

APEX INSPECION:

FRM 2-YEAR INSPECTION PM. Done, Well lubricated.
 CHECK SUBREFLECTOR BALANCE. Well balanced, not needed.
 INA BEARING CW/CCW PULL TEST. 35lbs.

FRM INA BEARING CHECK 50 LBS PULL ON EAST MOTOR

East Travel: +.001

West Travel: -.001

FRM INA BEARING CHECK 50 LBS PULL ON WEST MOTOR

East Travel: -.001

West Travel: +.001

SUBREFLECTOR INSPECTION:

Mounting Hardware. OK, Tight.
 Dipole. OK, Clean.
 Peeling paint/delaminating. No, peeling paint. Good condition.
 Remove tarp as needed. Done. Tarp has several tears.
 Drill 3-1inch drain holes as needed. Completed.

QUAD LEGS INSPECTION:

Guy wires, (tight). All checked OK.
 Turn buckles, (tight). All tight.
 Quad leg flange bolts. All checked tight.
 Patch Quad Legs as needed. Not needed.
 Legs paint condition. OK, good.

DISH INSPECTION:

Anemometer mounts/operation. Both function OK, cups dented.
 Panel surfaces, (dents). No dents.
 Spot check panel bolts. Bolts tight.
 Panel Paint condition. OK, good.

FEED CONE INSPECTION:

Feed cone surface/insulation. Good, condition no leaks.
 FE feed windows. OK, no cracks.
 FE feed mounting hardware. Tightend loose turn buckle on 13cm FE.
 FE feed heater hardware, (corrosion). No corrosion, tight.
 Dichroic reflector cracking/delaminating. (NOP#6990) Ok, small vertical delamination.
 Ellipsoid dish/mount, (end to end travel). OK. Tight.
 FC hatch latches replace as needed. Not needed.

ELEVATION BEARING/AXLE INSPECTION:

EL. Grease inspection/Encoder side	Clean grease with no metal.
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EL. Grease inspection/DGB side	Clean grease with no metal.
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Remove excess grease from encoder side bearing. Pocket is clean from site techs.
 Grease elevation bearings. Done, greased on last day.
 Check elevation axle for cracks. No cracks found.
 Listen for popping or grinding. None detected.
 Encoder and synchro cable wraps, (bracket and cables). Both wraps repaired.

ELEVATION BULL/PINION GEAR INSPECTION:

Bull gear. OK, well lubricated.
 Bull gear welds/hardware. All tight.
 Pinion gears. OK, well lubricated.
 Lube bull/pinion gears as needed. Not needed.
 Check stow pin and tray. OK, new stow pin unit installed.

ELEVATION GEARBOX INSPECTION:

EL.#1 seals/coupling. OK, no leaks.
 EL.#2 seals/coupling. OK, no leaks.
 Lube pumps, (leaks). Checked, no leaks found.
 Flow gauges/fish eyes, (clear). Changed oil and cleaned flow gauges.
 Change gearbox oil. Done.
 Inspect oil for metal. No metal found.
 Listen for popping or grinding. None detected.

ELEVATION PLATFORM INSPECTION:

Swinging Catwalk/Gate, (latch working). OK, all tight.
 Hoist and Jib-arm, (cable condition). OK, all working.
 Stairways and grating. OK, welded a 1 3/16" bar on ped platform.
 Cable trays, (cracked or corroded). All OK.

ANTENNA STRUCTURAL INSPECTION:

Spot-check structural bolts. Done, All OK.
 VTX walk way. OK.
 Antenna structural welds, (cracks). No cracks, OK.
 Antenna backup/lower structure. OK, Paint good.
 Structure Cracks. 1 found on synchro side axle I beam. Repaired.

AZIMUTH BEARING/GREASE INSPECTION

	INNER	OUTER
D1	Small flakes, small scratches.	Good, No flakes.
D2	Good, no flakes.	Good, no flakes.
I1	Few small flakes.	Good, no flakes.
I2	Good, no flakes.	Few small flakes, a little scratchy.
Replace wheel bearings as needed. Not required! All bearings are well lubricated.		

AZIMUTH WHEEL INSPECTIONS:

Wheel to structure clearances. OK.
 Listen for popping or grinding. None detected.
 Check for Broken bolts. None found.

AZIMUTH WHEEL RADIUS/ALIGNMENT

Measured	Specified	D1	D2
Horizontal	0.00.00 (<1'24")		
Vertical	93.26.23(+/-1'24")		
Radius	300.000" (+/- .25")		

AZIMUTH GEARBOX INSPECTION:

AZ#1 seals/coupling. No leaks, spiders OK.
 AZ#2 seals/coupling. No leaks, spiders OK.
 Lube pumps, (leaks). No leaks found.
 Flow gauges/fish eyes, (clear). Done, Replaced AZ#1 and AZ#2.
 Change gearbox oil. Done, Cleaned flow gauges.
 Inspect oil for metal. No metal found.
 Listen for popping or grinding. None detected.

PINTLE BEARING INSPECTION:

Cable wrap & cables. All cables good/ No Teflon needed.
 Check for loose bolts. All tight.
 Check bearing grease. OK, no metal found.
 Clean out bearing grease tray. Done.
 Snake Pit window, (cracked). Window replaced.

AZIMUTH RAIL INSPECTION:

Rail elevation measurements. Done, Kelly Greene.
Excessive rail movement. None detected.
Joint bars and clips. All needed tightening.
Antenna foundation/grout. Good condition.
Re-torque rail splice plates as needed. All completed.
Remove vulchem, (if time). Site Techs will remove.

ANTENNA PAINT/INSULATION INSPECTION:

Antenna paint condition. Good Condition.
Repair antenna insulation as needed. Not necessary.
Spot paint/corrosion control as needed, (if time). Painted Ped platform bar and cable wraps.

ADDITIONAL MECHANICAL MAINTENANCE ITEMS TO BE COMPLETED:

1. Replace tie wraps w/metal as needed. Replaced Elevation cable wraps.
- 2.
3. Install new blower motor air boxes. Completed, Az#2 received a new blower motor.
4. Install VTX HVAC extension platform. Completed.
5. Install new Pintle bearing IF cable wrap. Completed.
6. Replace VTX room door as needed. Done, Replaced door knob and weather strip.
7. Install Ped room backup A/C. Done and trimmed out.
8. Remove East rotation motor, (plug dry air). Completed, Dry air plugged.
9. Remove station MKIII recorders. Done, recorders loaded.

ANTENNA MECHANICS NOTES:

Tightened wheel hub bolts.

Replaced Apex FRM lightning ground bracket.

4 inch crack on synchro side I beam: Repaired.

ANTENNA SERVO MAINTENANCE KPVLBA 5/16-22/06

ANTENNA SAFETY TESTS/INSPECTION:

Ped Room Electrical Panel Inspection. Good all connections verified tight.
Drive Cabinet Inspection, (**TURN OFF LOGIC POWER**) All tight, no heated cables.
Check voltage/phase detectors & Timers for MAX settings. Critical & Non critical set correctly.
Antenna Fire Alarm, (bat. condition).

BRAKE HOLDING-TORQUE TESTS (FT-LBS)

AZ #1	Good, 78lbs.
AZ #2	Good, 80lbs. armature lug burned: Rpelaced.
EL #1	140lbs. Opened brake and cleaned.
EL #2	140lbs. Opened brake and cleaned.

MOTOR INSPECTIONS:

Elevation motor/tach couplings. Good and tight.
Elevation brushes/commutator. #2 brushes replaced.
Azimuth motor/tach couplings. Good and tight.
Azimuth brushes/commutator. #1 brushes replaced.
Test and inspect Gearbox heaters, (32deg.F). Replaced EL #2 thermostat.

ANTENNA GROUNDING INSPECTION:

Elevation ground cable. Both sides replaced.
Elevation platform to pintle turret. Good, connections tight.
Pedestal room. Good, connections tight.
Azimuth wheel contacts. Good, adjusted 2.
Pintle room/cable wrap. All hardware tight.
Apex/Dish lightning rods. Good.

SERVO RECORDINGS:

Elevation small step response test. OK.
Azimuth small step response test. OK.
Elevation position loop test. OK.
Azimuth position loop test. OK.
Elevation Tach differential output voltage and Timing. ~100mv @ 60seconds.
Azimuth Tach differential output voltage and Timing. ~100mv @ 60seconds.

ACU AUTO MODE TESTS:

System/axis faults. All tested good.
AZ/EL motor fault status. All tested good.
Stow commands, Synchro feedback. All tested good.
VME to ACU comm. dead, (10min auto stow). Auto Stows.

INSPECT AND TEST ANTENNA LIMIT SWITCHES:

Elevation Up/Down 1st, 2nd and final, (record). Done, OK.

Azimuth CW/CCW 1st, 2nd and final, (record). Done, OK.

Antenna stow pin/interlock. Good, New safety pin installed.

Limit switches and cables. All Good.

Restore ACU parameters, (if needed). All checked.

ADDITIONAL SERVO MAINTENANCE ITEMS TO BE COMPLETED:

1. Test and Inspect Azimuth encoder for oscillation. (DATA CONVERTER). Done.
- 2.
- 3.
- 4.
5. Replace AZ and El motors as needed. No replacements needed.
6. Install new blower motor air boxes. Replaced 1 blower and all 4 air boxes.
7. Install AC outlets above AZ motors. Outlets installed, Techs will wire up outlets later.
8. Remove MKIII recorders. Done & loaded.
9. Install Ped room Backup A/C. Done.
10. Install new drive cabinet power supply mod. New power supply with mounting bracket left for
11. techs to install upon failure.

SERVO TECHNICIAN NOTES:

New data installed to isolate azimuth oscillation.

APEX FRM INSPECTION:

FRM cable/j-box, (cable/connector condition). Good, no signs of water in j-box.
FRM motor/encoders, (dry air). Good, all connections are tight.
90/50cm FE/dipole/cables. Good, all cable and strain relief tight.
FRM E-stop operational. Good, functions correctly.
Replace tie wraps w/metal as needed. A few needed.

FEEDCONE INSIDE/OUTSIDE INSPECTION:

Ellipsoid operation, (test). Good, tight.
Feed heater operation, (monitor#4108 10v=20Amps) (command#4128 0off-1on). Good, 6.1volts.
All FE cables, (connections tight). Good on all FE's.
CRYO systems. Done, OK.
FE dry air, (lines open). Open lines/ no leaks.

VTX ROOM IN/OUT INSPECTION:

IF/PWR cable/connector blkhd. Good, verified all tight.
Power blkhd/rfi filters, (tight-no corrosion). Good, no signs of corrosion or heat.
A/B racks/cables, (grating clamps tight). Good, verified all tight.
HVAC and condenser, (belt, electrical connections, fittings). OK, belts good, no leaks.
PC to DDC connection, (@ station PC). Good, connected to old PC windows 98.

ANTENNA CABLE WRAP/TRAY INSPECTION:

Elevation cable wraps, (IF connectors). Good, Pulled IF cables 18inches into Ped room.
All antenna cable trays, (cables tight). Good, cable wraps need repaired.
Elevation platform. Cables all good.
Replace tie-wraps with metal as needed. Replaced as needed.
Cryo Lines, (flex lines). Short over the top.

PINTLE BEARING INSPECTION:

Cable wrap bulk head. Good, Pushed IF's 18inches into ped room.
Power panel Terminal blocks, (tight-no corrosion). Good, verified clean and tight.
Cable strain relief, (tight). All good.
Cable connections. Good, all verified tight.

PEDESTAL ROOM INSPECTION:

ACU/FRM logic on UPS. Verified on UPS.
UPS operation/by-pass switch. Switch is good.
Breakers labeled correctly. Re labeled Welder outlet. Removed 3 phase unused outlets.
Dry air compressor, (run time). 33%, Needs Gast compressor.
Marv Air operation/inspection, (balance w/backup A/C). Done, and tested.

STATION BUILDING INSPECTION:

ROOM 100:

UPS operation, (bypass switch). Tested good.

Electrical panels, (voltage & phase detectors set for max). All settings correct.

Onan x/switch, (test generator). Tested good, Generator fluids all correct.

ROOM 102:

Contempo 1&2 operation/inspection, (belts, electrical connections, fittings). Electrical tight, no arc.

Station PC to DDC connection, (copy parameters). All works.

ROOM 103:

VME/communication rack. Good, cables neat and orderly. RS 232 connector needed.

Electrical Panels, (UPS and Critical). Good.

Recorders 1&2, MK V, (cables). Removed recorder cables.

Fire alarm operation, (battery condition). 26.7 volts w/load.

Chatter box/phone operation, (#'s correct, battery condition). Battery needs replaced, 6volts.

Under floor cables/bulk head. Good, neat and orderly.

ROOM 104:

Electrical Panels, (UPS and Critical). Good, all connections tight.

Maser/C&D rack. Good, found 1 loose SMA connector in D rack.

Under floor cables/bulk head, (connections tight). Good, neat and orderly.

WEATHER STATION INSPECTION:

Check operation/test alarms, (wind/temp stow ACU). All tested and All work.

Cabinet/tower condition. No corrosion found

Weather station PM, (if time). PM completed w/no problems found

SITE GROUNDS & STATION INSPECTION:

Check generator, (fluids, battery condition). All good, slight oil leak.

Contempo condensers, (no oil residue, electrical connections). No leaks, electrical connections tight.

Station building. Very clean, neat and orderly.

Fence/gate/signs/grounds/storage. All good.

ADDITIONAL ELECTRONIC MANTENANCE ITEMS TO BE COMPLETED:

1. Install new Azimuth cable wrap and test antenna, (CALs). Completed.

2. **Install Single rotation motor FRM mod. Done, and tested.**

3. Test and Inspect Azimuth encoder for oscillation, (DATA CONVERTER). Done.

4.

5.

6. **Install new drive cabinet power supply. Left for site techs when old supply fails.**

7. **Install ped room backup A/C, (balance outputs). AC installed.**

8.

9. **Remove station MKIII recorders. Removed and loaded.**

ANTENNA ELECTRONIC MAINTENANCE KPVLBA 5/16-22/06

FINAL ANTENNA/SITE INSPECTIONS:

Review open PM's. M-5 and M-2 remaining.

Any TT oversights. None.

Site cleanup. Completed.

Review TT list. Done w/Ray and Duane.

Review problems with site techs. Done.

VLBA operations startup tests at night, (3 days prior to TT end date). Done 4 days in advance.

ELECTRONIC TECHNICIAN NOTES

Data converter installed in ACU rack to isolate the AZ oscillation.

New Drive cabinet power supply left for Site Techs to install when old supply fails.