

T600/T600e ec-H2O NanoClean® Affiliate Kit



This kit includes the necessary parts to add ec-H2O NanoClean technology to a standard model. Kit installation requires TennantTrue service or an authorized Tennant distributor service provider.

INSTALLATION INSTRUCTIONS:

Installation Time: 2.5 Hours

Kit Installation Requirements: Tennant Service Application Software and USB cable.

Special Tools Required: None.

PREPARE MACHINE FOR KIT INSTALL:

1. Drain the solution and recovery tanks.
2. Park the machine on a level surface, lower the scrub head and remove the key.
3. Disconnect battery cable connector from battery pack (Figure 1).

⚠ WARNING: Always disconnect battery cables from machine before working on electrical components.

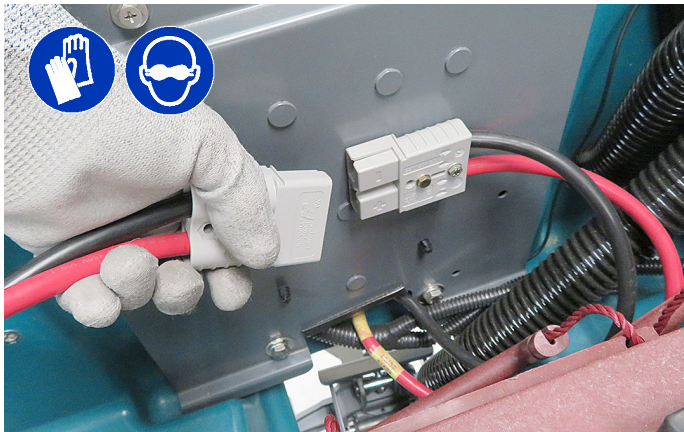


Fig. 1

INSTALL ec-H2O NanoClean System:

1. Cut the intake hose on the ec- H2O module as specified (Figure 2)

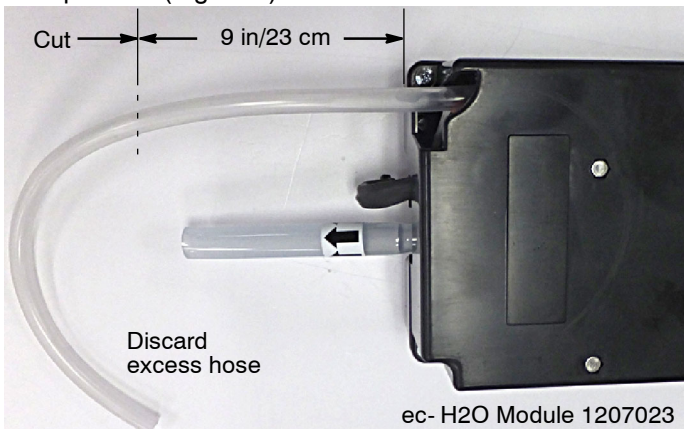


Fig. 2

2. Install the pre- assembled hose assembly, hose fitting and clamps to the ec- H2O module outlet hose as shown (Figure 3).

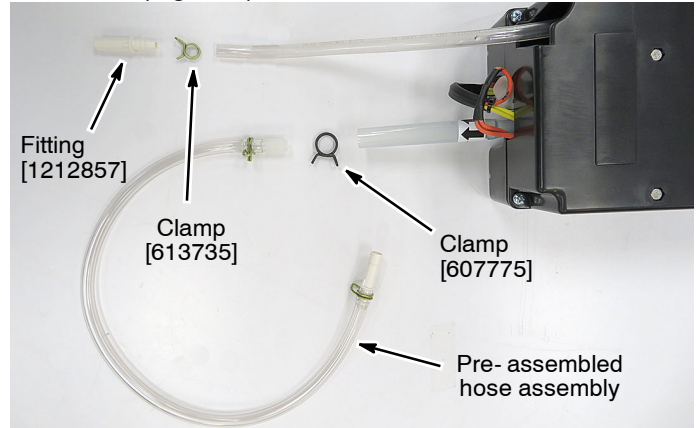


Fig. 3

3. Locate the factory installed ec-H2O wire harnesses cable-tied to the machine's main wire harness as shown (Figure 4). Cut cable-tie to free- up the ec- H2O wires.

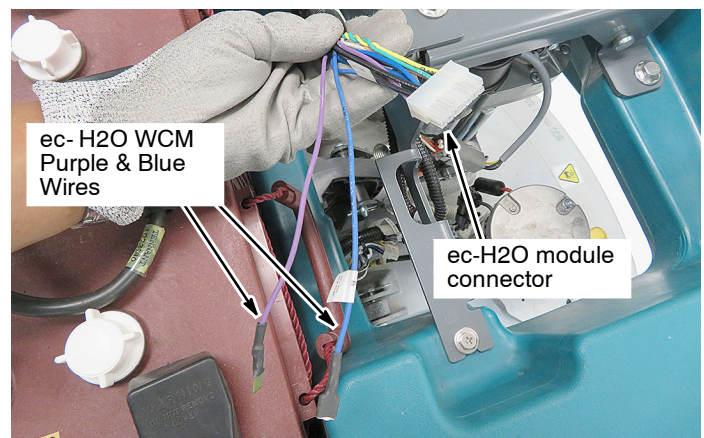
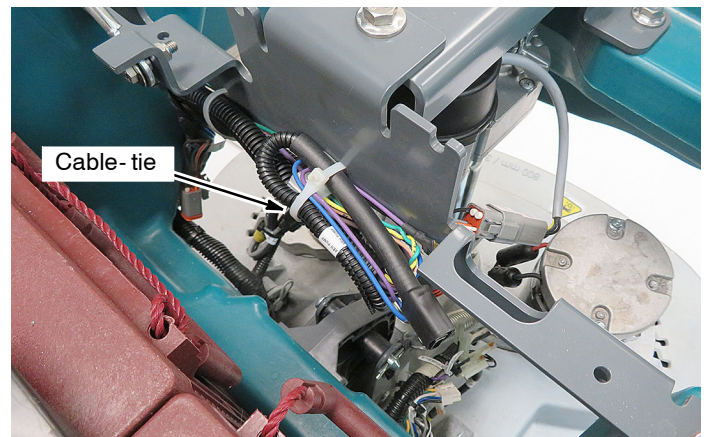


Fig. 4

- 4. Refasten the machine wire harness to the opposite side of the bracket to make room to mount the ec-H2O module as shown (Figure 5).



Fig. 5

- 5. Connect the white module harness connector to the ec-H2O module as shown (Figure 6).



Fig. 6

- 6. Mount the ec-H2O module to the machine bracket using hardware as shown (Figure 7). Connect ground wire using lock washer as shown.

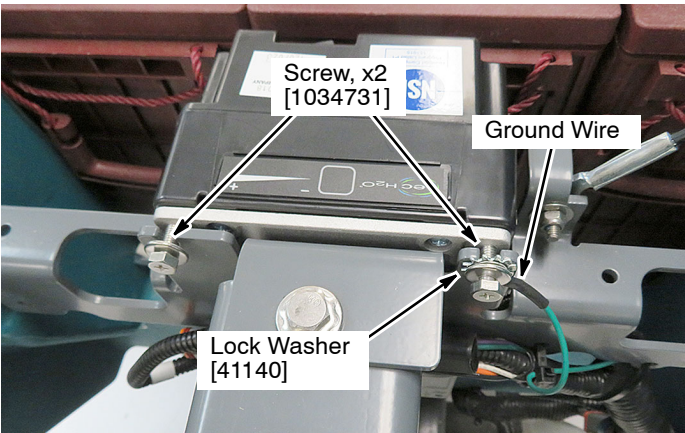


Fig. 7

- 7. Mount the pre-assembled water conditioning module assembly [9016704] to the machine bracket using screw as shown (Figure 8).

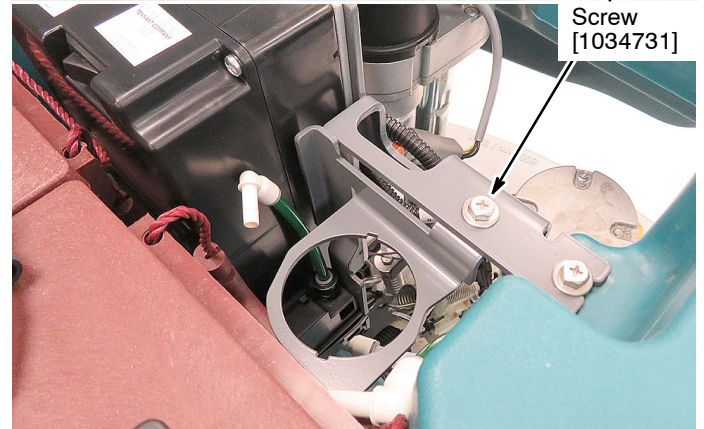


Fig. 8

- 8. Connect the purple & blue wires located in step 3 to the water conditioning module as shown (Figure 9).

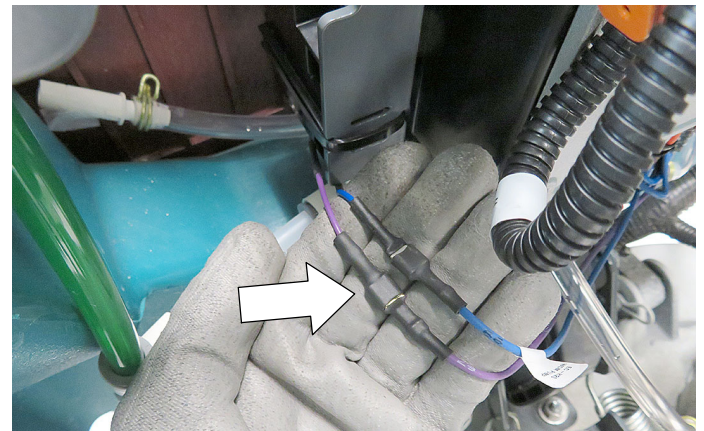


Fig. 9

9. Connect the pre-assembled water conditioning hose assembly to the T-fitting on the ec- H2O module intake hose as shown (Figure 10).

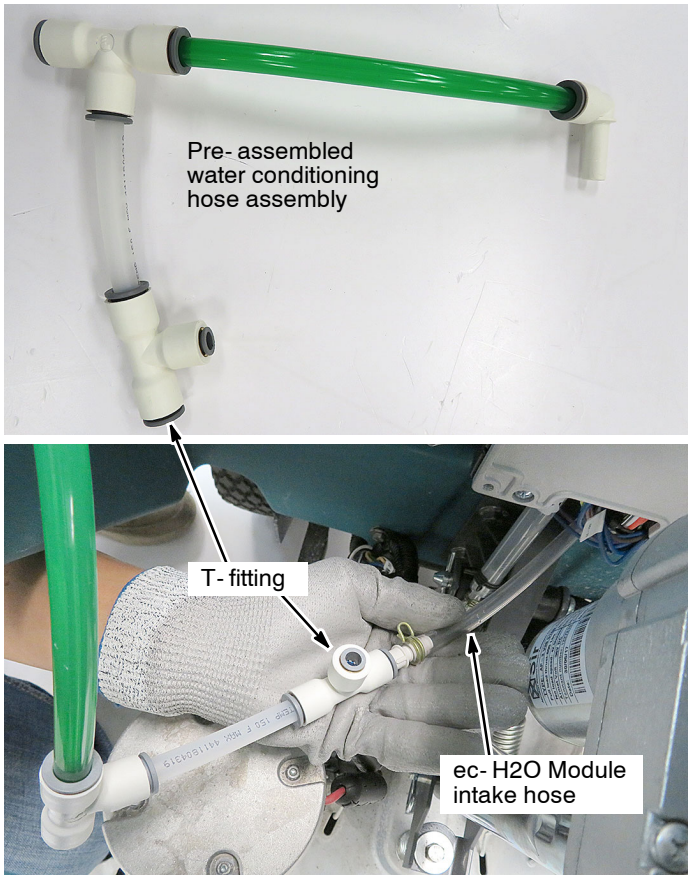


Fig. 10

10. Connect the T-fitting to the water conditioning module hose barb as shown (Figure 11).

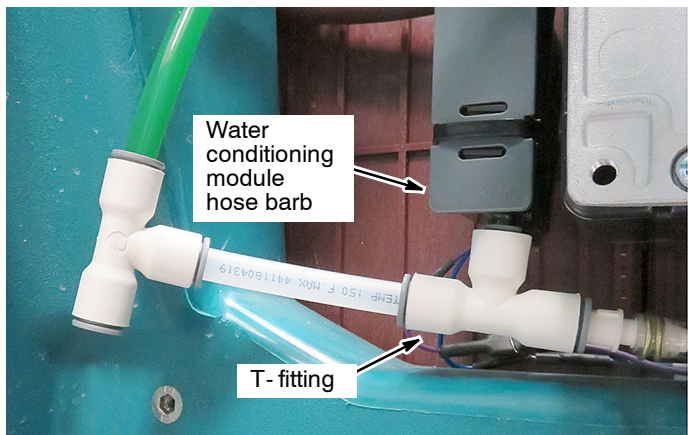


Fig. 11

11. Route the outlet hose from the ec- H2O module under the machine as shown (Figure 12).

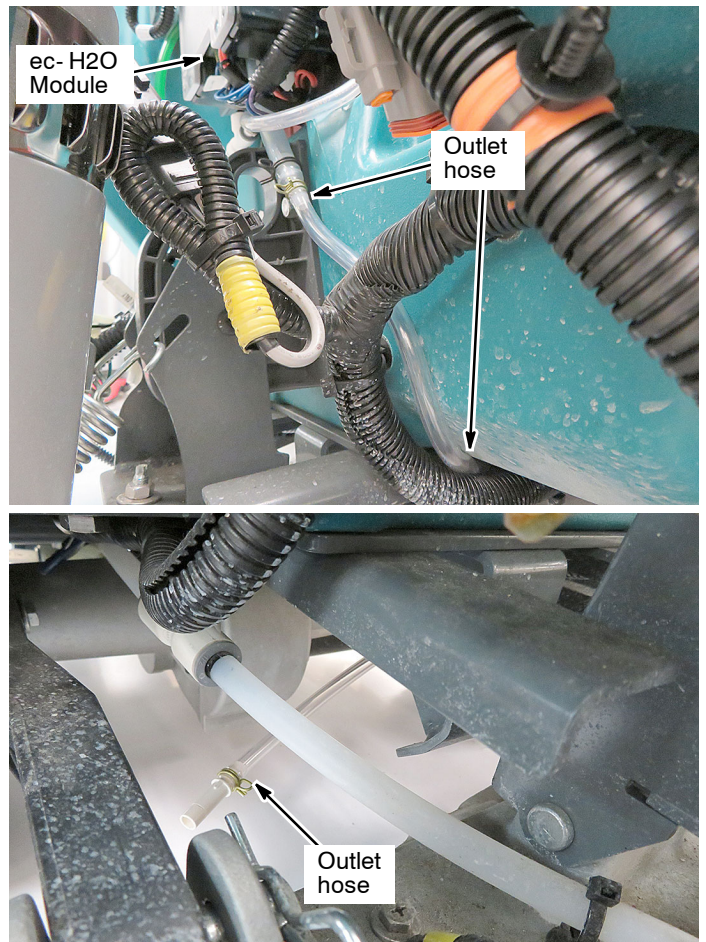


Fig. 12

12. Connect new T-fitting [1212875] to the routed ec- H2O module outlet hose as shown (Figure 13).

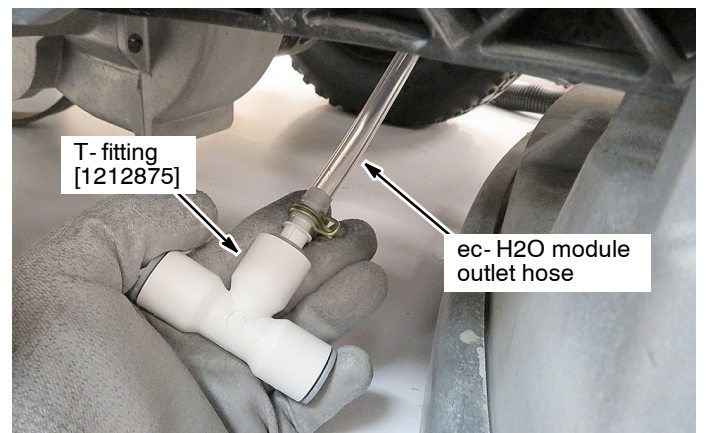


Fig. 13

13. Remove the straight fitting from the scrub head solution feed hose as shown (Figure 14).

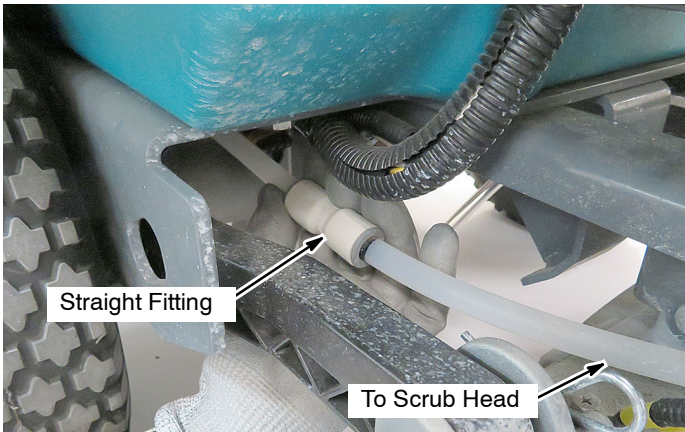


Fig. 14

14. Connect the T-fitting from the ec- H2O module outlet hose to the scrub head solution feed hose as shown (Figure 15).

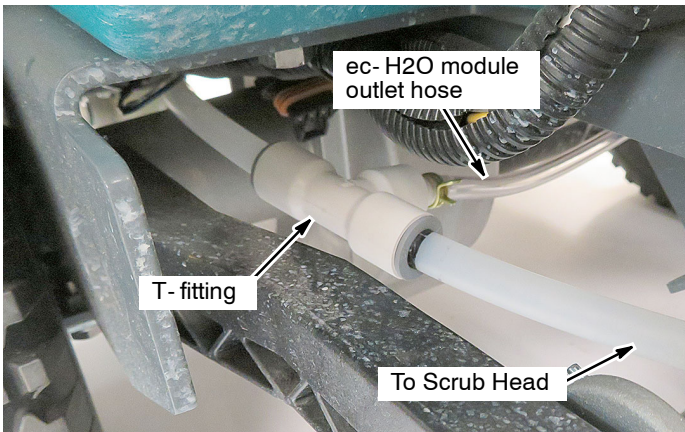


Fig. 15

15. Install the pre- assembled water conditioning pressure switch assembly [9016704] as described in the following steps (Figure 16).

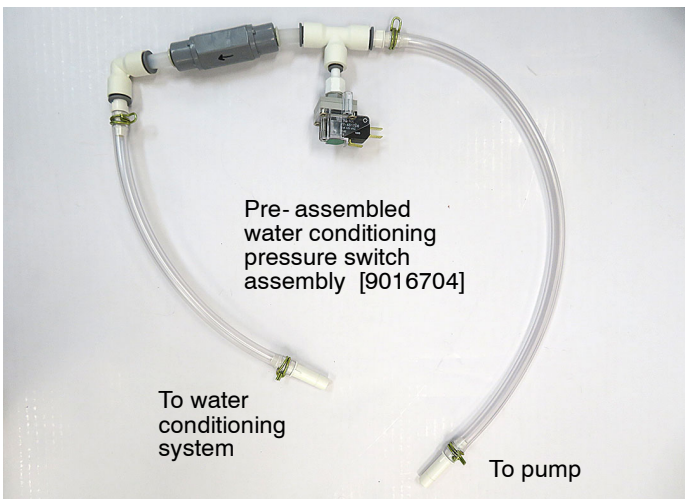


Fig. 16

16. Locate the factory installed pressure switch wire connector cable-tied to the machine harness (Figure 17).

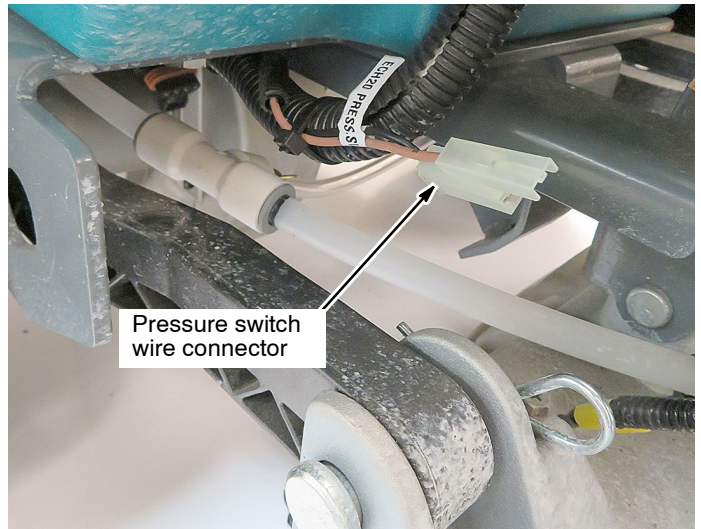


Fig. 17

17. Connect the pressure switch wire connector to the water conditioning pressure switch assembly as shown (Figure 18).

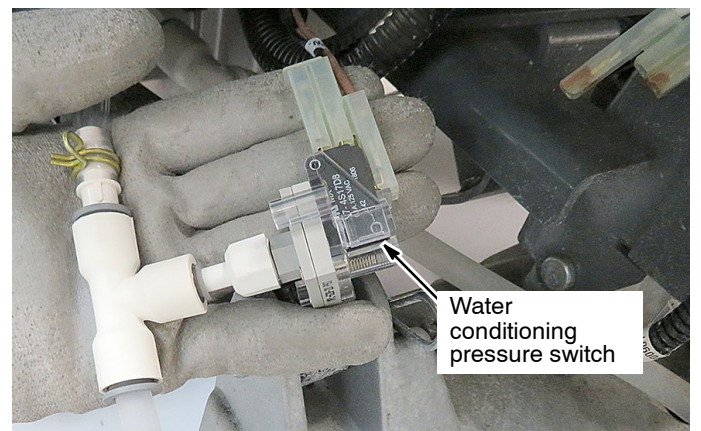


Fig. 18

18. Connect the water conditioning pressure switch hose assembly to T-fitting as shown (Figure 19).

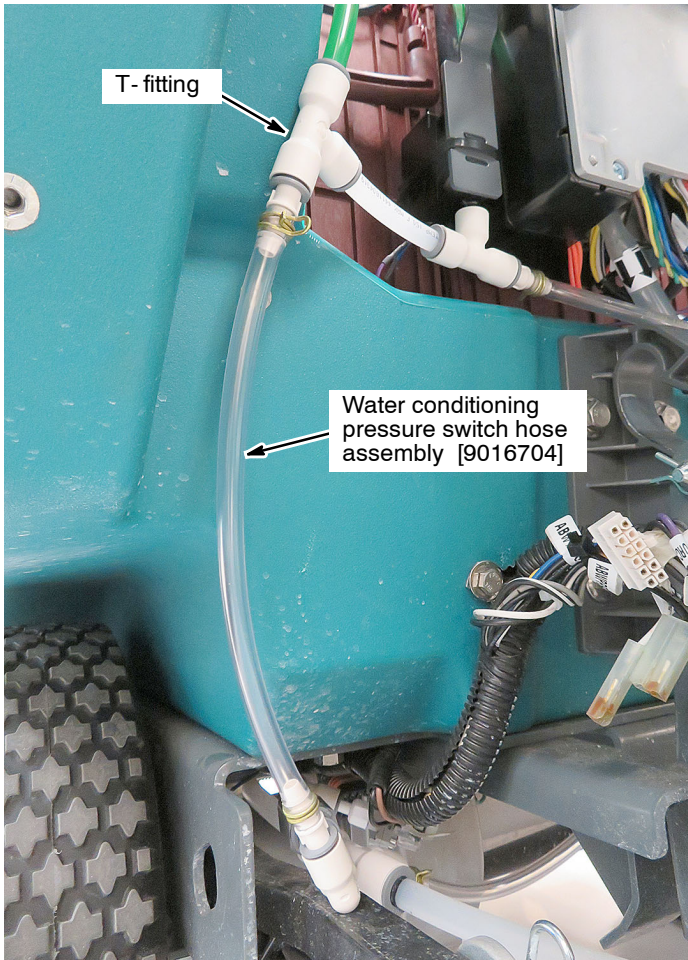


Fig. 19

19. Route the water conditioning pressure switch hose assembly towards the rear of the machine as shown (Figure 20). Secure the elbow fitting to the machine harness with cable-tie.

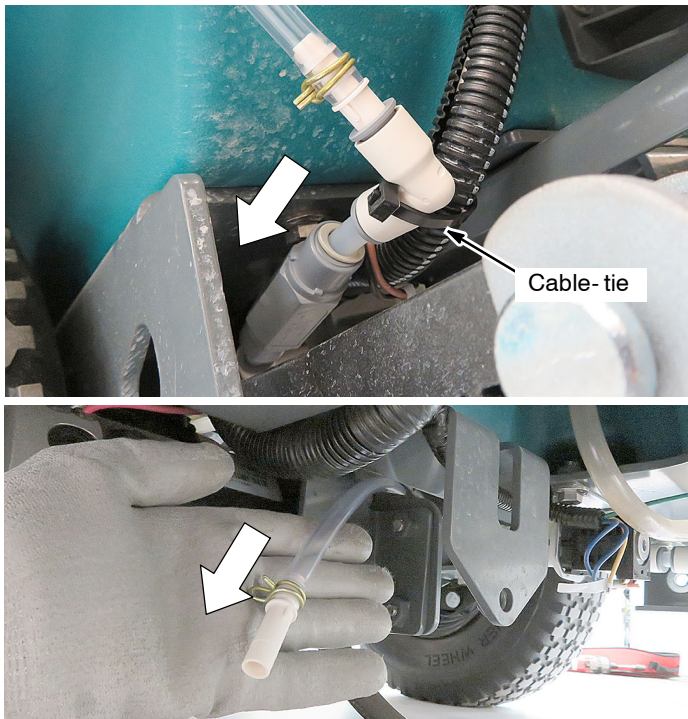


Fig. 20

20. Locate the factory installed ec- H2O pump wire connector and diode connector at rear of machine near the squeegee pedal (Figure 21). Cut the cable-tie to free up connectors.

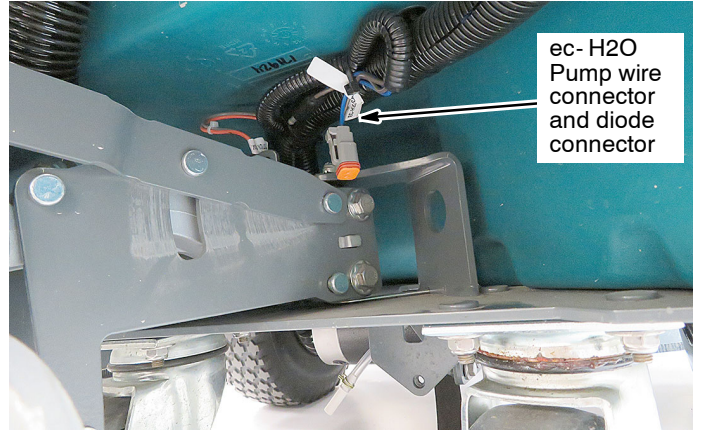


Fig. 21

21. Mount the ec- H2O pump to the machine frame bracket as shown (Figure 22).

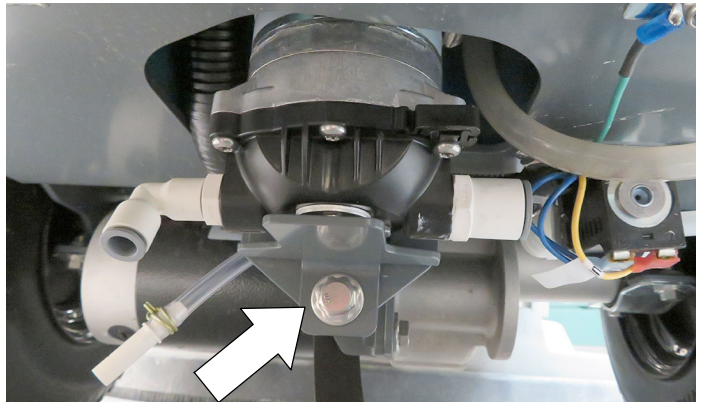
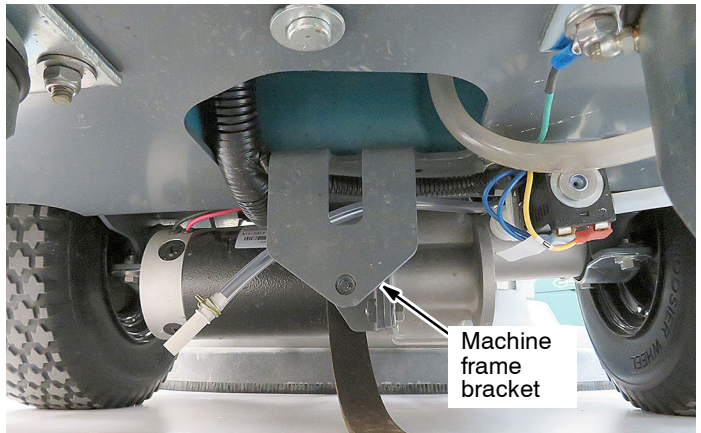
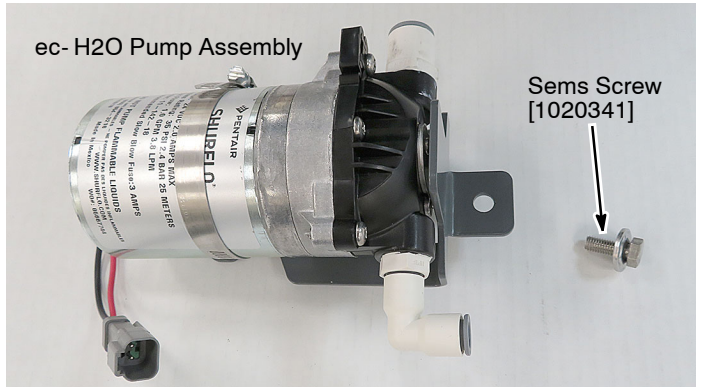


Fig. 22

22. Connect the routed pressure switch hose to the pump fitting as shown (Figure 23).

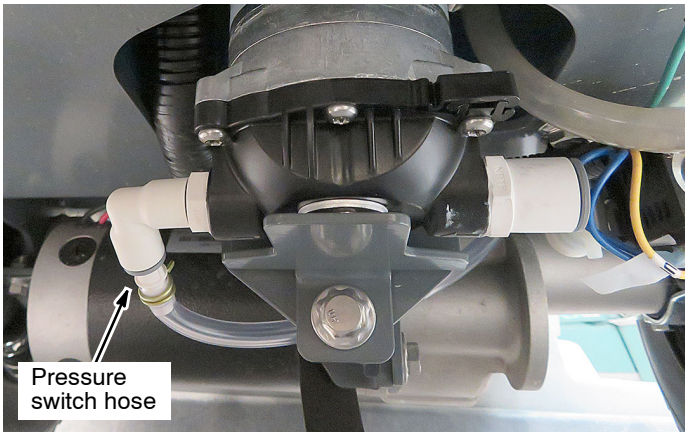


Fig. 23

23. Connect the ec-H2O pump wire connector to the pump and plug the diode [1040868] into the diode connector as shown (Figure 24).

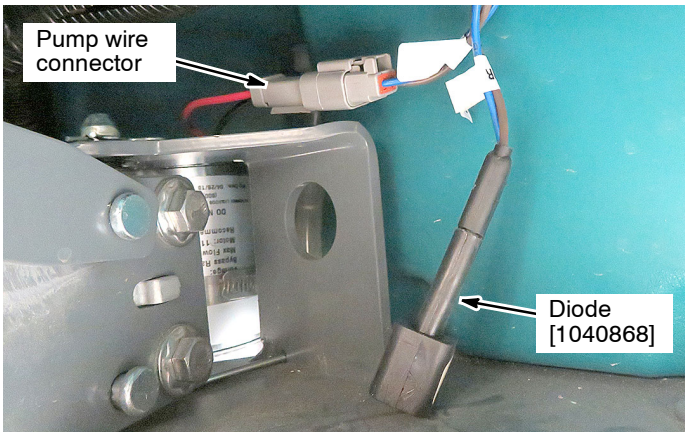


Fig. 24

24. Secure the connectors to the main wire harness with a cable-tie as shown (Figure 25).

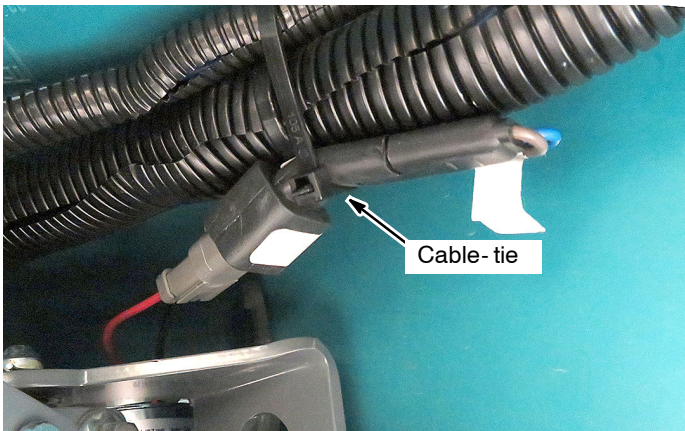


Fig. 25

25. Assembly the following hoses and fittings as shown (Figure 26).

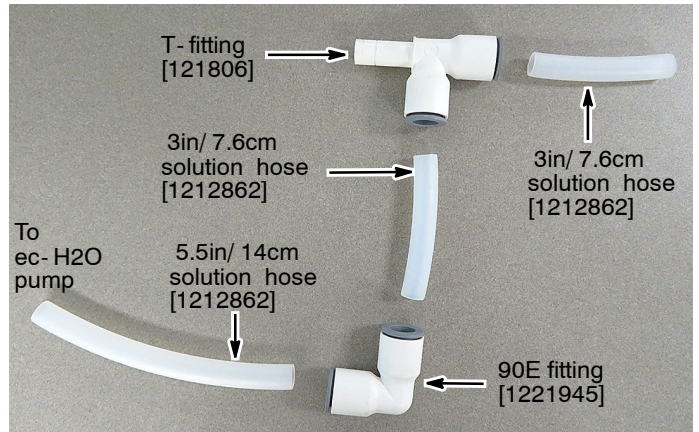


Fig. 26

26. Remove the solution hose located between the solenoid valve and the filter bowl (Figure 27).

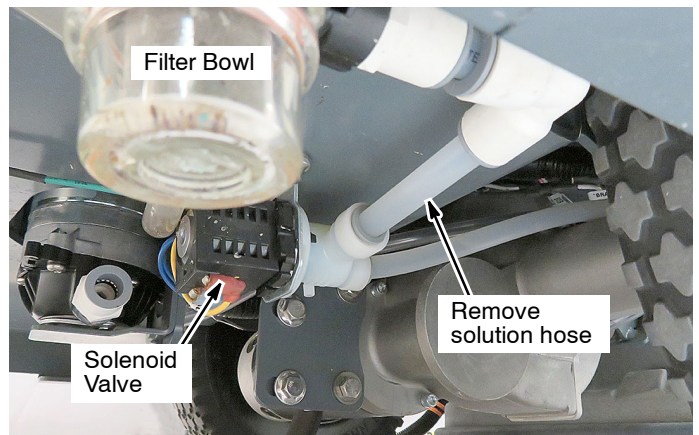


Fig. 27

27. Install the new solution hose assembly in place of the removed hose and connect hose to ec-H2O pump as shown (Figure 28).

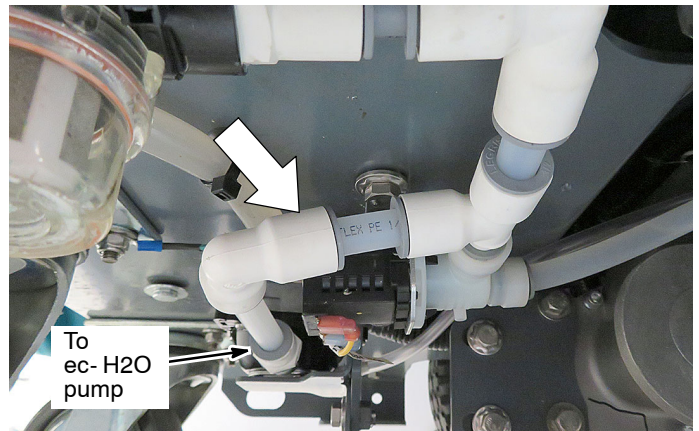


Fig. 28

INSTALL CONTROL CONSOLE COMPONENTS:

1. Remove the two lower torque screws at bottom of control console and carefully lower console cover as shown (Figure 29). T25 torque screwdriver required.

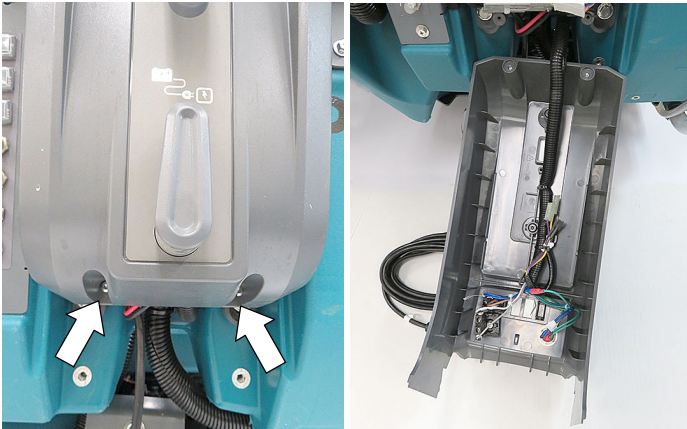


Fig. 29

2. Locate the factory installed black and brown ec-H2O switch wires that are cable-tied to the main harness. Cut cable-ties to free up wires (Figure 30).



Fig. 30

3. Remove the switch plug from the console and install the ec-H2O switch in the orientation as shown. Connect the factory installed wires, black/2 and brown/13H, to switch as shown (Figure 31).

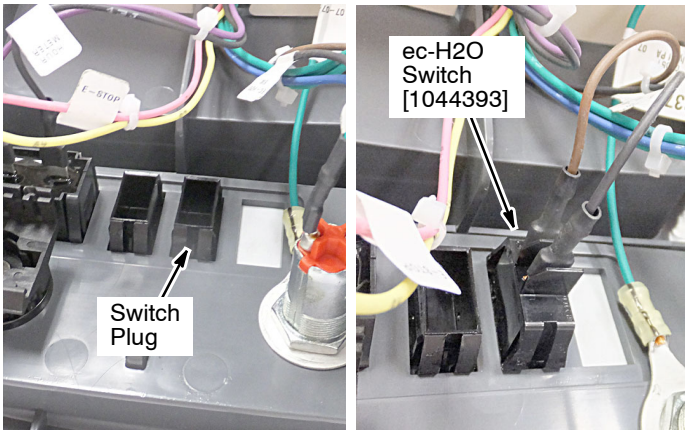


Fig. 31

4. Replace the control console. When replacing console, engage the top half of the console first then align the lower screw mounting locations (Figure 32). Make sure the side panels align and engage correctly before replacing the lower torque screws.



Fig. 32

5. T600e Models Only: Remove the circuit breaker panel and install the ec-H2O 10A circuit breaker with boot into the CB-2 location as shown (Figure 33).

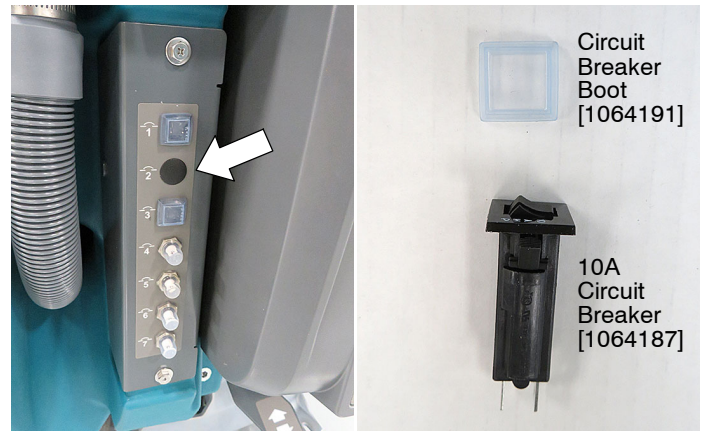


Fig. 33

6. Connect the factory installed red/1 and pink/61 CB-2 wire terminals to the new circuit breaker as shown (Figure 34).

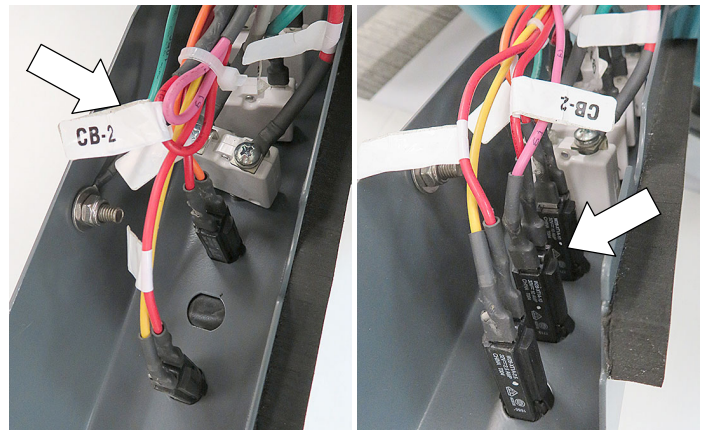


Fig. 34

7. Replace the circuit breaker panel..

INSTALL THE AUXILIARY RELAY FOR THE ec-H2O SYSTEM: (T600e Model Only)

1. Remove the two upper screws from the electrical panel and carefully lower the panel as shown (Figure 35). If necessary, remove the two rear batteries from the machine to allow additional clearance. Keep the metal electrical panel away from battery posts.

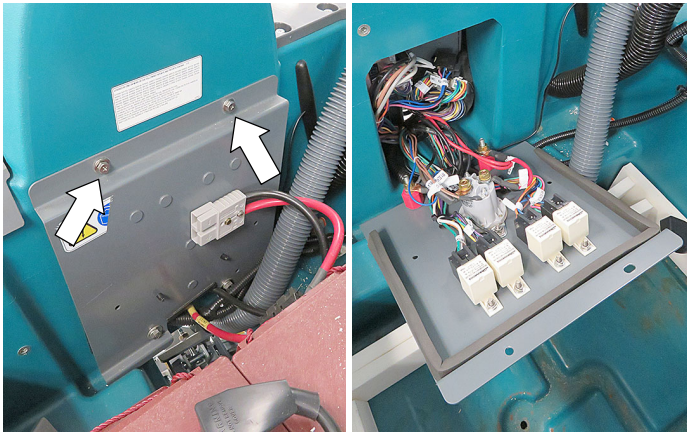


Fig. 35

2. Locate the open M2 AUX RELAY harness connector. Plug the relay into the connector (Figure 36).

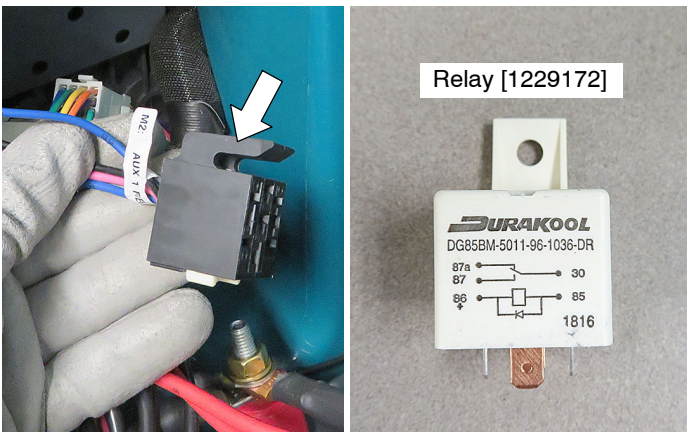


Fig. 36

3. Mount the relay to the electrical panel as shown (Figure 37). Use M4 x 0.70 x 12 screw [579237] and flat washer [01683].

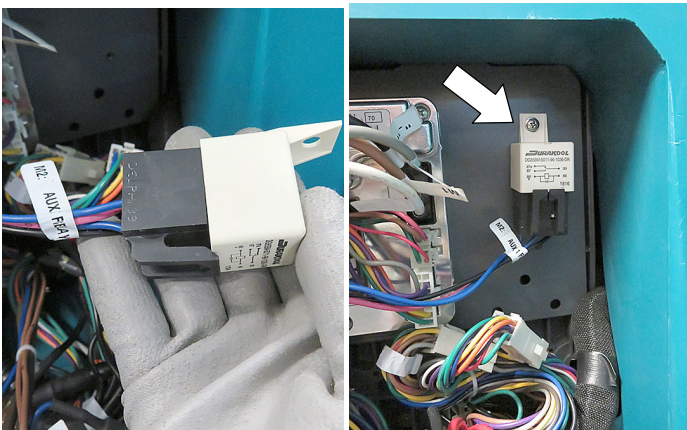


Fig. 37

4. Replace the electrical panel.
5. Reconnect battery cables.

ADHERE THE ec-H2O NanoClean LABELS ON THE MACHINE

Position the new ec-H2O NanoClean labels on machine as described below (Figure 38).



To properly position the ec- H2O NanoClean labels, align label with tick-marks in rotomold tank.

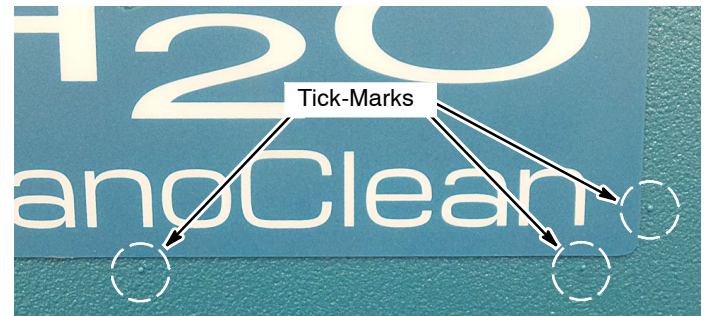


Fig. 38

RECONFIGURE THE MACHINE'S CONTROL BOARD FOR ec-H2O NanoClean and SEVERE ENVIRONMENT TECHNOLOGY:

Tennant Service Application Software is required to reconfigure the machine's control board to recognize the ec-H2O installed option (Figure 39).

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.

Icon on Desktop



Fig. 39

1. Start the Service Software Application program. After start up, the following screen will appear (Figure 40).

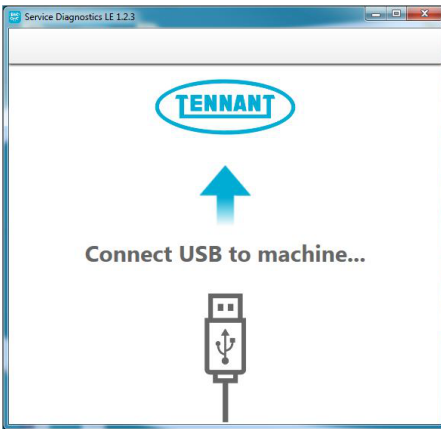


Fig. 40

2. Connect the USB cable to computer and to the USB port on machine as shown. Turn the key switch to the on position (Figure 41).

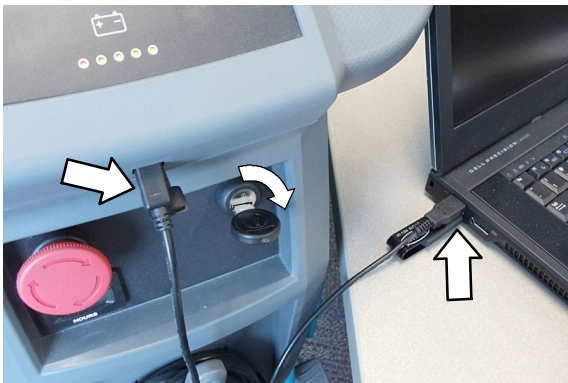


Fig. 41

3. From the Home screen, select the "Configuration" button (Figure 42).

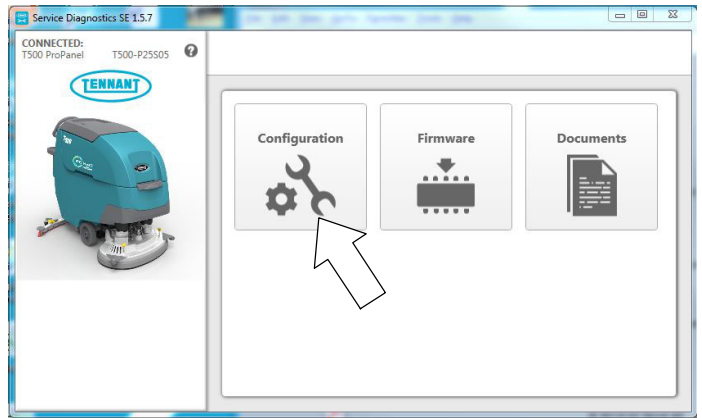


Fig. 42

4. Change the Cleaning Technology to "ec-H2O NanoClean" from the pull-down menu (Figure 43). Then press the down arrow button to program the machine. A green check will appear next to the down arrow button when programmed.

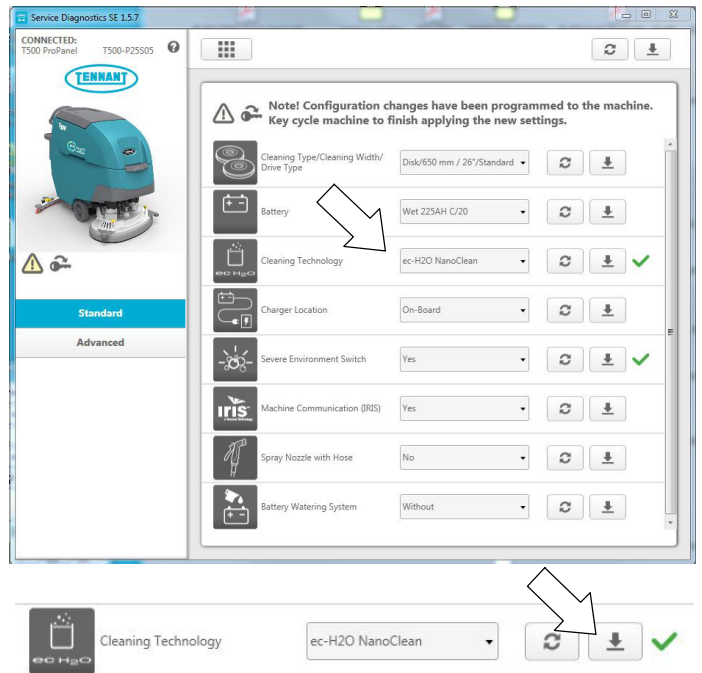


Fig. 43

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

FIRMWARE VERSION UPDATE:

To ensure the machine is equipped with latest FIRMWARE VERSION, perform the following procedure.

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. Start the Service Software Application program and connect the USB cable to the USB port on machine.
2. If firmware updates are required, the "Firmware" button on the home screen will be highlighted in yellow as shown (Figure 42). Press the button to update the machine's firmware.

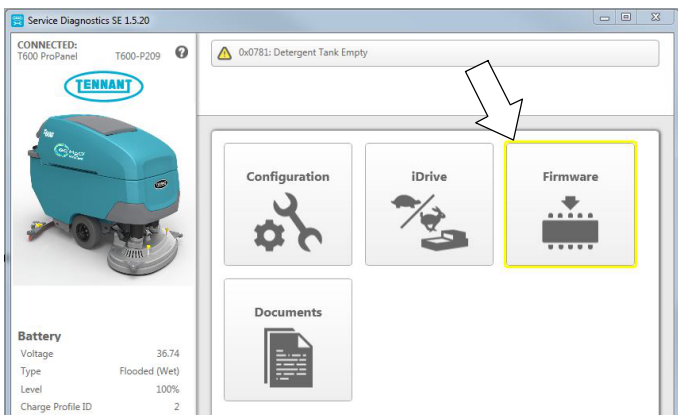


Fig. 44

Continue with the firmware update by pressing the yellow "Update" button as shown (Figure 45).

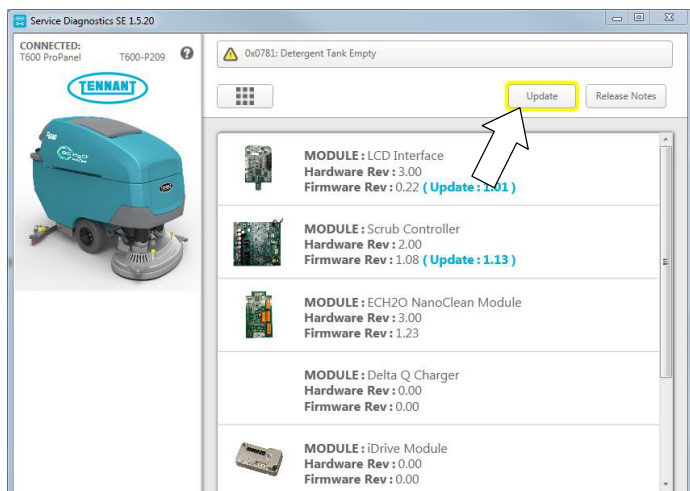


Fig. 45

3. Cycle the key to apply the new firmware updates. Disconnect the USB cable.

CHECK THE ec-H2O NanoClean SYSTEM FOR PROPER OPERATION:

To ensure the ec-H2O NanoClean system is operating properly, perform the following.

1. Connect the cartridge by-pass tool, offered separately, to the two green hoses as shown. Route the clear discharge hose to the floor. The use of the cartridge by-pass tool is to prevent activating the ec-H2O water conditioning cartridge during the check process (Figure 46).



Fig. 46

2. Fill solution tank with cool clean water (less than 21°C/70°F). Do not add any conventional floor cleaning detergents, system failure may result.
3. Turn the key to the on (I) position. Verify that the 4 LEDs on the module ripple left to right and then turn off, followed by displaying the current flow rate setting (Figure 47).



Fig. 47

4. The ec- H2O system will automatically turn on at key start up. The ec-H2O icon will appear on the control panel as shown below. To turn off the ec- H2O system, press the ec- H2O button (Figure 48).

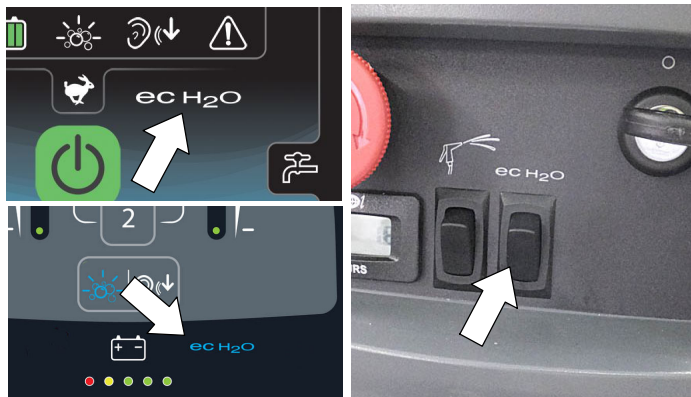


Fig. 48

- Operate the ec-H2O module in Manual Mode to verify that the ec-H2O system is putting water on the floor at the scrub head and at the By-Pass Tool hose.

NOTE: To enter the module's Manual Mode, depress and hold the service switch for 20 seconds and release (Figure 49). The first and third green LEDs will alternate on and off indicating that you are in the Manual Mode and the ec-H2O pump will be operating. To exit the Manual Mode, depress the Service Switch for one second and release. The module will also exit the manual mode automatically after 7 minutes.

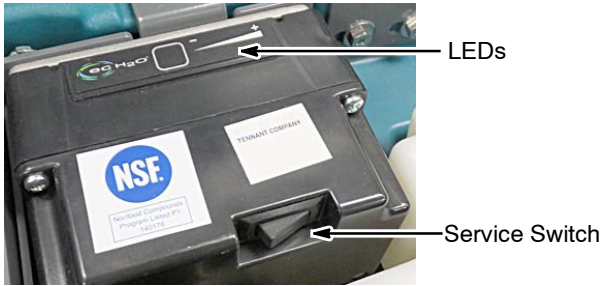


Fig. 49

- Check all ec-H2O system hose connections for water leaks.
- After checking machine for proper operation or possible leaks, drain all tanks and vacuum out any residual water. With the ec-H2O module in Manual Mode, attach the hose from the By-pass Tool to a vacuum unit and vacuum out any remaining water from module.
- Exit the Manual Mode and remove the Cartridge By-pass Tool from machine. To exit Manual Mode, depress the Service Switch for one second and release.

INSTALL ec-H2O NanoClean WATER CONDITIONING CARTRIDGE:

- Check the manufacture date on the Water Conditioning Cartridge before installing. The shelf-life of an un-installed cartridge is one year from manufacture date. Discard cartridge if shelf-life has expired. For replacement Cartridge, order p/n 9013646.
- Fill in the installation date on the Water Conditioning Cartridge label (Figure 50).



Fig. 50

- Remove the two plugs from cartridge. Press the gray collars inward and pull plugs outward to remove (Figure 51). Position the cartridge in the cartridge holder bracket as shown and connect green hoses to cartridge (Figure 51). Make sure the hose connectors are fully inserted.



Fig. 51

Set Timer for Water Conditioning Cartridge:

Carefully read and understand the following steps before performing procedure.

- Turn key to the on position.
- Press and hold the service switch on the module for 10 seconds. After releasing the service switch, the three solution flow indicator lights will begin to (ripple) move back and forth.

Attention: If you hold the service switch too long, the 1st and 3rd lights will alternate on and off. If this happens, press and release the service switch and repeat step 2.

- Within 5 seconds after releasing the service switch, while the three indicator lights are still moving back and forth (ripple), quickly press and release the solution flow button located on ec-H2O module.
- The three indicator lights will then blink three times to indicate the timer has been set. Repeat process if the three indicator lights do not blink three times.

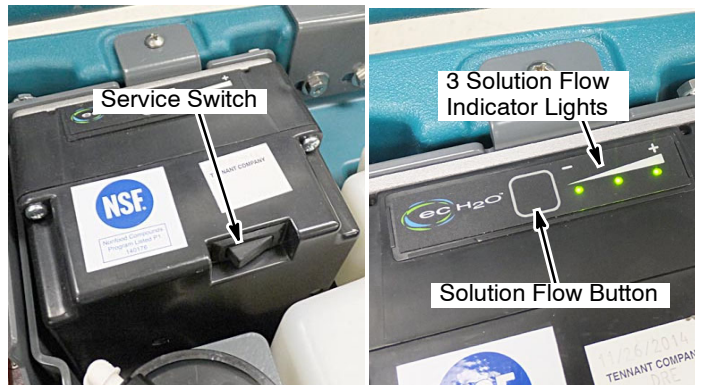
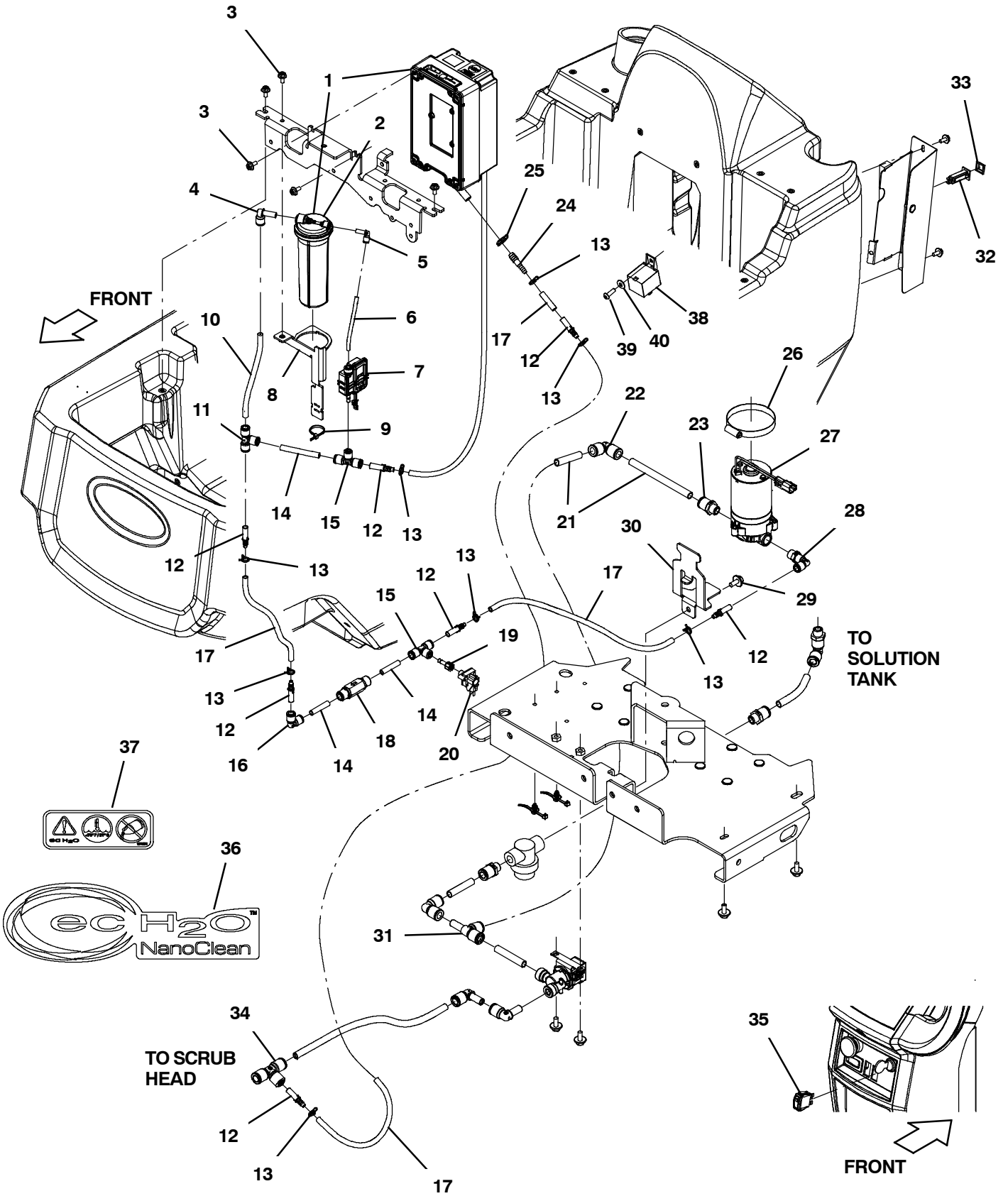


Fig. 52

T600/T600e ec-H₂O NanoClean Kit Parts List

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T600/T600e ec-H2O NanoClean Kit Parts List

Ref.	Part No.	Description	Qty.
1	9011810*	Module Kit, Replmt [Ec- H2o, B 02]	1
2	9013646	Cartridge, Ec- H2o Nanoclean Wcm, 270ml	1
3	1034731	Screw, Hex, M6 X 1.00 X 16, Sems, Ss	4
4	1215186	Fitting, Plstc, E90, Qf06/Qm06	1
5	1214339	Fitting, Plstc, E90, Qfo4/Qm04	1
6	9014147	Hose, Afrmkt, Pvc, 0.06id .25od, 05ft	1
7	1216973	Pump Assy, Dispenser	1
8	1221926	Bracket Wldt, Mtg, Ec- H20 [T500]	1
9	130773	Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	1
10	9014146	Hose, Afrmkt, Pvc, 0.06id .38od, 05ft	1
11	1212573	Fitting, Plstc, Tee, Qf06/Qf06/Qf06	1
12	1212857	Fitting, Plstc, Str, Qm06/Bm04	6
13	613735	Clamp, Hose, Wir, .40 - .42, Yel	7
14	9014148	Hose, Afrmkt, Nat, 0.25id 0.375od, 06ft	1
15	1212855	Fitting, Plstc, Tee, Qf04/Qf06/Qf06	2
16	1212856	Fitting, Plstc, E90, Qf06/Qf06	2
17	1014985	Hose, Afrmkt, Pvc, Clr, 0.25id, 08ft	1
18	1215527	Valve, Check, 1.0 Psi Qf06/Qf06	1
19	1231855	Fitting, Plstc, Str, Qm04/Pf02	1
20	1044415	Switch, Press, 20psi, Pm02	1
21	9014145	Hose, Afrmkt, Pe, .375id .50od, 05ft	1
22	1221945	Fitting, Plstc, E90, Qf08/Qf08	2
23	1212813	Fitting, Plstc, Str, Qf08/Pm06	3
24	1039557	Fitting, Plstc, Str, Bm04/Bm06	1
25	607775	Clamp, Hose, Wir, .63 - .66, Blk	1
26	43555	Clamp, Hose, Wormdrive, 2.62- 3.50d	1
27	1210517	Pump, Soltn, Ele, 24vdc, 35 Psi	1
28	1212812	Fitting, Plstc, E90, Qf06/Pm06, Swivel	1
29	1020341	Screw, Hex, M8 X 1.25 X 20, Ss, Sems	1
30	1229972	Bracket, Mtg, Pump	1
31	1212806	Fitting, Plstc, Tee, Qf06/Qf08/Qf08	1
32	1064187	Circuitbreaker, 10.0a, Resetable (ecH2O Option)	1
33	1064191	Boot, Circuitbreaker	1
34	1212875	Fitting, Plstc, Tee, Qf06/Qf08/Qf08	1
35	1044393	Switch, Rocker, Spst, Mom (ecH2O Option)	1
36	1216520	Label, Logo [ec- H2O NanoClean Tennant]	2
37	1050003	Label, User, Attention, Ec- H2o	1
38	1229172	Relay, 36vdc, 025a, Spdt (T600e Models Only)	1
39	579237	Screw, Pan, Phl, M4 X 0.70 X 12, Ss	1
40	01683	Washer, Flat, 10, Ss	1