ASUS Customer Service Center

RMA Pretest user Manual

Motherboard

Rev. 1.09
Roger Tsai

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ASUS Pretest Fixtures Pack Rev. 0102

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Please read this document carefully; it contains important information about the "ASUS Pretest Fixtures Pack (Rev. 1.00)". Topics include:

- Customer Benefit
- Customer Responsibility
- Package Contents

Customer Benefit

Customers who have purchased the "ASUS Pretest Fixtures Pack" will obtain the advantage as shown below:

1. Process RMA pretest on-site.
2. Process troubleshooting efficiently.
3. Reduce NDF(No Defect Found) rate and save shipping cost.
   Save TAT(Turn Around Time). ASUS will keep auditing the return NDF rate monthly. If it keeps under 10%, ASUS will provide higher RMA priority and 10 working days of TAT for customers who have done the Pretest.
4. ASUS will provide one year non-periodical software update.

Customer Responsibility

Any documents, software, fixtures or know-how, which relates to the "ASUS Pretest Fixtures Pack" are belong to ASUS confidential information. Customers must follow the items to purchase this package and than get the advantage from it:

1. Sign the NDA(Non-Disclosure Agreement) before purchasing it.
2. Following ASUS RMA return procedure and fill in the necessary documents to send the RMA products back to ASUS.
3. Provide test report to ASUS for future analysis.
4. All testing fixtures are forbidded to be resold.

Notice:

Customers who doesn't follow the instruction to fill in & provide the necessary documents won't get higher RMA priority.ASUS have the right to decide whether to stop providing software updates to customers.

Package Contents **(70R-R00FT1000)**

PART NUMBER	FIXTURE NAME	AMOUNT
22-060000210	CABLE 20P IDC	1
22-060001280	AUDIO CABLE	1
22-060001290	AUDIO CABLE	1
60R-R00IR1000	IR LOOP BACK	1
60R-R00IR1001	IR LOOP BACK	1
60R-R00LA1000	LAN TOOL	1
70-C1OG10-01	COM PORT-1	1
70-C1OG15-02	SWBO-ASUS	1
80-C1G002-0202	ENG_PRT	1
80-C1G024-0100	ENG_GPORT_A	1
80-C1OG29-0100	PORT80M	1
22-210005890	USER MANUAL AND TEST	1
22-060002570	ASUS CD_ROM TEST CD	1
10-090101030	P2T-CABLE THERMAL SE	2
14-000012220	CABLE USB 2PORT+GAME	1
14-000011360	CABLE 3IN1 ATA/FD/9P	1
14-000500010	USB CABLE 4PORT, W/B	1
60R-R0000030	STEREO TEST CABLE 4P	2
14-140200040	WIRE CABLE 4P	2
60R-R0000040	SOCKET370 VOLTAGE TOOL	1
60R-R0000050	SOCKET462 VOLTAGE TOOL	1
60R-R0000060	SOCKET423 VOLTAGE TOOL	1
60R-R0000070	SOCKET478 VOLTAGE TOOL	1
60R-R0000250	SOCKET 754 VOLTAGE TOOL	1
60R-R00MO1000	MODEM LOOP BACK	1
60R-R00SF1000	SPDIF FIXTURES	1
60R-R0000260	SOCKET 940 VOLTAGE T	1
60R-R00LA1001	LAN TOOL2	1

WARNING! Computer components are extremely sensitive to electrostatic discharge (ESD). Before handling any components, be sure to wear an anti-static wrist strap (not included) and touch a grounded object, like the your computer case or any other metal object, to release any built-up static charge.

Customer Pretest flow chart

Pretest operate description

Visual inspection:

1. **Inspect M/B have broken,oxidized…..**
   (Please refer Visual inspection Description)
2. **Customer induce or not.**
   (Please refer Customer Induce Description)
3. **If any M/B components failed to work after inspection,please paste the arrow stacker and write on Diagnostic Card**

1

Measure RTC current:

1. **Find out the resistance(1K ohm) near the battery.**
2. **Measure the current of resistance, the correct range must be 1.0uA~10uA.**
3. **If the value is out of this range, please pass to engineer for repair.**

2

If Visual inspection is OK.
Please plug in the power connector on Motherboard

3

4

Some Motherboards have 4pin ATX extended power connector. Please also remember to plug it on.

5

Plug in CPU test sock on CPU socket and Turn on power supply.

6

Check CPU voltage on CPU test card (±10% Voltage to permit)

7

Turn OFF Power supply and Remove CPU Test sock

8

Plug CPU into CPU socket and CPU FAN、PWR FAN、CHA FAN connector

9

Plug DDR(SDRAM) into memory Slot

10

Plug in Port 80M card on Motherboard PCI Slot

11

Plug VGA Card into AGP slot and connect VGA output to Monitor.
If onboard VGA just connect VGA output to Monitor)

12

Plug the ASUS power button and turn on the power.
If you find no display on the monitor please pass it to engineer for repair.

13

Put in TEST CD on CD_ ROM Drive

NOTE:

CD Name : ASUS CD_ROM TEST CD
Parts Number : 22-060002570

14

1. **Turn OFF the power supply**
2. **Plug in PS2 Keyboard & Mouse**

15

Plug in COM_ports

16

Plug in Printer_port loopback

NOTE:

Please plug in power connector
On printer port loopback.

17

Plug Lan loopback into Lan connector

18

Plug in Audio_port

19

Plug in Audio_port Loopback tail on Motherboard audio

20

Plug in IR Loopback on Motherboard Connector

NOTE:

1*5 IR Loopback Yellow line is pin 1
2*5 IR Loopback Black line is pin 2

PIN1

1*5 IR Loopback

PIN2

2*5 IR Loopback

21

Plug in Thermal Sensor Cable on Motherboard (TRPWR or PWRTMP or JTPWR) Connector

NOTE:

Make sure Motherboard has function.
If you motherboard without power thermal function. Please skip this flow.

Thermal Sensor Cable

22

Plug in Modem Loopback on Motherboard (MODEM) Connector

NOTE:

Make sure Motherboard has function. If you motherboard without MODEM function. Please skip this flow.

(Please refer attach M/B Check List)

23

Plug in SPDIF Fixture on Motherboard (SPDIF) Connector

NOTE:

Make sure Motherboard has function. If you motherboard without SPDIF function Please skip this flow.

(Please refer attach M/B Check List)

24

Plug in Floppy,Hardisk and CD_ROM on Motherboard Connector

NOTE:

Primary IDE connect Hardisk
Secondary IDE connect CD_ROM

25

Plug SATA HDD into SATA connector

NOTE:
Inside SATA HDD must have SATA.P RAID.P & NEWWIDE.P three files in side.

26

Put in Diskette on Floppy Disk Drive

NOTE:
The Diskette setting to write protect OFF

Write Protect OFF →

27

Push (SWBO_ASUS) the **PWR.SW** switch button once will switch on the system and test motherboard function.

Visual inspect fail description

Visual inspection:

1. **Inspect M/B have broken,oxidized…..**
   (Please refer Visual inspection description)
2. **Customer induce or not.**
   (Please refer Customer Induce Description)
3. **If any M/B components failed to work after inspection, please paste the arrow stacker and write on Diagnostic Card**

1

2

Paste arrow sticker on damage component

3

Fill in the Diagnostic card

Paste Diagnostic Card on PCI Solt

4

Send defective M/B to RMA section

5

ASUS TEST PROGRAM INSTALLATION GUIDE

1. **Necessary equipments:**
   - Disk1(Boot disk) for Windows 98 or Windows ME
   - Disk2 with Ghost v6.0 program and SPFDISK software
   - Hard drive (at least 4GB)
   - One PC with CD_ROM

2. Load the Ghost image to the Hard Drive

a. Get into BIOS Setup and set “Boot Sequence” to “A” (boot from floppy (A:))

b. Restart and boot from FDD with Disk1 (Boot Disk).

c. Choose “**start computer with CD_ROM support**”

d. Change floppy to Disk2 (with “Ghost v6.0”).

e. Typing “ghost” to execute “Ghost” program.

f. Choose the options: ” Local → Disk → From Image”

g. Choose “local drive”(CD_ROM drive) to find out the image file.

h. Press “**Open**” to load the image file.

i. Select "local destination drive" and choose "**OK**"

j. Select "local destination drive" have display
Please setting the same size and choose "**OK**"

k. Choose "**YES**" to proceed with disk load (transfer CD data to hard drive)

l. Change with secondary CD on CD_ROM Drive and choose "**OK**".

.

n. Choose "**Reset Computer"** to reboot.

o. Restart and boot from FDD with Disk1 (Boot Disk).

p. Choose "**start computer with CD_ROM support**"

3. Hard Disk Partition prepare

a. Change floppy to Disk2 (with “SPFDISK” program)

b. Typing “SPFDISK” to execute “SPFDISK” program.

c. Select **A. Appear Boot Item**

d. Select **1. Hard Disk**

e. Select **Partition One**

f. Type “**ASUS** and Select **A. Appear Boot Item** again

g. Select **Hard Disk again**

h. Select **Partition Two**

i. Typing **A7_SER** and Select **A. Appear Boot Item** again

j. Select **Hard Disk** again

k. Select **Partition Two**

l. Typing "**P4S_SER**"

m. Select **O. Optional Setup**

n. Select **H. Hidd ON/OFF PRI-Partn**

o. Select **ASUS**, Press "**Y**"

p. Select **A7_SER**, Press "**N**"

q. Select **G. Begin Install**

r. Select **2. MBR**

s. Press "**Y**"

t. Press "**N**"

u. Select **Q. Quit to DOS**

v. Restart and change “Boot Sequence” to “C, A” (boot from hard drive(C:)).

w. If you can see the screen below, it means the data has been copied to hard drive successfully

4. Visual Inspection should be implemented before Pretest.

5. **Execute the Pretest Program**

a. Plug in the proper CPU voltage tools and check M/B power supply if it's OK.

b. If the M/B voltage is OK, plug in all the M/B test fixtures and equipments such as CPU, Memory…etc.

c. Power ON your test system and choose your test module.

ASUS All Module

A7S SERIES

P4S SERIES

d. Choose the **"STEP-BY-STEP"** option

e. Choose the "**HIMEM_CDROM"** option

f. Choose the motherboard hot key to execute the proper program for the motherboard series you want

to test.

For example: **P2B,** Please key in" **PB**" to execute the P2B series pretest program.

```
107

    P3C_SER              " 3C "        L101                    " IP "
    P3W_SER              " 3W "        NLX-R & YYRISER         " NX "
    P3B_SER              " 3B "        CHECK BAR CODE          " BC "
    P3V_SER              " 3V "        DIMM, IPANEL            " OT "
    P2E_SER              " PE "        USB/MIR_SER             " OT "
    P2L_SER              " PL "        CIDB CARD               " OT "
    P2B_SER              " PB "        S370 CARD               " OT "
    P2V_SER              " PV "        OPLX-M                  " OT "
    P2Z_SER              " PZ "        NC 5                    " OT "
    WMT_SER              " WT "        BP4 & BP5               " OT "
    MEL_SER              " ML "        P4T_SER                 " 4T "
    MEB_SER              " MB "        CUSL_SER                " CL "
    MEZ_SER              " MZ "        TX_SER                  " TX "
    MES_SER              " MS "        SP_SER                  " SP "
    MEW_SER & CUW        " MW "        XG_SER                  " XG "
    CUB_SER              " CB "        SONY_SER                " SY "
    CUC_SER              " CC "        P5A_SER                 " PA "
    CUW_SER              " CW "        P5S_SER                 " PS "
    CUV_SER              " CV "        A7_SER                  " A7 "
    CUS_SER              " CS "        K7_SER                  " K7 "

C:\>
```

g. Choose the proper model name to execute the pretest program.

For example: Key in " **1** " for P2B.

```
*****************************************************************************
1 : P2B                                  *    J : P2B9B-XV (HP)
2 : P2B (WO/LAN/U) /UPDX4                *    K : P2B9D-XV (SDCO)
*****************************************    L : P2B9B-XV (SBCO) (ACPI)
3 : P2B-DS                               *    M : P2B9B-XV (ASUS)
4 : P2B-DS (WO/3860)                     *    N : P2B9B-XV (ASUS) (ACPI)
5 : P2B-D                                *    ******************************
*****************************************    O : P2B M
6 : P2B-LS                               *    P : P2B-M (WO/A)
7 : P2B LS (WO3B60)                      *    Q : P2B M AUDIO TEST
8 : P2B-L                                *    ******************************
9 : P2B S                                *    R : P2B VM
A : P2B-S  (WO/3860)                     *    S : P2B-VM (WO/A)
B : P2B LS (WO/LAN)(WO/S)                *    T : P2B VM (WO/U)
*****************************************    U : P2B-VM (WO/V) (WO/A)
C : P2B B                                *    *****************************
D : P2B-F (WO/HWM)                       *    V : P2B-VT      (VIA)
E : P2B F                                *    W : P2B VT /II (Intel 440BX)
F : P2B-VE                               *    X : P2B-M (WOLAN)
G : P2B-DZ                               *    Y :
H : P2B-E                                    Z : P2B-DZ (WOV)
I : TEST AGP SLOT
*****************************************************************************
Choose one function :[1,2,3,4,5,6,7,8,9,A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,
U,V,W,X,Y,Z]?
```

h. If you model name can't found on screen. Please key in **NC**

```
105 NK                                  MOD:6/6/2002

    P3C_SER              " 3C "        L101                    " IP "
    P3W_SER              " 3W "        NLX-R & YYRISER         " NX "
    P3B_SER              " 3B "        CHECK BAR CODE          " BC "
    P3V_SER              " 3V "        DIMM, IPANEL            " OT "
    P2E_SER              " PE "        USB/MIR_SER             " OT "
    P2L_SER              " PL "        CIDB CARD               " OT "
    P2B_SER              " PB "        S370 CARD               " OT "
    P2V_SER              " PV "        OPLX-M                  " OT "
    P2Z_SER              " PZ "        NC-5                    " OT "
    WMT_SER              " WT "        BP4 & BP5               " OT "
    MEL_SER              " ML "        P4T_SER                 " 4T "
    MEB_SER              " MB "        CUSL_SER                " CL "
    MEZ_SER              " MZ "        TX_SER                  " TX "
    MES_SER              " MS "        SP_SER                  " SP "
    MEW_SER & CUW        " MW "        XG_SER                  " XG "
    CUB_SER              " CB "        SONY_SER                " SY "
    CUC_SER              " CC "        P5A_SER                 " PA "
    CUW_SER              " CW "        P5S_SER                 " PS "
    CUV_SER              " CV "        A7_SER                  " A7 "
    CUS_SER              " CS "        K7_SER                  " K7 "

C:\>NC
```

g. Ch

h. Choose the **"MBAT"** item

i. Choose the **"P4B_SER"** item (If the model name is P4B)

j. Choose the **"P4B"**

k. Please check motherboard part number sticker. For example: **M8L120**

l. **"**Choose the **m8l120f2.bat"** to execute the pretest program.

Test Tools Introduction

SWBO-ASUS

Name: **SWBO-ASUS**
Part Number: **70-C1OG15-02**
Function: **Reset,SMI,Keylock, PWRON**

Plug in

PCI PORT 80M CARD

Plug in

Name： **PCI PORT 80M**
Part Number： **80-C1OG29-0100**
Function： **POST Code Display**

COM-Port Loopback

CONNECTOR

Name：COM PORT-1oopback
Part Number：70-C1OG10-01
Function：Com-Port test

Printer_Port Loopback

CONNECTOR

Name：ENG_PRT
Part Number：80-C1G002-0202
Function：Printer port test

ENG_GPORT-A

CONNECTOR

Name：ENG_GPORT-A
Part Number: 80-C1G024-0100
Function: Game-Port test

AUDIO LOOP-BACK (3 Black)

CONNECTOR

Name：AUDIO LOOP-BACK
Part Number：22-060001280
Function：AUDIO Loop-back test

AUDIO LOOP-BACK(2W+1B)

CONNECTOR

Name：AUDIO LOOP-BACK
Part Number：22-060001290
Function：AUDIO Loop-back test

IR LOOP-BACK

CONNECTOR

Name：IR LOOP BACK (1*5)
Part Number：60R-R001R1000
Name：IR LOOP-BACK (2*5)
Part Number：60R-R001R1001
Function：IR Loop-back test
Yellow line-Pin 1

Power Thermal Sensor Cable

Name: **P2T-CABLE THERMAL SENSOR CABLE**
Part Number: **10-090101030**
Function: **MB & CPU thermal sensor**

LAN LOOP-BACK

Name： **LAN LOOP -BACK**
Part Number： **60R-R00LA1000**
60R-R00LA1001(For 1G)
Function： **LAN Loop-back test**

SOCKET 370 CPU Voltage Test Tool

Plug in

Name：Socket 370 Voltage Tool
Part Number：60R-R0000040

P4 (423P) CPU Voltage Test Tool

Plug in

Name：Socket 423 Voltage tool
Part Number：60R-R0000060

SOCKET A CPU Voltage Test Tool

Plug in

Name：Socket 462 Voltage Tool
Part Number：60R-R0000050

P4(478 P) CPU Voltage Test Tool

Plug in

Name：Socket 478 Voltage Tool
Part Number：60R-R0000070

K8(754 P) CPU Voltage Test Tools

Plug in

Name：Socket754 Voltage Tool
Part Number：60R-R0000250

K8(940 P) CPU Voltage Test Tools

Plug in

Name：Socket 940 Voltage Tool
Part Number：60R-R0000260

CD-ROM Test Tools

Put in

Name: ASUS CD_ROM TEST CD
Part Number:22-060002570

MODEM LOOP-BACK

Name：Modem Loop-Back
Part Number：60R-R00MO1000
Function：Modem test

CONNECTOR

SPDIF FIXTURE

CONNECTOR

Name：SPDIF FIXTURE
Part Number：60R-R00SF1000
Function：SPDIF Test

Visual Inspection

INSPECT BGA CHIPSET

Check if the BGA chipset has been pulled out by end user.

INSPECT BGA CHIPSET

Check if the M/B BGA chipset is lifted.

INSPECT M/B PCB

Check if the M/B PCB is broken.

INSPECT M/B BACK PCB

Check if the PCB trace is broken.

INSPECT CPU SOCKET

Check if the PCB trace around the CPU socket is broken.

INSPECT M/B SLOT

Check is any PIN on the SLOT is damaged

INSPECT SMD CHIPSET AND Capacitance & Register

Check if any SMD chips, capacitance or register is damaged.

INSPECT M/B PCB

Check if the M/B PCB is broken

INSPECT M/B SCREW HOLE

Check if any trace around the screw hole is broken.

INSPECT M/B CONNECTOR

Check if any trace around the battery is broken.

INSPECT M/B COMPONENT

Check if there is any component burnout.

INSPECT M/B PCB Oxidize

Check if the PCB is oxidized.

Customer Induce Description

(If the motherboard belongs to “Customer Induce”, it will be returned to the customer without repairing.)

1. PCB Trace Scratched

Figure 1.

Figure2.

Figure 3.

Figure 4.

Figure 5.

Figure 6.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
PCB Trace Scratched [Figure 1~6]	Less than 2 lines	Accepted	-	Charge	Charge
	More than 3 lines	Rejected	-	-	-
	More than 3 lines (If customer request)	-	Accepted	Charge	Charge

2. PCB Broken

Figure 7

Figure8

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
PCB Broken [Figure 7~8]	The broken part already destroy PCB	Rejected	-	-	-

Figure 9.

Figure 10.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
PCB Broken [Figure 9~10]	Only a bit broken in the edge of PCB and will repair after informing Customer	Accepted	-	-	-
PCB Broken [Figure 10]	If the bottom side has circuit trace	Rejected	-	-	-

3. Damaged capacitors, resistors, inductors, small passive components, socket, etc.

Figure 11.

Figure 12.

Figure 13.

Figure 14.

Figure 15.

Figure 16.

Figure 17.

Figure 18.

Figure 19.

Figure 20.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
Damaged Component [Figure 11~20]	If only few impacted broken components slightly and PCB is ok without any broken	Accepted	-	Charge	Charge
	If it's serious impacted or PCB broken more than 3 lines	Rejected	-	-	-

4. PCB & Component Oxidation

Figure 22.

Figure 23.

Figure 24.

Figure 25.

Figure 26.

Figure 27.

Figure 28.

Figure 29.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
PCB Oxidation [Figure 22~25]	If the PCB is verified as user's faulty. e.g. a. Customer repaired by themselves and use wrong way to clear to get the oxygenation. b. splash by water.	Rejected	-	-	-
	If it's verified as ASUS's faulty	-	Accepted	Free	Charge
Component Oxidation [Figure 26~29]	If only component oxidation and PCB is ok without any oxidation and verified as user's faulty.	Accepted	-	Charge	Charge
	If only component oxidation and PCB is ok without any oxidation and verified as ASUS's faulty.	Accepted	-	Free	Charge

5. PCB Burned

Figure 30.

Figure 31.

Figure 32.

Figure 33.

Figure 34.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
PCB Burned [Figure 30~33]	If M/B PCB is burned. Non-CID	-	Accepted	Free	Charge
PCB Burned [Figure 34]	If gold finger of the card is burned. e.g. Customer wrong to plug in the video card.	Rejected	-	-	-

6. Component Burned

Figure 35.

Figure 36.

Figure 37.

Figure 38.

Figure 39.

Figure 40.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
Component Burned [Figure 35~40]	For general	Accepted	-	Free	Charge
	If it's very obvious as user's faulty	Accepted	-	Charge	Charge

7. Missing Component

Figure 41.

Figure 42.

Figure 43.

Figure 44.

Figure 45.

Figure 46.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
Missing Component [Figure 41~45]	For general, if missing component by user	Accepted	-	Charge	Charge
Missing Component [Figure 46]	If the PCB or PAD is destroyed by user	Rejected	-	-	-

8. Dirt

Figure 47.

Figure 48.

Damage	Comments	Repair	Exchange	In-Warranty	Out-Warranty
Dirt [Figure 47~48]	For general, if the board is dirt and doesn't influence function. We will clean it.	Accepted	-	-	-
	If the board is dirt and it will influence function.	Rejected	-	-	-