

**Report Date:** 25 Apr 2014

**Summary Report for Individual Task  
441-096-1060  
Perform Preventive Maintenance Checks and Services (PMCS) on a Sentinel Sensor  
Status: Approved**

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DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

**Condition:** In a field environment, you are given a requirement to perform operator level PMCS on the Sentinel AN/MPQ-64. The following are available: 1. TM 9-1430-741-10. 2. BII. 3. DA Form 2404 or 5988-E. 4. A pen or pencil. Some iterations of this task should be performed in MOPP 4.

**Standard:** Perform PMCS on the Sentinel, per TM 11-5825-283-10 and TM 9-1430-741-10, without causing injury to self or other personnel, with no damage to the equipment, with minimal damage to the environment, and within the time prescribed by local command directives.

**Special Condition:** None

**Safety Level:** Low

**MOPP:** Sometimes

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| <b>Task Statements</b> |
|------------------------|

**Cue:** You are directed to Perform Preventive Maintenance Checks and Services (PMCS) on a Sentinel Sensor.

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| <b>DANGER</b> |
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None

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| <b>WARNING</b> |
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**WARNING**

This equipment radiates electromagnetic waves of dangerous power levels. Comply with the requirements of TB MED-523 before using this equipment.

High-frequency radiation can cause permanent damage to eyes. If you feel the slightest warming effect while near this equipment, move away quickly.

RF radiation hazard exists near a nonrotating antenna when transmitter is enabled. Do not work on antenna unless transmitter output is disabled or connected to dummy load.

Do not permit personnel within an area of 800 mils left or right of antenna front (pointing direction) and out to a distance of 50 meters (164 feet) while antenna is stationary and radiating. position antenna so that personnel are not exposed to radar beam.

Do not work on waveguide or RF components when power is on.

When working on or around antenna, ensure local control of antenna radiation by setting TEST/NORMAL switch on transmitter power distribution panel to TEST and pressing HV OFF pushbutton on transmitter control unit.

Failure to comply may result in serious injury to personnel.

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| <b>CAUTION</b> |
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None

**Remarks:** None

**Notes:** All required Air Defense specific references and technical manuals will be provided by the local Air Defense Command.

### Performance Steps

1. Perform HMMWV PMCS per TM 9-2320-280-10.

Note: Equipment is Not Ready /Available if: HMMWV is not operational.

2. Perform PLGR PMCS per TM 11-5825-291-13.

Note: Equipment is Not Ready /Available if: PLGR will not pass power up self test and provide encrypted location data in Military Grid Reference System format.

3. Inspect Sentinel HMMWV, unique.

4. Inspect pallet fire extinguisher.

Note: Equipment is Not Ready /Available if: Fire extinguisher is missing; seal broken; pressure gauge needle is in recharge area.

5. Perform generator PMCS per TM 9-6115-642-10.

Note: Equipment is Not Ready /Available if: Generator is not operational.

#### WARNING

To prevent unexpected movement of trailer, ensure trailer handbrakes are set before disconnecting trailer from towing vehicle.

Do not attempt to raise trailer landing gear unless trailer is attached to towing vehicle or trailer tongue is securely supported.

6. Inspect trailer per TM 9-2330-392-14&P.

Note: Equipment is Not Ready /Available if: trailer cannot be safely towed.

## WARNING

#### WARNING

During normal Sentinel operation, antenna rotation is controlled from the RCT or RSC control panel. In the course of operation, the antenna may be commanded to move in azimuth. If you are near the antenna and it begins to rotate, move away quickly.

Do not get on or near ATG trailer while radar set is operating.

When working around antenna pedestal, set AZIMUTH DRIVE circuit breaker to OFF and engage azimuth handcrank to ensure local control of antenna rotation.

Be certain that all personnel are clear of antenna before setting AZIMUTH DRIVE circuit breaker to ON.

There may be a pending antenna movement command that could cause antenna to move.

failure to comply may result in serious injury to personnel.

Falls from elevated surfaces may result in serious injury or death. Ensure trailer jacks are extended and secured. Use caution when climbing onto or working on top of ATG.

7. Inspect front of ATG.

- a. Check quick-release pins and lanyards for presence and proper operation.

- b. Check jack and handcrank physical condition.

- c. Check jack for smooth operation when cranking up and down..

Note: Equipment is Not Ready /Available if: Leveling jack cannot be deployed to stabilize trailer.

- d. Inspect circular level for presence and physical condition.

e. Remove protective cover and ensure level is operational and lens is not damaged.

f. Reinstall protective cover.

g. Inspect cable reels and mounts. Ensure reels turn freely.

h. Check cables and connectors for damage, frayed or broken insulation, broken connector pins or shells and missing protective covers.

i. Check cable straps for physical conditions and tightness.

Note: Equipment is Not Ready /Available if: Cable reels cannot be secured and/or cables are missing or damaged. Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that the electrical wiring is exposed.

j. Inspect jack pad on front of trailer for presence and physical condition.

k. Inspect quick-release pin and lanyard for presence and physical condition.

l. Ensure pad is securely pinned in stowage position.

Note: Equipment is Not Ready /Available if: Jack pad is missing or has damage that prevents use.

m. Inspect transmitter enclosure access panels:

(1) Check panels for physical conditions.

(2) Check latches for physical condition.

(3) Ensure panels are securely latched.

Note: Equipment is Not Ready /Available if: All latches will not fasten securely.

n. Inspect top of antenna array for damage.

Note: Equipment is Not Ready /Available if: Antenna array is damaged.

8. Inspect roadside of ATG.

a. Inspect transceiver blower housing and access cover physical condition. Ensure cover screws are tight.

b. Inspect receiver/exciter access cover and latches for physical condition. Ensure latches are operable and door is securely latched.

Note: Equipment is Not Ready /Available if: All latches will not fasten securely.

c. Inspect antenna stow clamp for presence and physical condition. Ensure clamp is tight.

Note: Equipment is Not Ready /Available if: If antenna cannot be stowed securely with both antenna stow clamps.

d. Inspect auxiliary feed horn antenna and waveguide for physical condition.

Note: Equipment is Not Ready /Available if: Auxiliary feed horn is damaged or waveguide is bent, broken or detached.

e. Inspect boresight telescope and enclosure:

(1) Inspect enclosure for cracks, corrosion, broken or missing fasteners and structural damage.

(2) Check door latches and hinges for corrosion, breaks, missing parts, physical damage and improper operation.

(3) Open enclosure door and check telescope for presence and physical condition. remove stoe pin and ensure telescope rotates freely.

(4) Secure telescope in stow position. Close and secure enclosure door.

Note: Equipment is Not Ready /Available if: Boresight telescope is missing or damaged and North Finding System/Module is inoperative.

f. Inspect Trailer leveling Jack:

(1) Check quick-release pins and lanyards for presence and proper operation.

(2) Check jack and handcrank physical condition.

(3) Check jack for smooth operation when cranking up and down.

Note: Equipment is Not Ready /Available if: leveling jack cannot be deployed to stabilize trailer.

(4) Inspect circular level for presence and physical condition.

(5) Remove protective cover and ensure level is operational and lens is not damaged.

(6) Reinstall protective cover.

9. Inspect rear of ATG:

Note: NOTE

Do not disconnect cables or other equipment for inspection unless specifically directed by procedure steps. Check for general condition and serviceability of the equipment.

a. Inspect ATG structure for damage.

Note: Equipment is Not Ready /Available if: There is severe structural damage that would prevent safe operation of the system.

(1) Inspect jack pads at rear of trailer.

(2) Inspect two jack pads for presence and physical condition.

(3) Inspect quick release pins and lanyards for presence and physical condition.

(4) Ensure jack pads are securely pinned in stowage position.

Note: Equipment is Not Ready /Available if: Any jack pad is missing or has damage that prevents use.

b. Inspect Sensor Interface Unit (SIU):

(1) Inspect SENSOR POWER DISTRIBUTION panel access cover and latches for presence and physical condition.

(2) Open access cover and inspect access cover support arm for physical condition and proper operation.

(3) Inspect SENSOR POWER DISTRIBUTION panel and RSC panel controls and meters for physical condition.

Note: Equipment is Not Ready /Available if: Any controls are broken, missing or non-operational.

(4) At SENSOR POWER DISTRIBUTION panel: Inspect EMER STOP switch knob and reset switch cover for presence, cracks or tears in rubber that would allow dirt and dust to enter.

Note: Equipment is Not Ready /Available if: EMER STOP switch knob is missing, switch is broken or inoperative or switch cover is cracked or torn.

## WARNING

### WARNING

Exposure to lightning can cause DEATH or serious injury to personnel. Do not hold RCT during thunderstorms. Place RCT on ground during remote operation if thunderstorm conditions exist.

(5) Close and latch SENSOR POWER DISTRIBUTION panel access cover.

#### c. Inspect RCT enclosure

(1) Open RCT enclosure access cover and inspect captive thumb screws and support arm for presence and physical condition.

(2) Inspect RCT and carrying case for presence and physical condition.

Note: Equipment is Not Ready /Available if: RCT display is cracked or broken or case is cracked and will not maintain a seal.

(3) Inspect RCT remote adapter cable for presence and physical condition, then restow adapter.

Note: Equipment is Not Ready /Available if: Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed.

(4) Ensure cable connections at RCT and SIU connector panel are tight.

Note: Equipment is Not Ready /Available if: if: Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed.

(5) At shelf under RCT, inspect PLGR cable for presence and physical condition.

Note: Equipment is Not Ready /Available if: if: Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed.

(6) Close and secure RCT enclosure access cover.

(7) Inspect SIU connector panel for physical condition.

(8) Ensure protective covers are installed for all connectors. Remove each protective cover and check connector pins for physical condition; then reinstall covers.

Note: Equipment is Not Ready /Available if: Connectors J4, J5 or J6 are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed.

(9) Inspect SIU structure, hinges on right side, and latching assemblies for physical

(10) Ensure SIU is closed and secured tightly by two clamps on left side.

Note: Equipment is Not Ready /Available if: SIU cannot be latched closed.

#### 10. Inspect curbside of ATG.

a. Inspect transmitter low voltage compartment access cover and latches for physical condition. Ensure latches are operable and door is securely latched.

Note: Equipment is Not Ready /Available if: All latches will not fasten securely.

- b. Inspect antenna stow clamp for presence and physical condition. Ensure clamp is tight.  
Note: Equipment is Not Ready /Available if: Antenna cannot be stowed securely with antenna stow clamp.
- c. Inspect trailer leveling jack:
  - (1) Check quick-release pins and lanyards for presence and proper operation.
  - (2) Check jack for smooth operation when cranking up and down.
  - (3) Check jack and handcrank physical condition.  
Note: Equipment is Not Ready /Available if: Trailer cannot be deployed to stabilize trailer.
- d. Inspect circular level for presence and physical condition.
- e. Remove protective cover and ensure level is operational and lens is not damaged.
- f. Reinstall protective cover.

## WARNING

### WARNING

Unexpected antenna rotation can present a hazard to personnel. Ensure Maintenance Power Off procedure has been completed and azimuth handcrank is engaged for manual rotation when climbing or working on top of ATG. failure to comply may result in serious injury to personnel.

- 11. Inspect Pedestal
  - a. Inspect circular level for presence and physical condition.
  - b. Remove protective cover and ensure level is operational and lens is not damaged.
  - c. Reinstall protective cover.
  - d. Inspect elevation drive trunnion for corrosion, damage and loose or damaged fasteners or connecting pins.  
Note: Equipment is Not Ready /Available if: Elevation mechanism will not raise and lower antenna.
  - e. Inspect protective boot on elevation drive for physical condition.
  - f. Inspect pedestal for physical damage, corrosion, dirt or grease/oil accumulation.  
Note: Equipment is Not Ready /Available if: Pedestal will not rotate.
  - g. Check azimuth handcrank and brake assembly for physical condition and proper operation.  
Note: Equipment is Not Ready /Available if: Azimuth drive or handcrank assembly will not disengage or engage properly.
  - h. Inspect cables, connectors and waveguide assemblies for damage.  
Note: Equipment is Not Ready /Available if: Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed or waveguide is bent, broken or detached.

## WARNING

### WARNING

Unexpected antenna rotation can present a hazard to personnel. Ensure Maintenance Power Off procedure has been completed and azimuth handcrank is engaged for manual rotation when climbing or working on top of ATG. Failure to comply may result in serious injury to personnel.

#### 12. Inspect Antenna Array.

a. Inspect radome for cracks, loose or damaged fasteners, torn or damaged sealing tape and buildup of mud or debris.

Note: Equipment is Not Ready /Available if: Total repair or damaged area exceeds 10 sq. in.

b. Inspect array blower assembly for cracks, breaks, loose or missing fasteners and corrosion. Inspect for damage or deterioration of sealant between blower housing and array.

c. Inspect BSU enclosure and door:

(1) Check enclosure and door for cracks corrosion, broken or missing fasteners and structural damage.

(2) Check door latches and hinges for corrosion, breaks, missing parts, physical damage and improper operation.

(3) Ensure all latches are latched.

Note: Equipment is Not Ready /Available if: BSU enclosure cannot be latched closed.

(4) Inspect visible cables and cable attaching hardware for presence and physical damage.

Note: Equipment is Not Ready /Available if: Connectors are cracked or broken, pins are bent, broken or burned and/or insulation is damaged to the extent that electrical wiring is exposed.

(5) Inspect non-skid paint step patches for wear.

#### 13. Check Radar Set Control Panel lamps.

Note: Equipment is Not Ready /Available if: Indicator does not light after bulb replacement.

#### 14. Check PHASE DETECTOR lamps.

Note: Equipment is Not Ready /Available if: Indicator does not light after bulb replacement.

### WARNING

Dangerous voltages exist at radio antennas when radio sets are operating. Do not touch antennas. Observe precautions given in TB 43-01-0129 concerning vehicular whip antennas. Failure to comply may result in serious injury to personnel.

#### 15. Service BSU 2A3A5 exhaust filter.

#### 16. Service boresight telescope 2A3A2.

Note: NOTE

When PMCS is complete, perform Placing Radar Set in Service procedure.

Perform all Weekly PMCS tasks along with the following items.

#### 17. Perform HMMWV PMCS per TM 9-2320-280-10.

#### 18. Inspect transceiver 2A1 air exhaust filter.

Note: NOTE

There are no operator Quarterly PMCS tasks.

19. Note deficiencies on DA Form 2404 or 5988-E with corrective actions.

20. Notify unit maintenance of any uncorrectable deficiencies.

21. Turn in completed DA Form 2404 or 5988-E to supervisor.

22. Perform EPLRS radio self-test and operator PMCS per TM 11-5825-283-10.

Note: Equipment is Not Ready /Available if: EPLRS is not operational and CONOPS-EPLRS operation is mission essential.

23. Perform SINCGARS radio self-test and operator PMCS per TM 11-5810-890-10-1.

Note: Equipment is Not Ready /Available if: Neither SINCGARS radio sets is operational and CONOPS-SINCGARS mode is mission essential.

24. Check HMMWV power interface unit input power control.

Note: Equipment is Not Ready /Available if: Power Interface Unit is not operational and CONOPS-SINCGARS or CONOPS-EPLRS is mission essential.

25. Check emergency stop switch.

Note: Equipment is Not Ready /Available if: Equipment is not de-energized by operation of EMER STOP switch or equipment power cannot be restored after resetting EMER STOP switch.

NOTE

Perform Before Mission PMCS task item 20 along with the following items:

26. Check Radar Set Control fault indications.

Note: Equipment is Not Ready /Available if: Condition causing fault indication cannot be corrected and fault indication cannot be cleared.

27. Monitor equipment for unsatisfactory conditions.

28. Inspect generator operation.

29. Perform HMMWV PMCS per TM 9-2320-280-10.

30. Clean ATG

31. Inspect Painted Surfaces.

32. Perform generator PMCS per TM 9-6115-642-10.

Note: NOTE

Perform Before Mission PMCS tasks items 1 thru 13, 19 and 20 along with the following items.

33. Perform HMMWV PMCS per TM 9-2320-280-10.

34. Service SIU 2A4 intake air filter.

35. Service antenna array 2A3A1 air filter.

36. Service antenna air blower 2A3A1B1 air filter.

37. Service BSU 2A3A5 intake filter.

(Asterisks indicates a leader performance step.)

**Evaluation Guidance:** Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly.

**Evaluation Preparation:** Setup: Ensure that all information, references, and equipment required to perform the task are available. Use the performance measures and the references to score the Soldier's performance. Brief the Soldier. Tell the Soldier what he is required to do IAW the task conditions and standards.

| PERFORMANCE MEASURES  | GO | NO-GO | N/A |
|---|----|-------|-----|
| 1. Performed HMMWV PMCS per TM 9-2320-280-10.                                     |    |       |     |
| 2. Performed PLGR PMCS per TM 11-5825-291-13.                                     |    |       |     |
| 3. Inspected Sentinel HMMWV, unique.  |    |       |     |
| 4. Inspected pallet fire extinguisher.  |    |       |     |
| 5. Performed generator PMCS per TM 9-6115-642-10.                                 |    |       |     |
| 6. Inspected trailer per TM 9-2330-392-14&P.                                      |    |       |     |
| 7. Inspected front of ATG.  |    |       |     |
| 8. Inspected roadside of ATG.   |    |       |     |
| 9. Inspected rear of ATG:   |    |       |     |
| 10. Inspected curbside of ATG.  |    |       |     |
| 11. Inspected Pedestal.   |    |       |     |
| 12. Inspected Antenna Array.  |    |       |     |
| 13. Checked Radar Set Control Panel lamps.  |    |       |     |
| 14. Checked PHASE DETECTOR lamps.   |    |       |     |
| 15. Performed EPLRS radio self-test and operator PMCS per TM 11-5825-283-10.      |    |       |     |
| 16. Performed SINCGARS radio self-test and operator PMCS per TM 11-5810-890-10-1. |    |       |     |
| 17. Checked HMMWV power interface unit input power control.                       |    |       |     |
| 18. Checked emergency stop switch.  |    |       |     |
| 19. Checked Radar Set Control fault indications.                                  |    |       |     |
| 20. Monitored equipment for unsatisfactory conditions.                            |    |       |     |
| 21. Inspected generator operation.  |    |       |     |
| 22. Performed HMMWV PMCS per TM 9-2320-280-10.                                    |    |       |     |
| 23. Cleaned ATG.  |    |       |     |
| 24. Inspected Painted Surfaces.   |    |       |     |
| 25. Performed generator PMCS per TM 9-6115-642-10.                                |    |       |     |
| 26. Performed HMMWV PMCS per TM 9-2320-280-10.                                    |    |       |     |
| 27. Serviced SIU 2A4 intake air filter.   |    |       |     |
| 28. Serviced antenna array 2A3A1 air filter.                                      |    |       |     |
| 29. Serviced antenna air blower 2A3A1B1 air filter.                               |    |       |     |
| 30. Serviced BSU 2A3A5 intake filter.   |    |       |     |
| 31. Serviced BSU 2A3A5 exhaust filter.  |    |       |     |
| 32. Serviced boresight telescope 2A3A2.   |    |       |     |
| 33. Performed HMMWV PMCS per TM 9-2320-280-10.                                    |    |       |     |
| 34. Inspected transceiver 2A1 air exhaust filter.                                 |    |       |     |
| 35. Noted deficiencies on DA Form 2404 or 5988-E with corrective actions.         |    |       |     |
| 36. Notified unit maintenance of any uncorrectable deficiencies.                  |    |       |     |
| 37. Turned in completed DA Form 2404 or 5988-E to supervisor.                     |    |       |     |

**Supporting Reference(s):**

| Step Number | Reference ID      | Reference Name  | Required | Primary |
|-------------|-------------------|---|----------|---------|
|             | AR 200-1          | ENVIRONMENTAL PROTECTION AND ENHANCEMENT  | No       | No      |
|             | DA FORM 2404      | EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET  | Yes      | No      |
|             | DA FORM 5988-E    | Equipment Inspection Maintenance Worksheet  | Yes      | No      |
|             | PAM 750-8         | The Army Maintenance Management System (TAMMS) Users Manual.  | No       | No      |
|             | TM 11-5825-283-10 | OPERATORS MANUAL FOR MANPACK RADIO SET (MP-RS) RADIO SETS AN/ASQ- 177C(V)4 (NSN 5820-01-462-8407) (EIC: N/A); AN/PSQ-6C (5820-01-462- 8410) (EC: N/A); AN/VSQ-2C(V)1 (5820-01-462-8411) (EIC: N/A); AN/VSQ- | No       | No      |
|             | TM 9-1430-741-10  | OPERATORS MANUAL FOR SENTINEL, AN/MPQ-64, (NSN 1430-01-420-8077)  | Yes      | No      |

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. Everyone is responsible for safety. A thorough risk assessment must be completed prior to every mission or operation.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :** None

**Supported Individual Tasks :** None

**Supported Collective Tasks :** None

**ICTL Data :**

| ICTL Title   | Personnel Type | MOS Data                                  |
|--|----------------|---|
| MOS 14G - Air Defense (AD) Battle Management System Operator - SL1 | Enlisted       | MOS: 14G, Skill Level: SL1, Duty Pos: DQG |