Electronic Service Manuals

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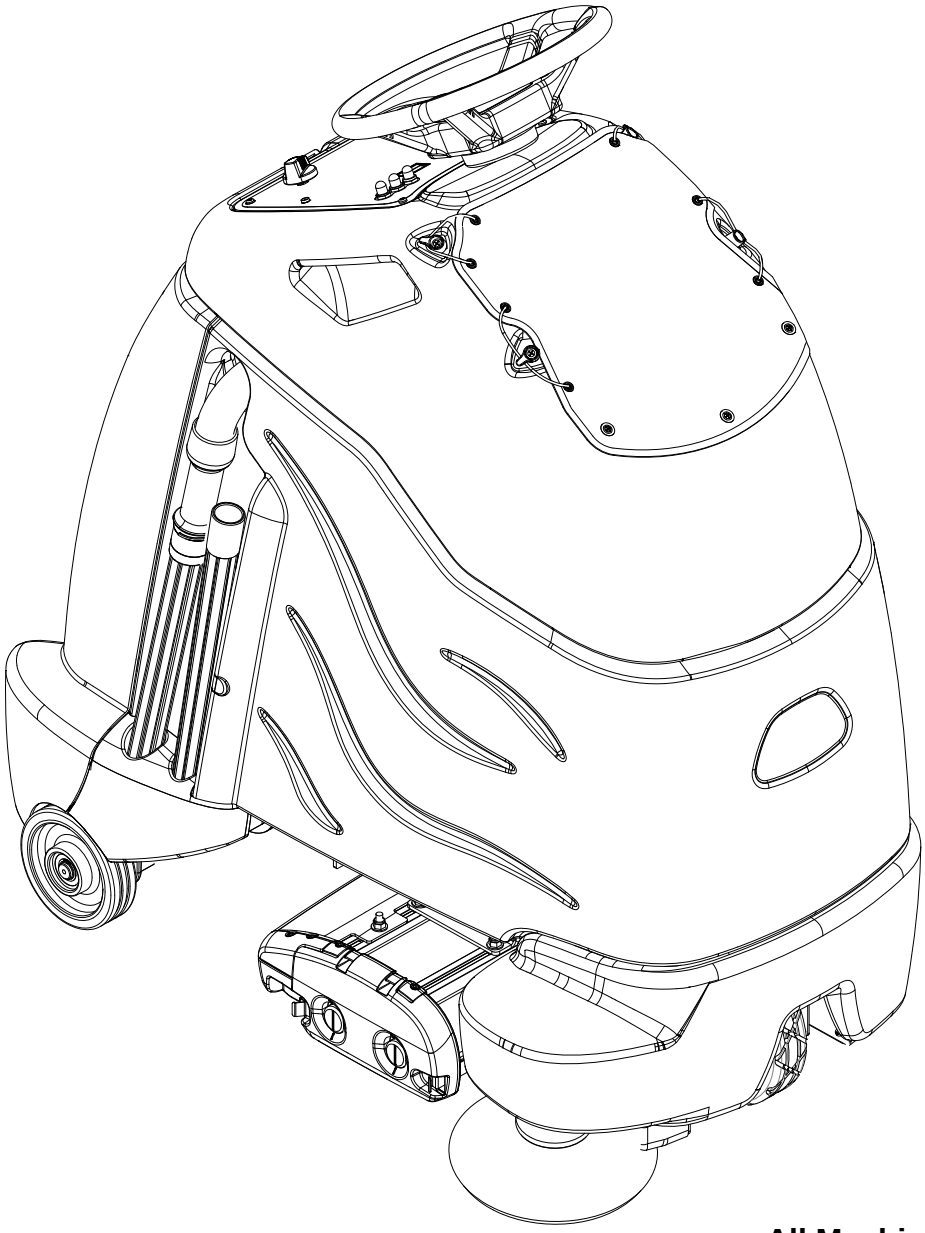
Serving the Cleaning Industry Since 1922

WINDSOR

Chariot 2

iVac 24 ATV

Operating instructions (ENG)



MODELS: ***CV24***
10125760

CVC24
10125770

All Machines between Serial Number (Ref No.3*) to Serial Number (Ref No.4*).

***See Serial Number Page or Call Manufacturer**

Read these instructions before using the machine.

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08/27/15

Model: _____

Date of Purchase: _____

Serial Number: _____

Dealer: _____

Address: _____

Phone Number: _____

Sales Representative: _____

OVERVIEW

The Chariot® iVacuum 24™ is a battery powered, stand-on, wide area vacuum intended for commercial use. The Chariot® iVacuum 24™ brushes and vacuums debris from indoor hard and carpeted surfaces and deposits the debris in the debris tray and filter bags.

The unit also has an accessory wand and hose for cleaning small areas and non-floor surfaces.

Warranty Registration

Thank you for purchasing a Windsor product. Warranty registration is quick and easy. Your registration will allow us to serve you better over the lifetime of the product.

To register you product go to :
www.windsorind.com/WarrantyRegistration.aspx
For customer assistance:
1-800-444-7654

This manual contains the following sections:

- How to Use This Manual
- Safety
- Operations
- Maintenance
- Parts List

The HOW TO USE THIS MANUAL section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.

Model: _____

Date of Purchase: _____

Serial Number: _____

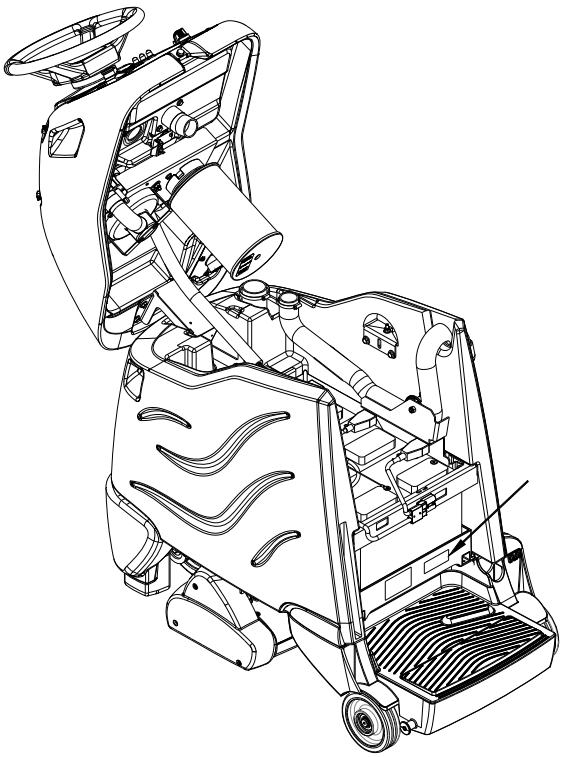
Dealer: _____

Address: _____

Phone Number: _____

Sales Representative: _____

The model and serial number of your machine is located on the back of the machine.



The SAFETY section contains important information regarding hazardous or unsafe practices of the machine. Levels of hazards are identified that could result in product damage, personal injury, or severe injury resulting in death.

The OPERATIONS section is to familiarize the operator with the operation and function of the machine.

The MAINTENANCE section contains preventive maintenance to keep the machine and its components in good working condition. They are listed in this general order:

- Batteries
- Brush Deck
- Drive Motor
- Service Schedule
- Machine Troubleshooting

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF –** column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **PRV NO.** – reference number.
- **QTY** – column lists the quantity of the part used in that area of the machine.
- **DESCRIPTION** – column is a brief description of the part.
- **SERIAL NO. FROM** – If this column has an (*) and a Reference number, see the SERIAL NUMBERS page in the back of your manual. If column has two asterisk (**), call manufacturer for serial number. The serial number indicates the first machine the part number is applicable to. The main illustration shows the most current design of the machine. When a boxed illustration is shown, it displays the older design.
- **NOTES** – column for information not noted by the other columns.

NOTE: If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.

NOTE: The manual part number is located on the lower left corner of the front cover.

IMPORTANT SAFETY INSTRUCTIONS

When using this machine, basic precaution must always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE.

⚠WARNING: To reduce the risk of fire, electric shock, or injury:

Use only indoors. Do not use outdoors or expose to rain. This appliance is for dry use only.

Use only as described in this manual. Use only manufacturer's recommended components and attachments.

If the machine is not **working properly**, has been dropped, damaged, left outdoors, or dropped into water, return it to an authorized service center.

Do not operate the machine with any openings blocked. Keep openings free of debris that may reduce airflow.

This machine **is not** suitable for picking up hazardous dust.

Machine can cause a fire when operating near flammable vapors or materials. Do not operate this machine near flammable fluids, dust or vapors.

This machine is suitable for commercial use, for example in hotels, schools, hospitals, factories, shops and offices for more than normal housekeeping purposes.

Maintenance and repairs **must be done** by qualified personnel.

Disconnect battery before cleaning or servicing.

Before the machine is discarded, the batteries **must be removed** and properly disposed of.

Make sure all warning and caution labels **are legible and properly attached** to the machine.

During operation, attention shall be paid to other persons, especially children.

Before use all covers and doors shall be put in the positions specified in the instructions.

When leaving unattended, secure against unintentional movement.

The machine shall only be operated by instructed and authorized persons.

When leaving unattended, switch off or lock the main power switch to prevent unauthorized use.

This appliance has been designed for use with the brushes specified by the manufacturer. The fitting of other brushes may affect its safety.

Do not use on surfaces having a gradient of over 10% (6 degrees).

SAVE THESE INSTRUCTIONS

MESURES DE SÉCURITÉ IMPORTANTES

Lors de l'utilisation d'un appareil à batteries, il est nécessaire de respecter systématiquement des mesures de sécurité de base, comme suit :

⚠ AVERTISSEMENT: NOTE DE TOUTES CES MESURES AVANT D'UTILISER CETTE MACHINE.

Pour réduire les risques d'incendie, de chocs électriques, ou de blessures :

N'utiliser cette machine qu'en intérieur. Ne jamais l'utiliser à l'extérieur ou dans la pluie.

N'utiliser cette machine que comme décrit dans le présent manuel. N'utiliser que les composants et les accessoires conseillés par le fabricant.

Lorsque la machine ne fonctionnant pas correctement, a fait l'objet d'une chute ou d'une détérioration, a été laissée à l'extérieur, est tombée dans l'eau, la retourner au centre de service agréé.

Ne pas opérer la machine lorsque les conduits de ventilation sont bloquées. Débarrasser les débris des conduits, car ils peuvent réduire l'écoulement d'air.

Cette machine n'est pas adaptée au ramassage de poussières dangereuses

Cette machine peut provoquer un incendie lorsqu'elle est utilisée près de vapeurs ou de matériaux inflammables. Ne pas l'utiliser près de liquides, de poussières ou de vapeurs inflammables.

Cette machine est destinée à un usage commercial. Elle est recommandée davantage pour les domaines hôtelier, scolaire, hospitalier, industriel ou pour les bureaux, les chaînes de magasin, que pour un usage domestique normal.

L'entretien et les réparations de la machine doivent être effectuées par un personnel qualifié.

Si de la mousse ou du liquide sort de la machine, la mettre hors tension immédiatement.

Déconnecter les batteries avant de nettoyer la machine ou de la soumettre à un entretien.

Avant de se débarrasser de la machine, il est nécessaire de retirer les batteries et de les jeter correctement.

S'assurer que toutes les plaques d'avertissement ou de précaution sont lisibles et fixées correctement sur la machine.

Durant la manoeuvre de la machine, prendre garde aux personnes environnantes et notamment aux enfants.

Avant l'utilisation de la machine, veiller à positionner tous les couvercles et portes comme indiqué dans les instructions.

Lorsque la machine est laissée sans surveillance, s'assurer qu'elle ne se déplace pas de manière accidentelle.

Cette machine ne doit être manoeuvrée que par un personnel expérimenté et qualifié.

Lorsque la machine est laissée sans surveillance, la mettre hors tension ou verrouiller l'interrupteur principal afin d'empêcher un emploi non autorisé.

Seuls les produits chimiques recommandés par le fabricant doivent être utilisés.

Cette machine a été conçue pour être utilisée avec des brosses spécifiées par le fabricant.

L'utilisation d'autres brosses peut affecter sa sûreté.

N'employez pas sur des surfaces ayant un gradient de plus de 10% (6 degrés).

CONSERVER CES INSTRUCTIONS

The following symbols are used throughout this guide as indicated in their descriptions:

HAZARD INTENSITY LEVEL

There are three levels of hazard intensity identified by signal words -**WARNING** and **CAUTION** and ***FOR SAFETY***. The level of hazard intensity is determined by the following definitions:

⚠WARNING:

WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠CAUTION:

CAUTION - Hazards or unsafe practices which could result in minor personal injury or product or property damage.

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

Report machine damage or faulty operation immediately. Do not use the machine if it is not in proper operating condition. Following is information that signals some potentially dangerous conditions to the operator or the equipment. Read this information carefully. Know when these conditions can exist. Locate all safety devices on the machine. Please take the necessary steps to train the machine operating personnel.

FOR SAFETY:

DO NOT OPERATE MACHINE:
Unless Trained and Authorized.
Unless Operation Guide is Read and understood.
In Flammable or Explosive areas.
In areas with possible falling objects.

WHEN SERVICING MACHINE:

Avoid moving parts. Do not wear loose clothing; jackets, shirts, or sleeves when working on the machine. Use Windsor approved replacement parts.

⚠WARNING:

Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep battery compartment open during charging. Keep sparks and flames away from the batteries. Do not smoke around batteries.

⚠WARNING:

Disconnect batteries before working on machine. Only qualified personnel should work inside machine. Always wear eye protection and protective clothing when working on or near batteries. Avoid skin contact with the acid contained in the batteries.

⚠WARNING:

Never allow metal to lie across battery tops.

Les symboles ci-dessous sont utilisés à travers ce manuel comme illustré dans leurs descriptions :

DEGRÉS DE RISQUES EN CAS DE DANGER

Il existe trois degrés de risques identifiés par les termes signalétiques -AVERTISSEMENT et ATTENTION et POUR VOTRE SÉCURITÉ. Le degré de risque est défini de la manière suivante:

⚠ AVERTISSEMENT:

AVERTISSEMENT - Dangers ou méthodes dangereuses qui POURRAIENT provoquer de graves blessures ou entraîner la mort.

⚠ ATTENTION:

ATTENTION - Dangers ou méthodes dangereuses qui pourraient provoquer des blessures légères ou une détérioration du produit ou des biens immobiliers.

POUR VOTRE SÉCURITÉ: ce signe permet d'identifier les mesures de précaution à prendre pour assurer un bon fonctionnement du matériel.

Rendre compte immédiatement d'une défaillance ou d'une détérioration de la machine. Ne pas utiliser la machine si celle-ci ne fonctionne pas correctement. Lire soigneusement les informations ci-dessous signalant certains dangers potentiels pour l'opérateur de la machine. L'opérateur doit être absolument au courant de ces dangers potentiels. Localiser tous les dispositifs de sécurité sur la machine. Il est conseillé de prendre les mesures nécessaires pour former le personnel opérateur.

POUR VOTRE SÉCURITÉ:

NE PAS MANOEUVRER LA MACHINE:

Lorsqu'on n'est pas expérimenté ou qualifié.

Lorsque le guide d'utilisation n'est pas été lu ou compris.

Dans des zones inflammables ou explosives.

Dans des zones où des objets peuvent tomber.

LORS DE L'ENTRETIEN DE LA MACHINE:

Éviter les parties amovibles. Ne pas porter de vêtements amples, tels que des vestes, des chemises ou des vêtements avec manches lors de l'utilisation de la machine. Utiliser les pièces détachées Windsor homologuées.

⚠ AVERTISSEMENT:

Les batteries émettent le gaz d'hydrogène. L'explosion ou le feu peut résulter. Étincelles de subsistance et flamme nue loin. Compartiment de batterie de subsistance ouvert en chargeant. Étincelles et flammes de subsistance loin des batteries. Ne fumez pas autour des batteries.

⚠ AVERTISSEMENT:

Déconnecter les batteries avant de travailler sur la machine. La machine ne doit être confiée qu'à un personnel qualifié. Porter systématiquement des lunettes et des vêtements de protection lors d'une intervention sur les batteries ou aux alentours. Éviter tout contact de la peau avec l'acide contenu dans les batteries.

⚠ AVERTISSEMENT:

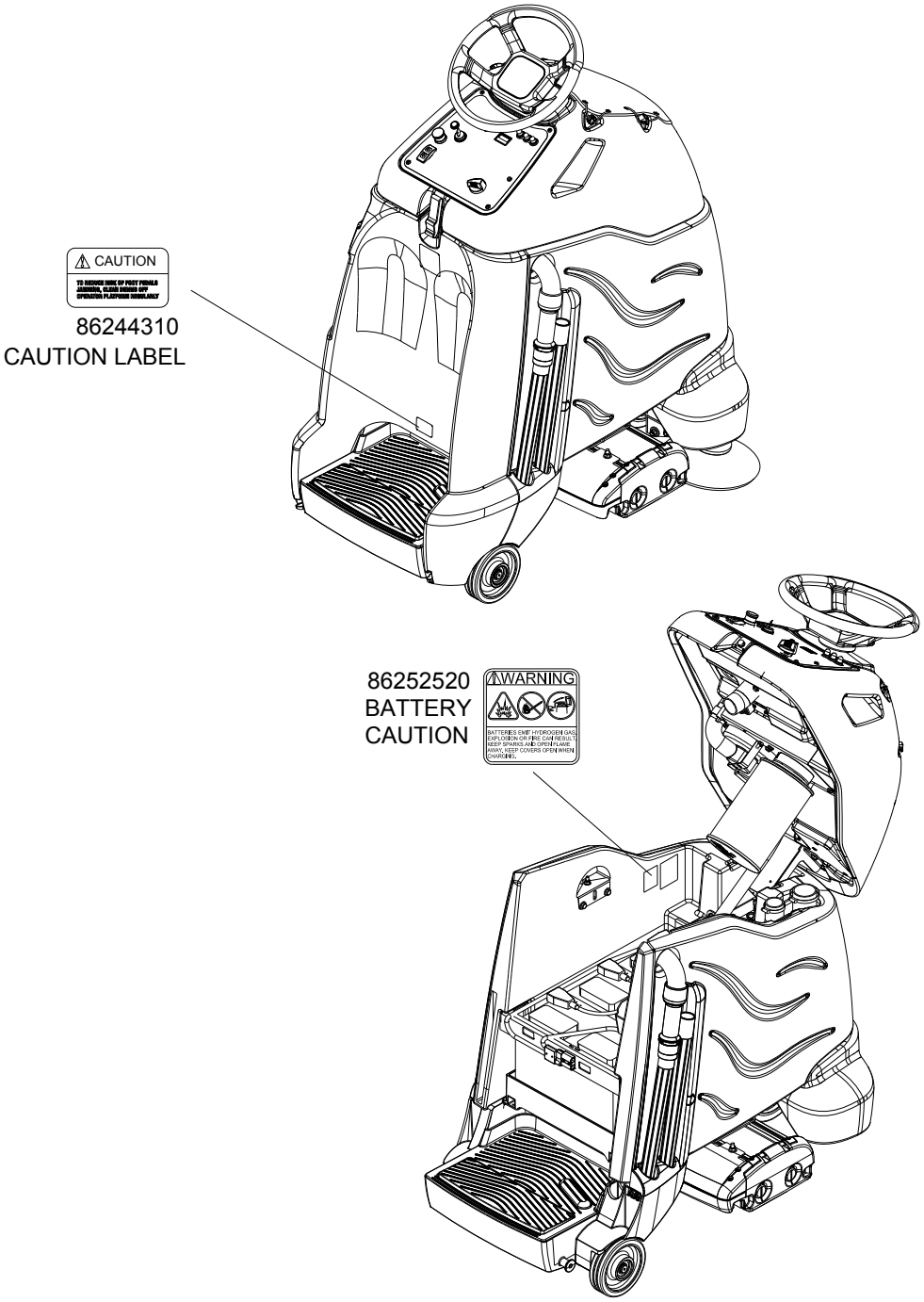
Ne jamais placer d'objets métalliques sur le dessus des batteries.

Safety Label Locations

These drawings indicate the location of safety labels on the machine. If at any time the labels become illegible, promptly replace them.

EMPLACEMENT DE L'ÉTIQUETTE DE SÉCURITÉ

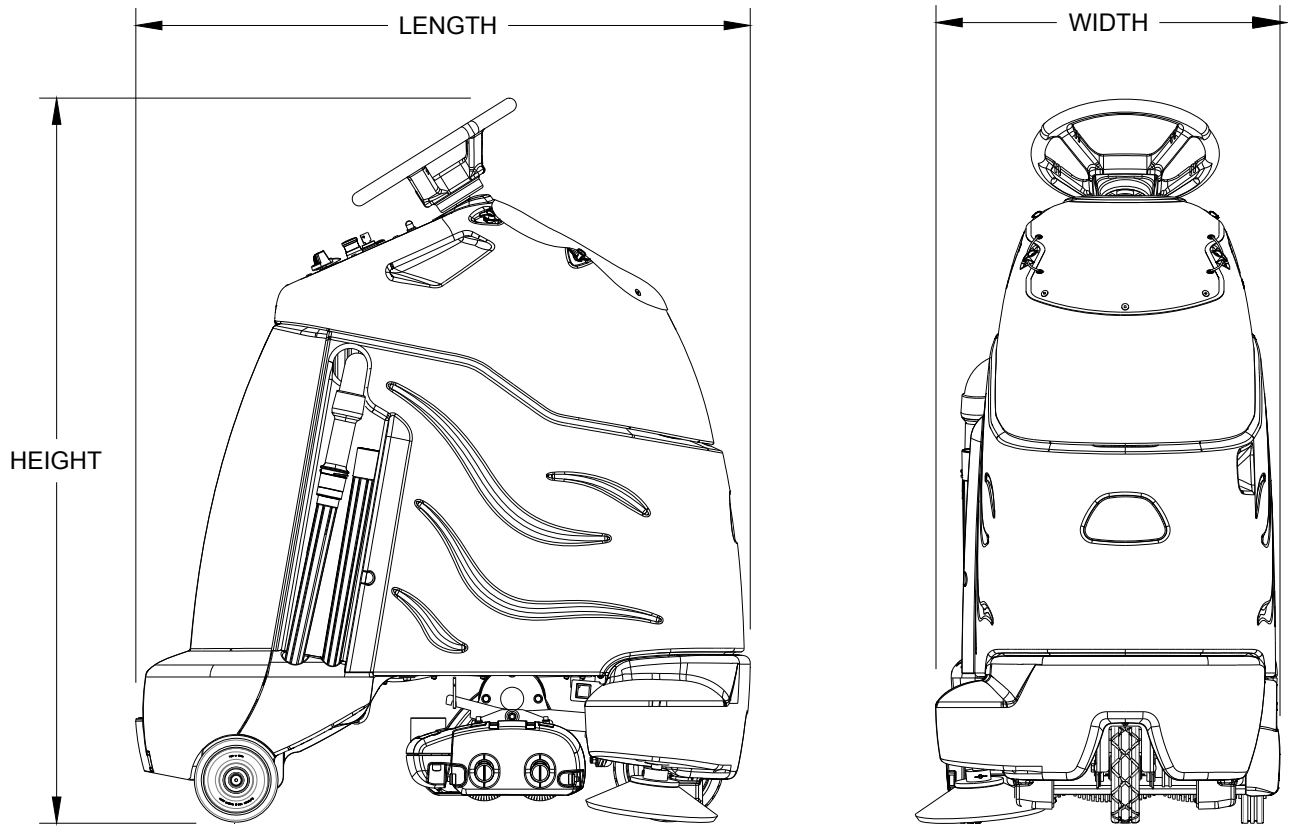
REMARQUE : Ces dessins indiquent l'emplacement des étiquettes de sécurité sur la machine. Si, à tout moment, les étiquettes deviennent illisibles, contactez votre représentant autorisé pour un remplacement rapide.



Technical Specifications

ITEM	DIMENSION/CAPACITY
Nominal power	1224 W
Rated Voltage	36 Volts DC
Rated Amperage	34 amps
Batteries	3 X12 Volt 130 AH @ 20 hr. rate
Battery Compartment Dimensions	20-1/2 in. x 13 in. x 10 in. tall (330mm x 521mm x 254mm)
Propelling Motor	.21 HP (157 W)
Cylindrical Brush Motor	.5 HP (373 W)
Side Broom Motor	.06 HP (47W)
Cylindrical Brushes	Two 20 in. (51cm) by 4 in. (10cm) diameter
Side Broom	9 in. (229 mm) diameter
Cylindrical Brush speed	1030 RPM
Side Broom speed	90 RPM
Vacuum Motor	.63 HP (470 W)
Maximum flow rate of vacuum motor	72 cfm (33.98 liters per second)
Maximum suction of vacuum motor	47.3 inches of water (11.7 kPa)
Bag Capacity	1100 in^3 18L
Mass (GVW)	613 lbs (280 kg)
Weight empty without batteries	250 lbs (115 kg)
Tires	8 in. (203mm) drive, 6 in. (156mm) rear, polyurethane
Maximum Speed	2.2 mph (3.5 Km/hour)
Brake	Electrical parking brake,sets automatically whenever operator stops.
Minimum aisle u-turn width	51 in. (1295 mm)
Maximum rated climb and descent angle	10% (6 degrees)
Sound power dBA (IEC 60704-1)	80.6 dBA
Sound pressuer dBA (IEC 60704-1)	68.4 dBA
Vibration arms m/s^2 (ISO 5344)	1.6 m/s^2
Vibration feet m/s^2 (ISO 5344)	0.54 m/s^2
Sound power uncertainty dBA	3.00 dBA
Sound pressure uncertainty dBA	3.00 dBA
Vibration uncertainty m/s^2	0.50 m/s^2

ITEM	MEASURE
Height	51.8 in (1316 mm)
Length	44.0 in (1118 mm)
Width without deck	24.5 in (622 mm)
Width of deck	23.25 in (581 mm)
Width with side broom	25.9 in (658 mm)



⚠ CAUTION:

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

⚠ AVERTISSEMENT:

Cet appareil n'est pas prévu à l'usage des personnes (enfants y compris) avec des possibilités physiques, sensorielles ou mentales réduites, ou le manque d'expérience et de connaissance, à moins qu'ils aient été donnés la surveillance ou l'instruction au sujet de l'utilisation de l'appareil par une personne chargée de leur sûreté. Des enfants devraient être dirigés pour s'assurer qu'ils ne jouent pas avec l'appareil.

How This Machine Works

The Chariot® iVacuum 24 ATV™ is a battery powered, self-propelled, vacuum intended for commercial use. The appliance vacuums debris and dirt from the carpet and collects it in a disposable bag.

The machine's primary systems are the brush system, vacuum system, and operator control system.

The function of the brush system is to brush the carpet.

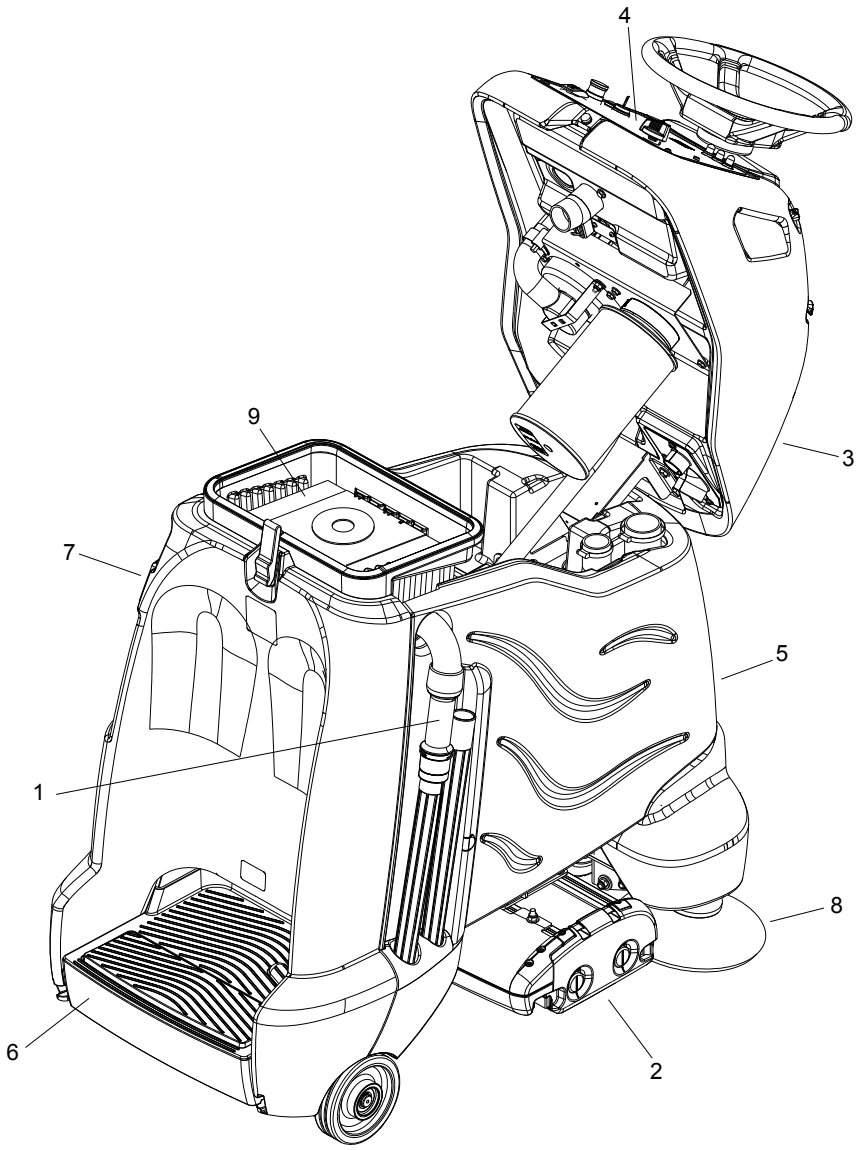
The brush system consists of two cylindrical type brushes, side brush, motors, brush deck, and controls.

The right side brush is used to sweep debris from along edges into the path of the brush deck.The front cylindrical brush sweeps debris backwards. The rear brush sweeps debris forwards. Both cylindrical brushes work to agitate the carpet and to route the debris up into the debris tray assembly.

The function of the vacuum system is to vacuum fine dirt and debris into the vacuum bag. The recovery system consists of the debris tray assembly, vacuum motor, paper vacuum bag and post filter. The vacuum draws the dirt off the floor as the machine moves forward. The vacuum motor provides suction to draw the fine dirt into the vacuum bag, and the debris tray holds large debris. The vacuum bag holds the fine dirt.

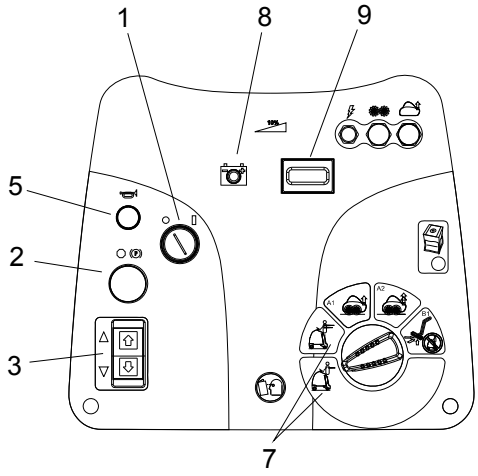
The function of the operator control system is to control the direction and speed of the machine. The directional control system consists of the direction control switch, throttle pedal, speed control switch, drive reset switch, emergency stop/brake switch, steering wheel, propel controller and drive wheel. The directional control switch signals forward or reverse direction. The controller interprets signals from the throttle pedal to command the drive wheel to propel or slow the machine. The drive reset switch is to make sure the operator is on platform before machine will propel. The steering wheel points the drive wheel in the direction desired by the operator. The parking brake automatically engages when the operator steps off the platform. The emergency stop/brake can be used to hold the machine on slopes.

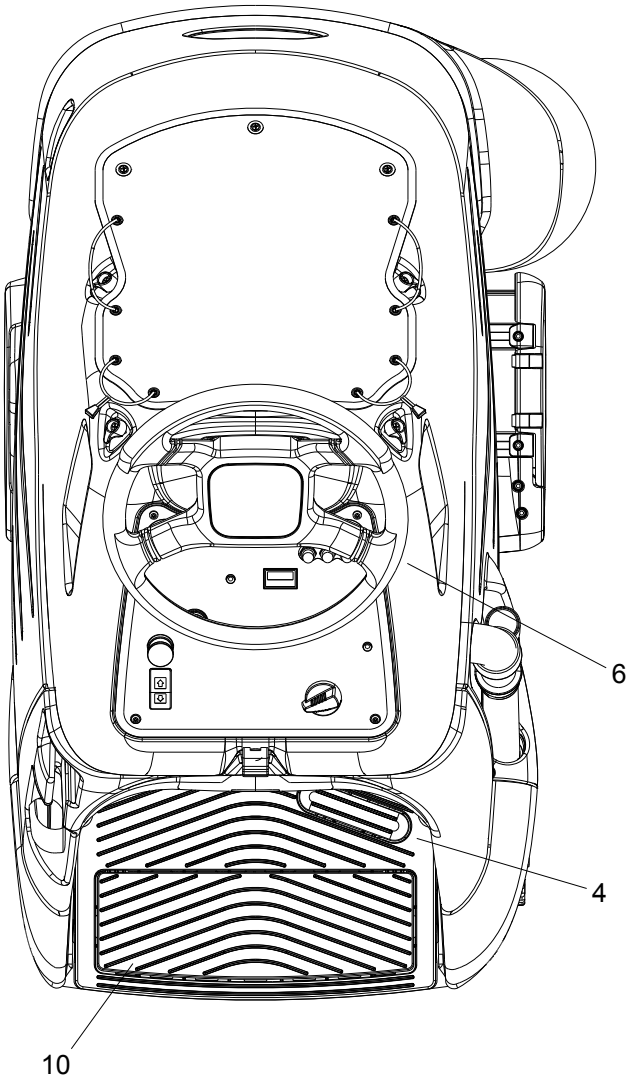
Components



1. **Accessory Hose**
2. **Brush Deck**
3. **Console**
4. **Control Panel**
5. **Main Cover**
6. **Pedal Platform**
7. **Rear Cover**
8. **Side Broom**
9. **Vacuum Bag**

Drive Controls





1. **Key Switch**
2. **Emergency Stop/Brake Switch**
3. **Directional Control / Drive Reset Switch**
4. **Throttle Pedal**
5. **Horn Button**
6. **Steering Wheel**
7. **Speed Control**
8. **Battery Discharge Indicator Light**
9. **Hour Meter**
10. **Operator Presence Switch**

1. KEY SWITCH

Controls the power for machine functions.
To turn the machine power on, rotate key clockwise.
To turn the machine off, rotate key counterclockwise.
When the key is turned on the battery discharge indicator light will flash once and stay on continuously.

2. EMERGENCY STOP/BRAKE SWITCH

This safety feature is designed to cut all power to the machine at any time and apply parking brake.
To shut the machine power off, push the Emergency Stop Switch, this will also engage the parking brake and cause the machine to stop immediately.
To reset the machine, rotate the switch clockwise. The switch will pop-up indicating reset machine.

3. DIRECTIONAL CONTROL / DRIVE RESET SWITCH

This safety feature is designed to ensure safe engagement of propel drive. Each time the machine power is turned on, or each time an operator steps on to the platform, the Drive Reset Switch must be pushed before machine will propel.
The switch controls the direction of travel of the vehicle. The lighted arrow on the switch indicates direction of travel.
To travel forward, press the top of the switch.
To travel in reverse, press the bottom of the switch.

4. **THROTTLE PEDAL**

Controls the speed of the vehicle within the speed control setting selected. Pressing the pedal causes the machine to travel in the direction selected by the Directional Control Switch.
To increase speed, increase pressure on the pedal.
To decrease speed, decrease pressure on the pedal.

5. HORN BUTTON

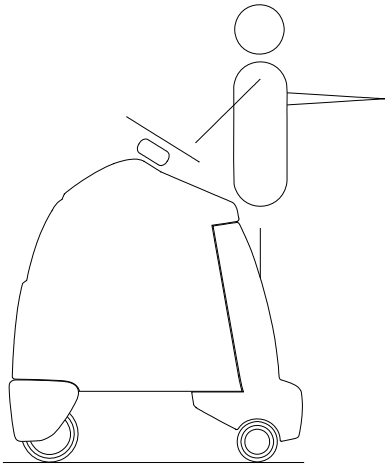
The horn is activated by pressing the horn button.

6. STEERING WHEEL

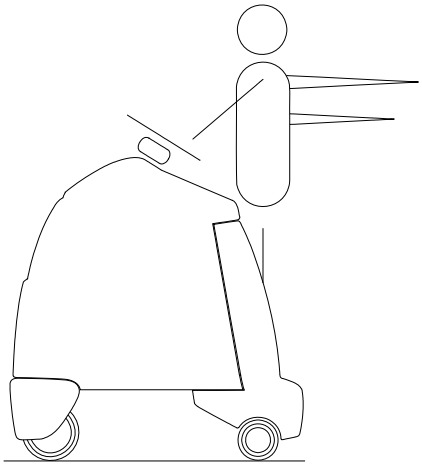
The steering wheel turns the front wheel causing the machine to change direction.

7. SPEED CONTROL

Controls the maximum speed of the machine. There are two travel-only settings, slow and fast.
To change speed, rotate the dial to either slow or fast position. The slow position is to the left (counterclockwise), fast to the right (top position).
The throttle pedal will always regulate the speed between 0 and maximum.



SLOW



FAST

8. BATTERY DISCHARGE INDICATOR

Indicates the charge level of the batteries.
The indicator will be illuminated if the batteries have a sufficient charge. A slow, continous flash indicates the batteries require charging.

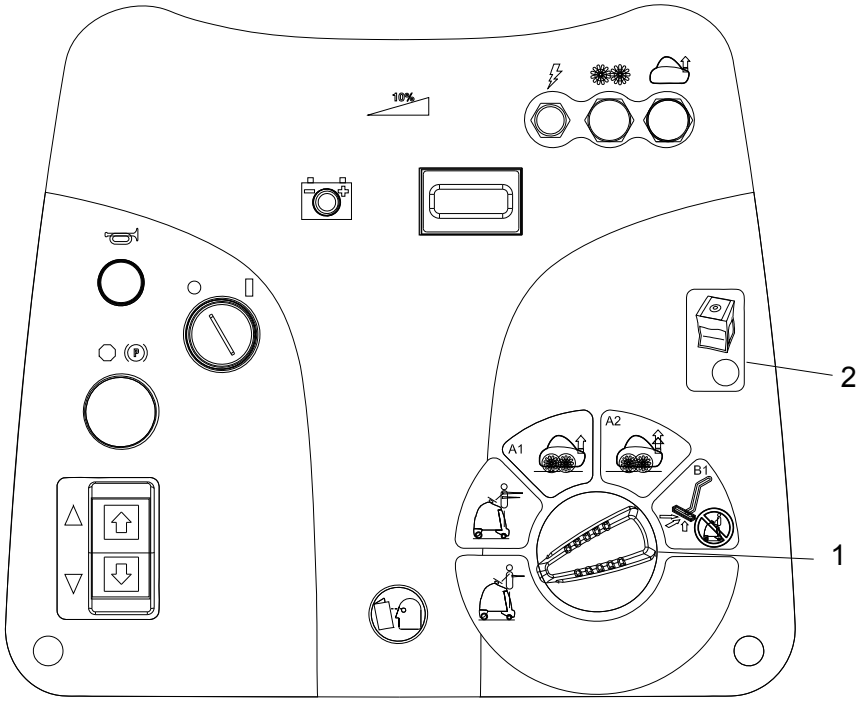
The Battery Lockout function will activate when the batteries are low.
Once active, the LED status indicator will begin to flash slowly and the controller will inhibit the side broom, main brushes, and vacuum operation. The drive remains functional. Return the unit to the charging station and charge the batteries.
NOTE: *Continuing usage may damage the batteries.*

When the machine is left overnight with less than a full charge, the display may initially indicate a full charge. It will also indicate a full charge if the batteries are disconnected, then reconnected. After a few minutes of operation the indicator will give the correct charge level.

9. HOUR METER

Records the number of hours the machine has been in vacuum operation. This information is useful in determining when to service the machine.

Vacuum Controls



1. **Function Mode Switch**

The first two positions are for transport only. See drive controls section.

A1 - Light vacuuming

This mode is used for light vacuuming. In this mode the machine will propel at fast speed. The ‘floating’ brush deck is in the down position. The brushes will agitate, the side broom will bring debris into the path of the deck. The vacuum will draw the dirt and debris into the debris tray and the vacuum bag.

A2 - Deep vacuuming

This mode is used for deep vacuuming. In this mode the machine will propel at a slow speed. The ‘floating’ brush deck is in the down position. The brushes will agitate, the side broom will bring debris into the path of the deck. The vacuum will draw the dirt and debris into the debris tray and the vacuum bag.

B1 - Accessory mode

This mode is used for using the accessory hose and attachments only. The brush and vacuum deck will both be up and off. In this mode the machine will not propel.

2. Vacuum Bag Status Light

Light is green when bag is in place and vacuum operating conditions are good.
Light is red if bag is missing or full or vacuum operating conditions are poor.

Pre-run Machine Inspection

Do a pre-run inspection to find possible problems that could cause poor performance or lost time from break-down. Follow the same procedure each time to avoid missing steps.

NOTE: See Maintenance Service Schedule for pre-run machine inspection checklist items.

Starting Machine

NOTE: Perform pre-run machine check before operating machine.

FOR SAFETY: Before starting machine, make sure that all safety devices are in place and operating properly.

1. Push machine while off to verify parking brake is functioning correctly.
2. Stand on the operator platform. Throttle pedal must be in neutral position.
3. Turn the machine power on by turning key switch clockwise to the “ON” position.
4. Check the position of the Directional Control Switch to make sure the machine will travel in the direction intended.
5. Press the Drive Reset Switch.
6. Press lightly on the throttle pedal with right foot.

Emergency Stop Procedures

1. Release the throttle pedal by lifting right foot.
2. Turn machine power off with key switch by turning key switch counterclockwise.
3. If an electrical problem is suspected, push in emergency stop button. This will also engage the parking brake and cause the machine to stop immediately.

Normal Vacuuming

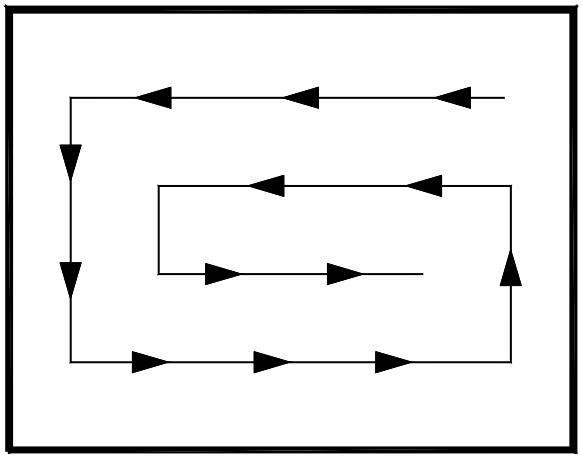
Plan the vacuuming pattern in advance. The longest track is around the perimeter of the area to be cleaned. For efficient operation, the runs should be the longest possible without turning or stopping.

In order to achieve the best possible results, the area which is to be cleaned should be picked up before vacuuming. Large debris, strings and wire must be removed to prevent being caught in brushes.

NOTE: Check and empty debris tray as needed during operation.

If machine is allowed to stand in neutral with the vacuum deck down for more than 2 seconds, the brush motor stops. If either forward or reverse travel is selected, the brush motor will continue once movement of machine begins. Overlap the brush path and avoid transporting over previously cleaned areas.

Recommended Path



To Begin Vacuuming

⚠ CAUTION:

When operating the machine around people, pay close attention for unexpected movement. Use extra caution around children.

⚠ ATTENTION:

Lorsque vous utilisez la machine en présence de gens, portez une attention particulière aux mouvements inattendus. Soyez plus prudent, surtout en présence d'enfants.

1. Stand on the operator platform. Throttle pedal must not be depressed.
2. Turn key switch to turn machine power on.
3. Check position of Directional Control Switch to ensure that machine is set to travel in direction intended.
4. Rotate the Speed/Function Control Knob to one of the two vacuum settings.
5. Drive machine forward to begin vacuuming.
6. Adjust the speed of the machine as necessary.

To Stop Vacuuming

1. Remove foot from throttle pedal allowing pedal to return to neutral.
2. Turn machine power off or switch to transport only mode.

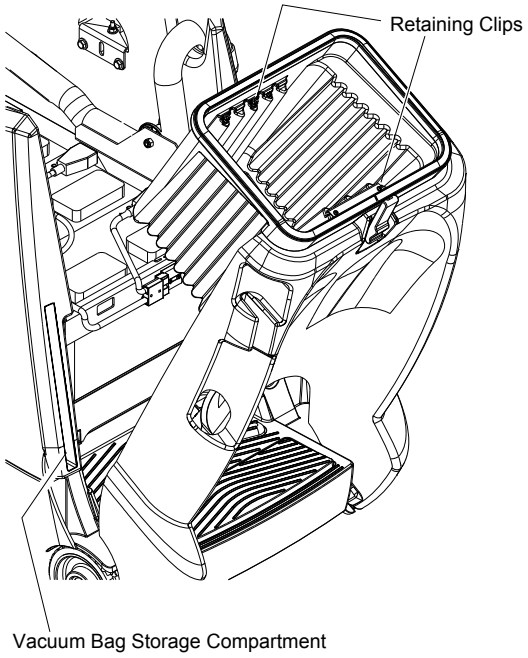
FOR SAFETY: Before leaving or servicing machine: stop on level surface, turn off machine and remove key.

FOR SAFETY: When using machine, go slow on inclines.

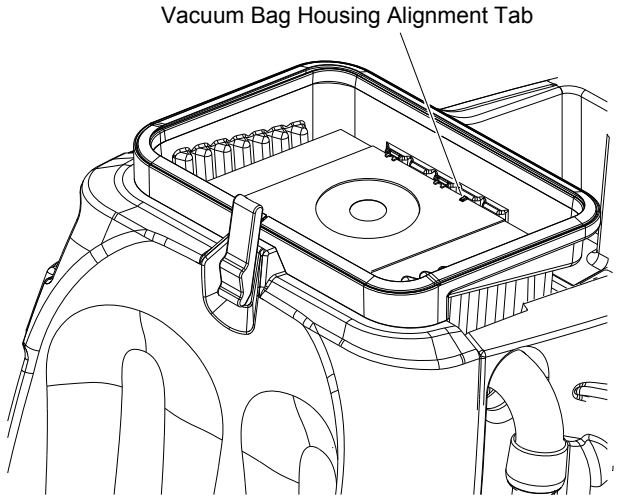
Changing Vacuum Bag

A convenient bag storage is built into side of machine.

1. Park machine on level area.
2. Turn the machine power off.
3. Unlatch and open top of machine.
4. Remove backing from vacuum bag's sealing tag. Seal top of bag.
5. Remove full vacuum bag from vacuum bag housing.
6. Clean vacuum bag housing and remove any debris.



7. Tilt back panel to retrieve a new clean paper bag from the storage compartment in left side wall of main cover.
8. Return back panel to operating position.
9. Unfold bag. There is a notch in cardboard on top of bag. Align notch with housing front edge aligning tab. Slightly bow cardboard to slide under housing's front and rear retaining tabs.

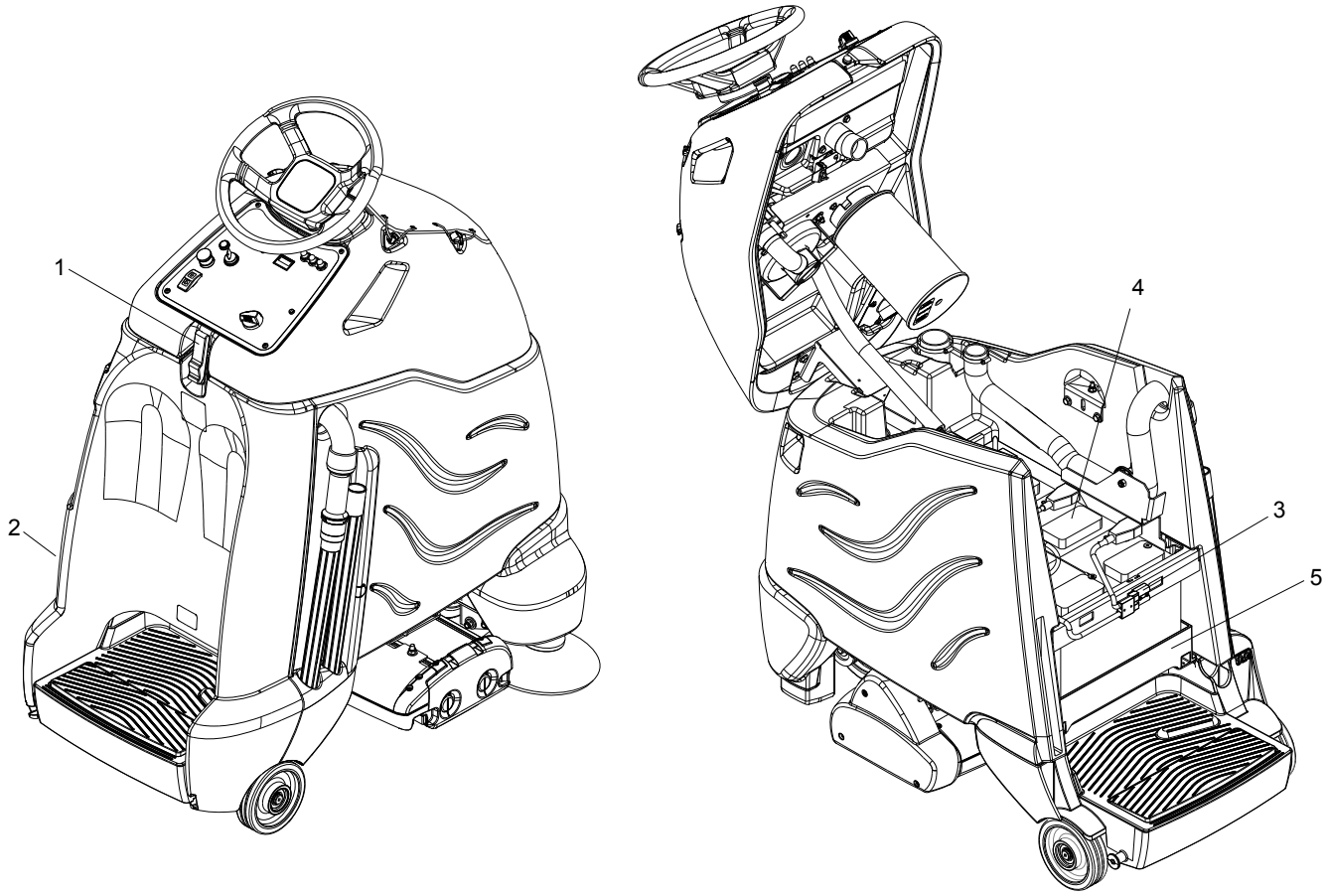


10. Close and latch machine top.

Service Schedule

MAINTENANCE	BEFORE EACH WORK PERIOD	AFTER EACH WORK PERIOD	50 HRS	100 HRS	200 HRS
Check water level of batteries after charging; add distilled water if necessary	*				
Check that the vacuum box lid seal tightly	*				
Visually check for damaged or worn tires.	*				
Check vacuum hose connections.	*				
Check hoses for debris buildup.	*				
Empty debris tray	*				
Check pedal(s), brake and steering for proper operation	*				
Check vacuum bag fullness and change if necessary.	*				
Clean brushes and check wear.		*			
Remove bearing cap. Clean bearings and cap.		*			
Empty debris tray		*			
Charge batteries.		*			
Clean off top of batteries.			*		
Check battery cells with hydrometer. (Wet cell only)			*		
Check battery connections are tight.			*		
Clean battery cases and compartment.				*	
Clean and check drive tension chain for wear and tension.				*	
Clean chains, cables and pulleys for brush deck lift.					*
Check all motors for carbon brush wear.					*
Check motor commutators.					*
Check steering chain tensioner.					*

Batteries



1. Cover Retainer Latch
2. Rear Cover
3. Battery Connector-Machine
4. Batteries
5. Battery Tray

Batteries (Wet Cell)

The batteries provide the power to operate the machine. The batteries require regular maintenance to keep them operating at peak efficiency.

The machine batteries will hold their charge for long periods of time, but they can only be charged a certain number of times. To get the greatest life from the batteries, charge them when their charge level reaches 25% of a full charge. Use a hydrometer to check the charge level.

Do not allow the batteries to remain in a discharged condition for any length of time. Never expose a discharged battery to temperatures below freezing. Discharged batteries will freeze causing cracked cases. Do not operate the machine if the batteries are in poor condition or if they have a charge level below 25% (specific gravity below 1.155).

Keep all metallic objects off the top of the batteries, as they may cause a short circuit. Replace worn or damaged cables and terminals.

Check the electrolyte level in each battery cell before and after charging the batteries. Never add acid to the batteries, use distilled water. Do not allow water level to fall below the battery plates. Portions of plates exposed to air will be destroyed. Do not overfill. Keep plugs firmly in place at all times.

⚠WARNING:

Not all batteries require maintenance. AGM batteries are maintenance free. Do not attempt to remove sealed caps from AGM batteries. Warranty is void if caps are removed from AGM battery.

⚠ AVERTISSEMENT:

L’entretien n’est pas nécessaire pour toutes les batteries. Les batteries AGM ne nécessitent pas d’entretien. N'essayez pas d'enlever les bouchons scellés des batteries AGM. La garantie est annulée si les bouchons sont retirés des batteries AGM.

⚠CAUTION:

When servicing machine, avoid contact with battery acid.

⚠ ATTENTION:

Lors de l'entretien de la machine, évitez tout contact avec l'acide de batterie.

⚠WARNING:

Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging.

⚠ AVERTISSEMENT:

Les batteries émettent du gaz hydrogène. Une explosion ou un incendie peut en résulter. Maintenez les étincelles et les flammes nues à l'écart. Gardez les carters ouverts lors du chargement.

⚠WARNING:

Wear eye protection and protective clothing when working with batteries.

⚠ AVERTISSEMENT:

Portez des lunettes de protection et des vêtements de protection lorsque vous travaillez avec des batteries.

⚠WARNING:

Charge batteries in a well ventilated area.

⚠ AVERTISSEMENT:

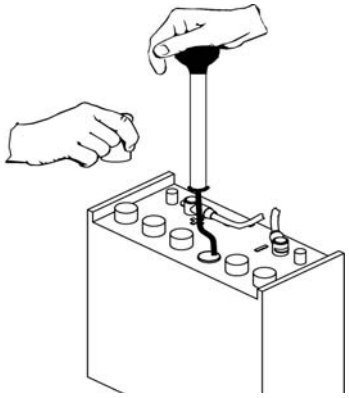
Chargez les batteries dans un endroit bien ventilé

Battery Maintenance

1. When cleaning the batteries, use a solution of baking soda and water. Do not allow the cleaning fluid to enter the battery cells, electrolyte will be neutralized.
2. Maintain the proper electrolyte level in each battery cell. If a cell should accidentally overflow, clean immediately.
3. Wipe off the top of the batteries at least once a week.
4. Test battery condition with a hydrometer at least once a week.
5. Ensure that all connections are tight and all corrosion removed.
6. Every 4 to 6 months, remove the batteries from the machine and clean the battery cases and battery compartment.

Checking Battery Specific Gravity

Use a hydrometer to check the battery specific gravity.



CHECKING GRAVITY

a. Hydrometer Battery
b. Battery

NOTE: Do not take readings immediately after adding distilled water, if the water and acid are not thoroughly mixed, the reading may not be accurate.

Check the hydrometer readings against this chart.

SPECIFIC GRAVITY @ 80°F (27°C)	***BATTERY CONDITION***
1.265	*100% CHARGED*
1.225	*75% CHARGED*
1.190	*50% CHARGED*
1.155	*25% CHARGED*
1.120	*DISCHARGED*

NOTE: If the readings are taken when the battery electrolyte is any temperature other than 80°F (27°C), the reading must be temperature corrected.

To find the corrected specific gravity reading when the temperature of the battery electrolyte is other than 80°F (27°C): Add (+) to the specific gravity reading 0.004 (4 points), for each 10°F (6°C) above 80° (27°C). Subtract (-) from the specific reading 0.004 (4 points), for each 10°F (6°C) below 80°F (27°C).

Charging Batteries

⚠ CAUTION:

When servicing machine, avoid contact with battery acid.

⚠ ATTENTION:

Lors de l'entretien de la machine, évitez tout contact avec l'acide de batterie.

⚠ WARNING:

Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging.

⚠ AVERTISSEMENT:

Les batteries émettent du gaz hydrogène. Une explosion ou un incendie peut en résulter. Maintenez les étincelles et les flammes nues à l'écart. Gardez les carters ouverts lors du chargement.

⚠ WARNING:

Wear eye protection and protective clothing when working with batteries.

⚠ AVERTISSEMENT:

Portez des lunettes de protection et des vêtements de protection lorsque vous travaillez avec des batteries.

⚠ WARNING:

Charge batteries in a well ventilated area.

⚠ AVERTISSEMENT:

Chargez les batteries dans un endroit bien ventilé

Use a 36 volt, 20 amp maximum output DC charger which will automatically shut off when the batteries are fully charged.

1. Stop the machine in a clean, well ventilated area next to the charger.
2. Turn "OFF" machine.

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

3. Remove rear cover, unplug batteries from machine.

⚠ WARNING:

Batteries emit hydrogen gas. Explosion or fire can result. Keep sparks and open flame away. Keep covers open when charging.

⚠ AVERTISSEMENT:

Les batteries émettent du gaz hydrogène. Une explosion ou un incendie peut en résulter. Maintenez les étincelles et les flammes nues à l'écart. Gardez les carters ouverts lors du chargement.

4. Check the electrolyte level in each battery cell. Before charging, add just enough distilled water to cover the plates. After charging is complete, add just enough distilled water to bring up the level to the indicator ring. If the water level is too high before charging, normal expansion rate of the electrolyte may cause an overflow resulting in a loss of battery acid balance and damage the machine.

5. Replace the battery caps, and leave them in place while charging.
6. Unplug the battery connector from the machine.

FOR SAFETY: When charging, connect the charger to the batteries before connecting the charger to the AC wall outlet. Never connect the charger to the AC wall outlet first. Hazardous sparks may result.

7. Plug the charger connector into the battery connector. Connect the charger AC plug to a wall outlet. The charger gauge should indicate that the batteries are charging.
8. When the batteries are fully charged, disconnect the charger from the AC wall outlet, then disconnect the charger from the batteries.
9. Connect the batteries to the machine connector.
10. Check the electrolyte level. It should be up to the indicator ring. If necessary, add distilled water.
11. Install the rear cover.

Changing Batteries

1. Stop the machine in a clean area next to the charger. Turn off machine.

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

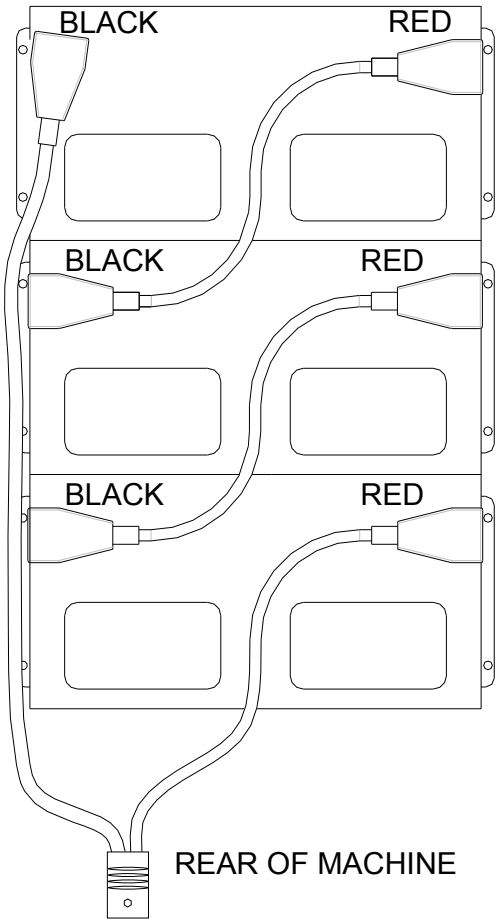
2. Open the console cover.
3. Tilt the rear cover back. The rear cover can also be removed for better access.
4. If equipped with optional on board charger, tilt charger mount to rear of machine.
5. Disconnect battery pack from machine.
6. Use the proper size open end wrench to disconnect main ground wire first and secure cable terminal away from batteries.
7. Disconnect main positive lead and secure cable terminals away from batteries.
8. Loosen both terminals on each jumper cable and remove one at a time.
9. Prepare a suitable site to place the batteries.

⚠WARNING:

Attach suitable battery lifting device and lift batteries from the machine. Batteries are a potential environmental hazard. Consult your battery suppler for safe disposal methods.

⚠ AVERTISSEMENT:

Fixez le dispositif de levage de batterie approprié et levez les batteries de la machine. Les batteries constituent un danger potentiel pour l'environnement. Consultez le fournisseur de votre batterie pour connaître les méthodes d'élimination sûres.



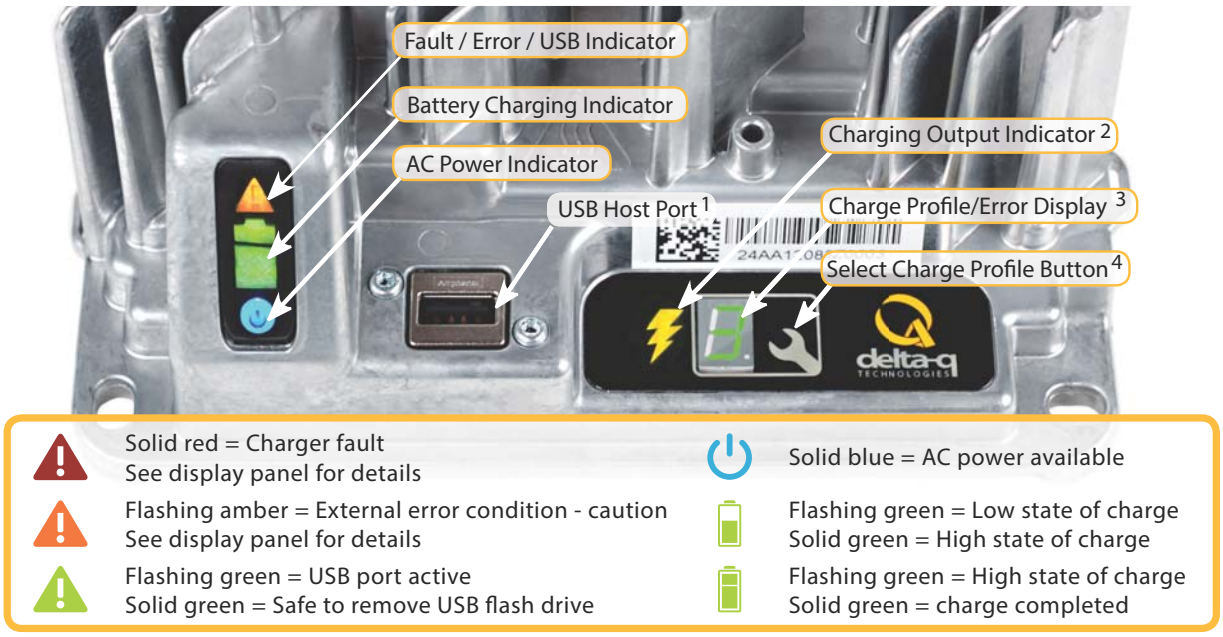
Delta Q IC650 Charger Maintenance Instructions

1. Do not expose charger to oil, dirt, mud or direct heavy water spray when cleaning the vehicle or machine.
2. The enclosure of the charger meets IP66, making it dust-tight and protected against powerful water jets. The AC inlet connection itself, when mated, is rated to IP20, which is not protected against water. Protect the AC connection if used in wet or dusty environments.
3. If the detachable input power supply cord set is damaged, replace with a cord that is appropriate for your region:

   - North America: UL or CSA listed / approved detachable cord at least 1.8m in length (≥ 6 feet), 3 conductor, 16AWG minimum and rated SJT; terminated in a grounding type IEC 60320 C14 plug rated 250V, 13A minimum.
   - All other regions: Safety approved detachable cord, 3 conductor, 1.5mm² minimum, rated appropriately for industrial use. The cord set must be terminated on one end with a grounding type input connector appropriate for use in the country of destination and, on the other end, an output grounding type IEC 60320 C14 plug.

Delta Q IC650 Charger Operating Instructions

- The charger may become hot during charging. Use hand protection to safely handle the charger during charging.
- Extension cords must be a 3-wire cord no longer than 30m (100') at 10 AWG or 7.5m (25') at 16 AWG, per UL guidelines.



1. The USB Host Port allows data to be transferred to and from the charger using a standard USB flash drive, including the downloading of charge tracking data and updating of the charger's software and / or charge profiles.
2. The Charging Output Indicator means that the charger output is active, and there is a potential risk of electric shock.
3. The Charge Profile / Error Display shows one of four possible codes to indicate different conditions:

   - 'F' codes meaning that an internal fault condition has caused charging to stop.
   - 'E' codes meaning that an external error condition has caused charging to stop.
   - 'P' code meaning that the charger programming mode is active.
   - 'USB' code meaning that the USB interface is active, and the USB flash drive should not be removed.

   The 'E,' 'F' and 'P' codes will appear, then are followed by three numbers and a period to indicate different conditions (e.g. E-0-0-4). "See the Charger Fault Codes" or "Charger Error Codes" sections for details on these conditions and their solutions.
4. The Select Charge Profile Button is used to select a charge profile from those stored on the charger. Up to 25 charge profiles can be stored. See the "Selecting A Charge Profile" section for instructions.

Selecting a Charge Profile

1. Disconnect AC input from the charger, or from the wall outlet. Wait 30 seconds for the input relay to open.

Figure 1:

Disconnect AC input from the charger.

2. While reconnecting AC input, press and hold Select Charge Profile button. Hold the button until Error Indicator is on and Battery Charging Indicator starts flashing.

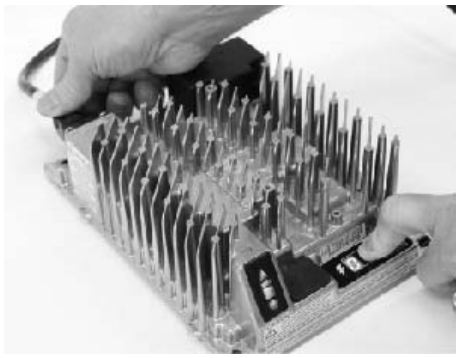


Figure 2:

Reconnect AC input while holding the Select Charge Profile Button.

3. Press and release the Select charger Profile Button to advance through charging profiles loaded on the charger. The selected charging profile will be displayed up to three times (e.g. “P-0-1-1” for Profile 11).*

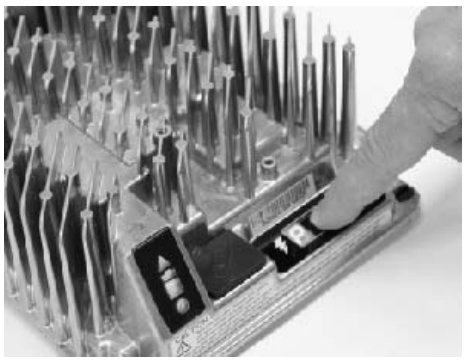


Figure 3:

Press the Select Charge Profile Button to advance through the charge profiles. Hold the button for 10 seconds to confirm your selection.

*Process will time out and profile will remain unchanged if there is 15 seconds of inactivity, a profile number is allowed to display three times, or if AC power is cycled.

4. Once desired charging profile is displayed, press and hold button for 10 seconds (see Figure 3) to confirm selection and exit Profile Selection Mode.
5. Press the Select Charge Profile Button to check that the desired profile is selected.

Use this table to record the charging profiles on your charger.

Model:	IC650-_____
Serial No.:	DQS_____
Profile No.	**Battery Type**

Profile Logic

Profiles #42, 62 and 73 are programmed to automatically restart a charge cycle after 14 days or 1.8V/cell have been reached by the batteries if the charger remains connected to AC power.

NOTE: Each profile is programmed to optimize the life and performance of their corresponding battery, contact the manufacturer before changing battery charger profiles.

Configuring the IC650 Charger Using a USB Flash Drive

Using the Delta Q software, USB storage drives can be pre-programmed to certain charger configuration.

To use the USB port, follow these steps:

1. Insert the USB flash drive at any time, except during a charge cycle. Stop the charge cycle by removing AC power or the DC connection to the batteries. The charger will power the USB port from the remaining AC connection.
2. If there is enough disk space, the charger will write charge tracking data to the drive. The Fault/Error/USB Indicator will flash green during reading and writing.
3. If the drive contains compatible configuration files, the charger will load them.
4. The IC650 Charger will briefly reset.
5. Remove the drive when the Fault/Error/USB Indicator is solid green.

Figure 4, Insert the USB flash drive to begin the reprogramming process. When complete, the Fault/Error/USB Indicator will be solid green as shown.

Troubleshooting

If the alarm indicator flashes amber, note the error code and retry the update. If there is no response to inserting the USB drive when the charger is being used off-board, check that AC power is available and connected. If the charger is installed on-board, ensure that the charger either has AC power and / or batteries are connected.

Confirming a Software Update

After using a USB flash drive to update the charger firmware, the update can be confirmed by reviewing the .txt file written to the flash drive by the charger. It will be located in the folder labelled ‘syslog’ (e.g. F:\CHARGER\RESP\serialno\syslog\00000000.txt).

Open this file using a text editing program such as Notepad or Microsoft Word. If the update has been successful, near the end of the text you will see a description resembling “SM Task: Successful upgrade at Major[001].Minor[991].Build[000]variant[008].”

Charge Tracking Data

All IC650 Chargers record data such as amp hours returned, charge cycle completion or interruption, and the charge profile being used. This data can be very useful in vehicle or machine diagnostics.

To retrieve this data, follow these steps:

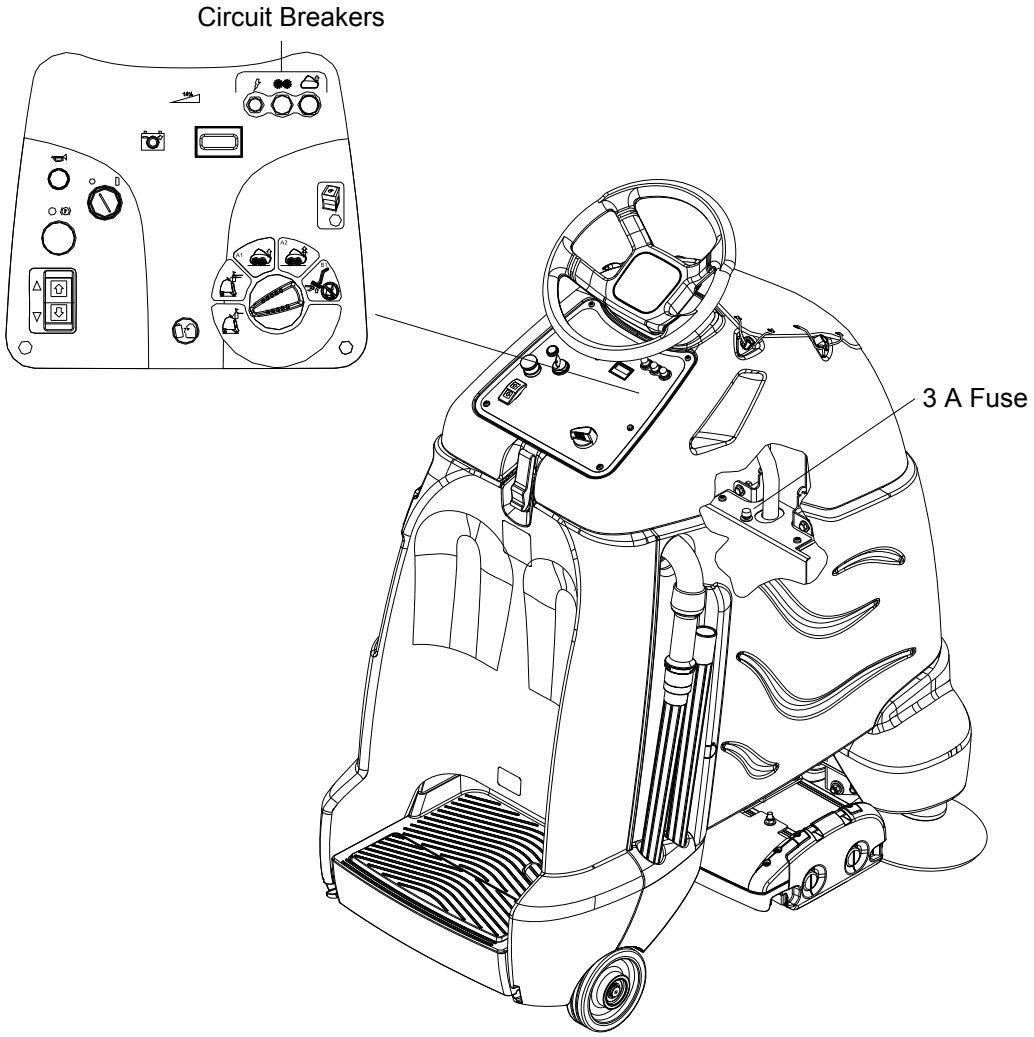
1. After a charge cycle is complete, or the charger is disconnected from the battery pack, insert a USB flash drive with at least 2MB of free space into the IC650 Charger's USB hose port. The charger will automatically begin to download the data, shown on the Fault/Error/USB Indicator with a flashing green light.

If you plan to download data from a large number of chargers, having more free space on your USB flash drive is recommended. If you want to update the software on only some of your chargers, it is recommended that you use separate USB flash drives for updating and downloading charge tracking data.

Figure 5, Insert the USB flash drive to begin the charge data download process. This step can be completed using the same USB flash drive programmed to update the charger's software. The process is completed when the USB indicator is solid green, and no longer flashing.

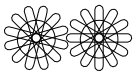
2. The downloading process is complete when the Fault/Error/USB Indicator is solid green. The USB flash drive can be removed from the charger.

Circuit Protection

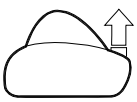


Circuit breakers interrupt the flow of power in the event of an electrical overload. When a circuit breaker is tripped, reset it by pressing the exposed button. If a circuit breaker continues to trip, the cause of the electrical overload should be found and corrected.

1.5 Amp. Protects the deck actuator.



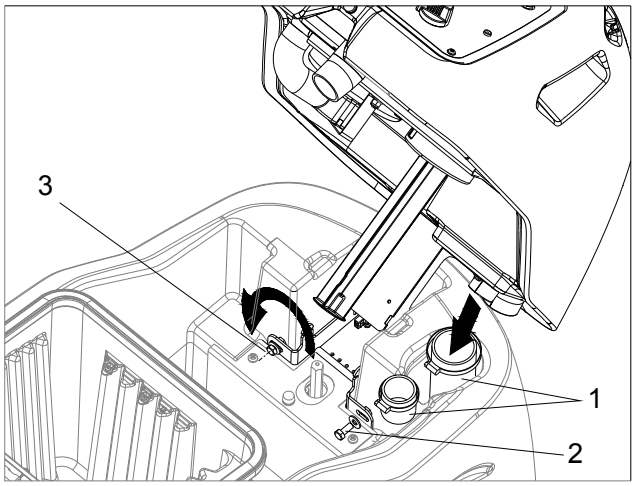
18 Amp. Protects thebrush motor, 3 Amp fuse protects the side broom motor.



18 Amp. Protects the vacuum motor.

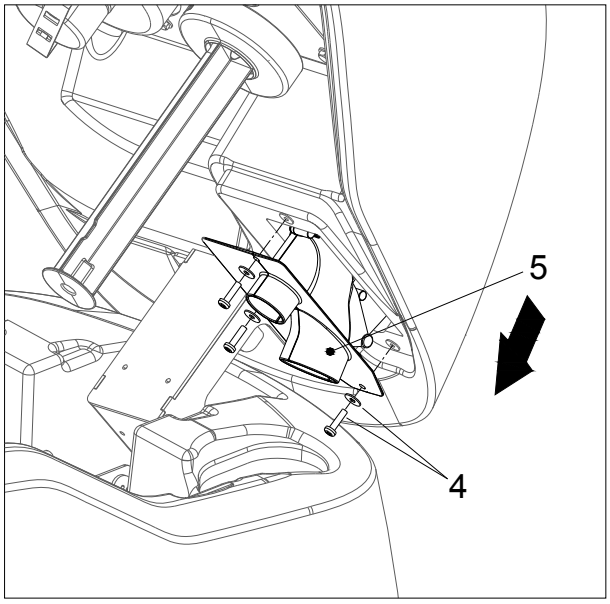
Vacuum Diverter Valve Maintenance

For maintenance and removal of the vacuum diverter valve follow the steps below.

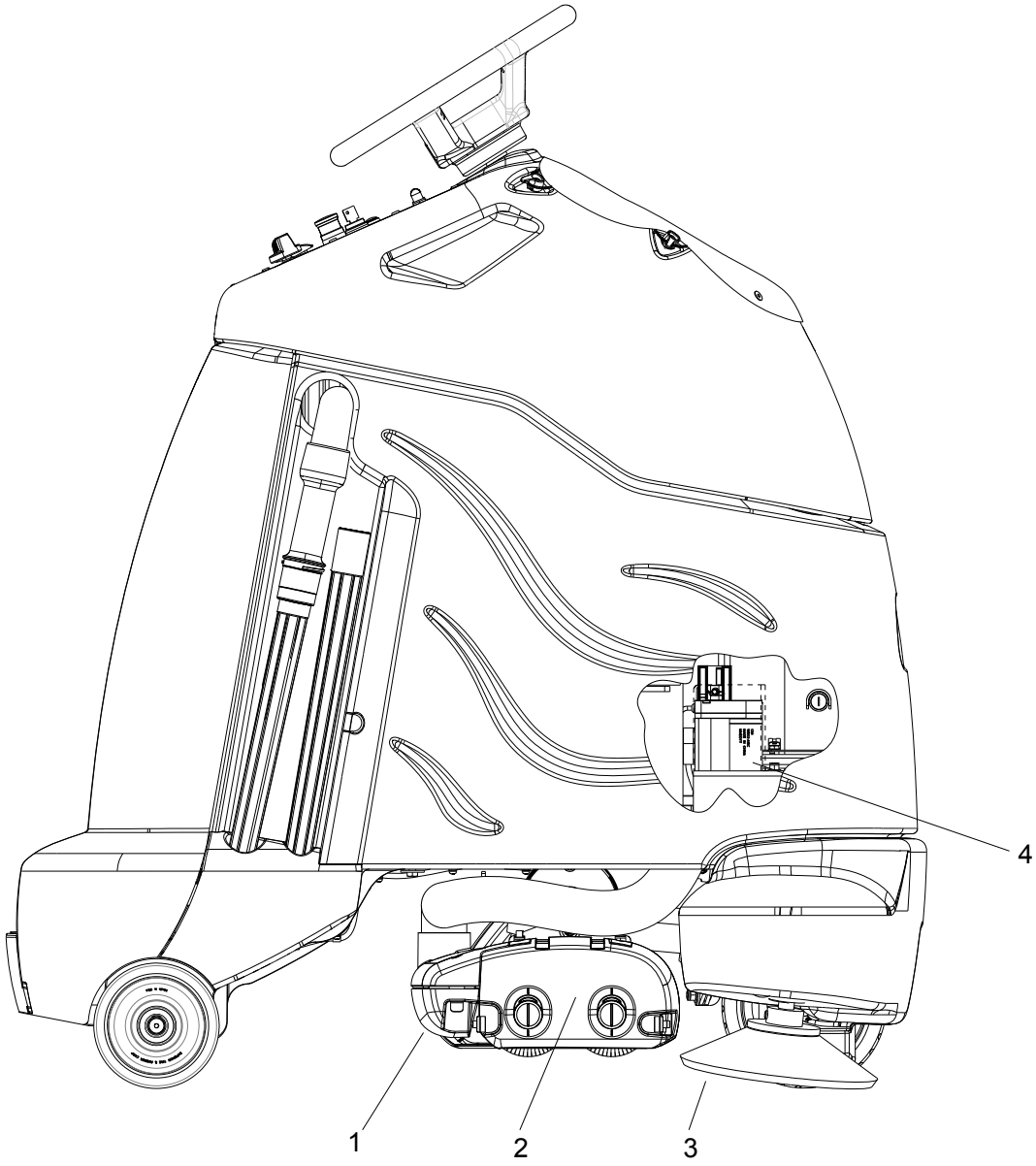


1. Remove hoses from diverter valve.
2. Remove screw and washer (1) on right side of hinge bracket.
3. Loosen screw on left side to allow tank to rotate to the left (do not remove screw). This will allow better access for valve removal.

NOTE: Remove the post filter for easier access.



4. Remove the three (3) screws and washers retaining the diverter valve assembly to the console.
5. Gently pull valve assembly from console to avoid damaging valve.
6. Reverse steps to re-install.



Brush Deck

1. Debris Tray
2. Brush Deck Door
3. Side Broom
4. Deck Lift Actuator

Brush Deck

The dual cylindrical head is designed to agitate the carpet while vacuuming. The first brush pushes debris backwards. The second brush, brushing forward picks up debris and throws it into the debris tray.

NOTE: The brushes should wear evenly side to side. Brushes should be replaced as a set when bristle length wears to height of yellow PerformAlert™ bristles.

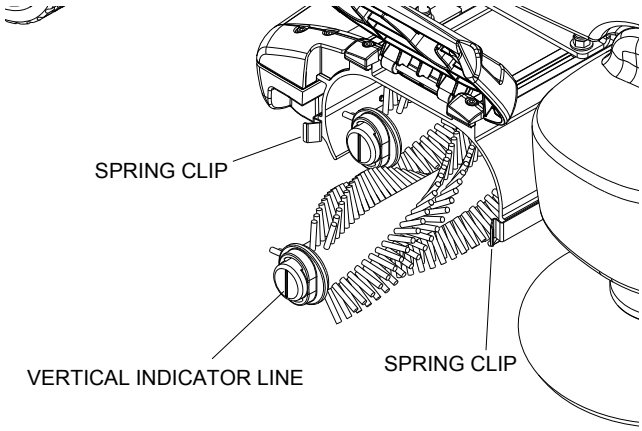
Brush Removal

The brushes are removed from the right side of the machine.

1. Release door spring clips and raise the brush door.
2. Slide the brushes out the side opening. Remove bearing cap. Clean bearings and cap.

Brush Installation

1. Slide brush through door opening and onto drive shaft. Make sure it is fully seated and is driven by the deck system.
2. Rotate the brush end caps until the indicator lines on the ends are vertical.
3. Lower the brush door and secure with spring clips.

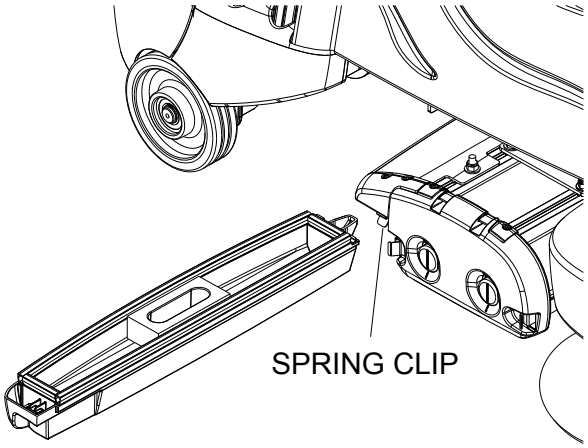


Debris Tray Removal

1. Release the debris tray spring clip.
2. Slide the debris tray away from machine.

Debris Tray Installation

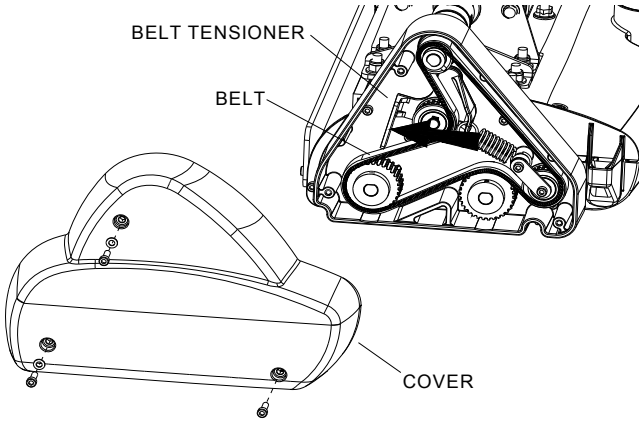
1. Slide the debris tray into the debris tray mount notch.
2. Secure with debris tray spring clip.



Belt Replacement

1. Remove three (3) cover screw and cover.
2. Push belt tensioner to the left as shown to release belt tension. Remove belt and discard.
3. Thread new belt through pulley's and tensioner.
4. Re-install cover.

NOTE: Belt must be installed with lettering facing out. If installed incorrectly this may cause excessive noise



⚠ CAUTION:

Do not use a pressure washer to clean around the brush motors. Use tap pressure only.

⚠ ATTENTION:

N'utilisez pas de nettoyeur haute pression pour nettoyer autour des moteurs des brosses. Utilisez seulement la pression du robinet.

Remove Brush Deck

1. Lower brush deck.
2. Turn off machine
3. Disconnect motor harness connectors and remove vacuum hose from top of deck.
4. Remove bumper bolts and bumper to access linkage mount brackets.
5. Pull down and disconnect spring mount bracket from deck lift arm. Keep spring attached to mount bracket.
6. Remove four (4) bolts and associated hardware that connect deck lift arm to linkage mount brackets on drive assembly.
7. Remove two (2) bolts and associated hardware that connect deck lift arm to lift linkage plate.
8. Pull out deck with attached deck lift arm.
9. Reverse to reassemble.

Replace Brush Deck Motor

1. Remove brush deck from machine.
2. Remove two (2) nuts to free rear mounting bracket from deck.
3. Remove six (6) motor mount bracket face screws.
4. Remove rear mounting bracket.
5. Remove motor with attached coupler, leaving front motor mounting bracket still attached to deck.
6. Remove coupler from old motor for reuse.
7. Inspect spider coupler for wear replace as needed.

Reverse process to reassemble with new motor.

Brush Motor Carbon Brush Replacement

1. Scribe alignment mark on motor barrel to motor cap. Remove two bolts.
2. Remove end cap from motor.

NOTE: Motors contain two wave washers in cap. Do not lose these.

3. Release brush from spring tension. Remove screw connecting brush wire lead to brush holder. Clean brush holder to insure free movement.
4. Retract spring and install new brush. Install connector screw and lead.
5. When all new brushes are installed. Place all in retracted position, held into brush holder by spring tension.
6. Carefully place end cap onto bearing on motor shaft.

NOTE: Use care to assure wave washer alignment.

7. With end cap in partially installed position, release all brushes to contact position with motor commutator.

NOTE: Failure to insure all brushes are released will result in motor failure.

8. Reset end cap and realign with scribe marks on motor barrel. Reinstall the two attach bolts from cap into base.Maintain alignment between motor barrel base and cap.

FOR SAFETY: before leaving or servicing machine, stop on a level surface, turn off machine and disconnect power**.**

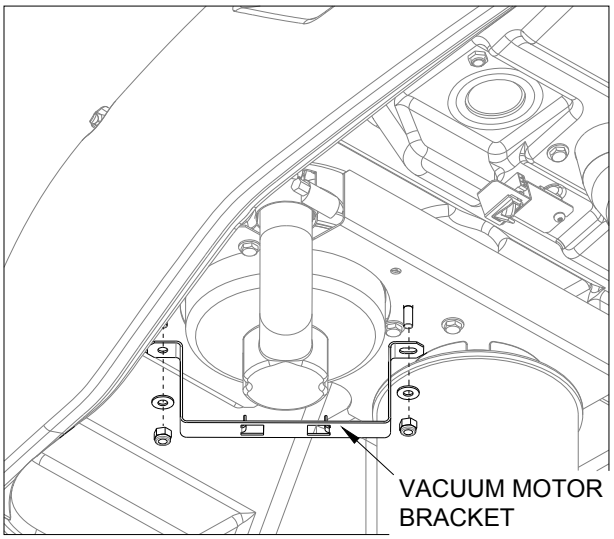
Replacing Coupler Spider

1. Remove three (3) cover screws and drive housing cover from end of brush deck.
2. Remove four (4) drive housing mounting screws
3. Slide out brush drive housing assembly with attached coupler from end of brush deck extrusion.
4. Replace coupler spider.
5. Reverse to assemble.

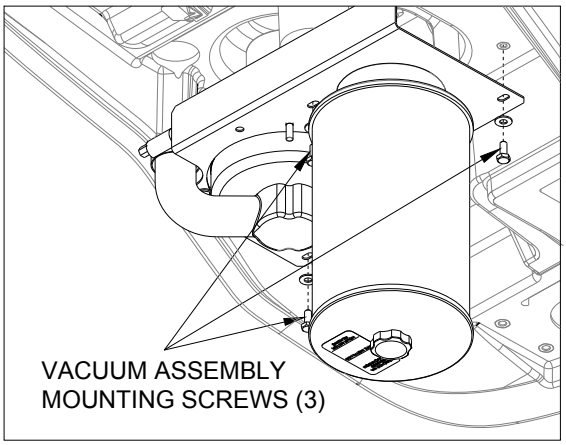
NOTE: Align coupler jaws when sliding in brush drive housing assembly.

To Repair or Replace Vacuum Motor

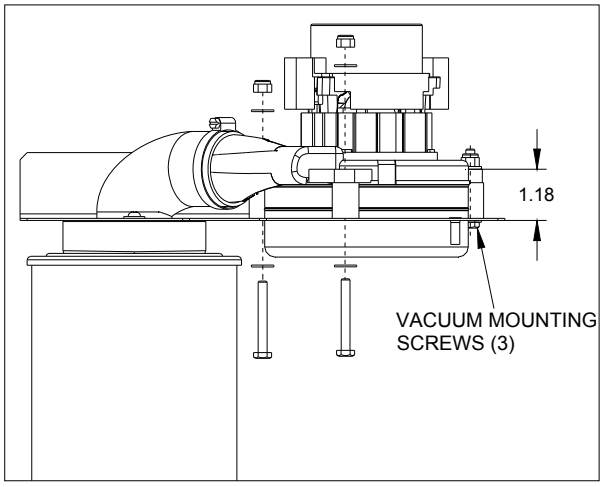
1. Remove four (4) screws from top of control panel.
2. Tip control panel back from console to expose vacuum motor wires.
3. Disconnect electrical connector from the vacuum motor.
4. Replace one screw to secure control panel to console.
5. Open console.
6. Remove the two (2) nuts from vac motor bracket, as shown below.



7. Remove three (3) screws that secure vacuum motor assembly in place. Remove vacuum motor assembly, as shown below.



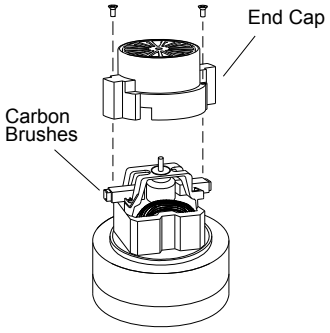
8. Remove move three (3) screws that secure vacuum motor. Replace motor.



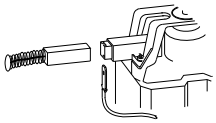
9. Reverse steps to install.

NOTE: If vacuum motor is not mounted as shown, vacuum may not seal properly, resulting in poor performance.

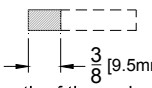
Vacuum Motor Carbon Brushes



If armature commutator is grooved, extremely pitted or not concentric, the motor will need to be replaced or sent to a qualified service center.



Inportant:
These brushes wear quicker as the length shortens due to increased heat. Spring inside brush housing will damage motor if brushes are allowed to wear away completely.



Periodically check the length of the carbon brushes. Replace both carbon brushes when either is less tan 3/8" (9.5mm) long.

Drive Motor

Drive Motor Carbon Brush Replacement

⚠ CAUTION:

Do not use a pressure washer to clean around the brush motors. Use tap pressure only.

⚠ ATTENTION:

N'utilisez pas de nettoyeur haute pression pour nettoyer autour des moteurs des brosses. Utilisez seulement la pression du robinet.

FOR SAFETY: Before leaving or servicing machine, stop on a level surface, turn off machine and remove motor carbon brushes.

1. Open the console cover.
2. Tilt the rear panel back until it stops on the lanyard.
3. Grasp the lower end of the flexible steering shaft and pull it straight up until it is disengaged with the hex steering shaft.
4. Remove the cover and gasket at the steering shaft area.
5. Grasp the drive wheel by reaching under the front bumper and turn it to near the left steering stop.
6. The drive motor carbon brushes are located under screw caps. The caps are accessible by gently moving the harness aside.
7. Rotate the drive wheel to near the right hand stop to access the right side carbon brush.
8. Replace the gasket and cover, set the drive wheel straight ahead, set the steering wheel straight ahead, and gently align the steering shaft coupling and slide onto the lower shaft.
9. Slowly close the cover and make sure the shaft slides without binding.

Drive Chain Tension

The drive chain should deflect about 1/4 inch on either side of the loop when the opposite side is tight.

To adjust chain tension:

1. Remove bumper.
2. Loosen five (5) screws that hold the drive gear motor and slide the gear motor up until the chain tension is correct. Tighten the five (5) mounting screws.
3. Models equipped with jack screw on front side of drive should not use jack screw to apply tension. Use only as a stop once chain is properly tensioned.
4. Reinstall the bumper.

Transporting Machine

This machine is equipped with a drive gear engagement/disengagement lever.

The brake automatically engages and keeps the machine from moving whenever the operator stops the machine.

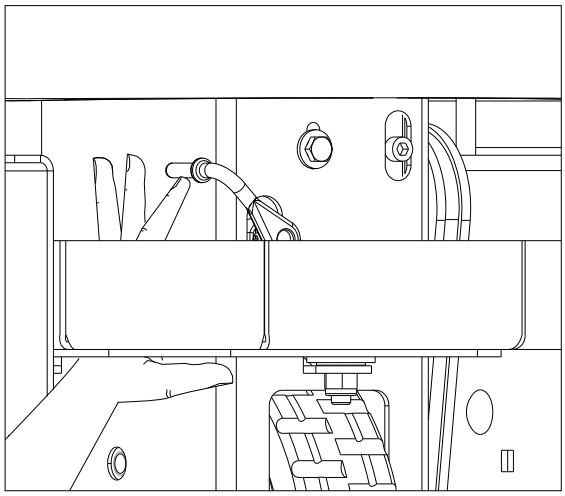
The drive gear can be disengaged so the machine can be pushed or towed (slowly).

When the drive gear is disengaged the machine cannot be driven.

NOTE: Front bumper removed for clarity and to show access to lever.

Lever access

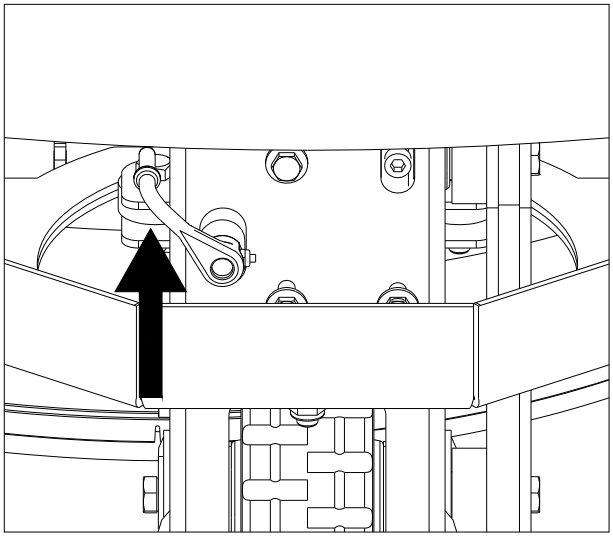
Turn wheel to left and reach up under bumper and steel bracke



Drive gear engaged

Machine can be driven.

Rotate lever firmly in direction of arrow

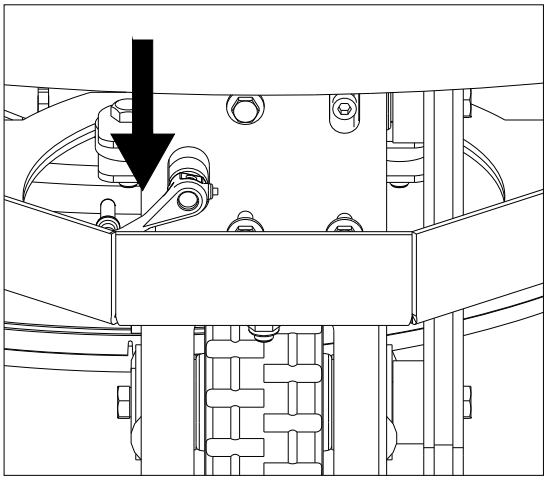


Drive gear disengaged

Machine can be pushed or towed (slowly).

When disengaged the machine rolls easily. Disengage on a level surface.

Rotate lever firmly in direction of arrow.



Inclines

When navigating an incline the machine may come to a stop. Turn the machine off. Wait 5 minutes and start the machine and proceed up the incline.

⚠CAUTION:

Overheating may occur if you do not wait the full 5 minutes.

⚠ ATTENTION:

Une surchauffe peut se produire si vous n'attendez pas les 5 minutes complètes.

Preparation for Loading/Unloading Trailer

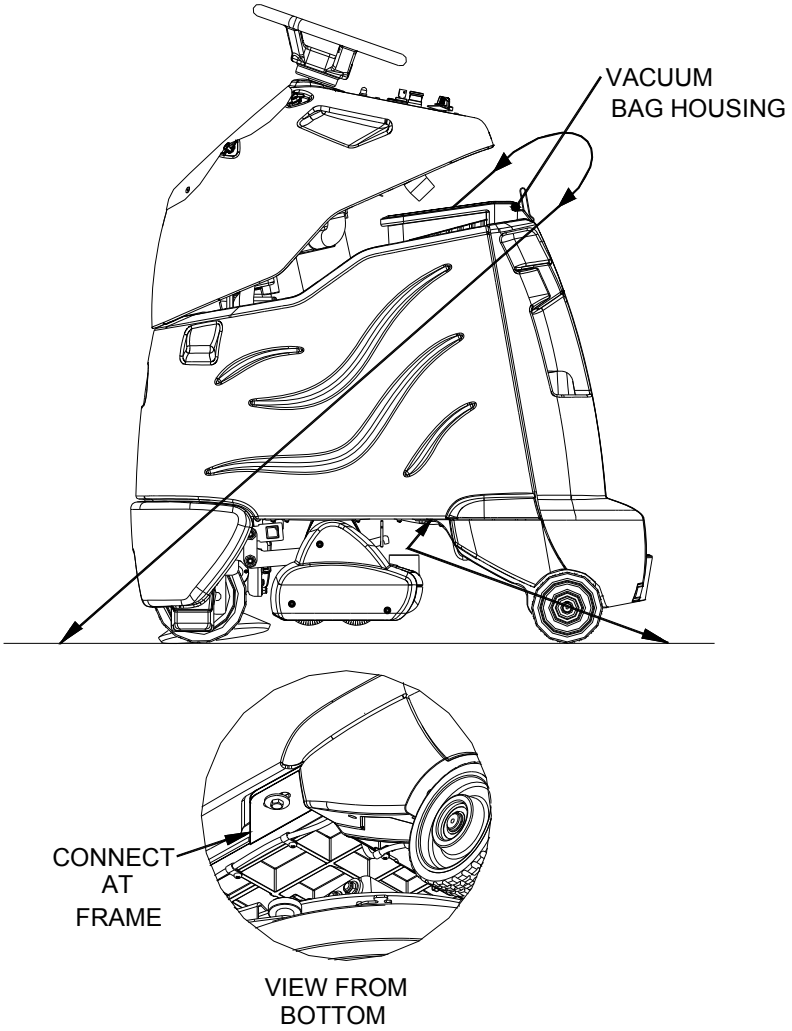
Before loading or unloading machine from trailer, brush deck must be in the up position.

When transporting the machine on a trailer or in a truck, in addition to using tie-downs, be sure to block the tires to prevent the machine from rolling.

Machine Tie-Downs

There are two tie points located in front of the rear wheels on the frame, and a Tie-down wrap point on the vacuum bag housing. Tie-down devices must be of the proper type and strength. The combined strength of all tie-downs must be strong enough to lift two times the weight of the machine. Tie-downs must be positioned to prevent the machine from moving forward, backward, or either side to side. Use all four corners of the machine with the tie-downs running out opposite directions. Tie-downs must be attached to the transporting vehicle securely.

Recommended Tie-Down Points



Troubleshooting

PROBLEM	CAUSE	SOLUTION
No machine function	Console lid is open	Close console lid
No power to machine	Battery disconnected	Check all battery cable connections
	Emergency shut-off activated	Reset
	Battery cables corroded	Clean connections
	Faulty key switch	Replace switch
	Batteries not plugged in	Plug batteries in
	On Board charger plugged in	Un-plug and stow cord
Little or no propel	Low battery charge	Charge batteries
	Tripped circuit breaker	Reset controller circuit breaker
	Machine turned on with pedal not in neutral position	Allow pedal to return to neutral. Restart
	Controller protecting motor from overload	Controller limits motor amperage. Allow unit to cool down for several minutes.
	Machine is stalled against an obstacle (threshold, curb, etc.)	Remove obstacle or push machine away from obstacle
	Controller overheated	Allow cool down period
	Loose motor connection	Check wires and connections from controller to motor
	Faulty throttle circuit or potentiometer	Check wires and connections from and potentiometer resistance
	Faulty drive reset circuit or switch	Check wires, connection and switch
	Faulty platform circuit or switch	Check wires, connections and switch
	Brake over-ride engaged	Disengage brake over-ride
	Faulty brake circuit or over-ride switch	Check wires, connections and switch
	Drive Lever disengaged	Engage drive
Machine does not change speeds	Faulty speed control circuit or switch	Check wires & connections
Forward speed only Reverse speed only	Faulty forward/reverse circuit	Check wires & connections
Battery indicator light flashing	Battery needs charged	Charge Battery
	Controller is indicating a fault code	See fault code table

Troubleshooting

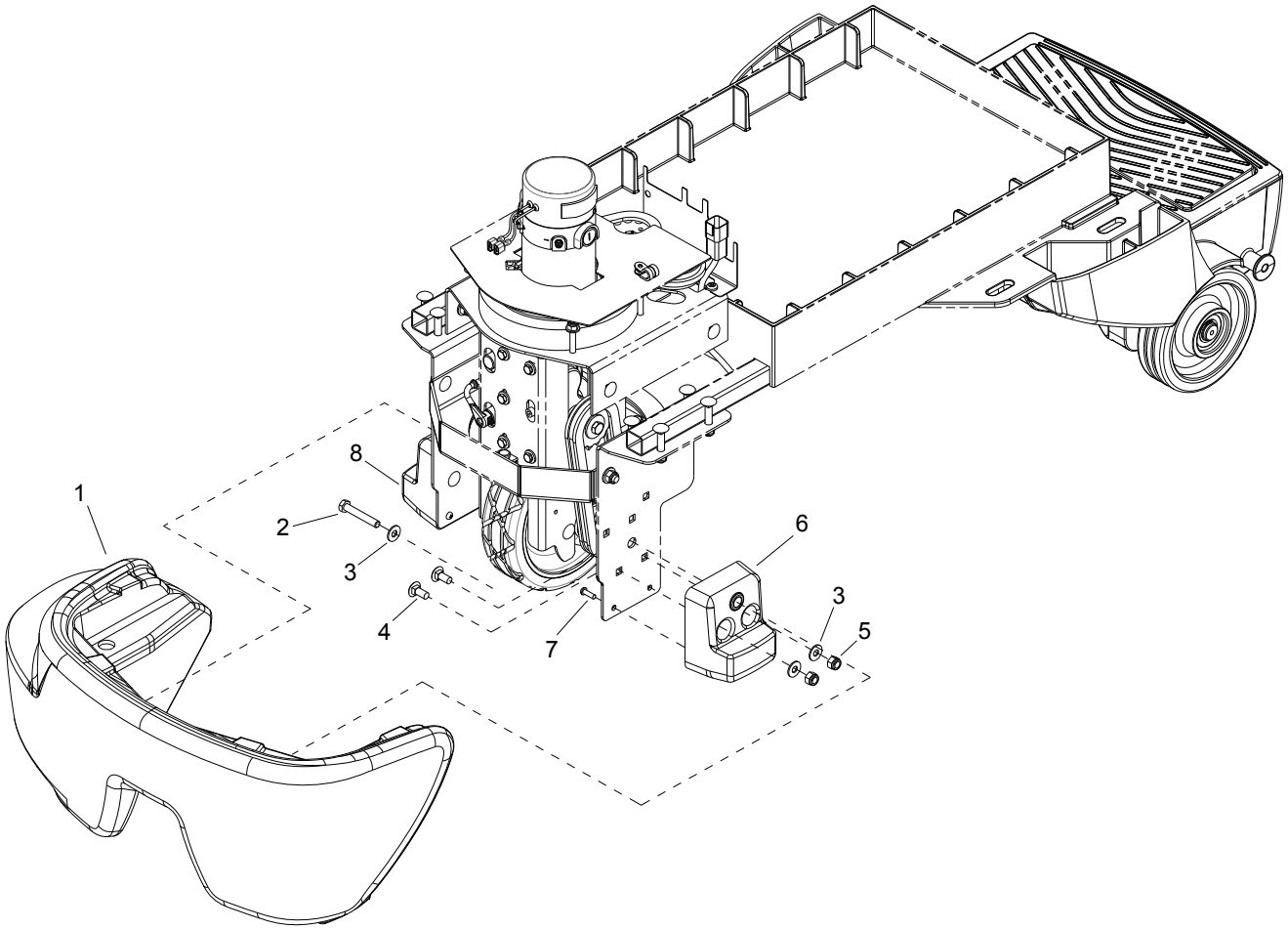
PROBLEM	CAUSE	SOLUTION
Vacuum motor does not run, or runs slowly	Faulty vacuum circuit or switch	Check wires & connections
	Worn vacuum motor brushes	Replace brushes, check commutator
	Vacuum circuit breaker tripped	Reset circuit breaker
Vacuum and brush do not turn on	Circuit breaker tripped	Reset
	Full bag or clog in system (bag full light on)	Replace bag, empty debris tray, check for and remove clogs
Poor vacuum performance	Debris caught in system	Remove debris
	Low battery charge	Charge batteries
	Lid is not closed correctly	Close and latch lid correctly
	Faulty gaskets	inspect and replace gaskets
	Accessory hose is not sealed shut.	assure hose is tight in hose holder
	Bag or debris tray are full	Empty tray, replace bag
	Vacuum diverter valve not actuating	Check for debris
		Check electrical connections
		Check timer circuit board
Brush motors do not run, or runs slowly	Circuit breaker tripped	Reset circuit beaker
	Low battery charge	Charge battery
	Faulty brush circuit or motor	Check wires, connections and motor
	Bag full light on	Replace bag, empty debris tray or remove clog.
	Worn brush motor brushes	Replace brushes, check commutator
Deck won’t go down	Actuator circuit breaker tripped	Reset actuator circuit breaker
Side broom not running	Fuse is blown	Clear foreign objects from broom that inhibit free motion, replace fuse.
Brush door won’t close	Cylindrical brushes not installed correctly.	Align brushes to drive shaft assemblies, close door.

Battery Discharge Indicator Troubleshooting

The battery indicator flashes when a problem occurs. The table below list solutions for the indicated problems.

Number of flashes	Problem	Solution
1	The battery needs charging, there is a bad connection to the battery or dependent on the programming, may indicate that the battery lockout function is active and the controller is in a restricted mode of operation. Check the connections to the battery.	If the connections are good, try charging the battery.
2	There is a bad connection to the drive motor.	Check all connections between the motor and the controller.
3	The drive motor has a short circuit to a battery connection.	Contact your service agent.
4	The battery charge level has fallen below the battery Lockout Level and the controller is inhibiting brush and vacuum functions	Charge the battery.
5	Not used.	-
6	The controller is being inhibited from driving, this may be because the battery charger is connected (on board charger only).	Disconnect battery charger.
7	A throttle fault is indicated.	Make sure that the throttle is in the rest position before switching on the machine.
8	A controller fault is indicated.	Make sure that all connections are secure.
9	The parking brake has a bad connection.	Check the parking brake and motor connections. Make sure the controller connections are secure.
10	An excessive voltage has been applied to the controller. This is usually caused by a poor battery connection.	Check the battery connections.
-	Blinks once every 5 seconds	Sleep mode, cycle key switch

PARTS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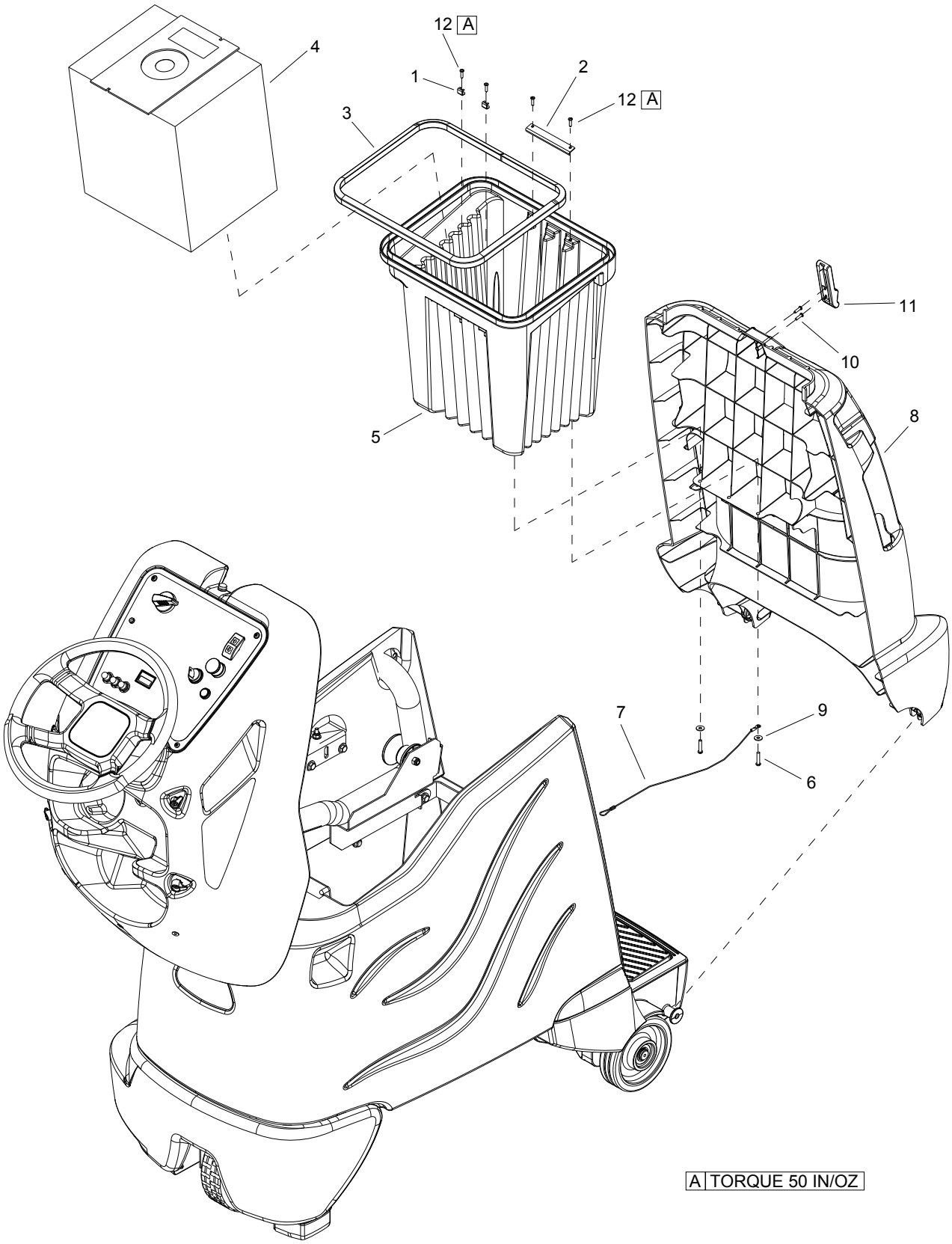
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345220	1	BUMPER, TRIM		
2	86276980	2	SCREW 5/16-18 X 2 HHCS SS		
3	86010670	6	WASHER 5/16 FLAT SS		
4	86276070	4	SCR, 5/16-18 X 3/4 CARRIAGE SS		
5	86270830	4	NUT 5/16-18 HEX NYLOCK SS		
6	86323950	1	PAD, TIP		
7	86327510	4	SCR, KA50X16, PT OHS, WN1412, A2 SS		
8	86339800	1	PAD, TIP RIGHT		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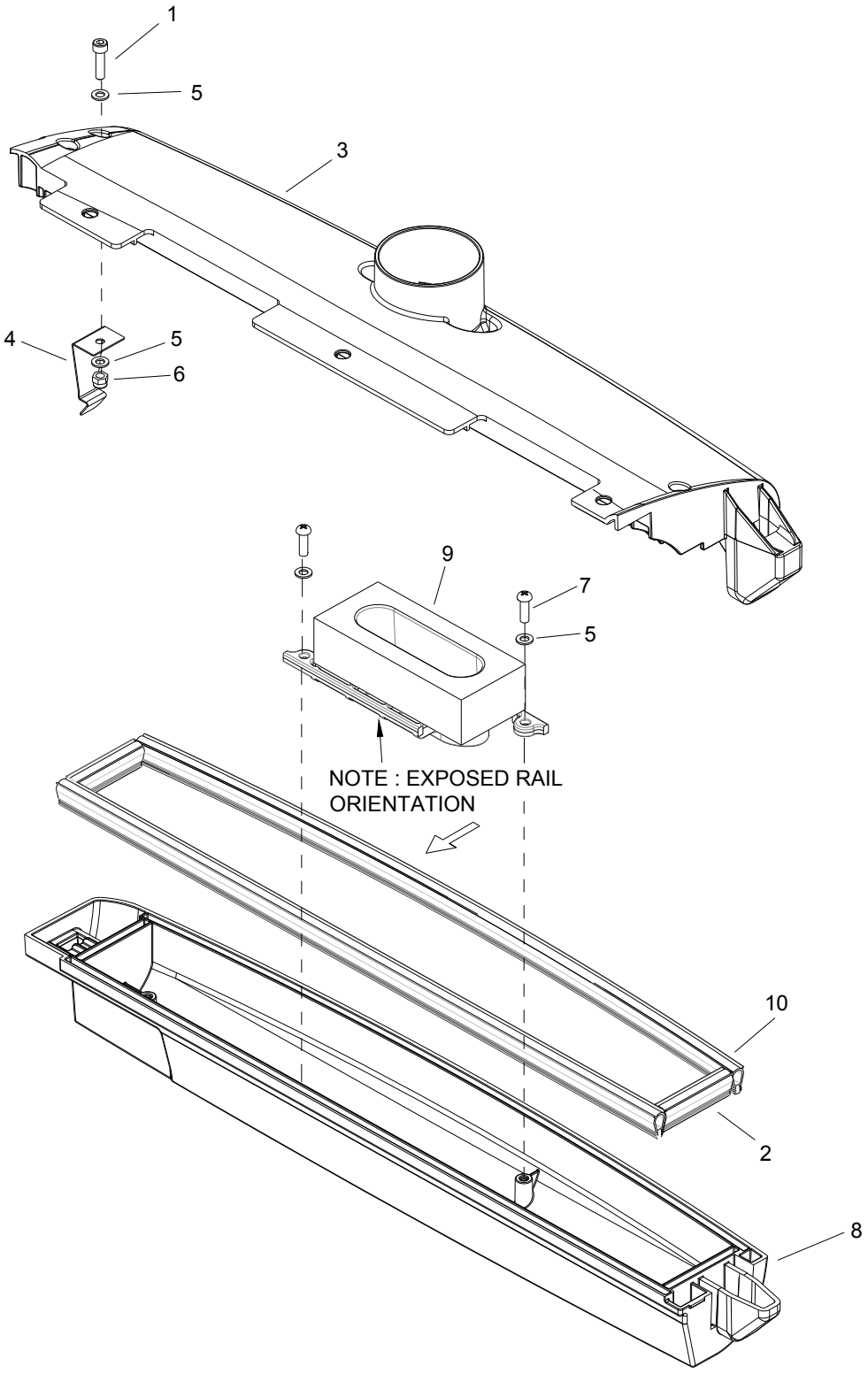
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345080	2	BRACKET, VAC BAG, LOWER		
2	86345070	1	BRACKET, VAC BAG, UPPER		
3	86344800	1	GASKET, VAC ENCLOSURE 48"		
4	86341040	1	BAG, VAC-10 PACK		
5	86340640	1	HOUSING, VAC BAG		
6	86327910	2	SCR, KA50X25, PT OHS, WN1412, PLTD		
7	86327590	1	LANYARD, 15.0 W/LOOP & EYE		
8	86344710	1	PANEL, BACK CS20 GRY TRIM		
9	86173330	2	WASHER, M5, FLAT, ISO7093, SS		
10	86173140	2	SCR,KA40X16,PT OVAL,WN1412,PL		
11	86161800	1	LATCH, CONCEALED KEEPER		
12	86351660	4	SCR, #6 X 1/2 PPH HI-LO ZINC PLT		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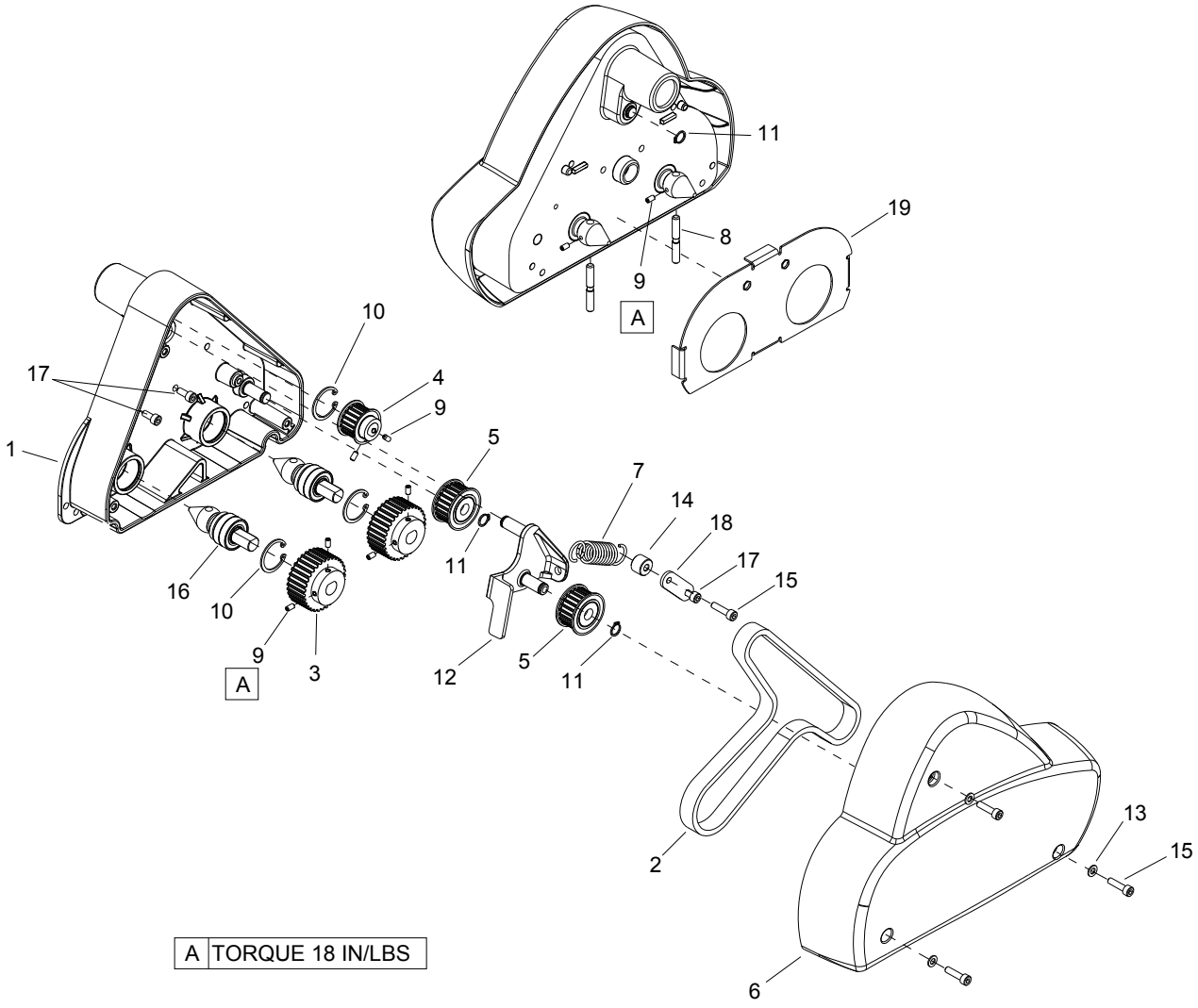
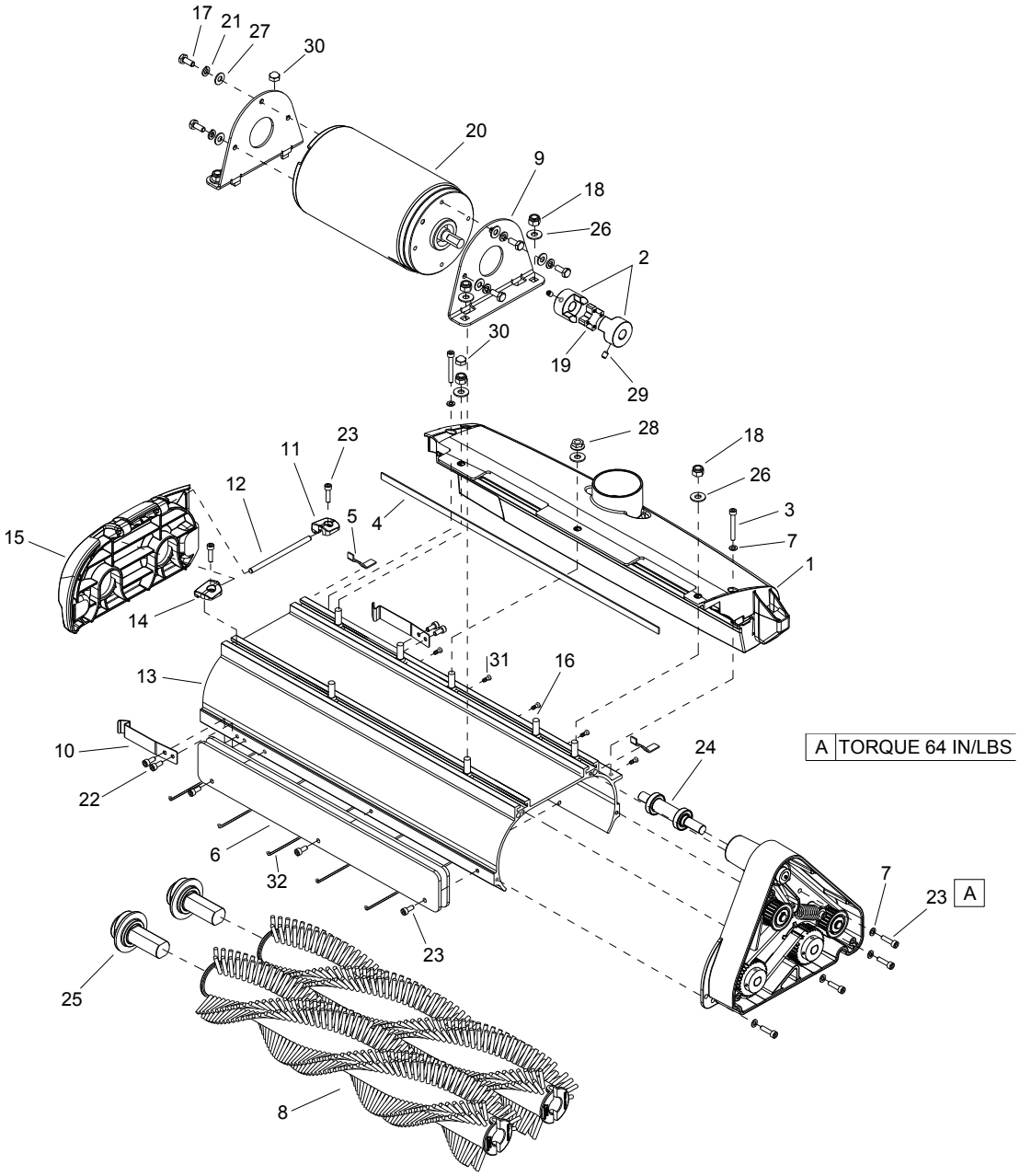
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86014990	1	SCR, M5X20, SHCS, ISO4762, SS		
2	86342400	2	GASKET, DEBRIS TRAY, END		
3	86340290	1	MOUNT, DEBRIS TRAY, 20”		
4	86408760	1	CLIP, DEBRIS TRAY SPRING		
5	86173350	4	WASHER, M5, FL, ISO7089, SST		
6	86024750	1	NUT, M5 HEX NYLOCK, SS		
7	86327510	2	SCR, KA50X16, PT OHS, WN1412, A2 SS		
8	86340280	1	TRAY, DEBRIS, 20”		
9	86350590	1	ASM, DEBRIS TRAY INLET		
10	86342390	2	GASKET, DEBRIS TRAY, 20”		



A	TORQUE 18 IN/LBS

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86343870	1	HOUSING ASM, BRUSH DRIVE		
2	86343860	1	BELT, TWIN 5MM GT2, 15W, 130T		
3	86343850	2	PULLEY, 32T 5MM GT, 15W		
4	86343840	1	PULLEY, 18T 5MM GT, 15W		
5	86343830	2	PULLEY ASM, 22T 5MM GT, 15W		
6	86339570	1	COVER, DRIVE HOUSING		
7	86224660	1	SPRING, TENSIONER		
8	86224170	2	SHAFT, 6.2 MM BRUSH DRIVE		
9	86223780	8	SCR,M4X8,ISO4029,CP,BLK		
10	86223520	3	RING, 28MM INT SNAP PHOSPHATE		
11	86223490	3	RING, 10MM EXTERNAL SNAP		
12	86215870	1	BRKT, TENSIONER ARM		
13	86173350	3	WASHER, M5, FL, ISO7089, SST		
14	86349800	1	SPACER, 15OD X 5.3ID X 11L		
15	86014990	5	SCR, M5X20, SHCS, ISO4762, SS		
16	86012790	2	SHAFT ASM, BRUSH DRIVE		
17	86172950	3	SCR, M5X12, SHCS, ISO4762, SS		
18	86349790	1	PLATE, SUPPORT		
19	86349320	1	PLATE, BRUSH GUIDE		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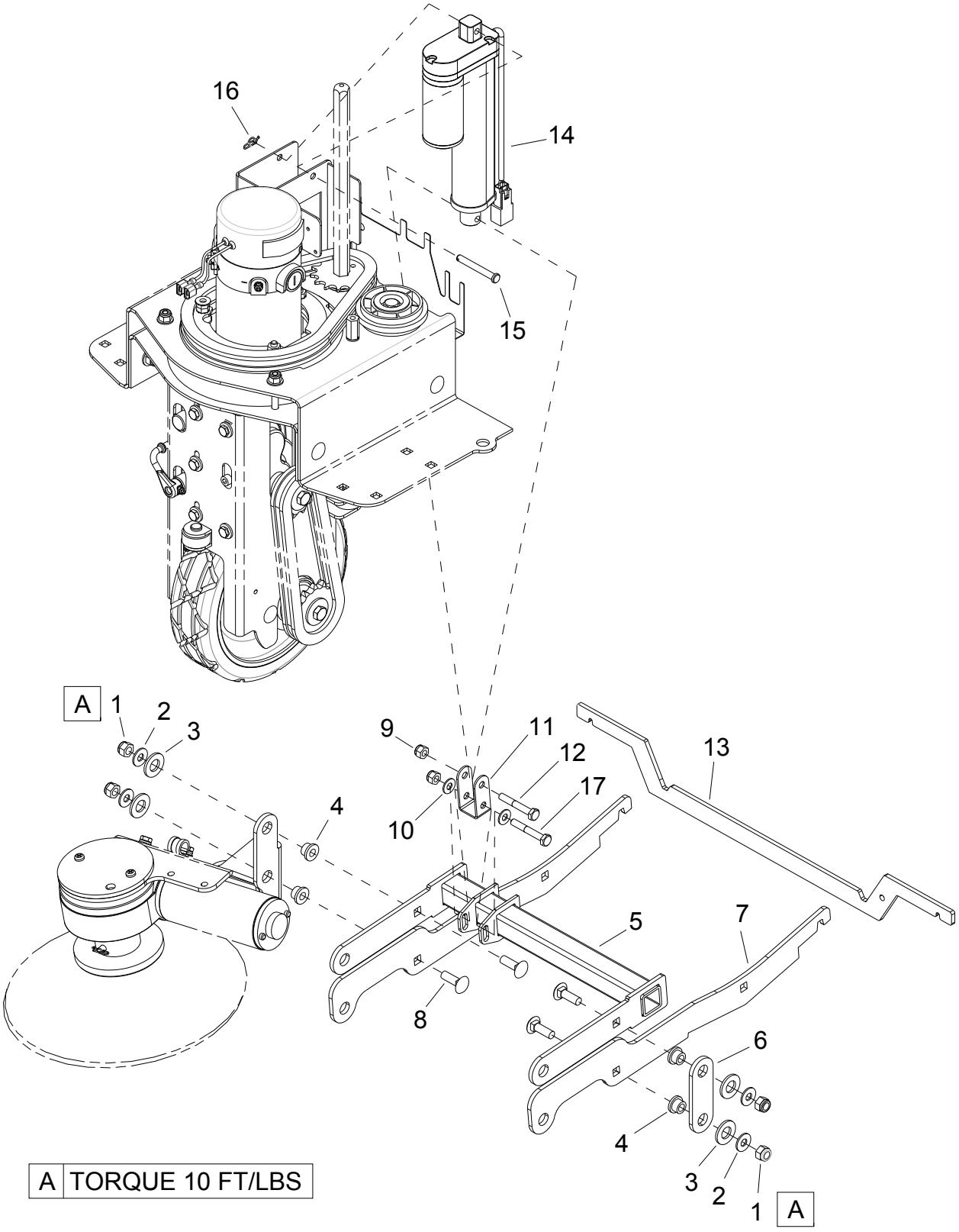
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86356810	1	ASM, DEBRIS TRAY, 20		
2	86346070	2	COUPLER, 2 JAW, 35MM		
3	86343160	2	SCR, M5X40, SHCS, ISO4762, SS		
4	86343200	1	GASKET, 1/16THKX3/8WX19.50L		
5	86343190	2	GASKET, 1/16THKX3/8WX2.17L		
6	86343020	2	PLATE, COUNTERBALANCE		
7	86173350	6	WASHER, M5, FLAT, ISO7089, SS		
8	86340500	2	BRUSH, VACUUM 20		
-	86348840	2	BRUSH, VACUUM 20", HARD FLOOR		
-	86348820	2	BRUSH, VACUUM 20", SOFT FLOOR		
9	86340490	2	BRKT, MOTOR MOUNT		
10	86340480	2	SPRING, DOOR CLIP		
11	86339980	1	CAP, BRUSH DOOR HINGE, REAR		
12	86339790	1	PIN, DOWEL, 6 X 106, SS		
13	86374890	1	EXTRUSION, DUAL 4" BRUSH, 20		
14	86339590	1	CAP, BRUSH DOOR HINGE, FRONT		
15	86339580	1	DOOR, BRUSH RELEASE		
16	86277130	7	SCR, 5/16-18X1.00 CARRIAGE SS		
17	86273750	6	SCR, 1/4-20 X 5/8 HHCS SS		
18	86270830	6	NUT, 5/16-18 HEX NYLOCK SS		
19	86234600	1	COUPLER, SPIDER		
20	86222130	1	MOTOR, 36VDC		
-	86001360	-	BRUSH SET, CCL MOTORS		
21	86173340	6	WASHER, SPLIT LOCK, 1/4, SS		
22	86172950	4	SCR, M5X12, SHCS, ISO4762, SS		
23	86014990	5	SCR, M5X20, SHCS, ISO4762, SS		
24	86012810	1	SHAFT ASM, DRIVE 16”		
25	86012800	2	SHAFT ASM, BRUSH END CAP		
26	86010670	7	WASHER, 5/16 X 3/4 SS		
27	86010630	6	WASHER, 1/4 X 5/8 FLAT SS		
28	86005740	1	NUT 5/16-18 SERRATED FLG		
29	86172960	2	SCR,SET,M6X8,SH,ISO4029,SS		INCLUDED WITH 86346070
30	86197040	2	NUT, 5/16-18 HEX ACORN PLTD		
31	86354280	5	NIPPLE, GUARD ATV		
32	86354080	5	ROD, GUARD ATV		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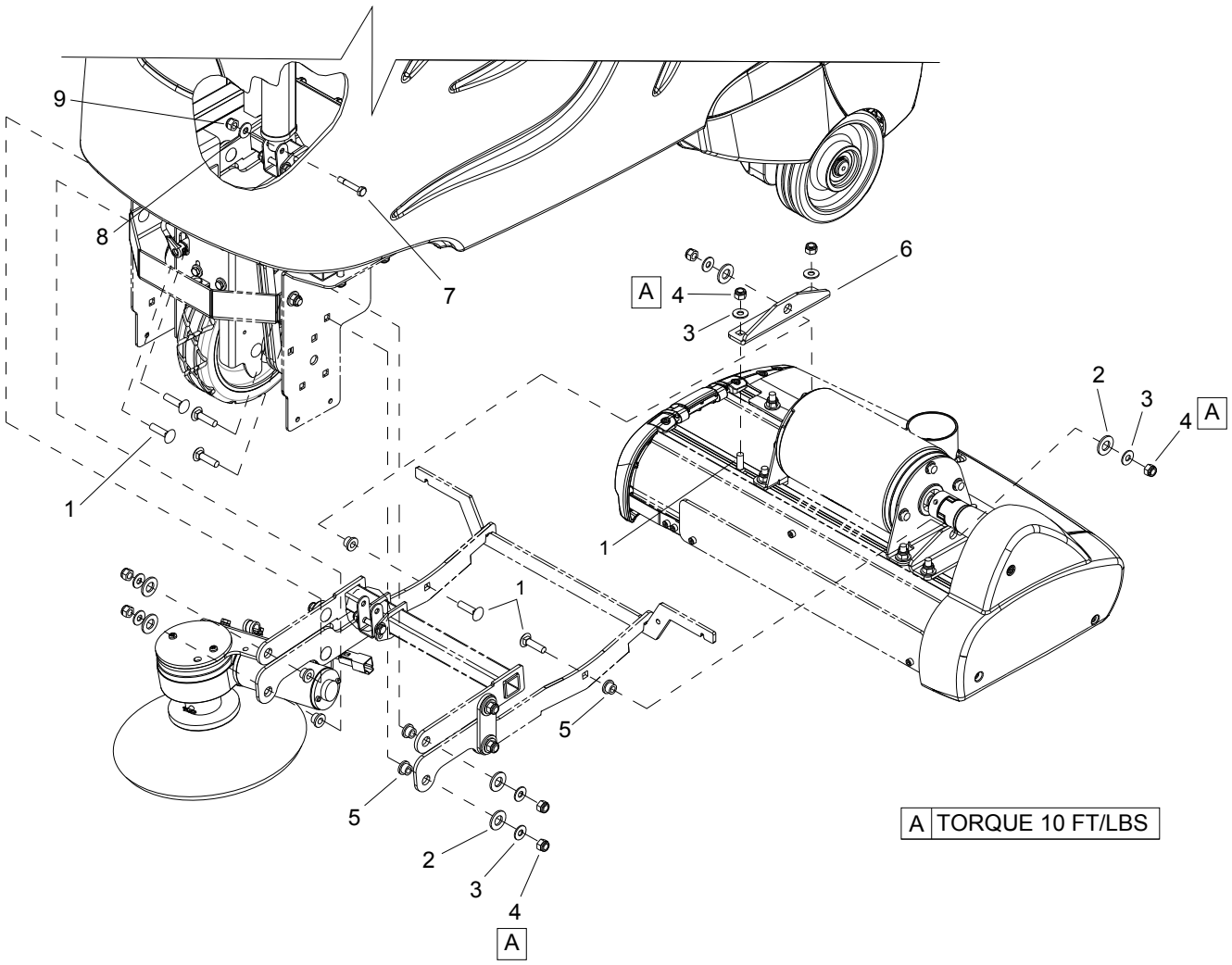
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86270830	4	NUT 5/16-18 HEX NYLOCK SS		
2	86010670	4	WASHER 5/16 FLAT SS		
3	86259420	4	WASHER, THRUST .51ID X 1 ODBRO		
4	86228990	4	BEARING,FLNGD,.314ID X.502OD		
5	86340820	1	LIFTER, DECK		
6	86340920	1	PLATE, LIFT LINKAGE		
7	86340910	2	ARM, DECK LIFT		
8	86277130	4	SP SCREW 5/16-18X1.00 CARRIAGE SS		
9	86005810	2	NUT 1/4-20 HEX NYLOCK SS		
10	86010630	2	WASHER 1/4 ID X 5/8 OD SS		
11	86341320	1	CHANNEL, ACTUATOR LINK		
12	86276680	1	SCR, 1/4-20 X 1.5 HHMS SS		
13	86340930	1	BRKT, SPRING MOUNT		
14	86341920	1	ACT,36VDC, 1.0"STK,8.74LNG		
15	86328040	1	PIN, CLEVIS, 1/4 X 2.0 L		
16	86008650	1	COTTER 1/4" RING		
17	86273850	1	SCR, 1/4-20 X 2 HHCS SS		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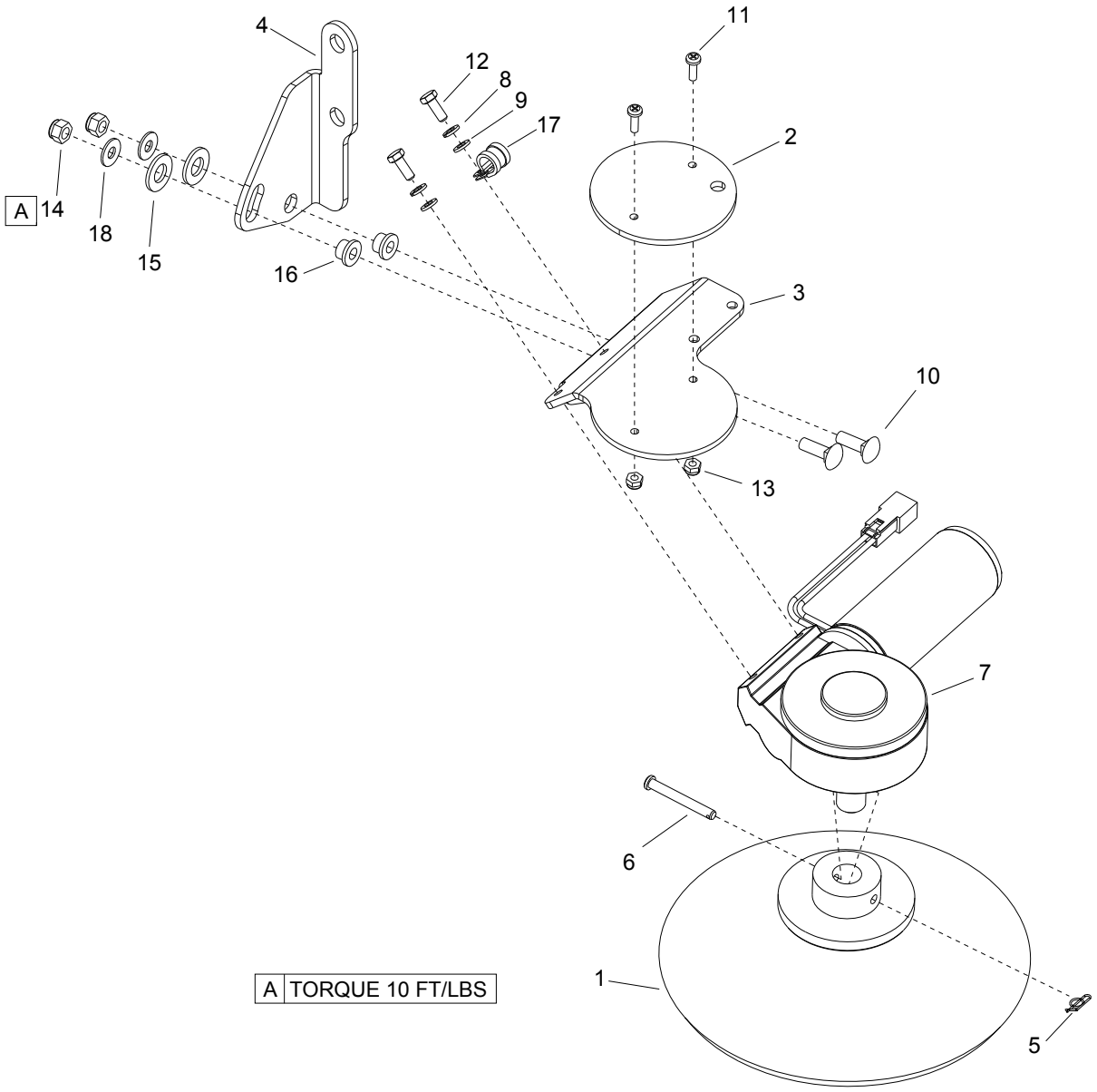
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86277130	10	SCREW 5/16-18X1.00 CARRIAGE SS		
2	86259420	6	WASHER, THRUST .51ID X 1 ODBRO		
3	86010670	10	WASHER 5/16 FLAT SS		
4	86270830	10	NUT 5/16-18 HEX NYLOCK SS		
5	86228990	6	BEARING,FLNGD,.314ID X.502OD		
6	86341310	2	BRKT, BRUSH DECK PIVOT		
7	86276680	1	SCR, 1/4-20 X 1.5 HHMS SS		
8	86010630	1	WASHER 1/4 ID X 5/8 OD SS		
9	86005810	1	NUT 1/4-20 HEX NYLOCK SS		
10	86264940	1	CABLE TIE, 11.38" UL/CSA		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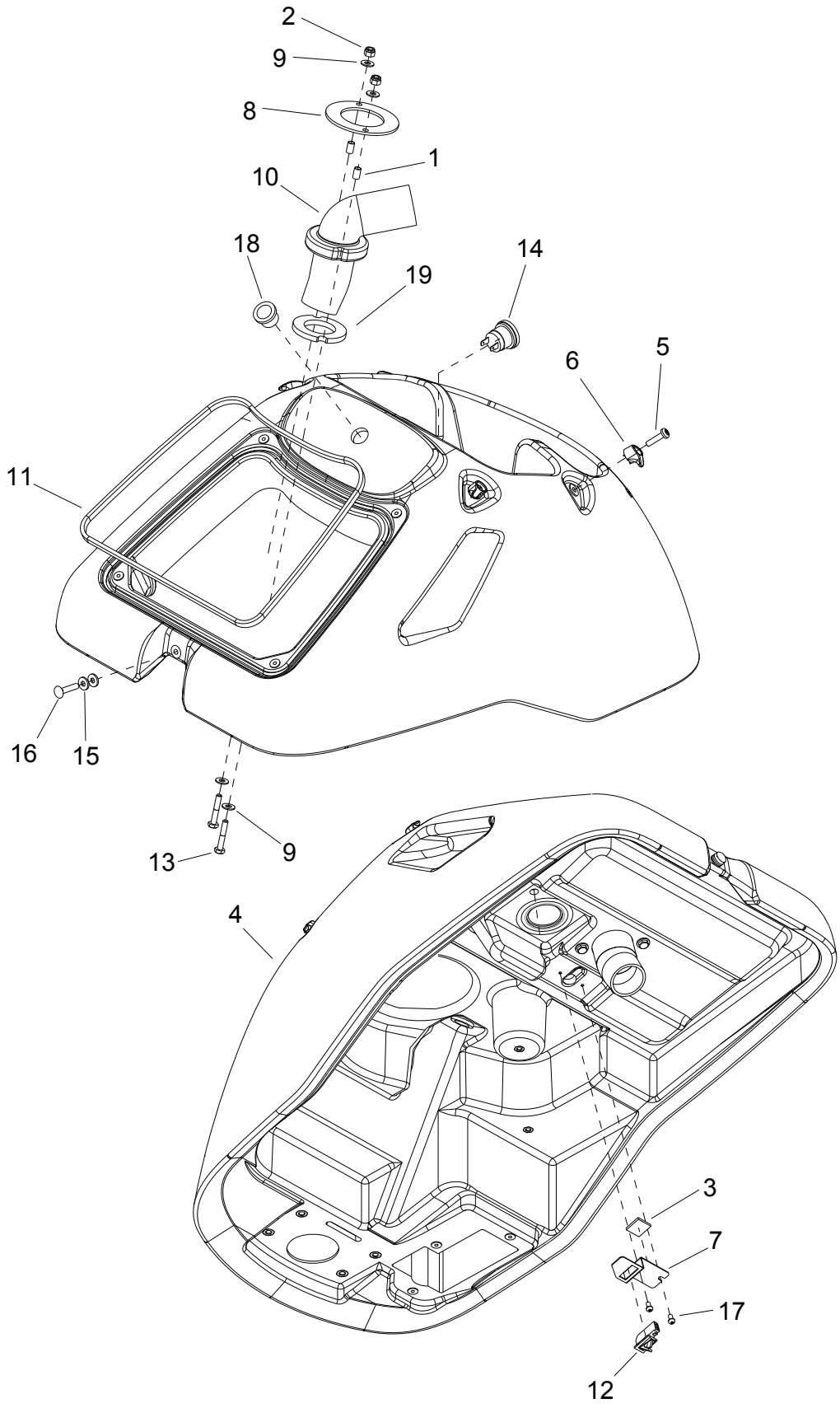
A TORQUE 10 FT/LBS

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86342160	1	BRUSH, 9.5 IN, NYLON, BLACK		
2	86341960	1	PLATE, WEIGHT		
3	86341070	1	BRACKET, SIDE BROOM MOUNT		
4	86341060	1	BRACKET, SIDE BROOM PIVOT		
5	86008650	1	COTTER, 1/4 RING		
6	86328040	1	PIN, CLEVIS, 1/4 X 2.0 L		
7	86322470	1	MOTOR, 36VDC, 90 DEG, 1/16 HP		
8	86279140	2	WASHER,M6 SPLIT LOCK ZINC PLTD		
9	86279070	2	WASHER, M6 FLAT		
10	86277130	2	SCR, 5/16-18X1.00 CARRIAGE SS		
11	86275470	2	SCR, 10-32 X 5/8 PPHMS SS		
12	86274700	2	SCR, M6 X 1 X 16 HHCS PLT		
13	86270990	2	NUT, 10-32 HEX NYLOCK SS		
14	86270830	2	NUT, 5/16-18 HEX NYLOCK SS		
15	86259410	2	WASHER THRUST.51 ID X1ODX.063		
16	86228990	2	BEARING FLG .314IDX.502OD		
17	86177090	1	CLAMP, CABLE 1/2I.D. 1/4BLT		
18	86010670	2	WASHER, 5/16 X 3/4 SS		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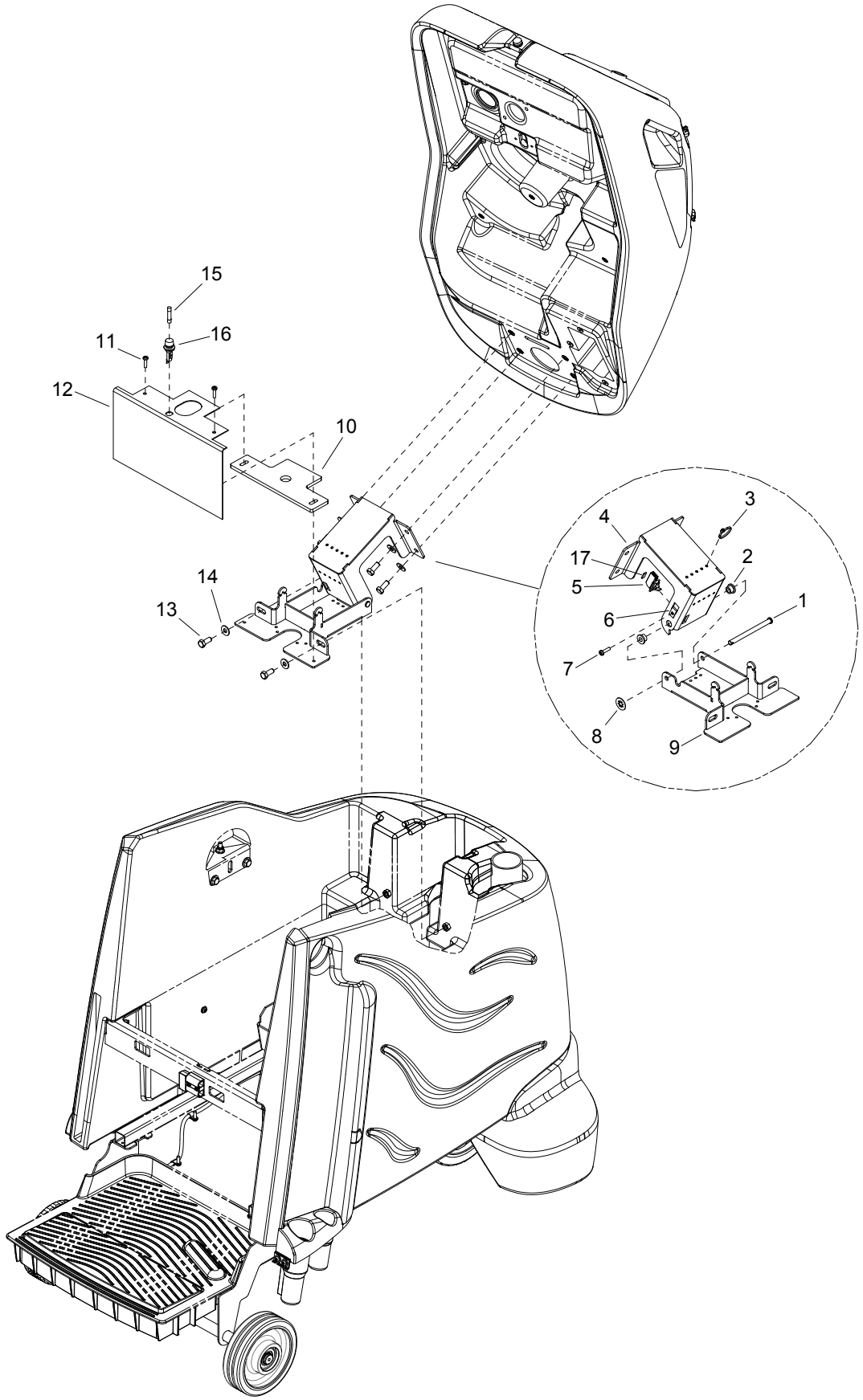
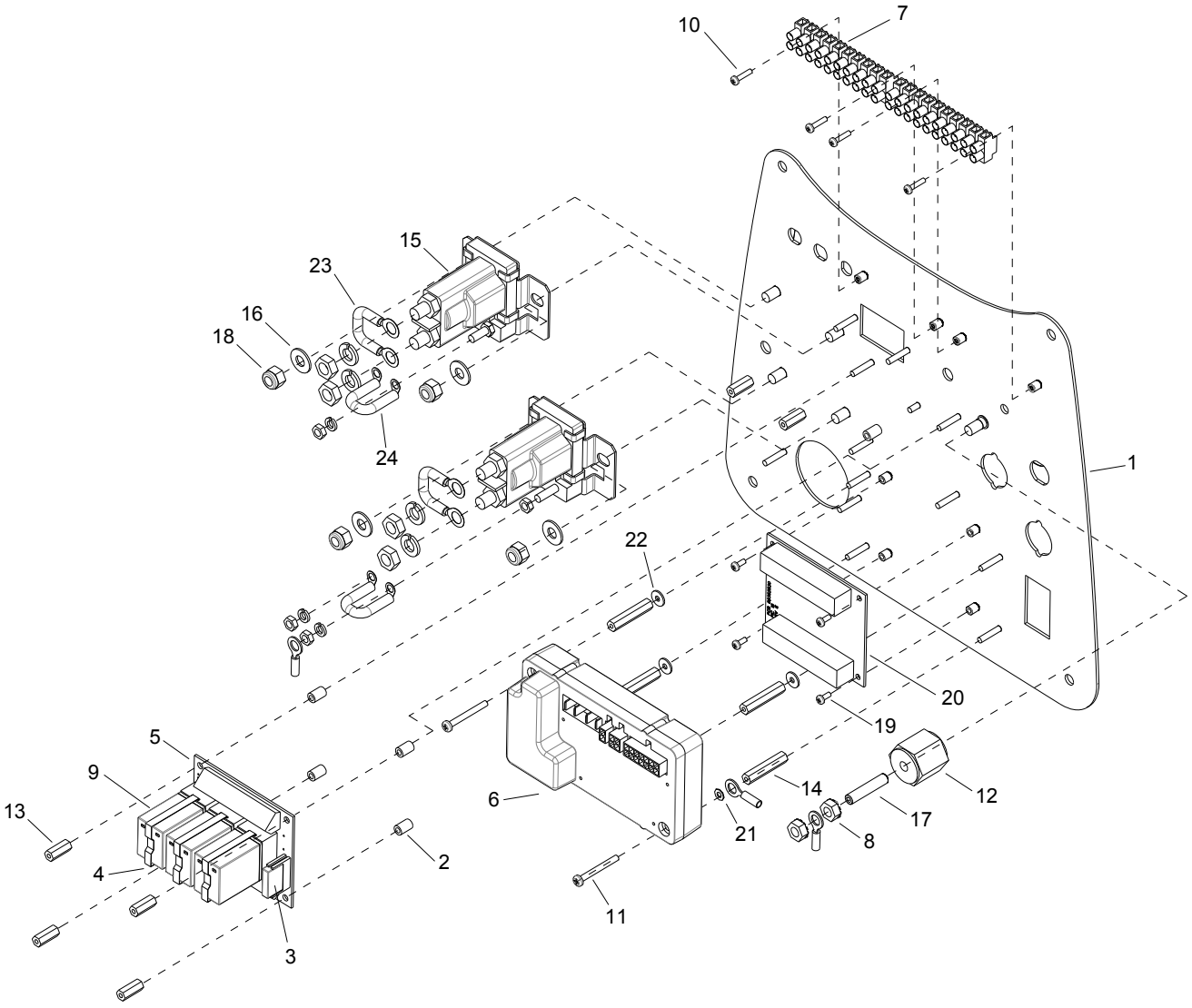
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86346600	2	SPACER, .320ODX.257IDX.505L NY		
2	86005810	2	NUT 1/4-20 HEX NYLOCK SS		
3	86346090	1	GASKET,.85X.85X.125 THICK		
4	86346050	1	CONSOLE, TRIM		
5	86349280	4	SCREW, 1/4-20 X 1 PHPNHMS SS BLK ZNPLT		
6	86238460	4	HOOK, STRAP		
7	86341700	1	BRACKET, SWITCH, NO BAG		
8	86340740	1	PLATE, BAG INLET RETAINER		
9	86010630	2	WASHER 1/4 ID X 5/8 OD SS		
10	86340650	1	INLET, VAC BAG		
11	86327830	1	GASKET,.188X.31X41.0		
12	86327680	1	SWITCH, INTERLOCK		
13	86273740	2	SCR, 1/4-20 X 1.5 HHCS SS		
14	86239720	1	HORN, 108DB MINATURE W/RING		
15	86279520	2	WASHER, 1/4 ID FLAT BLK		
16	86276330	1	SCR, 1/4-20 X 1.25 CARRIAGE BZ		
17	86274520	2	SCR, #10 X 3/8 PH HI-LO PLT		
18	86228790	1	BEARING FLANGE .88ODX.75IDX.75		
19	86326200	1	GASKET, VACUUM INTAKE		

Console Mounting



REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86326340	1	PIN, CLEVIS 5/16 X 4.0, PLTD		
2	86228990	2	BEARING,FLNGD,.314ID X.502OD		
3	86264940	6	CABLE TIE, 11.38" UL/CSA		
4	86326320	1	BRACKET, HINGE UPPER		
5	86327680	1	SWITCH, INTERLOCK		
6	86270860	1	NUT, 10-24 U-TYPE SPEED		
7	86277110	1	SCR, 10-24 X 3/4 PPHMS SS		
8	86328860	1	NUT, 5/16 PUSH-LOCK, PLTD		
9	86326330	1	BRACKET, HINGE LOWER		
10	86332760	1	GASKET, STEERING SHAFT		
11	86006800	2	SCREW 10-32 X 1/2 PHTR PLT		
12	86344610	1	PLATE, COVER		
13	86276780	6	SCR, 5/16-18 X 3/4 SS		
14	86010670	6	WASHER, 5/16 X 3/4 SS		
15	86345690	1	FUSE, 3A - 3AG FAST-ACTING		
16	86319090	1	FUSE HOLDER, PANEL MNT		
17	86402180	1	GASKET, .125 X .375 X .65		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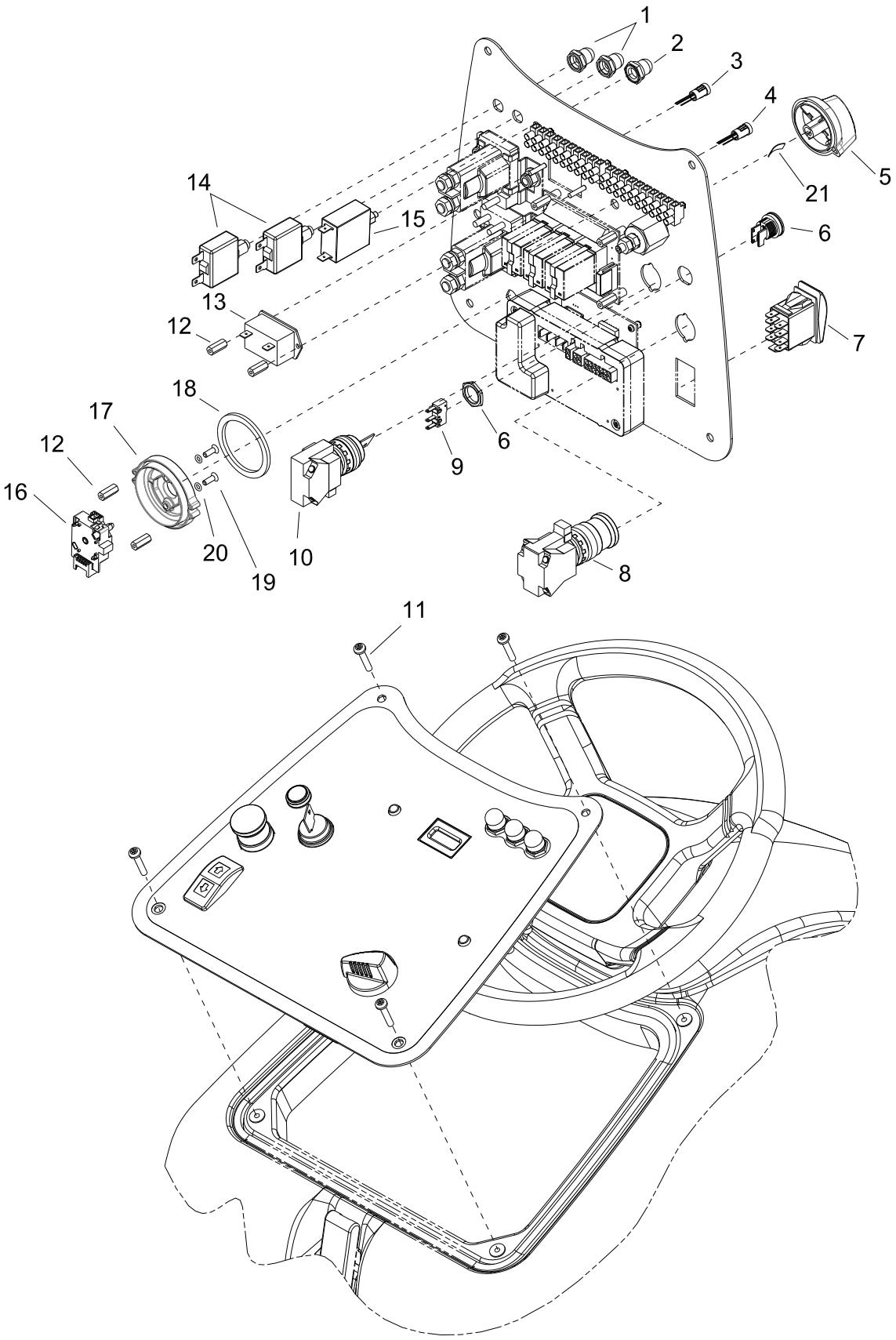
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86357790	1	PANEL, CONTROL, CS24 RE		
2	86337210	5	SPACER, .14ID X .25OD X .38, NYL		
3	86336110	1	RELAY, SPST-NO		
4	86336100	3	CLIP, RELAY		
5	86347250	1	PCBA, RELAY OMRON II		
6	86372280	1	CONTROLLER, CV24 RE		
7	86326390	2	CONN, 8MM PITCH, 10 POSN		
8	86005710	2	NUT, 1/4-20 HEX W/STAR		
9	86313900	3	RELAY, 5A, 24V, 4PDT		
10	86275260	4	SCR, 4-40 X 1/2 PPHMS		
11	86275550	2	SCREW 6-32 X 1.25		
12	86255910	1	STANDOFF, 1/4-20 X 1.0 HEX INS		
13	86255900	4	STANDOFF, 6-32 X 5/8 HEX NYL		
14	86354860	4	STANDOFF, 6-32 X 1.25 HEX, NYLON		
15	86251360	2	RELAY, 36VDC, 100A		
16	86010630	4	WASHER, 1/4 X 5/8 FLAT SS		
17	86006850	1	SCR, 1/4-20 X 1.25 SSSCU		
18	86005810	4	NUT, 1/4-20 HEX NYLOCK SS		
19	86274570	4	SCR, 4-40 X 1/4 PPHMS		
20	86372190	1	PCB, IVAC, PIC		
21	86279020	1	WASHER #6 LOCK EXT STAR SS		
22	86279450	3	WASHER, #6 FLAT SAE PLTD		
23	86003410	2	DIODE ASM, 76075 X 76075		
24	86261210	2	DIODE ASM, 76008 X 76008		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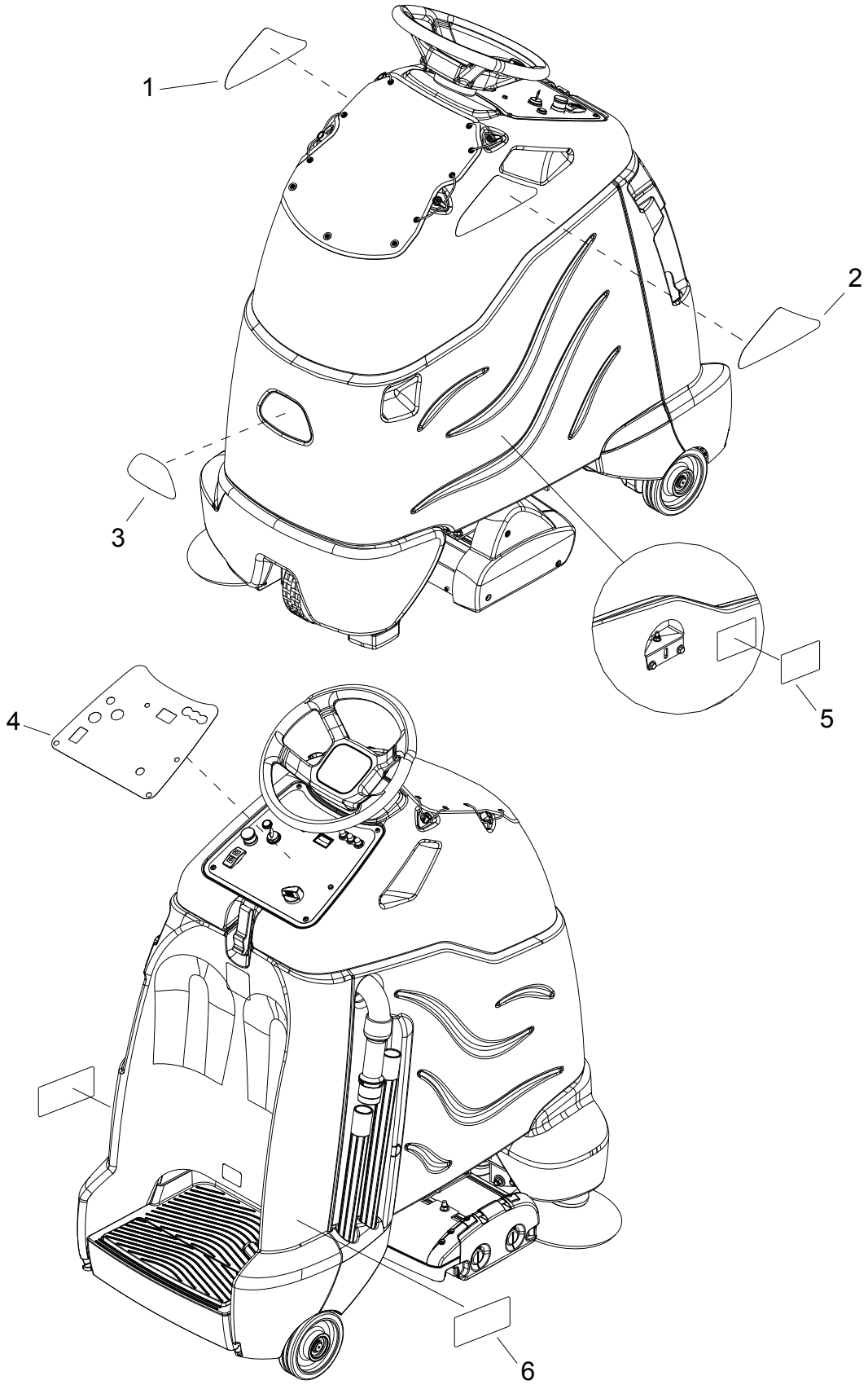
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86332510	2	BOOT, SEAL PUSH BUTTON 11M		
2	86001260	1	BOOT, CB 3/8-32 UNS		
3	86348640	1	LED, BAG FULL INDICATOR		***
4	86348960	1	LED, BATTERY INDICATOR		***
5	53217380	1	HANDHOLD OPERATIONAL CONCEPT		
6	86293930	1	BODY, SWITCH, BUTTON		
7	86313950	1	SWITCH, SPDT 3 POSN MOM, ARROW		
8	86292590	1	SWITCH, E-STOP		
9	86292780	1	SWITCH, MICRO		
10	86007170	1	SWITCH KEY TWO POSITION		
11	86329570	4	SCR, 10-32 X 1.0 TORX SS BLK PLTD		
12	86255900	4	STANDOFF, 6-32 X 5/8 HEX NYL		
13	86315470	1	METER, HOUR ICD		
14	86316160	2	BREAKER, 18A, 250VAC, 32VDC		
15	86353680	1	BREAKER, 1.5A CARLING MAGNETIC		
16	86354870	1	SWITCH, ROTARY		
17	86354560	1	BEZEL, ROTARY SWITCH		
18	86354810	1	GASKET, ROTARY SWITCH		
19	86358430	2	SCR, M4X12 FHMS, ISO7046 SS NP		
20	86358440	2	O-RING, 4MM ID, 1.5MM THK, BUNA-N		
21	63130140	1	SPRING ELEMENT		

***86348640 AND 86348960 ARE INCLUDED WITH CONTROL PANEL HARNESS.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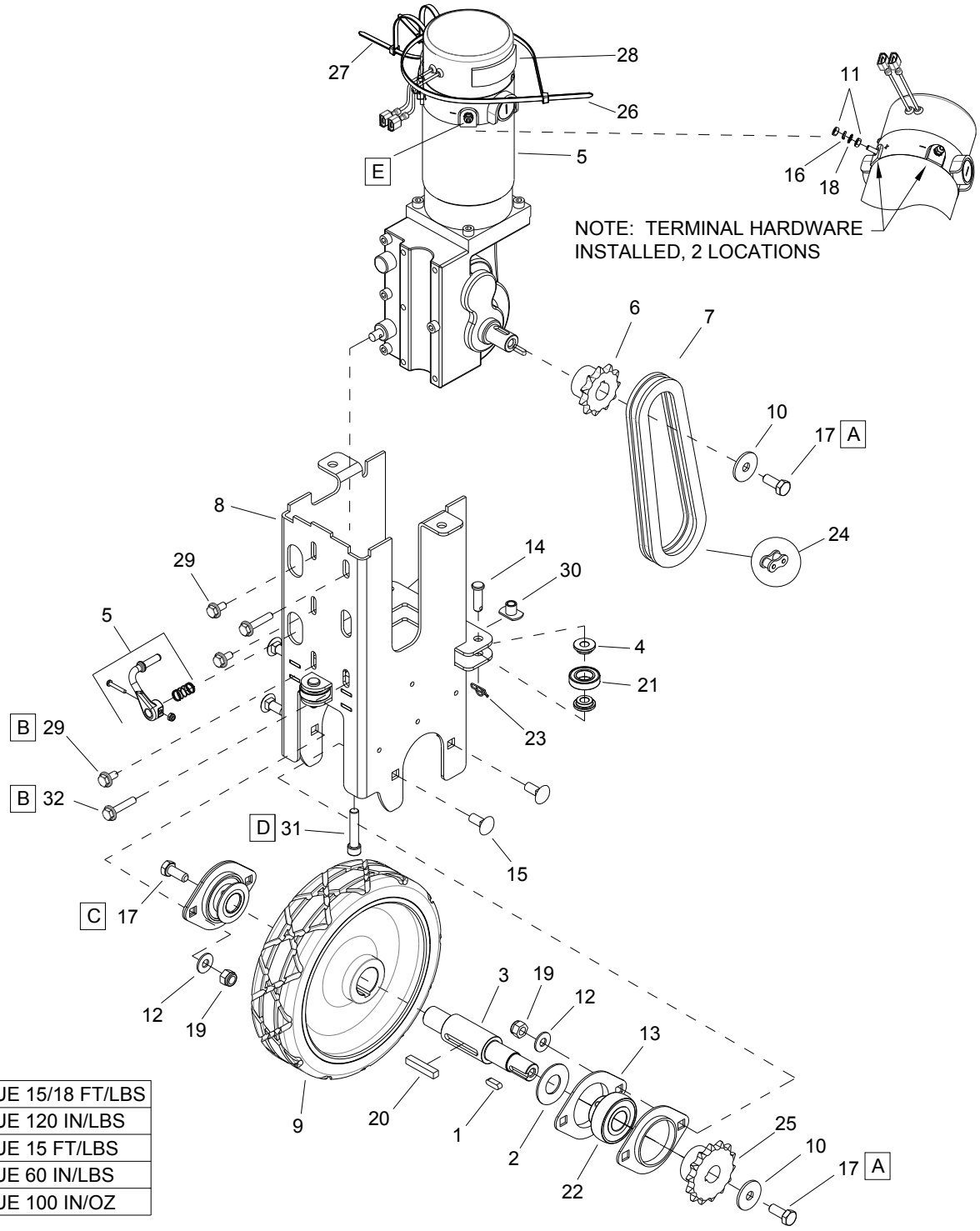
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86344680	1	LABEL, RIGHT, iVAC 24 ATV		
2	86344670	1	LABEL,LEFT, iVAC 24 ATV		
3	86004970	1	LABEL WINDSOR LOGO DOMED		
4	86358080	1	LABEL, CONTROL PANEL, CV24		
5	86335710	1	LABEL, BATTERY WIRING		
6	86334860	2	LABEL, HEPA FILTRATION		



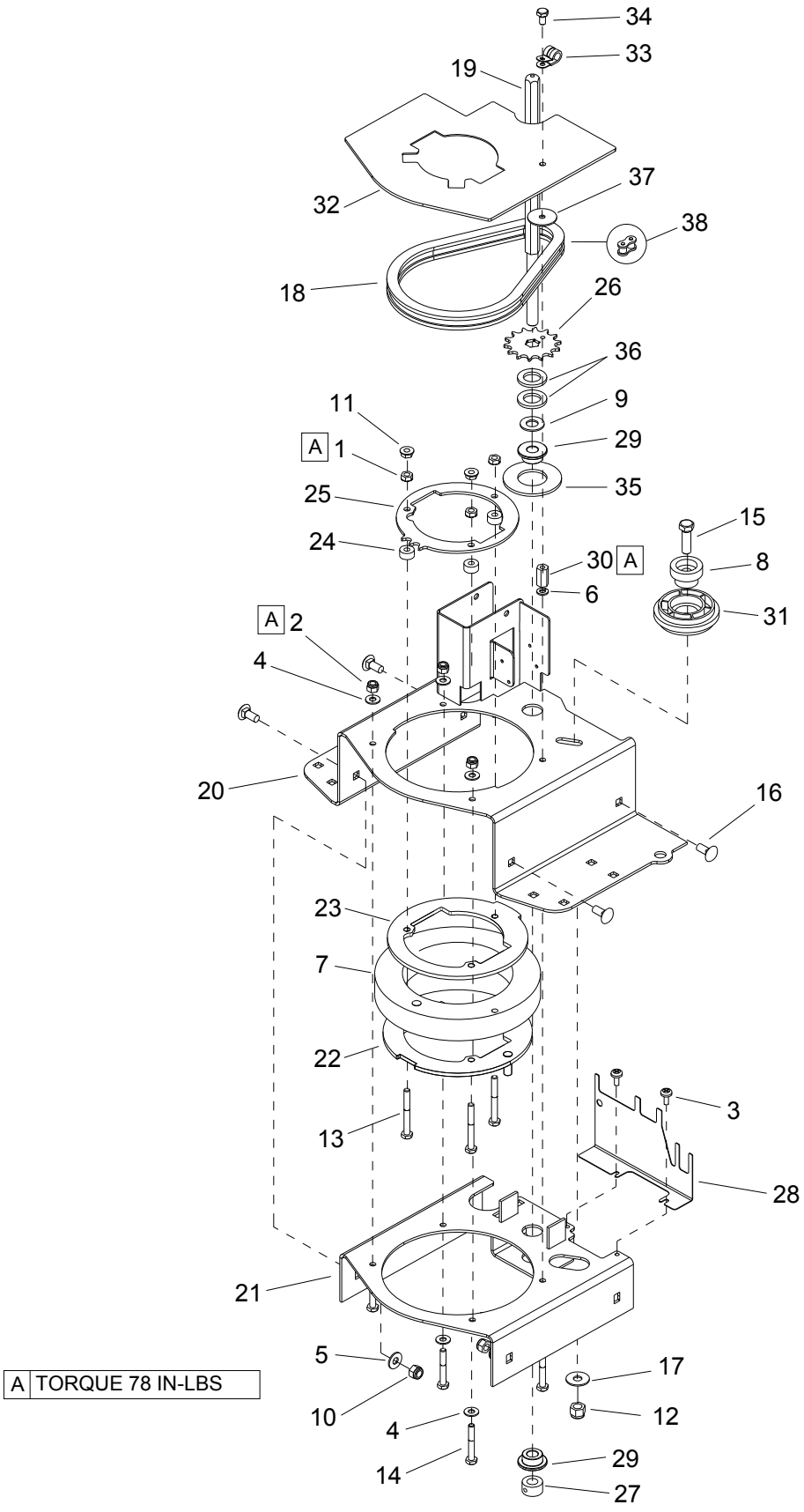
	A	TORQUE 15/18 FT/LBS
	B	TORQUE 120 IN/LBS
	C	TORQUE 15 FT/LBS
*	D	TORQUE 60 IN/LBS
	E	TORQUE 100 IN/OZ

* AFTER B

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86326710	1	KEY, 5 X 5 X 16		
2	86321670	2	WASHER, WHEEL SPACER		
3	86319810	1	AXLE, DRIVE WHEEL		
4	86319670	6	SLEEVE, BEARING		
5	86364010	1	MOTOR, TRACTION		▲
-	86378440	1	KIT, BRUSHES, DRIVE MOTOR		●
-	98408960	-	BRAKE REPLACEMENT SMALL STAND ON		
6	86342280	1	SPROCKET, DRIVE 11T		
7	86342320	1	CHAIN, ISO 08B, 12.7MM PITCH		
8	86319620	1	FRAME, LOWER DRIVE		
9	86369170	1	WHEEL, 8.00 X 2.00, GRAY X-GRV		
10	86279630	3	WASHER, .344IDX1.130ODX.09T PLT		
11	86288500	4	NUT, M4-.7 HEX STL CL8 ZNPLT		
12	86010670	4	WASHER, 5/16 X 3/4 SS		
13	86008610	4	FLANGE, BEARING PRESSED STEEL		
14	86272550	3	PIN, CLEVIS, 5/16 X 1.00 PLTD		
15	86276070	4	SCR, 5/16-18 X 3/4 CARRIAGE SS		
16	86134850	2	WASHER, SPRNG LK, M4, DIN127B, SST		
17	86136640	3	SCR, M8 X 20 HHMS		
18	86372230	2	WASHER, EXT TOOTH STAR		
19	86270830	4	NUT, 5/16-18 HEX NYLOCK SS		
20	86219640	1	KEY, 1/4 SQ. X 1.5		
21	86332380	3	ROLLER, 1.1 OD		
22	86001030	2	BEARING, BALL 3/4 BORE SPHERED		
23	86008660	3	COTTER 5/16" RING		
24	86232780	-	CHAIN MASTER LINK 12.7MM		
25	86319650	1	SPROCKET, DRIVE, 14T		
26	86002830	1	CABLE TIE .375 X 24.7		
27	86264920	2	CABLE TIE, 7" UL/CSA		
28	86362040	2	TAPE CLOSED CELL 1/8 X 3/4 X 2 1/2 PSA		
29	86362140	3	SCREW, M6 X 12MM, HEX FLANGE, PLTD		
30	86348490	1	NUT, WELD 5/16-18 X .38, TAB BASE, STL		
31	86362130	1	SCREW, 5/16 X 1.50, SHCS, SS, FT		
32	86362150	2	SCREW, M6 X 30MM, HEX FLANGE, PLTD		

▲ FOR INSTALLATION OF 8.636-401.0 WITH BRAKE HARNESS AND LOWER HARNESS, ORDER KIT 8.636-900.0

● FOR CCL TRACTION MOTOR, USE 86331990 BRUSH SET.
FOR LINIX TRACTION MOTOR, USE 86378410 BRUSH SET.
BOTH SETS INCLUDED IN KIT.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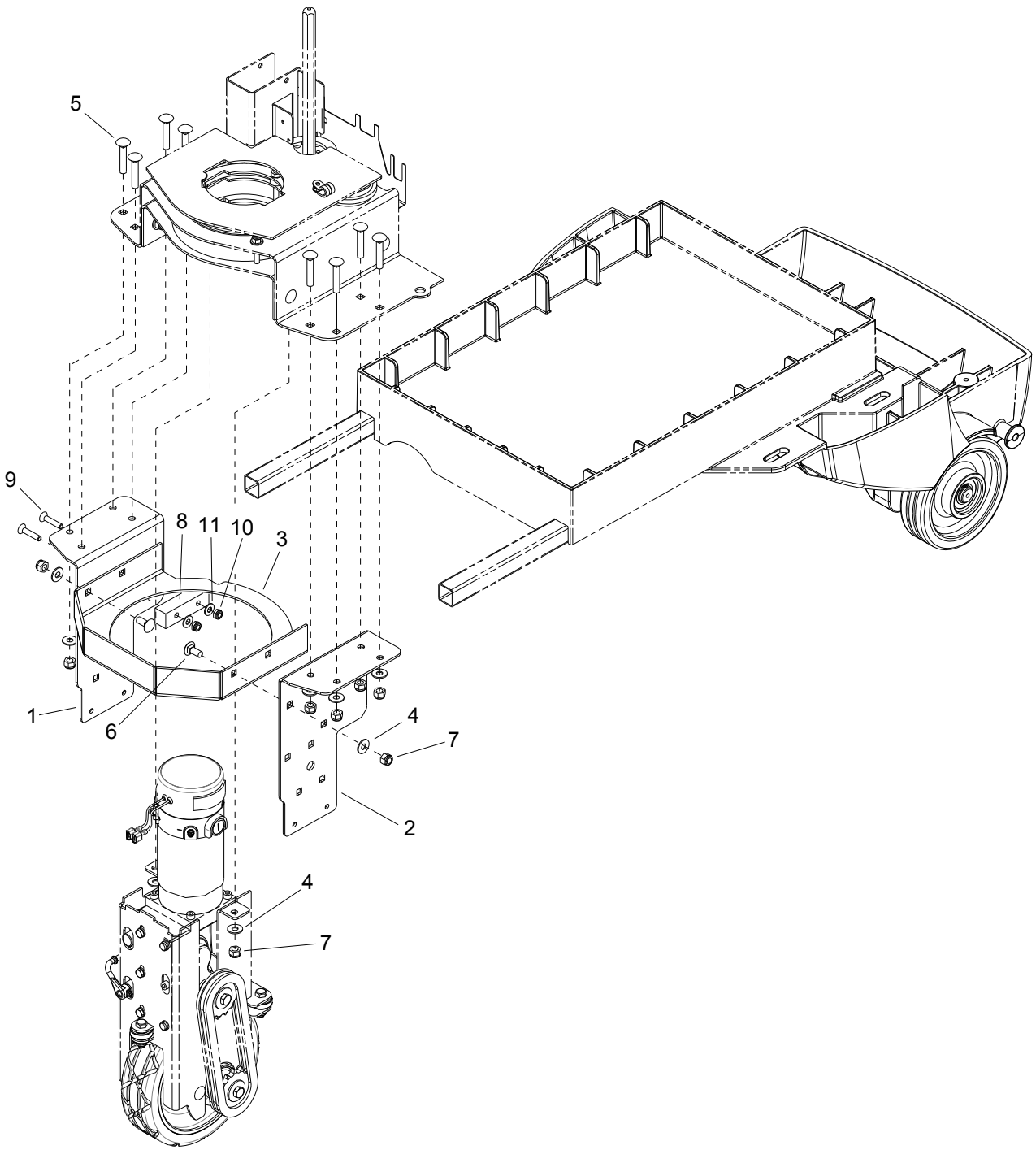
A TORQUE 78 IN-LBS

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86005710	3	NUT, 1/4-20 HEX W/STAR		
2	86005810	3	NUT, 1/4-20 HEX NYLOCK SS		
3	86006800	2	SCR, 10-32 X 1/2 PHTR PLT		
4	86010630	7	WASHER, 1/4 X 5/8 FLAT SS		
5	86010670	4	WASHER, 5/16 X 3/4 SS		
6	86010780	1	WASHER, 1/4 SPLIT		
7	86014440	1	BEARING, DRIVE		
8	86224270	1	SLEEVE, CHAIN TENSIONER		
9	86259430	1	WASHER, 12.5 ID X 26 OD X 2T FLAT		
10	86270830	4	NUT, 5/16-18 HEX NYLOCK SS		
11	86271370	2	NUT, 1/4-20 HEX FLG		
12	86271930	1	NUT, 3/8-16 HEX NYLOCK SS		
13	86273100	3	SCR, 1/4-20X2-1/4 HXHD CAP		
14	86273100	4	SCR, 1/4-20 X 1.75 HHCS		
15	86279510	1	SCR, 3/8-16 X 1.25 HHCS SS		
16	86276070	4	SCR, 5/16-18 X 3/4 CARRIAGE SS		
17	86275190	1	WASHER, 3/8 X 1 FLAT NP		
18	86319560	1	CHAIN, ISO O8B, 12.7MM PITCH		
19	86319590	1	SHAFT, STEERING SPROCKET		
20	86319600	1	BRACKET, DRIVE MOUNT		
21	86319610	1	BRACKET, BEARING CLAMP		
22	86319680	1	PLATE, LOWER CLAMP		
23	86319740	1	PLATE, UPPER CLAMP		
24	86322030	3	SPACER		
25	86322040	1	PLATE, CHAIN RING		
26	86322050	1	SPROCKET, STEERING, 14T		
27	86322060	1	COLLAR, 12MM ID		
28	86327110	1	BRACKET, CONNECTORS		
29	86328050	2	WASHER, SHOULDER.48ID X 1.25OD		
30	86329350	1	NUT, 1/4-20 X 7/8 HEX COUPLING SS		
31	86330720	1	CHAIN TENSIONER		
32	86329340	1	PLATE, CHAIN GUARD		
33	86363870	1	CLAMP, 5/8” OD CUSHIONED		
34	86274760	1	SCR,1/4-20 X 1/2 HHCS		
35	86368600	1	WASHER, 2.5OD X 1.25ID X .125THK, DELRIN		
36	86279420	2	WASHER .75IDX1.25ODX.125THK NY		
37	86278940	1	WASHER 1/4 ID X 1-1/4 OD PLT		
38	86232780	-	CHAIN MASTERLINK 12.7MM		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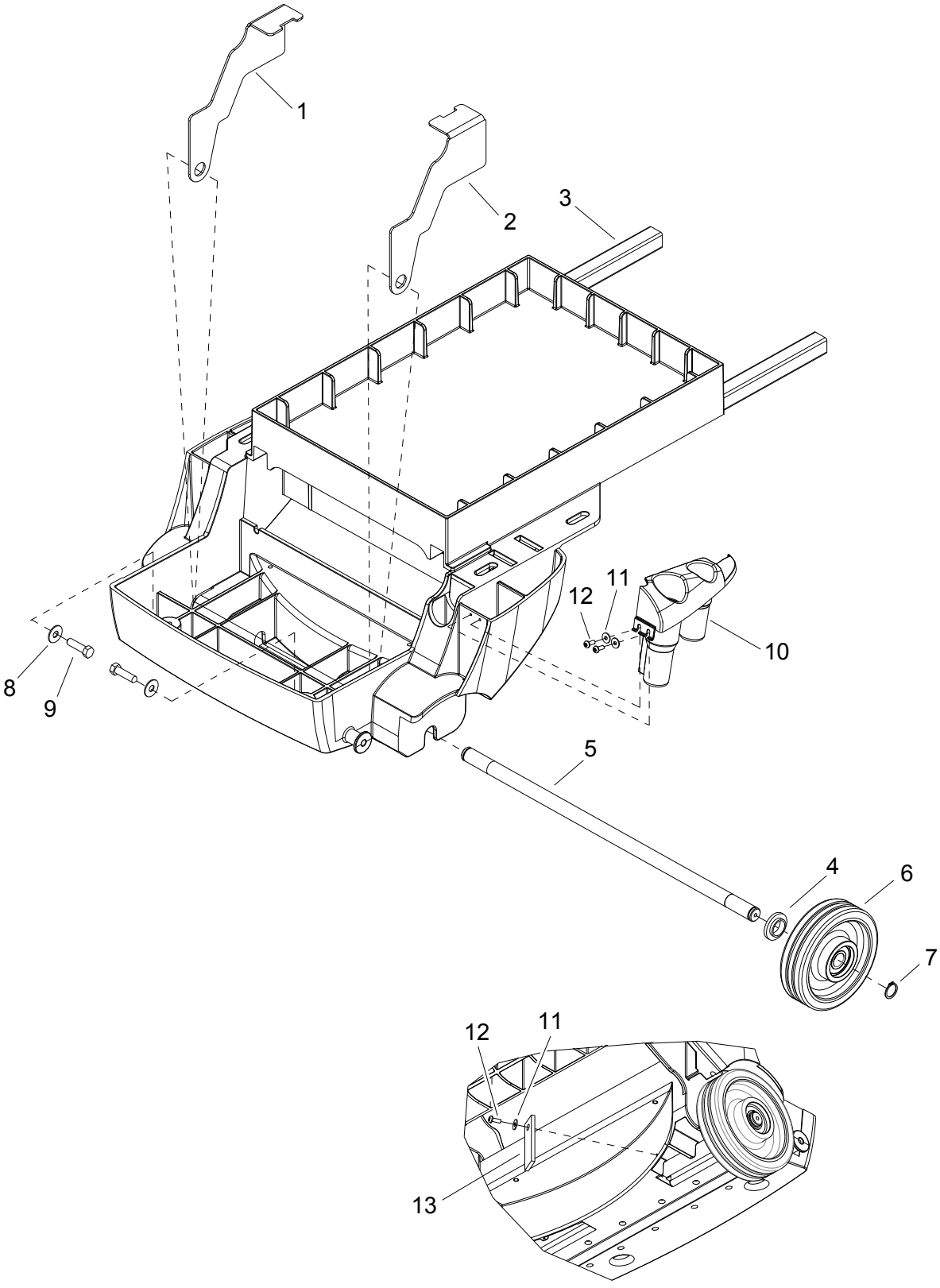
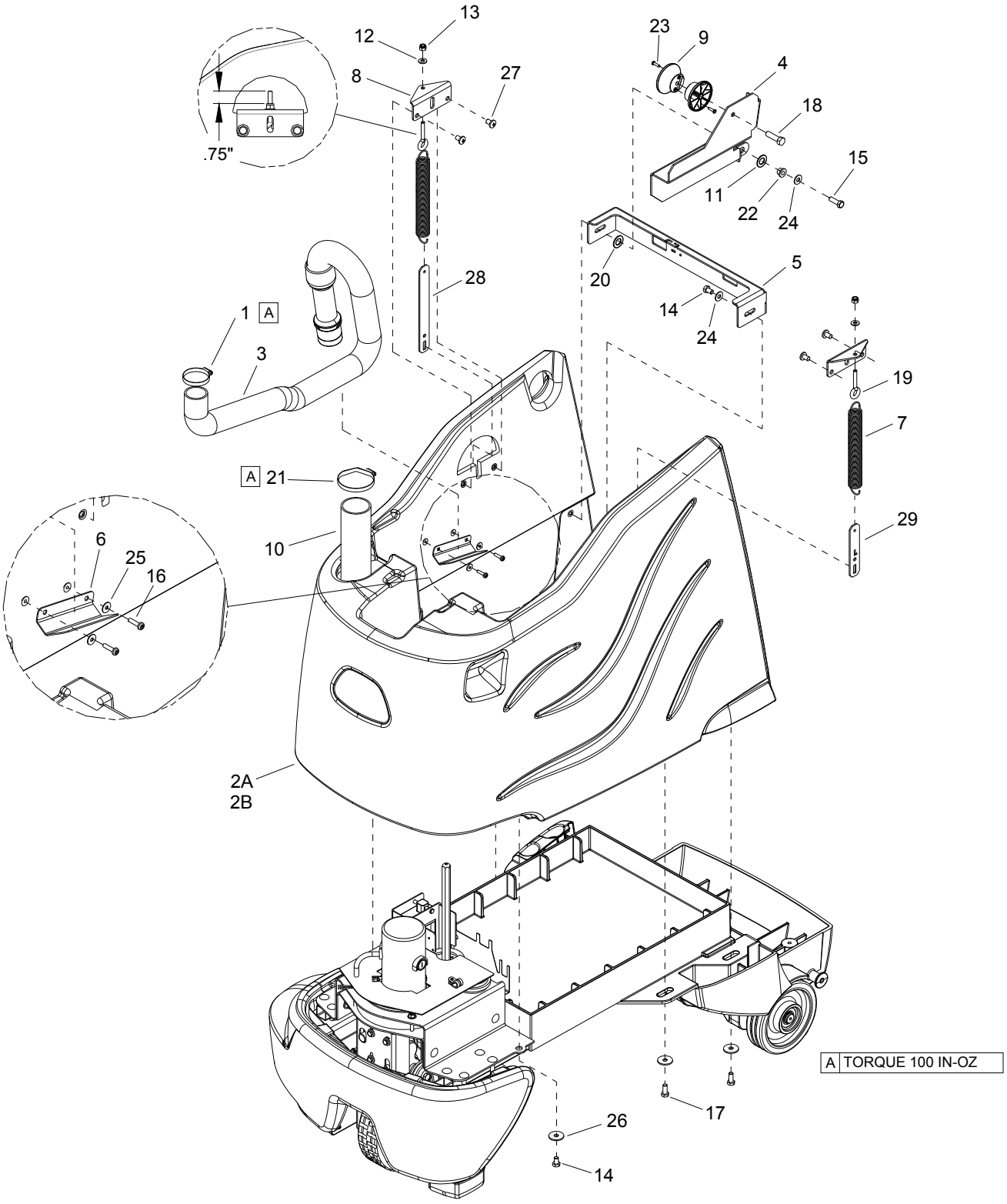
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86344620	1	BRACKET, LINKAGE MOUNT		
2	86319730	1	BRACKET, LINKAGE MOUNT, LEFT		
3	86331630	1	BRACKET, ROLLER GUIDE		
4	86010670	12	WASHER, 5/16 X 3/4 SS		
5	86276690	8	SCR, 5/16-18 X 1.75 CARR SS		
6	86276070	2	SCR, 5/16-18 X 3/4 CARRIAGE SS		
7	86270830	12	NUT, 5/16-18 HEX NYLOCK SS		
8	86344630	1	BLOCK, MOTOR LIFTER		
9	86277650	2	SCR, 1/4-20 X 1.25 PPHMS SS		
10	86271870	2	NUT, 1/4-20 HEX NYLOCK THIN SS		
11	86010630	2	WASHER, 1/4 X 5/8 FLAT SS		



BOTTOM OF FRAME

REF	PART NO.	QTY	DESCRIPTION	SERIALNO. FROM	NOTES
1	86326260	1	BRACKET, FRAME LEFT		
2	86326250	1	BRACKET, FRAME RIGHT		
3	86350170	1	ASM FRAME, CV24		INCLUDES ITEM 8 & 9
4	86326220	2	SPACER, FLG .887ID X 1.055D X .345LG		
5	86318030	1	AXLE, 20MM X 562 MM		
6	86369160	2	WHEEL, 6.00X1.58, GRY W/BEARINGS	(2*)	
7	86223470	2	RING, 20MM EXTERNAL SNAP		
8	86279510	2	WASHER 3/8 FLAT		
9	86340950	2	SCR, 3/8 X 1.5, LAG, PLTD		
10	86344380	1	HOUSING, ACCESSORY		
11	86173330	3	WASHER, M5, FLAT, ISO7093, SS		
12	86327510	3	SCR, KA50 X 16, WN1412 A2 SS		
13	86256130	1	STRAP, STATIC, .2T X 1W X 3L		

* SEE SERIAL NUMBER PAGE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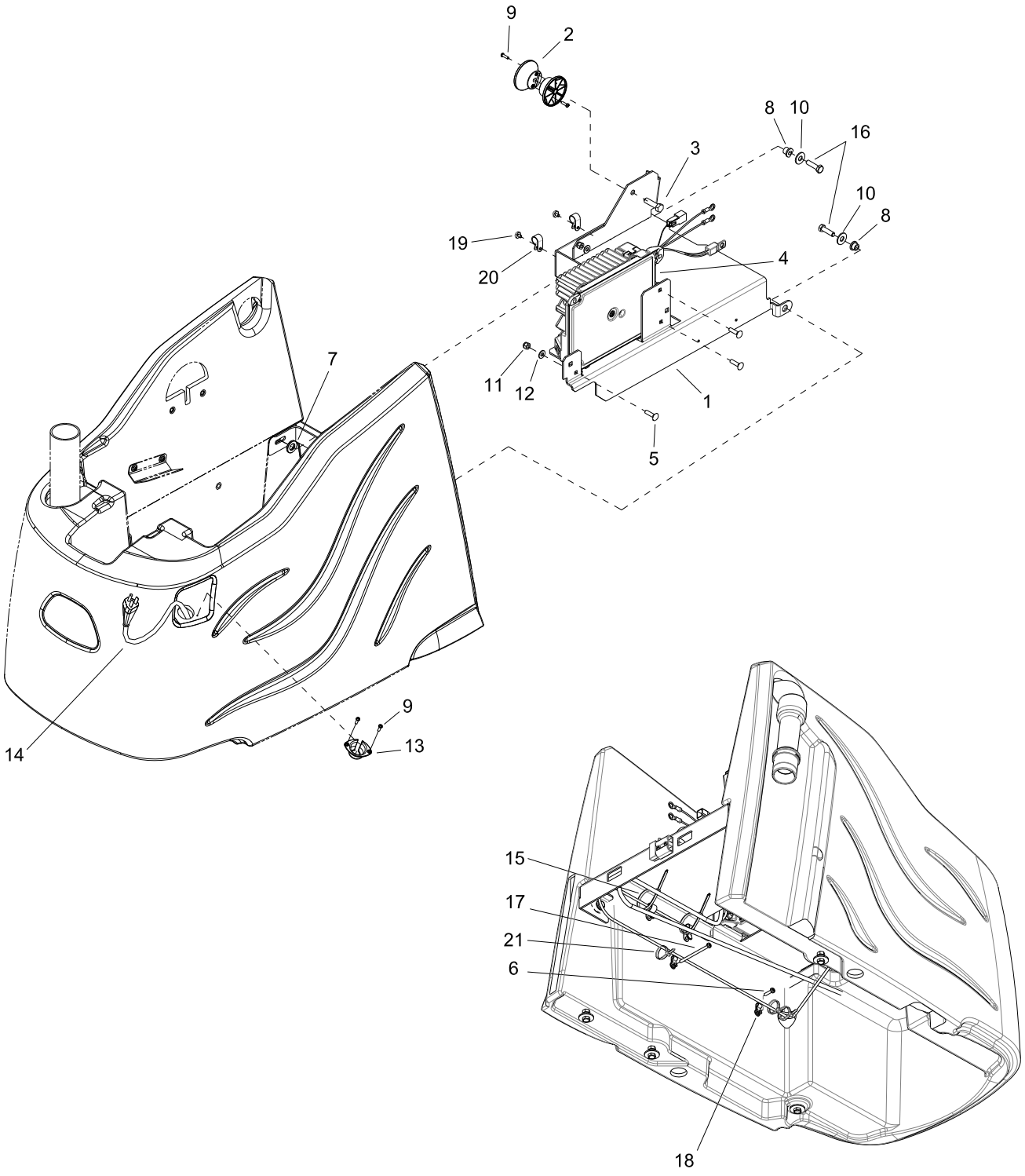
A TORQUE 100 IN-OZ

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86002400	1	CLAMP, 2.00 WORM GEAR X .312		
2A	86346060	1	COVER, TRIM		CV24
2B	86346100	1	COVER, TRIM OBC		CVC24
3	86345730	1	HOSE, Ø1.5", ACCESSORY		
4	86345360	1	BRACKET, ROLLER		
5	86345200	1	BRACKET, BRACE		
6	86345120	1	BRACKET, HOSE SUPPORT		
7	86346000	2	SPRING, EXT, 1.0 OD X 8.5L		
8	86341570	2	BRACKET, SPRING MOUNT		
9	86340780	2	ROLLER, HOSE		
10	86340310	1	HOSE, Ø2" W/ 90° CUFF		
11	86259410	1	WASHER THRUST.51 ID X1ODX.063		
12	86010630	2	WASHER, 1/4 X 5/8 FLAT SS		
13	86005810	2	NUT, 1/4-20 HEX NYLOCK SS		
14	86275180	3	SCR, 5/16-18 X 1/2 HHCS GR5		
15	86006750	1	SCR, 5/16-18 X 1.00 HHCS GR5		
16	86273980	2	SCR, 10-32 X 3/4 PPHMS SS		
17	86006760	3	SCR, 5/16-18 X 3/4 HHCS GR5		
18	86340950	1	SCR, 3/8 X 1.5, LAG, PLTD		
19	86270310	2	EYEBOLT, 1/4-20 X 1.5		
20	86259400	1	WASHER THRUST.51 ID X 1 ODBRO		
21	86002380	1	CLAMP, 2.25 WORM GEAR		
22	86228990	1	BEARING FLG .314IDX.502OD		
23	86173140	2	SCR,KA40X16,PT OVAL,WN1412,PL		
24	86010670	2	WASHER, 5/16 X 3/4 SS		
25	86010650	2	WASHER, #10 X 9/16 FLAT		
26	86279630	5	WASHER, .344IDX1.13ODX.09T PLT		
27	86277480	4	SCREW 5/16-18X1/2 PTHMS SS		
28	86352410	1	PLATE, SPRING EXTENSION		
29	86352420	1	PLATE, SPRING EXTENSION, LEFT		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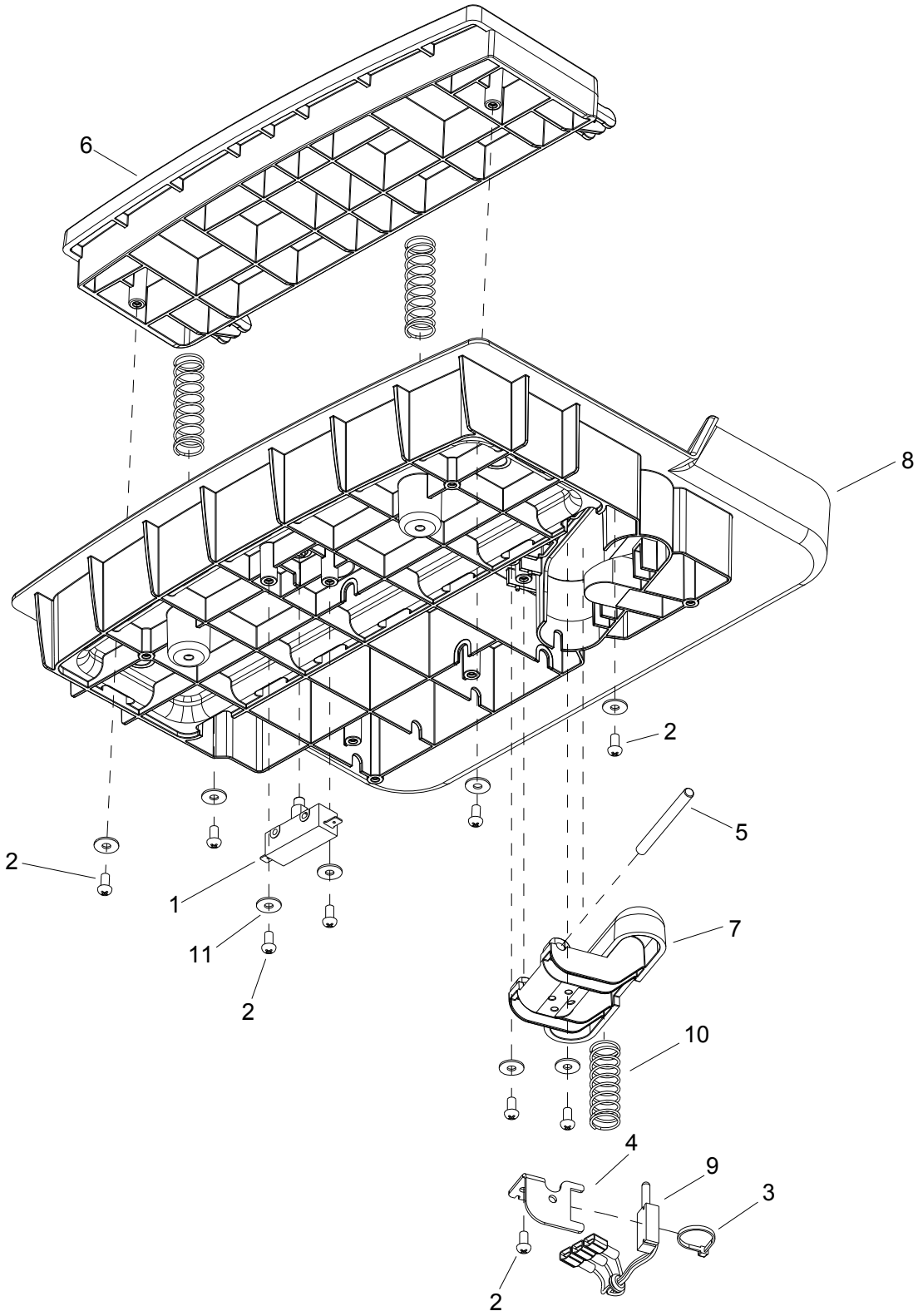
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345140	1	BRACKET, CHARGER		
2	86340780	2	ROLLER, HOSE		
3	86340950	1	SCR, 3/8 X 1.5, LAG, PLTD		
4	86372000	1	CHARGER, DELTA Q, ASM, 36V	(1*)	
5	86276960	3	SCREW, 1/4-20 X 1 CARRIAGE SS		
6	86273980	1	SCREW, 10-32 X .75 PHPNHMS SS		
7	86259410	2	WASHER, THRUST .51 ID X1ODX.063		
8	86228990	2	BEARING FLG .314IDX.502OD		
9	86173140	4	SCR,KA40X16,PT OVAL,WN1412,PL		
10	86010670	2	WASHER, 5/16 X 3/4 SS		
11	86005810	3	NUT, 1/4-20 HEX NYLOCK SS		
12	86010630	3	WASHER, 1/4 ID X 5/8 OD SS		
13	86344430	1	GROMMET, CHARGE PLUG		
14	86373320	1	CORD ASM, 16/3 SJTX12FT IEC		
15	86264940	2	CABLE TIE, 11.38" UL/CSA		
16	86006750	2	SCREW 5/16-18 X 1"HHCSGR5PLT NP		
17	86348290	1	SCR, 10-32 X 3 PPHMS SS		
18	86198450	2	CLAMP, 5/16 DIA NYLON		
19	86359740	2	SCR, 10-32 X 5/16 HWHTR		
20	86198470	2	CLAMP, 9/16 DIA NYLON		
21	86264930	3	CABLE TIE, 3.5" UL/CSA		

* SEE SERIAL NUMBER PAGE


6
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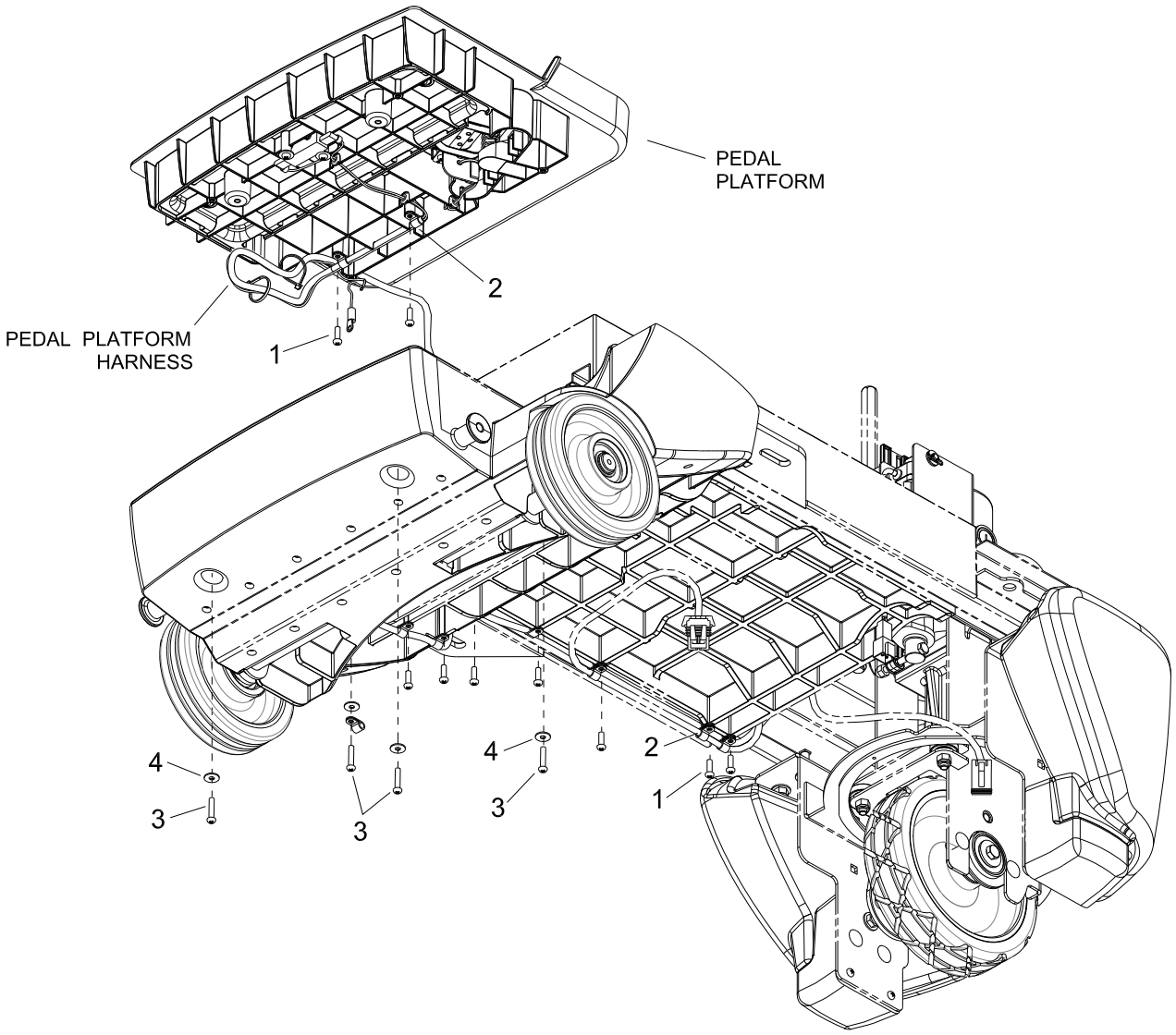
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86007110	1	SWITCH, 25A SPST 125-250V SNAP		
2	86172980	9	SCR, KA50X10, PT OHS, WN1412, PLTD		
3	86264930	1	CABLE TIE, 3.5" UL/CS		
4	86326150	1	BRKT, LINEAR POT		
5	86326140	1	PIN, DOWEL .25 X 2.75, STEEL		
6	86318010	1	PEDAL, HEEL		
7	86318000	1	PEDAL, ACCELERATOR		
8	86317990	1	PLATFORM, OPERATOR		
9	86311560	1	POTENTIOMETER ASM, LINEAR		
10	86254970	3	SPRING, COMP 18MM OD X 83 X 2		
11	86173330	8	WASHER, M5, FLAT, ISO7093, SS		


PEDAL
PLATFORM
2
PEDAL PLATFORM
HARNESS
1
4
3
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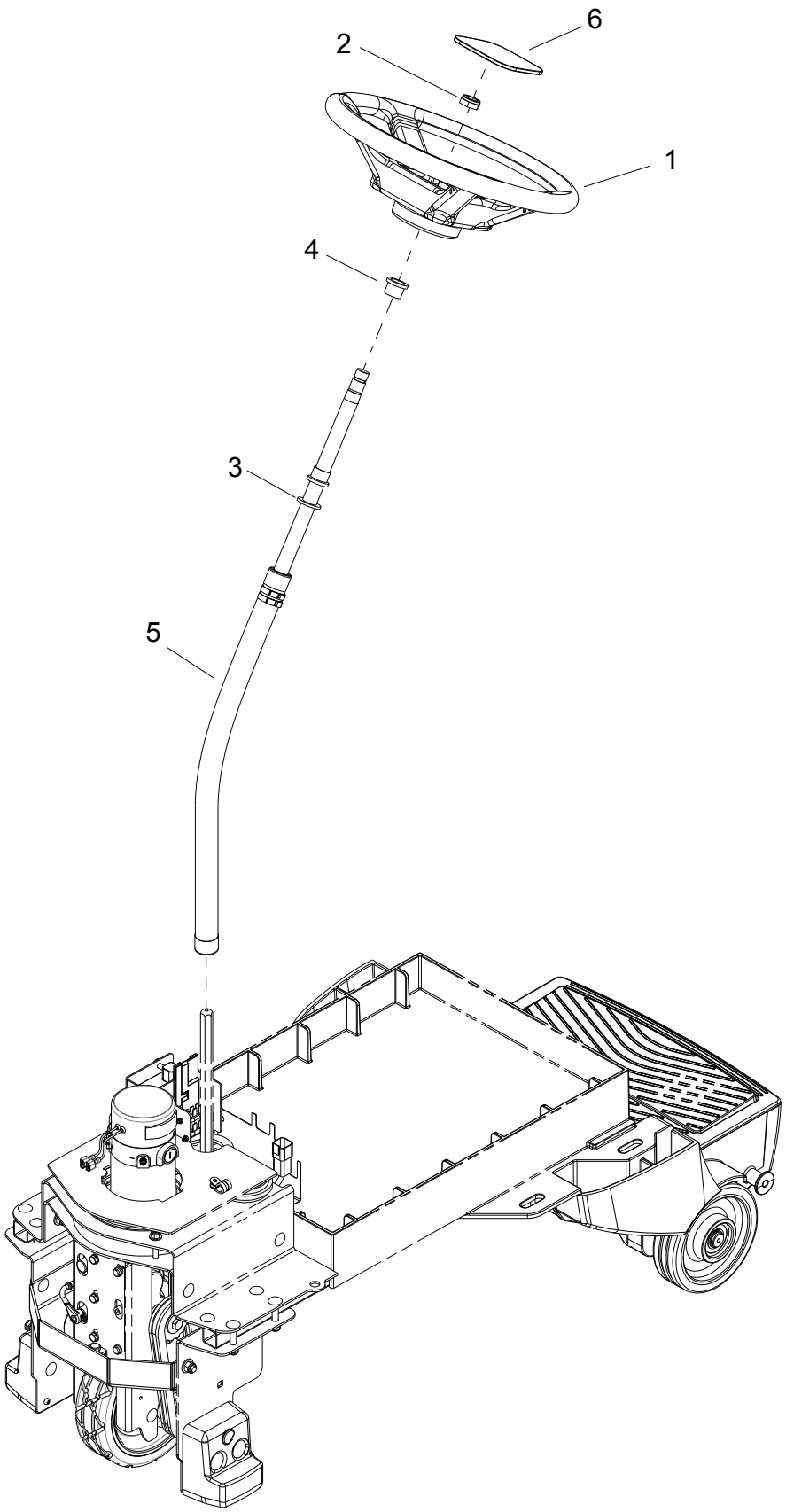
1

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86327510	9	SCR, KA50 X 16, WN1412 A2 SS		
2	86198440	15	CLAMP, 1/4 PLASTIC CABLE		
3	86327910	4	SCR, KA50X25, PT OHS, WN1412, PLTD		
4	86173330	4	WASHER, M5, FLAT, ISO7093, SS		


6
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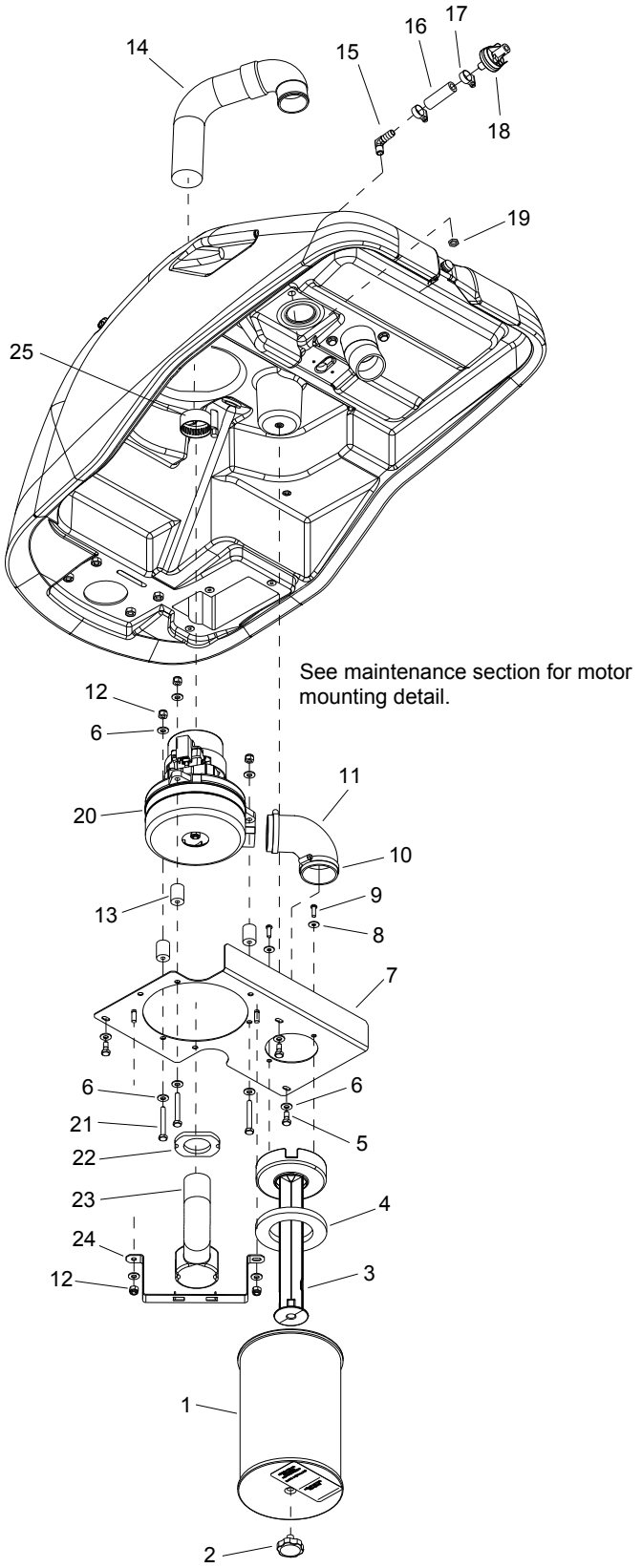
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86259610	1	WHEEL STEERING 40 SPLINE HUB		
2	86271610	1	NUT 5/8-18 HEX NYLOCK THN		
3	86279420	1	WASHER,.75IDX1.25ODX.125THK NY		
4	86228790	1	BEARING FLANGE .88ODX.75IDX.75		
5	86378370	1	ASM, SHAFT, STEERING, CHARIOT 2		
6	86234810	1	COVER, STEERING WHEEL		


14
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25
See maintenance section for motor mounting detail.
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12
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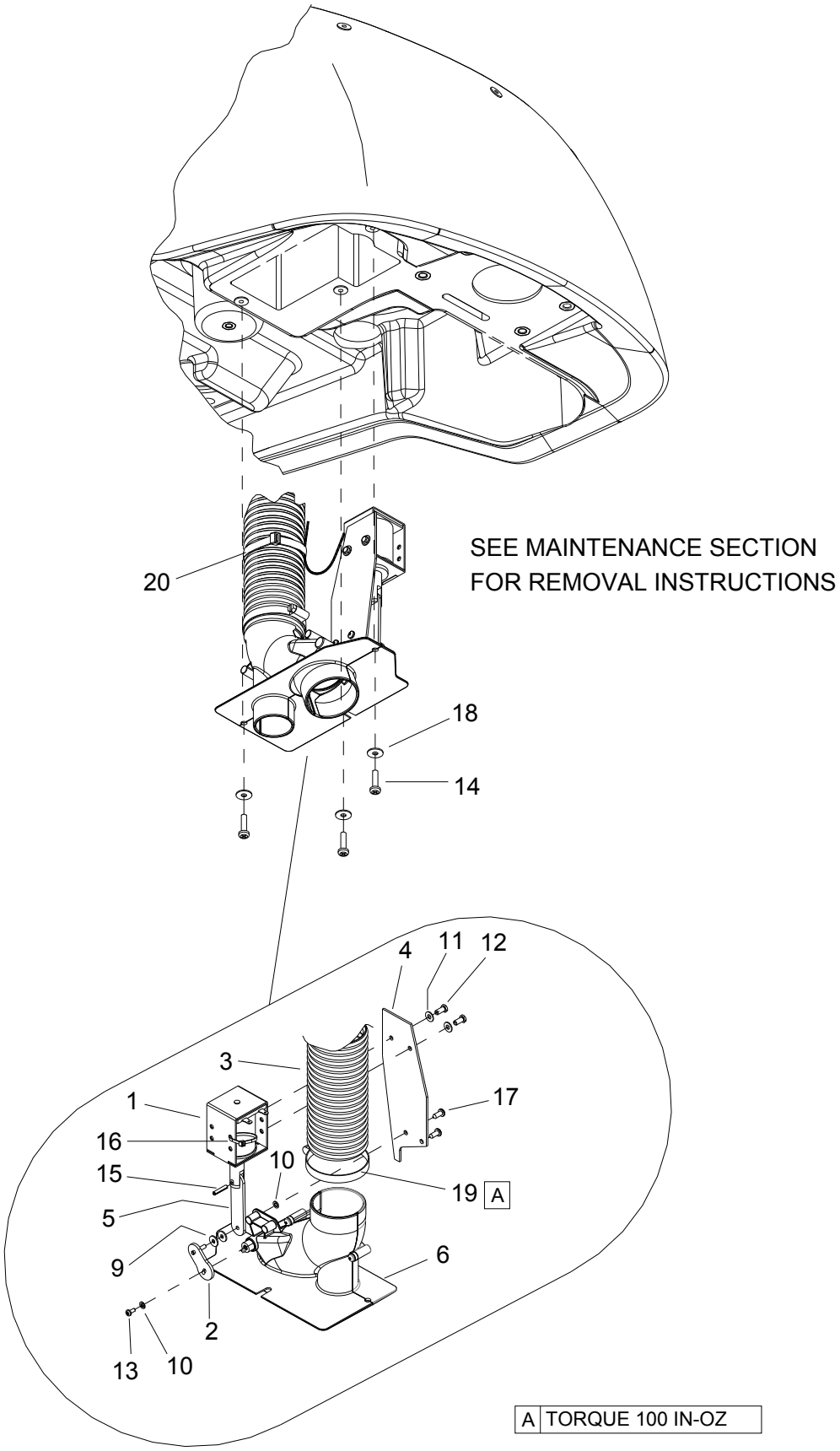
2

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345290	1	FILTER, Ø6X9, HEPA/CARBON		
-	86345280	1	FILTER, Ø6X9, SPUNBOND/CARBON		
-	86345270	1	FILTER, Ø6X9, SPUNBOND		
2	86345610	1	SCR, 3/8-16X1/2, THUMB ROSETTE		
3	86340760	1	MOUNT, POST FILTER		
4	86237440	1	GASKET, 4.06 X 2.50 X .38		
5	86275890	3	SCR, 1/4-20 X 5/8 HHCS5 (PLTD)		
6	86010630	9	WASHER 1/4 ID X 5/8 OD SS		
7	86340710	1	BRACKET, VAC MOUNT		
8	86173330	2	WASHER, M5, FLAT, ISO7093, SS		
9	86014530	2	SCR, KA50X16, PT, WN1412, PLT		
10	86002380	2	CLAMP, 2.25" WORM GEAR		
11	86344760	1	HOSE, Ø2.0 VAC X 5.5		
12	86005810	5	NUT 1/4-20 HEX NYLOCK SS		
13	86327500	3	MOUNT, VIBRATION		
14	86344740	1	HOSE,Ø1.5 BLK PVC VAC X 7		
15	86197590	1	HOSEBARB, 1/8MPT X 3/8 90D		
16	86281680	1	HOSE 3/8ID NYLOBRD X 2"		
17	86233090	1	CLAMP, 1/4 ID HOSE		
18	86257160	1	SWITCH VACUUM 15" H20 NC/NO		
19	86346530	1	NUT, 1/8 IPS BRASS		
20	86012210	1	VAC MOTOR, 36VDC 2ST TD		
21	86273850	3	SCR, 1/4-20 X 2 HHCS SS		
22	86326200	1	GASKET, VACUUM INTAKE		
23	86340660	1	INTAKE, VAC MOTOR		
24	86345190	1	BRACKET, VAC MOTOR		
25	86177050	1	CLAMP, HOSE #20		


20
SEE MAINTENANCE SECTION
FOR REMOVAL INSTRUCTIONS
18
14
4
11
12
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1
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16
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A
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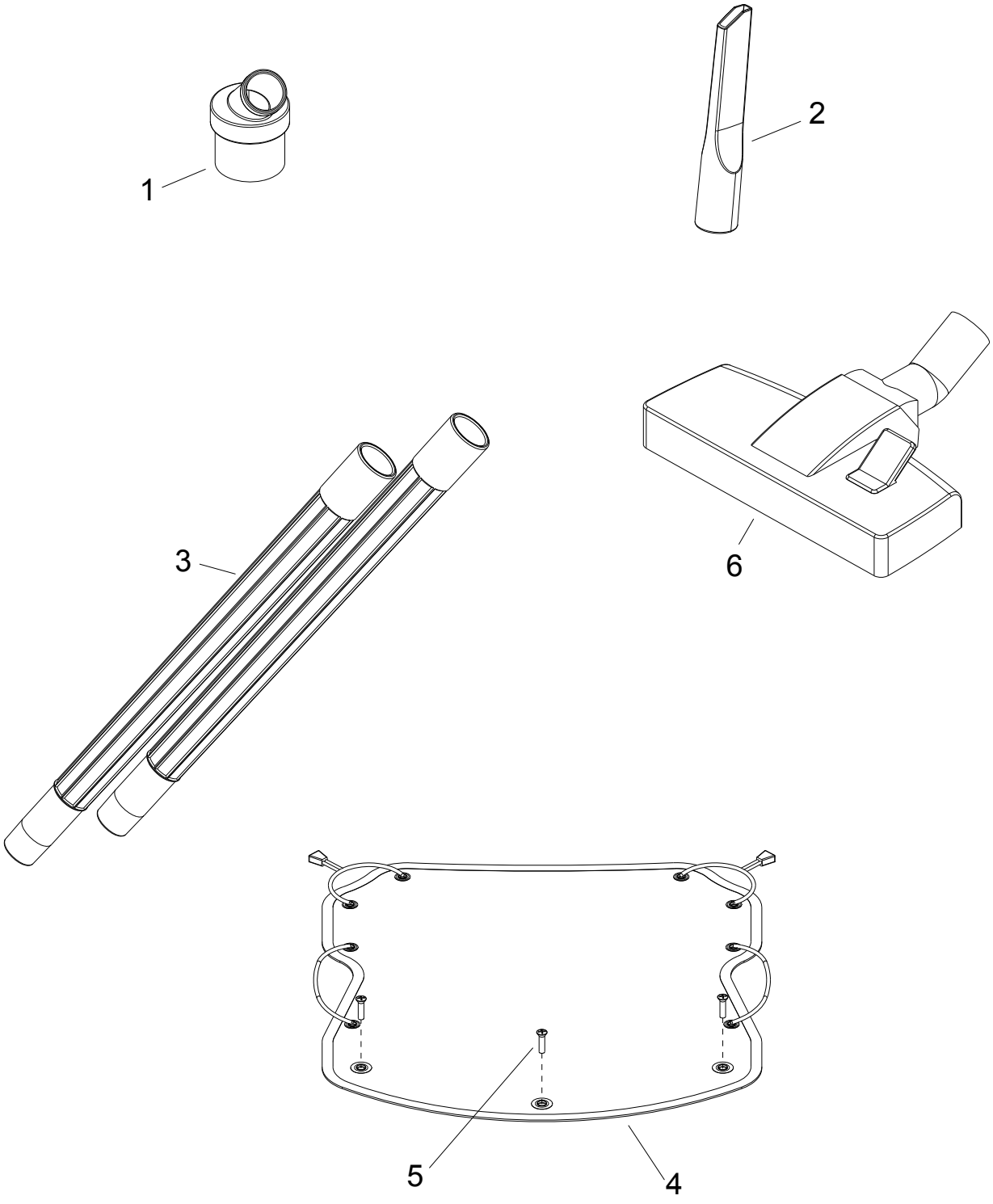
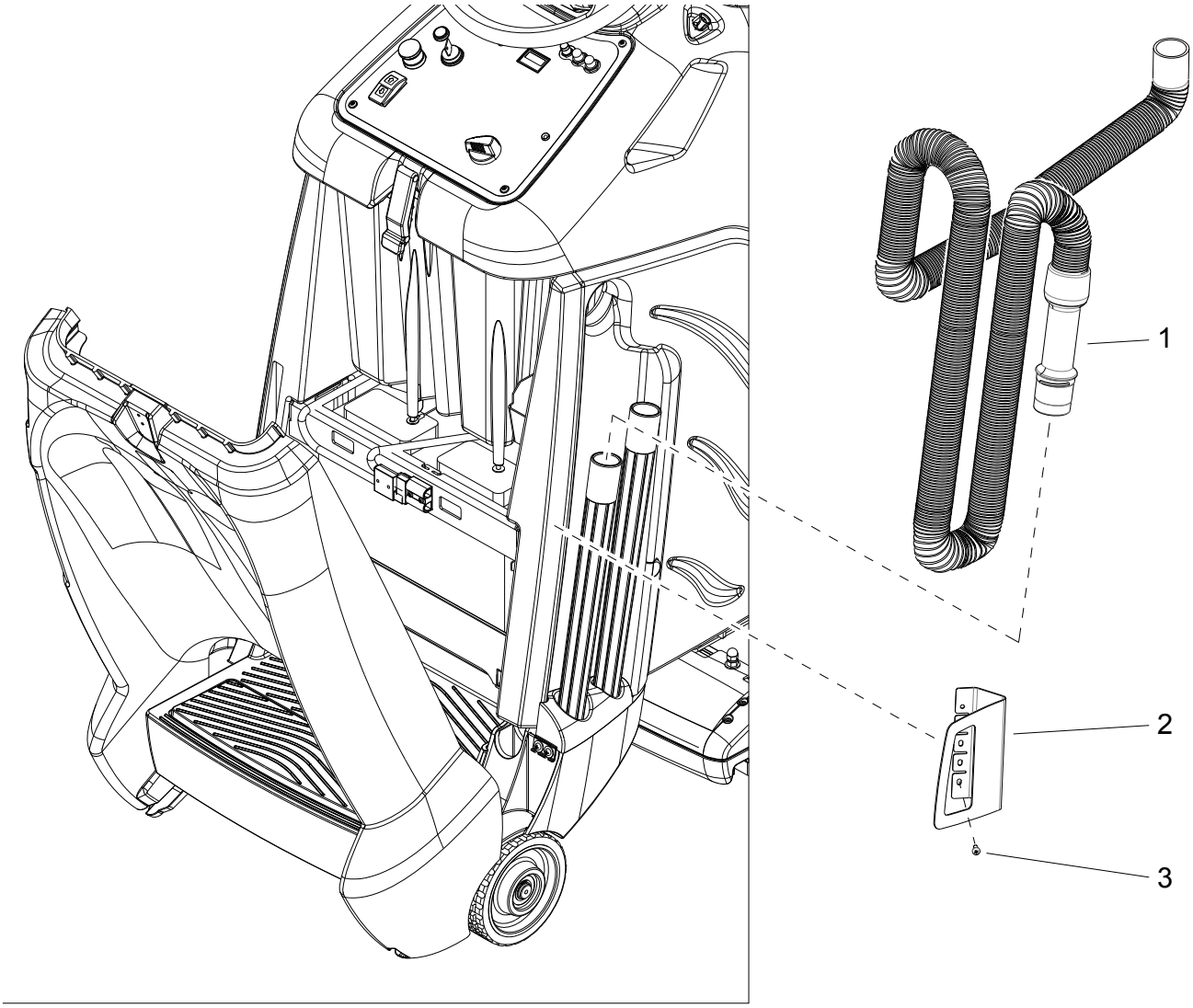
13
10
A
TORQUE 100 IN-OZ

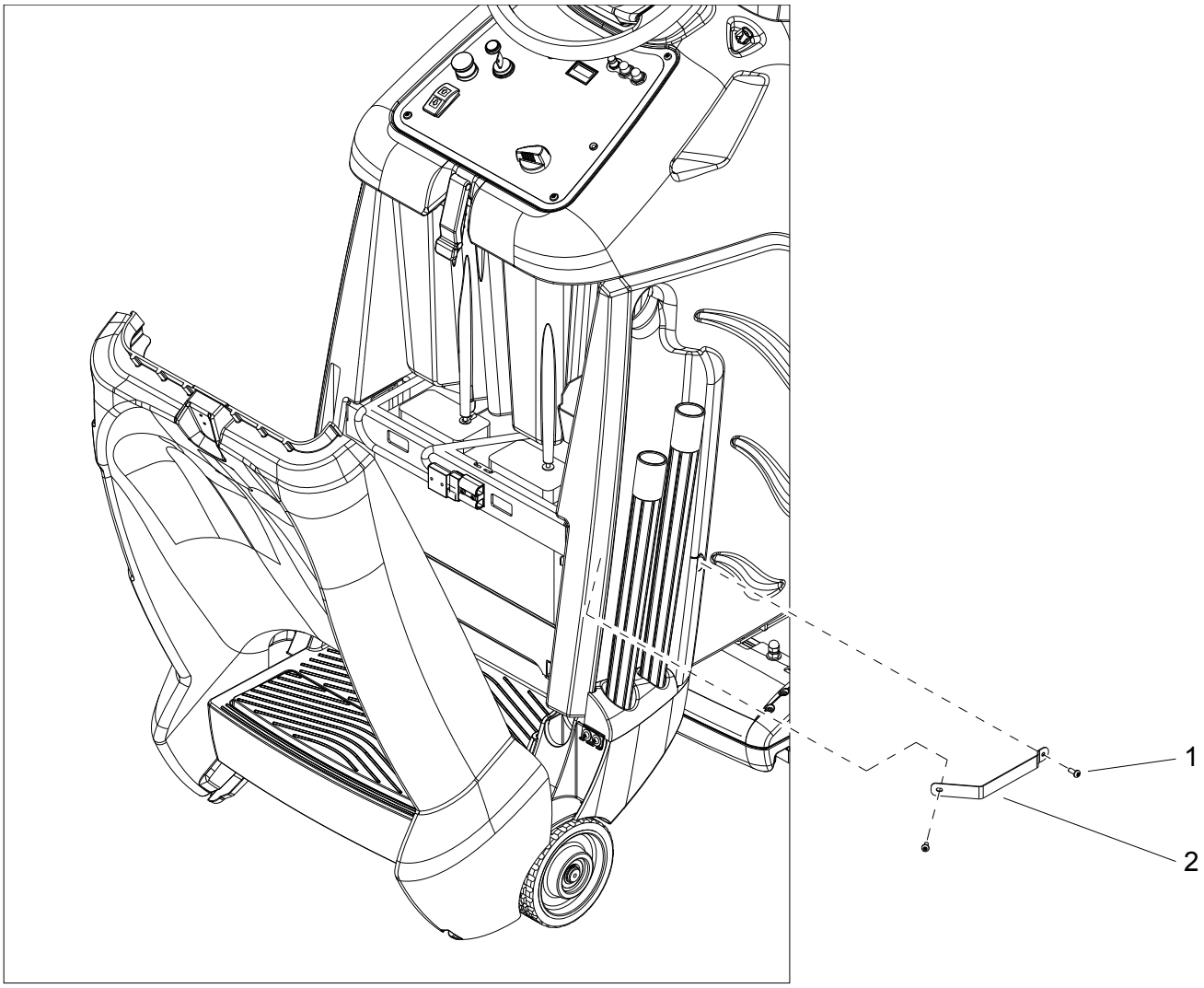
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345660	1	SOLENOID, 24VDC, 198 OZ FORCE		
2	86344930	1	PLATE, FLAP LEVER		
3	86344750	1	HOSE, Ø2.0 VAC X 25		
4	86340750	1	PLATE, SOLENOID		
5	86340700	1	LINK, SOLENOID		
6	86370820	1	DIVERTER VALVE HOUSING ASM		
7	-	-	OPEN		
8	-	-	OPEN		
9	86279450	2	WASHER, #6 X .40 FLAT		
10	86279100	2	WASHER, #4 INT STAR		
11	86278990	2	WASHER, #8 X 3/8 FLAT		
12	86276220	2	SCR, 8-32 X 3/8" HHCS SS		
13	86348980	1	SCR, 4-40 X 3/8 PPHMS PLT		
14	86273980	3	SCR, 10-32 X 3/4 PPHMS SS		
15	86272190	2	PIN, ROLL 1/8" X 5/8" L		
16	86264930	1	CABLE TIE, 3.5IN. UL/CSA		
17	86172940	2	SCR,KA40X10,OHCS,WN1412,PL		
18	86010650	3	WASHER, #10 X 9/16 FLAT		
19	86002380	1	CLAMP, 2.25 WORM GEAR		
20	86264940	1	CABLE TIE, 11.38" UL/CSA		


1
2
3
6
5
4

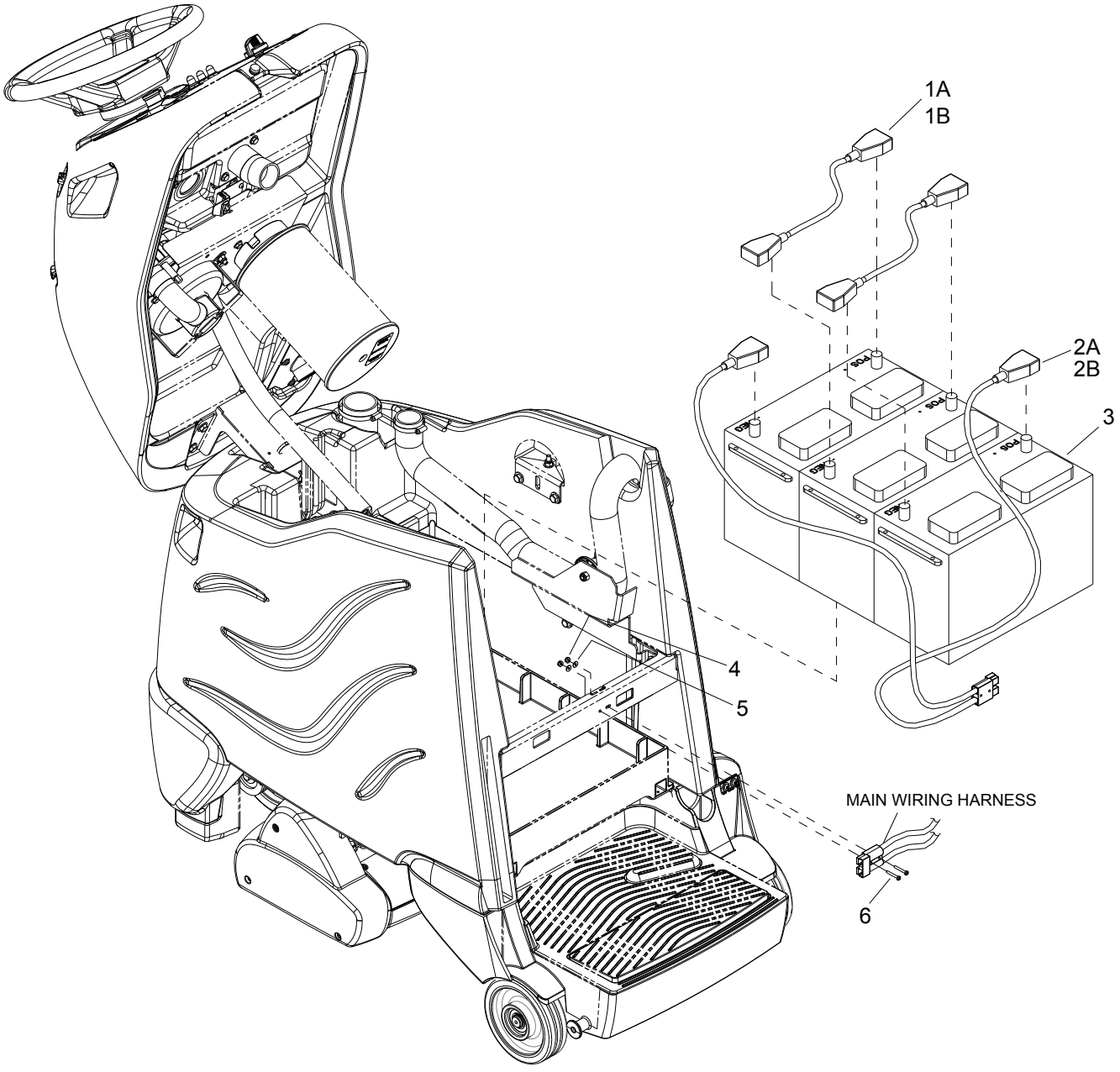
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86344870	1	BRUSH, DUST		
2	69034030	1	NOZZLE, AKW		
3	86000090	2	TUBE, 20” EXTENSION		
4	86344700	1	COVER, CONSOLE		
5	86349130	3	SCR, 10-32 X 3/4 PHOVALMS SS BLK ZINC		
6	69069540	1	COMBINATION NOZLE DN32		OPTIONAL


1
2
3

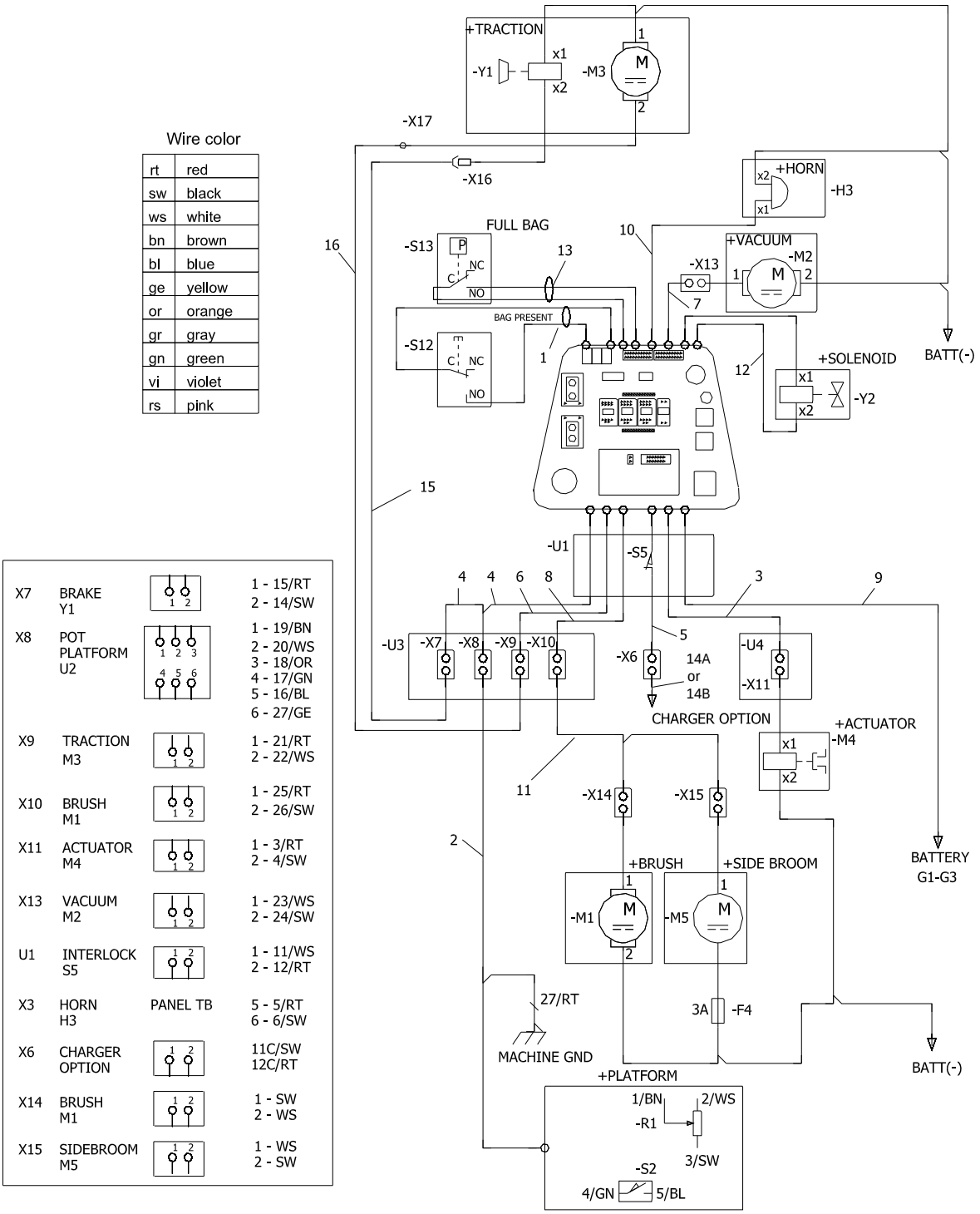
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86349210	1	HOSE, ASM, 1 1/2, 20 ACCESSORY		
2	86350200	1	BRACKET, HOSE SUPPORT		
3	86006870	5	SCREW #10B X 1/2 PHSM BLK		
-	98409580	-	KIT, 20' ACCESSORY HOSE		COMPLETE


1
2

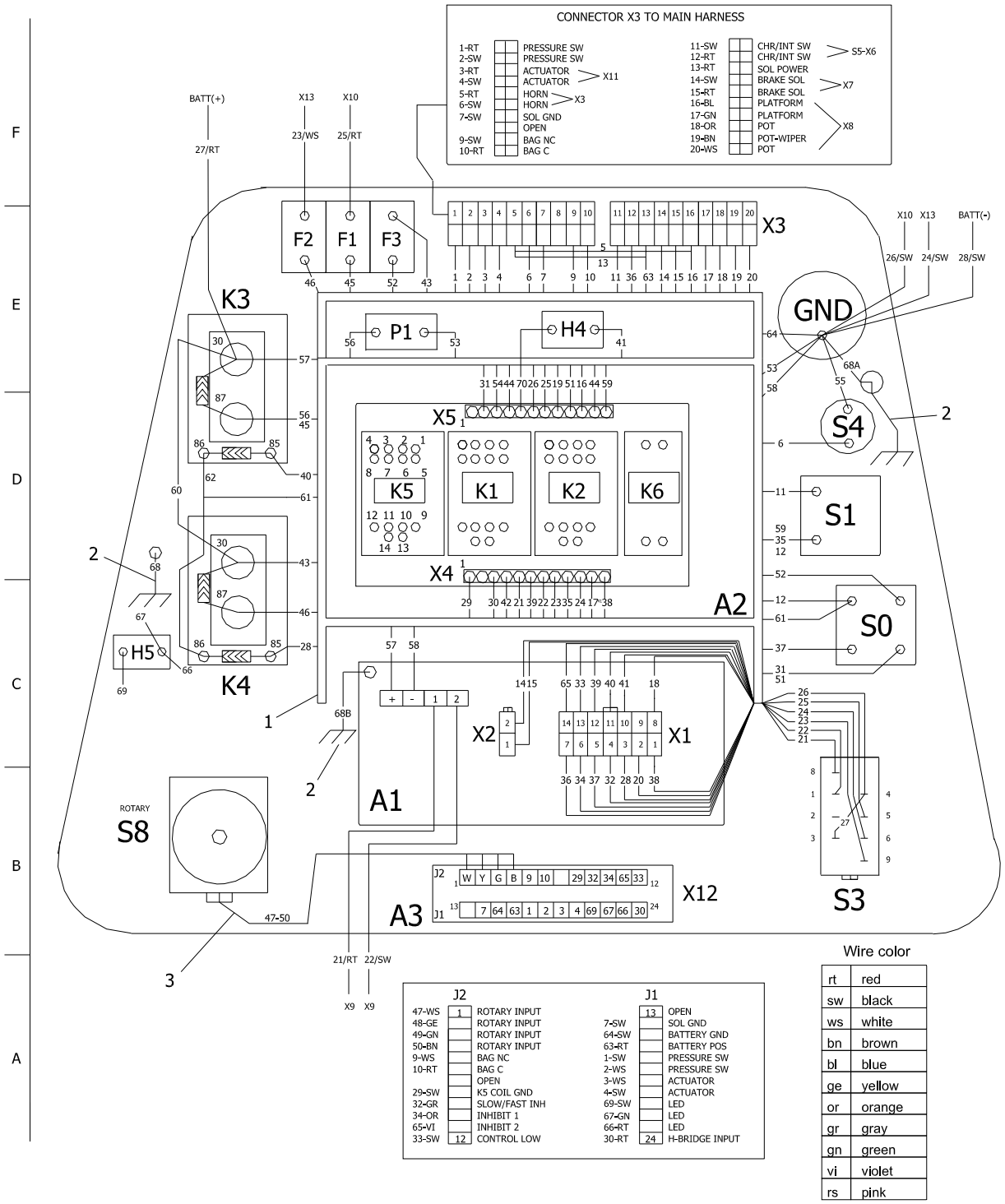
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86345300	1	BRACKET, WAND SUPPORT		
2	86006870	2	SCREW, #10B X 1/2 PHSM BLK		
-	98409570	-	KIT, WAND BRKT		COMPLETE


1A
1B
2A
2B
3
4
5
MAIN WIRING HARNESS
6

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1A	86329720	2	BATT, CBL, ASM, JUMPER		
1B	86334280	2	CBL, 6GA 5/16" RING 15"		NOT SHOWN
2A	86329710	1	BATT,CBL,ASM,W/ANDERSON		
2B	86334270	1	CBL, BATT RING W/ANDERSON		NOT SHOWN
3	86228400	3	BATTERY, 12V, 130AH		
-	86328630	3	BATTERY, 12V 114A/H AGM		NOT SHOWN
4	86270920	2	SP NUT, 6-32 HEX NYLOCK SS		
5	86279450	2	WASHER, #6 FLAT SAE PLTD		
6	86274710	2	SCR, 6-32 X 1.0 PPHMS		
7	86271910	6	NUT, 5/16-18 FLEXLOCK		NOT SHOWN
8	86006560	6	SCREW 5/16-18 X 1 HHCS SS NP		NOT SHOWN

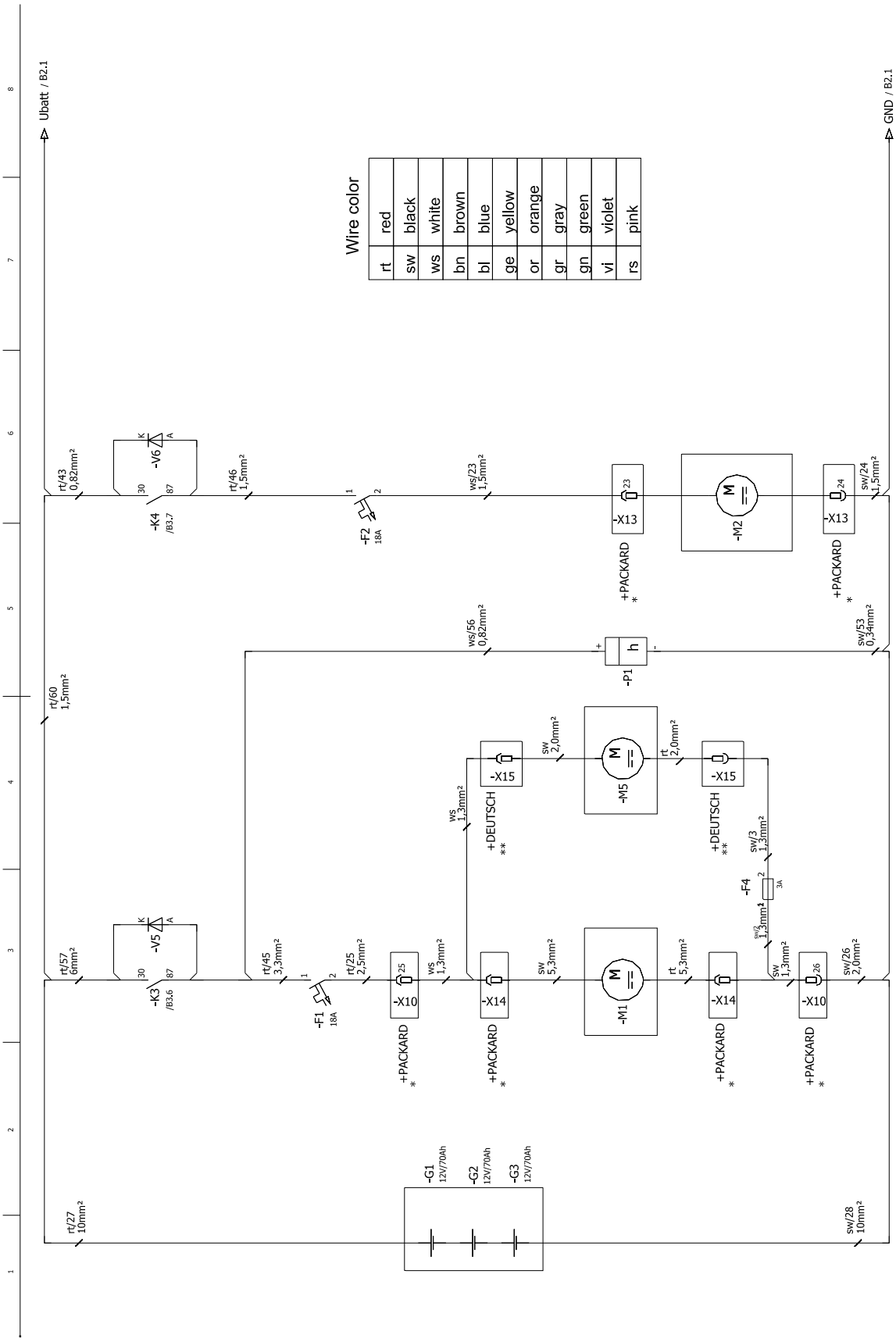

Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
+TRACTION
-Y1
-M3
-X17
-X16
+HORN
-H3
FULL BAG
-S13
BAG PRESENT
-S12
+VACUUM
-M2
-X13
+SOLENOID
-Y2
BATT(-)
-U1
-S5
-U3
-X7
-X8
-X9
-X10
-X6
14A
or
14B
CHARGER OPTION
-U4
-X11
+ACTUATOR
-M4
-X14
-X15
+BRUSH
+SIDE BROOM
-M1
-M5
BATTERY
G1-G3
27/RT
MACHINE GND
3A
-F4
BATT(-)
+PLATFORM
1/BN
2/WS
-R1
3/SW
-S2
4/GN
5/BL
X7 BRAKE Y1 1 - 15/RT 2 - 14/SW
X8 POT PLATFORM U2 1 - 19/BN 2 - 20/WS 3 - 18/OR 4 - 17/GN 5 - 16/BL 6 - 27/GE
X9 TRACTION M3 1 - 21/RT 2 - 22/WS
X10 BRUSH M1 1 - 25/RT 2 - 26/SW
X11 ACTUATOR M4 1 - 3/RT 2 - 4/SW
X13 VACUUM M2 1 - 23/WS 2 - 24/SW
U1 INTERLOCK S5 1 - 11/WS 2 - 12/RT
X3 HORN H3 PANEL TB 5 - 5/RT 6 - 6/SW
X6 CHARGER OPTION 11C/SW 12C/RT
X14 BRUSH M1 1 - SW 2 - WS
X15 SIDEBROOM M5 1 - WS 2 - SW

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86372240	1	HARNESS, BAG PRESENT		
2	86353960	1	HARNESS, CV24 OPERATOR PLATFORM		
3	86344450	1	HARNESS, MAIN ACTUATOR		
4	86353970	1	HARNESS, CV24 MAIN POT AND BRAKE		
5	86333120	1	HARNESS, CS20 MAIN CHARGER		
6	86333130	1	HARNESS, CS20 MAIN TRACTION		
7	86333140	1	HARNESS, CS20 MAIN VACUUM		
8	86333150	1	HARNESS, CS20 MAIN BRUSH		
9	86333160	1	HARNESS, CS20 MAIN POWER		
10	86333170	1	HARNESS, CS20 MAIN HORN		
11	86344500	1	HARNESS, SIDE BROOM/BRUSH		
12	86372250	1	HARNESS, VAC SOLENOID		
13	86344470	1	HARNESS, VAC SWITCH		
14A	86333180	1	JUMPER, CHARGER INHIBIT		
14B	86332680	1	HARNESS, CHARGER JUMPER		OPTION-ON BOARD CHARGER
15	86362990	1	HARNESS, LOWER BRAKE		
16	86365410	1	HARNESS, LOWER TRACTION		

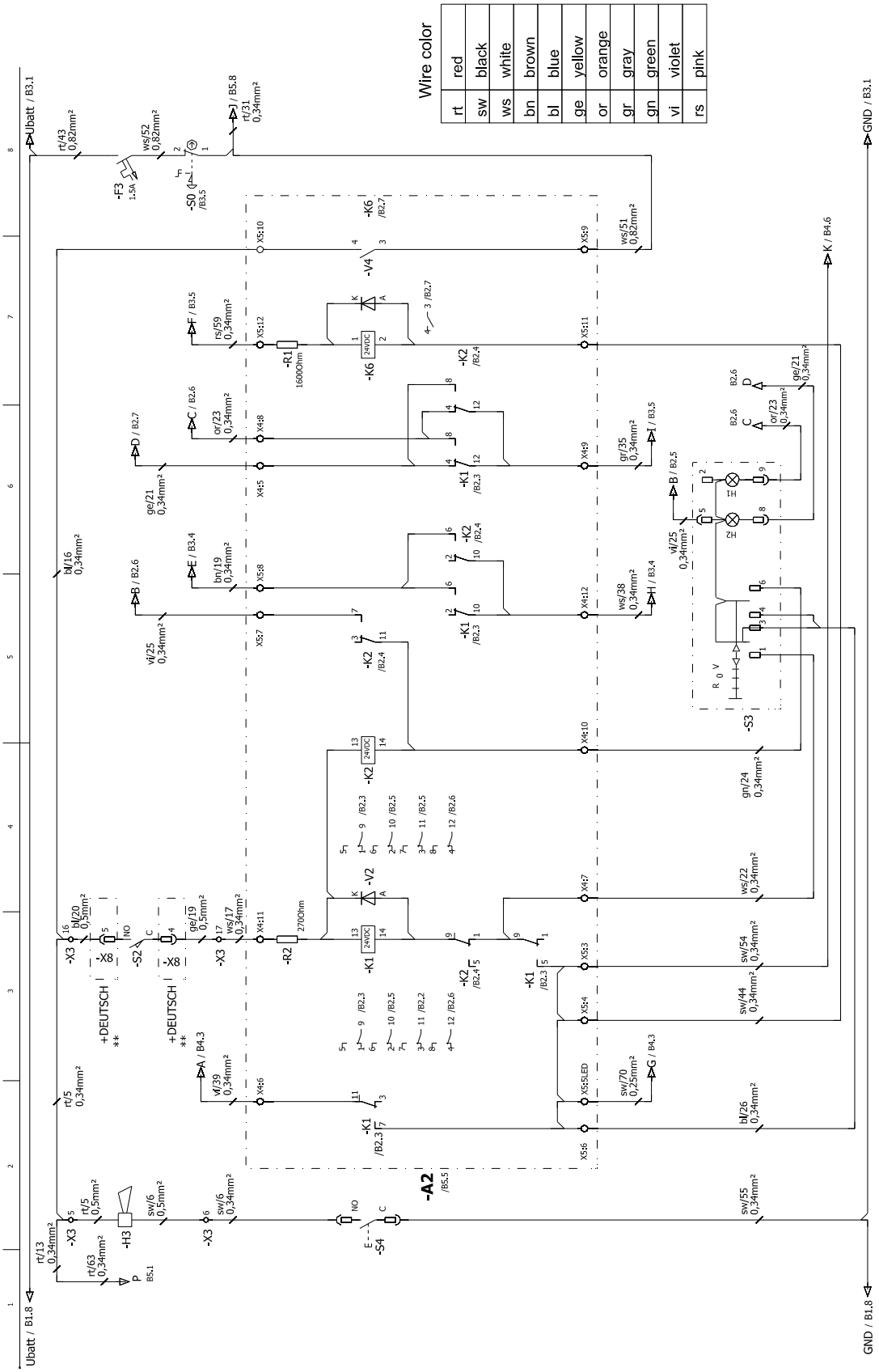


REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86357910	1	HARNESS, PANEL 24” VAC		
2	86352310	1	HARNESS I-DRIVE GRD		
3	86354380	1	HARNESS, ROTARY SWITCH		

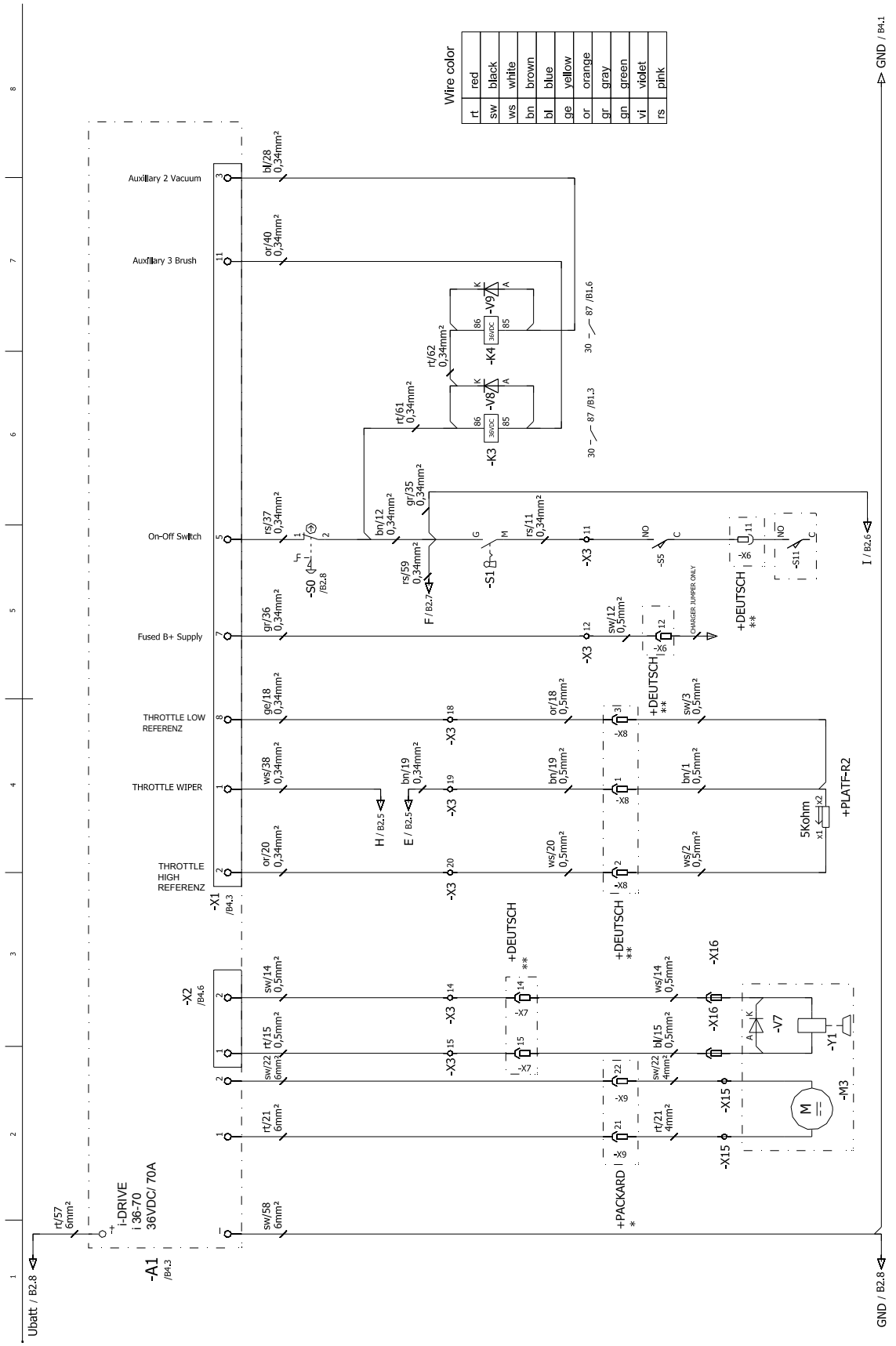
REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
M3	TRACTION MOTOR
M4	LINEAR ACTUATOR MOTOR BRUSH/SQUEEGEE
M5	SIDE BROOM
S0	EMERGENCY SWITCH
S1	KEYSWITCH
S2	MICROSWITCH-PLATFORM
S3	BUTTOM REVERSE FORWARD
S4	HORN BUTTON
S5	MICROSWITCH-COVER
S6	MIRCOSWITCH-VACUUM
S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Ubatt / B2.1
GND / B2.1
Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
-V6
-K4
/B3.7
-V5
-K3
/B3.6
-F2
18A
-F1
18A
-F4
3A
-X13
+PACKARD
-M2
-P1
-X15
+DEUTSCH
-M5
-X10
-X14
-M1
-G1
12V/70Ah
-G2
12V/70Ah
-G3
12V/70Ah
rt/43 0,82mm²
rt/46 1,5mm²
ws/23 1,5mm²
sw/24 1,5mm²
ws/56 0,82mm²
sw/53 0,34mm²
rt/60 1,5mm²
rt/57 6mm²
rt/45 3,3mm²
rt/25 2,5mm²
ws 1,3mm²
sw 2,0mm²
rt 2,0mm²
sw/3 1,3mm²
sw 5,3mm²
rt 5,3mm²
sw 1,3mm²
sw/26 2,0mm²
rt/27 10mm²
sw/28 10mm²

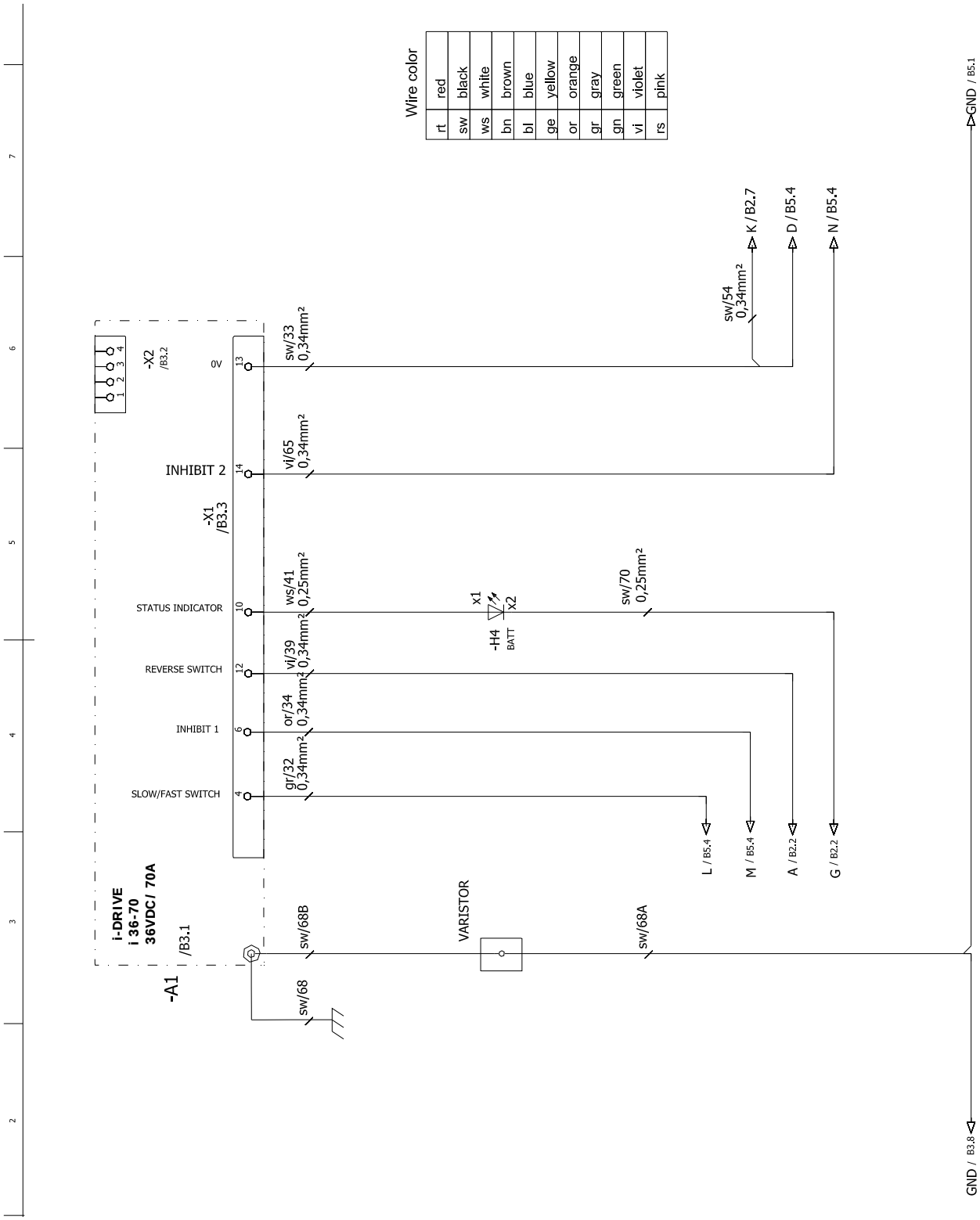
REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
M3	TRACTION MOTOR
M4	LINEAR ACTUATOR MOTOR BRUSH/SQUEEGEE
M5	SIDE BROOM
S0	EMERGENCY SWITCH
S1	KEYSWITCH
S2	MICROSWITCH-PLATFORM
S3	BUTTOM REVERSE FORWARD
S4	HORN BUTTON
S5	MICROSWITCH-COVER
S6	MIRCOSWITCH-VACUUM
S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
Ubatt / B1.8
Ubatt / B3.1
GND / B1.8
GND / B3.1
-A2
-F3
-S0
-S2
-S3
-S4
-H3
-R1
-R2
-V2
-V4
-K1
-K2
-K6
-X3
-X8
+DEUTSCH
24VDC
1600Ohm
2700Ohm

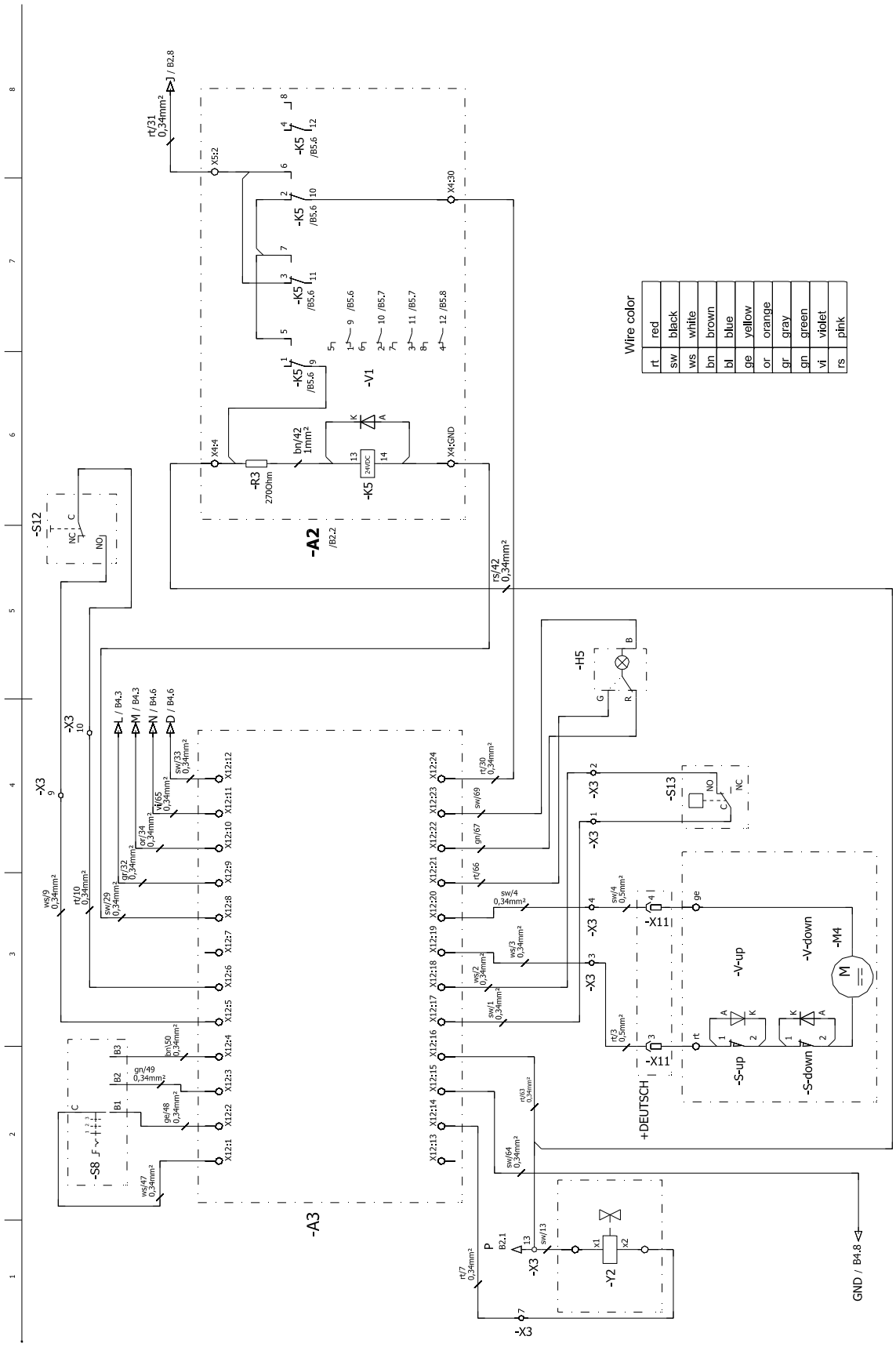
REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
M3	TRACTION MOTOR
M4	LINEAR ACTUATOR MOTOR BRUSH/SQUEEGEE
M5	SIDE BROOM
S0	EMERGENCY SWITCH
S1	KEYSWITCH
S2	MICROSWITCH-PLATFORM
S3	BUTTOM REVERSE FORWARD
S4	HORN BUTTON
S5	MICROSWITCH-COVER
S6	MIRCOSWITCH-VACUUM
S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
Ubatt / B2.8
GND / B2.8
GND / B4.1
-A1 /B4.3
i-DRIVE i 36-70 36VDC/ 70A
Auxillary 2 Vacuum
Auxillary 3 Brush
On-Off Switch
Fused B+ Supply
THROTTLE LOW REFERENZ
THROTTLE WIPER
THROTTLE HIGH REFERENZ
-X1 /B4.3
-X2 /B4.6
-K3
-K4
-V8
-V9
-S0 /B2.8
-S1
-S5
-S11
-X6
+DEUTSCH **
+PACKARD *
-X3
-X7
-X8
-X9
-X15
-X16
-V7
-Y1
-M3
+PLATF-R2
5Kohm
CHARGER JUMPER ONLY
H / B2.5
E / B2.5
F / B2.7
I / B2.6
87 /B1.6
87 /B1.3

REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
M3	TRACTION MOTOR
M4	LINEAR ACTUATOR MOTOR BRUSH/SQUEEGEE
M5	SIDE BROOM
S0	EMERGENCY SWITCH
S1	KEYSWITCH
S2	MICROSWITCH-PLATFORM
S3	BUTTOM REVERSE FORWARD
S4	HORN BUTTON
S5	MICROSWITCH-COVER
S6	MIRCOSWITCH-VACUUM
S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
i-DRIVE
i 36-70
36VDC/ 70A
-A1
/B3.1
-X2
/B3.2
1 2 3 4
0V
INHIBIT 2
-X1
/B3.3
STATUS INDICATOR
REVERSE SWITCH
INHIBIT 1
SLOW/FAST SWITCH
13
14
10
12
6
4
sw/33 0,34mm²
vi/65 0,34mm²
ws/41 0,25mm²
vi/39 0,34mm²
or/34 0,34mm²
gr/32 0,34mm²
sw/68B
sw/68
VARISTOR
sw/68A
sw/70 0,25mm²
sw/54 0,34mm²
-H4
BATT
x1
x2
K / B2.7
D / B5.4
N / B5.4
L / B5.4
M / B5.4
A / B2.2
G / B2.2
GND / B5.1
GND / B3.8

REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
M3	TRACTION MOTOR
M4	LINEAR ACTUATOR MOTOR BRUSH/SQUEEGEE
M5	SIDE BROOM
S0	EMERGENCY SWITCH
S1	KEYSWITCH
S2	MICROSWITCH-PLATFORM
S3	BUTTOM REVERSE FORWARD
S4	HORN BUTTON
S5	MICROSWITCH-COVER
S6	MIRCOSWITCH-VACUUM
S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
-A2
/B2.2
-A3
-S12
-S8
-S13
-H5
-X3
-X11
-V1
-R3
270Ohm
-K5
-V-up
-V-down
-M4
-S-up
-S-down
-Y2
+DEUTSCH
GND / B4.8
rt/31 0,34mm²
rs/42 0,34mm²
bn/42 1mm²
sw/4 0,34mm²
rt/3 0,5mm²
sw/4 0,5mm²
bn\50 0,34mm²
gn/49 0,34mm²
ge/48 0,34mm²
vs/47 0,34mm²
rt/7 0,34mm²
sw/64 0,34mm²
rt/63 0,34mm²
sw/13
vs/9 0,34mm²
rt/10 0,34mm²
sw/29 0,34mm²
gr/32 0,34mm²
gr/34 0,34mm²
rt/65 0,34mm²
sw/33 0,34mm²
rt/30 0,34mm²
sw/69
gn/67
rt/66
vs/3 0,34mm²
vs/2 0,34mm²
sw/1 0,34mm²

REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
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G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
K4	RELAYS VACUUM MOTOR
K5	RELAYS ACTUATOR
K6	RELAYS MAIN
M1	BRUSH MOTOR
M2	VACUUM MOTOR
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M5	SIDE BROOM
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S4	HORN BUTTON
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S7	MICROSWITCH-BRUSH
S8	PROGRAM SWITCH
S9	MICROSWITCH-MID
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S13	FULL BAG SWITCH
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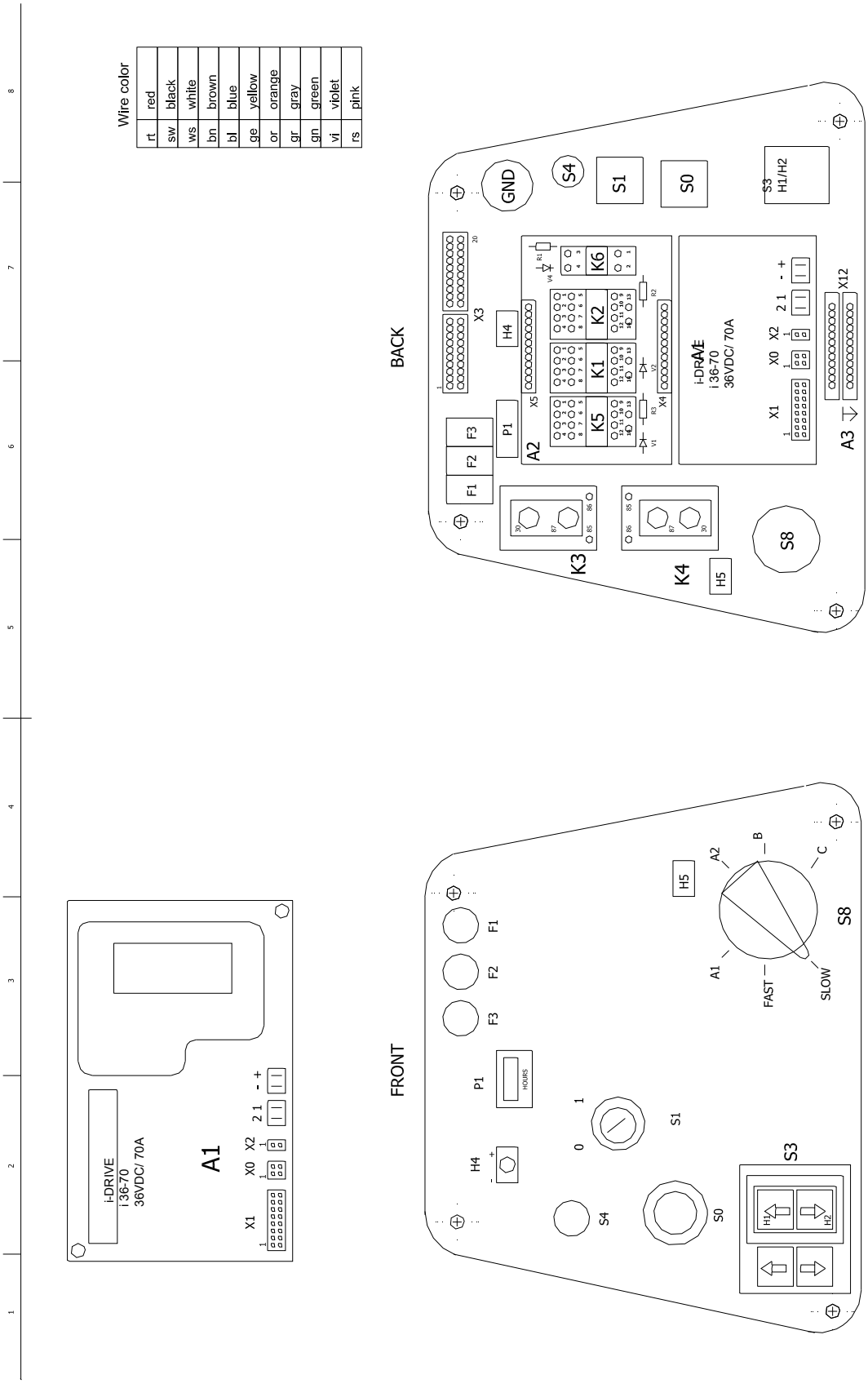
V1-V2-V3-V4-V5-V6-V7-V8-V9	DIODE
V-UP & V-DOWN	DIODE-MOTOR M4
X3	TERMINAL BLOCK
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


Wire color
rt red
sw black
ws white
bn brown
bl blue
ge yellow
or orange
gr gray
gn green
vi violet
rs pink
A1
i-DRIVE
i 36-70
36VDC/ 70A
X1
X0
X2
2 1
- +
BACK
A2
A3
i-DRIVE
i 36-70
36VDC/ 70A
GND
S4
S1
S0
S3
H1/H2
S8
K1
K2
K3
K4
K5
K6
H4
H5
P1
F1
F2
F3
X3
X4
X5
X12
FRONT
HOURS
A1
A2
B
C
FAST
SLOW
0
1
H1
H2

REF	DESCRIPTION
A1	DRIVE CONTROL
A2	RELAY BOARD
A3	SOL/VAC CONTROL
F1	CIRCUIT BREAKER-BRUSH
F2	CIRCUIT BREAKER-VACUUM MOTOR
F3	CIRCUIT BREAKER-DRIVE CONTROL
F4	FUSE-SIDE BROOM
G1-G3	BATTERY 12V/70Ah
H1	SIGNAL LAMPS REVERSE DIRECTION
H2	SIGNAL LAMPS DIRECTION FORWARD
H3	HORN
H4	LED-BATT.
H5	LED
K1	RELAYS-REVERSE DIRECTION
K2	RELAYS DIRECTION FORWARD
K3	RELAYS BRUSH MOTOR
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S1	KEYSWITCH
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S9	MICROSWITCH-MID
S10	MIRCROSWITCH-LOWER
S11	CHARGER
S12	BAG PRESENT
S13	FULL BAG SWITCH
S-UP-SDOWN	MICROSWITCH
P1	HOURS METER
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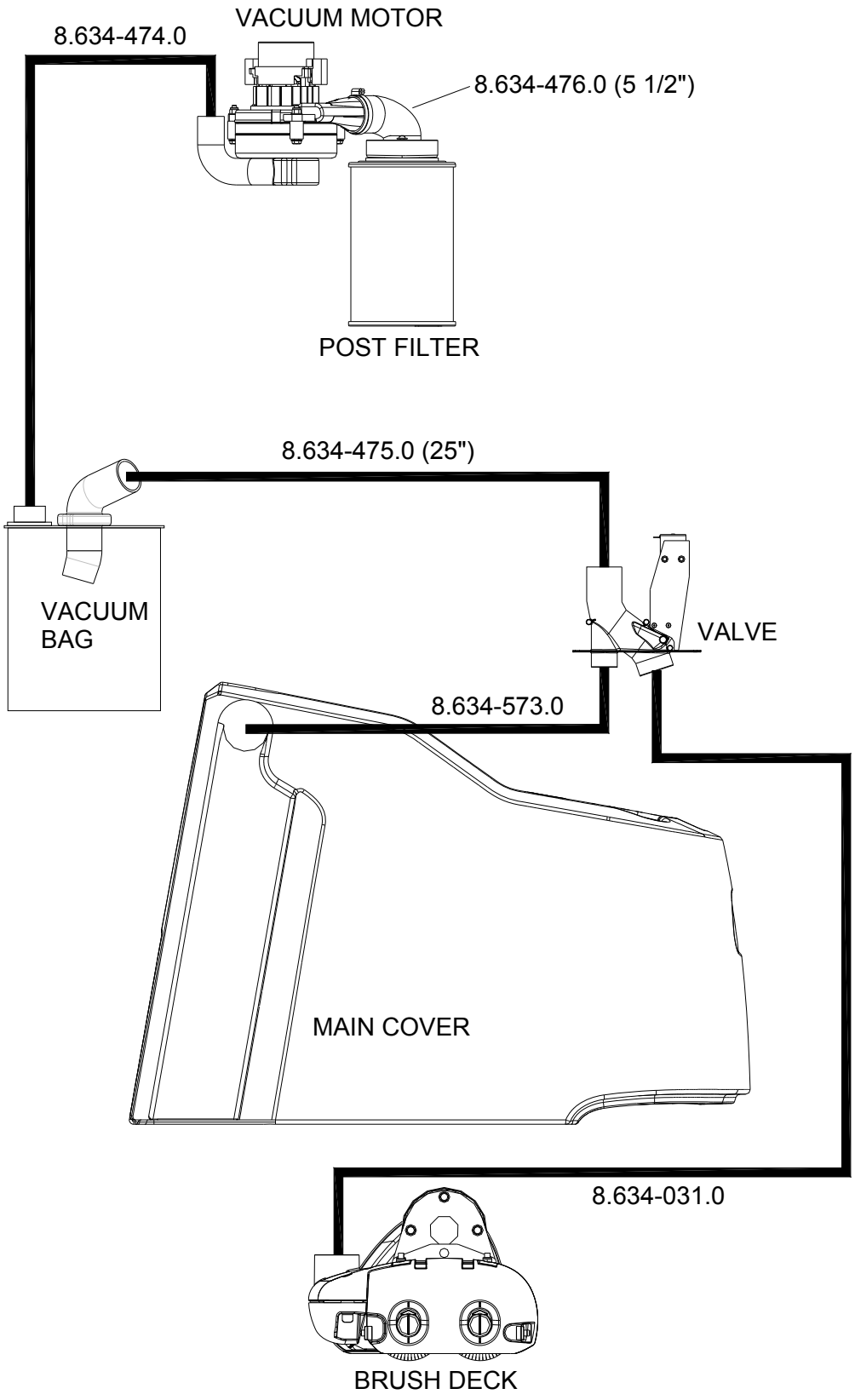
X12	TERMINAL BLOCK
X6/X7/X8/X11/X15	DEUTSCH CONNECTOR
X9/X10/X13/X14	PACKARD CONNECTOR
X16	FASTON TERMINAL
X17	RING TERMINAL
Y1	BRAKE
Y2	ELECTOVALVE WATER


VACUUM MOTOR
8.634-474.0
8.634-476.0 (5 1/2")
POST FILTER
8.634-475.0 (25")
VACUUM
BAG
VALVE
8.634-573.0
MAIN COVER
8.634-031.0
BRUSH DECK

PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES
86232780	CHAIN MASTER LINK 12.7MM		
86342320	CHAIN, ISO 08B, 12.7MM PITCH		
86314150	KNOB, SELECTOR		
98408960	BRAKE REPLACEMENT SMALL STAND ON		
86316160	BREAKER, 18A, 250VAC, 32VDC		
86353680	BREAKER, 1.5A CARLING MAGNETIC		
86332510	BOOT, SEAL PUSH BUTTON 11M		
86001260	BOOT, CB 3/8-32 UNS		
86313950	SWITCH, SPDT 3 POSN MOM, ARROW		
86007170	SWITCH KEY TWO POSITION		
86348800	SWITCH, ROTARY, 5 POS ASM		
86354870	SWITCH, ROTARY		
86237440	GASKET, 4.06 X 2.50 X .38		
86257160	SWITCH VACUUM 15" H20 NC/NO		
86327830	GASKET,.188X.31X41.0		
86344800	GASKET, VAC ENCLOSURE 48"		
86341040	BAG, VAC, 10-PACK		
86342390	GASKET, DEBRIS TRAY, 20”		
86342400	GASKET, DEBRIS TRAY, END		
86135310	BRUSH SET, 24/36V VAC, WINDSOR		
86001360	BRUSH SET, CCL MOTORS (BRUSH DECK)		
86331990	BRUSH SET, 8.631-966.0 DRIVE MTR		
86345690	FUSE, 3A - 3AG FAST-ACTING		

REF. NO	MODEL: SERIAL #
1	10125760000679, 10125770001029
2	10125760000678, 10125770001026
3	10125760000730, 10125770000988
4	10125760001043, 10125770001674