

ICE COBOTICS

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Operator & Parts Manual

Automatic Scrubber



i28BTL+
i28BTL+-CY
i32BTL+



READ OPERATOR MANUAL CAREFULLY!

IMPORTANT: To ensure full warranty protection, please fill out & return your warranty card.

Please fill out at time of installation for future reference.

Model No. _____

Serial No. _____

Machine Options _____

Sales Rep. _____

Sales Rep. Phone No. _____

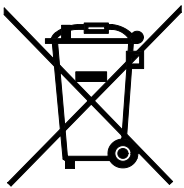
Customer ID Number _____

Installation Date _____

HOW TO ORDER PARTS

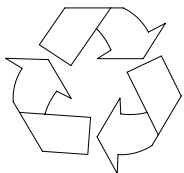
Only use ICE Company supplied or equivalent parts. Parts and supplies may be ordered online, by phone, by fax or by mail.

1. Identify the machine model.
2. Identify the machine serial number from the data label.
3. 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.



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, old machine components such as batteries, hazardous fluids, including antifreeze and oil, in an environmentally safe way according to local waste disposal regulations.



Always remember to recycle.

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Specifications and parts are subject to change without notice.

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SAFETY PRECAUTIONS

This machine is intended for commercial use. It is designed exclusively to scrub hard floors in an indoor environment and is not constructed for any other use. Only use recommended accessories.

All operators shall read, understand and exercise the following safety precautions:

1. Do not operate machine:

- Unless trained and authorized.
- Unless you have read and understand the operators manual.
- In flammable or explosive areas.
- If not in proper operating condition.
- In outdoors areas.

2. Before starting machine:

- Make sure all safety devices are in place and operate properly.

3. When using machine:

- Go slow on inclines and slippery surfaces.
- Follow all safety guidelines.
- Be very careful when using the machine in reverse.
- Reduce speed when turning.
- Report and fix any damage to machine prior to operating it.
- Never allow children to play on or around.
- Do not operate on inclines that exceed 5% (3°).

4. Before leaving or servicing machine:

- Stop on level surface.
- Turn off machine.

5. When servicing machine:

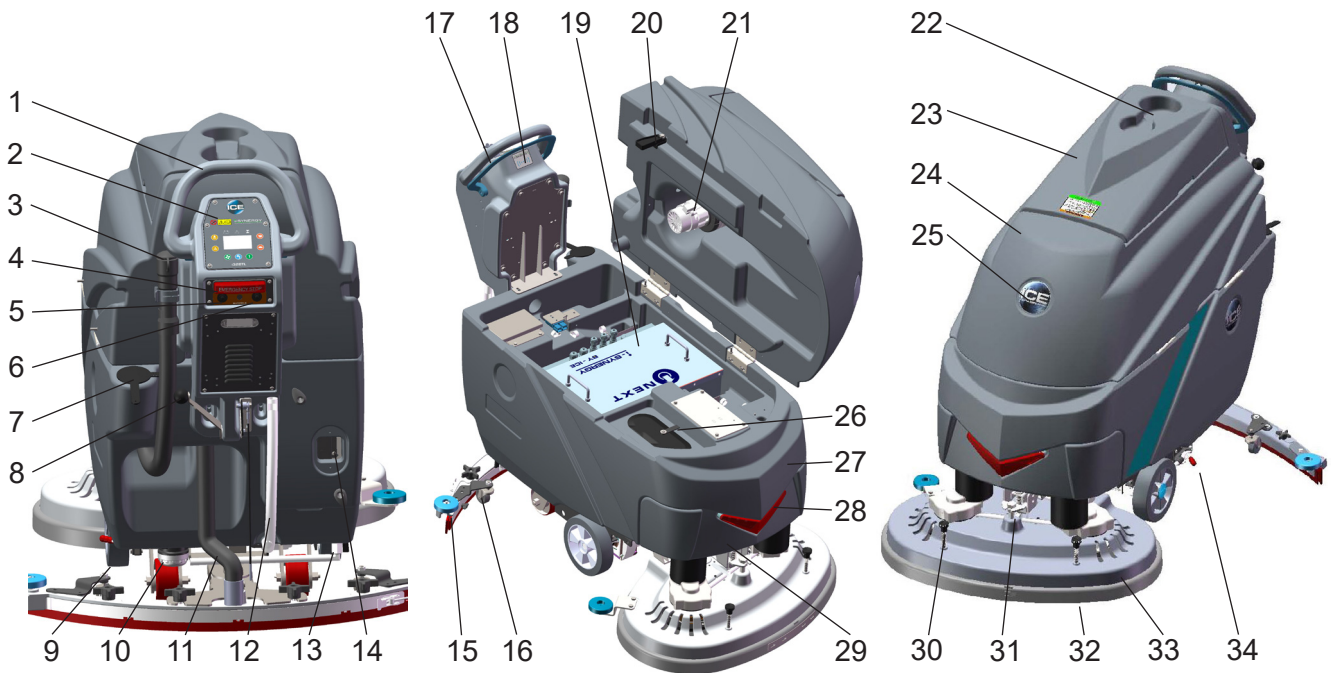
- Read operators manual thoroughly prior to operating or servicing this machine.
- Use manufacturer supplied or approved replacement parts.
- Secure machine with wheel blocks prior to jacking the machine up.
- Use approved jack or hoist to safely elevate the machine.
- Disconnect batteries prior to working on machine.
- Avoid moving parts. Do not wear loose fitting clothing while servicing machine.

 **WARNING: Fire or Explosion Hazard. Keep sparks and open flames away! Keep battery compartment open when charging.**

 **WARNING: Flammable materials can cause an explosion or fire. Do not use flammable materials in tanks.**

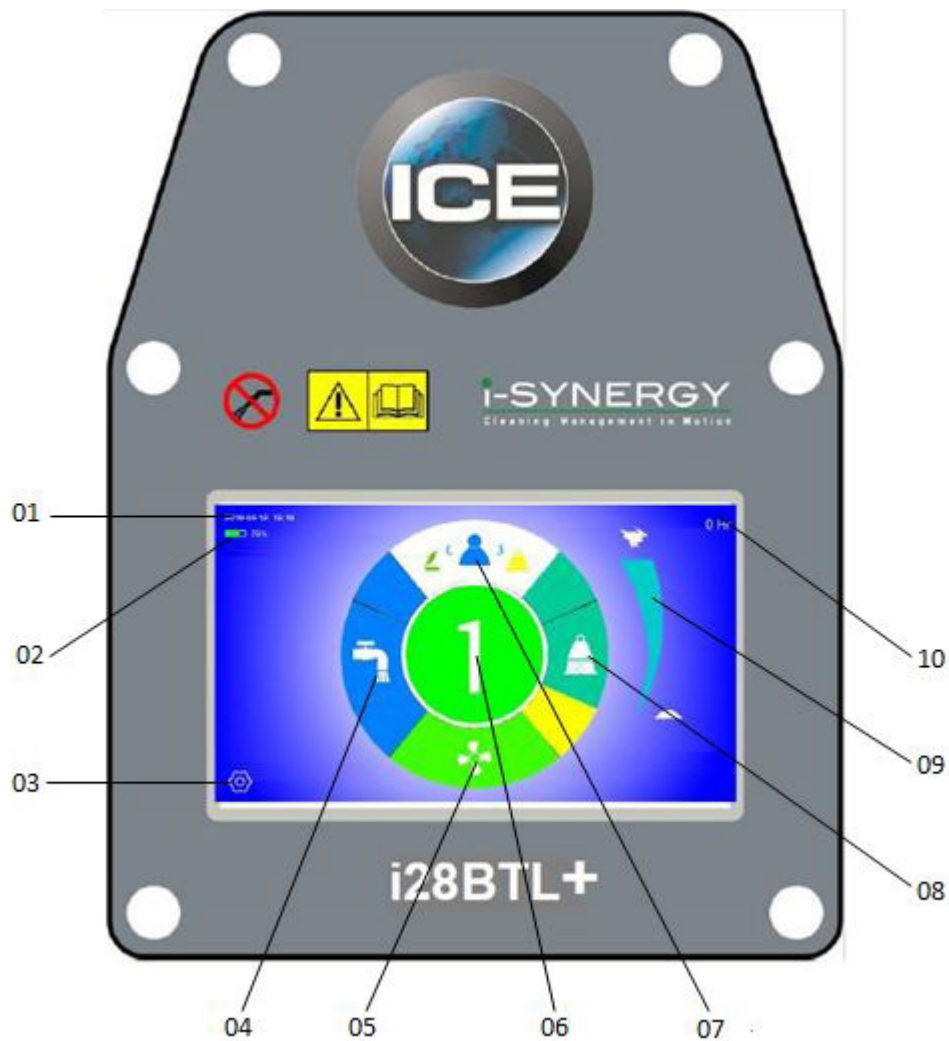
 **WARNING: Flammable materials or reactive metals can cause explosion or fire. Do not pick up.**

MACHINE COMPONENTS



- | | |
|---|---------------------------------------|
| 1. Control handle | 18. i-synergy™, ID card scanning area |
| 2. Control panel (See penal components) | 19. Lithium-ion batteries |
| 3. Recovery tank drain hose | 20. Recovery tank support stand |
| 4. Emergency stop button | 21. Vacuum motor, 24VDC |
| 5. Circuit breaker, Controller | 22. Cup holder |
| 6. Circuit breaker, Brake | 23. Recovery tank cover |
| 7. Hose fill port | 24. Recovery tank |
| 8. Squeegee lift lever | 25. ICE logo |
| 9. Wheels, 8 Inch | 26. Bucket fill port/ Clean-out port |
| 10. Filter assembly | 27. Solution tank |
| 11. Vacuum hose | 28. LED light |
| 12. Solution tank level / Drain hose | 29. Front cover |
| 13. Ball valve | 30. Brush & Pad release plunger |
| 14. On-board battery charger | 31. Scrub head adjusting bolt |
| 15. Squeegee assembly | 32. Scrub head skirt |
| 16. Caster, 2 inch, Squeegee adjustment | 33. Scrub head assembly |
| 17. Control handle start bail | 34. Parking brake (Option) |

PANEL COMPONENTS



- 01 Date&Time
- 02 Battery meter
- 03 Setting button
- 04 Solution flow adjusting button
- 05 Vacuum motor button
- 06 1-step starting button
- 07 Work mode select button
- 08 Scrub head pressure adjusting button
- 09 Speed adjusting button
- 10 Timer

i-synergy™ INTRODUCTION

i-synergy™ collects operational data from cleaning machines and transmit the information to ICE's server. The ICE server generates daily reports and send them to designated end users by email. From these reports, end users will have information about machines' usage and even specific timings.

Besides, i-synergy™ also collects data on lithium-ion battery, vacuum motor, brush deck motor, transaxle, and other electrical components at least once every minute when the machine is in use and even during battery charging.

i-synergy™ will send notifications instantly to the ICE server in case of any malfunction. ICE maintenance personnel will receive a SMS within minutes from the ICE server for immediate servicing.

MACHINE SET UP & INSTALLATION

UNCRATING MACHINE

Be sure and check packing carton for any damage. Immediately report any damage to carrier. Check the contents of package to ensure that the following items are included:

- Machine
- Lithium-ion Batteries
- Squeegee assembly
- 2-Pad Drivers
- 2-Brushes

INSTALLING BATTERIES

The machine uses the Lithium-ion batteries, the batteries are already in the machine upon delivery; However you will need to connect the Lithium ion batteries to the machine.



WARNING: Fire or Explosion Hazard. Keep sparks and open flames away! Keep battery compartment open when charging.

1. Turn off the machine.
2. Open recovery tank to gain access to battery compartment.
3. Carefully place the Lithium-ion batteries into the compartment. Place the battery brace at the rear of the batteries.

DO NOT DROP BATTERIES INTO COMPARTMENT!

4. Plug the batteries connector to the machine adaptor, connect machine i-synergy™ COM port with the batteries.

MACHINE SET UP

PRE-OPERATION CHECKS

1. Sweep or dust mop the surface to be cleaned.
2. Check battery meter to make sure batteries are fully charged. (See BATTERY CHARGING)
3. Check that squeegee is properly installed.
4. Check that brushes / pads is properly installed.

INSTALLING BRUSHES OR PADS

1. Turn off the 1-Step scrub head up/down button (Panel components, item #12) and Raise the Scrub head off the floor, then stop machine on the level surface, ensure the machine is turned off.
2. If using the Pad Driver, first attach the appropriate pad to the pad driver surface.
3. Align the pad driver or brush under the motor hub and push it upward to engage.



4. To remove the pad driver or brush, raise the scrub head and push the pad release plunger (Machine components, item #30) downward.

MOUNTING THE SQUEEGEE ASSEMBLY

1. Lift the squeegee lift lever (Machine components, item #8) to the upward position.
2. Mount the squeegee assembly to the squeegee pivot bracket. make sure the knobs are completely seated into the slots before securing knobs.
3. Connect the vacuum hose to the squeegee assembly. Loop the hose by using the hose clip provided.
4. Check the squeegee blades for proper adjustment.

OPERATOR MANUAL


FILLING THE SOLUTION TANK

The machine is equipped with a hose fill-port (Machine components, item #7) at the rear of the machine, and a bucket fill-port (Machine components, item #26) located under the recovery tank. Before accessing the bucket fill-port make sure that the recovery tank is empty.


Fill the solution tank to the "100L" level on the solution tank sight gauge. When using the bucket fill-port, stop filling when the level reaches the bottom edge of the fill-port.

Conventional scrubbing - Fill solution tank with water (not to exceed 60°C/140°F. Pour a recommended cleaning detergent into the solution tank according to mixing instructions on the container)

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.

 **WARNING:** Do not put any flammable materials into solution tank. this can cause an explosion or a fire. Only use recommended cleaning chemicals. Contact your janitorial supply distributor for recommendations on proper chemicals.

MACHINE OPERATION

 **WARNING:** Do not operate machine unless you have read and understand this manual.

1. Swiping the ID card (Machine components, item #18) to turn on the machine.
2. Check the LED display screen (Panel components, item #4), if there are fault codes (Panel components, item #18) and the Fault indicator (Panel components, item #1) in blink, please DO NOT operate the machine unless the faults have been eliminated (please see *FAULT CODES AND ELIMINATE* section).
3. Turn on the 1-Step scrub head up/down button, the scrub head will be lowered down automatically.
4. Lower squeegee assembly to the floor by lowering the Squeegee lift lever.
5. Check the solution flow indicator (Panel components, item #9), press the Solution flow adjusting button (Panel components, item #10) to get a desired solution flow.


NOTE: Solution will not begin to flow until the control handle bail is pulled.

6. Turn on the Vacuum motor switch (Panel components, item #8).
7. Pull the Control handle bail (machine components, item #17) backwards to start scrubbing. The machine will automatically propel forward. To reverse the machine, simply push the control handle bail forward.
NOTE: Raise squeegee when reversing machine.
8. The scrubbing speed can be adjusted, press the Speed increase/ decrease button (Panel components, item #14, #16) to a desired speed.
NOTE: 45-60 meters (150-200 ft) per minute is the recommended scrubbing speed.
9. The brush pressure can be adjusted, press the Brush pressure increase/ decrease button (Panel components, item #3, #6) to get a desired brush pressure.
10. To stop scrubbing, release the control handle bail, turn off the 1-Step scrub head up/down button to raise the scrub head assembly, raise the squeegee assembly.


WHILE OPERATING MACHINE

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

1. Go slow on inclines and slippery surfaces. Do not operate the machine on inclines that exceed 5% (3°).
2. Do not keep the machine in the same position with pad / brush spinning, keep the machine moving to prevent damage to floor finish.
3. If the squeegee assembly leaves streaks on the floor, raise the squeegee off the floor and wipe the blades down with a damp cloth. Pre-sweep the area to prevent leaving streaks on the floor.
4. Pour a recommended defoamer into the recovery tank if excessive foam appears.

 **WARNING:** 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.

5. Occasionally check the battery meter (Panel components, item #2). when the battery is very low, stop scrubbing and recharge the batteries.

 **WARNING:** When battery meter is in the red, do not continue to operate the machine. Battery damage may result.

- When the solution tank runs empty, press the 1-Step switch raise the brush head. Keep the squeegee down and continue to vacuum until all the dirty water is picked up.

NOTE: *Brush motors will not work when the scrub head assembly raised.*

NOTE: See **TANK DRAINING** section to learn how to drain recovery and solution tanks.

CIRCUIT BREAKER / FUSES

The machine is equipped with 2 resettable circuit breakers(machine components, item #5, item# 6) to protect the main controller from damage. If the circuit breakers should trip, it can't be reset immediately. You must first determine what caused the breaker to trip, and allow the motor to cool down and then you can manually reset the circuit breakers.

The machine is also equipped with a 150A fuse to protect the Lithium-ion batteries from damage. When replacing a fuse never substitute a higher Amps rated fuse than specified.

HOURLY METER

The hour meter (Panel machine components, item #17) records the number of total hours the brush motor has been powered on. Use the hour meter to determine when to perform recommended maintenance procedures and to record service history.

EMERGENCY STOP BUTTON/ BRAKE

The machine is equipped with an Electromagnetic Brake Mechanism on the Transaxle. When in case of Emergency, release the Control Handle bail or strike the Emergency stop button (Machine components, item #4), the machine will be braked and then stop. Reset the emergency stop button, turn on the machine, and then pull the control handle bail, the machine will be restart.

NOTE: *The machine can not be moved unless the Main Power and the Control Handle bail be turned on.*



WARNING: Do Not Change the Default Settings of the Electromagnetic Brake Mechanism unless Authorized, otherwise it may cause Machine Damage or Personal Injury. Contact the Authorized Service center for machine repairs.

TANK DRAINING

- Turn the machine off.
- With the squeegee and scrub head in their "up" position, transport machine to approved area for draining tank(s).

DRAINING THE RECOVERY TANK

Any time scrubbing is completed, or when refilling solution tank, the recovery tank should be drained and cleaned.

WARNING: If the recovery tank is not drained when the solution tank has been refilled, foam or water may enter the float shut-off screen and cause damage to the vacuum motor.

- While holding the drain hose (Machine components, item #3) upward, remove the cap and lower hose to drain.
- Open the recovery tank cover and rinse out the tank. Use a rag to remove any excess dirt.
- Clean the float shut-off screen and debris tray located in the recovery tank .

DRAINING THE SOLUTION TANK

Any time scrubbing operation is completed, the solution tank should be drained and cleaned.

- Pull the solution tank level hose(Machine components, item #12) off the hose fitting, this will allow the solution to flow freely into a bucket or floor drain.
- Remove the cover of the filter assembly (Machine components, item #10) to drain the solution tank, check the filter screen and clean up it if necessary.
- Rinse the solution tank with clean water after every use. This will help prevent chemical buildup and clogging of the solution lines.
- After rinsing out the tank, securely reconnect the tank level hose to the hose fitting, replace the filter assembly cover and be sure the filter screen and the "O" ring is in the correct position.

BATTERY CHARGING



WARNING: Fire Or Explosion Hazard. Keep Sparks and Open Flame Away. Keep Battery Compartment Propped Open When Charging.

Only use ICE supplied or approved batteries charger, use unapproved charger may cause damage to the batteries and machine.

Batteries chargers specifications:

- **Applicable to charging Lithium-ion batteries**
- **Automatic shut off circuit**
- **Output current of 30 Amps**
- **Output voltage of 24 volts**

1. Place machine in a well ventilated area.
2. Turn the machine off.
3. Connect the charger's AC power supply cord to a properly grounded receptable.
4. Prop up the recovery tank by the support stand (Machine components, item #20) for ventilation when charging.
5. The charger will automatically begin to charge and will automatically shut off once the batteries are fully charged.
6. Upon completion of charging, disconnect the AC power supply cord.

PREVENTATIVE MAINTENANCE



WARNING: Before performing any maintenance on the machine, be sure that the power is turned off, or the batteries are disconnected!



WARNING: Repairs are to be completed by Authorized service centers only. Any repairs completed by unauthorized persons will void the warrenty.

DAILY MAINTENANCE

1. Remove pad driver/ brush and clean with approved cleaner.
2. Drain recovery and solution tanks completely and rinse out with clean water. Visually check the recovery tank for debris and clean out as necessary.

3. Raise the squeegee assembly off floor and wipe it down with a damp towel. Be sure to store the squeegee in the up position.
4. Remove the float shut-off assembly and rinse it out with clean water.
5. Clean machine with an approved cleaner and a damp towel.
6. Recharge the batteries.
7. Check the condition of the squeegee blade wiping edge, rotate blade if worn.

MONTHLY MAINTENANCE

1. Clean the battery tops to prevent corrosion.
2. Check for loose battery cable connections.
3. Inspect and clean the recovery tank cover seal. Replce it if damaged.
4. Lubricate all grease points and pivot points with silicon spray and approved grease.
5. Check the machine for loose nuts and bolts.
6. Check the machine for leaks.
7. Lithium-ion battery must be stored in a charged state, please charge monthly.

MACHINE STORAGE

1. Always store the machine indoors.
2. Always store the machine in a dry area.
3. Always store the machine in its upright position.
4. Always store the machine with the pad driver/ brush raised off the floor.
5. Always store the machine with the squeegee assembly raised off the floor.
6. If storing in an area which may reach freezing temperatures, be sure to drain all fluids from the machine prior to storage. Any damage caused by freezing temperatures will not be covered by the warranty.
7. Drain the recovery tank.
8. Drain the solution tank of all fluid.

CYLINDRICAL BRUSH MODEL

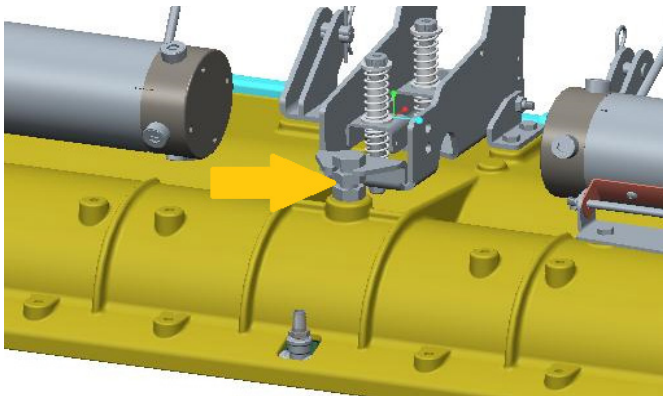
INSTALL BRUSH

1. Raise scrub head off the floor and turn off the power.(remove key)
2. Remove brush door from scrub head by loosening the knob.
3. Attach brush door to the brush end that has the double row of bristles to install brush.
4. Check the brushes to ensure they are properly adjusted.

INSPECT THE BRUSH PATTERN

After installing a new set of cylindrical brushes check the brush pattern to ensure proper brush adjustment.

1. Measure the distance from the front edge of the scrub head to the floor and from the back edge of the scrub head to the floor. The measurements should be the same.
2. To level the scrub head, loosen the lock nut and turn the leveling screw clockwise to lower the rear of the scrub head or counter--clockwise to lower the front.



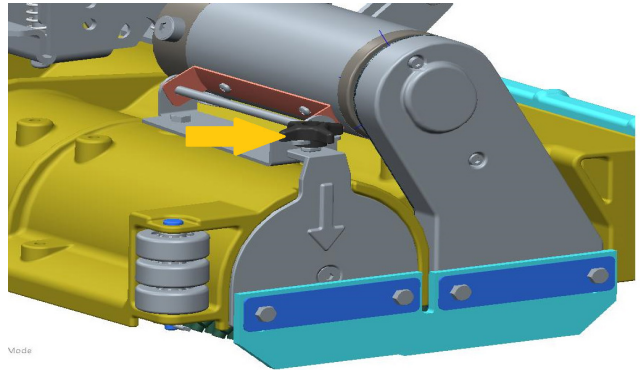
3. Position the machine on a dry dusty floor or apply a powdered substance, such as chalk.
4. Adjust the speed control knob to "zero" ()
5. Shut off the solution flow.
6. Pull the control handle bail to create a brush pattern on the floor.
7. Raise the scrub head and pull the machine away.
8. Observe the brush pattern on floor. If the brush pattern is uneven or tapered, adjustment is required.

Correct Brush Pattern

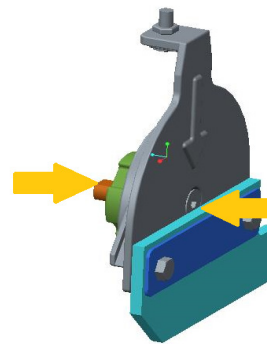


TO ADJUST A TAPERED BRUSH PATTERN

1. Remove the brush door from the brush.



2. Hold the brush plug shaft with a wrench and loosen the 6mm hex screw.



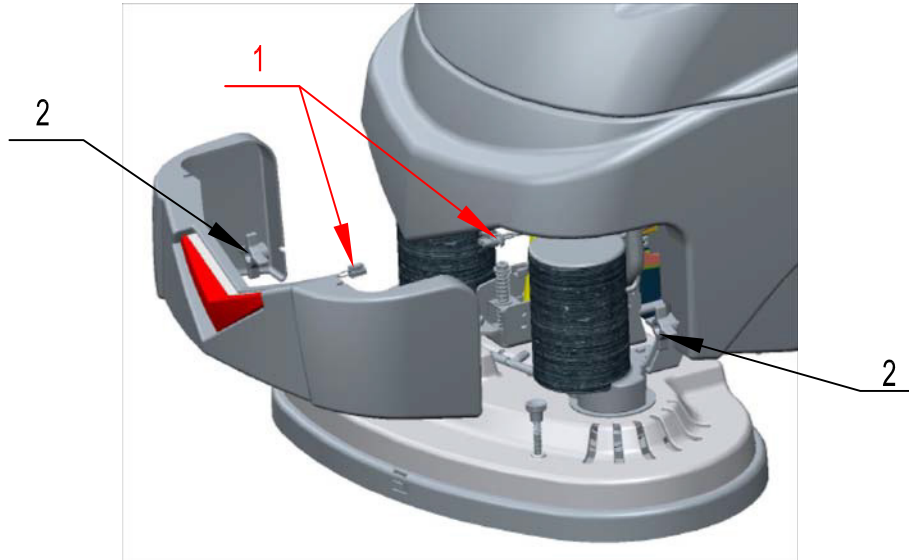
3. To lower the brush end, turn the shaft clockwise for the front brush and counter--clockwise for the rear brush. Retighten hex screw.
4. Recheck brush pattern.
NOTE: Replace brushes when worn to 5/8" (15mm).

Cylindrical Assembly Instructions

Lower scrub head to the ground, then turn off the power (remove key).

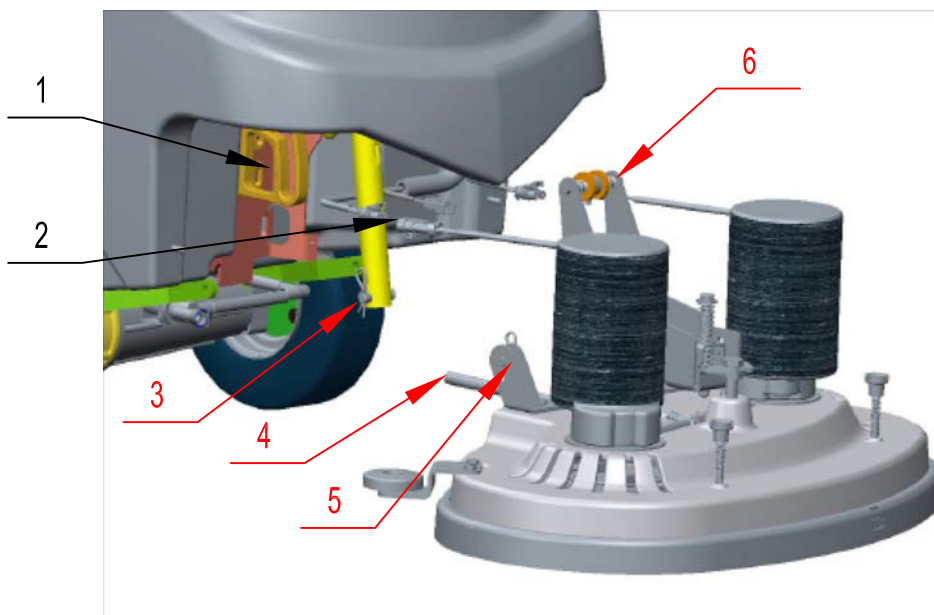
STEP#1: Remove Front Cover

1. Remove knob(2) from solution tank.
2. Disconnect cable(1) of the led light.
3. Remove front cover from solution tank.



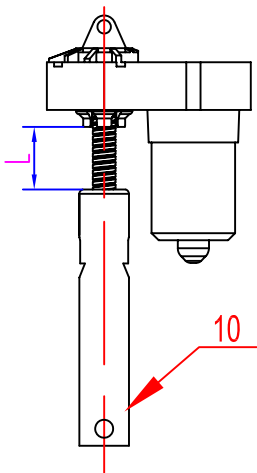
STEP#2: Remove Disc Scrub Head Assembly

1. Remove cotter pin and pins(5) from scrub head lift bracket, then remove cotter pin and pin(3) from spring bracket.
2. Remove lock nut and hex bolt(6) from roller guide(1).
3. Disconnect motor power cords(2).
4. Loosen clamp on the solenoid valve and remove tubing(4).
5. Remove scrub head assembly.

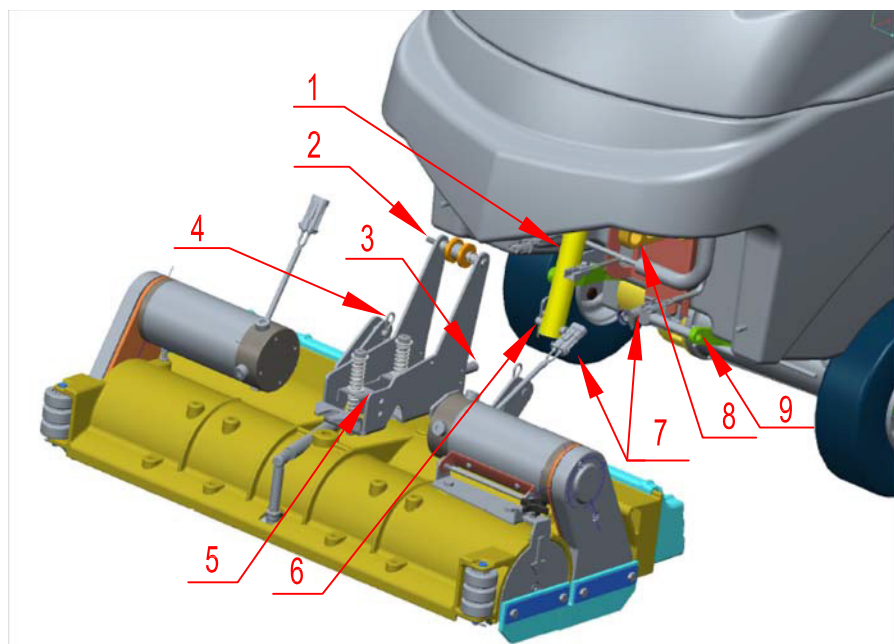


STEP#3: Assembly Cylindrical Scrub Head Group

1. Adjust initial position of sleeve nut(10) on the actuator(1) to right place(L) by rotating manually.
2. Place cylindrical scrub head under solution tank.
3. Connect tubing(3) and fasten clamp.
4. Insert pins into cylindrical scrub head lift bracket(4) through arm(9) installing on the frame, and place cotter pin into holes on the pin.
5. Insert pin into spring bracket(5) through sleeve nut installing on the actuator, and place cotter pin into holes on the pin(6).
6. Insert hex bolt into roller guide(8) through lifting bracket and fasten lock nut(2).
7. Connect motor power cords(7).

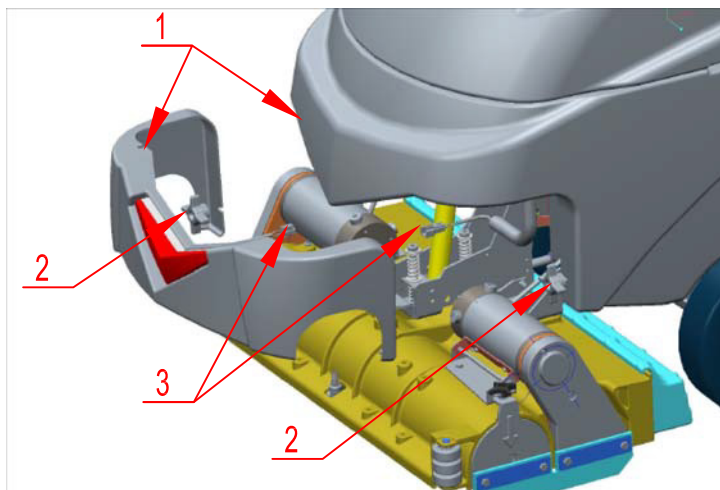


L=35±5MM



STEP#4: Assembly Front Cover

1. Connect cable of the led light(3).
2. Install front cover through stud fixing(1) on solution tank.
3. Fasten the knobs(2).



FAULT CODE & SOLUTION

The machine is equipped with a LED display screen (Panel components, item # 4), the LED screen will display the operating hours (Panel components, item # 17) and the battery level status (see Panel components, item # 2).

When the machine detects a fault, there will be a Fault code (Panel components, item #18) & Fault message (Panel components, item #11) display on the LED screen, and the Fault indicator (Panel components, item #1) will flash continuously, accompany an audible alarm Occasionally.

Once fault occurring, please DO NOT continue operate the machine unless the fault are eliminated. Turn off the machine, then to solve the fault, the fault code & message will be eliminated when machine restart.

If the fault is occurred frequently, or the fault can't be eliminated, please contact ICE service center.

Please refer to the below table to determine the fault cause and the solution.

| FAULT CODE | FAULT MESSAGE | FAULT CAUSE | SOLUTION |
|------------|---------------------------------|---|--|
| F03 | Bru Actt O.L. RESTART! | Scrub head lifting actuator is overload | Turn off the machine,after a moment, RE-START machine. |
| F04 | Vac Mtr O.L. RE-START! | Vacuum motor overload | |
| F05 | Left Bru Mtr O.L. RE-START! | Left brush motor is overload | |
| F06 | Right Bru Mtr O.L. RE-START! | Right brush motor is overload | |
| F07 | Propel Mtr O.L. RE-START! | Propel motor overload | |
| F08 | RecTank Full | Recovery tank is full | Drain the Recovery tank |
| F10 | Batt Low Charge Batt | Battery is low | Charge the battery |
| F11 | Batt Empty Charge Batt NOW | Battery is empty | Charge the battery NOW |
| F12 | Brake Wiring Error | Bad Brake wiring | Check the brake wiring |
| F14 | Replace Brake Assy | Bad Brake assembly | Replace the brake assembly |
| F16 | Control Unit Overheat! Wait | Control Unit Overheat | Turn off the machine,after a moment, RE-START machine |
| F17 | Replace Control Unit | Control Unit Fault | Replace the control unit |
| F20 | Check Left Brush motor | Bad left brush motor | Check left brush motor/ wiring |
| F21 | Check Vac Mtr | Bad Vacuum motor or wiring | Check the vacuum motor / Wiring |
| F22 | Check Soln Solenoid | Solution solenoid wiring fault | Check the wiring & Contactors |
| F23 | Replace Soln solenoid | Bad Solution solenoid | Replace the solution solenoid |
| F24 | Check Propel Motor | Bad propel motor | Check the propel motor / Wiring |
| F25 | Check Right Brush motor | Bad right brush motor | Check right brush motor/ wiring |
| F40 | Check Proximity Sw | Proximity switch fault | Check the Proximity switch |
| F41 | Release Handle | Operation mistake | Release the control handle bail |
| F42 | Replace Control Unit | Bad Control Unit | Replace the control unit |
| F43 | Turn Dead Sw Off RE-START! | Emergency stop button activated | Release emergency stop button and restart machine |
| F44 | Replace Control Unit | Bad Control Unit | Contact service center, Replace the Control Unit |
| F45 | Return Control Unit | | |
| F46 | Return Control Unit | | |
| F47 | Return Control Unit | | |
| F48 | Return Control Unit | | |

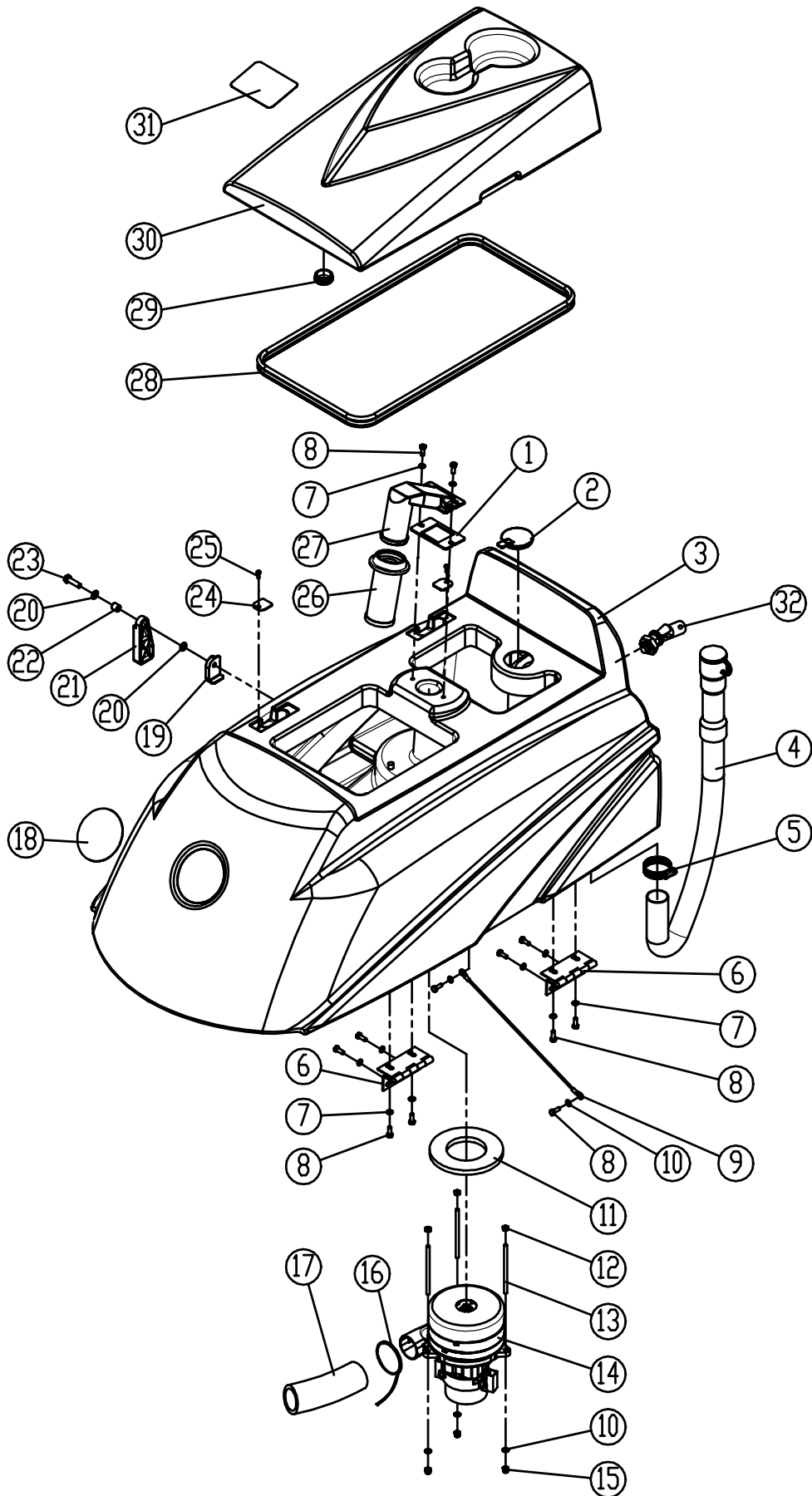
BASIC TROUBLESHOOTING

| PROBLEM | CAUSE | SOLUTION |
|-------------------------------|--|---|
| Machine will not operate | Control handle bail not pulled | Pull control handle bail |
| | Batteries need to be charged | Charge batteries |
| | Bad lithium-ion batteries | Replace batteries |
| | Emergency stop button activated | Reset Emergency stop button |
| | Main PCB fuse blown | Contact ICE service center |
| | Faulty i-synergy™ module | Contact ICE service center |
| Brush motor will not operate | 1-STEP scrub head up/down switch is off | Turn on the 1-STEP switch |
| | Battery meter lockout activated | Recharge batteries |
| | Faulty control handle bail switch | Contact ICE service center |
| | Faulty brush motor or wiring | Contact ICE service center |
| | Worn Motor carbon brushes | Contact ICE service center |
| Machine does not propel | the Control handle bail not pulled | Pull the control handle bail |
| | Faulty transaxle motor or wiring | Contact ICE service center |
| | Worn Motor carbon brushes | Contact ICE service center |
| Vacuum motor will not operate | Faulty vacuum motor or wiring | Contact ICE service center |
| | Worn Motor carbon brushes | Contact ICE service center |
| Little or no solution flow | Ball valve set too low or shut off | Turn on the ball valve |
| | Solution flow control knob set too low or shut off | Adjust solution control flow knob |
| | Clogged solution tank filter or solution hose | Clean solution tank filter or flush out solution hose |
| | Clogged solution Solenoid valve | Remove valve and clean |
| Poor water pick up | 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 ICE service center |
| | Low battery charge | Recharge batteries |
| Short run time | Low battery charge | Fully recharge batteries |
| | Defective batteries | Replace batteries |
| | Batteries need maintenance | See BATTERY MAINTENANCE |
| | Faulty battery charger | Repair or replace battery charger |
| | Down pressure lever is set for extra scrub head pressure | Lower down pressure lever |

TECHNICAL SPECIFICATIONS

| MODEL | i28BTL+-CY | i28BTL+ | i32BTL+ |
|--|---|--|---|
| DIMENSIONS - L | 61.02 in / 1,550 mm | | 62.21 in / 1,580 mm |
| DIMENSIONS - W | 30.51 in / 775 mm | | 34.06 in / 865 mm |
| DIMENSIONS - H | 44.49 in / 1,130 mm | | 44.49 in / 1,130 mm |
| WEIGHT | 352.74 lbs / 160 Kg | | 374.79 lbs / 170 Kg |
| WEIGHT WITH BATTERIES | 484 lbs / 220 Kg | | 506.7 lbs / 230 Kg |
| SOLUTION TANK CAPACITY | 26.42 Gal / 100 L | | |
| RECOVERY TANK CAPACITY | 31.7 Gal / 120 L | | |
| SQUEEGEE WIDTH | Standard: 40.5 in / 1,030 mm | | |
| CLEANING PATH WIDTH | 28 in / 700 mm | | 32 in / 800 mm |
| PRODUCTIVITY RATE | 30,667 ft ² / 2,850 m ² h | | 34,983 ft ² / 3,250 m ² h |
| DRIVE SYSTEM | Transaxle, 24VDC, 0.27 hp / 200 W | | |
| TRAVEL SPEED, MAXIMUM | Cleaning: 65 m/Min 213.25 ft/min | | Transporting: 72 m/Min 236.22 ft/Min |
| MINIMUM AISLE TURN | 63 in / 1600 mm | | |
| PAD/BRUSH PRESSURE | 0 ~ 79.37 lbs 0 ~ 36 kg | 39.68 lbs / 18 kg 79.37 lbs / 36 kg 119.05 lbs / 54 kg | |
| SOLUTION FLOW RATE | 0 ~ 0.66 Gal / Min 0 ~ 2.5 L/Min | | |
| BRUSH / CYLINDRICAL MOTORS | 0.75 hp / 560W × 2, 750 RPM | 0.75 hp / 550W × 2, 210 RPM | |
| BRUSH / CYLINDRICAL DIMENSIONS (x2) | Dia: 150 mm / 6 in Length: 700 mm / 28 in | Diameter: 355.6 mm / 14 in | Diameter: 406.4 mm / 16 in |
| VACUUM MOTOR | 0.8 hp / 600 W | | |
| WATER LIFT - AIR FLOW | 65 in / 1650 mm | | |
| BATTERIES | Lithium-ion Batteries, 240 AH | | |
| RUN TIME PER CHARGE | 3.5~4 Hours | | |
| VOLTAGE DC | 24 V | | |
| DECIBEL RATING AT OPERATOR'S EAR, INDOORS | 68 dB(A) | | |
| GRADE LEVEL, MAX | 5% (3°) | | |

RECOVERY TANK GROUP



PARTS LIST

RECOVERY TANK GROUP

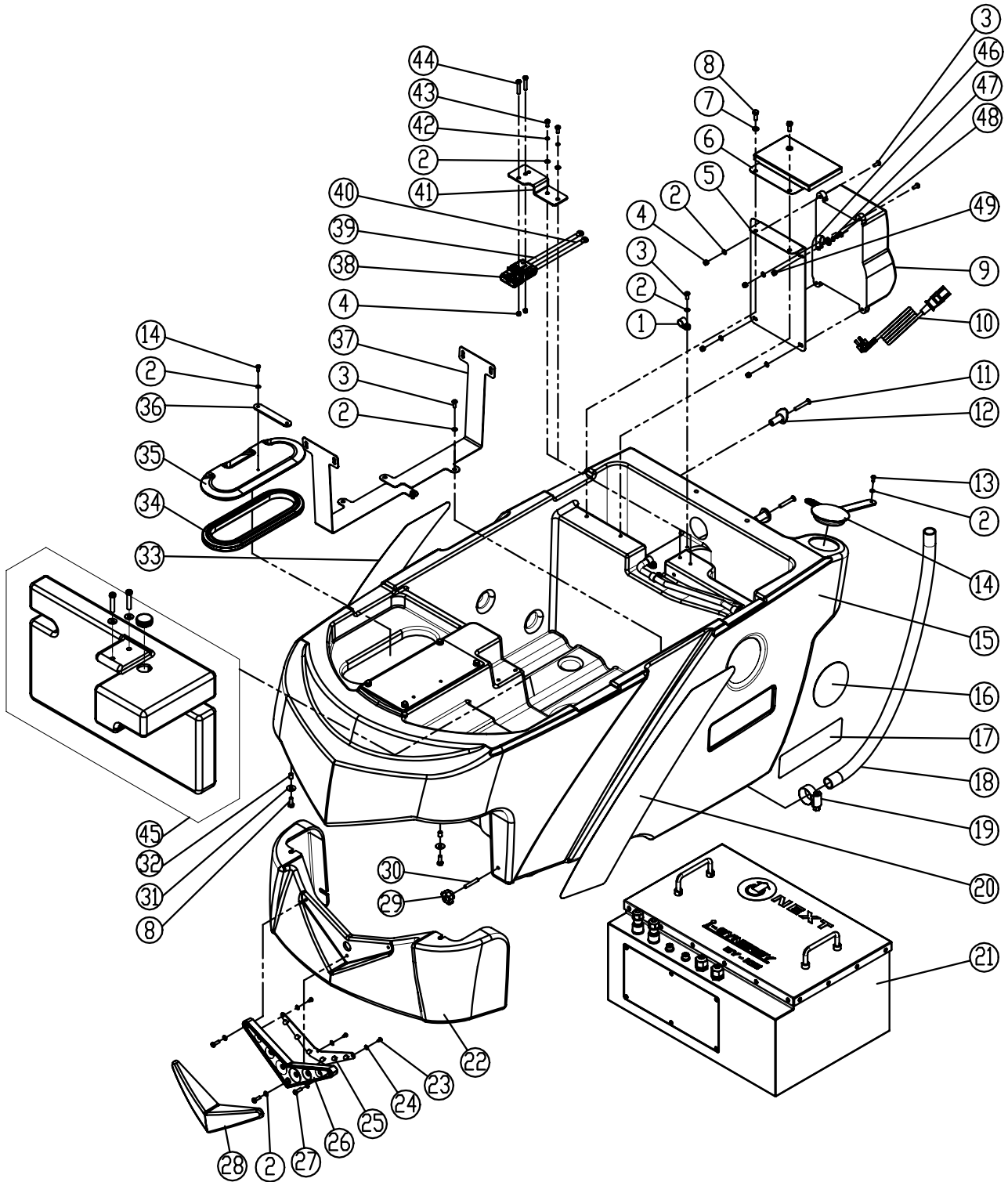
| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|----------------------------|------------------------------|----------|
| 1 | 8111001 | GASKET | | 1 |
| 2 | 8131003 | CAP | 60114100101~60114100103 | 1 |
| | 8131004 | CAP | 60114100104~ | 1 |
| 3 | 8210102 | RECOVERY TANK | | 1 |
| 4 | 8131010 | DRAIN HOSE | 60114100101~60114100103 | 1 |
| | 8131031 | DRAIN HOSE | 60114100104~ | 1 |
| 5 | 1962050 | CLAMP | | 1 |
| 6 | 8111300 | HINGE ASSEMBLY | | 2 |
| 7 | 1421618 | FLAT WASHER M6×18×1.6 | | 10 |
| 8 | 1021616 | HEX BOLT M6 X 16 | | 12 |
| 9 | 8210207 | CABLE | | 1 |
| 10 | 1421612 | FLAT WASHER M6×12×1.6 | | 5 |
| 11 | 8112005 | GASKET, VACUUM MOTOR | | 1 |
| 12 | 1121605 | HEX NUT M6 | | 3 |
| 13 | 8210209 | STUD M6×110 | | 3 |
| 14 | 8210299 | VACUUM MOTOR 24VDC, KIT | | 1 |
| | 8112008 | CARBON BRUSH, VACUUM MOTOR | | 2 |
| 15 | 1123608 | LOCK NUT M6 | | 3 |
| 16 | 1914300 | TIE, NYLON, 5X300 | | 1 |
| 17 | 8132007 | MUFFLER, VACUUM MOTOR | | 1 |
| 18 | 4010316 | ICE LOGO | | 1 |
| 19 | 8111008 | BRACKET | | 1 |
| 20 | 1421816 | FLAT WASHER M8×16×1.6 | | 2 |
| 21 | 8111007 | RECOVERY TANK SUPPORT | | 1 |
| 22 | 8115404 | SLEEVE, P/M | | 1 |
| 23 | 1021830 | HEX BOLT M8×30 | | 1 |
| 24 | 8111016 | PLATE | | 2 |
| 25 | 1221512 | SCREW M5×12 | | 2 |
| 26 | 8111015 | FLOAT, SHUT-OFF | | 1 |
| 27 | 8111014 | FLOAT ADAPTER | | 1 |
| 28 | 8210201 | RECOVERY TANK COVER SEAL | | 1 |
| 29 | 8011005 | CAP | | 1 |
| 30 | 8210103 | RECOVERY TANK COVER | | 1 |
| 31 | 8111022 | WARNING LABEL | | 1 |
| 32 | 8310238A | SENSOR, SOLUTION LEVEL | 60304100163~ 60305100130~ | 1 |

Note:

No.2: Supplier changes, part coding changes.

No.4: Supplier change for drain hose, part number change to 8131031 from 8131010.

SOLUTION TANK GROUP



PARTS LIST

SOLUTION TANK GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|---|--|----------|
| 1 | 6210131 | NYLON, CLAMP | | 12 |
| 2 | 1421510 | FLAT WASHER M5×10×1 | | 32 |
| 3 | 1221520 | SCREW M5×20 | | 24 |
| 4 | 1123507 | LOCK NUT M5 | | 6 |
| 5 | 8210127 | BRACKET, BATTERY CHARGER-MNTG | 60304100101~60304100256 60305100101~60305100470 | 1 |
| | 8210119 | BRACKET, BATTERY CHARGER MNTG | 60304100257~ 60305100471~ | 1 |
| 6 | 8210117 | CAP, CHARGER | | 1 |
| 7 | 1421612 | FLAT WASHER M6×12×1.6 | | 12 |
| 8 | 1021616 | HEX BOLT M6 X 16 | | 10 |
| 9 | 8311720 | ON BOARD LI-ION BATTERY-CHARGER | 60304100101~60304100193 60305100101~60305100186 | 1 |
| | 8350509 | ON BOARD LI-ION BATTERY CHARGER | 60304100194~ 60305100187~ | 1 |
| 10 | 8112030 | POWER CORD, BATTERY-CHARGER(FOR 8311720) | 60304100101~60304100193 60305100101~60305100186 | 1 |
| | 8312060US | POWER CORD, BATTERY CHARGER(FOR 8350509) | 60304100194~ 60305100187~ | 1 |
| 11 | 1222641 | SCREW M6 X 40 | | 2 |
| 12 | 8210112 | HOOK, CORD | | 2 |
| 13 | 1321213 | SELF-TAPPING SCREW ST4.2X13 | | 2 |
| 14 | 8210113 | CAP, SOLUTION FILL | | 1 |
| 15 | 8210101 | SOLUTION TANK | | 1 |
| 16 | 4010316 | ICE LOGO | | 2 |
| 17 | 8130099 | I-SYNERGY LOGO | | 2 |
| 18 | 8210140 | CLEAN TUBING | | 1 |
| 19 | 1962025 | CLAMP 16-25mm | | 1 |
| 20 | 8210151 | LABEL, LEFT SIDE | | 1 |
| 21 | N240650 | LITHIUM-ION BATTERY, 240AH,3G | 60304100101~60304100255 60305100101~60305100476 | 1 |
| | N241650 | LITHIUM-ION BATTERY, 240AH,4G | 60304100256~ 60305100477~ | 1 |

SOLUTION TANK GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------------|------------------------------|----------|
| 22 | 8210104 | COVER, FRONT | | 1 |
| 23 | 1321110 | SELF-TAPPING SCREW ST3.5 ×10 | | 3 |
| 24 | 1421409 | FLAT WASHER M4×9×0.8 | | 5 |
| 25 | 8133610 | LED LIGHT KIT | | 1 |
| 26 | 8133601 | LED LIGHT MNTG BASE | | 1 |
| 27 | 1221520 | SCREW M5X20 | | 3 |
| 28 | 8133602 | LED LIGHT COVER | | 1 |
| 29 | 8210531 | KNOB, M6 | | 2 |
| 30 | 1535630 | SET SCREW M6 ×30 | | 2 |
| 31 | 1421618 | PLAIN WASHER 6×18×1.6,SS | | 4 |
| 32 | 8113112 | BUSHING | | 2 |
| 33 | 8210152 | LABEL, RIGHT SIDE | | 1 |
| 34 | 8113030 | SEAL | | 1 |
| 35 | 8113002 | COVER | | 1 |
| 36 | 8113007 | STRAP | | 1 |
| 37 | 8210168 | PLATE | | 2 |
| 38 | 8210163 | CONNECTOR HOUSING | | 1 |
| 39 | 8210723 | BATTERY CONNECT CABLE, RED | | 1 |
| 40 | 8210724 | BATTERY CONNECT CABLE, BLACK | | 1 |
| 41 | 8210164 | BRACKET, CONNECTOR | | 1 |
| 42 | 1422515 | SPRING WASHER,M5 | | 2 |
| 43 | 1021512 | HEX HEAD SCREW, M5X12 | | 2 |
| 44 | 1221525 | PAN HEAD SCREW, M5X25 | | 2 |
| 45 | 8210630 | CLUMP WEIGHT GROUP | 60304100222~ 60305100425~ | 1 |
| 46 | 1885119 | NYLON, CLAMP | | 1 |
| 47 | 1422411 | SPRING WASHER | | 1 |
| 48 | 1221412 | SCREW M4×20 | | 1 |
| 49 | 1123406 | LOCK NUT M4 | | 1 |

Note:

No.5 This charger barcket was changed to U hole from circle hole to adapt flex charger, this bracket can also adapt original charger 8311720.

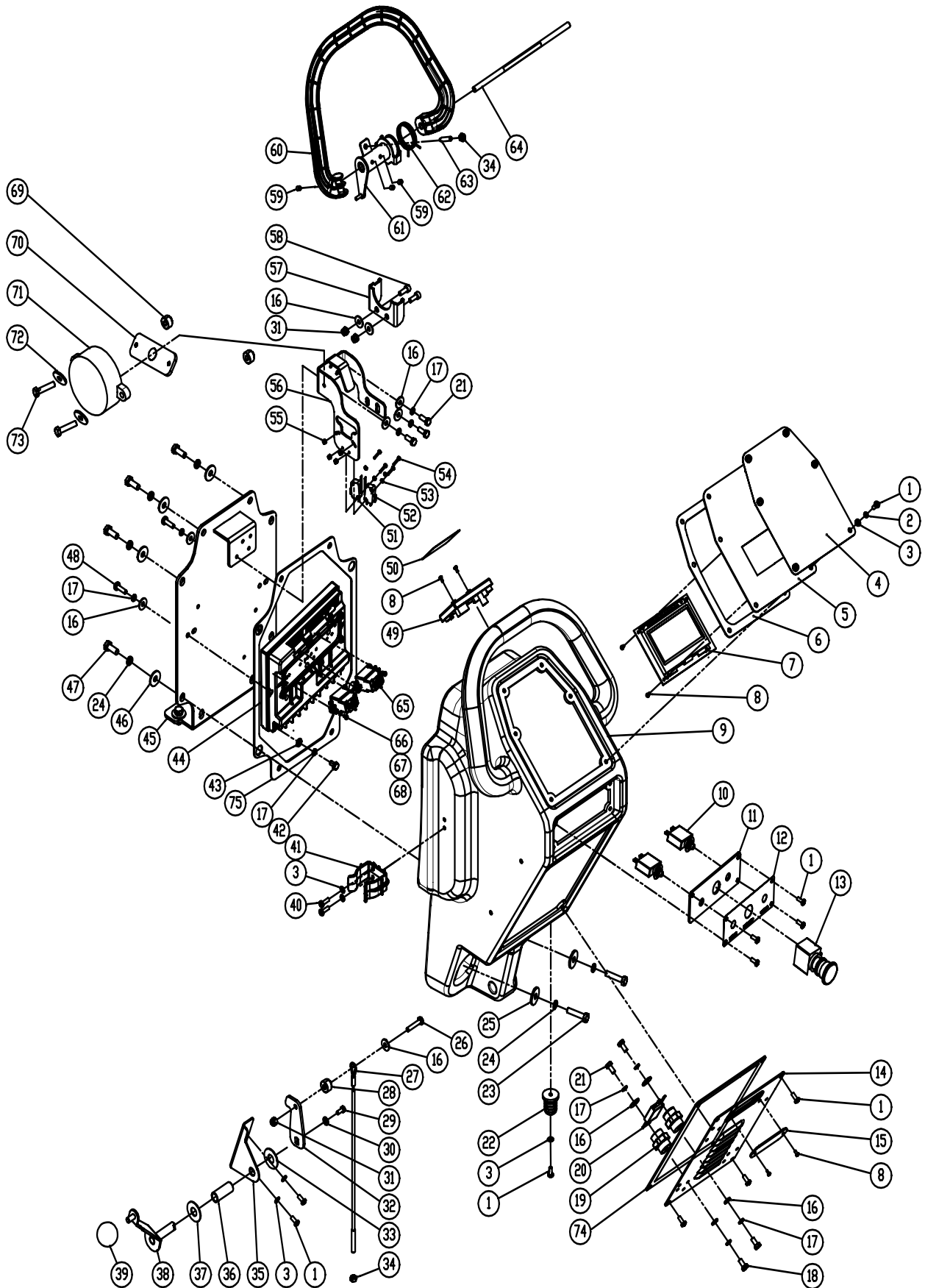
No.9 The battery chager supplier was changed.

No.21 Use 4G battery N241650 instead of N240650

No.45 New add clump weight group.

No.46~49 Structural optimization of new parts.

CONTROL CONSOLE GROUP



CONTROL CONSOLE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|-----------------------------------|---------------|----------|
| 1 | 1221512 | SCREW M5×12 | | 17 |
| 2 | 1422513 | LOCK WASHER M5 | | 6 |
| 3 | 1421510 | FLAT WASHER M5×10×1.0 | | 13 |
| 4 | 8210535 | CONTROL PANEL DECAL, i28BTL+ | | 1 |
| | 8210536 | CONTROL PANEL DECAL, i32BTL+ | | 1 |
| 5 | 8174505 | CONTROL PANEL | | 1 |
| 6 | 8134015 | GASKET | 60304100163~ | 1 |
| 7 | 8134923 | 5" ANDROID LCD SCREEN | | 1 |
| 8 | 1221306 | SCREW M3×6 | | 6 |
| 9 | 8134005 | CONTROL HOUSING | | 1 |
| 10 | 8310740 | CIRCUIT BREAKER, 5A | | 2 |
| 11 | 8134008 | PLATE, EMERGENCY STOP MNTG | | 1 |
| 12 | 8144029 | DECAL, EMERGENCY STOP | | 1 |
| 13 | 8310707 | EMERGENCY STOP BUTTON | | 1 |
| 14 | 8134060-1 | PLATE, ON BOARD BATTERY CHARGER | | 1 |
| 15 | 8134061 | CLEAR COVER | | 1 |
| 16 | 1421618 | PLAIN WASHER M6× ϕ 18×1.6,SS | | 12 |
| 17 | 1422616 | LOCK WASHER, M6 | | 20 |
| 18 | 1021616 | HEX BOLT M6 X 10 | | 2 |
| 19 | 8114705 | STAND-OFF, M6 | | 2 |
| 20 | 1885289 | FUSE, 150A | | 1 |
| 21 | 1021616 | HEX BOLT M6 X 16 | | 5 |
| 22 | 8114005 | CONNECTOR | | 1 |
| 23 | 1021840 | HEX BOLT M8×40 | | 2 |
| 24 | 1422821 | LOCK WASHER M8 | | 12 |
| 25 | 1421828 | FLAT WASHER M8× ϕ 28×3 | | 2 |
| 26 | 1021630 | HEX HEAD BOLT M6×30,SS | | 1 |
| 27 | 8210413 | CABLE, SQGE LIFT | | 1 |
| 28 | 8014101 | LIFTING ROPE SPACER | | 1 |
| 29 | 1021512 | HEX HEAD BOLT M5×12,SS | | 2 |
| 30 | 1421515 | FLAT WASHER M5×15×1.0 | | 1 |
| 31 | 1123608 | LOCK NUT M6 | | 3 |

PARTS LIST

CONTROL CONSOLE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|--|---------------|----------|
| 32 | 8014012 | BAFFLE | | 1 |
| 33 | 8113111 | NYLON FLAT WASHER $\phi 12.9 \times \phi 25.4 \times 0.8$ | | 1 |
| 34 | 1121605 | HEX NUT M6 | | 2 |
| 35 | 8134501 | BRACKET | | 1 |
| 36 | 8134508 | SLEEVE | | 1 |
| 37 | 1421132 | FLAT WASHER 12×32×1.5 | | 1 |
| 38 | 8014010 | SQUEEGEE LIFTING HANDLE | | 1 |
| 39 | 8113104 | BALL KNOB M8 | | 1 |
| 40 | 1221515 | PH SCREW M5×15,SS | | 2 |
| 41 | 6210120 | CLAMP, DRAIN HOSE | | 1 |
| 42 | 1023612 | HEX BOLT M6 X 12, COPPER | | 10 |
| 43 | 1423612 | FLAT WASHER M6× $\phi 12 \times 1$, COPPER | | 10 |
| 44 | 8210550 | MAIN CONTROLLER, i32BTL+ | | 1 |
| 45 | 8134070 | REAR PLATE, CONTROL CONSOLE | | 1 |
| 46 | 1421824 | FLAT WASHER M8× $\phi 24 \times 2$ | | 10 |
| 47 | 1021820 | HEX BOLT M8×20 | | 10 |
| 48 | 1221620 | PH SCREW M6×20 | | 2 |
| 49 | 8134775 | RFID BOARD | | 1 |
| 50 | 8134035 | LABEL, i-SYNERGY™ CARD SCANNING | | 1 |
| 51 | 8114712 | MICRO SWITCH | | 1 |
| 52 | 8124743 | MICRO SWITCH | | 1 |
| 53 | 1434300 | LOCK WASHER, TOOTH, M3 | | 4 |
| 54 | 1021320 | SCREW M3 X 20 | | 4 |
| 55 | 1123305 | LOCK NUT M3 | | 4 |
| 56 | 8134022 | BRACKET, SWITCH | | 1 |
| 57 | 8114402 | BRACKET, SPRING | | 1 |
| 58 | 1521616 | SCREW M6X16, HEX SCOKET | | 2 |
| 59 | 1534608 | SET SCREW M6 ×8 | | 4 |
| 60 | 8134300 | LEVER, BAIL | | 1 |
| 61 | 8114300 | ACTUATOR | | 1 |
| 62 | 8114306 | SPRING | | 1 |

CONTROL CONSOLE GROUP

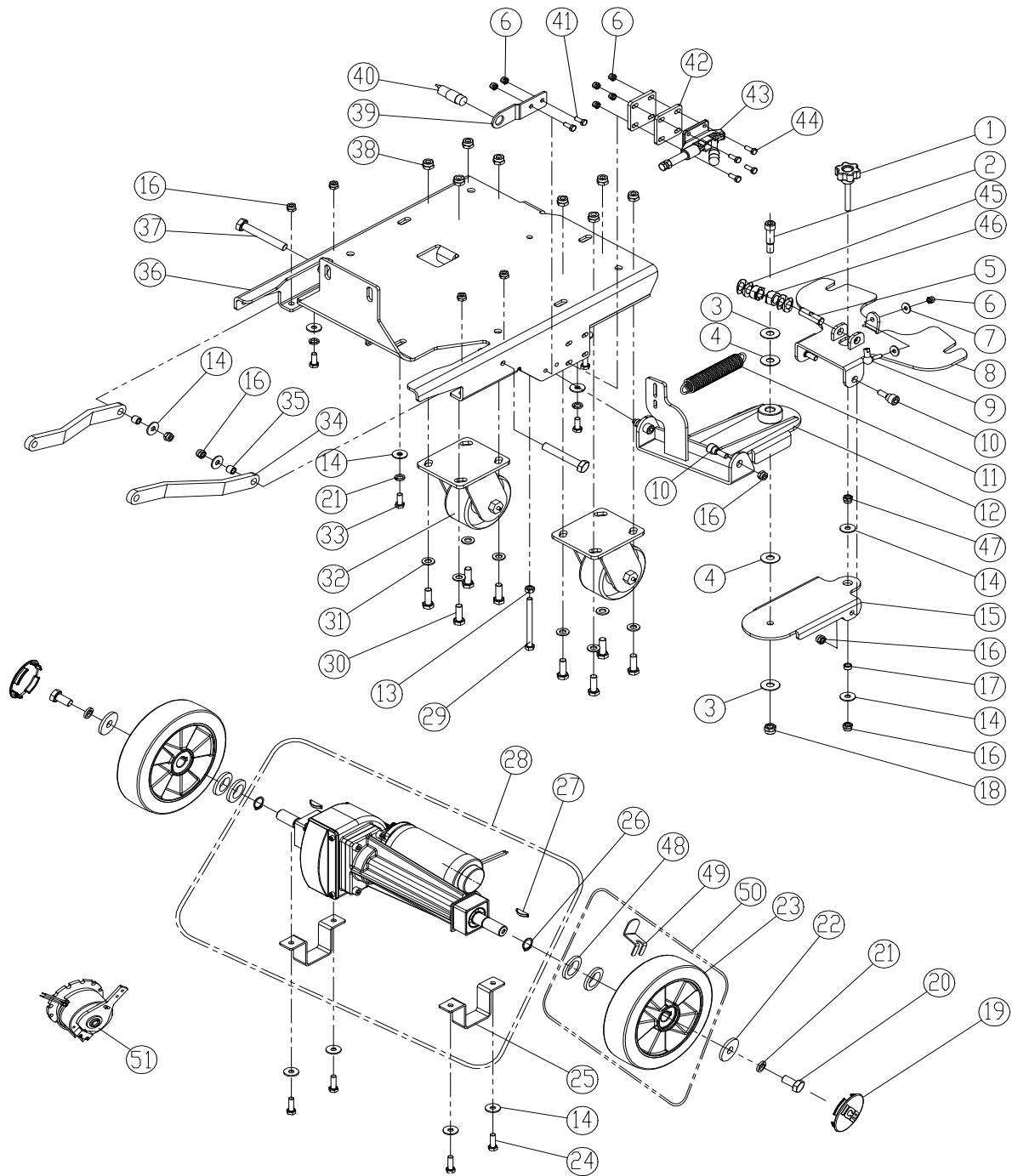
| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|---------------------------|---------------|----------|
| 63 | 1535630 | SET SCREW M6 ×30 | | 1 |
| 64 | 8114101 | SHAFT | | 1 |
| 65 | 8313420 | RELAY,24VDC,120A | | 2 |
| 66 | 1221412 | SCREW, HEX HEAD, M4X12 | | 4 |
| 67 | 1411409 | WASHER , PLAIN , M4X9X0.8 | | 4 |
| 68 | 1422411 | LOCK WASHER M4 | | 4 |
| 69 | 1111302 | HEX NUT M3 | | 2 |
| 70 | 8134023 | BRACKET,HORN | 60305100241~ | 1 |
| 71 | 8310708A | HORN, 24VDC | | 1 |
| 72 | 1421307 | FLAT WASHER | | 2 |
| 73 | 1211320 | HEX BOLT | | 2 |
| 74 | 8134083 | SEALING GASKET | | 1 |
| 75 | 8134085 | BACK SEALING GASKET | 60114100104~ | 1 |

Note:

The part NO.66 is new added for easy assembly and service the horn.
The part NO.74、 75 is a newly added part for structural optimization.

PARTS LIST

FRAME & TRANSAXLE GROUP

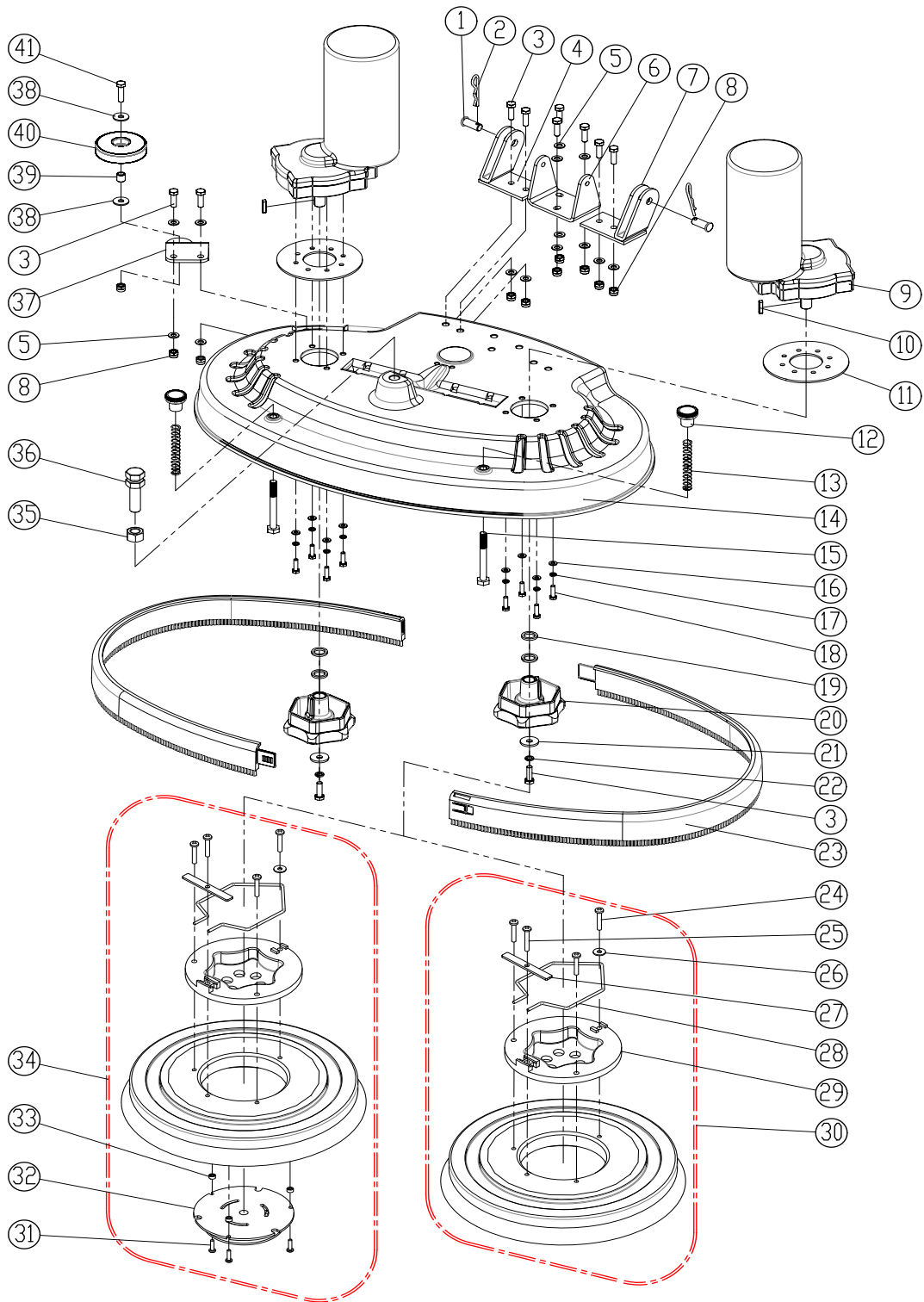


| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------------------|---------------|----------|
| 1 | 8211507 | KNOB M8 ×60 | | 1 |
| 2 | 8211505 | SHOULDER SCREW,M12 | | 1 |
| 3 | 1421132 | FLAT WASHER 12×32×1.5 | | 2 |
| 4 | 8135001 | PLASTIC THRUST WASHER M12×φ 30×1.5 | | 2 |
| 5 | 8211506 | SHAFT | | 1 |
| 6 | 1123608 | LOCK NUT M6 | | 7 |
| 7 | 1421618 | FLAT WASHER M6×18×1.6 | | 2 |
| 8 | 8211503 | BRACKET, SQUEEGEE | | 1 |
| 9 | 8114511 | BALL JOINT M6 | | 1 |
| 10 | 8211504 | SHOULDER SCREW,M8 | | 4 |
| 11 | 8210508 | SPIRNG | | 1 |

FRAME & TRANSAXLE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|---|---|----------|
| 12 | 8211501 | BRACKET, SQGE LIFT | | 1 |
| 13 | 1121807 | NUT, M8 | | 2 |
| 14 | 1421824 | FLAT WASHER M8×24×2 | | 12 |
| 15 | 8211502 | BRACKET,SQGE SWING | | 1 |
| 16 | 1123810 | LOCK NUT M8 | | 11 |
| 17 | 8211508 | BUSHING | | 1 |
| 18 | 1123115 | LOCK NUT M12 | | 1 |
| 19 | 8115203 | COVER, WHEEL | | 2 |
| 20 | 1021835 | HEX BOLT M8 × 40 | | 2 |
| 21 | 1422821 | LOCK WASHER M8 | | 7 |
| 22 | 1421828 | FLAT WASHER M8×28×2 | | 2 |
| 23 | 8225203 | 8-INCH WHEEL, FOAM FILLED | 60114100101~60114100105 60304100101~60304100283 60305100101~60305100156 | 2 |
| | 8225308 | 9 INCH SOLID WHEEL | 60114100106~; 60304100284~ 60305100157~ | 2 |
| 24 | 1021825 | HEX BOLT M8 × 25 | | 4 |
| 25 | 8210123 | BRACKET, TRANSAXLE MNTG | | 2 |
| 26 | 1436019 | RETAINING RING 19 | | 2 |
| 27 | 8125403 | WOODRUFF KEY | | 2 |
| 28 | 8210120A | TRANSAXLE, 24VDC | | 1 |
| 29 | 1022800 | HEX BOLT M8 X 100 | | 1 |
| 30 | 1021030 | HEX BOLT M10 X 30 | | 8 |
| 31 | 1421020 | FLAT WASHER 10×20×2.0 | | 8 |
| 32 | 8210109 | 4" CASTER | | 2 |
| 33 | 1021820 | HEX BOLT M8×20 | | 5 |
| 34 | 8210115 | ARM, SCRUB HEAD LIFTING | | 2 |
| 35 | 8210116 | BUSHING | | 2 |
| 36 | 8210130 | FRAME | | 1 |
| 37 | 1021855 | HEX BOLT M8 × 55 | | 2 |
| 38 | 1123012 | LOCK NUT M10 | | 8 |
| 39 | 8210186 | BRACKET, PROXIMITY SENSOR | | 1 |
| 40 | 8134709A | PROXIMITY SENSOR, KIT | | 1 |
| 41 | 1021616 | HEX BOLT M6 × 16 | | 2 |
| 42 | 8210138 | SPACER (OPTION) | | 2 |
| 43 | 8210137 | TOGGLE CLAMP, BRAKE (OPTION) | | 1 |
| 44 | 1021630 | HEX BOLT M6 X 30 | | 4 |
| 45 | 1435013 | GASKET | | 4 |
| 46 | 8118085 | SHAFT SLEEVE | 60304100222~ 60305100425~ | 2 |
| 47 | 1123809 | METAL LOCK NUTS | | 1 |
| 48 | 8116001 | GASKET | | 4 |
| 49 | 8225205 | BRACKET | | 1 |
| 50 | 8225210 | FOAM FILLED WHEEL,8INCH,KIT (Corresponding to 8225203) | 60114100101~60114100105 60304100101~60304100283 60305100101~60305100156 | 1 |
| | 8225310 | SOLID WHEEL,9INCH,KIT (Corresponding to 8225308) | 60114100106~; 60304100284~ 60305100157~ | 1 |
| 51 | 8210122 | BRAKE ASSEMBLY(FOR TRANSAXLE 8210120A) | | 1 |

SCRUB HEAD GROUP

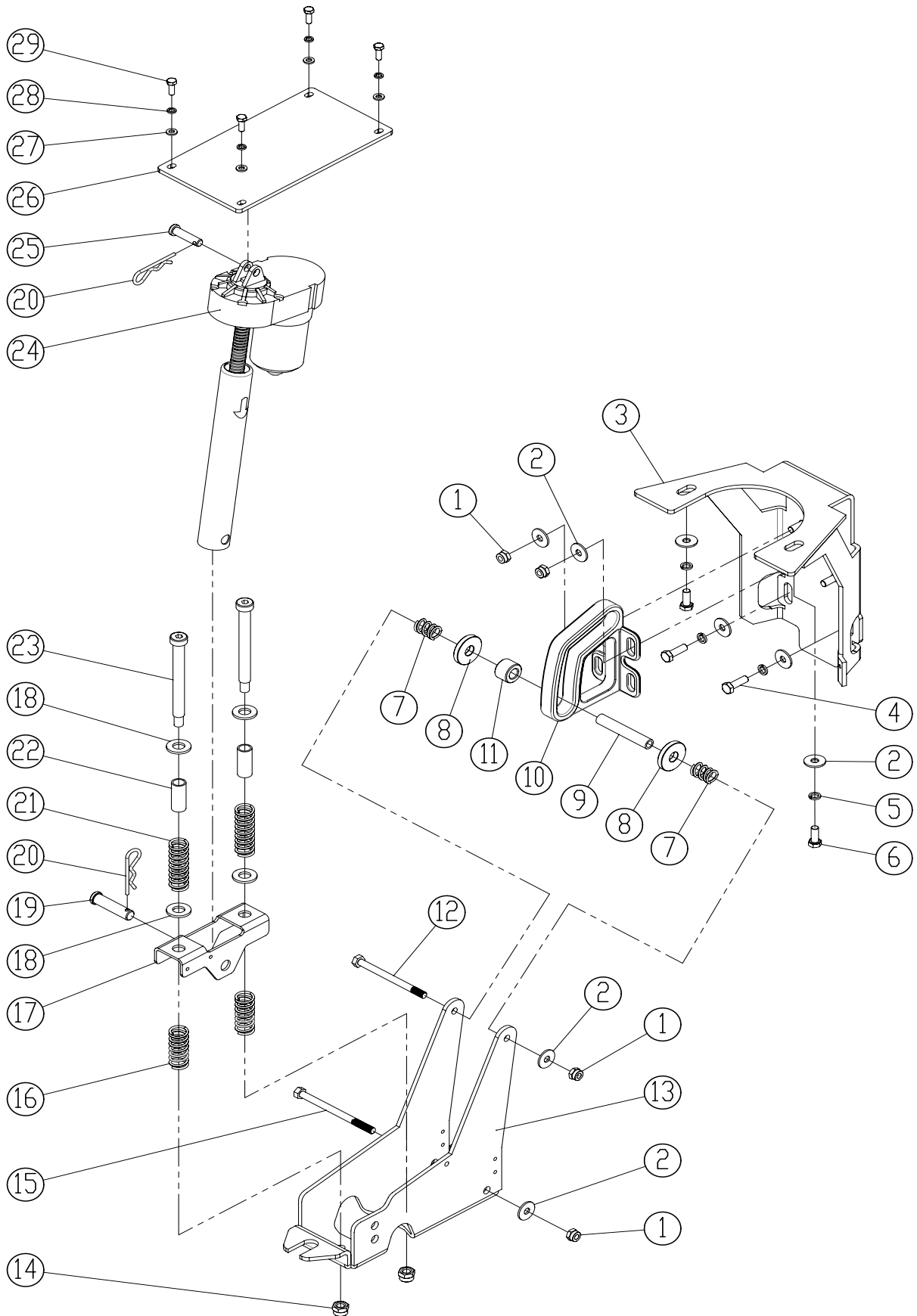


| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------|--|----------|
| 1 | 8210807 | PIN | 60304100101~60304100123 60305100101~60305100129 | 2 |
| | 8210812 | PIN | 60304100124~ 60305100147~ | 2 |
| 2 | 8210309 | PIN, COTTER | | 2 |
| 3 | 1021825 | HEX BOLT M8 × 25 | | 11 |

SCRUB HEAD GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|---|-------------------------|----------|
| 4 | 8210830 | BRACKET, SCRUB HEAD LIFT, RIGHT | 60305100101~60305100129 | 1 |
| | 8210831 | BRACKET, SCRUB HEAD LIFT, RIGHT | 60305100130~ | 1 |
| 5 | 1421816 | FLAT WASHER M8×16×1.6 | | 14 |
| 6 | 8210806 | BRACKET, ACTUATOR MNTG | | 1 |
| 7 | 8210820 | BRACKET, SCRUB HEAD LIFT, LEFT | 60305100101~60305100129 | 1 |
| | 8210832 | BRACKET, SCRUB HEAD LIFT, LEFT | 60305100130~ | 1 |
| 8 | 1123810 | LOCK NUT M8 | | 10 |
| 9 | 8210899 | BRUSH MOTOR, 24VDC, 550W, KIT | | 2 |
| | 8210850 | CARBON BRUSH | | 2 |
| 10 | 1655025 | KEY, 5X5X25 | | 2 |
| 11 | 8210803 | SPACER, RUBBER | | 2 |
| 12 | 8210808 | KNOB, M10 | | 2 |
| 13 | 8210809 | SPRING | | 2 |
| 14 | 8220801 | HOUSING, SCRUB HEAD, i28BTL | | 1 |
| | 8210801 | HOUSING, SCRUB HEAD, i32BTL | | 1 |
| 15 | 1022090 | HEX BOLT M10 × 90 | | 2 |
| 16 | 1421612 | FLAT WASHER M6×12×1.6 | | 8 |
| 17 | 1422616 | LOCK WASHER, M6 | | 8 |
| 18 | 1021620 | HEX BOLT M6 × 20 | | 8 |
| 19 | 8210804 | SPACER | | 4 |
| 20 | 8210805 | HUB, BRUSH DRIVE | | 2 |
| 21 | 1421828 | FLAT WASHER M8×28×3.0 | | 2 |
| 22 | 1422821 | LOCK WASHER M8 | | 2 |
| 23 | 8220810 | BUMPER, SCRUB HEAD, i28BTL | | 2 |
| | 8218050 | BUMPER, SCRUB HEAD, i32BTL | | 2 |
| 24 | 1221635 | SCREW, M6 × 35 | | 12 |
| 25 | 1221640 | SCREW, M6 × 40 | | 4 |
| 26 | 1421618 | FLAT WASHER M6×18×1.6 | | 4 |
| 27 | 8210861 | RETAINER BAR | | 4 |
| 28 | 8210862 | SPRING, G-400S | | 4 |
| 29 | 9000004 | CLUTCH, G-400S | | 4 |
| 30 | 9050014 | BRUSH ASSEMBLY, 14 INCH, i28BTL+ | | 2 |
| | 9050014P | SOFT WHITE BRUSH ASSEMBLY, 14 INCH, i28BTL+, OPTION | | 2 |
| | 9050016 | BRUSH ASSEMBLY, 16 INCH, i32BTL+ | | 2 |
| | 9050016P | SOFT WHITE BRUSH ASSEMBLY, 16 INCH, i32BTL+, OPTION | | 2 |
| 31 | 1321325 | SELF-TAPPING SCREW, ST5 X 25 | | 6 |
| 32 | 9000003 | CENTER LOCK, #3 | | 2 |
| 33 | 8116040 | SPACER, 6.5×14.5×7.0 | | 6 |
| 34 | 9040014 | PAD DRIVER, 14INCH, i28BTL | | 2 |
| | 9040016 | PAD DRIVER, 14INCH, i32BTL | | 2 |
| 35 | 1111215 | HEX NUT, M16 | | 1 |
| 36 | 8210811 | AJUSTMENT STUD, M16 | | 1 |
| 37 | 8210810 | BRACKET, ROLLER MNTG | | 1 |
| 38 | 1421824 | FLAT WASHER M8×24×2 | | 2 |
| 39 | 8115404 | SLEEVE, P/M | | 1 |
| 40 | 8116009 | PROTECTIVE WHEEL | | 1 |
| 41 | 1021830 | HEX BOLT M8 × 30 | | 1 |

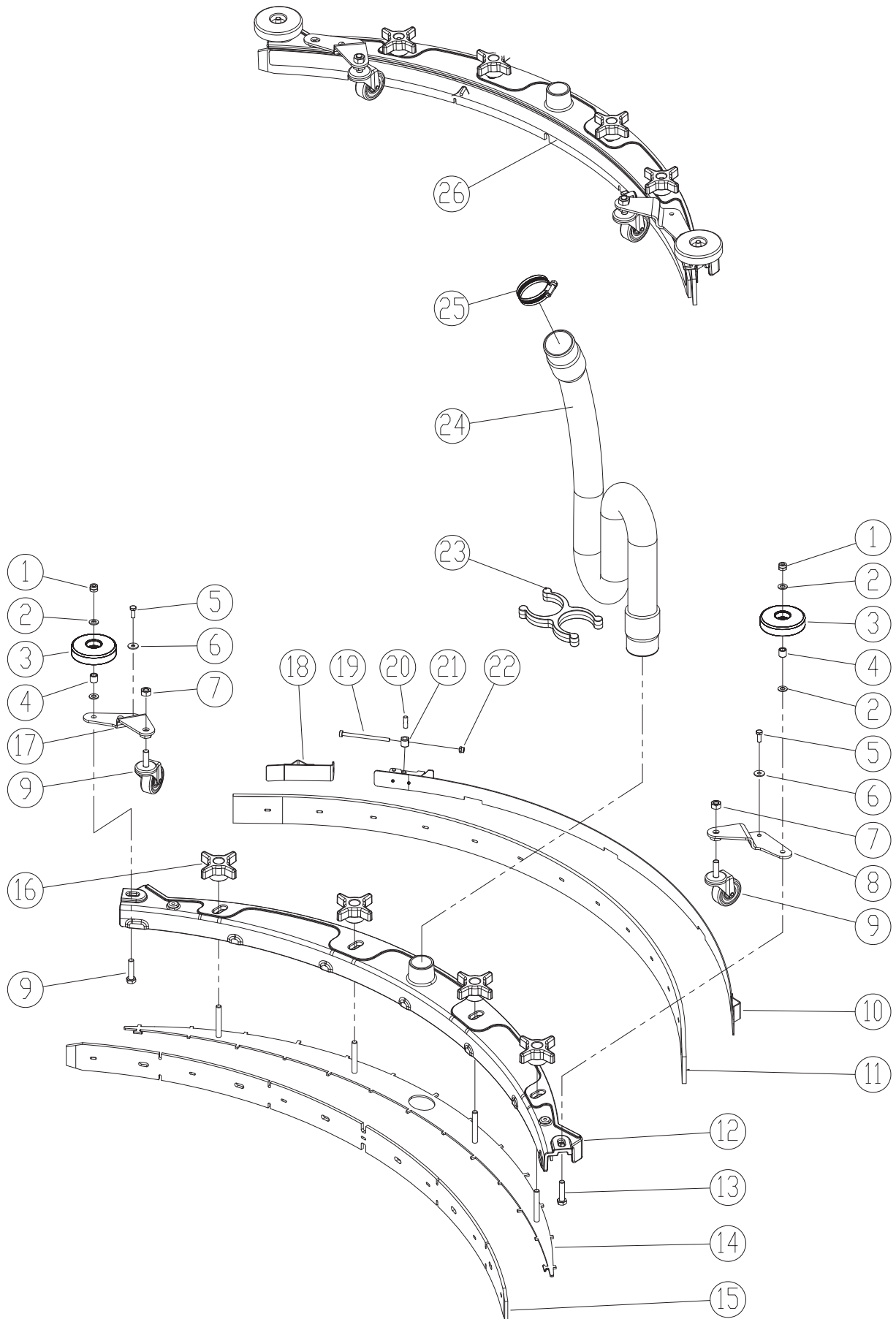
SCRUB HEAD LIFT GROUP



SCRUB HEAD LIFT GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|------------------------|----------------------|-----------------|
| 1 | 1123810 | LOCK NUT M8 | | 6 |
| 2 | 1421824 | FLAT WASHER M8×24×2 | | 10 |
| 3 | 8210306 | BRACKET, GUIDE MNTG | | 1 |
| 4 | 1021825 | HEX BOLT M8×25 | | 2 |
| 5 | 1422821 | LOCK WASHER M8 | | 4 |
| 6 | 1021820 | HEX BOLT M8×20 | | 2 |
| 7 | 8210311 | SPRING | | 2 |
| 8 | 8210312 | WASHER, PM | | 2 |
| 9 | 8210314 | BUSHING | | 1 |
| 10 | 8210310 | GUIDE, ROLLER | | 1 |
| 11 | 8210313 | ROLLER | | 1 |
| 12 | 1022800 | HEX BOLT M8 X 100 | | 1 |
| 13 | 8210316 | BRACKET, SCRUB LIFT | | 1 |
| 14 | 1123008 | LOCK NUT 3/8 | | 2 |
| 15 | 1022811 | HEX BOLT M8 X 110 | | 1 |
| 16 | 8210319 | SPRING | | 2 |
| 17 | 8210317 | BRACKET, SPRING | | 1 |
| 18 | 1421132 | FLAT WASHER 12×32×1.5 | | 4 |
| 19 | 8210322 | PIN | | 1 |
| 20 | 8210309 | PIN, COTTER | | 2 |
| 21 | 8210318 | SPRING | | 2 |
| 22 | 8210320 | SLEEVE | | 2 |
| 23 | 8210321 | BOLT, SHOULDER, 3/8 | | 2 |
| 24 | 8210302 | ACTUATOR, 24VDC | | 1 |
| 25 | 8210301 | PIN | | 1 |
| 26 | 8210303 | BRACKET, ACTUATOR MNTG | | 1 |
| 27 | 1421612 | FLAT WASHER M6×12×1.6 | | 4 |
| 28 | 1422616 | LOCK WASHER M6 | | 4 |
| 29 | 1021616 | HEX BOLT M6 X 16 | | 4 |

40.5 INCH SQUEEGEE GROUP ,i28BTL+,i32BTL+(STANDARD)



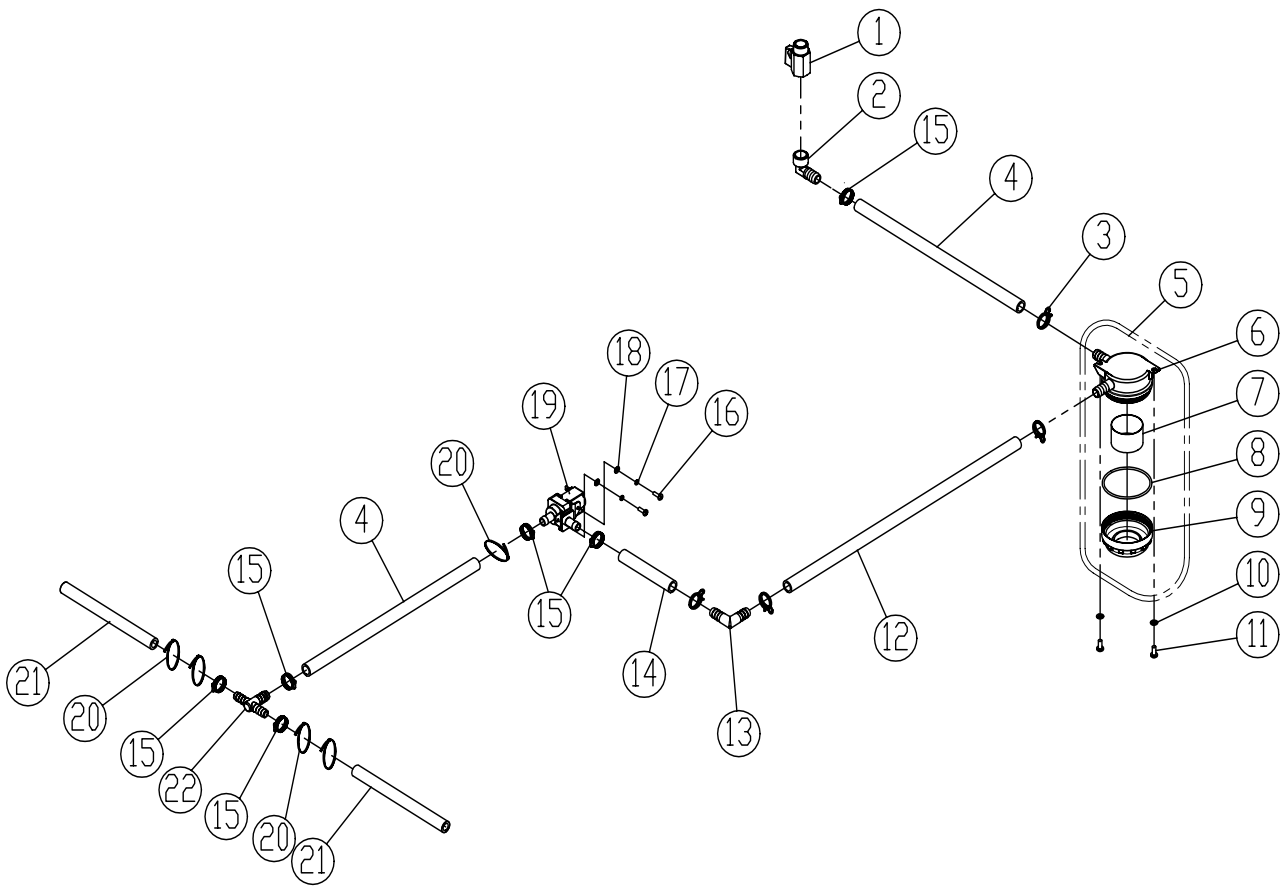
40.5 INCH SQUEEGEE GROUP ,i28BTL+,i32BTL+(STANDARD)

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------------------|---------------|----------|
| 1 | 1123810 | LOCK NUT M8 | | 2 |
| 2 | 1421824 | FLAT WASHER M8× ϕ 24×2.0 | | 4 |
| 3 | 8116009 | PROTECTIVE WHEEL | | 2 |
| 4 | 8115404 | BEARING, JOURNAL | | 2 |
| 5 | 1021616 | HEX BOLT M6×16 | | 2 |
| 6 | 1421612 | FLAT WASHER M6× ϕ 12×1.6 | | 2 |
| 7 | 1121008 | HEX NUT M10 | | 2 |
| 8 | 8118300 | RIGHT BRACKET | | 1 |
| 9 | 8310550 | CASTER, 2 INCH | | 2 |
| 10 | 8310514 | CLAMP ASSEMBLY | | 1 |
| 11 | 8310535 | SQUEEGEE BLADE, REAR, LINATEX | | 1 |
| | 8310545 | SQUEEGEE BLADE, REAR, PU (OPTION) | | 1 |
| 12 | 8310511 | SQUEEGEE HOSING | | 1 |
| 13 | 1021835 | BOLT, HEX HEAD, M8×35 | | 2 |
| 14 | 8310512 | RETAINER, SQUEEGEE | | 1 |
| 15 | 8310536 | SQUEEGEE BLADE, FRONT, LINATEX | | 1 |
| | 8310546 | SQUEEGEE BLADE, FRONT, PU (OPTION) | | 1 |
| 16 | 8210518 | STAR KNOB M8 | | 2 |
| 17 | 8118200 | LEFT BRACKET | | 1 |
| 18 | 8210525 | SHORT CLAMP ASSEMBLY | | 1 |
| 19 | 1221575 | SCREW M5×75 | | 1 |
| 20 | 8118624 | SHAFT | | 1 |
| 21 | 8118623 | SPACER | | 1 |
| 22 | 1123507 | LOCK NUT M5 | | 1 |
| 23 | 8118109 | HOLDER VACUUM HOSE | | 1 |
| 24 | 8118018 | VACUUM HOSE | | 1 |
| 25 | 1962050 | CLAMP | | 1 |
| 26 | 8310570 | SQUEEGEE ASSEMBLY, 40.5 INCH | | 1 |

Note:

Dia No. 24 8118018 was 8118006, supplier change , no impact to assembly.

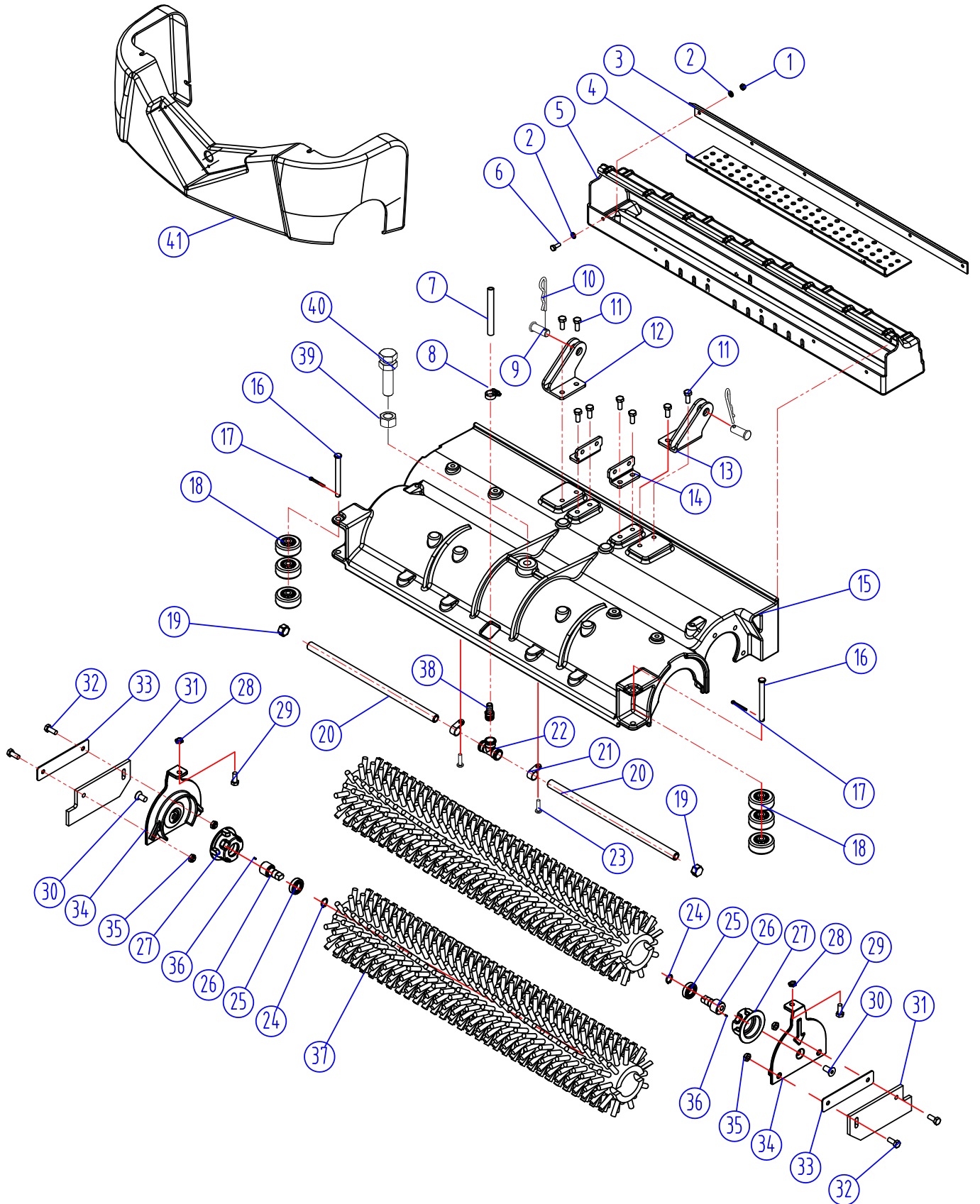
SOLUTION GROUP



SOLUTION GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|-------------------------|----------------------|-----------------|
| 1 | 8119005 | BALL VALVE, G1/2 | | 1 |
| 2 | 8119007 | ELBOW G1/2 | | 1 |
| 3 | 8119006 | CLAMP | | 4 |
| 4 | 8210901 | TUBING ID=12MM L=330MM | | 2 |
| 5 | 8119200 | FILTER ASSEMBLY | | 1 |
| 6 | 8119101 | BASE, FILTER ASSEMBLY | | 1 |
| 7 | 8119104 | SCREEN, FILTER, 40 MESH | | 1 |
| 8 | 1622063 | O RING | | 1 |
| 9 | 8119102 | CAP, FILTER ASSEMBLY | | 1 |
| 10 | 1421510 | FLAT WASHER M5×10×1 | | 2 |
| 11 | 1221512 | SCREW M5×12 | | 2 |
| 12 | 8210902 | TUBING ID=12MM L=480MM | | 1 |
| 13 | 8119002 | ELBOW, TUBING BARB | | 1 |
| 14 | 8210903 | TUBING ID=12MM L=120MM | | 1 |
| 15 | 1962016 | CLAMP, 10-16mm | | 6 |
| 16 | 1221412 | SCREW M4×12 | | 2 |
| 17 | 1422411 | LOCK WASHER M4 | | 2 |
| 18 | 1421409 | FLAT WASHER M4×9×0.8 | | 2 |
| 19 | 8119003 | SOLENOID VALVE,24VDC | | 1 |
| 20 | 1914300 | TIE, NYLON, 5X300 | | 5 |
| 21 | 8210904 | TUBING ID=10MM L=180MM | | 2 |
| 22 | 8119008 | FITTING, PLASTIC, TEE | | 1 |

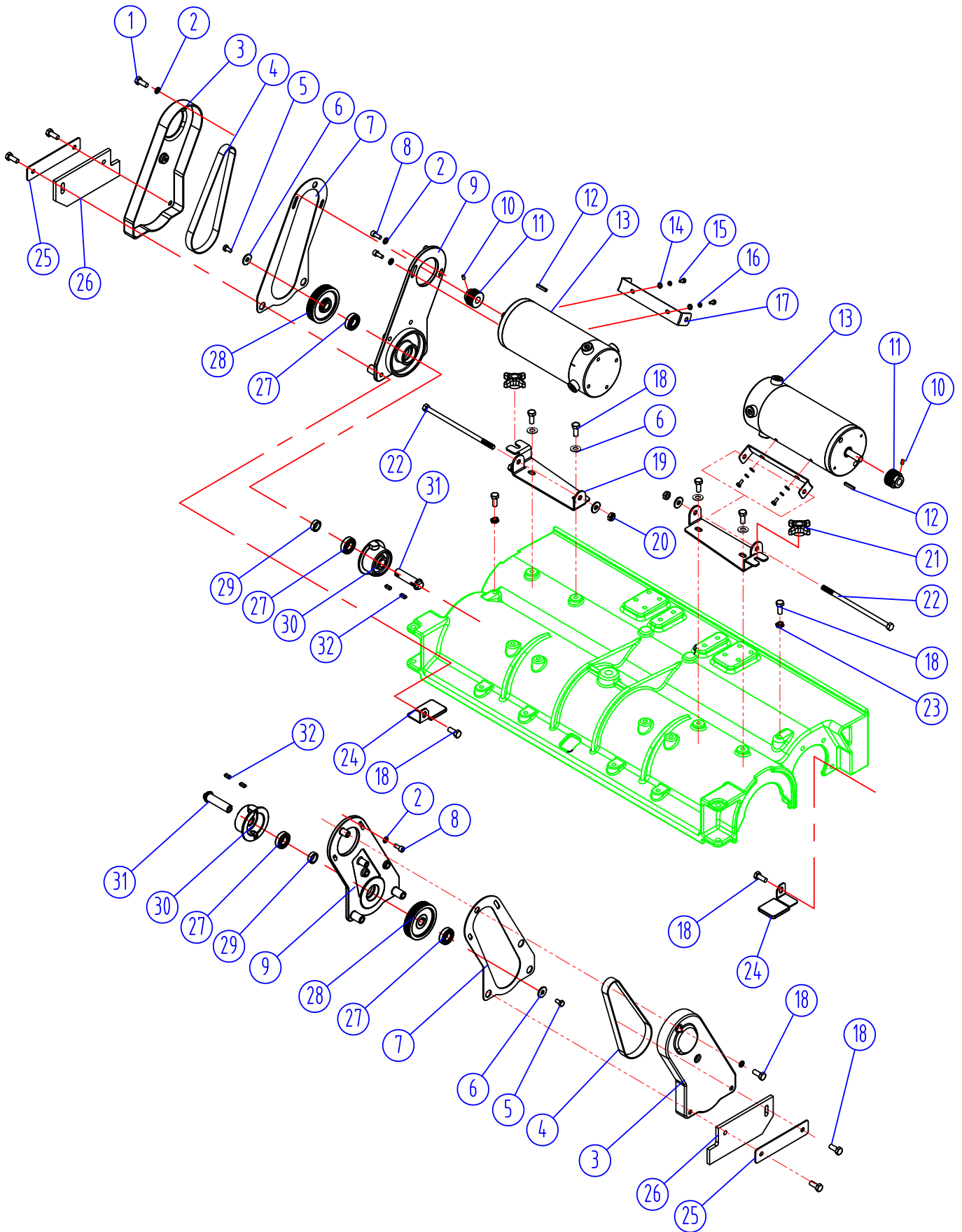
CYLINDRICAL SCRUB HEAD GROUP



CYLINDRICAL SCRUB HEAD GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|---------------------------------|-------------------------|----------|
| 1 | 1123608 | LOCK NUT, M6 | | 6 |
| 2 | 1421612 | FLAT WASHER, M6 X 12 X 1.6 | | 12 |
| 3 | 8216107 | LIP, HOPPER | | 1 |
| 4 | 8236020 | STRIP, HOPPER | | 1 |
| 5 | 8216104 | HOPPER, 28" | | 1 |
| 6 | 1021616 | HEX BOLT, M6 X 16 | | 6 |
| 7 | 8216113 | TUBING, ID=12 X 550MM | | 1 |
| 8 | 1962016 | CLAMP, 16MM | | 1 |
| 9 | 8210807 | PIN | | 2 |
| 10 | 8210309 | PIN, COTTER | | 2 |
| 11 | 1021820 | SCREW, M8 X 20 | | 8 |
| 12 | 8216110 | BRACKET, SCRUB HEAD LIFT, LEFT | 60304100101~60304100162 | 1 |
| | 8216116 | BRACKET, SCRUB HEAD LIFT, LEFT | 60304100163~ | 1 |
| 13 | 8216109 | BRACKET, SCRUB HEAD LIFT, RIGHT | 60304100101~60304100162 | 1 |
| | 8216115 | BRACKET, SCRUB HEAD LIFT, RIGHT | 60304100163~ | 1 |
| 14 | 8216111 | BRACKET, ACTUATOR MOUNTING | | 2 |
| 15 | 8216101 | HOUSING CYLINDRICAL, 28" | | 1 |
| 16 | 8236011 | PIN, M9.5X96 | | 2 |
| 17 | 1645324 | PIN, COTTER, M3.2 X 24 | | 2 |
| 18 | 8236026 | WHEEL, 2" | | 6 |
| 19 | 8146303 | END CAP, 3/8" | | 2 |
| 20 | 8216108 | PVC TUBING | | 2 |
| 21 | 8146305 | PLASTIC CLAMP | | 4 |
| 22 | 8146301 | TEE FITTING, 3/8" | | 1 |
| 23 | 1221512 | SCREW, M5 X 12 | | 4 |
| 24 | 1436015 | RING RETAINING, M15 | | 2 |
| 25 | 1612602 | BEARING, 6002LLU | | 2 |
| 26 | 8236009 | SHAFT, IDLER | | 2 |
| 27 | 8236008 | PLUG, IDLER,BRUSH | | 2 |
| 28 | 1121804 | NUT, M8 | | 2 |
| 29 | 1021840 | SCREW, M8 X 40 | | 2 |
| 30 | 1513020 | COUNTERSUNK HEX SCREW, M10X20 | | 2 |
| 31 | 8236013 | SKIRT, CYLINDRICAL | | 2 |
| 32 | 1021816 | SCREW, M8 X 16 | | 4 |
| 33 | 8236014 | CLAMP, SKIRT | | 2 |
| 34 | 8236002 | DOOR, BRUSH | | 2 |
| 35 | 1123810 | LOCK NUT, M8 | | 4 |
| 36 | 1644206 | PIN, M2.5X6 | | 2 |
| 37 | 8216105 | BRUSH, CYLINDRICAL, 28" | | 2 |
| 38 | 8013007 | TUBING FITTING | | 1 |
| 39 | 1111215 | HEX NUT, M16 | | 1 |
| 40 | 8210811 | AJUSTMENT STUD, M16 | | 1 |
| 41 | 8216103 | FRONT COVER | | 1 |

CYLINDRICAL SCRUB DRIVE GROUP



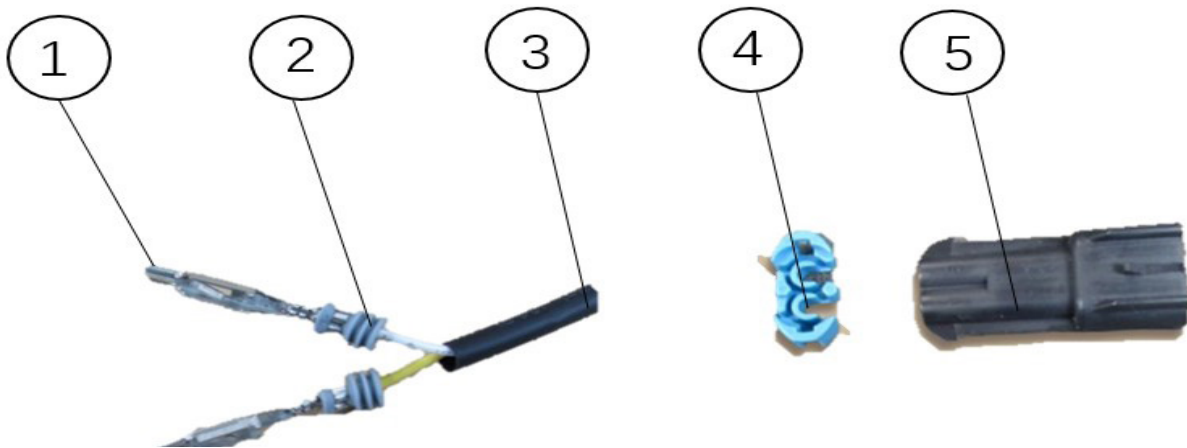
CYLINDRICAL SCRUB DRIVE GROUP

| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|----------------|--------------------|----------------------------|----------------------|-----------------|
| 1 | 1521612 | HEX SOCKET SCREW, M6 X 12 | | 4 |
| 2 | 1421612 | FLAT WASHER, M6 X 12 X 1.6 | | 8 |
| 3 | 8236018 | COVER, BELT | | 2 |
| 4 | 8236027 | BELT, DRIVE,6PJ 508MM | | 2 |
| 5 | 1021816 | HEX BOLT, M8 X 16 | | 2 |
| 6 | 1421824 | FLAT WASHER, M8 X 24 X 2 | | 8 |
| 7 | 8236029 | GASKET, BELT | | 2 |
| 8 | 1521616 | HEX SOCKET SCREW, M6 X 16 | | 4 |
| 9 | 8236017 | BRACKET, MOTOR MOUNTING | | 2 |
| 10 | 1534508 | SCREW, M5 X 8 | | 4 |
| 11 | 8236012 | DRIVING PULLEY, 6PJ | | 2 |
| 12 | 8236023 | KEY, 4 X 4 X 25 | | 2 |
| 13 | 8216102 | MOTOR, 24VDC,0.75HP | | 2 |
| 14 | 1421511 | FLAT WASHER, M5 X 12 X 1 | | 4 |
| 15 | 1021512 | HEX BOLT, M5 X 12 | | 4 |
| 16 | 1422513 | WASHER, LOCK, M5 X 12 X 1 | | 4 |
| 17 | 8236015 | ANGLE BRACKET, MOTOR | | 2 |
| 18 | 1021820 | HEX BOLT, M8 X 20 | | 18 |
| 19 | 8236016 | BRACKET, MOTOR | | 2 |
| 20 | 1123810 | LOCK NUT, M8 | | 2 |
| 21 | 8118003 | STAR KNOB, M8 | | 2 |
| 22 | 8236034 | HEX BOLT, M8 X 185 | | 2 |
| 23 | 1121804 | NUT, M8 | | 2 |
| 24 | 8236021 | DEFLECTOR, WATER | | 2 |
| 25 | 8236014 | CLAMP, SKIRT | | 4 |
| 26 | 8236013 | SKIRT, CYLINDRICAL | | 4 |
| 27 | 1612602 | BEARING, 6002LLU | | 4 |
| 28 | 8236007 | DRIVEN PULLEY, 6PJ | | 2 |
| 29 | 8236024 | BUSHING | | 2 |
| 30 | 8236025 | PLUG, DRIVE, BRUSH | | 2 |
| 31 | 8236010 | SHAFT | | 2 |
| 32 | 1655015 | KEY,5 X 5 X 15 | | 4 |

PARTS LIST

Transaxle Terminal Group

FOR SINGAL WIRE



| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------|---------------|----------|
| 1 | 1883073 | 280 TERMINAL | | 2 |
| 2 | 1883062 | SHIELD | | 2 |
| 3 | 1884004 | HEAT SHRINKABLE SLEEVR | | 1 |
| 4 | 1883072 | BARRIER | | 1 |
| 5 | 1883071 | MALE TERMINAL SOCKET | | 1 |

FOR POWER

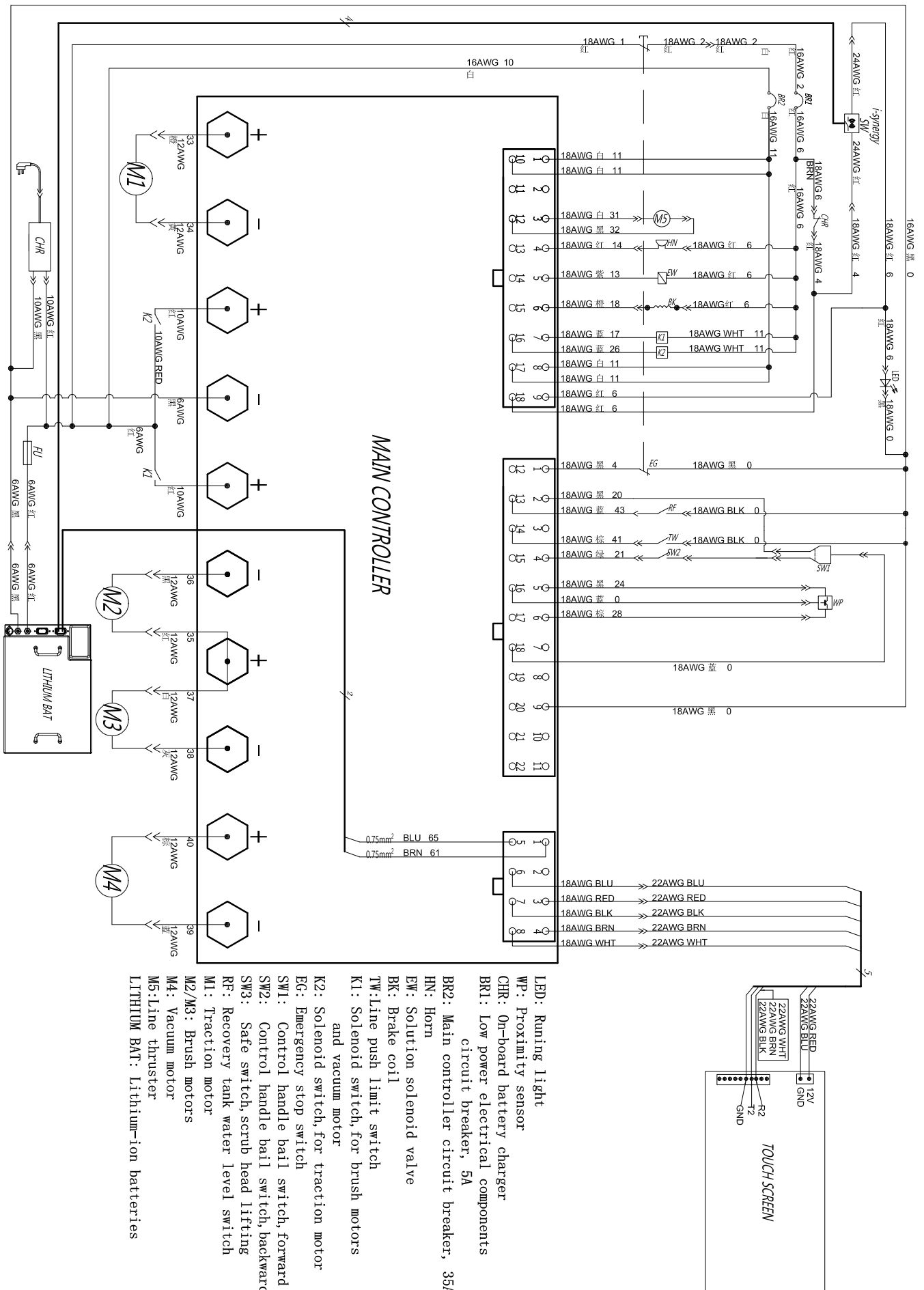


| DIA NO. | PART NUMBER | DESCRIPTION | SERIAL NUMBER | NO REQ'D |
|---------|-------------|------------------------|---------------|----------|
| 1 | 1884108 | BRAIDED SLEEVE | | 1 |
| 2 | 1884008 | HEAT SHRINKABLE SLEEVR | | 2 |
| 3 | 1883036 | BARRIER | | 1 |
| 4 | 1883038 | MALE TERMINAL SOCKET | | 1 |
| 5 | 1883041 | SHIELD | | 1 |
| 6 | 1883040 | TERMINAL | | 2 |

| DIA NO. | PART NUMBER | DESCRIPTION | NO REQ'D | PICTURE |
|---------|-------------|-----------------------|----------|---------|
| 1. | 8134709 | PROXIMITY SWITCH | 1 | |
| 2. | 1883101 | CONNECTOR SEAL RING | 3 | |
| 3. | 1883100 | 150 TERMINAL | 3 | |
| 4. | 1883098 | BARRIER | 1 | |
| 5. | 1883099 | CONNECTOR SHELL | 1 | |
| 1. | 8310708 | HORN, 24VDC | 1 | |
| 2. | 1883043 | TERMINAL | 2 | |
| 3. | 1883045 | 2-BIT CONNECTOR SHELL | 1 | |
| 4. | 1883046 | CONNECTOR SHELL | 1 | |

WEAR AND TEAR PARTS

| DIA NO. | PART NUMBER | DESCRIPTION | NO REQ'D |
|----------------|--------------------|---|-----------------|
| 1 | 8225210 | FOAM FILLED WHEEL,8INCH,KIT (Corresponding to 8225203) | 1 |
| | 8225310 | SOLID WHEEL,9INCH,KIT (Corresponding to 8225308) | 1 |
| 2 | 8116009 | PROTECTIVE WHEEL | 3 |
| 3 | 8310535 | SQUEEGEE BLADE, FRONT, LINATEX (OPTION) | 1 |
| | 8310545 | SQUEEGEE BLADE, FRONT, PU (OPTION) | 1 |
| 4 | 8310536 | SQUEEGEE BLADE, REAR, LINATEX (OPTION) | 1 |
| | 8310546 | SQUEEGEE BLADE, REAR, PU (OPTION) | 1 |
| 5 | 9050014 | 14" BRUSH , i28BTL+ | 2 |
| | 9050014P | 14" SOFT WHITE BRUSH , i28BTL+ | 2 |
| | 9050016 | 16" BRUSH , i32BTL+ | 2 |
| | 9050016P | 16" SOFT WHITE BRUSH , i32BTL+ | 2 |
| 6 | 9040014 | 14" PAD HOLDER, i28BTL+ | 2 |
| | 9040016 | 16" PAD HOLDER, i32BTL+ | 2 |
| 7 | 8216105 | BRUSH, CYLINDRICAL, 28" | 2 |
| 8 | 8144773 | WIRING HARNESS KIT FOR i28BTL+/i32BTL+ | 1 |



- LED: Running light
- WP: Proximity sensor
- CHR: On-board battery charger
- BRI: Low power electrical components breaker, 5A
- BR2: Main controller circuit breaker, 35A
- HN: Horn
- EW: Solenoid valve
- BK: Brake coil
- TW: Line push limit switch
- K1: Solenoid switch, for brush motors and vacuum motor
- K2: Solenoid switch, for traction motor
- EG: Emergency stop switch
- SW1: Control handle bail switch, forward
- SW2: Control handle bail switch, backward
- SW3: Safe switch, scrub head lifting
- RF: Recovery tank water level switch
- M1: Traction motor
- M2/M3: Brush motors
- M4: Vacuum motor
- M5: Line thruster
- LITHIUM BAT: Lithium-ion batteries

CERTIFICATE OF QUALIFIED

MODEL : _____

SERIAL NO.: _____

INSPECTOR: _____

DATE : _____

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