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BULLETIN
BUL-027

MLT NAV/C2 Off Path Troubleshooting

This document presents field troubleshooting of the U.S. Navy Target Range's Moving Land Target (MLT) NAV/C2 units.

Problems addressed include:

- a stationary vehicle appears to be moving on a Mobius map.
- a vehicle appears to accurately replay a recorded path on a Mobius map, but the actual vehicle is a consistent distance off of the path (e.g., 5ft to the east of the recorded path).

If waypoints are not being logged during mapping or path recording, perform the basic troubleshooting procedure:

- Perform full GPS reboot and verification.

If only one NAV/C2 has a problem, perform the basic troubleshooting procedure:

- Verify GPS Correction is being received.

If all NAV/C2 vehicles have a problem, perform the basic troubleshooting procedures:

- Verify GPS Correction is being broadcast.
- Verify GPS Correction is being received.
- Re-record Maps and Paths.

If basic troubleshooting does not resolve the problems, perform the advanced troubleshooting procedures:

- Perform a Steering To Curvature Calibration as documented in the MLT Installation Manual.
- Perform full GPS reboot and verification.
- Verify NAV/C2 GPS communications and settings.

Verify GPS Correction is being broadcast

1. With the Ground Control Station (GCS) fully booted, restore djLoader.
2. In the lower center area, ensure the "Send DGPS" checkbox is checked.
3. In the lower center area, immediately to the right of the "Avg>" button, verify there are values for the Latitude and Longitude, and that these values are static (i.e., not varying; see image on next page). If there are NOT static values present, perform the following steps:
 - a. Perform one of the "GPS Set-ups" documented in the MLT Operations Manual.



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- b. Perform full GPS reboot and verification as documented later in this bulletin.

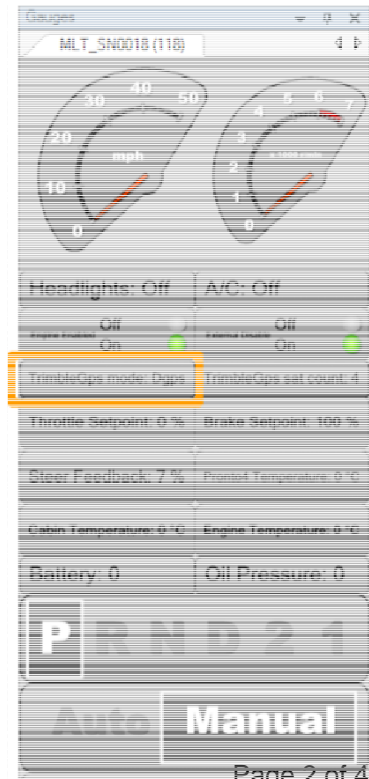
QuickTime™ and a decompressor are needed to see this picture.

Verify GPS Correction is being received

1. With the vehicle fully booted and checked in to the GCS, restore Mobius.
2. On the Gauges tab, verify “TrimbleGps mode” is “Dgps”.
3. On the Gauges tab, verify “TrimbleGps sat count” is greater than 0.
4. Repeat with any other affected P4S4 units.

Rerecord Maps and Paths

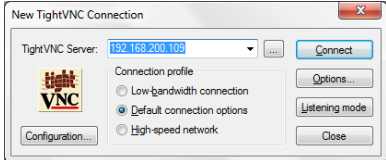
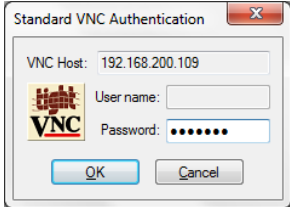
1. Build a new map as documented in the MLT Operations Manual.
2. Record a new path as documented in the MLT Operations Manual.
3. Playback the new path as documented in the MLT Operations Manual, verifying accuracy throughout playback.

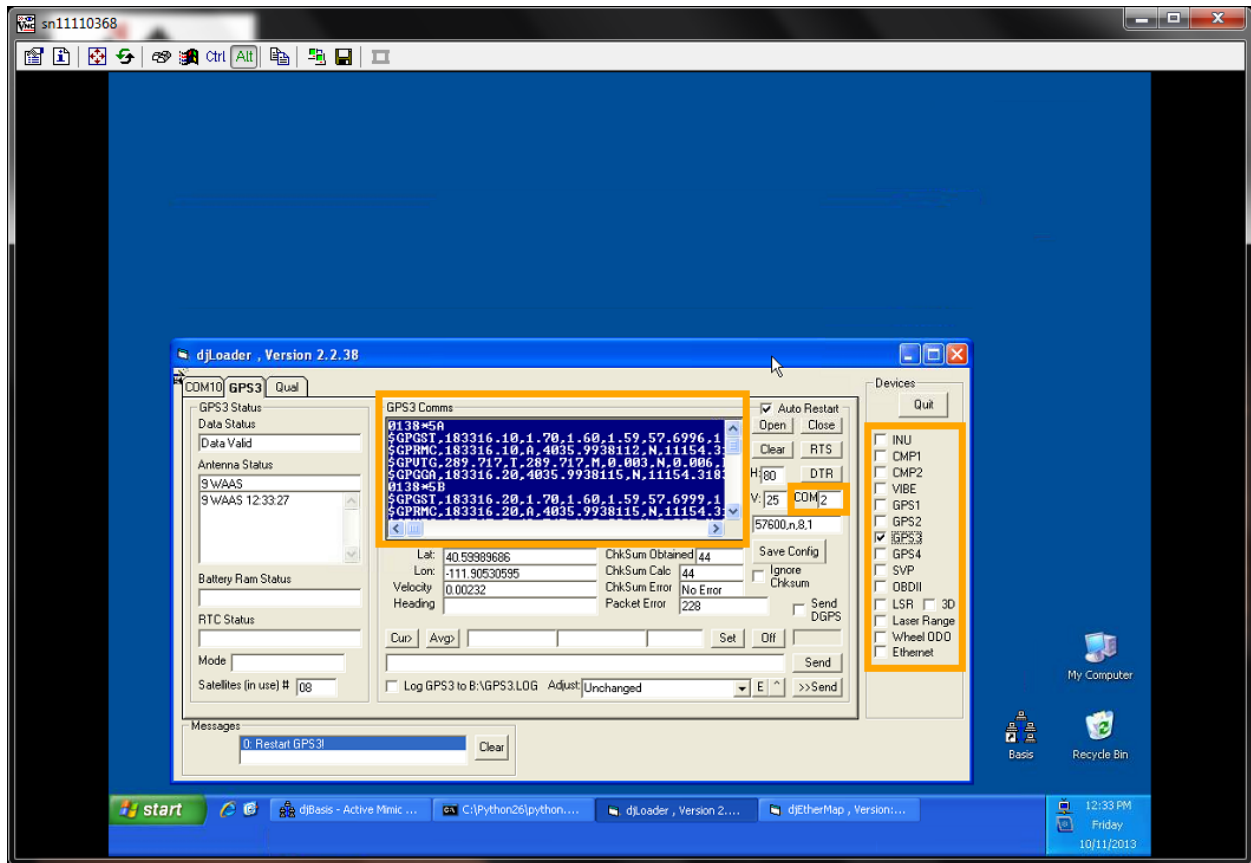


Perform full GPS reboot and verification

1. Perform a full “System Shut-Down” as documented in the MLT Operations Manual (i.e., all NAV/C2 units and the OCU should be fully shut-down).
2. Perform the “Vehicle Inspection, Set-up, and Pre-op” as documented in the MLT Operations Manual.
3. Verify GPS Correction is being broadcast as documented previously in this bulletin.

Verify NAV/C2 GPS communications and settings

1. Click the Windows Start button. Select “All Programs” → “TightVNC” → “TightVNC Viewer”.
2. In the “New TightVNC Connection” window, in the “TightVNC Server” field enter the IP Address of the NAV/2 unit, which is 192.168.200.1xx, where xx is the test vehicle’s MLT serial number.
3. Click the “Connect” button.
4. In the “Standard VNC Authentication” window, leave the “Username” field blank and enter “pronto4” as the password, then press the ‘Enter’ key. This brings up the desktop of the P4S4 unit in a window titled “SN1111xxxx”, where xxxx matches the serial number of the NAV/C2 unit. This window is the VNC window.
5. In the VNC window, close the command line window with the Vehicle Name and last 3 digits of the IP address as the title.
6. In the VNC window, restore djLoader. On the right-hand side, edit the checkboxes (see image on next page), as follows:
 - Uncheck “OBDII”.
 - Uncheck “Wheel ODO”.
 - Check “GPS3”.
7. In the VNC window, in djLoader, on the “GPS3” tab verify data is streaming in the blue terminal area. If data is proceeding, continue with step 8. *If data is not streaming:*
 - a. Note the COM number.
 - b. Complete steps 8-10.
 - c. Shut-down the P4S4.
 - d. Return the GPS to Kairos for repair.



8. In the VNC window, in djLoader, on the right-hand side, edit the checkboxes, as follows:
 - Uncheck “GPS3”.
 - Check “OBDII”.
 - Check “Wheel ODO”.
9. In the VNC window, restore the djBasis window. Under “Module Name” single-click on the “Vak.exe” entry, then click the “Execute” button.
10. Close the VNC window.
11. Verify GPS Correction is being received as documented previously in this bulletin.