TROUBLE SHOOTING GUIDE FOR NOTEBOOK

5021

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5021 N/B MAINTENANCE

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1. DEFINITION OF CONNECTORS & SWITCHES

1.1 CONNECTORS & SWITCHES IN SYSTEM BOARD

- J1 : SPEAKER OUT
- J2 : LCD INDICATOR
- J3 , J4 : SYSTEM BOARD TO LCD BOARD
- J5 : MICROPHONE - IN
- J6 , J7 : DIMM MEMORY MODULE
- J8 : TRACK POINTER
- J9 : KEYBOARD DATA LINE
- J10 : LINE - IN
- J11 : KEYBOARD SCAN LINE
- J12 : SYSTEM BOARD TO BUTTON BOARD
- J13 : CPU POWER CONNECTOR
- SW1 : SUSPEND BUTTON
- J501 : PS/2 KEYBOARD & MOUSE CONN_
- J502 : PARALLEL PORT
- J503 : SERIAL PORT
- J504 : CRT VIDEO
- J505 : DOCKING STATION
- J506 : FAN
- J507 : SYSTEM BOARD TO DC/DC BOARD
- J508 : PCMCIA IC CARD
- J509 : CD - ROM
- J510 : CD - ROM AUDIO
- J511 : FDD / MPEG /TV
- J512 : HARD DISK

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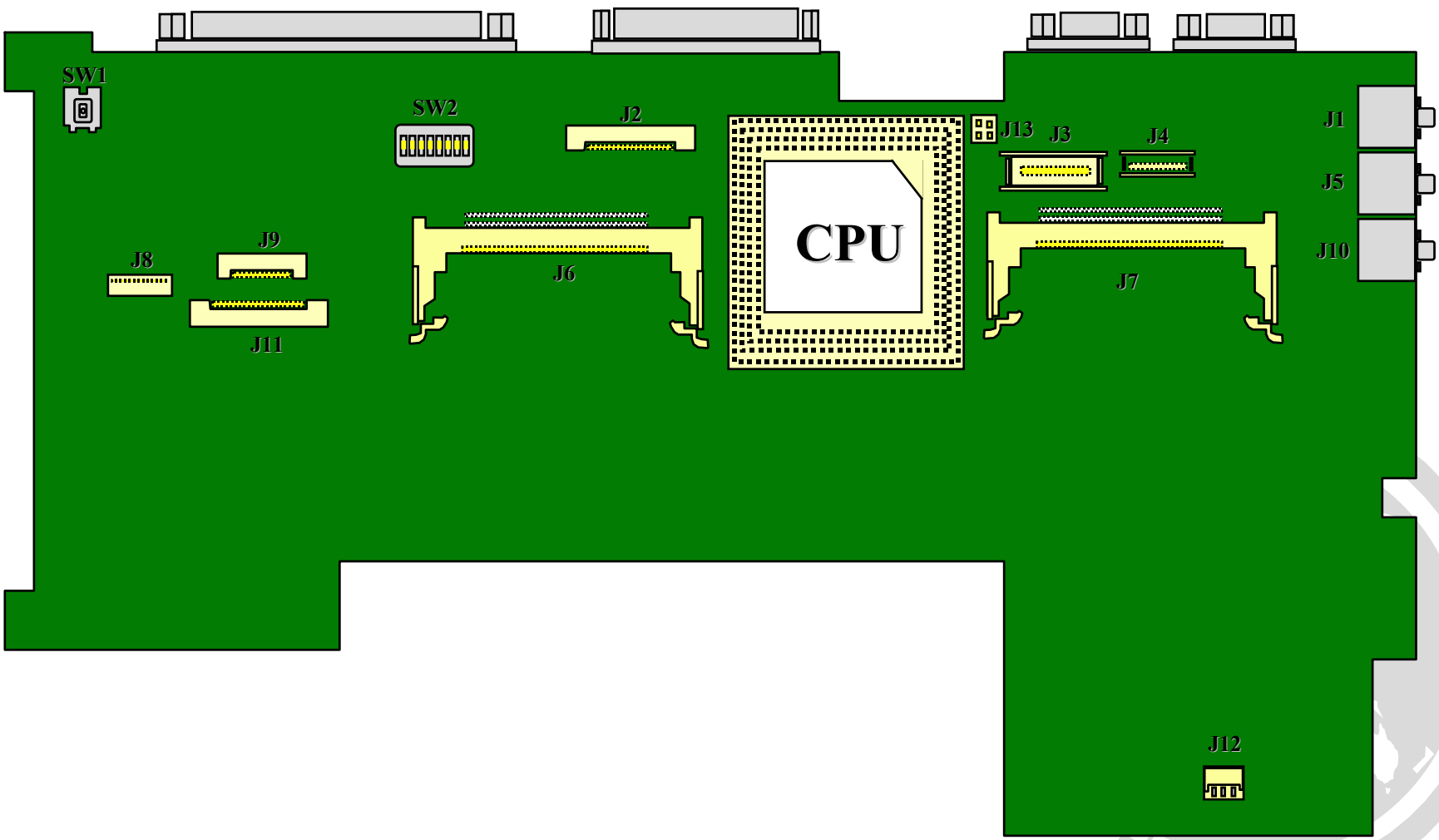
1.2 CONNECTORS & SWITCHES IN DC/DC BOARD

- J1 : POWER JACK
- J2 : DC/DC BOARD TO SYSTEM BOARD
- J3 , J4 : BATTERY CONNECTOR
- SW1 : POWER SWITCH
- SW2 : SYSTEM RESET

2 . LOCATION OF CONNECTORS & SWITCHES



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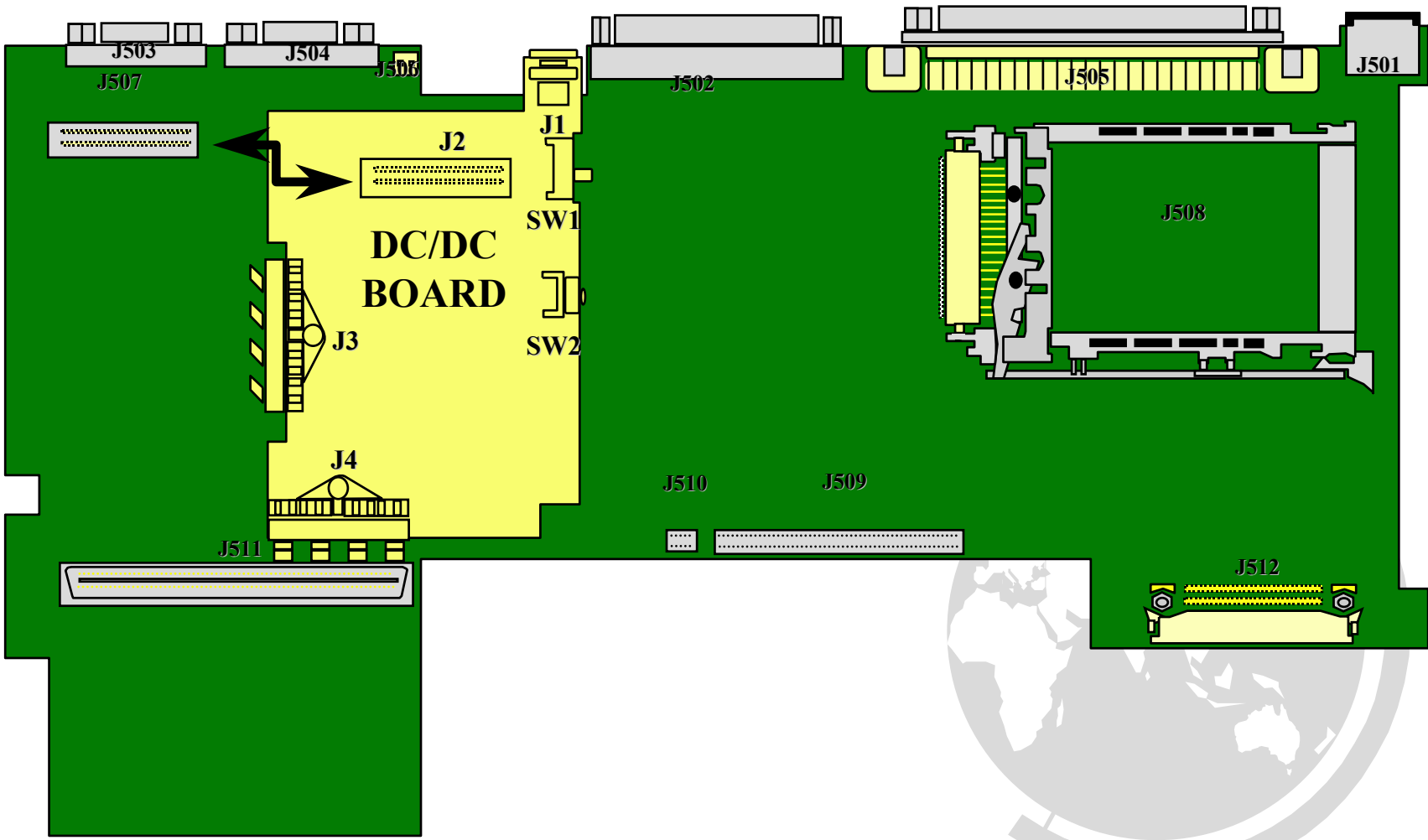
2 . LOCATION OF CONNECTORS & SWITCHES



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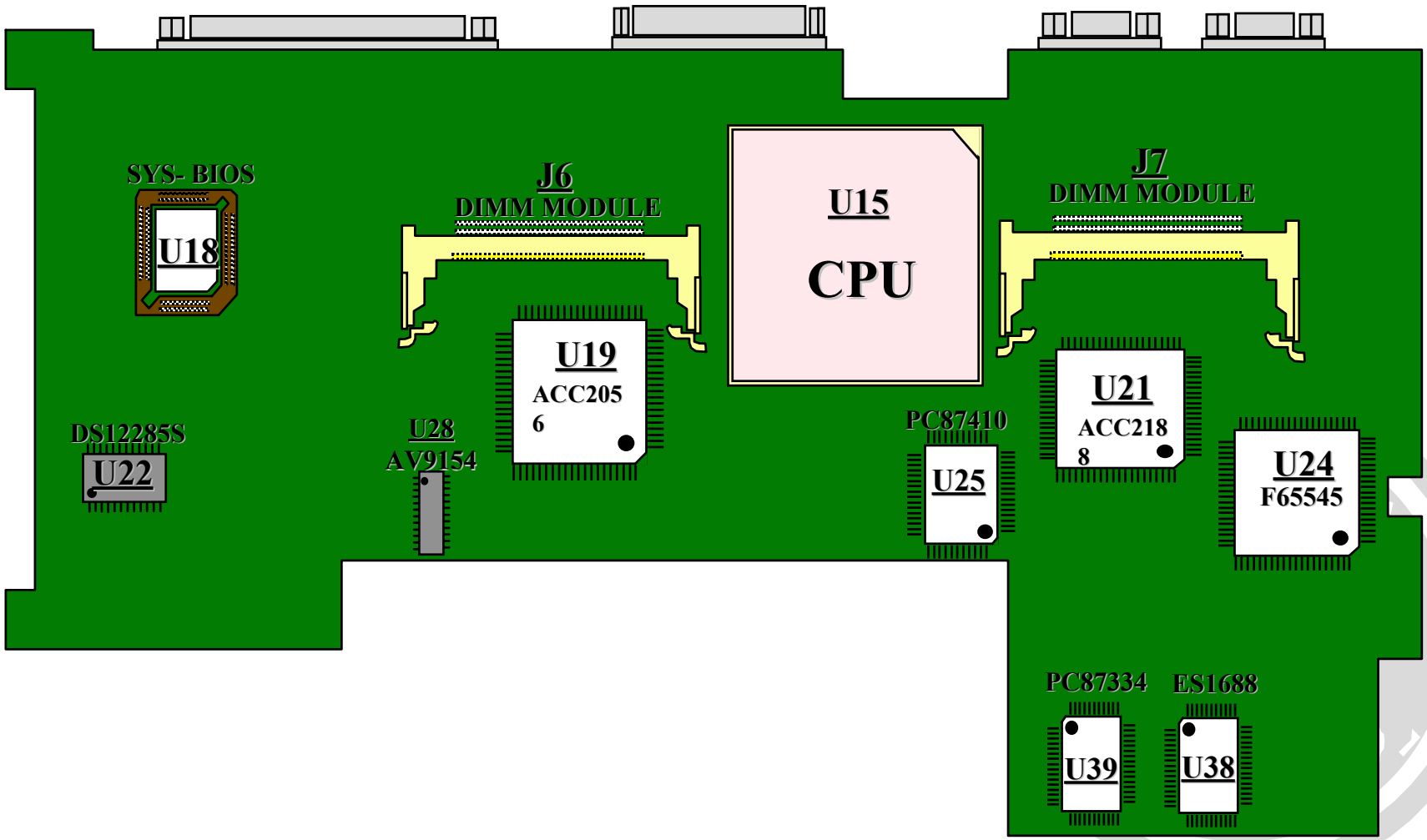
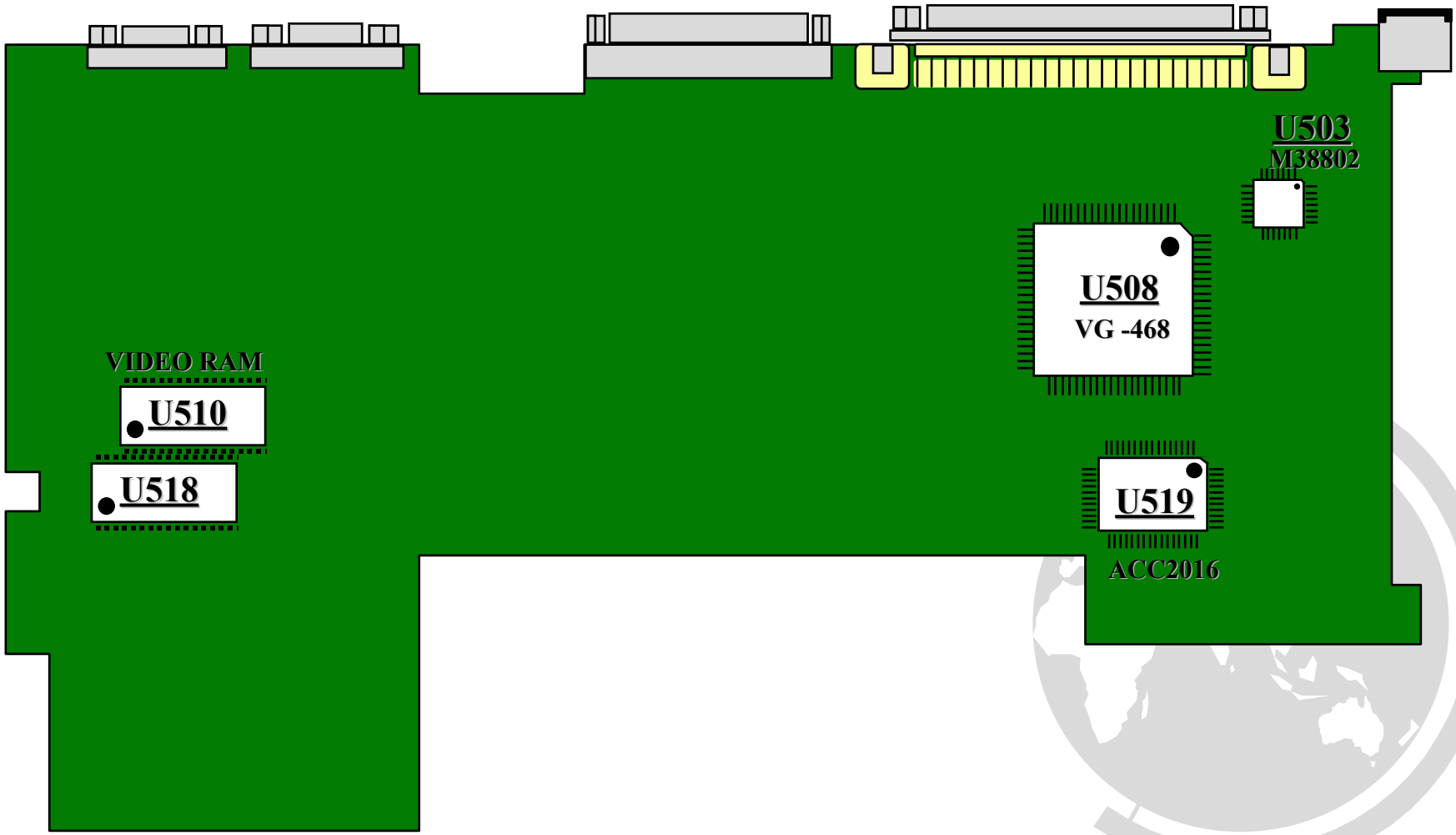
3. MAJOR COMPONENTS

1. U15 INTEL PENTIUM CPU
2. U19 ACC2056 SYSTEM CHIPSET
3. U21 ACC2188 PCI BRIDGE
4. U24 C&T F65545 LCD/VGA CONTROLLER
5. J6 , J7 DIMM MEMORY MODULE
6. U18 28F010 SYSTEM BIOS
7. U25 PC87410 PCI ENHANCED IDE CONTROLLER
8. U38 ESS ES1688 AUDIO DRIVE
9. U39 PC87334 SUPER I/O CONTROLLER
10. U503 M38802 KEYBOARD CONTROLLER
11. U508 VG-468 PCMCIA CONTROLLER
12. U519 ACC2016 BUFFER AND MUX LOGIC
13. U28 AV9154 CLOCK SYNTHESIZER
14. U22 DS12885S REAL TIME CLOCK
15. U510 , U518 VIDEO MEMORY

4. LOCATION OF MAJOR COMPONENTS



4. LOCATION OF MAJOR COMPONENTS



5. SWITCH & JUMPER SETTING

J13

CPU TYPE	J13
P54C 3.3V	3 - 4
P54LM 2.9V	1 - 2

SW2

CPU TYPE	SW2							
	8	7	6	5	4	3	2	1
P54C - 75	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
P54LM -75	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
P54C -90	ON	ON	ON	OFF	OFF	ON	ON	OFF
P54LM - 90	ON	OFF	OFF	OFF	OFF	ON	ON	ON

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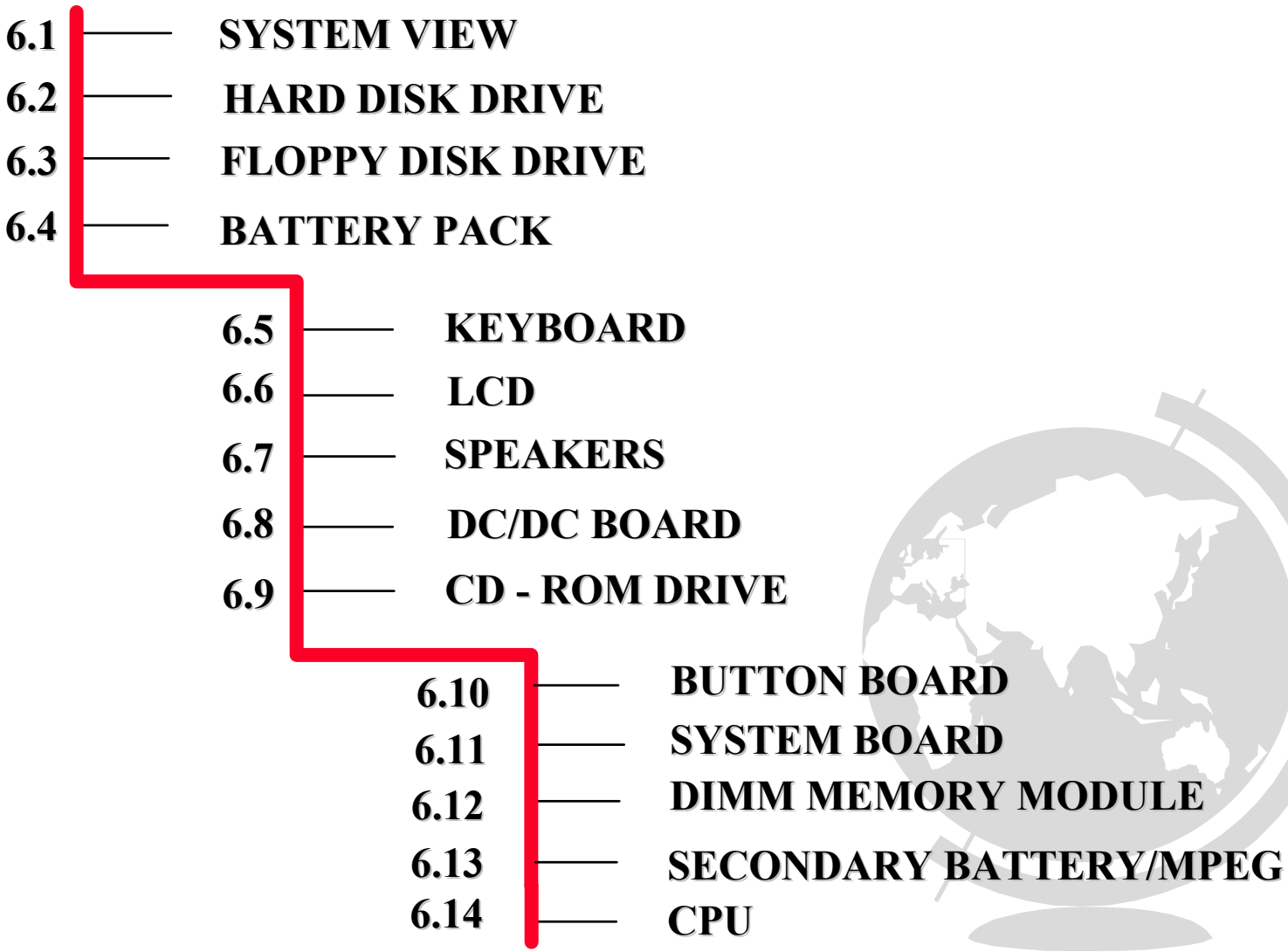
6. ASSEMBLY & DISASSEMBLY



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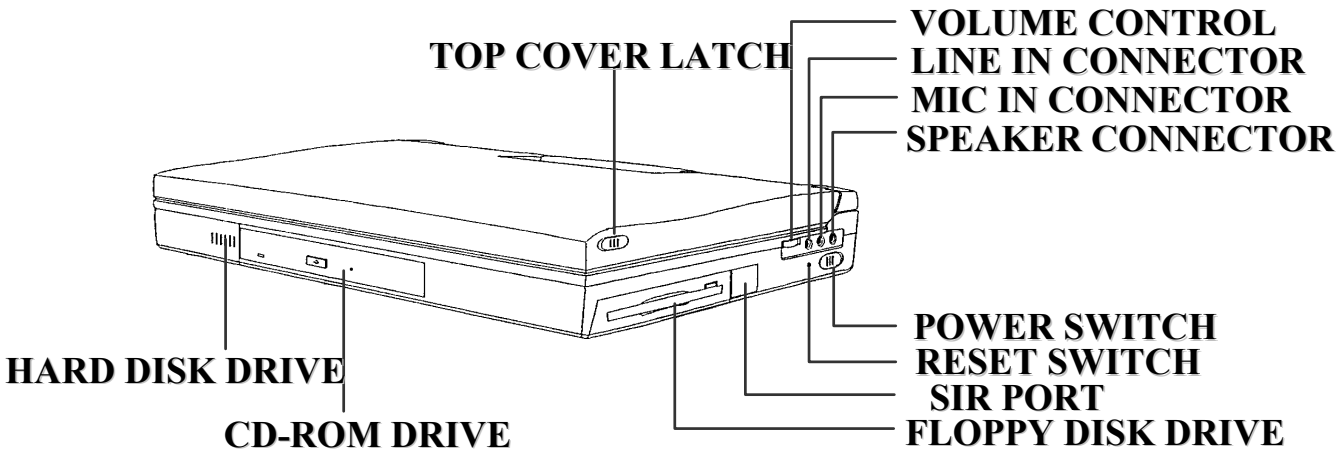
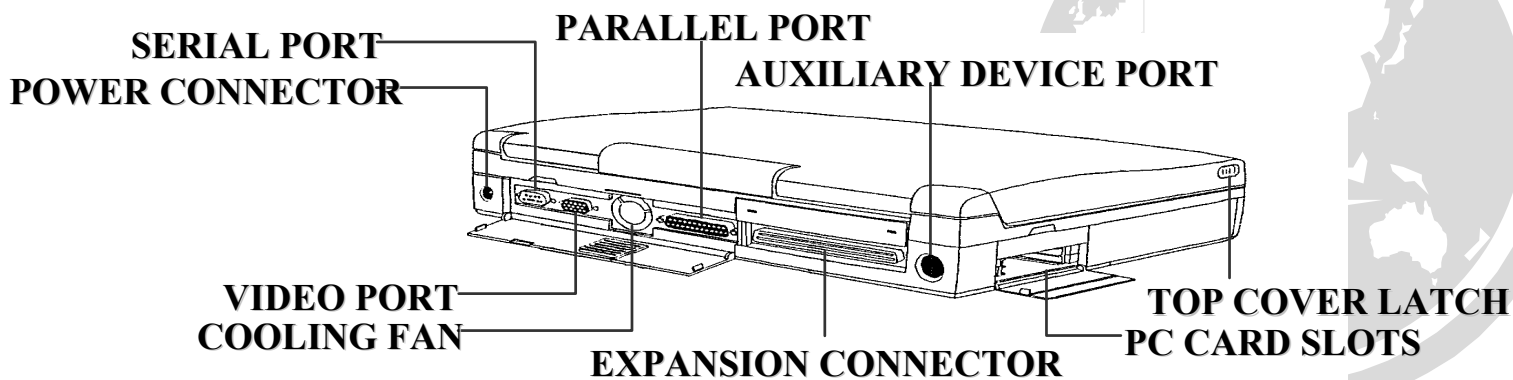
6.1 SYSTEM VIEW





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6.2 HARD DISK DRIVE

1. SLIDE THE HARD DISK DRIVE COVER OUTWARD(FIGURE 2-1)

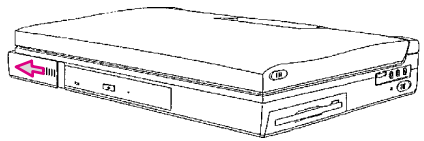

FIGURE 2-1

2. INSERT YOUR FINGER TO THE GROOVE ALONG THE HARD DISK DRIVE COVER ON THE BOTTOM OF THE NOTEBOOK AND PULL THE HARD DISK DRIVE OUT OF ITS COMPARTMENTT(FIGURE 2-2)

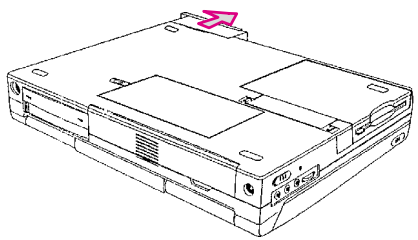

FIGURE 2-2

6.2 HARD DISK DRIVE

3. TO REMOVE THE HARD DISK DRIVE FROM ITS HOUSING:
   SLIDE THE HARD DISK DRIVE COVER UNTIL YOU CANNOT SLIDE IT ANY FURTHER AND PRESS IN THE SAFETY CATCH (FIGURE 2-3 ARROW A) TO DETACH THE COVER FROM HOUSING.
   PRESS IN THE FOUR BOTTOM SAFETY CATCHES (FIGURE 2-3 ARROW B) TO DETACH THE HARD DISK DRIVE SHIELD FROM THE HOUSING.
   REMOVE THE FOUR BOTTOM SCREWS (FIGURE 2-3 S) AND LIFT THE HARD DISK DRIVE FREE.

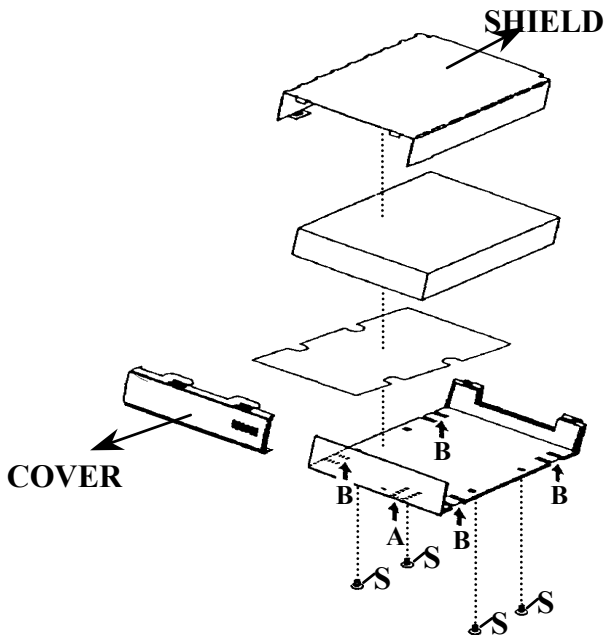

FIGURE 2-3

6.3 FLOPPY DISK DRIVE

1. CAREFULLY PUT THE NOTEBOOK WITH ITS BOTTOM FACING UP.
2. PUSHIN THE SAETY CATCHES FIRST (FIGURE 3-1 A) AND LIFT THE FLAP END (FIGURE 3-1 B) TO PULL THE FLOPPY DISK DRIVE OUT OF THE COMPART (FIGURE 3-1 C).

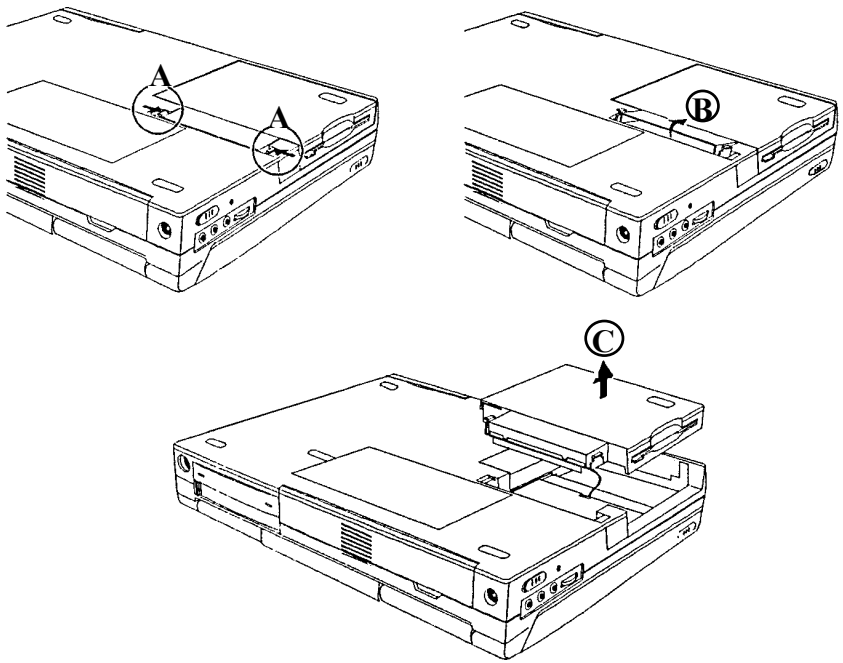

FIGURE 3-1

6.4 BATTERY PACK

1. CAREFULLY PUT THE NOTEBOOK WITH ITS BOTTOM FACING UP.
2. RELEASE THE SAETY CATCHE BY SLIDING IT AWAY FROM THE BATTERY PACK (FIGURE 4-1 A) AND THEN LIFT THE BATTERY PACK (FIGURE 4-1 B).

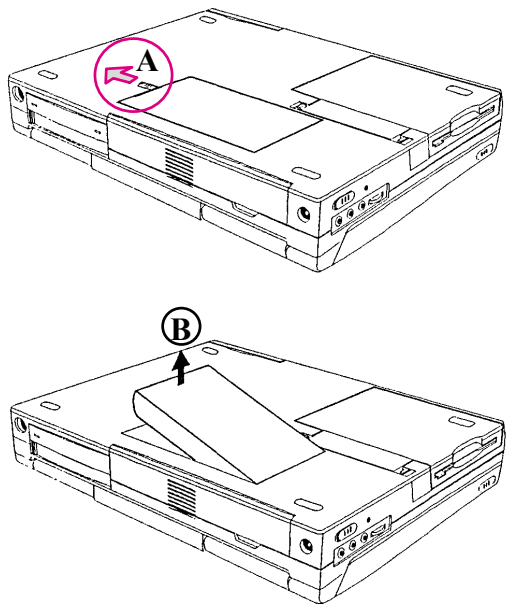

FIGURE 4-1

6.5 KEYBOARD

1. REMOVE THE KEYBOARD FRAME COVER BY PRYING IT UP FROM NEAR THE HINGES (FIGURE 5-1 A). IT IS EASIER IF YOU WORK FROM ONE SIDE HINGE FIRST AND THEN TO THE NEXT ONES.

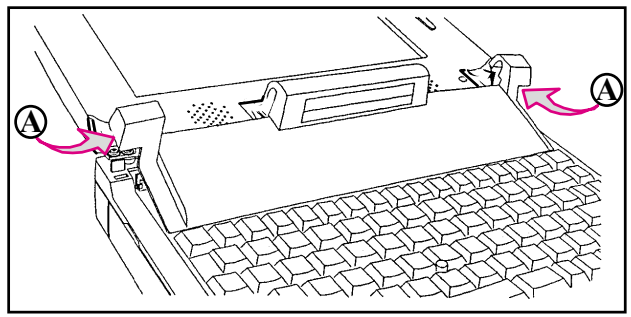

FIGURE 5-1

2. HOLDING THE ICON LCD PANEL BY BOTH SIDES, GENTLY AND EVENLY SLIDE THE ICON LCD PANEL OUT (FIGURE 5-2 A).

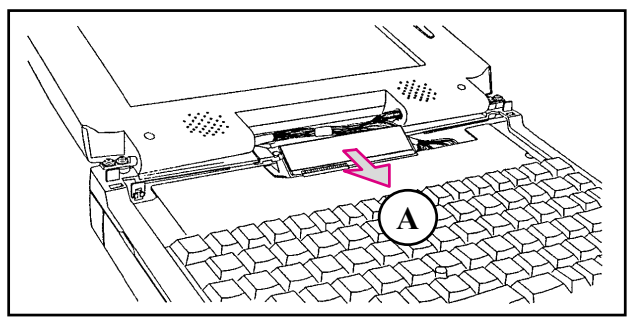

FIGURE 5-2

6.5 KEYBOARD

3. REMOVE THE SHIELD PLATE BY PRESSING IN THE TAB (FIGURE 5-3 A).AND PRYING UP THE SHIELD PLATE (FIGURE 5-3 B)

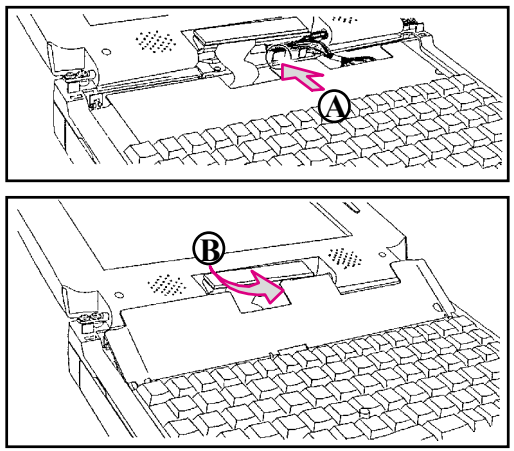

FIGURE 5-3

4. UNPIUG THE THREE KEYBOARD CABLES (FIGURE 5-4 A) AND DETACH THE KEYBOARD FORM THE CHASSIS (FIGURE 5-4 B).

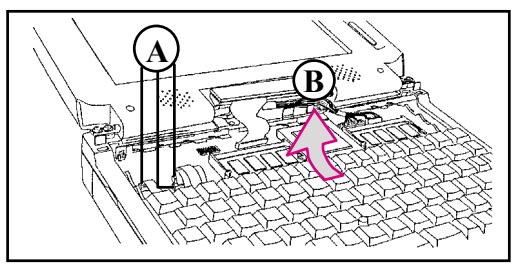

FIGURE 5-4

6.6 LCD

1. FOLLOW THE STEPS 1 TO 3 IN SECTION 6.5 TO REMOVE THE KEYBOARD FRAME COVER AND SHIELD PLATE.
2. TO SEPARATE THE LCD MODULE FROM THE CHASSIS, REMOVE THE FOUR SCREWS (FIGURE 6-1 A) AND UNPLUG THE TWO LCD CABLES (FIGURE 6-1 B).

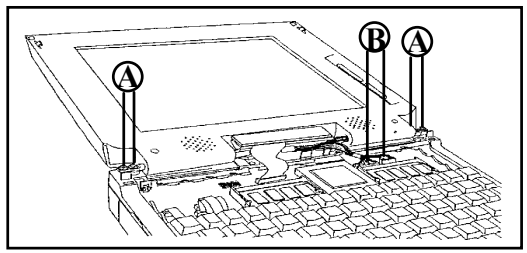

FIGURE 6-1

3. TO SEPARATE THE LCD COVER FRAME FROM THE LCD HOUSING FOLLOW THESE STEPS:
   (a). REMOVE THE BRIGHTNESS SLIDER (FIGURE 6-2 A).
   (b). REMOVE THE FOUR CUSHIONS AND FOUR SCREWS INSIDE (FIGURE 6-2 B).
   (c). UNPLUG THE TWO SPEAKER CABLES (FIGURE 6-2 C)
   (d). DETACH THE LCD COVER FRAME FROM THE HOUSING.

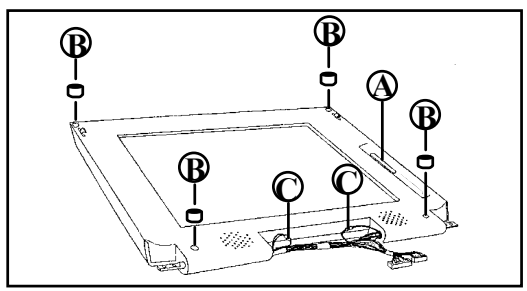

FIGURE 6-2

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6.6 LCD

3. TO SEPARATE THE LCD FROM THE LCD HOUSING, FOLLOW THESE STEPS:
   (a). REMOVE THE FOUR SCREWS (FIGURE 6-3 A). SECURING THE LCD TO THE LCD HOUSING.
   (b). UNPLUG TWO CONNECTORS (FIGURE 6-3 B). FROM THE BACKLIGHT (D/A) BOARD. LIFT THE LCD FREE.
   (c). UNPLUG THE TWO CONNECTORS FROM LCD (FIGURE 6-3 C).

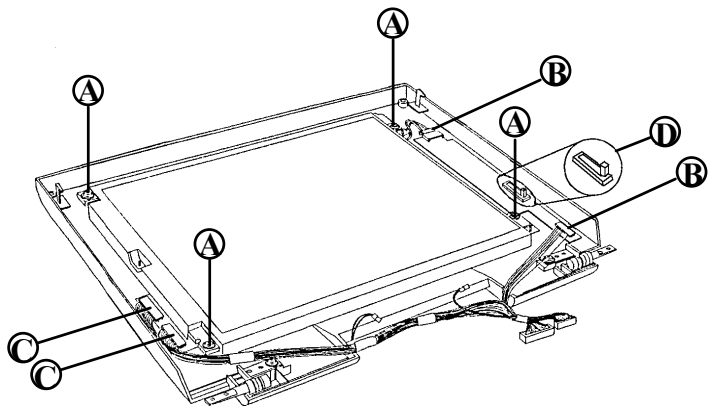

FIGURE 6-3

NOTE: WHEN REPLACING THE SLIDER, MAKE SURE THE SLIDER CATCHES THE STICK ON THE BACKLIGHT BOARD. FOR EASY ALIGNMENT, FIRST MOVE THE STICK (FIGURE 6-3 D) ON THE BACKLIGHT BOARD TO ONE END. THEN WHEN YOU REPLACE THE SLIDER, ORIENT THE SLIDER BY HOLDING ITS THICKER EDGE TOWARD THE LEFT AND INSERT THE CORRESPONDING HOLE ON THE SLIDER INTO THE STICK.

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6.7 SPEAKERS

1. TO SEPARATE THE LCD COVER FRAME FROM THE LCD HOUSING, (FOLLOWING STEPS 1 TO 3 IN SECTION 6.6)
2. FOR EACH SPEAKER. REMOVE TWO SCREWS (FIGURE 7-1 A) AND LIFT THE SPEAKER FREE.

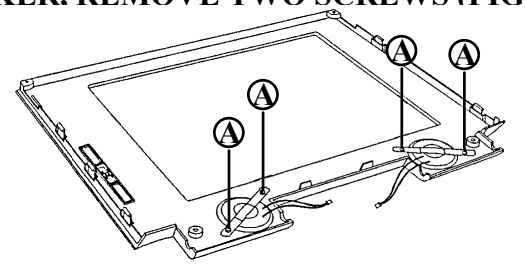

FIGURE 7-1

6.8 DC/DC BOARD

1. REMOVE THE HARD DISK DRIVE. (SEE SECTION 6.2)
2. REMOVE THE FLOPPY DISK DRIVE. (SEE SECTION 6.3)
3. REMOVE THE BATTERY PACK. (SEE SECTION 6.4)
4. REMOVE THE KEYBOARD. (SEE SECTION 6.5)
5. SEPARATE THE LCD MODULE FROM THE CHASSIS.(SEE SECTION 6.6)
6. REMOVE THE I/O CONNECTOR COVER (FIGURE 8-1 A) AND THE EXPANSION CONNECTOR COVER (FIGURE 8-1 B). BEND THE COVER SLIGHTLY TO DEATCH IT FROM THE REAR PANEL.
7. REMOVE THE TWO REAR PANEL SCREWS (FIGURE 8-1 C) AND TWO TOP SCREWS (FIGURE 8-1 D).

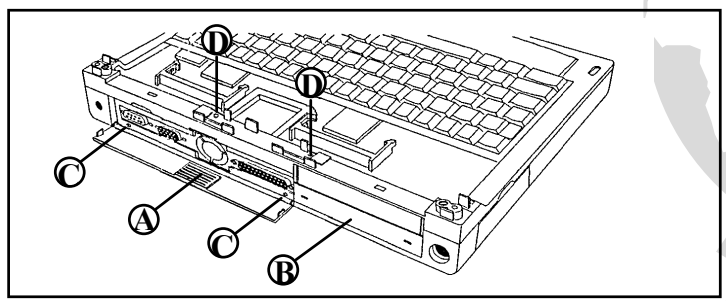

FIGURE 8-1

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8. REMOVE THE FIVE BOTTOM SCREWS(FIGURE 8-2 A).

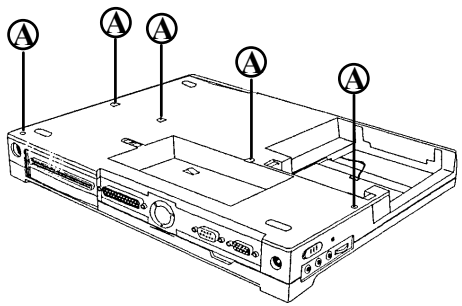

FIGURE 8-2

9. WITH THE NOTEBOOK BOTTOM FACING UP, DETACH THE NOTEBOOK HOUSING FROM THE KEYBOARD FRAME.

10. TO REMOVE THE DC/DC BOARD, REMOVE TWO SCREWS (FIGURE 8-3 A) AND UNPLUG IT FROM THE SYSTEM BOARD.

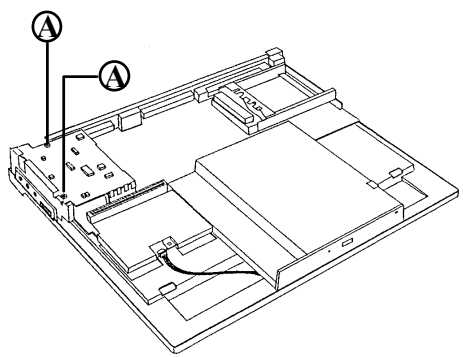

FIGURE 8-3

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6.9 CD-ROM DRIVE

1. SEPARATE THE NOTEBOOK HOUSING FROM THE KEYBOARD FRAME. (FOLLOW STEPS 1 TO 9 IN SECTION 6.8).
2. PULL THE CLIP OUTWARD (FIGURE 9-1 A) AND LIFT THE CD-ROM DRIVE TO UNPLUG ITS CONNECTOR FROM THE SYSTEM BOARD (FIGURE 9-1 B)

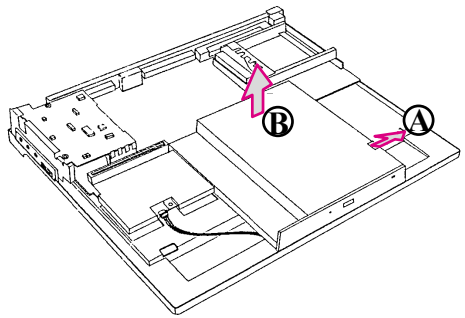


FIGURE 9-1

6.10 BUTTON BOARD

1. REMOVE THE CD-ROM DRIVE. (SEE SECTION 6.9)
2. UNPLUG THE CONNECTOR (FIGURE 10-1 A) FROM THE BUTTON BOARD. REMOVE TWO SCREWS(FIGURE 10-1 B) AND LIFT THE BOARD FREE

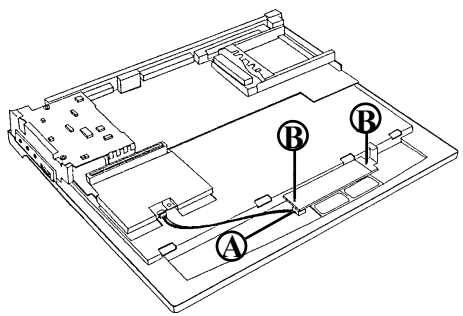


FIGURE 10-1

5021 N/B MAINTENANCE

6.11 SYSTEM BOARD

1. REMOVE THE DC/DC BOARD. (SEE SECTION 6.8).
2. REMOVE THE CD-ROM DRIVE. (SEE STEP 2 IN SECTION 6.9)
3. REMOVE THE SYSTEM BOARD SHIELD PLATE BY REMOVING ONE SCREW (FIGURE 11-1 A).
4. UNPLUG THE BUTTON BOARD CONNECTOR (FIGURE 11-1 B) FROM THE SYSTEM BOARD.
5. REMOVE ONE SCREW (FIGURE 11-1 C) FROM THE SYSTEM BOARD AND REMOVE THE SIDE SHIELD PLATE (FIGURE 11-1 D)
6. LIFT THE SYSTEM BOARD FREE.

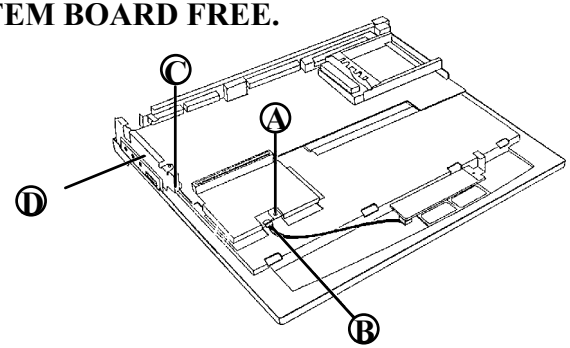


FIGURE 11-1

6.12 DIMM MEMORY MODULE

1. REMOVE THE KEYBOARD FRAME COVER AND SHIELD PLATE. (FOLLOW STEPS 1 TO 3 IN SECTION 6.5)
2. LOCATE THE DIMM SOCKETS (FIGURE 12-1).

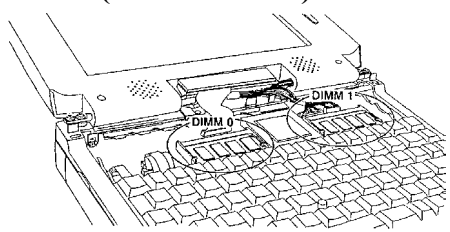


FIGURE 12-1

5021 N/B MAINTENANCE

1. TO INSTALL THE DIMM, ALIGN THE DIMM S NOTCHED END WITH THE SOCKET S CORRESPONDING END AND FIRMLY INSERT THE DIMM INTO THE SOCKET AT AN ANGLE. THEN PUSH DOWN UNTIL THE RETAINING CLIPS LOCK THE DIMM INTO POSITION. (FIGURE 12-2)

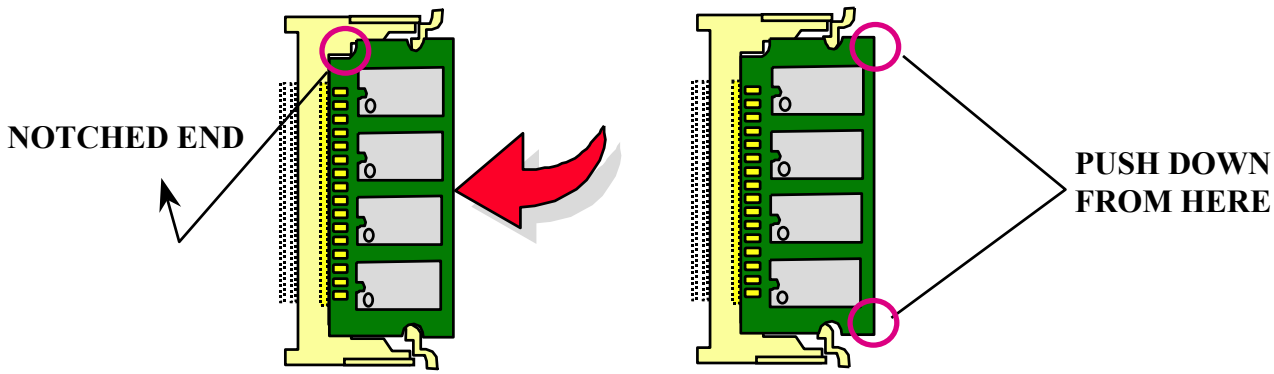


FIGURE 12-2

6.13 SECONDARY BATTERY PACK/MPEG MODULE

EITHER THE SECONDARY BATTERY PACK OR THE MPEG MODULE OCCUPIES THE SAME COMPARTMENT AS THE FLOPPY DISK DRIVE. TO INSTALL YOUR OPTION, YOU HAVE TO REMOVE WHICHEVER OCCUPIES THERE. (SEE FIGURE 3-1)

THE SECONDARY BATTERY PACK OR MPEG MODULE COMES IN AN EASY TO REPLACE PACKAGE. SIMPLY FIT IT INTO THE COMPARTMENT, MAKING SURE THE SAFETY CATCH CLICKS INTO PLACE.

6.14 CPU

1. REMOVE THE KEYBOARD FRAME COVER AND SHIELD PLATE. FOLLOW STEP 1 TO 3 IN SECTION 6.5)
2. REMOVE THE CPU BY PULLING IT UP. (FIGURE 13-1)

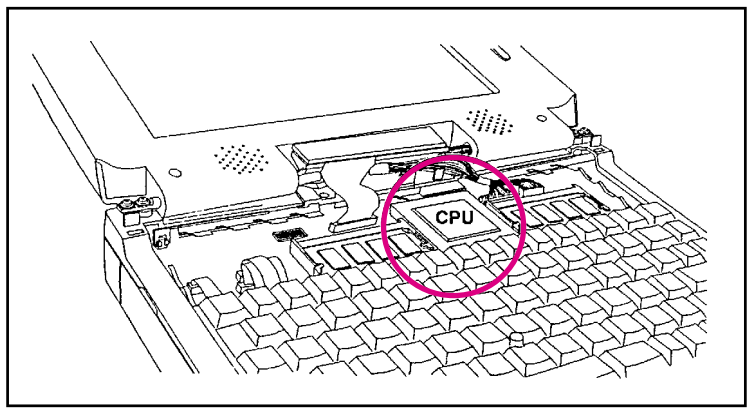


FIGURE 14-1

3. TO INSTALL THE NEW CPU, ALIGN THE BEVELED CORNER OF THE CPU WITH THE BEVELED CORNER IN THE SOCKET AND FIRMLY PRESS THE CPU INTO PLACE.
4. ACCORDING TO THE CPU INSTALLED. SWITCHS AND JUMPER MUST BE ADJUSTED. (SEE SECTION 5 FOR SWITCH AND JUMPER SETTING).

7. MAINTENANCE DIAGNOSTICS

7.1 INTRODUCTION

EACH TIME THE COMPUTER IS TURNED ON, THE SYSTEM BIOS RUNS A SERIES OF INTERNAL CHECKS ON THE HARDWARE. THIS POWER-ON SELF TEST (POST) ALLOWS THE COMPUTER TO DETECT PROBLEMS AS EARLY AS THE POWER-ON STAGE. ERROR MESSAGES OF POST CAN ALERT YOU TO THE PROBLEMS OF YOUR COMPUTER.

IF AN ERROR IS DETECTED DURING THESE TESTS, YOU WILL SEE AN ERROR MESSAGE DISPLAYED ON THE SCREEN. IF THE ERROR OCCURS BEFORE THE DISPLAY IS INITIALIZED,THEN THE SCREEN CANNOT DISPLAY THE ERROR MESSAGE. ERROR CODES OR SYSTEM BEEPS ARE USED TO IDENTIFY A POST ERROR THAT OCCURS WHEN THE SCREEN IS NOT AVAILABLE.

THE VALUE FOR THE DIAGNOSTIC PORT (378H) IS WRITTEN AT THE BEGINNING OF THE TEST. THEREFORE, IF THE TEST FAILED, THE USER CAN DETERMINE WHERE THE PROBLEM OCCURRED BY READING THE LAST VALUE WRITTEN TO PORT 378H BY THE PIO DEBUG BOARD PLUG AT PIO PORT.

7. MAINTENANCE DIAGNOSTICS

7.2 5021 BIOS POST TEST PROCEDURE

- PROGRAMMABLE DEVICE INITIALIZATION
- VIDEO DISPLAY CONTROLLER INITIALIZATION
- BIOS STACK ESTABLISHMENT
- MEMORY MAP INITIALIZATION
- RAM TEST
- CACHE TEST
- REAL TIME CLOCK INITIALIZED
- KEYBOARD, DISKETTE DRIVE, AND HARD DRIVE CONTROLLER INITIALIZATION AND TEST
- A20 GATE DISABLE
- OPTION ROM SCAN

7. MAINTENANCE DIAGNOSTICS

7.3 POWER-ON SELF TEST ERROR MESSAGES

IF AN ERROR IS DETECTED DURING POST, THE ERROR MESSAGES WILL SHOWN ON SCREEN IF THE SCREEN IS AVAILABLE.

MESSAGE	POSSIBLE CAUSE	RECOMMENDED ACTION
NO BOOT DEVICE AVAILABLE	BOTH DRIVE AND DRIVE C ARE NOT FORMATTED AS BOOTABLE.	1. REPLACE THE DISKETTE WITH A BOOTABLE DISKETTE OR FORMAT DRIVE C AS BOOTABLE. 2. REPLACE THE DISKETTE OR THE HARD DISK.
HARD DISK READ FAILURE	THE HARD DISK IS DAMAGED OR NOT CONFIGURED PROPERLY	1. CHECK THE CABLE AND POWER CORD FOR PROPER INSTALLATION 2. REPLACE HARD DISK
NO BOOT SECTOR ON HARD DISK	THE HARD DISK HAS NOT BEEN PARTITIONED OR THE PARTITION TABLE IS DAMAGED.	1. RUN FDISK 2. REPLACE HARD DISK
FIXED DISK 0 FAILURE	1. HARD DISK IS NOT WORKING OR NOT CONFIGURED PROPERLY 2. INCORRECT CONFIGURATION OF HARD DISK IN CMOS SETUP	1. RUN SETUP 2. REPLACE THE SIGNAL AND POWER CABLES 3. REPLACE HARD DRIVE 4. REPLACE SYSTEM BOARD.
FIXED DISK CONFIGURATION ERROR	INCORRECT CONFIGURETION OF HARD DISK IN CMOS SETUP	1. RUN SETUP 2. REPLACE HARD DISK
FIXED DISK CONTROLLER FAILURE	THE EMBEDED CONTROLLER ON THE HARD DISK IS DAMAGED.	1. REPLACE THE HARD DISK

(TO BE CONTINUED)

7. MAINTENANCE DIAGNOSTICS

7.3 POWER-ON SELF TEST ERROR MESSAGES

MESSAGE	POSSIBLE CAUSE	RECOMMENDED ACTION
KEYBOARD CONTROLLER FAILURE	THE KEYBOARD CONTROLLER IS DAMAGED	1. REPLACE THE SYSTEM BOARD
KEYBOARD STUCK KEY FAILURE	BIOS DISCOVERED A STUCK KEY DURING POST	1. DO NOT PRESS ANY KEY DURING POST 2. REPLACE THE KEYBOARD
KEYBOARD CLOCKLINE & DATALINE FAILURE	INTERFACE BETWEEN KEYBOARD AND KEYBOARD CONTROLLER FAILED.	1. REPLACE KEYBOARD 2. REPLACE SYSTEM BOARD
MEMORY FAILED AT PHYSICAL ADDRESS: XX	CIRCUITY ASSOCIATED WITH THE MEMORY CHIPS HAS FAILED.	1. REPLACE THE DIMM MEMORY MODULES 2. REPLACE THE SYSTEM BOARD
REAL TIME CLOCK FAILURE	REAL-TIME CLOCK FAILS BIOS TEST	1. REPLACE SYSTEM BOARD
GATE A20 FAILURE	SET GATE A20 FAILED WHEN MEMORY IS TESTED DURING POST	1. REPLACE THE SYSTEM BOARD
NO TIMER TICK INTERRUPT	POSSIBLE U518 ACC2016 IS DAMAGED	1. REPLACE THE SYSTEM BOARD
SHUTDOWN FAILURE	POSSIBLE KEYBOARD CONTROLLER IS DAMAGED	1. REPLACE SYSTEM BOARD
DISKETTE DRIVE A FAILURE	BIOS CANNOT FIND A FLOPPY DISK DRIVE BUT DRIVE A IS CONFIGURED IN CMOS SETUP	1. CHECK THE FLOPPY DISK DRIVE CABLE FOR PROPER CONNECTION 2. REPLACE THE FLOPPY DISK DRIVE 3. REPLACE THE SYSTEM BOARD
INVALID CONFIGURATION INFORMATION SYSTEM TIMER ERROR	CURRENT SYSTEM CONFIGURATION DOES NOT MATCH WITH WITH CMOS SETUP VALUES	1. CHECK ALL OF I/O DEVICE FOR PROPER INSTALLATION 2. RUN SETUP 3. REPLACE SYSTEM BOARD

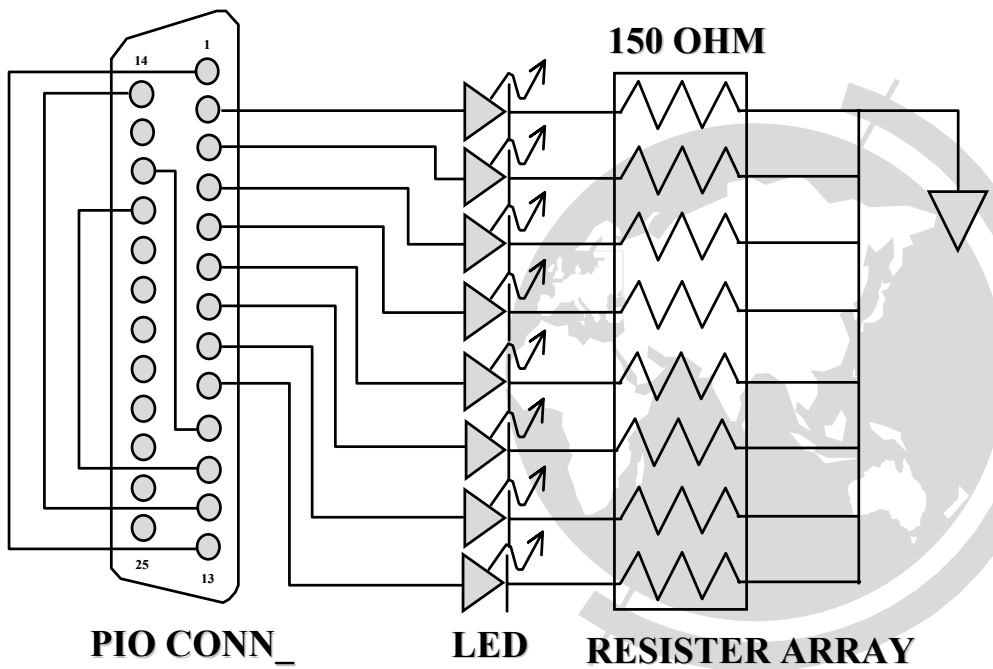
7. MAINTENANCE DIAGNOSTICS

7.4 PIO PORT (378H) DIAGNOSTIC TOOLS

A. PARTS USED:

- LED * 8
- RESISTER ARRAY, 10PIN, 150 OHM * 1
- PIO CONNECTOR * 1

B. CIRCUIT:



PIN1 : STROBE ⟷ PIN 13 : SLCT
PIN10: ACK# ⟷ PIN 16 : INT#
PIN11: BUSY ⟷ PIN 17 : SELIN#
PIN12: PTERR ⟷ PIN 14 : AUTOFD#
PIN 2 ~ PIN 9 : PD0 ~ PD7

7. MAINTENANCE DIAGNOSTICS

7.5 ERROR CODES

FOLLOWING IS A LIST OF ERROR CODES IN SEQUENCE DISPLAY ON THE PIO DEBUG BOARD.

ERROR CODE	BEEP CODE	DESCRIPTION
01H		CPU REGISTER TEST IN-PROGRESS
02H	1-1-3	CMOS WRITE/READ TEST IN-PROGRESS OR FAILURE
03H	1-1-4	BIOS ROM CHECKSUM IN-PROGRESS OR FAILURE
04H	1-2-1	PROGRAMMABLE INTERVAL TIMER TEST IN-PROGRESS OR FAILURE
05H	1-2-2	DMA INITIALIZATION IN PROGRESS OR FAILURE
06H	1-2-3	DMA PAGE REGISTER WRITE/READ TEST IN PROGRESS OR FAILURE
08H	1-3-1	RAM REFRESH VERIFICATION IN-PROGRESS OR FAILURE
09H		1ST 64K RAM TEST IN-PROGRESS
0AH	1-3-3	1ST 64K RAM CHIP OR DATA LINE FAILURE - MULTI-BIT
0BH	1-3-4	1ST 64K RAM ODD/EVEN LOGIC FAILURE
0CH	1-4-1	1ST 64K RAM ADDRESS LINE FAILURE
0DH	1-4-2	1ST 64K RAM PARITY TEST IN-PROGRESS OR FAILURE
10H	2-1-1	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 0
11H	2-1-2	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 1
12H	2-1-3	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 2
13H	2-1-4	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 3
14H	2-2-1	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 4
15H	2-2-2	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 5
16H	2-2-3	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 6
17H	2-2-4	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 7
18H	2-3-1	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 8
19H	2-3-2	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT 9
1AH	2-3-3	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT A

ERROR CODE	BEEP CODE	DESCRIPTION
1BH	2-3-4	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT B
1CH	2-4-1	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT C
1DH	2-4-2	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT D
1EH	2-4-3	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT E
1FH	2-4-4	1ST 64K RAM CHIP OR DATA LINE FAILURE - BIT F
20H	3-1-1	SLAVE DMA REGISTER TEST IN-PROGRESS OR FAILURE
21H	3-1-2	MASTER DMA REGISTER TEST IN-PROGRESS OR FAILURE
22H	3-1-3	MASTER INTERRUPT MASK REGISTER TEST IN-PROGRESS OR FAIL
23H	3-1-4	SLAVE INTERRUPT MASK REGISTER TEST IN-PROGRESS OR FAIL
25H		INTERRUPT VECTOR LOADING IN-PROGRESS
27H	3-2-4	KEYBOARD CONTROLLER TEST IN-PROGRESS OR FAILURE
28H		CMOS POWER-FAIL AND CHECKSUM CHECKS IN-PROGRESS
29H		CMOS CONFIG INFO VALIDATION IN-PROGRESS
2BH	3-3-4	SCREEN MEMORY TEST IN-PROGRESS OR FAILURE
2CH	3-4-1	SCREEN INITIALIZATION IN-PROGRESS OR FAILURE
2DH	3-4-2	SCREEN RETRACE TESTS IN-PROGRESS OR FAILURE
2EH		SEARCH FOR VIDEO ROM IN-PROGRESS
2FH		SHOW CPU NAME AND SPEED
30H		SCREEN BELIEVED OPERABLE
30H		SCREEN BELIEVED RUNNING W/VIDEO ROM
31H		MONOCHROMATIC SCREEN BELIEVED OPERABLE
32H		40-COLUMN COLOR SCREEN BELIEVED OPERABLE
33H		80-COLUMN COLOR SCREEN BELIEVED OPERABLE

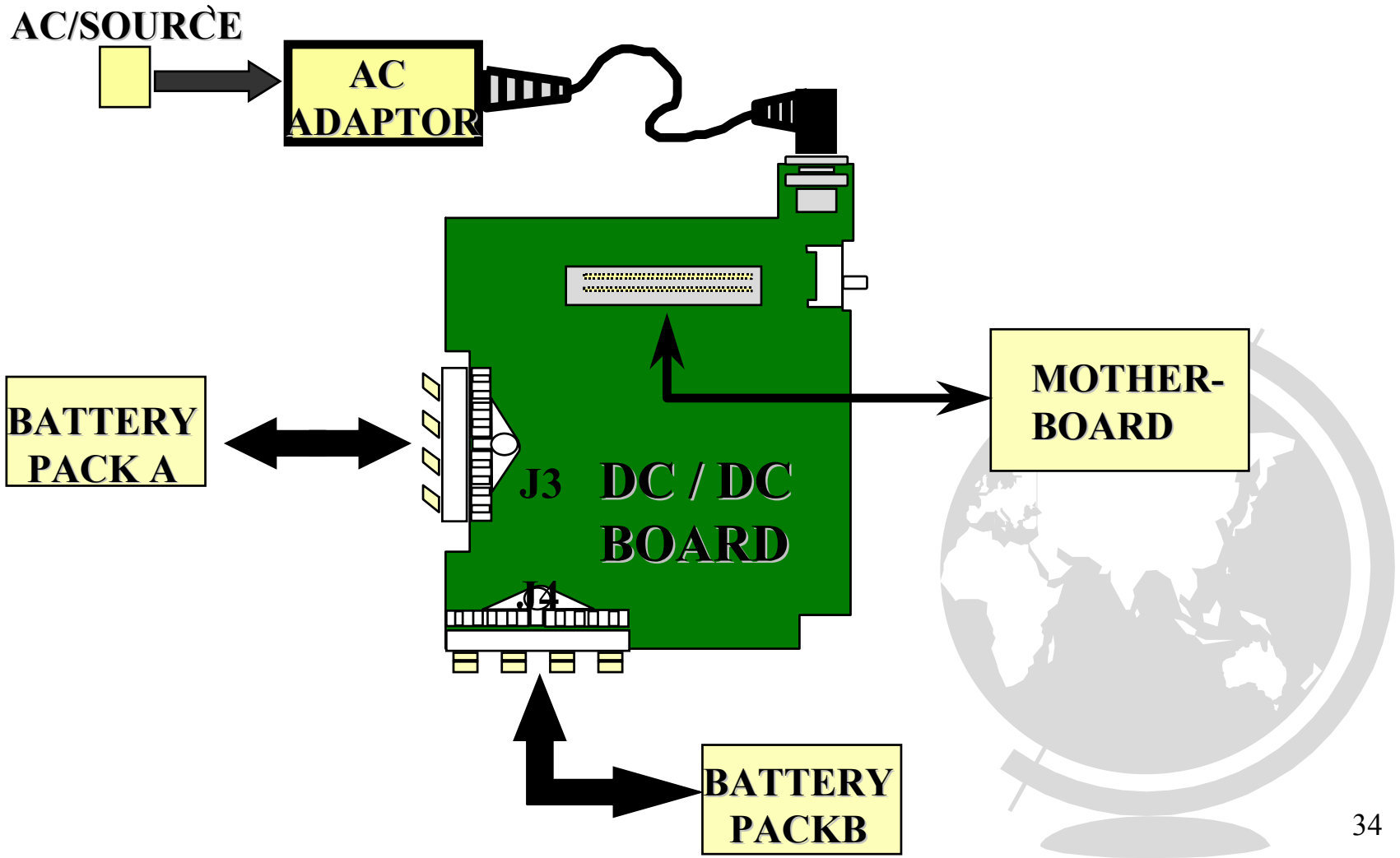
8. TROUBLE SHOOTING

5021 N/B MAINTENANCE

8.1 NO POWER

SYMPTOM:

WHEN THE POWER BUTTON IS PRESSED, NOTHING HAPPENS, POWER INDICATOR IS NOT LIGHT UP.

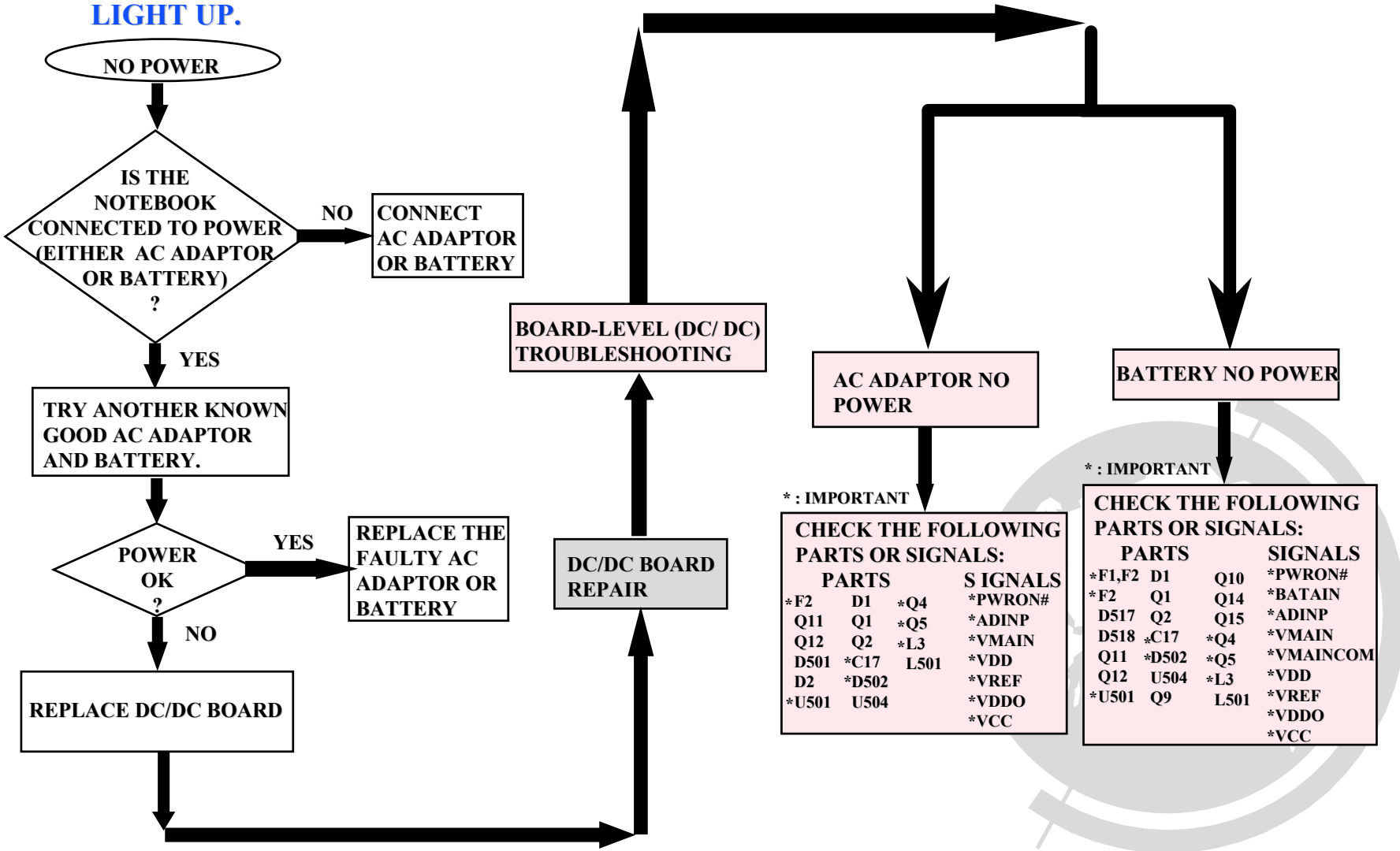


5021 N/B MAINTENANCE

8.1 NO POWER

SYMPTOM:

WHEN THE POWER BUTTON IS PRESSED, NOTHING HAPPENS, POWER INDICATOR IS NOT LIGHT UP.



5021 N/B MAINTENANCE

TROUBLE-SHOOTING EXPERIENCED ABOUT DC/DC B'D:

A. NO POWER ----------

1: THE VREF HIGHER OR LOWER THAN 2.5 ----D502 FAULTY

2: THE VDD VOLTAGE HIGHER THAN 5V----U501 GOT FLUX

3: L3 OR L4 BROKEN

4: J2 GOT FLUX

5: SOMETIMES NO POWER------C17 COLD SOLDER

B. J2 GOT FLUX CAUSED---

1: ABNORMAL RESET WHEN SYSTEM GETS WARM UP

2: SYSTEM SHOWS BATTERY POWER LOW BY KEPT BEEPING

3: THE ICON LCD DISPLAYS 2 BATTERIES BUT SYSTEM ONLY INSTALLED WITH A BATTERY

4: THE BATTERY FRAME IN ICON LCD DISAPPEARS AFTER SYSTEM IS SWITCHED OFF EVEN THOUGH AC ADAPTOR IS STILL CONNECTED TO THE SYSTEM.

5: NO POWER

C. TRY LEARNING CHARGE: ICON LCD DISPLAYS BATTERY FULL, BUT STSTEM CAN ONLY BE USED FOR FEW MINUTES

D.CAN'T RE-CHARGE: 1. CHECK THE CIRCUIT AROUND U3

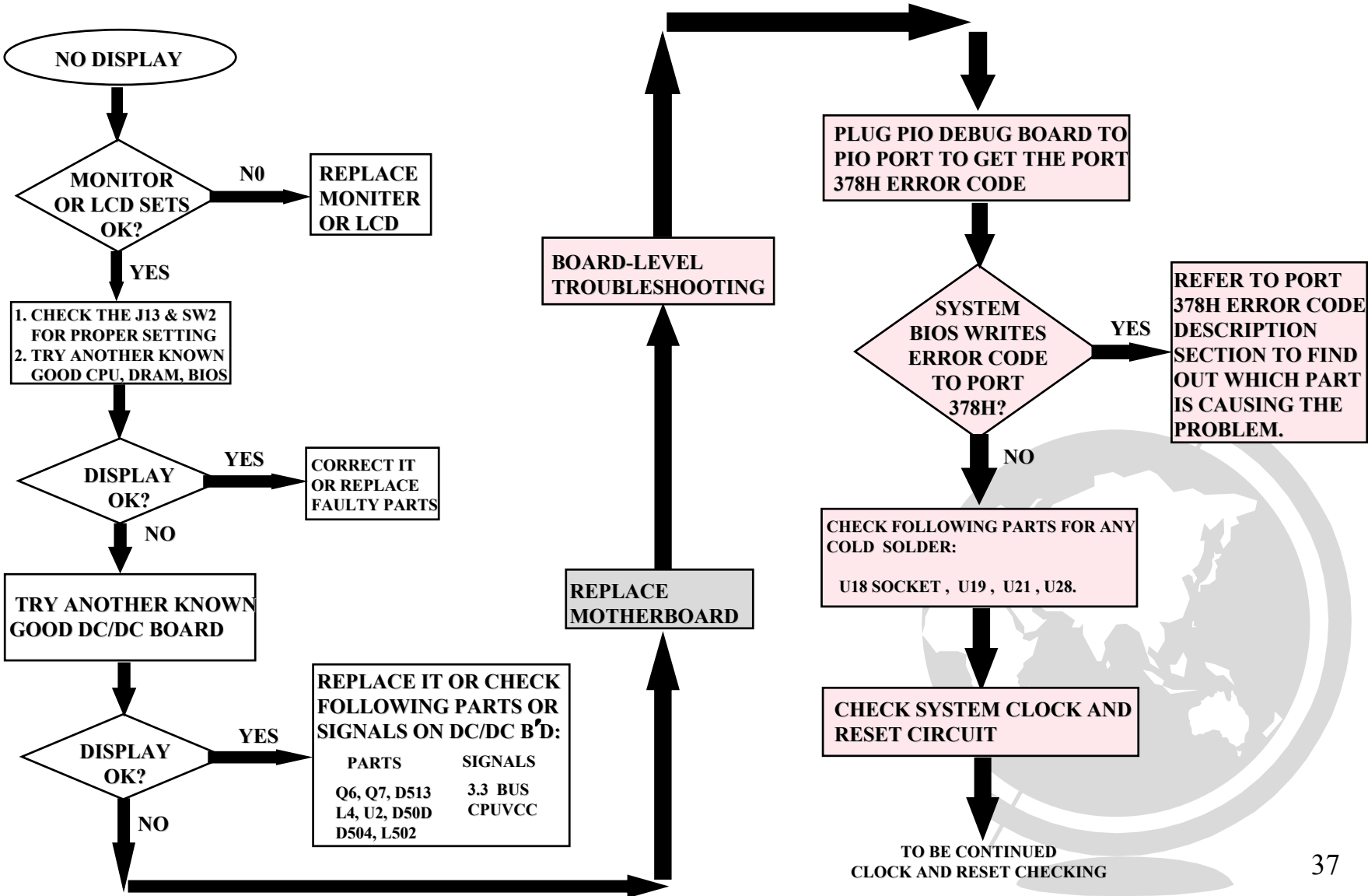
E. SYSTEM INSTALLED A BATTERY BUT

ICON LCD DISPLAYS SECONDARY BATTERY----- C11 OF D/D B'D TOUCH TO J507 OF M/B

8.2 NO DISPLAY (SYSTEM FAILURE)

SYMPTOM:

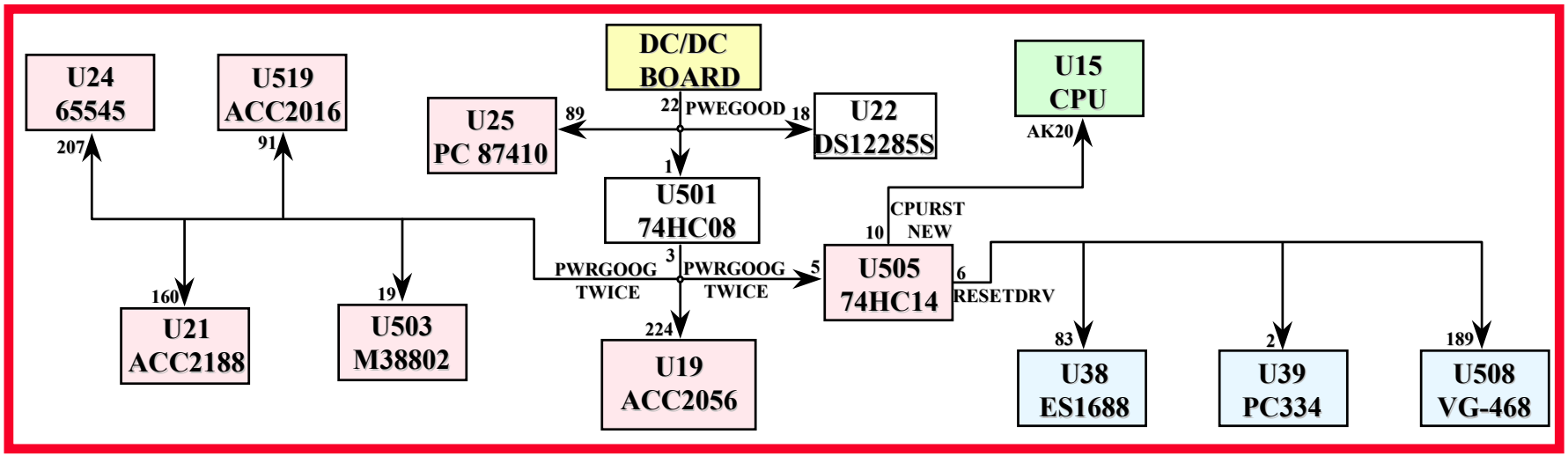
TURN ON THE POWER, NO SCREEN DISPLAY, LCD OR MONITOR IS GOOD.

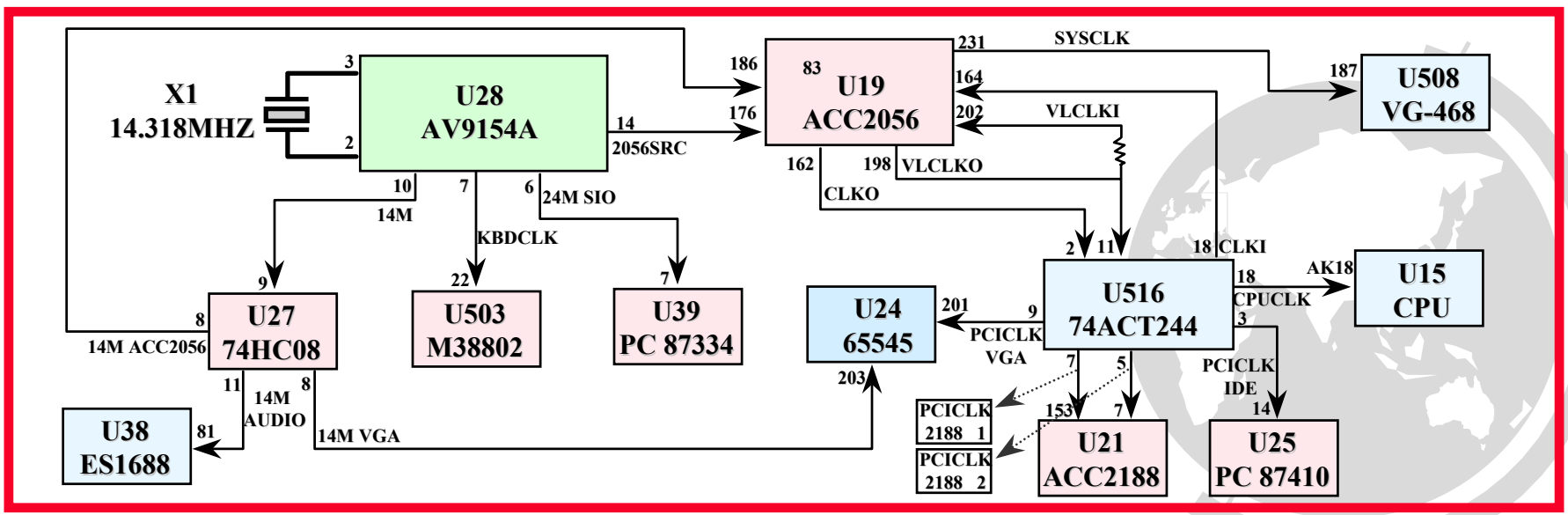


5021 N/B MAINTENANCE

8.2 NO DISPLAY (SYSTEM FAILURE)

*******CLOCK AND RESET CIRCUIT CHECKING*******



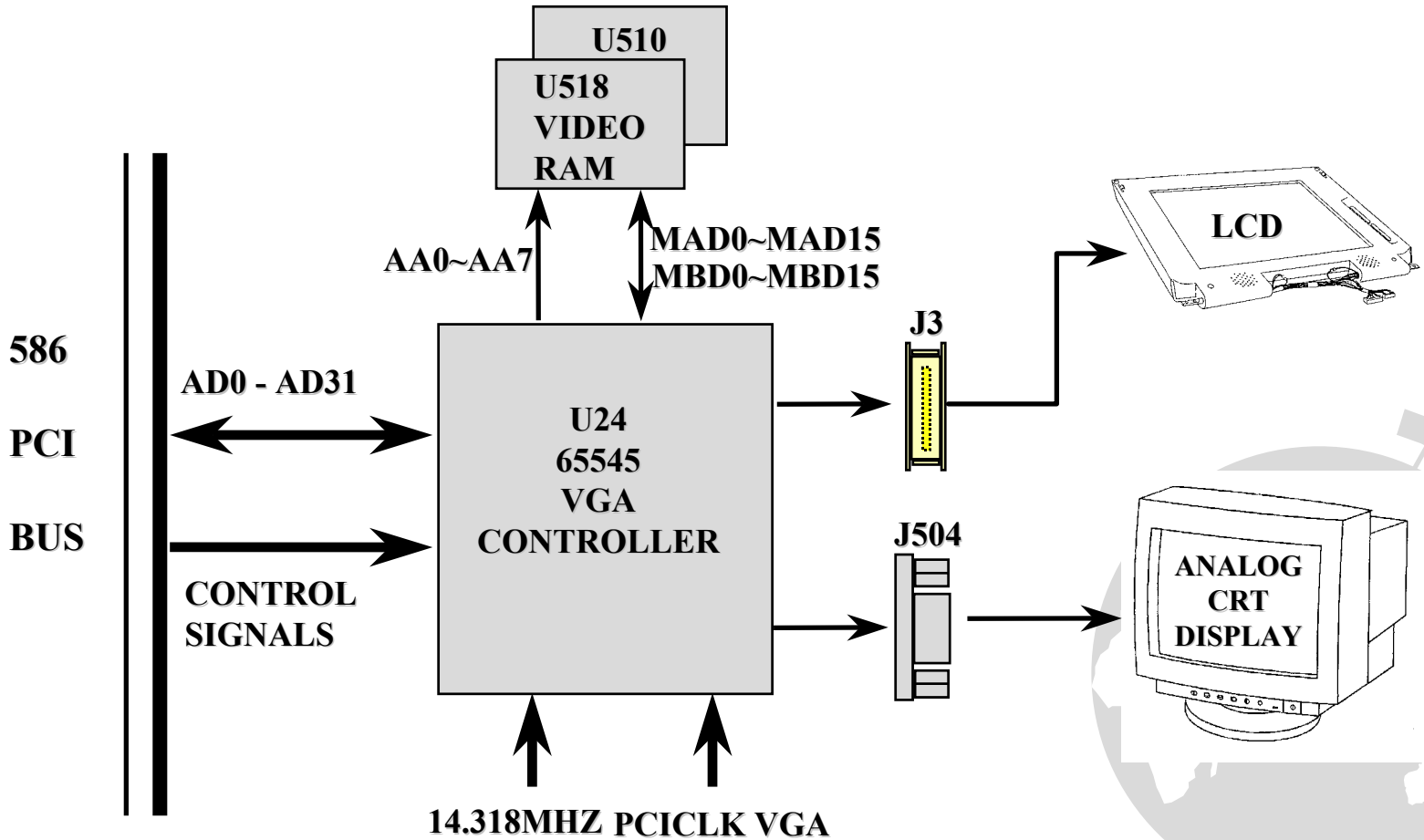


FIX HDD BUG:SYSTEM CANNOT WORK WITH CERTAIN BRAND OF HARD DISK.
SOLUTION: THE RESET SIGNAL FOR THE PCI IDE CONTROLLER U25 SHOULD BE PWRGOOD INSTEAD OF PWRGOOD TWICE

8.3 VGA CONTROLLER FAILURE

SYMPTOM:

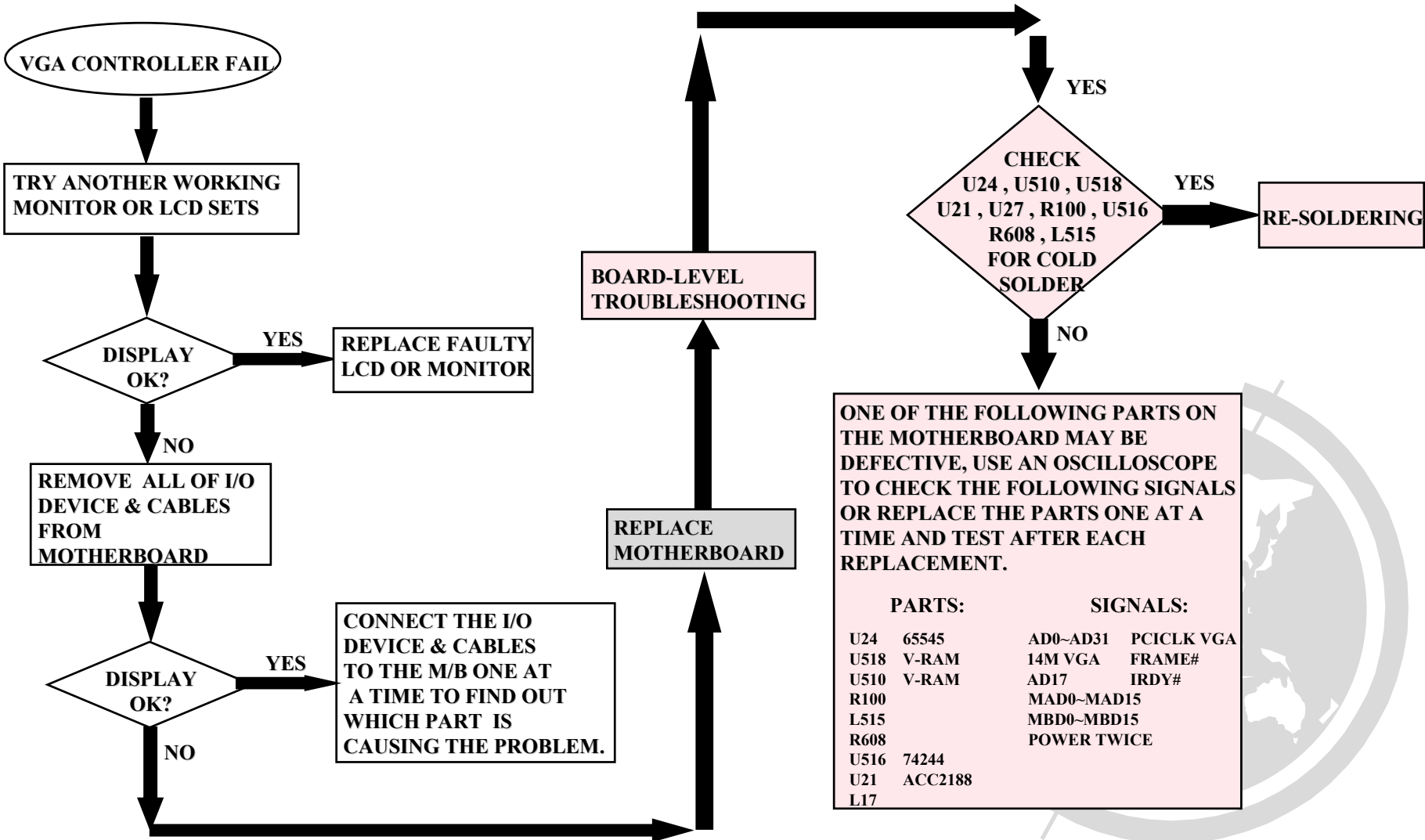
THERE IS NO SCREEN DISPLAY ON BOTH LCD AND MONITOR BUT SYSTEM PASSES POST TEST.



8.3 VGA CONTROLLER FAILURE

SYMPTOM:

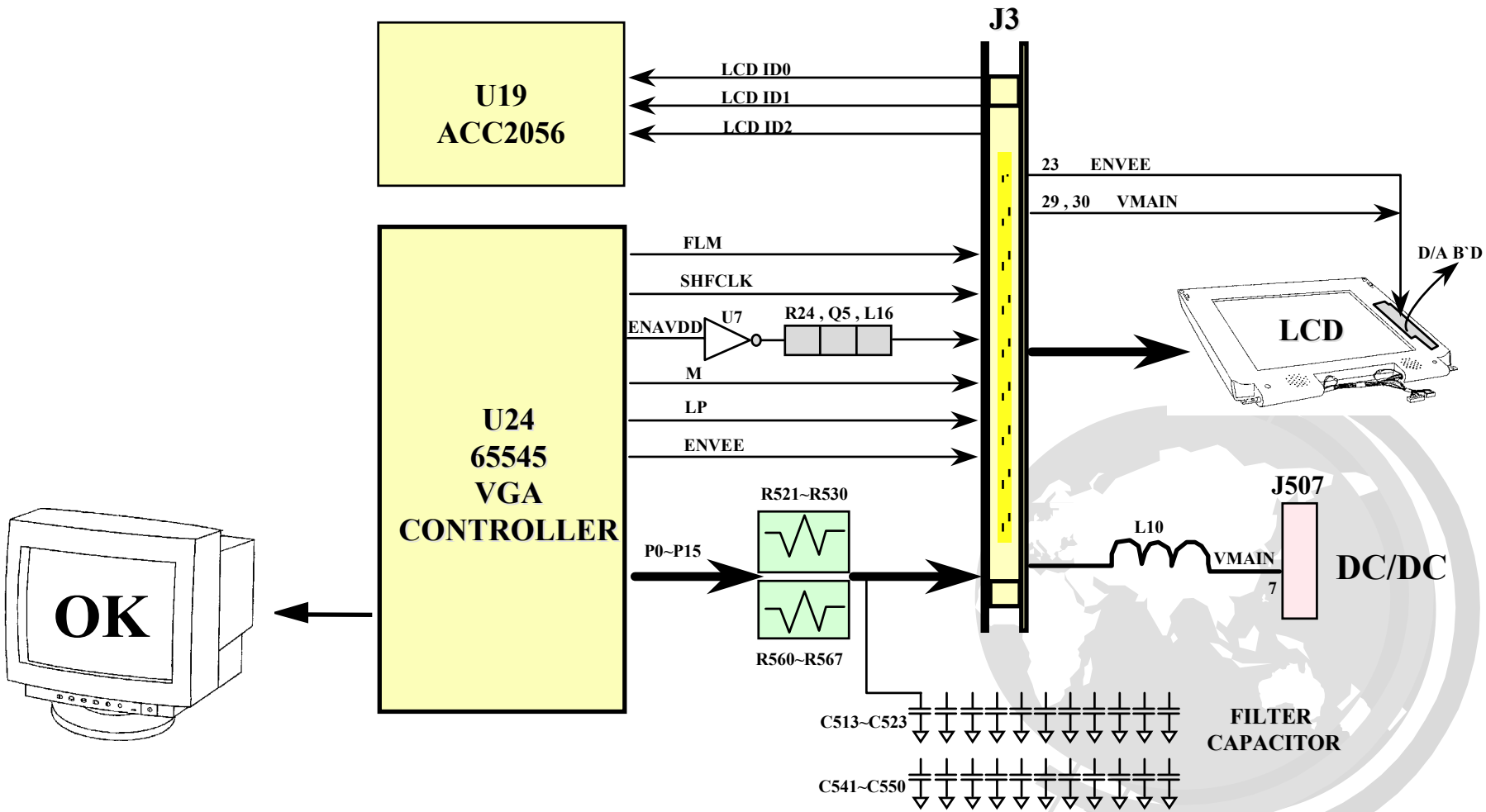
THERE IS NO SCREEN DISPLAY ON BOTH LCD AND MONITOR, BUT SYSTEM PASSES POST TEST.



8.4 LCD NO DISPLAY OR PICTURE ABNORMAL

SYMPTOM:

THE LCD SHOWS NOTHING OR ABNORMAL PICTURE, BUT IT IS OK FOR EXTERNAL MONITOR.



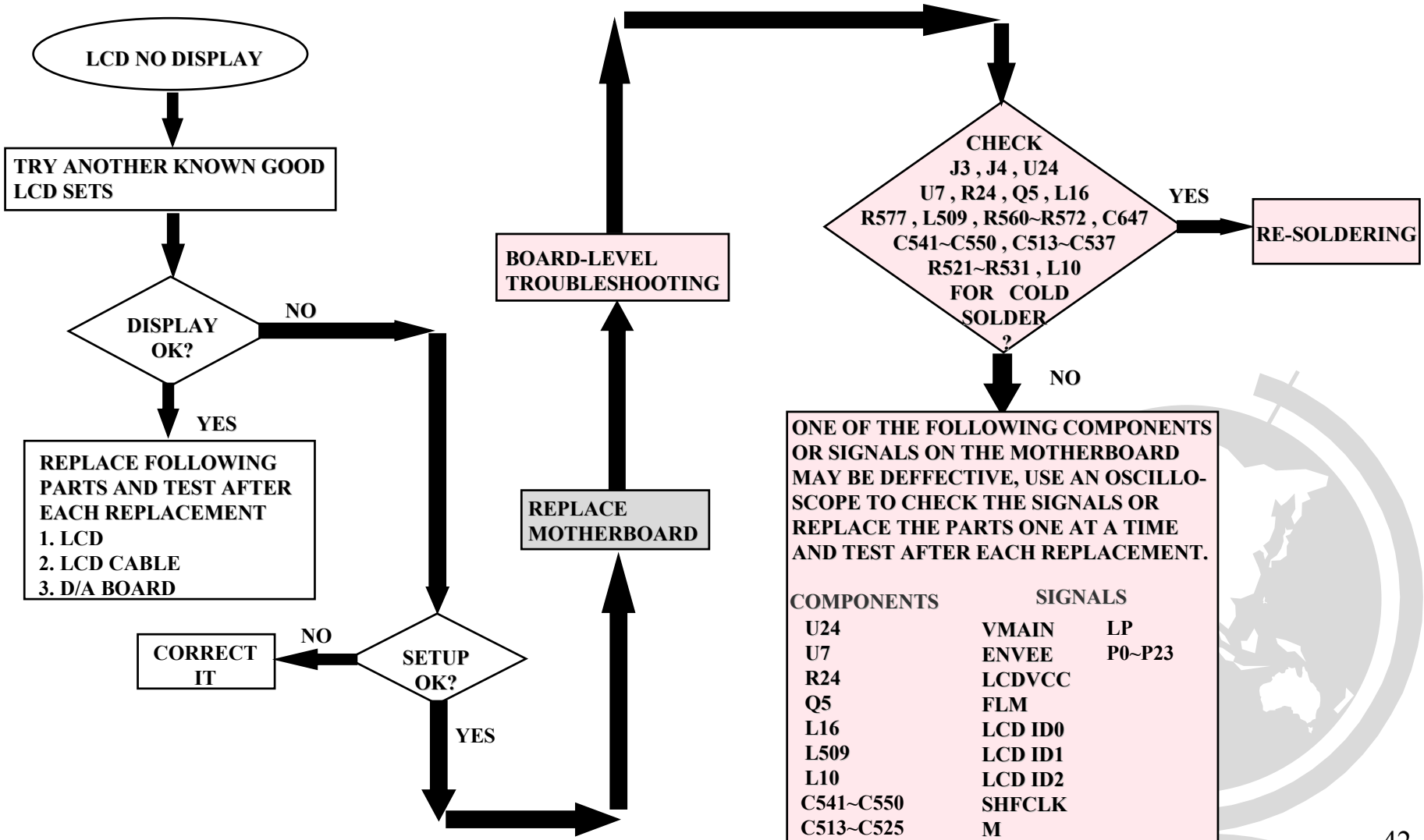
FIX LCD BUG:RED DOTS APPEAR ON SCREEN WHEN THE SYSTEM INSTALLED WITH SHARP TFT LCD.
SOLUTION: CHANGE CAPACITOR ON LCD SIGNAL M FROM 330PF TO 100PF.

5021 N/B MAINTENANCE

8.4 LCD NO DISPLAY OR PICTURE ABNORMAL

SYMPTOM:

THE LCD SHOWS NOTHING OR ABNORMAL PICTURE, BUT IT IS OK FOR EXTERNAL MONITOR.

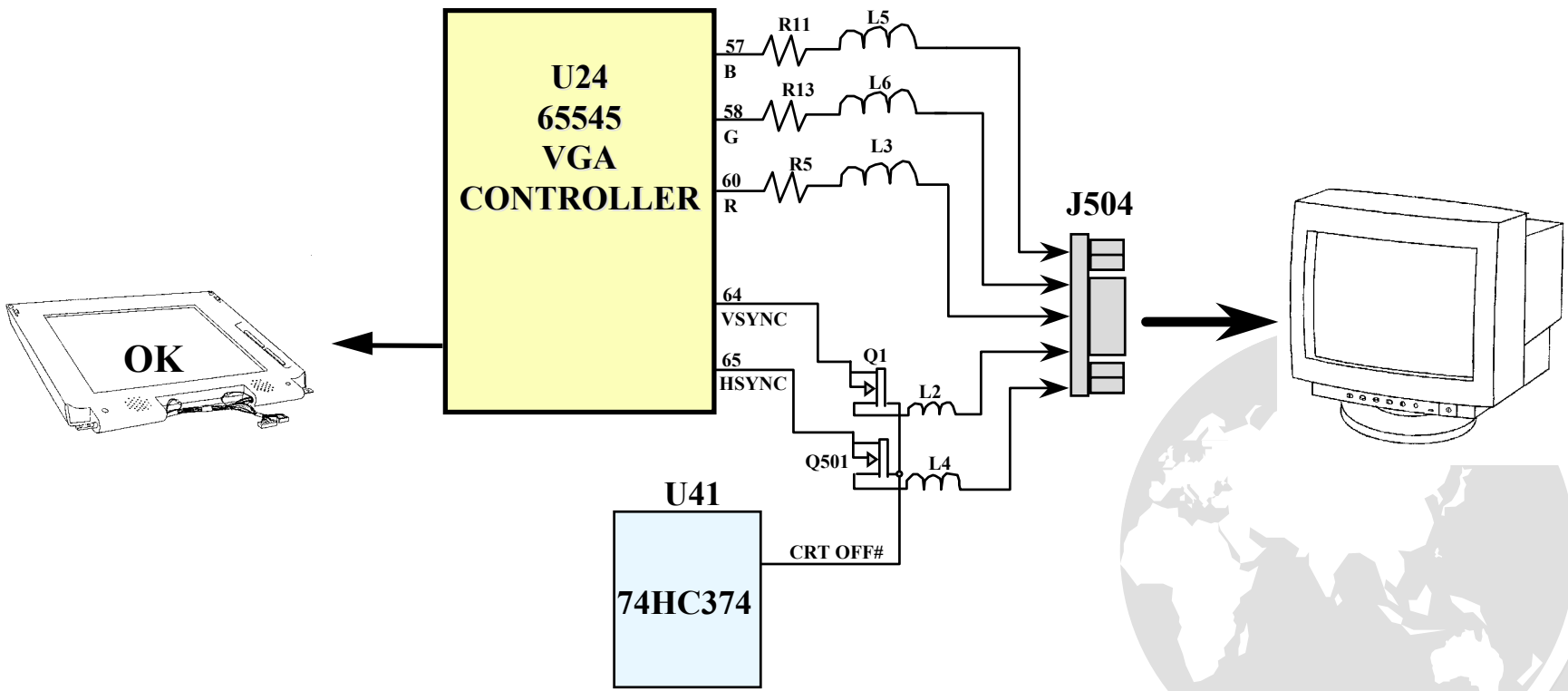


5021 N/B MAINTENANCE

8.5 EXTERNAL MONITOR NO DISPLAY OR COLOR ABNORMAL

SYMPTOM:

THE CRT MONITOR SHOWS NOTHING OR ABNORMAL COLOR, BUT IT IS OK FOR LCD.

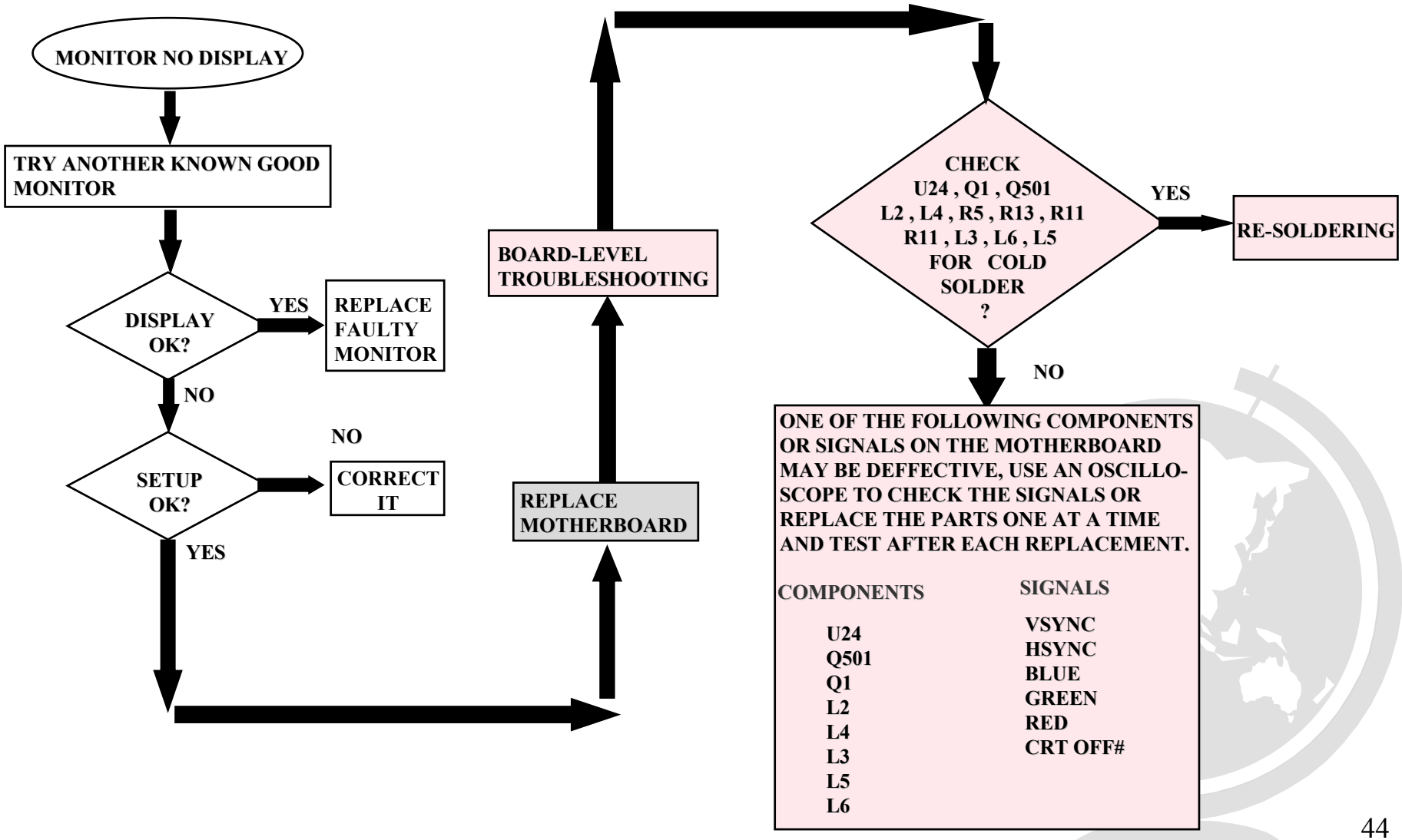


5021 N/B MAINTENANCE

8.5 EXTERNAL MONITOR NO DISPLAY OR COLOR ABNORMAL

SYMPTOM:

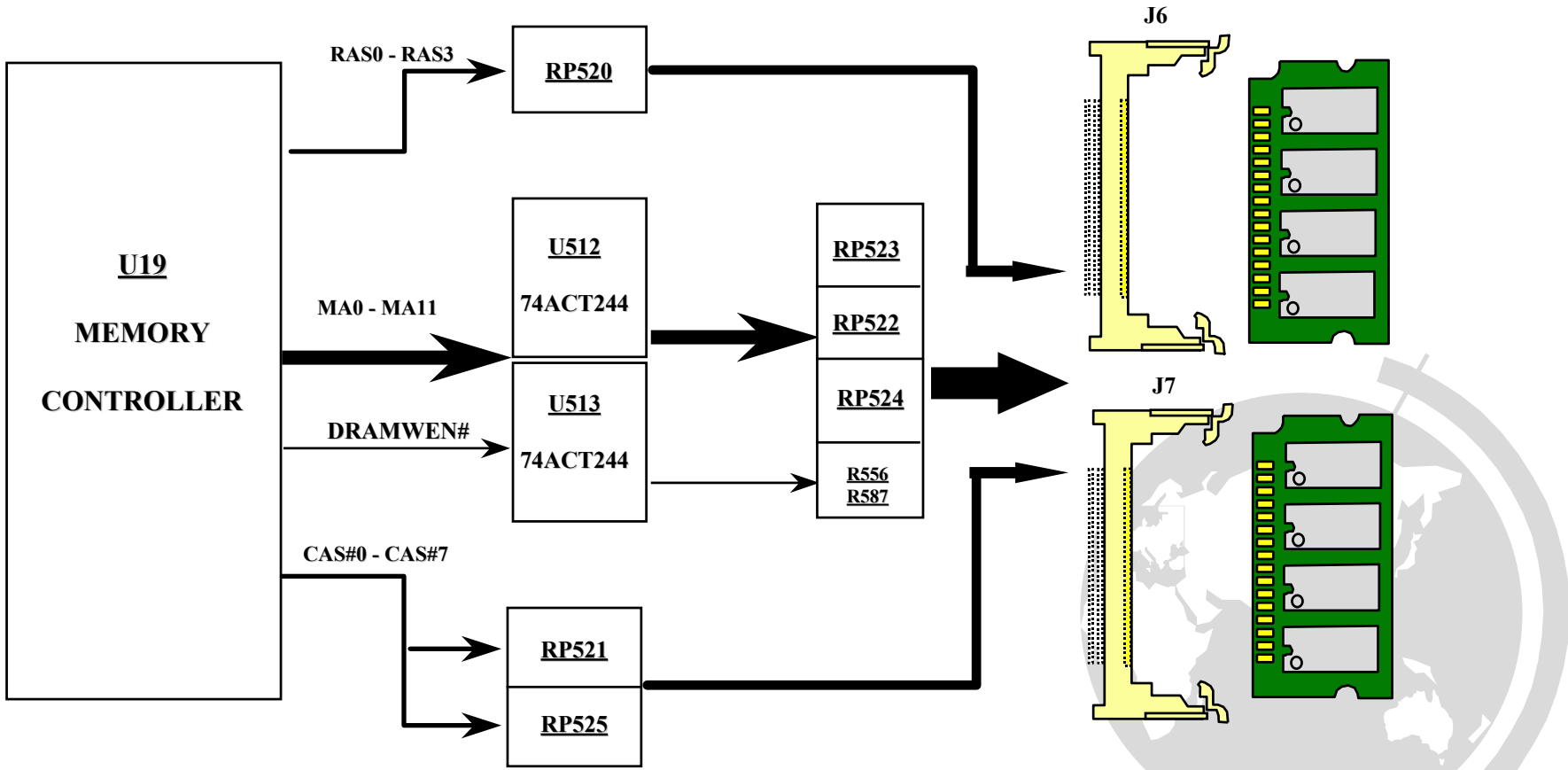
THE CRT MONITOR SHOWS NOTHING OR ABNORMAL COLOR, BUT IT IS OK FOR LCD.



8.6 MEMORY TEST ERROR

SYMPTOM:

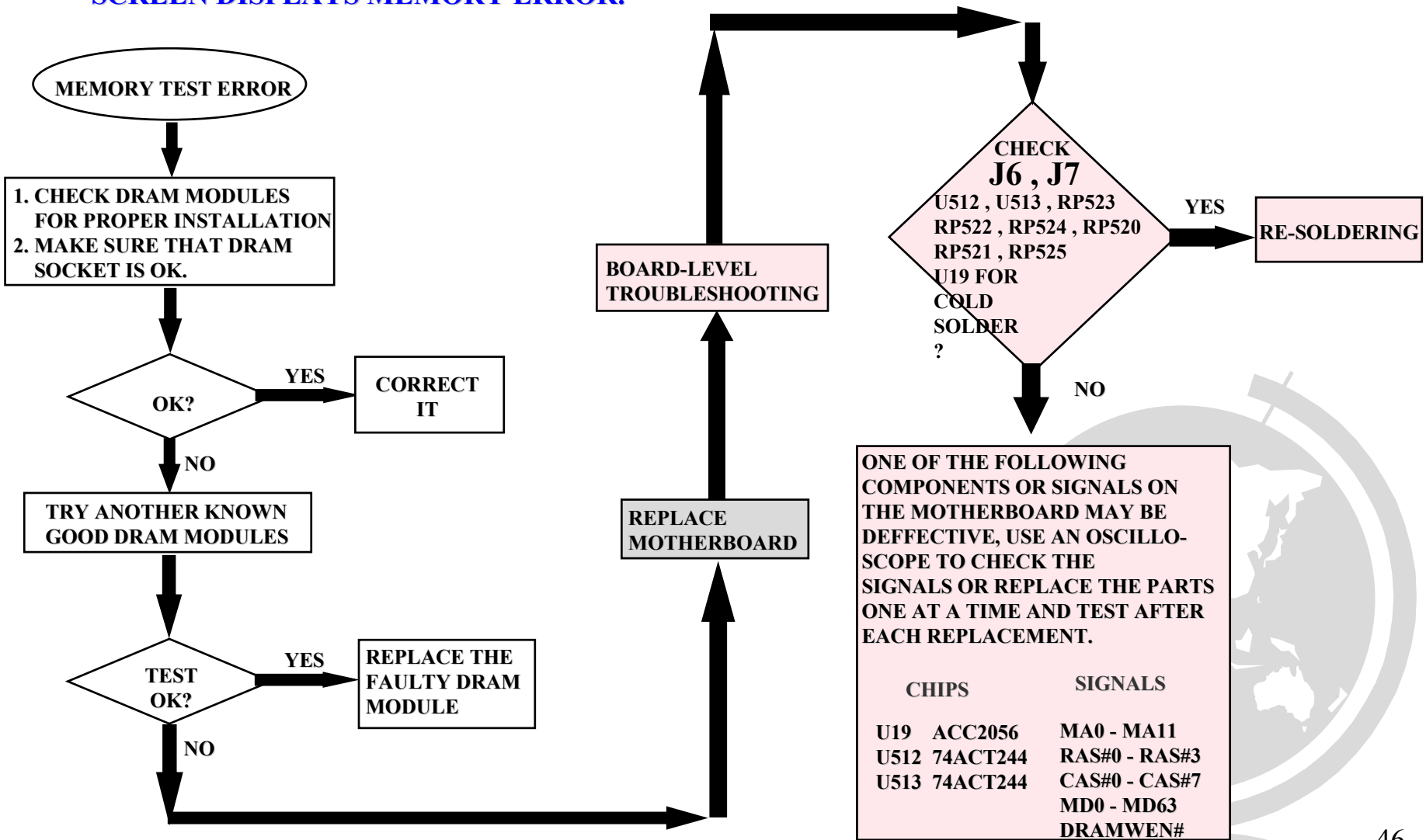
PIO DEBUG BOARD SHOWS THE PORT 378H ERROR CODE IS STOPPED AT 09H, 0AH OR THE SCREEN DISPLAYS MEMORY ERROR.



8.6 MEMORY TEST ERROR

SYMPTOM:

PIO DEBUG BOARD SHOWS THE PORT 378H ERROR CODE IS STOPPED AT 09H, 0AH OR THE SCREEN DISPLAYS MEMORY ERROR.

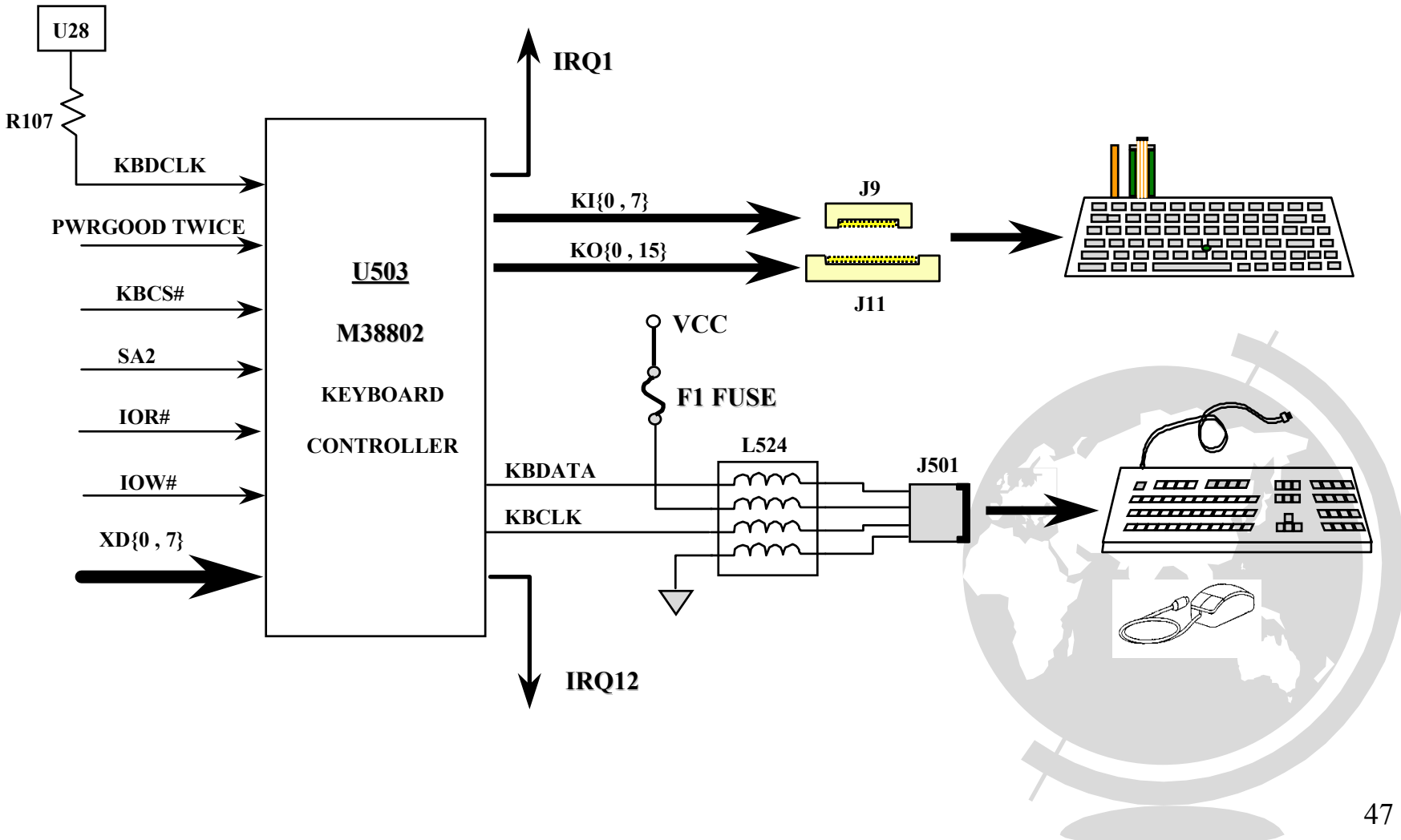


5021I N/B MAINTENANCE

8.7 KEYBOARD TEST ERROR (INCLUDING EXTERNAL KEYBOARD & PS/2 MOUSE)

SYMPTOM:

SCREEN DISPLAY KEYBOARD ERROR OR WOULD NOT RESPOND AT ALL WHEN A KEY IS PRESSED .

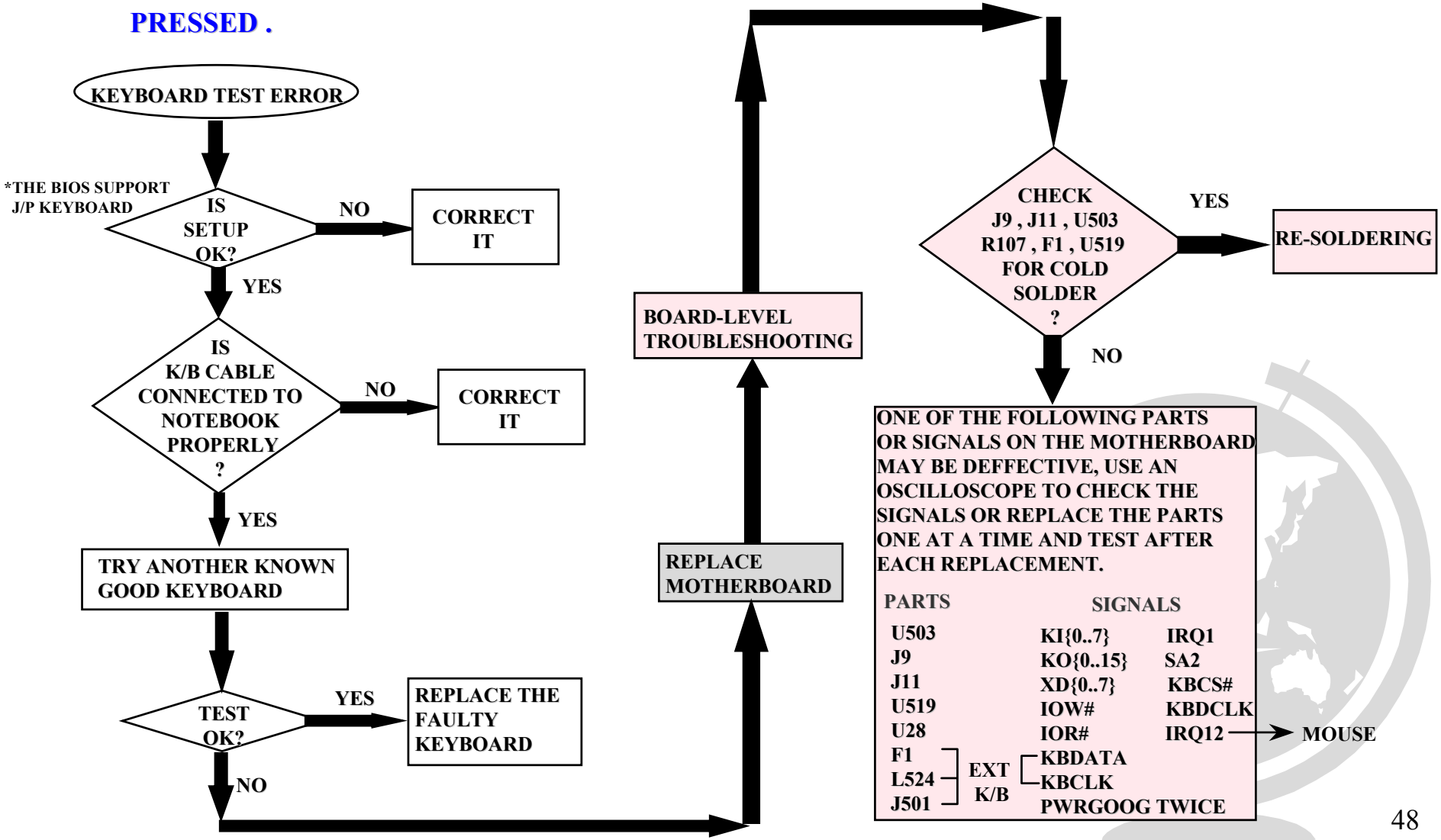


5021I N/B MAINTENANCE

8.7 KEYBOARD TEST ERROR (INCLUDING EXTERNAL KEYBOARD & PS/2 MOUSE)

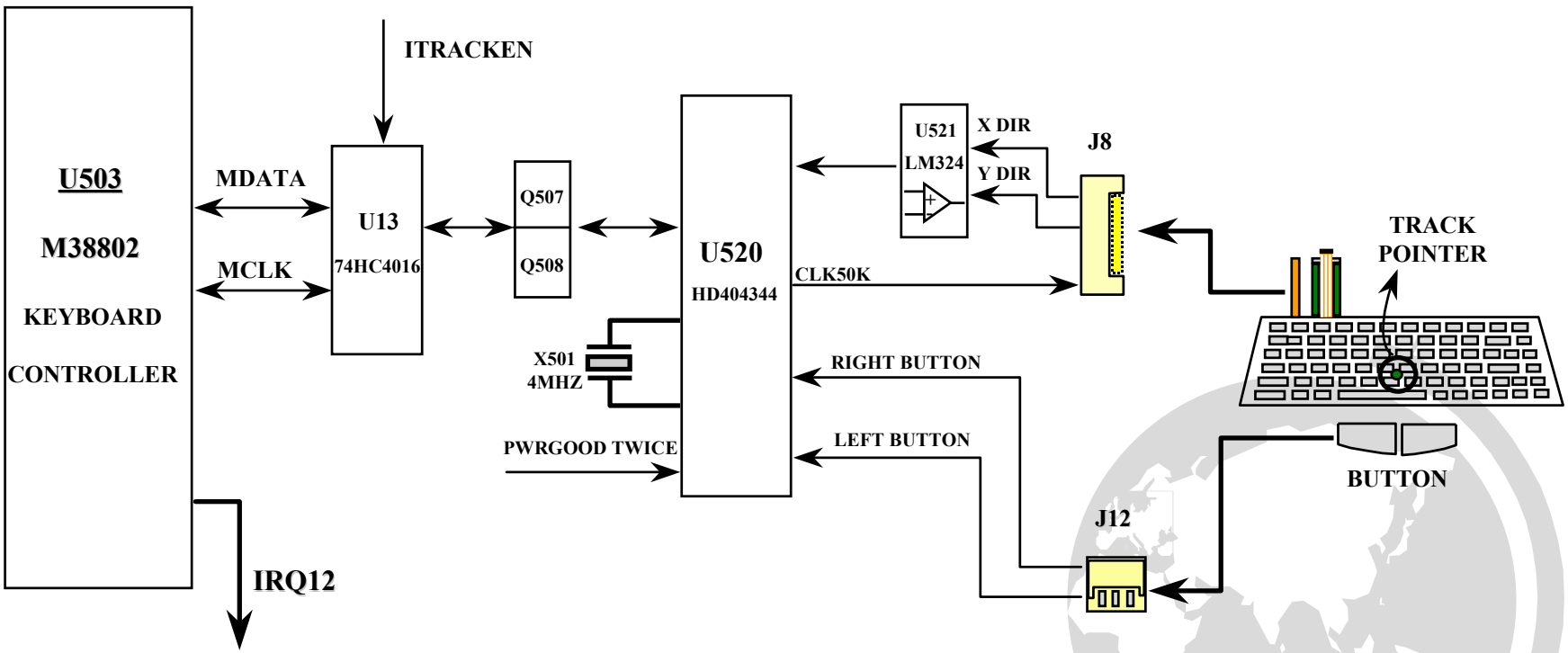
SYMPTOM:

SCREEN DISPLAY KEYBOARD ERROR OR WOULD NOT RESPOND AT ALL WHEN A KEY IS PRESSED .



8.8 TRACK POINTER TEST ERROR

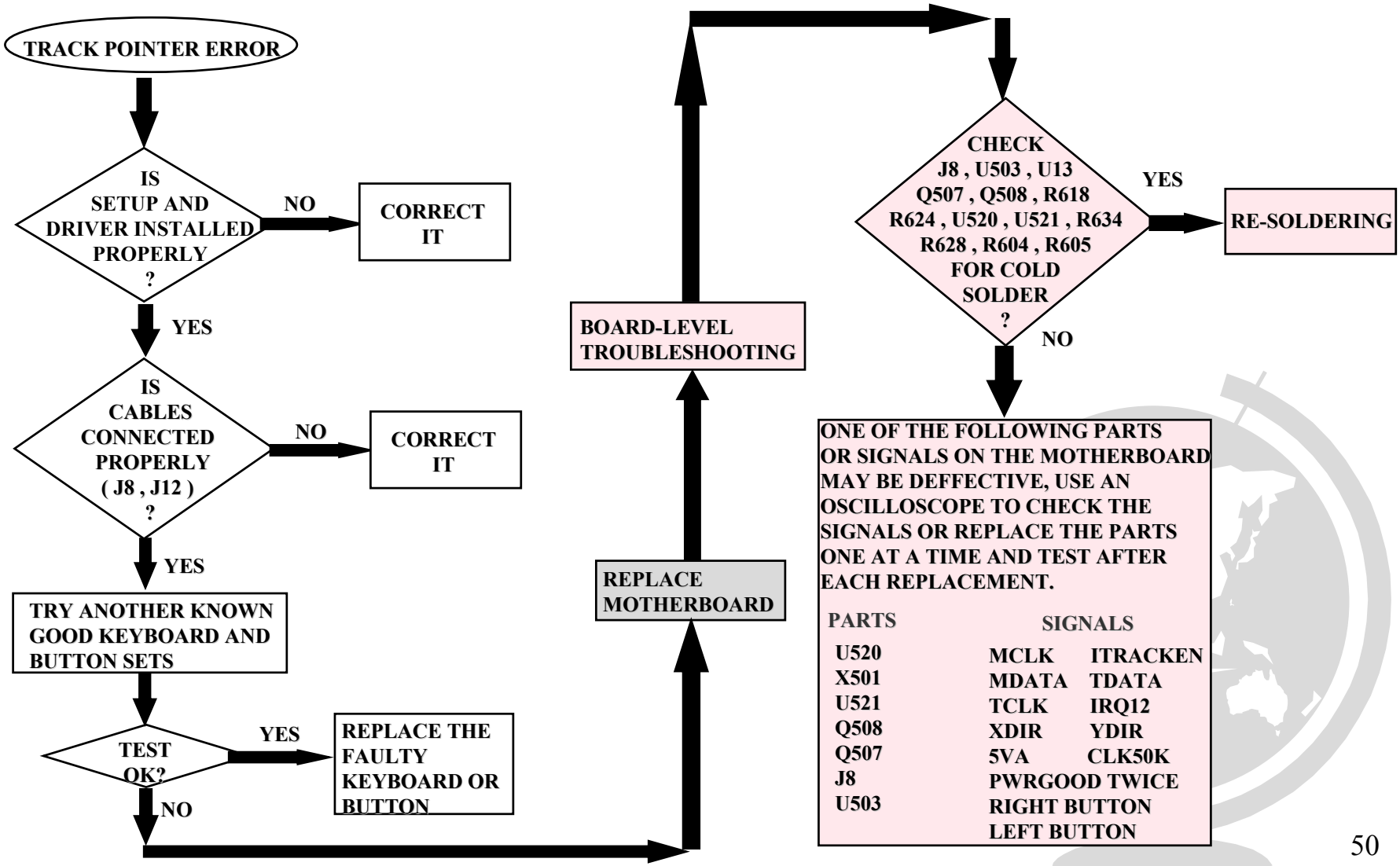
SYMPTOM:
AN ERROR DISPLAY OCCURS WHEN THE TRACK POINTER IS ENABLED.



FIX BUG: KEEP OUT NOISE FROM ENTERING THE CONTROLLER OF THE TRACK POINT.
SOLUTION: CHANGE C604 FROM 3.3U TO 47U

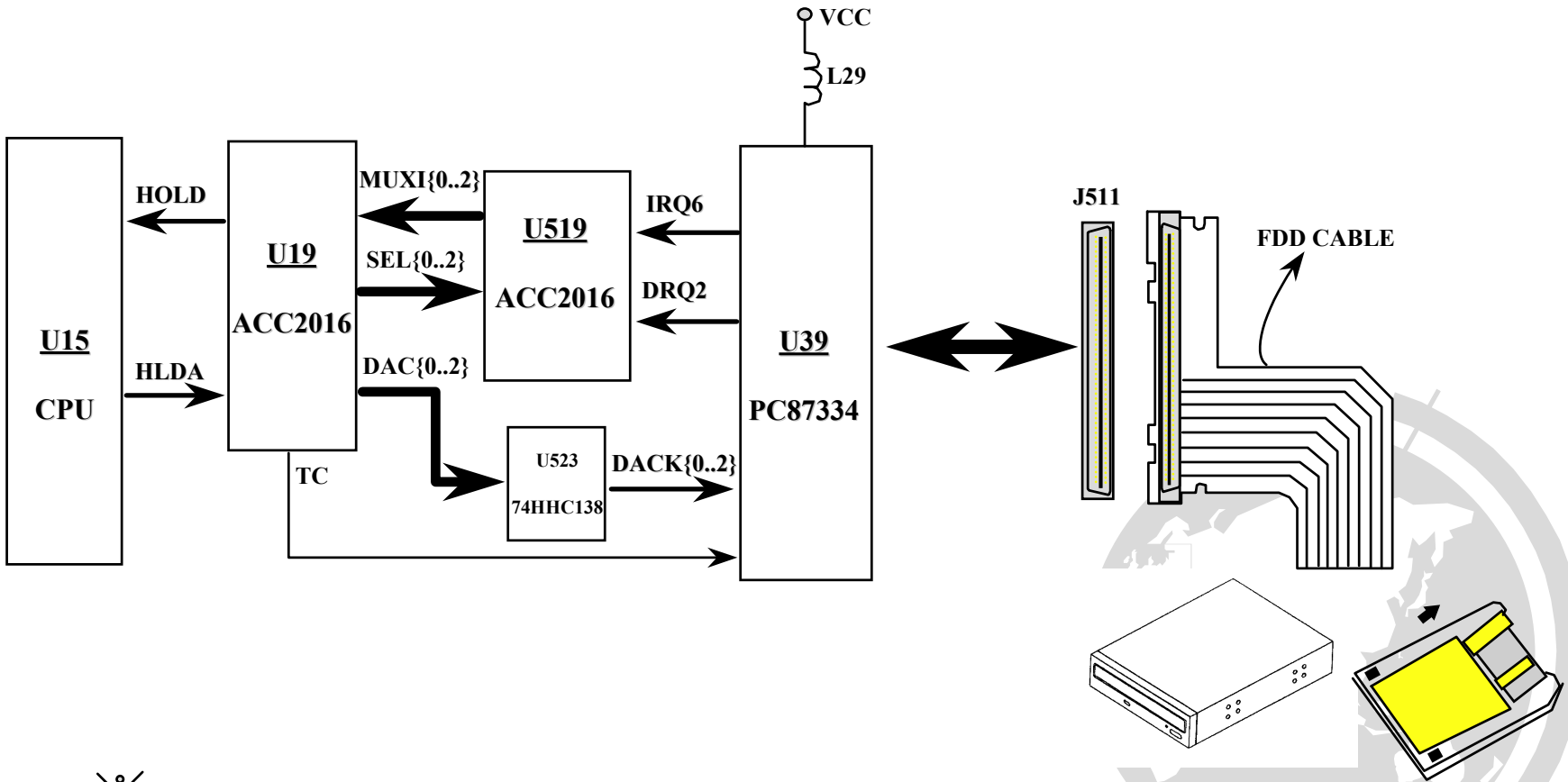
8.8 TRACK POINTER TEST ERROR

SYMPTOM:
AN ERROR DISPLAY OCCURS WHEN THE TRACK POINTER IS ENABLED.



8.9 DISKETTE DRIVE TEST ERROR

SYMPTOM:
ERROR MESSAGE OCCURS WHILE LOADING DATA FROM DISK TO SYSTEM.



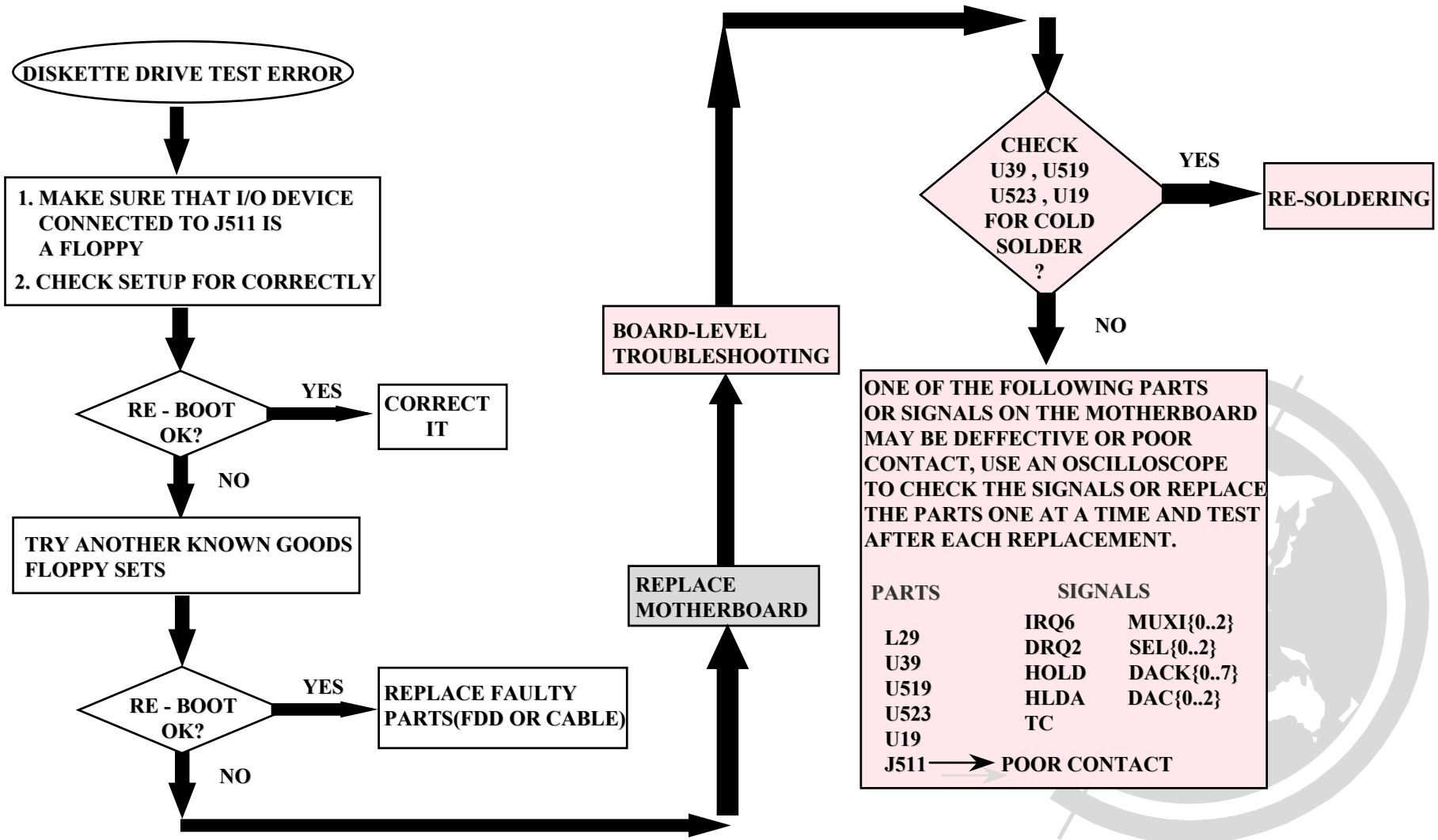
FIX BUG: THE SYSTEM WILL HANG UP WHEN BOOTTING FROM FDD UNDER PENTIUM 90 CPU IS INSTALLED AND PENTIUM CACHE IS ENABLED.

CAUSED BY:POOR DRIVE ABILITY OF CPU CLOCK GENERATOR,ADD A BUFFER TO ENHANCE THE CPU CLOCK DRIVE ABILITY ARE NEEDED.

SOLUTION: 1. LIFT R612 AND PLACE IT BETWEEN THE LEFT PAD OF R612 AND THE RIGHT PAD OF C642
2. RAISE PIN4 OF U516, CONNECT IT TO THE RIGHT PAD OF R612.

8.9 DISKETTE DRIVE TEST ERROR

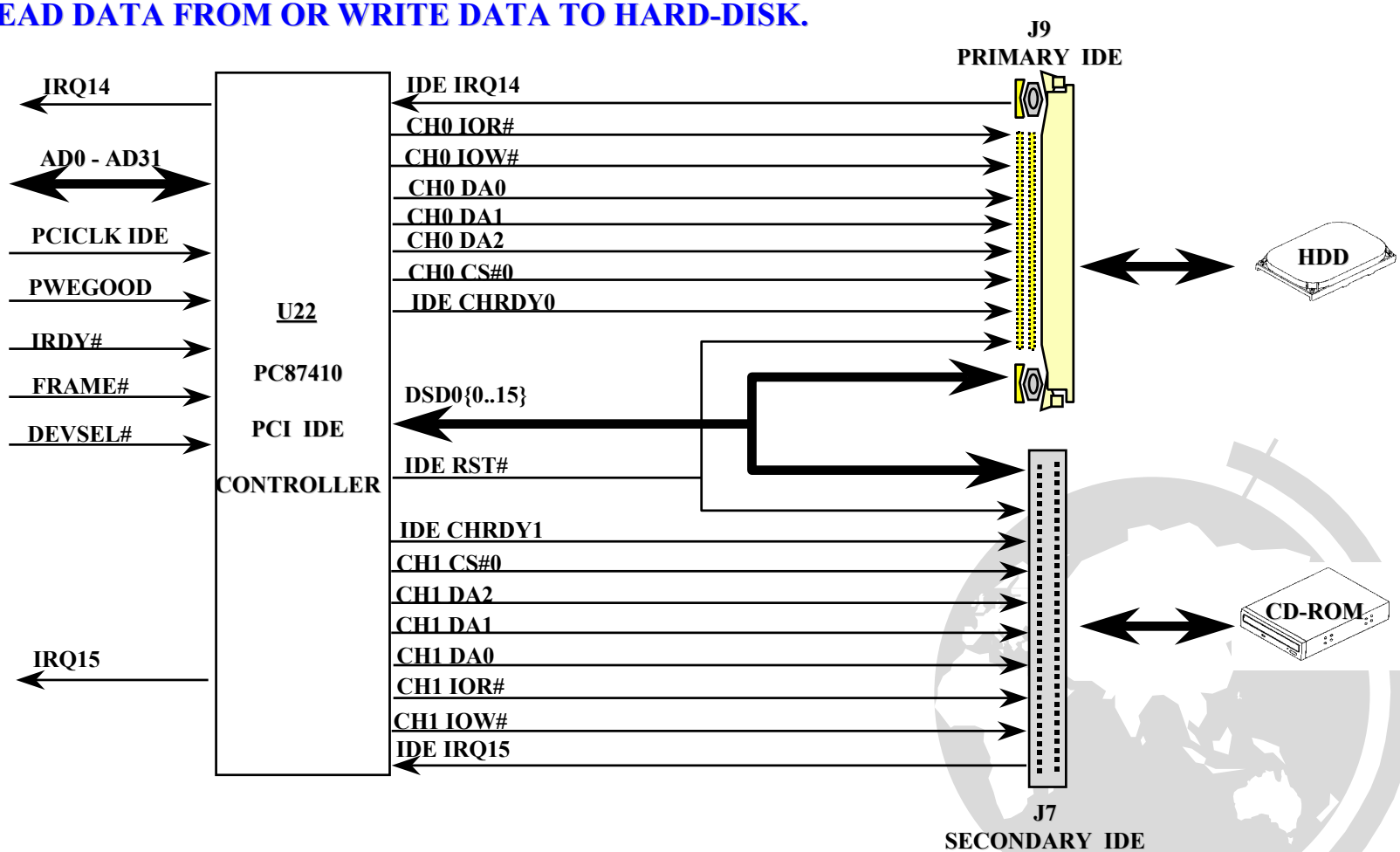
SYMPTOM:
ERROR MESSAGE OCCURS WHILE LOADING DATA FROM DISK TO SYSTEM.



8.10 HARD DRIVE OR CD-ROM TEST ERROR

SYMPTOM:

EITHER AN ERROR DISPLAY OCCURS, OR THE DRIVE SPINS CONTINUOUSLY, WHILE TRYING TO READ DATA FROM OR WRITE DATA TO HARD-DISK.



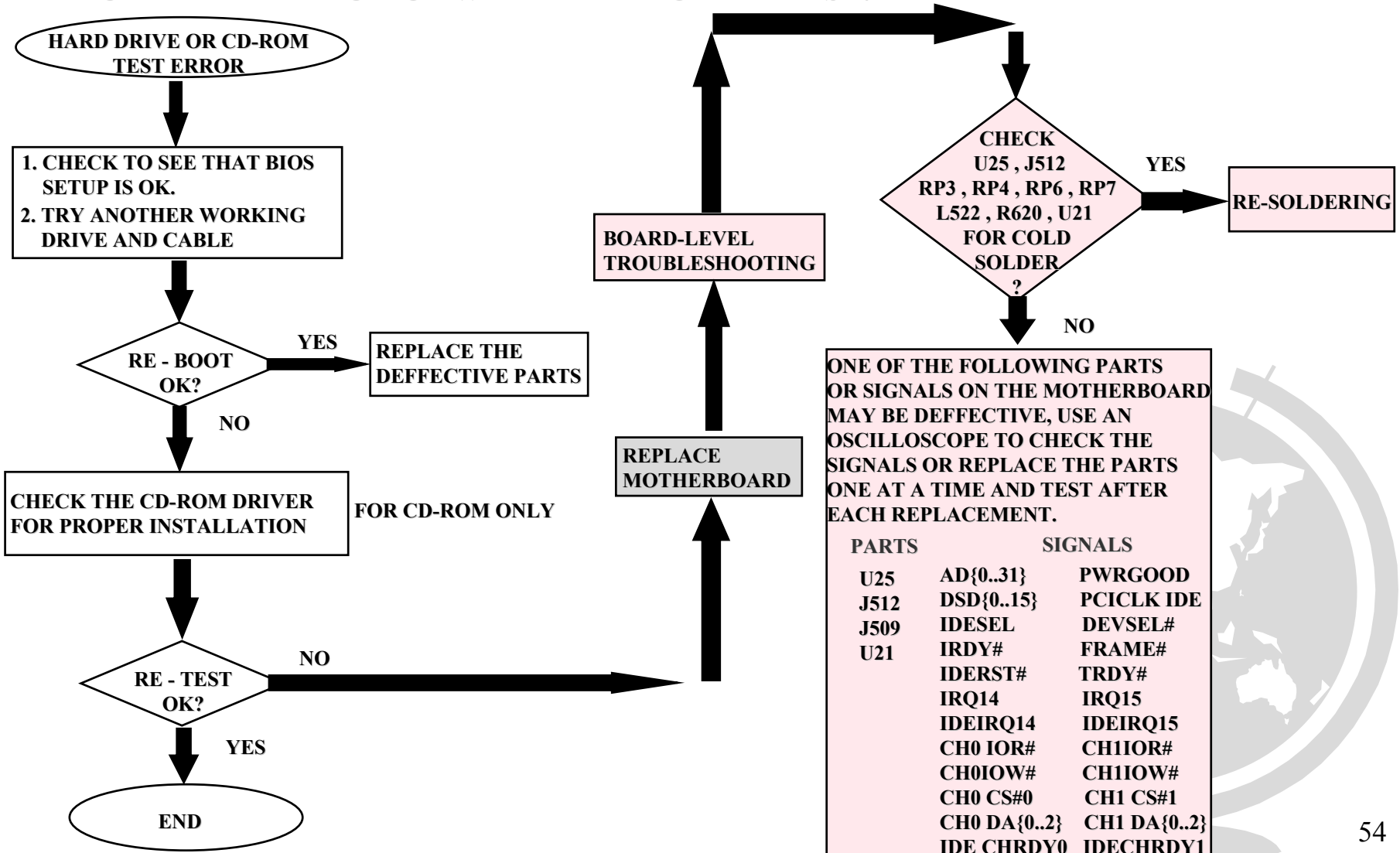
FIX BUG: SYSTEM WILL SEEK HDD FOR ABOUT 30 SECOND EVEN HDD IS NOT INSTALLED. .
SOLUTION: UPDATE SYSTEM BIOS FROM R1.06 TO R1.07

FIX BUG: CANNOT DETECT CD-ROM DRIVE UNDER WIN95.
SOLUTION: UTILITY DISKETTE FROM R03 TO R04.

8.10 HARD DRIVE OR CD-ROM TEST ERROR

SYMPTOM:

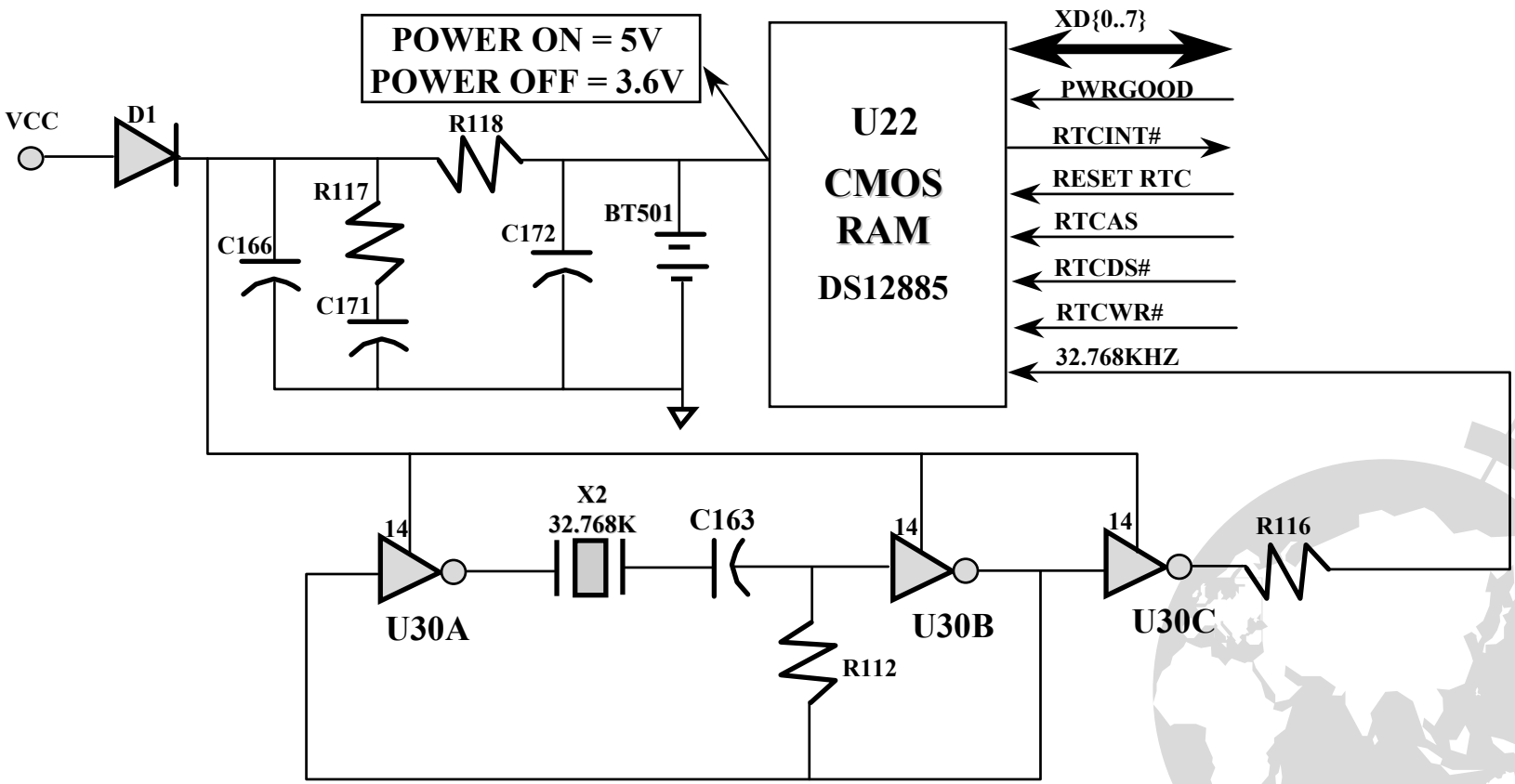
EITHER AN ERROR DISPLAY OCCURS, OR THE DRIVE SPINS CONTINUOUSLY, WHILE TRYING TO READ DATA FROM OR WRITE DATA TO HARD-DISK.



8.11 CMOS TEST ERROR

SYMPTOM:

1. ERROR CODE IS STOPEED AT 02H.
2. CMOS DATA LOST, OR TIME & DATE TOO FAST OR SLOW.



※ IMPROVE RELIABILITY: BECAUSE THE RTC BATTERY ONLY BE CHARGED UNDER SYSTEM IS POWER ON, SO TO AVOID DATA LOST FROM CMOS, SHORTEN RTC BACKUP BATTERY CHARGING TIME ARE NEEDED.

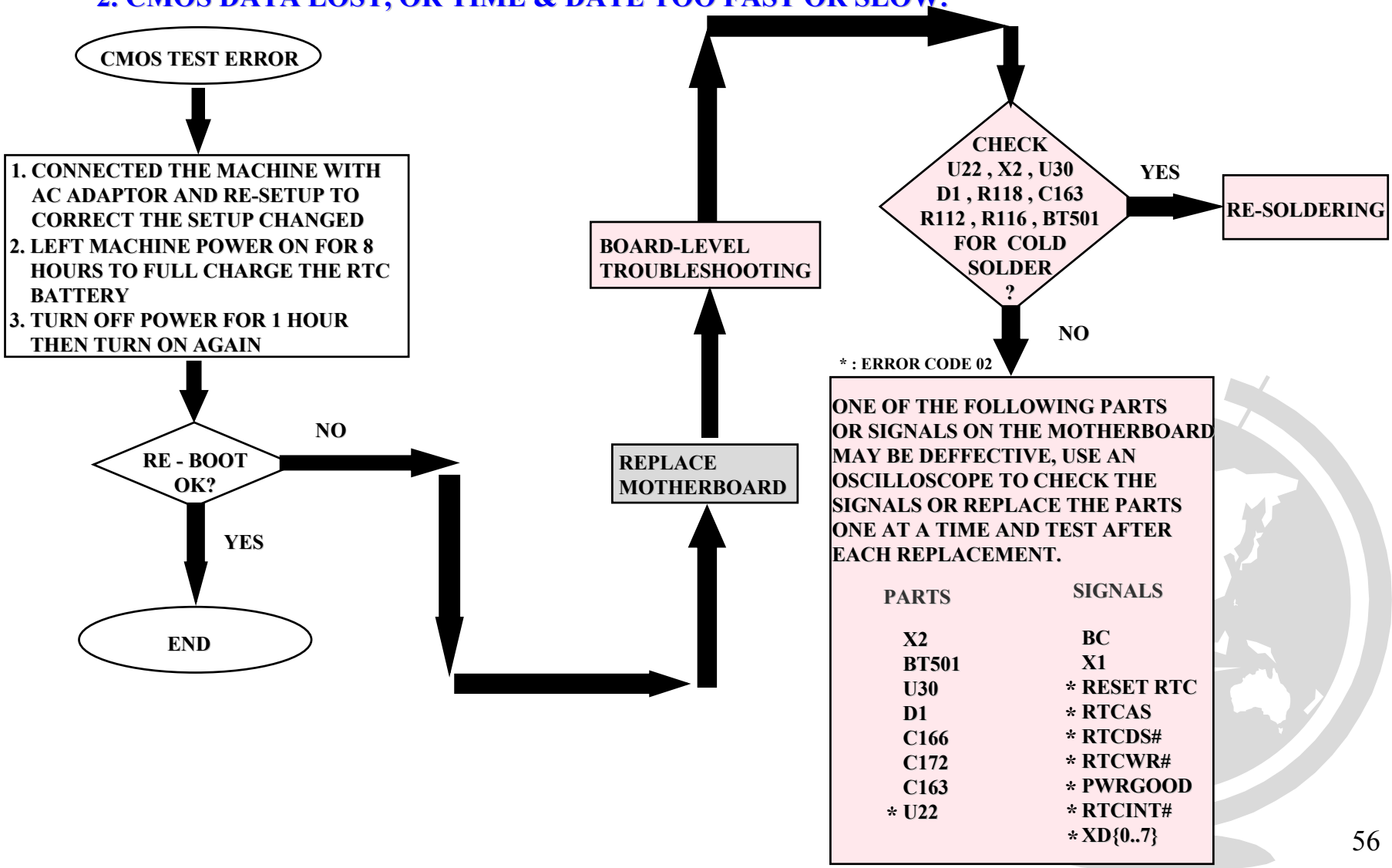
SOLUTION: CHANGE R118 FROM 1K TO 330OHM TO INCREASE THE CHARGING CURRENT TO FULL CHARGE THE RTC BATTERY.

IF RTC BATTERY IS VERY EMPTY IT'S MIGHT TAKE 1 OR 2 DAYS TO FULL CHARGE THE RTC BATTERY

8.8 CMOS TEST ERROR

SYMPTOM:

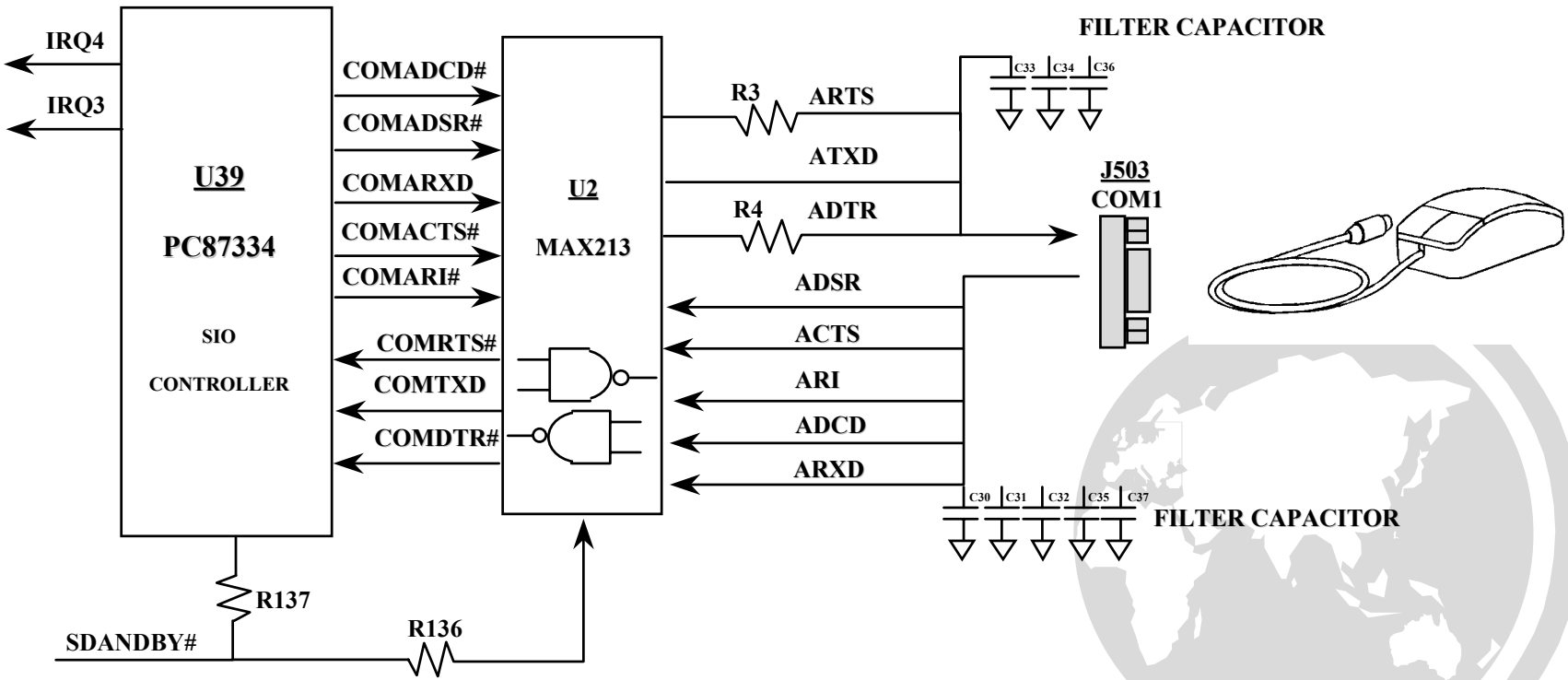
1. ERROR CODE IS STOPEED AT 02H.
2. CMOS DATA LOST, OR TIME & DATE TOO FAST OR SLOW.



8.12 SIO PORT TEST ERROR

SYMPTON:

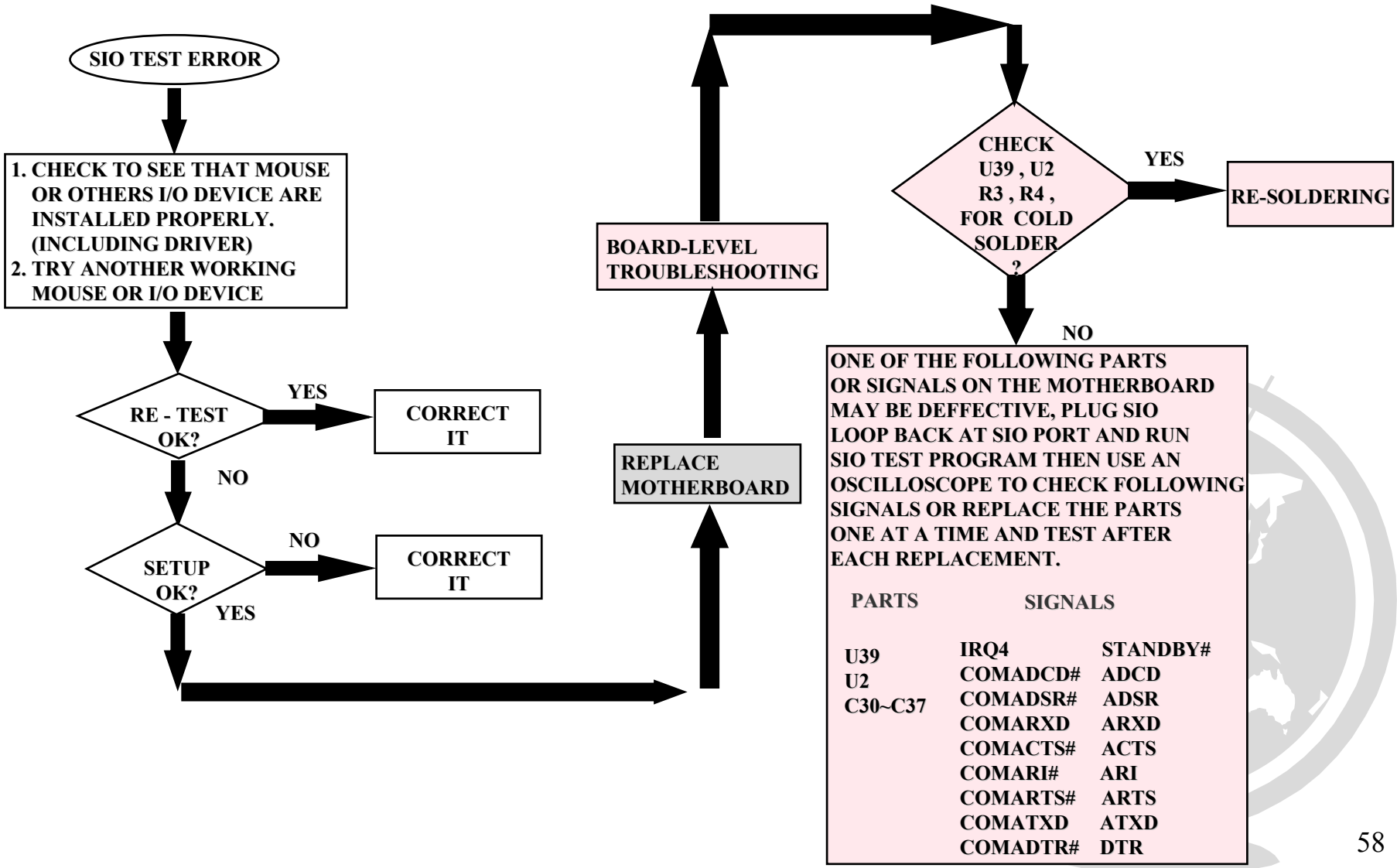
AN ERROR DISPLAY OCCURS WHEN A MOUSE OR OTHER I/O DEVICE IS INSTALLED.



8.12 SIO PORT TEST ERROR

SYMPTON:

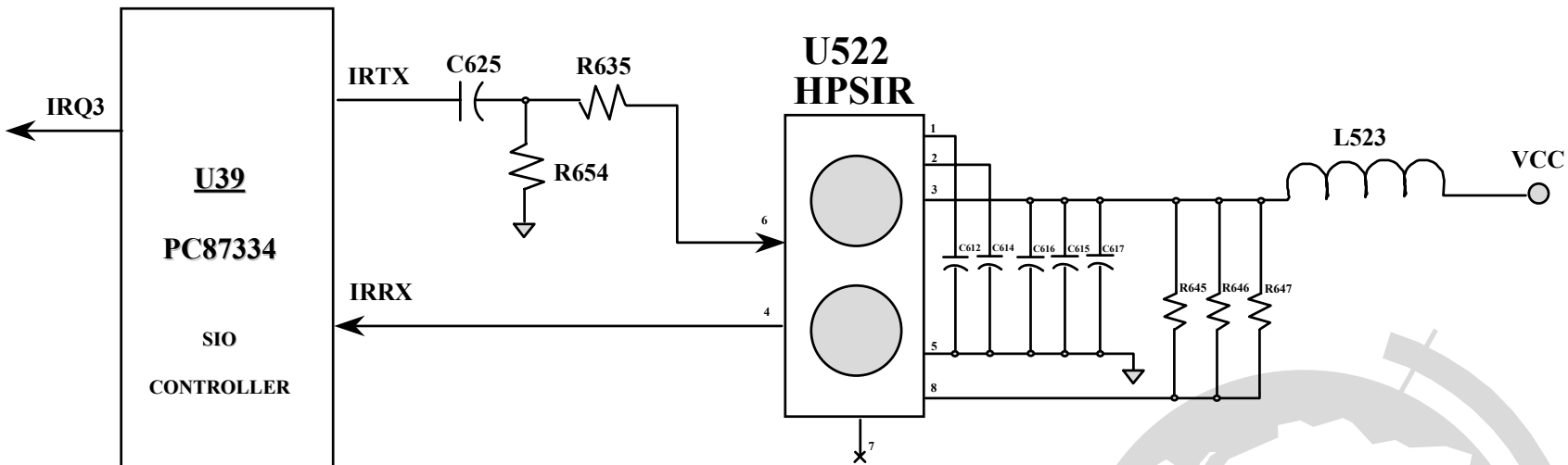
AN ERROR DISPLAY OCCURS WHEN A MOUSE OR OTHER I/O DEVICE IS INSTALLED.



8.13 SIR PORT TEST ERROR

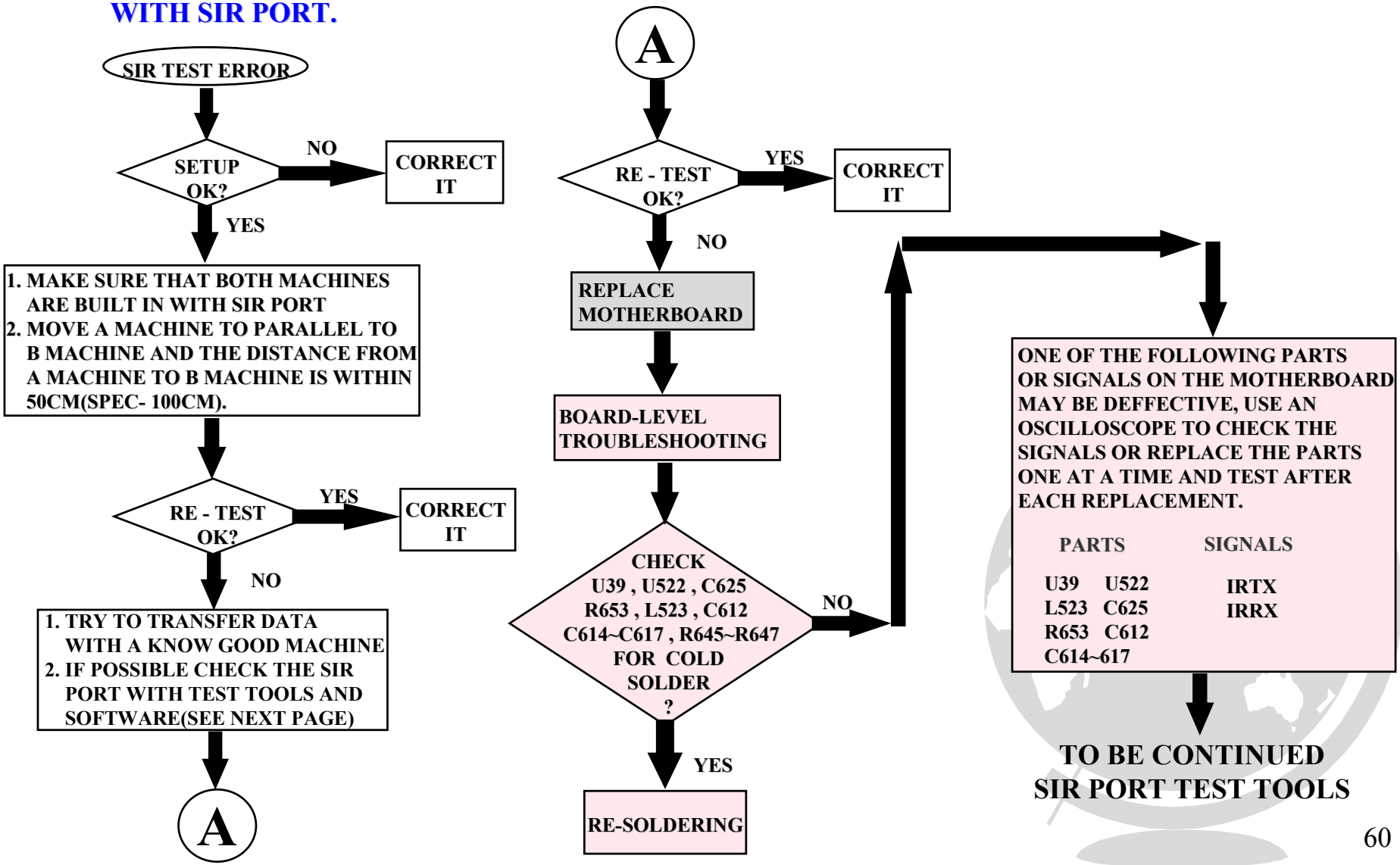
SYMPTON:

AN ERROR DISPLAY OCCURS WHEN TRANSFERRING DATA WITH SIR PORT.



8.13 SIR PORT TEST ERROR

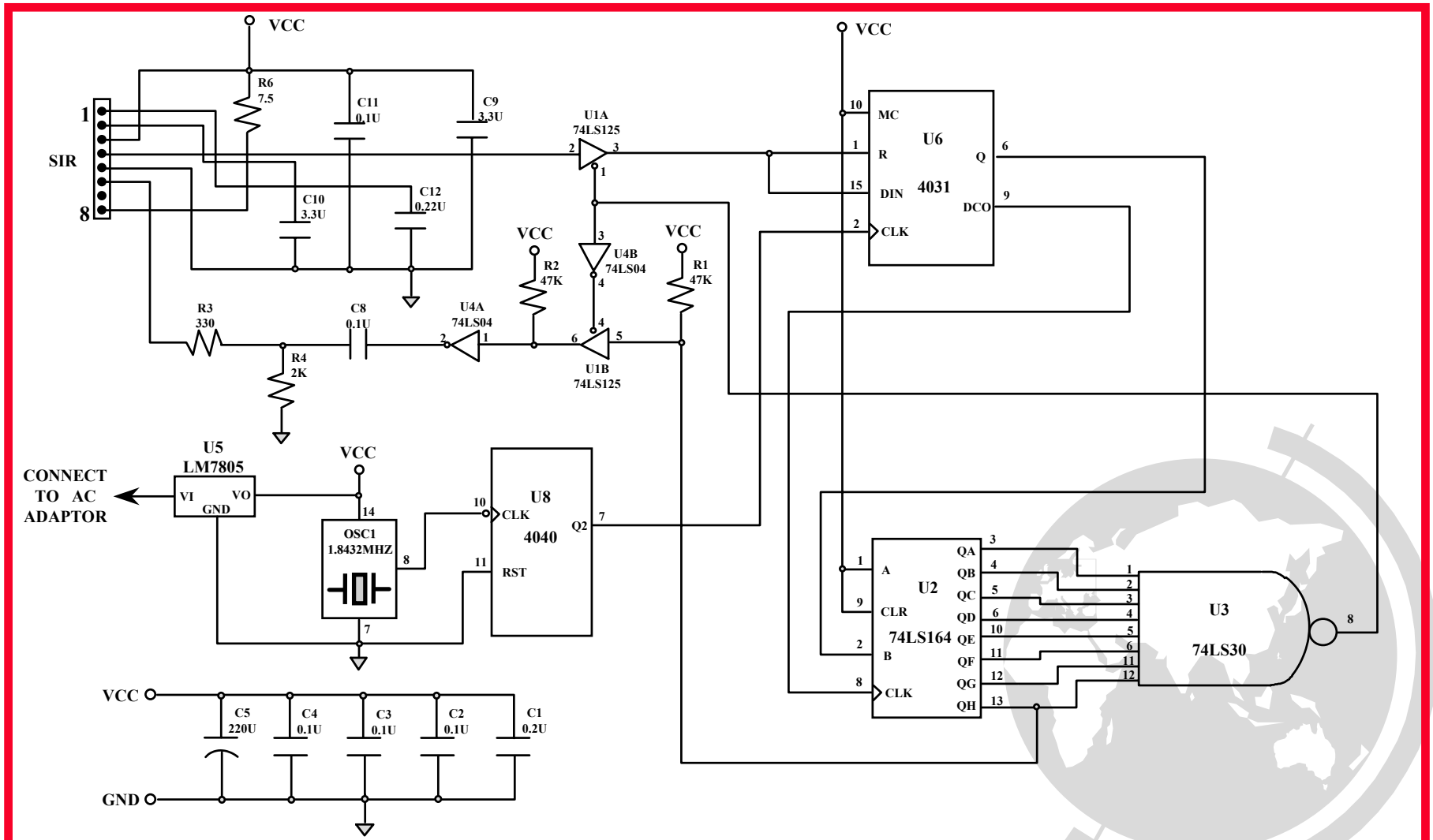
SYMPTON:
AN ERROR DISPLAY OCCURS WHEN TRANSFERRING DATA FROM A MACHINE TO B MACHINE WITH SIR PORT.



TO BE CONTINUED
SIR PORT TEST TOOLS

8.13 SIR PORT TEST ERROR

****FOLLOWING IS A CIRCUIT OF SIR PORT TEST TOOLS****

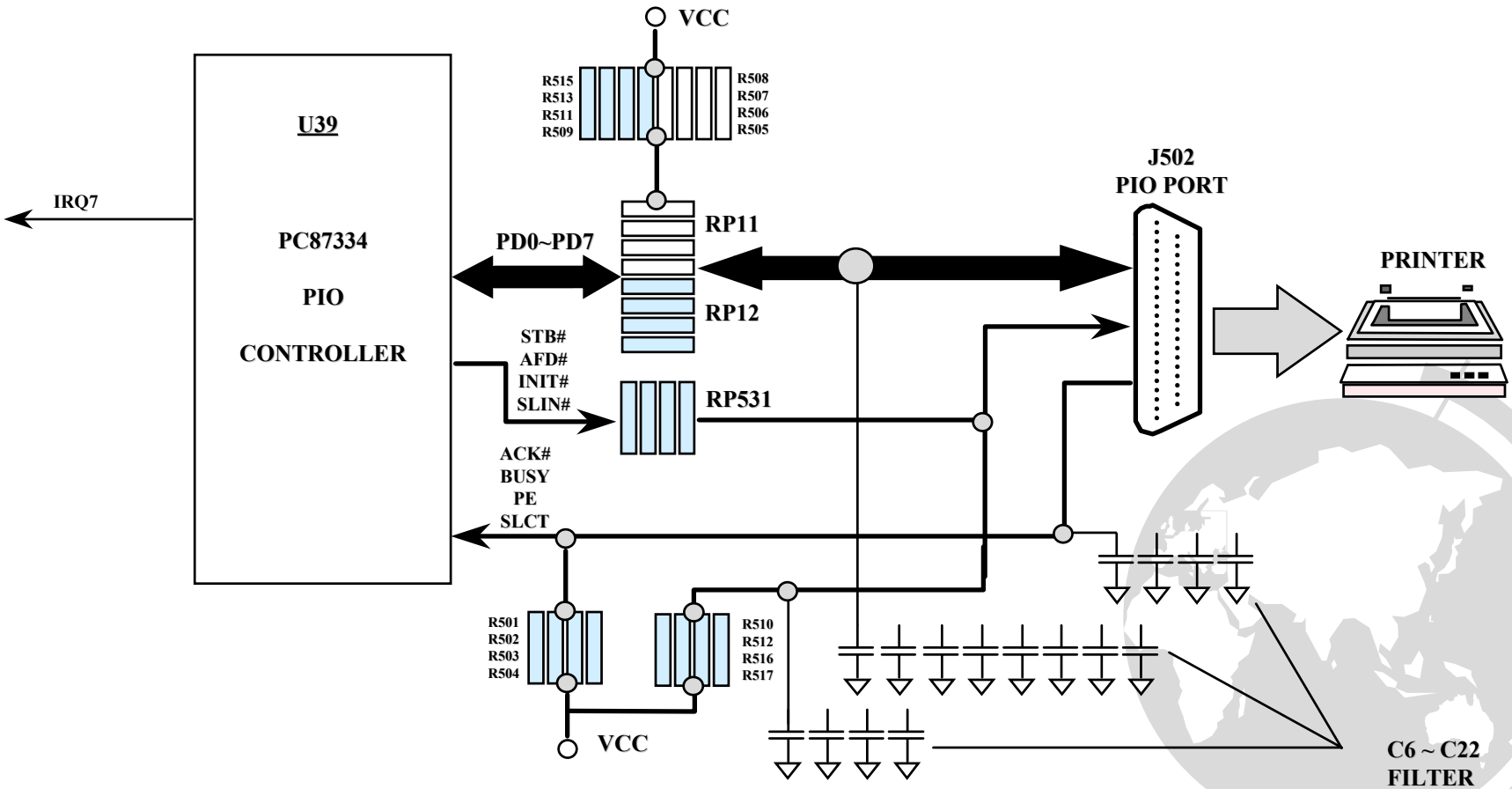


TO CHECK SIR PORT WITHOUT ANOTHER MACHINE USE ABOVE TOOLS AND RUN MITAC SIR PORT TEST PROGRAM.

8.14 PIO PORT TEST ERROR

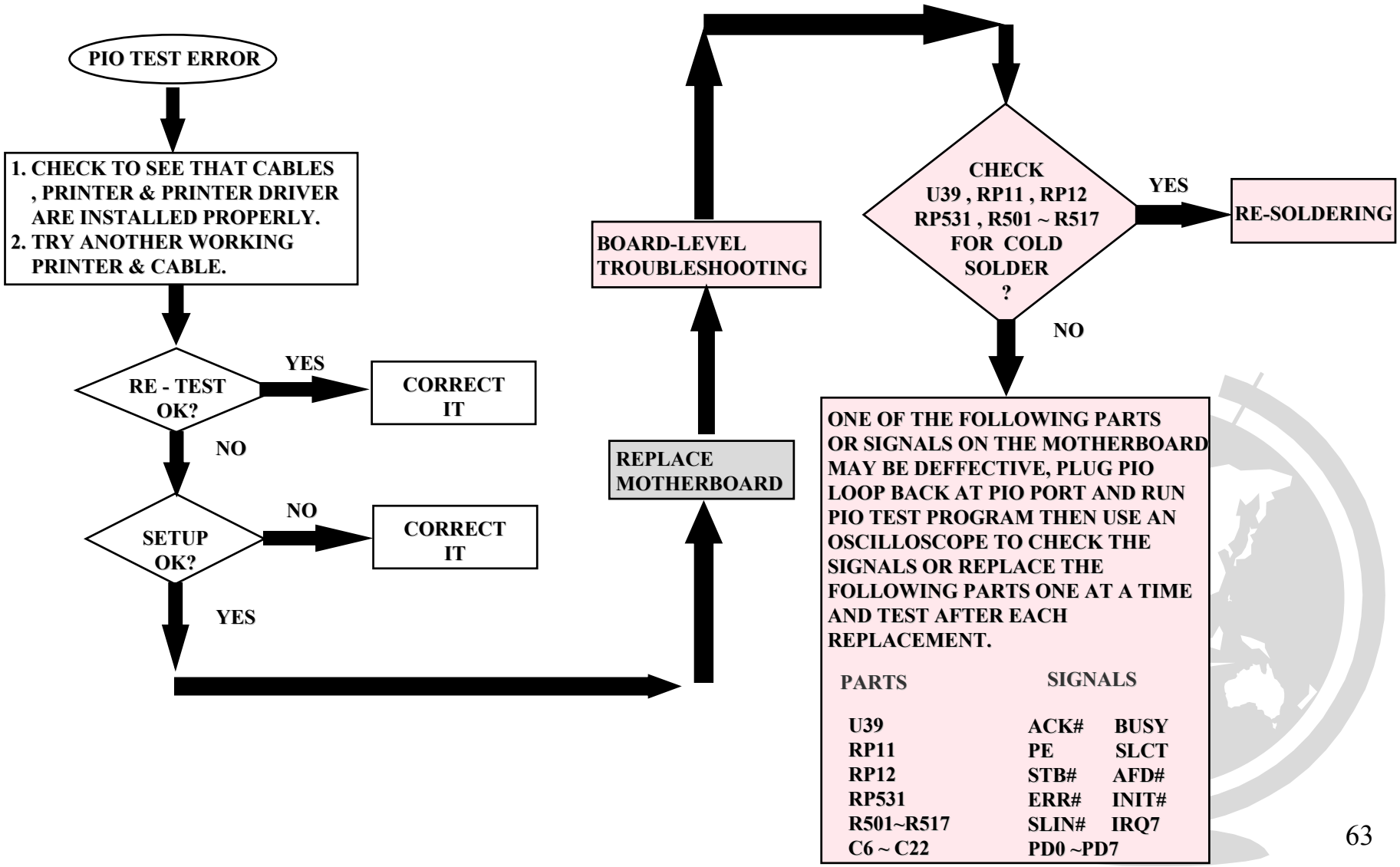
SYMPTON:

WHEN A PRINT COMMAND IS ISSUED, PRINTER PRINTS NOTHING OR GARBAGE.



8.14 PIO PORT TEST ERROR

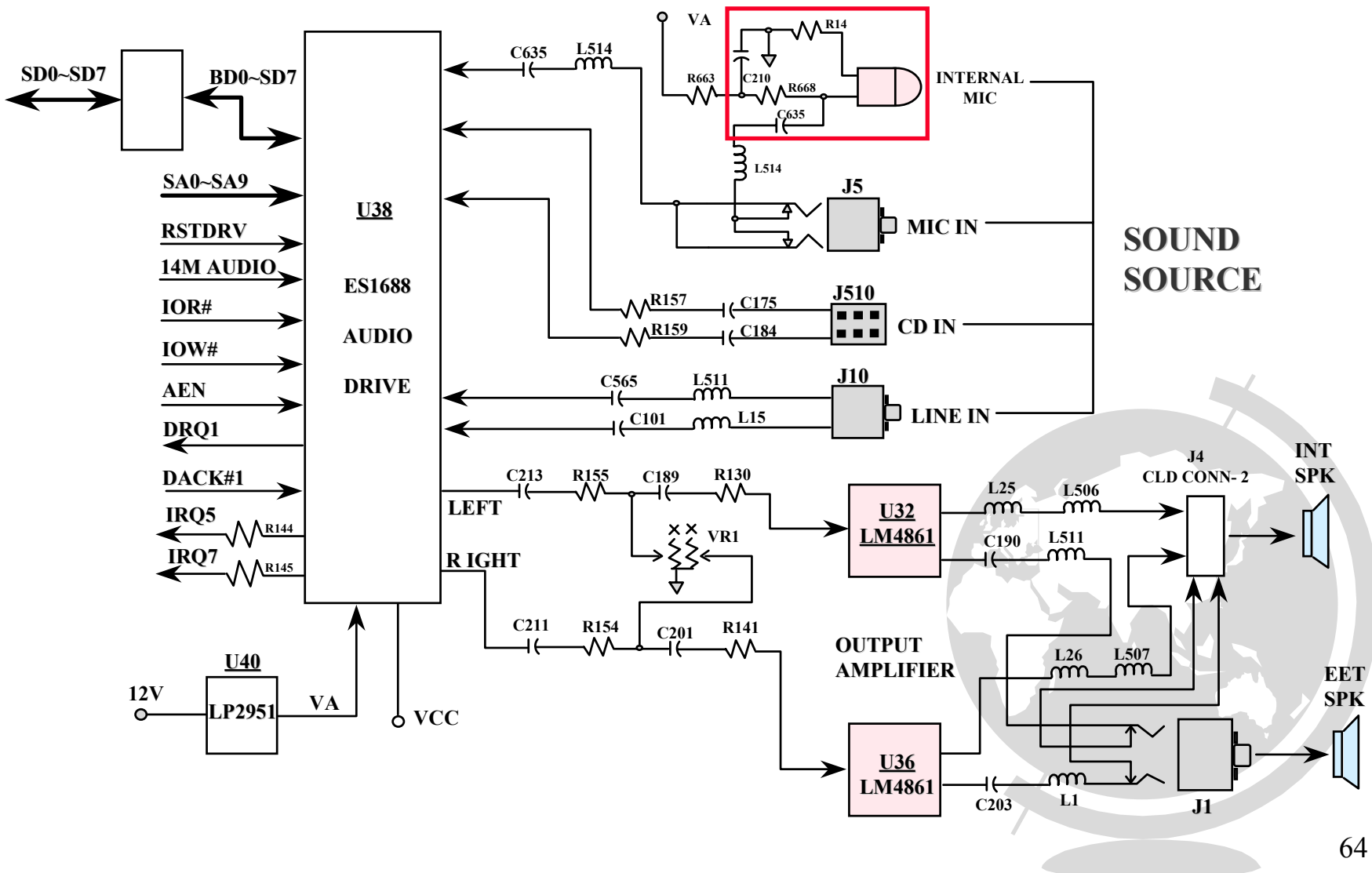
SYMPTON:
WHEN A PRINT COMMAND IS ISSUED, PRINTER PRINTS NOTHING OR GARBAGE.



8.15 AUDIO DRIVE FAILURE

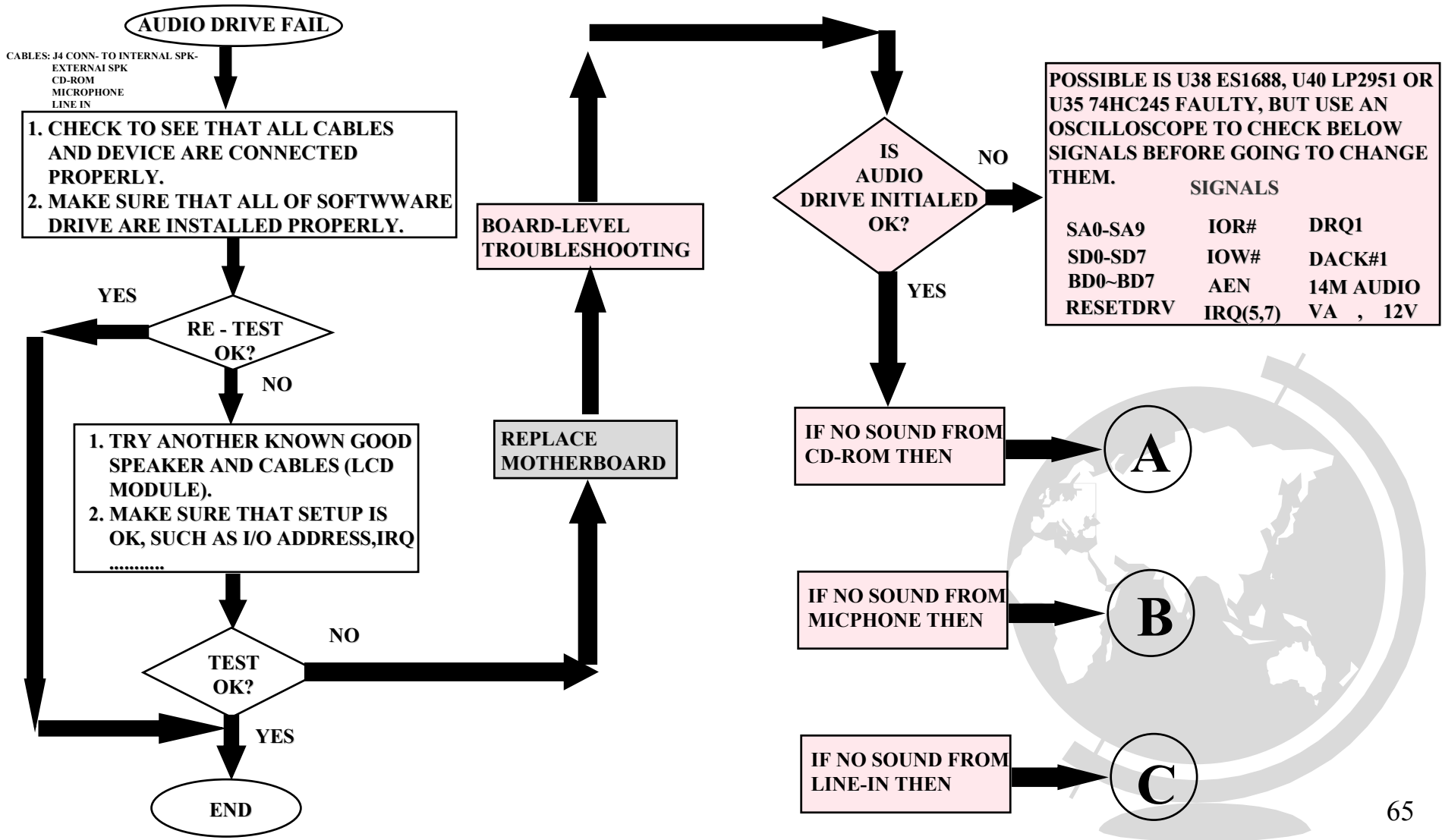
SYMPTON:

NO SOUND FROM SPEAKER AFTER AUDIO DRIVE IS INSTALLED.



8.15 AUDIO DRIVE FAILURE

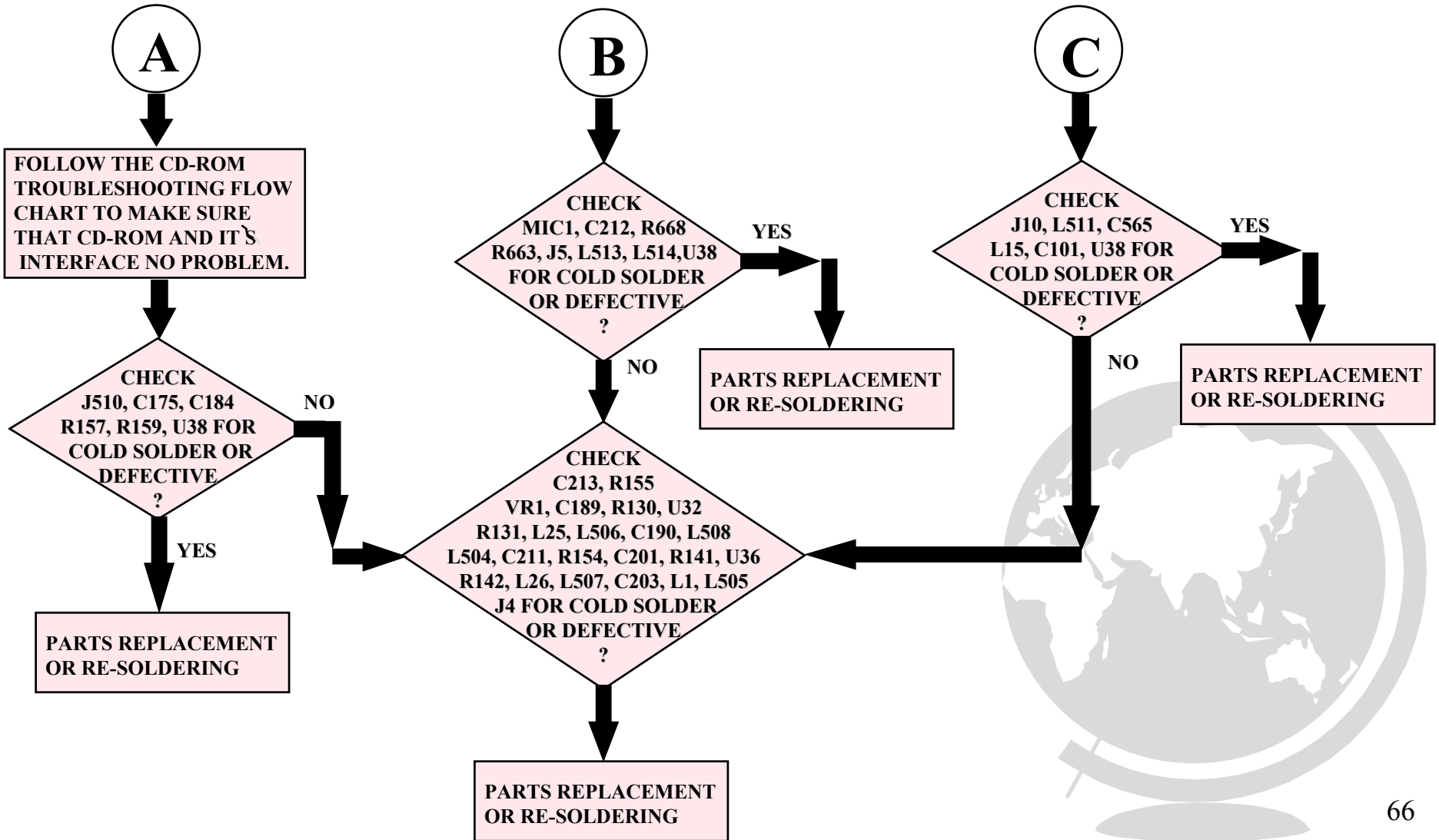
SYMPTON:
NO SOUND FROM SPEAKER AFTER AUDIO DRIVE IS INSTALLED OR NO SOUND FROM CD-ROM, MICROPHONE AND LINE IN.



8.15 AUDIO DRIVE FAILURE

SYMPTON:

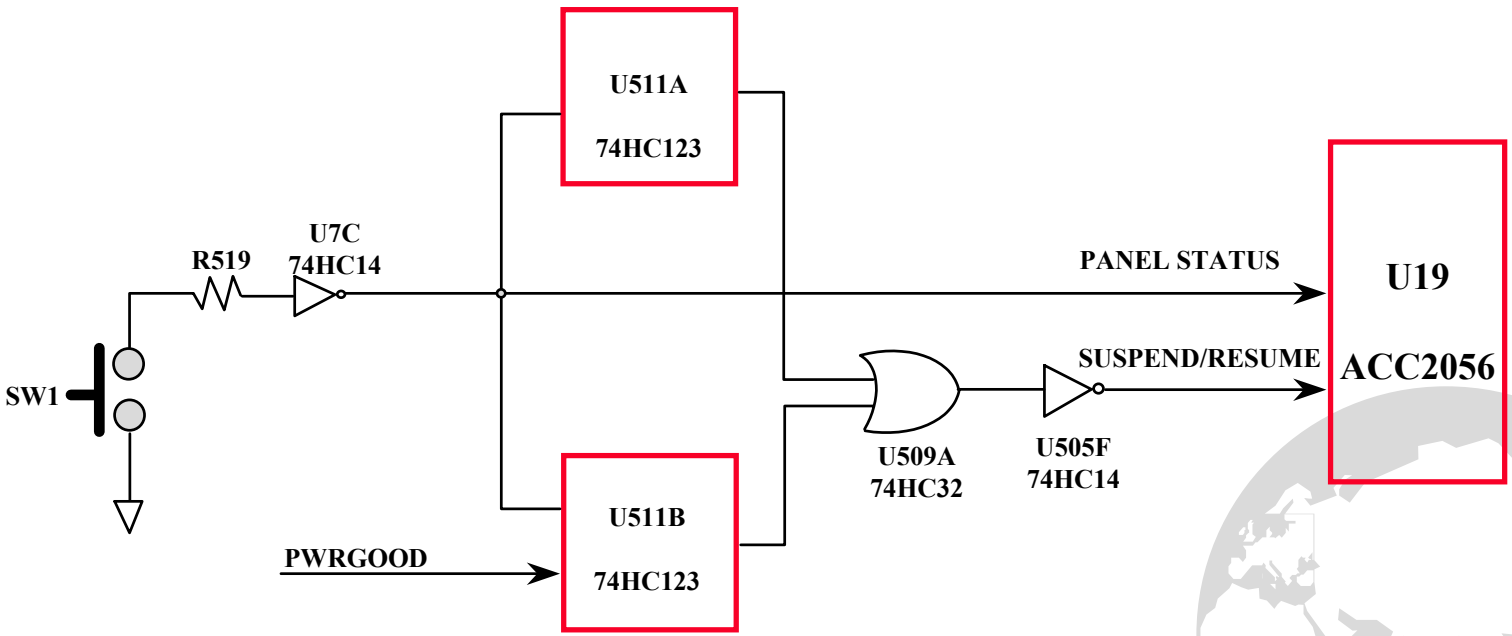
NO SOUND FROM SPEAKER AFTER AUDIO DRIVE IS INSTALLED OR NO SOUND FROM CD-ROM, MICROPHONE AND LINE IN.



8.16 SUSPEND RESUME ERROR

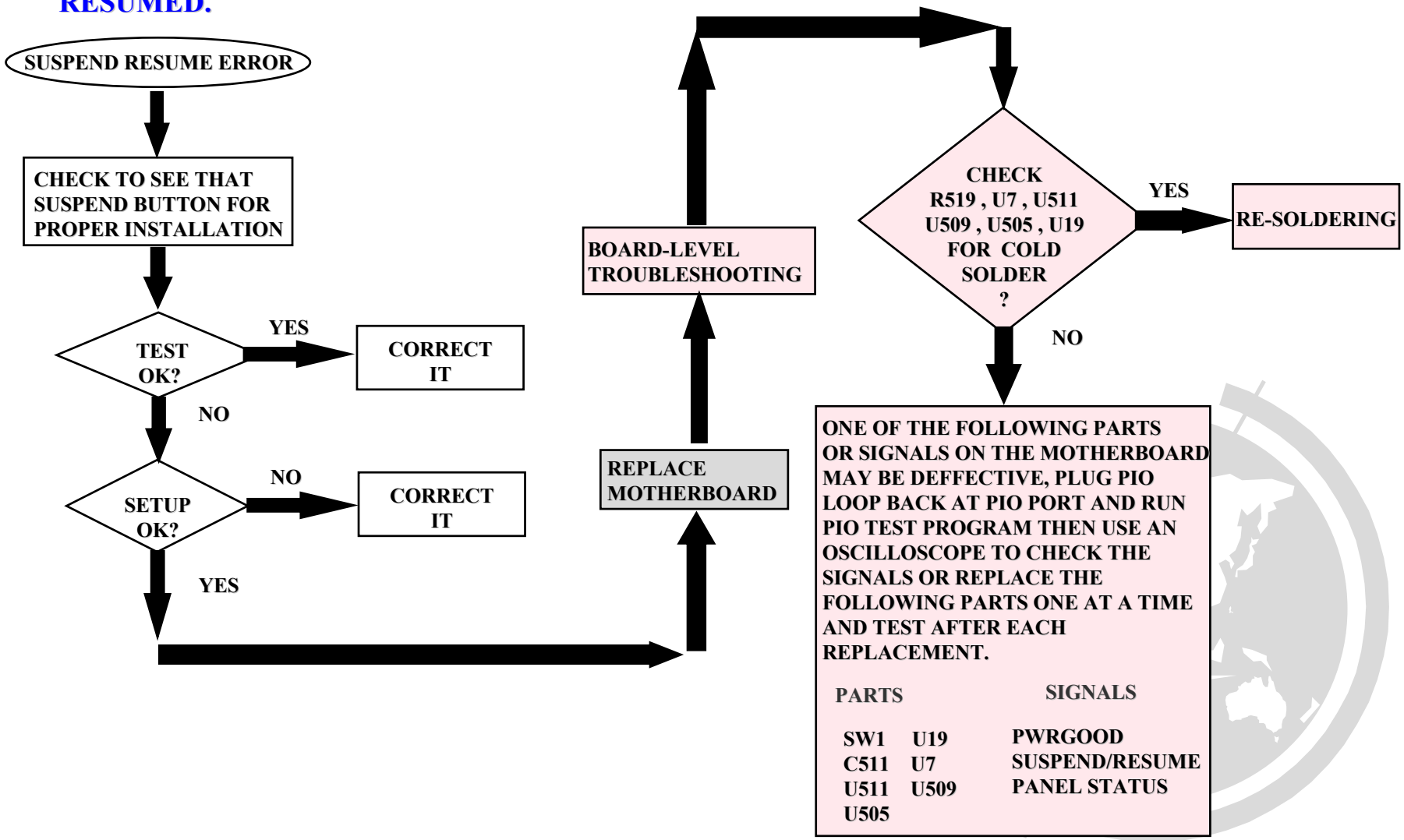
SYMPTON:

CANNOT EXECUTE SUSPEND FUNCTION OR CAN T WAKE UP THE SYSTEM AFTER SUSPEND RESUMED.

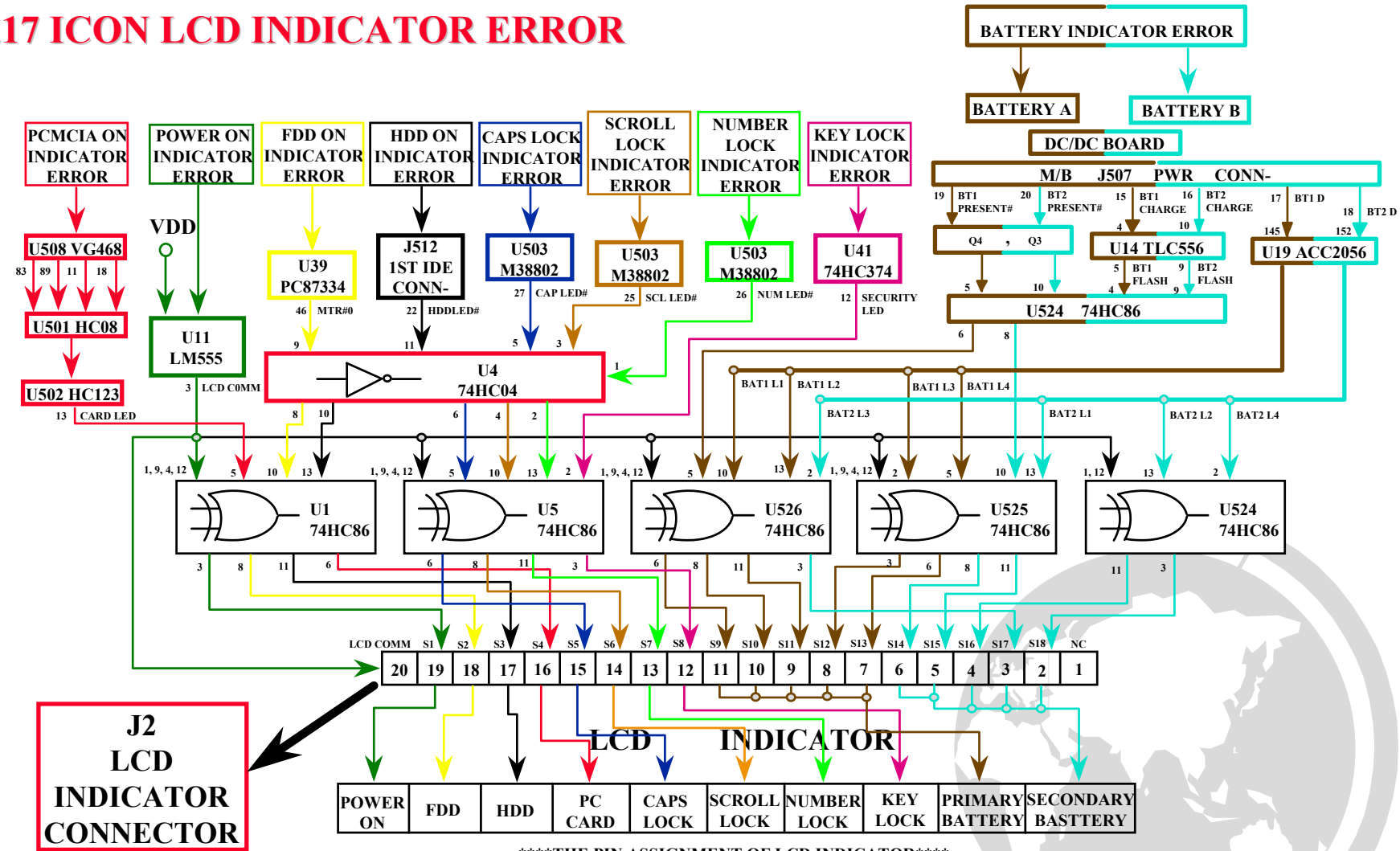


8.16 SUSPEND RESUME ERROR

SYMPTON:
CANNOT EXECUTE SUSPEND FUNCTION OR CAN T WAKE UP THE SYSTEM AFTER SUSPEND RESUMED.



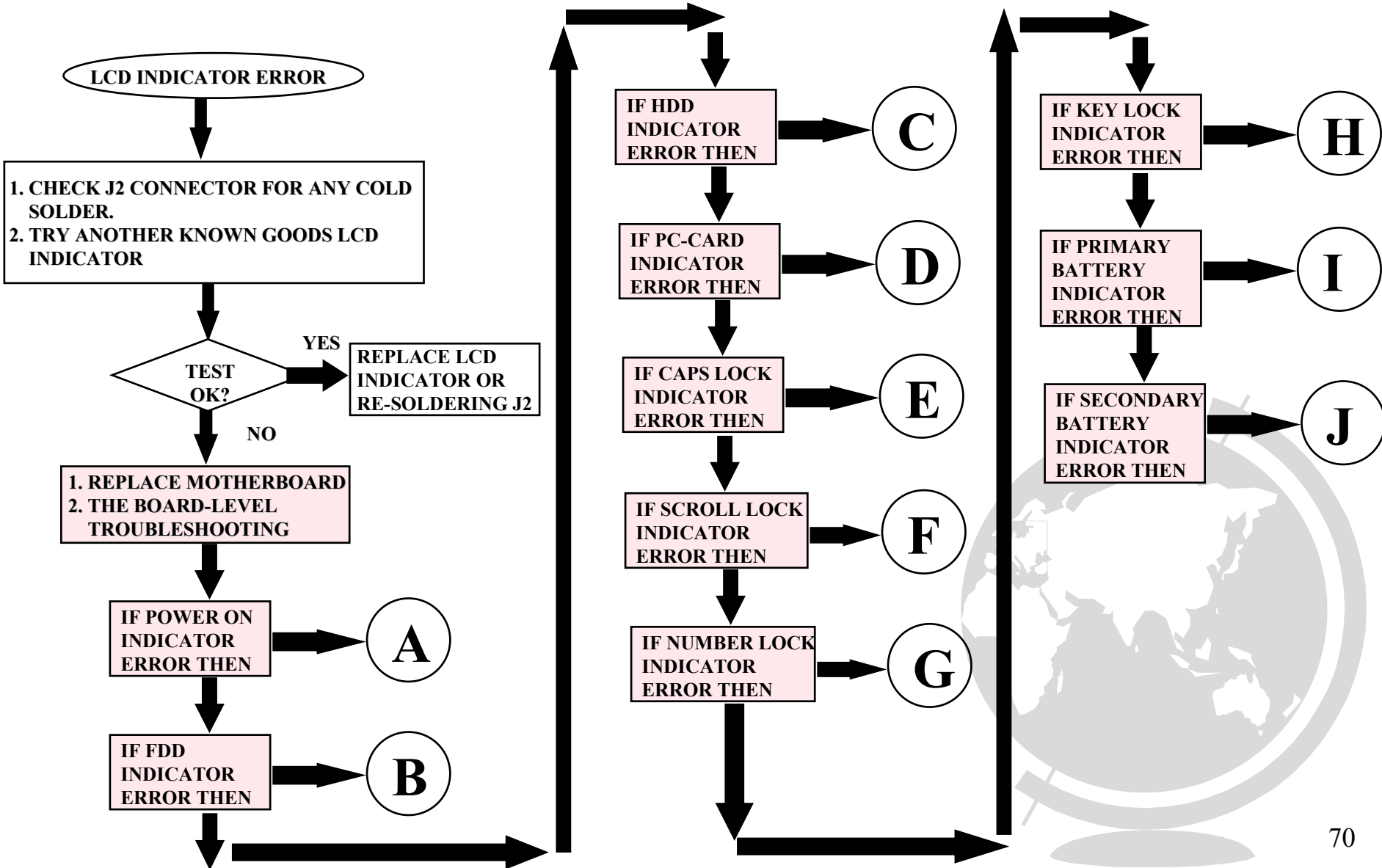
8.17 ICON LCD INDICATOR ERROR



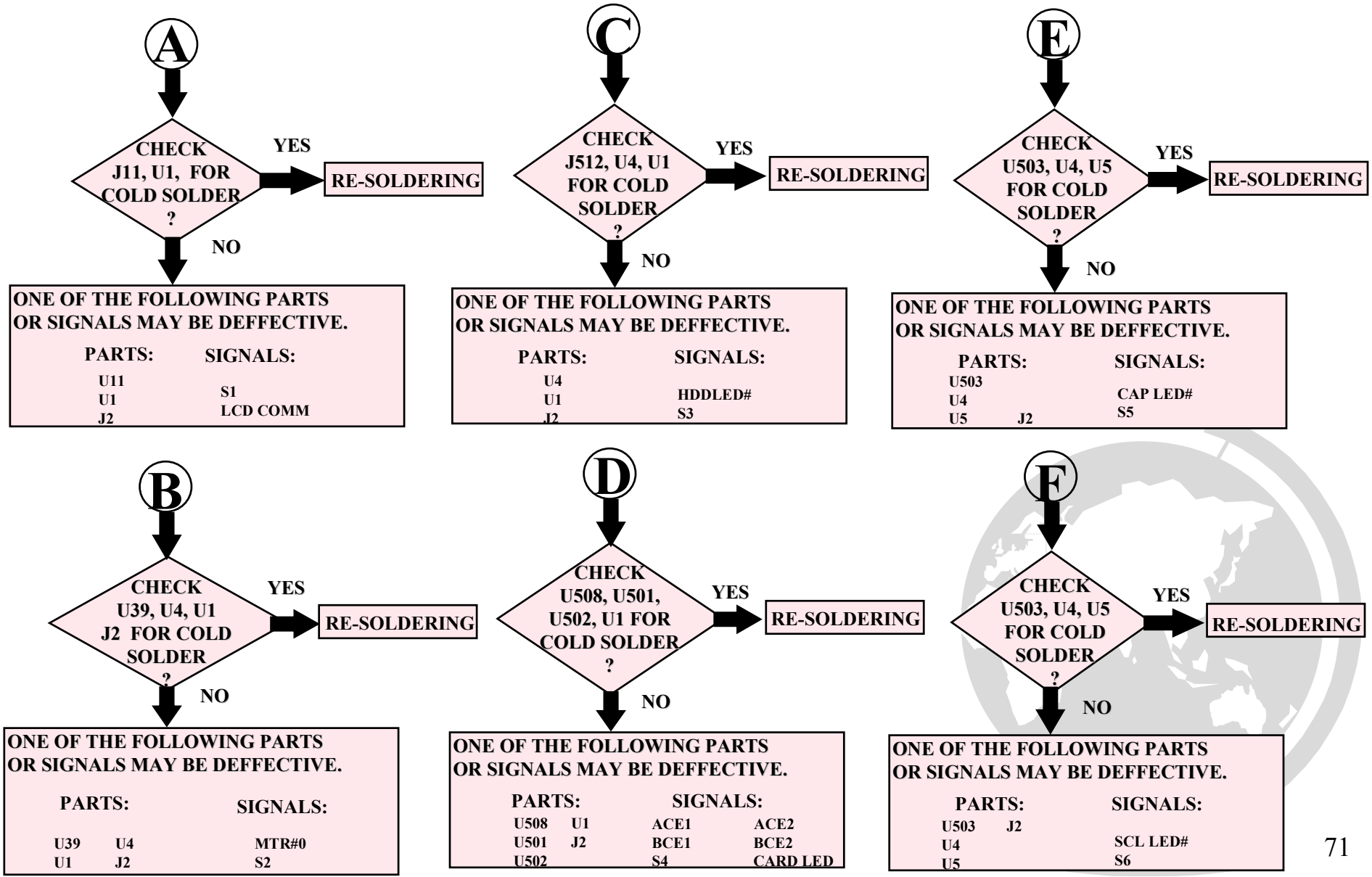
****THE PIN ASSIGNMENT OF LCD INDICATOR****

PIN1	NC		PIN11	PRIMARY BATTERY FRAME
PIN2	SECONDARY BATTERY 4TH BAR		PIN12	KEY LOCK
PIN3	SECONDARY BATTERY 3RD BAR		PIN13	NUMBER LOCK
PIN4	SECONDARY BATTERY 2ND BAR		PIN14	SCROLL LOCK
PIN5	SECONDARY BATTERY 1ST BAR		PIN15	CAPS LOCK
PIN6	SECONDARY BATTERY FRAME		PIN16	PC-CARD INDICATOR
PIN7	PRIMARY BATTERY 4TH BAR		PIN17	HDD INDICATOR
PIN8	PRIMARY BATTERY 3RD BAR		PIN18	FDD INDICATOR
PIN9	PRIMARY BATTERY 2ND BAR		PIN19	POWER-ON INDICATOR
PIN10	PRIMARY BATTERY 1ST BAR		PIN20	COMMON SIGNAL

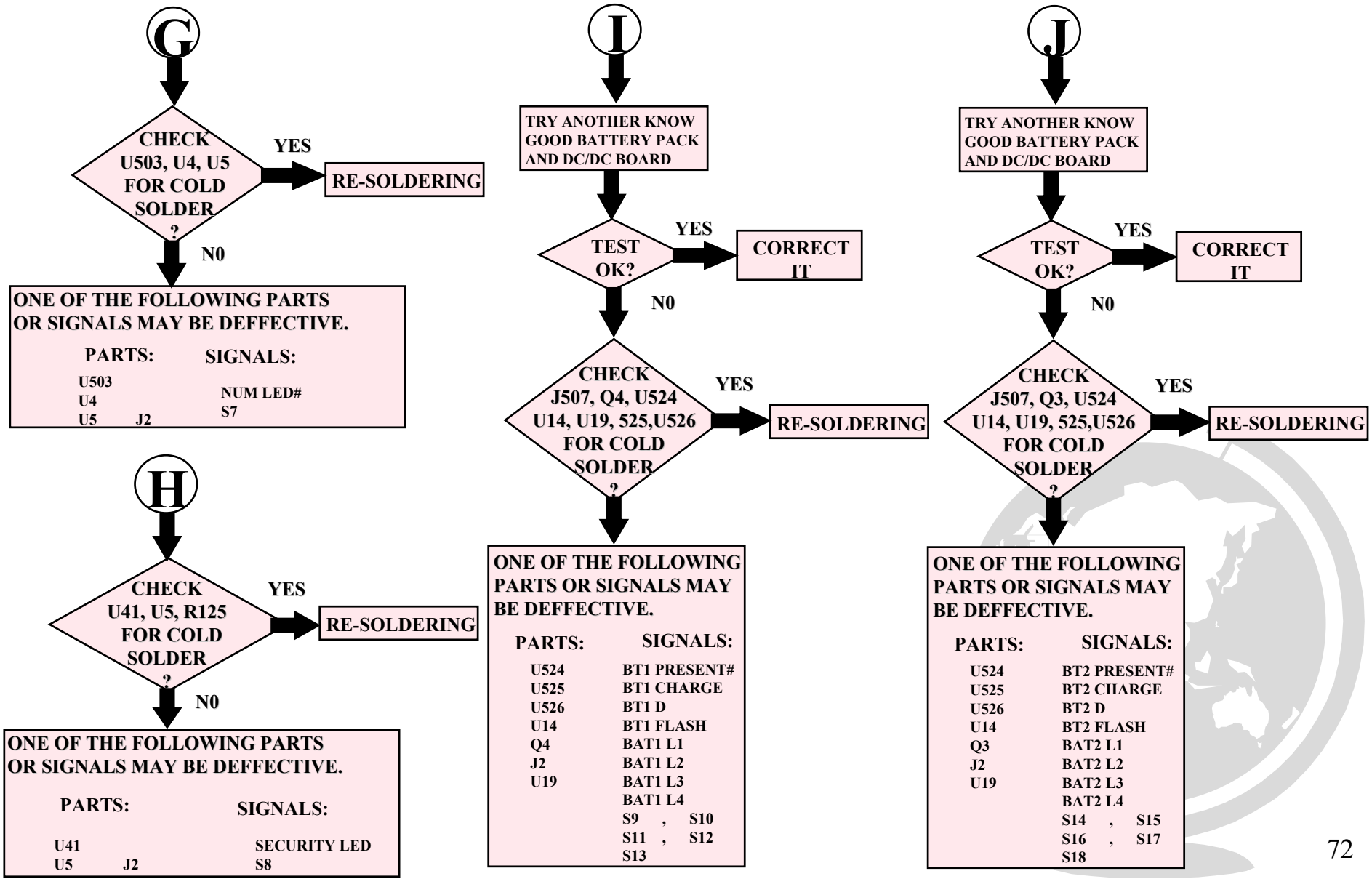
8.17 ICON LCD INDICATOR ERROR



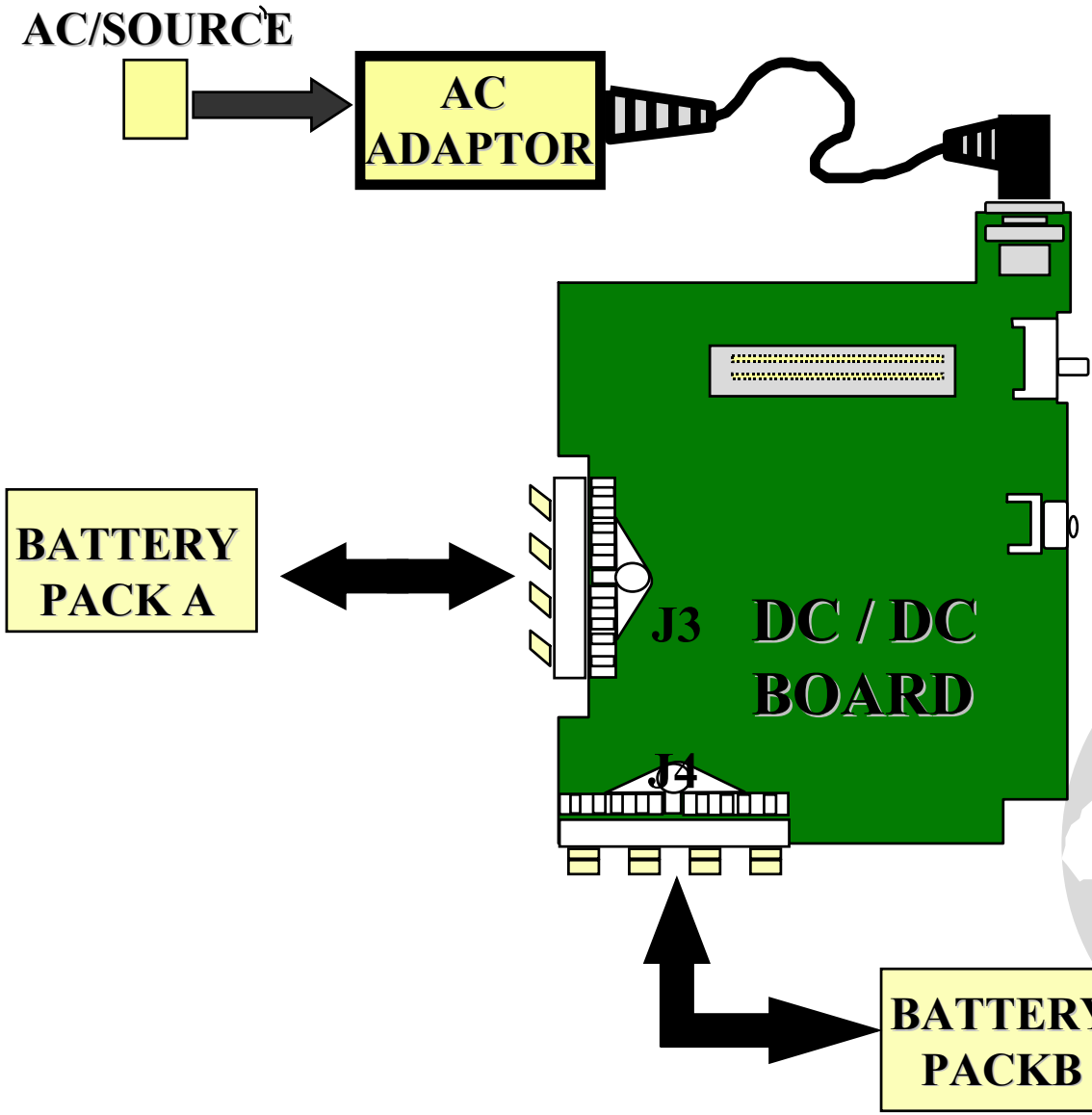
8.17 ICON LCD INDICATOR ERROR



8.17 ICON LCD INDICATOR ERROR

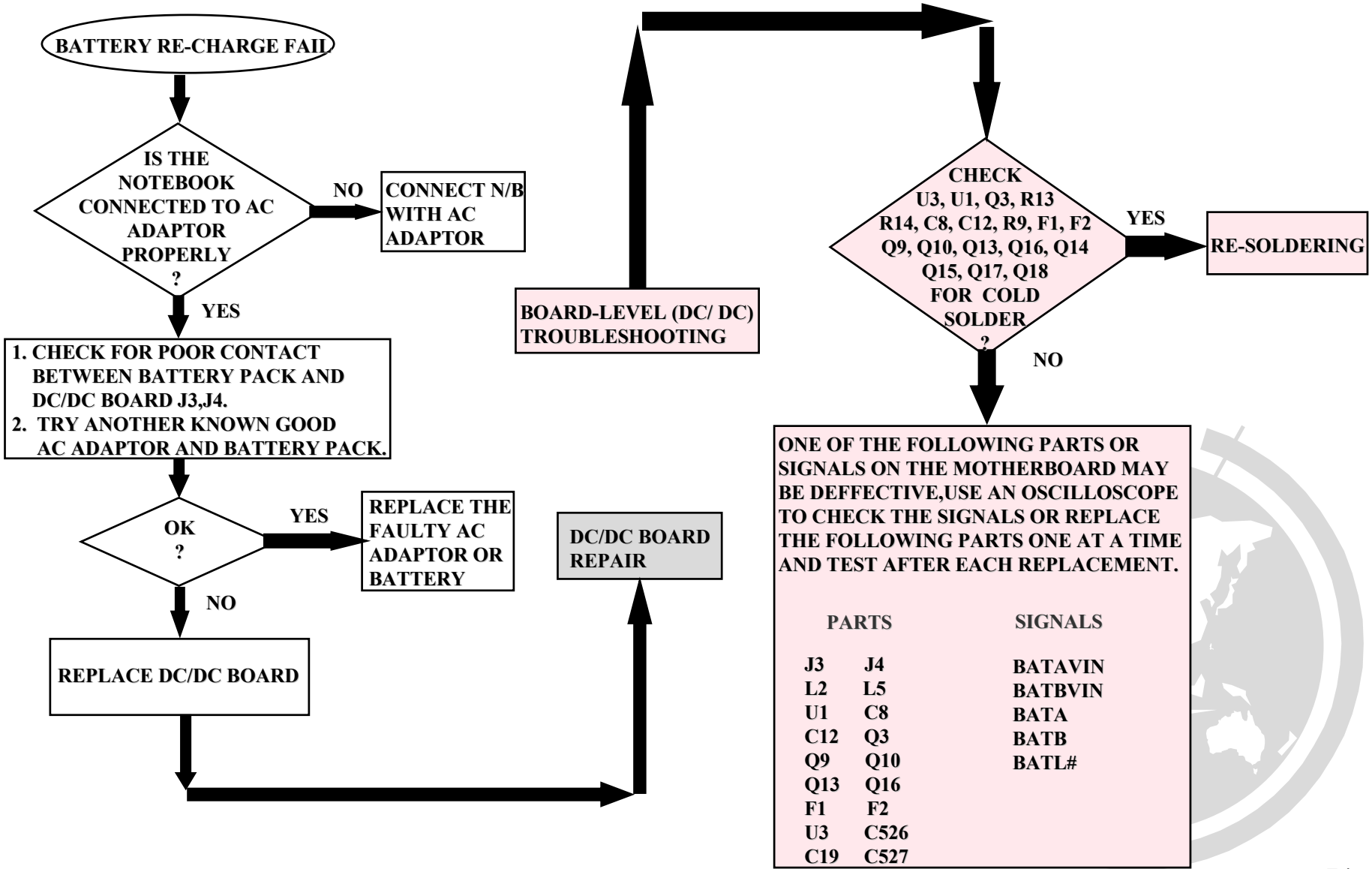


8.18 BATTERY RE-CHARGE FAILURE



5021 N/B MAINTENANCE

8.18 BATTERY RE-CHARGE FAILURE



10. SERVICE PARTS RECOMMEND

MODULES:

NO.	PART NO.	PARTS DESCRIPTION	LOCATION	FAIL RATE	REMARK
1	411664100045	5021 MOTHER BOARD	M/B	1.2%	
2	411664100031	5021 D/D-2 BOARD	D/D BD	2.1%	
3	411664100010	5021 D/A BD HITACHI	D/A BD	1.6%	
4	411664100011	5021 D/A BD,SHARP,DSTN	D/A BD	1.6%	
5	411664100021	5021 D/A BD,SHARP,TFT	D/A BD	1.6%	
6	411664100041	5021 D/A BD BIG DSTN	D/A BD	1.6%	
7	411664100039	5021 D/A BD BIG TFT	D/A BD	1.6%	
8	411664100016	5021 BUTTON BD	BUTTON BD	1.6%	
9	411664100026	5021 FDD TRANS BD	FDD TRANS BD	0.2%	
10	411664100024	5021 MPEG BD	MPEG BD	1.2%	
11	411664100044	5021 TOUCH BD	TOUCH BD	2.1%	
12	411664100030	5021 LCD TRANS BD,TFT-10M	LCD TRANS BD	1.6%	
13	411664100008	5021 TRANS BD,TFT-10,HIT	LCD TRANS BD	1.6%	
14	411664100019	5021 TRANS BD,TFT-1,HIT	LCD TRANS BD	1.6%	
15	411664100007	5021 TRANS BD 9/12 BD	LCD TRANS BD	1.6%	
16	411664100038	5021 TRANS BD,SVGA,HIT	LCD TRANS BD	1.6%	
17	5310018900001	5021 KBD EN	KEYBOARD	1.2%	
18	323799990004	DRAM MODULE 8M	DRAM	1.3%	
19	323799990005	DRAM MODULE 16M	DRAM	1.3%	
20	441664100001	BATTERY ASSY	BATTERY PACK	2.0%	
21	441664100031	5021 AC ADAPTOR	AC ADAPTOR	1.7%	
22	422663800041	LCD ICON BD	ICON BD	4.6%	
23	413000020041	LCD;TX26D66VCK;TFT	LCD	0.1%	
24	413000020051	LCD;AA10VA6C-ADDD,TFT	LCD	0.1%	
25	413000020042	LCD;LQ10D321,TFT	LCD	0.1%	
26	413000020040	LCD;LM64C35P,DSTN	LCD	0.1%	
27	413000020049	LCD;LQ10D131,TFT	LCD	0.1%	

COMPONENTS:

NO.	PART NO.	PARTS DESCRIPTION	LOCATION	FAIL RATE	REMARK
1	335152000003	FUSE;125V/15A,FAST	F1	1.9%	
2	288101004024	DIODE;EC10QS04,RECT	D2	0.4%	
3	291000012401	CON;HDR,MA,12P*2	J508	0.4%	
4	331030044004	CON;HDR,FM,22P*2,MM	J509	1.0%	
5	291000627202	DIMM SOCKET,72P	J6	2.1%	
6	313000020060	CHOCK COIL-200UH	L1	0.7%	
7	273000110001	FERRITE CHIP,124MM	L514	0.4%	
8	288202222017	TRANS,MMBT2222L,NPN	Q3	1.0%	
9	288202182021	TRANS,2SJ182S,MOSFET	Q4	0.5%	
10	297120101003	SW;DIP,SPST,8P	SW2	1.4%	
11	286200213001	IC;MAX213,RS-232	U1	1.2%	
12	282574086001	IC;74VHC86,QUAV	U2	6.9%	
13	284500020001	IC;E20EXC8,TRMPERAT	U11	0.5%	
14	284502188001	IC;ACC2188,PCI CTLR	U18	0.9%	
15	284565545001	IC;R65545A VGA CTLR	U19	6.8%	
16	281674244001	IC;TC74ACT244FS	U24	0.7%	
17	284500688001	IC;ES688,AUDIO DRIVE	U39	1.0%	
18	284132245001	IC;ACC32245MV	U502	2.4%	
19	328001000001	SIR,HSDL-1000	U522	1.7%	
20	311901002001	VR;10K	VR1	0.2%	
21	422664100021	FPC ASSY;FDD	FDD CABLE	1.7%	
22	422664100004	CABLE ASSY;MB TO LCD	LCD CABLE	0.1%	
23	422664100001	CABLE ASSY;MB TO LCD	LCD CABLE	0.1%	
24	422664100002	CABLE ASSY;MB TO LCD	LCD CABLE	0.1%	
25	422664100041	WIRE ASSY;SPEAKER	WIRE SPEAKER	0.1%	