



Smart-Fill™

Automatic Battery Watering Kit

Models: T500/T500e/Speed Scrub 500 (Manufactured After Serial Number 10995399)



This kit includes the necessary part to add an automatic battery watering (ABW) system on models equipped with 4-6V TROJAN batteries. This kit allows for a safer, quicker and easier way to maintain the proper electrolyte levels in your batteries. Kit installation to be performed by Tennant True® service or an authorized Tennant service provider.

INSTALLATION INSTRUCTIONS:

Installation Time: 1 hour

Kit Installation Requirements: Tennant ServiceLink computer or a computer with Wi-Fi connection to access the Tennant Service Application Software, and USB cable (not included p/n 1071235).

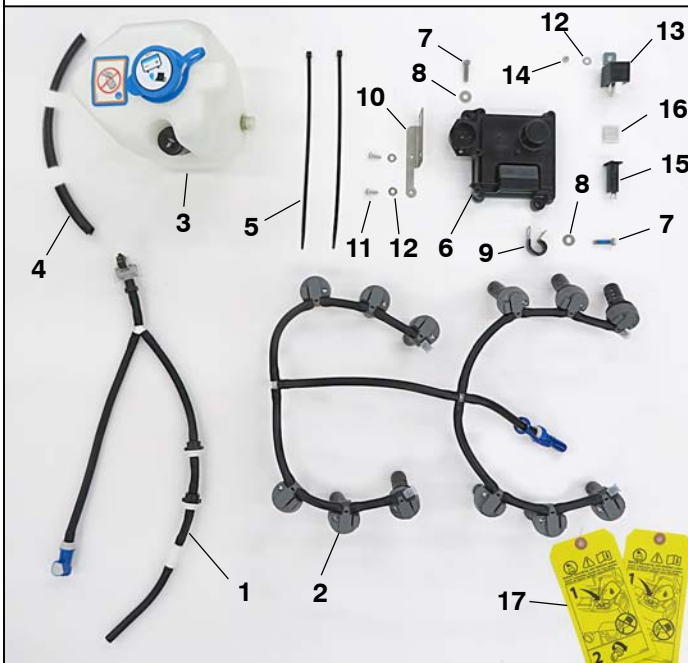
Computer System Requirements: Windows® 7 OS, Microsoft .NET Framework 4.5 or later, USB Port.

Tools Required: 10mm socket wrench, Philips screwdriver

FOR SAFETY: Wear personal protection equipment. Avoid contact with battery acid.



9021125 - Kit Contents



Item	Part No.	Description	Qty.
1	1246536	Delivery Assy, Water, Battery [ABW]	1
2	1253640	Distribution Assy, Water, Battery [ABW]	1
3	9021093	Tank Assy, ABW 2.3L	1
4	1020168	Molding, Trim, Pvc	3
5	130773	Tie, Cable, Nyl, 11.0L, 14w, 3.0	2
6	9040160	Module, 24VDC [ABW]	1
7	1016005	Screw, Hex, M6x1.00x25, NL,FL,SS	2
8	01684	Washer, Flat, 0.27B 0.69D .05, SS	2
9	40678-1	Clamp, Cable, Stl, 0.88Dx0.62w, 1hole	1
10	1252827	Plate, Mtg, ABW	1
11	1018155	Screw, Pan, Phl, M5x0.80x16, TCUT, SS	2
12	01683	Washer, Flat, 10, ss	3
13	1228510	Relay, 24V, 80A,Spst (T500e/SS500 Models)	1
14	09739	Nut, Hex, Lock, M5x0.80, nl, ss	1
15	1064187	Circuit breaker, 10.0A Reset-able	1
16	1064191	Boot, Circuit breaker	1
17	1253250	Tag, Battery Watering Instructions	1

FOR SAFETY: Before servicing machine, park machine on level surface, remove key and disconnect battery cables.

- Before installing kit, make sure batteries are fully charged.
- After fully charging batteries, carefully remove the white battery caps from all batteries and properly dispose caps (Figure 1).



Fig. 1

- Carefully install the new battery watering distribution assembly on the batteries as shown. Route the hose assembly under the battery cables to avoid risk of caps becoming unseated or hose being kinked (Figure 2).

Route hose under battery cable

Push cap down until it "clicks" into position

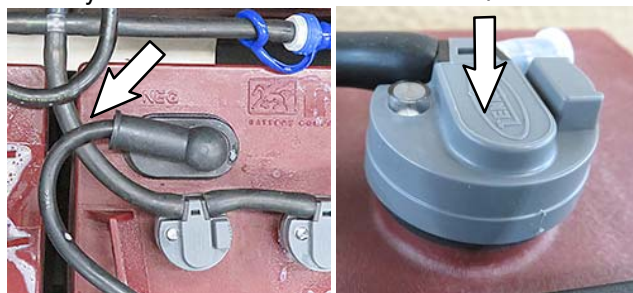


Fig. 2

4. Attach the mounting plate to ABW module using two M5x16 screws add flat washers as shown (Figure 3).



Fig. 3

5. Attach the ABW delivery hose assembly to the mounting plate using two wire-ties as shown (Figure 4).

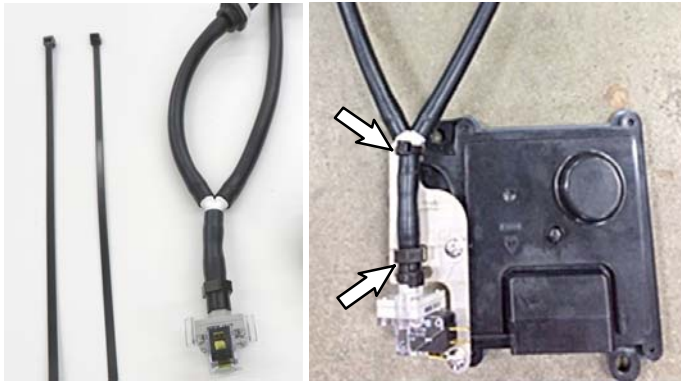


Fig. 4

6. Remove the front scrub head shroud from machine to access the ABW module mounting location (Figure 5).



Fig. 5

7. Locate the three factory installed ABW wire harness connectors near scrub head (Figure 6). The ABW wires are labeled accordingly. Cut the zip-tie to free up the three wire connectors.

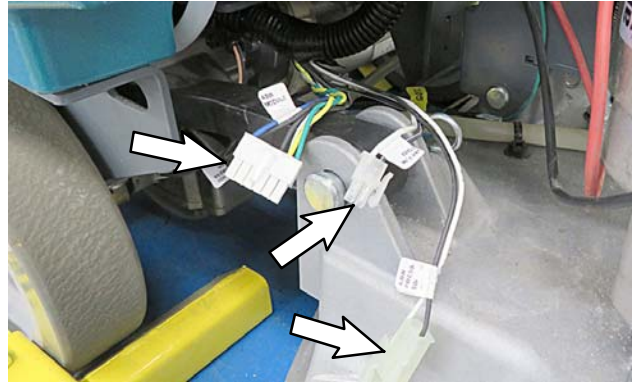


Fig. 6

8. Remove the clamp securing the main wire harness to machine as shown (Figure 7).
9. Mount the ABW module assembly to the machine using two M6x25 hex head screws and washers as shown (Figure 7). Re-secure the main harness with clamp.

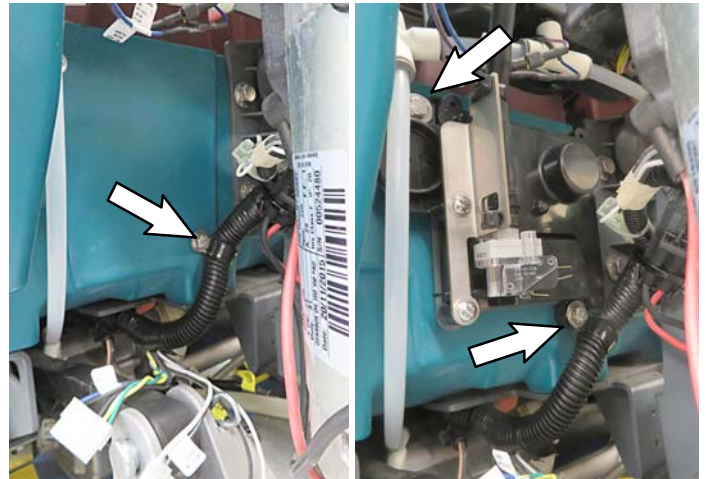


Fig. 7

10. Connect the three ABW wire connectors to the module as shown (Figure 8).

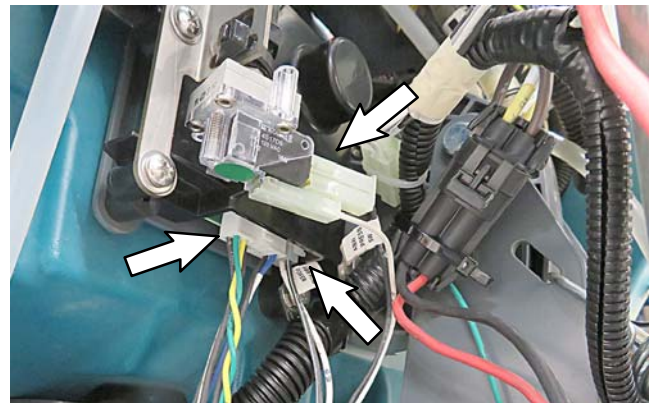


Fig. 8

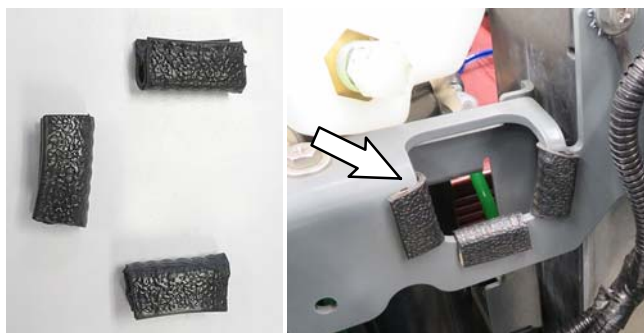
11. Route the ABW delivery hose with blue connector up to the battery compartment and connect it to the battery watering distribution assembly as shown (Figure 9).

**Fig. 9**

12. Replace the front shroud on machine (Figure 10).

**Fig. 10**

13. Install the 3 pieces of protective molding to the machine frame directly above the ABW module as shown (Figure 11).

**Fig. 11**

14. Connect the second ABW delivery hose to the ABW tank pump (Figure 12). Make sure hose is fully seated.

**Fig. 12**

15. Locate the factory installed ABW pump wire harness connector as shown (Figure 13 & 14).

**Fig. 13**

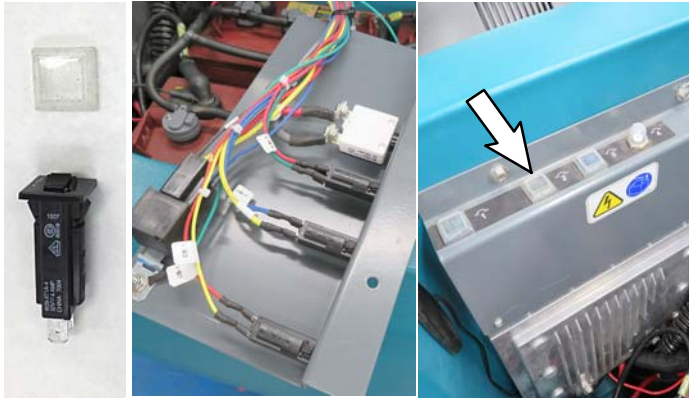
16. Install the ABW tank assembly in machine as shown and connect the ABW pump wire harness connector to pump (Figure 14).

**Fig. 14**

INSTALL CIRCUIT BREAKER AND RELAY:**T500 Model:**

NOTE: If machine is currently equipped with ec- H2O NanoClean technology, circuit breaker installation is not required. The ec-H2O system and ABW system share the same 10A circuit breaker (CB-2). The supplied Relay is not required on T500 models.

1. Remove the circuit breaker panel from machine and install the the supplied 10A circuit breaker and boot (Figure 15).

**Fig. 15**

2. Reinstall the circuit breaker panel on machine

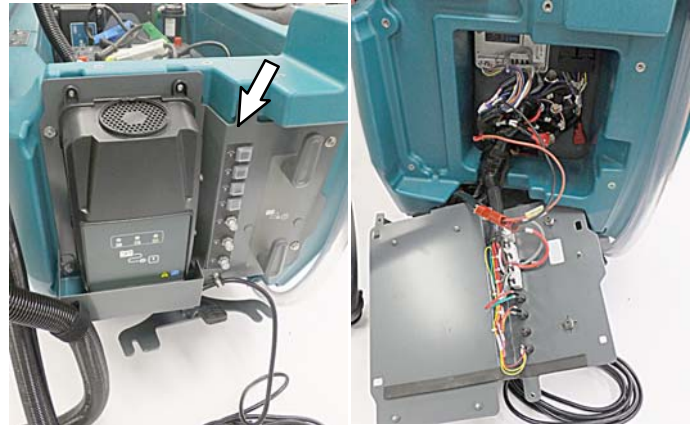
T500e/Speed Scrub 500 Models:

NOTE: If machine is currently equipped with ec- H2O NanoClean technology, circuit breaker and relay installation is not required. The ec-H2O and ABW systems share the same 10A circuit breaker (CB-2) and relay.

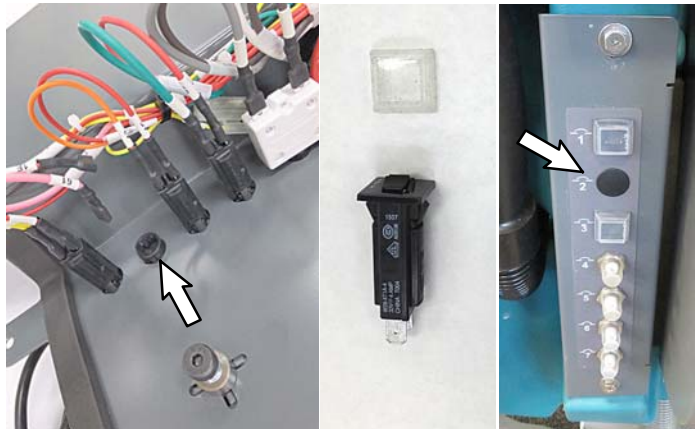
1. Remove the charger cover plate from machine. Three screws hold plate in place (Figure 16).

**Fig. 16**

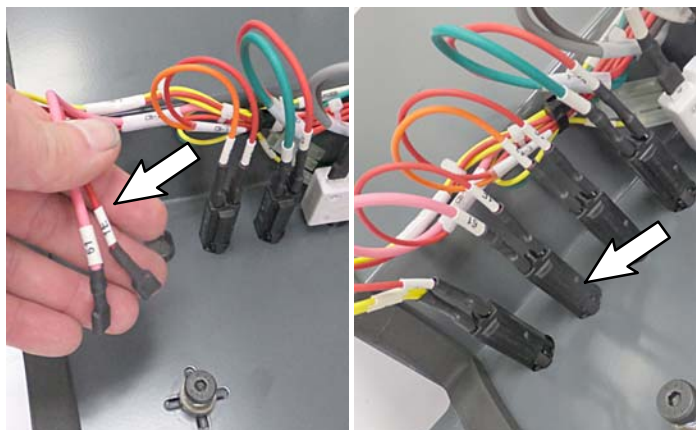
2. Remove the circuit breaker panel and carefully lower panel as shown (Figure 17). Five screws hold panel in place.

**Fig. 17**

3. Remove circuit breaker plug from the CB-2 position and install the 10A circuit breaker and boot (Figure 18).

**Fig. 18**

4. Locate the factory installed wires, pink/61 and red/E1 (labeled CB-2), and connect them to the 10A circuit breaker as shown (Figure 19).

**Fig. 19**

5. Locate the factory installed relay harness connector as shown (Figure 20). The connector is labeled "ABW/ECH2O RELAY".

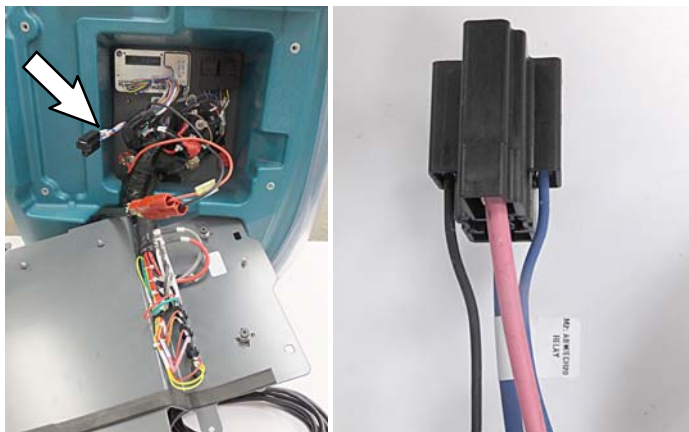


Fig. 20

6. Plug the relay into the relay harness connector and mount the relay to the electrical panel using hardware as shown (Figure 21).

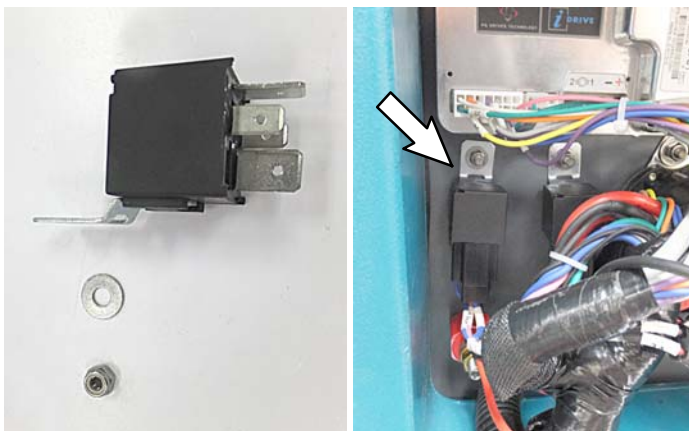


Fig. 21

7. Reinstall the circuit breaker panel and charger cover plate on machine (Figure 22).



Fig. 22

RECONFIGURE MACHINE FOR AUTOMATIC BATTERY WATERING KIT:

The Tennant Service Application Software is required to reconfigure machine. See **TENNANT SERVICE APPLICATION SOFTWARE** on page 7 to access software .

NOTE: If the Service Application Software is currently installed on your computer, confirm or re-install the software to ensure latest software version is installed.

1. Reconnect battery cables to batteries.
2. Start the Service Software Application program "**Service Diagnostics...**" on your computer (Figure 23).



Icon on Desktop

Fig. 23

3. After software start up, the following screen will appear (Figure 24).

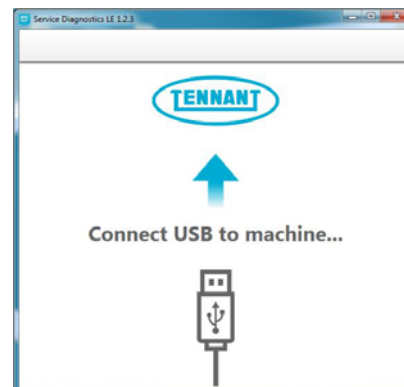


Fig. 24

4. Connect the USB cable, not included, to computer and to the USB port on machine as shown. Turn the key switch to the on position (Figure 25).
5. The application software will then connect to the machine (Figure 25). If the application remains on the "Connecting to Machine..." screen for an extended period, cycle key or reconnect USB cord. If it still fails to connect, restart software or computer.

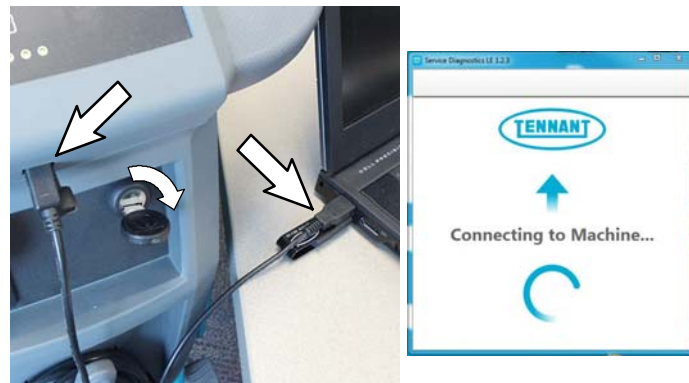


Fig. 25

8. Once connected, the home screen will appear (Figure 26). If firmware updates are required, the “Firmware” button will be highlighted in yellow as shown. Press the button to update the machine’s firmware.

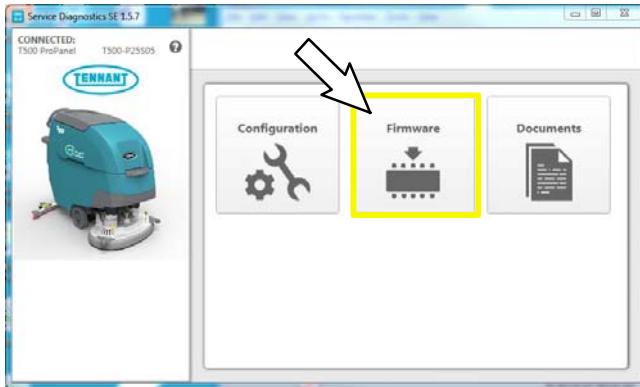


Fig. 26

Continue with the firmware update by pressing the yellow “Update” button (Figure 27).

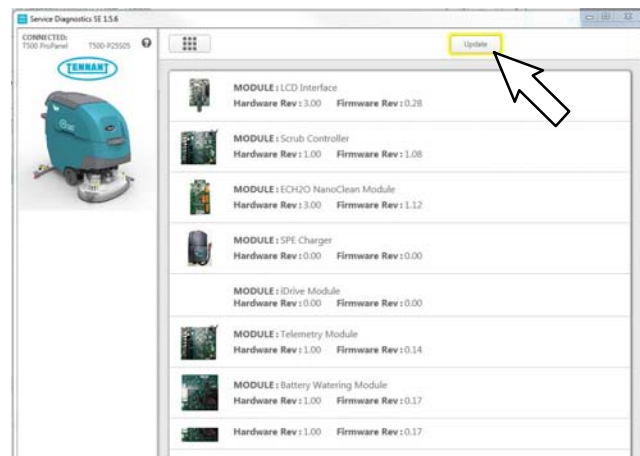


Fig. 27

9. From the Home screen, select the “Configuration” button (Figure 28).

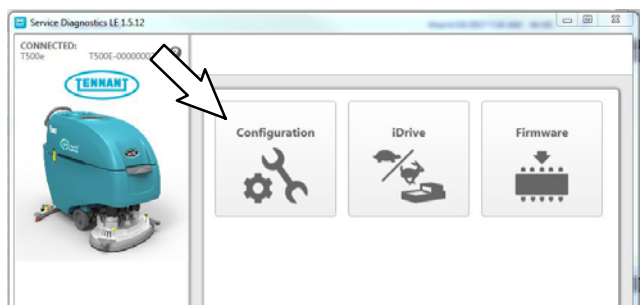


Fig. 28

10. Change the “Battery Watering System” to “Smart-Fill Automatic” from the pull-down menu (Figure 29). Then press the down arrow button to program the machine. A green check will appear next to the down arrow button when programmed.

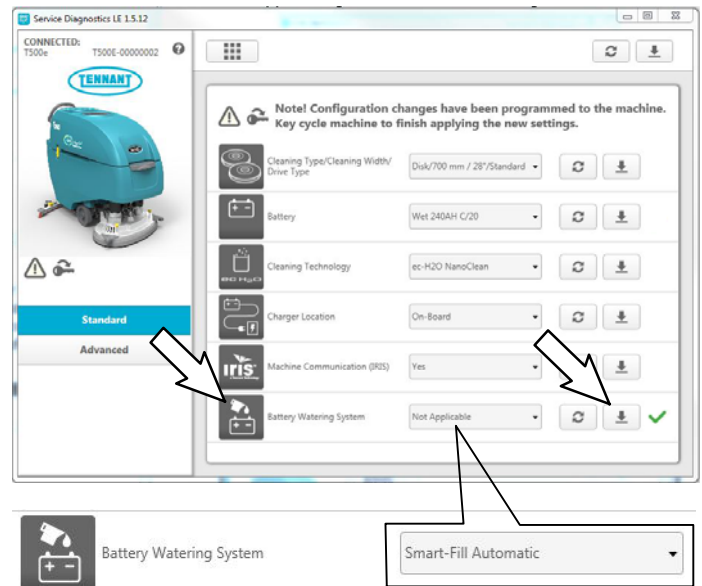


Fig. 29

11. Cycle the key to apply the new machine configuration. Disconnect the USB cable.

PREPARE MACHINE FOR ABW OPERATION:

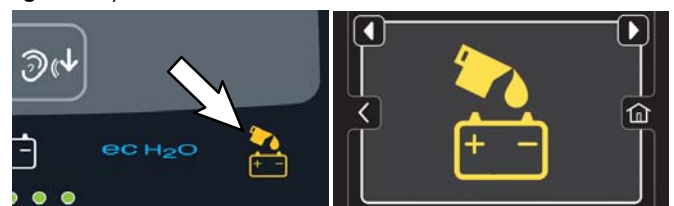
Fill the ABW tank with distilled water (Figure 30).

NOTE: For kits installed by Distributors on new machines, attach yellow tags to key and ABW tank cap as shown (Figure 30). Do not fill ABW tank.



Fig. 30

The automatic battery watering indicator will flash when the battery watering tank is empty and needs refilling (Figure 31)



Pro-membrane Model

Pro-Panel Model

Fig. 31

TENNANT SERVICE APPLICATION SOFTWARE:

The Tennant Service Application Software is required to program the new bezel control board. The software can be accessed or downloaded as described below.

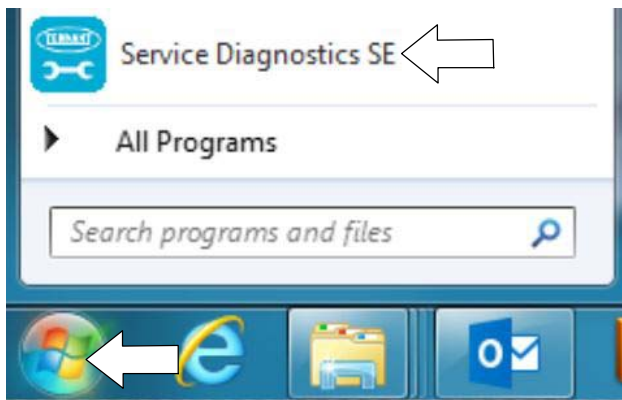
Tennant True Service with ServiceLink computers:

The software is pre-installed on your computer as shown below. The software application is titled “**Service Diagnostics**” (Figure 32).

Icon on Desktop



From Start menu



From Start menu > All Programs > Tennant Company > Tennant Service Diagnostics

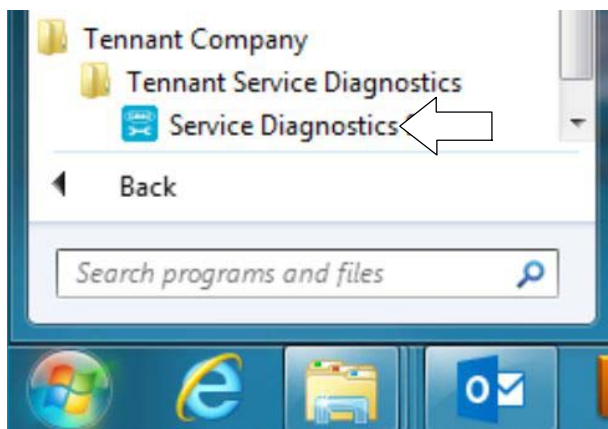


Fig. 32

Authorized Tennant Service Providers:

The Service Application Software can be downloaded from the Tennant Public website as described below.

NOTE: If the Service Application Software is currently installed on your computer, confirm or re-install the software to ensure latest software version is installed.

To access the Service Application Software, go to **www.tennantco.com**. Depending on your geographical location, the website may have a “**My Account Log In/Sign Up**” button at the upper right or a “**My Tennant Customer Sign In**” tab at the upper right of the Tennant website as shown below (Figure 33).

Proceed with the software download instructions as described on the following pages.

Website with “My Account Log In/Sign Up” button (Access to “My Account”)



OR

Website with “My Tennant Customer Sign In” tab (Access to My Tennant)

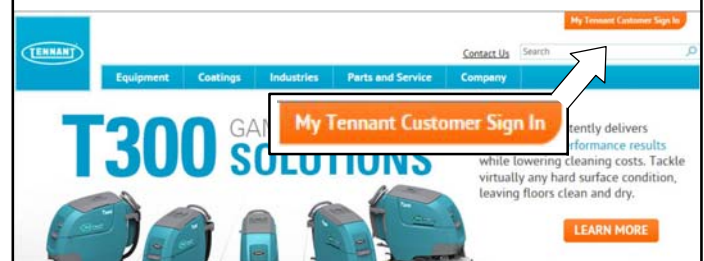


Fig. 33

Website with “My Account Log In/Sign Up” button:

1. Press “My Account Log In/Sign Up” to open or create an account (Figure 34).

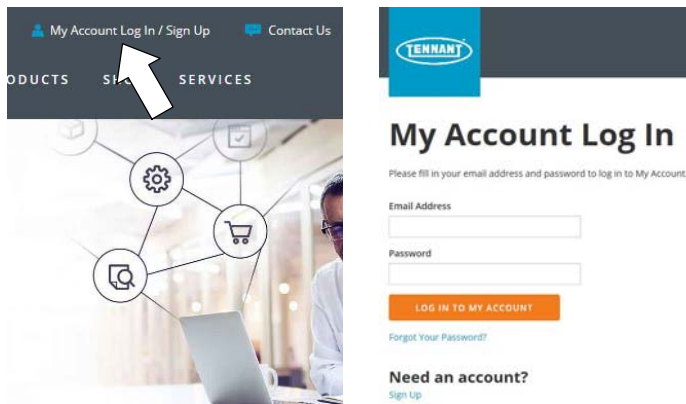


Fig. 34

2. Once logged in to the “My Account” website, click on the “**DISTRIBUTOR RESOURCES**” link as shown below (Figure 35).

NOTE: For internal customers, the link will be titled “INTERNAL RESOURCES”.

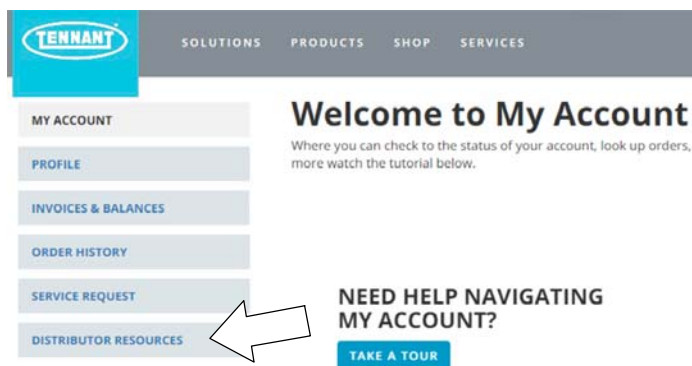


Fig. 35

3. Click on the “**SERVICE APPLICATION SOFTWARE**” link as shown below (Figure 36).

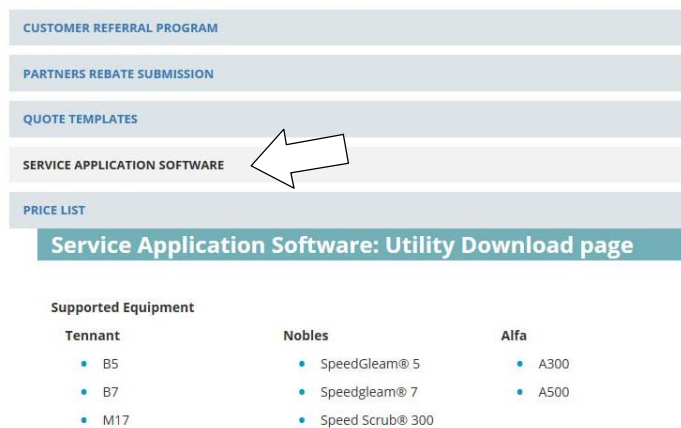


Fig. 36

4. Within the Service Application Software page, click on the link titled “**Service Diagnostics LE version x.x.xx**” (Figure 37).

Documents



Fig. 37

5. To download the service software continue to click as instructed then click the Save button (Figure 38).

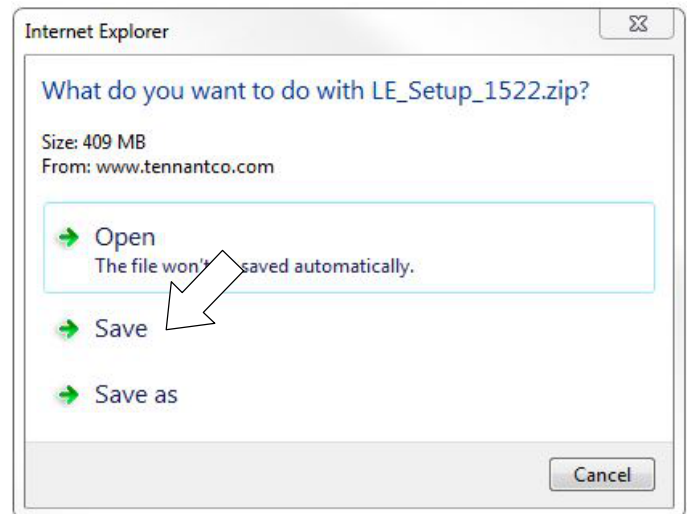


Fig. 38

6. Open the “Downloads” folder and locate the “LE_Setup_xxxx” zip file. Open the zip file and double click on the “LE_Setup_xxxx” file to install the application software on your computer (Figure 39). Follow instructions on screen to install.



Fig. 39

7. After the service application software is installed on your computer, refer to figure 32 to access the program.

Website with “My Tennant Customer Sign in” tab:

1. Log in to the “My Tennant” website or register as a new user (Figure 40).

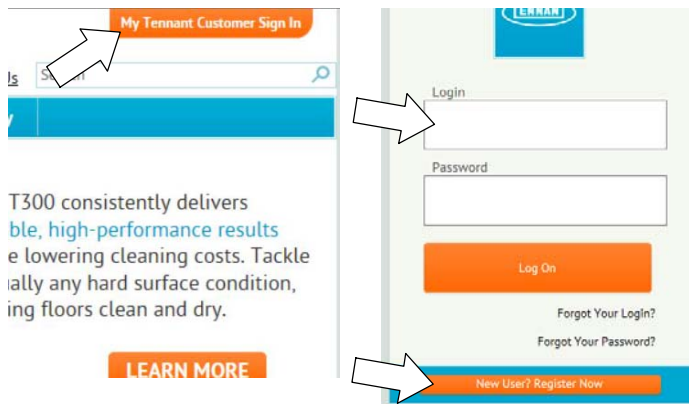


Fig. 40

2. Once logged on to the “My Tennant” website, click on the “Service Application Software” link under the “Product Support & Solution” section as shown below (Figure 41).



Fig. 41

3. Within the Service Application Software page, click on the link titled “Service Diagnostics LE version x.x.xx” to download the application installer then click the Save button (Figure 42).

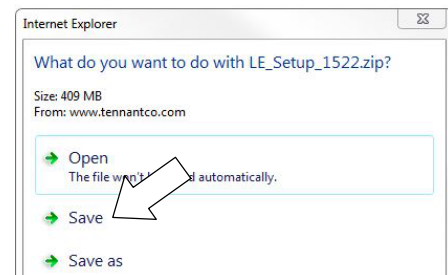
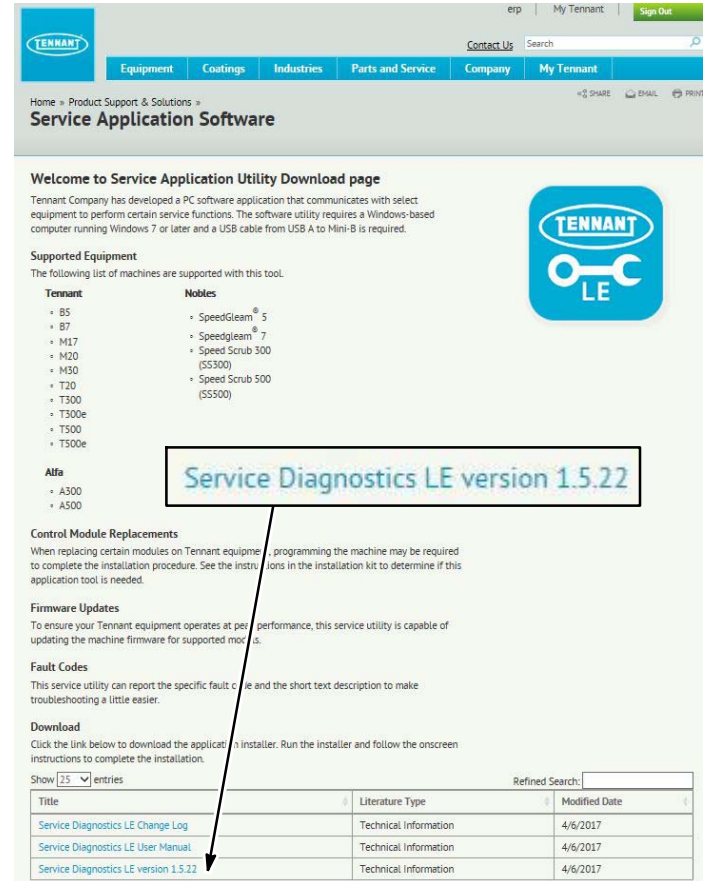


Fig. 42

4. Open the “Downloads” folder and locate the “LE_Setup_xxxx” zip file. Open the zip file and double click on the “LE_Setup_xxxx” file to install the application software on your computer (Figure 43). Follow instructions on screen to install.



Fig. 43

5. After the software is installed on your computer, refer to figure 32 to access the program.