

56122730 CELLULAR GATEWAY KIT-US

Liberty SC50 Models: North American models

CONTENTS OF KIT

Item	Ref. No.	Qty	Description
[]	56090388	1	Instruction Sheet
1		1	Gateway Module Assy-US
1A		1	QR Code Printout
2		1	Harness-SC50 Cell Gateway
3		1	Label-FCC ID-US
4		1	Cable-Ethernet-M12D-RJ45
[5]		1	Tape-Circle-VHB 4952
[6]		1	Wipe-Alcohol
[7]		3	Cable Tie-Black-8 Inch
8	56122754	1	Retainer-Antenna

[] = Not Shown

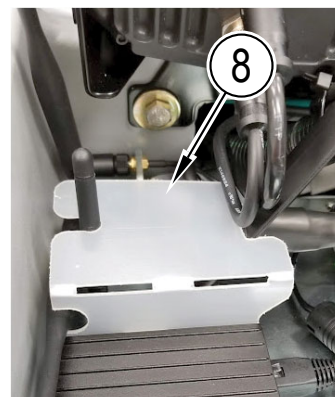
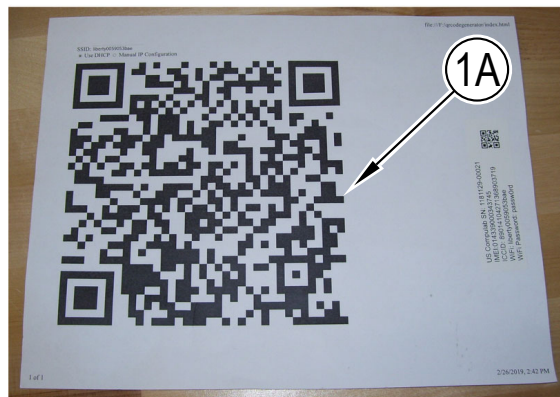
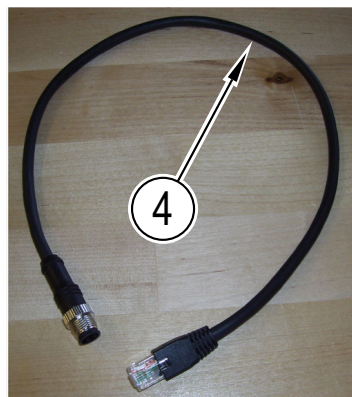
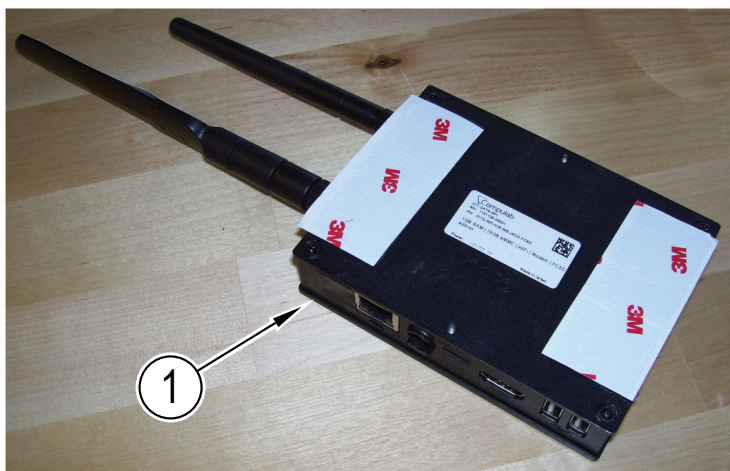
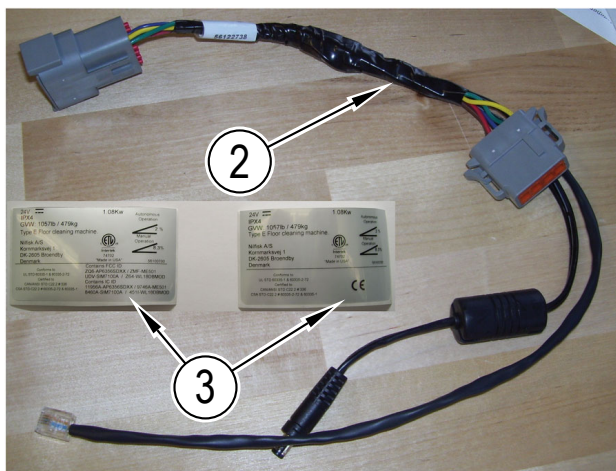
56122733 CELLULAR GATEWAY KIT-EU

Liberty SC50 Models: European models

CONTENTS OF KIT

Item	Ref. No.	Qty	Description
[]	56090388	1	Instruction Sheet
1		1	Gateway Module Assy-EU
1A		1	QR Code Printout
2		1	Harness-SC50 Cell Gateway
3		1	Label-FCC ID-EU
4		1	Cable-Ethernet-M12D-RJ45
[5]		1	Tape-Circle-VHB 4952
[6]		1	Wipe-Alcohol
[7]		3	Cable Tie-Black-8 Inch
8	56122754	1	Retainer-Antenna

[] = Not Shown



The purpose of this kit is to install the Cellular Gateway Module. Depending upon the location of the TrackClean Module this may need to be relocated to accommodate the Cellular Gateway Module.

TOOLS REQUIRED

- Paint scraper (or similar tool to remove double-sided adhesive tape)
- #3 & #4 Metric Allen Wrenches
- Torque wrench

SPECIAL TOOLS / REFERENCES REQUIRED

- Smart Phone and knowledge of how to change its settings and connect to a new Wi-Fi network (only generic instructions are included within this instruction sheet).
- Access to Liberty SC50 Service Manual (p/n 56043177)

INSTALLATION INSTRUCTIONS

PREPARING THE MACHINE

1. Power on the machine and wait for boot-up process to complete.
2. Check for any active faults. Refer to the Liberty SC50 Service Manual to resolve any faults.

NOTE: A fault-free machine is preferred so that if any faults appear after the installation is complete the installer can better understand if the fault is a result of the new components.

⚠ 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!

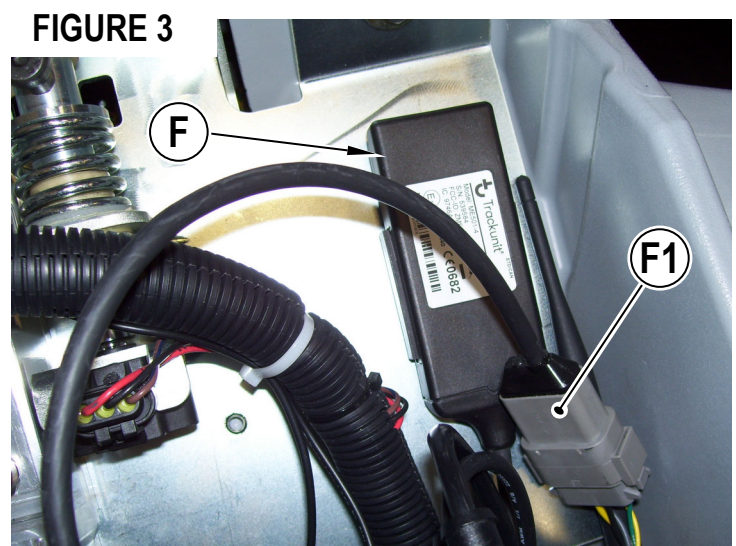
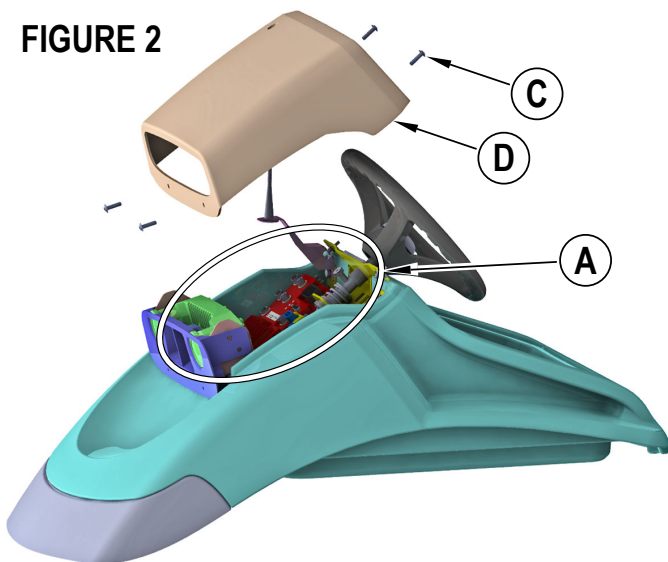
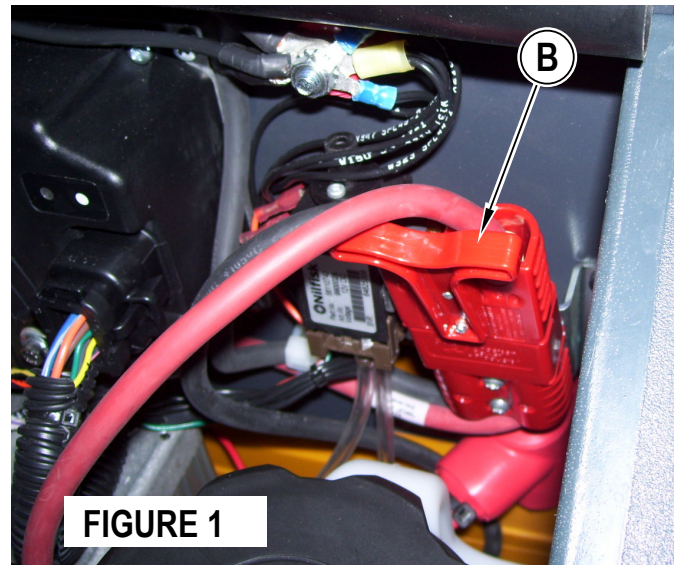
- Before removing or installing any machine components, make sure the Power Switch is **OFF**.
- Disconnect the main Battery connector (B) before removing or installing any machine components.

DISCONNECT THE BATTERIES

3. Unlatch and open the Control Panel Housing and set the prop rod.
4. **SEE FIGURE 1.** Locate and disconnect the Machine Battery Connector (B). Close control panel housing.

LOCATE TRACKCLEAN MODULE

5. **SEE FIGURE 2.** Use a #4 metric Allen wrench to remove the 4 Screws (C) that secure the Autonomy Hood (D) over the Autonomy Bay (A) and remove the hood.
6. **SEE FIGURE 3.** Verify if the TrackClean module (F) is located as shown.
 - If the TrackClean module is located here **go to step 7** to relocate the module to be under the control panel. This space is needed to mount the Gateway Module.
 - If the TrackClean module is not located here **skip ahead to step 21**, as the module is already located under the control panel and there is no need to move it.



RELOCATE TRACKCLEAN MODULE

These steps (7-20) are only required if your TrackClean module is not already located under the control panel.

7. **SEE FIGURE 4.** Unplug the TrackClean Connector (**F1**) and remove the module from its mounting bracket and carefully set it aside for reinstallation.
8. Remove the TrackClean Bracket (**F2**) and save for reinstallation.
9. **SEE FIGURE 5.** Scrape off the two-sided adhesive left behind from the mounting bracket. Scrape off any adhesive residue on the back side of the mounting bracket.

FIGURE 4

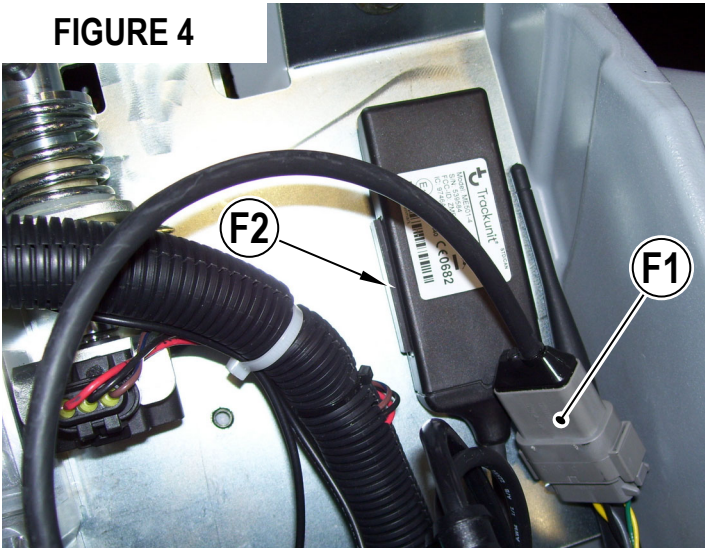
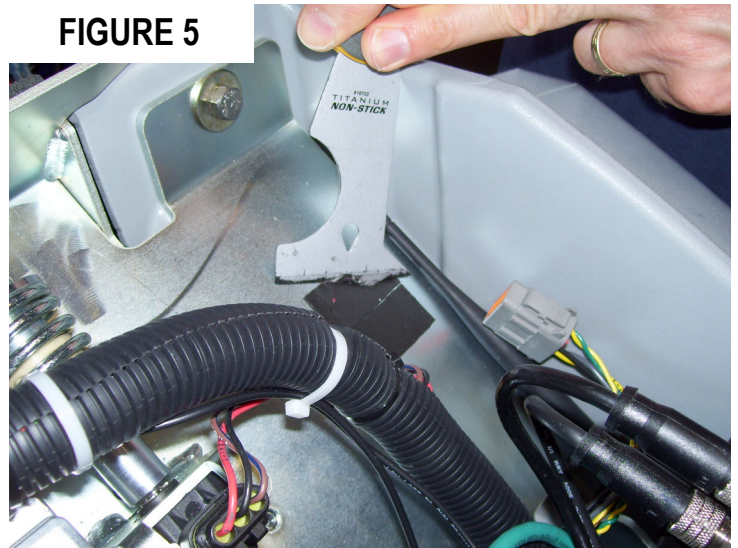


FIGURE 5



10. **SEE FIGURE 6.** Use a #3 Allen wrench to remove the 4 Screws (**E**) that secure Control Panel.
 11. **SEE FIGURE 7.** Move the Control Panel aside (while keeping all wires connected) to access the TrackClean Module's new location.
 12. With the TrackClean module in the mounting bracket, position the TrackClean module as shown on the flat area inside the control panel housing.
 13. Use the Alcohol Wipe (**6**) to clean the surface where the TrackClean Module will mount. Use this same wipe to clean any residue where the TrackClean module was previously installed. This is where the Gateway module will be installed.
- NOTE:** Allow the surface to dry completely before attaching the TrackClean Module and Mounting Bracket.

FIGURE 6

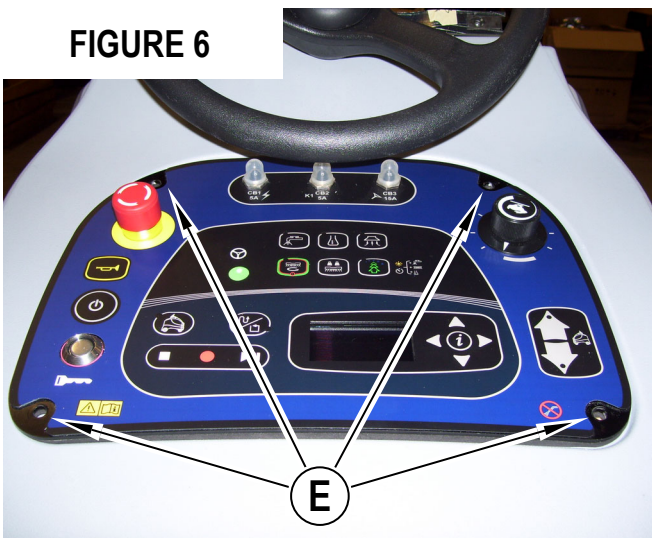
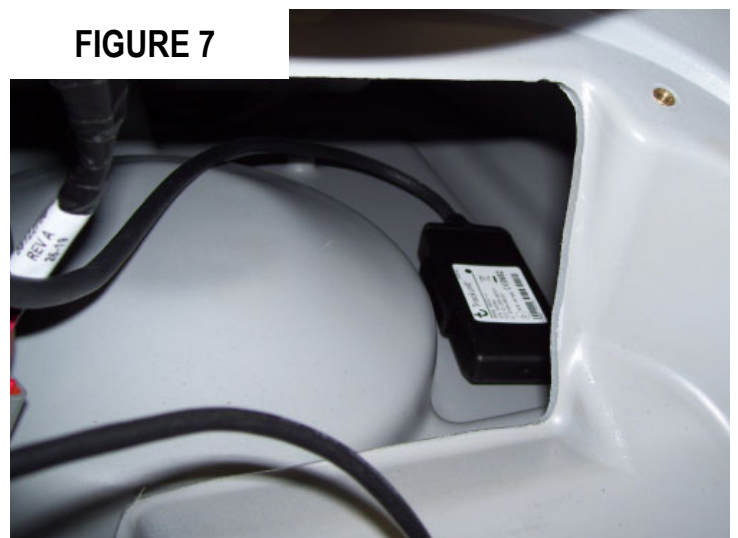


FIGURE 7



RELOCATE TRACKCLEAN MODULE - CONTINUED

14. **SEE FIGURE 8.** Install Two-Sided Circular Tape (5) to the TrackClean Mounting Bracket (F2). Press firmly in place.
15. Remove the paper backing from the Circular Tape (5) on the TrackClean Module Mounting Bracket.
16. **SEE FIGURE 9.** With the TrackClean Module (F) in the Mounting Bracket (F2), stick the module and bracket in position (under control panel).
17. Immediately remove the TrackClean Module (F) from the Mounting Bracket (F2) and press down on the Mounting Bracket to engage adhesive on circular tape.
18. After the Mounting Bracket is secured to the surface, install the TrackClean Module back into the Mounting Bracket.
NOTE: The TrackClean Module should snap into place when it is properly positioned.
19. **SEE FIGURES 10 & 11A.** Feed TrackClean harness into opening and navigate the Connector (F1) into electrical area (autonomy bay).
20. **SEE FIGURE 11B.** Disconnect the 3D Camera Power (QP) and Ethernet (QE) connections and set aside. This is done only to provide additional clearance.

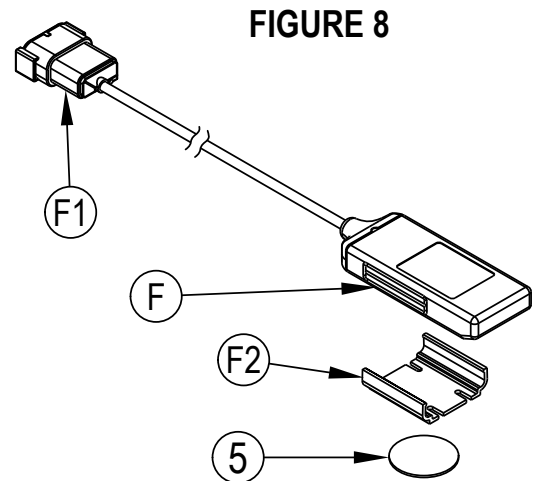


FIGURE 8

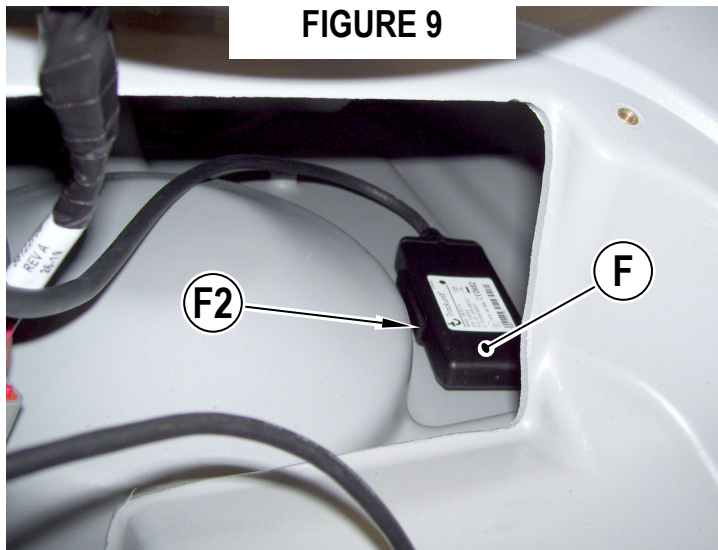


FIGURE 9

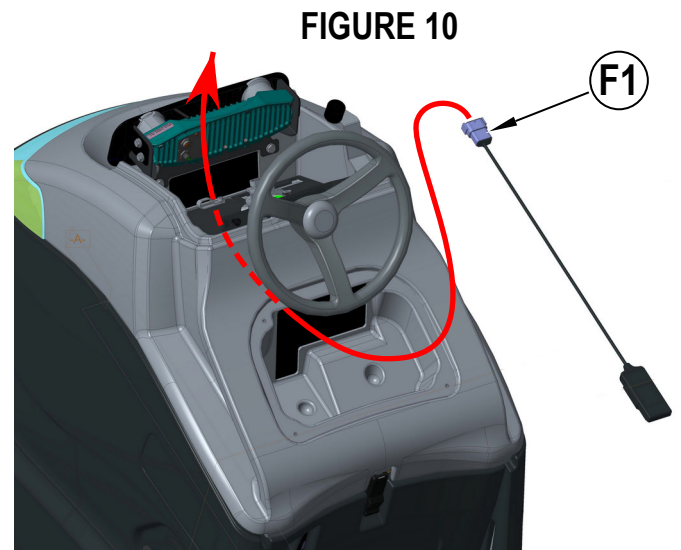


FIGURE 10

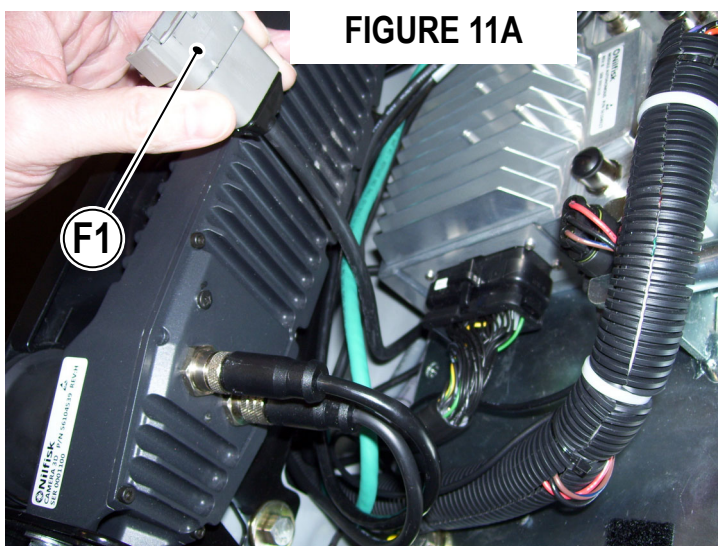
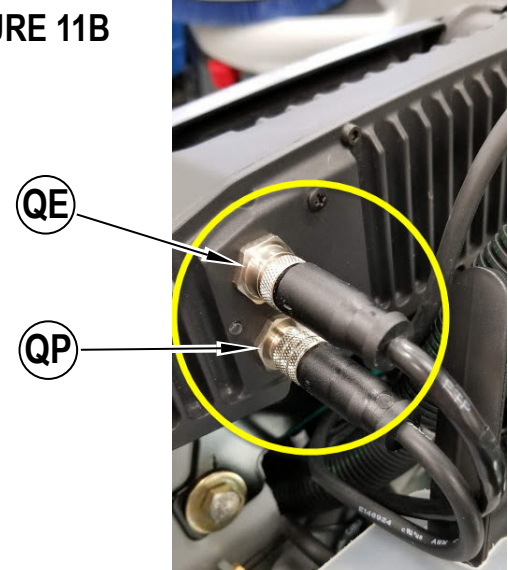


FIGURE 11A

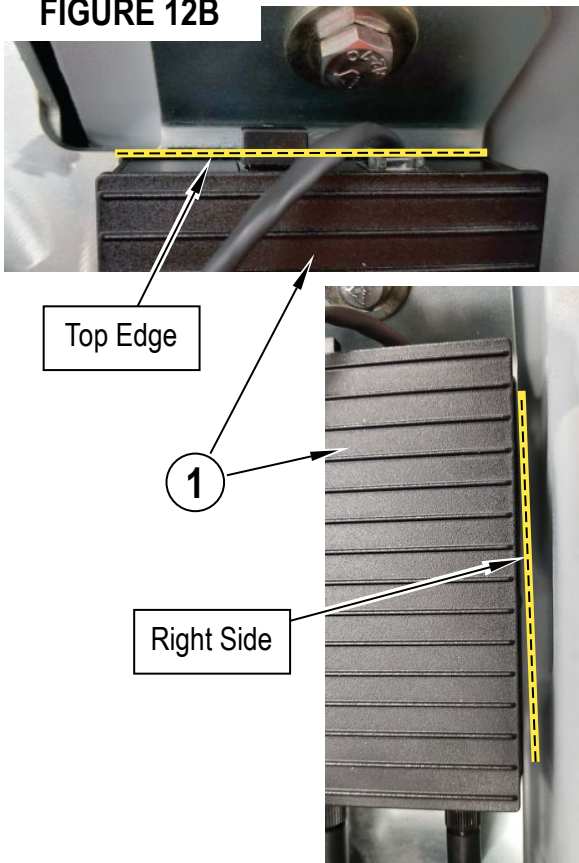
FIGURE 11B



INSTALL THE GATEWAY MODULE ASSEMBLY

21. **SEE FIGURES 12A & 12B.** The two Antennae (1B) on the Gateway Module (1) are held in place by an antennae retainer. This is used to achieve optimum performance from the antennae, do not remove the retainer. Hold the module in position as shown to do a test fit-up. The top edge should be along the bend in the plate and the right side should be in alignment with the right edge of the plate.
22. **SEE FIGURE 13.** Clean this area (G) with Alcohol Wipe (6) if not previously done. Allow area to dry completely before attaching the Gateway Module.

FIGURE 12B



View from top of machine

FIGURE 12A

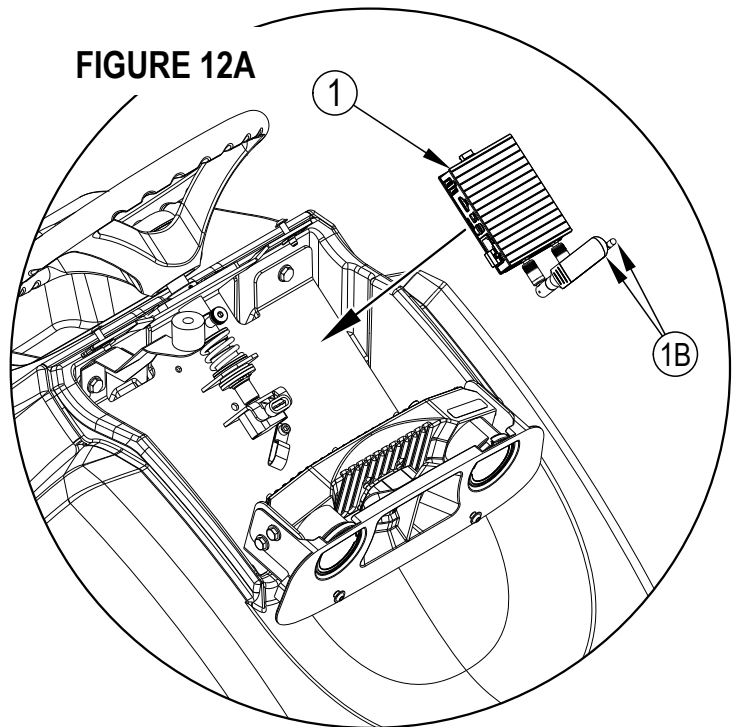


FIGURE 13

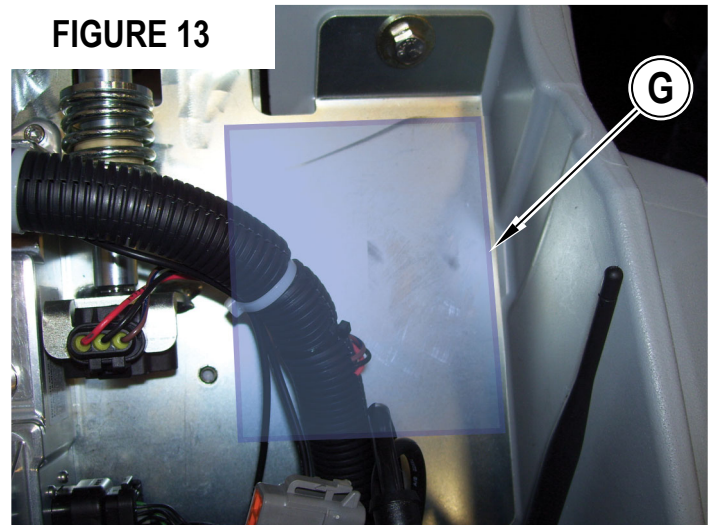
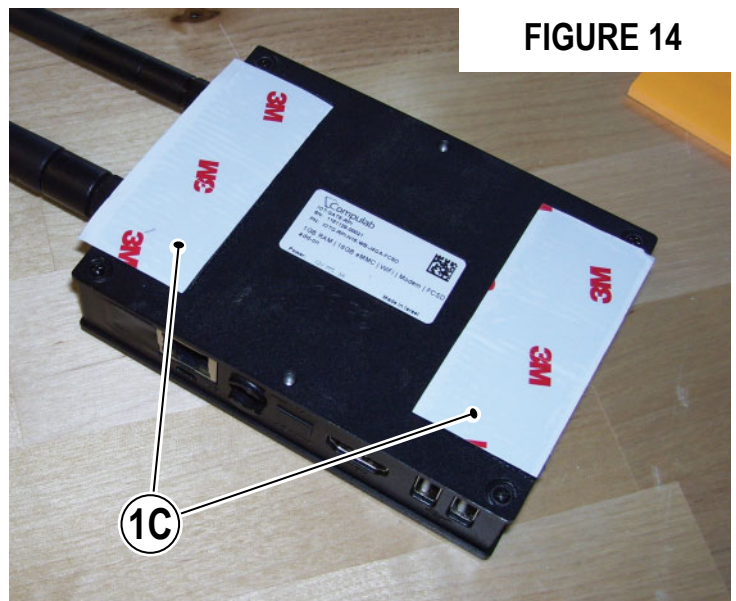


FIGURE 14



23. **SEE FIGURE 14.** Remove the backing from the Velcro Adhesive Strips (1C) on the bottom of the Gateway Module.
24. Carefully stick the module into position. Immediately remove the Gateway Module from the machine by lifting up on one side, then press down on the two Velcro strips to engage adhesive.

INSTALL GATEWAY HARNESS

25. If the TrackClean module did not have to be relocated (skipped steps 7-20), locate where the TrackClean module connects to the machine main harness and unplug its connector.
26. **SEE FIGURES 15 & 16.** Plug in Harness Connector (2A) to the machine Main Harness (H).
27. Plug in TrackClean Connector (F1) to Harness Connector (2B).

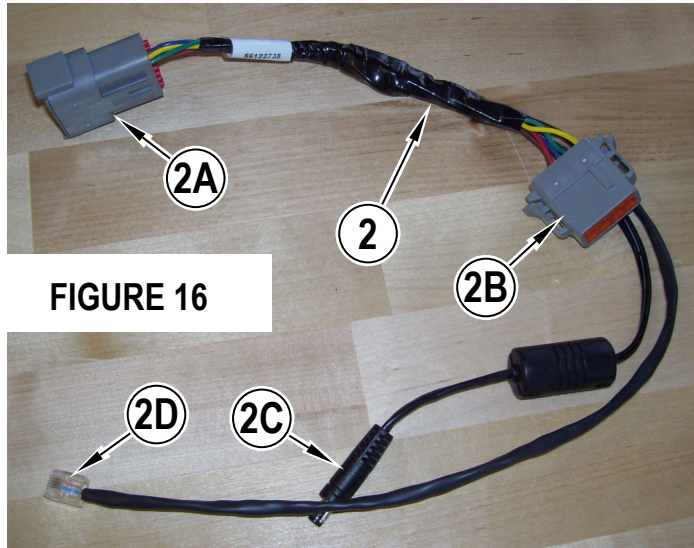


FIGURE 16

28. **SEE FIGURE 17.** Plug in the Power cable (2C) to the power input on the side of the Gateway Module as shown. This is a twist lock connection. Line up properly then insert and rotate clockwise to lock.

FIGURE 15

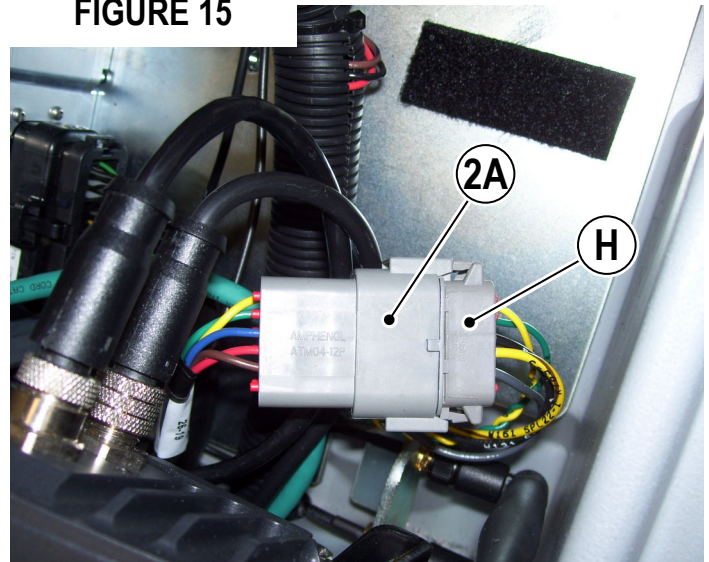
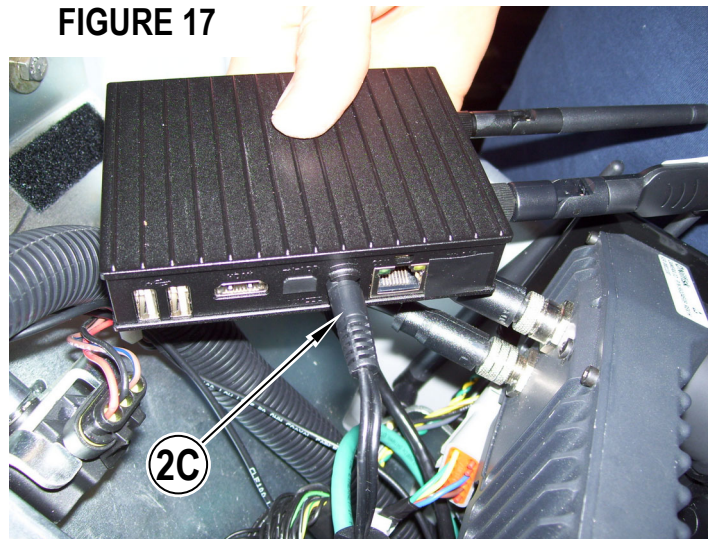
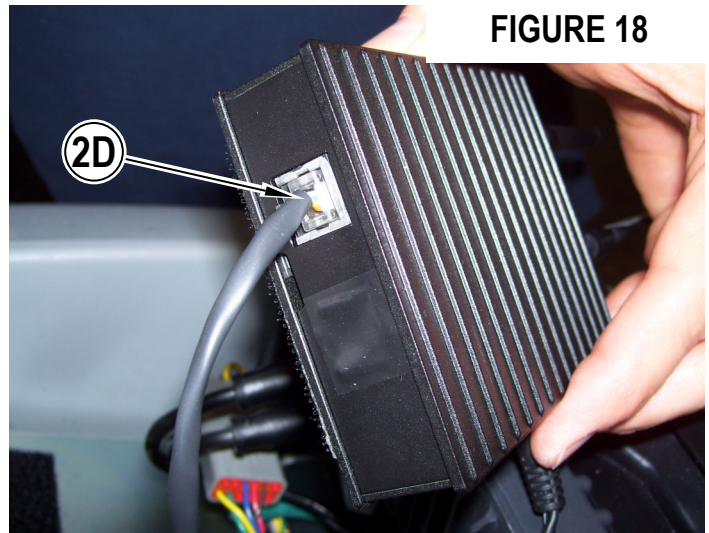


FIGURE 17



29. **SEE FIGURE 18.** Plug in the CAN bus Harness Connector (2D) into the port on the top of the Gateway Module as shown. Connector will click when pressed into place.
30. With antennae flipped up press the Gateway Module back in place on the Velcro strips.
31. Reconnect the 3D Camera power (QP) and Ethernet (QE) connections, ensuring they are connected to the correct location (shown in Figure 11B). Torque to 3.5 in-lbs. (0.4Nm).
32. Feed the harness wires down towards the base of the opening and tuck them out of the way as much as possible.

FIGURE 18



CONNECT ETHERNET CABLE

33. SEE FIGURE 19. Unthread and remove the Plug (J) located in the autonomous module.
34. SEE FIGURE 20. Connect Ethernet Cable (4) to the autonomous module. Hand-tighten only.
35. Plug the other end of Ethernet Cable (4A) into the Gateway Module on the side port as shown.

FIGURE 19

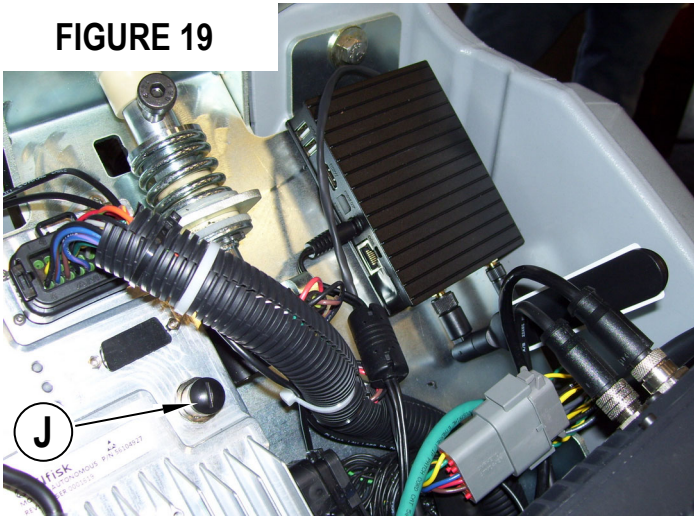
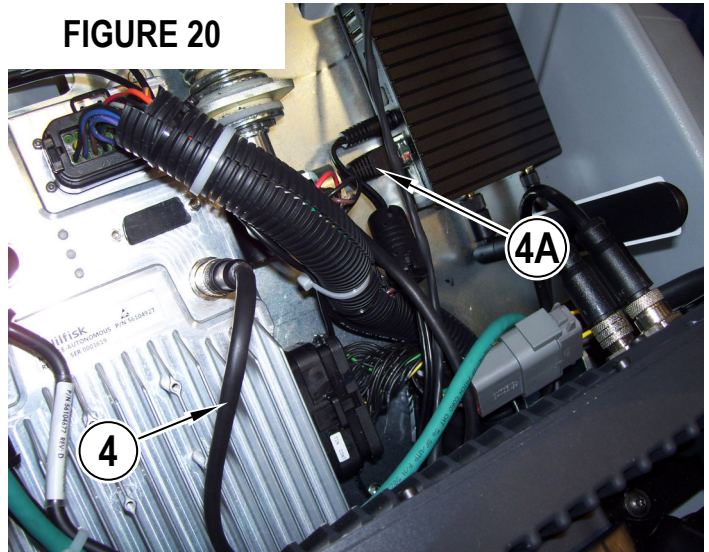
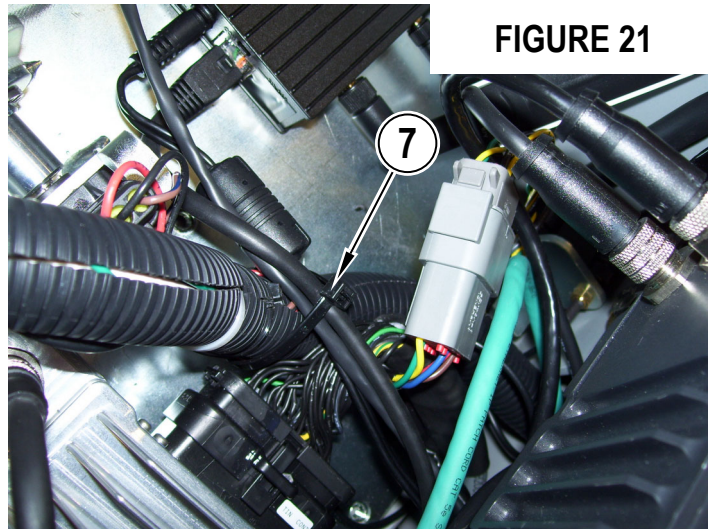


FIGURE 20



36. SEE FIGURE 21. Use the 3 included Cable Ties (7) to secure the Gateway Harness (1) and Ethernet Cable (4) out of the way. Secure to the main harness or camera lead wires whichever is closest. Wiring should be secured in such a way so that there is no tension on the wires and they will not rub against any metal edges.

FIGURE 21



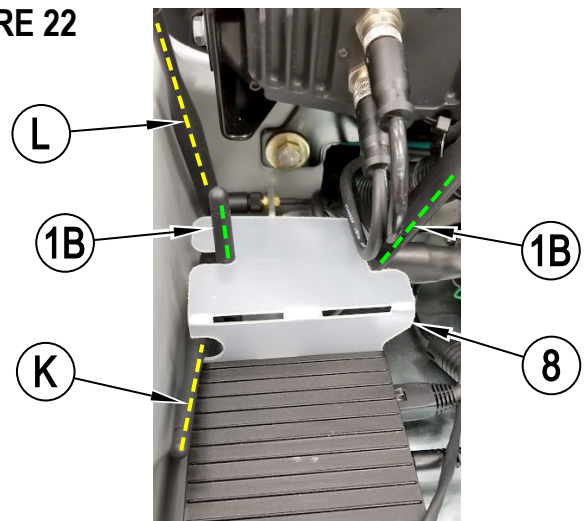
POSITION THE ANTENNAE

37. SEE FIGURE 22. Antenna (K) should be inserted into the spare slot on the cellular Gateway antennae retainer (8) and Antenna (L) should be mostly vertical.

PREPARE FOR GATEWAY VERIFICATION

38. Reconnect the machine Main Battery Connector (B) shown in FIGURE 1.
- If TrackClean module was relocated follow steps 39 & 40.
39. Verify the power LED is lit on the TrackClean module.
40. Reinstall Control Panel and secure with four mounting Screws (E) shown in FIGURE 6.

FIGURE 22



VERIFY GATEWAY MODULE IS CREATING ACCESS TO INTERNET

41. **SEE FIGURE 23.** Power ON the machine with Service Mode access.
- Press and hold the Scrub (**M1**) and Vacuum (**M2**) switches.
 - Press and release the Power switch (**M3**).
 - When the display illuminates and the machine begins its boot-up process, you may release the Scrub and Vacuum buttons.

FIGURE 23

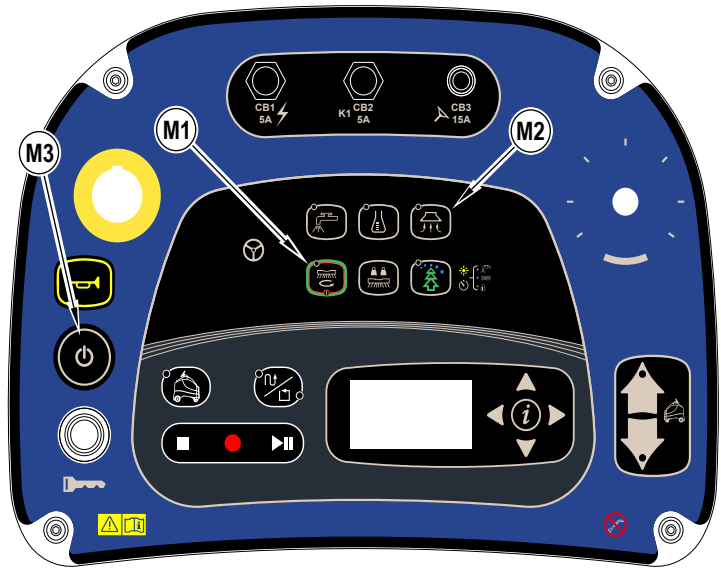
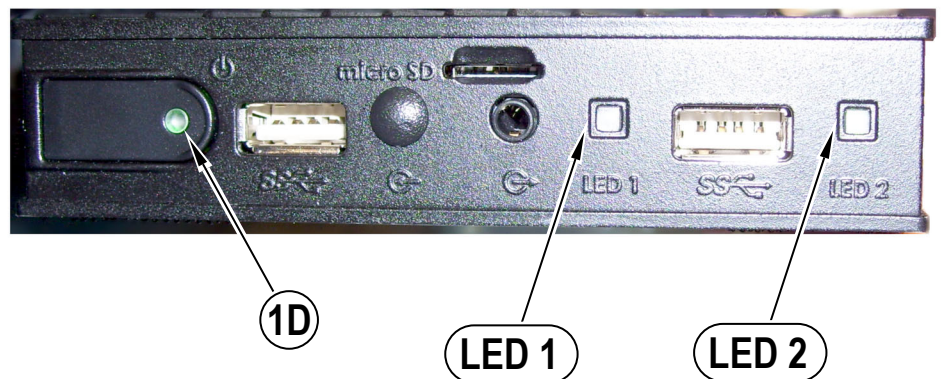


FIGURE 24

42. **SEE FIGURE 24.** Confirm the Gateway Module's Power LED (**1D**) is ON. **NOTE:** Figure 24 shows the side of the module that will be facing the control panel housing. The module is shown removed for clarity, but should be left in place.
43. Confirm **LED 2** is blinking and **LED 1** has a slow blink. **NOTE:** The Power LED will turn on when the machine is turned on. However it may take several minutes for the module to boot up and LED 1 and LED 2 will take 2-3 minutes before they begin to blink.



USE A SMARTPHONE TO CONNECT TO THE INTERNET THROUGH THE GATEWAY MODULE

Steps 44-45 are done only as a check to verify the Gateway module is creating access to the internet.

44. Use the appropriate steps below for either Android or iPhone to find and connect to a WiFi network. **SEE FIGURE 25.**

Steps to connect an Android phone to a wireless network:

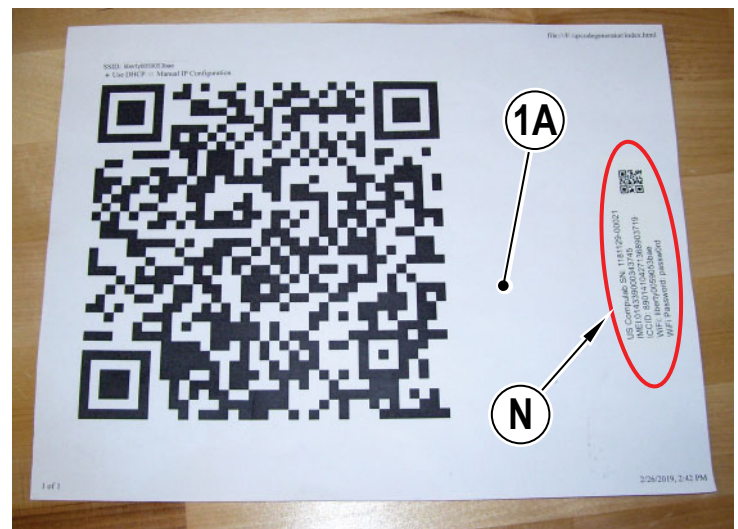
1. Press the Home button, and then press the Apps button.
2. Under "Wireless and Networks", make sure "Wi-Fi" is turned on, then press Wi-Fi.
3. You may have to wait a moment as your Android device detects wireless networks in range and displays them in a list.
4. From this list choose the Gateway network. The **WiFi** network will appear as "libertyxxxxxxxxx" this name will match the printed sticker (**N**) attached to the Printout (**1A**) with the QR code (an identical sticker is also located on the Gateway Module antenna retainer). **NOTE:** The sticker on the retainer should remain in place.
5. Enter the **WiFi Password** found on the above-mentioned sticker.

Steps to connect an iPhone to a wireless network:

1. **Locate** the Settings app on your **iPhone**.
 2. Ensure that Airplane Mode is turned off.
 3. Tap **Wi-Fi** on the Settings list.
 4. Turn on **Wi-Fi**.
 5. From this list choose the Gateway network. The **WiFi** network will appear as "libertyxxxxxxxxx" this name will match the printed sticker (**N**), attached to the Printout (**1A**) with the QR code (an identical sticker is also located on the Gateway Module antenna retainer). **NOTE:** The sticker on the retainer should remain in place.
 6. Enter the **WiFi Password** found on the above mentioned sticker.
45. After connecting to the network open a web browser app and see if you can access a website. This will confirm the Gateway Module is operating properly and connecting to the internet.



FIGURE 25



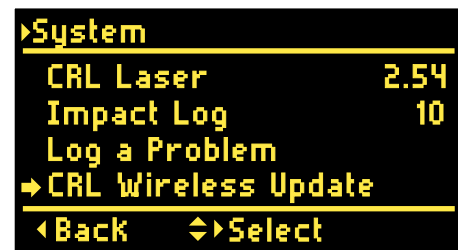
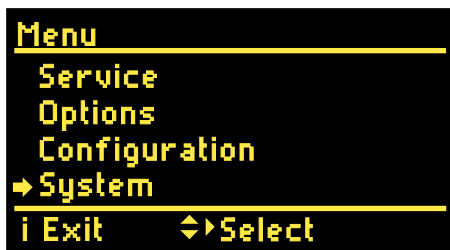
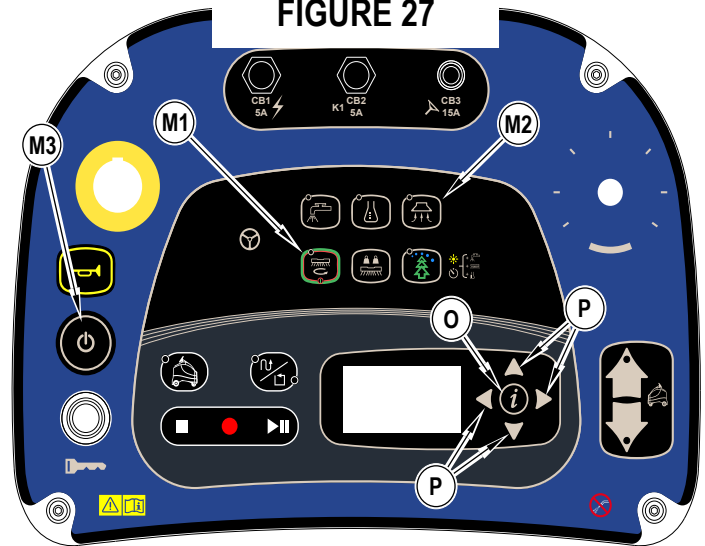
PAIR THE MACHINE TO THE GATEWAY MODULE

Next, we will configure the machine's autonomous components to connect to the internet through the Gateway network.

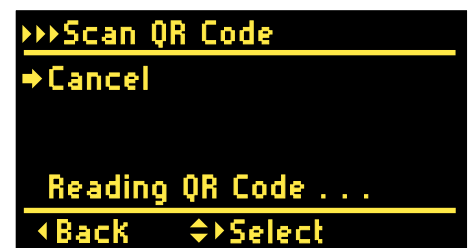
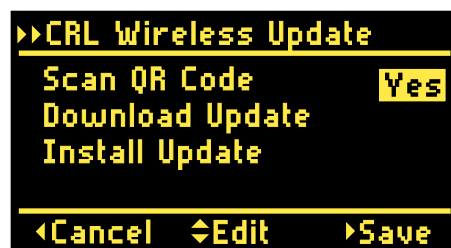
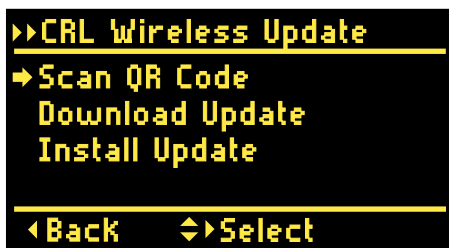
46. Make sure the machine is ON and the autonomy system has finished booting up (countdown timer has disappeared).
47. **SEE FIGURE 27.** Press the Information Switch (O).

48. Using the Arrow Keys (P), scroll down and select **"System"**.
49. Scroll down and select **"CRL Wireless Update"**.

FIGURE 27

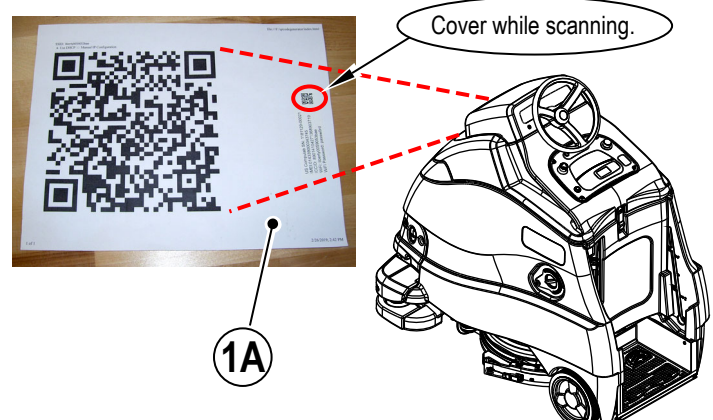


50. Scroll down and select **"Scan QR Code"**.
51. Arrow up to highlight **"YES"**. Select **"Save"**.
52. Machine will begin actively scanning for a QR Code and display will show **"Reading QR Code"**.



53. **SEE FIGURE 28.** Hold the QR Code Printout (1A) in front of the 3-D Camera Lenses (use your thumb to cover up the small QR code on the sticker so machine only sees the large QR code).
54. Machine will emit two beeps after successfully scanning the QR code.

FIGURE 28



PAIR THE MACHINE TO THE GATEWAY MODULE - CONTINUED

55. Back up one menu level and select “QR String”.
56. Verify the QR string number shown on the display matches what is printed on the label Printout (1A) shown in FIGURE 29.

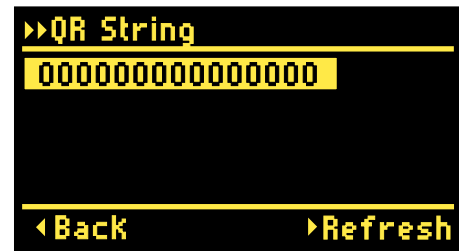
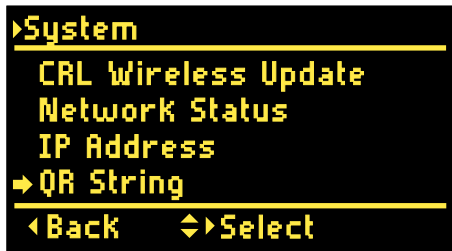
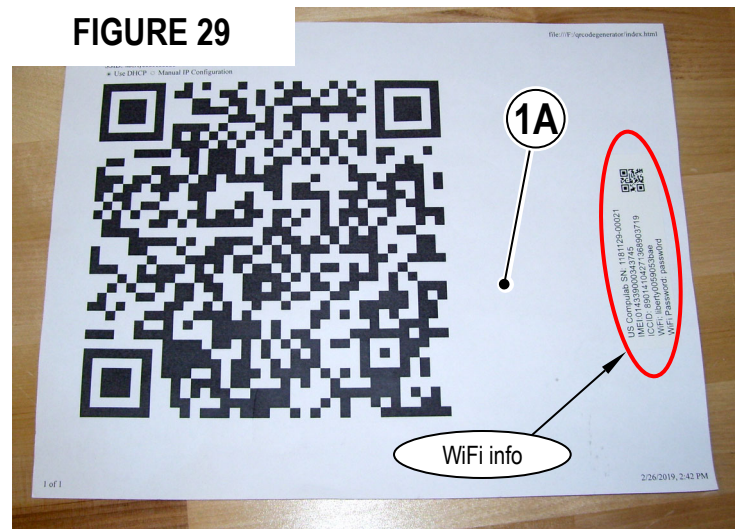


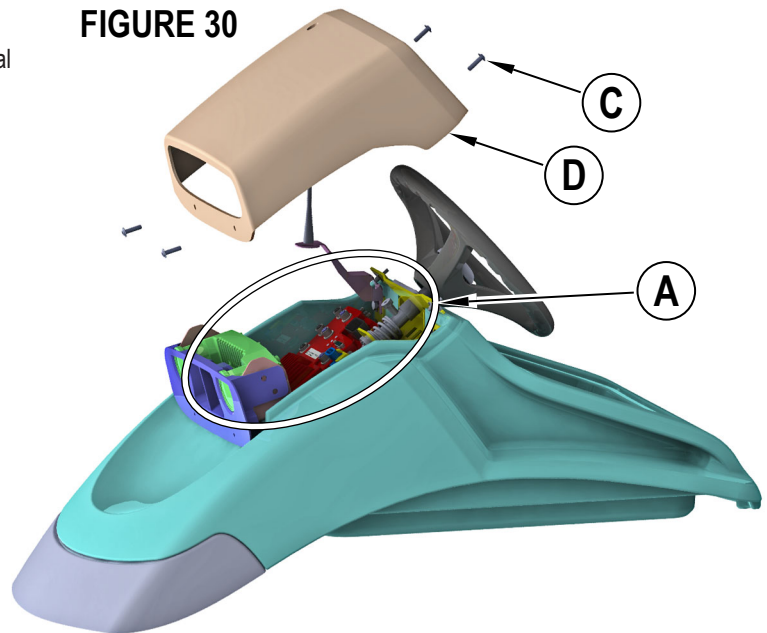
FIGURE 29



REASSEMBLE MACHINE COMPONENTS

57. SEE FIGURE 30. Reinstall the Autonomy Hood (D) using original four mounting Screws (C).

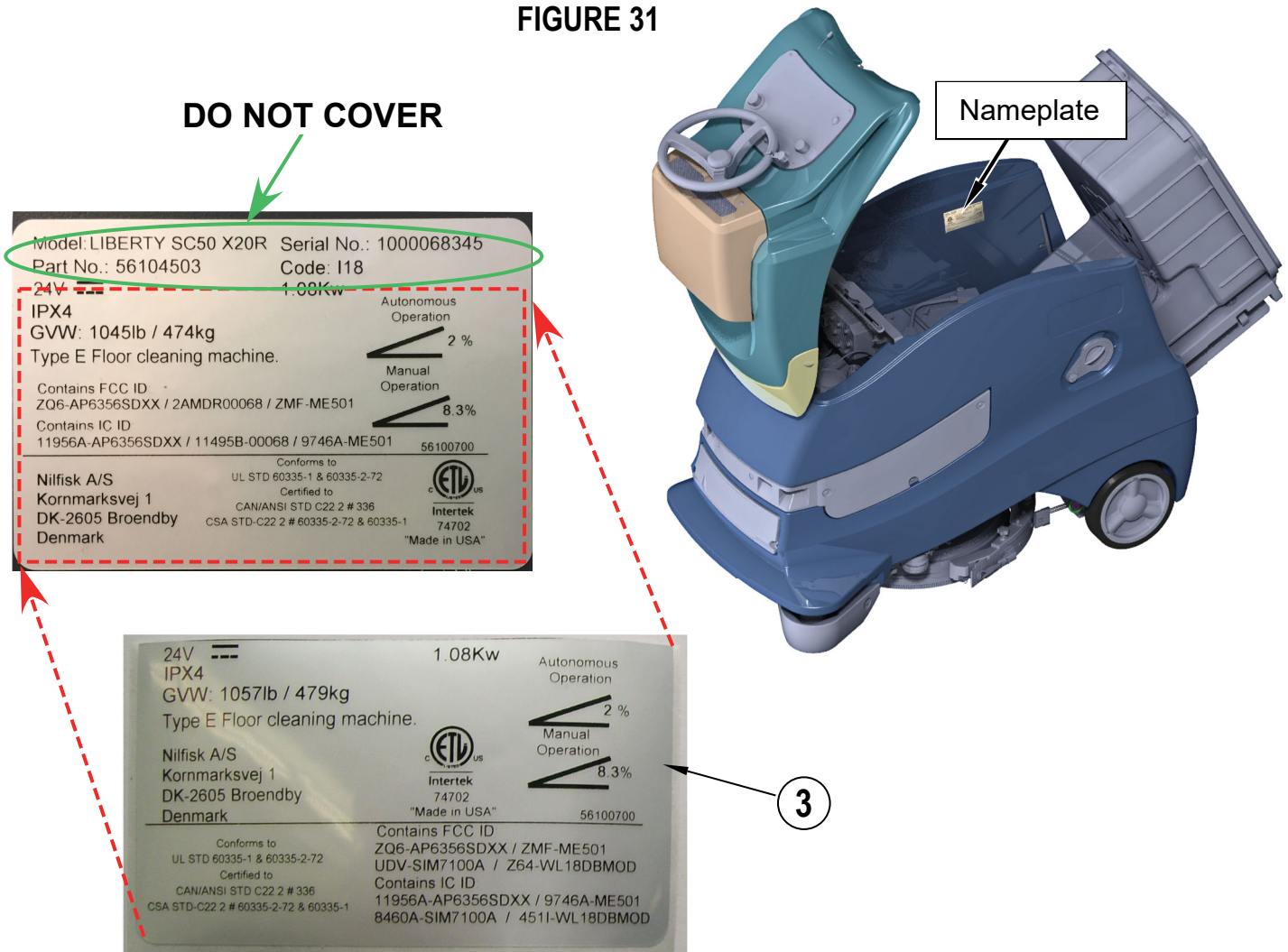
FIGURE 30



INSTALL NEW NAMEPLATE

58. SEE FIGURE 31. Open the control panel housing and tip back the recovery tank to access the machine's Nameplate as shown.
59. Clean the surface of the nameplate to ensure the new label will adhere to it. Allow to dry completely.
- 60.
61. Place the new Label (3) over the bottom portion of the existing nameplate. **DO NOT COVER** the SERIAL NO. or DATE CODE: information.

FIGURE 31



TEST MACHINE

62. Test the machine for proper operation.
 - a. Power the machine OFF then ON.
 - b. Check for any error codes.
 - c. Drive machine.
 - d. Check autonomy system is still working by driving to the start area of a cleaning plan and start playback of a recorded plan.