



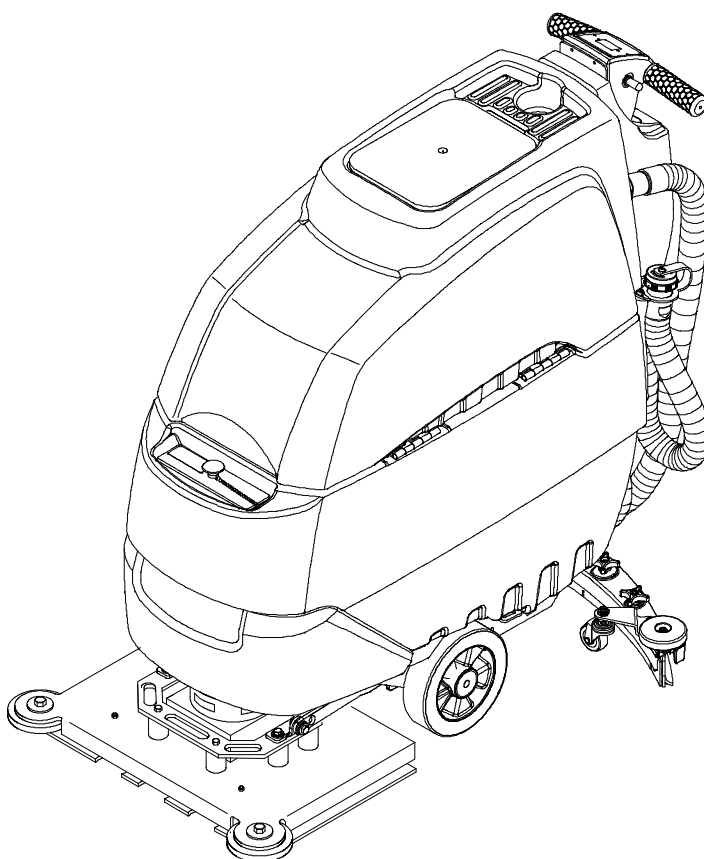
Model Part No:
9010476 Conventional Scrubber
9010475 ec-H2O Scrubber

SPEED SCRUB® ORBITAL

AUTOMATIC SCRUBBER



OPERATOR MANUAL



www.nobles.com/manuals

9010343
Rev. 00 (12-2012)



OPERATION

INTRODUCTION

This manual is furnished with each new model. It provides necessary operation and maintenance instructions.

Read this manual completely and understand the machine before operating or servicing it.

This machine will provide excellent service. However, the best results will be obtained at minimum costs if:

- The machine is operated with reasonable care.
- The machine is maintained regularly - per the machine maintenance instructions provided.
- The machine is maintained with manufacturer supplied or equivalent parts.

Parts and supplies may be ordered online, by phone, by fax or by mail.



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, old machine components, and fluids in an environmentally safe way according to local waste disposal regulations.



Always remember to recycle.

INTENDED USE

This walk behind orbital scrubber is intended for commercial use, for example in hotels, schools, hospitals, factories, shops, offices, and rental businesses. It is designed to scrub floors in an indoor environment and is not constructed for any other use. Use only recommended pads and commercially available floor cleaners intended for machine application. Do not use flammable liquids with this machine. This machine is not intended for cleaning carpets or sanding wood floors.

Tennant Company

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Specifications and parts are subject to change without notice.

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MACHINE DATA

Please fill out at time of installation for future reference.

Model No. - _____

Serial No. - _____

Machine Options - _____

Sales Rep. - _____

Sales Rep. phone no. - _____

Customer Number - _____


Installation Date - _____

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SAFETY PRECAUTIONS

The following warning alert symbol and the “FOR SAFETY” heading are used throughout this manual as indicated in their description:

 **WARNING:** To warn of hazards or unsafe practices which could result in severe personal injury or death.

FOR SAFETY: To identify actions which must be followed for safe operation of equipment.

The following safety precautions signal potentially dangerous conditions to the operator or equipment. All operators must read, understand and practice them.

 **WARNING: Fire Or Explosion Hazard:**

- Never Use Flammable Liquids Or Operate Machine in Or Near Flammable Liquids, Vapors Or Combustible Dusts.

This machine is not equipped with explosion proof motors. The electric motors will spark upon start up and during operation which could cause a flash fire or explosion if machine is used in an area where flammable vapors/liquids or combustible dusts are present.

- Do Not Pick Up Flammable Materials Or Reactive Metals.
- Batteries Emit Hydrogen Gas. Keep Sparks And Open Flame Away. Keep Battery Compartment Open When Charging.

 **WARNING: Electrical Hazard**

- Disconnect Battery Cables and Charger Plug Before Servicing Machine.
- Do Not Charge Batteries with Damaged Power Supply Cord. Do Not Modify Plug.

If the charger supply cord is damaged or broken, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

FOR SAFETY:

1. Do not operate machine:
 - With flammable liquids or near flammable vapors as an explosion or flash fire may occur.
 - Unless trained and authorized.
 - Unless operator manual is read and understood.
 - If not in proper operating condition.
 - Unless mentally and physically capable of following machine instructions.
 - In areas that are too dark to safely see the controls or operate the machine.
2. Before starting machine:
 - Check machine for fluid leaks.
 - Make sure all safety devices are in place and operate properly.
3. When using machine:
 - Go slow on inclines and slippery surfaces.
 - Wear non-slip shoes.
 - Reduce speed when turning.
 - Report machine damage or faulty operation immediately.
 - Never allow children to play on or around.
 - Do not operate on inclines that exceed 5%.
 - Follow mixing, handling and disposal instructions on chemical containers.
 - Follow safety guidelines concerning wet floors.
4. Before leaving or servicing machine:
 - Stop on level surface.
 - Turn off machine.
 - Set parking brake, if equipped.
 - Remove key.
5. When servicing machine:
 - Avoid moving parts. Do not wear loose clothing, jewelry and secure long hair.
 - Disconnect battery connections before working on machine.
 - Wear protective gloves and eye protection when handling batteries or battery cables.
 - Avoid contact with battery acid.
 - Wear protective gloves and eye protection when handling white vinegar.
 - Do not power spray or hose off machine. Electrical malfunction may occur.
 - All work must be done with sufficient visibility and lighting.

OPERATION

- Wear personal protection equipment as needed and where recommended in this manual.
- Wear a dust mask, protective glasses and gloves in dusty environments.
- Keep work area well ventilated.
- Use manufacturer supplied or approved replacement parts.
- All repairs must be performed by a qualified service person.
- Do not modify the machine from its original design.

6. When transporting machine by use of truck or trailer:
 - Drain tanks before loading.
 - Use a ramp that can support the machine weight and person loading it. Do not exceed a 15% ramp incline at a ramp length of 12 ft (3.7m).
 - Turn machine off.
 - Put scrub head in the lowered position.
 - Block machine wheels.
 - Use tie-down straps to secure machine.
 - Set parking brake, if equipped.

SAFETY LABELS

The safety labels appear on the machine in the locations indicated. Replace labels if they are missing or become damaged or illegible.

WARNING LABEL - Located on recovery tank cover.

⚠ WARNING	
  	
EXPLOSION, FIRE AND SHOCK HAZARD. AVOID INJURY. <ul style="list-style-type: none">• Do Not Use or Pick Up Flammable Materials.• Do Not Use Near Flammable Liquids, Vapors or Combustible Dusts.• Disconnect Battery Cables and Charger Cord Before Servicing.• Keep Sparks and Open Flame Away When Charging Batteries. Keep Battery Compartment Propped Open When Charging.	
⚠ AVERTISSEMENT	
RISQUE D'EXPLOSION, D'INCENDIE ET DE DÉCHARGE. ÉVITEZ LES BLESSURES. <ul style="list-style-type: none">• N'utilisez Pas ou Ne Ramassez Pas de Matériaux Inflammables.• N'utilisez Pas Près de Liquides, Vapeurs ou Poussières Inflammables.• Débranchez les Câbles de Batterie et la Cordon du Chargeur Avant l'Entretien.• Éloignez les Sources d'Étincelles ou de Flamme Ouverte Lors du Chargement des Batteries. Laissez Ouvert le Compartiment des Batteries Pendant la Mise en Charge.	
⚠ ADVERTENCIA	
PELIGRO DE EXPLOSIÓN, FUEGO, DESCARGA EVITE LESIONES. <ul style="list-style-type: none">• No Use Ó Recoja Materiales Flammables.• No Use Cerca De Líquidos Flammables, Vapores Ó Materiales Combustibles.• Desconecte Cable De Batería Y Cable Del Cargador Antes Del Mantenimiento.• Mantenga Chispas Y Fuego Alejados Mientras Carga Baterías. Mantenga el Compartimento De La Batería Abierto Mientras Realiza La Operación De Carga.	
⚠ 警告	
爆発、火災、またはショックの危険！ 怪我に注意！ <ul style="list-style-type: none">• 引火性物質を使用したり吸引をしないでください。• 可燃性液体、引火性気体、または粉塵の近くでは、使用しないでください。• 本機の点検整備をするときはバッテリーのケーブルと充電器のコードを外してください。• バッテリーを充電するときには、火花や炎を近づけないでください。• 充電するときは、バッテリールームを開けたままにしてください。	
1036679	

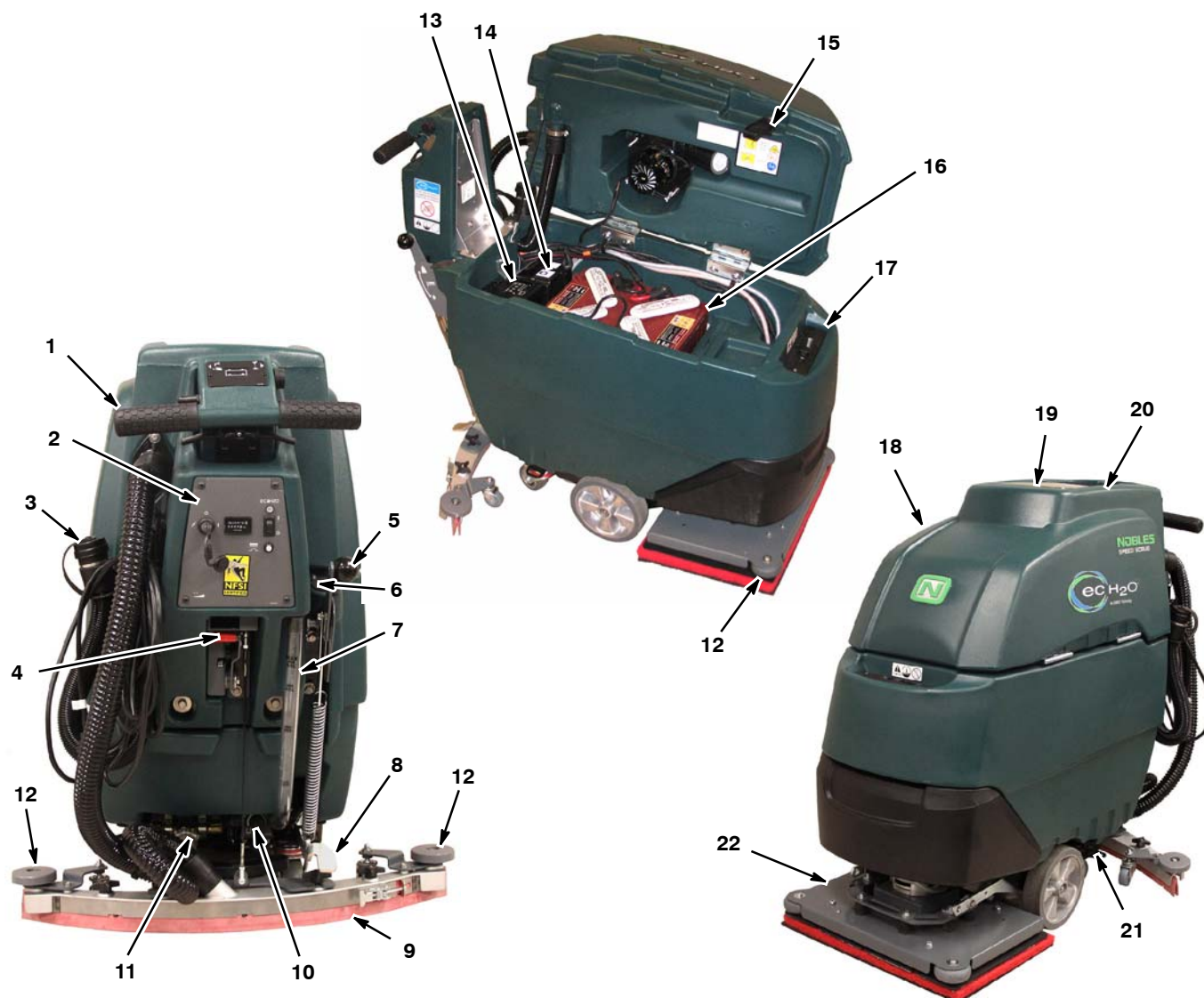


BATTERY CHARGE LABEL -

Located on bottom side of recovery tank.

⚠ WARNING: Fire Or Explosion Hazard. Batteries Emit Hydrogen Gas. Keep Sparks And Open Flame Away. Keep Battery Compartment Open When Charging.

MACHINE COMPONENTS

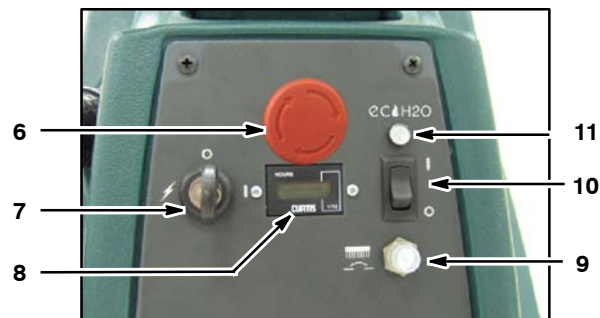
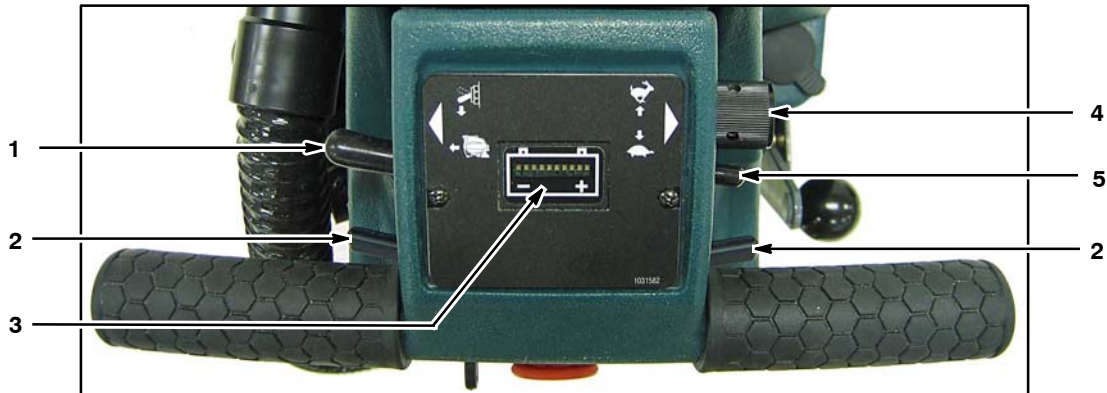


1. Adjustable Control Handle
2. Control Console Panel
3. Recovery Tank Drain Hose
4. Squeegee Lift Lever
5. Down Pressure Lever
6. Hose Fill-Port
7. Solution Tank Sight Gauge/Drain Hose
8. Scrub Head Lift Pedal
9. Squeegee Assembly
10. Solution Flow Control Knob
11. Solution Tank filter
12. Wall Rollers

13. On-Board Battery Charger
14. *ec-H2O* System Module (*ec-H2O* Model)
15. Recovery Tank Support Stand
16. Batteries
17. Solution Tank/Bucket Fill Port
18. Recovery Tank
19. Recovery Tank Cover
20. Cup Holder
21. Parking Brake (option)
22. Scrub Head

OPERATION

CONTROL PANEL COMPONENTS



- | | |
|--|---|
| 1. Reverse Trigger | 7. Main Power On/Off Key Switch |
| 2. Start Triggers | 8. Hour Meter |
| 3. Battery Meter | 9. Pad Motor Circuit Breaker Button |
| 4. Speed Control Knob | 10. <i>ec-H2O</i> System On/Off Switch (<i>ec-H2O</i> Model) |
| 5. Control Console Height Adjustment Lever | 11. <i>ec-H2O</i> System Indicator Light (<i>ec-H2O</i> Model) |
| 6. Emergency Stop Button (option) | |

MACHINE INSTALLATION

UNCRATING MACHINE

1. Carefully check the shipping crate for signs of damage. Report damages at once to carrier.
2. Check the contents list. Contact distributor for missing items.
Contents:
 - 2-12 V Batteries - Optional
 - 24V Battery Charger - Optional
 - 3-Foam Battery Spacers (#630375)
 - Battery Tray (#1012994)
 - 15 in / 38 cm Battery Cable (#130364)
 - 4-Battery Cable Rubber Boots
 - Squeegee Assembly (#9001178)
3. To uncrate your machine, remove the shipping hardware and straps that secure the machine to the pallet. With assistance, carefully lift the machine off the pallet.

ATTENTION: Do not roll machine off pallet unless a ramp is used, machine damage may occur.

ATTENTION: To prevent possible machine damage, install batteries after removing machine from shipping pallet.

INSTALLING BATTERIES

⚠ WARNING: Fire Or Explosion Hazard. Batteries Emit Hydrogen Gas. Keep Sparks And Open Flame Away. Keep Battery Hood Open When Charging.

FOR SAFETY: When servicing machine, wear protective gloves and eye protection when handling batteries and battery cables. Avoid contact with battery acid.

Recommended Battery Specifications:

Two 12 volt deep cycle lead acid batteries.

155 AH battery - 20 in / 50cm

Maximum battery dimensions: 6.85 in / 174 mm W x 15 in / 380 mm L x 11.18 in / 284 mm H.

1. Park the machine on a level surface, remove the key and set the parking brake if equipped.
2. Lift the recovery tank to access the battery compartment (Figure 1).



FIG. 1

3. Carefully install the batteries into the battery compartment tray and arrange the battery posts as shown (Figure 2). Insert the foam spacers as shown.
4. Connect the battery cables to the battery posts as shown (Figure 2). RED TO POSITIVE (+) and BLACK TO NEGATIVE (-).

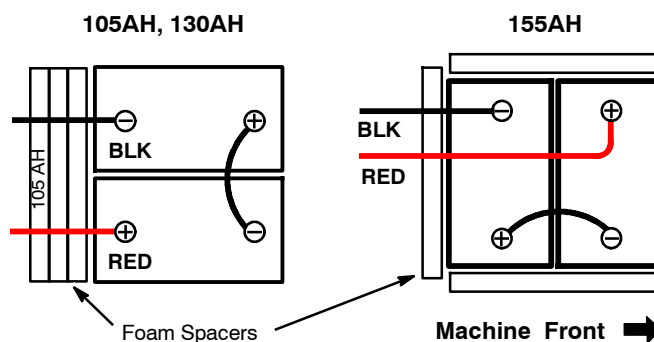


FIG. 2

IMPORTANT: Make sure that the charger is properly set for your battery type before charging (See USING THE ON-BOARD BATTERY CHARGER on page 16).

HOW THE MACHINE WORKS

Conventional Scrubbing:

Water and detergent from the solution tank flow to the floor through a manually controlled solution valve. The pad uses the detergent and water solution to scrub the floor clean. As the machine moves forward, the squeegee wipes the dirty solution from the floor into the recovery tank.

ec-H2O Scrubbing (ec-H2O Model):

(ec-H2O—electrically converted water)

Normal water passes through a module where it is oxygenated and charged with an electric current. The electrically converted water changes into a blended acidic and alkaline solution forming a neutral pH cleaner. The converted water attacks the dirt, breaks it into smaller particles, and pulls it off the floor surface allowing the machine to easily scrub away the suspended soil. The converted water then returns to normal water in the recovery tank.

PAD INFORMATION

BACKER PAD (With Retaining Strips)

For best cleaning performance and to avoid damaging the pad driver plate or floor surface, always use backer pad (p/n 9010674) with work pads (Figure 3).

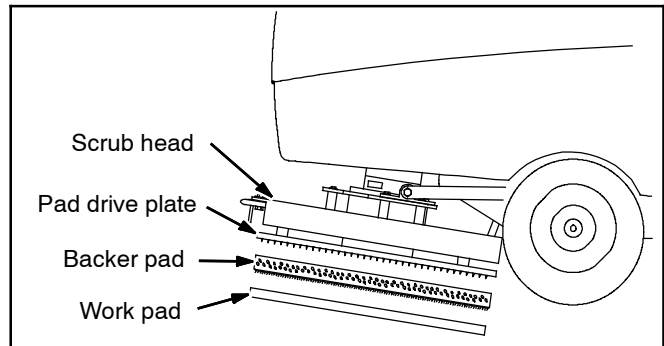


FIG. 3

WORK PADS

For best results, use the correct work pad type for the cleaning application. The following are recommended work pads.

Polishing Pad (White) - Used to maintain highly polished or burnished floors (p/n 1205512, 10 pack).

Buffing Pad (Red) - Used for light duty scrubbing without removing floor finish (p/n 1205513, 10 pack).

Scrubbing Pad (Blue) - Used for medium to heavy-duty scrubbing. Removes dirt, spills, and scuffs (p/n 1205514, 10 pack).

Surface Preparation Pad (Maroon) - Used for very aggressive chemical free removal of floor finish to prepare the floor for re-coating (p/n 1205515, 10 pack).

MACHINE SETUP

ATTACHING SQUEEGEE ASSEMBLY

1. Park the machine on a level surface, remove the key and set the parking brake if equipped.
2. Lift the squeegee lift lever to the upward position (Figure 4).



FIG. 4

3. Mount the squeegee assembly to the squeegee pivot bracket as shown (Figure 5). Make sure the knobs are completely seated into the slots before securing knobs.



FIG. 5

4. Connect the vacuum hose to the squeegee assembly. Loop the hose as shown using the hose clip provided (Figure 6).

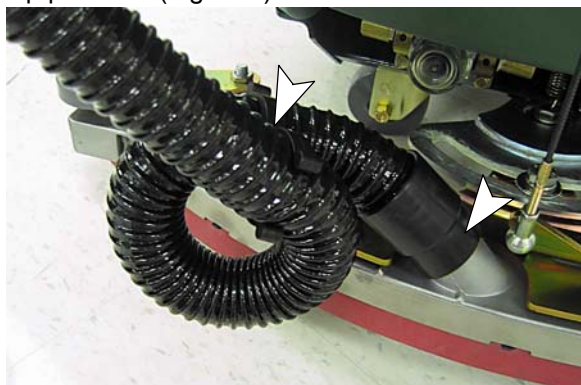


FIG. 6

5. Check the squeegee blades for proper adjustment (See *SQUEEGEE BLADE ADJUSTMENT* on page 22).

INSTALLING PAD

FOR SAFETY: Before installing pad, stop machine on level surface, remove key and set parking brake if equipped.

1. Park the machine on a level surface and remove the key.
2. Step down on the scrub head lift pedal to raise the scrub head off the floor (Figure 7).



FIG. 7

3. Align the backer pad with the four edges of the scrub head and install the backer pad onto the bottom of the scrub head (Figure 8).



FIG. 8

OPERATION

4. Install the work pad onto the backer pad (Figure 9).



FIG. 9

FILLING SOLUTION TANK

The machine is equipped with a hose fill-port at the rear of the machine, and a bucket fill-port located at the front of the machine (Figure 10).

Fill the solution tank to the “44 L MAX” level on the solution tank sight gauge (Figure 10).

For Conventional Scrubbing: Use hot water (60°C maximum). Pour a recommended cleaning detergent into the solution tank according to mixing instructions on the container.

FOR ec-H₂O SCRUBBING: Use cool clean water only (<21°C). Do not add any conventional floor cleaning detergents, system failure may result.



FIG. 10

NOTE: When filling the solution tank with a bucket, make sure that the bucket is clean. Do not use the same bucket for filling and draining the machine.

ATTENTION: For Conventional Scrubbing, only use commercially approved cleaning detergents. Machine damage due to improper detergent usage will void the manufacturer's warranty.

⚠ WARNING: Fire or Explosion Hazard.
Never Use Flammable Liquids.

FOR SAFETY: When using machine, follow mixing, handling and disposal instructions on chemical containers.

ADJUSTING CONTROL CONSOLE HEIGHT

Pull the control console height adjustment lever and lift or lower the console to a comfortable operating height. Release lever to lock in position (Figure 11).

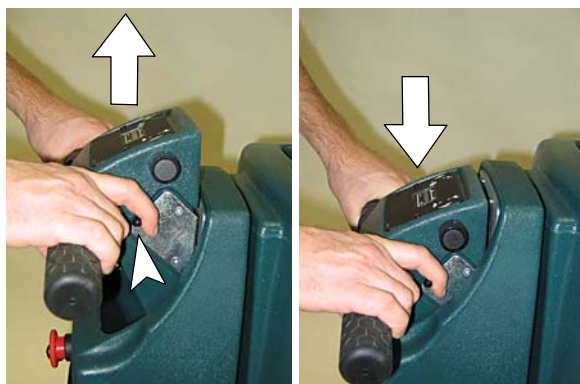


FIG. 11

MACHINE OPERATION

FOR SAFETY: Do not operate machine, unless operator manual is read and understood.

⚠ WARNING: Fire Or Explosion Hazard. Never Operate Machine In Or Near Flammable Liquids, Vapors Or Combustible Dusts.

PRE-OPERATION CHECKS

- ☐ Sweep and dust-mop the floor.
- ☐ Check the battery meter charge level (See BATTERY METER on page 14).
- ☐ Check the pad for wear.
- ☐ Check the squeegee blades for wear and proper adjustment.
- ☐ Make sure the recovery tank is empty and the float shut-off screen is installed and clean.
- ☐ Check the scrub head skirt for wear.
- ☐ **For ec-H2O Scrubbing:** Make sure the solution tank is filled with cool clean water only.
- ☐ **For ec-H2O Scrubbing:** Ensure that all conventional cleaning agents are drained and rinsed from solution tank.

STARTING THE MACHINE

1. Release the parking brake if equipped (Figure 12).
2. Turn the main power key switch to the on (I) position (Figure 12).



FIG. 12

3. **ec-H2O Model:** Press the ec-H2O system switch to the on (I) position (Figure 13).

NOTE: The ec-H2O system indicator light will not turn on until the machine starts scrubbing.

IMPORTANT: NEVER turn the ec-H2O system switch on when conventional scrubbing. Conventional cleaning detergents/restorers may cause failure to the ec-H2O solution system. Drain, rinse and refill solution tank with cool clean water before operating the ec-H2O system.



FIG. 13

OPERATION

- Lower the squeegee assembly to floor by lowering the squeegee lift lever (Figure 14). The vacuum motor will automatically turn on.

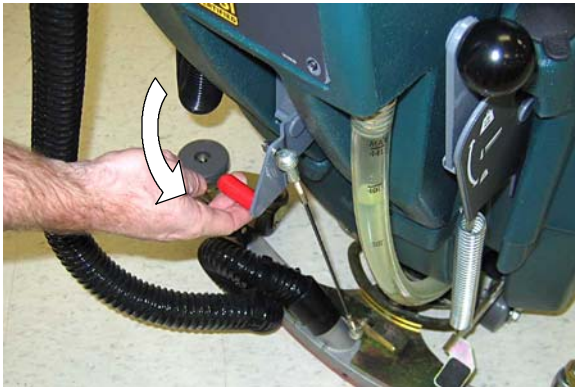


FIG. 14

- Lower the scrub head to the floor by stepping on the scrub head lift pedal as shown (Figure 15).



FIG. 15

- Pull the triggers to start scrubbing (Figure 16). The machine will begin to propel forward. Pull the reverse trigger to reverse the machine.

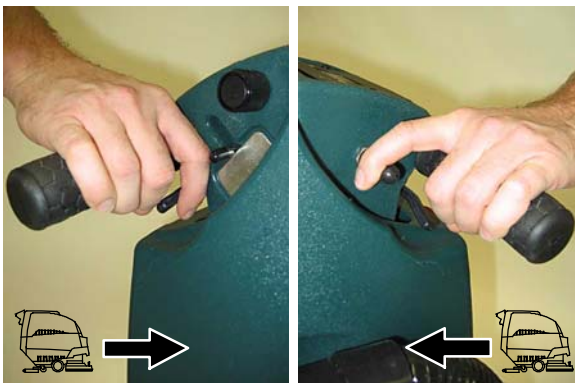


FIG. 16

- Adjust the speed control knob to a desired scrubbing speed (Figure 17).

NOTE: 45-60 meters per minute is the recommended scrubbing speed.



FIG. 17

- For conventional scrubbing, turn the solution flow control knob to a desired flow rate (Figure 18).

NOTE: For the ec-H2O models, the solution flow rate is fixed and requires no adjustment. The ec-H2O module has optional flow rate settings. If solution flow adjustments are required, contact an Authorized Service Center.



FIG. 18

- When more pad pressure is needed for heavily soiled areas simply lift the down pressure lever (Figure 19).



FIG. 19

- To stop scrubbing, release the triggers, raise the scrub head and the squeegee and turn the key to the off position.

EMERGENCY STOP BUTTON (OPTION)

Strike the emergency stop button, if equipped, in the event of an emergency (Figure 20). This button shuts off all power to machine. Turn the button clockwise and restart the key to regain power.

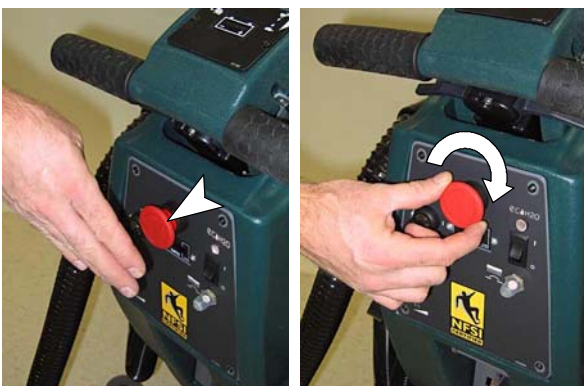


FIG. 20

WHILE OPERATING MACHINE

⚠ WARNING: Fire Or Explosion Hazard. Do Not Pick Up Flammable Materials Or Reactive Metals.

FOR SAFETY: When using machine, go slow on inclines and slippery surfaces. Wear non-slip shoes.

1. Overlap each scrubbing path by 2 in / 5 cm.
2. Keep the machine moving to prevent damage to floor finish.
3. Wipe the squeegee blades with a cloth if blades leave streaks. Pre-sweep the area to prevent streaking.
4. Do not operate the machine on inclines that exceed 5%.
5. Conventional scrubbing: Pour a commercially approved foam control solution into the recovery tank if excessive foam appears.

ATTENTION: Do not allow foam to enter the float shut-off screen, vacuum motor damage will result. Foam will not activate the float shut-off screen.

6. For heavily soiled areas, use the double scrubbing method. First scrub the area with the squeegee up, let solution set for 3-5 minutes, then scrub the area a second time with the squeegee down.
7. When leaving the machine unattended, remove the key and set the parking brake, if equipped.
8. If the machine detects a fault, the battery meter will blink a fault code (See BATTERY METER LED FAULT CODES on page 27).

9. **ec-H2O Model:** If an alarm sounds and the ec-H2O system indicator light begins to blink red, the ec-H2O module must be flushed to resume ec-H2O operation (See ec-H2O MODULE FLUSH PROCEDURE) (Figure 21).

NOTE: When the alarm sounds and the light blinks red, the machine will bypass the ec-H2O system. To continue scrubbing, turn the ec-H2O switch off and change over to conventional scrubbing.

ATTENTION: (ec-H2O model) Do not allow solution tank to run dry. ec-H2O module failure may result if operated without water for an extended period.



FIG. 21

ec-H2O SYSTEM INDICATOR LIGHT CODE	CONDITION
Solid green	Normal operation
Blinking red	Flush ec-H2O module
Solid red	Contact Service Center

7. Use caution when working near the tile cove (Figure 22) and floor mounted fixtures such as pedestal sinks and other breakable items. Keep the metal scrub head edge away to avoid possible damage to the cove and other breakable items.

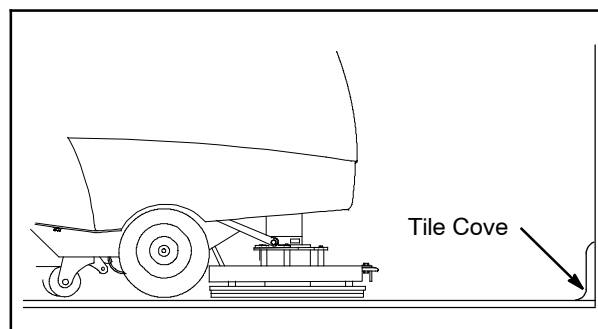


FIG. 22

OPERATION

BATTERY METER

The battery meter displays the charge level of the batteries. When the batteries are fully charged, all indicator lights will glow. As the batteries discharge, the indicator lights will begin to go out from right to left.

NOTE: To prolong the life of the batteries *ONLY* recharge the batteries when the machine is used for a total of 30 minutes or more.

When the discharge level reaches the last red light (Figure 23), stop scrubbing and recharge the batteries. If you continue to operate the machine beyond the first red light, the scrubbing function will automatically shut off when the last red light begins to blink. This protects the batteries from total discharge. Drive the machine to the charging area and recharge the batteries immediately.

NOTE: The battery meter also displays machine fault codes. If a fault is detected the LED bars will flash specific fault codes (See BATTERY METER LED FAULT CODES on page 29).

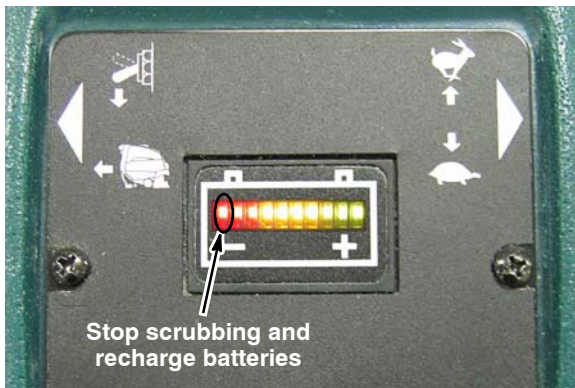


FIG. 23

CIRCUIT BREAKER / FUSES

The machine is equipped with a resettable circuit breaker to protect the pad motor from damage. The circuit breaker button is located on the control panel (Figure 24). If the circuit breaker should trip, determine the cause, allow the motor to cool, and then manually reset the circuit breaker button.

The machine is also equipped with three fuses located inside the control console: 30A Main fuse, 25A vacuum motor fuse, and a 10A *ec-H2O* pump fuse. When replacing a fuse never substitute a higher Amp rated fuse than specified.

Contact an Authorized Service Center for machine repairs.

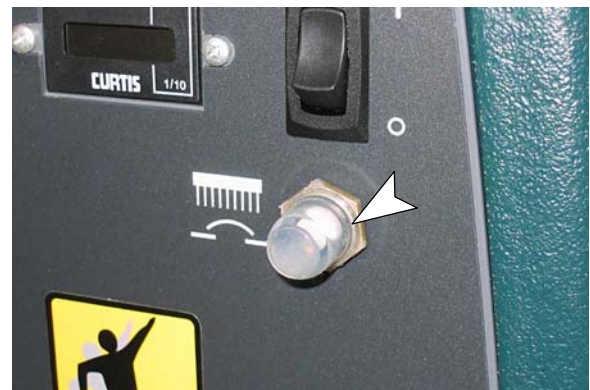


FIG. 24

HOUR METER

The hour meter records the number of total hours the motor has been powered on. Use the hour meter to determine when to perform recommended maintenance procedures and to record service history (Figure 25).



FIG. 25

DRAINING TANKS

After each use, the tanks should be drained and cleaned.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine and remove key.

DRAINING RECOVERY TANK

1. Transport machine to disposal area and turn key switch off.
2. While holding the drain hose upward, remove the cap and lower hose to drain (Figure 26).

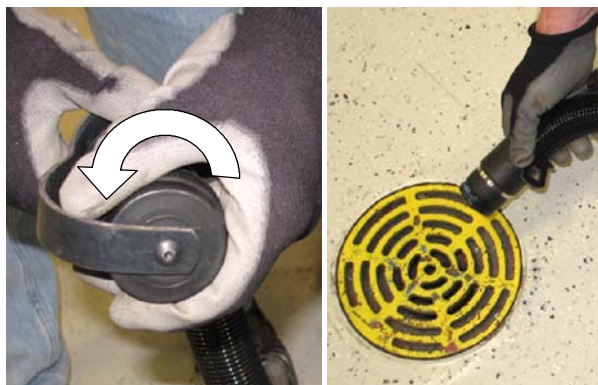


FIG. 26

NOTE: When using a bucket to drain the machine, do not use the same bucket to fill the solution tank.

3. Remove the recovery tank cover and rinse out the tank (Figure 27).



FIG. 27

4. Clean the float shut-off screen located in the recovery tank (Figure 28).



FIG. 28

DRAINING SOLUTION TANK

To drain any remaining water from the solution tank, pull the solution tank level hose off the hose fitting (Figure 29).



FIG. 29

OPERATION

CHARGING BATTERIES

The following charging instructions are intended for battery chargers supplied with the machine.

ATTENTION: To prolong the life of the batteries only recharge the batteries if the machine was used for a total of 30 minutes or more. Do not leave batteries discharged for lengthy periods.

⚠ WARNING: Fire Or Explosion Hazard. Batteries Emit Hydrogen Gas. Keep Sparks and Open Flame Away. Keep Battery Compartment Propped Open When Charging.

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

BATTERY CHARGER SPECIFICATIONS:

- CHARGER TYPE:
 - FOR SEALED (Gel) BATTERIES
 - FOR WET (Lead Acid) BATTERIES
- OUTPUT VOLTAGE - 24 VOLTS
- OUTPUT CURRENT - 11 AMPS
- AUTOMATIC SHUTOFF CIRCUIT
- FOR DEEP CYCLE BATTERY CHARGING

USING THE ON-BOARD BATTERY CHARGER

IMPORTANT: Make sure the charger profile is properly set for your battery type before charging. Failure to properly set will result in battery damage.

To determine your battery type, see battery label. Contact your battery supplier if not specified.

To verify the setting of the charger profile, connect the charger cord into an electrical receptacle. If the LED labeled “GEL” is on, the charger is set for Gel (sealed) batteries. If the LED is off, the charger is set for Wet/lead acid (flooded) batteries (Figure 30).



FIG. 30

To change the charger profile, unplug the charger, remove the “Charger Profile Selection” panel and position the switch towards the proper setting, “GEL” or “Flooded” (Figure 31).



FIG. 31

1. Transport the machine to a well-ventilated area for charging.
2. Park the machine on a flat, dry surface. Turn the key off and set the parking brake, if equipped.
3. If charging wet (lead acid) batteries check the fluid level before charging (See BATTERY MAINTENANCE on page 22).
4. Connect the charger cord into a properly grounded electrical receptacle (Figure 32). The charger will start automatically within a few seconds. The LEDs will display the charging state as described in the following table.

NOTE: The machine will not operate once the battery charger is connected.

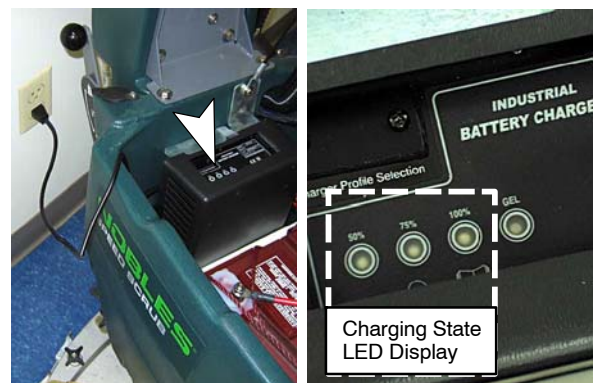


FIG. 32

CHARGING STATE LED DISPLAY			
Charging State	50% LED	75% LED	100% LED
0-50% charged	Blinking	Off	Off
50-75% charged	On	Blinking	Off
75-100% charged	On	On	Blinking
100% charged	On	On	On
Abnormal Cycle*	Off	Off	Blinking
Fault detected *	Blinking	Blinking	Blinking

* See the On-board Battery Charger Fault Codes table. When a fault occurs, the charger will also sound an alarm.

- Prop up the recovery tank for ventilation when charging (Figure 33).



FIG. 33

- Once the batteries are fully charged, the charger will stop supplying power, but will continue to monitor the battery voltage. The charger will restart if the batteries self-discharge.

NOTE: The charger may take up to 30 seconds to turn off once the charger cord is disconnected. During this time, the machine will not power up.

The charger cord must also be disconnected for 30 seconds before the charger can be restarted.

ON-BOARD BATTERY CHARGER FAULT CODES



Blinking LEDs

LED FAULT CODE	FAULT	SOLUTION
3 LED's blink once repeatedly	Loose charger cable connection.	Check charger cable connection.
	Loose or damaged battery cable.	Check battery cable connections.
	Defective Battery.	Replace battery.
3 LEDs blink twice repeatedly	Input voltage is out of range.	Try using a different wall outlet.
3 LEDs blink three times repeatedly	Safety thermostat exceeded maximum internal temperature.	Open battery compartment to promote air circulation or move machine to a cooler climate.
3 LEDs blink four times repeatedly	Output current exceeds a limit.	Disconnect charger cord, wait 30 seconds, then plug back in. If fault continues replace charger or Contact Service Center.
100% LED blinks while the 50% and 75% LEDs are off.	Abnormal cycle. Safety timer exceeded the 18 hour charging time.	Battery maintenance required or replace battery.

MAINTENANCE

MACHINE MAINTENANCE

To keep the machine in good working condition, simply follow the daily, monthly and quarterly maintenance procedures.

⚠ WARNING: Electrical Hazard. Disconnect Battery Cables Before Servicing Machine.

FOR SAFETY: When servicing machine, wear personal protection equipment as needed and where recommended in this manual.

DAILY MAINTENANCE (After Every Use)

1. Drain and rinse out the recovery tank (Figure 34).



FIG. 34

2. Remove and clean the float shut-off screen located in the recovery tank (Figure 35).



FIG. 35

3. Drain the solution tank and rinse out the inside with hot water, 60°C maximum temperature, as needed (Figure 36)

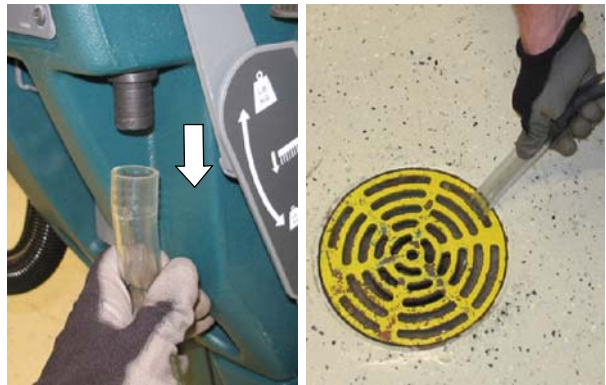


FIG. 36

4. Turn the work pad over or replace when worn (Figure 37).



FIG. 37

5. Wipe the squeegee blades clean (Figure 38). Store the squeegee assembly in the raised position to prevent blade damage.



FIG. 38

6. Check the condition of the squeegee blade wiping edge (Figure 39). Rotate blade if worn (See SQUEEGEE BLADE REPLACEMENT on page 21).



FIG. 39

7. Clean the machine with an all purpose cleaner and damp cloth (Figure 40).

FOR SAFETY: When cleaning machine, do not power spray or hose off machine. Electrical malfunction may occur.



FIG. 40

10. Recharge the batteries. To prolong the life of the batteries, only recharge the batteries if machine was used for a total of 30 minutes or more (Figure 41).



FIG. 41

MONTHLY MAINTENANCE

1. Remove the solution tank filter from underneath the machine and rinse out the screen (Figure 42). Make sure the solution tank is empty before removing filter.

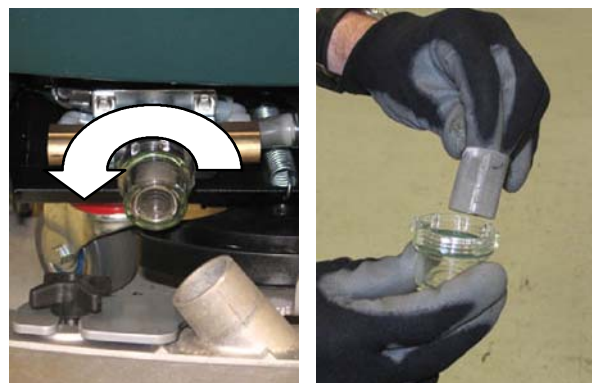


FIG. 42

2. Clean the battery tops to prevent corrosion (See BATTERY MAINTENANCE on page 22).
3. Check for loose battery cable connections.
4. Inspect and clean the recovery tank cover seal (Figure 43). Replace if damaged.



FIG. 43

5. Lubricate all pivot points and rollers with a water resistant grease.
6. If equipped, clean the parking brake clamp with a cleaning solvent.
7. Check the machine for loose nuts and bolts.
8. Check the machine for leaks.

MOTOR MAINTENANCE

Contact an Authorized Tennant Service Center for carbon brush replacement.

Carbon Brush Replacement	Hours
Drive Transaxle Motor	750
Vacuum Motor	750
Pad Motor	1200

⚠ WARNING: Electrical Hazard. Disconnect Battery Cables Before Servicing Machine.

ec-H2O MODULE FLUSH PROCEDURE

This procedure is only required when an alarm sounds and the *ec-H2O* system indicator light begins to blink red.

1. Drain the solution tank and recovery tank of all water.
2. Pour 1 gallon (4 liters) of white or rice vinegar into the solution tank at full strength. Do not dilute.

NOTE: Use **white or rice vinegar** only. The acidity level should be between 4-8%. Do not use other acids for this procedure.

FOR SAFETY: When servicing machine, wear protective gloves and eye protection when handling vinegar.

3. Disconnect the black connector fitting at the scrub head and place the hose into a bucket (Figure 44). To access the connector fitting, you may have to remove the front cover from the machine.

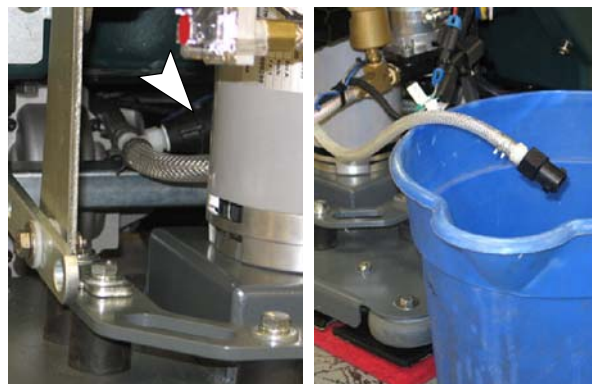


FIG. 44

4. Turn the key to the on (I) position.

- Press and release the *ec-H2O* module flush switch to start the flush cycle (Figure 45). The module is located under the recovery tank.

NOTE: The module will automatically shut off when the flush cycle is complete (approx. 7 minutes). The module must run the full 7 minute cycle in order to reset the system indicator light and alarm.

Repeat flush procedure if the *ec-H2O* module does not reset. If module fails to reset, contact an Authorized Service Center.



FIG. 45

SQUEEGEE BLADE REPLACEMENT

Each squeegee blade has four wiping edges. When the blades become worn, simply rotate the blades end-for-end or top-to-bottom for a new wiping edge. Replace blade if all four edges are worn.

- Remove the squeegee assembly from the machine.
- Loosen the band clamp and remove the band from the squeegee assembly (Figure 46).

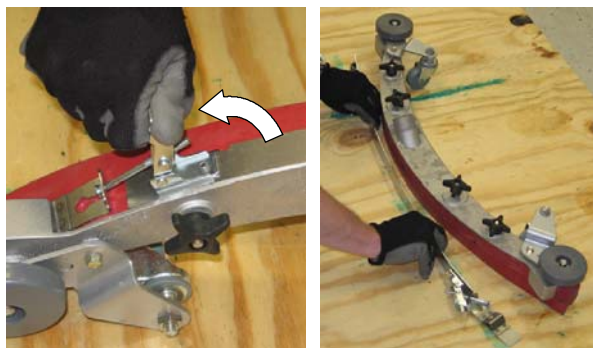


FIG. 46

- Rotate the rear blade to a new wiping edge and reinstall the band. Make sure the notched edge of the band is facing downward (Figure 47).



FIG. 47

- To replace the front blade, remove the rear band and fully loosen the four squeegee assembly knobs, do not remove the knobs. Lift and tilt the retainer plate to access the front blade (Figure 48). Rotate the front blade to a new wiping edge and return the retainer plate. Make sure the retainer plate tabs engage the blade slots. Reinstall the band then retighten the knobs.

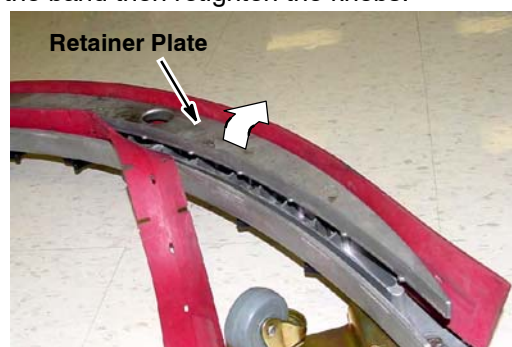


FIG. 48

SQUEEGEE BLADE ADJUSTMENT

The adjustment of the squeegee blades are factory set and require no further adjustment. Squeegee adjustment is only necessary if it comes out of adjustment.

For optimum squeegee blade performance, the squeegee assembly casters must be adjusted to a specified height as described below.

1. To check the squeegee assembly for proper adjustment, remove the squeegee assembly from the machine and place it on a level surface. Measure the distance between the caster and the surface. It should measure approximately 1/16 in / 2 mm (Figure 49).
2. To adjust the caster height, loosen the top nut and remove the plastic bearing cover to access the adjustment nut. Turn the adjustment nut until properly adjusted (Figure 49). After adjusting, tighten the top nut and replace the plastic bearing cover. Repeat step for the other caster.

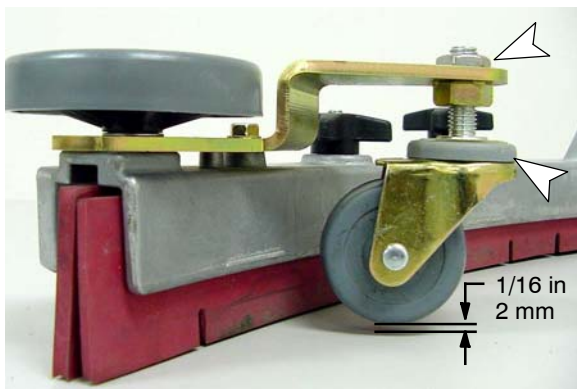


FIG. 49

3. During machine operation, with the casters properly adjusted, the squeegee blades should deflect as shown (Figure 50).



FIG. 50

BATTERY MAINTENANCE (Wet/lead acid batteries)

1. Check battery fluid level frequently to prevent battery damage. The fluid should be at the level shown (Figure 51). Add distilled water if low. **DO NOT OVERFILL**, the fluid may expand and overflow when charging.



CORRECT BATTERY FLUID LEVEL:

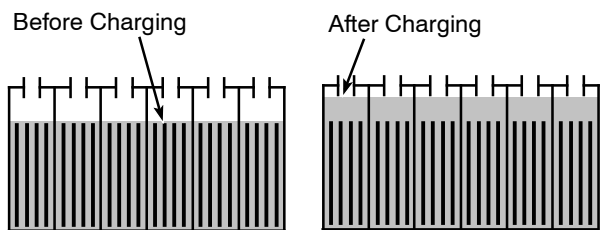


FIG. 51

⚠ WARNING: Fire Or Explosion Hazard. Batteries Emit Hydrogen Gas. Keep Sparks And Open Flame Away. Keep Battery Compartment Open When Charging.

2. Clean the batteries to prevent battery corrosion. Use a scrub brush with a mixture of baking soda and water (Figure 52).

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



FIG. 52

3. Check for loose or worn cables. Replace if worn.

TRANSPORTING MACHINE

When transporting the machine by trailer or truck, be certain to follow the transporting procedure below:

1. Drain machine tanks.
2. Raise the squeegee and scrub head.
3. Load the machine using a ramp that can support the machine weight and person loading it. The maximum ramp incline should not exceed 11° at a ramp length of 12 ft (3.7m).
4. Position the front of machine up against the front of the trailer or truck. Lower the scrub head and squeegee.
5. Place a block behind each wheel to prevent the machine from rolling.
6. Secure with tie-down straps as shown (Figure 53). It may be necessary to install tie-down brackets to trailer or truck.

FOR SAFETY: When loading/unloading machine onto/off truck or trailer, use a ramp that can support the machine weight and person loading it, do not exceed a 15% ramp incline at a ramp length of 12 ft (3.7m), use tie-down straps to secure machine and block machine wheels.

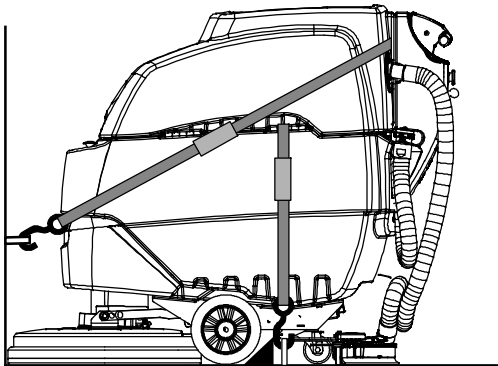


FIG. 53

STORING MACHINE

1. Charge the batteries before storing. Never store the machine with discharged batteries.
2. Drain and rinse the tanks thoroughly.
3. Store the machine in a dry area with the squeegee and scrub head in the up position.
4. Open the recovery tank cover to promote air circulation.

ATTENTION: Do not expose machine to rain, store indoors.

5. If storing machine in freezing temperatures, follow the FREEZE PROTECTION instructions below.

FREEZE PROTECTION

1. Drain the solution tank and recovery tank of all water.
2. Empty the solution tank filter located under the machine (Figure 54).



FIG. 54

3. Pour 1 gallon (4 liters) of recreational vehicle (RV) antifreeze into the solution tank at full strength. Do not dilute.

FOR SAFETY: Avoid eye contact with antifreeze. Wear safety glasses.

4. Turn the machine power on and operate the solution flow system. Turn the machine off when the red RV antifreeze is visible.

Continue with the freeze protection procedure if machine is equipped with the *ec-H2O* system.

***ec-H2O* Model:**

Press and release the flush switch on the *ec-H2O* module to cycle the antifreeze through *ec-H2O* system (Figure 55). When the antifreeze is visible, press the switch again to turn off the module.



FIG. 55

MAINTENANCE

IMPORTANT: Before operating machine the antifreeze must be flushed from the module as described below.

If the antifreeze is not properly flushed from the *ec-H2O* system, the *ec-H2O* module may detect an error and not function (*ec-H2O* switch indicator light will turn red). If this occurs, reset key and repeat the flush procedure as described below.

Flushing antifreeze from *ec-H2O* module:

1. Drain the antifreeze from the solution tank into a bucket.
2. Fill the solution tank with cool water until full (See FILLING SOLUTION TANK).
3. Disconnect the black connector fitting at the scrub head and place the hose into a bucket (Figure 56). To access the connector fitting, you may have to remove the front cover from the machine.

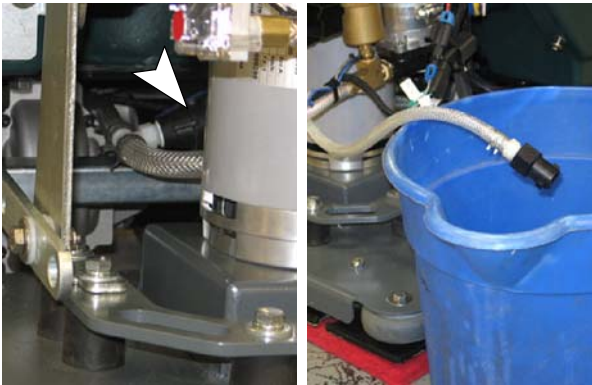


FIG. 56

4. Press and release the *ec-H2O* module switch to flush the antifreeze from the *ec-H2O* system (Figure 65). The module is located under the recovery tank.

When the water turns clear, press the module switch again to stop the flush cycle.

Dispose the antifreeze in an environmentally safe way according to local waste disposal regulations.

5. The machine is now ready for scrubbing.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Machine will not operate	Triggers not pulled	Pull triggers
	Emergency-stop button activated	Turn button clockwise to reset
	Discharged batteries	Charge batteries
	Faulty battery(s)	Replace battery(s)
	Loose battery cable	Tighten loose cable
	Main fuse blown	Replace fuse
	Faulty key switch	Contact Service Center
	Machine fault detected	See Battery Meter LED Fault Codes
On-board battery charger will not operate	Plug not connected to power supply	Check plug connection
	Faulty power supply cord	Replace cord
	Fault detected.	See On-board Battery Charger Fault Codes
Pad motor will not operate	Scrub head is raised off floor	Lower scrub head
	Battery meter lockout activated	Recharge batteries
	Tripped pad motor circuit breaker	Reset pad circuit breaker button
	Faulty scrub head (up/down) switch	Contact Service Center
	Faulty triggers	Contact Service Center
	Faulty pad motor or wiring	Contact Service Center
	Worn motor carbon brushes	Contact Service Center
Machine does not propel	Main fuse blown	Replace 30 Amp fuse
	Faulty relay switch	Contact Service Center
	Faulty transaxle motor or wiring	Contact Service Center
	Worn motor carbon brushes	Contact Service Center
Vacuum motor will not operate	Squeegee is raised off floor	Lower squeegee
	Vacuum motor fuse blown	Replace 25 Amp fuse
	Faulty vacuum motor or wiring	Contact Service Center
	Worn motor carbon brushes	Contact Service Center
Little or no solution flow	Clogged solution tank filter or solution hose	Clean solution tank filter or flush out solution hose
	Solution tank empty	Fill solution tank
	Solution supply lines and / or holes in scrub head distribution tube plugged	Flush solution supply lines / scrub head distribution tube
	Clogged solution valve	Remove valve and clean
	Solution flow control knob set too low (Conventional scrubbing only)	Adjust solution control flow knob (Conventional scrubbing only)
	Loose screw on control knob (Conventional scrubbing only)	Calibrate knob and retighten screw (Conventional scrubbing only)

TROUBLESHOOTING - Continued

PROBLEM	CAUSE	SOLUTION
Poor water pickup	Recovery tank is full	Drain recovery tank
	Loose drain hose cap	Tighten cap
	Clogged float shut-off screen located in recovery tank	Clean screen
	Clogged squeegee assembly	Clean squeegee assembly
	Worn squeegee blades	Replace or rotate squeegee blades
	Incorrect Squeegee blade deflection	Adjust Squeegee blade height
	Loose vacuum hose connections	Secure hose connections
	Clogged vacuum hose	Remove clogged debris
	Damaged vacuum hose	Replace vacuum hose
	Recovery tank cover not in place	Properly position cover
	Damaged recovery tank cover seal	Replace seal
	Faulty vacuum motor	Contact Service Center
	Low battery charge	Recharge batteries
Short run time	Low battery charge	Fully recharge batteries
	Defective batteries	Replace battery
	Batteries need maintenance	See BATTERY MAINTENANCE
	Faulty battery charger	Repair or replace battery charger
	Pad pressure lever is set for extra scrub head pressure	Lower pad pressure lever
ec-H2O Model: <i>ec-H2O</i> system indicator light blinks red and alarm sounds	Mineral deposit build-up in module	Flush module (See <i>ec-H2O</i> MODULE FLUSH PROCEDURE). If indicator light starts flashing within 1–10 seconds, repeat flush procedure. If indicator light starts flashing after a minute of scrubbing, the water may have low conductivity
	Low water conductivity	Add 8 ml of salt to every 40 L of water
ec-H2O Model: <i>ec-H2O</i> system indicator light solid red	Defective module	Contact Service Center
ec-H2O Model: <i>ec-H2O</i> system indicator light does not turn on	Defective light or module	Contact Service Center
ec-H2O Model: No water flow	Clogged module	Contact Service Center
	Defective solution pump	Replace solution pump

BATTERY METER LED FAULT CODES (*Battery Meter Display*)

CODE (Flashing LED Bars)	FAULT	SOLUTION
One	Low voltage shut-off. Scrubbing function stops.	Recharge batteries.
		Check battery connection.
Two	Battery charge level getting low.	Recharge batteries.
Three	Drive motor tripped.	Remove overload condition and reset key.
	Short circuit to drive motor.	Contact Service Center.
Four	Battery lockout.	Recharge batteries immediately.
Eight	Controller tripped.	Contact Service Center.
Ten	High battery voltage reading	Check battery connections.
No Bars	Sleep mode	Turn key to restore.
Bars Rippling	Throttle engaged.	Release triggers

SPECIFICATIONS

MACHINE SPECIFICATIONS

MODEL	SS3 Orbital
LENGTH	45 in/1143 mm
WIDTH	20 in/508 mm
HEIGHT	43 in / 1093 mm
MINIMUM AISLE TURN	51.5 in / 1,308 mm
WEIGHT	222 lb / 101 kg
WEIGHT WITH BATTERIES	392 lb / 178 kg
RECOVERY TANK CAPACITY Includes Demisting Chamber	15 gal / 57 L
SOLUTION TANK CAPACITY	10.5 gal / 40 L
DRIVE SYSTEM	Transaxle, 24 V, 0.14 hp / 0.104 kW
TRAVEL SPEED, MAXIMUM	240 ft / 73 m /min
PRODUCTIVITY RATE Estimated Actual	13,050 ft ² / 1,250 m ² h
CLEANING PATH WIDTH	20 in / 500 mm
PAD PRESSURE	63 lbs/28.5 Kg Min. - 98 lbs/44.5 Kg Max. 0.23 lb/in ² /0.016 Kg/cm ² Min. - 0.35 lb/in ² /0.025 Kg/cm ² Max.
SOLUTION FLOW RATE	0.4 gpm / 1.5 L/min
SQUEEGEE WIDTH	30 in / 763 mm
PAD MOTOR	0.60 hp/0.450 Kw, 2200 pad rpm, 24 V
VACUUM MOTOR	0.5 hp / 0.373 kW, 300 W, 2-stage 5.7, 24 V, 13 A
WATER LIFT - AIR FLOW	40 in / 1,016 mm - 65 ft ³ / 1.84 L ³ /m
BATTERIES	Qty 2, 12 V
BATTERY CAPACITY	155 Ah @ 20 h rate (WET)
RUN TIME PER CHARGE*	3.0 Hours
ON-BOARD BATTERY CHARGER	120/230 VAC, 5.5 A, 50/60 Hz, 24 VDC, 11 A output
TOTAL POWER CONSUMPTION	25.5 A nominal @ 63 lb / 28.5 kg brush pressure 26.5 A nominal @ 98 lb / 44.5 kg brush pressure
VOLTAGE DC	24 VDC
PROTECTION GRADE	IPX3
DECIBEL RATING AT OPERATOR'S EAR, INDOORS**	<70 dBA
VIBRATION AT CONTROLS	<8.2 ft/s ² / <2.5 m/s ²
GRADE LEVEL, MAX.	Scrubbing 5%, Transporting 8%

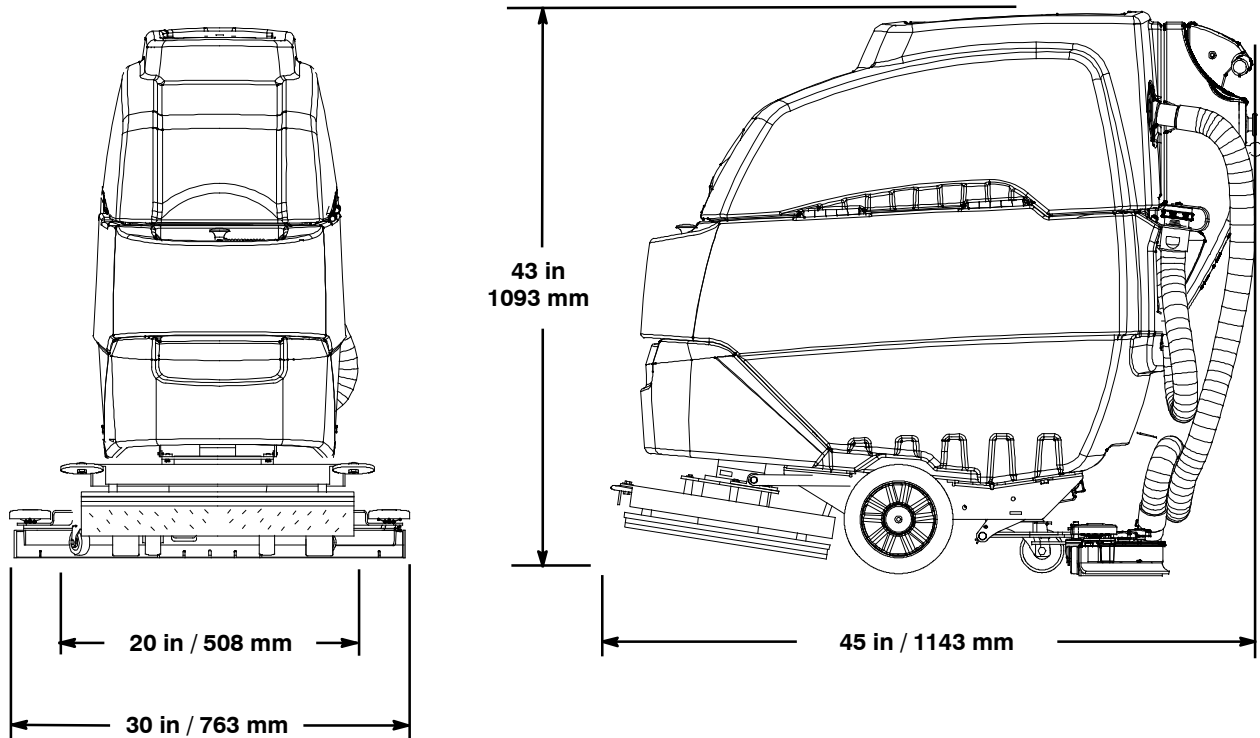
* Run times are based on Continuous Scrubbing Run Times.

** Sound levels (ISO 11201) as recommended by the American Association of Cleaning Equipment Manufacturers (AACEM) and OSHA.

ec-H2O SYSTEM MODEL	
PRODUCTIVITY RATE Estimated Actual	15,300 ft ² / 1,420 m ² /h
SOLUTION PUMP	24 Volt DC, 3.5 A, 5.6 LPM open flow, 4.13 Bar bypass setting
SOLUTION FLOW RATE*	0.15 gpm / 0.56 L/min (standard) 0.19 gpm / 0.72 L/min (optional) 0.25 gpm / 0.95 L/min (optional)

* If the optional solution flow rates are required, contact an Authorized Service Center.

MACHINE DIMENSIONS



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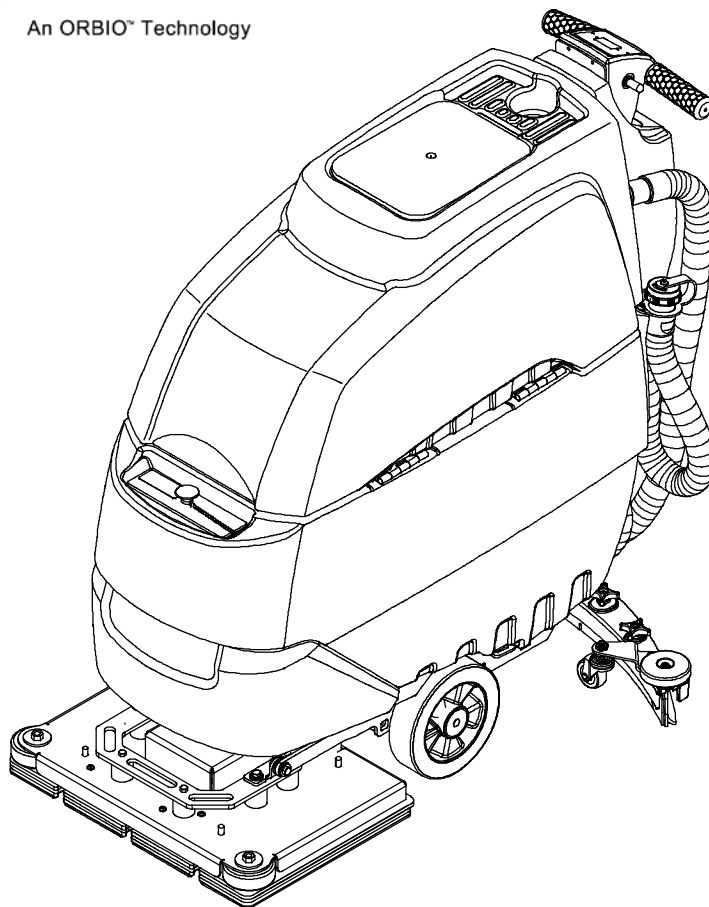
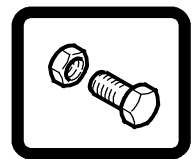
Model Part No:
9010476 Conventional Scrubber
9010475 ec-H2O Scrubber

SPEED SCRUB® ORBITAL

AUTOMATIC SCRUBBER



PARTS MANUAL



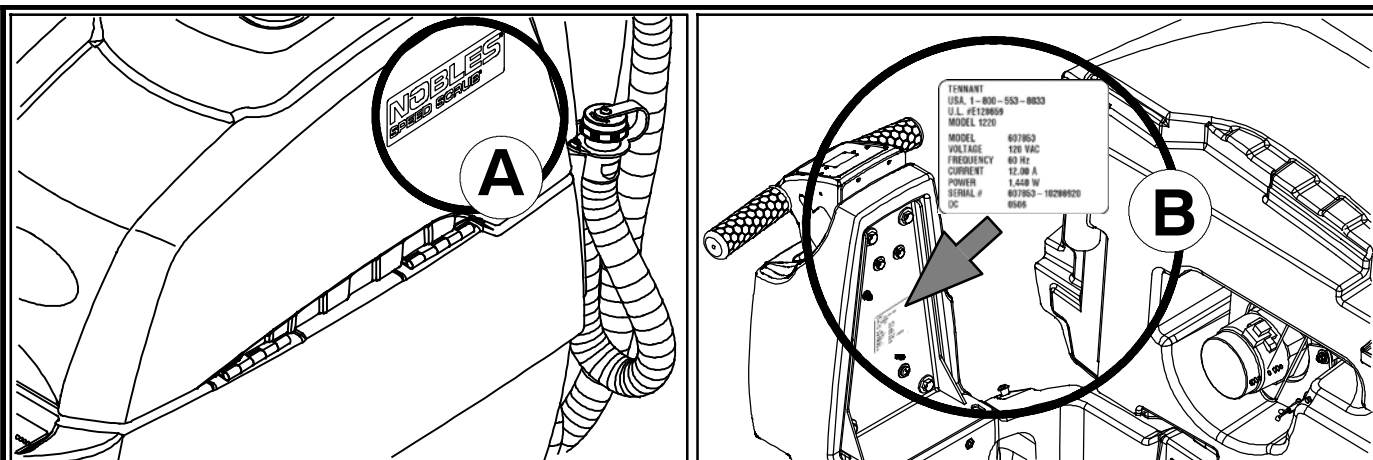
For the latest Parts manuals and other
language Operator manuals, visit:

www.nobles.com/manuals

www.nobles.com

9010346
Rev. 01 (05-2014)





Ref	Part No.	Serial Number	Description	Qty.
1	82681	(000000-)	Bracket W/dt, Lpg Mount	1
2	63810	(000000-)	Latch Assy, Lpg Tank Mtg, W/Nut	4
3	51839	(000000-)	Nut Adjustable, Lpg Tank Mtg	2
4	49263	(000000-)	Tie, Cable	3
5	82556	(000000- 001039)	Bracket, Vaporizer	1
6	54930	(000000-)	Vaporizer, LPG	1

HOW TO ORDER PARTS - See diagram above

Only use TENNANT Company supplied or equivalent parts. Parts and supplies may be ordered online, by phone, by fax or by mail.

Follow the steps below to ensure prompt delivery.

1. (A) Identify the machine model.
2. (B) Identify the machine serial number from the data label.
3. (C) Ensure the proper serial number is used from the parts list.
4. Identify the part number and quantity.
Do not order by page or reference numbers.
5. Provide your name, company name, customer ID number, billing and shipping address, phone number and purchase order number.
6. Provide detail shipping instructions.

(D) ▽ - identifies an assembly
▲ - identifies parts included in assembly

Please fill out at time of installation for future reference.

Model No. - _____
 Serial No. - _____
 Machine Options - _____
 Sales Rep. - _____
 Sales Rep. phone no. - _____
 Customer ID Number - _____
 Installation Date - _____

Tennant Company

PO Box 1452

Minneapolis, MN 55440 USA

Phone: (800) 553- 8033 or (763) 513- 2850

www.nobles.com

Specifications and parts are subject to change without notice.

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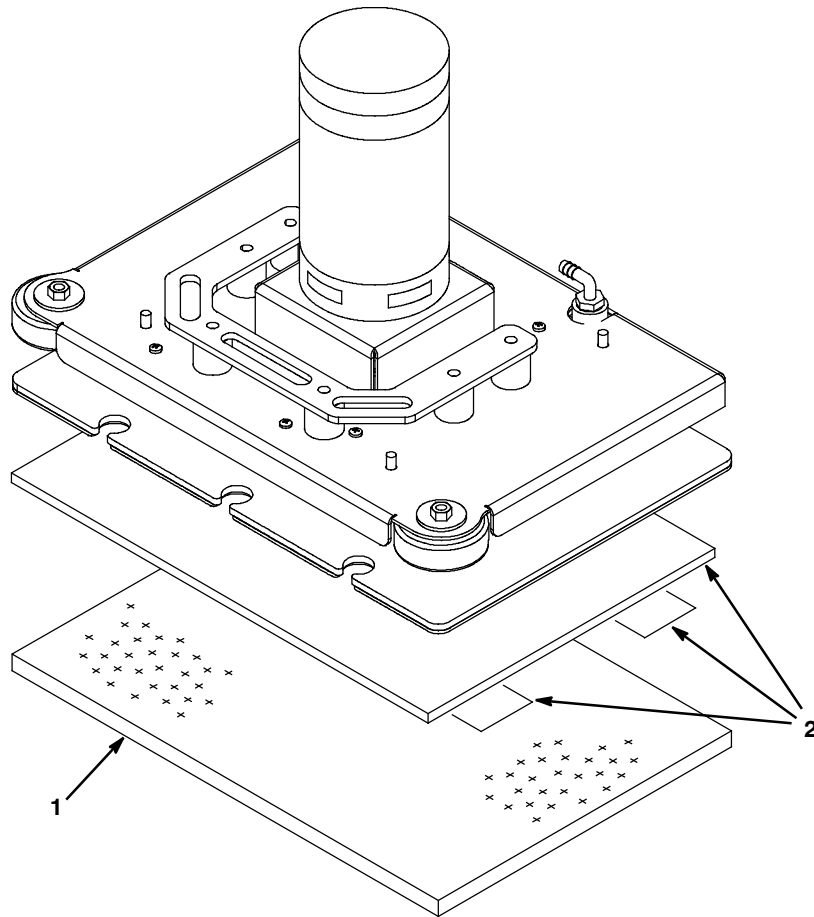
RECOMMENDED MAINTENANCE ITEMS

GENERAL RECOMMENDED MAINTENANCE ITEMS

	Part No.	Serial Number	Description	Qty.
▽	9001178	(00000000-) Squeegee Assy Kit, 500mm, Ci	1
▲	1010560	(00000000-) Wheel, Bmpr, 80d X 25w, Non- Marking	2
▲	1006343	(00000000-) Caster, Swivel, 50mmd, M10 X 30 Stem, PI	2
	1011232	(00000000-) Blade, Sqge, Front, 500mml Linatex (Linatex Red Standard)	1
	1014091	(00000000-) Blade, Sqge, Front, 500mml, Gum (Gum Rubber Tan Optional)	1
	1014092	(00000000-) Blade, Sqge, Front, 500mml, Oil- Rstn (Polyurethane Natural Optional)	1
▲	1011456	(00000000-) Blade, Sqge, Rear, 32.7l, Linatex[500mm] (Linatex Red Standard)	1
	1014093	(00000000-) Blade, Sqge, Rear, 32.7l, Gum [500mm] (Gum Rubber Tan Optional)	1
	1014094	(00000000-) Blade, Sqge, Rear, 32.7l, Oil- Rstn[500mm] (Polyurethane Natural Optional)	1
	1014079	(00000000-) Clip, Hose, Gripper, 1.50id, Dbl, Blk Pp	1
	1014026	(00000000-) Hose, Vacuum, 1.5d X 57l, 2- Short Cuffs	1
▽	1043538	(00000000-) Hose Assy, Drain, 1.50id X 29.5l, Blk	1
▲▽	1008639	(00000000-) Cap, Drain Assy	1
▲▲	1019563	(00000000-) Strap, Cap, Drain	1
▲▲	1008637	(00000000-) Seal, Org, 1.48id 1.76 od	1
	630367	(00000000-) Seal, .50, .50w 33.9l, Adh [D Shape]	1
	630052	(00000000-) Float, Shut- Off, (2)Ball, 1.75d	1
	1013628	(00000000-) Gasket, Mtg, Float, .125th, Neo, Adh	1
	1024602	(00000000-) Gasket, Adapter, Hose .13, Neo, Adh	1
	100038	(00000000-) Gasket, Vacuum Mtr 5.7 Epdm W/Psa	1
	1012965	(00000000-) Cap, Port, Soltn Fill	1
	1029829	(00000000-) Hose, Drain, Soltn Tank [Ss3]	1
	1060173	(00000000-) Cover Assy, Tank, Soltn Fill	1
	1026345	(00000000-) Caster, Swivel, 80mm D, M12 X 25 Stem	2
	1014283	(00000000-) Pad, Adh, Non- Slip, 28mm X 36mm, Blk	1
	1047470	(00000000-) Fuse, Blade, 010a, 32vdc, Red (ec- H2O Model)	1
	1016040	(00000000-) Fuse, Blade, 025a, 32vdc (Main Brush Assist Model)	1
	1016040	(00000000-) Fuse, Blade, 025a, 32vdc (Main Drive Model)	1
	762516	(00000000-) Fuse, Blade, 030a, 32vdc (Main Drive Model)	1
	1059370	(00000000-) Brush, Motor, Replmt [Bag of 4]	1
	1205512	(00000000-) Pad, Polish, 20" X 14", White (Pack of 10)	1
	1205513	(00000000-) Pad, Buff, 20" X 14", Red (Pack of 10)	1
	1205514	(00000000-) Pad, Scrubbing, 20" X 14", Blue (Pack of 10)	1
	1205515	(00000000-) Pad, Surface Prep, 20" X 14", Maroon (Pack of 10)	1
	9010674	(00000000-) Backer Pad Assy Kit (Includes Pad with Velcro Strips)	1
	9010696	(00000000-) Isolator Kit, Vib Assy, Primary (Includes Hardware)	1
	9010697	(00000000-) Isolator Kit, Vib Assy, Secondary (Includes Hardware)	1
	9010699	(00000000-) Wheel Assy Kit (Includes Hardware)	1
	9010704	(00000000-) Water Distribution Assembly (Includes Hardware)	1
▽	9011656	(00000000-) Drive Assy Kit, Eccentric Complete	1
▲	9010700	(00000000-) Drive Assy Kit, Eccentric (Includes Hardware)	1
▲	9011655	(00000000-) Eccentric Bearing Assembly (Includes Hardware)	1

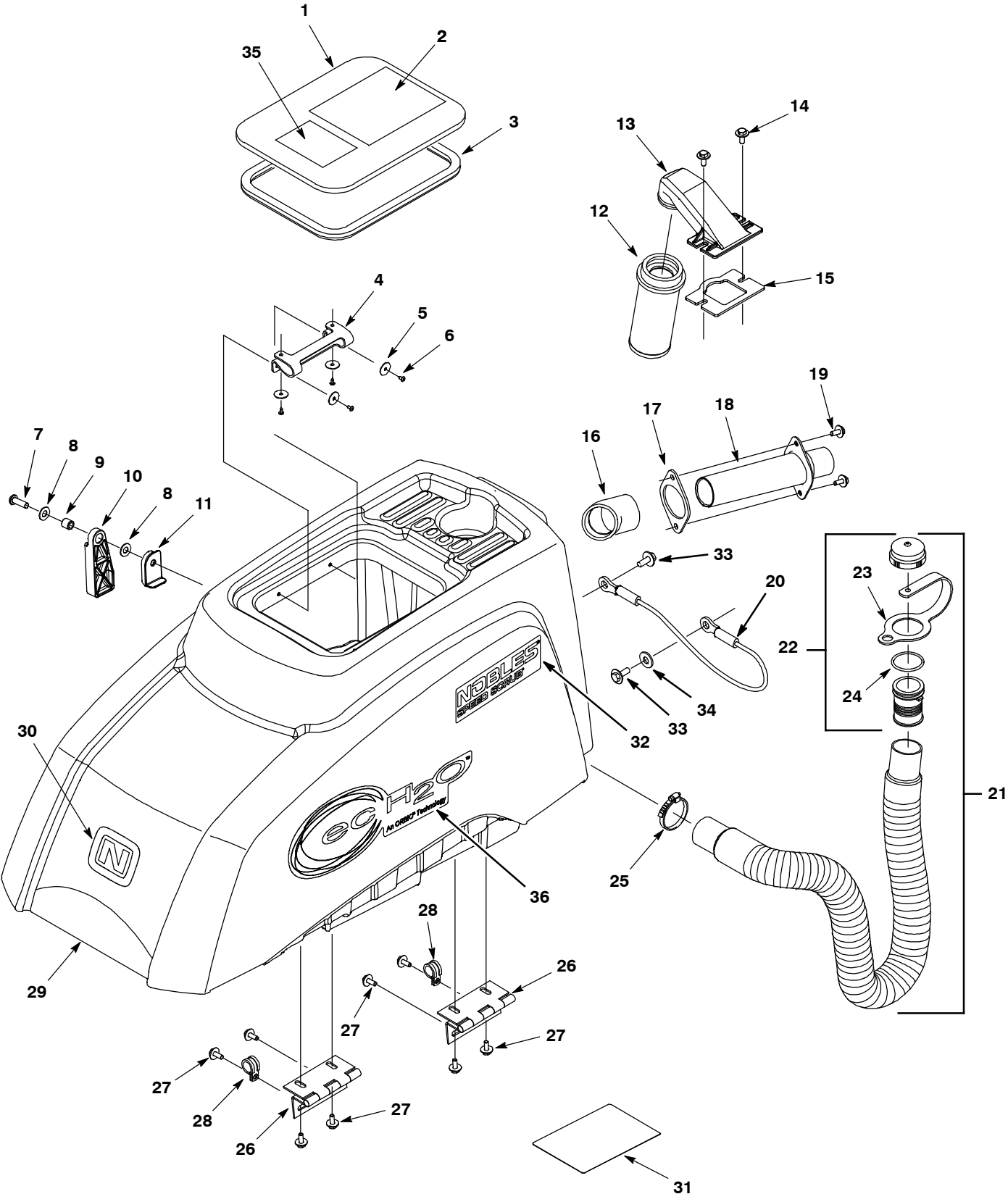
ORBITAL HEAD REPLACEMENT PAD GROUP

356284_01



Ref.	Part No.	Serial Number	Description	Qty.
1	1205512	(00000000-) Pad, Polish, 20" X 14", White (Pack of 10)	1
1	1205513	(00000000-) Pad, Buff, 20" X 14", Red (Pack of 10)	1
1	1205514	(00000000-) Pad, Scrubbing, 20" X 14", Blue (Pack of 10)	1
1	1205515	(00000000-) Pad, Surface Prep, 20" X 14", Maroon (Pack of 10)	1
2	9010674	(00000000-) Pad Kit, Backer (Includes Pad with Velcro Strips)	1

RECOVERY TANK GROUP



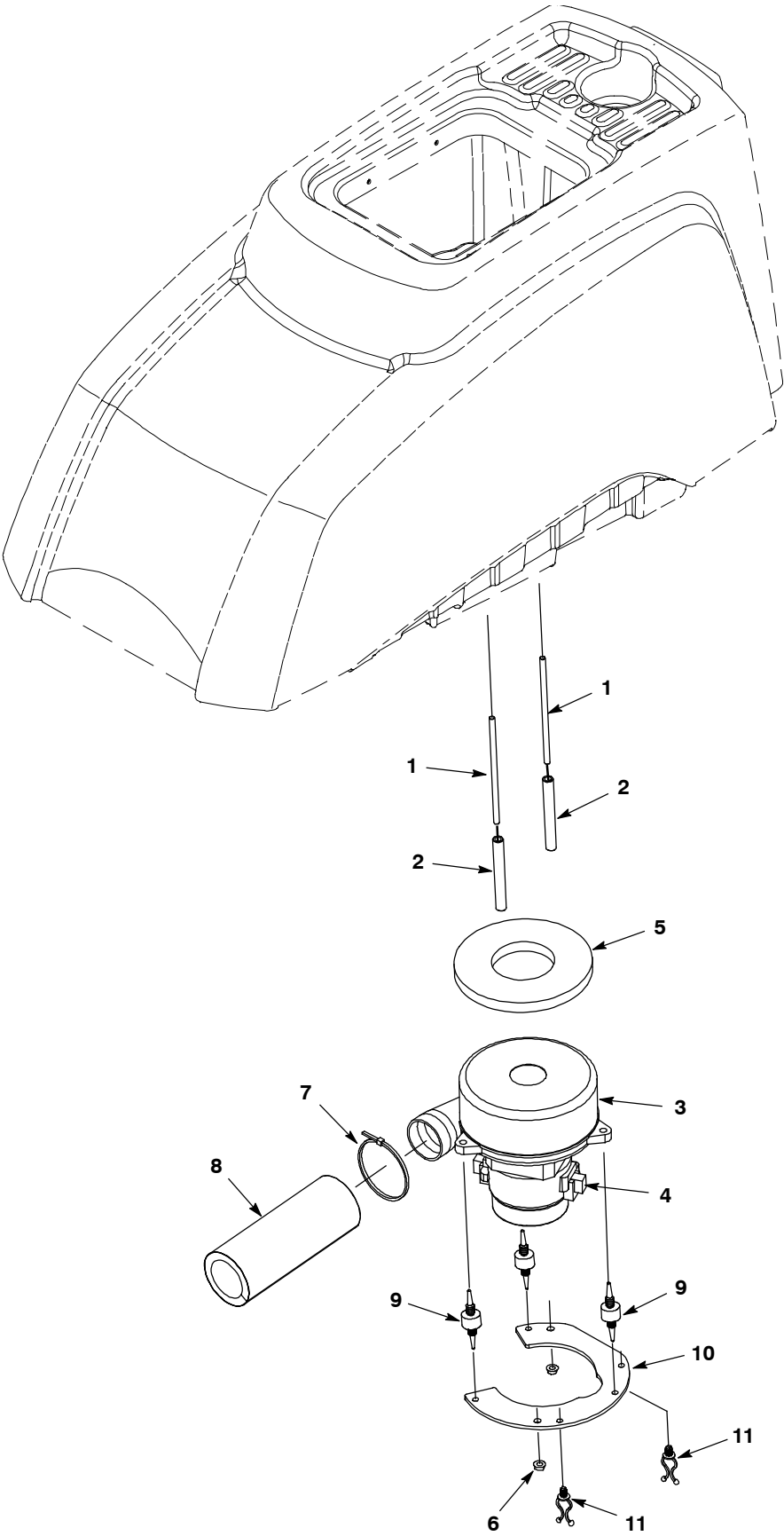
RECOVERY TANK GROUP

	Ref.	Part No.	Serial Number	Description	Qty.
▽	1	9003396	(00000000-) Lid Assy, W/ Label [En/Es/Fr/Jp]	1
▲	2	1036679	(00000000-) Label, Warning [Exp,Fre,Shk En/Fr/Es/Jp]	1
▲	3	630367	(00000000-) Seal, .50, .50w 33.9l, Adh [D Shape]	1
	4	630056	(00000000-) Hinge, Cover, Tank Lid	1
	5	1009168	(00000000-) Washer, Flat, 0.17b 0.75d .04, Ss	4
	6	3701.6	(00000000-) Screw, Pan, #06- 32 X 0.38, Phl Ss Shtmtl	4
	7	1039118	(00000000-) Screw, Btn, M8 X 1.25 X 30, Blk	1
	8	140027	(00000000-) Washer, Flat, 0.35b 0.75d .04, Ss	2
	9	222460	(00000000-) Sleeve, P/M, 0.31b 0.50d 0.5l	1
	10	1022399	(00000000-) Support, Tank, Prop, Blk, Nyl	1
	11	1022904	(00000000-) Bracket, Sppt, Stop, Blk, Nyl	1
	12	630052	(00000000-) Float, Shut- Off, (2)Ball, 1.75d	1
	13	1011777	(00000000-) Mount, Float, Mold	1
	14	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Sems, Ss	2
	15	1013628	(00000000-) Gasket, Mtg, Float, .125th, Neo, Adh	1
	16	1028801	(00000000-) Fitting, Plstc, E45, 1.25	1
	17	1024602	(00000000-) Gasket, Adapter, Hose .13, Neo, Adh	1
	18	1021214	(00000000-) Tube, Hose, Adapter, 1.5d	1
	19	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Sems, Ss	2
	20	140960	(00000000-) Cable, Glv .13d 014.5l .34eye /.34eye	1
▽	21	1043538	(00000000-) Hose Assy, Drain, 1.50id X 29.5l, Blk	1
▲▽	22	1008639	(00000000-) Cap, Drain Assy	1
▲▲	23	1019563	(00000000-) Strap, Cap, Drain	1
▲▲	24	1008637	(00000000-) Seal, Org, 1.48id 1.76od	1
	25	11531	(00000000-) Clamp, Hose, Wormdrive, 1.06- 2.00d, .56w	1
	26	1012540	(00000000-) Hinge, 6mmpin 2.5mm Th 73.5mmw 100mml	2
	27	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Sems, Ss	8
	28	1016354	(00000000-) Clamp, Cable, Ss, 0.50d X 0.50w [Insul]	2
▽	29	9007890	(00000000-) Tank, Recovery, Afmkt [Ss3]	1
▲	30	1034637	(00000000-) Label, Front, 3.50 [Nobles Icon]	1
▲	31	1014154	(00000000-) Label, Instr, Battery	1
▲	32	1064991	(00000000-) Label, Model [Speed Scrub]	2
	33	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Sems, Ss	2
	34	01684	(00000000-) Washer, Flat, 0.25 Ss	1
	35	1068925	(00000000-) Label, Do Not Add Detgt[Ec- H2O]	1
	36	1064823	(00000000-) Label, Logo, 12.3l 4color [Ech2o Nobles]	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

VACUUM MOTOR GROUP



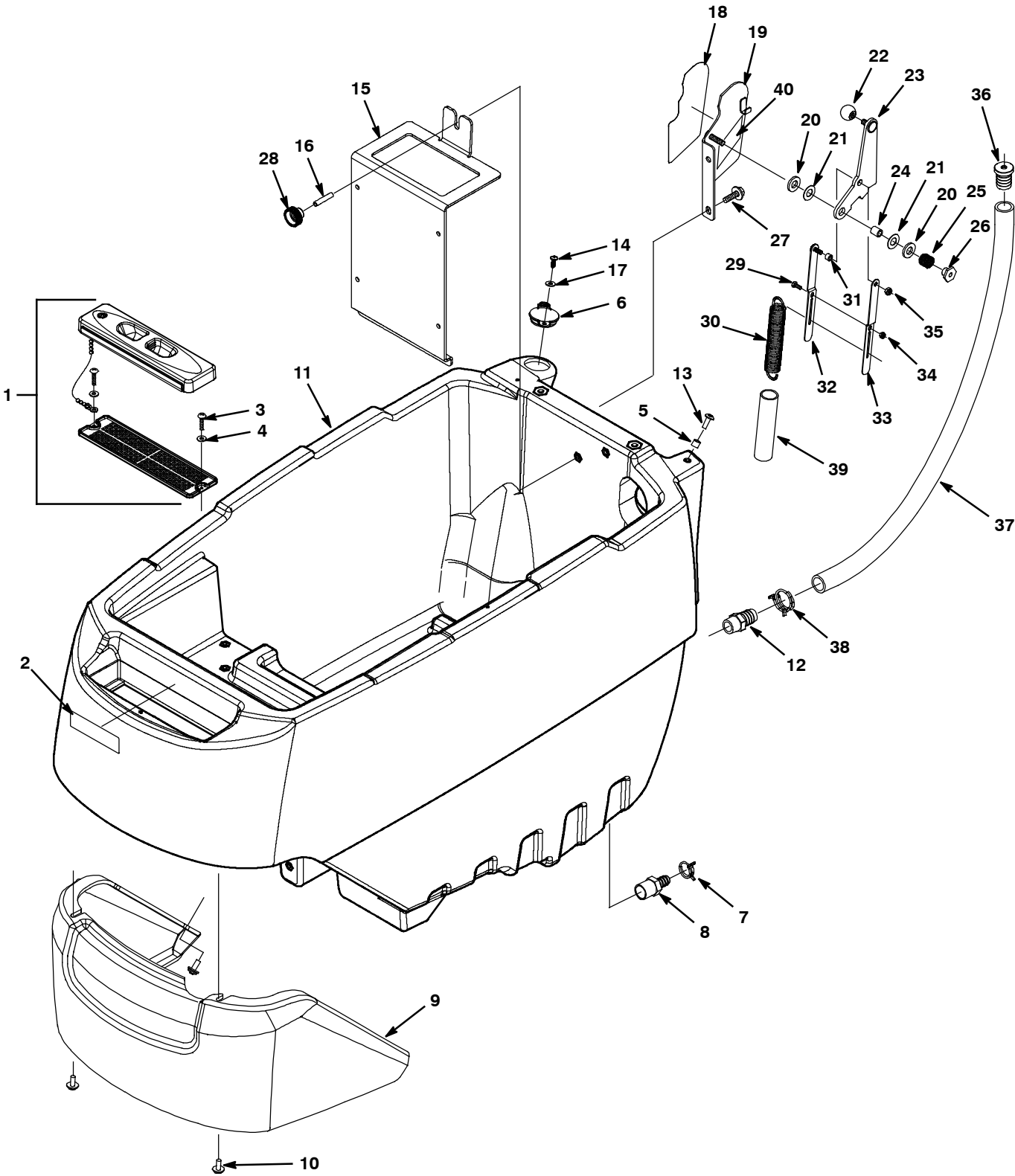
VACUUM MOTOR GROUP

	Ref.	Part No.	Serial Number	Description	Qty.
▽ ▲	1	1015412	(00000000-) Rod, Thrd, Full, M6x1.0, 140l	2
	2	1024575	(00000000-) Tube, 0.43d 0.28b 03.3l, Pl	2
	3	1023271	(00000000-) Fan, Vacuum, 5.7d 2stage 024vdc [Bpt,Pk]	1
	4	372883	(00000000-) Vr, Brush Kit, Motor, Ele	1
	5	100038	(00000000-) Gasket, Vacuum Mtr 5.7 Epdm W/Psa	1
	6	1040381	(00000000-) Nut, Hex, Flng, M6 X 1.0, Ss [Serrated]	2
	7	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	1
	8	1068577	(00000000-) Muffler, Exhaust, Vacfan, 150mml [T2/T3]	1
	9	1062016	(00000000-) Isolator, Vib, .75d	3
	10	1011962	(00000000-) Bracket, Mtg, Vacuum	1
	11	30406	(00000000-) Clip, Keeper	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

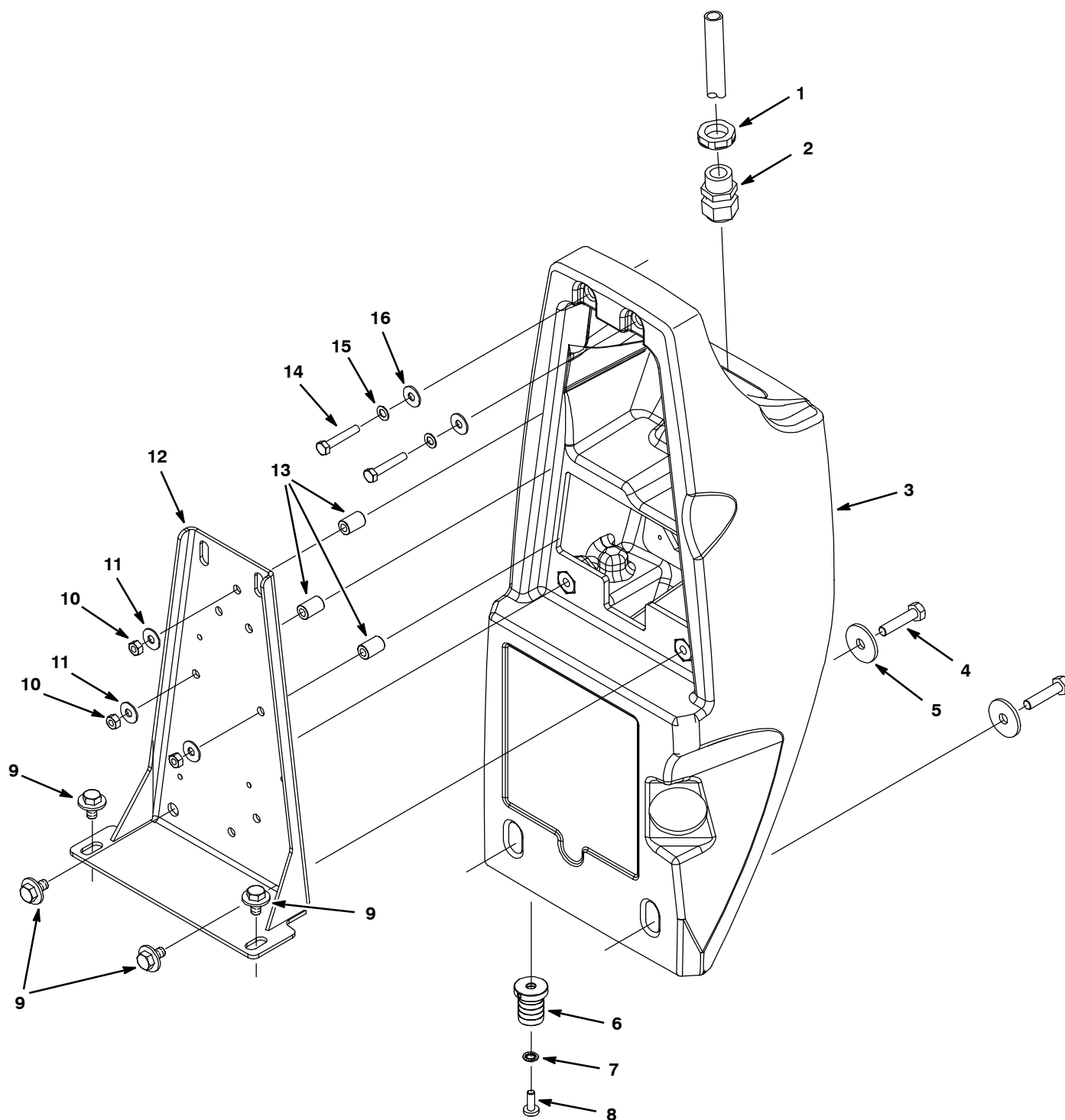
SOLUTION TANK GROUP



SOLUTION TANK GROUP

Ref.	Part No.	Serial Number	Description	Qty.
1	1060173	(00000000-) Cover Assy, Tank, Soltn Fill	1
2	1050003	(00000000-) Label, User, Attention, Ec- H2o (ec-H2O Model)	1
3	140826	(00000000-) Screw, Pan, #06- 32 X 0.75, Phl Ss Shtmtl	2
4	41578	(00000000-) Washer, Flat, #06, Ss	2
5	140154	(00000000-) Sleeve, P/M, 0.25b 0.38d 0.3l, Pl	1
6	1012965	(00000000-) Cap, Port, Soltn Fill	1
7	607776	(00000000-) Clamp, Hose, Wir, .73 - .77, Silver	1
8	1023581	(00000000-) Fitting, Plstc, Str, Bm08/Pm08, Nyl	1
9	1028710	(00000000-) Cover, Head, Rm- Blk, Trimmed [Ss3]	1
10	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	6
11	9007891	(00000000-) Tank, Solution, Afmkt [Ss3]	1
12	78398	(00000000-) Fitting, Plstc, Str, Bm12/Pm08, Nyl	1
13	608322	(00000000-) Screw, Trs, M6 X 1.0 X 16, Phl, Ss	1
14	1018155	(00000000-) Screw, Pan, M5 X 0.8 X16, Ss, Tcut	1
15	1040598	(00000000-) Bracket, Mtg, Chrgr [Ss3]	1
16	1018559	(00000000-) Screw, Set, M6 X 1.00 X 30, Ss [Fltpt]	1
17	01683	(00000000-) Washer, Flat, #10, Ss	1
18	1018389	(00000000-) Label, Lever, Dual Down Press	1
19	1018020	(00000000-) Bracket Wldt, Mtg, Dual Dp Lever	1
20	140127	(00000000-) Bearing, Thrust,0.51b X 1.0 X .12, Brz	2
21	89710	(00000000-) Washer, Flat, 0.51b 1.00d .03, Nyl	2
22	1017156	(00000000-) Knob, Ball, M8 Insert, 40mmd, Plstc	1
23	1017493	(00000000-) Lever, Lift, Dual Down Press	1
24	1014336	(00000000-) Sleeve, P/M, 08.4b 12.6d 14.5l, Pl	1
25	1018756	(00000000-) Spring, Cmpr, 0.7od .080wir 00.7l,Pl[Mw]	1
26	1018181	(00000000-) Nut, T, M8 X 1.25 X 0.50od X 0.4l	1
27	1020341	(00000000-) Screw, Hex, M8 X 1.25 X 20, Ss, Sems	2
28	578439	(00000000-) Nut, Thumb, M6 X 1.0, 24mm Od	1
29	09738	(00000000-) Screw, Hex, M5 X 0.8 X 12, Ss	1
30	1031783	(00000000-) Spring, Extn, 1.00od 0.12wir 06.3l	1
31	1017884	(00000000-) Bushing, Sleeve, 6mmb 10mmd 7mml	1
32	1017882	(00000000-) Link Wldt, Spring, Lever	1
33	1017805	(00000000-) Link, Spring, Lever	1
34	09739	(00000000-) Nut, Hex, Lock, M5 X 0.8, NI, Ss	1
35	08708	(00000000-) Nut, Hex, Lock, M6 X 1.0, NI	1
36	1035469	(00000000-) Fitting, Plastic, Bm12 [Sight Tube]	1
37	1029829	(00000000-) Hose, Drain, Soltn Tank [Ss3]	1
38	608915	(00000000-) Clamp, Hose, Wir, 1.03 - 1.09	1
39	1206458	(00000000-) Sleeve, Nylon	1
40	1206461	(00000000-) Velcro, Strip	1

Nobles Speed Scrub Orbital (12-2012)



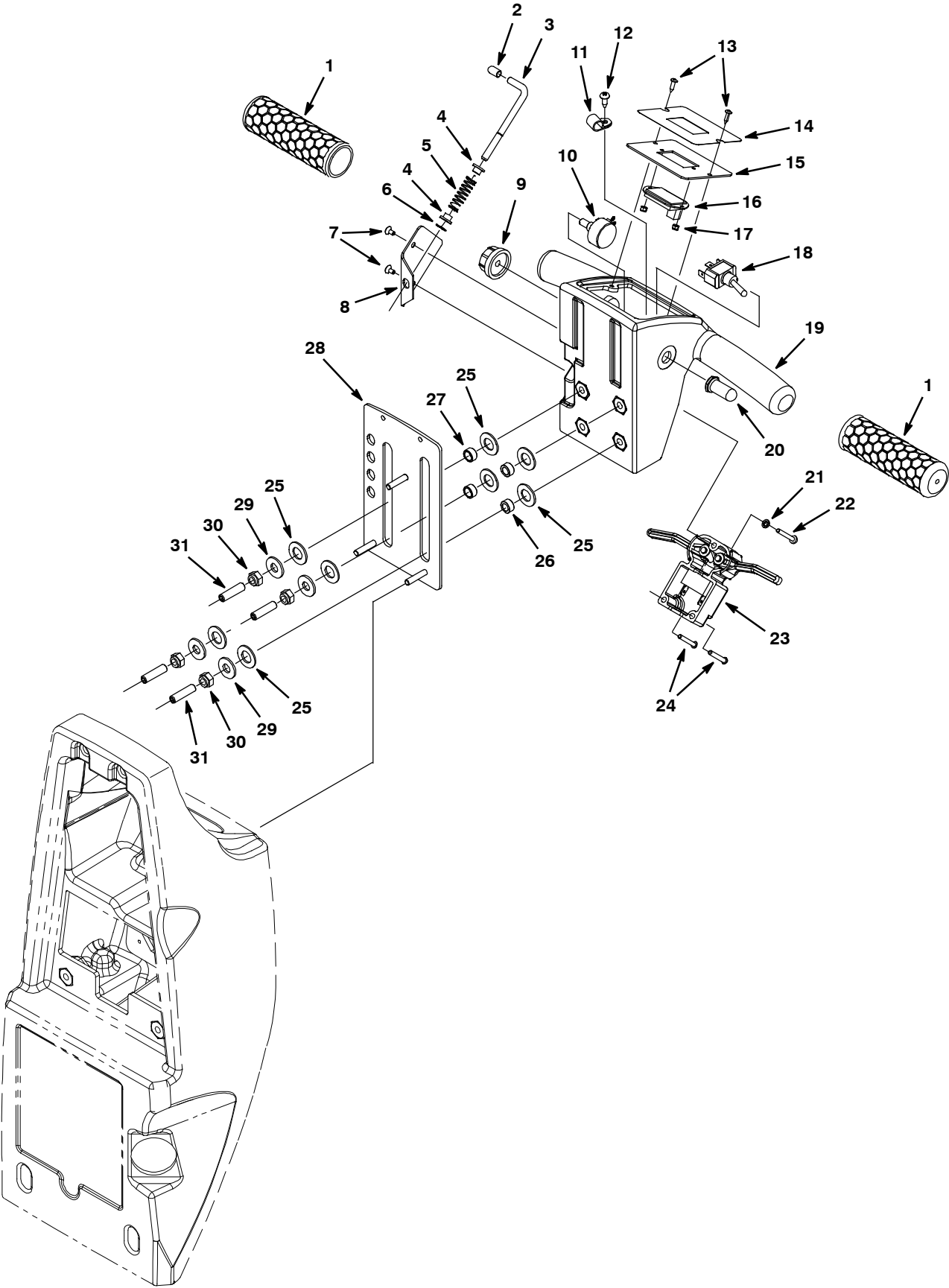
LOWER CONTROL CONSOLE GROUP

Ref.	Part No.	Serial Number	Description	Qty.
1	140638	(00000000-) Nut, Hex, Pf08, Blk Nyl [Conduit]	1
2	130181	(00000000-) Grip, Cord, Strainrelief, .50npt	1
3	1031071	(00000000-) Console, Lower, Rm- Spg, Trimmed [Ss3]	1
4	59658	(00000000-) Screw, Hex, M8 X 1.25 X 35, Ss, NI	2
5	1016331	(00000000-) Washer, Flat, 0.34b 1.25d .11, Ss	2
6	1035469	(00000000-) Fitting, Plstc, Bm12 [Sight Tube]	1
7	07515	(00000000-) Washer, Lock, Int, 0.25 Ss	1
8	367770	(00000000-) Screw, Pan, M6 X 1.0 X 16, Ss	1
9	1020341	(00000000-) Screw, Hex, M8 X 1.25 X 20, Ss, Sems	4
10	41359	(00000000-) Nut, Hex, Std, M6 X 1.00, 8	3
11	01684	(00000000-) Washer, Flat 0.25, Ss	3
12	1054129	(00000000-) Bracket, Hsng, Cntrl, Alm [T3, Ss3]	1
13	1031025	(00000000-) Bushing, Sleeve, 6.5mmb 12mmd 18mml	3
14	07805	(00000000-) Screw, Hex, M6 X 1.0 X 35, Ss	2
15	07515	(00000000-) Washer, Lock, Int, 0.25, Ss	2
16	01684	(00000000-) Washer, Flat 0.25, Ss	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

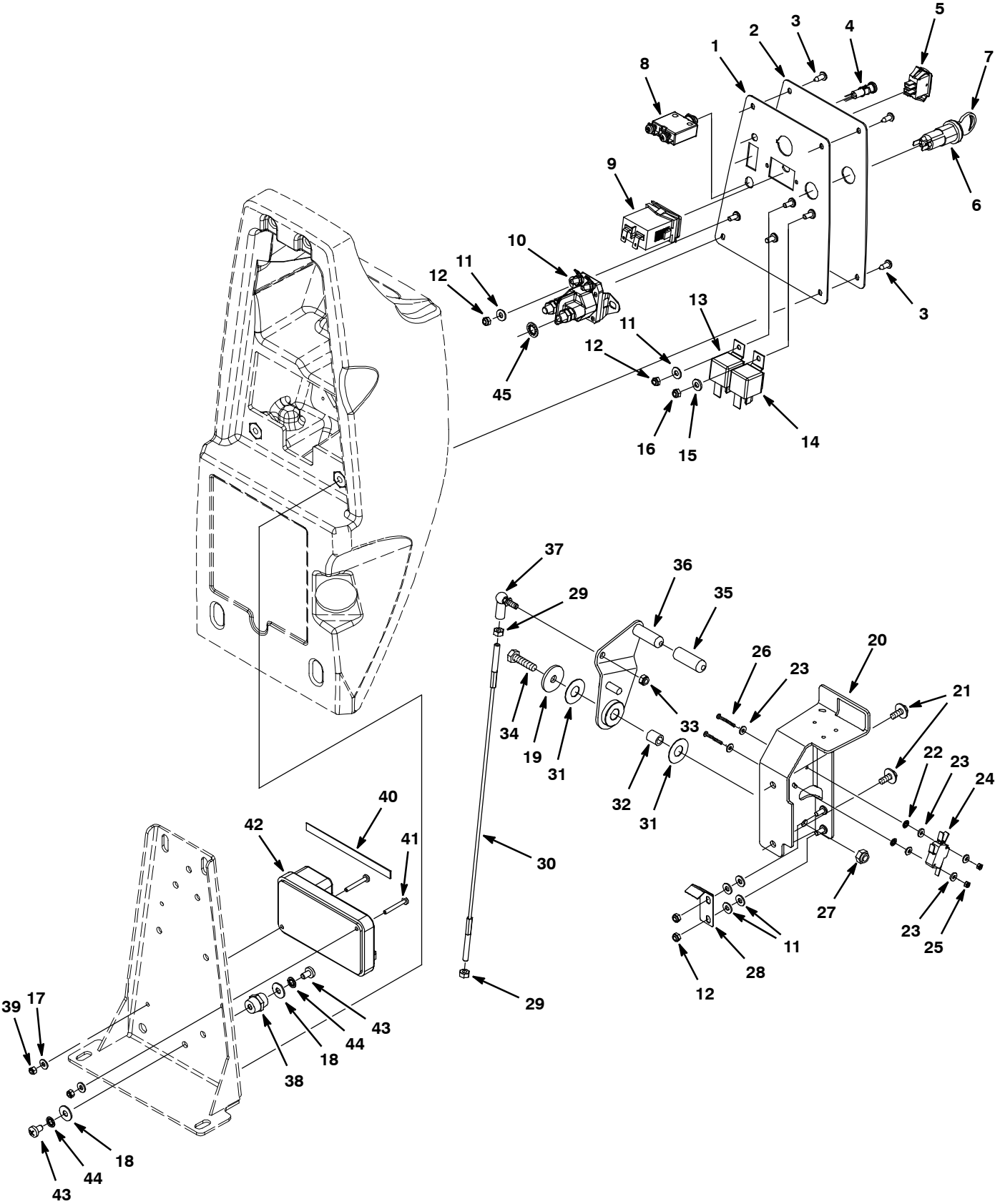
UPPER CONTROL CONSOLE GROUP



UPPER CONTROL CONSOLE GROUP

Ref.	Part No.	Serial Number	Description	Qty.
1	1026407	(00000000-) Grip, Handle, 31.75mm Dia. X 117mm L	2
2	630094	(00000000-) Cap, Vinyl, 2.26 Id X 12.7lg, Blk	1
3	630081	(00000000-) Lever, Latch, Console Adjust	1
4	630083	(00000000-) Bushing, Latch	2
5	630082	(00000000-) Spring, Cmpr, 0.42od .04wir 01.8l, Pl,Mw	1
6	630084	(00000000-) Ring, Retaining, Ext, 4.62mm, [E- Ring]	1
7	49697	(00000000-) Screw, Pan, Phl, M4 X 0.70 X 10, Ss	2
8	630087	(00000000-) Plate, Latch, Retainer	1
9	1028037	(00000000-) Knob, 1.25d	1
10	1042687	(00000000-) Harness, Pot, Wire Assy [45k Ohm]	1
11	140328	(00000000-) Clamp, Cable, Nyl, 0.38d, Blk	1
12	1009324	(00000000-) Screw, Pan, #10- 16 X 0.50,Phl,Blk[Ty- 17]	1
13	140825	(00000000-) Screw, Pan, #06 X 0.50, Phl, Blk,Fmg[Ab]	2
14	1031582	(00000000-) Label, Panel, Cntrl, Upper	1
15	1031162	(00000000-) Panel, Cntrl, Upper, Battery Indicator	1
16	392894	(00000000-) Gauge, Discharge, Battery, 36vdc, Rt,Led	1
17	579211	(00000000-) Nut, Hex, Lock, M3 X 0.50, Ss	2
18	601108	(00000000-) Switch, Toggle, Mom / On / On	1
19	1031000	(00000000-) Console, Upper, Rm- Spg, Trimmmed (Ss3)	1
20	130753	(00000000-) Boot, Switch 1.00l Blk	1
21	02938	(00000000-) Washer, Lock, Int, #08, Ss	1
22	33931	(00000000-) Screw, Pan, Phl, M4 X 0.70 X 30, Ss	1
23	1063203	(00000000-) Controlbox, Assy, Trigger	1
24	1032889	(00000000-) Screw, Pan, #8- 18 X 1.12, F/ Plstc	2
25	608562	(00000000-) Washer, Flat, 0.51b 0.94d .06, Nyl	8
26	607783	(00000000-) Bearing, Sleeve, .31id X .50od X .25,Bnz	2
27	630259	(00000000-) Bearing, 9.5id 12.7od 6.4l,Brz	2
28	1030879	(00000000-) Plate, Slide, Console [Ss3]	1
29	01685	(00000000-) Washer, Flat, 0.38b 0.88d .08, Ss	4
30	08709	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI	4
31	607461	(00000000-) Screw, Set, M8 X 1.25 X 35, NI	4

COMPONENT PANEL GROUP



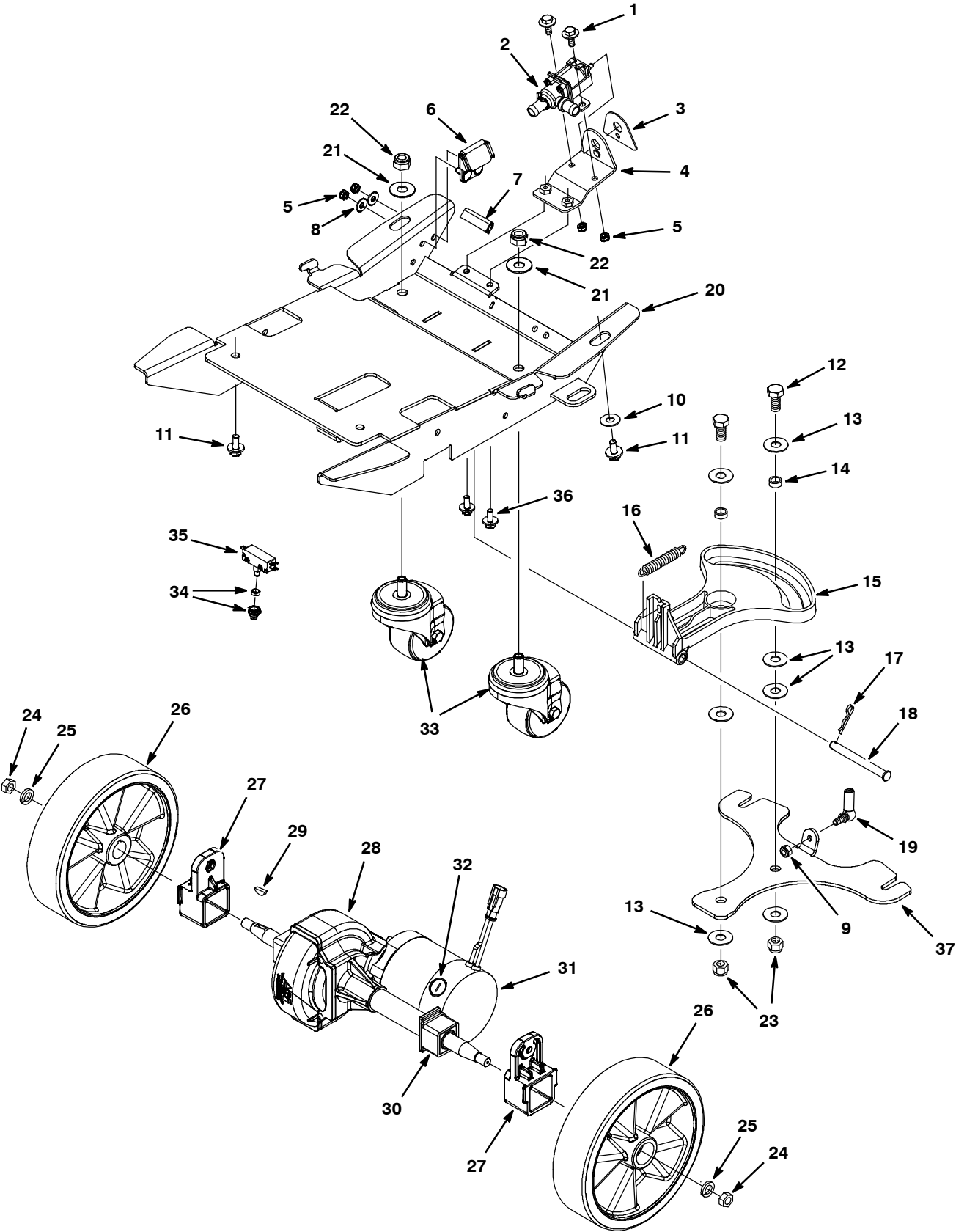
COMPONENT PANEL GROUP

Ref.	Part No.	Serial Number	Description	Qty.	
1	1012134	(00000000-) Panel, Cntrl, Lower	1	
2	1016628	(00000000-) Label, Panl, Instmt, Lower [T3/T3e/Ss3]	1	
2	1049998	(00000000-) Label, Console, Lower Ec- H2o [T3 Na/Aej] (ec-H2O Model)	1	
3	1009324	(00000000-) Screw, Pan, #10- 16 X 0.50,Phl,Blk[Ty- 17]	4	
4	1041822	(00000000-) Light, Panel, Mgt, .312" Dia. (ec-H2O Model)	1	
▽ ▲	5	130787	(00000000-) Switch, Rocker, Spdt (ec-H2O Model)	1
	6	1011402	(00000000-) Switch, Key	1
	7	1017696	(00000000-) Key Set, Replmt [F/ Keyswitch 1011402]	1
	8	1057902	(00000000-) Circuitbreaker, 35.0a	1
	9	1064038	(00000000-) Gauge, Hourmeter, 05- 277 Volt, Ac / Dc	1
10	1038490	(00000000-) Relay, 24vdc, 100a, No [Trombetta]	2	
11	01683	(00000000-) Washer, Flat, #10, Ss	7	
12	09739	(00000000-) Nut, Hex, Lock, M5 X 0.80, NI, Ss	4	
13	1012216	(00000000-) Relay, 24vdc, 070a, Spst No, Plug- In	1	
14	1012216	(00000000-) Relay, 24vdc, 070a, Plug- In (ec-H2O Model)	1	
15	01683	(00000000-) Washer, Flat, #10, Ss (ec-H2O Model)	1	
16	09739	(00000000-) Nut, Hex, Lock, M5 X 0.80, NI (ec-H2O Model)	1	
17	41579	(00000000-) Washer, Flat, #08, Ss	2	
18	01684	(00000000-) Washer, Flat, 0.27b 0.69d .05, Ss	2	
19	1016331	(00000000-) Washer, Flat, 0.34b 1.25d .11, Ss	1	
20	1012850	(00000000-) Bracket Wldt, Lever, Sqge	1	
21	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Sems, Ss	2	
22	02938	(00000000-) Washer, Lock, Int, 08, Ss	2	
23	41578	(00000000-) Washer, Flat, #06, Ss	6	
24	1012568	(00000000-) Switch, Snap, 10a, Short	1	
25	579211	(00000000-) Nut, Hex, Lock, M3 X 0.50, Ss	2	
26	1042062	(00000000-) Screw, Hex, M3 X 0.5 X 25, Ss	2	
27	08713	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI, Ss	1	
28	1073852	(00000000-) Spring, Lever, Sqge	1	
29	07785	(00000000-) Nut, Hex, Std, M6 X 1.00, A2, Ss	2	
30	1013479	(00000000-) Cable, Glv 3.18mmd 0412l M06/ M06	1	
31	1013397	(00000000-) Washer, Flat, M13 X 30 X 0.8, Nyl	2	
32	1014336	(00000000-) Sleeve, P/M, 8.40b 12.60d 14.5l, PI	1	
33	08712	(00000000-) Nut, Hex, Lock, M6 X 1.00, Ss, NI	1	
34	09011	(00000000-) Screw, Hex, M8 X 1.25 X 30, Ss	1	
35	1016895	(00000000-) Cap, Handle, Sqge Lift	1	
36	1013329	(00000000-) Lever Wldt, Sqge	1	
37	1012747	(00000000-) Balljoint, M06 X 1.0 Fem, M06 X 1.0 Mal	1	
38	1013523	(00000000-) Stand- Off, Wir, M6, 18 Hex, 20l, Insul	1	
39	33932	(00000000-) Nut, Hex, Lock, M4 X 0.70, NI, Ss	2	
40	1020280	(00000000-) Seal, Afmkt, Rbr, Clsd, Adh, 01ft (C410217)	1	
41	33931	(00000000-) Screw, Pan, M4 X 0.7 X 30, Ss	2	
42	1052260	(00000000-) Module, Drive [T3]	1	
43	48732	(00000000-) Screw, Pan, M6 X 1.0 X 10, Ss	2	
44	07515	(00000000-) Washer, Lock, Int, 0.25, Ss	2	
45	43952	(00000000-) Washer, Lock, Int, 0.31, Ss	1	

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

WHEEL GROUP, DRIVE MODEL



WHEEL GROUP, DRIVE MODEL

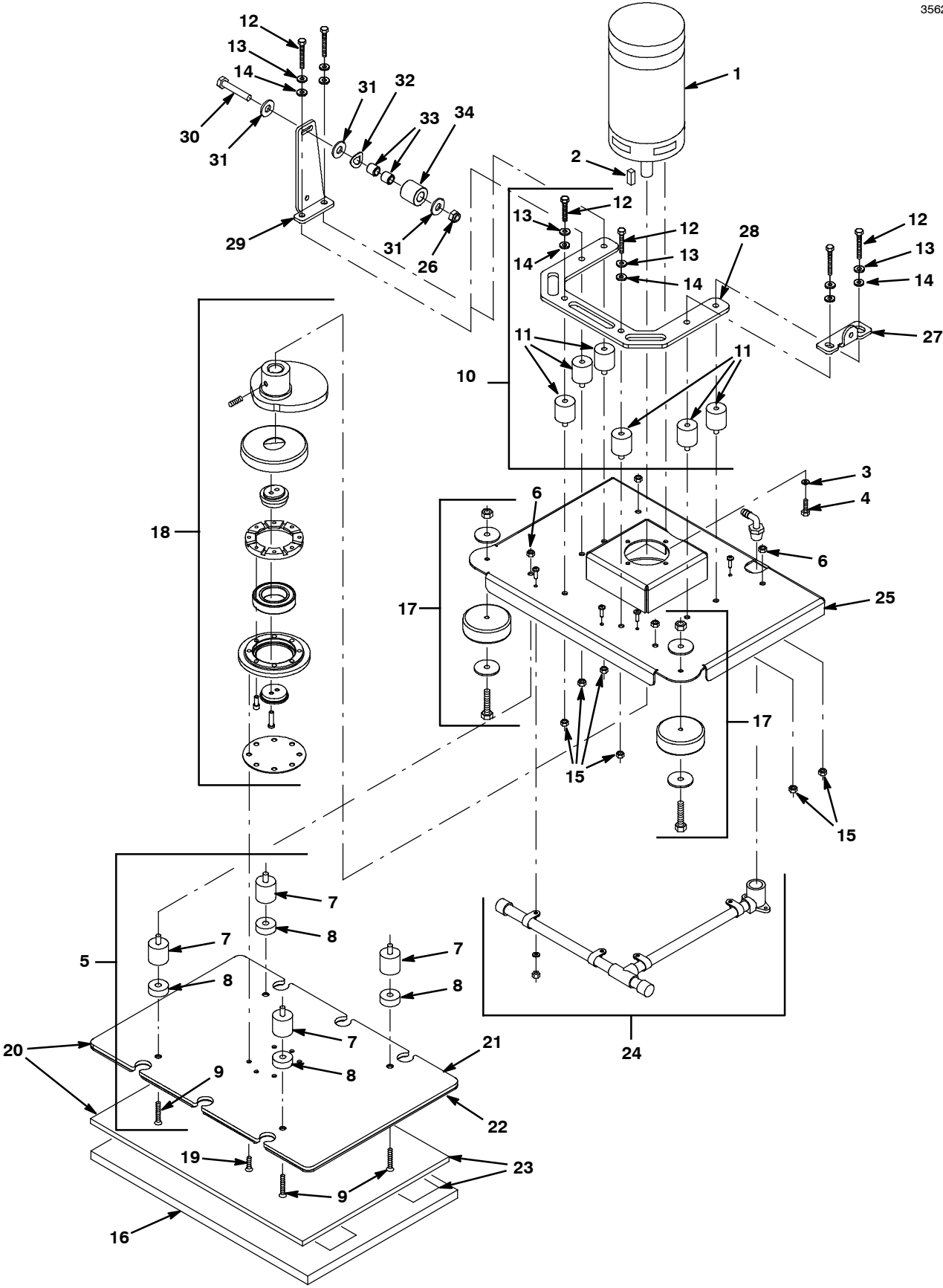
	Ref.	Part No.	Serial Number	Description	Qty.
▽ ▲	1	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	2
	2	1062385	(00000000-) Valve, Water, Solenoid, 24vdc Bm10/Bm10	1
		614265	(00000000-) Valve Kit, Water [Viton Diaphragm]	1
	3	1014156	(00000000-) Label, Opertnl, Lower, Soltn Flow	1
	4	1037292	(00000000-) Bracket, Mtg, Valve, Soltn	1
	5	08712	(00000000-) Nut, Hex, Lock, M6 X 1.0, Ss, NI	4
	6	1013946	(00000000-) Bracket, Locking, Pedal, Foot Ylw	1
	7	1034551	(00000000-) Trim, Plstc, Edge, .12 X .56 X 1.75	1
	8	01684	(00000000-) Washer, Flat, 0.25 Ss	2
	9	08712	(00000000-) Nut, Hex, Lock, M6 X 1.00, NI, Ss	1
	10	1016331	(00000000-) Washer, Flat, 0.34b 1.25d .11, Ss	2
	11	1020341	(00000000-) Screw, Hex, M8 X 1.25 X 20, Ss, Sems	4
	12	12309	(00000000-) Screw, Hex, M12 X 1.75 X 30, Ss	2
	13	140045	(00000000-) Washer, Flat, 0.51b 1.25d .06, Ss	7
	14	1013662	(00000000-) Bushing, Sleeve, 12mm 16mm 6.5mml, Pm Yw	2
	15	1023389	(00000000-) Bracket, Sqge, Lift, Mold Blk, Nyl	1
	16	1008721	(00000000-) Spring, Extn, 0.75od 0.09wir 03.5l	1
	17	44906	(00000000-) Pin, Cotter, Hair, 0.69d .092 Wir	1
	18	1013610	(00000000-) Pin, Clevis, 10mmd X 100mml	1
	19	1012747	(00000000-) Balljoint, M6 X 1.0 Fem, M6 X 1.0 Mal	1
▽ ▲ ▲	20	9008680	(00000000-) Frame Kit, Main, W/ Caster Fastenrs [T3]	1
	21	140045	(00000000-) Washer, Flat, 0.51b 1.25d .06, Ss	2
	22	09741	(00000000-) Nut, Hex, Lock, M12 X 1.75, NI, Ss	2
	23	09741	(00000000-) Nut, Hex, Lock, M12 X 1.75, NI, Ss	2
	24	07788	(00000000-) Nut, Hex, Std, M12 X 1.75, Ss	2
	25	140024	(00000000-) Washer, Lock, Split, 0.50, Ss	2
	26	1039655	(00000000-) Wheel, Scrbr, 198.00mm, W/ Taper [T3]	2
	27	1028292	(00000000-) Adapter, Mtg, Axle, Alm	2
▽ ▲	28	1039475	(00000000-) Transaxle, Ele, 24vdc, 112rpm, Pkrd,Dfma	1
		1017782	(00000000-) Coupling Kit, Transaxle, Replmt [11057]	1
▲ ▲ ▲▽ ▲▲	29	1021167	(00000000-) Key, Woodruff, 5mm	2
	30	612880	(00000000-) Sleeve, Transaxle, Replmt	2
	31	1019916	(00000000-) Motor, Transaxle, 24vdc, Replmt	1
	32	614166	(00000000-) Brush Kit, Carbon [Qty 4]	1
	33	1026345	(00000000-) Caster, Swivel, 80mm D, M12 X 25 Stem	2
	34	1035711	(00000000-) Boot, Switch, Hex Nut, .38- 32 Thd	1
	35	606292	(00000000-) Switch, Push, Actuator, 20a	1
	36	08716	(00000000-) Screw, Hex, M6 X 1.00 X 20, SS	2
	37	1066505	(00000000-) Bracket, Mtg, Sqge, Stl [T3]	1
	N/S	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	4

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ORBITAL HEAD GROUP

356279_01



ORBITAL HEAD GROUP

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9010705	(00000000-) Head Assembly Kit, Complete (Includes Items #1 - 35)	1
▲▽	1	9010695	(00000000-) Motor Assy Kit (Includes Key & Hardware)	1
▲▲		1059370	(00000000-) Brush, Motor, Replmt [Bag of 4]	1
▲▲	2	N/A	(00000000-) Key, 8mm x 7mm x 25mm	1
▲▲	3	N/A	(00000000-) Washer, Lock Int 6mm	4
▲▲	4	N/A	(00000000-) Bolt, Mounting 6mm	4
▲▽	5	9010696	(00000000-) Isolator Kit, Vib Assy, Primary (Includes Isolators & Hardware)	1
▲▲	6	N/A	(00000000-) Nut, 5/16- 18 Nyloc	4
▲▲	7	N/A	(00000000-) Cylindrical Vibration Isolators 1.25" L	4
▲▲	8	N/A	(00000000-) Spacer, 1/2" Nylon w/ 5/16" Pass Thru Hole (Note: Could be 1/4" Qty 8)	4
▲▲	9	N/A	(00000000-) Screw, 5/16- 18 x 1 Flathead Socket Capscrew	4
▲▽	10	9010697	(00000000-) Isolator Kit, Vib Assy, Secondary (Includes Isolators & Hardware)	1
▲▲	11	N/A	(00000000-) Cylindrical Vibration Isolators 1.25" L	6
▲▲	12	N/A	(00000000-) Bolt, 5/16- 18 x 3/4" Zinc	6
▲▲	13	N/A	(00000000-) Washer, Lock Int 5/16"	6
▲▲	14	N/A	(00000000-) Washer, Flat 5/16" Zinc	6
▲▲	15	N/A	(00000000-) Nut, Nyloc 5/16- 18	6
▲	16	N/A	(00000000-) Backer Pad, Red (See Page 5 for Pad Options)	1
▲	17	9010699	(00000000-) Wheel Assy Kit (Includes Wheel & Hardware) (See Wheel Assembly Group for Breakdown)	1
▲	18	9011656	(00000000-) Drive Assy Kit, Eccentric Complete (See Eccentric Drive Assembly Group for Breakdown)	1
▲	19	N/A	(00000000-) Screw, 1/4- 20 x 1- 1/8" Flthd Sckt Capscrew w/Patch	6
▲▽	20	9010701	(00000000-) Pad Driver Assy Kit (Includes #9 & #19 Screws)	1
▲▲	21	N/A	(00000000-) Pad Driver, 20 x 14 Black	1
▲▲	22	N/A	(00000000-) Pad Driver Face, 20 x 14	1
▲	9	N/A	(00000000-) Screw, 5/16- 18 x 1 Flathead Socket Capscrew	4
▲	19	N/A	(00000000-) Screw, 1/4- 20 x 1- 1/8" Flthd Sckt Capscrew w/Patch	6
▲	23	9010674	(00000000-) Backer Pad Assy Kit (Includes Pad with Velcro Strips)	1
▲	24	9010704	(00000000-) Water Distribution Assy Kit (Includes Hardware & Fittings) (See Water Distribution Assembly Group for Breakdown)	1
▲	25	N/A	(00000000-) Frame	1
▲	26	08713	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI, Ss	1
▲	27	1054760	(00000000-) Bracket, Mtg, Head (Lh) [T3 60cm Dd]	1
▲	28	N/A	(00000000-) Bracket, Frame, U	1
▲	29	1011432	(00000000-) Bracket, Mtg, Head, Rh	1
▲	30	222505	(00000000-) Screw, Hex, M8 X 1.25 X 45, Ss	1
▲	31	01685	(00000000-) Washer, Flat, 0.38b 0.88d .08, Ss	3
▲	32	1209002	(00000000-) Washer, Wave 1.2mm Zinc Plated	1
▲	33	222460	(00000000-) Sleeve, P/M, 0.31b 0.50d 0.5l (Note: Could be 1.00" L Qty 1)	2
▲	34	1014020	(00000000-) Roller, Lift, Dual Disk Head	1

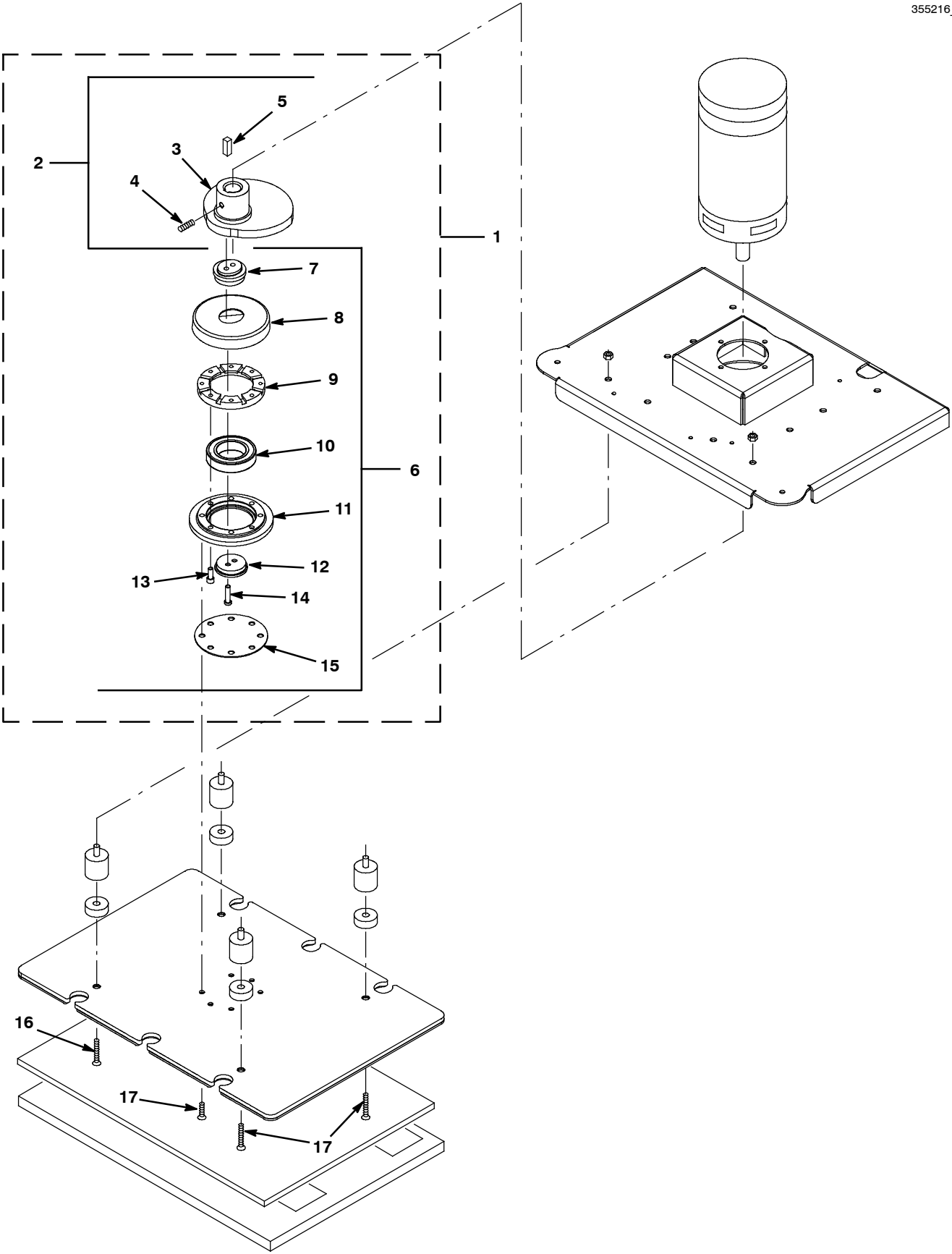
▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

N/A Not Available Separately. Included with Kit

ORBITAL HEAD ECCENTRIC DRIVE ASSEMBLY GROUP

355216_00



ORBITAL HEAD ECCENTRIC DRIVE ASSEMBLY GROUP

	Ref.	Part No.	Serial Number	Description	Qty.
▽	1	9011656	(00000000-) Drive Assy Kit, Eccentric Complete	1
▲▽	2	9010700	(00000000-) Drive Assy Kit, Eccentric (Includes #16 & #17 Screws)	1
▲▲	3	N/A	(00000000-) Eccentric Weight Weldment	1
▲▲	4	N/A	(00000000-) Screw, Set .312- 18 x .375	1
▲▲	5	N/A	(00000000-) Key, 8mm x 7mm x 25mm	1
▲	16	N/A	(00000000-) Screw, 5/16- 18 x 1 Flathead Socket Capscrew	4
▲	17	N/A	(00000000-) Screw, 1/4- 20 x 1- 1/8" Flthd Sckt Capscrew w/Patch	6
▲▽	6	9011655	(00000000-) Eccentric Bearing Assembly (Includes #16 & #17 Screws)	1
▲▲	7	N/A	(00000000-) Eccentric Hub	1
▲▲	8	N/A	(00000000-) Upper Bearing Shield	1
▲▲	9	N/A	(00000000-) Top Bearing Retainer	1
▲▲	10	N/A	(00000000-) 6008- 2RS1 JEM Bearing	1
▲▲	11	N/A	(00000000-) Bottom Bearing Retainer	1
▲▲	12	N/A	(00000000-) Lower Bearing Axle	1
▲▲	13	N/A	(00000000-) Screw 1/4- 20 x 1/2" Socket Head Capscrew	2
▲▲	14	N/A	(00000000-) Screw, 1/4- 20 x 1.5" Socket Head Capscrew	2
▲▲	15	N/A	(00000000-) Lower Bearing Shield	1
▲▲	16	N/A	(00000000-) Screw, 5/16- 18 x 1 Flathead Socket Capscrew	4
▲▲	17	N/A	(00000000-) Screw, 1/4- 20 x 1- 1/8" Flthd Sckt Capscrew w/Patch	6

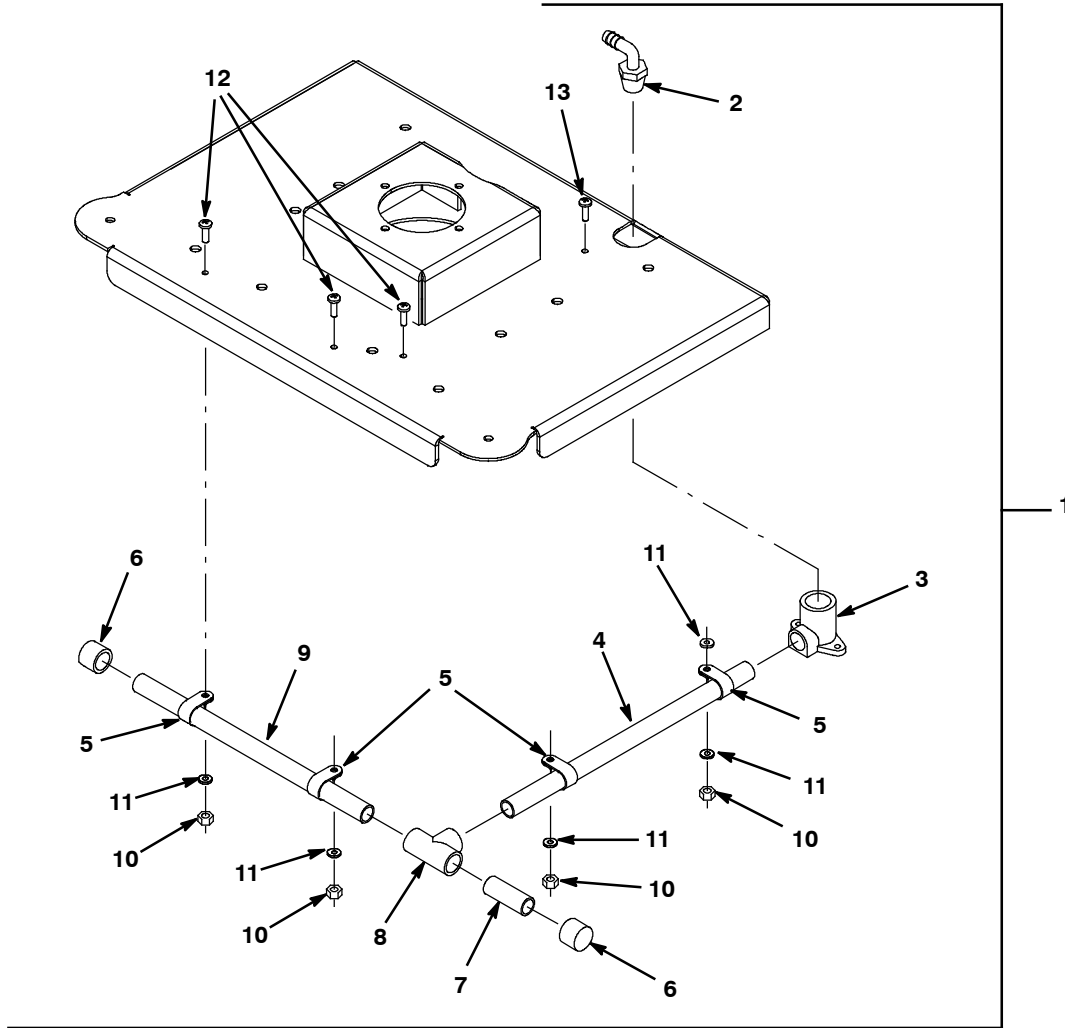
▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

N/A Not Available Separately. Included with Kit

ORBITAL HEAD WATER DISTRIBUTION ASSEMBLY GROUP

355217_01



Ref.	Part No.	Serial Number	Description	Qty.
▽	1	9010704	(00000000-) Water Distribution Assembly	1
▲	2	N/A	(00000000-) Fitting, Barbed 3/8" x 1/2" Male 90	1
▲	3	N/A	(00000000-) CPVC 3/8" x 1/2" Female Thread 90	1
▲	4	N/A	(00000000-) CPVC 3/8" x 10- 3/4" Tube	1
▲	5	N/A	(00000000-) Loop Clamp (Large)	4
▲	6	N/A	(00000000-) CPVC 3/8" Caps	2
▲	7	N/A	(00000000-) CPVC 3/8" x 2" Tube	1
▲	8	N/A	(00000000-) CPVC 3/8" T	1
▲	9	N/A	(00000000-) CPVC 3/8" x 8" Tube	1
▲	10	N/A	(00000000-) Nut, 10- 24 Nyloc	4
▲	11	N/A	(00000000-) Washer, Flat #10 Zinc	5
▲	12	N/A	(00000000-) Screw 10- 24 x 3/4"	3
▲	13	N/A	(00000000-) Screw 10- 24 x 1"	1

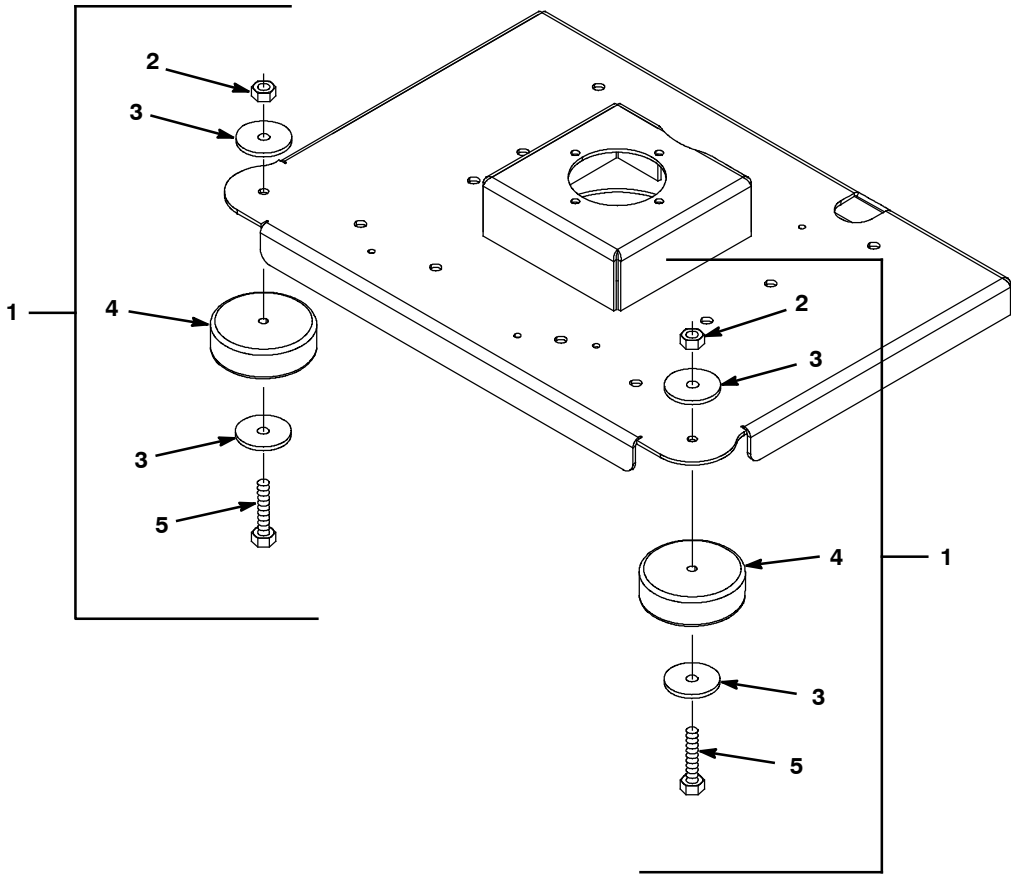
▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

N/A Not Available Separately. Included with Kit

ORBITAL HEAD WHEEL ASSEMBLY GROUP

355218_00

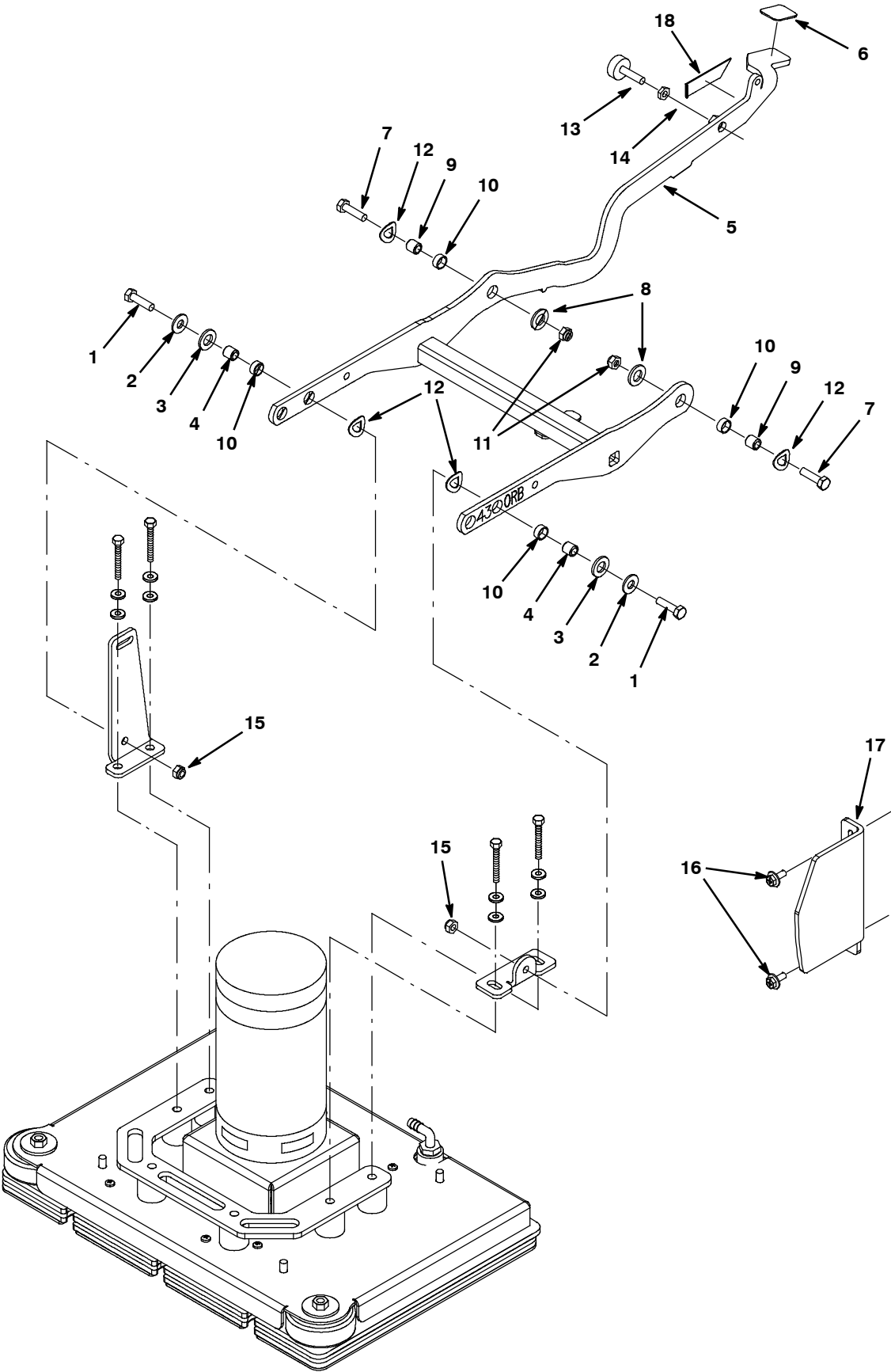


	Ref.	Part No.	Serial Number	Description	Qty.
▽	1	9010699	(00000000-) Wheel Assy Kit	2
▲	2	N/A	(00000000-) Nut, 1/4- 20 Nyloc	1
▲	3	N/A	(00000000-) Washer, 1/4" Flat Zinc	2
▲	4	N/A	(00000000-) Wheel, 1" x 3" Ball Bearing	1
▲	5	N/A	(00000000-) Bolt, 1/4" x 1- 3/4" Zinc	1

▽ ASSEMBLY
▲ INCLUDED IN ASSEMBLY
N/A Not Available Separately. Included with Kit

ORBITAL HEAD LIFT GROUP

356288_01



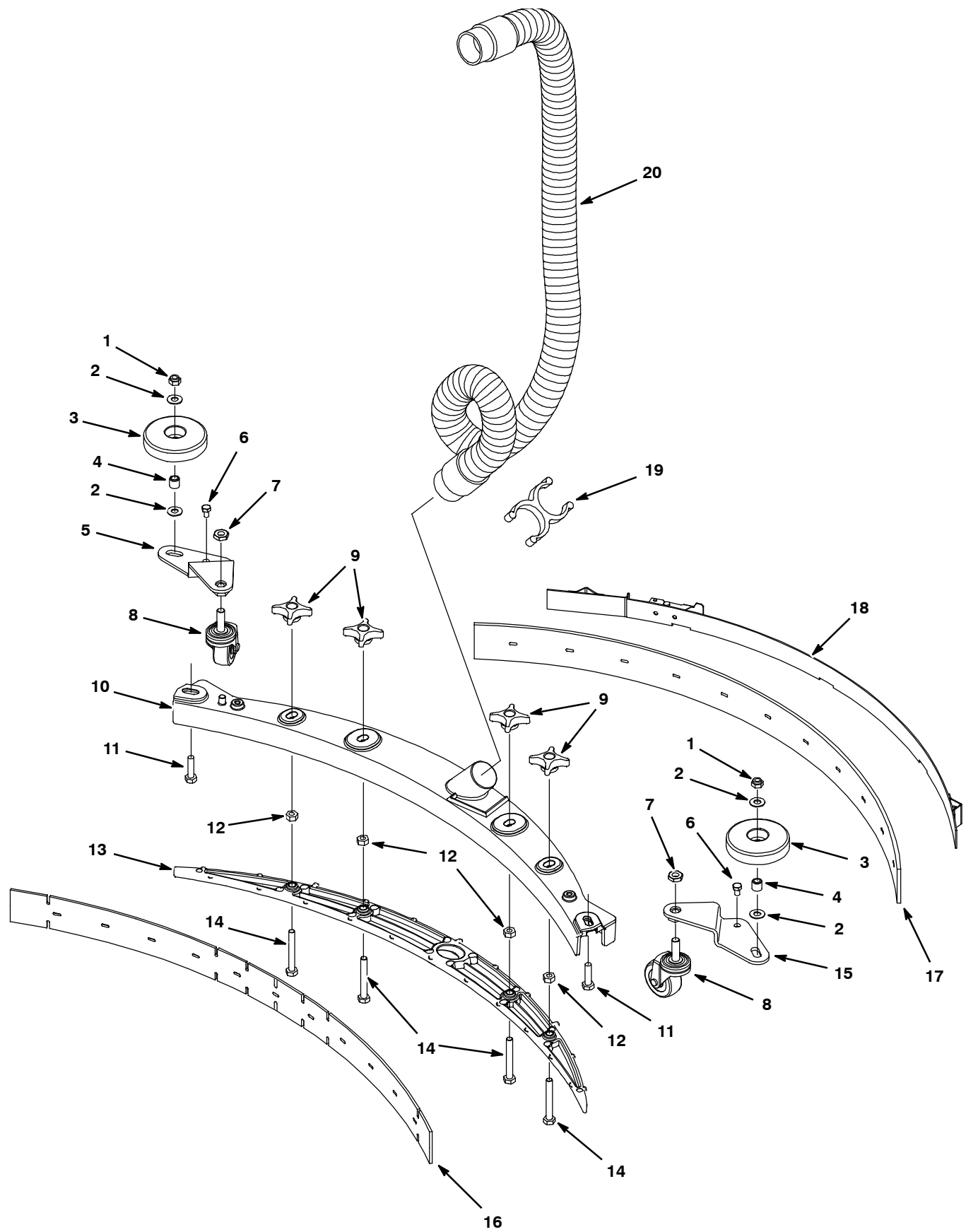
ORBITAL HEAD LIFT GROUP

Ref.	Part No.	Serial Number	Description	Qty.
1	09011	(00000000-) Screw, Hex, M8 X 1.25 X 30, Ss	2
2	01685	(00000000-) Washer, Flat, 0.38b 0.88d .08, Ss	2
3	1013936	(00000000-) Washer, Flat, 0.51b 0.94d .10, Nyl	2
4	222460	(00000000-) Sleeve, P/M, 0.31b 0.50d 0.5l	2
▽	5	1061708	(00000000-) Kit, Lift Assy, Head, Sgl Disk, 43cm [T3] (Also Order Qty 4 of P/N 1209002 - Item #12 Not Included In Assembly)	1
▲	6	1014283	(00000000-) Pad, Adh, Non-Slip, 28mm X 36mm, Blk	1
▲	7	09011	(00000000-) Screw, Hex, M8 X 1.25 X 30, Ss	2
▲	8	1013936	(00000000-) Washer, Flat, 0.51b 0.94d .10, Nyl	2
▲	9	222460	(00000000-) Sleeve, P/M, 0.31b 0.50d 0.5l	2
▲	10	630188	(00000000-) Bearing, Journal, .50id X .25l	4
▲	11	08713	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI, Ss	2
	12	1209002	(00000000-) Washer, Wavy, 13.0mm B 24.0mm D 1.2mm	4
	13	1073212	(00000000-) Bumper, Rbr, 1.00d 0.38th M8x1.25	1
	14	200101017	(00000000-) Nut, Hex, Jam, M8 X 1.25	1
	15	08713	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI, Ss	2
	16	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	2
	17	1055999	(00000000-) Bracket, Guide, Head, 60cm Dd [T3]	1
	18	1206461	(00000000-) Strip, Reclosable Fastener	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

SQUEEGEE GROUP, 500 mm



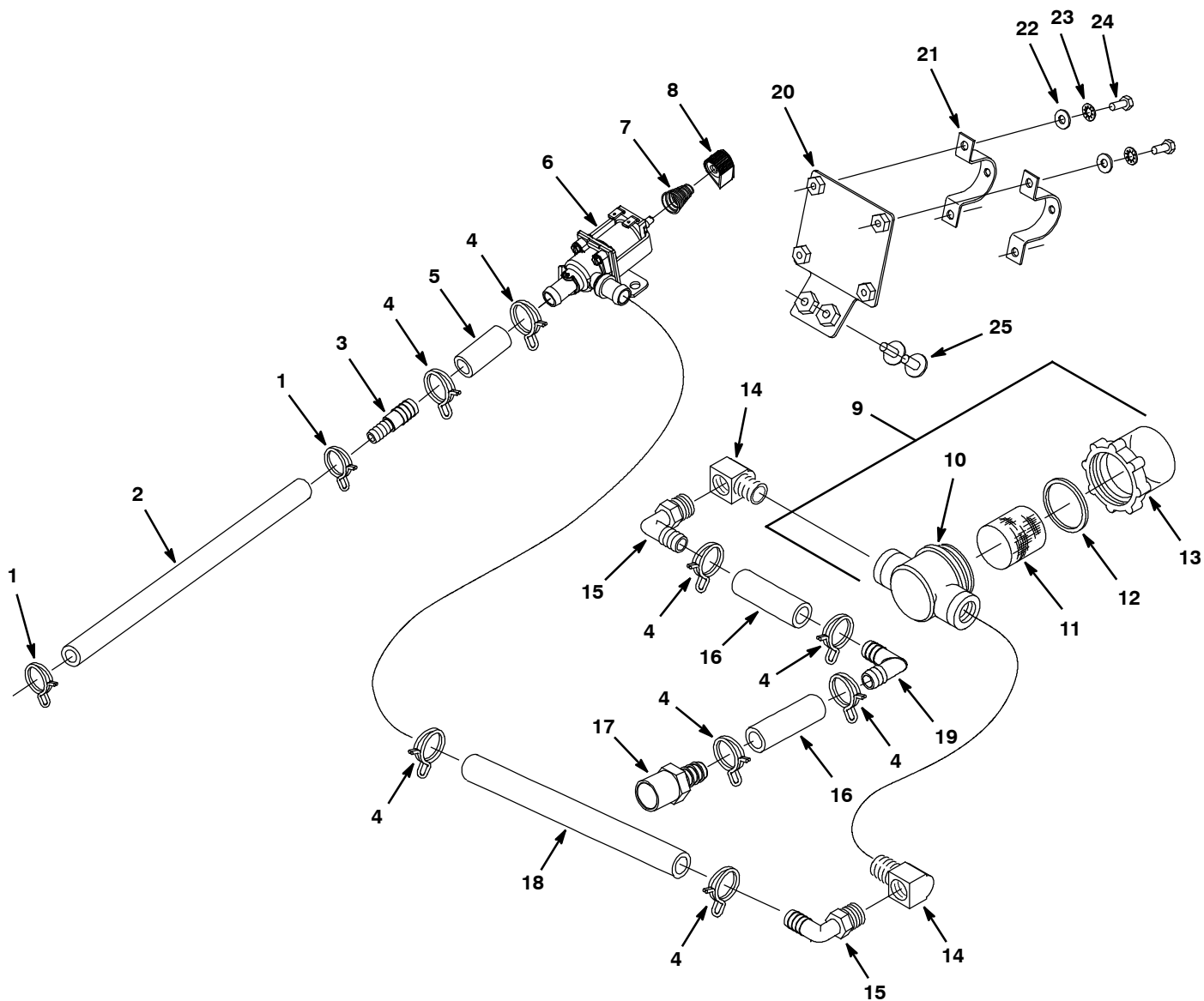
SQUEEGEE GROUP, 500 mm

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9001178	(00000000-) Squeegee Assy Kit, 500mm, Ci	1
▲	1	08713	(00000000-) Nut, Hex, Lock, M8 X 1.25, NI, Ss	2
▲	2	140027	(00000000-) Washer, Flat, 0.35b 0.75d .04, Ss	4
▲	3	1010560	(00000000-) Wheel, Bmpr, 80d X 25w, Non- Marking	2
▲	4	222460	(00000000-) Sleeve, P/M, 0.31b 0.50d 0.5l	2
▲	5	1011228	(00000000-) Plate, Mtg, Caster, Sqge, Rh	1
▲	6	74455	(00000000-) Screw, Hex, M6 X 1.0 X 12, Fmg	2
▲	7	32716	(00000000-) Nut, Hex, Jam, M10 X 1.5, Ss	2
▲	8	1006343	(00000000-) Caster, Swivel, 50mmd, M10 X 30 Stem, PI	2
▲	9	1010558	(00000000-) Knob, Star, 2.00d 4ear .73l M8x1.25 Thru	4
▲	10	1011163	(00000000-) Frame, Sqge, 74cm [50cm] Die Cast	1
▲	11	09011	(00000000-) Screw, Hex, M8 X 1.25 X 30, Ss	2
▲	12	07786	(00000000-) Nut, Hex, Std, M8 X 1.25, Ss	4
▲	13	1019919	(00000000-) Retainer, Sqge, 76cm [50cm] Nyl, Blk	1
▲	14	1014163	(00000000-) Screw, Hex, M8 X 1.25 X 60, FI, Ss	4
▲	15	1011956	(00000000-) Plate, Mtg, Caster, Sqge, Lh	1
▲	16	1011232	(00000000-) Blade, Sqge, Front, 500mml Linatex (Linatex Red Standard)	1
	16	1014091	(00000000-) Blade, Sqge, Front, 500mml, Gum (Gum Rubber Tan Optional)	1
	16	1014092	(00000000-) Blade, Sqge, Front, 500mml, Oil- Rstn (Polyurethane Natural Optional)	1
▲	17	1011456	(00000000-) Blade, Sqge, Rear, 32.7l, Linatex[500mm] (Linatex Red Standard)	1
	17	1014093	(00000000-) Blade, Sqge, Rear, 32.7l, Gum [500mm] (Gum Rubber Tan Optional)	1
	17	1014094	(00000000-) Blade, Sqge, Rear, 32.7l, Oil- Rstn[500mm] (Polyurethane Natural Optional)	1
▲	18	1013933	(00000000-) Strap Assy, Sqge, 500mm	1
	19	1014079	(00000000-) Clip, Hose, Gripper, 1.50id, Dbl, Blk Pp	1
	20	1014026	(00000000-) Hose, Vacuum, 1.5d X 57l, 2- Short Cuffs	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

SOLUTION GROUP, STANDARD MODEL



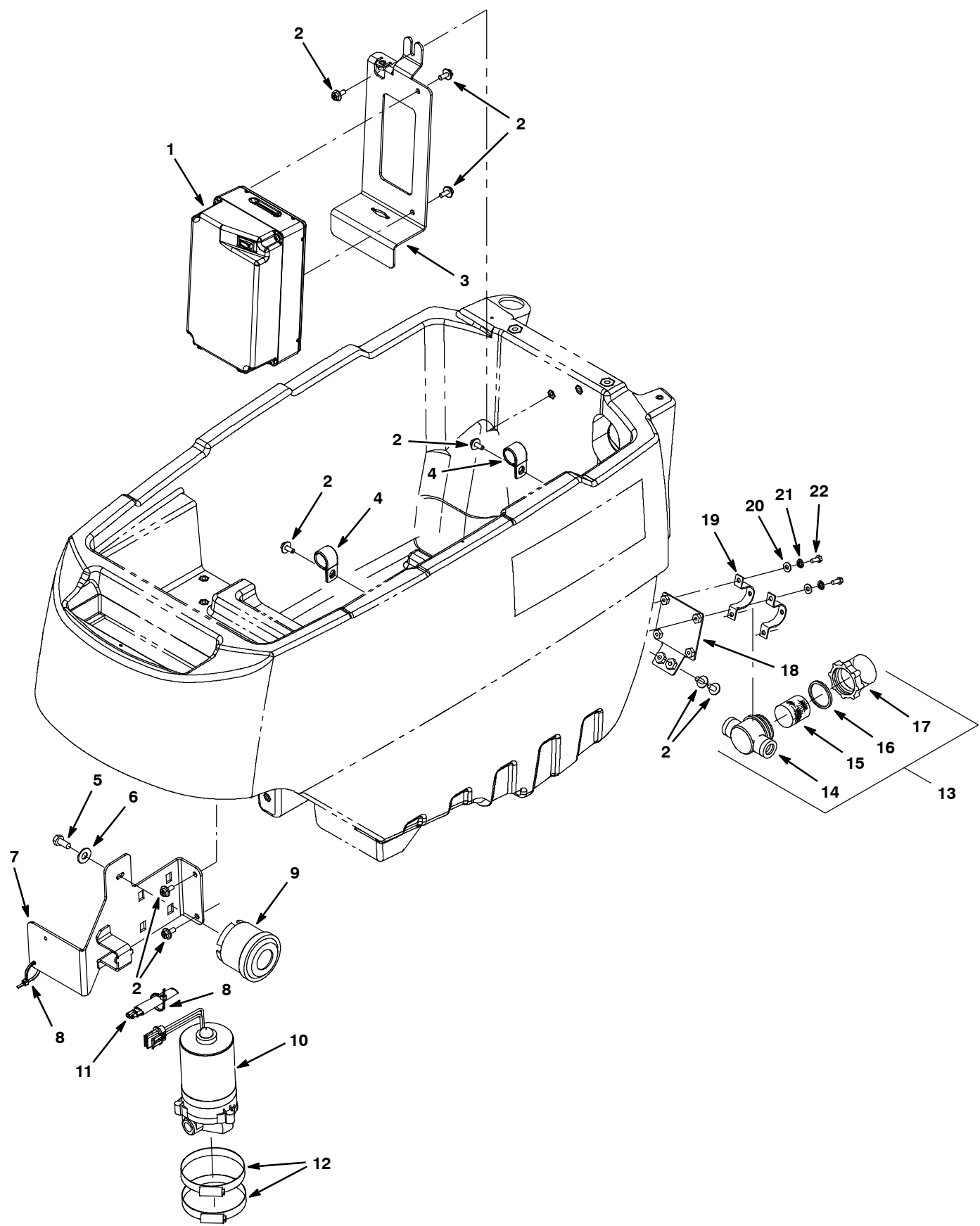
SOLUTION GROUP, STANDARD MODEL

Ref.	Part No.	Serial Number	Description	Qty.	
1	607775	(00000000-) Clamp, Hose, Wir, .63 - .66, Blk	2	
2	606318	(00000000-) Hose, PVC,Brd, 0.38id 0.60od 036.5l, Clr	1	
3	612774	(00000000-) Fitting, Plstc, Str, Bm06/Bm08	1	
4	607776	(00000000-) Clamp, Hose, Wir, .73 - .77, Silver	8	
5	606225	(00000000-) Hose 1/2id X 1.79"	1	
▽	6	1062385	(00000000-) Valve, Water, Solenoid, 24vdc Bm10/Bm10	1
▲	614265	(00000000-) Valve Kit, Water [Viton Diaphragm]	1	
7	1017091	(00000000-) Spring, Cmpr, .48d, .036w, .75l	1	
8	1013442	(00000000-) Knob, Valve, Indicator, Blk	1	
▽	9	1005302	(00000000-) Filter, In- Line, Pf06/Pf06, 80 Mesh	1
▲	10	613993	(00000000-) Housing, Top, F/1005302	1
▲	11	1005304	(00000000-) Screen, Fltr, 80 Mesh	1
▲	12	613992	(00000000-) Gasket [Viton, F/1005302]	1
▲	13	613991	(00000000-) Bowl, Clr, Short, F/1005302	1
14	150420	(00000000-) Fitting, Brs, E90, Pf06/Pm06 [Taped]	2	
15	1017532	(00000000-) Fitting, Plstc, E90, Bm08/Pm06	2	
16	140957	(00000000-) Hose, Pvc, Clr, 0.50id 0.75od 002.5l	2	
17	1023581	(00000000-) Fitting, Plstc, Str, Bm08/Pm08, Nyl	1	
18	613517	(00000000-) Tube, 0.50id X 0.75od Vyl 0.46ft[611259]	1	
19	63987- 1	(00000000-) Fitting, Plstc, E90, Bm08/Bm08	1	
20	1029533	(00000000-) Bracket, Mtg, Fltr	1	
21	605056	(00000000-) Bracket, Mtg, Fltr	2	
22	01683	(00000000-) Washer, Flat, #10, Ss	4	
23	07514	(00000000-) Washer, Lock, Int, #10, Ss	4	
24	09738	(00000000-) Screw, Hex, M5 X 0.8 X 12, Ss	4	
25	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	2	

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

SOLUTION GROUP, ec-H2O MODEL



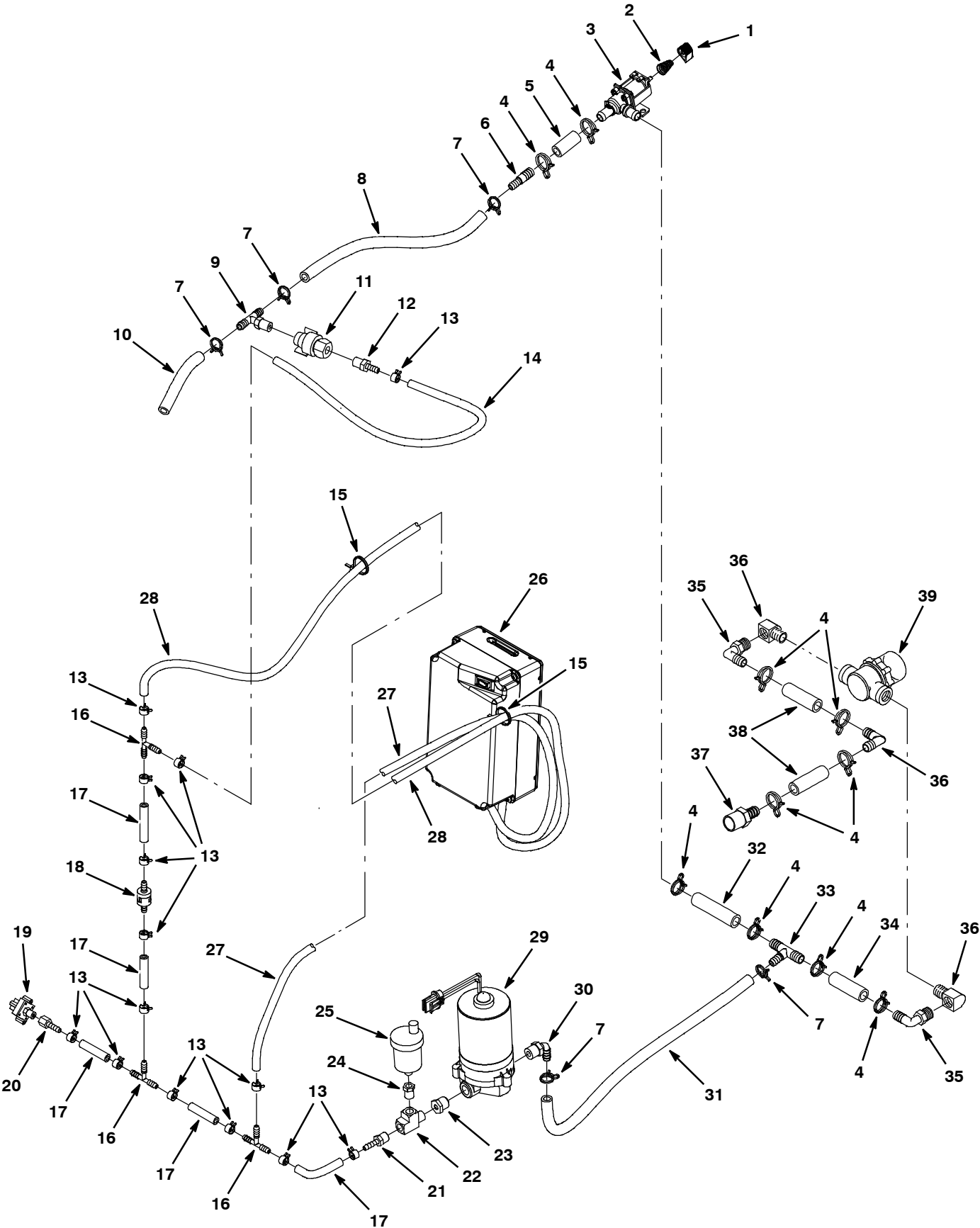
SOLUTION GROUP, ec-H2O MODEL

Ref.	Part No.	Serial Number	Description	Qty.	
1	9007970	(00000000-) Module Kit, Replmt [Ec- H2o] (See Breakdown)	1	
2	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	9	
3	1045961	(00000000-) Bracket, Mtg, Chrgr [Ss3/T3e Ec- H2o]	1	
4	140314	(00000000-) Clamp, Cable, Stl, 0.75d X 0.75w, 1hole	2	
5	11635	(00000000-) Screw, Hex, M6 X 1.00 X 12, NI, Ss	1	
6	01684	(00000000-) Washer, Flat, 0.27b 0.69d .05, Ss	1	
7	1037242	(00000000-) Bracket Wldt, Mtg, Pump [Fast li+]	1	
8	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	2	
9	1018505	(00000000-) Horn, 12- 48vdc [88.5 Decibels]	1	
▽	10	1042495	(00000000-) Pump, Soltn, Ele, 24vdc, 35psi	1
▲	9004759	(00000000-) Pump Kit, Head, Soltn [Ec- H2o]	1	
▲	78950	(00000000-) Connector, Fem, 2cav, Mp280 Sealed	1	
▲	78951	(00000000-) Terminal, Fem, Mp280, Sealed, 18- 16ga	1	
▲	10917	(00000000-) Seal, Wire, 14/16ga [Wp / Mp280 Sealed]	1	
▲	78952	(00000000-) Lock, Secondary, 2cav, Mp280 Sealed	1	
11	1040868	(00000000-) Capacitor, Plug [.01 Uf, 200v]	1	
12	43555	(00000000-) Clamp, Hose, Wormdrive, 2.50- 3.50d, .50w	3	
▽	13	1005302	(00000000-) Filter, In- Line, Pf06/Pf06 080mesh 02.6l	1
▲	14	613993	(00000000-) Housing, Top, F/1005302	1
▲	15	1005304	(00000000-) Screen, Fltr, 80 Mesh, Ss	1
▲	16	613992	(00000000-) Gasket [Viton, F/1005302]	1
▲	17	613991	(00000000-) Bowl, Clr, Short, F/1005302	1
18	1029533	(00000000-) Bracket, Mtg, Fltr	1	
19	605056	(00000000-) Bracket, Mtg, Fltr	2	
20	01683	(00000000-) Washer, Flat, 10, Ss	4	
21	07514	(00000000-) Washer, Lock, Int, 10, Ss	4	
22	09738	(00000000-) Screw, Hex, M5 X 0.80 X 12, Ss	4	

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

SOLUTION GROUP, ec-H2O MODEL - CONT'D



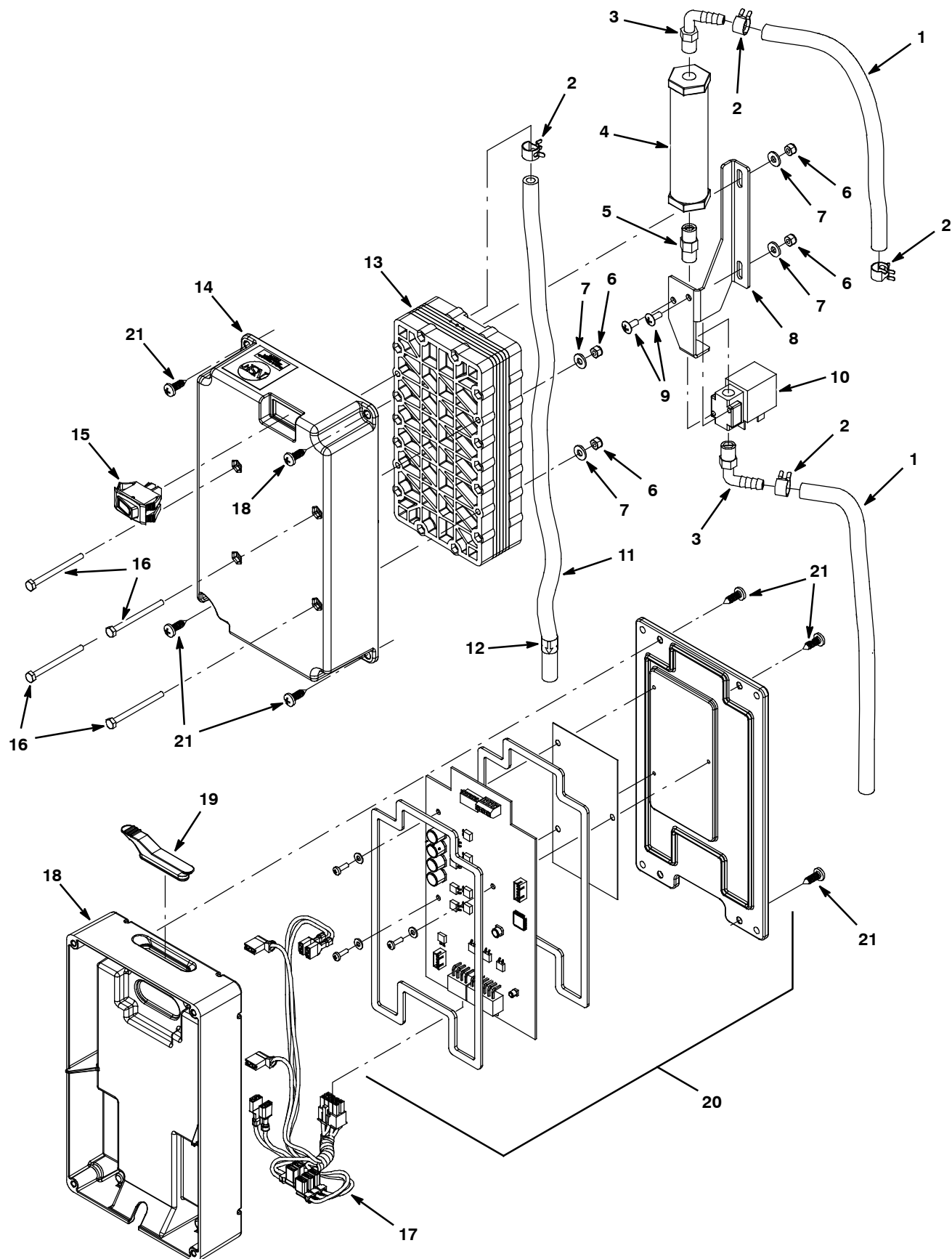
SOLUTION GROUP, ec-H2O MODEL - CONT'D

Ref.	Part No.	Serial Number	Description	Qty.
▽ ▲	1	1013442	(00000000-) Knob, Valve, Indicator, Blk	1
	2	1017091	(00000000-) Spring, Cmpr, 0.50od .04wir 00.8l	1
	3	1062385	(00000000-) Valve, Water, Solenoid, 24vdc Bm10/Bm10	1
	614265	(00000000-) Valve Kit, Water [Viton Diaphragm]	1	
4	607776	(00000000-) Clamp, Hose, Wir, .73 - .77, Silver	10	
5	1015071	(00000000-) Hose, Afmkt, Pvc, Clr, 0.50id, 01ft	1	
6	612774	(00000000-) Fitting, Plstc, Str, Bm06/Bm08	1	
7	607775	(00000000-) Clamp, Hose, Wir, .63 - .66, Blk	5	
8	606318	(00000000-) Hose, PVC,Brd, 0.38id 0.60od 036.5l, Clr	1	
9	1017340	(00000000-) Fitting, Plstc, Tee, Bm06/Bm06/Pm04, Br	1	
10	606317	(00000000-) Hose, PVC,Brd, 0.38id 0.60od 019.5l, Clr	1	
11	1043866	(00000000-) Fitting Assy, Qd, Pf04	1	
12	50901	(00000000-) Fitting, Plstc, Str, Bm04/Pm04	1	
13	603654	(00000000-) Clamp, Hose, Ear, .44d [Ctb]	14	
14	578820000	(00000000-) Hose, Pvc, Brd, 0.25id 0.44od 157.2l,Clr	1	
15	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	2	
16	150713	(00000000-) Fitting, Plstc, Tee, Bm04/Bm04/Bm04	3	
17	578820000	(00000000-) Hose, Pvc, Brd, 0.25id 0.44od 157.2l,Clr	1	
18	1044334	(00000000-) Valve, Check, 0017psi Bm04/Bm04	1	
19	1044335	(00000000-) Switch, Press, 6psi, Pm02	1	
20	150520	(00000000-) Fitting, Brs, Str, Bm04/Pf02	1	
21	150515	(00000000-) Fitting, Brs, Str, Bm04/Pm04 [Taped]	1	
22	150709	(00000000-) Fitting, Brs, Tee, Pm04/Pf04/Pf04, Run	1	
23	1016383	(00000000-) Fitting, Brs, Str, Pf04/Pm06	1	
24	150100	(00000000-) Fitting, Brs, Str, Pf02/Pm04	1	
▽ ▲ ▲	25	1017386	(00000000-) Valve, Vent, Air, Float Type	1
	26	9007970	(00000000-) Module Kit, Replmt [Ec- H2o] (See Breakdown)	1
	27	578820000	(00000000-) Hose, Pvc, Brd, 0.25id 0.44od 157.2l,Clr	1
	28	9004606	(00000000-) Hose, Pvc, Brd, .25id .45od 64l, Clr	1
29	1042495	(00000000-) Pump, Soltn, Ele, 24vdc, 35psi	1	
30	1005630	(00000000-) Fitting, Plstc, E90, Bm06/Pm06, Nyl	1	
31	613521	(00000000-) Hose, Pvc, Clr, 0.50id 0.75od 012.0l	1	
32	613514	(00000000-) Hose, Pvc, Clr, 0.50id 0.75od 004.1l	1	
33	630372	(00000000-) Fitting, Plstc, Tee, Bm06/Bm08/Bm08, Br	1	
34	140957	(00000000-) Hose, Pvc, Clr, 0.50id 0.75od 002.5l	1	
35	1017532	(00000000-) Fitting, Plstc, E90, Bm08/Pm06	2	
36	150420	(00000000-) Fitting, Brs, E90, Pf06/Pm06 [Taped]	2	
37	1023581	(00000000-) Fitting, Plstc, Str, Bm08/Pm08, Nyl	1	
38	140957	(00000000-) Hose, Pvc, Clr, 0.50id 0.75od 002.5l	2	
39	63987- 1	(00000000-) Fitting, Plstc, E90, Bm08/Bm08	1	
40	1005302	(00000000-) Filter, In- Line, Pf06/Pf06 080mesh 02.6l	1	

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ec-H2O MODULE ASSEMBLY BREAKDOWN, 9007970



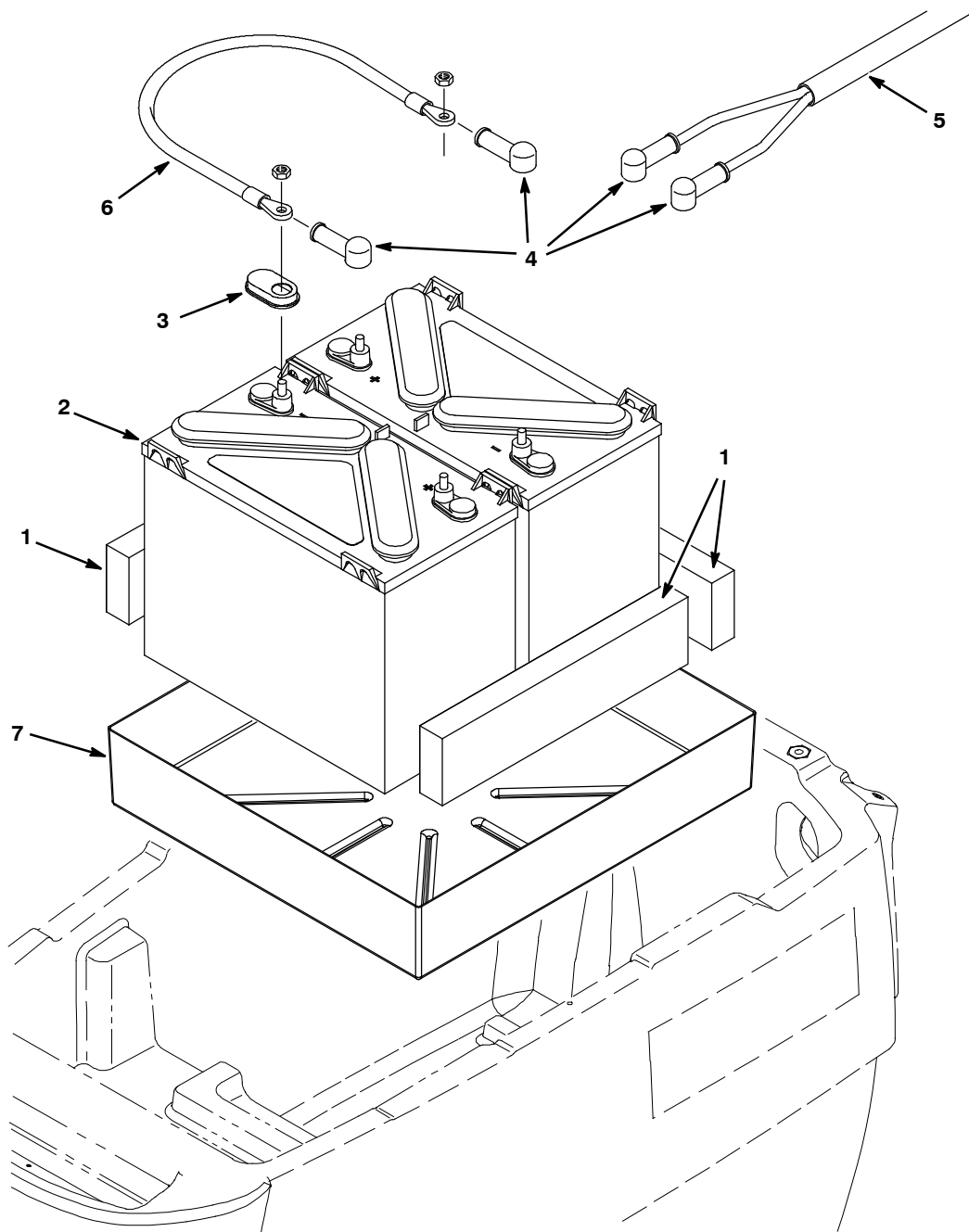
ec-H2O MODULE ASSEMBLY BREAKDOWN, 9007970

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9007970	(00000000-) Module Kit, Replmt [Ec- H2o]	1
▲▽		9006324	(00000000-) Ec- H2o Kit [Module B, Plumbing]	1
▲▲	1	578820000	(00000000-) Hose, Pvc, Brd, 0.25id 0.44od 157.2l,Clr	1
▲▲	2	603654	(00000000-) Clamp, Hose, Ear, .44d [Ctb]	4
▲▲	3	1037595	(00000000-) Fitting, Plstc, E90, Bm04/Pm02, Nyl	2
▲▲	4	1062006	(00000000-) Electrode, Cylindrical	1
▲▲	5	1045030	(00000000-) Fitting, Brs, Str, Pm02/Pm02	1
▲▲	6	33932	(00000000-) Nut, Hex, Lock, M4 X 0.70, NI, Ss	4
▲▲	7	41579	(00000000-) Washer, Flat, 08, Ss	4
▲▲	8	1048490	(00000000-) Bracket, Valve	1
▲▲	9	140801	(00000000-) Screw, Trs, Phl, 08- 32 X 0.38, Ss	2
▲▲	10	1013236	(00000000-) Valve, Shutoff, Ele, 24vdc	1
▲▲	11	9006574	(00000000-) Hose, Pvc, Brd, 0.25id 0.45od, 65l, Clr	1
▲▲	12	1049637	(00000000-) Label, Direction [Ec- H2o]	1
▲▲	13	1057637	(00000000-) Electrode, 5 Plate, High Flow	1
▲▲	14	1051519	(00000000-) Housing, Upper, Module, High Flow	1
▲▲	15	1044393	(00000000-) Switch, Rocker, Spst, Mom,	1
▲▲	16	32509	(00000000-) Screw, Hex, M4 X 0.70 X 50, Ss	4
▲▲	17	1049489	(00000000-) Harness, Main, Controller [Ec- H2o, P3]	1
▲	18	1037032	(00000000-) Housing, Bottom	1
▲	19	1054776	(00000000-) Grommet, Blind	1
▲	20	9007969	(00000000-) Controller Kit, Replmt [Ec- H2o]	1
▲	21	1018155	(00000000-) Screw, Pan, Phl, M5 X 0.80 X 16, Tcut,Ss	8

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

BATTERY AND CABLE GROUP, 12V/155 AH



BATTERY AND CABLE GROUP, 12V/155 AH

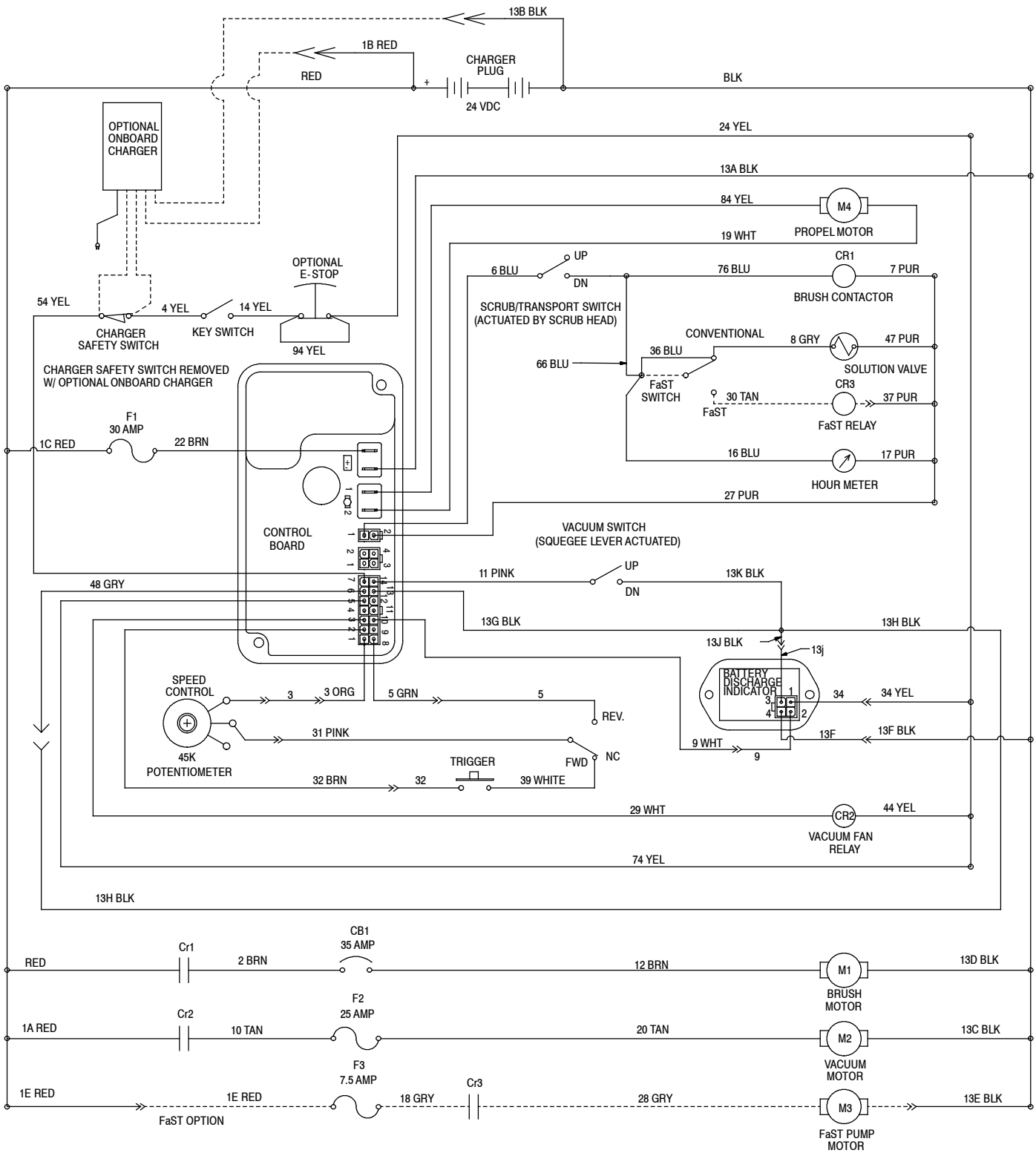
Ref.	Part No.	Serial Number	Description	Qty.
	1	630375	(00000000-) Spacer, Battery, 1.25 X 3.25 X 13.7 Foam	3
▽	2	1015046	(00000000-) Battery, 12vdc, 155ah, Wet	2
▲	3	1041030	(00000000-) Cap, Battery (Short Black - Standard)	4
	4	611221	(00000000-) Boot, Terminal, Battery, 25.4mm, Blk	4
	5	1015941	(00000000-) Harness, Battery	1
	6	130364	(00000000-) Cable, 06ga 15.0l Blk .31ring /.38ring	1
	7	1059486	(00000000-) Tray, Battery [Ss3 / T3]	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ELECTRICAL DIAGRAM STANDARD

1032396



104712

24 VDC

RED 1B RED 13B BLK

CHARGER PLUG

94B YEL 13U BLK

CR4

24 YEL 13S BLK

ec-H2O RELAY

13A BLK

84 YEL

M4

19 WHT

PROPEL MOTOR

76A BLU 76B BLU

CR1

7A PUR 7B PUR

BRUSH CONTACTOR

8A GRY 8B GRY

CONVENTIONAL

ec-H2O SWITCH

40 TAN ec-H2O

16 BLU 17 PUR

SOLUTION VALVE

27 PUR

HOUR METER

37 PUR

AUX1 IS AT MAXIMUM CAPACITY WITH ADDITION OF ec-H2O

54 YEL 4 YEL 14 YEL

KEY SWITCH

OPTIONAL E-STOP

94 YEL

OPTIONAL ONBOARD CHARGER

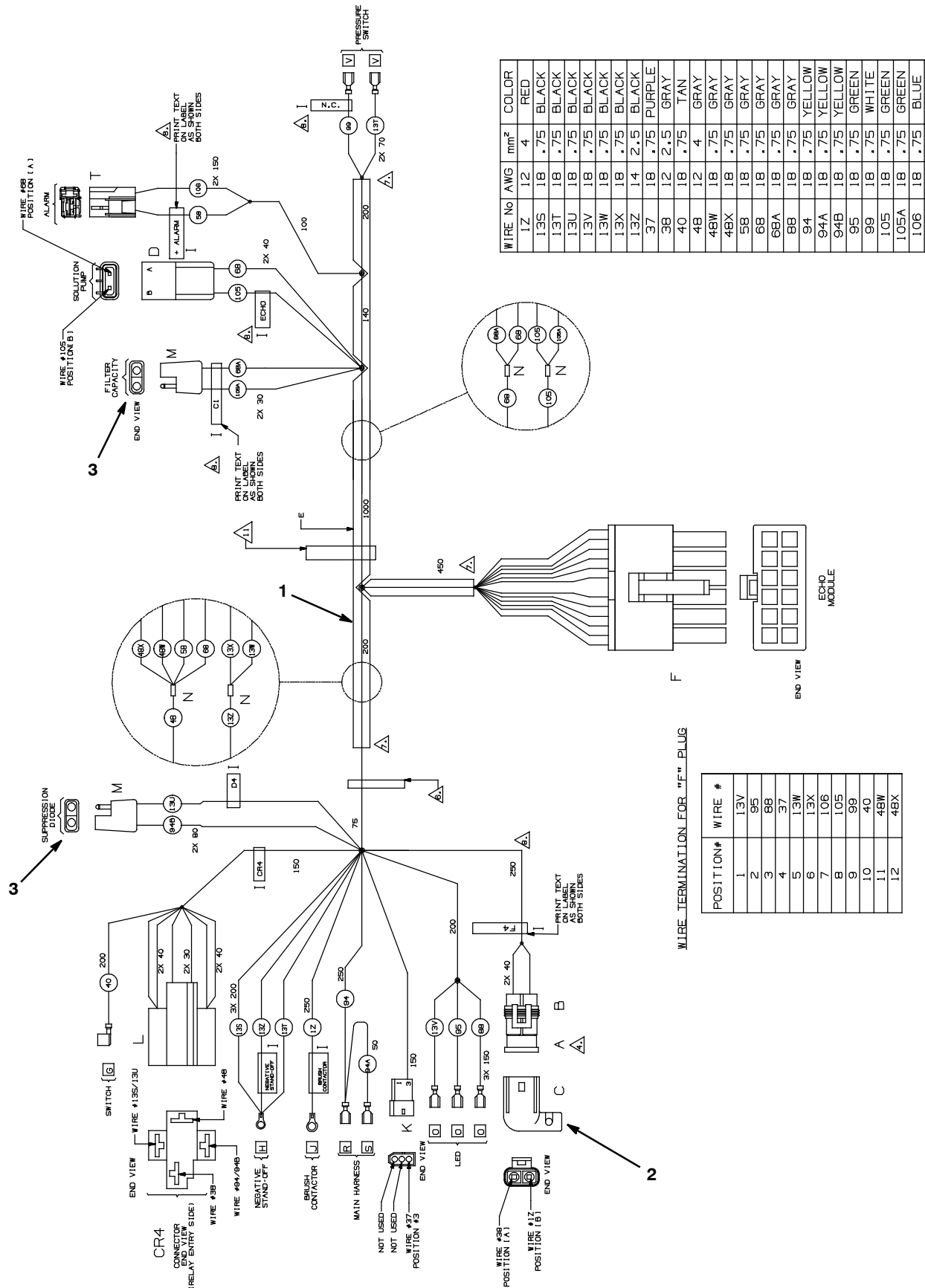
1C RED 22 BRN

F1 30 AMP

CONTROL BOARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 9

WIRE HARNESS GROUP, *ec-H2O* OPTION



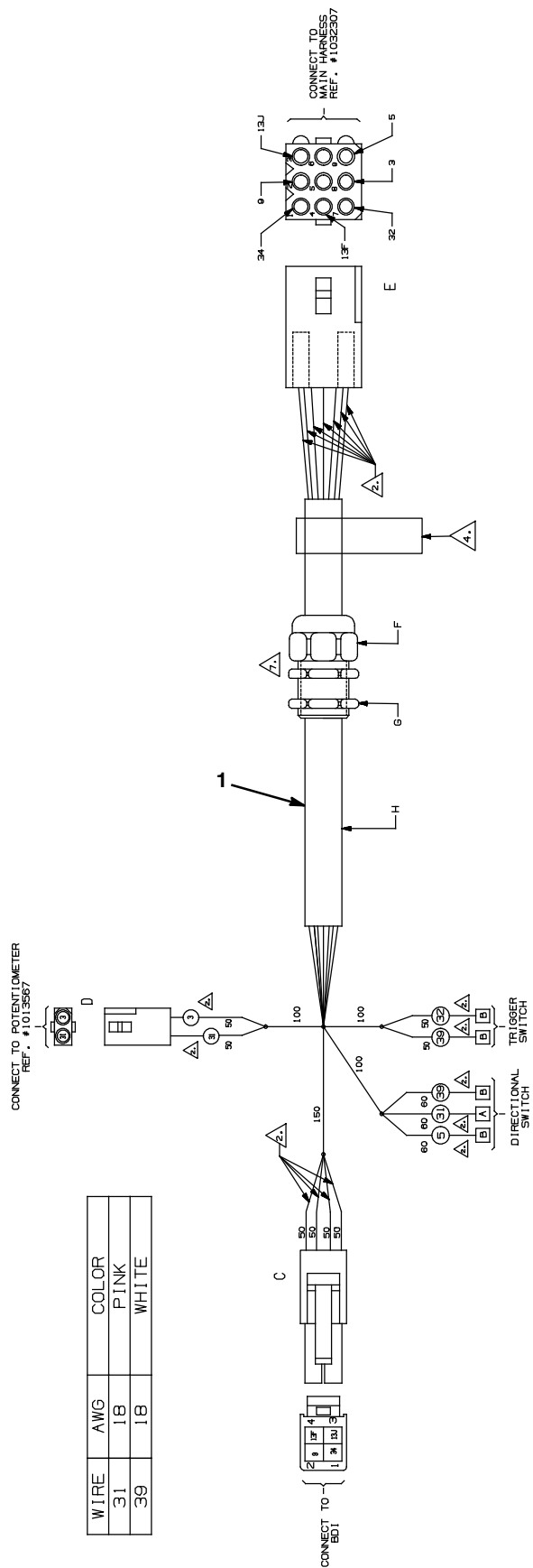
WIRE HARNESS GROUP, *ec-H2O* OPTION

	Ref.	Part No.	Serial Number	Description	Qty.
▽	1	1055408	(00000000-) Harness Assy, Wire [T3e Ec- H2o]	1
▲	2	1047470	(00000000-) Fuse, Blade, 010a, 32vdc, Red	1
▲	3	222290	(00000000-) Diode, Ele, Plug	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

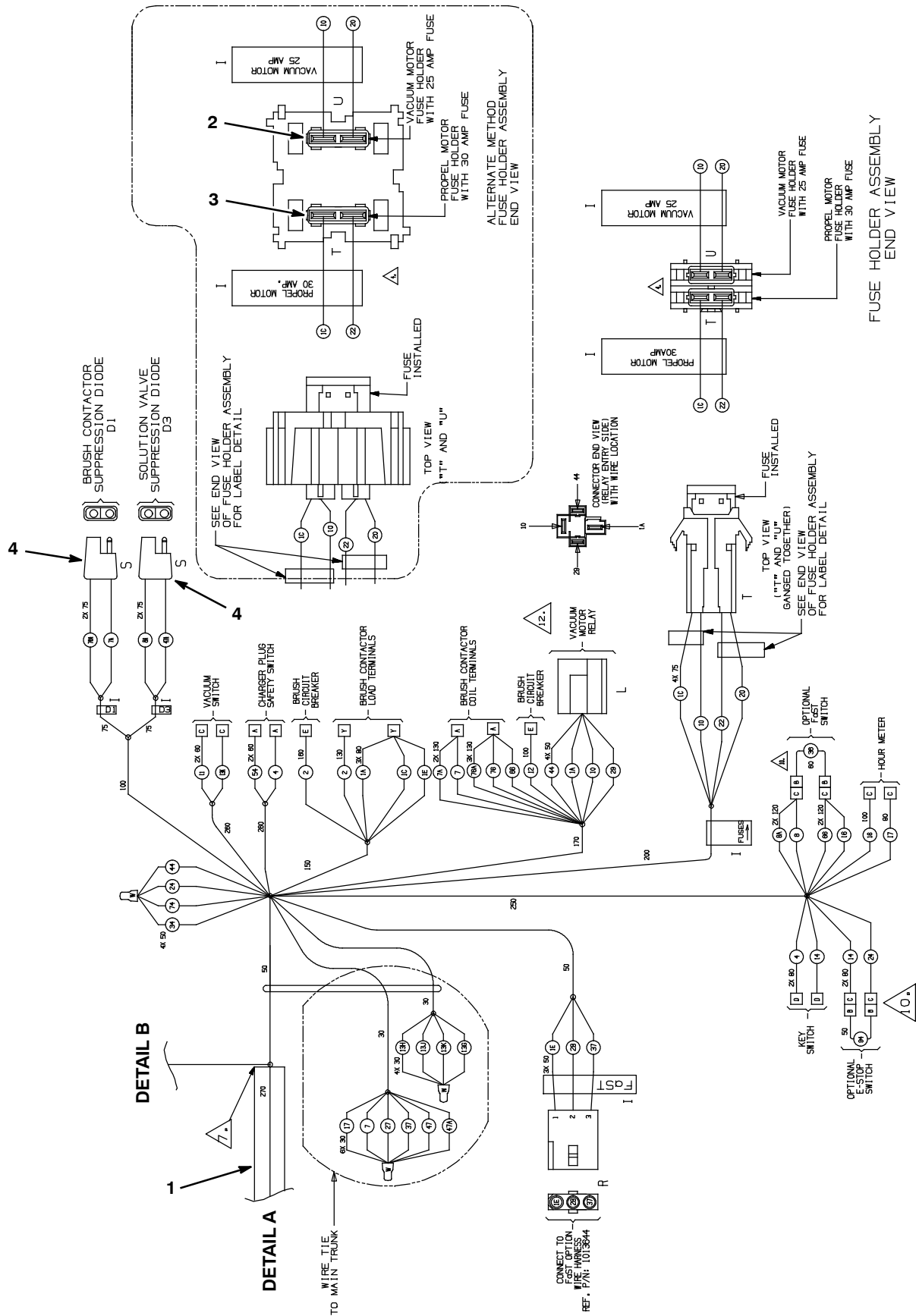
Nobles Speed Scrub Orbital (12-2012)



WIRE HARNESS GROUP, CONSOLE

Ref.	Part No.	Serial Number	Description	Qty.
1	1032325	(00000000-) Harness, Wire, Console, Drive [Ss3]	1

WIRE HARNESS GROUP, MAIN



WIRE NO.	mm ²	AWG	COLOR
1A	2.5	12	RED
1B	-	-	-
1C	2.5	12	RED
1E	.75	18	RED
2	6	10	BROWN
3	.75	18	ORANGE
4	.75	18	YELLOW
5	.75	18	GREEN
6	.75	18	BLUE
7	.75	18	PURPLE
7A	.75	18	PURPLE
8	.75	18	GRAY
8A	.75	18	GRAY
9	.75	18	WHITE
10	2.5	12	TAN
11	.75	18	PINK
12	6	10	BROWN
13A	2.5	12	BLACK
13B	-	-	-
13C	2.5	12	BLACK
13D	6	10	BLACK
13E	.75	18	BLACK
13F	.75	18	BLACK
13G	.75	18	BLACK
13H	.75	18	BLACK
13J	.75	18	BLACK
13K	.75	18	BLACK
14	.75	18	YELLOW
16	.75	18	BLUE
17	.75	18	PURPLE



WIRE HARNESS GROUP, MAIN - CONT'D

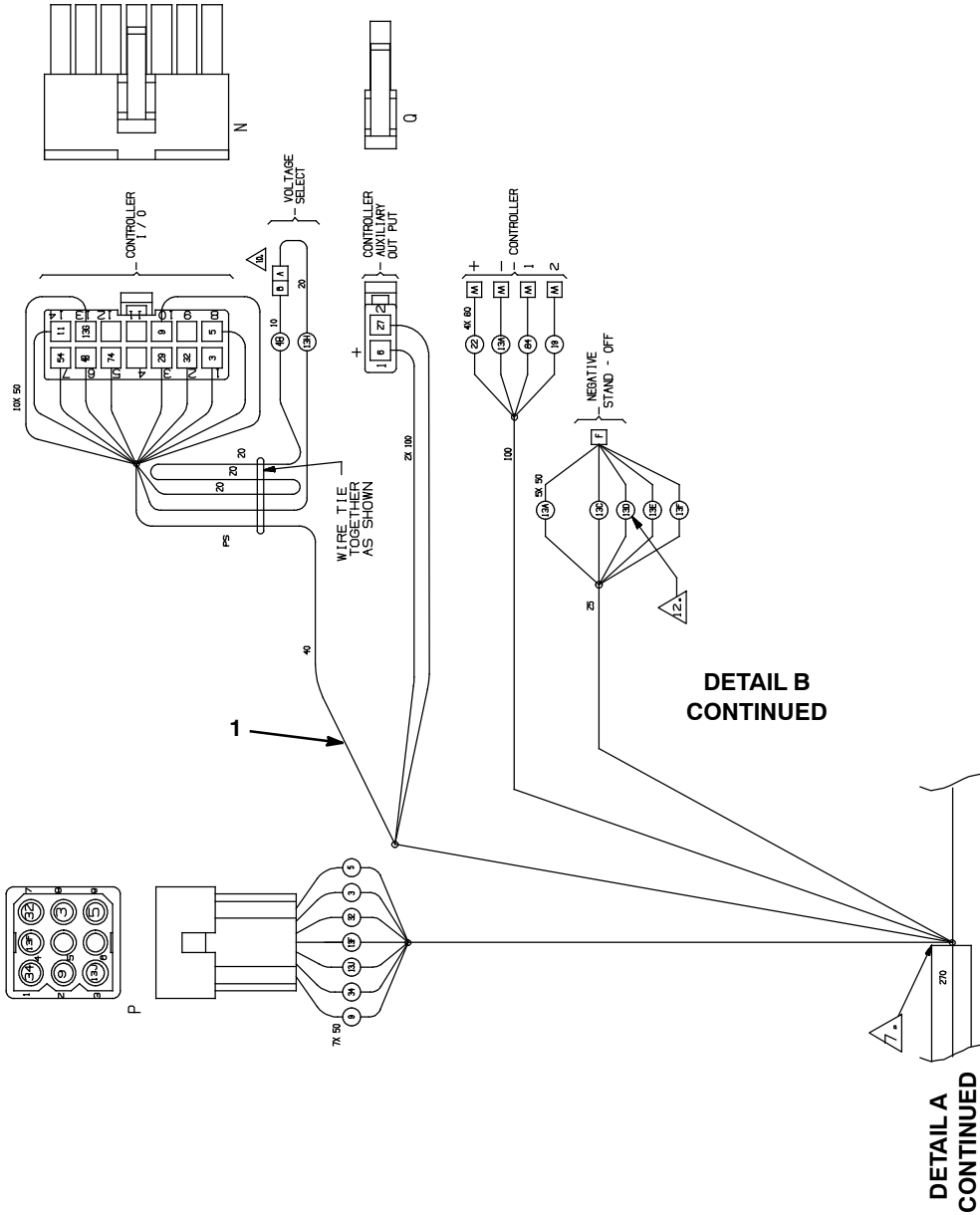
WIRE TERMINATION FOR "N" PLUG

POSITION #	WIRE #
1	3
2	32
3	29
4	-
5	74
6	48
7	54
8	5
9	-
10	9
11	-
12	-
13	13G
14	11

WIRE TERMINATION FOR "P" PLUG

POSITION #	WIRE #
1	34
2	9
3	13J
4	13F
5	-
6	-
7	32
8	3
9	5

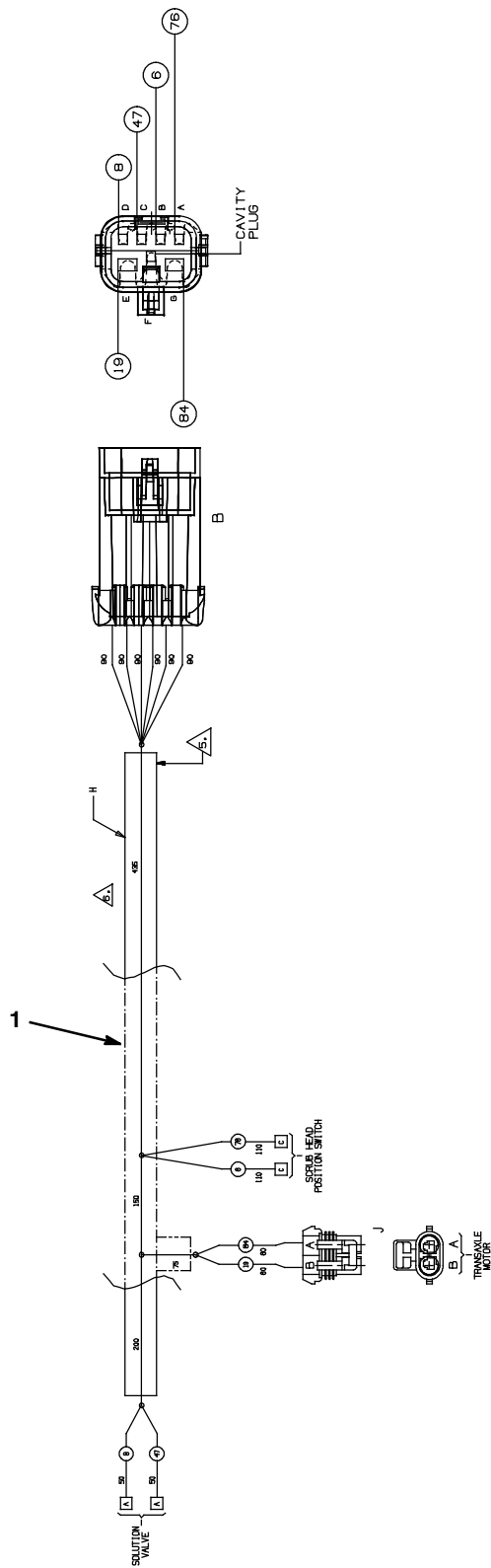
CONNECT TO
CONSOLE HARNESS
REF. # 103235



Ref.	Part No.	Serial Number	Description	Qty.
▽	1	1048337	(00000000-) Harness, Main, Drive [Ss3]	1
▲	2	1016040	(00000000-) Fuse, Blade, 025a, 32vdc	1
▲	3	762516	(00000000-) Fuse, Blade, 030a, 32vdc	1
▲	4	222290	(00000000-) Diode, Ele, Plug	2

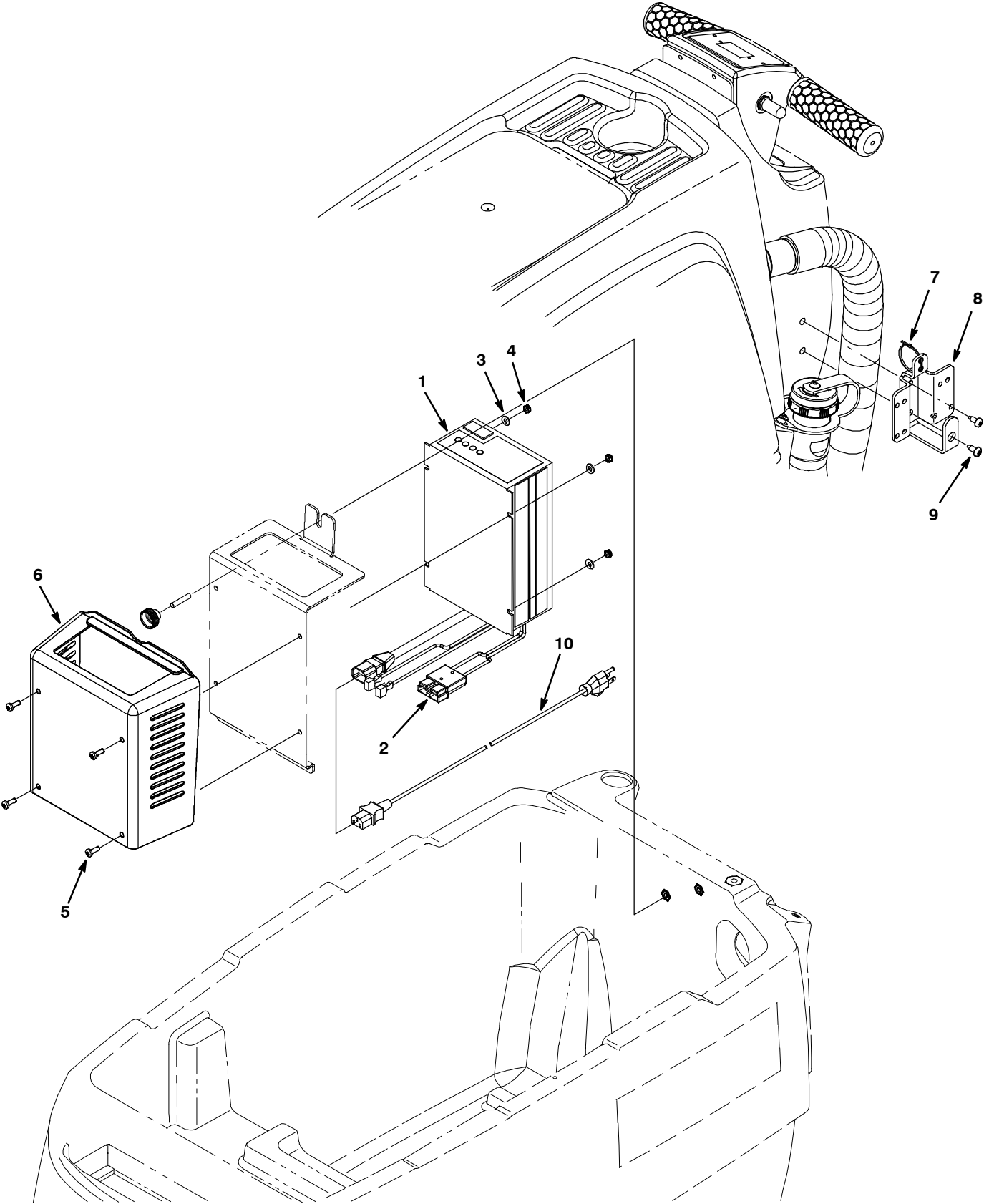
▽ ASSEMBLY
▲ INCLUDED IN ASSEMBLY

WIRE HARNESS GROUP, FRAME, DRIVE MODEL



Ref.	Part No.	Serial Number	Description	Qty.
1	1019397	(00000000-) Harness, Frame, Drive [T3 - Na]	1

ON-BOARD BATTERY CHARGER GROUP, STANDARD MODEL



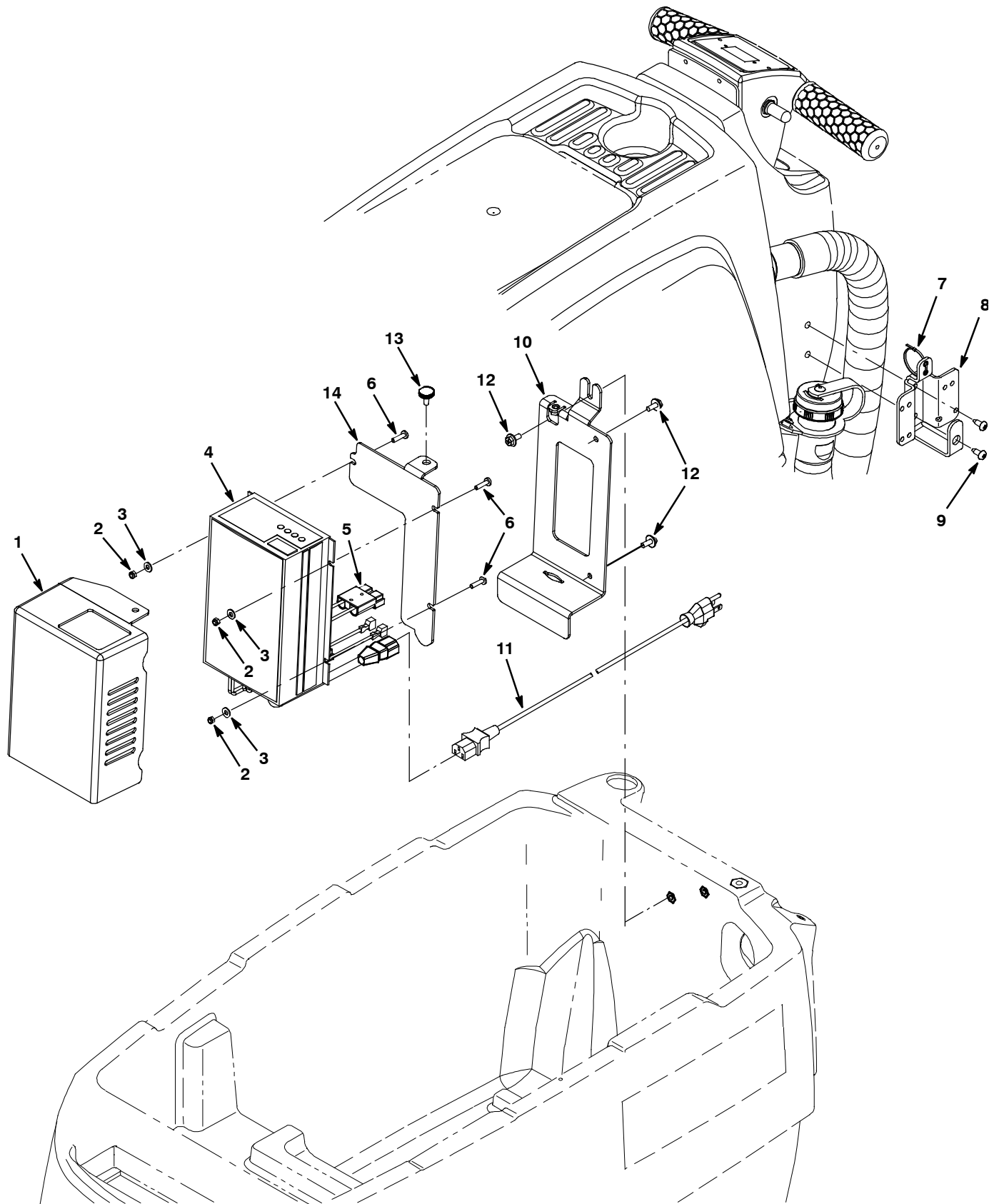
ON-BOARD BATTERY CHARGER GROUP, STANDARD MODEL

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9007343	(00000000-) Charger Kit, On- Board [T3e/Ss3]	1
▲▽	1	1059522	(00000000-) Charger, 24vdc 11a 100/240vac 50/60hz	1
▲▲	2	605387	(00000000-) Connector, Anderson, 50a,Red W/O Contact	1
▲	3	01683	(00000000-) Washer, Flat, 0.22b 0.50d .05, Ss [#10]	4
▲	4	09739	(00000000-) Nut, Hex, Lock, M5 X 0.80, NI, Ss	4
▲	5	06934	(00000000-) Screw, Pan, Phl, M5 X 0.80 X 20, 4.8	4
▲	6	1040600	(00000000-) Cover, Charger [Ss3]	1
▲	7	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	6
▲	8	1061192	(00000000-) Retainer,Cord, Charger [Ss3/T3e]	1
▲	9	1009324	(00000000-) Screw, Pan, Phl, 10- 16 X 0.50,Blk[Typ17]	2
▲	N/S	1045989	(00000000-) Harness, Chrgr [Onboard, T3e/Ss3 Ec- H2o]	1
	10	1025642	(00000000-) Cord, Power, 16/3, 4.5 Meters, Blk [Us]	1
	10	989584	(00000000-) Power Cord With Plug, [125v12a]#4.5m (Japan)	1
	10	1026330	(00000000-) Cord, Power,1.0mm2 X 2.5 Meters [China]	1
	10	1026325	(00000000-) Cord, Power, 1.0mm2 X 2.5 Meters [Aus]	1
	10	1032849	(00000000-) Cord, Power, 4.5 Meter, Blk [Ce]	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

ON-BOARD BATTERY CHARGER GROUP, ec-H2O MODEL



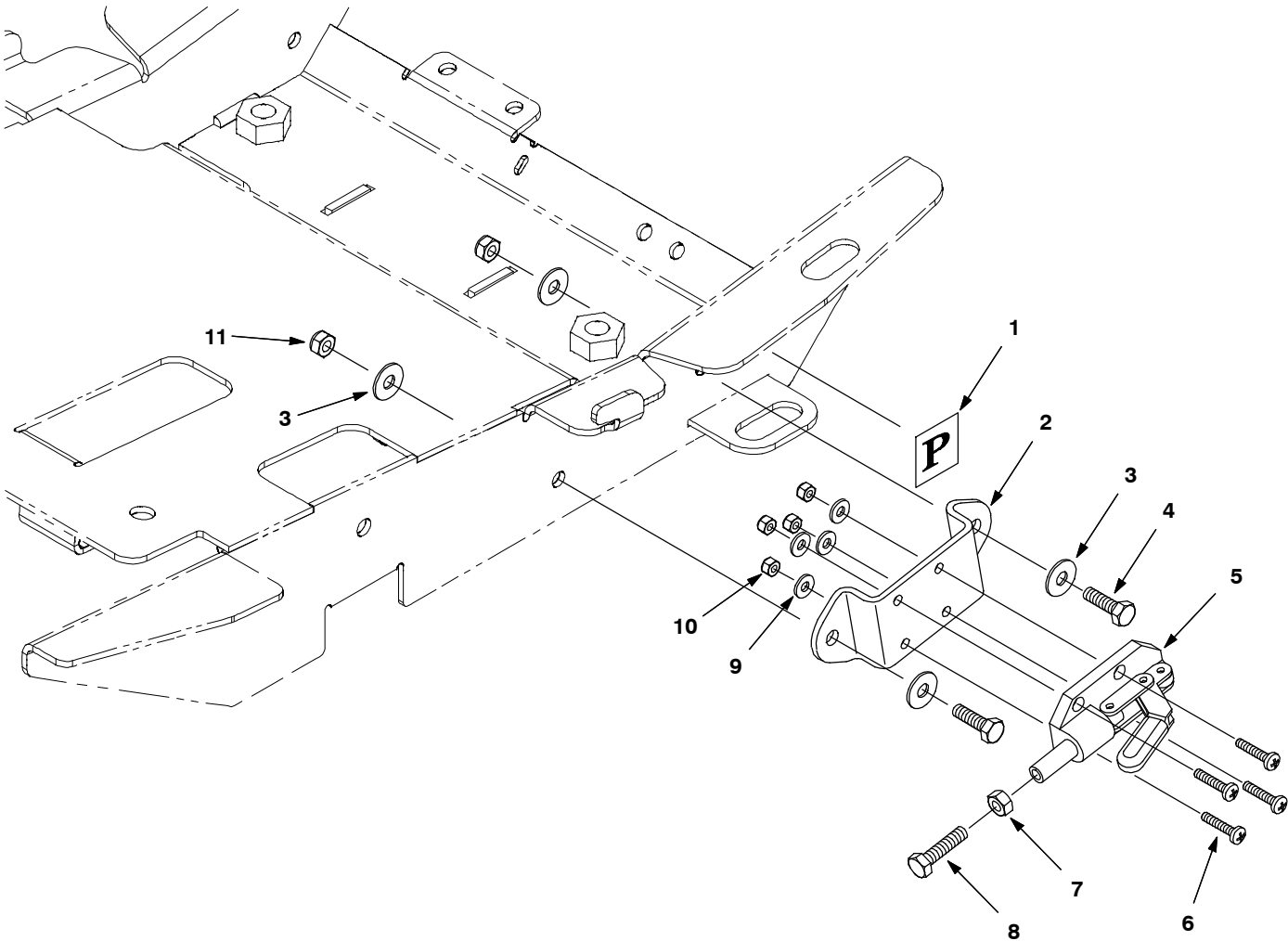
ON-BOARD BATTERY CHARGER GROUP, ec-H2O MODEL

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9007344	(00000000-) Charger Kit [On- Board, T3e/Ss3 Ec- H2o]	1
▲	1	1045985	(00000000-) Cover, Chrgr [T2 Ec- H2o Concept]	1
▲	2	09739	(00000000-) Nut, Hex, Lock, M5 X 0.80, NI, Ss	3
▲	3	01683	(00000000-) Washer, Flat, 10, Ss	3
▲▽	4	1059522	(00000000-) Charger, 24vdc 11a 100/240vac 50/60hz	1
▲▲	5	605387	(00000000-) Connector, Anderson, 50a,Red W/O Contact	1
▲	6	06934	(00000000-) Screw, Pan, Phl, M5 X 0.80 X 20, 4.8	3
▲	7	130773	(00000000-) Tie, Cable, Nyl, 11.0l, .14w, 3.0 Max. D	6
▲	8	1061192	(00000000-) Retainer,Cord, Charger [Ss3/T3e]	1
▲	9	1009324	(00000000-) Screw, Pan, Phl, 10- 16 X 0.50,Blk[Typ17]	2
▲	N/S	1045989	(00000000-) Harness, Chrgr [Onboard, T3e/Ss3 Ec- H2o]	1
	10	1045961	(00000000-) Brkt, Mntg, Echo, Chrgr [Ss3/T3e]	1
	11	1025642	(00000000-) Cord, Power, 16/3, 4.5 Meters, Blk [Us]	1
	11	989584	(00000000-) Power Cord With Plug, [125v12a]#4.5m (Japan)	1
	11	1026330	(00000000-) Cord, Power,1.0mm2 X 2.5 Meters [China]	1
	11	1026325	(00000000-) Cord, Power, 1.0mm2 X 2.5 Meters [Aus]	1
	11	1032849	(00000000-) Cord, Power, 4.5 Meter, Blk [Ce]	1
	12	1034731	(00000000-) Screw, Hex, M6 X 1.00 X 16, Ss, Sems	3
	13	1046631	(00000000-) Knob,Rnd,19mmmod,M6x20,Stud,Plstc,Pl	1
	14	1045966	(00000000-) Brkt, Mntg, Chrgr [Ss3] W/Echo	1

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

PARKING BRAKE GROUP



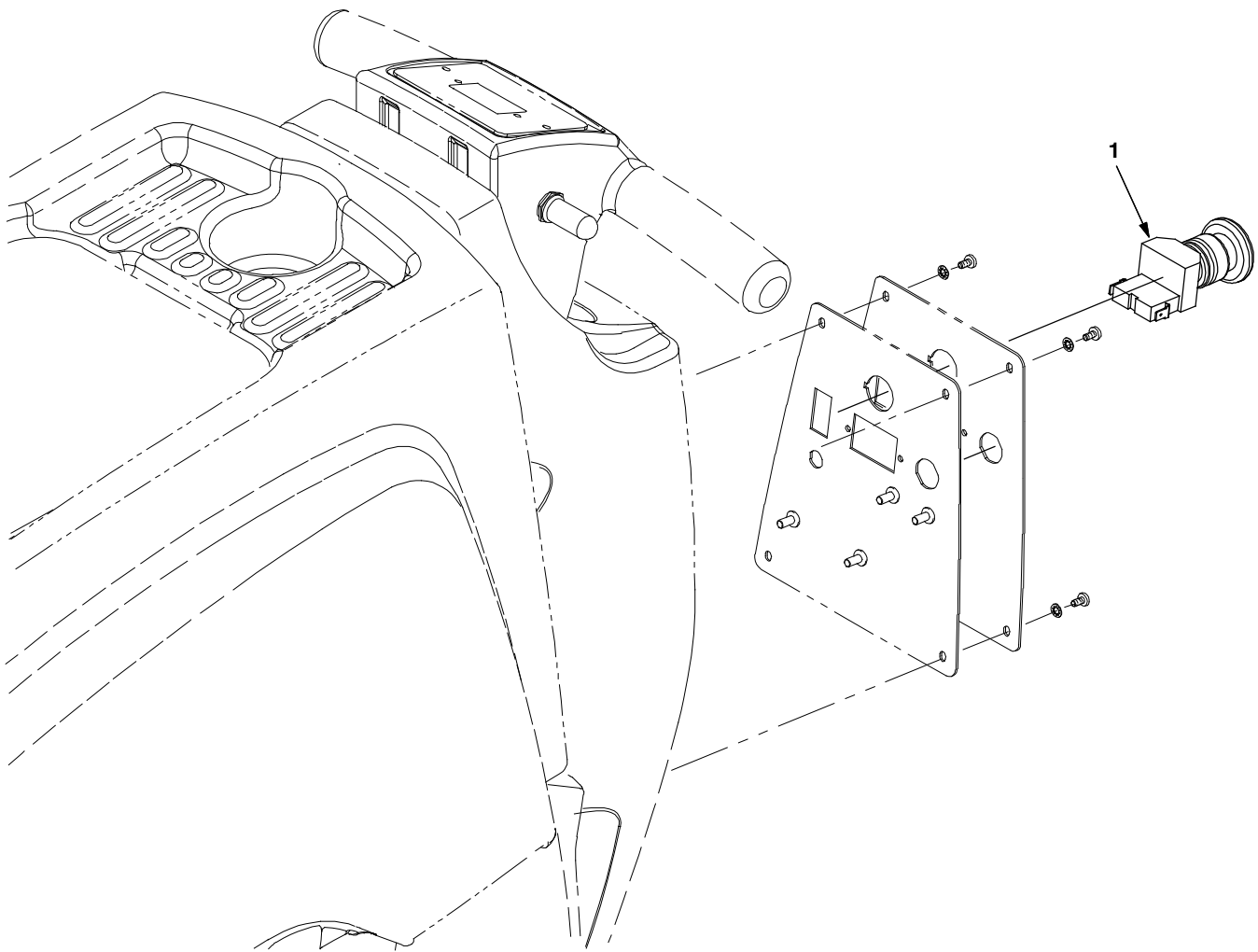
PARKING BRAKE GROUP

	Ref.	Part No.	Serial Number	Description	Qty.
▽		9003351	(00000000-) Kit, Parking Brake	1
▲	1	600624	(00000000-) Label, Parking Brake, Symbol	1
▲	2	1013840	(00000000-) Bracket, Brake, Frame	1
▲	3	01684	(00000000-) Washer, Flat, 0.27b 0.69d .05, Ss	4
▲	4	08716	(00000000-) Screw, Hex, M6 X 1.0 X 20, Ss	2
▲	5	1013718	(00000000-) Clamp, Brake, Parking	1
▲	6	12323	(00000000-) Screw, Pan, M4 X 0.7 X 20, Ss	4
▲	7	07785	(00000000-) Nut, Hex, Std, M6 X 1.00, A2, Ss	1
▲	8	09007	(00000000-) Screw, Hex, M6 X 1.00 X 25, Ss	1
▲	9	41579	(00000000-) Washer, Flat, #08, Ss	4
▲	10	33932	(00000000-) Nut, Hex, Lock, M4 X 0.70, NI, Ss	4
▲	11	08712	(00000000-) Nut, Hex, Lock, M6 X 1.00, Ss, NI	2

▽ ASSEMBLY

▲ INCLUDED IN ASSEMBLY

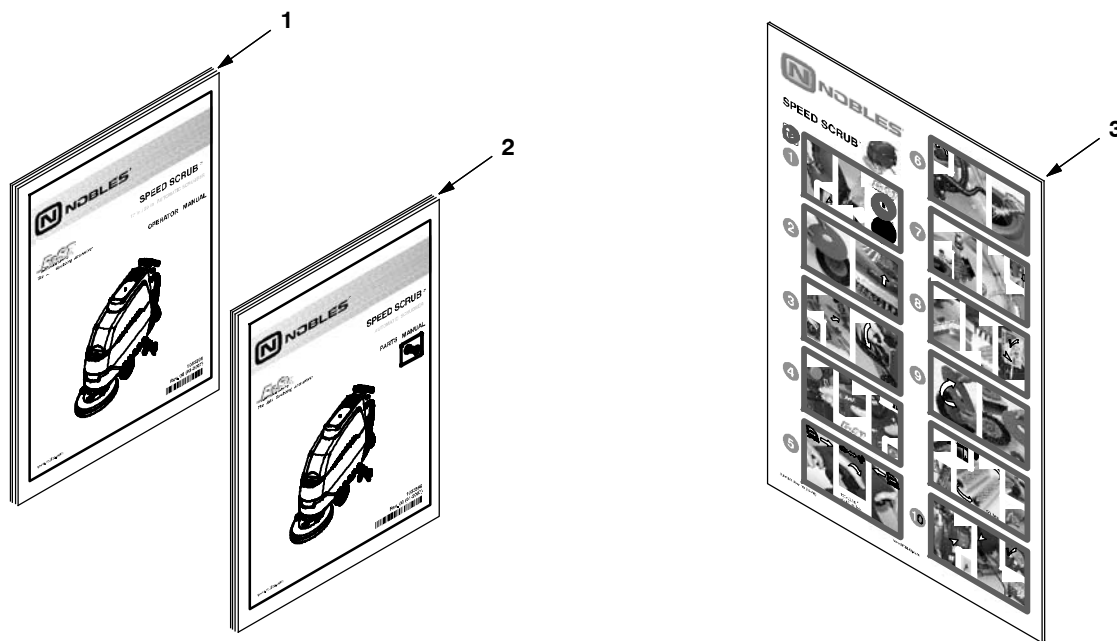
EMERGENCY STOP BUTTON GROUP



	Ref.	Part No.	Serial Number	Description	Qty.
▽		9003350	(00000000-) Kit, E- Stop	1
▲	1	1011735	(00000000-) Switch, Safety, Shutoff	1

▽ ASSEMBLY
▲ INCLUDED IN ASSEMBLY

DOCUMENTATION GROUP



Ref.	Part No.	Serial Number	Description	Qty.
1	9010343	(00000000-) Manual, Oprtr [SpeedScrub Orbital, En]	1
1	9010344	(00000000-) Manual, Oprtr [SpeedScrub Orbital, Es]	1
1	9010345	(00000000-) Manual, Oprtr [SpeedScrub Orbital, Fr]	1
2	9010346	(00000000-) Manual, Parts [SpeedScrub Orbital]	1
3	9010347	(00000000-) Instr, Wall Chart [SpeedScrub Orbital]	1



To view, print, order, download the latest Parts manual, other language Operator manuals, and Use and Care Guides (wall charts), visit:

www.nobles.com/manual