

AWIPS MODIFICATION NOTE 23 (for Electronics Technicians)
Maintenance, Logistics, and Acquisition Division
W/OPS12: JCS/KS

SUBJECT: Router Upgrade Procedures

PURPOSE: To provide upgrade procedures for Cisco routers.

EQUIPMENT AFFECTED: AWIPS, old routers

PARTS REQUIRED: The Router Replacement Field Modification Kit (FMK) will arrive in 3 boxes.

SPECIAL TOOLS REQUIRED: Standard site tool kit

MODIFICATION PROCUREMENT: None

EFFECTIVITY: All AWIPS WFOs, RFCs, and regional headquarters.

ESTIMATED TIME REQUIRED: Approximately 4-5hrs for all sites.

EFFECT ON OTHER INSTRUCTIONS: None. File in EHB-13, section 5.1.

AUTHORIZATION: The authority for this modification note is Request for Change (RC) AC380 (PECP-022.3).

VERIFICATION STATEMENT: This procedure was tested and verified at State College, PA (CTP/RHA) and Mt. Holly, NJ (PHI).

GENERAL:

This modification note provides replacement/upgrade procedures for Cisco routers. Note that Northrop Grumman IT will send the FMK in three boxes.

PROCEDURE:**Prepare site for Router Upgrade**

NOTE: Verify the contents of the FMK with the Site Receiving Report.

If XT upgrades have **not** yet been performed refer to Information Note 13A located at <http://www.ops1.nws.noaa.gov/AWIPSInfoNotes.htm> to ensure that all connections match the port assignments in prior to beginning. Otherwise, refer to Table 1 on the next page to ensure that all connections match the port assignments.

1. Unbox the NetGear 5-Port switches (RTR/SW1-<siteID> and RTR/SW2-<siteID>) and place them on the shelf above SwPnl2 in the WFO CP rack (Rack 2).

2. Plug the RTR/SW1-<siteID> power cord into an available outlet on the left vertical power strip and plug RTR/SW2-<siteID> into a matching outlet on the opposite side.

For collocated sites, install the RFC NetGear 5-Port switches in the RFC CP rack (Rack 2) using the above scenario.

3. Extend and connect the new Router Cat5e LAN cables (NWS5113) from the designated high-speed LAN switch ports in Rack 5 to the appropriate ports of the new Router 5-Port Switches on the shelf in Rack 2.

For collocated sites, extend the inter-rack (WFO to RFC) LAN cables from Port 4 of the new Router 5-Port Switches in the WFO CP rack (WFO Rack 2) to the router locations in the RFC CP rack (RFC Rack 2).

4. Extend the new router M&C cables from the Xyplex location in Rack 3 to the router location in Rack 2. **DO NOT** disconnect the old M&C cables at this time.

5. Unbox Router 1 and its associated cables in preparation for install.

NOTE: Notify the NCF that the site is ready to begin the upgrade of router 1 and wait for their clearance before proceeding beyond this point (takes less than 5 minutes).

Table 1: Port Assignments

Plaintree WaveSwitch 1216			
Port	LSW1	LSW2	Phubs*
1			
2			
3			
4			
5	WanProbe1	WanProbe2	
6	CPSYNC1	CPSYNC1	Phub-3
7	CPSYNC2	CPSYNC2	Phub-4
8	Firewall		
9	ORPG1	ORPG2	
10			
11			
12			
13	CRS	CRS	PhubCRS
14			
15			
16			
17	FDDI LAN	FDDI LAN	
18	HSW1	HSW2	

HP Procurve 2524			
Port	HSW1	HSW2	SWs*
1	Router1	Router1	RTR/SW1
2	Router2	Router2	RTR/SW2
3	XT1	XT2	
4	XT3	XT4	
5	XT5	XT6	
6	XT7	XT8	
7	XT9	XT10	
8	XT11/WAX**	XT12/WAX**	
9	XT13	XT14	
10	Text Printer	Color Printer	
11		High-speed Printer	
12	LX1	LX2	
13	LX3	LX4	
14	LX5	LX6	
15	LX7	LX8	
16	LX9	LX10	
17	LX11/PX3***	LX12/PX3***	
18	LX13/PX4***	LX14/PX4***	
19	CPSBN1	CPSBN1	SP/SW1
20	CPSBN2	CPSBN2	SP/SW2
21	PX1	PX1	PX/SW1
22	PX2	PX2	PX/SW2
23	AX	AX	AX/SW
24	LSW1	LSW2	
25	GSW1 (RFC)	GSW2 (RFC)	

* Port 1 of the Phub or SW should be connected to LSW1 or HSW1;
 Port 2 of the Phub or SW should be connected to LSW2 or HSW2;
 Port 4 of the Phub or SW should be connected to the device

** ACR WFO Archive Server

*** Additional PXs at AFC, VRH, and TBW4

X-TERM port reassignment

Router port reassignment

A. Router 1 Upgrade

NOTE: If two people are available, attach the cables to the new router on the bench and pass the cables to the second person while installing. It might take two people to dislodge the old routers.

- At VIR Switch panel 1, switch the Router 1 WAN connections to Router 2 according to the following:

All sites **except** ALR, FWR, MSR, PTR, RSA, and KRF:

Switch module 4 from the A to B position

ALR, FWR, MSR, PTR, and RSA:

Switch modules 4 and 7 from the A to B position

KRF:

Switch modules 4, 7, and 8 from the A to B position

NOTE: Have the NCF verify that all the appropriate interfaces are active on Router 2 and **do not** proceed past this point until cleared to do so by the NCF.

2. Power off Router 1.
3. Disconnect all cables from the rear of Router 1 and lay them aside.
4. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 1 and relabel it.
5. Remove Router 1 from the rack. It is necessary to remove two small adjusting screws from the inner-side of each rear rack-mount support assembly (see red arrows in Figure 1) before removing the front rack-mount screws. Remove the rear support assembly last.

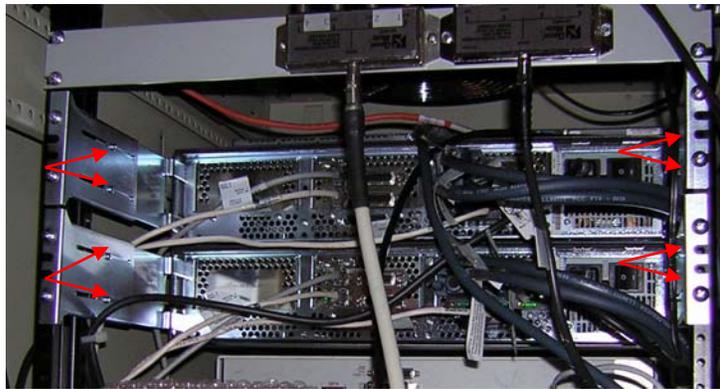


Figure 1: Adjusting Screws

6. Mount the new Router 1 in the space vacated by the old Router 1 using the mounting screws removed in step 5. The new router requires only front mounting.
7. Locate the new Cisco router RS530 and V.35 “Smart Serial” cables (NWS4932 and NWS4931, respectively) for Router 1, and perform a “one-for-one” swap with the serial cables previously disconnected from the old Router 1 (see table 2 for cable information).

Table 2

Collocated Sites

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW1	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A4
NWS4931	WA1AW7	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W0/S1	TIU-1 (AdTran)	PORT V.35
NWS4931	WA1AW13	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W1/S0	TIU-2 (AdTran)	PORT V.35
NWS4932	WA1AW3	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B5
NWS4932	WA1AW17	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. A7
NWS4932	WA1AW21	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. B8

Standalone WFOs

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW1	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A4
NWS4931	WA1AW2	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W0/S1	SWITCH PANEL - 1	PORT EQP. A7
NWS4932	WA1AW3	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B5

KRF

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW1	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A4
NWS4931	WA1AW7	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W0/S1	TIU-1	PORT V.35
NWS4931	WA1AW13	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W1/S0	TIU-2	PORT V.35
NWS4932	WA1AW3	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B5
NWS4932	WA1AW17	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. A7
NWS4932	WA1AW18	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. A8

TUA

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW1	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A4
NWS4931	WA1AW7	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W0/S1	TIU-1	PORT V.35
NWS4931	WA1AW13	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 1	PORT W1/S0	TIU-2	PORT V.35
NWS4932	WA1AW3	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B5
NWS4932	WA1AW21	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. B8
NWS4932	WA1AW20	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 1	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. B7

8. Connect the new M&C cable (run earlier) to the console port of the router and the appropriate port on the Xyplex.
9. Stand-alone sites, refer to substeps **a** and **b**. Collocated sites, refer to substeps **c** through **e**:

Stand-alone sites:

- a. Connect the new gray LAN cable (NWS5115) between FastEthernet Port 0/0 (FE 0/0) on the router and RTR/SW1-<siteID> Port 4.

- b. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 1 and connect it to FastEthernet Port 0/1 (FE 0/1).

Collocated sites:

- c. Connect the RFC LAN cable (NWS5115) from RTR/SW1-*<RFCsiteID>* Port 4 to Router 1, FastEthernet Port 0/1 (FE 0/1) and connect the WFO LAN cable (NWS5113) from RTR/SW1-*<WFOsiteID>* Port 4 to Router 1, FastEthernet Port 0/0 (FE 0/0).
 - d. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 2 and connect it to Fast ETH0 (FE 0).
 - e. Remove the LAN cable (WA1AW11) and its hub and discard both.
10. Attach the power cord previously disconnected from the old Router 1 and **call the NCF** prior to powering on the new router.
 11. At VIR Switch panel 1, switch the Router 1 WAN connections back to Router 1 according to the following:

All sites **except** ALR, FWR, MSR, PTR, RSA, and KRF:

Switch module 4 from the B to A position

ALR, FWR, MSR, PTR, and RSA

Switch modules 4 and 7 from the B to A position

KRF:

Switch modules 4, 7, and 8 from the B to A position

NOTE: Have the NCF test the functionality of Router 1.

12. Unbox Router 2 and its associated cables in preparation for install.

NOTE: Notify the NCF that the site is ready to begin the upgrade of router 2 and wait for their clearance before proceeding beyond this point.

B. Router 2 Upgrade

1. At VIR Switch panel 1, switch the Router 2 WAN connections to Router 1 according to the following:

All standalone WFOs and all RFCs **except** ORN, RSA, STR, TIR, and TUA:

Switch module 5 from the A to B position

ORN, RSA, STR, and TIR:

Switch modules 5 and 8 from the A to B position

TUA:

Switch modules 5, 7, and 8 from the A to B position

NOTE: Have the NCF verify that all the appropriate interfaces are active on Router 1 and do not proceed past this point until cleared to do so by the NCF.
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2. Power off Router 2.
3. Remove the front panel below Router 2.
4. Disconnect all cables from the rear of Router 2 and remove it from the rack.
5. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 1 and relabel it.
6. Mount the new Router 2 in the space vacated by the old Router 2 using the mounting screws removed in section A, step 5.
7. Locate the new Cisco router RS530 and V.35 "Smart Serial" cables (NWS4932 and NWS4931, respectively) for Router 2 and perform a 'one-for-one' swap with the serial cables previously disconnected from the old Router 2 (see table 3 for cable information).

Table 3

Collocated Sites

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW4	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A5
NWS4931	WA1AW14	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W0/S1	TIU-3 (AdTran)	PORT V.35
NWS4931	WA1AW15	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W1/S0	TIU-4 (AdTran)	PORT V.35
NWS4932	WA1AW6	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B4
NWS4932	WA1AW18	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. A8
NWS4932	WA1AW20	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. B7

Standalone WFOs

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW4	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A5
NWS4931	WA1AW5	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W0/S1	SWITCH PANEL - 1	PORT EQP. B7
NWS4932	WA1AW6	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B4

KRF

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW4	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A5
NWS4931	WA1AW14	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W0/S1	TIU-3	PORT V.35
NWS4931	WA1AW15	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W1/S0	TIU-4	PORT V.35
NWS4932	WA1AW6	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B4
NWS4932	WA1AW21	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. B8
NWS4932	WA1AW20	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. B7

TUA

NWS #	WIRE NO*	DESCRIPTION	Source		Destination	
NWS4932	WA1AW4	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W0/S0	SWITCH PANEL - 1	PORT EQP. A5
NWS4931	WA1AW14	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W0/S1	TIU-3	PORT V.35
NWS4931	WA1AW15	CABLE, MALE DTE V.35, 10 FT.	ROUTER - 2	PORT W1/S0	TIU-4	PORT V.35
NWS4932	WA1AW6	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W1/S1	SWITCH PANEL - 1	PORT EQP. B4
NWS4932	WA1AW17	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S0	SWITCH PANEL - 1	PORT EQP. A7
NWS4932	WA1AW18	CABLE, MALE DTE RS530, 10 FT.	ROUTER - 2	PORT W2/S1	SWITCH PANEL - 1	PORT EQP. A8

8. Connect the new M&C cable (run earlier) to the console port of the router and the appropriate port on the Xyplex.
9. Stand-alone sites, refer to substeps **a** and **b**. Collocated sites, refer to substeps **c** through **e**:

Stand-alone sites:

- a. Connect the new gray LAN cable (NWS5115) between FastEthernet Port 0/0 (FE 0/0) on the router and RTR/SW2-*<siteID>* Port 4.
- b. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 1 and connect it to FastEthernet Port 0/1 (FE 0/1).

Collocated Sites:

- c. Connect the RFC LAN cable (NWS5115) from RTR/SW2-*<RFCsiteID>* Port 4 to Router 2, FastEthernet Port 0/1 (FE 0/1) and connect the WFO LAN cable (NWS5113) from RTR/SW2-*<WFOsiteID>* Port 4 to Router 2, FastEthernet Port 0/0 (FE 0/0).

- d. Find the LAN cable (WA1AW10) previously disconnected from Ethernet Port 2 and connect it to Fast ETH0 (FE 0).
 - e. Remove the LAN cable (WA1AW12) and its hub and discard both.
10. Reattach the front panel below the new router.
 11. Attach the power cord previously disconnected from the old Router 2 and **call the NCF** prior to powering on the new router.
 12. At VIR Switch panel 1, switch the Router 2 WAN connections back to Router 2 according to the following:
All standalone WFOs and all RFCs **except** ORN, RSA, STR, TIR, and TUA:
 Switch module 5 from the B to A position
ORN, RSA, STR, and TIR:
 Switch modules 5 and 8 from the B to A position
TUA:
 Switch modules 5, 7, and 8 from the B to A position

NOTE: Have the NCF test the functionality of Router 2.

C. Clean Up

1. Un-install the replaced (old router connections) LAN and M&C cables.
2. Remove PHub 6 and PHub 7 (the old router PHubs) and LAN connections from the DS2 rack (Rack 6).
3. Remove the disconnected router serial cables.
4. "Dress" the new LAN and M&C cables into the existing rack cable bundles.
5. "Dress" the new router serial cables to the vertical rack rails in the same manner as the old cables removed in step 2.
6. Prepare the old routers for return to Cisco according to the instructions in section D.

D. Router Disposition Instructions

As part of the router replacement, old routers must be returned to Cisco for trade-in under the Cisco Technology Migration Program (CTMP). The following section provides the procedure to arrange for pickup and return of the decommissioned routers.

Send an e-mail to ctmp-pickup-req@external.cisco.com (with cc: to Carolyn.Senseman@ngc.com and Ronald.Holmes@ngc.com) with the information indicated below. (Use the Adobe Acrobat Text Select Tool to copy-paste the information in table 4 in an email.) Print or make enough copies of the e-mail to include one copy in the box with each returned router. Cisco's freight vendor, HAAS, will then contact the site within 3 business days to coordinate the pickup of the used equipment. If HAAS does not coordinate a pickup within 3 business days, the site should contact them directly at 877-722-2867.

Place the CTMP Number on all boxes. Forward any tracking information to Carolyn.Senseman@ngc.com and Ronald.Holmes@ngc.com.

Table 4

Company Name : <Site Name>, National Weather Service	
Contact Name:	
Contact E-mail:	
Address:	
City:	
State:	
Zip:	
Phone Number:	
Fax Number:	
RMA Number(s): 2425118	
CTMP Number(s): 04232004-11469220	
Pickups Include all items on RMAs (Y/N): N	
Return Equipment is (Choose One): (<input checked="" type="checkbox"/>) Cisco Only () Competitive Only () Combination	
Description of pick-up: Trade-in routers – Quantity 2	
Part Number Description	Cisco 4500-M Router
Size	23" x 19" x 12" box (each) – (for WFOs)
	23" x 22" x 10" box (each) – (for RFCs)
Weight	26 lbs. (each)
Available for pickup between:	
Shipping dock available (Y/N):	
If yes, Dock #:	

Use the shipping boxes from the new routers to return the old routers. If the old routers do not fit in the boxes due to the mounting rails, bend the rear portion of each mounting rail toward the back of the router as necessary. Place a copy of the "request for pickup" e-mail in each box.

Label each box for shipment to the following address:

SCA-Cisco Returns
 CTMP Number: 04232004-11469220
 3357H South Park Place
 Dock Door 49
 Grove City OH 43123

REPORTING INSTRUCTIONS:

Report the completed installation using the Engineering Management Reporting System (EMRS) according to the instructions in NWS Instruction 30-2104, Maintenance Documentation, Part 4, Appendix F. Include the following information on the EMRS Report:

Block #	Block Type	Information
5	Description	Router Upgrade Procedures
7	Equipment Code	AWIPS
8	Serial Number	001
15	Comments	Upgraded Cisco Routers 1 and 2 I.A.W. AWIPS Modification Note 23. Provide serial numbers of both new routers: Router 1 S/N: _____ Router 2 S/N: _____
17a	Mod. No.	23

A sample EMRS report is provided as attachment A.

Mark S. Paese
Director, Maintenance, Logistics, and Acquisition Division

Attachment A - EMRS Report Sample

Attachment A - EMRS Report Sample

A26 Detail Form - ESCM2, SILVER SPRING, MD :: JOHN MERHI - Microsoft Internet Explorer

New A26 Commit A26 Place on Hold Copy A26 Delete A26 Detail Report Document Summary Help

GENERAL INFORMATION

NEW RECORD WFO* HUN Document No.* HUN40923000

1. Open Date 09/22/2004 Open Time 08:00 2. Op Initials WSH 3. Response Priority
 Immediate Low
 Routine Not Applicable 4. Close Date 09/22/2004 Close Time 13:00

5. Maintenance Description 470 characters left AWIPS
 AWIPS Router Upgrade procedure

EQUIPMENT INFORMATION

6. Station ID* HUN 7. Equipment Code AWIPS 8. Serial Number 001 9. TM M 10. AT M 11. How Mal 999

Alert: Time Remaining: (For Block 12 use only)

13. PARTS USAGE and CONFIGURATION MANAGEMENT REPORTING

ASN	Vendor Part No. (New Part)	Serial Number (Old Part)	Serial Number (New Part)	
				New Row
				Delete Row

14. WORKLOAD INFORMATION

a. Routine	b. Non-Routine	c. Travel	d. Misc	e. Overtime
Hours Minutes	Hours Minutes	Hours Minutes	Hours Minutes	Hours Minutes
			5 0	

MISCELLANEOUS INFORMATION

15. Maintenance Comments 585 characters left
 Replaced AWIPS Routers 1 and 2 I.A.W. AWIPS Mod Note 23
 Serial Number of Router 1: _____
 Serial Number of Router 2: _____

16. Tech Initials BLB

17. SPECIAL PURPOSE REPORTING INFORMATION

a. Mod No.	b. Mod Act/Deact Date	c. Block C	d. Trouble Ticket No.	e. Block E
23	09/22/2004			

Commit A26 Place on Hold Copy A26 New A26 Cancel

Done Internet