

APEX INSPECION:

FRM 2-YEAR INSPECTION PM. Flex shaft replaced. FRM was very dry.
 CHECK SUBREFLECTOR BALANCE. Tested OK.
 INA BEARING CW/CCW PULL TEST. 50lbs. CW/CCW.

FRM INA BEARING CHECK 50 LBS PULL ON EAST MOTOR

East Travel: +.0005

West Travel: -.001

FRM INA BEARING CHECK 50 LBS PULL ON WEST MOTOR

East Travel: -.0005

West Travel: +.001

SUBREFLECTOR INSPECTION:

Mounting Hardware. Ok, Tight.
 Dipole. OK.
 Peeling paint/delaminating. Badly stained.
 Remove tarp as needed. Tarp removed.
 Drill 3- 1 inch drain holes as needed. Done.

QUAD LEGS INSPECTION:

Guy wires, (tight). Tight, good.
 Turn buckles, (tight). OK, Tight.
 Quad leg flange bolts. Tight, none replaced.
 Patch Quad Legs as needed. Not needed.
 Legs paint condition. Good, some surface rust.

DISH INSPECTION:

Anemometer mounts/operation. Good.
 Panel surfaces, (dents). Hole behind hatch/ paint coming off some panels.
 Spot check panel bolts. Done, all OK.
 Panel Paint condition. Worn on down side from snoe/ice sliding off.

FEED CONE INSPECTION:

Feed cone surface/insulation. Good shape, needs paint.
 FE feed windows. All OK.
 FE feed mounting hardware. OK, tight.
 FE feed heater hardware, (corrosion). None found.
 Dichroic reflector cracking/delaminating. (NOP#6CF4). In good condition.
 Ellipsoid dish/mount, (end to end travel). Good, operated smoothly.
 FC hatch latches replace as needed. All good.

ELEVATION BEARING/AXLE INSPECTION:

EL. Grease inspection/Encoder side	½ full of grease, no signs of metal.
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EL. Grease inspection/DGB side	½ full of grease, no signs of metal.
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Remove excess grease from encoder side bearing. Done, not much in encoder side.

Grease elevation bearings. Done.

Check elevation axle for cracks. OK, no cracks detected.

Listen for popping or grinding. OK, none detected.

Encoder and synchro cable wraps, (bracket and cables). Synchro wrap replaced.

ELEVATION BULL/PINION GEAR INSPECTION:

Bull gear. Needed lubed, Done.

Bull gear welds/hardware. All OK.

Pinion gears. OK.

Lube bull/pinion gears as needed. All needed lubing, Done.

Check stow pin and tray. Tray OK, New safety pin installed.

ELEVATION GEARBOX INSPECTION:

EL.#1 seals/coupling. Replaced motor and seal. Seals were doubled sealed.

EL.#2 seals/coupling. Seal Replaced.

Lube pumps, (leaks). No Leaks.

Flow gauges/fish eyes, (clear). OK.

Change gearbox oil. Done.

Inspect oil for metal. Done, none found.

Listen for popping or grinding. No noise detected.

ELEVATION PLATFORM INSPECTION:

Swinging Catwalk/Gate, (latch working). OK.

Hoist and Jib-arm, (cable condition). OK.

Stairways and grating. OK.

Cable trays, (cracked or corroded). OK.

ANTENNA STRUCTURAL INSPECTION:

Spot-check structural bolts. All OK.

VTX walk way. OK, in good shape.

Antenna structural welds, (cracks). No cracks found.

Antenna backup/lower structure. OK, lots of surface rust.

Structure Cracks. None found.

AZIMUTH BEARING/GREASE INSPECTION

	INNER	OUTER
D1	Needs wheel replaced.	Needs wheel replaced.
D2	1 tiny flake very little scratches.	No metal found.
I1	No metal flakes, no scratches found.	No flakes, no scratches found.
I2	No flakes, races are smooth.	Little flake, very few scratches.
Replace wheel bearings as needed.		
Replaced D1 wheel assembly, Inspected gearbox oil for metal.		

AZIMUTH WHEEL INSPECTIONS:

Wheel to structure clearances. Good clearance.
 Listen for popping or grinding. D1 making a bad grinding noise. Needs replaced.
 Check for Broken bolts. No broken bolts found.

AZIMUTH WHEEL RADIUS/ALIGNMENT

Measured	Specified	New wheel installed. D1	D2
Horizontal	0.00.00 (<1'24")	1'22"	
Vertical	93.26.23(+/-1'24")	93.26'23"	
Radius	300.000" (+/- .25")	300.266" (r/o.002)	

AZIMUTH GEARBOX INSPECTION:

AZ#1 seals/coupling. OK—No leaks, added extra shaft seal.
 AZ#2 seals/coupling. Seals replaced with new motor install.
 Lube pumps, (leaks). No leaks.
 Flow gauges/fish eyes, (clear). All Ok.
 Change gearbox oil. Done.
 Inspect oil for metal. Inspected drive #1 for metal.
 Listen for popping or grinding. None detected on D2. D1 has a pinging noise.

PINTLE BEARING INSPECTION:

Cable wrap & cables. IF cable wrap replaced. AC power cable has cut marks.
 Check for loose bolts. None found.
 Check bearing grease. Done.
 Clean out bearing grease tray. Done.
 Snake Pit Window, (cracked). OK, not replaced.

ANTENNA MECHANICAL MAINTENANCE MKVLBA 7/19-26/06

AZIMUTH RAIL INSPECTION:

Rail elevation measurements. Done.
Excessive rail movement. None noticed.
Joint bars and clips. Tightened all joint bars.
Antenna foundation/grout. Good condition.
Re-torque rail splice plates as needed.
Remove vulchem, (if time). It was never applied.

ANTENNA PAINT/INSULATION INSPECTION:

Antenna paint condition. Not too bad, some surface rust.
Repair antenna insulation as needed. Done.
Spot paint/corrosion control as needed, (if time). No time available.

ADDITIONAL MECHANICAL MAINTENANCE ITEMS TO BE COMPLETED:

1. Replace tie wraps w/metal as needed. Done.
2. **Spot Seal and Paint Feed Cone w/elastomeric. Done**
3. **Install new blower motor air boxes. Done.**
4. **Install VTX HVAC extension platform. Done.**
5. **Install new Pintle bearing IF cable wrap. Done.**
6. **Replace VTX room door as needed. Not needed.**
7. **Install Ped room backup A/C. Not needed.**
8. **Remove East rotation motor, (plug dry air). Not needed.**
9. **Remove station MKIII recorders. Done.**

ANTENNA MECHANICS NOTES:

Antenna was very dry in all areas requiring grease. Techs need to adhere to scheduled PM's.

Changed AZD1 wheel assembly.

Repaired Elevation synchro side cable wrap.

ANTENNA SERVO MAINTENANCE MKVLBA 7/19-26/06

ANTENNA SAFETY TESTS/INSPECTION:

Ped Room Electrical Panel Inspection. Done, Tightened loose TB's.
Drive Cabinet Inspection, (**TURN OFF LOGIC POWER**) Done, Lots of loose screws and nuts.
Check voltage/phase detectors & Timers for MAX settings. All set to MAX.
Antenna Fire Alarm, (bat. condition). Batts were dead in Ped room,(REPLACED).

BRAKE HOLDING-TORQUE TESTS (FT-LBS)

AZ #1	60lbs. New grease seal & brake installed. Motor needs replaced.
AZ #2	70lbs. New motor installed.
EL #1	70lbs. New motor installed.
EL #2	60lbs. New grease seal installed. Motor needs replaced.

MOTOR INSPECTIONS:

Elevation motor/tach couplings. New couplings installed.
Elevation brushes/commutator. New soft brushes installed.
Azimuth motor/tach couplings. New couplings installed.
Azimuth brushes/commutator. New soft brushes installed.
Test and inspect Gearbox heaters, (32deg.F). New thermostat installed on EL #2.

ANTENNA GROUNDING INSPECTION:

Elevation ground cable. Encoder and Synchro side ground cables replaced.
Elevation platform to pintle turret. Good, tight connections.
Pedestal room. Good and tight.
Azimuth wheel contacts. All OK.
Pintle room/cable wrap. New IF cable wrap installed.
Apex/Dish lightning rods. Good.

SERVO RECORDINGS:

Elevation Timing Test, UP/DN, (30deg./60sec). ~60 seconds, UP and DOWN.
Azimuth Timing Test, CW/CCW, (90deg./60sec). ~60 seconds, CW and CCW.
Elevation position loop test, (IF NEEDED). New ACU.
Azimuth position loop test, (IF NEEDED). New ACU.
Elevation Tach differential output voltage, (UP/DN). ~.150VDC.
Azimuth Tach differential output voltage, (CW/CCW). ~.150VDC.

ACU AUTO MODE TESTS:

System/axis faults. ALL tested OK
AZ/EL motor fault status. OK.
Stow commands, Synchro feedback. OK, adjusted EOS on new ACU.
VME to ACU comm. dead, (10min auto stow). Tested Good.

INSPECT AND TEST ANTENNA LIMIT SWITCHES:

Elevation Up/Down 1st, 2nd and final, (record). Checked all good.
Azimuth CW/CCW 1st, 2nd and final, (record). Checked all good.
Antenna stow pin/interlock. OK, cleaned switch.
Limit switches and cables. All good.
Restore ACU parameters, (if needed). Replaced ACU.

ADDITIONAL SERVO MAINTENANCE ITEMS TO BE COMPLETED:

1. Install digital tachs on both antenna axis. Completed.
2. Install new ACU backplane. New ACU.
3. Install new ACU power supply mod. Completed.
4. Spot seal and paint feed cone w/elastomeric. Completed.
5. Replace AZ and El motors as needed. AZ#2 and EL#1 were replaced.
6. Install new blower motor air boxes. Done on AZ#1 and EL#2.
7. Install AC outlets above AZ motors. Completed.
8. Remove MKIII recorders. Done.
9. Install Ped room Backup A/C. Not needed.
10. Install new drive cabinet power supply mod. Not needed.
- 11.

SERVO TECHNICIAN NOTES:

Motors need replaced on AZ#1 and EL #2.

Replaced fire alarms batterys.

AZ #1 brake, seal and brushed replaced.

EL #2 brake, seal and brushed replaced.

Replaced EL #1 motor controller fan.

Found many loose lugs on terminal blocks inside drive cabinet.

APEX FRM INSPECTION:

FRM cable/j-box, (cable/connector condition). Inspected good, no water.
FRM motor/encoders, (dry air). No air. Repaired at end of trip.
90/50cm FE/dipole/cables. All good.
FRM E-stop operational. Tight, operates correctly.
Replace tie wraps w/metal as needed. Done.

FEEDCONE INSIDE/OUTSIDE INSPECTION:

Ellipsoid operation, (test). Operates correctly in comp./mnl.
Feed heater operation, (monitor#4108 10v=20Amps) (command#4128 0off-1on). Works correctly.
All FE cables, (connections tight). Neat and orderly.
CRYO systems. Cryo over haul completed.
FE dry air, (lines open). Adjusted VTX manifold to .2 psi.

VTX ROOM IN/OUT INSPECTION:

IF/PWR cable/connector blkhd. Looke good. Tightened some connections.
Power blkhd/rfi filters, (tight-no corrosion). All Ok.
A/B racks/cables, (grating clamps tight). Inspected good, tightened some connections.
HVAC and condenser, (belt, electrical connections, fittings). Techs replaced blower belt.
PC to DDC connection, (@ station PC).

ANTENNA CABLE WRAP/TRAY INSPECTION:

Elevation cable wraps, (IF connectors). Synchro side repaired.
All antenna cable trays, (cables tight). Tie wraps added.
Elevation platform. Cables OK, tie wraps added.
Replace tie-wraps with metal as needed.
Cryo Lines, (flex lines). Moved lines away from EL axle.

PINTLE BEARING INSPECTION:

Cable wrap bulk head. Cable OK. IF cable wrap replaced.
Power panel Terminal blocks, (tight-no corrosion). All dry in good condition.
Cable strain relief, (tight). Fixed broken 3-phase broken feed thru.
Cable connections. All redone with new IF cable wrap installation.

PEDESTAL ROOM INSPECTION:

ACU/FRM logic on UPS. All correct.
UPS operation/by-pass switch. All works.
Breakers labeled correctly. Yes.
Dry air compressor, (run time). 45% runtime, repaired dry air connections.
Marv Air operation/inspection, (balance w/backup A/C). never runs.

STATION BUILDING INSPECTION:

ROOM 100:

UPS operation, (bypass switch). Operates correctly.
Electrical panels, (voltage & phase detectors set for max). Done, all set for MAX.
Onan x/switch, (test generator). Done, works good.

ROOM 102:

Contempo 1&2 operation/inspection, (belts, electrical connections, fittings). Looks Good.
Station PC to DDC connection, (copy parameters). Tightened connections.

ROOM 103:

VME/communication rack. Rack connections OK.
Electrical Panels, (UPS and Critical). All panels checked OK.
Recorders 1&2, MK V, (cables). Re cabled Mark V.
Fire alarm operation, (battery condition). Fire Alarm OK. Batteries OK.
Chatter box/phone operation, (#'s correct, battery condition). Operates correctly, batteries OK.
Under floor cables/bulk head. Inspected good, tightened connections.

ROOM 104:

Electrical Panels, (UPS and Critical). Good, tightened connections.
Maser/C&D rack. Good.
Under floor cables/bulk head, (connections tight). Good.

WEATHER STATION INSPECTION:

Check operation/test alarms, (wind/temp stow ACU).
Cabinet/tower condition.
Weather station PM, (if time).

SITE GROUNDS & STATION INSPECTION:

Check generator, (fluids, battery condition).
Contempo condensers, (no oil residue, electrical connections).
Station building.
Fence/gate/signs/grounds/storage.

ADDITIONAL ELECTRONIC MANTENANCE ITEMS TO BE COMPLETED:

1. Install new FRM focus motor encoder coupling.
2. Install Single rotation motor FRM mod.
3. Install ACU Power supply mod.
4. Install new ACU backplane.
5. Install digital tachs on both antenna axis.
6. Install new drive cabinet power supply.
7. Install ped room backup A/C, (balance outputs).
8. Spot seal and paint feed cone w/elastomeric.
9. Remove station MKIII recorders.

ANTENNA ELECTRONIC MAINTENANCE MKVLBA 7/19-26/06

FINAL ANTENNA/SITE INSPECTIONS:

Review open PM's

Any TT oversights.

Site cleanup.

Review TT list.

Review problems with site techs.

VLBA operations startup tests at night, (~3 days prior to TT end date).

ELECTRONIC TECHNICIAN NOTES: