
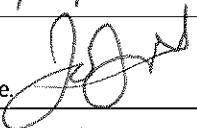



**Field Service Spares Replacement Procedure – GACP Control Panel Kit,
ST24**

Approval:

Approving Authority	Signature	Date
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Revision History

Rev.	ECO	Description of Change	Date
A	9145	Initial release	03-07-2012

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Field Service Procedure – Replacement GACP Control Panel Kit, ST24

1. Brief Summary:

Troubleshooting document for diagnosing a fault with and replacing the Graphic Antenna Control Panel (GACP) for the ST24 antenna.

2. Checklist:

- Verify Power to the GACP
- Verify Communications with the PCU PCB
- Run the Built-In Test (BIT Test)

3. Theory of Operation:

The ST24 antenna is supplied with a touch screen GACP which is used to send and receive information into the pedestals PCU PCB, allowing control over the antenna pedestal, calibrating the systems tracking settings and running internal test procedures. A 12VDC to the GACP powers the control unit and when the GACP is energized it will also power the pedestal assembly (PCU).

4. Verify Power to the GACP:

The GACP is powered by 12VDC, if the control panel won't energize by pressing the power button power button measure across the + and – pins on the rear of the control panel and verify if the 12VDC is present, if not troubleshoot the power source. If the 12VDC is present and the control panel won't energize verify if the fuse in the back of the control panel has blown. If so trouble shoot potential problems and replace the fuse. If the 12VDC is present and the fuse is intact yet the control panel won't energize the unit is defective and needs to be replaced. Another potential fault with the GACP is if the display illuminates but no characters are displayed, if that is the case there is a hardware failure of the unit and it needs to be replaced.

5. Verify Communications With the PCU PCB:

If the control panel is energized and states on the display permanently displays ""PCU Communication error"" this is an indication that the control panel is powered, but not communication with the PCU PCB. Verify if the pedestal is powered, if the pedestal is powered yet no feedback is being received from the PCU PCB this is an indication that the coax connection is good, but there is communication problem. The control panel is potentially defective, replace the control panel. If the control panel is replaced and communications with the PCU PCB are not established replace the PCU PCB assembly (the original control panel can be refitted as it's unlikely to be defective).

6. Run the ST24 Built-In Test:

To run the internal system test on the ST24 antenna access the home page of the control panel. If there is a locked padlocked displayed in the lower right corner of the screen, press this to access the options.

Select the antenna option from the home page and then select the advanced options, you'll now see the option to run "system test". Select the system test option to display the different tests available. You'll now have the following options:

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6.1. Power on Self Test Results PCU:

Displays the PCU's test results for the elevation motor and encoder, pol motor and encoder, azimuth motor, tilt sensor, rate sensors, GPS, and internal communication tests which were recorded when the antenna was last initialized. Possible Failure results are:

1. EL Motor and Encoder – Loose connection, a winding is down in the motor, encoder failure. Verify connection, replace the motor.
2. Pol Motor and Encoder – Loose connection, a winding is down in the motor, encoder failure. Verify connection, replace the motor.
3. AZ Motor – Loose connection, a winding is down in the motor. Verify the connection, replace the motor. This test is not currently active at time of print contact your local Sea Tel service department to verify if it's supported by your PCU software (version 1.11 or higher).
4. Tilt (MEM) Sensor – Failure of the solid state accelerometer or the pedestal is tilted more than 15 degrees, rerun test with pedestal level, or replace the PCU.
5. Rate Sensor – Failure of one of the rate sensors, replace the PCU. This test is not currently active at time of print contact your local Sea Tel service department to verify if it's supported by your PCU software (version 1.11 or higher).
6. GPS – The GPS is only tested during the in service test due to the amount of time required for the GPS antenna to acquire lock.
7. Processor – Failure of the main PCU processor to communicate properly with onboard devices, replace the PCU.
8. Tuner Communication – Failure of the DVB tuner, replace the PCU.

6.2. In Service Test PCU:

Tests the internal components on the PCU PCB including the tilt (MEM) sensor, rate sensor, GPS, processor and tuner communication. Possible Failure results are:

1. Tilt (MEM) Sensor – Failure of the solid state accelerometer or the pedestal is tilted more than 15 degrees, rerun test with pedestal level, or replace the PCU.
2. Rate Sensor – Failure of one of the rate sensors, replace the PCU.
3. GPS - No active GPS update, verify connection, replace GPS antenna, or replace PCU.
4. Processor – Failure of the main PCU processor to communicate properly with onboard devices, replace the PCU.
5. Tuner Communication – Failure of the DVB tuner, replace the PCU.

6.3. Out of Service Test PCU:

This will take the antenna off satellite by doing a software reset of the PCU, reinitializing the system. In doing this it re-runs the PCU's power on self test which include the elevation motor and encoder, pol motor and encoder, azimuth motor, tilt sensor, rate sensors, GPS, and some internal communication tests. Possible Failure results are:

1. EL Motor and Encoder – Loose connection, a winding is down in the motor or encoder failure. Verify the connection, replace the motor.
2. Pol Motor and Encoder – Loose connection, a winding is down in the motor or encoder failure. Verify the connection, replace the motor.

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3. AZ Motor – Loose connection, a winding is down in the motor. Verify the connection, replace the motor. This test is not currently active at time of print contact your local Sea Tel service department to verify if it's supported by your PCU software (version 1.11 or higher).
4. Tilt (MEM) Sensor – Failure of the solid state accelerometer or the pedestal is tilted more than 15 degrees, rerun test with pedestal level, or replace the PCU.
5. Rate Sensor – Failure of one of the rate sensors, replace the PCU. This test is not currently active at time of print contact your local Sea Tel service department to verify if it's supported by your PCU software (version 1.11 or higher).
6. GPS – The GPS is only tested during the in service test due to the amount of time required for the GPS antenna to acquire lock.
7. Processor – Failure of the main PCU processor to communicate properly with onboard devices, replace the PCU.
8. Tuner Communication – Failure of the DVB tuner, replace the PCU.

6.4. Power on Self Test Results Panel:

Displays the control panels test results for the GACPs processor, touch screen, modem board and PCU communications which were recorded when the antenna was initialized. Possible Failure results are:

1. Processor - Failure of the GACP processor, replace the GACP.
2. Touch Screen - Failure of the GACP touch screen, replace the GACP.
3. Modem Board - Failure of the GACP modem board, replace the GACP.
4. PCU (communications) – Failure of communication with the PCU verify cable, verify voltage to the PCU/antenna powered, replace the GACP.

6.5. In Service Test Panel:

Tests the internal components on the control panel including the GACP processor, touch screen, modem board and PCU communications. Possible Failure results are:

1. Processor - Failure of the GACP processor, replace the GACP.
2. Touch Screen - Failure of the GACP touch screen, replace the GACP.
3. Modem Board - Failure of the GACP modem board, replace the GACP.
4. PCU (communications) – Failure of communication with the PCU verify cable, verify voltage to the PCU/antenna powered, replace the GACP.

6.6. Out of Service Test Panel:

Runs the panels power on tests which include the GACP processor and touch screen. Possible Failure results are:

1. Processor - Failure of the GACP processor, replace the GACP.
2. Touch Screen - Failure of the GACP touch screen, replace the GACP.

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7. Replacing the GACP Control Panel:

7.1. Tools.

- #1 Phillips Screwdriver
- 2mm (Terminal) Screwdriver
- 7/16" Wrench/Spanner

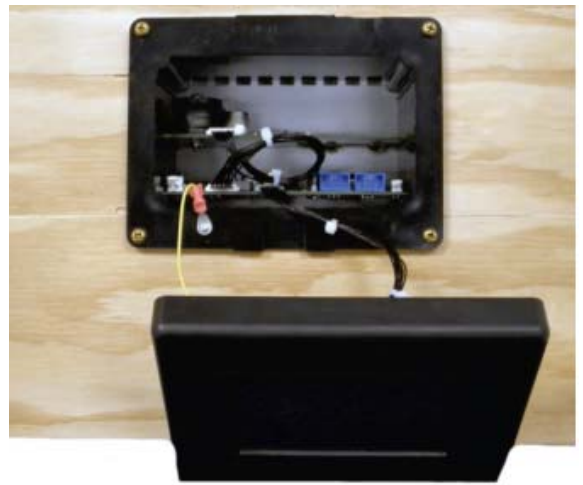
7.2. Procedure.

Procedure for replacing the GACP control panel, Sea Tel kit part number: 135916 (GACP control panel part number: 130922-1).

***Caution:** Isolate the power from the GACP before following this procedure.

1. Carefully remove GACP front screen by unclipping it from the underside of its mount to provide access to the four mounting holes.

***Note:** Use caution as to not damage or pull out the cabling which connects to the touch screen display.



2. Remove the 4 mounting screws securing the GACP using a #1 Phillips screwdriver.

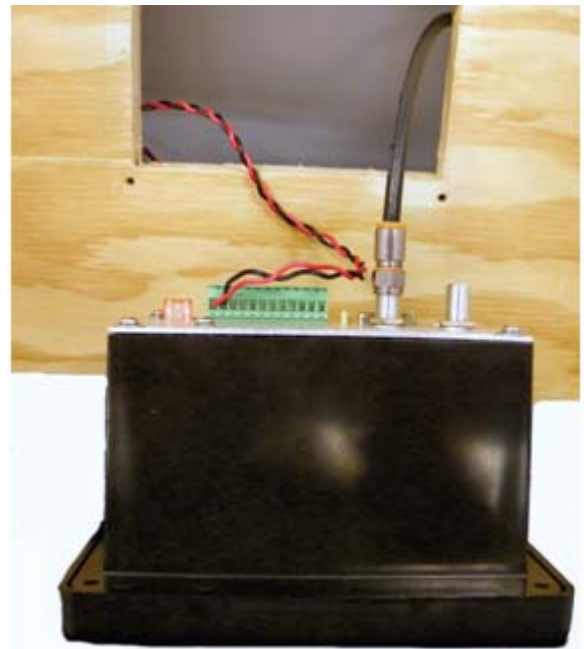


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3. Secure and disconnect the red (+) and black (GND) DC power cables from the cables from the "BATT" terminal on the rear of the GACP using a 2mm flat blade screwdriver.

4. Secure the antenna communications coax cable from the RF-In connector on the rear of the GACP control panel.

5. Remove the defective GACP and install the replacement in the same configuration, connecting the coax cable to the RF-IN port and the DC power cables to the "+" and "-" connections.



6. Secure the replacement GACP to the mounting points by removing the front panel (as per step 1 of this procedure) and secure to the mounting points with the hardware removed in step 2 using a #1 Phillips screwdriver.



7. Reinstall the GACP front panel to the enclosure, by slipping the top of the screen into its locating clip and then locating the two lower mounting points.

