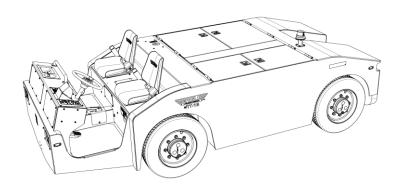


OPERATION & SERVICE MANUAL



Model: eTT-16
Electric Tow Tractor

02/2025 – Rev. 07 Applies to S/N 16E115 and later Applies to build date 05/2022 and later

For Spare Parts, Operations & Service Manuals or Service Needs Scan the QR code or visit Tronair.com/aftermarket



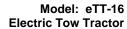
The Tronair Group of Companies: Tronair | EBIS | Columbus Jack | Eagle | Malabar International

REVISION	DATE	TEXT AFFECTED
01	09/2021	Original release
02	03/2022	Updated 13.10 Electrical System and 14.1 Manifold Block
03	06/2022	Updated 18.0 Additional Parts
04	07/2022	Modified 15.2 Operator Dash Assembly, 15.5 Dash Console
05	09/2022	Modified 14.4 Hydraulic System
06	03/2023	Modified 13.1 Contactor and Fuse Panel
07	02/2025	Added section 7.3 Throttle Pedal Calibration Procedure



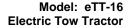
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From everyone at Eagle Tugs, we would like to say thank you for purchasing an Eagle eTT series tow tractor. We take a lot of pride in the quality of the products that we build, as well as, our continued customer service. Our goal is to build a long-term relationship with our customers. We want you, the customer, to be 100% satisfied with your Eagle experience. To us, this means that your Eagle eTT series tractor is functionally superior to any other products you have used. This also means that your Eagle product is continually supported in a professional, timely manner.

WARNING!



Read this manual in its entirety before putting your Eagle tow tractor into service. This manual contains important safety instructions. Improper usage or a failure to follow the safety requirements listed in this manual could result in severe injury or death.

1.0 PRODUCT INFORMATION

1.1 DESCRIPTION

This manual is designed as a reference guide to make the reader more familiar with the Eagle-specific components of the Eagle eTT series tow tractor models. This manual includes part numbers and descriptions to assist the reader in ordering component spare/service parts. The manual also outlines the Scheduled Maintenance Intervals recommended by Eagle in order to keep your vehicle running properly.

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

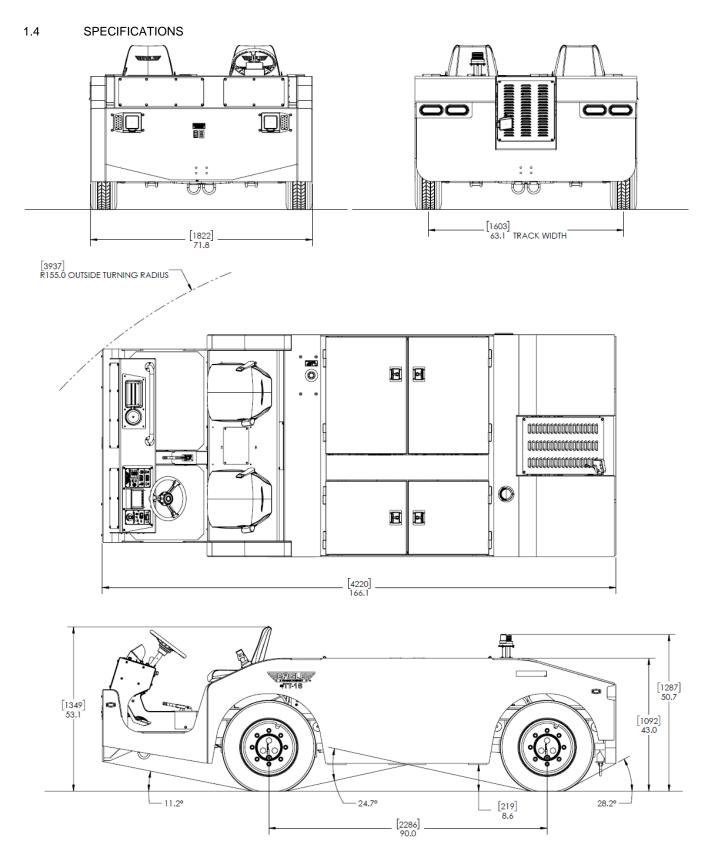
1.3 MANUFACTURER

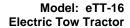
TRONAIR, Inc./Eagle Tugs Telephone: (419) 866-6301 or 800-426-6301

1 Air Cargo Pkwy East Fax: (419) 867-0634
Swanton, Ohio 43558 USA E-mail: sales@tronair.com
Website: www.tronair.com

Please check www.eagletugs.com periodically for updates to this manual, operations manual, and service bulletins that affect your tractor









1.4.1 Vehicle Specifications

Model	GVW lbs (kg)	Rated DBP lbf (kN)	Vertical Hitch Capacity lbf (N)	Towing Capacity †
eTT-16	16,800 (7,620)	12,000 (53.4)	500 (2200)	154,000 (69,853)

[†] Towing Capacity applies to 1% grade, wet surface condition.

1.4.2 Chassis S	vstem
-----------------	-------

Length (Not Including Hitches)	166 in (4,220 mm)
Width	71.8 in (1,822 mm)
Height at Deck	43 in (1,092 mm)
Height at Seat	53.1 in (1,349 mm)
Step-in Height	19.1 in (486 mm)
Ground Clearance	8.6 in (219 mm)

1.4.3 Vehicle Weights

Gross Vehicle Weight (without C	ab)16,800 lbs (7,620 kg)
Weight Distribution	50% Front / 50% Rear

1.4.4 Traction Specifications

Motor Model	InMotion TSP 180/6-200
Motor Type	
Motor Power	
Motor IP Rating	
Inverter Model	
Inverter Power Max	
Inverter Power Nom	
Inverter IP Rating	
Inverter Cooling	

1.4.5 Pump Specifications

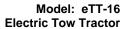
Motor Model	CFR AME173-100-SAE B
Motor Type	AC Induction
Motor Power	7.0 kW – S2 60 min
Motor IP Rating	44
Inverter Model	Curtis 1232E-6221
Inverter Power Max	175A – 1 min
Inverter Power Nom	80A – S2 60 min
Inverter IP Rating	65
Inverter Cooling	

1.4.6 Transfer Case

Gear Ratio Low	4.286
Gear Ratio High	1.359
Shift Pressure (max)	

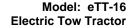
1.4.7 Axles

Wheelbase	90 in (2,286 mm)
Track Width	63 in (1,600 mm)
Inside Steering Angle	35°
Center Differential Ratio	2.909
Planetary Ratio	6.0
Overall Ratio	17.454
Maximum Brake Pressure	638 psi (44 bar)
Service Brakes	Wet Immersed Disc
Parking Brakes	Dry Disc, front only
Input Flange	1410 Yoke (rear) / 1410 Flange (front)





1.4.8	Tires	
	Tire Size	215/75R17.5
	Tire Capacity Rating	Load Range F
1.4.9	Electrical	
	System Voltage Lighting/Logic Voltage	12V Floating Ground
1.4.10	Battery Specification	
	Industrial Designation Nominal Voltage Capacity Connector Type Compartment Length Compartment Width Compartment Height	80V 625 Ah (optional dual battery for 1250 Ah) DIN/Euro 51 in (1,295 mm) 22.6 in (575 mm)
1.4.11	Performance Drawbar Pull Rating (.9 COF) Top Speed - Low Top Speed - Drive Outside Turning Radius Approach Angle Without Hitch Departure Angle Without Hitch Breakover Angle	5 mph (8 kph) 12 mph (19.3 kph) 155 in (3,937 mm) 11.2° 28.2°





2.0 SAFETY INFORMATION

2.1 USAGE AND SAFETY INFORMATION

To ensure safe operations please read the following statements and understand their meaning. Also refer to your equipment manufacturer's manual for other important safety information. This manual contains safety precautions which are explained below. Please read carefully.



WARNING!

Warning is used to indicate the presence of a hazard that can cause **severe personal injury, death, and/or substantial property damage** if the Warning Notice is ignored.



CAUTION!

Caution is used to indicate the presence of a hazard, which will or can cause *minor personal injury or property damage* is the Caution Notice is ignored.

2.2 IMPORTANT SAFETY NOTICE

Appropriate service methods and proper repair procedures are essential for the safe and reliable operation of all industrial equipment as well as the personal safety of the individual performing the work. This service manual provides general directions for accomplishing service and repair work with tested and effective techniques. Following them will help assure reliability.

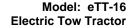
There are numerous variations in procedures, techniques, tools, and parts for servicing equipment, as well as in the skill of the individual doing the work. This manual cannot anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this manual must first establish that he compromises his/her personal safety and/or the equipment integrity by his/her choice of methods, tools or parts.

2.3 GENERAL

The following list contains some general warnings that you should follow when you work on equipment:

- Always wear safety glasses for eye protection.
- Use safety stands whenever a procedure requires you to be under the equipment.
- Be sure that the ignition switch and battery is disconnected unless otherwise required by the procedure.
- Set the parking brake when working on the equipment. Place wheel chocks on the tires to provide further restraint from inadvertent equipment movement.
- · Keep yourself and your clothing away from moving parts when the tractor is moving.
- Do not smoke while working on the equipment.
- To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing before beginning to work on the equipment. Tie long hair securely behind the head.

For more information regarding safety please refer to the operations manual provided with your tug. This manual can also be found on the Eagle Tugs website at www.eagletugs.com.





2.4 GENERAL SAFETY

The following safety recommendations are not intended to cover all possible safety aspects of the eTT series tow tractor. Please use common sense in addition to the safety recommendations that follow.

\bigwedge

WARNING

Failure to comply with the following safety precautions can result in serious injury or death as well as equipment damage.

- Always do the Pre-Operation Inspection before using the tractor.
- If you have not operated this equipment previously, practice driving and operating it in a safe and clear (not congested) area until you are familiar with all aspects of its operation.
- Always operate the tractor at a speed appropriate for the environmental conditions and the towed load. Slow down in congested areas, when moving a large load, or when conditions reduce traction or visibility.
- Always take care when driving on a slope or uneven ground. Reduce speed and take turns slowly in a controlled manner.
- When working on or around the tractor, take care to keep well clear of any moving components including tires, fans, and driveshafts. Also keep clear of hot surfaces such as drive and motor components.
- The eTT series tractor is intended to be operated on hard improved surfaces. Never drive on soft surfaces, and avoid potholes and damaged pavement.
- The traction battery, contactor, and busbar connections are capable of dangerous electrical discharge and electric shock. Stay away from electrical components and connections unless trained in service and repair on this type of equipment.
- Disconnect the battery and turn the tractor on to fully discharge the electrical system before attempting to work on any electrical components.

3.0 TRAINING

3.1 TRAINING REQUIREMENTS

The employer of the operator is responsible for providing a training program sufficient for the safe operation of the unit.

3.2 TRAINING PROGRAM

The employer provided operator training program should cover safety procedures concerning use of the unit in and around the intended aircraft at the intended aircraft servicing location.

3.3 OPERATOR TRAINING

The operator training should provide the required training for safe operation of the unit.

NOTE: Maintenance and Trouble Shooting are to be performed by a skilled and trained technician.

4.0 PUTTING INTO SERVICE

4.1 UNPACKING AND SETTING UP

The following directions specify the correct steps that should be taken once you receive delivery of your eTT series tow tractor. These steps will ensure that the tow tractor will operate safely. Reference the Parts and Preventive Maintenance Manual for details as appropriate.

- During the unloading of your tractor, note any shipping damage and report it to Eagle Tugs and the shipping company. Verify that all components appear to be in order and undamaged.
- Remove manual and any shipped-loose components from the operator compartment.
- Install shipped-loose components per the Parts and Preventive Maintenance Manual.
- Read this manual in its entirety, paying close attention to all safety requirements.
- Verify that tires are inflated.
- Verify that the battery state of charge is above 30%.
- Check the hydraulic fluid level.
- Familiarize yourself with the tractor operation and control.



5.0 OPERATION

5.1 OPERATOR REQUIREMENTS

The eTT series tow tractor is a piece of industrial equipment and has inherent safety risks. As such, the operator of the tow tractor is expected to have a fork truck or similar license, or be otherwise trained in the usage of material handling equipment.

The operator should read this manual in its entirety before operating the tow tractor.

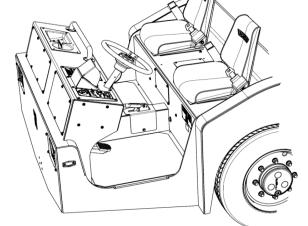
The operator should be familiar with all aspects of the tow tractor before operating it.

5.2 OPERATOR WORKSTATION

Your eTT series tow tractor features an ergonomically designed operator's workstation. This is the only operator workstation on the tractor. Do not sit on or stand on the tractor outside of this area during tractor movement.

The operator should be seated with the seatbelt secured when moving or operating the tractor.

Keep arms and legs within the perimeter of the tractor's frame to avoid injury. Always place the tractor in Neutral and apply the parking brake before exiting the tractor.



5.3 PRE-OPERATION CHECKLIST

The following inspections should be conducted as stated below. Additional inspections may be required due to unusual operating conditions.

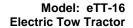
WARNING!



Any problems noted during inspection should be corrected as soon as possible. Failure to promptly attend to problems could compromise safety and/or the tractor's performance. Do not attempt to make repairs. Contact a qualified mechanic.

5.3.1 Daily Pre-Operation Checklist

Daily Pre-Operation Checklist	Satisfactory	Service Required	Not Applicable
Walk-Around Inspection			
Verify no evidence of leaks under and around the tractor			
Visually verify tires are fully inflated			
Verify rims and tires free from damage including tire tread			
Verify tire tread is free from debris			
Verify lights, mirrors, and reflectors are clean			
Operational Checks			
Verify that the dash display is free of errors and warnings			
Verify that battery state of charge is above 30%			
Verify that horn is operational			
Verify that lights, flashers, and beacon work properly			
Cab Inspection (if equipped)			
Verify windows clean			
Verify windows free of cracks and chips			
Verify windshield wipers operate properly			
Verify heater and fans operate properly			





5.3.2 Weekly Operation Checklist

Weekly Pre-Operation Checklist	Satisfactory	Service Required	Not Applicable
Walk-Around Inspection			
Verify tire inflation pressure			
Battery/Motor Compartment Inspection			
Check top of battery for debris, electrolyte, or electrolyte residue			
Check hydraulic fluid level (top off if necessary)			
Verify visible wiring free of damage			
Verify battery cable connection tight			

5.4 STARTUP/SHUTDOWN AND SAFE TOWING

5.4.1 Starting the Unit:

- 1. With feet firmly on the floor mat, adjust the seat to a comfortable position.
- 2. Sit in the operator seat and buckle the seat belt.
- 3. Verify that the FNR selector switch is in the neutral position.
- 4. Verify the E-stop is in the up position.
- 5. Turn on the tractor with the ignition switch.
- 6. Select the desired transmission gear (LOW for towing, HIGH for unloaded travel)
- 7. Release the parking brake.
- 8. Verify that the intended path of the tractor is clear of obstructions and personnel and then proceed with driving.

5.4.2 Shutting Down the Unit:

- 1. Bring the tractor to a complete stop with the service brake.
- 2. Put the tractor in neutral using the FNR selector switch.
- 3. Set the parking brake by pulling the parking brake handle.
- 4. Turn the tractor off by turning the ignition switch.

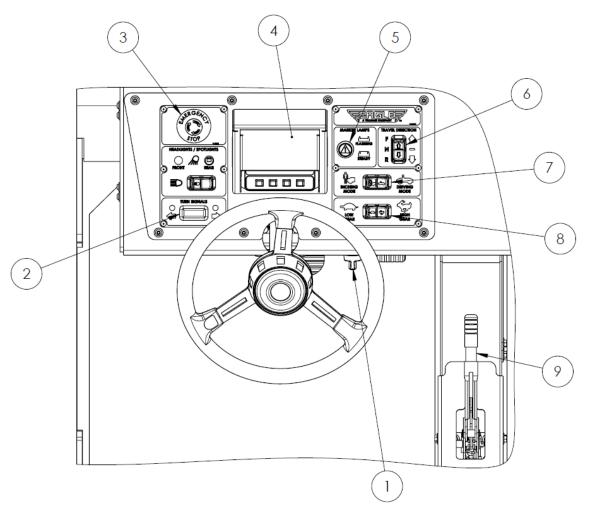
5.4.3 Load Towing and Pushing Safety

If towing or pushing a load, check to see that:

- The towed load is securely connected to the hitch of the tractor. Be sure hitch is locked/fastened into the closed position.
- For maximum tractor and load control and stability, as well as towing power, be sure the towbar is parallel to
 the ground when connected to the tractor's hitch.
- Ensure the plane or other towed load clears all obstacles when towing.



5.5 CONTROLS AND INSTRUMENTATION



- 1. **Ignition Switch:** Your tractor is equipped with a keyed or keyless ignition switch. The switch provides power to the tractor to turn the controls system on. Note, the third momentary position is used to start-up the truck and the second maintained position is used to keep it on. If the E-stop is pressed, the truck will get power in the momentary switch position, but will turn off immediately in the maintained switch position.
- 2. Headlight Switch: The headlight switch is an on/off type. There is no hi/low beam control position.
- Emergency Stop: In the event of an emergency, the emergency stop button will shut down the tractor.
 Note that steering functionality requires the tractor be on to function. The service brakes have a limited reserve of power after the tractor us turned off.
- 4. **Multi-function Digital Display:** The digital display module provides critical information on the tractor operational status. The digital display module includes detailed I/O diagnostics that enable troubleshooting of various tractor systems without needing a laptop or other external device. The digital display can provide specific motor control diagnostic codes that allow easy troubleshooting.
- 5. **Marker Lamp Flasher Control:** The marker lamp switch allows for switching of the marker lamps from steady on, to a flashing pattern.
- 6. **Forward / Neutral / Reverse Selector Switch:** The FNR switch allows the operator to select a travel direction. Neutral should be used during inching operation and before turning off the tractor.
- 7. **Drive/Inch Mode Selector Switch:** The Drive/Inch mode selector switch allows the operator to put the tractor in inching mode which enables the low speed inching controls at the front and rear of the vehicle for single operator hitch connection.
- 8. **Transfer Case Gear Selector Switch:** The transfer case gear selector allows for switching between LOW gear for towing, and HIGH gear for unloaded operation. Gear changes can only be performed while stationary.
- 9. **Parking Brake Lever:** The parking brake can be engaged or released with the parking brake lever. The parking brake should never be used to stop a moving unit except in an emergency situation.



5.5.1 Multi-Function Display

Operation Screen:

The multi-function display allows for monitoring a wide range of vehicle parameters. The default running operation screen includes all of the following diagnostic information:

- · Battery charge indicator
- Speedometer
- Traction Drive Current Meter
- Low/High Gear Indicator
- Parking Brake Indicator
- Traction Motor Temperature
- Traction Drive Temperature
- Battery Voltage
- Hours

Brightness/Contrast:

Press $\bf A$ from the Operation Screen. Use the $\bf A$ and $\bf B$ buttons to adjust the brightness. Use the $\bf C$ and $\bf D$ buttons to adjust the contrast.



The display will return to the Operation Screen after 5 seconds without a key press.

Imperial/Metric Units:

Press C then B at the same time for 3 seconds to toggle from Imperial to Metric Units.

Error Messages:

The multi-function display is capable of showing many error, warning, and informational messages such as Low Battery Level, Motor Inverter Fault, and others.

I/O Diagnostics:

Press D to from the Operation Screen to view the I/O diagnostics menu. This menu allows you to review a wide range of data about the vehicle. Flip between diag screens using the arrows, and use D to exit the diagnostics.

See below for a brief description of each parameter.

Diagnostic Screen 1 – Low/High Gear Parameters:

- MAX SPD L: Max Low motor RPM parameter setting
- SPD CAL L: Low speed calibration value
- MAX SPD H: Max High motor RPM parameter setting
- SPD CAL H: High speed calibration value
- CUR MODE: Current Speed Mode on the traction controller

Diagnostic Screen 2 - Throttle Parameters:

- TPS1 CAL H: Throttle Wiper 1 high calibration point
- TPS1 CAL L: Throttle Wiper 1 low calibration point
- TPS1 Value: Throttle Wiper 1 current voltage
- TPS2 CAL H: Throttle Wiper 2 high calibration point
- TPS2 CAL L: Throttle Wiper 2 low calibration point
- TPS2 Value: Throttle Wiper 2 current voltage
- THR CMND: The throttle percent currently being sent to the traction drive, from -100% for full reverse to +100% for full forward.

Diagnostic Screen 3 – Traction Drive Parameters:

- TRAC DRV TEMP: Temperature of the traction drive inverter
- TRAC MTR TEMP: Temperature of the traction motor
- TRAC MTR RPM: Traction motor RPM
- TRAC RMS CUR: Current traction motor torque current



5.5.1 Multi-Function Display (continued)

Diagnostic Screen 4 – Hydraulic Pump Parameters:

- PUMP DRV TEMP: Pump inverter temperature
- PUMP MTR TEMP: Pump motor temperature
- PUMP MTR RPM: Pump motor speed
- PUMP STATUS: ON for throttle command to pump, OFF for no throttle command
- LOW PRESS SW: Status of the low pressure switch
- HIGH PRESS SW: Status of the high pressure switch
- PRESS STATE: Pressure state based on the two pressure switches, LOW, NORMAL, or HIGH.

Diagnostic Screen 5 - Shifting Parameters:

- LOW GEAR SW: Status of the low gear switch input
- LOW GEAR SENS: Status of the low gear sensor
- SHIFT LOW SOL: Output status of the shift low solenoid
- HIGH GEAR SW: Status of the high gear switch input
- HIGH GEAR SENS: Status of the high gear sensor
- · SHIFT HIGH SOL: Output status of the shift high solenoid

Diagnostic Screen 6 - Steering Parameters:

- FR STEER SENS: Voltage input of the front steering sensor
- FR STEER ANGLE: Calculated steer angle of the front steering sensor
- · RR STEER SENS: Voltage input of the rear steering sensor
- RR STEER ANGLE: Calculated steer angle of the rear steering sensor
- STEER ERROR: Calculated steering error between front and rear axle
- STEER LEFT SOL: Output of the steer left proportional solenoid
- STEER RIGHT SOL: Output of the steer right proportional solenoid

Diagnostic Screen 7 – Miscellaneous I/O:

- P BRAKE SW: Parking brake switch status
- S BRAKE SW: Service brake switch status
- HIGH HYD TEMP: Hydraulic overtempt switch status
- FWD SW: Forward switch input status
- REV SW: Reverse switch input status
- BRAKE RLY: Brake relay power output status
- FAN RLY: Cooling fan relay power output status

Diagnostic Screen 5 - Battery Parameters:

- STATE OF CHARGE: Current state of charge
- VOLTAGE: Current battery voltage
- TEMPERATURE: Current battery temp
- TOTAL AH DISCH: Total lifetime battery amp-hours discharged
- TOTAL AH CHARG: Total lifetime battery amp-hours charged



5.5.2 Inching Mode

Inching mode allows the tractor to be controlled from the front or rear of the unit at a very slow and controlled speed.

To enable inching functionality, switch the DRIVE/INCH mode switch in the dash to the INCH position. In order to complete the transition to inching mode, the following requirements must also be met.

- Service brake pedal released
- FNR switch set to neutral
- P-brake released
- Transfer case set to LOW

As each requirement is met, the display module will dynamically reflect the status. Once the display shows that the Inching mode is active, the inching switches will be enabled.



To inch, press and hold the inching switch in the desired direction. The tractor will roll in the requested direction for as long as the switch is pressed, up to a maximum value. If additional inching travel is required, release and then re-press the switch.

To return to normal operation, return to the operator compartment and return the DRIVE/INCH mode switch in the dash to the DRIVE position.

5.5.3 Steering Override Mode

Should there be a failure of the steer sensors or other issue that prevents the controller from coordinating the steering, there is a steering override mode that allows bypassing the four-wheel steering mode for short durations to relocate the tractor or get it back to a repair facility.

To enable steering override mode, long press the A button while viewing the steering parameter diagnostic screen. The steering override mode will allow the operator to manually center the rear axle using the dynamic display buttons. When the steering override mode is active, the tractor is limited to a low speed limp mode.

To return to normal operation, cycle the key switch power.

NOTE: this mode should be used for emergency movement only.





5.5.4 Steering Calibration Mode

The steering calibration mode is used to recalibrate the front and rear steering sensors in the event that a sensor is replaced or the saved calibration is lost.

To enter steering calibration mode, connector C03 in the dash electrical harness (green/orange) must have a jumper installed on it (a paperclip can work in a pinch). Once the connector is jumped, set the FNR directional switch to neutral, apply the parking brake, and set the DRIVE/INCH switch to DRIVE. On vehicle startup, the controls should automatically enter the steering calibration mode.

Once in steering calibration mode, the display will prompt for the first of three calibration points (full Right).

- 1. Using the steering wheel to turn the front axle to the right up against the axle steering stops.
- Use the dynamic display buttons to steer the rear axle to the full right position (opposite the front axle) up against the steering stops.
- 3. Once the front and rear axles are in the correct positions, use the Save button to lock-in the calibration point and then again to move to the next calibration point (Center). The Clear button can be used to erase a calibration point if it needs to be corrected.
- 4. For the Center calibration point, use a long straight edge held to the side of the tractor to assist with centering. Once again, use the steering wheel to control the front axle and the dynamic buttons to control the rear axle. Once the front and rear axles are in the correct positions, use the Save button to lock-in the calibration point and then again to move to the last calibration point (full Left).
- 5. Using the steering wheel to turn the front axle to the left up against the axle steering stops. Use the dynamic display buttons to steer the rear axle to the full left position (opposite the front axle) up against the steering stops. Use the Save button to lock in the final calibration point.
- 6. When all three sets of calibration points are locked in and have green checkmarks on them on the display, turn the tractor off. Remove the jumper from connector C03 and replace the dust cap to complete the calibration procedure.



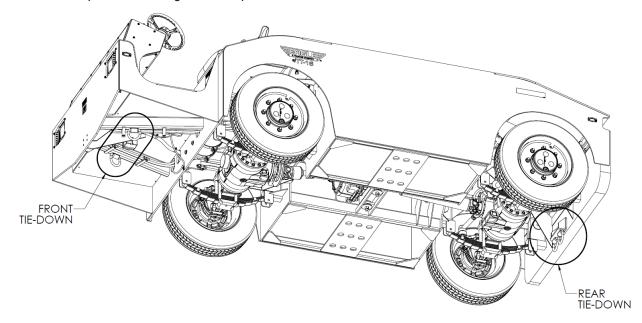


6.0 PACKAGING AND STORAGE

6.1 HANDLING

6.1.1 Tie Downs

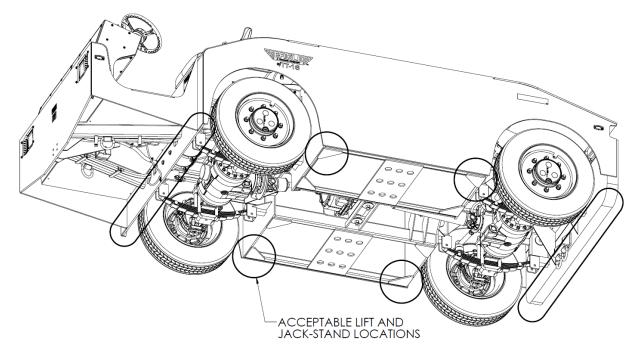
The eTT is equipped with four heavy duty tie-down rings located on the front and rear of the tractor. These tie-downs provide for safe ground transportation.



When securing the tractor, chains/straps should not make contact with the tractor in any area other than the tie down rings. At no point should the hitches be used for securing the tractor.

6.1.2 Jacking and Jack Stand locations

When lifting the eTT with jacks use the locations shown above for maximum safety.

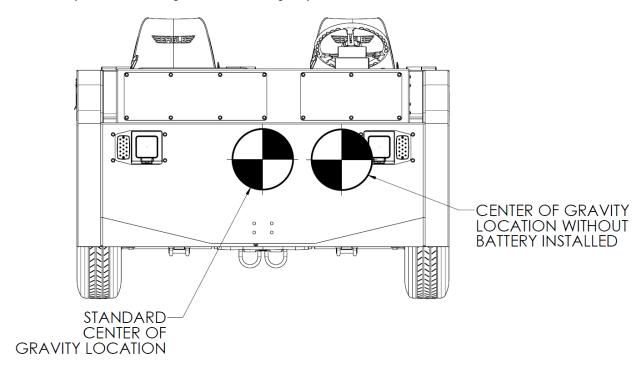


Jacks and jack stands should be rated for 5 short tons or 5 metric tons minimum when using one located at each corner of the tractor.



6.1.3 Weight Distribution Without Battery

The battery or batteries of the eTT series tractor constitutes a large portion of the total tractor weight. Removal of the battery will result in a large shift in center of gravity location.



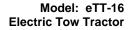
When transporting or handling a tractor without a battery installed, the new center of gravity needs to be taken into account. When lifting with a fork lift, always lift from the heavy side (non-battery side). When lifting with jacks, factor in the new center of gravity location.

6.1.4 Flat Towing

Should the eTT tractor be disabled, it can be flat towed for short distances without any modification as long as the following is observed:

- The maximum speed should never exceed 5 mph / 4.5 kph
- The maximum distance should not exceed .5 mile / .8 kilometer
- The tractor is turned off and the battery is disconnected
- The tractor should be put in high gear if possible

During towing, the front axle may be steered with the steering wheel, but at a greatly increased effort. The rear axle will not be steerable and, if possible, should be centered before towing.





7.0 TROUBLE SHOOTING

7.1 OPERATIONAL TROUBLESHOOTING

Tractor won't move when the throttle pedal is pressed

Verify that the parking brake is released. Confirm by looking at the display module for the parking brake icon. If the indicator graphic does not turn off the parking brake proximity sensor is not working correctly

Verify that the tractor is in the selected gear by looking at the dash shift selector switch and display module. A brand-new transmission may hesitate when shifting until the gears get some hours on them. Switch between high/tow a couple times to attempt to get the transmission fully into the desired gear

Verify that the tractor in in Drive Mode

Verify that no active codes are present that could be impeding travel

Use the display module diagnostics to verify the throttle pedal input is working correctly

Tractor won't inch when switches are pressed

Verify that the tractor is in inch mode

Use the display module to verify that all inching mode requirements have been met

Verify that the surface you are on is flat and level. The inching functionality is not intended to be used while under load, including up-slope

Use the display module diagnostics to verify that inching switch input commands are being received

The rear axle steering is out of sync with the front axle

If the rear axle is slightly off but otherwise operating correctly, perform a steering calibration per the instructions in this manual

If the rear steering is non-functional, use the display module diagnostics to confirm sensor input and steer solenoid output

Tractor drives very slowly (creeping) and will not speed up

The tractor may be in limp-home mode. Use the display module to verify that there are no active errors or codes that could be causing the issue

Incorrectly installed UVW cables can cause this issue. Inspect the UVW cables to verify that they are properly installed on the motor and the traction drive

A faulty motor speed sensor can cause this issue. Use the display module to watch the motor speed while driving at a slow speed. The input should be smooth during travel. If the motor speed oscillates between positive and negative while traveling, replace the drive motor encoder bearing

Tractor battery does not last long before needing to be charged

Battery life is directly dependent on usage of the tractor. Some causes of short battery lif are shown below

Do not tow loads in high gear. High gear is intended to be used for unloaded travel only. Towing while in high gear will drain the battery very quickly

After a full equalization charge on the battery, inspect the specific gravity of each cell. If the specific gravity is lower than a full charge, have the charger serviced. If any individual cell differs by more than .020 from the nominal 1.290 (positive or negative), have the battery serviced

Verify that the drivetrain is freely moving and that no bearings, brakes, or other components are creating resistance in the drivetrain

Charger is giving an error message or not working properly

Eagle Tugs does not service the battery charger for the truck. For the most expedient assistance with a charger issue, please contact the manufacturer of the charger directly. Eagle Tugs can assist with working with the charger manufacturer if you do not get a prompt response

Battery is not performing properly or cells are out of specification

Eagle Tugs does not service the battery for the truck. For the most expedient assistance with a battery issue, please contact the manufacturer of the battery directly. Eagle Tugs can assist with working with the battery manufacturer if you do not get a prompt response

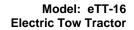


7.1 OPERATIONAL TROUBLESHOOTING (continued)

Hydraulic pump runs more frequently than usual, or does not shut off

One possible cause is that the system cannot maintain pressure. A relief valve stuck in the open position or any other valve or seal that is bleeding pressure from the accumulator will result in reduced battery life and increased component wear

- Let the pump charge the system and then shut off. With the pump off, listen for any hydraulic bleed-by that is draining the accumulator pressure
- Watch the pressure gage located on the manifold block once the system has charged. The pressure should hold at a steady rate If no pressure bleeds seem to be present and the system can hold pressure for a long period of time, there may be an issue with the gear pump
- Test the time to charge the accumulator from a fully depressurized state. If the accumulator takes longer to charge than when new, the hydraulic pump may be worn or damaged An alternative cause of frequent pump operation is a loss of accumulator pre-charge. The accumulator relies on highly compressed nitrogen to store hydraulic energy. If some of the nitrogen leaks out, the accumulator will store much less energy and the pump will have to work much more often
- Test the number of turns possible on the steering wheel after the pump charges the system up, before the pump turns back in in response to low pressure. If the amount of turns differs significantly from when new, the accumulator precharge should be checked





7.2 ERROR CODES

Below are error codes for the traction and pump motor controllers. Should one of these devices detect an issue, the device and error code will be displayed on the vehicle display module.

Er12: Controller Overcurrent

Effect: System shutdown of all drive components (motor, pump, contactors)

This error means that the electrical current to the motor has exceeded pre-set limits. Possible causes are:

- The U/V/W cables to the motor are shorted to the tractor frame or each other. Verify that the U/V/W cables are in good condition and not shorted. Replace the cables if necessary.
- There is noise on the speed encoder signal. Verify that the speed encoder is working properly (that the tractor drives smoothly). If not, replace the speed encoder.
- The controller is defective. If the motor cables and speed encoder are working correctly and the issue persists, replace the controller.

Er13: Current Sensor Fault

Effect: System shutdown of all drive components (motor, pump, contactors)

This error means that the controller current sensor is unable to sense proper current. Possible causes are:

- The U/V/W cables are leaking current to the tractor frame. Verify that the U/V/W cables are in good condition and not contacting any of the tractor frame. Replace the cables if necessary.
- The controller is defective. If the motor cables are working correctly and the issue persists, replace the controller.

Er14: Pre-charge Failed

Effect: System shutdown of all drive components (motor, pump, contactors)

This error means that the drive was unable to charge its capacitor banks through the key switch input. Verify that there are no external loads on the B+ power terminal on the controller.

Er15: Controller Severe Undertemp

Effect: System shutdown of all drive components (motor, pump, contactors)

This error means that the controller heatsink is measuring a temperature below -40°C/F. Increase the heatsink temperature above -40°C/F and then power up.

Er16: Controller Severe Overtemp

Effect: System shutdown of all drive components (motor, pump, contactors)

This error means that the controller heatsink is measuring a temperature above 95°C / 203°F. Possible causes are:

- The tractor load is excessive and above the standard duty cycle. Let the tractor rest and cool down and then
 power up.
- The tractor heatsink fins are obstructed by debris. Use compressed air to clean out the fins of any dust and dirt. Let the tractor cool down and then power up.

Er17: Severe Undervoltage

Effect: Reduced drive torque

This error means that the battery voltage has dropped below pre-set limits. Possible causes are:

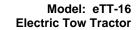
- The battery is failing to provide the necessary power to the drive. Re-charge and/or repair the battery and return to service.
- The B+ fuse is blown. Remove the fuse and check for damage. Replace if necessary.
- The main contactor did not close. Verify that the main contactor is "clicking" when starting the tractor and driving.
- A break in the battery connection while driving. Verify that all battery cables and connections are secure.

Er18: Severe Overvoltage

Effect: System shutdown of all drive components (motor, contactor)

This error means that the battery voltage has risen above pre-set limits. Possible causes are:

- The regenerative braking current is too high for the battery. Reduce braking behavior and/or battery charge state.
- A loss of electrical continuity in the battery connection while braking. Verify that all battery cables and connections are secure.





7.2 ERROR CODES (continued)

Er22: Controller Overtemp Cutback

Effect: Reduced drive and regenerative braking torque

This error means that the controller heatsink is measuring a temperature above 85°C / 203°F. Possible causes are:

- The tractor load is excessive and above the standard duty cycle. Let the tractor rest and cool down and then
 power up.
- The tractor heatsink fins are obstructed by debris. Use compressed air to clean out the fins of any dust and dirt. Let the tractor cool down and then power up.

Er23: Undervoltage Cutback

Effect: Reduced drive torque

This error means that the battery voltage has dropped below pre-set limits. Possible causes are:

- The battery is failing to provide the necessary power to the drive. Re-charge and/or repair the battery and return to service.
- The B+ fuse is blown. Remove the fuse and check for damage. Replace if necessary.
- The main contactor did not close. Verify that the main contactor is "clicking" when starting the tractor and driving.
- A break in the battery connection while driving. Verify that all battery cables and connections are secure.

Er24: Overvoltage Cutback

Effect: Reduced regenerative braking torque

This error means that the battery voltage has risen above pre-set limits. Possible causes are:

- The regen current is too high for the battery. Reduce braking behavior and/or battery charge state.
- A break in the battery connection while braking. Verify that all battery cables and connections are secure.

Er28: Motor Temp Hot Cutback

Effect: Reduced drive torque

This error means that the motor temperature has exceeded pre-set limits.

- The tractor load is excessive and above the standard duty cycle. Let the tractor rest and cool down and then
 power up.
- The motor temperature sensor is not connected properly. Verify motor temperature sensor wiring.

Er29: Motor Temp Hot Cutback

Effect: Reduced motor speed

This error means that the motor temperature cannot be read from the controller. Possible causes are:

The motor temperature sensor is not connected properly. Verify motor temperature sensor wiring.

Er31: Main Open/Short

Effect: System shutdown of all drive components (motor, contactor)

This error means that the main contactor coil is either not connected or the wiring is shorted. Possible causes are:

The main contactor has a wiring connection issue. Verify main contactor wiring.

Er36: Encoder Fault

Effect: Shutdown throttle

This error means that the motor speed encoder data cannot be read reliably by the controller. Possible causes are:

- The motor speed encoder has a wiring connection issue. Verify speed encoder connection and wiring.
- The motor encoder is faulty. Replace the encoder.

Er37: Motor Open

Effect: System shutdown of all drive components (motor, contactor)

This error means that one of the U, V, or W wires are not connected properly. Possible causes are:

- One of the U, V, or W wires is loose. Verify motor U, V, and W connections are tight and secure.
- One of the U, V, or W wires is faulty or improperly crimped. Verify that the U, V, and W wires are in good condition with good crimps. Replace as necessary.

Er38: Main Contactor Welded

Effect: System shutdown of all drive components (motor, contactor)

This means that the controller thinks that the main contactor is stuck in the closed position.

- The U, V, or W cables are loose. Verify motor U, V, and W connections are tight and secure.
- The main contactor is faulty. Replace the main contactor.



7.2 ERROR CODES (continued)

Er39: Main Contactor Did Not Close

Effect: System shutdown of all drive components (motor, contactor)

This error means that the controller thinks that the main contactor is stuck in the open position. Possible causes are:

- The B+ fuse is blown. Remove the fuse and check for damage. Replace if necessary.
- The main contactor did not close. Verify that the main contactor is "clicking" when starting the tractor and driving.
- The main contactor has high resistance across the terminals. Replace the main contactor.

Er46: EEPROM Failure

Effect: System shutdown of all drive components (motor, contactor)

This error means the controller has suffered an internal memory error. Cycle key power to reset. If the issue persists, the controller is faulty. Replace the controller.

Er49: Parameter Change Fault

Effect: System shutdown of all drive components (motor, contactor)

This error means the system detected a parameter change and needs a key cycle to re-set. This should only happen during programming of a controller. Cycle key power to reset. If the problem persists, replace the controller.

Er68: VCL Run Time Error

Effect: System shutdown of all drive components (motor, contactor)

This error means the Eagle-specific software ran into a run time error. Possible causes are:

- The software has an issue. Re-flash Eagle-specific software.
- The controller is faulty. Replace the controller.

Er69: External Supply Out of Range

Effect: None

This error means that the 5V and 12V controller output currents are out of range. Possible causes are:

- The motor speed encoder connection is faulty. Verify encoder wiring connection and repair any issues.
- The motor speed encoder is faulty. Replace the motor speed encoder.

Er71: OS General

Effect: System shutdown of all drive components (motor, contactor)

This error means that the controller experienced an internal fault. Cycle key power to reset. If the error continues, replace the controller.

Er72: PDO Timeout

Effect: Shutdown throttle

This error means that the CAN communication failed to transmit data properly. Possible causes are:

- Faulty CAN wiring. Verify the CAN communication wires between the controller and the display module and repair as necessary.
- Missing CAN termination jumper. Verify the jumper wire connection between pins 21 and pins 34 on the controller
- Missing CAN termination resistor near the display. Verify the 120 ohm resistor between pins 3 and 4 on the display module.

Er73: Stall Detected

Effect: Shutdown throttle

This error means that the motor encoder showed no movement while the motor was being commanded to a speed above zero. Possible causes are:

- A mechanical issue is causing the motor to fail to rotate. Verify free movement of the motor and axle.
- The motor speed encoder has a wiring connection issue. Verify speed encoder connection and wiring.

Er93: Encoder LOS (Limited Operating Strategy)

Effect: Enter LOS control mode

This error means that the motor speed encoder data cannot be read reliably by the controller and the controller has entered a limited operating mode to continue to work. Possible causes are:

- The motor speed encoder has a wiring connection issue. Verify speed encoder connection and wiring.
- The motor encoder is faulty. Replace the encoder.

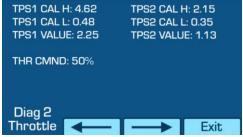


7.3 THROTTLE PEDAL CALIBRATION PROCEDURE

The throttle pedal signal characteristics are stored in the master vehicle controller for optimal performance. In the event that this data is lost or a throttle pedal change is detected or forced, a throttle pedal calibration will need to be completed.

When prompted to calibrate the throttle pedal perform the following procedure. Note, to force a pedal calibration reset, the pedal can be unplugged and plugged back in while the tractor controller is powered up. This should erase the characteristics and prompt for a re-calibration.

- Ensure that the tractor is in neutral with the parking brake engaged.
- 2) Leave the throttle pedal untouched at the idle position.
- 3) Turn the tractor ignition to the run position.
- 4) Press the bottom right display button to enter the onboard diagnostics.
- 5) Use the right/left arrows to select screen Diag 2 Throttle



- 6) The screen shows the following:
 - a. TPS1 VALUE The current input value from sensor 1
 - b. TPS2 VALUE The current input value from sensor 2
 - c. TPS1 CAL L The saved calibration point corresponding to idle on sensor 1
 - d. TPS2 CAL L The saved calibration point corresponding to idle on sensor 2
 - e. TPS1 CAL H The saved calibration point corresponding to wide open throttle on sensor 1
 - f. TPS2 CAL H The saved calibration point corresponding to wide open throttle on sensor 2
- 7) Save the CAL L values for sensors 1 and 2 by doing nothing. The pedal is already in the idle position and the controller will see this and populate the values after a couple seconds.
- 8) Save the CAL H values for sensors 1 and 2 by pressing and firmly holding the pedal at wide open travel / full throttle for several seconds until the CAL H values populate.
- 9) Pedal calibration is complete and the tractor can be turned off.



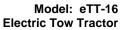
8.0 MAINTENANCE

8.1 PREVENTIVE MAINTENANCE SCHEDULE

Any items found to be deficient during the preventive maintenance review should be repaired or replaced. All fluids found low should be topped off. Refer to this section for fluid and filter specifications and part numbers.

- * See relevant diagrams/instruction in this section for these items.
- † Whichever time period is shorter.

Preventive Maintenance Item	Daily	Weekly	First 50 hours	First 150 hours	500 hours	1500 hours or annually †
Perform daily pre-operation checklist	х					
Check hydraulic fluid level and top off as necessary		х				
Verify tire pressure and add air as necessary		Х				
Perform a battery equalization charge then water	l	Х				
Re-torque front and rear axle U-bolts			Х			
Drain and replace axle oil; center and planetaries (first time only)	l			Х		
Drain and replace transfer case oil (first time only)				Х		
Check axle oil level, center and planetaries					Х	
Clean axle oil breathers					Х	
Grease upper and lower kingpin grease fittings on axles					Х	
Check transfer case oil level					Х	
Clean transfer case oil breather					Х	
Grease driveshaft U-joints and slip shafts					Х	
Inspect wheel lug nuts and tighten if necessary					Х	
Check all battery cable connections for tightness and corrosion						Х
Drain and replace axle oil; center and planetaries						Х
Clean axle magnetic drain plugs						Х
Drain and replace transfer case oil						Х
Clean transfer case magnetic drain plug						Х
Drain hydraulic fluid from tank and replace						Х
Remove and clean hydraulic magnetic drain plug						X
Replace hydraulic filter						X
Inspect axle U-bolts for loosening and tighten if necessary						X
Re-torque driveshaft U-joint straps and flange hardware						X
Inspect wet brake discs for wear and replace if necessary						Х
Check front parking brake disc and pads and replace if necessary						X
Inspect steering tie-rod ball ends for play and replace if necessary						Х
Inspect steering tie-rod adjustment nuts and tighten if necessary						Х
Inspect steering stops and re-set/tighten if necessary						Х
Inspect steering sensor potentiometers						Х





8.1 PREVENTIVE MAINTENANCE SCHEDULE (continued)

Preventive Maintenance Item	Daily	Weekly	First 50 hours	First 150 hours	500 hours	1500 hours or annually †
Inspect all hydraulic tubes and hoses for wear/damage and leaks						Х
Inspect hitch pins for wear and replace if beyond specifications						Х
Inspect motor / transfer case mount isolators and replace if necessary						Х
Check steering accumulator pre-charge pressure (key-on hours)						Х
Check brake accumulator pre-charge pressure (key-on hours)						Х

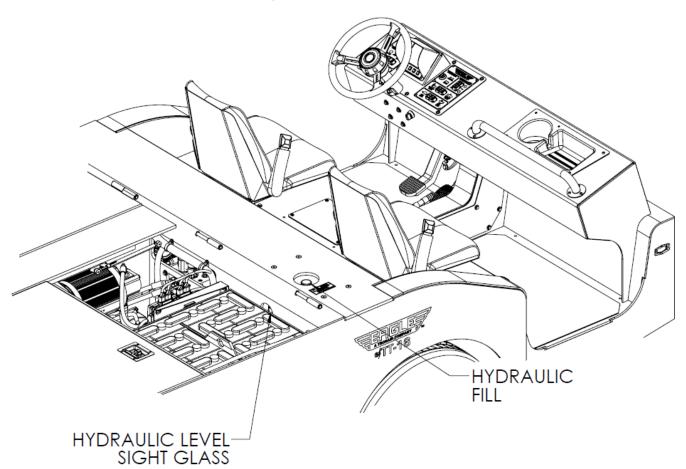
8.2 FLUIDS AND FILTERS

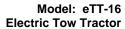
FLUID SPECIFICATIONS					
Fluid	Recommendation	Requirement	Volume approximate		
Hydraulic Fluid	Castrol Dual Range HV 32	ISO 32 Mineral Oil Based	12.3 gal (47 l)		
Axle Gear Oil	Castrol Trans-C SAE 50	API GL4	24.5 quarts (23 l) - total		
Transfer Case Oil	Castrol Trans-C SAE 50	API GL4	4.3 quarts (4.0 l)		



8.3 HYDRAULIC SIGHT GLASS AND FILL

Hydraulic Fluid:

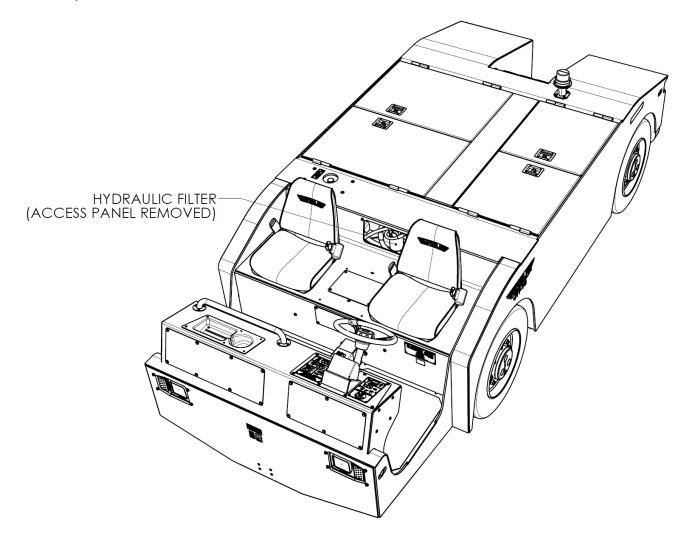






8.4 HYDRAULIC FILTER

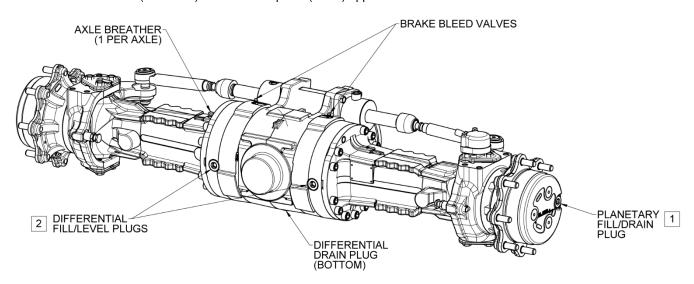
Hydraulic Filter A-ES12-0485





8.5 PLANETARY AXLE SERVICE POINTS

Axle Gear Oil:

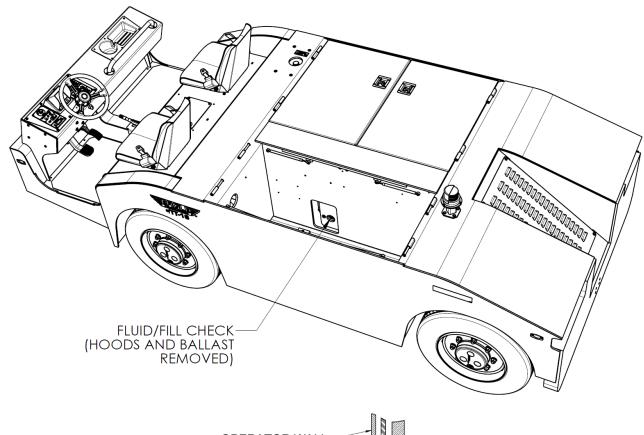


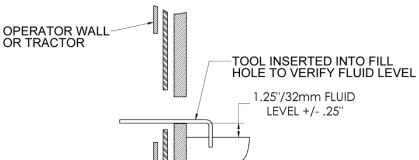
- 1 Fill planetary ends to the bottom of the fill hole with the axle end rotated so that the arrow on the casting is horizontal. Axle must also be horizontal.
- 2 Fill to the bottom of the fill hole with the axle horizontal.



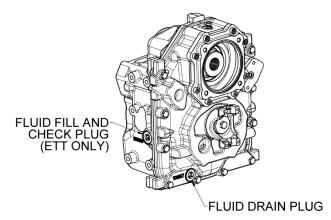
8.6 TRANSFER CASE SERVICE

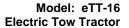
Axle Gear Oil:





FLUID LEVEL CHECK PROCEDURE







9.0 PROVISION OF SPARES

9.1 SOURCE OF SPARE PARTS

Spare parts may be obtained from the manufacturer:

TRONAIR, Inc./Eagle Tugs Telephone: (419) 866-6301 or 800-426-6301

1 Air Cargo Pkwy East Fax: (419) 867-0634
Swanton, Ohio 43558 USA E-mail: sales@tronair.com
Website: www.tronair.com

For Spare Parts, Operations & Service Manuals or Service Needs:

Scan the QR code or visit Tronair.com/aftermarket

9.2 ORDERING SPARE/SERVICE PARTS

Eagle inventories many of the spare/service parts found in its eTT series tow tractors, and most of these parts can be shipped the day after the order is received. Non-stock parts orders will be shipped as soon as the parts are available.

9.3 RECOMMENDED SPARE PARTS LIST

Description	Part Number	Suggested Replacement Interval
Hydraulic Filter	A-ES12-0485	Annually
Key Switch Contactor	EC-3006	As Required
Drive Contactor	Z-11102	As Required
ANL Fuse – 500A (Traction)	EC-1619-19	As Required
ANL Fuse – 150A (Pump/Charge)	EC-1619-09	As Required
Key Switch Relay	NVSP-31-002-CA	As Required
Mini Fuse, 2A (Power Dist. Box)	MIN-2	As Required
Mini Fuse, 5A (Power Dist. Box)	MIN-5	As Required
Mini Fuse, 7.5A (Power Dist. Box)	MIN-7.5	As Required
Mini Fuse, 10A (Power Dist. Box)	MIN-10	As Required
Mini Fuse, 15A (Power Dist. Box)	MIN-15	As Required
Cube Relay (Power Dist. Box)	XL00-81-001-CA	As Required
AGC Fuse, 1/4 x 1 1/4 Glass, 1A (Main Harness)	EC-3339-1	As Required
AGC Fuse, 1/4 x 1 1/4 Glass, 8A (Main Harness)	EC-3339-8	As Required
AGC Fuse, 1/4 x 1 1/4 Glass, 10A (Main Harness)	EC-3339-10	As Required
Headlight	Z-9825	As Required
Front Turn Indicator	Z-9826	As Required
Reverse Lamp	A-ES12-0494	As Required
Amber Marker Lamp	Z-10039	As Required
Red Amber Lamp	Z-10040	As Required
Stop/Tail/Turn Lamp	A-RTT12E-00292	As Required
12V DC-DC Converter	AE-OPT-0320-B	As Required
Hydraulic Block Coil Kit	K-5475	As Required
Drive Cooling Fan	Z-11063	As Required
Parking Brake Proximity Switch	Z-9940	As Required
Hydraulic Low Pressure Switch	A-ETT8-0455	As Required
Hydraulic High Pressure Switch	A-ETT8-0456	As Required
Tire, 215/75R17.5	EX16-04-002-CA	As Required
Traction Motor Encoder	ET00-54-001-CA	As Required

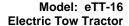


10.0 IN SERVICE SUPPORT

Contact Eagle Tugs for technical services and information. See Section 1.3 – Manufacturer.

10.1 TECHNICAL ASSISTANCE

When addressing a repair procedure or operational problem, please remember that Eagle technical support is only a phone call away. Eagle technicians are available to assist you in vehicle diagnostics and recommended repair procedures. We encourage you to use this service to reduce machine down-time and to gain a better understanding of proper repair procedures.





11.0 GUARANTEES/LIMITATION OF LIABILITY - EAGLE 3-YEAR WARRANTY

The Eagle Tugs (Eagle) 3-Year Warranty covers all <u>NEW</u> TT-series, TTR-series, eTT-series, XL-series, eXL-series and USATS tow tractors, used in aviation applications. Eagle Tugs warrants that these tractors will be free from defects in material and workmanship for a period of 3 years or 3,000 operating hours from date of delivery, with the exception of the electrical system which is covered for a period of 1 year or 1,000 hours (See electrical component warranty for eTT & eXL electric tow tractors below).

Electrical Component Warranty for eTT & eXL electric tow tractors: The following electrical components will be covered under Eagle's 3-year Warranty as they are considered major drive train components: Traction & Hydraulic Pump Motors, Drive Inverter for both the Traction and Hydraulic Pump Motors, Main & Pump Contactors, High and Low Hydraulic Pressure Switches, Steer & Shift Solenoids, DC-DC Converters, and the Programmable Vehicle Controller. This warranty does not extend to the batteries and battery chargers as these are warranted directly to the user by their respective manufacturer and not by Eagle or an Authorized Service Representative.

This warranty does not apply to any Eagle tow tractor, or component part(s) that have damage caused by: misuse of the vehicle, accidents, collision or object striking the vehicle, vandalism, fire, explosion or water damage, using contaminated or improper fuel/fluids, customer-applied chemicals to painted surfaces, improper handling or application, maintenance neglect including lack of lubricants or fluids; nor does it extend to the Eagle tow tractor and/or parts which have been repaired or altered outside of Eagle's plant or the facility of an Authorized Service Representative without the permission of Eagle. Furthermore, any modification of the tow tractor's electrical system MUST be preapproved and documented in writing by Eagle. Failure to do so voids the unit's electrical component warranty.

This warranty does not apply to routine maintenance or wearable parts of the Eagle tow tractor such as: tires, brake pads or shoes, ball joints, kingpins, u-joints, wheel bearings, filters, seals, spark plugs, hoses, belts, light bulbs, batteries (Diesel & Gas tractors), fuses or similar items. Also snow plows and transit pro options are warranted directly to the user by their respective manufacturer and not by Eagle or an Authorized Service Representative. However, all brackets, guards, and mounts made by Eagle for these options are covered under the 3-year Warranty.

This warranty does not cover or provide credit for the following: tractor rental or other substitute equipment; lodging; loss of time, income, sales or profits; loss of the use of tractor; telephone calls or communication expense; lift truck; storage fees; injury or death to persons or damage or destruction of property; or consequential, incidental or punitive damages

Warranty Claim Procedure: When a warranty situation arises, it is essential that the customer contact Eagle's Warranty Department at +1 734-442-1000. The customer will need to provide Eagle with the tow tractor serial number and operating hours. A customer service representative will analyze the problem and determine the next steps. In many cases Eagle's technical support personnel will be able to analyze the problem and recommend a solution that will solve the problem and reduce down time. If further service is required, an Eagle customer service representative will work with customer personnel to arrange a service provider and/or will send parts to your facility for the repair as quickly as possible.

Notice of any claimed defect must be given to Eagle within the warranty period and within ten (10) days after such defect is discovered. Liability under this warranty is limited to either replacing or repairing, at Eagle's election, any part or parts deemed defective after examination by Eagle or an Authorized Service Representative. Eagle reserves the right to use remanufactured parts as replacements in warranty claims.

At Eagle's election, any part replaced under warranty as defective can be sent out for third party inspection. If the part is not found to be defective, or abuse was the cause for the failure, all associated costs related to the warranty claim may be charged to the customer. All parts returned to Eagle by a customer must be received without further damage. If returned items are not properly packaged for return shipping to Eagle or an Authorized Service Representative via prepaid transportation, the customer will be charged for the full value of the item that was damaged upon return. This warranty does not extend beyond its original term for any Eagle tow tractor or part replaced or repaired under warranty.

Labor Allowance: A labor allowance may be issued upon request at Eagle's discretion. Allowable labor hours and a per hour labor rate will be determined by Eagle according to reasonable automotive standards.

EXCEPT AS SET FORTH ABOVE, ALL WARRANTIES, CONDITIONS, REPRESENTATIONS, INDEMNITIES AND GUARANTEES, EXPRESS OR IMPLIED, WHETHER ARISING BY STATUTE, CUSTOM OF TRADE OR UNDER ORAL OR WRITTEN STATEMENTS MADE BY OR ON BEHALF OF EAGLE NEGOTIATIONS WITH CUSTOMER, DISTRIBUTOR, DEALER, OR ANY REPRESENTATIVE, ARE HEREBY OVERWRITTEN AND EXCLUDED, AND NO LIABILITY SHALL ATTACH TO EAGLE, EITHER IN CONTRACT OR IN TORT, OR STRICT LIABILITY IN TORT, FOR ANY DAMAGE TO PROPERTY, LOSS OF PROFITS, DAMAGES, COSTS, CHARGES, LIABILITY OR EXPENSES, WHETHER DIRECT OR INDIRECT, CONSEQUENTIAL OR OTHERWISE, WHICH ARISE OUT OF OR IN CONNECTION WITH THE SALE OR USE OF ANY EAGLE MACHINE OR THE SUPPLY OF SERVICES.

SUBJECT TO CHANGE WITHOUT NOTICE

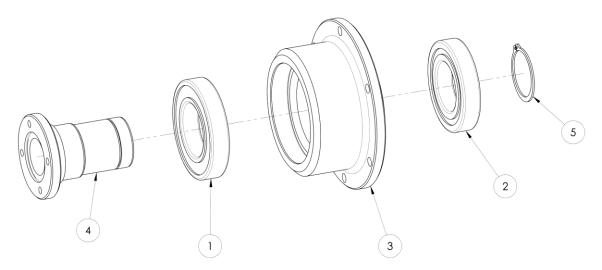
Please check our website www.eagletugs.com periodically for service bulletins and updates to manuals.

*Note: The Eagle Tugs 3-Year Warranty covers TT-series, TTR-series, eTT-series, XL-series, eXL-series and USATS tow tractors used in aviation applications. All MTT, RTT-series, Transit Pro tow tractors, and all Eagle models which are used in non-aviation/industrial applications are covered under the Eagle Standard Warranty of 1 Year or 2,000 hours. Eagle Bob Tails are covered under Ford Motor Company's Standard Warranty for each respective Ford truck model.



12.0 DRIVETRAIN

12.1 MOTOR STUB SHAFT ASSEMBLY

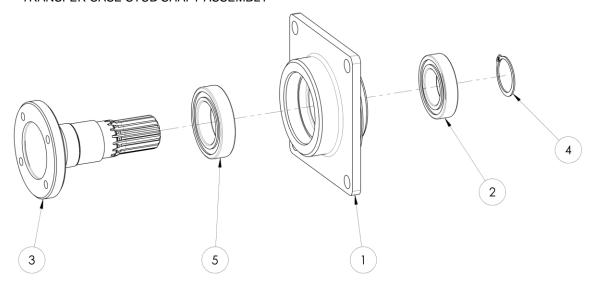


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	ET00-04-006-CA	BEARING	1
2	A-ES12-0420-B	BEARING	1
3	ET00-04-004-SA	BEARING MOUNT PLATE, MOTOR	1
4	ET00-04-003-SA	MOTOR STUB SHAFT	1
5	A-ES12-0420-S2	SNAP RING	1



12.2 TRANSFER CASE STUB SHAFT ASSEMBLY

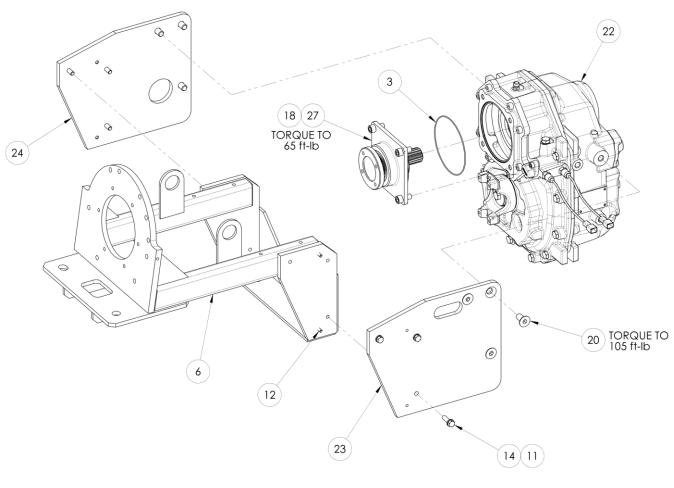


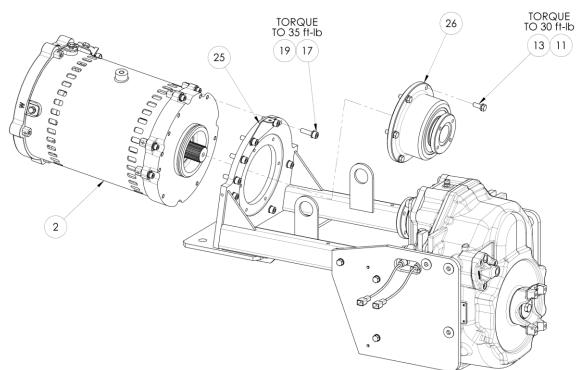
Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0380-1	TRANSFER CASE SEAL PLATE	1
2	A-ES12-0405	BEARING	1
3	A-ES12-0400-1	TRANSFER CASE STUB SHAFT	1
4	A-ES12-0421	SNAP RING	1
5	ET00-04-005-CA	BEARING	1



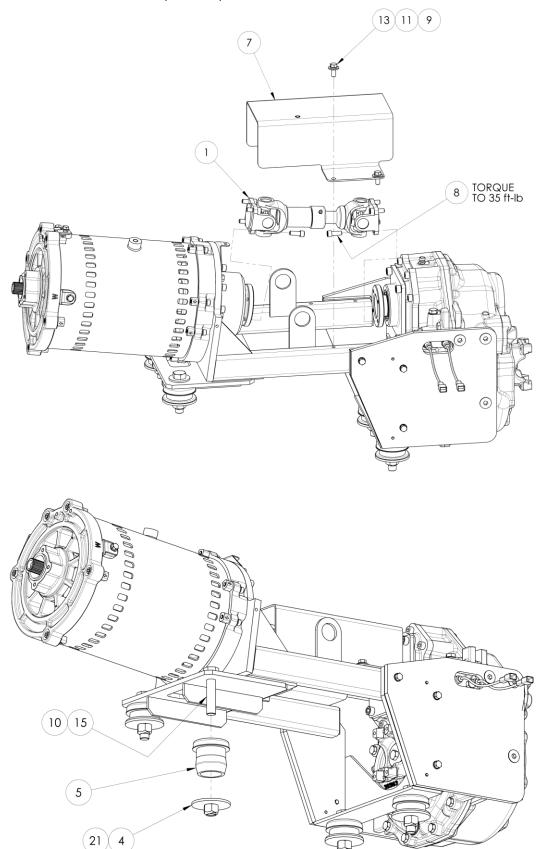
12.3 MOTOR CRADLE ASSEMBLY







12.3 MOTOR CRADLE ASSEMBLY (continued)





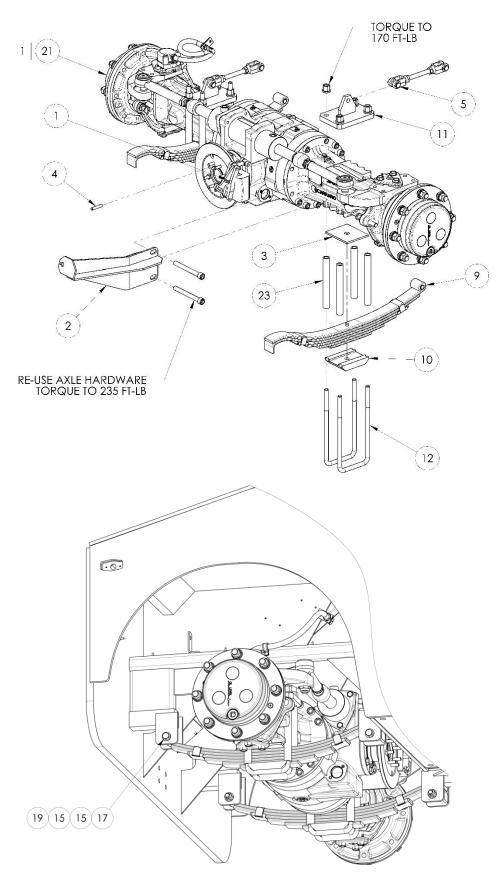
12.3 MOTOR CRADLE ASSEMBLY (continued)

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0403	MOTOR SHAFT ASSEMBLY	1
2	A-ES12-0420	TRACTION MOTOR	1
3	A-ES12-028193	O-RING	1
4	A-TT5D-00010	ENGINE MOUNT WASHER	4
5	A-TT5D-00013-1	ISOLATOR, ENGINE MOUNT	4
6	Z-11338-00	MOTOR CRADLE WELDMENT	1
7	ET00-03-004-SA	MOTOR DRIVESHAFT SHIELD	1
8	G-1151-107710	SHCS, 3/8-24 X 1.0	8
9	G-1250-1070W	FLATWASHER, 3/8 WIDE	4
10	G-1250-1110W	FLATWASHER, 3/4 WIDE	4
11	G-1251-1070R	LOCKWASHER, 3/8 REGULAR	16
12	G-1315-05-1.00	PIN, 1/4" X 1.0" STL DOWEL	4
13	G-1420-107010	BOLT, 3/8-16 X 1.0" HEX HD GR 8	10
14	G-1420-107012	BOLT, 3/8-16 X 1.25" HEX HD GR 8	6
15	G-1420-111034	BOLT, 3/4-10 X 3-1/2" HEX HD GR 8	4
16	G-1439-1050-S	NUTSERT, THIN WALL 1/4-20	1
17	G-1491-108016	SOC HD CAP SCR, M10X1.5 X 35	9
18	G-1491-109014	SHCS, M12X1.75 X 25, CLASS 12.9	4
19	G-1514-M100R	LOCKWASHER, M 10 REGULAR	9
20	G-1586-110330	METRIC 90° SOC FLAT M14X2.0X30	6
21	G-1727-1110	NUT, 3/4-10 TOP LOCK ZINC	4
22	H-4639	TRANSFER CASE, 2 SPEED	1
23	J-7482-00	MOUNT PLATE, XFER CASE RH (WP)	1
24	J-7483-00	MOUNT PLATE, XFER CASE LH (WP)	1
25	S-3950-00	BRACKET, MOTOR CABLE CLAMP	1
26	N/A	ASY, MOTOR STUB SHAFT	1
27	N/A	ASY, XFER CASE STUB SHAFT	1
N/A	A-ES12-146821	GEAR DETECTION SWITCH	2
N/A	ET00-54-001-CA	MOTOR ENCODER BEARING	1

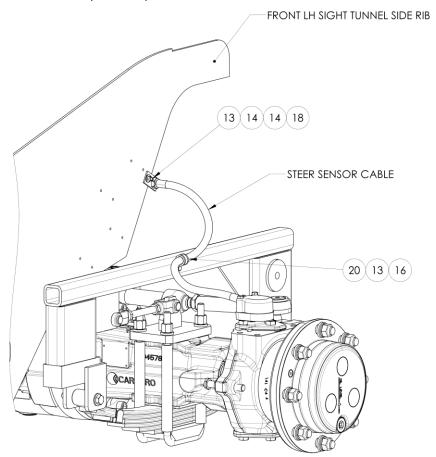


12.4 FRONT AXLE ASSEMBLY





12.4 FRONT AXLE ASSEMBLY (continued)





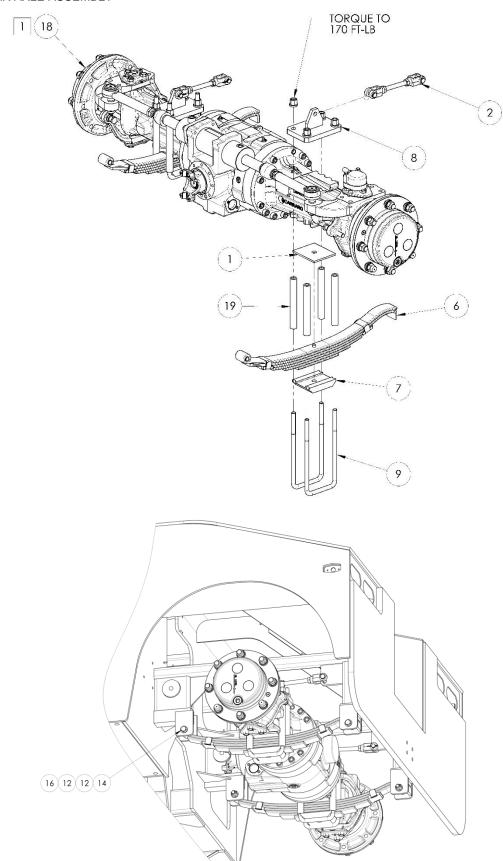
12.4 FRONT AXLE ASSEMBLY (continued)

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0152	BRAKE CLEVIS PIN	1
2	A-ES12-0155	PARKING BRAKE AXLE BRACKET	1
3	A-ES12-0350	AXLE MOUNTING PLATE	2
4	A-ES12-0397	M10X1.5 X 52 STUD	8
5	Z-11272	ASSY, ANTI-ROTATION	2
9	A-TT10-00116	LEAF SPRING, TT12	2
10	ET12-04-001-SA	AXLE MOUNTING PLATE, BOTTOM	2
11	ET12-04-002-SA	AXLE MOUNTING PLATE, TOP	2
12	ET12-04-003-SA	U-BOLT KIT	2
13	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	2
14	G-1250-1050W	FLATWASHER, 1/4 WIDE	2
15	G-1250-1210N	FLATWASHER, 9/16 NARROW	8
16	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	1
17	G-1420-121540	BOLT, 9/16-18 X 4.0" HEX HD GR 8	4
18	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	1
19	G-1727-1210	NUT, 9/16-18 TOP LOCK ZINC	4
20	H-3521-07	CLAMP, CUSHIONED LOOP 3/4"	1
21	H-4554	FRONT AXLE, PLANETARY STEER	1
22	TR015-15-008.25	U-BOLT SPACER	8
N/A	A-ES12-643375	STEERING SENSOR KIT	1

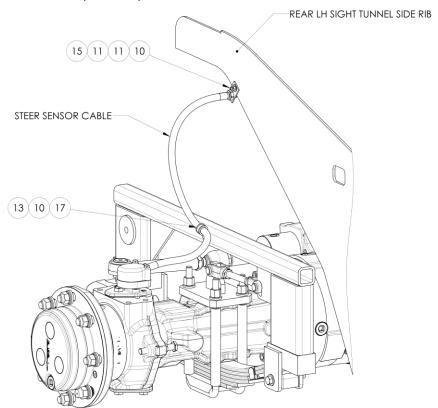


12.5 REAR AXLE ASSEMBLY





12.5 REAR AXLE ASSEMBLY (continued)



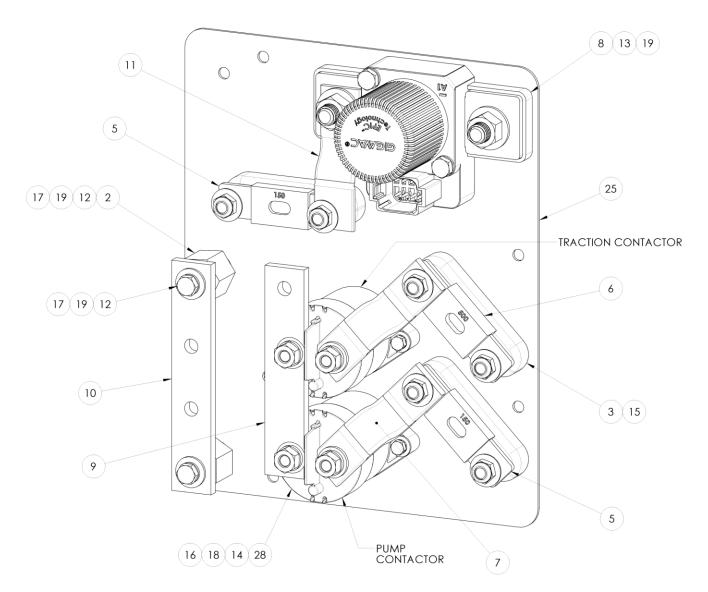
Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0350	AXLE MOUNTING PLATE	2
2	Z-11272	ASSY, ANTI-ROTATION	2
6	A-TT10-00116	LEAF SPRING, TT12	2
7	ET12-04-001-SA	AXLE MOUNTING PLATE, BOTTOM	2
8	ET12-04-002-SA	AXLE MOUNTING PLATE, TOP	2
9	ET12-04-003-SA	U-BOLT KIT	4
10	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	2
11	G-1250-1050W	FLATWASHER, 1/4 WIDE	2
12	G-1250-1210N	FLATWASHER, 9/16 NARROW	8
13	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	1
14	G-1420-121540	BOLT, 9/16-18 X 4.0" HEX HD GR 8	4
15	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	1
16	G-1727-1210	NUT, 9/16-18 TOP LOCK ZINC	4
17	H-3521-07	CLAMP, CUSHIONED LOOP 3/4"	1
18	H-4555	REAR AXLE, PLANETARY STEER	1
19	TR015-15-008.25	U-BOLT SPACER	8
N/A	A-ES12-643375	STEERING SENSOR KIT	1



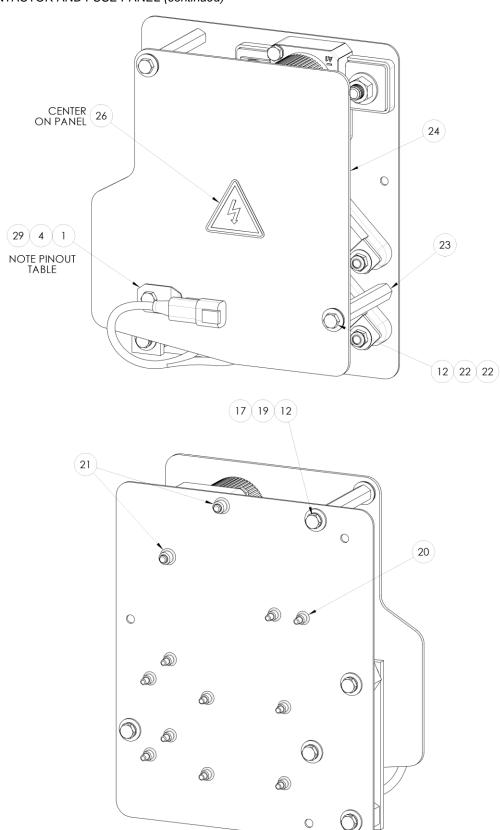
13.0 ELECTRICAL SUBASSEMBLIES

13.1 CONTACTOR AND FUSE PANEL





13.1 CONTACTOR AND FUSE PANEL (continued)





13.1 CONTACTOR AND FUSE PANEL (continued)

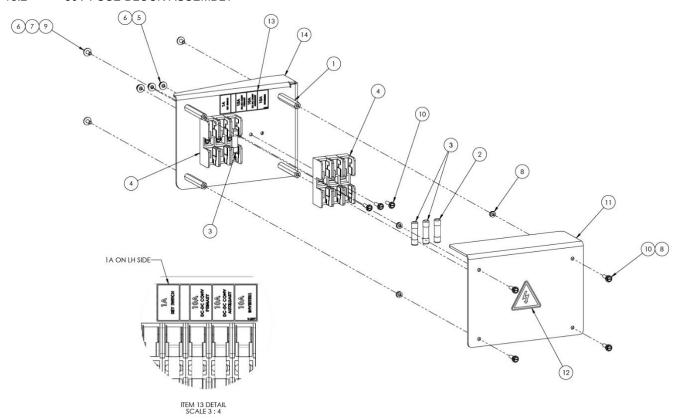
	DT04-4P PINOUT TABLE			
PIN CONTACTOR W		WIRE COLOR		
1	TRACTION (TOP)	RED		
2	TRACTION (TOP)	BLACK		
3	PUMP (BOTTOM)	RED		
4	PUMP (BOTTOM)	BLACK		

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	1027-003-1200	DEUTSCH RETAINER CLIP	1
2	13015	RECTIFIER ISOLATOR	2
3	A-MTT5-0225	ANN FUSE HOLDER	3
4	DT04-4P	DEUTSCH CONNECTOR	1
5	EC-1619-09	FUSE, ANL 150	2
6	EC-1619-19	FUSE, ANL-500	1
7	EC-2998	CABLE, FLEXIBLE BRAIDED	2
8	EC-3006	CONTACTOR, 600A, 12V	1
9	EC-3316	BUSBAR, ETT	1
10	EC-3317	BUSBAR, ETT	1
11	EC-3318	FLEXIBLE BUSBAR	1
12	G-1100-105006	BOLT, 1/4-20 X 3/4" LG HEX HD GR 5	10
13	G-1100-105016	BOLT, 1/4-20 X 1-3/4" LG HEX HD GR 5	2
14	G-1150-103512	SCREW, #10-32 X 1-1/4" LG HEX HD MACHINE	4
15	G-1152-103712	SCREW, #10-32 X 1-1/4" LG SOCKET FLAT HD CAP	6
16	G-1250-1030N	FLATWASHER, #10 NARROW	4
17	G-1250-1050W	FLATWASHER, 1/4 WIDE	7
18	G-1251-1030R	LOCKWASHER, #10 REGULAR	4
19	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	9
20	G-1439-1035-S	NUTSERT, THIN WALL #10-32	10
21	G-1439-1050-S	NUTSERT, THIN WALL 1/4-20	2
22	G-1658-13	WASHER, W/NEOPRENE 1/4 DIA	6
23	H-3875	STANDOFF, FEMALE 1/4-20 X 3.5L	3
24	S-3958	COVER, CONTACTOR PANEL	1
25	S-3959-00	MTG PANEL, CONTACTOR ASY (P)	1
26	V-1050	LABEL, ISO ELECTRICAL SHOCK	1
27	W4P	DEUTSCH LOCK	1
28	Z-11102	ASY, CONTACTOR AND TERMINALS	2



13.2 80V FUSE BLOCK ASSEMBLY

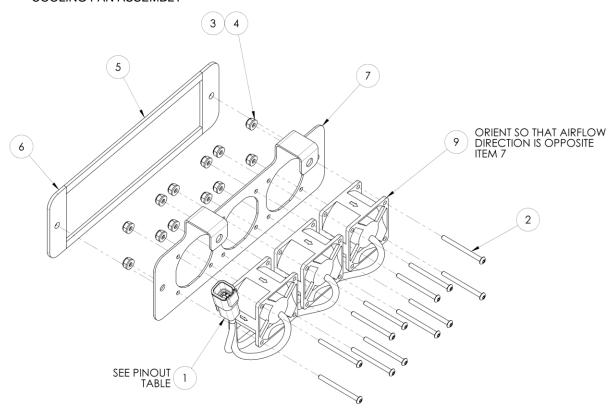


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	390-120	HEX STANDOFF, 10-32 X 2-1/2 LG	4
2	BLN-1	10X38 FUSE, 250V, 1A	1
3	BLN-10	10X38 FUSE, 250V, 1A	3
4	EC-3357-3	FUSE HOLDER, 10X38, 3 PLACE	2
5	G-1202-1035	STOPNUT, #10-32 ELASTIC	6
6	G-1250-1030N	FLATWASHER, #10 NARROW	10
7	G-1251-1030R	LOCKWASHER, #10 REGULAR	4
8	G-1658-04	WASHER W/NEOPRENE #10	8
9	G-1720-103504	SCR,#10-32X0.5 MACH HEX WSH HD	4
10	G-1720-103506	SCR,#10-32X.75 MACH HEX WSH HD	10
11	S-4050	COVER, FUSE PANEL	1
12	V-1050	LABEL, ISO ELECTRICAL SHOCK	1
13	V-2897	LABEL, FUSE BLOCK	1
14	Z-11248-00	WLD, FUSE HOLDER BRACKET (P)	1



13.3 COOLING FAN ASSEMBLY



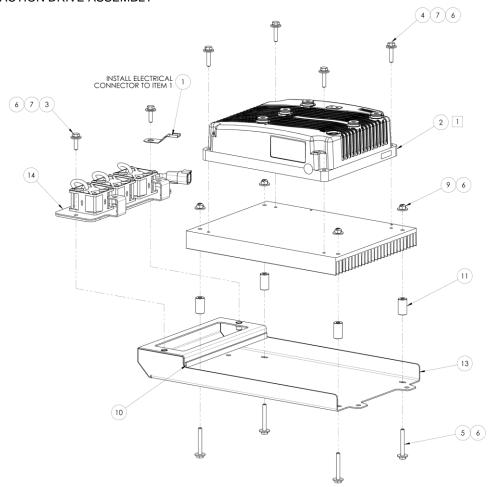
DTM04-6P PINOUT TABLE		
PIN	WIRE COLOR	
PIN 1	FAN RED (+12V)	
PIN 2	FAN RED (+12V)	
PIN 3	FAN RED (+12V)	
PIN 4	FAN BLACK (GND)	
PIN 5	FAN BLACK (GND)	
PIN 6	FAN BLACK (GND)	

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	DTM04-6P	DEUTSCH CONNECTOR	1
2	G-1154-102220	SCREW, #8-32 X 2.00" LG. SST SOC BUTT. HD CAP	12
3	G-1202-1020	STOPNUT, #8-32 ELASTIC	12
4	G-1250-1020N	FLATWASHER, #8 NARROW	12
5	H-1204-03-008.2	TAPE, NEOPRENE FOAM SEALING, 1/8" X 3/8"	2
6	H-1204-10-03.38	TAPE, NEOPRENE FOAM SEALING, 1/8" X 1"	2
7	S-3930-00	FAN MOUNTING PLATE (P)	1
8	WM-6P	DEUTSCH CONNECTOR LOCK	1
9	Z-11063	ASY, FAN WITH TERMINALS	3



13.4 TRACTION DRIVE ASSEMBLY



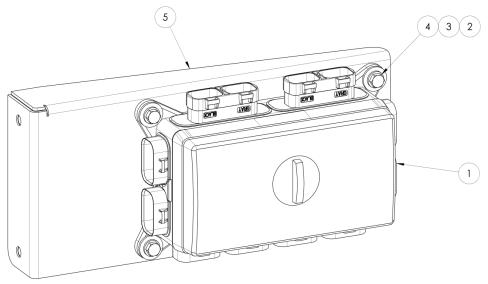
APPLY A THIN UNINTERRUPTED LAYER OF THERMAL INTERFACE COMPOUND SUCH AS LOCTITE TC 4 OR EQUIVALENT TO BOTTOM OF DRIVE BEFORE MOUNTING TO HEATSINK

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	1027-003-1200	DEUTSCH RETAINER CLIP	1
2	EC-2877-ETT	CONTROLLER, AC MOTOR	1
3	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	2
4	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	4
5	G-1100-105020	BOLT, 1/4-20 X 2.0" LG HEX HD GR 5	4
6	G-1250-1050W	FLATWASHER, 1/4 WIDE	14
7	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	6
8	G-1439-1050-S	NUTSERT, THIN WALL 1/4-20	2
9	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	4
10	H-1204-03-010.0	TAPE, NEOPRENE FOAM SEALING, 1/8" X 3/8"	1
11	H-4566-11	SPACER, .252 ID X .625 OD X 1.125	4
12	H-4769	HEATSINK, MODIFIED	1
13	Z-11005-00	WLD, DRIVE COOLING PLENUM (P)	1
14	N/A	ASY, COOLING FANS	1



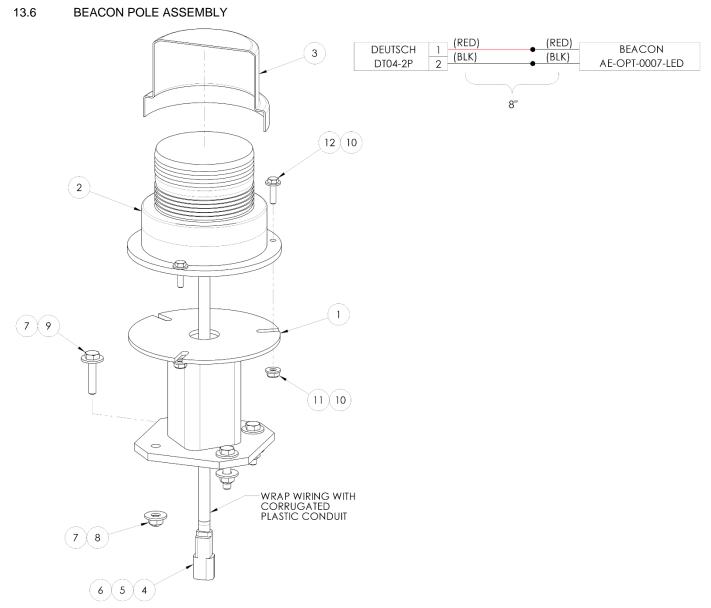
13.5 POWER DISTRIBUTION BOX ASSEMBLY



Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

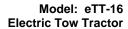
Item	Part Number	Description	Qty
1	EC-3325	FUSE BOX, ETT	1
2	G-1250-1060W	FLATWASHER, 5/16 WIDE	4
3	G-1251-1060R	LOCKWASHER, 5/16 REGULAR	4
4	G-1420-106010	BOLT, 5/16-18 X 1.0" LG. HEX HD GR 8	4
5	Z-11126-00	WLD, FUSE BOX BRACKET	1





Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	Z-10766-00	WLD, BEACON POST (WP)	1
2	AE-OPT-0007-LED	LED STROBE	1
3	AE-OPT-0009-LED	HALF COVER LED STROBE	1
4	DT04-2P	DEUTSCH CONNECTOR	1
5	W2P	DEUTSCH LOCK	1
6	0460-215-16141	DEUTSCH TERMINAL	2
7	G-1250-1050W	FLATWASHER, 1/4 WIDE	8
8	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	4
9	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	4
10	G-1250-1030N	FLATWASHER, #10 NARROW	6
11	G-1203-1035	JAMNUT, 10-32 ELASTIC	3
12	G-1150-103506	SCREW, #10-32 X 3/4" LG HEX HD MACHINE	3

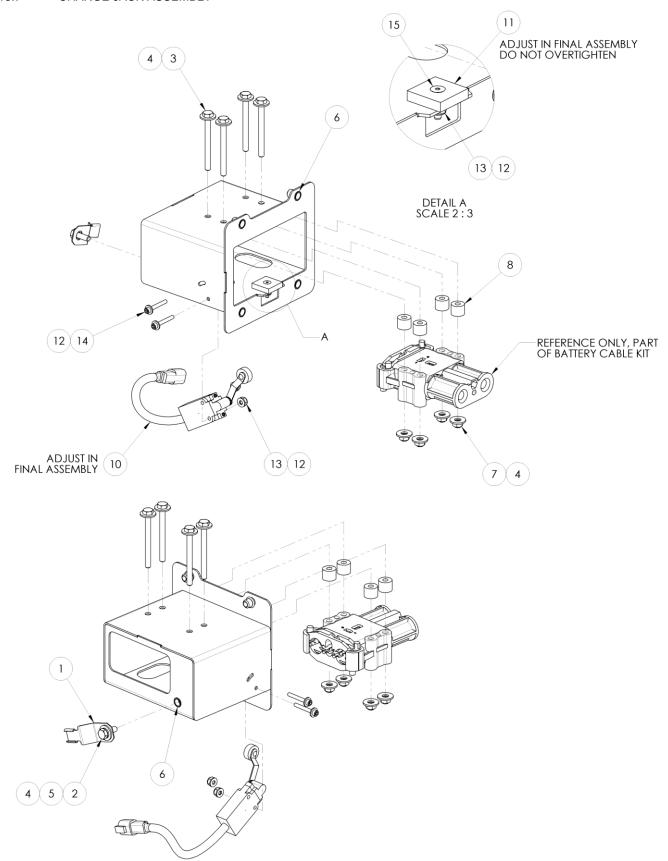




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13.7 CHARGE JACK ASSEMBLY





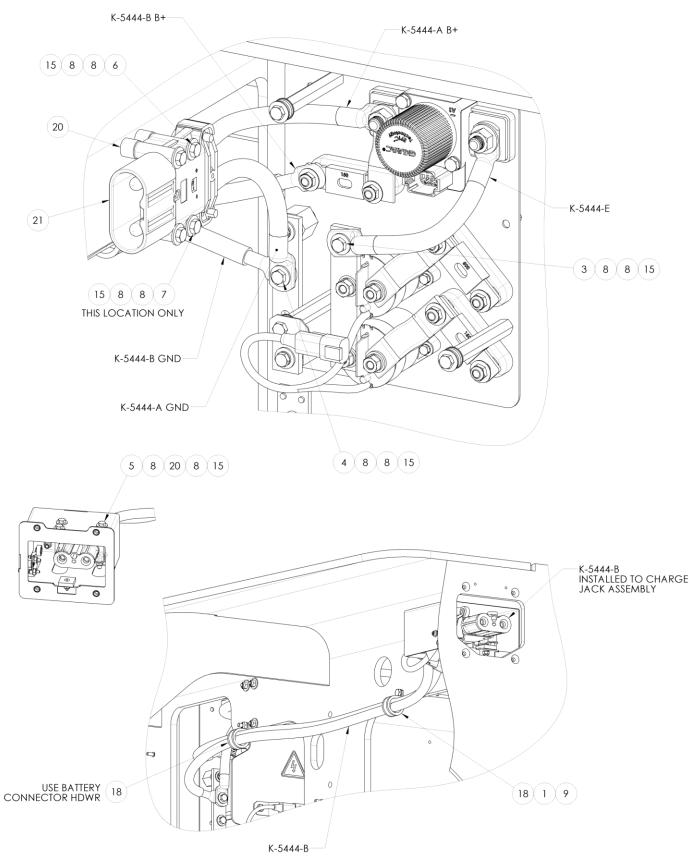
13.7 CHARGE JACK ASSEMBLY (continued)

Parts List When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	1027-003-1200	DEUTSCH RETAINER CLIP	1
2	G-1100-105006	BOLT, 1/4-20 X 3/4" LG HEX HD GR 5	1
3	G-1100-105026	BOLT, 1/4-20 X 2-3/4" LG HEX HD GR 5	4
4	G-1250-1050W	FLATWASHER, 1/4 WIDE	9
5	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	1
6	G-1439-1050-S	NUTSERT, THIN WALL 1/4-20	5
7	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	4
8	H-4566-04	SPACER, 1/4 ID X 5/8 OD X 1/2" LG STL	4
9	Z-11066-00	WLD, CHARGE JACK, EURO (P)	1
10	Z-11091	ASY, LIMIT SW WITH CONN	1
11	H-4844	MAGNET, CHARGE JACK DOOR	1
12	G-1250-1020N	FLATWASHER, #8 NARROW	5
13	G-1202-1020	STOPNUT, #8-32 ELASTIC	3
14	G-1151-102012	SCREW, #8-32 X 1-1/4" SOCKET HD CAP	2
15	G-1152-102110	SCR, SOC FLT HD 82 DEG CAP	1

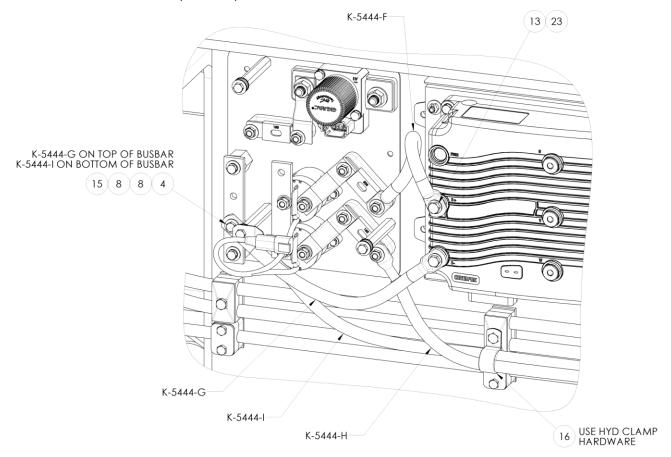


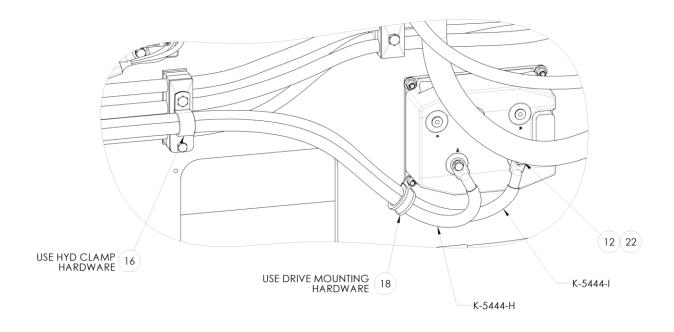
13.8 BATTERY CABLES





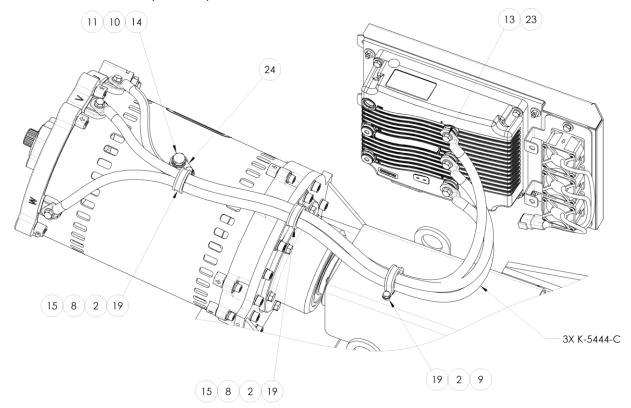
13.8 BATTERY CABLES (continued)

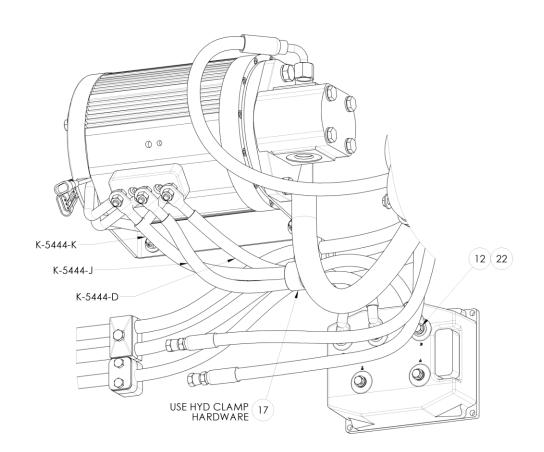






13.8 BATTERY CABLES (continued)







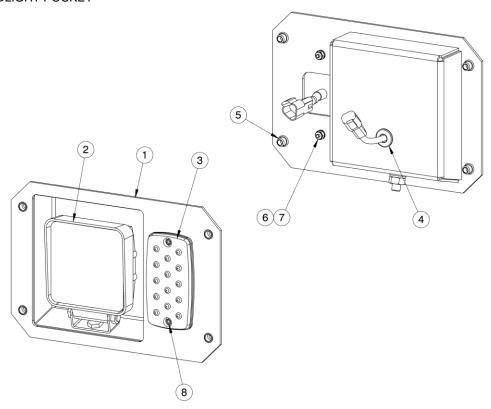
13.8 BATTERY CABLES (continued)

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	G-1100-105004	BOLT, 1/4-20 X 1/2" LG. HEX HD GR 5	1
2	G-1100-105006	BOLT, 1/4-20 X 3/4" LG HEX HD GR 5	3
3	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	1
4	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	2
5	G-1100-105026	BOLT, 1/4-20 X 2-3/4" LG HEX HD GR 5	4
6	G-1100-105030	BOLT, 1/4-20 X 3.0" LG HEX HD GR 5	3
7	G-1100-105032	BOLT, 1/4-20 X 3-1/4" LG HEX HD GR 5	1
8	G-1250-1050W	FLATWASHER, 1/4 WIDE	23
9	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	2
10	G-1514-M120R	LOCKWASHER, M 12 REGULAR	1
11	G-1515-M120	FLATWASHER, M12	1
12	G-1533-060020	BOLT, METRIC 10.9 M6X1X20	5
13	G-1533-080016	BOLT M8-1.25 X 16mm LG. CLASS 10.9	5
14	G-1533-120020	BOLT M12-1.75 X 20mm LG. CLASS 10.9	1
15	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	13
16	G-1847-16	CUSHION LOOP CLAMP, 1", Ø.406 MTG HOLE	2
17	G-1847-20	CUSHION LOOP CLAMP, 1 1/4", Ø.406 MTG HOLE	1
18	H-3521-11	CLAMP, CUSHIONED LOOP 1"	3
19	H-3521-15	CLAMP, CUSHIONED LOOP 1 1/4"	3
20	H-4566-04	SPACER, 1/4 ID X 5/8 OD X 1/2" LG STL	8
21	K-5444	KIT, ETT BATTERY CABLES	1
22	NSVP-21-016-CA	M6 BELLEVILLE SPRING LOCK WASHER	5
23	NVSP-21-016-CB	M8 BELLEVILLE LOCK WASHER	5
24	S-3957-00	MOUNTING TAB, BATTERY CABLES	1



13.9 HEADLIGHT POCKET

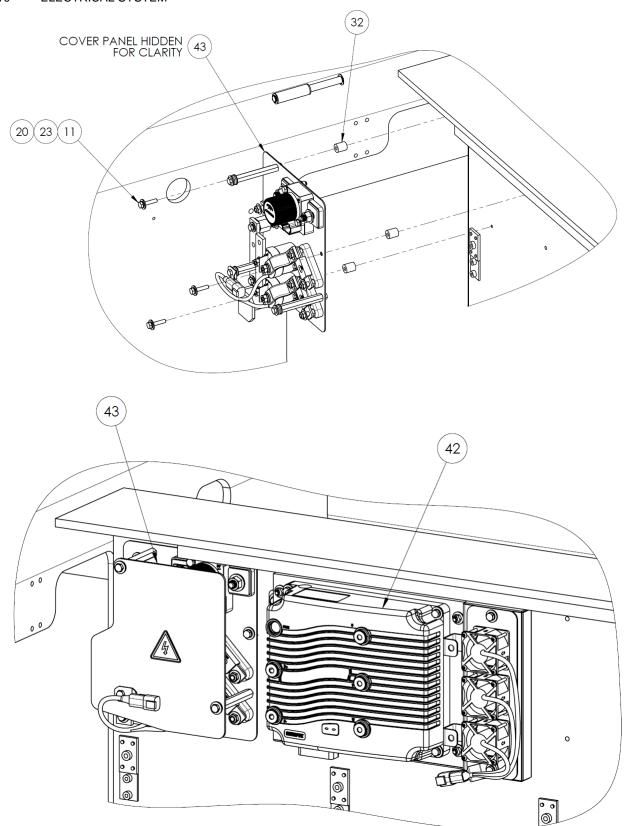


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

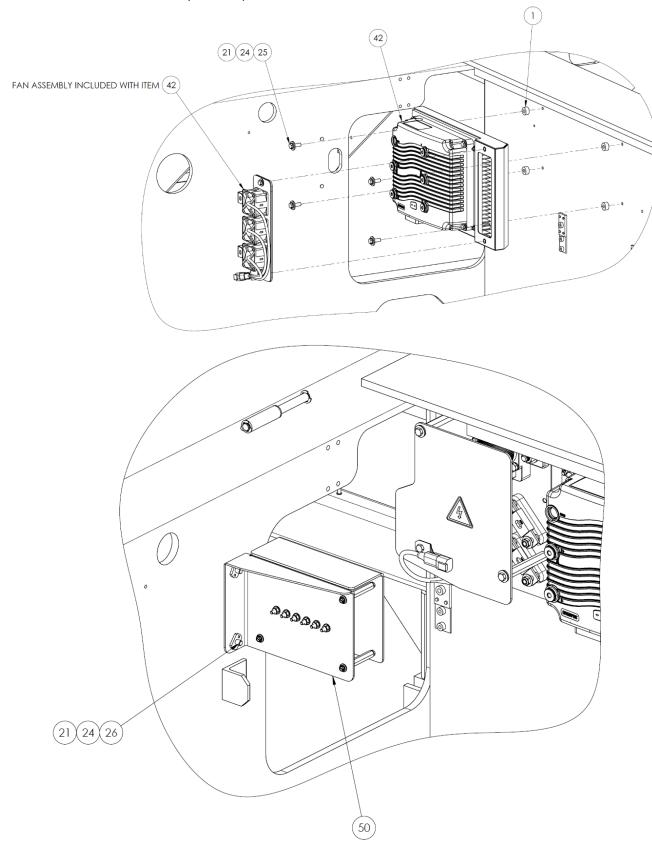
Item	Part Number	Description	Qty
1	ET12-02-001-SA	HEADLIGHT POCKET, LH	1
1	ET12-02-001-SB	HEADLIGHT POCKET, RH	1
2	Z-9825	ASY, HEADLIGHT W/CONNECTOR	1
3	Z-9826	ASY, TURN IND W/CONNECTOR	1
4	AE-OPT-0320-E	GROMMET, Ø5/8 HIGH TEMP	1
5	G-1439-1050-S	NUTSERT, THIN WALL 1/4-20	4
6	G-1250-1020N	FLATWASHER, #8 NARROW	2
7	G-1202-1020	STOPNUT, #8-32 ELASTIC	2
8	G-1151-102205	SCREW, #8-32 X 5/8" SOCKET HD CAP	2



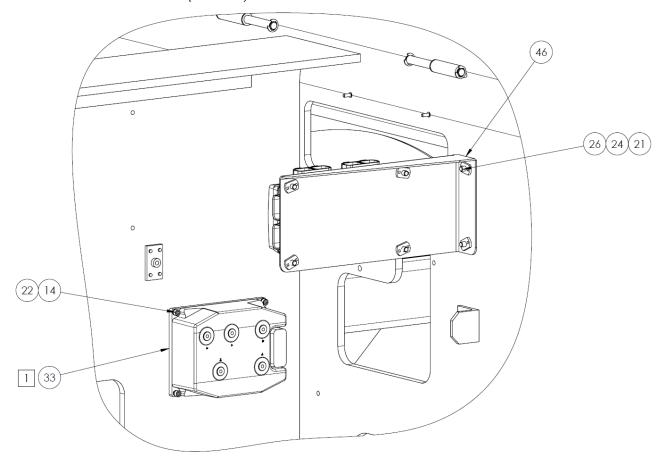
13.10 ELECTRICAL SYSTEM



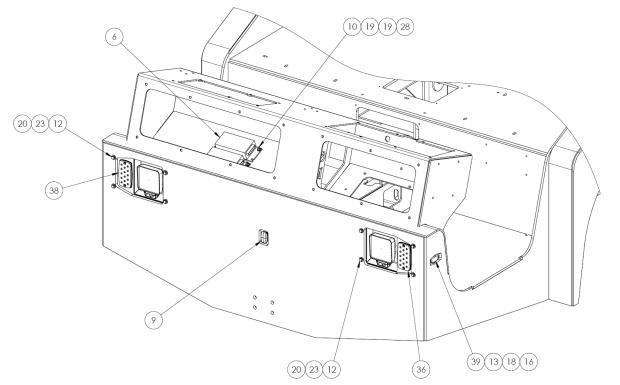




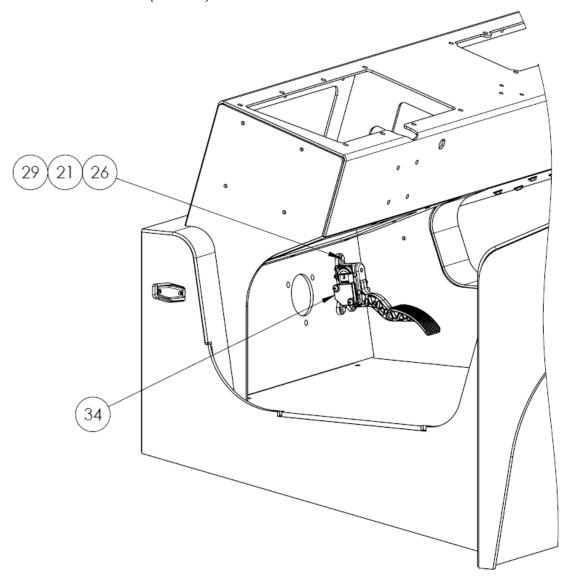




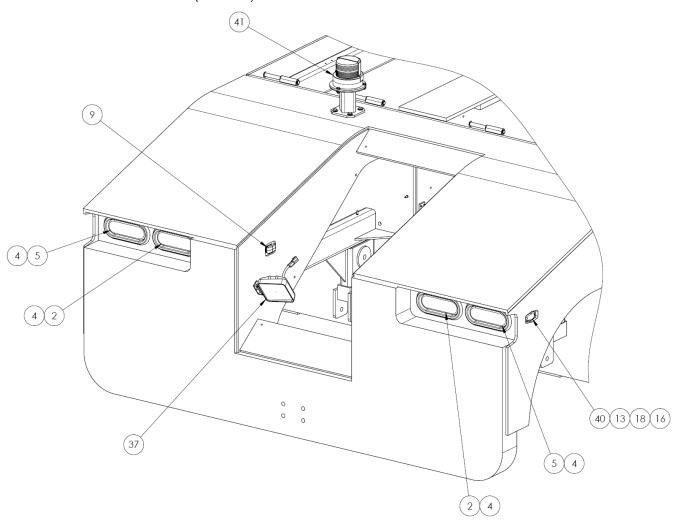
APPLY A THIN UNINTERRUPTED LAYER OF THERMAL INTERFACE COMPOUND SUCH AS LOCTITE TC 4 OR EQUIVALENT TO BOTTOM OF DRIVE BEFORE MOUNTING TO HEATSINK



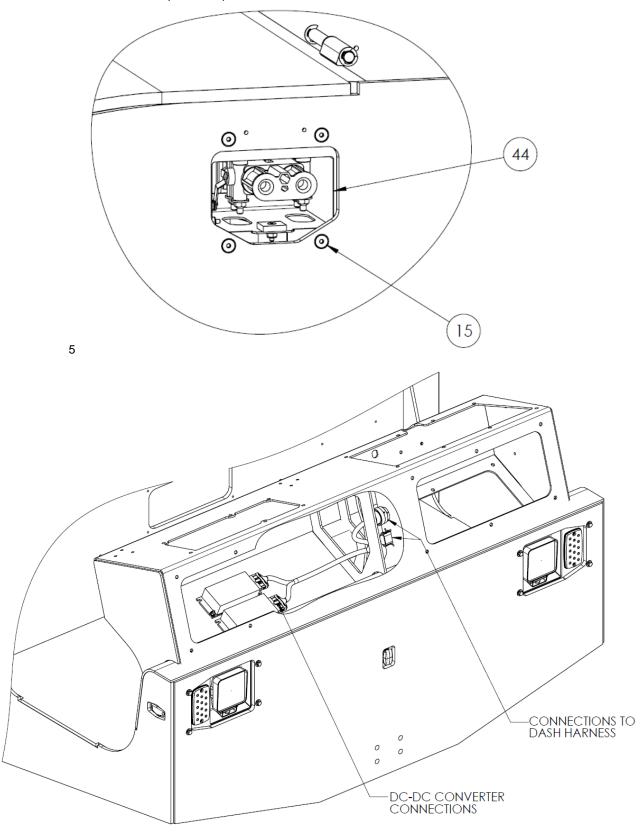




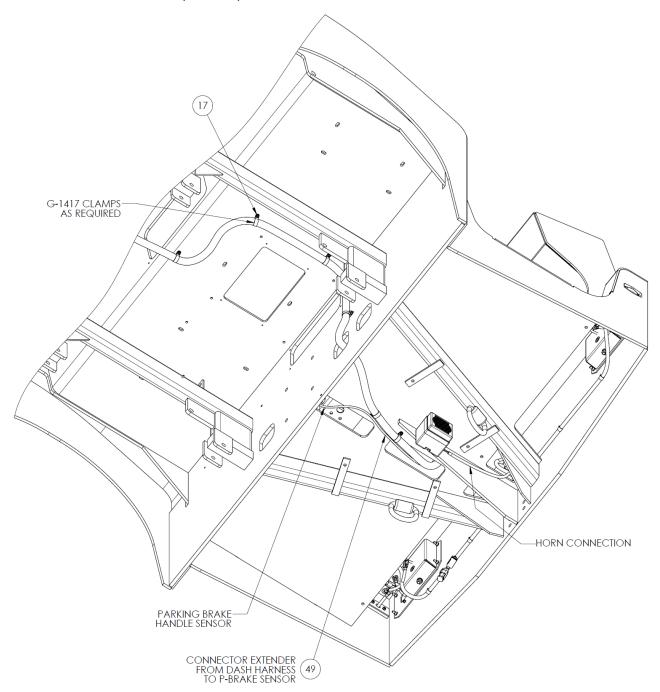




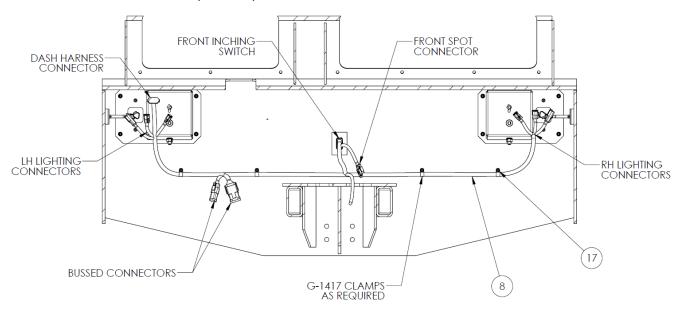


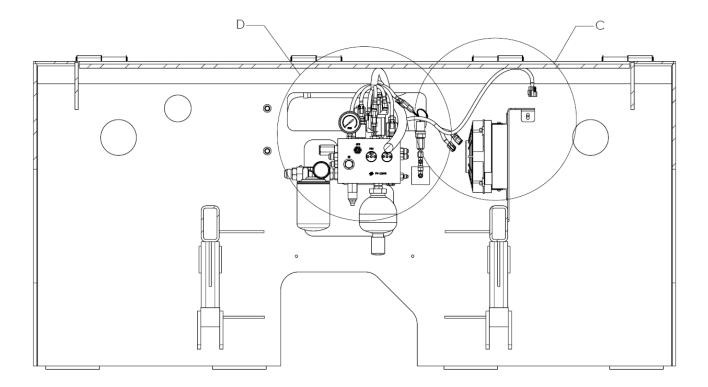




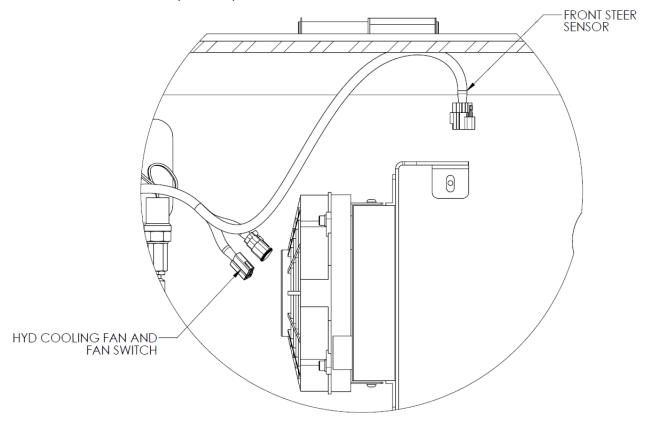




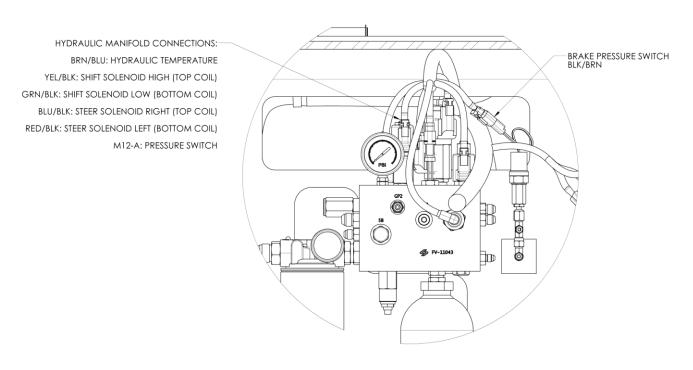






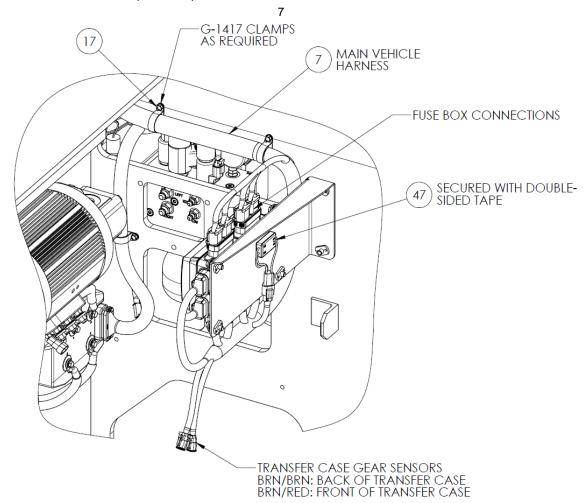


DETAIL C

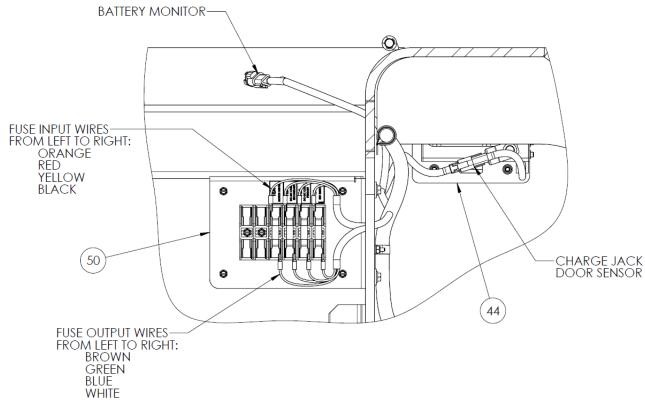


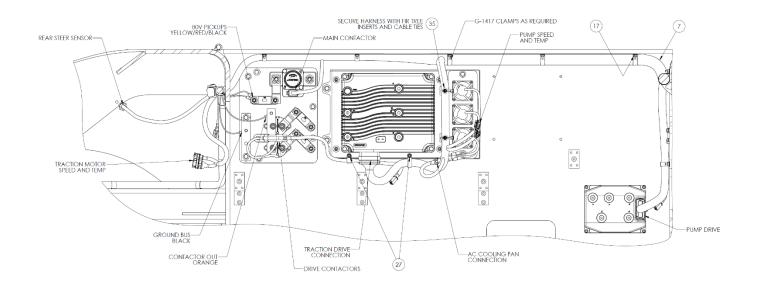
DETAIL D



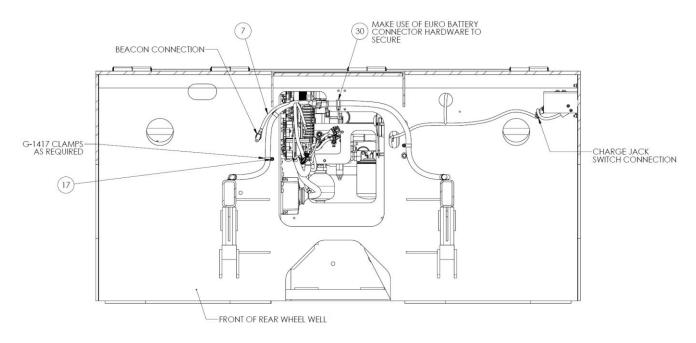


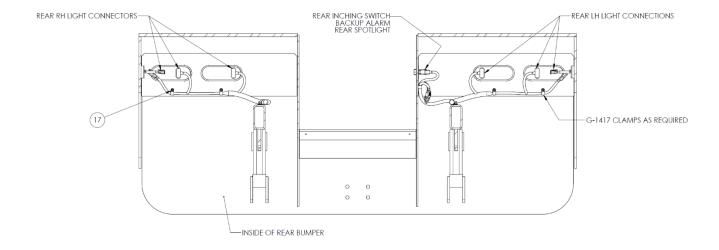






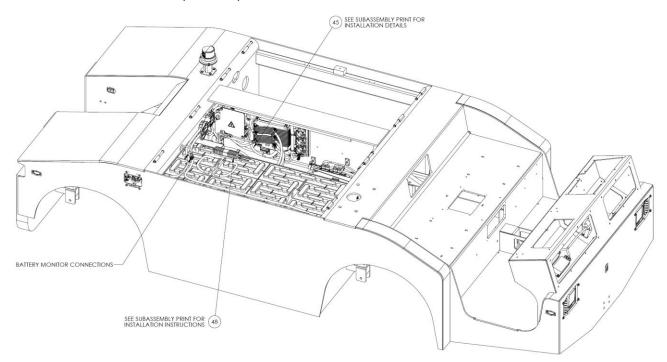








13.10 ELECTRICAL SYSTEM (continued)





13.10 ELECTRICAL SYSTEM (continued)

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	390-100	SPACER, Ø.75 OD, Ø.315 ID X .375	4
2	A-ES12-0494	REVERSE LAMP	2
3	A-RTT12-00052	ELECTRONIC HORN	1
4	A-RTT12E-00287	TAIL LIGHT GROMMET	4
5	A-RTT12E-00292	STOP LAMP	2
6	AE-OPT-0320-B	DC-DC CONVERTER, 300W	2
7	EC-3345	MAIN VEHICLE HARNESS	1
8	EC-3346	FRONT LIGHTING HARNESS	1
9	ET00-14-001-CA	INCHING SWITCH	2
10	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	5
11	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	3
12	G-1100-105014	BOLT, 1/4-20 X 1-1/2" LG HEX HD GR 5	8
13	G-1151-102005	SCREW, #8-32 X 5/8" SOCKET HD CAP	8
14	G-1151-105010	SCREW, 1/4-20 X 1.0" LG SOCKET HD CAP	4
15	G-1152-105210	SCREW, 1/4-20 X 1.0" LG SOCKET FLAT HD CAP	4
16	G-1202-1020	STOPNUT, #8-32 ELASTIC	8
17	G-1202-1035	STOPNUT, #10-32 ELASTIC	35
18	G-1250-1020N	FLATWASHER, #8 NARROW	8
19	G-1250-1050N	FLATWASHER, 1/4 NARROW	4
20	G-1250-1050W	FLATWASHER, 1/4 WIDE	17
21	G-1250-1060W	FLATWASHER, 5/16 WIDE	11
22	G-1251-1050HC	LOCKWASHER, 1/4 HIGH COLLAR	4
23	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	11
24	G-1251-1060R	LOCKWASHER, 5/16 REGULAR	8
25	G-1420-106010	BOLT, 5/16-18 X 1.0" LG. HEX HD GR 8	4
26	G-1420-106012	BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8	7
27	G-1720-103506	SCR,#10-32X.75 MACH HEX WSH HD	2
28	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	5
29	G-1727-1060	NUT, 5/16-18 TOP LOCK ZINC	3
30	H-3521-07	CLAMP, CUSHIONED LOOP 3/4"	1
31	H-3521-11	CLAMP, CUSHIONED LOOP 1"	1
32	H-4566-06	SPACER, 1/4 ID X 5/8 OD X 3/4" LG STL	3
33	MTT5-10-002-CAP	PUMP DRIVE, 1232E-6221	1
34	NVSP-14-033-CA	THROTTLE PEDAL, DUAL ANALOG	1
35	NVSP-24-022-CA	CABLE TIE ANCHOR STD (Ø.375 X .27 THK)	2
36	N/A	ASY, LH HEADLIGHT POCKET	1
37	Z-9825	ASY, HEADLIGHT W/CONNECTOR	1
38	N/A	ASY, RH HEADLIGHT POCKET	1
39	Z-10039	ASY, AMBER SIDE IND WITH CONN	2
40	Z-10040	ASY, RED SIDE IND WITH CONN	2



13.10 ELECTRICAL SYSTEM (continued)

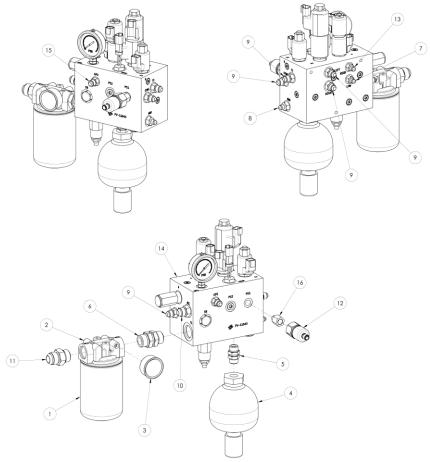
Parts List When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
41	N/A	ASY, POST MOUNTED LED STROBE	1
42	N/A	ASY, MOTOR CTLR WITH HEATSINK	1
43	N/A	ASY, CONTACTOR AND FUSE PANEL	1
44	N/A	ASY, CHARGE JACK, EURO	1
45	N/A	ASY, HV BATTERY CABLES	1
46	N/A	ASY, FUSE BOX BRACKET	1
47	Z-11128	ASY, FLASHER AND CONNECTOR	1
48	N/A	ASY, BATTERY MONITOR	1
49	Z-11231-42	ASY, 2-PIN DEUTSCH EXTENSION	1
50	N/A	ASSY, FUSE HOLDER	1



14.0 HYDRAULIC SYSTEM

14.1 MANIFOLD BLOCK

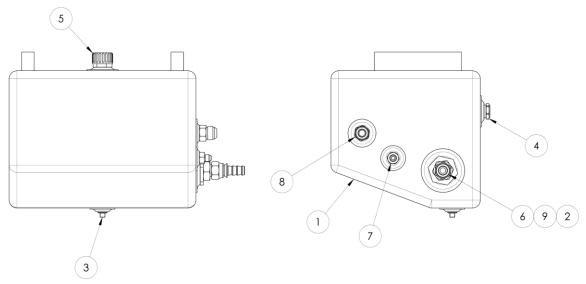


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0485	HYD FILTER, SPIN-ON	1
2	A-ES12-0486	HYD FILTER HEAD	1
3	A-ES12-0487	FILTER PRESSURE INDICATOR	1
4	A-MTT5-0453-C	CHARGED ACCUMULATOR, 30 CU IN.	1
5	C5314X8X8	ADAPTER, -08 SAE ORB M X -08 SAE ORB M	1
6	C5314X12X12	ADAPTER, -12 M SAE ORB X -12 M SAE ORB	1
7	C5315X4	ADAPTER, -04 SAE ORB M X -04 JIC M	1
8	C5315X4X6	ADAPTER, -06 SAE ORB X -04 JIC M	1
9	C5315X6	ADAPTER, -06 M SAE ORB X -06 M JIC	5
10	C5315X8	ADAPTER, -08 M SAE ORB X -08 M JIC	1
11	C5315X12	ADAPTER, -12 M SAE ORB X -12 M JIC	1
12	EC-2204-PGM-6	PRESSURE SENSOR, PROGRAMMED	1
13	ET00-09-003-CA	ADAPTER, -04 SAE ORB M X -04 JIC M X .031 ORIFICE	1
14	HC-2882	MANIFOLD BLOCK, 12V	1
15	N-2007-38-S-B	CONNECTOR, STRAIGHT THREAD	1
16	N-2846-02	FITTING, ADAPTOR	1



14.2 HYDRAULIC TANK

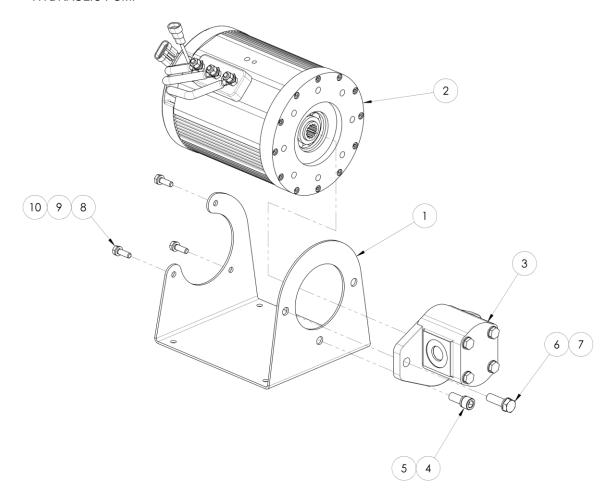


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	A-ES12-0469-2	HYDRAULIC TANK, eTT12	1
2	A-ES12-0488	HYDRAULIC TANK STRAINER	1
3	A-ES12-0552	MAGNETIC DRAIN PLUG, .5 NPT	1
4	A-ES12-0551	HYD SIGHT GAGE	1
5	A-ES12-0550	HYD FILLER-BREATHER CAP	1
6	30682-12-12	HOSE BARB, -12 JIC F X 3/4 BARB	1
7	C5315X6X8	ADAPTER, -08 M ORB X -06 M JIC	1
8	C5315X12X10	ADAPTER, -10 SAE ORB M X -12 JIC M	1
9	C5315X12X16	FITTING, 12 JIC, 16 O-RING	1



14.3 HYDRAULIC PUMP

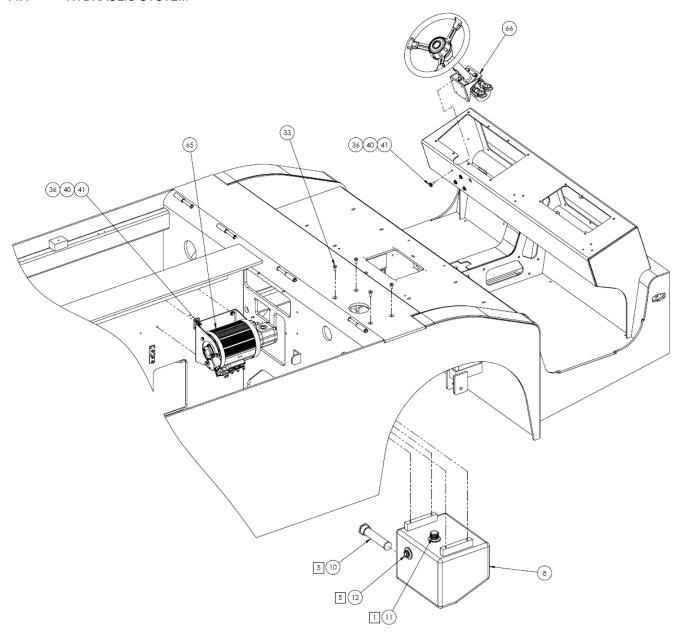


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

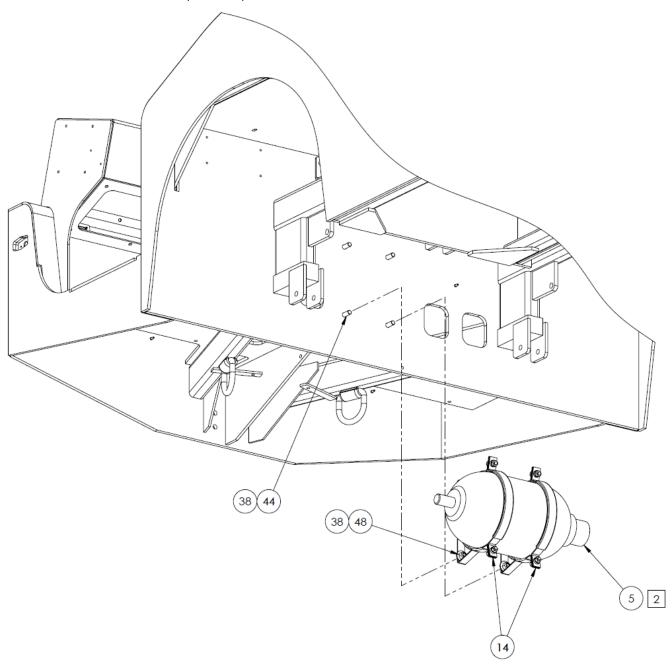
Item	Part Number	Description	Qty
1	J-7484-00	MOUNT, PUMP MOTOR (P)	1
2	EC-3247	AC PUMP MOTOR	1
3	A-ES12-0450-2	GEAR PUMP	1
4	G-1491-109015	SHCS, M12X1.75 X 30 LG. CLASS 10.9	1
5	G-1626-M12Z	LOCKWASHER, M12 HIGH COLLAR	1
6	G-1533-120040	BOLT M12-1.75 X 40mm LG. CLASS 10.9	2
7	G-1514-M120R	LOCKWASHER, M 12 REGULAR	2
8	G-1533-080025	BOLT M8-1.25 X 25mm LG. CLASS 10.9	3
9	G-1514-M80R	SPLIT LOCK WASHER M8	3
10	G-1515-M80	FLATWASHER, M8	3



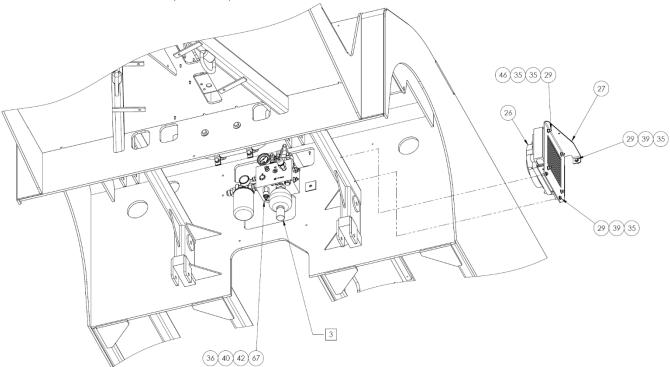
14.4 HYDRAULIC SYSTEM



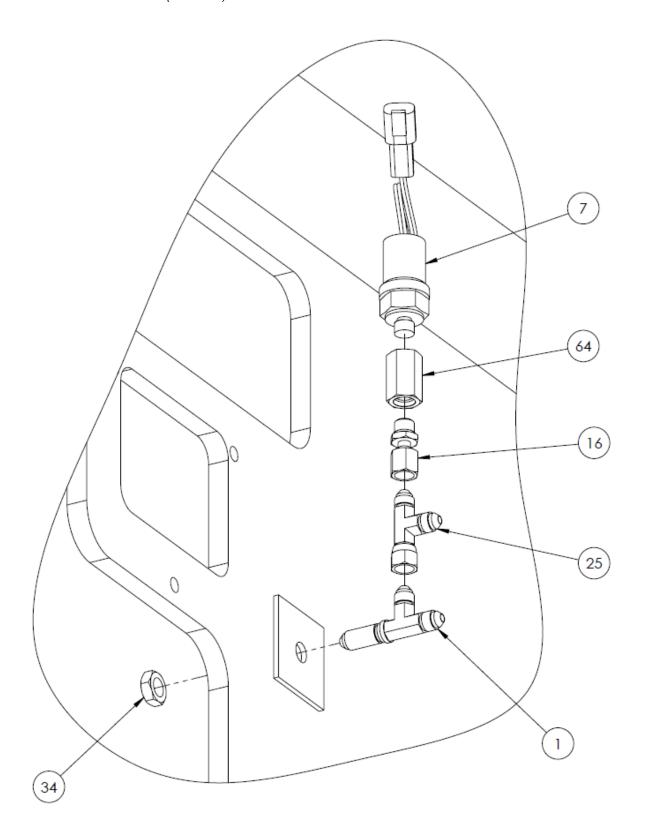




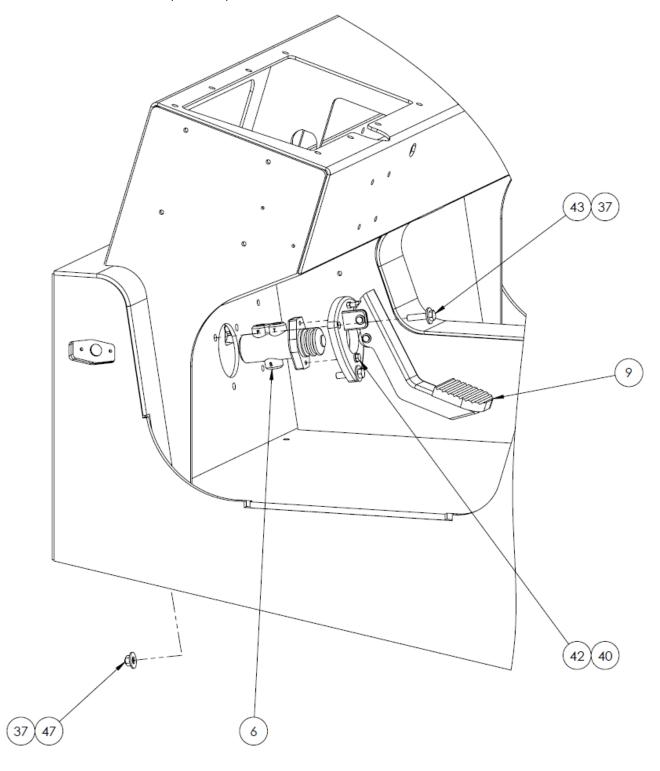




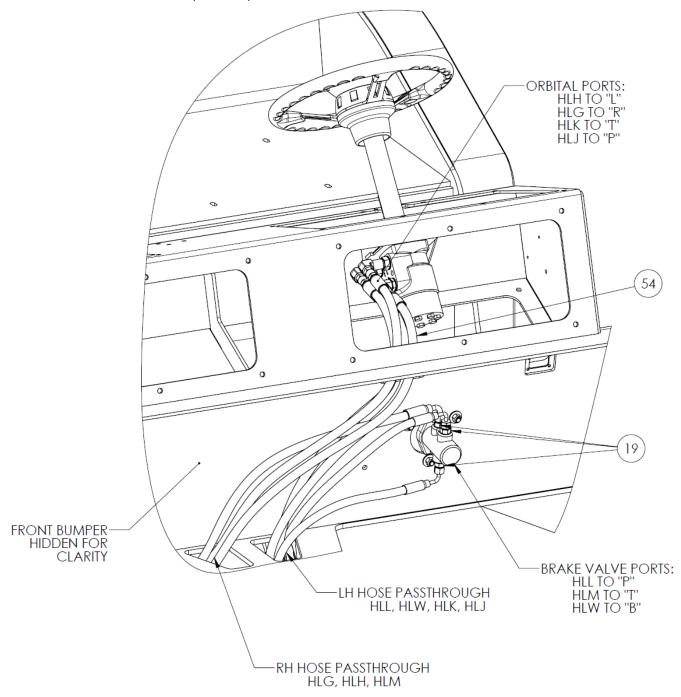




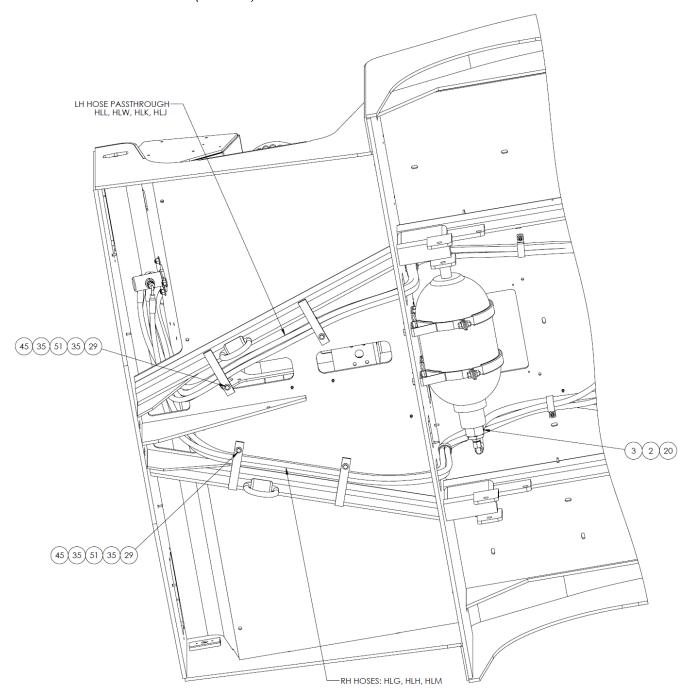




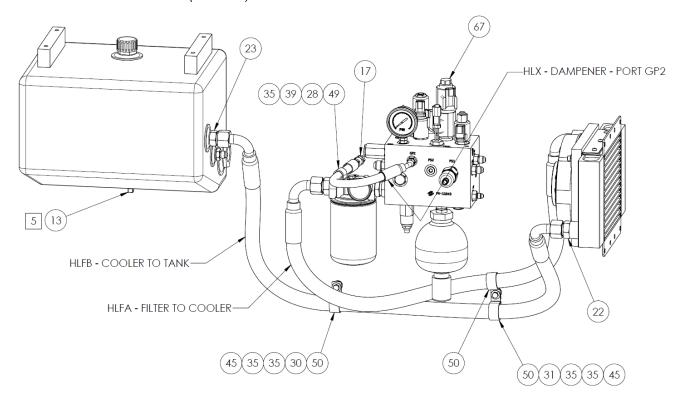




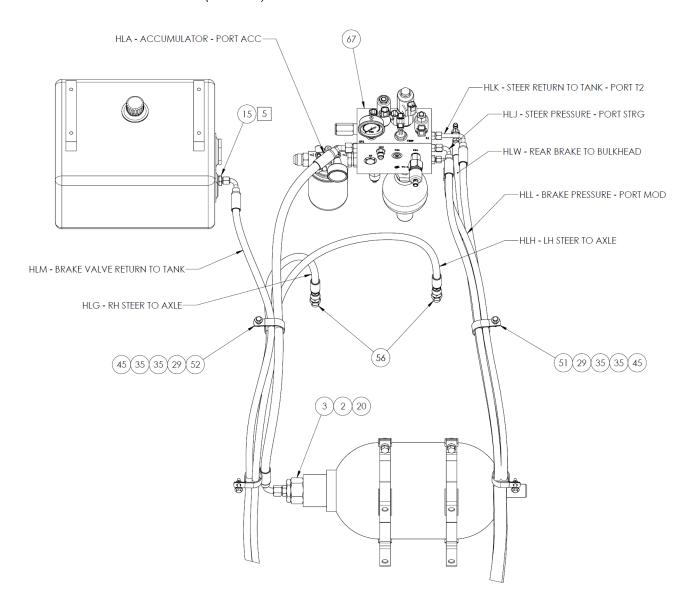




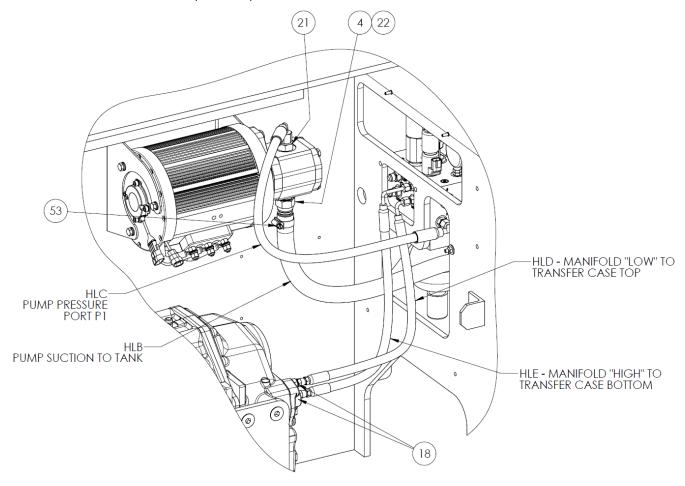




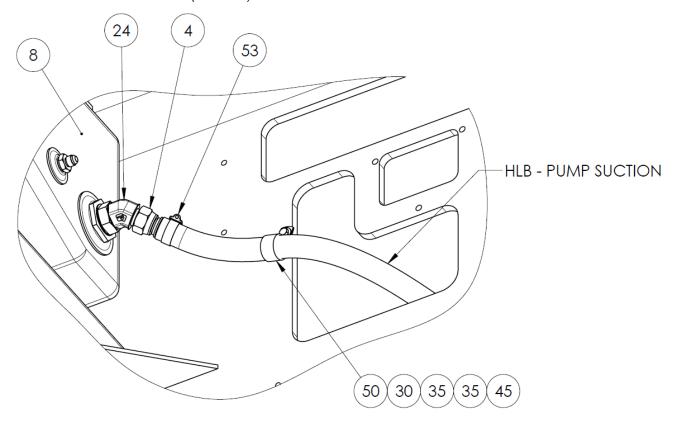


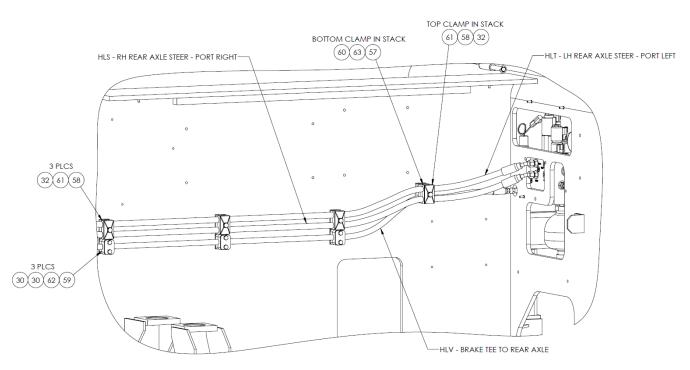




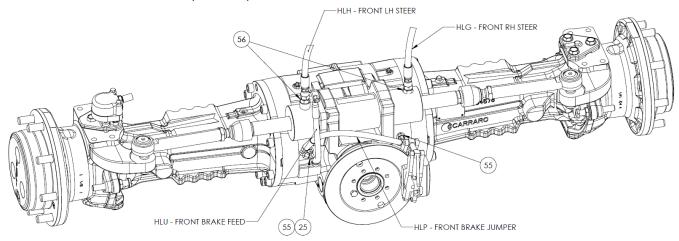


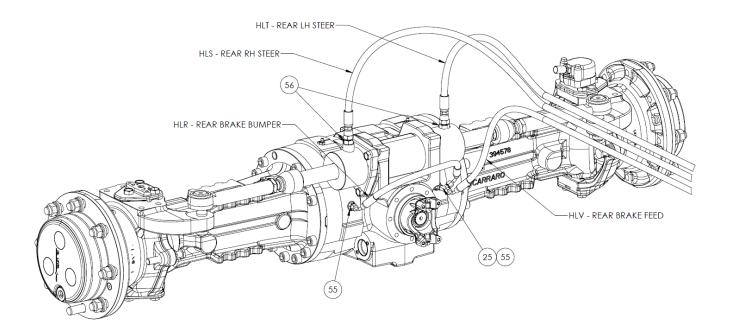














Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	4 WJJTX-S	BULKHEAD TEE, -04 JIC M LONG X 2X -04 JIC M	1
2	20-8 F5OG5-S	REDUCER, -20 SAE ORB M X -08 SAE ORB F	1
3	7033X24X20	ADAPTER, -24 SAE ORB M X -20 SAE ORB F	1
4	30682-12-12	HOSE BARB, -12 JIC F X 3/4 BARB	2
5	A-ES12-0454-1-C	CHARGED ACCUMULATOR, 2.5 GAL	1
6	A-ES12-0460-2	BRAKE MODULATING VALVE	1
7	A-ES12-0468-1	BRAKE PRESSURE SWITCH	1
8	A-ES12-0469-2	HYDRAULIC TANK, eTT12	1
9	A-ES12-0481	BRAKE PEDAL ASSEMBLY	1
10	A-ES12-0488	HYDRAULIC TANK STRAINER	1
11	A-ES12-0550	HYD FILLER-BREATHER CAP	1
12	A-ES12-0551	HYD SIGHT GAGE	1
13	A-ES12-0552	MAGNETIC DRAIN PLUG, .5 NPT	1
14	A-EXL16-0454	2.5 GAL ACCUM MTG BRACKET	2
15	C5205X6X8	ADAPTER, 6 JIC M - 1/2 NPT M	1
16	C5216X4X4	ADAPTER, -04 SAE ORB M X -04 JIC F	1
17	C5229X6	PLUG, -06 JIC M HEX	1
18	C5315X4X6	ADAPTER, -06 SAE ORB X -04 JIC M	2
19	C5315X6	ADAPTER, -06 M SAE ORB X -06 M JIC	3
20	C5315X8	ADAPTER, -08 M SAE ORB X -08 M JIC	1
21	C5315X8X10	ADAPTER, -10 SAE ORB M X -08 JIC M	1
22	C5315X12	ADAPTER, -12 M SAE ORB X -12 M JIC	3
23	C5315X12X10	ADAPTER, -10 SAE ORB M X -12 JIC M	1
24	C5365X12X16	16 SAE ORB M - 12 JIC M, 45 DEG	1
25	C5706X4	RUN TEE, -04 JIC F X 2X -04 JIC M	3
26	ET00-09-002-CA	HYDRAULIC COOLER	1
27	EX16-02-006-SA	HYDRAULIC COOLER BRACKET	1
28	G-1100-105004	BOLT, 1/4-20 X 1/2" LG. HEX HD GR 5	1
29	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	13
30	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	10
31	G-1100-105013	BOLT, 1/4-20 X 1-3/8" HEX HD GR5	1
32	G-1100-106014	BOLT, 5/16-18 X 1-1/2" LG. HEX HD GR 5	4
33	G-1152-107210	SOC HD FHS, 3/8-16 X 1.0	4
34	G-1207-1085	NUT, 7/16-20 JAM	1
35	G-1250-1050W	FLATWASHER, 1/4 WIDE	34
36	G-1250-1060W	FLATWASHER, 5/16 WIDE	11
37	G-1250-1070W	FLATWASHER, 3/8 WIDE	6
38	G-1250-1090W	FLATWASHER, 1/2 WIDE	8
39	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	4
40	G-1251-1060R	LOCKWASHER, 5/16 REGULAR	13



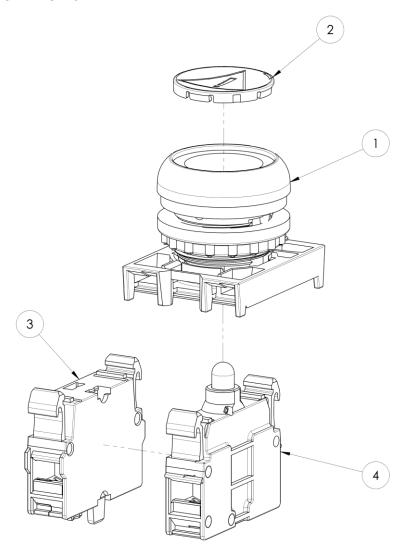
Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
41	G-1420-106010	BOLT, 5/16-18 X 1.0" LG. HEX HD GR 8	8
42	G-1420-106012	BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8	5
43	G-1420-107014	BOLT, 3/8-16 X 1.5" HEX HD GR 8	3
44	G-1420-109016	BOLT, 1/2-13 X 1-3/4" HEX HD GR 8	4
45	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	11
46	G-1727-1060	NUT, 5/16-18 TOP LOCK ZINC	4
47	G-1727-1070	NUT, 3/8-16 TOP LOCK ZINC	3
48	G-1727-1090	NUT, 1/2-13 TOP LOCK ZINC	4
49	G-1847-12	CUSH CLAMP, Ø0.75, Ø.406 MTG	1
50	G-1847-20	CUSH CLAMP, Ø1.25, Ø.406 MTG	4
51	G-1847-24	CUSH CLAMP, Ø1.50, Ø.406 MTG	7
52	G-1847-28	CUSH CLAMP, Ø1.75, Ø.406 MTG	1
53	H-1426-04	CLAMP, HOSE, SAE -12	2
54	K-5480	KIT, HYDRAULIC HOSES ETT16	1
55	MC5315X4X10	ADAPTER, M10X1.0 DIN M X -04 JIC M	4
56	MC5315X8X18	ADAPTER, M18X1.5 DIN M X -08 JIC M	4
57	NVSP-24-015-CF	HYD CLAMP - DUAL 15MM SMOOTH	1
58	NVSP-24-015-CG	HYD CLAMP - DUAL 16MM SMOOTH	4
59	NVSP-24-015-CH	HYD CLAMP - SINGLE 15MM SMOOTH	3
60	NVSP-24-016-CC	HYD CLAMP STACK BOLT, 5/16	1
61	NVSP-24-017-CC	HYD CLAMP - COVER PLATE	4
62	NVSP-24-017-CD	HYD CLAMP - COVER PLATE	3
63	NVSP-24-018-CB	HYD CLAMP - SAFETY PLATE	1
64	PHC4 G5HG5-S	ADAPTER, -04 SAE ORB F X -04 SAE ORB F	1
65	N/A	ASY, PUMP MOTOR	1
66	N/A	ASY, STEERING COLUMN	1
67	N/A	ASY, MANIFOLD BLOCK	1



15.0 DASH PANEL CONTROLS

15.1 MARKER FLASHER BUTTON

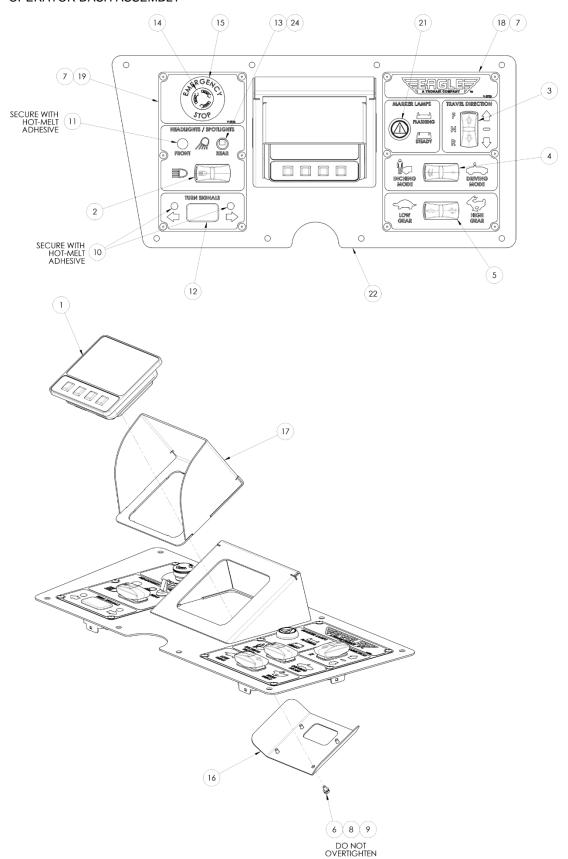


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	NVSP-14-004-CA	HAZARD PUSHBUTTON	1
2	NVSP-14-005-CA	HAZARD PUSHBUTTON LENS	1
3	NVSP-14-007-CA	HAZARD CONTACT BLOCK	1
4	NVSP-14-006-CA	HAZARD BACKLIGHT	1



15.2 OPERATOR DASH ASSEMBLY





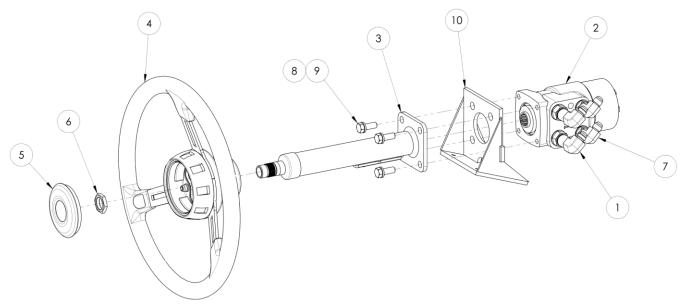
15.2 OPERATOR DASH ASSEMBLY (continued)

Parts List When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	EC-3309	OPERATOR DISPLAY MODULE	1
2	EC-3450-01	LIGHTS SWITCH	1
3	EC-3450-03	FNR SWITCH	1
4	EC-3450-04	DRIVE/INCH SWITCH	1
5	EC-3450-05	HIGH/LOW SWITCH	1
6	G-1114-040008	BOLT, METRIC, CLASS 8.8, M4X0.7X8	4
7	G-1352-21	RIVET, 3/16 OPEN END ALUM	12
8	G-1514-M40R	SPLIT LOCK WASHER (M4)	4
9	G-1515-M40	FLAT WASHER, M4	4
10	H-4693-05	PANEL PLUG, Ø5/16	2
11	H-4693-09	PANEL PLUG, 1/2"	1
12	H-4992	SVR EMPTY SWITCH PLUG	1
13	NVSP-14-008-CA	SPOTLIGHT SWITCH DASH ILLUMINATED	1
14	NVSP-14-041-CA	E-STOP BUTTON	1
15	NVSP-14-042-CA	E-STOP PLACARD	1
16	S-3926-00	DISPLAY BRACKET	1
17	S-4048-00	SUN SHIELD (P)	1
18	V-2925	PLACARD, ETT DASH RH	1
19	V-2926	PLACARD, ETT DASH LH	1
20	Z-10863	ASY, SPOT SWITCH WIRING	1
21	Z-10995	ASY, MARKER FLASHER BUTTON	1
22	Z-11683-00	WLD, DASH PANEL (WP)	1



15.3 STEERING COLUMN ASSEMBLY

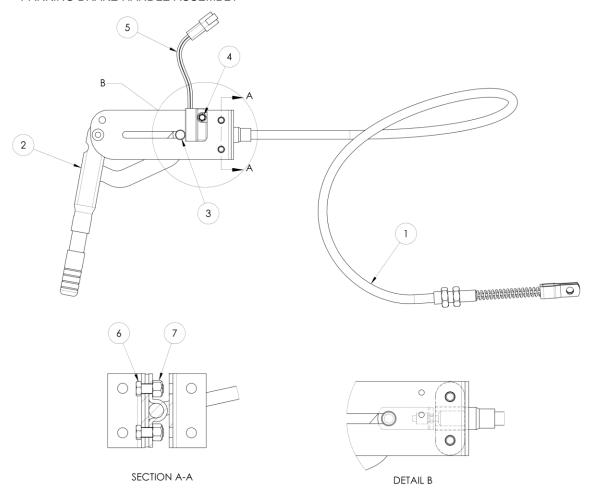


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	6-8 CC5OX-S	ELBOW LONG, -06 M JIC X -08 M ORB	2
2	A-ES12-0457	STEERING VALVE	1
3	A-MTT5-0807	STEERING COLUMN	1
4	A-TN4-00809E	STEERING WHEEL, 14"	1
5	A-TT10-00811	HORN BUTTON	1
6	A-TT10-00813	WHEEL NUT, 13/16-20 UNEF	1
7	C5515X6X8	ELBOW, -06 M JIC X -08 M ORB	2
8	G-1251-1070R	LOCKWASHER, 3/8 REGULAR	4
9	G-1420-107010	BOLT, 3/8-16 X 1.0" HEX HD GR 8	4
10	XL00-02-062-SA	WLD, STEER COLUMN BRACKET (P)	1



15.4 PARKING BRAKE HANDLE ASSEMBLY

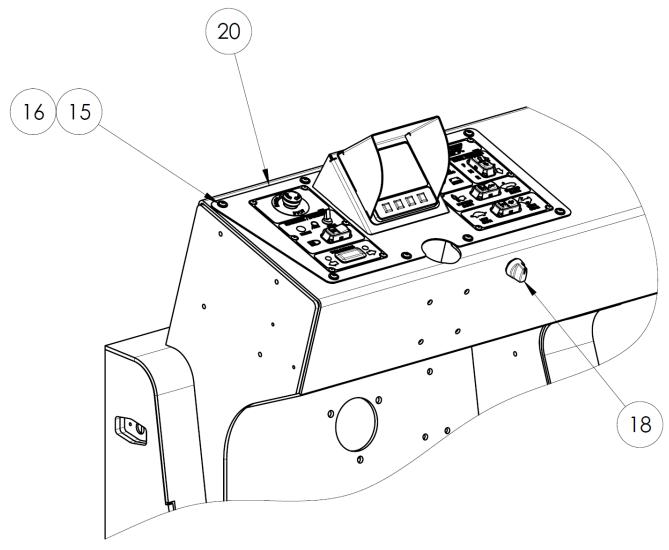


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

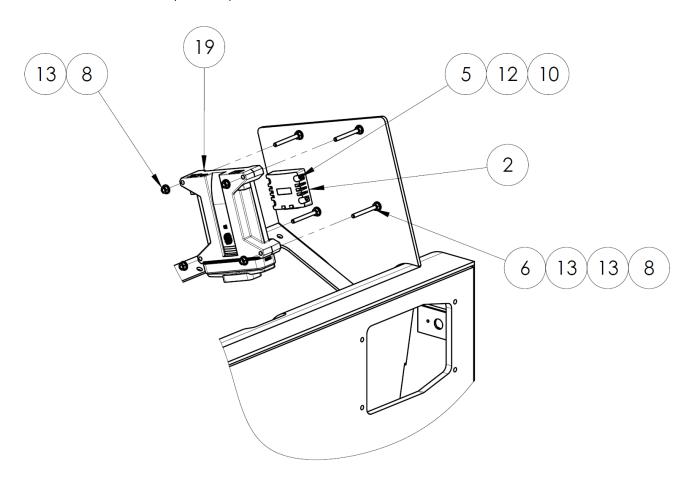
Item	Part Number	Description	Qty
1	A-EXL16-0550	PARKING BRAKE CABLE, ETT	1
2	A-TT4-00141	BRAKE LEVER-HAND	1
3	81008429	BUZZLITE PRK BRAKE CONTACT PIN	1
4	82066700	MOUNTING SCREW BUZZLITE	1
5	Z-9940	PRX SENSOR BUZZLITE W CONNECT	1
6	G-1420-106006	BOLT, 5/16-18 X 3/4" LG. HEX HD GR 8	2
7	G-1727-1060	NUT, 5/16-18 TOP LOCK ZINC	2



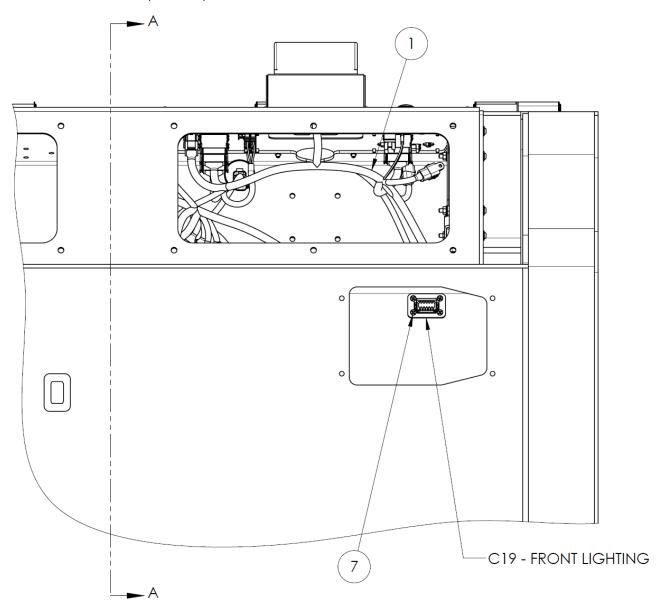
15.5 DASH CONSOLE



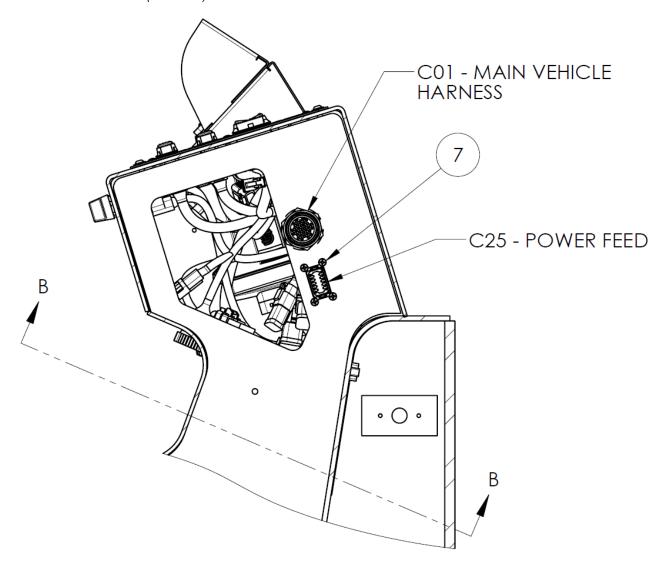






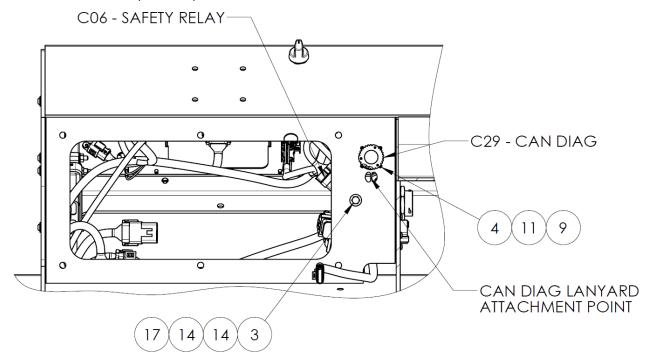






SECTION A-A





SECTION B-B

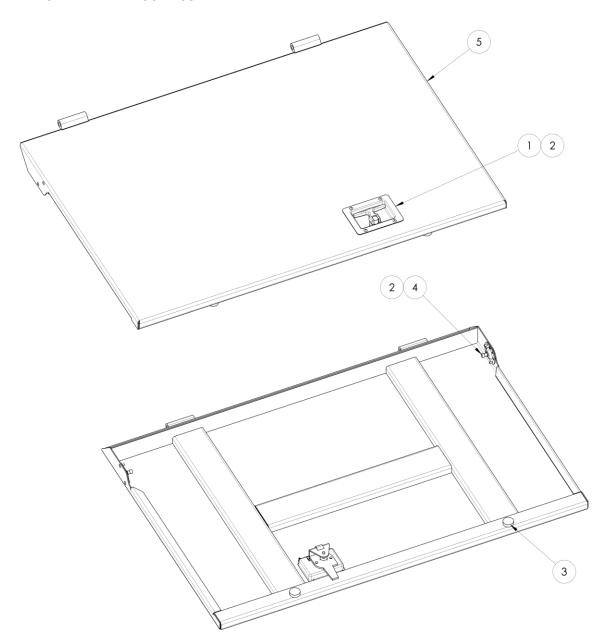
Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	EC-3453	ETT DASH HARNESS	1
2	EC-3356	CAN ISOLATOR	1
3	G-1100-105006	BOLT, 1/4-20 X 3/4" LG HEX HD GR 5	1
4	G-1154-100004	SCREW, #4-40 X 1/2" LG. SOC BUTT. HD CAP	4
5	G-1154-101006	SCREW, #6-32 X 3/4" LG. SOC BUTT. HD CAP	2
6	G-1154-105230	SCREW, 1/4-20 X 3" LG. SOC BUTT. HD CAP	4
7	G-1178-103005	SCREW, #10 X 5/8 PAN HEAD SELF TAPPING	8
8	G-1200-1050	NUT, 1/4-20 HEX	8
9	G-1202-1000	STOPNUT, #4-40 ELASTIC	4
10	G-1202-1010	STOPNUT, #6-32 ELASTIC	2
11	G-1250-1000N	FLATWASHER, #4 NARROW	4
12	G-1250-1010N	FLATWASHER, #6 NARROW	2
13	G-1250-1050N	FLATWASHER, 1/4 NARROW	12
14	G-1250-1050W	FLATWASHER, 1/4 WIDE	2
15	G-1476-105004	SCREW, 1/4-20 X 1/2" LG. SST SOC BUTT. HD CAP	8
16	G-1503-1050N	FLATWASHER. 1/4 SST NARROW	8
17	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	1
18	NVSP-05-005-CB	KEYLESS IGNITION SWITCH, 3-POS	1
19	XL00-10-002-CA	VEHICLE CONTROLLER, 50 PIN	1
20	Z-10971	ASY, OPERATOR DASH	1



16.0 CHASSIS

16.1 FRONT BATTERY HOOD ASSEMBLY

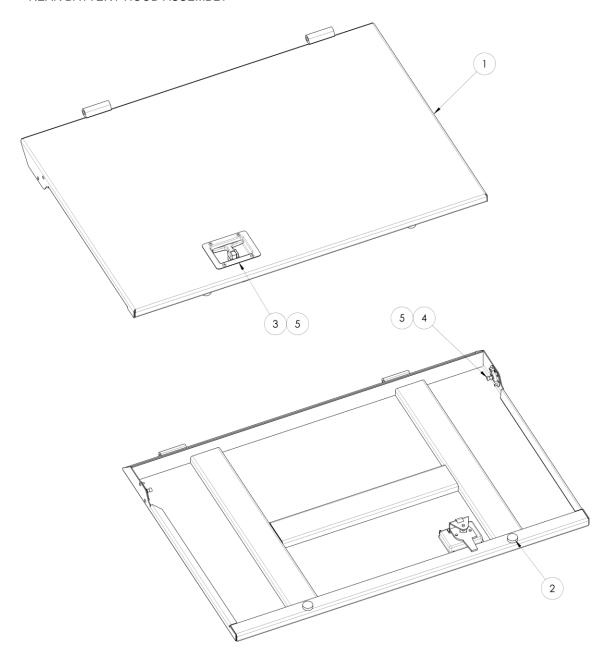


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	C-TT4-0012-2	T HANDLE LATCH	1
2	G-1351-13-SS	RIVET, 5/32 OPEN-END SS	8
3	NVSP-21-004-CA	RUBBER PRESS-IN BUMPER	2
4	SATS-14-003-CA	GAS SHOCK MOUNT	2
5	Z-11110-00	WLD, FRONT BATTERY HOOD	1



16.2 REAR BATTERY HOOD ASSEMBLY

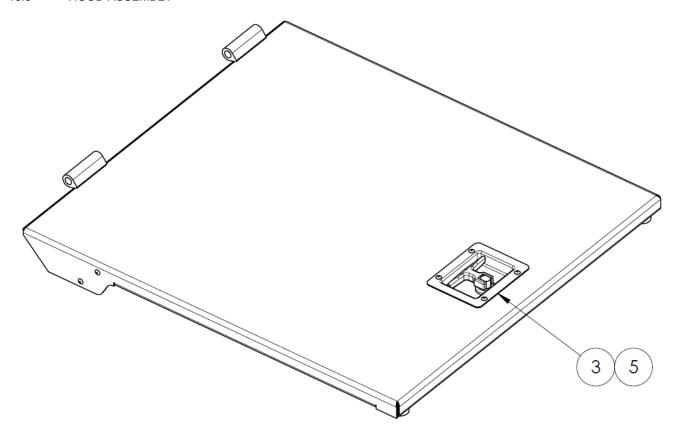


Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	Z-11112-00	WLD, REAR BATTERY HOOD	1
2	NVSP-21-004-CA	RUBBER PRESS-IN BUMPER	2
3	C-TT4-0012-2	T HANDLE LATCH	1
4	SATS-14-003-CA	GAS SHOCK MOUNT	2
5	G-1351-13-SS	RIVET, 5/32 OPEN-END SS	8

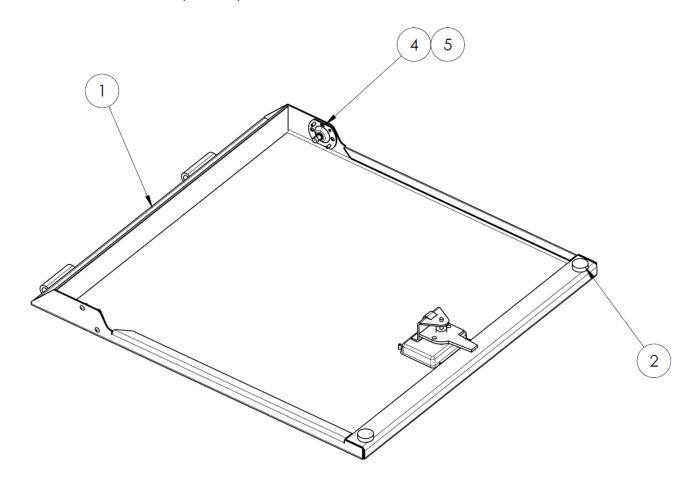


16.3 HOOD ASSEMBLY





16.3 HOOD ASSEMBLY (continued)

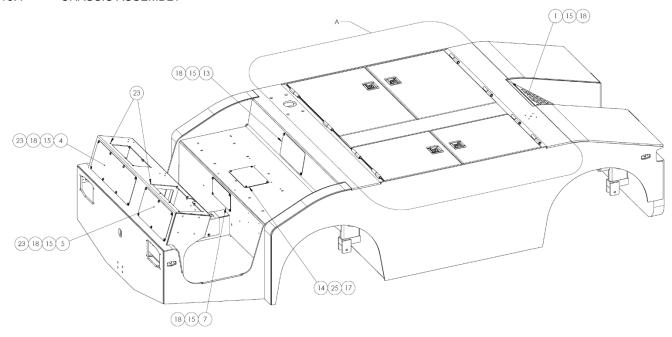


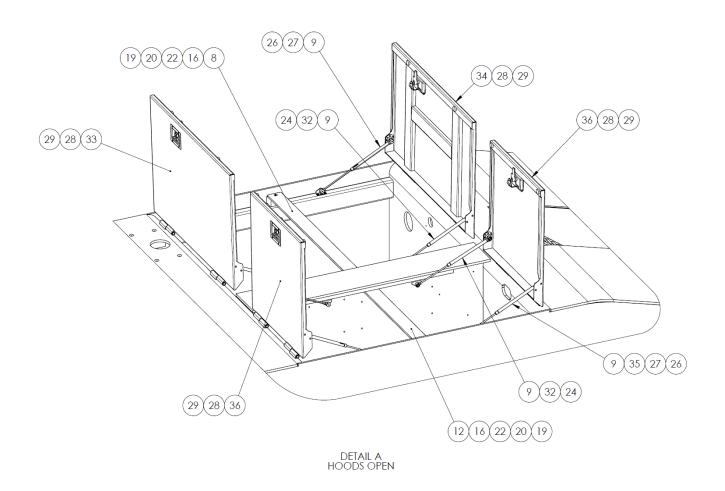
Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	Z-11191-00	WLD, LH HOOD	1
2	NVSP-21-004-CA	RUBBER PRESS-IN BUMPER	2
3	C-TT4-0012-2	T HANDLE LATCH	1
4	SATS-14-003-CA	GAS SHOCK MOUNT	2
5	G-1351-13-SS	RIVET, 5/32 OPEN-END SS	8



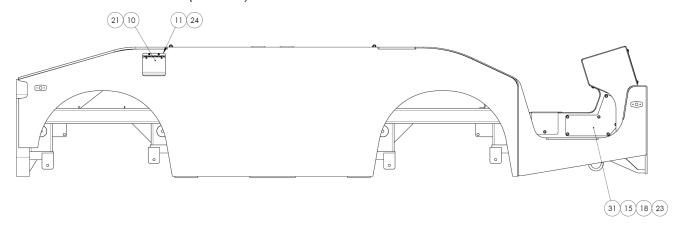
16.4 CHASSIS ASSEMBLY

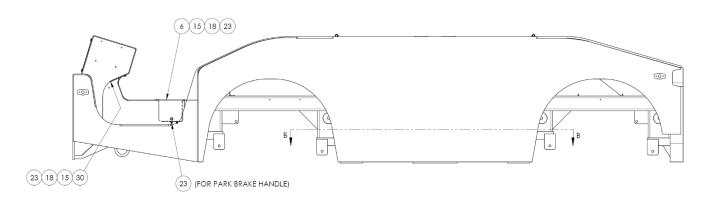




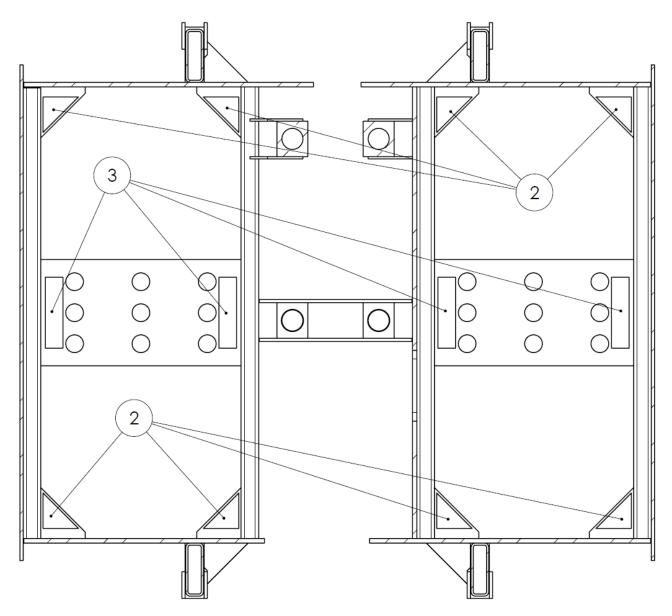


16.4 CHASSIS ASSEMBLY (continued)









SECTION B-B ROTATED



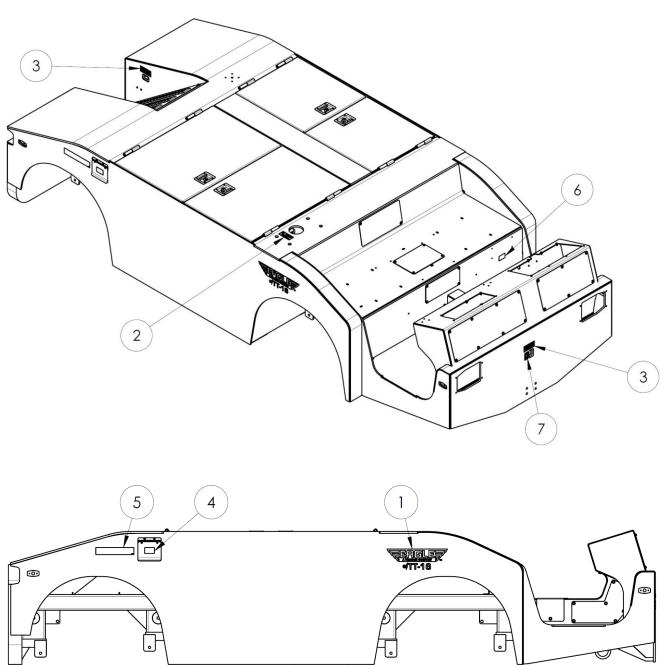
16.4 CHASSIS ASSEMBLY (continued)

Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

1 A-ES12-0325 LOUVER 1 2 A-ES12-0448 RUBBER BATTERY PAD 8 3 A-ES12-0448 RUBBER BATTERY PAD 4 4 A-EXL16-0201 FRONT RH DASH COVER 1 5 A-EXL16-0202 FRONT LH DASH COVER 1 6 A-EXL16-0205 PARK BRAKE HANDLE COVER 1 7 A-EXL16-0206 PARK BRAKE HANDLE COVER 1 8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-01-SA LH HOOD REST WELDMENT 1 13 EX16-02-01-SA HATER MODULE COVER PANEL 1 14 EX16-02-013-SA HATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 33 16 G-1162-106212 82 DEG FHC, 5/16-18 X 1.25 2	Item	Part Number	Description	Qty
3 A-ES12-0448 RUBBER BATTERY PAD 4 4 A-EXL16-0201 FRONT RH DASH COVER 1 5 A-EXL16-0202 FRONT LH DASH COVER 1 6 A-EXL16-0205 PARK BRAKE HANDLE COVER 1 7 A-EXL16-0210 HEATER HOLE COVER 1 8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-015-SA CHARGE JACK COVER HINGE 1 13 EX16-02-015-SA CHARGE JACK COVER HINGE 1 14 EX16-02-015-SA HYDRAULIC ACCESS PANEL 1 15 G-100-02015-SA HEATER MODULE COVER PANEL 1 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-10500 FLATWASHER, 140 NARROW 4 18 G-1250-10500W FLATWASHER, 14 WIDE 39	1	A-ES12-0325	LOUVER	1
4 A-EXL16-0201 FRONT RH DASH COVER 1 5 A-EXL16-0202 FRONT LH DASH COVER 1 6 A-EXL16-0205 PARK BRAKE HANDLE COVER 1 7 A-EXL16-0210 HEATER HOLE COVER 1 8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-004-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0° LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #10 NARROW 4 19 G-1250-1060W FLATWASHER, #10 NARROW 4 20 G-1251-1060R LOCKWASHER, 5/16 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X.0 BACK HEX WISH HD 4 25 G-1720-103504 SCR,#10-32X.0 BACK HEX WISH HD 4 26 G-1720-103506 SCR,#10-32X.7 BMACH HEX WISH HD 4 27 NVSP-24-030-SA BRASS HINGE FIN 8 28 NVSP-24-030-SA BRASS HINGE FIN 8 39 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSULE SIDE COVER 1 34 N/A ASY, FRAN BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	2	A-ES12-0448	RUBBER BATTERY PAD	8
5 A-EXL16-0202 FRONT LH DASH COVER 1 6 A-EXL16-0205 PARK BRAKE HANDLE COVER 1 7 A-EXL16-0210 HEATER HOLE COVER 1 8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-013-SA LH HOOD REST WELDMENT 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106010 BOLT, 5/16-18 X 1.25 2 17 G-1250-10500W FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 5/16 WIDE 4 20 G-1250-1060W FLATWASHER, 5/16 WIDE 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM	3	A-ES12-0448	RUBBER BATTERY PAD	4
6 A-EXL16-0205 PARK BRAKE HANDLE COVER 1 7 A-EXL16-0210 HEATER HOLE COVER 1 8 ET12-02-030-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-03-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-04-SA CHARGE JACK COVER HINGE 1 13 EX16-02-04-SA LH HOOD REST WELDMENT 1 14 EX16-02-01-SA HYDRAULIC ACCESS PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0* Lg HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #10 NARROW 4 19 G-1250-1060W FLATWASHER, 5/16 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 REGULAR 4 20 G-1250-1060R LOCKWASHER, 5/16 REGULAR <	4	A-EXL16-0201	FRONT RH DASH COVER	1
7 A-EXL16-0210 HEATER HOLE COVER 1 8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-10500M FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #10 NARROW 4 20 G-1251-1060R LOCKWASHER, 5/16 WIDE 39 21 G-1250-1050W FLATWASHER, #10 NARROW 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD	5	A-EXL16-0202	FRONT LH DASH COVER	1
8 ET12-02-003-SA HOOD REST WELDMENT 1 9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-105010 FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #10 NARROW 4 19 G-1250-1060W FLATWASHER, #10 NARROW 4 20 G-1251-1060W FLATWASHER, 5/16 WIDE 39 21 G-1352-1060W FLATWASHER, 5/16 WIDE 4 22 G-1420-1060W FLATWASHER, 5/16 WIDE 4 23 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HE	6	A-EXL16-0205	PARK BRAKE HANDLE COVER	1
9 ET12-14-004-CA GAS SHOCK, 60 LB 8 10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0° LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #14 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1250-1060W FLATWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4* LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SC	7	A-EXL16-0210	HEATER HOLE COVER	1
10 ET00-02-003-SA CHARGE JACK COVER (WP) 1 11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, #10 NARROW 4 19 G-1250-1060W FLATWASHER, #10 NARROW 4 20 G-1250-1060W FLATWASHER, #10 NARROW 4 21 G-1250-1060W FLATWASHER, 5/16 REGULAR 4 22 G-1420-1060W FLATWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1420-106012 <td< td=""><td>8</td><td>ET12-02-003-SA</td><td>HOOD REST WELDMENT</td><td>1</td></td<>	8	ET12-02-003-SA	HOOD REST WELDMENT	1
11 ET00-02-004-SA CHARGE JACK COVER HINGE 1 12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X.75 MACH HEX WSH HD 10 25 G-1720-103510 SCR,#10-32X.75 MACH HEX WSH HD 8 27 NVSP-24-03C	9	ET12-14-004-CA	GAS SHOCK, 60 LB	8
12 EX16-02-004-SA LH HOOD REST WELDMENT 1 13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X/5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X/5 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X/5 MACH HEX WSH HD 8 27 NVSP-24-	10	ET00-02-003-SA	CHARGE JACK COVER (WP)	1
13 EX16-02-011-SA HYDRAULIC ACCESS PANEL 1 14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X.05 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X.75 MACH HEX WSH HD 8 27 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-030	11	ET00-02-004-SA	CHARGE JACK COVER HINGE	1
14 EX16-02-013-SA HEATER MODULE COVER PANEL 1 15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X.75 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X.75 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00	12	EX16-02-004-SA	LH HOOD REST WELDMENT	1
15 G-1100-105010 BOLT, 1/4-20 X 1.0" LG HEX HD GR 5 39 16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X.0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.7.5 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X.1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00	13	EX16-02-011-SA	HYDRAULIC ACCESS PANEL	1
16 G-1152-106212 82 DEG FHC, 5/16-18 X 1.25 2 17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X.1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSO	14	EX16-02-013-SA	HEATER MODULE COVER PANEL	1
17 G-1250-1030N FLATWASHER, #10 NARROW 4 18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X.1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MO	15	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	39
18 G-1250-1050W FLATWASHER, 1/4 WIDE 39 19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD	16	G-1152-106212	82 DEG FHC, 5/16-18 X 1.25	2
19 G-1250-1060W FLATWASHER, 5/16 WIDE 4 20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD	17	G-1250-1030N	FLATWASHER, #10 NARROW	4
20 G-1251-1060R LOCKWASHER, 5/16 REGULAR 4 21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X7.5 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	18	G-1250-1050W	FLATWASHER, 1/4 WIDE	39
21 G-1352-21 RIVET, 3/16 OPEN END ALUM 2 22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	19	G-1250-1060W	FLATWASHER, 5/16 WIDE	4
22 G-1420-106012 BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8 4 23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	20	G-1251-1060R	LOCKWASHER, 5/16 REGULAR	4
23 G-1440-1050-S NUTSERT, THICK WALL 1/4-20 47 24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X7.5 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	21	G-1352-21	RIVET, 3/16 OPEN END ALUM	2
24 G-1720-103504 SCR,#10-32X0.5 MACH HEX WSH HD 10 25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	22	G-1420-106012	BOLT, 5/16-18 X 1-1/4" LG. HEX HD GR 8	4
25 G-1720-103506 SCR,#10-32X.75 MACH HEX WSH HD 4 26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	23	G-1440-1050-S	NUTSERT, THICK WALL 1/4-20	47
26 G-1720-103510 SCR,#10-32X1.0 MACH HEX WSH HD 8 27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	24	G-1720-103504	SCR,#10-32X0.5 MACH HEX WSH HD	10
27 NVSP-24-029-CA GAS SHOCK ANCHOR BRACKET 4 28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	25	G-1720-103506	SCR,#10-32X.75 MACH HEX WSH HD	4
28 NVSP-24-030-SA BRASS HINGE PIN 8 29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	26	G-1720-103510	SCR,#10-32X1.0 MACH HEX WSH HD	8
29 NVSP-24-031-SA RETAINING RING 16 30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	27	NVSP-24-029-CA	GAS SHOCK ANCHOR BRACKET	4
30 S-4008-00 REAR LH DASH COVER 1 31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	28	NVSP-24-030-SA	BRASS HINGE PIN	8
31 S-4009-00 CENTER CONSOLE SIDE COVER 1 32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	29	NVSP-24-031-SA	RETAINING RING	16
32 SATS-14-002-CA GAS SHOCK MOUNT 4 33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	30	S-4008-00	REAR LH DASH COVER	1
33 N/A ASY, FRONT BATTERY HOOD 1 34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	31	S-4009-00	CENTER CONSOLE SIDE COVER	1
34 N/A ASY, REAR BATTERY HOOD 1 35 N/A WLD, CHASSIS ETT-16 (WP) 1	32	SATS-14-002-CA	GAS SHOCK MOUNT	4
35 N/A WLD, CHASSIS ETT-16 (WP) 1	33	N/A	ASY, FRONT BATTERY HOOD	1
	34	N/A	ASY, REAR BATTERY HOOD	1
36 N/A ASY, LH HOOD ETT-16 2	35	N/A	WLD, CHASSIS ETT-16 (WP)	1
	36	N/A	ASY, LH HOOD ETT-16	2

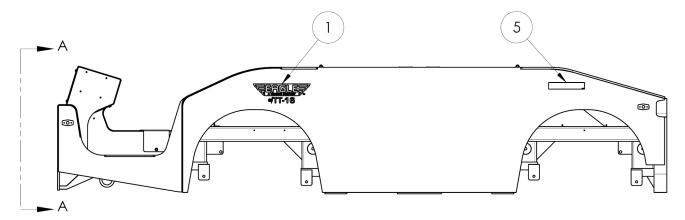


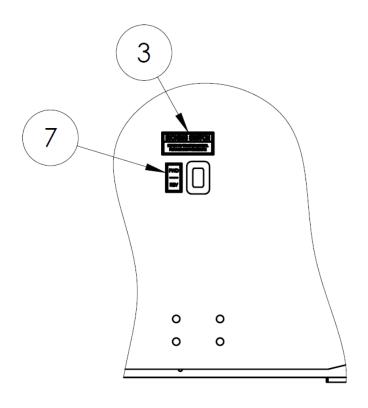
17.0 DECALS AND LABELS





17.0 DECALS AND LABELS (continued)





SECTION A-A



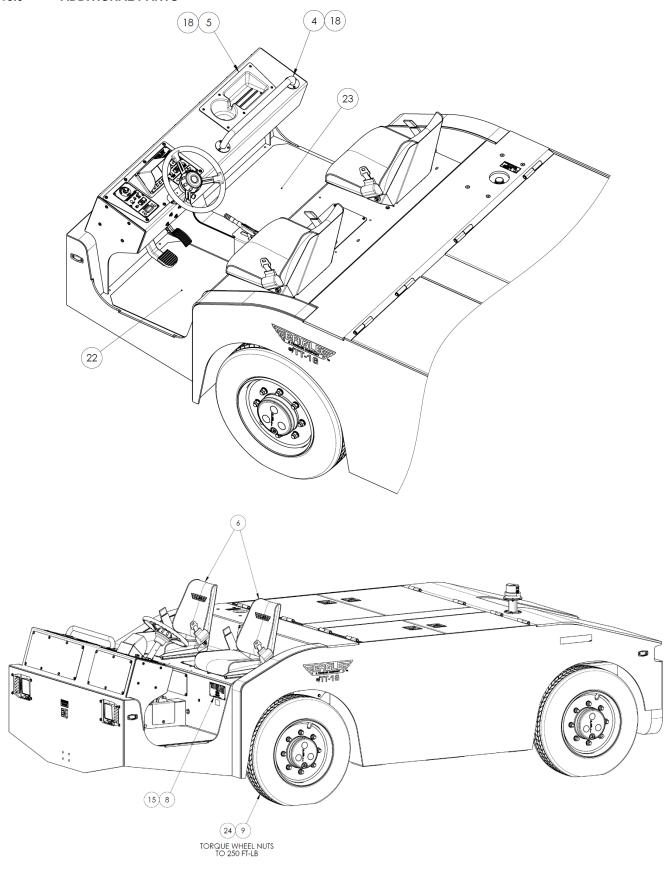
17.0 DECALS AND LABELS (continued)

Parts List When ordering replacement parts/kits, please specify model, serial number and color of your unit.

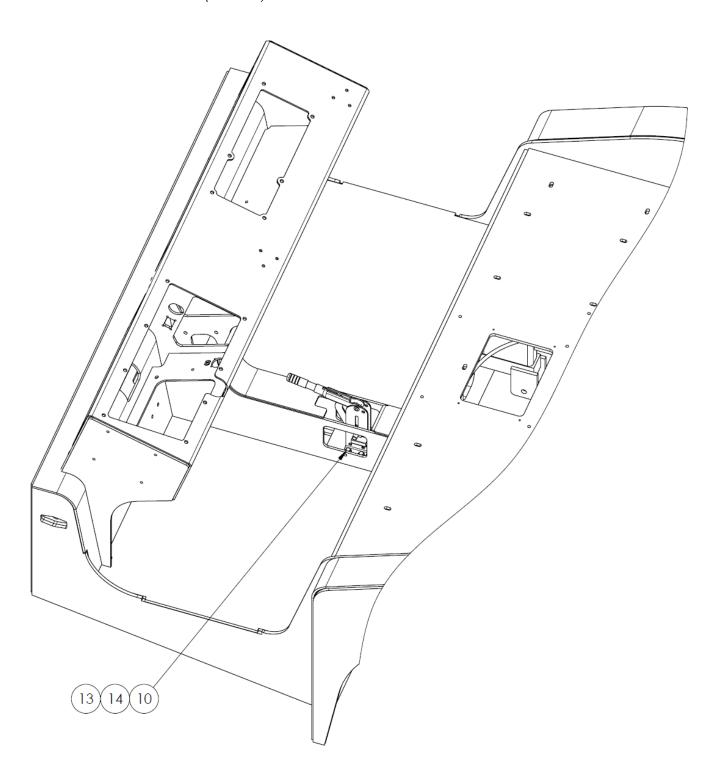
Item	Part Number	Description	Qty
1	EX16-14-001-SA	ETT16 MODEL DECAL	2
2	V-2745	LABEL, APPROVED FLUIDS NOTICE	1
3	V-2873	LABEL, INCHING SWITCH	2
4	A-ETT12-00494	ETT12 BATTERY CHARGE DECAL	1
5	V-1814	LABEL, WARNING KEEP 5 FT	2
6	V-1001	LABEL, MADE IN USA	1
7	V-2893	FWD/REV DECAL	1



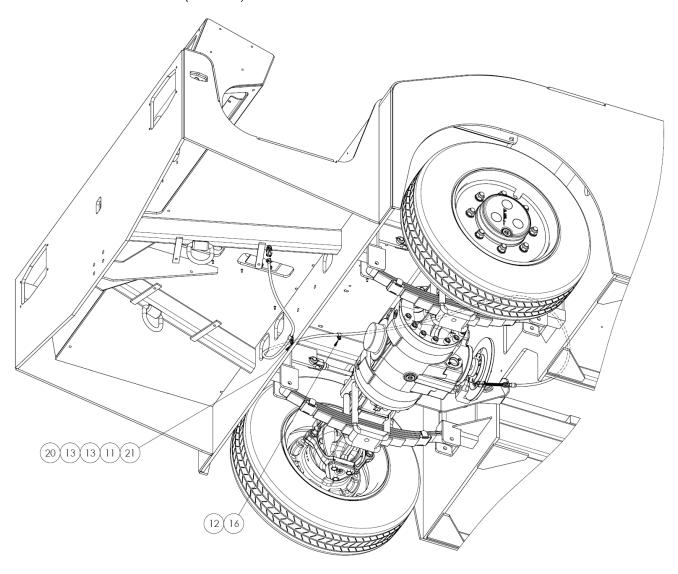
18.0 ADDITIONAL PARTS



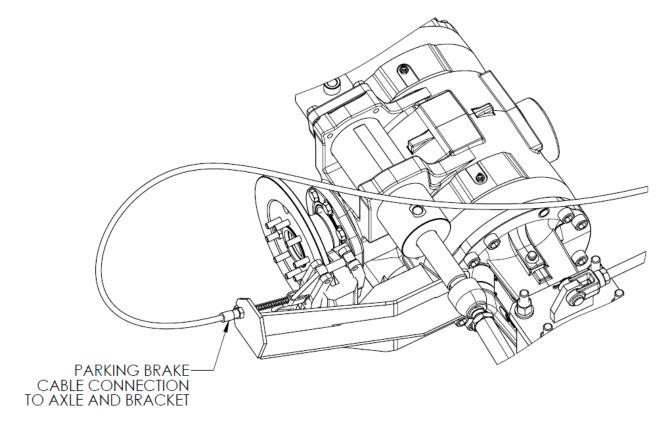


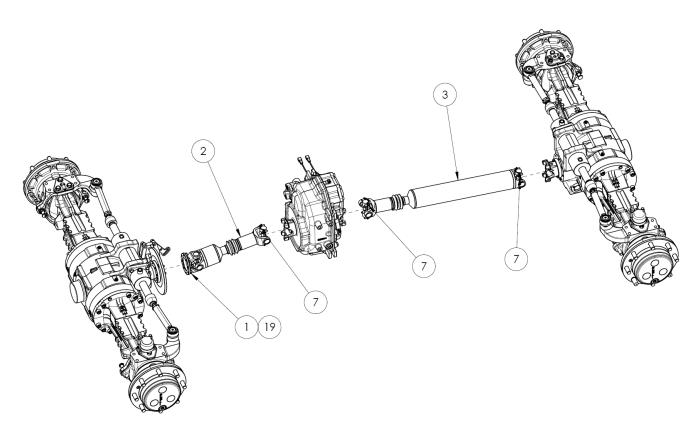




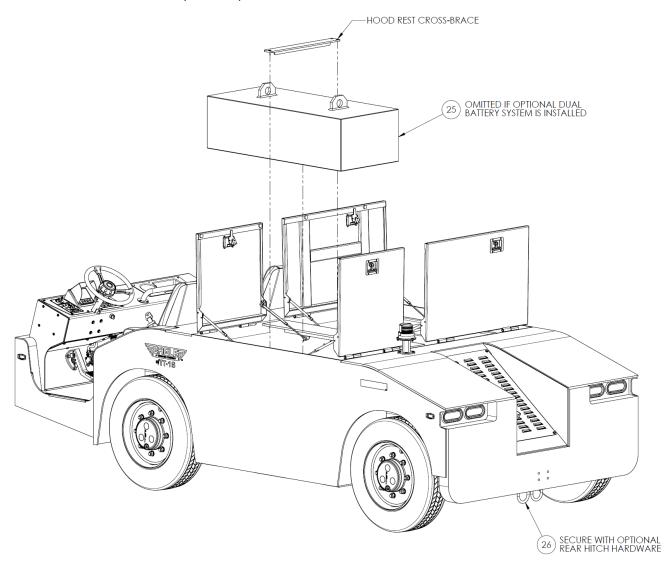














Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

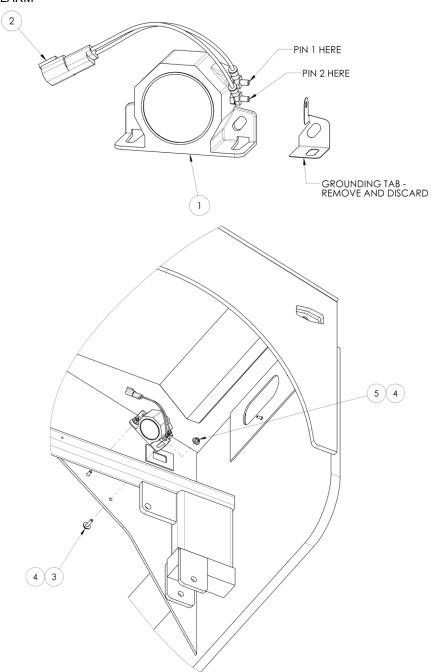
Item	Part Number	Description	Qty
1	A-ES12-0398	HEX NUT, M10X1.5 CLASS 10	8
2	A-ES12-0401	FRONT DRIVESHAFT	1
3	A-ES12-0402	REAR DRIVESHAFT	1
4	A-EXL16-0215	PASSENGER GRAB HANDLE	1
5	A-MTT5-0805	PASSENGER DASH COVER	1
6	A-TT4-0048-1	BUCKET SEAT W BELT & HARDWARE	2
7	A-TT4-00130	DRIVESHAFT U-JOINT STRAP KIT	6
8	ET00-14-005-SA	DATA PLATE - ETT AND MTT	1
9	EX16-04-002-CA	TIRE, 215.75R17.5, LOAD RANGE F	4
10	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	4
11	G-1100-105012	BOLT, 1/4-20 X 1-1/4" LG HEX HD GR 5	1
12	G-1202-1035	STOPNUT, #10-32 ELASTIC	1
13	G-1250-1050W	FLATWASHER, 1/4 WIDE	6
14	G-1251-1050R	LOCKWASHER, 1/4 REGULAR	4
15	G-1351-26-SS	RIVET, 3/16 X .501625 OPEN-END SS	4
16	G-1417-07	CLAMP, CABLE, Ø0.50	1
17	G-1476-105004	SCREW, 1/4-20 X 1/2" LG. SST SOC BUTT. HD CAP	4
18	G-1476-105010	SCREW, 1/4-20 X 1.0" LG. SST SOC BUTT. HD CAP	8
19	G-1514-M100R	LOCKWASHER, M 10 REGULAR	8
20	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	1
21	G-1847-08	CUSH CLAMP, Ø0.50, Ø.406 MTG	1
22	H-4857	FLOOR MAT A, ETT-16	1
23	H-4858	FLOOR MAT B, ETT-16	1
24A	See Table	WHEEL	4
24B	See Table	TIRE	4
25	XM30-02-004-SA	BALLAST BLOCK	1
26	Z-10536-00	WLD, TIE DOWN (P)	1

Part Number	Description	Serial Numbers
EX16-04-001-SA	WHEEL, 6.75 X 17.5	Thru 16E111
U-1211	WHEEL, 6.75 X 17.5	16E112+
EX16-04-002-CA	TIRE, 215/75R17.5, LOAD RANGE F	



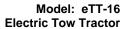
19.0 OPTIONAL EQUIPMENT

19.1 BACKUP ALARM



Parts List
When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
1	AE-OPT-0001	BACKUP ALARM	1
2	Z-11174	BACKUP ALARM PIGTAIL	1
3	G-1100-105010	BOLT, 1/4-20 X 1.0" LG HEX HD GR 5	2
4	G-1250-1050W	FLATWASHER, 1/4 WIDE	4
5	G-1727-1050	NUT, 1/4-20 TOP LOCK ZINC	2





20.0 APPENDICES

APPENDIX I Dash Panel Harness (INS-2607)
APPENDIX II Main Vehicle Harness (INS-2625)
APPENDIX IV Hydraulic Line Layout (INS-2673)



APPENDIX I

Dash Panel Harness (INS-2607)



APPENDIX II

Main Vehicle Harness (INS-2652)



APPENDIX III

Front Lighting Harness (INS-2645)



APPENDIX IV

Hydraulic Line Layout (INS-2673)