

56122709 AUTONOMY MODULE KIT

For Liberty SC50 Models: ALL

CONTENTS OF KIT

Item	Part Number	Qty	Description
[]	56090380	1	Instruction Sheet
1	56104927	1	Autonomous Module
[] = Not Shown			

INSTALLATION INSTRUCTIONS

⚠ CAUTION!

When working on an SC50 and a battery disconnect is needed, ensure that the Autonomy Module is completely powered off before the power is pulled from the system. To verify that the Autonomy Module is completely powered down simply wait for both the safety LiDAR's and Dropoff lasers to power off, plus an additional 15 seconds after that. If this procedure is not followed when disconnecting the battery, there is a chance that the Autonomy Module could be permanently damaged and would need replacement.

⚠ WARNING! Disconnect battery before servicing.

REMOVE THE EXISTING AUTONOMY MODULE

1. Disconnect the main battery connector. The Autonomy module is still powered unless the battery is disconnected.
2. **See Figure 1.** Remove the 4 screws (C) that secure the autonomy cover (B) over the autonomy bay (A), and remove the cover.
3. **See Figures 2 and 3.** Disconnect all electrical connectors from the Autonomy module, according to the table and figures.

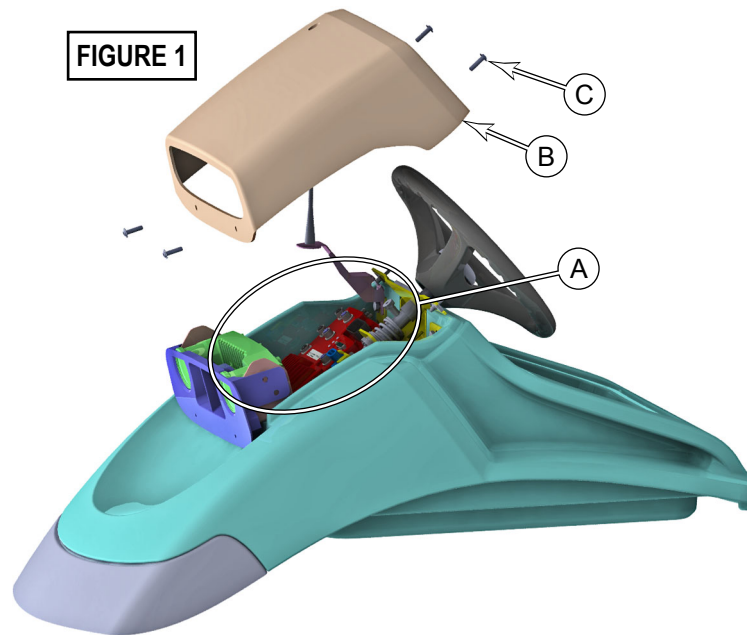
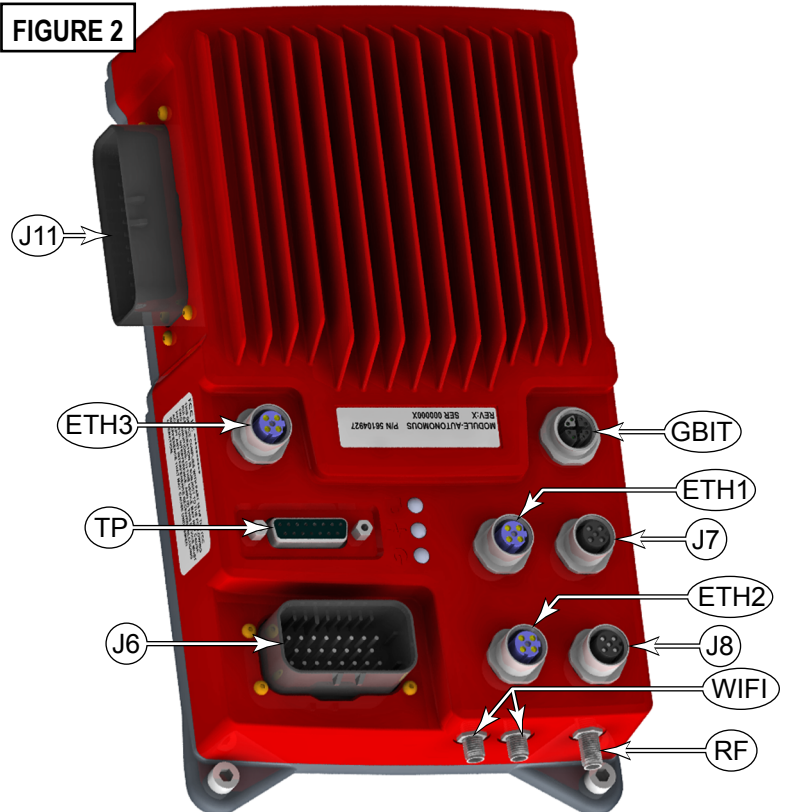


FIGURE 2



Autonomous Module Connectors	
Connector	Description
J6	Main Machine Harness
J7	3D Camera Power
J8	Map Laser Power
J11	Breakout Box
Eth1	Not Used
Eth2	Map Laser Data
Eth3	IoT (optional attachment)
Gbit	3D Camera Data
WiFi	Antenna
WiFi	Antenna
RF	Antenna
TP	Engineering Test Port

REMOVE THE EXISTING AUTONOMY MODULE - CONTINUED

4. See Figures 3 & 4. Remove the two screws (D) that secure the autonomy module to the autonomy bay platform.
5. Lift the upper end of the autonomy module, and slide the module toward the steering wheel to release it from the lower Mounting Tabs (E).
6. Remove the autonomy module from the machine. **NOTE:** Observe the routing of wiring to duplicate on the new module.

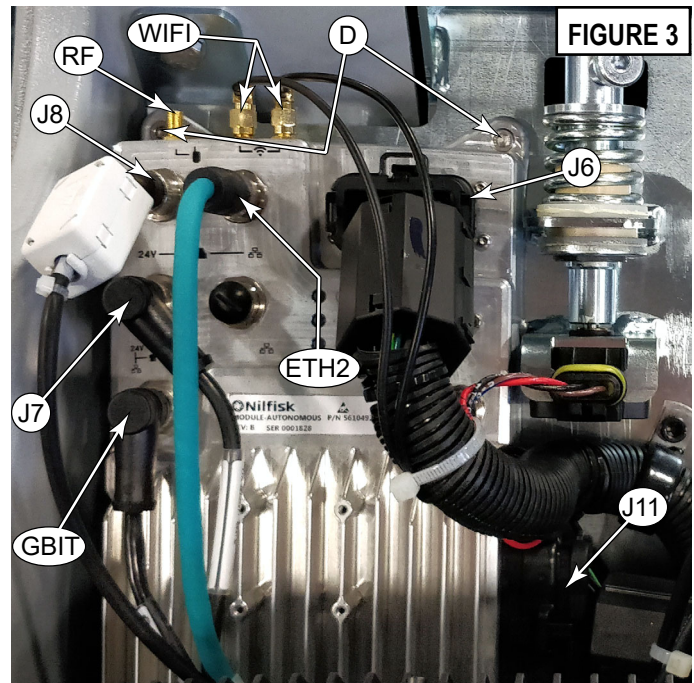


FIGURE 3

INSTALL THE NEW AUTONOMY MODULE

1. Position the new module in position, but tilted forward to aid in the installation of the 3 antenna connectors.
2. Connect the three antenna connectors (1-RF, 2-WIFI).
3. Lay the Autonomy module flat, and secure it into position with the two mounting screws (D).
4. Connect all of the remaining connectors. Torque connectors (J7, J8, ETH2, ETH3 & GBIT) to 0.5 Nm (4.4 in/lb).
5. Re-install the autonomy bay cover.
6. Power the machine with service mode access.
 - a. Press and hold the Scrub and Vacuum buttons.
 - b. Press and release the Power button.
 - c. When the display illuminates and the machine begins its bootup process, you may release the Scrub and Vacuum buttons.
 - Disregard the multiple errors that are related to component calibrations which are described in the subsequent sections.

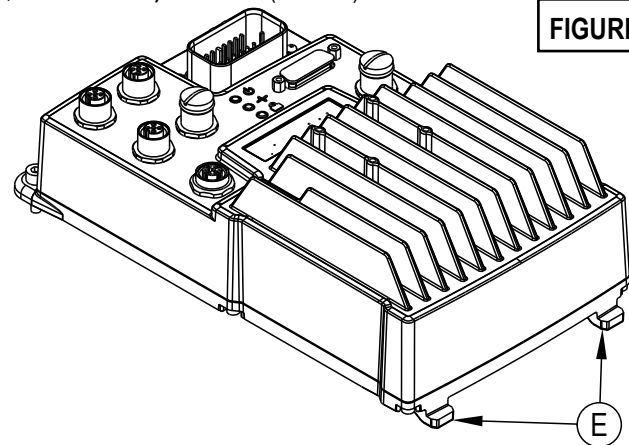
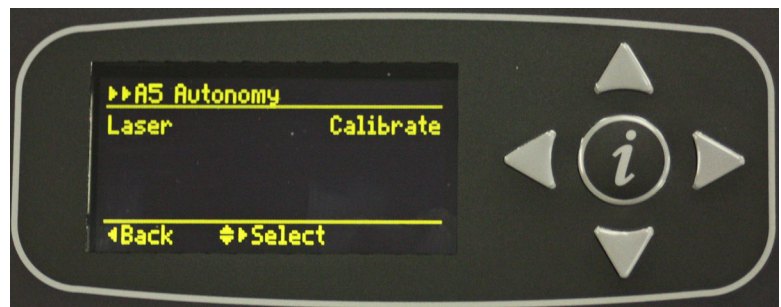


FIGURE 4

MAPPING LASER CALIBRATION

1. Move the machine to an open area with no obstructions at the height of the mapping laser.
2. Go to the Main menu, Service menu, Autonomy menu, and select "Calibrate Laser".
3. Press the right-arrow button on the display to initiate the calibration.
4. The display will indicate that the Autonomy module is processing the mapping laser outputs.
5. When the "Processing" message clears and returns to the previous display, the calibration is complete.



3D CAMERA CALIBRATION

This procedure synchronizes the 3D camera with the mapping laser, and must be completed after the mapping laser calibration was completed in the previous section.

1. **See Figure 5.** Move the machine to an area with inside corner walls. The walls should be vertical, unbroken, and at least as tall as the machine. The area should be free of obstacles.
2. Park the machine facing directly into the corner, and approximately 10 feet (3 m) from the corner.

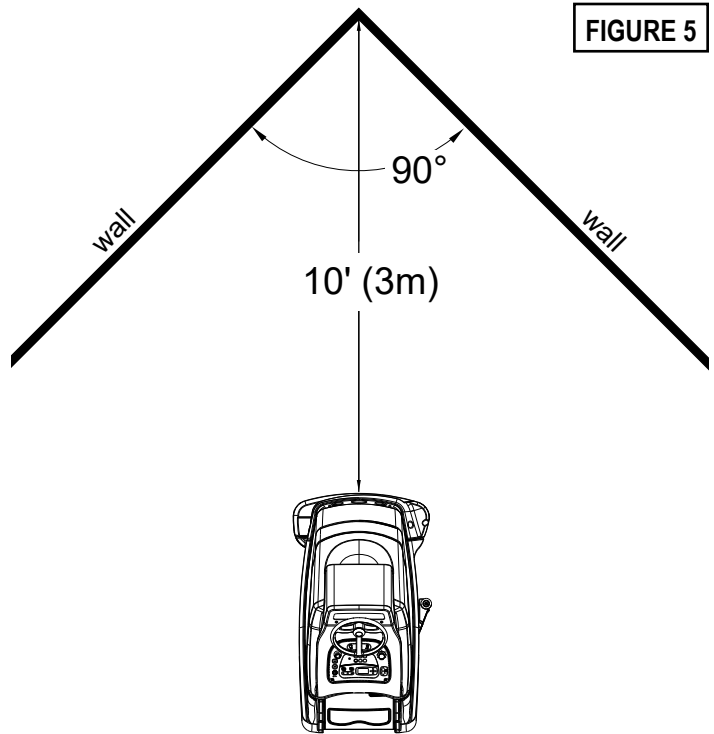
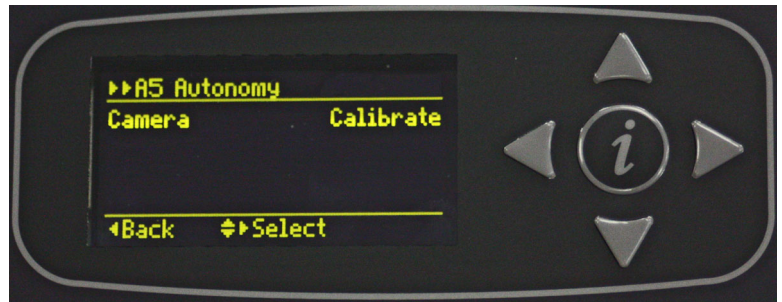


FIGURE 5

3. Go to the Main menu, Service menu, Autonomy menu, and select "Calibrate Camera".
4. Press the right-arrow button on the display to initiate the calibration.
5. The display will indicate that the Autonomy module is processing the camera and mapping laser outputs.
6. When the "Processing" message clears and returns to the previous display, the calibration is complete.
7. Verify the camera is functioning by reading a location tag.



DROPOFF SENSOR CALIBRATION

1. Move the machine to an area with a flat floor, which remains flat from the rear wheels of the machine and forward to include all 4 laser dots from the dropoff sensors shining on the floor.
2. Go to the Main menu, Service menu, Autonomy menu, and select "Calibrate Dropoff Sensors".



3. Make sure all four lasers are unobstructed and striking their typical position on the floor.
4. Press the right-arrow button on the display to initiate the calibration.
5. The display will indicate that the Autonomy module is recording the dropoff laser outputs.
6. When the "Recording" message clears and returns to the previous display, the calibration is complete.
7. Reboot the machine after the Dropoff Sensor Calibration procedure is completed.



CUSTOMER COMMISSIONING

The following procedures may require assistance or information from the customer or machine administrator.

1. Re-connect to the customer's WiFi network. Assistance may be needed from the network administrator.
2. Re-train all paths and home positions for the machine.