

# T5e/A5 ec-H2O NanoClean Affiliate Kit



This kit includes the necessary parts to convert a standard model into an ec-H2O™ NanoClean model. This kit is intended for T5e/Alfa A5 models manufactured after serial number 10742213 (March 31, 2015).

## INSTALLATION INSTRUCTIONS:

**Installation Time: 4 Hours**

**Special Tools Required:** Cartridge By-Pass Tool to test machine for leaks after install (provided separately).

## 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. Remove the front shroud and the scrub head assembly from the machine (Figure 1).

**FOR SAFETY: Before removing the scrub head assembly, disconnect the battery cables.**

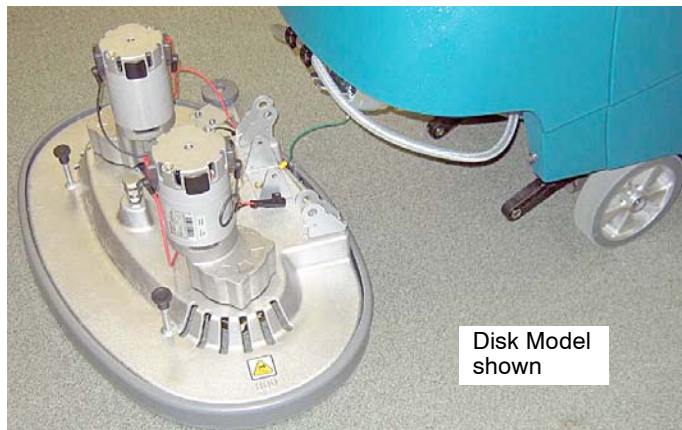


Fig. 1

4. Remove the batteries from the machine (Figure 2).

**FOR SAFETY: When handling batteries, wear protective gloves and eye protection. Avoid contact with battery acid.**



Fig. 2

## INSTALL ec-H2O WIRE HARNESS:

1. Remove the cover the from the circuit breaker box (Figure 3).

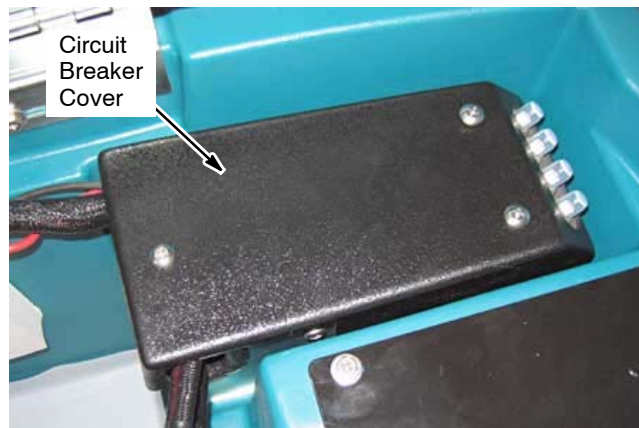


Fig. 3

2. Remove the two shoulder bolts at bottom of circuit breaker box (Figure 4).

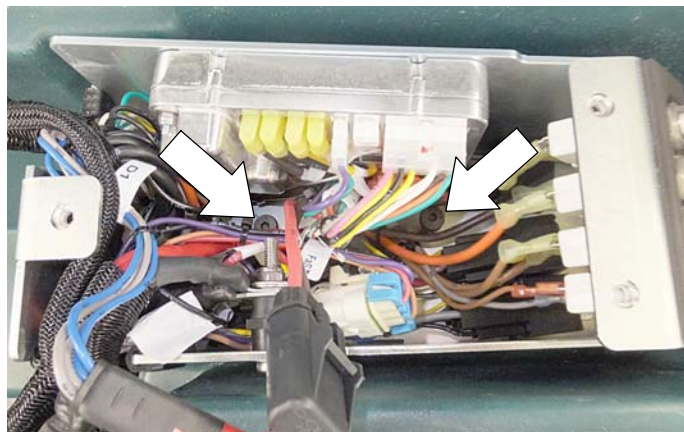


Fig. 4

3. Lift out the circuit breaker box and remove the side panel as shown (Figure 5). Do not disconnect any of the wiring.

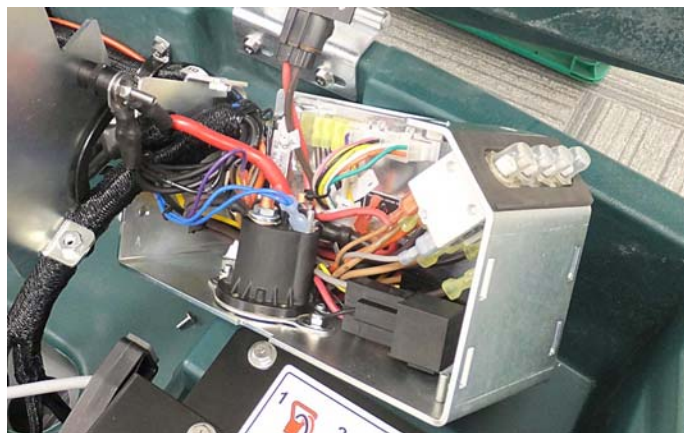
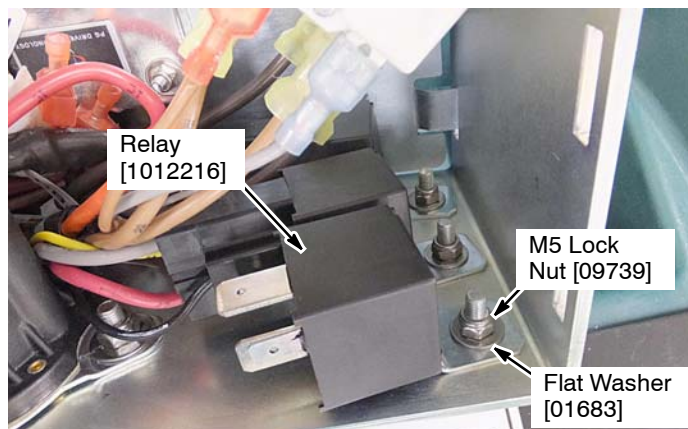


Fig. 5



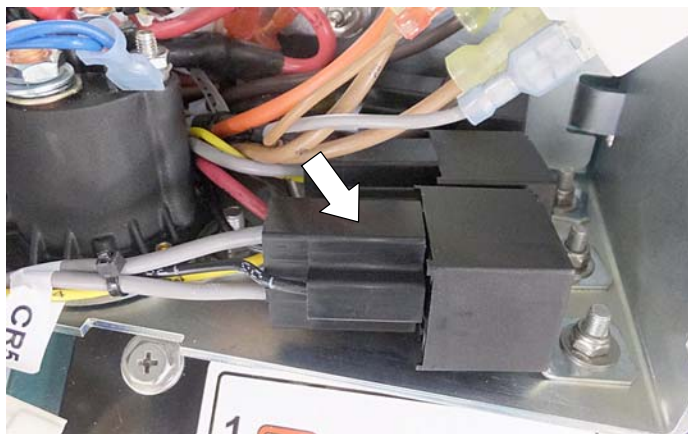
4. Using hardware shown, attach the Relay to the mounting stud located inside the circuit breaker box (Figure 6).

**Fig. 6**

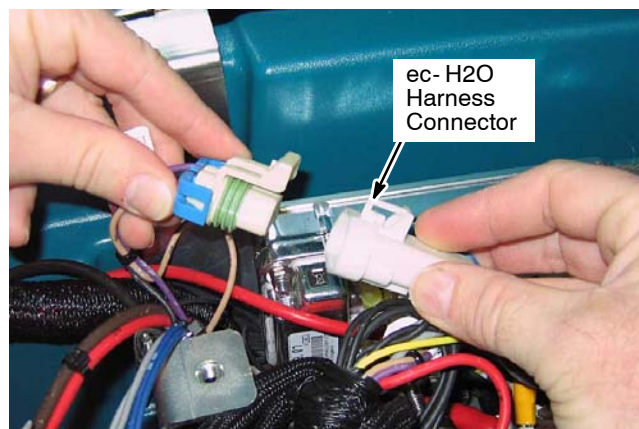
5. Starting at the circuit breaker box, connect the following ec-H2O harness wires as described in steps 6, 7, 8 and 9 (Figure 7).

**Fig. 7**

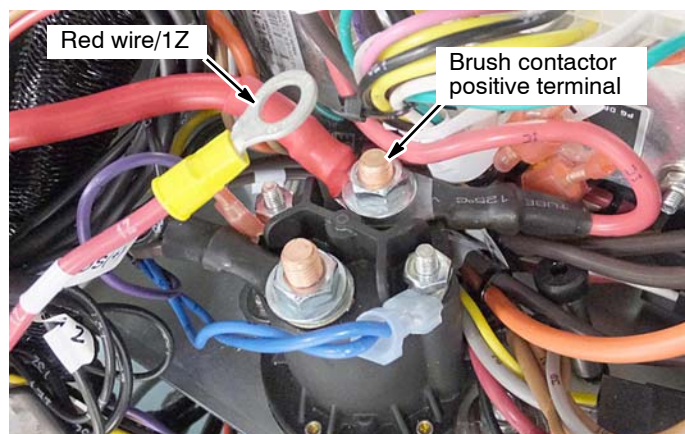
6. Connect the ec-H2O harness relay connector to new relay (Figure 8).

**Fig. 8**

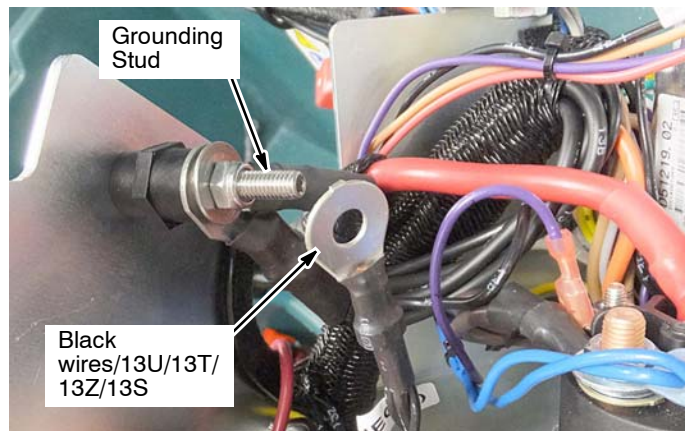
7. Connect the ec-H2O harness connector to the open connector located inside the circuit breaker box (Figure 9).

**Fig. 9**

8. Connect the ec-H2O harness red wire/1Z to the positive brush contactor terminal (Figure 10).

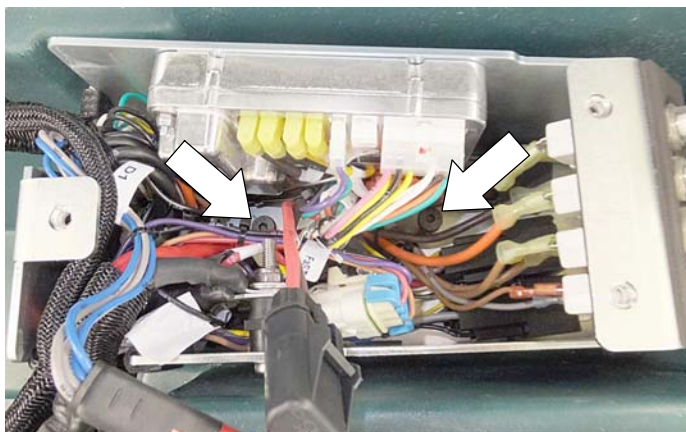
**Fig. 10**

9. Connect the ec-H2O harness black wires 13U/13T/13Z/13S to the grounding stud (Figure 11).

**Fig. 11**



10. Replace the circuit breaker box side panel and remount the box to the machine (Figure 12).



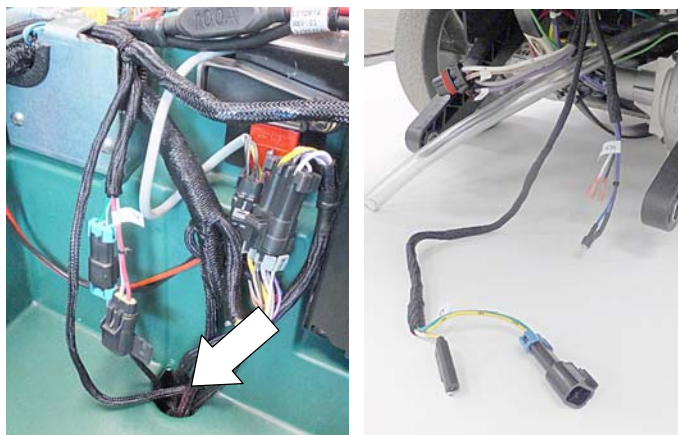
**Fig. 12.**

11. Route the following ec-H2O harness wires as described in next step (Figure 13).



**Fig. 13**

12. Route the ec-H2O harness wires down through the access hole towards the scrub head area (Figure 14).



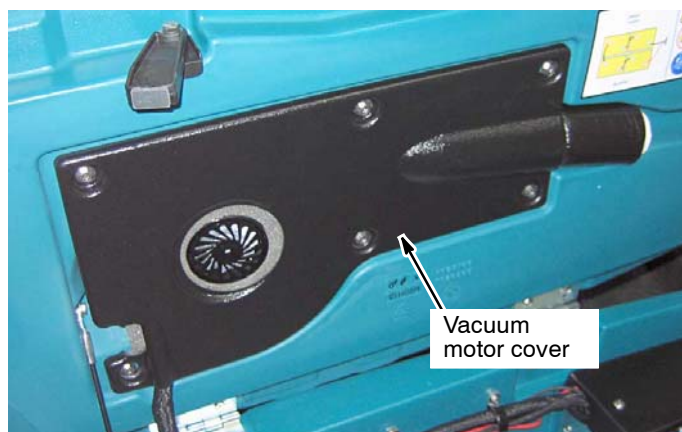
**Fig. 14**

13. Route the following ec-H2O harness wires to the control console as described in steps 14 and 15 (Figure 15).



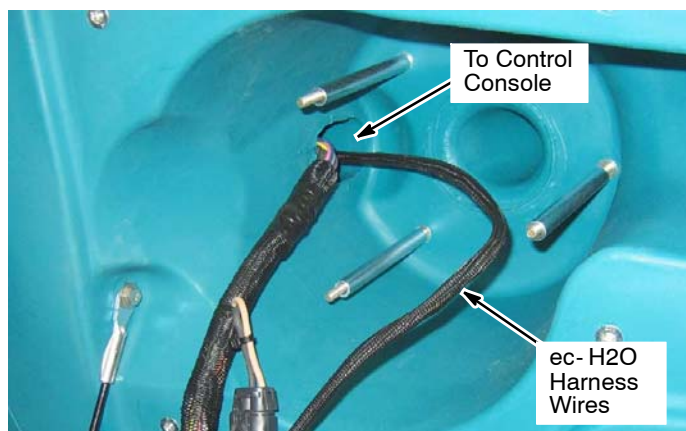
**Fig. 15**

14. Remove the vacuum motor cover and vacuum motor from machine (Figure 16).



**Fig. 16**

15. Route ec-H2O harness wires through the recovery tank harness hole and into the control console (Figure 17).



**Fig. 17**



16. Remove the upper control panel from the control console and locate the routed ec-H2O harness wires (Figure 18)



Fig. 18

17. Replace the vacuum motor cover and vacuum motor (Figure 19).



Fig. 19

18. Remove the factory installed clamps and replace with larger cable clamps to secure the routed ec-H2O harness to control console (Figure 20).

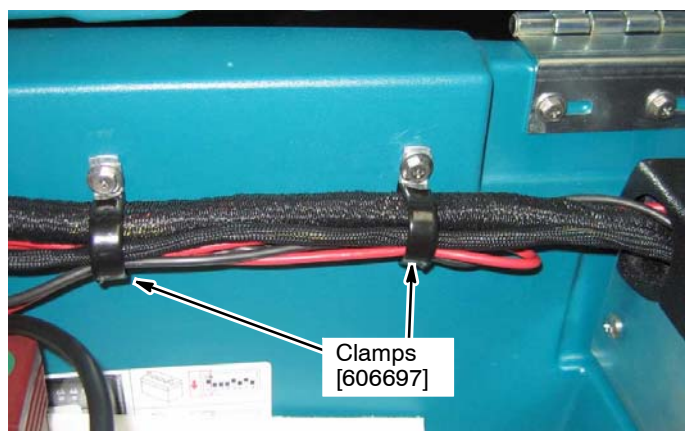


Fig. 20

19. Arrange the ec-H2O wire harness within the circuit breaker box as shown (Figure 21).

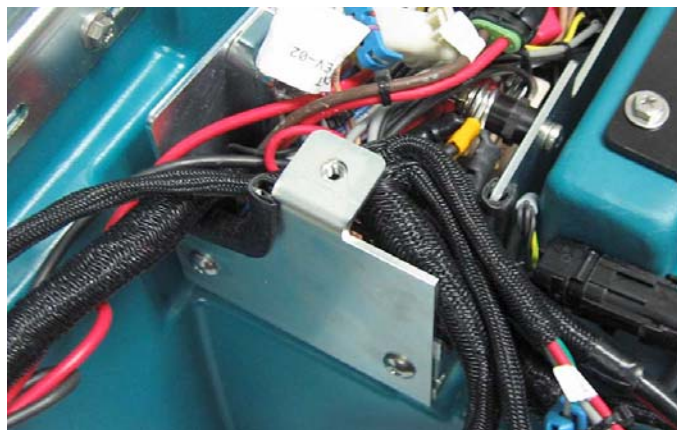


Fig. 21

20. Replace the circuit breaker box cover (Figure 22).



Fig. 22

## INSTALL ec-H2O CONTROL CONSOLE COMPONENTS:

1. Remove the components and the label from the upper control panel (Figure 23). *Take note of wire connections before removing components.* Install new label on panel and replace components. Install the ec-H2O LED light in panel (Figure 23).



Fig. 23



2. Connect the routed *ec-H2O* harness wires to the LED light (GRAY to RED, GRN to GRN and BLK to BLK) (Figure 24).

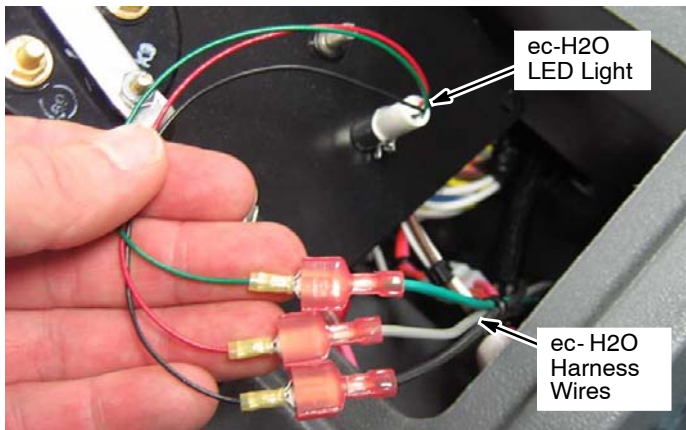


Fig. 24

3. Remove the lower control panel from console (Figure 25).

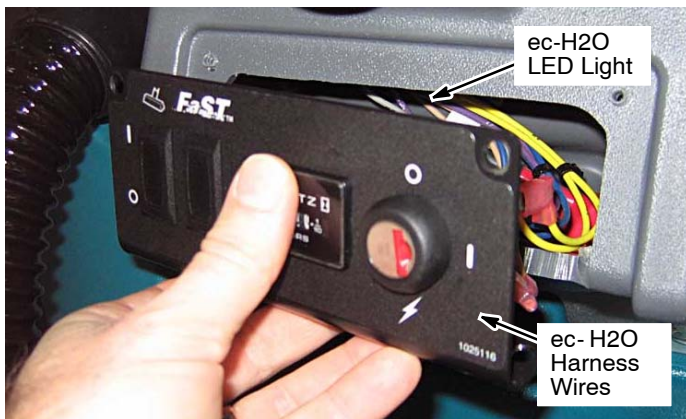


Fig. 25

4. Remove the components and the label from the lower control panel (Figure 26). *Take note of wire connections before removing components.* Install new label on panel and replace components.

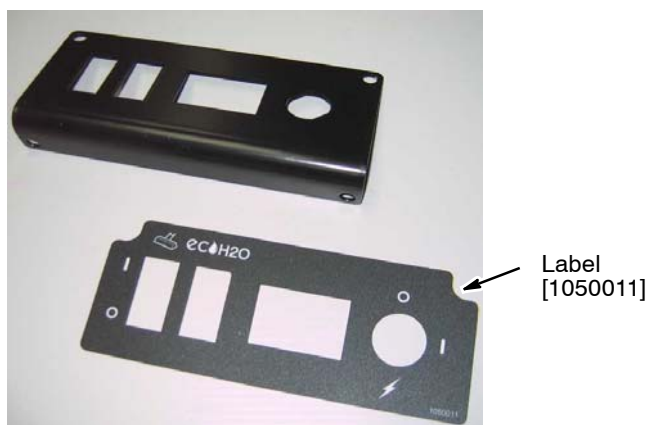


Fig. 26

5. Install the *ec-H2O* on/off switch into the lower panel as shown (Figure 27). Take note of switch orientation.



Fig. 27

6. Route the remaining console wires from the *ec-H2O* wire harness to the lower control panel (Figure 28).



Fig. 28

7. Disconnect wire 14/yellow from key switch (Figure 29).

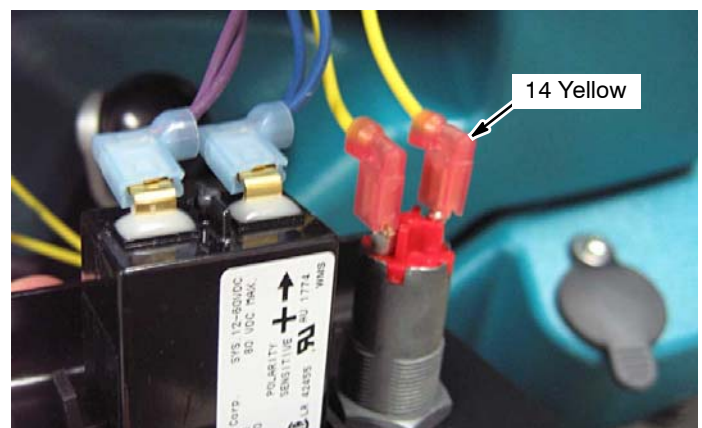


Fig. 29

8. Connect ec-H2O harness wires 94/94A yellow to key switch as shown. Connect 94B yellow to wire 14 yellow. (Figure 30).

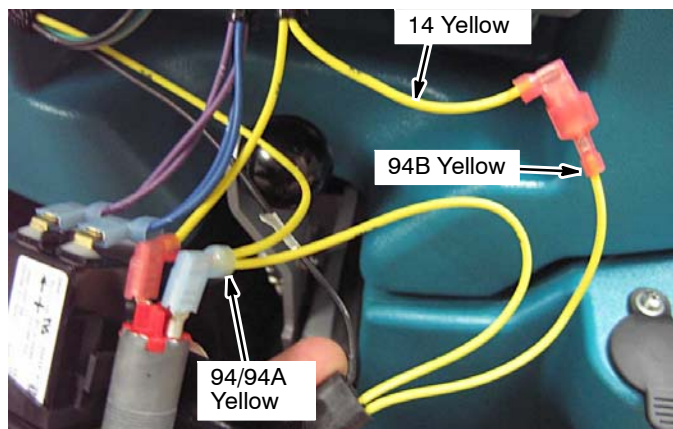


Fig. 30

9. Plug the diode into the ec-H2O harness (Figure 31).

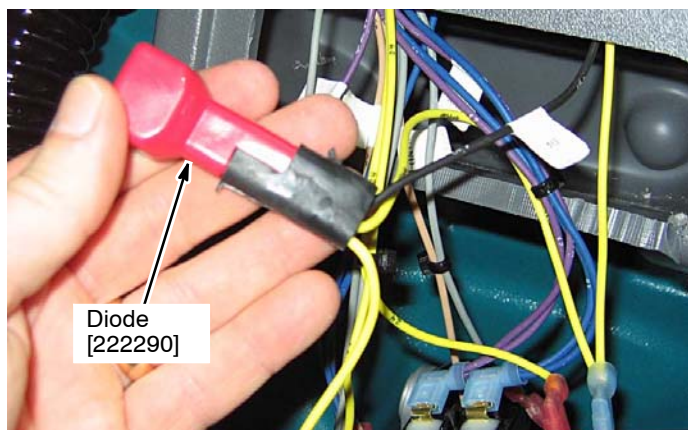


Fig. 31

10. Inside the lower control panel, locate the Blue/16 jumper wire and the Tan/30 wire with open terminal. Disconnect the Blue/16 jumper wire from wires 8/8A Gray and 6/16 Blue (Figure 32). Discard jumper wire.

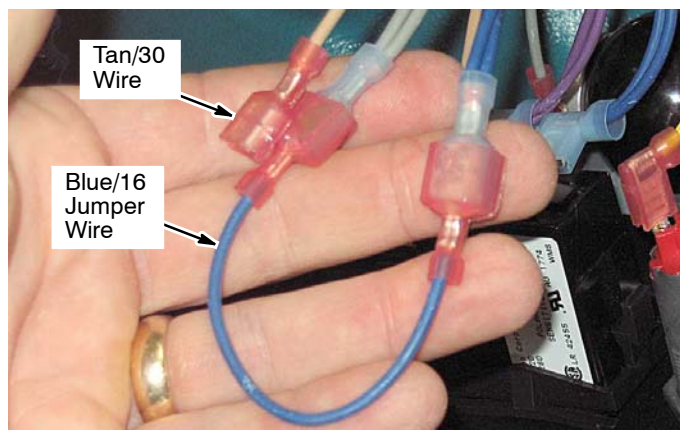


Fig. 32

11. Connect wires 8/8A Gray, 6/16 Blue and 30 Tan to the ec-H2O on/off Switch as shown (Figure 33).

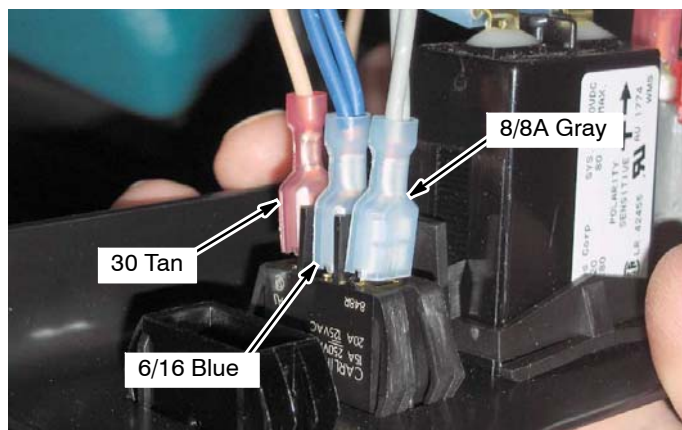


Fig. 33

12. Replace the two control console panels.

### INSTALL THE ec-H2O MODULE:

1. Using two m6x1.00x16 sems screws, attach the ec-H2O module mounting bracket to the ec-H2O module as shown (Figure 34).

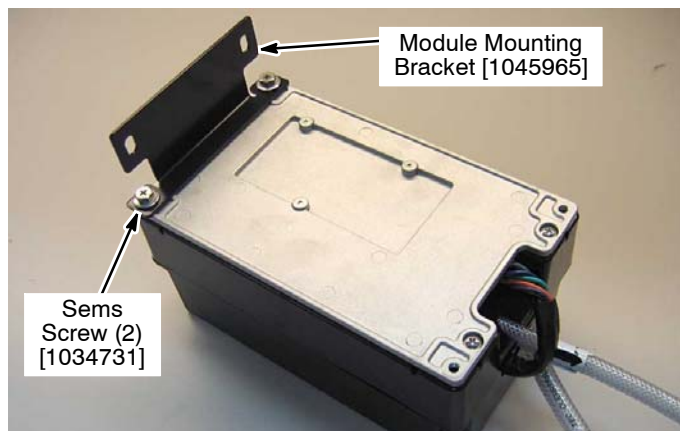


Fig. 34

2. Connect the braided outlet hose to ec-H2O module as shown (Figure 35).

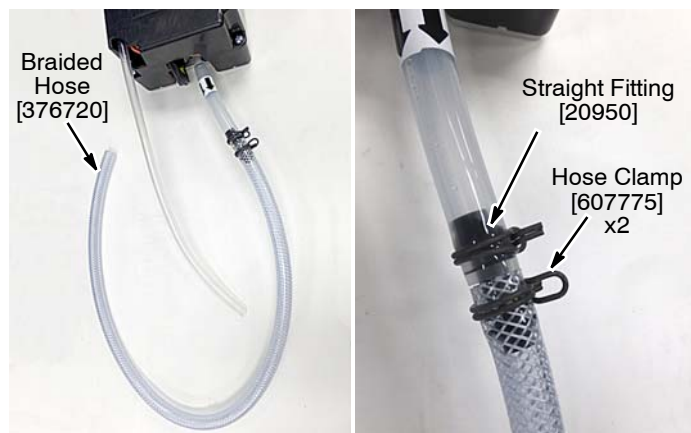
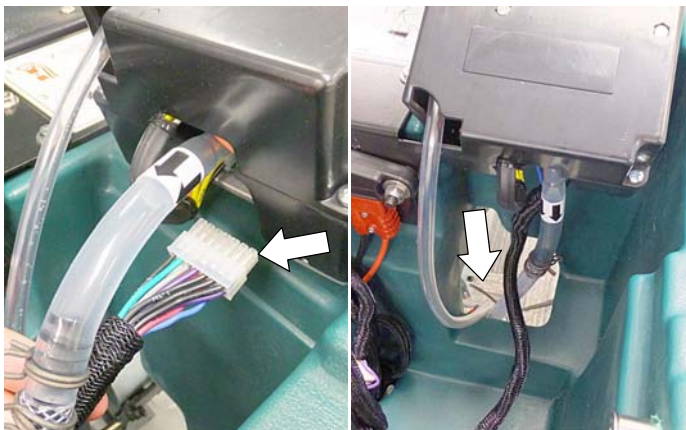


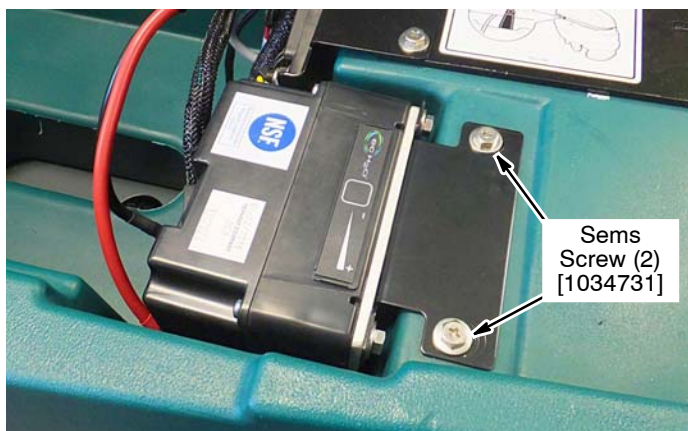
Fig. 35



3. Plug the ec-H2O wire harness connector into module. Route the two ec-H2O module hoses down to the scrub head area as shown (Figure 36).

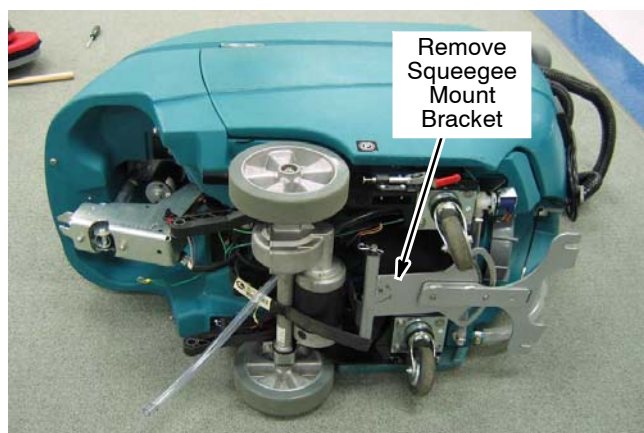
**Fig. 36**

4. Using two m6x1.00x16 sems screws, mount the ec-H2O module to the machine as shown (Figure 37).

**Fig. 37**

### INSTALL ec-H2O PUMP ASSEMBLY:

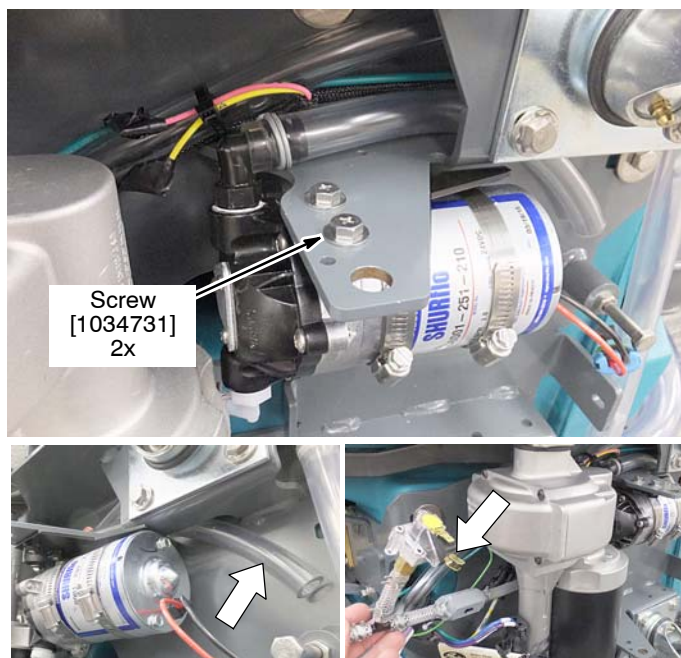
1. On a level non-marring surface, with assistance, carefully lay the machine on its right side. Then remove the squeegee mount bracket from machine (Figure 38).

**Fig. 38**

2. Attach the ec-H2O pump assembly to the pump mount bracket using clamps as shown (Figure 39). Tighten clamps.

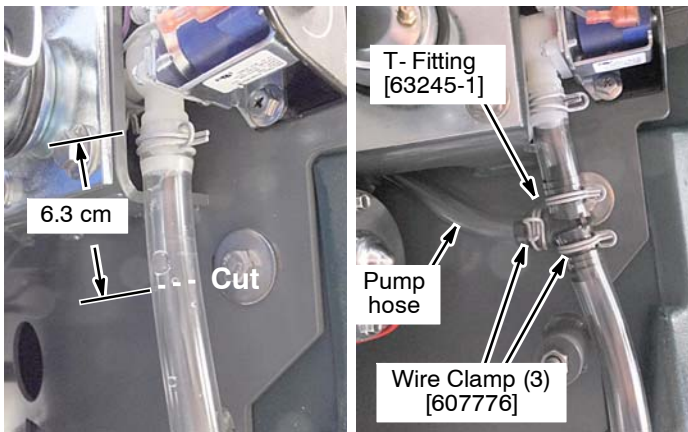
**Fig. 39**

3. Mount the ec-H2O pump assembly to the machine frame using two M6x1.00x16 hex screws as shown (Figure 40). Route the pump hoses as shown.

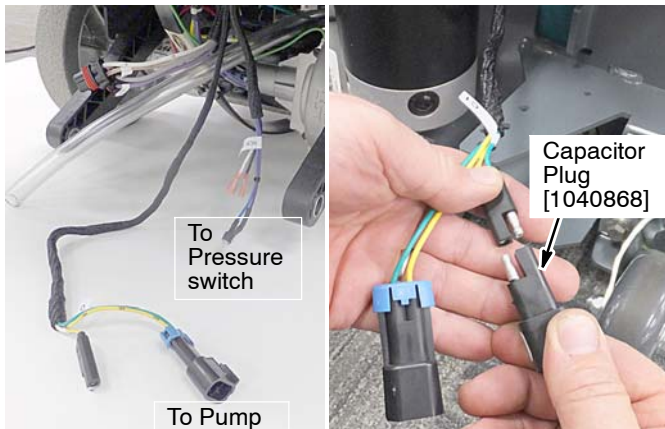
**Fig. 40**



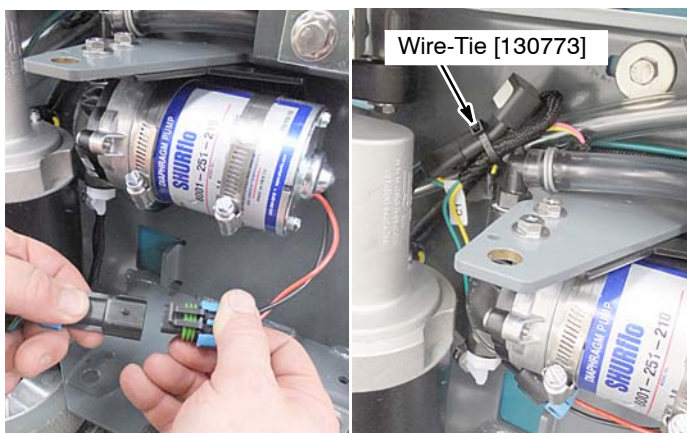
4. Cut the solenoid valve solution hose as described. Using T-fitting and 3 wire clamps, connect the ec-H2O pump hose to the cut hose as shown (Figure 41).

**Fig. 41**

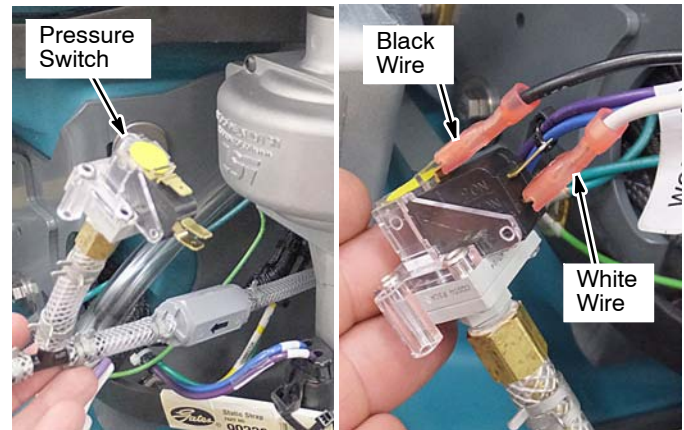
5. Route ec-H2O wire harness pump connector up over the transaxle motor towards the new ec-H2O pump. Connect the capacitor plug to harness (Figure 42).

**Fig. 42**

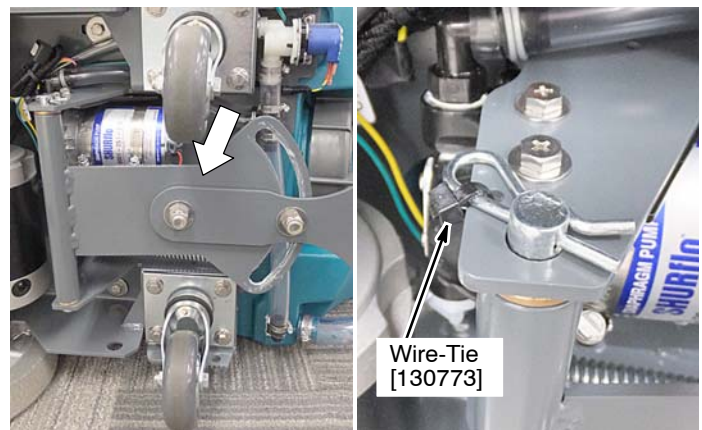
6. Plug the ec-H2O wire harness into the ec-H2O pump connector. Secure the wire harness and capacitor plug with a wire-tie as shown (Figure 43).

**Fig. 43**

7. Connect the black and white wires from ec-H2O harness to pressure switch as shown (Figure 44).

**Fig. 44**

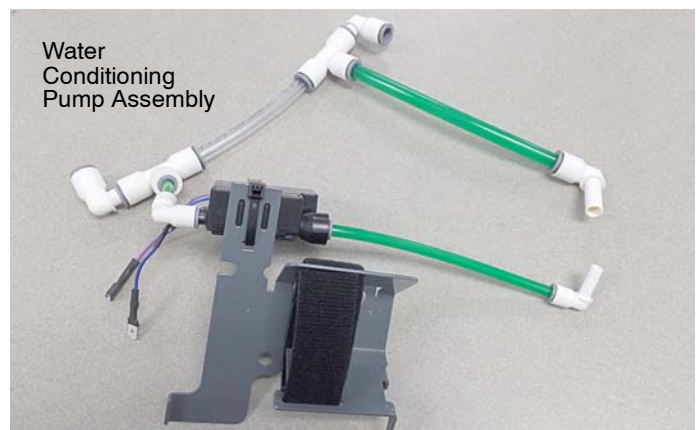
8. Replace the squeegee mount bracket and re-secure clevis pin with wire-tie (Figure 45).

**Fig. 45**

9. With assistance, carefully stand the machine upright.

## INSTALL ec-H2O WATER CONDITIONING PUMP ASSEMBLY:

1. Install the ec-H2O water conditioning pump assembly as described in following steps (Figure 46).

**Fig. 46**



- If installing the kit on a Cylindrical Brush Model, replace the Disk Model cartridge bracket with the Cylindrical Brush cartridge bracket as shown (Figure 47). Transfer velcro strap and attach pump to bracket using wire-tie [130773].

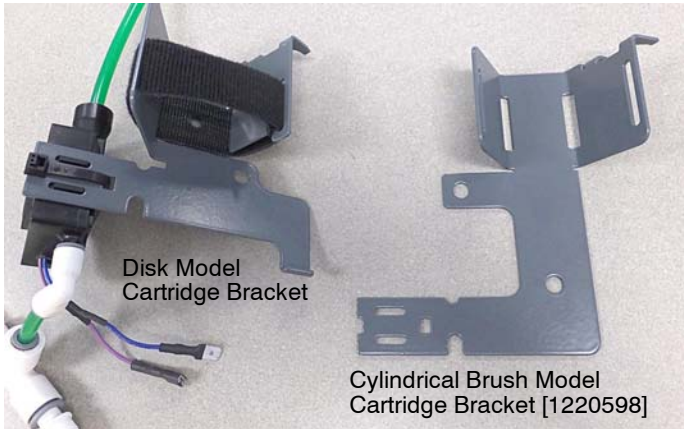


Fig. 47

- Route two wire-ties in scrub head bracket, both sides of bracket, as shown (Figure 48).  
Using two M6 Hex screws, mount the water conditioning pump assembly to scrub head bracket as shown (Figure 48).

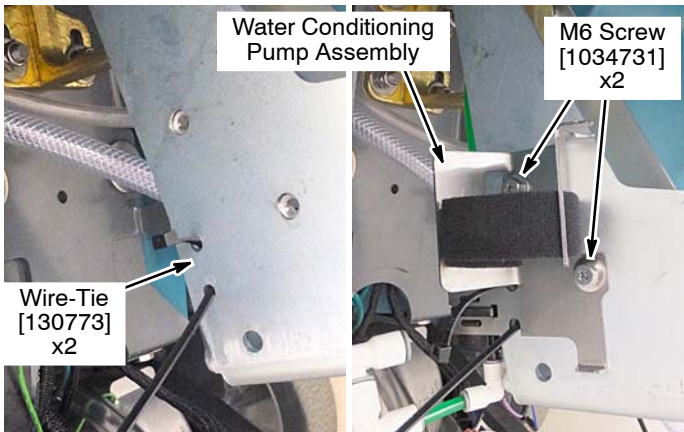


Fig. 48

- Connect the clear hose from the ec-H2O module to the water conditioning pump assembly as shown (Figure 49). Connect the braided hose from the ec-H2O pump hose assembly to the water conditioning pump assembly as shown (Figure 49).

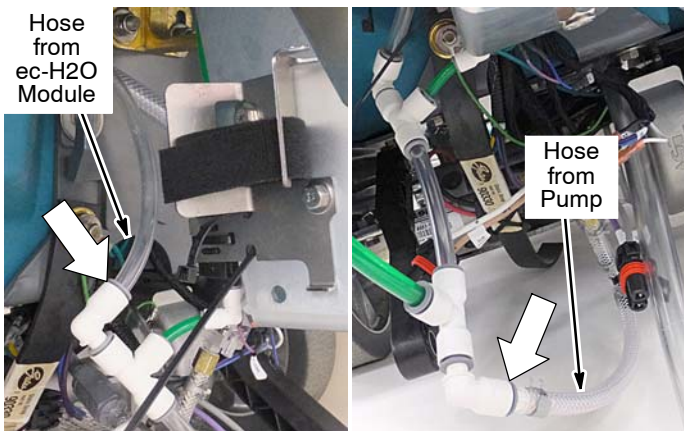


Fig. 49

- Connect the purple and blue wires from the ec-H2O harness to the Water Conditioning Cartridge Pump as shown (Figure 50).

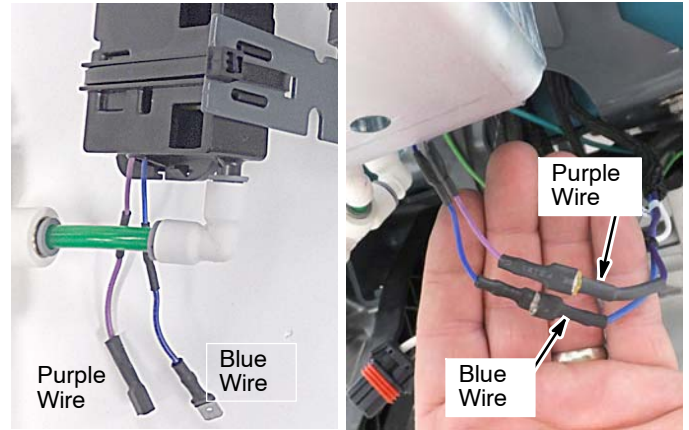
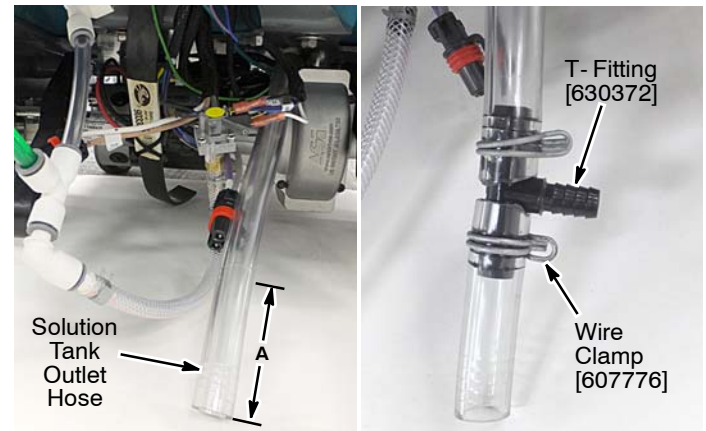


Fig. 50

### RE-INSTALL SCRUB HEAD:

- Cut the machine's solution tank outlet hose as specified. Install T- Fitting using two wire clamps as shown (Figure 51).



A =	Scrub Head Type
2 in / 5.1 cm	600mm Disk
3 in / 7.6 cm	700mm Disk
4 in / 10.1 cm	800mm Disk
15.5 in / 39.4 cm	Cylindrical Brush

Fig. 51



2. Cylindrical Brush Model: Move the hose clamp on scrub head to the opposite side as shown (Figure 52).

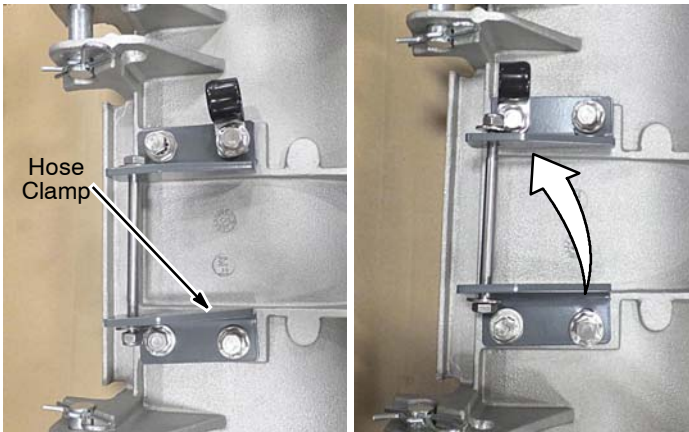
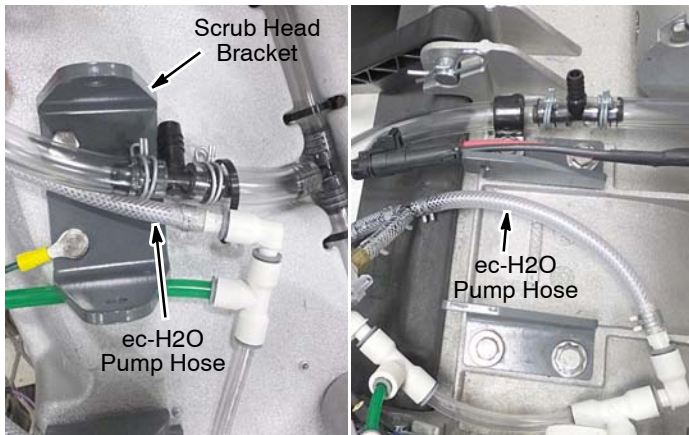


Fig. 52

3. When reinstalling scrub head, position the ec-H2O pump hose between the scrub head bracket as shown (Figure 53).

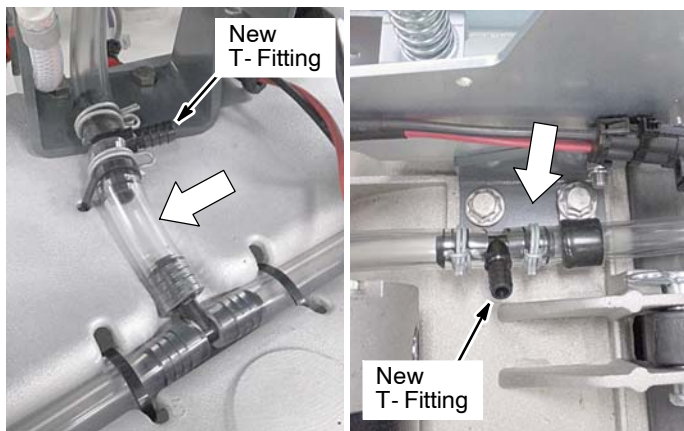


Disk Model

Cylindrical Brush Model

Fig. 53

4. Reconnect the solution tank outlet hose to scrub head as shown (Figure 54).



Disk Model

Cylindrical Brush Model

Fig. 54

5. Secure the two brush motor connectors with the pre-installed wire-ties as shown. Disk Model: Secure the swing arm connector pins with wire-ties as shown (Figure 55)

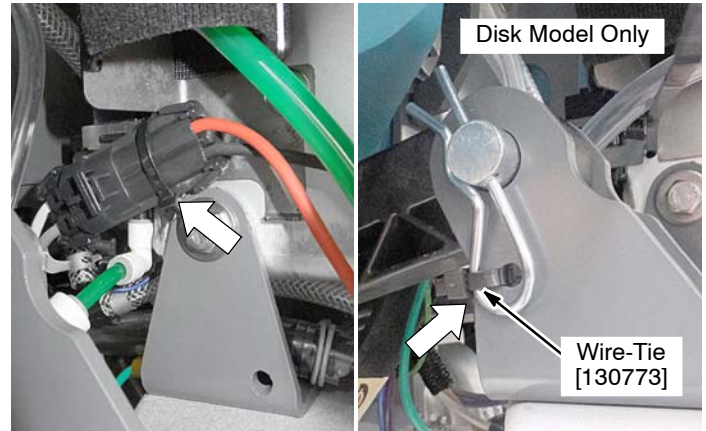


Fig. 55

6. **Disk Model:** Route the ec-H2O module outlet hose to the new T-fitting as shown (Figure 54). Using wire clamp, connect hose to T-fitting (Figure 56).

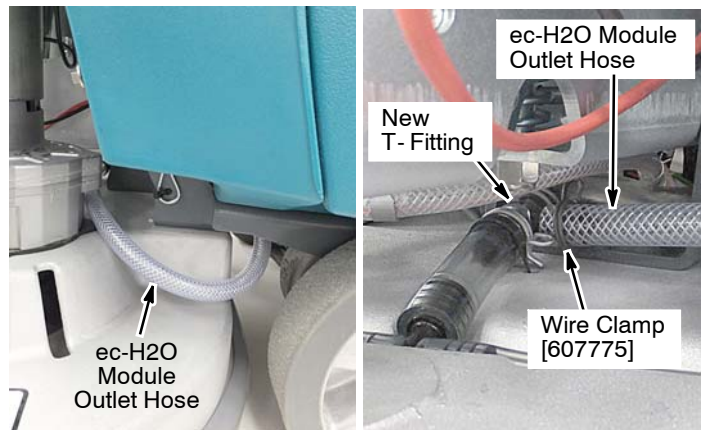


Fig. 56

- Cylindrical Brush Model:** Route the ec-H2O module outlet hose to new T-fitting as shown (Figure 54). Using wire clamp, connect hose to T-fitting (Figure 57).

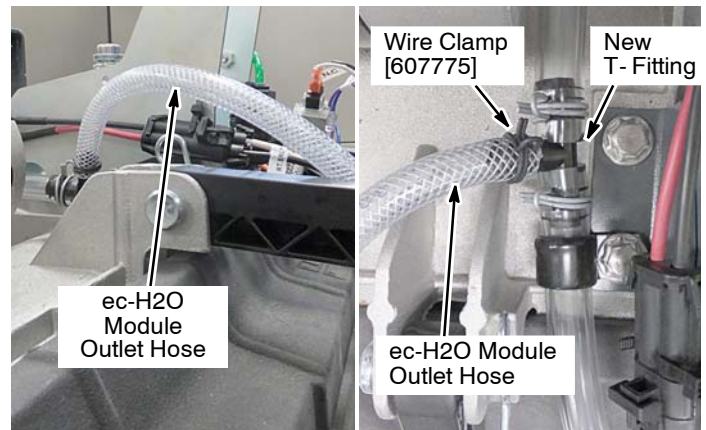


Fig. 57



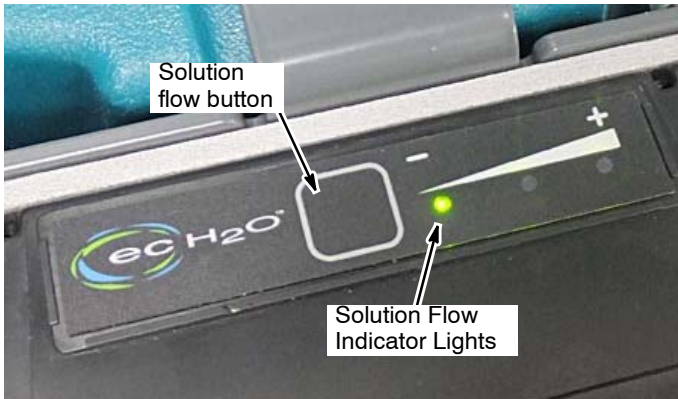
## PROGRAM THE ec-H2O MODULE:

### Set Machine Configuration:

Refer to table for proper configuration.

1. Turn key to the on position.
2. To view the current machine configuration, press and hold the solution flow button. Release the button when **LEFT** solution flow indicator light turns on, approximately in 4 seconds (Figure 58). When the button is released, the solution flow indicators will blink the current machine configuration for 10 seconds (see Table). After the 10 second window, the lights will revert back to normal operation. Repeat step to re-enter program.

**Attention:** If you hold the solution flow button too long, you may enter the firmware mode. To exit from this mode, press the solution flow button and repeat step 2.



Solution Flow Indicator Lights (Machine Configuration)	Machine/Scrub Head Size
★ ★ ●	T5/T5e/A5 (600/650mm)
● ● ★	T5/T5e/A5 (700/800mm)
★ ● ★	T7
★ ● ●	5680/5700/XP (900mm)
● ★ ●	5680/5700/XP (700mm/800mm)

Fig. 58

3. To change the machine configuration, repeat step 2. While the indicator lights are blinking (within the 10 second window), press the solution flow button to cycle through the machine configurations as shown in Table (Figure 58). Each press will advance to next setting. After selecting the desired setting, wait 5 seconds for module to save setting and revert back to normal operation.
4. Turn key to the OFF position.

## 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, provided 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 59).

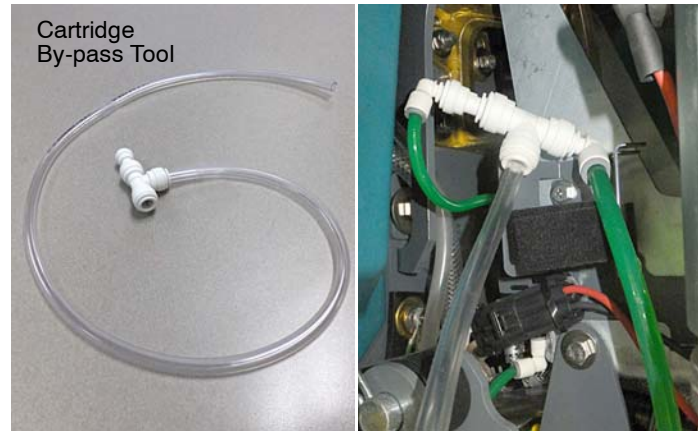


Fig. 59

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 LED's on the module flash on for one second and then turn off, followed by displaying the current flow rate setting (Figure 60).



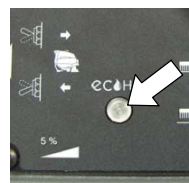
Fig. 60

4. Press the ec-H2O system switch to the on (I) position (Figure 61).



Fig. 61

5. The ec-H2O system indicator light will turn on when the machine starts scrubbing (Figure 62).



### ec-H2O System Indicator Light

Solid Green Light = Normal operation

Solid or blinking Red Light = System fault  
Check all ec-H2O wire harness connections and refer to Service Manual.

Fig. 62



6. Operate the ec-H<sub>2</sub>O module in Manual Mode (See NOTE below). Verify that the ec-H<sub>2</sub>O system is putting water on the floor at the scrub head and at the By-Pass Tool hose.
7. Check all ec-H<sub>2</sub>O system hose connections for water leaks.

**NOTE:** To enter the module's Manual Mode, depress and hold the service switch for 20 seconds and release (Figure 63). The first and third green LEDs will alternate on and off indicating that you are in the Manual Mode and the ec-H<sub>2</sub>O 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.

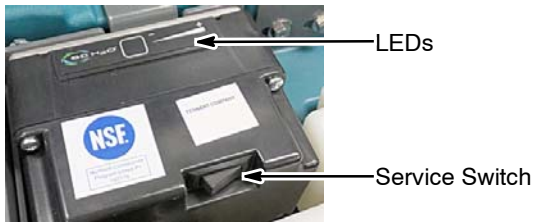


Fig. 63

8. After checking machine for proper operation or possible leaks, drain all tanks and vacuum out any residual water. With the ec-H<sub>2</sub>O module in Manual Mode, attach the hose from the By-pass Tool to a vacuum unit and vacuum out any remaining water from module.
9. 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-H<sub>2</sub>O WATER CONDITIONING CARTRIDGE:

1. 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.
2. Fill in the installation date on the Water Conditioning Cartridge label (Figure 64).



Fig. 64

3. Remove the two plugs from cartridge. Press the gray collars inward and pull plugs outward to remove (Figure 65). Position the cartridge in the cartridge holder bracket as shown, secure with Velcro-strap and connect green hoses to cartridge (Figure 65). Make sure the hose connectors are fully inserted.

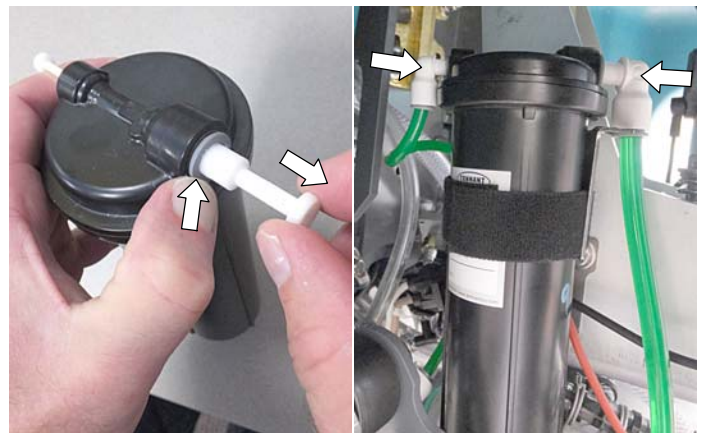


Fig. 65

4. Replace the front shroud on machine (Figure 66).



Fig. 66

## Set Timer for Water Conditioning Cartridge:

Carefully read and understand the following steps before performing procedure.

1. Turn key to the on position (Figure 67).
  2. 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 1<sup>st</sup> and 3<sup>rd</sup> lights will alternate on and off. If this happens, press and release the service switch and repeat step 2.
3. Within 5 seconds after releasing the service switch, while the three indicator lights are still moving back and forth (ripple), press the quickly release the solution flow button located on ec-H<sub>2</sub>O module.
  4. The indicator lights will then blink three times to confirm timer has been set. Repeat process if the three indicator lights do not blink three times.

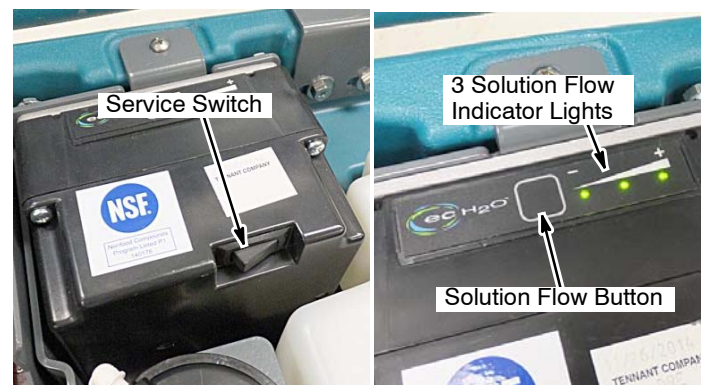


Fig. 67

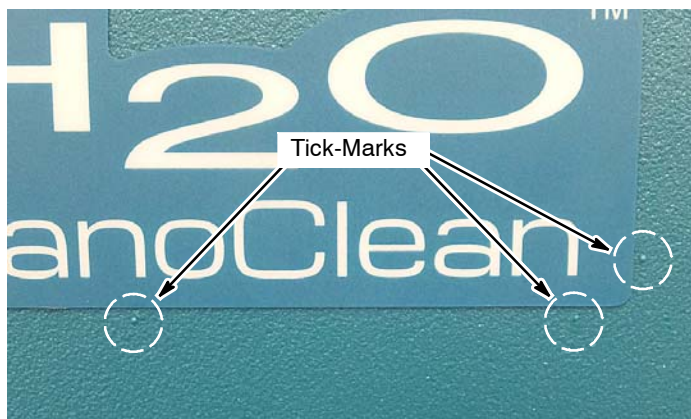


## INSTALL ec-H<sub>2</sub>O NanoClean LABELS

Apply the new ec-H<sub>2</sub>O NanoClean labels on machine as described below (Figure 68).



T5e model: ec-H<sub>2</sub>O NanoClean Label [1216520] Qty 2  
A5 model: ec- H<sub>2</sub>O NanoClean Label [1216533] Qty 2



To properly position labels, align label with tick-marks in rotomold tank.

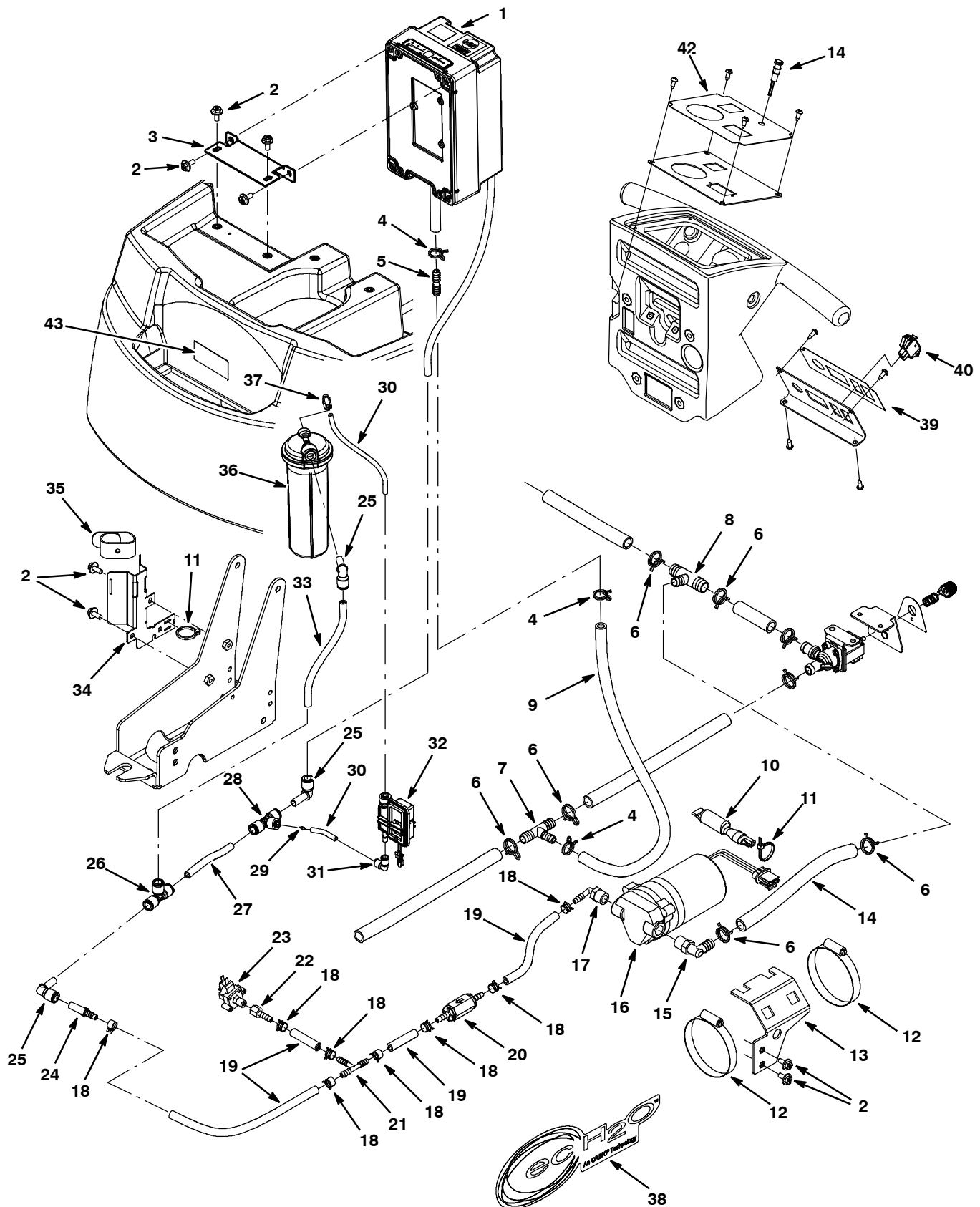


Attention, Solution Fill, ec-H<sub>2</sub>O Label [1050003]

**Fig. 68**



## T5e/A5 ec-H2O NanoClean Affiliate Kit Parts List





**T5e/A5 ec-H2O NanoClean Affiliate Kit Parts List**

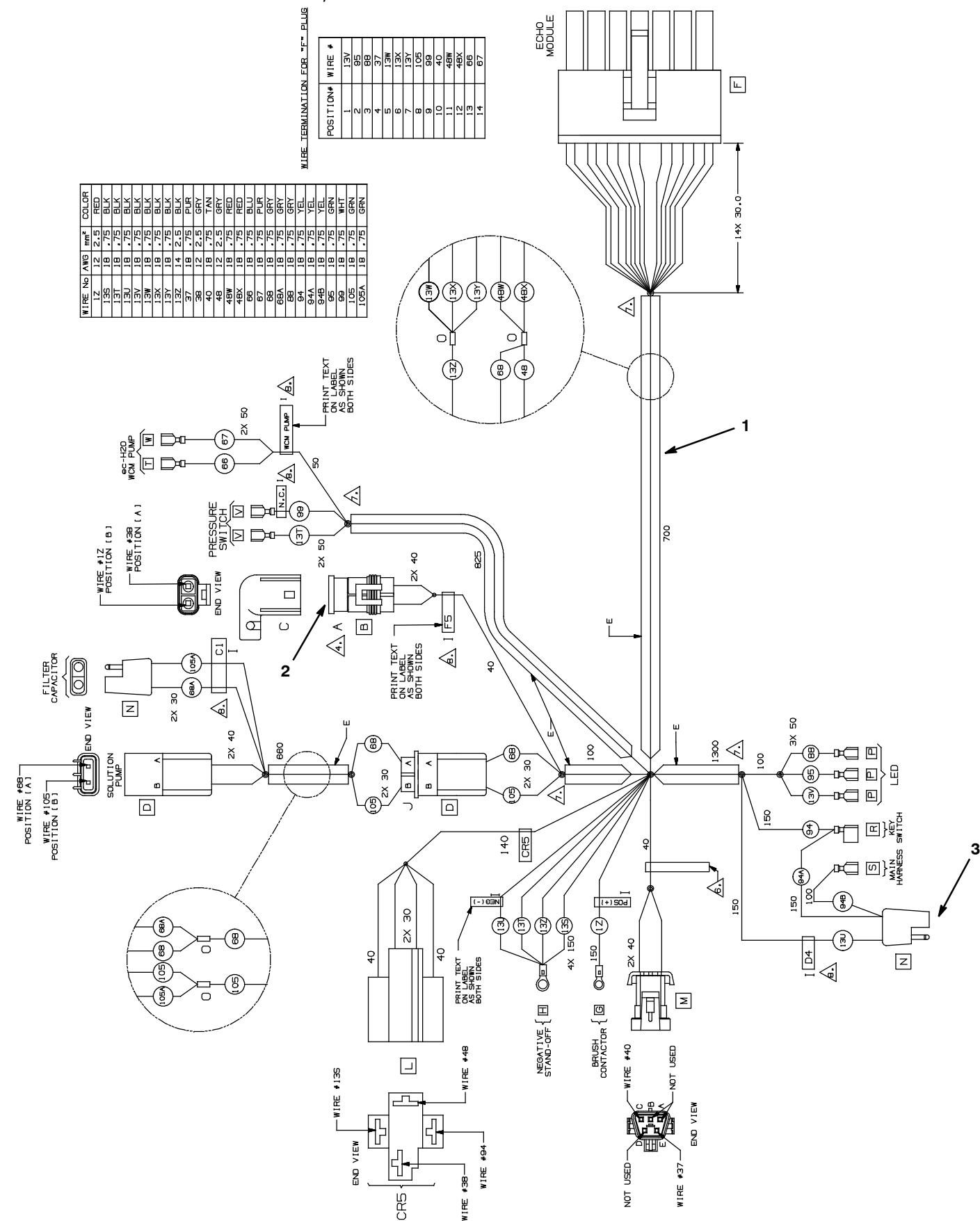
Ref.	Part No.	Description	Qty.
1	9011810	Module Kit, Replmt [Ec- H2o, B 02] (See Breakdown)	1
2	1034731	Screw, Hex, M6 X 1.00 X 16, Sems, Ss	8
3	1040881	Bracket, Mtg, Martini [T5]	1
4	607775	Clamp, Hose, Wir, .63 - .66, Blk	3
5	20950	Fitting, Plstc, Str, Bm06/Bm06	1
6	607776	Clamp, Hose, Wir, .73 - .77, Silver	6
7	630372	Fitting, Plstc, Tee, Bm06/Bm08/Bm08, Br	1
8	63245- 1	Fitting, Plstc, Tee, Bm08/Bm08/Bm08	1
9	1006400	Hose, Afrmkt, Pvc, Brd, 0.38id, 03ft, Clr	1
10	1040868	Capacitor, Plug [.01 Uf, 200v]	1
11	130773	Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	12
12	43555	Clamp, Hose, Wormdrive, 2.62- 3.50d	2
13	1023463	Bracket, Mtg, Pump [T5]	1
14	613521	Hose, Pvc, Cir, 0.5010, 0.75 od, 012.01	1
15	1017532	Fitting, Plstc, E90, Bm08/Pm06	1
16	1042495	Pump, Soltn, Ele, 24vdc, 35psi	1
17	150417	Fitting, Plstc, E90, Bm04/Pm06	1
18	603654	Clamp, Hose, Ear, .44d [Ctb]	8
19	9014210	Hose, Afrmkt. Pvc, Brd .25id .44od, 05ft	1
20	1216878	Valve, Check, 0001psi Bm04/Bm04	1
21	150713	Fitting, Plstc, Tee, Bm04/Bm04/Bm04	1
22	150520	Fitting, Brs, Str, Bm04/Pf02	1
23	1044414	Switch, Press, 15psi, Pm02	1
24	1212857	Fitting, Plstc, Str, Qm06/Bm04	1
25	1215186	Fitting, Plstc, E90, Qf06/Qm06	3
26	1212573	Fitting, Plstc, Tee, Qf06/Qf06/Qf06	1
27	1014987	Hose, Afrmkt, Pvc, Clr, 0.25id, 01ft	1
28	1212855	Fitting, Plstc, Tee, Qf04/Qf06/Qf06	1
29	1214972	Fitting, Orifice, Str, Bm01/Bm/01	1
30	9014211	Hose, Afrmkt, Pvc, Grn .06id .25od, 02ft	1
31	1217763	Fitting, Plstc, E90, Qf04/Qf04	1
32	1216973	Pump Assy, Dispenser	1
33	9014212	Hose, Afrmkt, Pvc, Grn 0.06id .38od, 02ft	1
34	1215755	Bracket, Mtg, Ec- H2O Wcm [T5 Disk]	1
34	1220598	Bracket, Mtg, Ec- H2O Wcm [T5 Cyl]	1
35	1059534	Fastener, 09.00l [Hook & Loop]	1
36	9013646	Cartridge, Ec- H2o Nanoclean Wcm, 270ml	1
37	1214339	Fitting, Plstc, E90, Qfo4/Qm04	1
38	1216520	Label, Logo [Ech2o Nano Tennant T5e]	2
38	1216533	Label, Logo [Ech2o Nano Alfa A5]	2
39	1050011	Label, Console, Lower, Ec- H2o [T5e/Ss5]	1
40	130787	Switch, Rocker, Spdt (Optional)	1
41	1041822	Light, Led, .312D, 5 Volt [Tri- Color] (ec-H2O Model)	1
42	1050010	Label, Console, Upper Ec- H2o [T5e/Ss5]	1
43	1050003	Label, User, Attention, Ec- H2o	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY



## T5e/A5 ec-H2O NanoClean Wire Harness



Ref.	Part No.	Description	Qty.
▽	1	1074376 Harness Assy, Wire [T5e/A5 Ec- H2o G2]	1
▲	2	1047470 Fuse, Blade, 010a, 32vdc, Red	1
	3	222290 Diode, Ele, Plug	1

The diagram illustrates the 12VDC electrical system, starting with the ONBOARD CHARGER (F1, 100 AMP) connected to the main power line (RED). The main power line passes through a CHARGER FLUG (13B BLK) and a CHARGER SAFETY SWITCH (F2, 30 AMP) before reaching the CONTROL BOARD. The CONTROL BOARD is connected to various components, including the PROPEL MOTOR (M4), SOLUTION VALVE, and BATTERY DISCHARGE INDICATOR. The diagram also shows the connections for the VACUUM SWITCH (SQUEEGEE LEVER ACTUATED), DIRECTION SWITCH, RECOVERY TANK PROPEL INTERLOCK SWITCH, and SPEED CONTROL POTENTIOMETER. The system is grounded to the chassis (BLK).

**Legend:**

- 1. 12VDC
- 2. 12VDC
- 3. 12VDC
- 4. 12VDC



## T5e/A5 ELECTRICAL DIAGRAM

