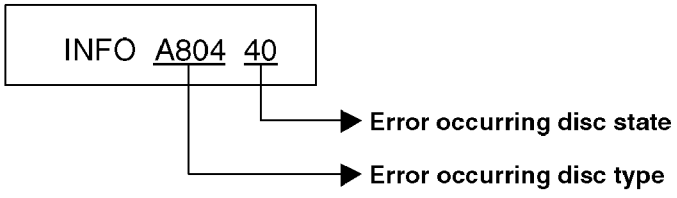
No.	FL Display (Disc Maker´s ID)	Disc Maker	Country
1	MEI	Panasonic	Japan
2	PVC	Pioneer	Japan
3	MCC	Mitsubishi Chemical Corporation	Japan
4	TDK	TDK	Japan
5	MXL	Maxell	Japan
6	MCI	MITUI CHEMICALS	Japan
7	JVC	Victor JVC	Japan
8	TAIYOYUDEN	Taiyo yuden	Japan
	TYG		
9	GSC	Giga Storage	Taiwan
10	PRODISC	Prodisc	Taiwan
11	PRINCO	PRINCO	Taiwan
12	RITEK	RITEK	Taiwan
13	OPTDISC	OPTDISC	Taiwan
14	LEAD DATA	LEAD DATA	Taiwan
15	CMC	CMC	Taiwan
16	AUVISTAR	AUVISTAR	Taiwan
17	ACER	Acer	Taiwan
18	VIVASTAR	VIVASTAR	Switzerland
19	LGE	LG Electronics	Korea

DVD-RAM Disc

No.	FL Display (Disc Maker´s ID)	Disc Maker	Country
1	MEI	Panasonic	
2	MATSUSHITA	Panasonic	Japan
3	MXL	Maxell	Japan
4	PRODISC	Prodisc	Taiwan
5	OPTDISC	OPTDISC	Taiwan
6	CMC	CMC	Taiwan

*Since an display is arbitrarily set up by the disk producer side, the above-mentioned display may be changed. Please make it reference as an example of a display.

(7) Factor of Drive Error occurring is left displayed



Error Occurring Disc Type

FL Display	Disc Type
00	DVD-ROM/Video
01	Audio-CD
02	2.6GB DVD-RAM
03	4.7GB DVD-RAM
04	DVD-R

Error Occurring Disc State

FL Displays (Hexadecimal)	Description			
	Disc distinction state	Cartridge disc state	Cartridge disc state	Disc size
00	OK	With cartridge	Has not been opened yet.	12 cm
10	OK	With cartridge	Has not been opened yet.	8 cm
20	OK	With cartridge	Has been opened.	12 cm
30	OK	With cartridge	Has been opened.	8 cm
40	OK	Bare	Has not been opened yet.	12 cm
50	OK	Bare	Has not been opened yet.	8 cm
60	OK	Bare	Has been opened.	12 cm
70	OK	Bare	Has been opened.	8 cm
80	NG	With cartridge	Has not been opened yet.	12 cm
90	NG	With cartridge	Has not been opened yet.	8 cm
A0	NG	With cartridge	Has been opened.	12 cm
B0	NG	With cartridge	Has been opened.	8 cm
C0	NG	Bare	Has not been opened yet.	12 cm
D0	NG	Bare	Has not been opened yet.	8 cm
E0	NG	Bare	Has been opened.	12 cm
F0	NG	Bare	Has been opened.	8 cm

8 Self-Diagnosis and Special Mode Setting

8.1. Self-Diagnosis Functions

Self-Diagnosis Function provides information for errors to service personnel by "Self-Diagnosis Display" when any error has occurred.

U14, H and F** are stored in memory and held.**

Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Error Code	Diagnosis contents	Description	Monitor Display	FL display
U12	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	REMOTE DVD* "*" is remote controller code of the main unit. Display for 5 seconds.
U14	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70°C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. (Fan motor operates at the highest speedfor the first 5 minutes. For the remaining 25 minutes, fan motor is also stopped.) The event is saved in memory as well.	No display	U14 "U14" is displayed for 30 minutes.
U99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor.	No display	U99 Displayed is left until the [POWER] key is pressed.
H01	Inoperative fan motor	Display appears when inoperative fan motor is detected after powered on. The power is turned off when detecting.	No display	H01 Displayed is left.
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization.)	No display	F00 Displayed is left.
F01	Drive hardware error	Display appears when drive unit error is detected. The event is saved in memory.	No display	F01 Displayed is left.
F12	Initialization error when main microprocessor is started up for program recording	Display appears when initialization error is detected after starting up main microprocessor for program recording. The event is saved in memory. The power is turned off when detecting.	No display	F12 Displayed is left.
UNSUPPORT	Unsupported disc error	*An unsupported format disc was played, although the drive starts normally. *The data format is not supported, although the media type is supported. *Exceptionally incase of the disc is dirty.	**"This disc is incompatible."**	UNSUPPORT Display for 5 seconds.
NO READ	Disc read error	*A disc is flawed or dirty. *A poor quality failed to start. *The track information could not be read.	**"Cannot read. Please check the disc."**	NOREAD
HARD ERR	Drive error	The drive detected a hard error.	"**DVD drive** error."	Display for 5 seconds. HARD ERR
SELF CHECK	Restoration operation	Since the power cord fell out during a power failure or operation, it is under restoration operation. *It will OK, if a display disappears automatically. If a display does not disappear, thereis the possibility that defective Digital P.C.B. / RAM drive.	No display	SELF CHECK
Full Program	32 programs are already set.	32 programs are already set.	No display	PROG FULL

Error Code	Diagnosis contents	Description	Monitor Display	FL display
HDD SLEEP	In order to extend HDD life, the HDD is in SLEEP (not activated) mode.	If there is no disc in the unit, the HDD will go into SLEEP mode after there has been no operation for 30 minutes or longer. *While in SLEEP mode play or recording may not begin rightaway because the HDD takes time to be re-activated.	"HDD SLEEP" is displayed for 3 seconds.	HDD SLP

8.2. Special Modes Setting

Item		FL display	Key operation
Mode name	Description		Front Key
TEST Mode	*All the main unit´s parameters (include tuner) are initialized.	TEST AV1	Press [SKIP (REV)], [TIME SLIP] and [OPEN/CLOSE] keys simultaneously for five seconds when power is off.
Service Mode	Setting every kind of modes for servicing. *Details are described in "**8. 3. Service Mode** ".	SERVICE MODE	When the power is off, press [STOP], [TIME SLIP] and [OPEN/CLOSE] keys simultaneously for 5 seconds.
Rating password	The audiovisual level setting password is initialized to "Level 8".	INIT	Open the tray, and press [SKIP (REV)] and [SKIP (FWD)] simultaneously for five seconds.
Forced disc eject	Removing a disc that cannot be ejected. The tray will open and unit will shift to P-off mode. *When Timer REC is ON or EXT-LINK is ON, execute " Forced disc eject " after releasing TimerREC or EXT-LINK. *This command is not effective during "Child lock" is ON.	The display before execution leaves. **********	When the power is off, press [STOP] and [CH UP] keys simultaneously for five seconds.
Child lock/unlock	Set or release "Child Lock".	X HOLD	Press [ENTER] and [RETURN] by remote controller simultaneously until [X-HOLD] is displayed.
NTSC/PAL system select	To switch PAL/ NTSC alternately.	The display before execution leaves. **********	When the power is on (E-E mode), press [STOP] and [OPEN/CLOSE] simultaneously for five seconds.
Forced power-off	When the power button is not effective while power is ON, turn off the power forcibly.*When Timer REC is ON or EXT-LINK is ON, execute "Forced Power-off" after releasing Timer RECor EXT-LINK. Action: The tray will open, and the power will turn off.	Display in P-off mode.	Press [Power] key over than 10 seconds.
Aging	Perform sequence of modes as * Aging Description shown below continually.	Display following the then mode.	When the power is ON, press [CH DOWN], TIME SLIP] and [OPEN / CLOSE] simultaneously for over five seconds and less than 10 seconds. *The [REC MODE] should be set to EP or LP. *Whenthe unit has hung-up because of pressing keys for over 10 seconds, once turn off the power, and re-execute this command. "When releasing Aging mode, press [POWER] key.

Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by "Main unit initialization" of service mode.	*When lock the tray. LOCK "LOCK" is displayed for 3 seconds.	When the power is on, press [STOP] and [POWER] keys simultaneously for five seconds.
		*When unlock the tray. UNLOCK "UNLOCK" is displayed for 3 seconds.	When the power is on, press [STOP] and [POWER] keys simultaneously for five seconds.
		*When press OPEN/CLOSE key while the tray being locked. LOCK Display "LOCK" for 3 seconds.	Press [OPEN/CLOSE] key while the tray being locked.
ATP re-execution	Re-execute ATP.	Display at ATP executing. **********	When the power is on (E-E mode), press [CH UP] and [CH DOWN] simultaneously for five seconds.
Progressive initialization	The progressive setting is initialized to Interlace.	The display before execution leaves. **********	When the power is on (E-E mode), press [STOP] and [TIME SLIP] simultaneously for five seconds.

Aging Contents (Example):

Format→REC→Play→STOP→Play→Skip(R)→Cue
↑ ↓
Stop←Play←R-Slow←Slow←Pause←Play←Rev
*The unit repeats above sequence.

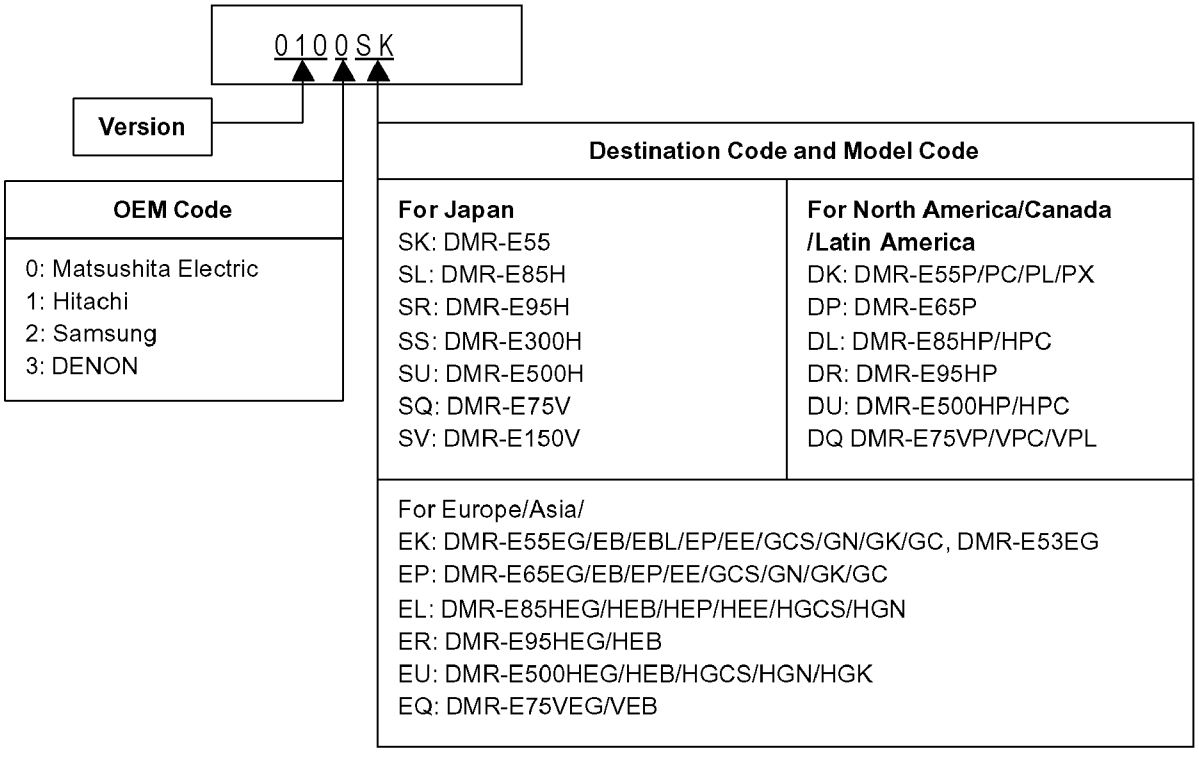
8.3. Service Modes

Service mode setting: While the power is off, press TIME SLIP, STOP and OPEN / CLOSE simultaneously for five seconds.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERVICE MODE	Press [0] [0] or [Return] in service mode.
Error Code Display	Last Error Code of U14/H/F held by Timer is displayed on FL. *Details are described in **"8. 1. Self-Diagnosis Functions".**	♣□□ *♣ shows U/H/F. □□ shows number.	Press [0] [1] in service mode
ROM Version Display	Region code, MAIN firm version, TIMER firm version and DRIVE firmware versions are displayed on FL for five seconds per each version in order, but ROM version will be left displayed.	REGION* MAIN ****** TIMER****** DRIVE **** ROM * *** "*"are version displays.	Press [0] [2] in service mode

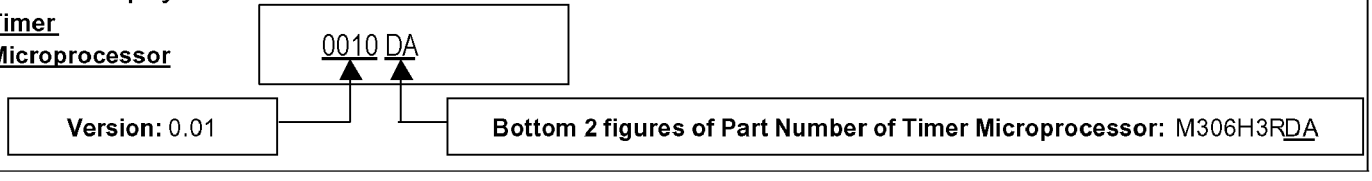
Version Display of Main Microprocessor

Example of FL Display



Version Display of Timer Microprocessor

Example of FL Display



Item		FL display	Key operation
Mode name	Description		(Remote controller key)
White Picture Output	White picture is output as component Output from AV Decoder. *White picture (Saturation rate : 100%) *It is enable to switch Interlace/Progressive by "I/Pswitch: [1] [4]"	*Initial mode is "Interlace". WHIT I	Press [1] [1] in service mode.
		Switch Interlace/Progressive WHIT P	Press [1] [4] in White Picture Output mode. *I/P are switched alternately.
Magenta Picture Output	Magenta picture is output with Component Output from AV Decoder. *Magenta picture (Saturation rate: 100%) *It is enable to switch Interlace/Progressive by "I/Pswitch: [1] [4]"	*Initial mode is "Interlace". MAGE I	Press [1] [2] in service mode.
		Switch Interlace/Progressive MAGE P	Press [1] [4] in Magenta Picture Output mode. *I/P are switched alternately.
RTSC Return in XP (A & V)	AV1 input signal is encoded (XP), decoded (XP) and output decoded signal to external without DISC recording and DISC playback.	Initial mode: EE2/ Interlace/ XP/ Audio 48kHz EE2 I XP 48	Press [1] [3] in service mode.
		Switch Interlace/Progressive EE2 P XP 48	Press [1] [4] in RTSC Return XP mode. *I/P are switched alternately.
		Audio 44.1 kHz/ 48 kHz Switch EE2 P XP 44	Press [2] [4] in RTSC Return XP mode. *48 kHz / 44.1 kHz are switched alternately.
I/P Switch	Switch Interlace and Progressive in EE mode. *Initial setting is "Interlace". *This command is effective during executing "White Picture Output", "MagentaPicture Output" and "RTSC Return in XP (A & V)" modes.	Initial mode is Interlace SERVICE I Switch Interlace/Progressive SERVICE P	Press [1] [4] in I/P Switch mode. *I/P are switched alternately.
Audio Mute (XTMUTE)	Check whether mute is applied normally by the timer microprocessor.	TIMER MUTE	Press [2] [1] in service mode.
Audio Mute (XDMUTE)	Check whether mute is applied normally by the Digital P.C.B. (GLUE IC).	MAIN MUTE	Press [2] [2] in service mode.
Audio Pattern Output	The audio pattern stored in the internal memory is output (Lch: 1kHz/-18dB) (Rch: 400Hz/-18dB) *Audio sound clock switching operation of DAC can beconfirmed by sub command [2] [4].	Initial mode (Audio 48kHz) AUDIO 48	Press [2] [3] in service mode.
		Audio 44.1kHz/48kHz switching AUDIO 44	Press [2] [4] in Audio Pattern Output mode. *48 kHz / 44.1 kHz are switched alternately.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
HDD READ inspection	Perform a complete read inspection of the HDD.	When the HDD is OK HDD RDOK If the HDD is defective HDD RDNG□○○ **□ : Judge of Forward rate.** *When normal (Forward rate is 35Mbps or more, and there is no HDD error): □ is Space. *When Abnormal (Forward rate is less than 35Mbps): □ is X. **○○ : Number of what have spent time for seeking over 100ms.** *When normal: ○○ are spaces. *When Abnormal: Display Number of what have spent time for seeking over 100ms. However, if the number is more than 100, Display [XX]. We judge it is normal that the number is less than 4.	Press [3] [1] in the service mode. *When canceling the checking mode while executing, do "forced power-off". Method: Press the "POWER" button on the Front Panel more than 10 seconds.
Laser Used Time Indiction	Check laser used time (hours) of drive.	LASER***** ●(*****) is the used time display in hour. ●Laser used time ofDVD/ CD in Playback/Recording mode is counted.	Press [4] [1] in service mode.
Delete the Laser Used Time	Laser used time stored in the memory of the unit is deleted.	CLR LASER	Press [9] [5] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
RAM Drive Last Error	RAM Drive error code display. *For details about the drive error code, refer to the Service Manual for the specific RAM Drive. *Details are described in "**7. Service Explorer** ".	1. Error Number is displayed for 5 seconds. NO ** 2. Time when the error has occurred is displayed for 5 seconds. YMMDDhhmmss Y: Year MM: Month DD: Day hh: Hour mm: Minute ss: Second 3. Last Drive Error (1/2) is displayed for 5 seconds. ****** 4. Last Drive Error (2/2) is displayed for 5 seconds. ******** 5. Error occurring Disc type is displayedfor 5 seconds. MEDIA****** 6. Disc Maker ID is displayed for 5 seconds. ********** 7. Factor of Drive Erroroccurring is left displayed INFO*******	Press [4] [2] in service mode. Then press [0] [1] ~ [9] [9], the past 99 errors are displayed. Incase that the supplier cannot be identified, display is black out.
Delete the Last Drive Error	Delete the Last Drive Error information stored on the DVD RAM-Drive.	CLR DRIVE	Press [9] [6] in service mode.
Turn on all FL/LEDs	All segments of FL and all LEDs are turned on.	All segments are turned on.	Press [5] [1] in service mode.
PB HIGH Signal Output	8 pin of AV 1 Jack (PB HIGH terminal) is High (approx. 11V DC).	PB8 HIGH	Press [5] [2] in service mode.
PB MIDDLE Signal Output	8 pin of AV 1 Jack (PB HIGH terminal) is Middle (approx. 5.5V DC).	PB8 MIDDLE	Press [5] [3] in service mode.
Front connection inspection	Press all front keys and check the connection between Main P.C.B. and Front P.C.B.	000r ** (1) (2) (1) Each time a key is pressed, segment turned on increases one by one. (2) Total umber of keys that have been pressed.	Press [5] [4] in service mode.
Production Date Display	Display the date when the unit was produced.	PD YYYYMMDD YYY: Year MM: Month DD: Day	Press [6] [1] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Display the accumlated working time	Display the accumulated unit´s working time.	********** (Indicating unit: Second)	Press [6] [4] in service mode.
Display the Error History	Display the Error History stored on the unit.	Display reason of error for 5 seconds. FTREC*** Display the time when the error has occurred for 5 seconds.. YYMMDDHHMM YY: Year MM: Month DD: Day HH: Hour MM: Minute Display the accumlated working time to occurring of the error for 5 seconds.. ********** (Indicating unit: Second)	Press [6] [5] in service mode. Then press [0] [1] ~ [1] [9], the past 19 error histories are displayed.
Delete the Error History	Delete Error History information stored on the unit.	CLR FTREC	Press [9] [7] in service mode.
AV4(V)/AV1(RGB) I/O Setting	Set input to AV4(V) and set output to AV1(RGB) for I/O checking	AV4V-AV1RGB	Press [8] [0] in service mode.
AV2(Y/C)/AV1(V) I/O Setting	Set input to AV2(Y/C) and set output to AV1(V) for I/O checking	AV2YC-AV1V	Press [8] [1] in service mode.
AV2(V)/AV1(Y/C) I/O Setting	Set input to AV2(V) and set output to AV1(Y/C) for I/O checking	AV2V-AV1 YC	Press [8] [2] in service mode.
AV2(RGB)/AV1(V) I/O Setting	Set input to AV2(RGB) and set output to AV1(V) for I/O checking	AV2RGB-AV1V	Press [8] [3] in service mode.
P50 (H) Output	Timer Microprocessor IC7501-22 output High signal for AV1-pin 10 passing through inverter (approx. 0V DC at AV1-pin 10).	P50 HIGHOUT When OK. P50 HIGH OK When NG. P50 HIGH NG	Press [8] [4] in service mode.
P50 (L) Output	Timer Microprocessor IC7501-22 output Low signal for AV1-pin 10 passing through inverter (approx. 4.4 V DC at AV1-pin 10).	P50 LOW OUT When OK. P50 LOW OK When NG. P50 LOW NG	Press [8] [5] in service mode.
Tray OPEN/CLOSE Test	The RAM drive tray is opened and closed repeatedly.	NO********* "*" is number of open/close cycle times.	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button on Front Panel more than 10 seconds.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Error code initialization	Initialization of the last error code held by timer (Write in F00)	CLR E-CODE	Press [9] [8] in service mode.
Initialize Service	Last Drive Error, Error history and Error Codes stored on the unit are initialized to factory setting.	CLR SERV	Press [9] [9] in service mode.
Finishing service mode	Release Service Mode.	Display in STOP (E-E) mode. **********	Press power button on the front panel in service mode.