Inspection, Testing and Packaging Procedure for Notebook

1.0 Purpose

To establish an inspection testing and packaging procedure standard for notebook. To ensure product quality meets our customer requirements.

2.0 Scope

This procedure is written to support notebook incoming quality control of Computer (Thailand) Co., Ltd. It is a guideline to help operators work in proper way follows by quality of product to satisfy our customers.

3.0 Equipment/ Materials/ Supplies

3.1 Assembly work station table with shelf (210*90*80 cm).

3.2 Material table used in work station (150*60*80 cm).

3.3 QC work station table with shelf (210*90*80 cm).

3.4 Run-In cart (131*65*173cm).

3.5 FDD copy machine (12 targets)

3.6 ESD Smock

3.7 Scotch tape

3.8 Warranty label

3.9 Warranty card

3.10 Abnormality record form

3.11 Cleaning cloths

3.12 Cleaning Detergent

3.13 3.5" Diskette

3.14 Marker pen

3.15 Brush

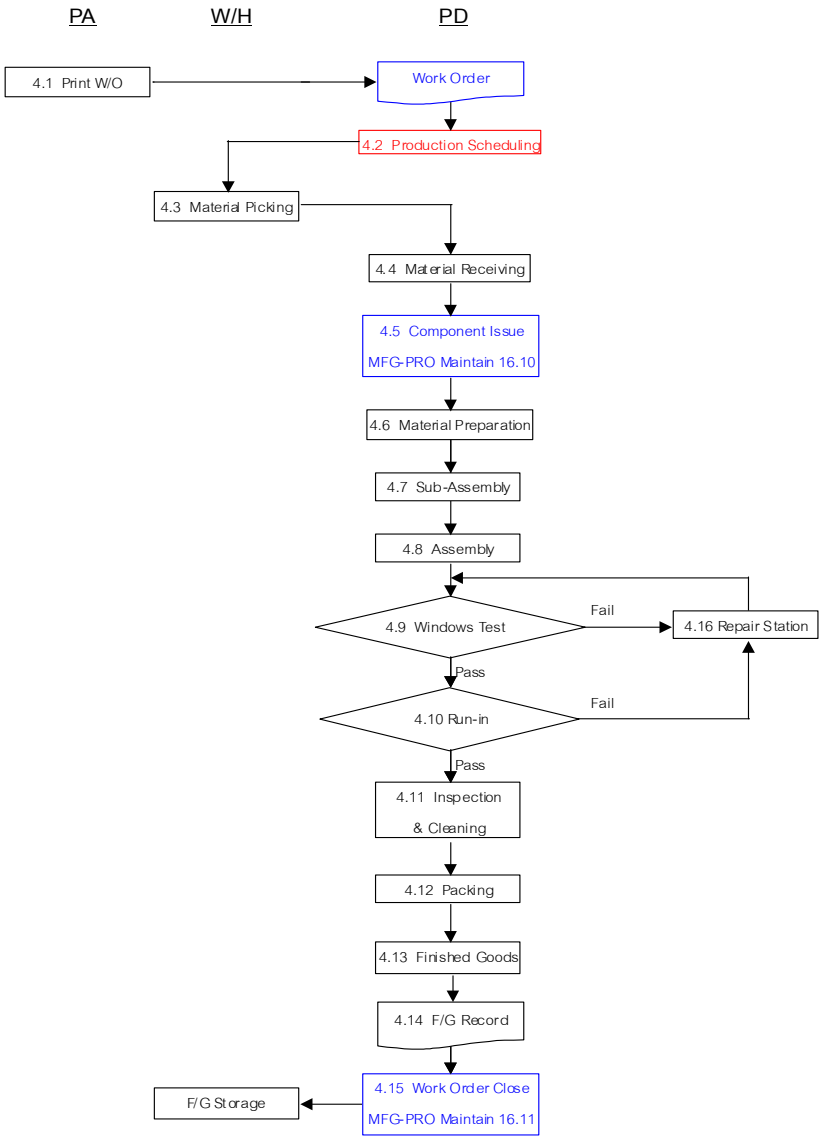
4.0 Procedure

Issued date : 10/10/00

Doc. No. : Flow 4

Rev. : A

Doc. No. Flow 4 Notebook Operation Flow



4.1 Print W/O

4.1.1 PA prints work order out at production printer names PRODPRN1 (a work order has 3 copies).

4.1.2 Assistant Production Manager to review work order and ensure the w/o correct.

Sample of work order print out

woworl.p v01.01 16.6 Work Order Release/ Print Date : 12/18/2000

Page : 1 Acer Computer Co., Ltd. Time : 14:36:06

WORK ORDER PICKLIST

Work Order : 30001778 Issue Date : 12/18/2000

ID : 40038992 Release Date : 12/18/2000

Item Number : AT.44G01.4JTMT Rev : Work Order Due Date: 12/18/2000

TM201T, C600, 64M, 5G, 56K, 12.1T, 24X, WINME P-L :

Remarks : Sales/Job : IQC

Qty Order : 90.0 Deliver To :

Item Number	Site	Bin No.	Req-Qty	UM	Loc	Issued	Receiver
5T.14529.002	1000		90	PC	1220	(0)	
POWER CORD FOR TM505, TM340							

5T.49067.001	1000	90	PC	1220	(0)	
WARRANTY CARD ACERPUT IN ALL BOX						
91.44G01.4JT	1000	90	PC	1220	(0)	
TM201T, C600, 64M, 5G, 56K, 12.1T, 24X, WINME						
LT.STICK.003	1000	90	PC	1220	(0)	
STICKER TRANSPARENCY 2 HOURS SERVICE						

4.2 Production Schedule

4.2.1 Assistant Production Manager to review work order for priority and then schedule for production.

4.2.2 Assistant Production Manager gives work order to sub-assy staff to record work order number, quantity, model, date, time on white board (see attached Doc. No. PD-F-01 for work order tracking and staus update). Then give work order to warehouse staffs for picking materials.

Doc. No. PD-F-01 (Work Order Tracking and Status Update)

Issue date : 10/10/00
Doc. No. : PD-F-01
Rev. : A

Doc. No. PD-F-01 Work Order Tracking and Status Update

Item	Date	Time	W/O	Customer	Model	Qty	Mat'l Pick	Sub-Assy	Assy	Pre- Run-In	Final Test	QC Ins	Pack	F/G	Remark
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

4.3 Material Picking

4.3.1 Warehouse staffs to pick materials as work order states and deliver materials to production line and put at material preparation area.

4.4 Material Receiving

4.4.1 Sub-assy staff to check materials as work order states, count quantity, inspect component item number. Make sure to have no materials damage before signing work order material receipt.

4.4.2 Sub-assy staff keeps the 2nd copy of work order for production & QC staffs reference, gives the 1st copy of work order to warehouse staff for reference and return the original work order to production planner for component issue (MFG-Pro Maintain 16.10).

4.5 Component Issue (MFG-Pro Maintain 16.10)

4.5.1 Assistant Production Manager to perform MFG-PRO.

4.5.2 Put the user ID & Password then enter.

4.5.3 MFG-Pro system shows the main Mann as below.

Main Menu 12/18/00

DISTRIBUTION	MANUFACTURING	FINANCIAL
1. Items/Sites	13. Product Structures	25. General Ledger
2. Addresses/Taxes	14	26. Multiple Currency
3. Inventory Control	15	27. Accounts Receivable
4. Physical Inventory	16. Work Orders	28. Accounts Payable
5. Purchasing	17	29
6	18	30
7. Sales Orders/Invoice	19	31
8. Configured Products	20	32
9. Sales Analysis	21. New Sales Forecast	33
10	22	34
11	23	35
12	24. Key Component	36. Manager Functions

4.5.4 Put 16.10 (MFG-Pro Maintain for work order component issue) then enter.

wowois.p h 16.10 Work Order Component Issue 12/18/00

Work Order:	ID:	T#:	Effdate: 12/18/00
Item Number:	Status:		Issue Alloc: no
			Issue Picked: yes

4.5.5 Put work order number (example : 30001778) then enter.

wowois.p h 16.10 Work Order Component Issue 12/18/00

Work Order: 30001778	ID: 40038992	T#:	Effdate: 12/18/00
Item Number: AT.44G01.4JTMT	Status: R		Issue Alloc: no
TM201T ,C600,64M,5G,56K,			Issue Picked: yes

Item Number	Qty Open	Qty Alloc	Qty Picked	Qty to Iss	Qty B/O
5T.14529.002	90.0	0.0	90.0	90.0	0.0
5T.49067.001	90.0	0.0	90.0	90.0	0.0
91.44G01.4JT	90.0	90.0	0.0	0.0	90.0
LT.STICK.003	90.0	0.0	90.0	90.0	0.0

4.5.6 To deduct component by item number with carefulness and make sure Qty Open = Qty Issue.

4.5.7 After finished the component issue (MFG- Pro Maintain 16.10). To make sure that all deducted components are corrected by re-check at 16.13.2 work order bill inquiry.

wowaiq.p V2.00I 16.13.2 Work Order Bill Inquiry 12/18/00

Work Order	ID	Component Item	Output
----------	----------	----------	

4.5.8 Put work order number (example : 30001778) then enter.

wowaiq.p V2.00I 16.13.2 Work Order Bill Inquiry 12/18/00

Work Order	ID	Component Item	Output
30001778			terminal

Work Order	ID	Component Item	Loc	Qty Req	Qty Allo	Qty Pick	Qty Iss
30001778	40038992	5T.14529.002	1220	90	0	0	90
30001778	40038992	5T.49067.001	1220	90	0	0	90
30001778	40038992	91.44G01.4JT	1120	90	0	0	90
30001778	40038992	LT.STICK.003	1220	90	0	0	90

4.5.9 To check and make sure Qty Required = Qty Issued before exit from MFG-Pro.

4.6 Material Preparation operation

4.6.1 Unpack carton

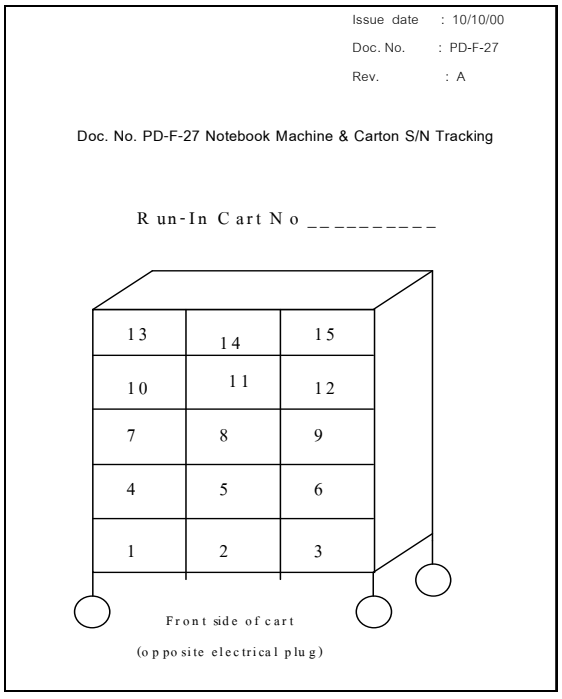
4.6.1.1 Sub-assy staff to unpack and put notebook on run-in cart.

4.6.1.2 Sub-assy staff to re-move accessories from carton, check quantity ,make sure no damage, scratch.

4.6.1.3 Prepare all related accessories such as warranty card, sticker transparency 2 hours service, power cord for notebook, sticker for notebook keyboard.

4.6.1.4 Adhere label on notebook carton with details of run-in cart number and mark position (only one of 1, 2,3,…,15) to identify location of notebook that put on run-in cart which purpose to ensure that we will get back the notebook machine serial number to match with original carton serial number (see attached Doc. No. PD-F-27 for notebook machine & carton s/n tracking).

Doc. No. PD-F-27 Notebook Machine & Carton S/N Tracking



4.6.2 Product work order control

4.6.2.1 Sub-assy staff to write work order number, date, model, item number, quantity, run-in cart number and material types on work order control form (see attached Doc. No. PD-F-02) and attach the complete form on prepared material cartons.

Doc. No. PD-F-02 Work Order Control Form

Doc. No. PD-F-02 Work Order Control Form

Issue date : 10/10/00

Doc. No. : PD-F-02

Rev. : A

1. Work Order No _____
2.Date _____
3. Ouantity _____
4. Model _____
5. Part Number _____
6. Cart No. _____
7. Material Type _____

Prepared by _____ Date _____

Remark _____

_____

4.7 Sub assembly

4.7.1 Warranty label preparation

4.7.1.1 Prepare warranty label for inspection and cleaning operation to adhere on notebook machine, CD-ROM drive, adapter & battery.

4.7.1.2 Mark by ticking on the warranty label the year and month when the said component is being used for assembly. In normal case, notebook is stated to have for one year warranty.

4.7.2 FDD duplication

4.7.2.1 Use the 3.5" master diskette of PQA software to be copier and insert it into drive #1 of FDD copy machine.

4.7.2.2 Insert 3.5" diskettes which require to be copied into drive #2-12 of FDD copy machine.

4.7.2.3 Then process copying. After complete copying to take diskettes out from drives.

4.7.2.4 Discard failed copying or damaged diskettes.

4.8 Assembly operation

4.8.1 Prepare materials which provided by material preparation and sub-assy for packing operation.

4.8.2 Connect adapter power cord to electrical plug and notebook machine then turn on power.

4.9 Windows operating test

4.9.1 Check windows operating system (see attached Doc. No. PD-F-29 Inspection criteria for notebook for title of Windows operating test) to make sure that there is no malfunctions. If it failed, record in windows operating test failure report (see attached Doc. No. PD-F-28) and send the failed machine to repair station.

4.9.2 When finished windows operating system check then turn off notebook machine power.

4.9.3 Insert PQA software 3.5" diskette into 3.5" FDD.

Doc. No. PD-F-28 Windows Operating Test Failure Report

Issue date : 10/10/00
Doc. No. : PD-F-28
Rev. : A

Doc. No. PD-F-28 Windows Operating Test Failure Report for Notebook

Item	Date	W/O	Qty	Model	Item number	Symptom/ Description	Problem solving	Checked by	Remark
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

Issued date : 10/10/00

Doc. No. PD-F-29 Inspection Criteria for Notebook

Doc. No. : PD-F-29

Rev. : A

Title/ operation	Defect Description	Defect Class
1.0 Functional tests		
1.1 Windons operating test	1.1.1 No image at power on (always or intermittent	Major
	1.1.2 System during power on	Major
	1.1.3 No sound during power on	Major
	1.1.4 Interference on screen during power on	Major
	1.1.5 HDD/FDD fail (can not boot, error code, error sound)	Major
	1.1.6 Abnormal LED indicator	Major
	1.1.7 Reset automatically	Major
1.2 Run-in test	1.2.1 Extra dot on LCD screen	Major
	1.2.2 Extra horizontal line on LCD screen	Major
	1.2.3 LCD screen defective	Major
	1.2.4 LCD screen brightness or contrast abnormal	Major
	1.2.5 LCD screen color abnormal	Major
	1.2.6 LCD screen is blurred	Major
2. External inspection	2.1 Damage, scratches, smears, deformation or dent	Major
	2.2 Wrong/ abnormal color	Major
	2.3 Characters not printed, unclear or burred printing	Major
	2.4 Wrong label or missing	Major
	2.5 LED damage/ abnormal brightness, color/ loose	Major
	2.6 Wrong printing/ missing/ abnormal of label, logos, marks	Major
	2.7 Keyboard country version different from system model	Major
	2.8 Keypad color error	Major
3. Packaging inspection	3.1 Missing carton label or label up-side-down	Major
	3.2 Carton label does not match model, S/N, Eng version, system BIOS	Major
	3.3 Scratches, damages, dirty on carton	Major
	3.4 Bad printing, wrong color, blurred characters (unreadable)	Major
	3.5 Wrong carton label position	Minor
4. Accessories inspection	4.1 Power cable internal wires exposed	Critical
	4.2 Battery not included	Major
	4.3 Adapter not included	Major
	4.4 Diskette not included	Major
	4.5 Power cord not included	Major
	4.6 Manual not included	Major
	4.7 Other specified accessories not included	Major

4.10 Run-in test

4.10.1 Ensure that PQA software 3.5" diskette is already inserted in 3.5" FDD.

4.10.2 Record beginning & ending of run-in time (see attached Doc. No. PD-F-30 for run in time & inspection and Doc. No. PD-F-31 for run in white board record) then turn on power and perform run-in for 2 hours. Run-in is hardware tested for system board, memory, K/B, video, parallel port, serial port, HDD, co-processor, pointing dev., cache, PnP BIOS.

4.10.3 When finished run-in test, remove PQA diskette.

4.10.4 During run in to Inspect for defects and abnormalities on LCD screen (see attached Doc. No. PD-F-29 for title of run-in test).

4.10.5 Record failed run-in or defect found on LCD screen in run-in failure report (see attached Doc. No. PD-F-32 for run-in failure & inspection reject report).

4.10.6 Turn off power and disconnect power cord.

4.10.7 Send failed machine to repair station and move passed machine to inspection & cleaning station.

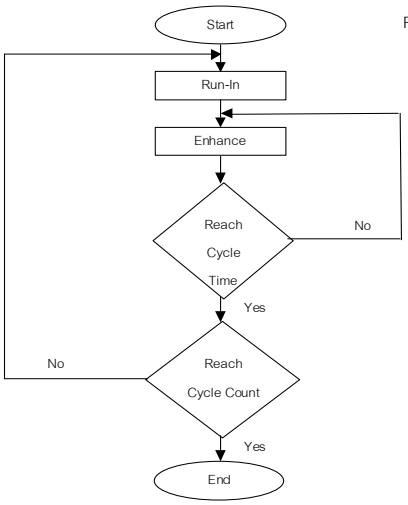
4.10.8 The attached Doc. No. flow 5 is run-in phase flow.

Issued date : 10/10/00

Doc. No. Flow 5 Run-in phase flow

Doc. No. : Flow 5

Rev. : A



Doc. No. PD-F-30 Run-In Time & Inspection

Issue date : 10/10/00
Doc. No. : PD-F-30
Rev. : A

Doc. No. PD-F-30 Run-in time and inspection

Item	Run In Date	Work Order	Model	Part Number	Run In Cart No.	Qty	Beginning Time	By	Ending Time	By	Run In Time (Hrs)	Remark
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Doc. No. PD-F-31 Run-In White Board Record

Issue date : 10/10/00
Doc. No. : PD-F-31
Rev. : A

Doc. No. PD-F-31 Run-In White Board Record

W/O :	Begin :
Date :	by :
Qty :	End :
Model :	by :
P/N :	
Remark :	

Doc. No. PD-F-32 Run-In Failure & Inspection Reject Report

Issued date : 10/10/00
Doc. No. : PD-F-32
Rev. : A

Doc. No. PD-F-32 Run-In Failure and Inspection Reject Report

Item	Date	W/O	Qty	Model	Item number	Symptom/ Description	Problem solving/ Action	Checked by	Remark
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

4.11 Inspection & Cleaning

4.11.1 Inspector staff to move notebook machine from run-in cart and put on inspection workstation. Then adhere warranty label on notebook machine, CD-ROM drive, adapter & battery and adhere sticker transparency 2 hours service.

4.11.2 Inspect notebook machine by using guideline (Ref : Doc. No. PD-F-29 for inspection criteria for notebook, to see the title of external inspection).

4.11.3 Record defect found in form of inspection abnormality report for notebook (see attached Doc. No. PD-F-12).

4.11.4 Clean notebook by soft cloths or brush to remove dust/ particles.

4.11.5 Send accepted and cleaned notebook machine to packing operation.

Doc. No. PD-F-12(Cleaning & Inspection Abnormality Report)

Issued date : 10/10/00
Doc. No. : PD-F-12
Rev. : A

Doc. No. PD-F-12 (Cleaning & Inspection Abnormality Report)

Item	Date	W/O	Qty	Model	Part number	Serial No	Abnormality/ Defect Found	Problem solving	Checked by	Remark
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

4.12 Packing

4.12.1 Before packing, to prepare cartons of notebook machine and re-check for quantity of accessories.

4.12.2 Put the notebook into the plastic bag. Fold the bag nicely and tape it with scotch tape.

4.12.3 Put accessories such as warranty card, adapter & battery, sticker for notebook keyboard.

4.12.4 Seal the carton using notebook label with wording of "please check contents before accepting if seal is torn".

4.13 Finished goods

4.13.1 When completed packing to take finished goods to put on pallet then deliver finished goods to put at finished goods area.

4.14 Finished goods record

4.14.1 When completed w/o, QC staff to record details such as work order number, part number, product description, work order quantity, done quantity, complete date & checked by into finished goods report (see attached Doc. No. PD-F-13).

4.14.2 Bring the finished goods report to request for signature from production, warehouse and logistics for their acknowledgement.

4.14.3 After complete signature on finished goods report then give original copy to warehouse staff, duplicate copy to logistics staff and triplicate to production staff.

Doc. No. PD-F-13 (Finished Goods Report)

Issued date : 10/10/00
Doc. No. : PD-F-13
Rev. : A

Doc. No. PD-F-13 (Finished Goods Report)

Finished Goods Report No. ……..

W/O Number	Part Number	Product Description	W/O Qty	Done Qty	Completed On	Checked By

Issued by : ……. Received by : ……. Maintained by : ……. Date : …….

Production (Triplicate) Warehouse (Original) Logistic (Duplicate)

4.15 Work order close (MFG-Pro Maintain 16.11)

4.15.1 Assistant Production Manager to perform MFG-PRO.

4.15.2 Put the user ID & Password then enter.

4.15.3 MFG-Pro system shows the main Manu as below.

Main Menu 12/18/00

DISTRIBUTION	MANUFACTURING	FINANCIAL
1. Items/Sites	13. Product Structures	25. General Ledger
2. Addresses/Taxes	14	26. Multiple Currency
3. Inventory Control	15	27. Accounts Receivable
4. Physical Inventory	16. Work Orders	28. Accounts Payable
5. Purchasing	17	29
6	18	30
7. Sales Orders/Invoice	19	31
8. Configured Products	20	32
9. Sales Analysis	21. New Sales Forecast	33
10	22	34
11	23	35
12	24. Key Component	36. Manager Functions

4.15.4 Put 16.11 (MFG-Pro Maintain for work order close) then enter.

woworc.p g 16.11 Work Order Receipt 12/18/00

Work Order: ID: Status:

Remarks:

Item Number: L/S: UM:

Description: Auto Lot Numbers:

Open Qty:

Quantity: Site:

UM: Location:

Conversion: Lot/Serial:

Reject Qty: Ref:

UM: Multi Entry:

Conversion: Total Units:

Ticket#:

Effective:

Close:

4.15.5 Put work order number (example : 30001778) then enter.

woworc.p g 16.11 Work Order Receipt 12/18/00

Work Order: 30001778 ID: 40038992 Status: R

Remarks:

Item Number: AT.44G01.4JTMT L/S: UM: PC

Description: TM201T ,C600,64M,5G,56K, Auto Lot Numbers: no

Open Qty: 90.0

Quantity: 0.0 Site: 1000

UM: PC Location: 1120

Conversion: 1.0000 Lot/Serial:

Reject Qty: 0.0 Ref:

UM: PC Multi Entry: no

Conversion: 1.0000 Total Units:

Ticket#:

Effective:

Close:

4.15.6 Put quantity which requires to close and make sure open quantity = close quantity then enter.

4.15.7 Make sure that site, location and ticket number are correct before answering "YES" to close work order.

4.15.8 After finished the work order close (MFG- Pro Maintain 16.11). To make sure that the work order is completely closed by checking at 16.1 work order maintenance.

wowomt.p i 16.1 Work Order Maintenance 12/18/00

Work Order:	ID:
Item Number:	
Type:	
Site:	
Qty Ordered:	Order Date:
Qty Completed:	Release Date:
Qty Reject:	Due Date:
Status:	Site:
Sales/Job:	Routing Code:
Supplier:	Bill of Material:
Yield:	
Remarks:	
Comments:	Post variances at SFC:

4.15.9 Put work order number (example : 30001778) then enter.

wowomt.p i 16.1 Work Order Maintenance 12/18/00

Work Order: 30001778 ID: 40038992

Item Number: AT.44G01.4JTMT TM201T ,C600,64M,5G,56K,

Type: 12.1T,24X,WINME

Site: 1000

Qty Ordered: 90.0 Order Date: 12/18/00

Qty Completed: 90.0 Release Date: 12/18/00

Qty Reject: 0.0 Due Date: 12/18/00

Status: C Site: 1000

Sales/Job: BTS Routing Code:

Supplier: Bill of Material:

Yield: 100.00%

Remarks:

Comments: yes Post variances at SFC: yes

4.15.10 To check and make sure that quantity ordered = quantity completed and Status : C (closed).

4.15.11 Ask warehouse staff to deliver finished goods to store in warehouse.

4.16 Repair Station

4.16.1 When receive failed notebook machine from windows operating test or run-in test operations. record the failure mode with details such as date, w/o, qty, model, p/n in the form of production mini-repair station report (see attached Doc. No. PD-F-14).

4.16.2 Basic diagnosis is performed to troubleshoot the problem. If the problem can not be solved, the notebook machine will be submitted to repair center department for further failure analysis.

4.16.3 After notebook machine is already troubleshot the problem, record cause/symptom and problem solving into the form of production mini-repair station report (see attached Doc. No. PD-F-14).

4.16.4 Send notebook machine back to re-start testing again since windows test through run-in test. respectively.

Doc. No. PD-F-14 (Production Mini- Repair Station Report)

Issued date : 10/10/00
Doc. No. : PD-F-14
Rev. : A

Doc. No. PD-F-14 (Production Mini-Repair Station Report)

Item	Date	W/O	Qty	Model	P/N	Serial number	Symptom	Cause	Troubleshooting	Component P/N	Component S/N	Checked by	Remark
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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17													
18													
19													
20													