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DESCRIPTION: **Combined Modification Document - Maintenance Note 28**
**TCTO 31P1-4-108-597**
**EEM 6345.1 CHG 29, Chap 26**
**Inspection for RF Leakage in the Equipment Shelter**

DATE OF ISSUE: March 20, 2002

QUANTITY OF ISSUE: EACH

NWS: EHB-6, Maintenance Note 28
DoD: TO 31P1-4-108-597
FAA: EEM Modification Handbook 6345.1 CHG 29, Chap 26

# INSPECTION FOR RF LEAKAGE IN THE EQUIPMENT SHELTER

# DOPPLER METEOROLOGICAL RADAR WSR-88D

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COMMERCE, THE AIR FORCE, THE NAVY, AND TRANSPORTATION

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**FAA APPROVAL**

Digitally signed by James D. Pritchard
cn=James D. Pritchard, ou=AOS-200, o=National Airway
Engineering Systems Division, c=US
Date: 2002.03.13 14:43:22 -06'00'
Reason: FAA Signature Authority

_____ **Date** _____

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**BY ORDER OF THE SECRETARY OF THE AIR FORCE**

**JOHN P. JUMPER, General, USAF**
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**Edward L. Berkowitz, Chief**
**Program Branch**
**Radar Operations Center**
**TOMA**

## 1. SUBJECT

Inspection for RF Leakage in the Equipment Shelter.

## 2. PURPOSE

This maintenance document provides instructions to allow site technicians to check for Radio Frequency (RF) leaks. It also informs site electronics technicians of possible RF leakage conditions which could exist in the equipment shelter due to loose or damaged waveguide hardware. The authority for this maintenance is as follows: NWS, EHB-15, Occupational Safety and Health, dated February 22, 2001; DoD, AFOSH STD 48-9, Radio Frequency Radiation Safety Program, dated 1 Aug 97; and FAA, Order 3910.3A., Control of Radiation Health Hazards in FAA Workplaces, dated October 19, 1983.

For additional information concerning this document, contact the Radar Operations Center (ROC) Hotline, Norman, OK; phone number: (800) 643-3363 or (405) 366-2980 or by e-mail at NEXRAD.Hotline@noaa.gov. An electronic copy of this document can be found at the following internet address:

www.roc.noaa.gov/ssb/sysdoc/techman/tmlinks.asp

## 3. SITES AFFECTED

This maintenance action applies to all WSR-88D Radar Data Acquisition (RDA) sites. See ATTACHMENT 2 for a complete list of sites affected.

## 4. ESTIMATED COMPLETION DATE

This maintenance must be completed and reported no later than 60 days after receipt of this document and appropriate test equipment.

## 5. EQUIPMENT AFFECTED

Radar Data Acquisition Group.

## 6. SPARES AFFECTED

Not applicable.

## 7. MODIFICATION ACCOMPLISHED BY

NWS and FAA: Site electronics technicians will perform this maintenance. DoD: base Bio Environmental Health personnel will perform this maintenance. One technician is required to perform this action. It is the responsibility of the site electronics technician to ensure completion of this maintenance.

## 8. MATERIAL REQUIRED

The following kit will be shipped to National Weather Service Eastern, Central and Western region sites.

| Nomenclature | Part Number | NSN | Qty |
|---|---|---|---|
| WG EMR20 Radiation Meter, SERD 99 | 2244/20 | 6625-01-492-3940 | 1 |
| Meter kit contains the following parts | | | |
| Model WG Type 8 E-Field 100 kHz - 3 GHz Probe | | | 1 |
| Model EMR-20 Radiation Meter | | | 1 |

## 9. SOURCE OF MATERIALS

Kits are requisitioned by the ROC Retrofit Management Team and shipped at no cost to the site.

## 10. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED

SERD 99, WG EMR20 Radiation Meter NSN 6625-01-492-3940,
Part Number 2244/20, or equivalent also includes:

- Model WG Type 8 E-Field 100 kHz - 3 GHz Probe
- Model EMR-20 Radiation Meter

## 11. TIME AND PERSONNEL REQUIRED

| Work Phases | Work-hours |
|---|---|
| Unpacking | 0.1 |
| Disassembly | 0.0 |
| Installation | 0.0 |
| Assembly | 0.1 |
| Operational Check | 0.5 |
| Total Work-hours | 0.75 |

## 12. DOCUMENTS AFFECTED

a. System Description, dated 15 May 2002
NWS: EHB 6-500, Change 1
DoD: TO 31P1-4-108-1, Change 1
FAA: TI 6345.1 V1, Change 1
Navy: EM400-AA-MMM-010/WSR-88D, Change 1

b. Preventive Maintenance Inspection Work Cards, dated 15 May 2002
NWS: EHB 6-503-2
DoD: AF TO 31P1-4-108-6WC-8
FAA: TI 6345.1 V4

c. Maintenance Instructions Radar Data Acquisition (RDA), dated 15 May 2002
NWS: EHB 6-510
DoD: AF TO 31P1-4-108-152
FAA: TI 6345.1 V7

d. Operations and Maintenance Instructions Transmitter System, dated 15 May 2002
NWS: EHB 6-511
DoD: AF TO 31P1-4-108-112
FAA: TI 6345.1 V8

## 13. VERIFICATION STATEMENT

This modification was successfully completed at the ROC.

## 14. DISPOSITION OF REMOVED AND REPLACED PARTS/MATERIALS

Not applicable.

## 15. PROCEDURES

**NWS:**

National Weather Service Eastern, Central, Western Region sites, use the procedures in ATTACHMENT 1. Southern Region, use the operating instructions that came with the Radiation Meter sent to your site and complete step 4 through step 6 in ATTACHMENT 1.

**DoD:**

Contact base Bioenvironmental Health personnel to perform these tests.

**FAA:**

Contact the following offices to perform these tests. For Alaskan Region it is AAL-470; for Western Pacific Region it is AWP-470; and for Southern Region it is ASO-470.

## 16. FAA DISTRIBUTION

This directive is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: NXRAD.

To obtain additional hard copies of this publication, contact Printing & Distribution Team, AMI-700B, at (405) 954-3771.

## 17. CHANGES TO TABLE OF CONTENTS (FAA)

This chapter will be included in the next revision to the table of contents for Order 6345.1, Electronic Equipment Modification Handbook - Next Generation Weather Radar (NEXRAD).

## 18. RECOMMENDATIONS FOR CHANGES (FAA)

Forward any recommendations for changes to this directive through normal channels to the National Airway Systems Engineering Division, AOS-200, Operational Support.

## 19. REPORTING INSTRUCTIONS

### a. NWS

Report completed maintenance on WS Form A-26, Engineering Management Reporting System Maintenance Record, according to the instructions in Engineering Handbook No. 4 (EHB-4), Engineering Management Reporting System (EMRS), part 2 and Appendix G. Include the following information on the WS Form A-26:

- An Equipment Code of RDA in Block 7.

- The appropriate serial number in Block 8.

- A Mod No. of M28 in Block 17a.

See ATTACHMENT 4 for a completed sample of WS Form A-26

### b. DoD

Update the AFTO Form 95 to show TCTO compliance. Report TCTO compliance in accordance with TO 00-20-2, Table 3-10, Rule 9.

### c. FAA

Enter this directive number, date, and chapter number on the appropriate FAA Form 6032-1, Airway Facilities Modification Record.

Use the Maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. Verify N is in the REP COD field to ensure the log entry will be upward reportable to the national data base for access by AOS. This directive should be entered into the LEM fields as follows:

(1) Order No.: 6345.1

(2) Chapter: 26

(3) Change: 29

### d. DoD and FAA

Complete ATTACHMENT 3, and return the information to the ROC by one of the four methods below:

| | |
|---|---|
| (1) Mail Address: | Program Branch, Retrofit Management Team<br>WSR-88D Radar Operations Center<br>3200 Marshall Ave., Suite 101<br>Norman, Oklahoma 73072-8028 |
| (2) Fax Number: | (405) 366-6553<br>ATTN: Retrofit Management Team |
| (3) E-mail Address: | NEXRAD.Logistics@noaa.gov |
| (4) Web Version: | http://www.roc.noaa.gov/ssb/logistics/completion.asp |

**ATTACHMENT 1**

**RADIATION LEAK DETECTION PROCEDURES**

## Tools Required

- Model WG Type 8 E-Field Probe
- Model EMR-20 Radiation Meter
- Step ladder, 6 foot

## Initial Condition

The following procedures are written for the EMR-20 Radiation Meter. If using another type of meter, refer to it's owner's manual to calibrate and use the meter.

DoD and FAA sites, perform radiation leakage measurements in accordance with local procedures. DoD sites should contact the base Bioenvironmental Health personnel to perform this measurement. FAA Alaskan Region contact AAL-470; for Western Pacific Region contact AWP-470; and for Southern Region contact ASO-470.

NWS Southern Region, refer to the operating instructions with the Radiation meter previously provided to your site to operate the meter.

1. Perform the following steps to initialize the Radiation Hazard Meter:

   a. Attach the WG Type 8 E-Field probe to the top of the meter. This is done by aligning the red line on the probe to the red line on the meter.

   b. Press the EMR-20 Radiation Meter **ON/OFF** button to turn on the meter. The meter will go through a self-test and calibration. A beep will sound indicating this operation is complete.

   c. Press the **MAX/AVRG** button until `MAX` is visible in the display window.

   d. Ensure `AVRG` is not visible in the display window.

| If | Then |
|---|---|
| `AVRG` is displayed | Press the **MAX/AVRG** button until `AVRG` disappears from the display window. |

   e. Press the **mW/cm$^2$** button until `mW/cm`$^2$ is visible in the right side of the display window.

2. Set the meter calibration by performing the following steps:

   a. Using the Meter Calibration Data card provided with the EMR-20 Radiation Meter, determine the calibration factor for your site frequency.

**ATTACHMENT 1 (Continued)**

**RADIATION LEAK DETECTION PROCEDURES**

**NOTE**

While setting the new calibration factor, if no action is taken within 10 seconds, the meter display will return to the main screen. Press the **LIMIT/CAL** button twice to return to the CAL screen.

b. Press the **LIMIT/CAL** button twice. `CAL` should be visible in the display window.

c. Set the calibration factor determined in step 2a by holding the **SHIFT** button, then pressing the ↑ or ↓ keys to increase or decrease the numerical value for each decimal point. Press the ← or → keys to move from one decimal point to another. After entering the new calibration factor, wait 10 seconds and the meter will return to the main screen.

3. Press the **SHIFT** and the **ON/OFF** buttons simultaneously to reset the meter. `CLr` will be displayed in the window for approximately 2 seconds. Be sure to reset the meter before taking any measurements. The meter will store the last highest reading until the meter is physically reset.

**NOTES**

With the meter in MAX mode, the recorded number in the display window will not change, unless a higher value is registered.

The meter performs a self calibration test every 6 minutes. The test is performed when `null` is displayed for approximately 10 seconds. When the calibration is complete, the word `null` will disappear and the meter will be ready for use again.

4. With the transmitter operating and the meter within 1 inch of the items to be measured, move the meter probe completely around the body of the Arc Detector, UD3A6 and follow the complete waveguide path to include the flex waveguide as it exits the shelter. Pay particular attention to all joints and the flexible waveguide. These areas are more susceptible to RF leaks. Any measurements above 0.5 milliwatts per square centimeter indicates a loose joint or a defective waveguide component. The condition should be corrected using normal corrective maintenance procedures as outlined in NWS EHB 6-510, AF TO 31P1-4-108-152, and FAA Order 6345.1 Volume 7, paragraph 6-5.53.4. Use the table below to record the highest reading and the location of that reading.

| Highest Reading | Location |
|---|---|
| | |

**ATTACHMENT 1 (Continued)**

**RADIATION LEAK DETECTION PROCEDURES**

**NOTE**

The RF radiation leakage check should also be checked with the transmitter operating normally through the antenna in wide pulse and then into the dummy load in both narrow and wide pulse. Redundant sites should check both channels into the antenna and dummy loads in both wide and narrow pulse. The off-line operate (OLOP) and select program (SELP) commands will be used in the following steps to configure the equipment to perform the RF radiation leakage checks.

5. To configure the waveguide components and transmitter for firing into the antenna and dummy load in both narrow and wide pulse, perform the following steps at the RDA Applications Terminal, command and parameter lines:

   a. Enter **STBY<Return>** to place the transmitter in standby.

   b. Enter **SELP<Tab>31<Return>** to select wide pulse mode.

   c. Enter **OPER<Return>**. Repeat step 4 with RF transmitting to the antenna in wide pulse.

   d. Enter **STBY<Return>** to place the transmitter in standby.

   e. Enter **OLOP<Return>**. Repeat step 4 with RF transmitting to the dummy load in wide pulse. Pay particular attention to connections around the dummy load.

   f. Enter **STBY<Return>** to place the transmitter in standby.

   g. Enter **SELP<Tab>21<Return>** to select narrow pulse mode.

   h. Enter **OLOP<Return>**. Repeat step 4 with RF transmitting to the dummy load in narrow pulse. Pay particular attention to the connections around the dummy load.

   i. Enter **STBY<Return>** to place the transmitter in standby.

   j. Enter **OPER<Return>** and return the system to remote control.

6. Redundant sites: switch controls to the opposite channel and perform step 4 through step 5j to check for RF leakage on those waveguide components. Upon completion of checks, reconfigure equipment to the original channel or as locally directed.

7. It has been the experience of ROC personnel that the following symptoms can be caused by RF leaks within the equipment shelter:

   - Wavy interference patterns on the RDA maintenance display

**ATTACHMENT 1 (Continued)**

**RADIATION LEAK DETECTION PROCEDURES**

- LIN/LOG CHANNEL CLUTTER REJECTION DEGRADED alarms (RF leaks around the waveguide switch)
- Low antenna power with high transmitter power
- Low transmitter power
- High VSWR
- Hard drive crash
- Illumination of the neon fuse fault indicators in the transmitter fuse box in the center bay of the transmitter, even though the fuses are still good
- Loud background noise in the phone system when the transmitter is operating
- Unsolicited wideband disconnect when the transmitter is operating
- Receiver interference

8. If any of these conditions listed in step 7 are experienced and cannot be resolved by normal troubleshooting procedures, RF leakage should be checked as a possible cause. In addition, RF leakage tests shall be performed:
   - Annually as part of preventive maintenance.
   - Whenever a waveguide component is replaced (e.g., the klystron or waveguide switch is replaced)
   - Whenever an RF leak is suspected
   - Whenever local maintenance procedures require it to be accomplished
9. This completes the RF leakage test.

**ATTACHMENT 2**

**EFFECTIVITY**

## NWS

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| | **Eastern Region** | | | |
| ALBANY | EAST BERNE, NY | RDA | ENX | WN9518 |
| BINGHAMTON | BINGHAMTON, NY | RDA | BGM | WN9515 |
| BOSTON | TAUNTON, MA | RDA | BOX | WN9509 |
| BROOKHAVEN | UPTON, NY | RDA | OKX | WN9912 |
| BUFFALO | BUFFALO, NY | RDA | BUF | WN9528 |
| BURLINGTON | COLCHESTER, VT | RDA | CXX | WN9617 |
| CARIBOU | HOULTON, ME | RDA | CBW | WN9712 |
| CHARLESTON, SC | GRAYS, SC | RDA | CLX | WN9208 |
| CHARLESTON, WV | CHARLESTON, WV | RDA | RLX | WN9414 |
| CINCINNATI | WILMINGTON, OH | RDA | ILN | WN9710 |
| CLEVELAND | CLEVELAND, OH | RDA | CLE | WN9524 |
| COLUMBIA | WEST COLUMBIA, SC | RDA | CAE | WN9310 |
| GREER | GREER, SC | RDA | GSP | WN9312 |
| MOREHEAD CITY | NEWPORT, NC | RDA | MHX | WN9307 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| NORFOLK | WAKEFIELD, VA | RDA | AKQ | WN9952 |
| PHILADELPHIA | FORT DIX, NJ | RDA | DIX | WN9950 |
| PITTSBURGH | CORAOPOLIS, PA | RDA | PBZ | WN9917 |
| PORTLAND, ME | GRAY, ME | RDA | GYX | WN9938 |
| RALEIGH/DURHAM | CLAYTON, NC | RDA | RAX | WN9306 |
| ROANOKE | ROANOKE, VA | RDA | FCX | WN9954 |
| STATE COLLEGE | STATE COLLEGE, PA | RDA | CCX | WN9925 |
| STERLING | STERLING, VA | RDA | LWX | WN9931 |
| WILMINGTON | SHALLOTTE, NC | RDA | LTX | WN9301 |
| **Southern Region** | | | | |
| ALBUQUERQUE | ALBUQUERQUE, NM | RDA | ABX | WP9365 |
| AMARILLO | AMARILLO, TX | RDA | AMA | WP9363 |
| ATLANTA | PEACHTREE CITY, GA | RDA | FFC | WP9219 |
| AUSTIN/SAN ANTONIO | NEW BRAUNFELS, TX | RDA | EWX | WP9253 |
| BIRMINGHAM | ALABASTER, AL | RDA | BMX | WP9957 |
| BROWNSVILLE | BROWNSVILLE, TX | RDA | BRO | WP9250 |
| CORPUS CHRISTI | CORPUS CHRISTI, TX | RDA | CRP | WP9251 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| DALLAS/FT WORTH | FORT WORTH, TX | RDA | FWS | WP9259 |
| EL PASO | SANTA TERESA, NM | RDA | EPZ | WP9270 |
| HOUSTON | DICKINSON, TX | RDA | HGX | WP9935 |
| JACKSON, MS | JACKSON, MS | RDA | JAN | WP9235 |
| JACKSONVILLE | JACKSONVILLE, FL | RDA | JAX | WP9206 |
| KEY WEST | BOCA CHICA KEY, FL | RDA | BYX | WP9201 |
| KNOXVILLE | MORRISTOWN, TN | RDA | MRX | WP9325 |
| LAKE CHARLES | LAKE CHARLES, LA | RDA | LCH | WP9240 |
| LITTLE ROCK | NORTH LITTLE ROCK, AR | RDA | LZK | WP9340 |
| LUBBOCK | LUBBOCK, TX | RDA | LBB | WP9933 |
| MELBOURNE | MELBOURNE, FL | RDA | MLB | WP9204 |
| MEMPHIS | MILLINGTON, TN | RDA | NQA | WP9334 |
| MIAMI | MIAMI, FL | RDA | AMX | WP9918 |
| MIDLAND/ODESSA | MIDLAND, TX | RDA | MAF | WP9265 |
| MOBILE | MOBILE, AL | RDA | MOB | WP9223 |
| NASHVILLE | OLD HICKORY, TN | RDA | OHX | WP9327 |
| NORMAN | MIDWEST CITY, OK | RDA | TLX | WP9921 |
| NORTHEAST ALABAMA | HYTOP, AL | RDA | HTX | WP9913 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| SAN ANGELO | SAN ANGELO, TX | RDA | SJT | WP9263 |
| SHREVEPORT | SHREVEPORT, LA | RDA | SHV | WP9248 |
| SLIDELL | SLIDELL, LA | RDA | LIX | WP9919 |
| TALLAHASSEE | TALLAHASSEE, FL | RDA | TLH | WP9214 |
| TAMPA | RUSKIN, FL | RDA | TBW | WP9961 |
| TULSA | INOLA, OK | RDA | INX | WP9356 |
| WESTERN ARKANSAS | CHAFFEE RIDGE, AR | RDA | SRX | WP9356 |
| **Central Region** | | | | |
| ABERDEEN | ABERDEEN, SD | RDA | ABR | WR9659 |
| BISMARCK | BISMARCK, ND | RDA | BIS | WR9764 |
| CHEYENNE | CHEYENNE, WY | RDA | CYS | WR9564 |
| CHICAGO | ROMEOVILLE, IL | RDA | LOT | WR9969 |
| DENVER | FRONT RANGE AP, CO | RDA | FTG | WR9469 |
| DES MOINES | JOHNSTON, IA | RDA | DMX | WR9546 |
| DETROIT | WHITE LAKE, MI | RDA | DTX | WR9954 |
| DODGE CITY | DODGE CITY, KS | RDA | DDC | WR9451 |
| DULUTH | DULUTH, MN | RDA | DLH | WR9745 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| FARGO/GRAND FORKS | GRAND FORKS, ND | RDA | MVX | WR9750 |
| GOODLAND | GOODLAND, KS | RDA | GLD | WR9465 |
| GRAND ISLAND | BLUE HILL, NE | RDA | UEX | WR9552 |
| GRAND JUNCTION | GRAND JUNCTION, CO | RDA | GJX | WR9476 |
| GRAND RAPIDS | GRAND RAPIDS, MI | RDA | GRR | WR9635 |
| GREEN BAY | GREEN BAY, WI | RDA | GRB | WR9645 |
| INDIANAPOLIS | INDIANAPOLIS, IN | RDA | IND | WR9438 |
| JACKSON, KY | JACKSON, KY | RDA | JKL | WR9956 |
| LA CROSSE | LA CROSSE, WI | RDA | ARX | WR9643 |
| LINCOLN | LINCOLN, IL | RDA | ILX | WR9436 |
| LOUISVILLE | FORT KNOX, KY | RDA | LVX | WR9423 |
| MARQUETTE | NEGAUNEE, MI | RDA | MQT | WR9743 |
| MILWAUKEE | DOUSMAN, WI | RDA | MKX | WR9965 |
| MINNEAPOLIS | CHANHASSEN, MN | RDA | MPX | WR9658 |
| NCL MICHIGAN | GAYLORD, MI | RDA | APX | WR9610 |
| NORTH PLATTE | NORTH PLATTE, NE | RDA | LNX | WR9562 |
| NORTHERN INDIANA | NORTH WEBSTER, IN | RDA | IWX | WR9534 |
| OMAHA | VALLEY, NE | RDA | OAX | WR9553 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| PADUCAH | PADUCAH, KY | RDA | PAH | WR9957 |
| PLEASANT HILL | PLEASANT HILL, MO | RDA | EAX | WR9446 |
| PUEBLO | PUEBLO, CO | RDA | PUX | WR9464 |
| QUAD CITIES | DAVENPORT, IA | RDA | DVN | WR9544 |
| RAPID CITY | NEW UNDERWOOD, SD | RDA | UDX | WR9662 |
| RIVERTON/LANDER | RIVERTON, WY | RDA | RIW | WR9576 |
| SIOUX FALLS | SIOUX FALLS, SD | RDA | FSD | WR9651 |
| SPRINGFIELD | SPRINGFIELD, MO | RDA | SGF | WR9440 |
| ST LOUIS | WELDON SPRING, MO | RDA | LSX | WR9971 |
| TOPEKA | TOPEKA, KS | RDA | TWX | WR9456 |
| WICHITA | WICHITA, KS | RDA | ICT | WR9450 |
| **Western Region** | | | | |
| BILLINGS | BILLINGS, MT | RDA | BLX | WT9677 |
| BOISE | BOISE, ID | RDA | CBX | WT9681 |
| CEDAR CITY | CEDAR CITY, UT | RDA | ICX | CONCDC |
| ELKO | ELKO, NV | RDA | LRX | WT9903 |
| EUREKA (BUNKER HILL) | EUREKA, CA | RDA | BHX | WT9594 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| FLAGSTAFF | FLAGSTAFF, AZ | RDA | FSX | WT9375 |
| GLASGOW | GLASGOW, MT | RDA | GGW | WT9768 |
| GREAT FALLS | GREAT FALLS, MT | RDA | TFX | WT9950 |
| LAS VEGAS | LAS VEGAS, NV | RDA | ESX | WT9386 |
| LOS ANGELES | LOS ANGELES, CA | RDA | VTX | WT9295 |
| MEDFORD | MEDFORD, OR | RDA | MAX | WT9597 |
| MISSOULA | MISSOULA, MT | RDA | MSX | WT9773 |
| PENDLETON | PENDLETON, OR | RDA | PDT | WT9688 |
| PHOENIX | PHOENIX, AZ | RDA | IWA | WT9278 |
| POCATELLO | SPRINGFIELD, ID | RDA | SFX | WT9578 |
| PORTLAND, OR | PORTLAND, OR | RDA | RTX | WT9698 |
| RENO | NIXON, NV | RDA | RGX | WT9488 |
| SACRAMENTO | DAVIS, CA | RDA | DAX | WT9914 |
| SALT LAKE CITY | SALT LAKE CITY, UT | RDA | MTX | WT9932 |
| SAN DIEGO | SAN DIEGO, CA | RDA | NKX | WT9918 |
| SAN FRANCISCO | LOS GATOS, CA | RDA | MUX | WT9933 |
| SAN JOAQUIN VALY | HANFORD, CA | RDA | HNX | WT9389 |
| SANTA ANA MTS | SANTA ANA MOUNTAINS, CA | RDA | SOX | WT9918 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| SEATTLE | EVERETT, WA | RDA | ATX | WT9922 |
| SPOKANE | SPOKANE, WA | RDA | OTX | WT9785 |
| TUCSON | TUCSON, AZ | RDA | EMX | WT9274 |
| YUMA | YUMA, AZ | RDA | YUX | WT9278 |
| **Miscellaneous** | | | | |
| NRC #1 | KANSAS CITY, MO | RDA | NRCM7 | WG9163 |
| NSSL (RDA/ONAN GEN/PDST) | NORMAN, OK | RDA | NORO2 | MAG000 |
| OPEN SYSTEMS (ONAN GEN) | NORMAN, OK | RDA | | WG9420 |
| ROC FAA REDUNDANT | NORMAN, OK | RDA | CRIO2 | WG9410 |
| TRAINING CENTER NWSTC | KANSAS CITY, MO | RDA | TTCM7 | WB9612 |
| **DoD** | | | | |
| ALTUS AFB | FREDERICK, OK | RDA | FDR | FE4419 |
| ANDERSEN AFB | ANDERSEN AFB, GU | RDA | UAM | FE5240 |
| BEALE AFB | OROVILLE, CA | RDA | BBX | FE4686 |
| CAMP HUMPHREYS | CAMP HUMPHREYS, KO | RDA | PTK | FI5294 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| CANNON AFB | FIELD, NM | RDA | FDX | FE4855 |
| COLUMBUS AFB | GREENWOOD SPRINGS, MS | RDA | GWX | FE3022 |
| DOVER AFB | ELLENDALE STATE FOREST, DE | RDA | DOX | FE4497 |
| DYESS AFB | MORAN, TX | RDA | DYX | FE4661 |
| EDWARDS AFB | BORON, CA | RDA | EYX | FE2805 |
| EGLIN AFB | RED BAY, FL | RDA | EVX | FE2823 |
| FT CAMPBELL | TRENTON, KY | RDA | HPX | FY4812 |
| FT DRUM | MONTAGUE, NY | RDA | TYX | FY4846 |
| FT HOOD | GRANGER, TX | RDA | GRK | FY4824 |
| FT POLK | FT POLK, LA | RDA | POE | FY4825 |
| FT RUCKER | ECHO, AL | RDA | EOX | FY4805 |
| HOLLOMAN AFB | RUIDOSO, NM | RDA | HDX | FE4801 |
| KADENA AB | KADENA AB, JA | RDA | KAD | FH5270 |
| KEESLER AFB MNTC TRNG A | KEESLER AFB, MS | RDA | BIX | FE3010 |
| KEESLER AFB MNTC TRNG B | KEESLER AFB, MS | RDA | BIX | FE3010 |
| KEESLER AFB OPS TRNG | D'IBERVILLE, MS | RDA | BIX | FE3010 |
| KUNSAN AB | KUNSAN AB, KO | RDA | KUZ | FH5284 |
| LAJES AB | SANTA BARBARA, AZR | RDA | PLA | FE4486 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| LAUGHLIN AFB | BRACKETVILLE, TX | RDA | DFX | FE3099 |
| MAXWELL AFB | CARRVILLE, AL | RDA | MXX | FE3300 |
| MINOT AFB | DEERING, ND | RDA | MBX | FE4528 |
| MOODY AFB | SOUTH STOCKTON, GA | RDA | VAX | FE4830 |
| ROBINS AFB | JEFFERSONVILLE, GA | RDA | JGX | FE2067 |
| VANCE AFB | CHEROKEE, OK | RDA | VNX | FE3029 |
| VANDENBERG AFB | ORCUTT, CA | RDA | VBX | FE4610 |

## FAA

| | | | | |
|---|---|---|---|---|
| ANCHORAGE FAA | KENAI, AK | RDA | AHG | 6901AJ |
| BETHEL FAA | BETHEL, AK | RDA | ABC | 690112 |
| FAIRBANKS FAA | FAIRBANKS, AK | RDA | APD | 690178 |
| KAMUELA/KOHALA APT | KAMUELA, HI | RDA | HKM | 699235 |
| KING SALMON FAA | KING SALMON, AK | RDA | AKC | 690137 |
| MIDDLETON ISLAND | MIDDLETON ISLAND, AK | RDA | AIH | 690140 |
| MOLOKAI FAA | MOLOKAI, HI | RDA | HMO | 699213 |
| NOME FAA | NOME, AK | RDA | AEC | 690147 |

**ATTACHMENT 2 (Continued)**

**EFFECTIVITY**

| NEXRAD Site Name | City, ST | EQP | SID | ORG Code |
|---|---|---|---|---|
| SAN JUAN FAA | SAN JUAN, PR | RDA | JUA | 69F362 |
| SITKA FAA | BIORKA ISLAND, AK | RDA | ACG | 690141 |
| SOUTH KAUAI FAA | SOUTH KAUAI, HI | RDA | HKI | 699211 |
| SOUTH SHORE FAA | NAALEHU, HI | RDA | HWA | 699201 |

**NWS: EHB-6, Maintenance Note 28**
**DoD: TO 31P1-4-108-597**
**FAA: EEM Modification Handbook 6345.1 CHG 29, Chap 26**

**ATTACHMENT 3**

**RF LEAKAGE INSPECTION RETURN FORM**

Site Name: _____

Site Identifier: _____

Total Time to Complete this Maintenance: _____

Technician's Name(s): _____

Technician's Phone Number: _____

Date Completed: _____

Problem(s) Encountered:

_____

_____

_____

_____

Upon completion of this form, return the information to the ROC by one of the four methods below:

1. Mailing Address: Program Branch, Retrofit Management Team
   WSR-88D Radar Operations Center
   3200 Marshall Ave., Suite 101
   Norman, OK 73072-8028

2. FAX Number: (405) 366-6553
   ATTN: Retrofit Management Team

3. E-mail Address: NEXRAD.Logistics@noaa.gov

4. Web Version: http://www.roc.noaa.gov/ssb/logistics/completion.asp

WS HQ USE ONLY

**WS FORM A-26 (4/94)**
Supersedes WS Form A-23 and WS Form H-28, which are obsolete

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

**ENGINEERING MANAGEMENT REPORTING SYSTEM**
MAINTENANCE RECORD

Document Number
**G 49978**

| General Information | 1. Open Date | Time | 2. Initials | 3. Response Priority (check one) | 4. Close Date | Time |
|---|---|---|---|---|---|---|
| | 03 / 10 / 02 | 0900 | DKR | O Immediate O Low O Routine X Not Applicable | 03 / 10 /02 | 1000 |

5. Description
**INSPECT FOR RF LEAKAGE IN SHELTER IAW MAINT NOTE 28**

| Equipment Information | 6. Station ID | 7. Equipment Code | 8. Serial Number | 9. TM | 10. AT | 11. How Mal. |
|---|---|---|---|---|---|---|
| | CRP | RDA | AY39521901 | E | M | 999 |

| 12. EQUIPMENT OPERATIONAL STATUS TIMES | a. Fully Operational | b. Logistics Delay | Partly Operational c. All Other | d. Logistics Delay | Not Operational e. All Other |
|---|---|---|---|---|---|
| | | | | | 1:00 |

**13. Parts Failure Information**

| Block # | a. ASN | b. NSN | c. TM | d. AT | e. How Mal. | f. Qty. | g. Maint. Hrs. |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

**14. Work Load Information**

| Type | Staff Hrs. |
|---|---|
| a. Routine | |
| b. Non-routine | |
| c. Travel | |
| d. Misc. | 1:00 |
| e. Overtime | |

| Miscellaneous Information | 15. Maintenance Comments | 16. Initials |
|---|---|---|
| | INSPECTION COMPLETED | DKR |

| 17. SPECIAL PURPOSE REPORTING | a. Mod. No. | b. Mod./Act./Deact.Date | c. | d. | e. |
|---|---|---|---|---|---|
| | M28 | 03/10/02 | | | |

| 18. CONFIGURATION MGMT. REPORTING (use as directed) | a. Block # | b. Manufacturer's Part No. of New Part | c. Revision No. of New Part |
|---|---|---|---|
| | | | |

ATTACHMENT 4