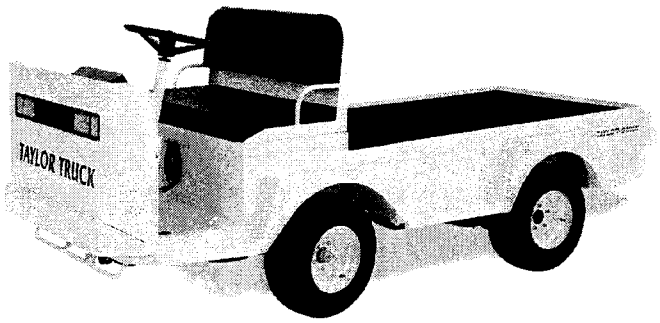
TAYLOR-DUNN®

The Best Way To Go About Your Business



TAYLOR TRUCK AND ET 3000

GT-DRIVE SYSTEM

MODEL

B0-T48-48

AND

ET-030-48

MB-T48-01

Operation, Service, and Parts Manual

Revision B

Serial Numbers: 149242 & Up

TAYLOR-DUNN SERVICE CENTER

For more information about this and other Taylor-Dunn®manuals, please write:

Taylor-Dunn® Mfg.
2114 W. Ball Road
Anaheim, CA 92804
(Attn: Technical Writer)


TAYLOR TRUCK

TABLE OF CONTENTS

INTRODUCTION

Operator and Maintenance Manual

SECTION 1

Vehicle Description and Specifications

SECTION 2

Safety Rules and Operational Information

SECTION 3

Maintenance and Service Procedures

SECTION 4

Electrical and Charger Troubleshooting

SECTION 5

Illustrated Parts List

Common

SECTION 5A

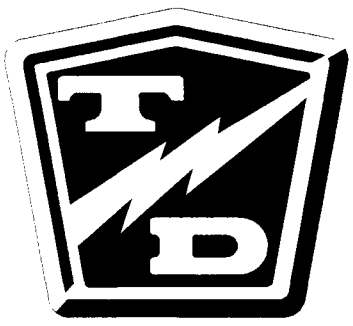
Illustrated Parts List
Taylor Truck

SECTION 5B

Illustrated Parts List
ET 3000

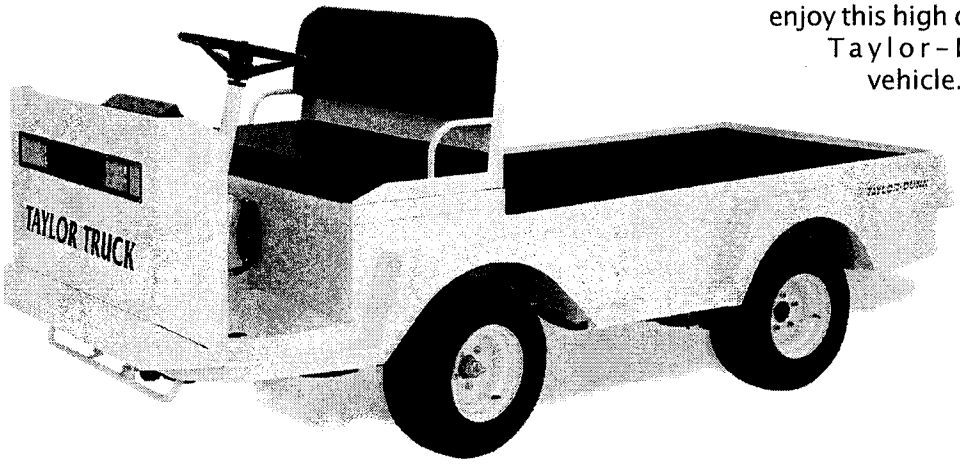
INTRODUCTION

Operator and Maintenance Manual



Introduction

The purchase of this vehicle shows a belief in high quality products manufactured in the USA. Taylor-Dunn®, a leading manufacturer of electric burden and personnel carriers since 1949, wants to be sure this vehicle provides years of reliable service. Please continue to read this manual and enjoy this high quality Taylor-Dunn® vehicle.



This manual is to serve as a guide for the service, repair, and operation of this Taylor-Dunn® vehicle and is not intended as a training guide. Taylor-Dunn® has made every effort to include as much information as possible about the operation and maintenance of its vehicles.

Included in this manual are:

- Vehicle Description
- Safety Rules and Guidelines
- Operational Information
- Operator Responsibilities
- Owner Responsibilities
- Control Operation and Location Information
- Maintenance and Troubleshooting Information
- Standard Parts List

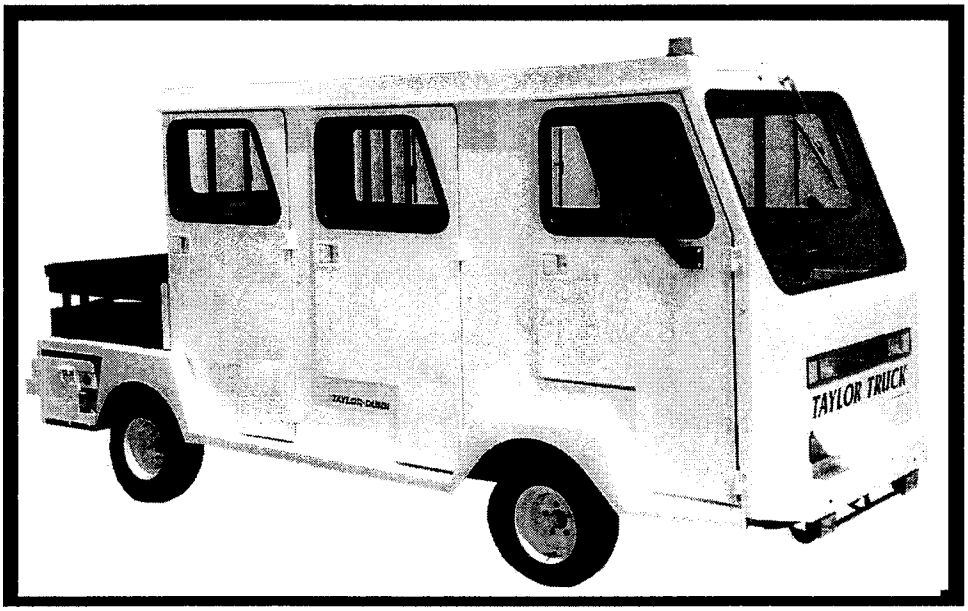
Before servicing, operating, training or performing maintenance on this or any other Taylor-Dunn® vehicle, read the appropriate Taylor-Dunn® manual.

Each Taylor-Dunn® manual references the applicable models and serial numbers on the front cover.

Please, be aware of all cautions, warnings, instructions, and notes contained in this manual.

How To Use This Manual

This manual is organized into five main sections:



SECTION 1: Vehicle Description and Specification

This section describes the vehicle and operation of this particular vehicle, as well as the responsibilities of the operator.

SECTION 2: Safety Rules and Operational Information

This section outlines the safety and operational issues, location and operation of controls, and the operational checks that are to be performed on this vehicle. It also includes various subjects that should be included in the operator and service training program.

SECTION 3: Maintenance and Repair

This section gives specific information on the servicing of the vehicle and a schedule for maintenance checks.

SECTION 4: Electrical and Charger Troubleshooting

This section identifies the troubleshooting procedures for testing the electrical system and battery charger.

SECTION 5: Illustrated Parts

This section provides an illustrated view of various assemblies. The illustrations are accompanied by tables identifying the parts.

Responsibilities

Who Should Read This Manual

This manual is intended for use by anyone who is going to operate, own, perform maintenance on, service, or order parts for this Taylor-Dunn® vehicle. Each person should be familiar with the parts of this manual that apply to their use of this vehicle.

Of the Owner...

The owner of this or any Taylor-Dunn® vehicle is responsible for the overall maintenance and repairs of the vehicle, as well as the training of operators. Owners should keep a record of conducted training and maintenance performed on the vehicle. (OSHA Regulation, 29 CFR 1910.178 Powered Industrial Truck Operator Training).

Of the Operator...

The operator is responsible for the safe operation of the vehicle, preoperational and operational checks on the vehicle, and the reporting of any problems to service and repair personnel.

Of the Service Personnel...

The service personnel are responsible for the service and maintenance of the vehicle. At no time should a service person allow any untrained personnel to service or repair this or any Taylor-Dunn® vehicle. For the purposes of training, a qualified service person may oversee the repairs or services being made to a vehicle by an individual in training. At no time should an untrained individual be allowed to service or repair a vehicle without supervision. This manual is not a training guide.

Of the Passengers ...

The passengers are responsible to remain fully seated, keeping their hands, arms, and legs inside the vehicle at all times. Each passenger should be fully aware of the vehicle's operation. All forms of recklessness are to be avoided. Do not engage in horseplay.

Conventions

Symbols and/or words that are used to define warnings, cautions, instructions, or notes found throughout this manual:

⚠WARNING

⚠WARNING

A shaded box with the word "Warning" on its left denotes a warning. A warning alerts the reader of a hazard that may result injury to themself or others. Be sure to follow any instructions contained within a warning and exercise extreme care while performing the task.

⚠CAUTION

The symbol at the left and the bold text contained within a box denotes a "Caution" and is used to inform the reader that property damage may occur. Be sure to exercise special care and follow any instructions contained with in a caution.

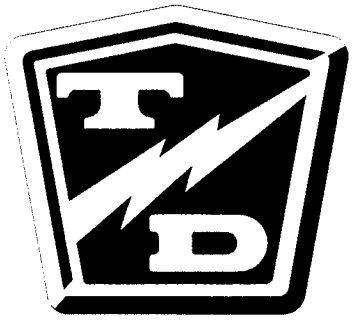
An unshaded box with no symbols next to it will contain infromation for completing tests.

NOTE: Alerts the reader to additional information about a subject.

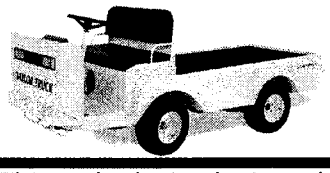

TAYLOR TRUCK

SECTION 1

Vehicle Description and Specifications



Vehicle Description



This manual applies to the models and serial numbers listed on the front cover.

The model number for this vehicle is imprinted on a decal located under the right side seat on the top of the front inner fender (Figure 1).

Figure 1

This vehicle is designed for driving on smooth surfaces in and around industrial plants, nurseries, institutions, motels, mobile home parks, and resorts. It is not intended for use on public highways.

⚠WARNING **The maximum operating speed of this vehicle is the speed that it may travel on a level surface with no load. Exceeding this speed may result in steering difficulty, motor damage, and or loss of control of the vehicle that may result in personal injury and/or property damage.**

The vehicle serial number is stamped in the frame, behind the seat bulk head on the forward deck bed angle (Figure 2).

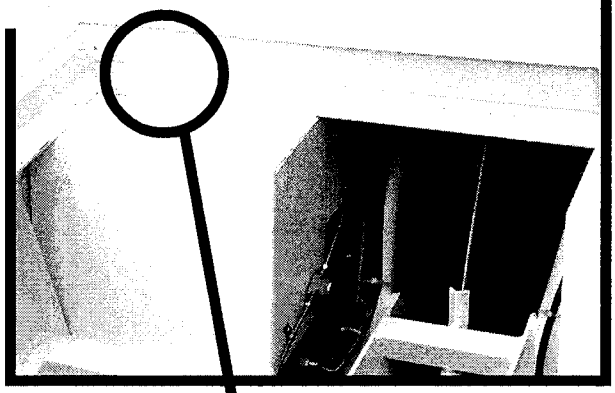


Figure 2

This vehicle conforms to requirements for Type E vehicles as described in O.S.H.A. Standard Section 1910.178 (Powered Industrial Trucks) and with all applicable portions of the American National Standard for Personnel and Burden Carriers (ANSI B56.8) in effect at the time of manufacture.

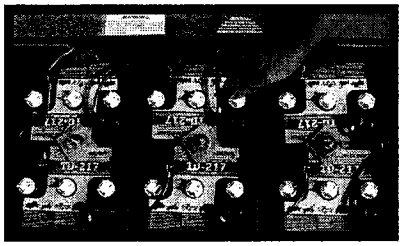
Standard Specifications

ITEM		SPECIFICATION
Occupancy		2 Passenger
Dimension	Taylor Truck	318L X 127W X 119H Centimeters 125L X 50W X 47H Inches
	ET 3000	325L X 127W X 191H Centimeters 128L X 50W X 75H Inches
Turning Radius		368 Centimeters 145 Inches
Dry Weight	Taylor Truck	696 kg 1534 lbs
	ET 3000	856 kg 1884 lbs
Maximum Load		1360 kg 3000 lbs
Electrical System System Voltage Controller		8-244 Amp HR., 6 Volt, Lead Acid Batteries 48 Volts Solid State, 500 Amp, 48 Volts
Transmission		Helical Gear, Oil Bath, Automotive Type Hypoid Differential.
Motor Speed (Unloaded)		DC Separately Excited Field, 48V, 5.9kW, for 60 min 18 mph
Brakes		4 Wheel Hydraulic Disc, Park Brake, Hand Operated
Steering		Automotive Steering 24:1
Tires Tire Pressure		20.5 X 8 X 10 Load Range, E 90 psi max
Frame		Steel Unitized Body Heavy Duty 14 Gauge Smooth Skin Steel
Instrumentation		Battery Discharge Indicator, Key Switch Forward/Reverse Switch, Headlight Switch, Hour Meter
Light Accessories	ET 3000	Dual Headlights, Dual Tail/Brake Lights Directional Turn Signals
Charger		25 Amp, 48 Volt Built-In Automatic

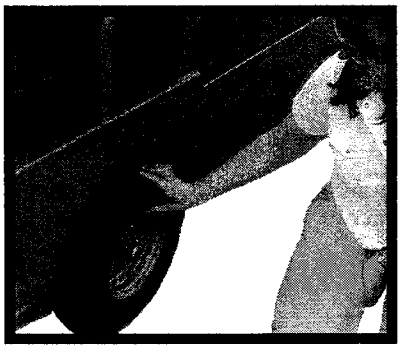
Taking Delivery of the Vehicle

Inspect the vehicle immediately after delivery. Use the following guidelines to locate obvious problems:

- Examine the contents of all packages and accessories that may have come in separate packages with the vehicle.
- Make sure everything listed on the packing slip is there.



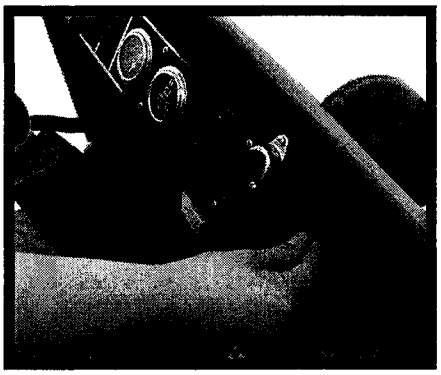
- Check that all wire connections, battery cables, and other electrical connections are secure.
- Check battery cells to be sure they are filled.



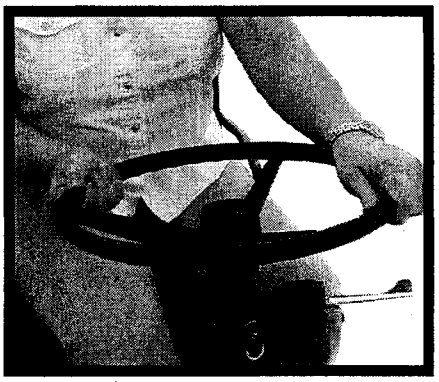
- Check the tire pressure, tightness of lug nuts, and for any signs of damage.

Check the operation of each of the following controls:

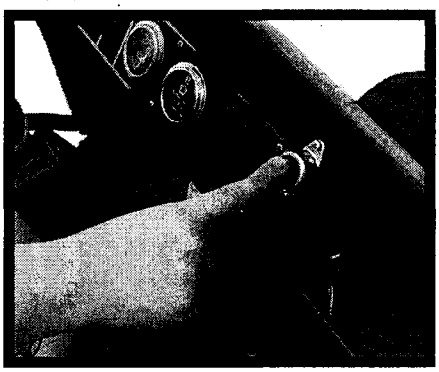
- Accelerator
- Brake
- Parking Brake



- Key-Switch
- Forward/Reverse Switch with Reverse Beeper
- Front Headlight Switch



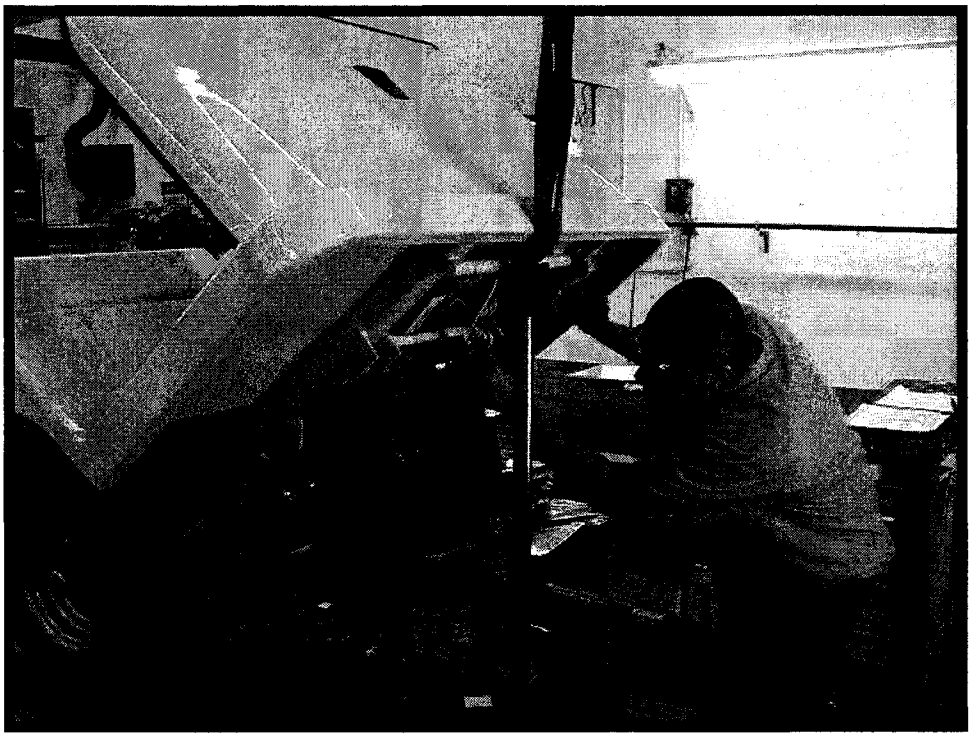
- Steering Wheel



- Horn

What To Do If a Problem is Found

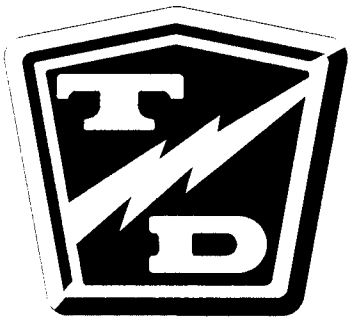
If there is a problem with the vehicle, *DO NOT OPERATE THE VEHICLE,* file a claim with a local Taylor-Dunn® distributor. The claim must be filed within 48 hours of receiving the vehicle and its accessories.



The only personnel authorized to repair, modify, or adjust any part of this or any Taylor-Dunn® vehicle is a factory authorized service technician.

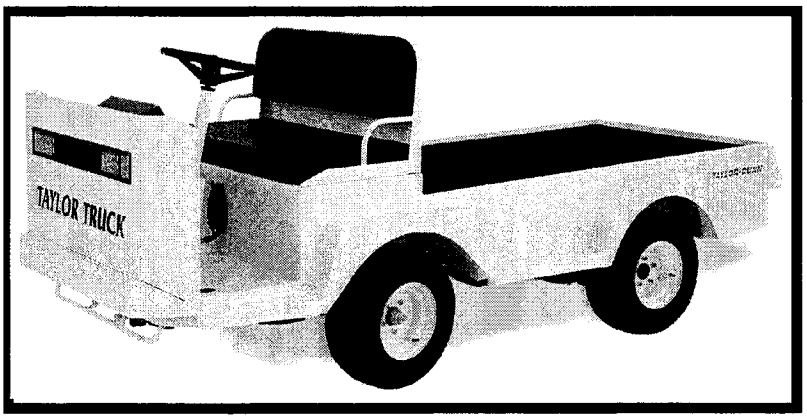
SECTION 2

Safety Rules and Operational Information



Safety Rules and Guidelines

This vehicle is designed for driving on smooth surfaces in and around industrial plants, nurseries, institutions, motels, mobile home parks, and resorts. It is not intended for use on public streets and highways.

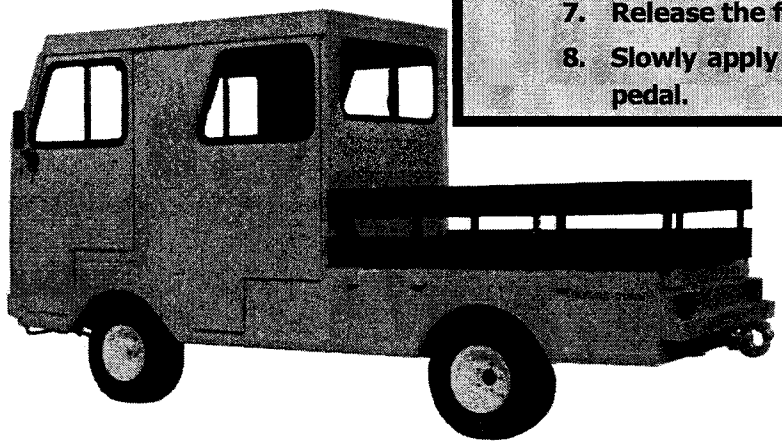


It is the responsibility of the owner of this vehicle to assure that the operator understands the various controls and operating characteristics of this vehicle and the following safety rules and guidelines (extracted from the American National Standards Institute Personnel and Burden Carriers ANSI B56.8).

⚠WARNING

To operate this vehicle, please follow these directions:

1. **Make sure forward-reverse switch is in the center "OFF" position and the park brake is set.**
2. **Hold down the foot brake.**
3. **Insert the key and turn it to the "ON" position.**
4. **Wait 2 seconds, or until a click sound is heard.**
5. **Place the forward-reverse switch to the desired direction of vehicle travel.**
6. **Release the park brake.**
7. **Release the foot brake.**
8. **Slowly apply pressure to the accelerator pedal.**

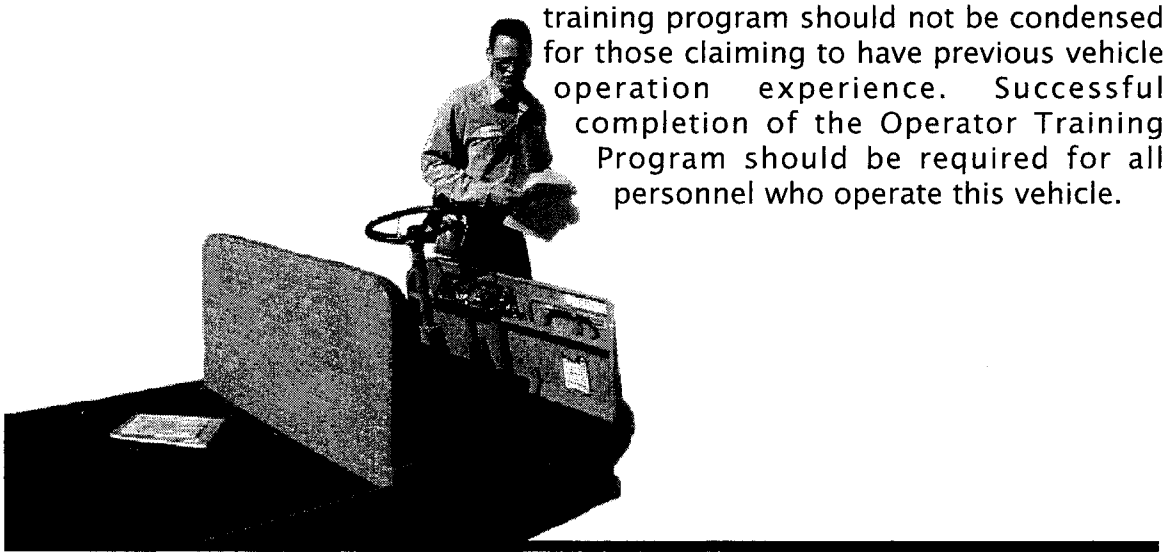


Before driving this vehicle, please observe the following safety rules and guidelines:

- Only qualified and trained operators shall drive this vehicle.
- Drive only on level surfaces or on surfaces having an incline of less than 10% (5.6 degrees).
- Drive slowly when making a turn, especially if the ground is wet or when driving on an incline.
- Observe all traffic regulations and speed limits.
- Keep all body parts (head, arms, legs) inside confines of this vehicle while it is moving.
- Keep the vehicle under control at all times.
- Yield right of way to pedestrians and emergency vehicles.
- Do not overtake another vehicle at intersections, blind spots, or other dangerous locations.
- Do not drive over loose or large objects, holes, or bumps.
- Stay in your driving lane under normal conditions, maintaining a safe distance from all objects.
- Keep a clear view ahead at all times.

DRIVER TRAINING PROGRAM

The owner of this vehicle should conduct an Operator Training Program for all those who will be operating this vehicle. The training program should not be condensed for those claiming to have previous vehicle operation experience. Successful completion of the Operator Training Program should be required for all personnel who operate this vehicle.



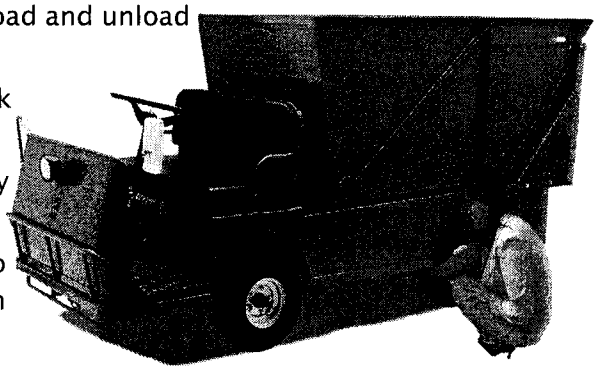
The Operator Training Program should include the following:

- Operation of this vehicle under circumstances normally associated with the environment in which it will be operated.
- Emphasis on the safety of personnel and cargo.
- All safety rules contained within this manual.
- Proper operation of all vehicle controls.
- A vehicle operation and driving test.

DRIVER QUALIFICATIONS

The following are minimum requirements necessary to qualify as an operator of this vehicle:

- Demonstrate a working knowledge of each control.
- Understand all safety rules and guidelines as presented in this manual.
- Know how to properly load and unload cargo.
- Know how to properly park this vehicle.
- Recognize an improperly maintained vehicle.
- Demonstrate ability to handle this vehicle in all conditions.

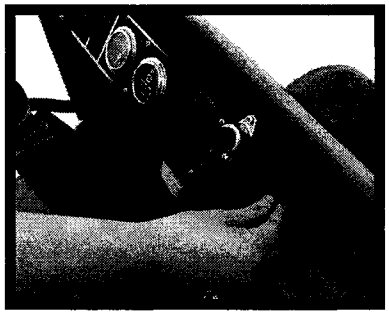


⚠WARNING

Only those who have successfully completed the Operator Training program are authorized to drive this vehicle. Operators must possess the visual, auditory, physical, and mental ability to safely operate this vehicle as specified in the American National Standards Institute Controlled Personnel and Burden Carriers (ANSI B56.8).

VEHICLE CONTROLS

Key-Switch

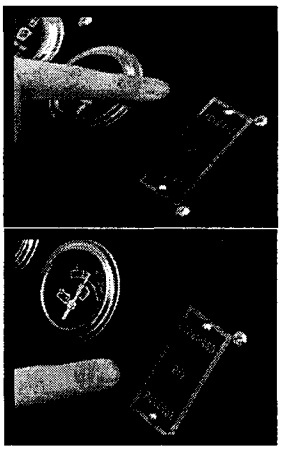


A key-switch, located on the right side of the instrument panel, turns on the vehicle. Rotate the key clockwise to turn the vehicle power on, counterclockwise to turn the vehicle power off.

The key-switch should be in the "OFF" position whenever the operator leaves the driver's seat.

This switch is also designed to secure and disable the vehicle. The key can only be removed when the key-switch is in the off position.

Forward-Reverse Switch

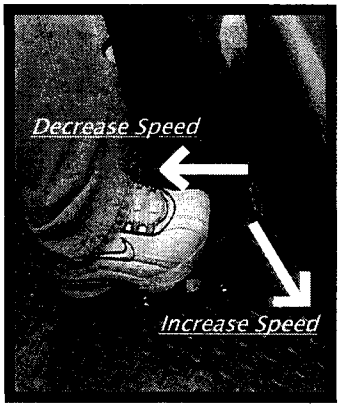


The forward-reverse switch, located on the right side of the instrument panel, determines the direction of travel of the vehicle. Push the top of the switch to engage the vehicle travel forward. Push the bottom of the switch to engage the vehicle to travel in reverse.

DO NOT SHIFT from forward to reverse or vice-versa while the vehicle is in motion. Make sure the vehicle is completely stopped before shifting.

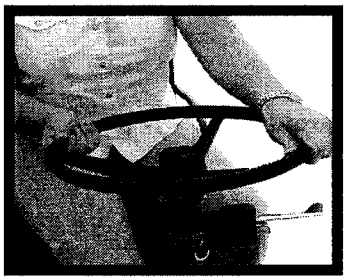
The forward-reverse switch should be in the center "OFF" position, with key-switch off and the park brake set whenever the operator leaves the driver's seat.

Accelerator Pedal



The accelerator pedal is located to the right of the brake pedal. It controls the speed of the vehicle and operates similar to the accelerator pedal in an automobile. Depress the pedal to increase speed and release the pedal to decrease speed.

Steering



The steering wheel and steering system is similar to an automobile. To turn right, turn the steering wheel towards the right. To turn left, turn the steering wheel towards the left.

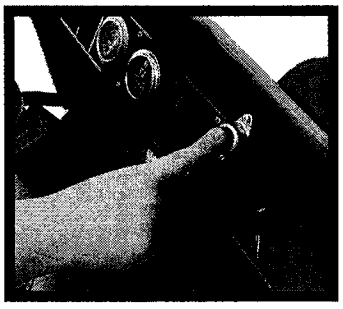
Foot Brake Pedal

The foot brake pedal, located to the right of the steering column, is for operation with the right foot only. It works similar to the brake in an automobile. Applying pressure to the brake pedal slows the vehicle according to the amount of pressure applied. Relieving pressure from the pedal releases the braking action.

Park Brake

The parking brake is actuated with a hand lever, which is located between the driver and passenger seats. To set the parking brake, push down on the brake pedal and pull the lever up until it locks. To release the park brake, depress the foot brake pedal, pull up on the park brake handle, push the release button, and lower the handle.

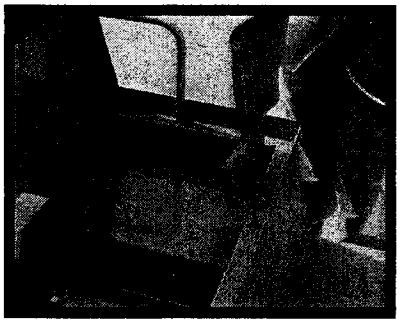
Horn Button



The horn button is located on the right side of the instrument panel. Depress the button to sound the horn, release it to turn it off.

The horn button for the ET 3000 is located in the center of the steering wheel.

Seat Interlock Switch

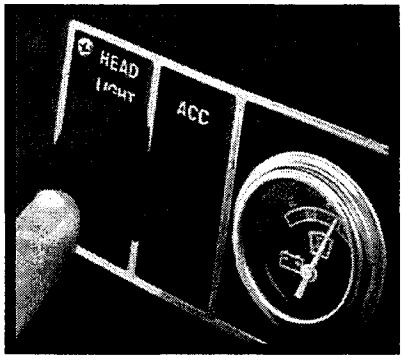


A switch located under the driver's seat disables the power to the vehicle when the driver leaves the seat. The driver must be seated for the vehicle to operate.

Whenever the driver leaves the seat, they should turn the key-switch off, place the forward-reverse switch in the center "OFF" position, and set the park brake.

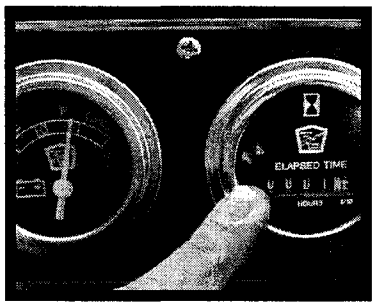
⚠WARNING **The seat interlock switch is only one part of the vehicle safety system. The interlock switch should not be relied upon as the only safety features used to disable or disengage this vehicle.**

Headlights and Optional Accessory Switch



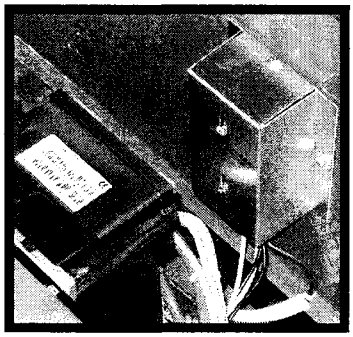
The headlight switch is located on the far left side of the instrument panel. An accessory switch, if any, is next to it.

Hour Meter



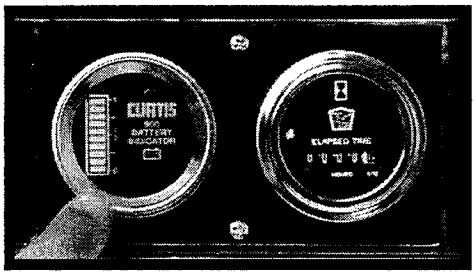
The hour meter is located to the right of the battery status indicator. This records the number of hours the vehicle has been in operation.

Charger Interlock



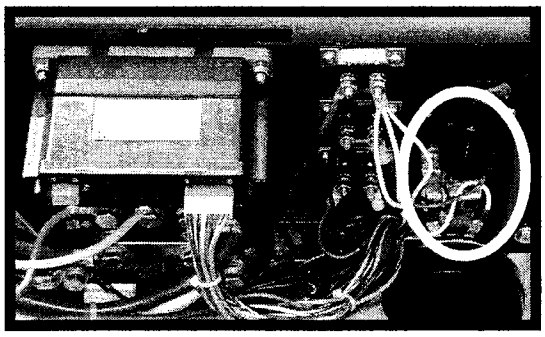
The charger interlock is designed to disable the vehicle from being driven while the AC charger cord is plugged into a functioning power source.

Battery Status Indicator



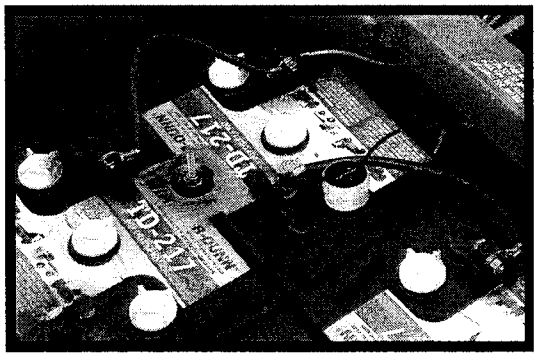
The battery status indicator is located to the left of the hour meter. The battery status indicator has a LED bar graph that indicates the relative state of charge of the battery. The top LED will light only when connected to a fully charged battery or after completing a charging cycle. Successive lower LED's will light as the battery charge diminishes. When the second from the bottom LED flashes the battery energy status is in energy reserve and should be placed on charge as soon as possible. When the two bottom LED's are alternately flashing the batteries are empty and the truck should be taken out of service to avoid damaging the batteries.

Reverse and Motion Alarm



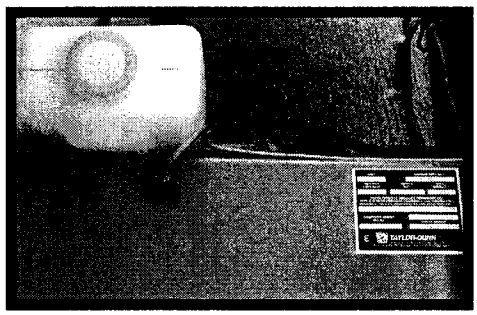
The reverse alarm is located in the electronics compartment mounted on the contoller panel. The reverse alarm is activated when the Key switch is in the "ON" position and the Forward-Reverse switch is depressed in the reverse position. The alarm makes a repeated audible sound (Beep, Beep, Beep.....).

Electrolyte Alarm (Optional)



The Electrolyte Alarm is located in the battery area, in the 4th battery cell from the main battery positve cable. The Electrolyte alarm is activated when the battery cell fluid level falls below the level of the probe. The alarm is an audible continuous sound along with a bi-color indicator lamp. Inspect the batteries when the alarm sounds or the bi-color lamp turns from its green color to red. The vehicle batteries should then be filled and/or charged. With the fluid level at a normal operating level and/or the batteries charged the alarm and light will reset.

Windshield Washer FluidTank (ET 3000)



The windshield washer fluid tank is located under the passenger seat. The fluid level should be maintained with windshield washing fluid above the lowest mark on the tank. Allowing the tank to be used when empty, may result in washer pump failure.

Vehicle Operational Guidelines

Driving

- Slow and sound the horn to warn pedestrians or when approaching a corner or other blind intersection.
- No reckless driving.
- Do not drive this vehicle on steep inclines or where forbidden.
- Immediately report any accident or vehicle problem to a supervisor.

Loading and Unloading

- Do not carry more than the maximum. number of passengers allowed for this vehicle.
- Do not exceed the cargo load capacity.
- Do not load cargo that can easily fall off.
- Be careful when handling cargo that is longer, wider, orhigher than this vehicle, be sure to properly secure all loads.

Parking

Before leaving the vehicle:

- Set the parking brake.
- Set the forward-reverse switch to the center "OFF" position
- Turn the key switch to the "OFF" position and remove the key.

In addition:

- If parking this vehicle on an incline, turn the wheels to the curb, or block the wheels.
- Do not block fire aisles, emergency equipment, stairways, or exits.

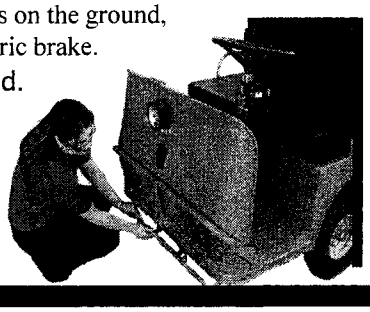
Towing

⚠CAUTION

This vehicle is equipped with regenerative braking. Follow these steps before towing this vehicle.
1. To tow these vehicles the key switch must be in the "OFF" position.
2. Place the forward/reverse switch in the center "OFF" position.
Failure to follow these instructions may result in damage to the vehicle.

To tow these vehicles, attach a tow strap to the front bumper tow-bar.

NOTE: Do not tow vehicles with the drive wheels on the ground, if the vehicle is equipped, with an automatic electric brake.



Use another driver to steer this vehicle while it is being towed. Be sure the driver uses the brakes when the towing vehicle slows or stops. Do not tow the vehicle faster than 5 m.p.h.

If at all possible, this vehicle should be placed on a carrier, rather than towing it.

Storing and Returning to Service

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Use personal protective equipment when working with batteries.

- Clean batteries, fill, and charge before putting the vehicle in storage. Do not store batteries in a discharged condition.
- Lube all grease fittings.
- Clean, dry, and check all exposed electrical connections.
- Inflate tires to proper pressure(if applicable).
- For extended storage, the vehicle should be elevated so that the tires do not touch the ground.

Storage Temperature	Charge
Below 40° F	Every 6 months
40° - 60° F	Every 2 months
Above 60° F	Once a month

If stored for a prolonged period, the batteries should be charged as follows:

Returning To Service

Check state of battery's charge. (Charge if needed)

Perform ALL maintenance checks in the periodic checklist.

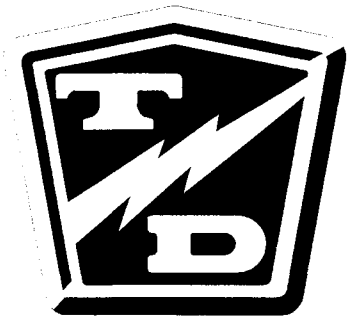
Remove any blocks from the vehicle and/or place the vehicle on the down on to the ground.

Test drive before putting into normal service.

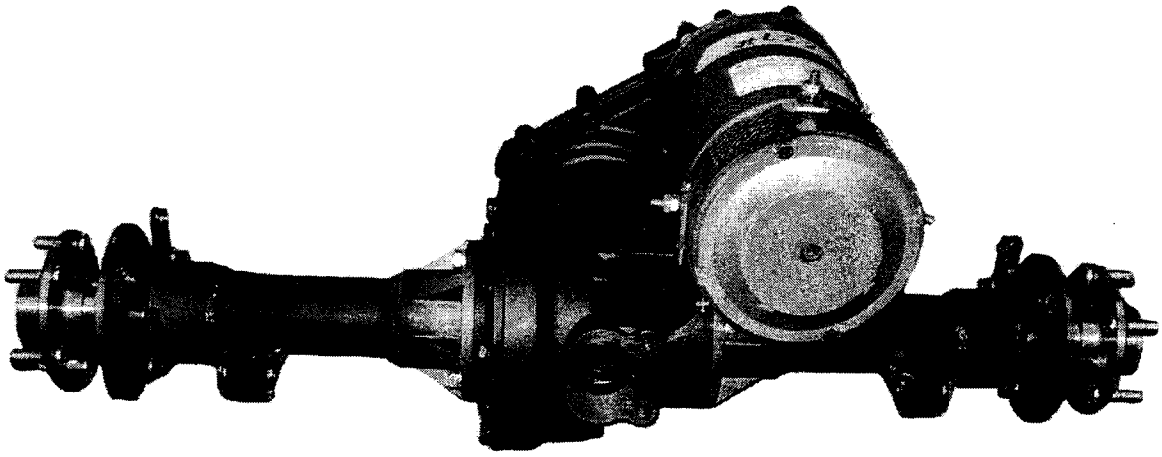

TAYLOR TRUCK

SECTION 3

Maintenance and Service Procedures



DRIVE SERVICE



Removing the Rear Axles

This procedure does not require that the rear end or drive assembly be removed from the vehicle.

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

6. Drain the oil.

⚠WARNING

Always use a lifting strap, hoist, and jack stands, of adequate capacity to lift and support the vehicle. Failure to use lifting and support devices of rated load capacity may result inserious bodily injury.

7. Raise the rear of the vehicle and support with jack stands.
8. Release the park brake.
9. Remove the tire and wheel assembly.
10. Remove the four bolts attached to the axle retaining plate.
11. Remove the axle retaining plate and brake body assembly as one unit.

⚠WARNING

If the bearings are removed from the axle, the axle retainer and bearings must be replaced with new ones. Failure to replace these parts could result in the axle coming out of the vehicle while driving and may result in serious bodily injury.

12. Secure the brake body assembly, do not let it hang by the brake hose.
13. Pull the axle out of the housing.
14. Inspect all bearings for roughness or play, replace as needed.
15. Install in reverse order, lubricate the o-ring.

NOTE: Be sure not to damage the o-ring.

Removing the Rear Axles (Continued)

16. Use new bolts for the axle retaining plate.

⚠WARNING **Use new Taylor-Dunn (96-327-10) bolts for the axle retaining plate. The bolts have a manufactured thread patch applied to each bolt. Failure to use proper bolts may cause the axle to fall out of the truck and cause property damage and or serious bodily injury.**

17. Add oil, to the level of the fill plug threads.
18. Lower the vehicle.
19. Set the park brake.
20. Reconnect the main positive and negative cables at the batteries.
21. Remove the blocks from behind the wheels.
22. Release the park brake and test drive the vehicle.

Removing and Installing the Drive from the Vehicle

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

6. Drain the oil from the front gear case and the differential into an appropriate receptacle.
7. Release the park brake. Remove the clevis pin and cable lock from the park brake arm. Remove the park brake cable assembly from the clevis. Remove the park brake cable assembly from the spring axle mount bracket.
8. Raise the rear of the vehicle and support with jack stands.

⚠WARNING

Always use a lifting strap, hoist, and jack stands, of adequate capacity to lift and support the vehicle. Failure to use lifting and support devices of rated load capacity may result in serious bodily injury.

9. Using the appropriate proceedure, remove the wheels, motor wiring, hydraulic brake assemblies, and spring u-bolts mounted to the frame.
10. Install the wheels.
11. Lower the vehicle to the ground.
12. Remove the lower shock mounting bolts and the front spring mounting bolts.
13. Raise the rear of the vehicle, lifting the frame up off the drive assembly.

⚠WARNING

The drive must remain on the ground while lifting the frame. Lifting the unattached drive off the ground may result in property damage and/or serious bodily injury.

14. Clean the exterior of the drive. Visually inspect for leaks, loose or worn parts, replace as necessary.
15. Reinstall the drive and assemble in reverse order.
16. Using the appropriate proceedure, reinstall the drive and assemble in reverse order.
17. Set the park brake.
18. Lower the vehicle.
19. Reconnect the main positive and negative cables at the batteries.
20. Remove the blocks from the wheels.
21. Release the park brake and test drive the vehicle.

Disassembling and Reassembling of the Primary Reduction Gear Case

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

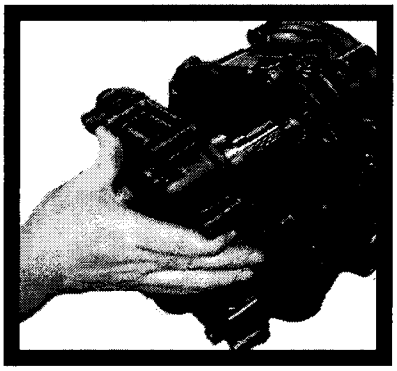
6. Raise the rear of the vehicle and support with jack stands.

⚠WARNING

Always use a lifting strap, hoist, and jack stands, of adequate capacity to lift and support the vehicle. Failure to use lifting and support devices of rated load capacity may result in serious bodily injury.

7. Drain the oil from the front gear case into an appropriate receptacle.
8. If constrained by space remove the drive assembly from the vehicle. Use the appropriate proceedure to remove the motor, hydraulic brake assemblies, and park brake cables.

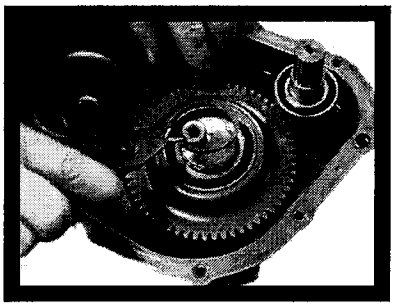
Drain Plug



9. Remove the cover retaining bolts.

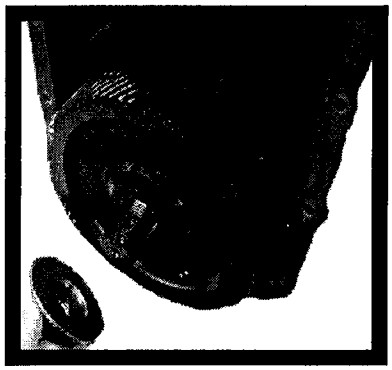
⚠CAUTION

Do not damage the housing sealing surface or deform the cover plate. This will cause leaks and destroy the gears, bearings and races Failure to do so will void any and all warranties.



10. Remove the cover plate from the differential and let the remaining oil drain from the housing.
11. Remove the circlip from the idler gear.

12. Remove the input shaft/bearing assembly and idler gear/bearing assembly at the same time.



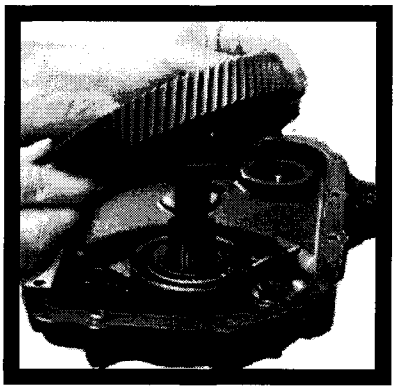
13. Remove the pinion nut from the output gear.

14. Remove the output gear.

    NOTE: Remove the input shaft seal if required.

15. Remove the six retaining bolts holding the gear case to the 3rd member housing.

    NOTE: Make note of the angle of the gear case.



16. Remove the gear case housing from the 3rd member housing.
17. Inspect all parts for signs of wear or damage.
18. Reinstall or replace all parts using this procedure in reverse order.

⚠CAUTION **Be sure to pre-lube all of the bearings and seals. Failure to do so will cause early wear, damage and void any and all warranties.**

NOTE: Torque the drain plug to 21-25 foot-pounds.

NOTE: Torque the retaining bolts to 18-20 foot-pounds.

NOTE: Torque the pinion nut to 154-169 foot-pounds.

NOTE: Be sure to apply gasket sealer to the front flange on the 3rd member and gear case cover.

⚠CAUTION **Be sure to use Taylor-Dunn Sealant 94-430-05.**

NOTE: Pack the motor seal with non-acetic based grease.

19. Fill the differential with 3-5 oz. of oil.
20. Lower the vehicle.
21. Reconnect the main positive and negative cables at the batteries.
22. Remove the blocks from behind the wheels.
23. Test drive the vehicle.

Disassembling the 3rd Member

⚠WARNING

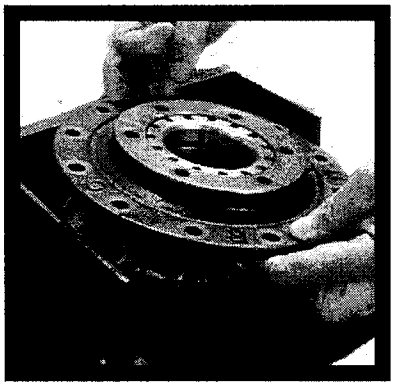
1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

6. Raise the rear of the vehicle and support with jack stands.

⚠WARNING

Always use a lifting strap, hoist, and jack stands, of adequate capacity to lift and support the vehicle. Failure to use lifting and support devices of rated load capacity may result in serious bodily injury.

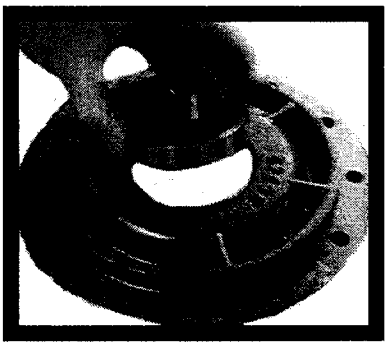
7. Remove the complete drive from the vehicle.
8. Drain the oil from the 3rd member and gear case into an appropriate receptacle.
9. Place the 3rd member on an appropriate stand.



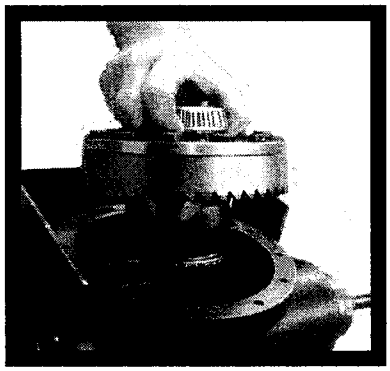
10. Remove the axle shafts and tubes as an assembly from the 3rd member by removing the six axle tube flange bolts on each axle tube.
11. Using the appropriate procedure, remove the primary reduction gear case.
12. Remove the 12 side plate bolts, then remove the side plate.

13. Remove the carrier bearing adjusting nut roll pin and adjusting nut from the side plate.

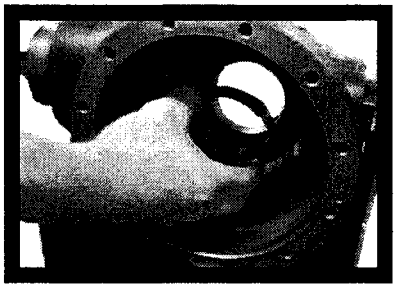
14. Turn the side plate over and remove the carrier bearing race.



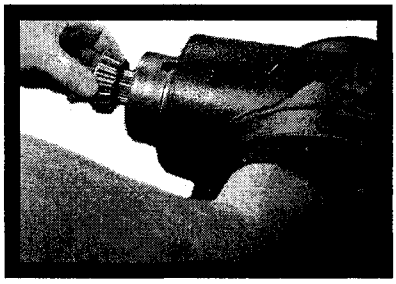
15. Remove the differential assembly.



16. Remove the carrier bearing adjusting nut roll pin from the 3rd member housing, then remove the carrier adjusting nut.

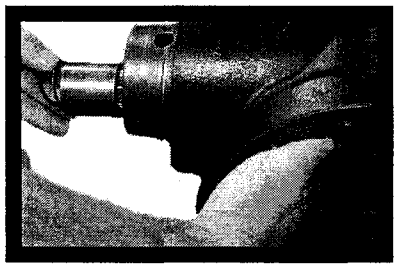


17. Remove the carrier bearing race.

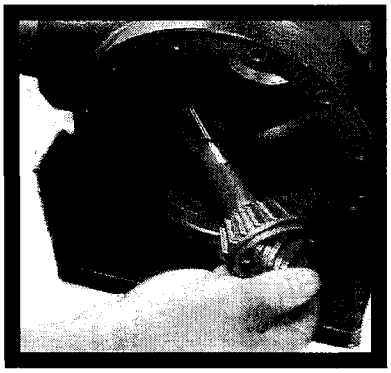


18. Remove the front bearing from the input shaft.

NOTE: The input shaft may have to be driven out to perform this procedure.



19. Remove the input shaft's shims and spacer.



20. Remove the input shaft.
21. Remove the front and rear pinion bearing races.
22. Inspect all parts for signs of wear or damage.
23. Thoroughly clean all parts.

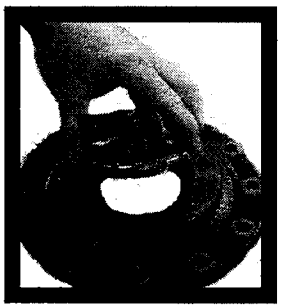
Assembling the 3rd Member

⚠CAUTION **Be sure to pre-lube all of the bearings. Failure to do so will cause early wear, damage and void any and all warranties.**

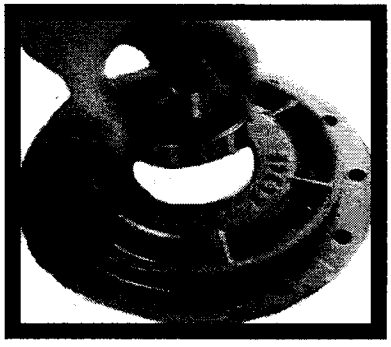
⚠CAUTION **If the pinion gear, bearings, races or the ring and pinion were replaced, the pinion gear must be re-shimmed. (Refer to the re-shimming instructions).**

1. Temporarily install the pinion gear (hand tighten only).

2. Install the carrier bearing race ring nuts into the housing and cover.



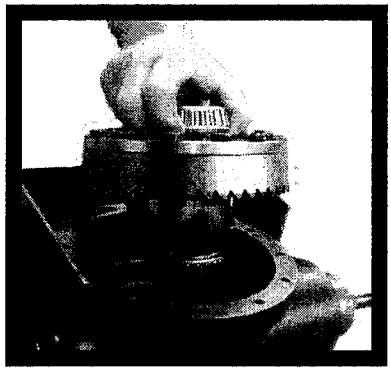
3. Install the carrier bearing races into the housing and cover.



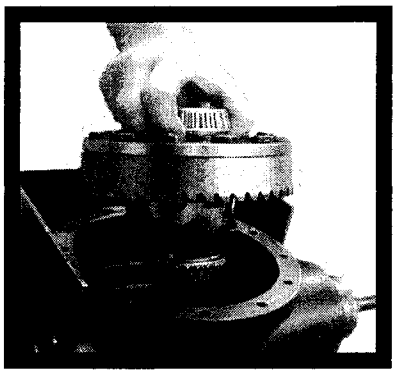
4. Place the differential assembly into the housing.

5. Tighten the housing carrier bearing race ring nut so that the ring gear is not in contact with the pinion gear.

6. Remove the differential assembly.



NOTE: Do not allow the ring nut to rotate.



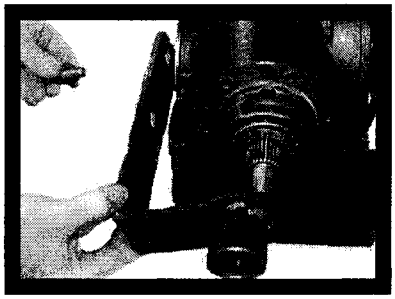
7. Remove the pinion gear.
8. Reinstall the differential assembly.

9. Install the cover onto the housing using 4-bolts in a cross pattern and torque to 45-50 ft-lbs.
10. Pre set the carrier bearing preload by tightening thehousing carrier bearing race ring nut until it requires 1.5 to 3.3 ft-lbs to rotate the differential assembly.

11. Mark the position of each carrier bearing ring nut and then remove the differential assembly, be careful not to allow the ring nuts to rotate.

⚠CAUTION

Be careful not to allow the ring nuts to rotate. Failure to do so will result in early wear and tear on components and void any and all warranties.

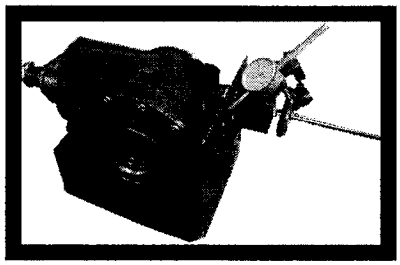


12. Install the pinion gear. Re-shim if required.
13. Install the pinion gear holding tool (96-500-42) and tighten the pinion nut enough to keep the pinion gear from rotating.
14. Install the differential assembly.

15. Install the cover and all of the cover bolts.

⚠CAUTION **Torque the bolts to 45-50 foot pounds. Failure to do so will result in early wear and tear on components and void any and all warranties.**

16. Check the gear lash between the ring and pinion gears. The gear lash should be .005 to .007 inches.
17. Adjust the gear lash if needed by tightening or loosening the carrier bearing race ring nuts.



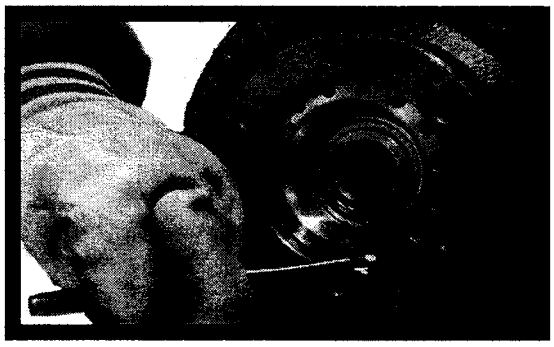
⚠CAUTION **Both ring nuts must be turned the same amount in opposite directions relative to the previously marked starting position. Failure to do so will result in early wear and tear on components and void any and all warranties.**

NOTE: To move the ring gear closer to the pinion:

Loosen the housing carrier bearing race ring nuts and tighten the cover carrier bearing race ring nut equally.

NOTE: To move the ring gear away from the pinion:

Loosen the cover carrier bearing race ring nut and tighten the housing carrier race ring nut equally.



18. Install the locking roll pins into the housing and cover to lock the ring nuts in place.
19. Remove the pinion gear holding tool.
20. Using the appropriate procedures, install the primary reduction gear case, axles and housings, motor, and install the complete drive onto the vehicle.
21. Fill the drive with 2 quarts of specified oil.
21. Lower the vehicle.
22. Reconnect the main positive and negative cables at the batteries.
23. Remove the blocks from behind the wheels.
24. Test drive the vehicle.

Pinion Gear Shimming Instructions

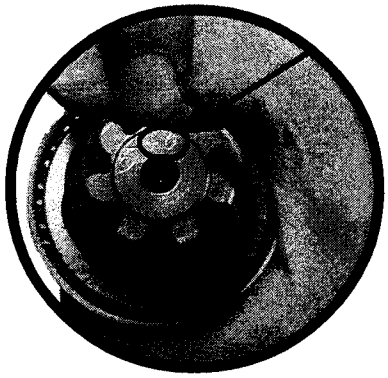
NOTE: This is required only when replacing the front or rear pinion bearings and races or the ring and pinion gears.

NOTE: All parts must be clean and the bearings lightly lubricated.

Pinion Gear Depth and Selecting the Pinion Shim

C - B - A + (D_V) = Pinion Shim (mm)

D_V = The number on the face of the pinion gear.



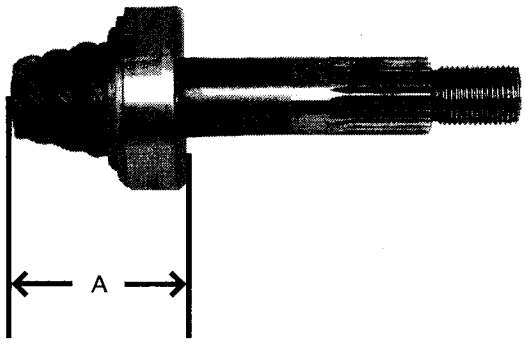
A = The distance in millimeters from the face of the pinion gear to the top of the inner pinion bearing race.

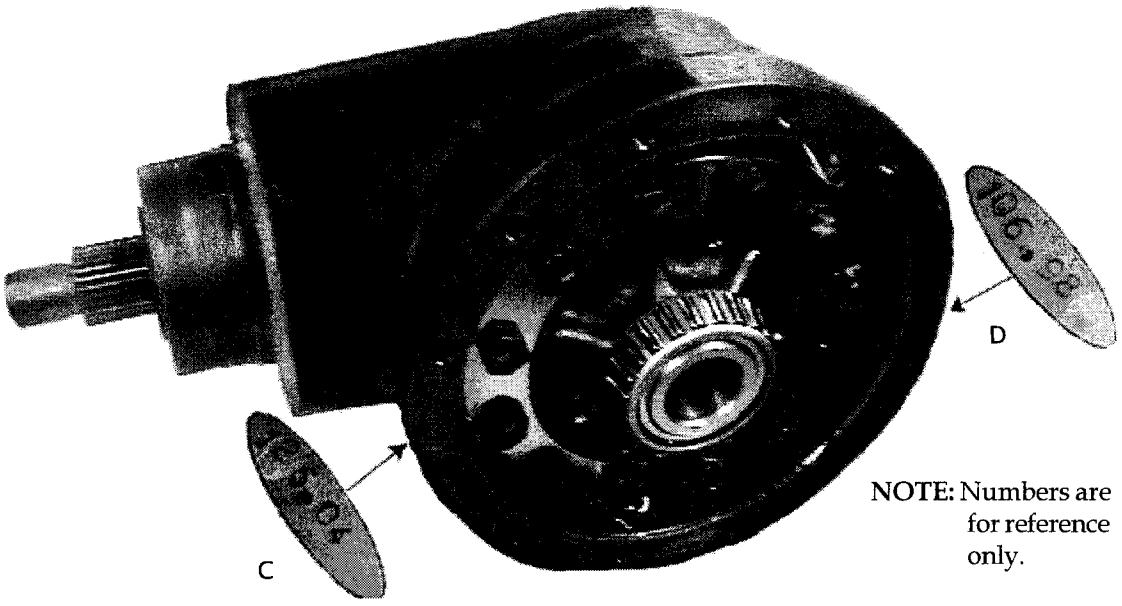
B = 54.

C = The number on the edge of the differential side plate closest to the input shaft.

D = The number on the edge of the differential side plate farthest from the input shaft.

E = The distance in millimeters from the rear of the drive housing to the face of the pinion gear.





NOTE: Numbers are for reference only.

Once a shim has been selected and the pinion gear is installed, confirm:

$$E - D = B + (D_V)$$

Pinion Bearing Preload

1. The pinion gear depth must be set before the preload.
2. Install the pinion gear, spacer, and shims into the housing.
3. Install the outer pinion bearing.
4. Install the main gear onto the pinion shaft.

   NOTE: Tighten the pinion nut to 154-169 ft lbs.
5. Measure the torque required to rotate the pinion shaft in the housing.

   NOTE: The torque should be between 1.1-2.9 ft lbs.

   NOTE: Re-shim the bearings as required to obtain this torque.

Changing the Differential Oil

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

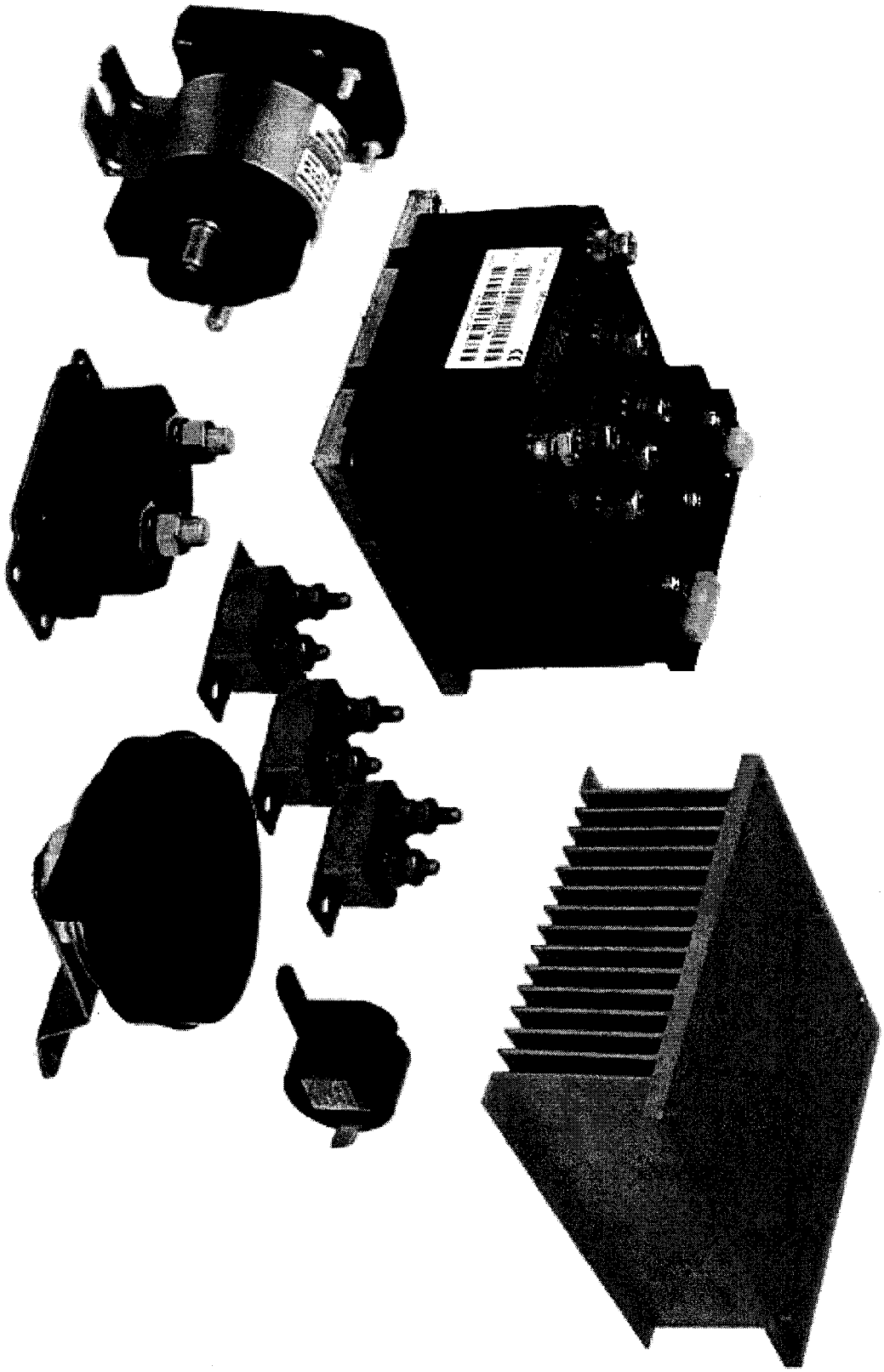
6. Raise the rear of the vehicle and support with jack stands.

⚠WARNING

Always use a lifting strap, hoist, and jack stands, of adequate capacity to lift and support the vehicle. Failure to use lifting and support devices of rated load capacity may result in serious bodily injury.

7. Place a drain pan under the center of the drive assembly that is capable of holding 2 quarts of oil.
8. Remove the differential drain plug from the differential case and let the oil run into the drain pan.
9. Remove the gear case drain plug from the gear case and let the oil run into the drain pan.
10. Replace the drain plugs.
11. Open the fill plug and fill the differential with 1-3/4 quarts of oil.
12. Replace the fill plug.
13. Lower the vehicle.
14. Reconnect the main positive and negative cables at the batteries.
15. Remove the blocks from the wheels.
16. Release the park brake and test drive the vehicle.

SPEED CONTROLLER



Removing and Installing Speed Controller

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

6. If equipped, remove the electronics splash cover.
7. Disconnect the power, motor, and controller wiring harnesses.

   NOTE: Label the wires connected to the harness to insure they are returned to their proper location during reassembly.

8. Remove the controller and heatsink from the control panel assembly.

   NOTE: Some vehicles may require removing the control panel assembly to gain access to the speed controller.

9. Thoroughly clean the mounting surfaces of the heatsink, speed controller, and both sides of the panel.

   NOTE: The work area should be clean and free from dirt, oil, and grease.

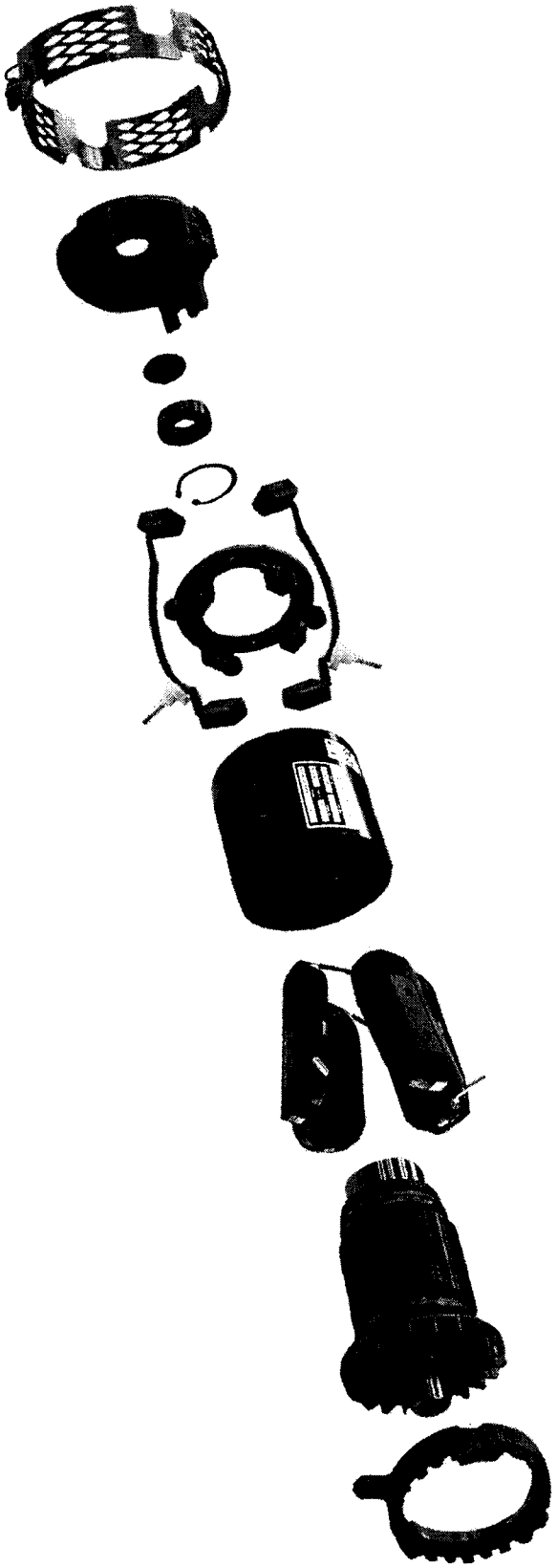
10. Apply a thin even coat of heat sink paste to the controller, heat sink base, and both sides of the panel.
11. Bolt the controller and heat sink together between the control panel.

    NOTE: A small amount of heat sink paste should ooze out from both the controller and heat sink.

⚠CAUTION **Be sure to use Taylor-Dunn Heatsink Paste 94-422-20.**

12. Reassemble the control panel harnesses. Replace the electronics splash cover.
13. Lower the vehicle.
14. Reconnect the main positive and negative cables at the batteries.
15. Remove the blocks from the wheels.
16. Release the park brake and test drive the vehicle.

DRIVE MOTOR



Motor Removal

It is not necessary to remove the drive assembly to perform this procedure in most cases. However, if the vehicle is equipped with an optional cargo box, it may be necessary to lower the drive assembly in order to access the motor.

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

6. Remove the wires from the motor.

   NOTE: Label the wires connected to the motor to insure that they are returned to their proper location on the motor during reassembly.

7. If equipped with an automatic electric brake refer to the section on removing the automatic electric brake.
8. Remove the motor mounting bolts and motor support bracket u-bolt from the drive and slide the motor off of the input shaft.
9. Install the new motor or reassemble in reverse order.

   NOTE: Apply grease to the input shaft.

10. Reconnect the main positive and negative cables at the batteries.
11. Remove the blocks from behind the wheels.
12. Release the park brake and test drive the vehicle.

⚠CAUTION

Do not apply grease to the motor collar. Applying grease to the motor collar may cause damage to the motor bearings.

Automatic Electric Brake Removal and Installation

In the event, a vehicle equipped with, an automatic electric brake unit becomes immobile. Tow the vehicle with the rear axle hoisted and secured in the air to the maintenance facility were an authorized technician can begin any necessary repairs.

It is not necessary to remove the drive assembly to perform the removal and installation of the electric brake in most cases. However, if the vehicle is equipped with an optional cargo box, it may be necessary to lower the drive assembly in order to access the motor.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

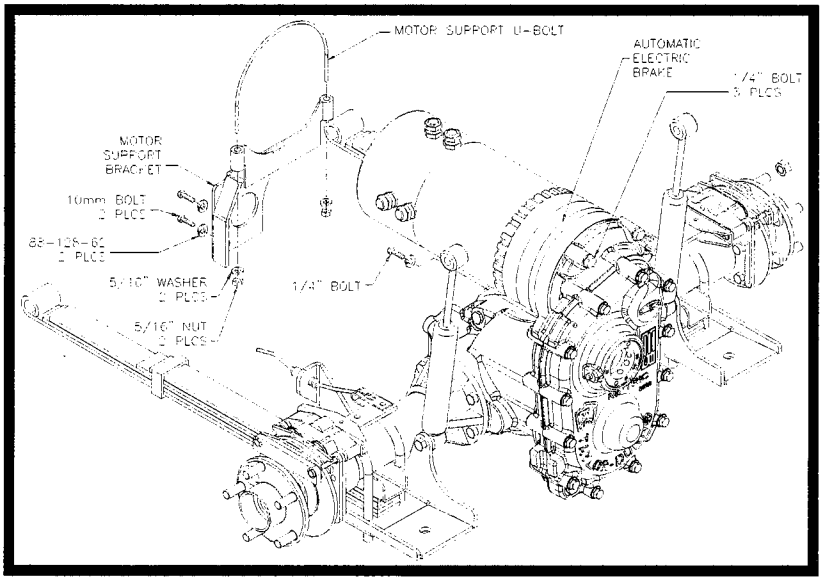
6. Remove the wires from the motor and disconnect the automatic electric brake wires.

   NOTE: Label the wires connected to the motor to insure that they are returned to their proper location on the motor during reassembly.

7. Remove the motor mounting bolts and the motor support bracket u-bolt from the drive and slide the motor off of the input shaft of the automatic electric brake.

⚠CAUTION

Do not remove the motor and brake as an assembly. Remove the motor from the brake leaving the brake on the input shaft to the drive then remove the brake from the drive. If you remove the motor and brake as an assembly, the brake may slide off of the motor shaft and may fall to the ground damaging the brake.



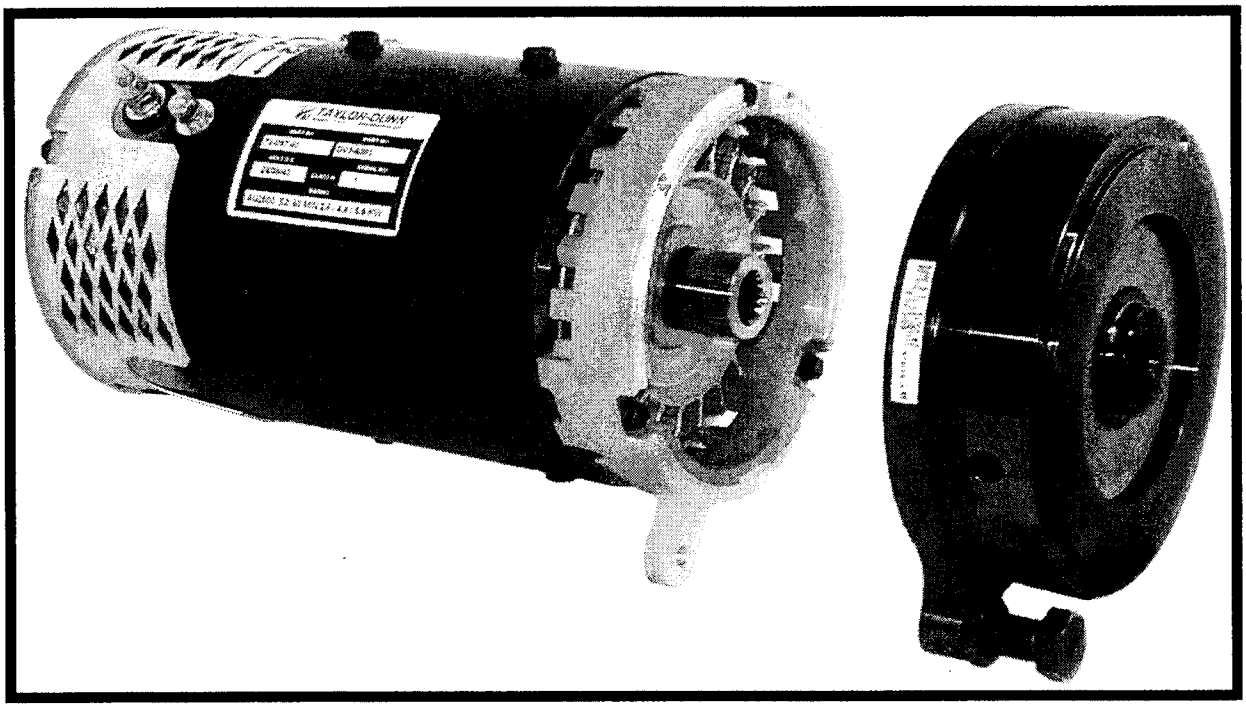
Motor and Automatic Electric Brake Assembly

Automatic Electric Brake Removal and Installation (Continued)

8. Slide the automatic electric brake off the drive input shaft.
9. Repair or replace components as necessary.
10. Install the new motor or reassemble in reverse order.

    NOTE: Apply a small amount of grease to the input shafts.

11. Reconnect the motor and brake wires.
12. Reconnect the main positive and negative cables at the batteries.
13. Test the brake.
13. Remove the blocks from behind the wheels.
14. Release the park brake and test drive the vehicle.



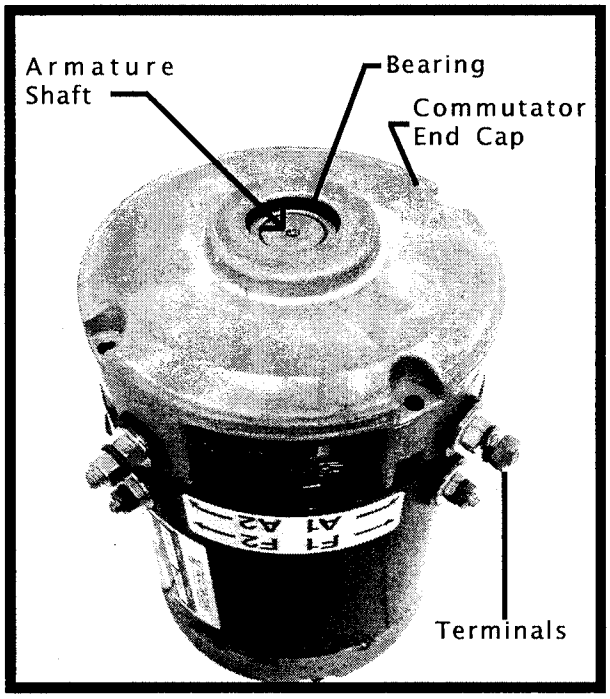
Motor and Automatic Electric Brake

Motor Disassembly and Assembly

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

6. Using the appropriate proceedure remove the motor from the drive.
7. Remove the dust cap and headband assembly from the commutator endcap.
8. Pull the brushes out of the brush holder.
9. Using an arbor press, press the armature shaft out of the bearing through the access hole in the commutator end cap.

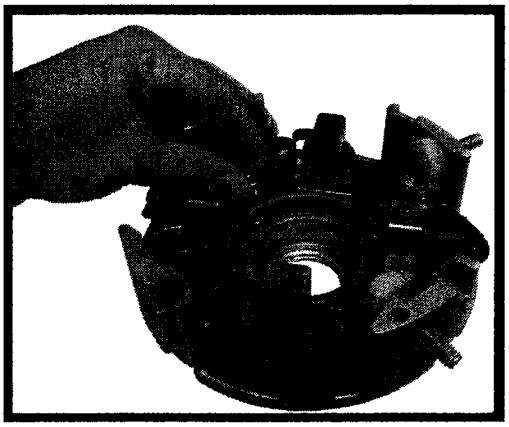


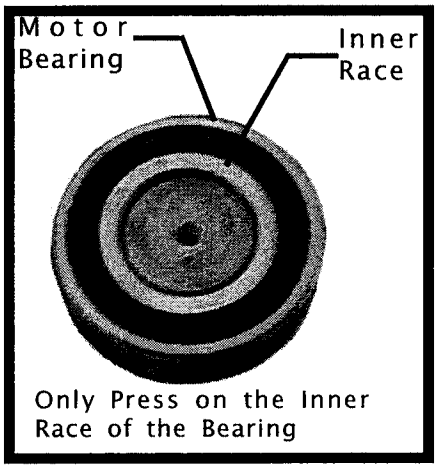
⚠CAUTION

Do not press on the bearing. Pressing on the bearing will damage the commutator end cap.

NOTE: When pressing the armature, be sure to support the motor housing accordingly. The bearing will remain in th commutator end cap.

10. Pull the armature out from the fan side of the motor housing.
11. Remove the bolts holding the commutator endcap on the motor.
12. Remove the bearing circlip from the commutator end cap.
13. Remove the bearing by lightly tapping on the inner race, from the endcap and discard the bearing.
14. If required, remove the nuts from the F1 and F2 terminals and the bolts in the motor housing from the field coils.





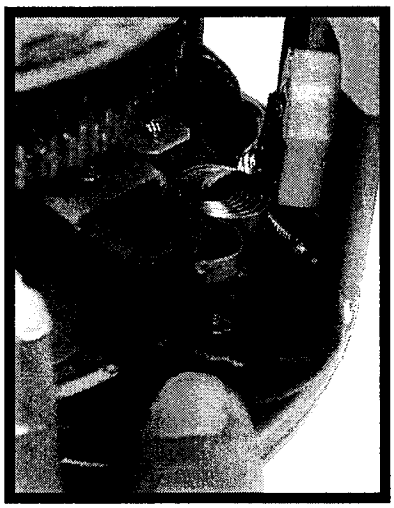
Installing Motor Bearing

15. Remove the nuts from the A1 and A2 terminals and the brush holder retaining screws, then remove the brush holder assembly from the commutator end cap.

NOTE: Be sure to remember the position of the cross over wires.

16 . Repair or replace components as necessary.

NOTE: When press ing the new bearing on to the armature shaft, be sure to press on the inner race of the bearing.



Brush Spring Correct Position

17. Reassemble the motor, be sure to use a new bearing.
18. Pull the brushes out from the brush holder until the spring holds the brush from sliding forward. When the motor has been reassembled push the brushes against the commutator, making sure the spring is not in contact with the brush wires.

⚠CAUTION

The brushes must be positioned away from the commutator as it is pressed into position. Failure to do so may cause damage to the motor.

Brush Spring Incorrect Position

19. Using the appropriate procedure install the motor and reconnect the wires.
20. Reconnect the main positive and negative cables at the batteries.
21. Remove the blocks from behind the wheels.
22. Release the park brake and test drive the vehicle.

Armature and Brush Inspection

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

Visual Inspection of the Brushes

6. Remove the motor wires and headband assembly.

   NOTE: The brushes must be replaced if any damage is apparent. Replace the brushes when the top of the brush is even with the top of brush holder.

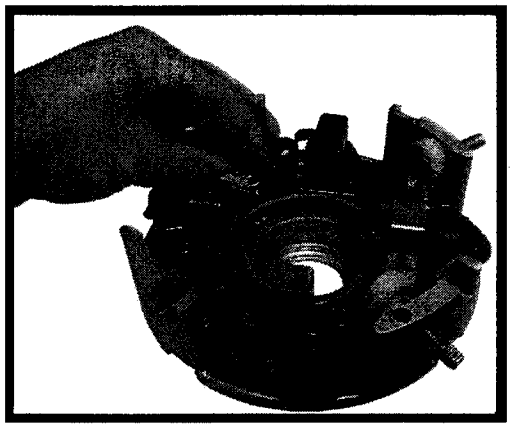
7. Using the appropriate proceedure remove the motor from the drive and the armature from the motor housing.

8. Check the inside of the motor housing and around the commutator for bits of solder.

   NOTE: If there are signs of solder either around the inside of the motor housing or the commutator, then the motor must be replaced. The presence of solder in either of the two areas indicates that the armature was overheated.

9. Inspect the armature for grooves.

   NOTE: If the armature is grooved, turn down with a lathe, cutting to a smooth surface.



10. Measure the diameter of the commutator.

    NOTE: The wear limit of the commutator is 2.75 inches. If the commutator is less then 2.75 inches, then it is worn out and the motor must be replaced.

11. Measure the undercut depth on the commutator. See Undercut Figure Below.

NOTE: The undercut depth is .025 inches. If the undercut depth is less then .025 inches, the mica can be recut to the proper depth.

12. Inspect the brushes for damage and wear.

NOTE: The minimum brush length is 5/8".

⚠CAUTION **The brushes must be positioned away from the commutator as the bearing in the end cap is pressed into position. Failure to do so may cause damage to the motor.**

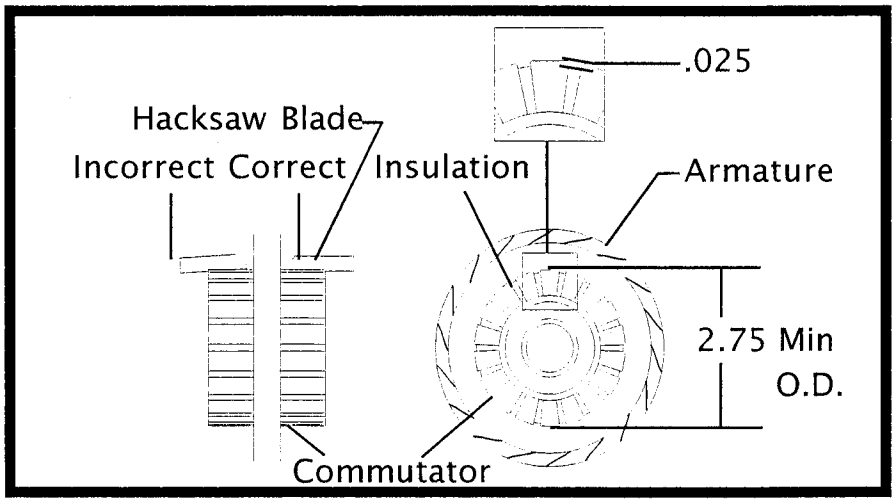
Brush Spring Correct Position

13. Reassemble the motor in reverse order.
14. Install the motor and reconnect the motor wires.
15. Reconnect the main positive and negative cables at the batteries.
16. Remove the blocks from behind the wheels.
17. Release the park brake and test drive the vehicle.

Brush Spring Incorrect Position

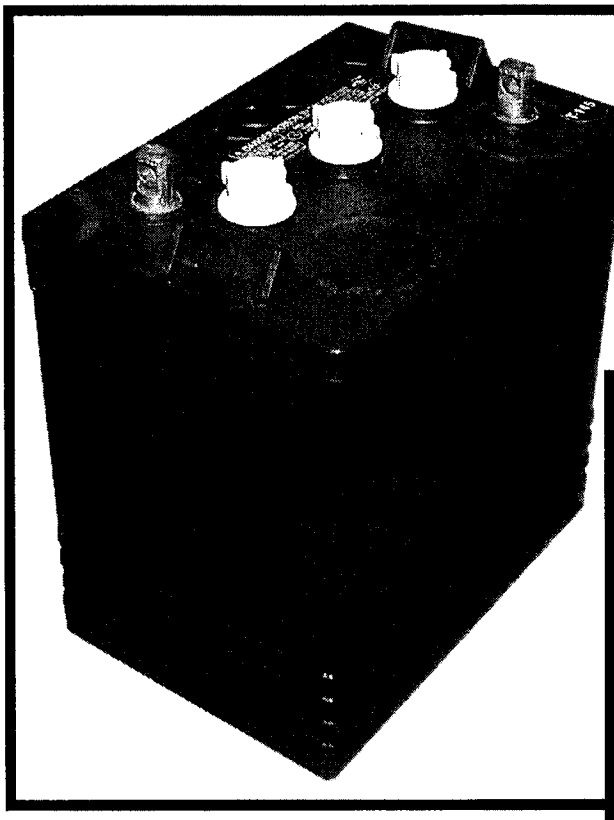
Motor Specification

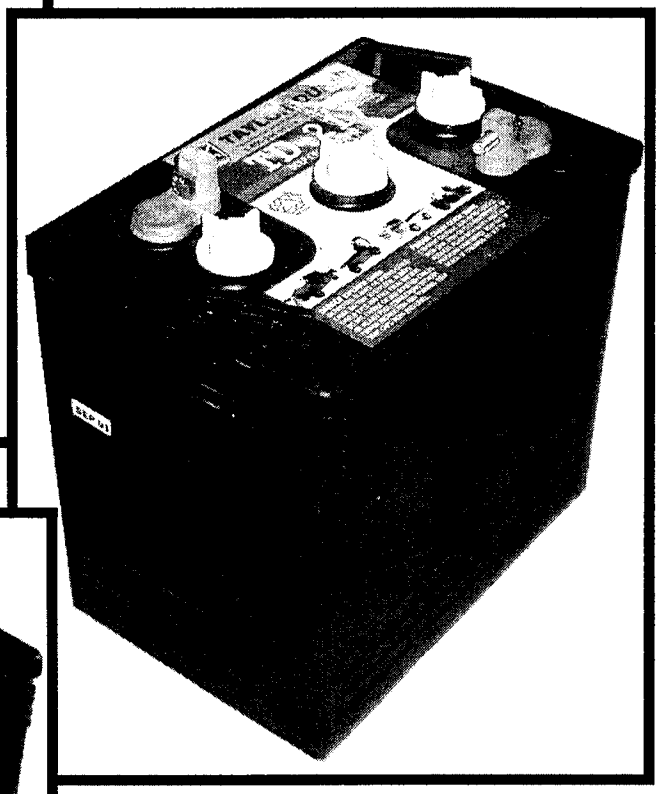
1. Motor Field Resistance	.58 Ohms (Ref)
2. Motor Armature Resistance	.008 Ohms (Ref)

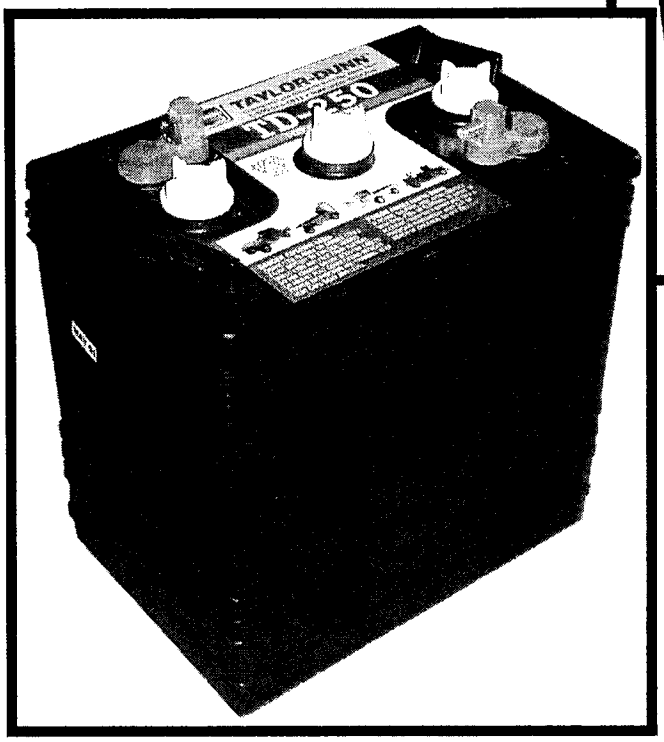


Undercut Figure: The left side shows how to properly cut the mica using a hacksaw blade. The right side of the figure shows the minimum diameter of the commutator and the proper mica depth.

BATTERY







Cleaning

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

6. Dry dirt can be readily blown off with low-pressure air or brushed off.
7. Wetness or wet dirt on the batteries indicates battery acid. Using a nonmetallic brush with flexible bristles, wash it off with a strong solution of baking soda and hot water (1 lb. of soda to gallon of water). Continue until all fizzing stops, which indicates that the acid has been neutralized. Then rinse thoroughly with clear water. DO NOT get any of the solution into the battery cells.

⚠WARNING **Battery electrolyte is poisonous and dangerous. It contains sulfuric acid. Avoid contact with skin eyes or clothing. Wear rubber gloves and safety glasses while servicing batteries. DO NOT INGEST! This may result in serious bodily injury.**

⚠WARNING **Batteries produce an explosive gas when charging. DO NOT SMOKE or produce an open flame while checking or servicing a battery. This may result in serious bodily injury.**

⚠CAUTION **Battery electrolyte will stain concrete.**

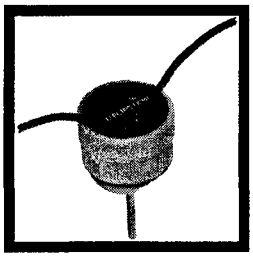
8. If equipped, with a Electrolyte alarm take the unit out of the battery cell, wipe the electrode clean, and put the unit back in the battery.
9. Reconnect the main positive and negative cables at the batteries.
10. Remove the blocks from behind the wheels.
11. Release the park brake and test drive the vehicle.

Electrolyte Alarm (Optional)

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**
5. **Disconnect the main positive and negative cables at the batteries.**

6. If the Electrolyte warning alarm is sounding or the LED light is red, then the batteries need servicing.
7. Using the appropriate procedure, service and charge all the batteries.



ELECTRO™-Light

⚠WARNING

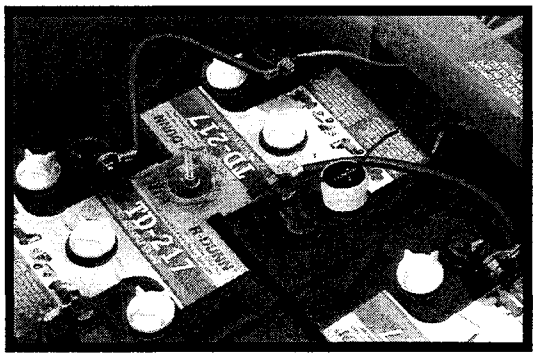
A battery is a live electrical source. It cannot be disconnected or neutralized. Do not drop any metal tool or conductive object onto the battery. A conductive object that comes in contact with the battery terminals or exposed wiring may initiate a short circuit of the battery or cause an explosion. The result may damage property and or cause serious bodily injury.

8. Take the Electrolyte alarm unit out of the battery cell, wipe the electrode clean, and put the unit back in the battery.

NOTE: The wiring for the Electrolyte alarm does not need to be disconnected from the batteries.

⚠CAUTION

Be sure the Electrolyte alarm electrode does not contact the top of the battery plates. If the electrode contacts the plates, the alarm will not function correctly and may damage the alarm and or the battery.



ELECTRO™- Light in typical battery pack

9. When the batteries have been serviced and charged the alarm will stop and the LED will be green.
10. Reconnect the main positive and negative cables at the batteries.
11. Remove the blocks from behind the wheels.
12. Release the park brake and test drive the vehicle.

Servicing

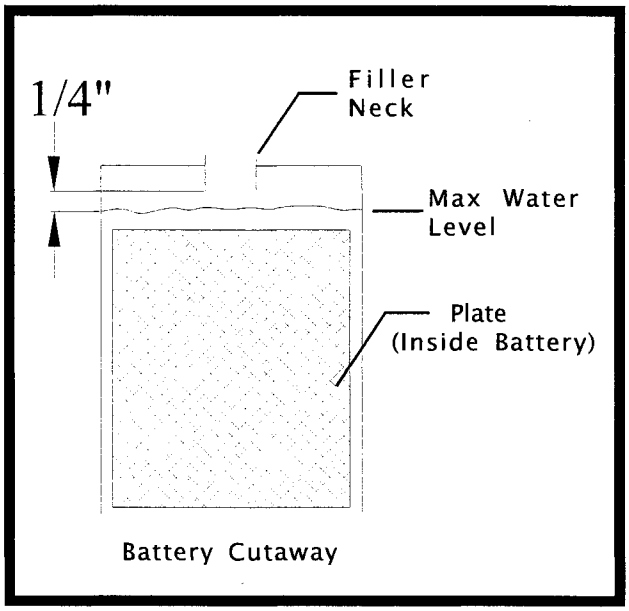
⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.
5. Disconnect the main positive and negative cables at the batteries.

6. Clean the batteries.

⚠WARNING

Do not overfill the battery. An overfilled battery may leak acid. The result may damage property and or cause serious bodily injury.



Battery Fill Level: This figure shows the proper fill

7. Check the electrolyte level in all batteries. If low, fill with distilled water up to the correct level. Use 77-201-00 battery filler.
8. Clean the cell posts connectors and battery box with water.
9. If equipped, with a Electrolyte alarm take the unit out of the battery cell, wipe the electrode clean, and put the unit back in the battery.
10. Reconnect the main positive and negative cables at the batteries.
11. Remove the blocks from behind the wheels.
12. Release the park brake and test drive the vehicle.

Charging

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

⚠WARNING

Explosive mixtures of Hydrogen gas are present within battery cells at all times. Do not work with or charge battery in an area where open flames (including gas furnace or water heater pilots), sparks, cigarettes, or any other sources of combustion are present. Always provide ample ventilation in rooms where batteries are being charged. Failure to do so may result in severe property damage and or serious bodily injury.

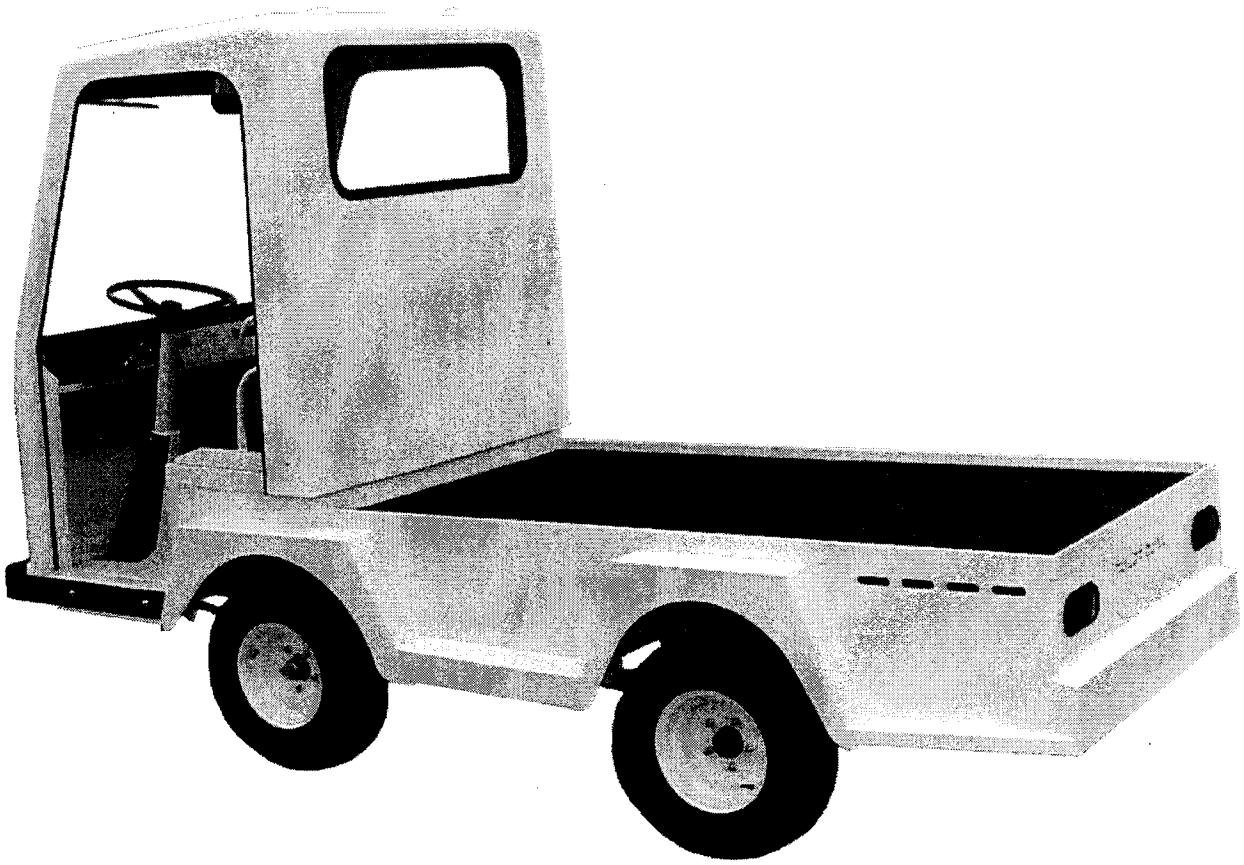
6. Check the electrolyte level. If low, fill with distilled water up to the correct level. Use 77-201-00 battery filler.
7. If equipped, with a Electrolyte alarm take the unit out of the battery cell, wipe the electrode clean, and put the unit back in the battery.
8. Plug the charger into the appropriate voltage outlet.
9. Allow the charger to cycle completely before unplugging.
10. Remove the blocks from behind the wheels.
11. Release the park brake and test drive the vehicle.

Battery Storage

The following pointers will help extend the life of the battery when storing the vehicle for the winter season:

- Clean and check the electrolyte level and charge level of the battery.
- Do not store a battery low in electrolyte or in a low state of charge.
- If possible, store the vehicle in a cool dry place, or cover the vehicle.

If the batteries are removed from the vehicle, do not place them directly on the ground, concrete or solid metal surface. It is recommended to store them on a wooden pallet or equivalent.



SECTION 4

Electrical and Charger Troubleshooting

SEVCON CONTROLLER TROUBLESHOOTING

TEST EQUIPMENT REQUIRED:

- Digital multimeter (DMM) with diode test function, FLUKE 79 model shown.
- Test harness, Taylor-Dunn #75-089-00

IMPORTANT NOTES and INSTRUCTIONS

- This troubleshooting guide assumes a familiarity with the use of a digital multimeter including, voltage tests, continuity tests, and diode testing. If you are not familiar with any part of these tests, refer testing to a qualified technician.
- These tests are not intended to locate a problem on an incorrectly wired vehicle.
- Make sure the batteries are in good condition and fully charged before performing any tests.
- If the vehicle exhibits intermittent problems, it must be in the failed mode for troubleshooting. If it is running normally when the testing is done, a problem will not be found.
- The High/Low switch is optional and the vehicle may not have this option. If the vehicle is without this option, there is a jumper bypass installed in place of the switch in the dash.
- All voltage tests are done referenced to battery negative, unless otherwise specified.

DEFINITIONS

- Battery volts = full voltage available at the batteries at the time of test.
  - High: Greater than +4.5 volts
  - Low: Less than +1.8 volts
- Keep in mind:
  - The *"HOT"* side of a switch is the terminal that the power is connected to.
  - The *"COLD"* side of a switch is the terminal that the power is switched to.
  - FS-1 = Micro-switch in the accelerator module.

⚠CAUTION

These test procedures must be performed in the order they were written. If the test result is good, then proceed to the next test or go to the next section. Failure to do so may result in incorrect test results.

DURING ALL TESTS

- After any repairs are made, completely retest vehicle before lowering the drive wheels to the ground.

⚠WARNING

Disconnect both of the battery leads during any maintenance or before disconnecting any electrical component or wire.

1. CHECKING THE CONTROL LOGIC INPUTS

If the Battery Status Indicator does not show a charged battery, check the batteries, the wiring from the indicator to the batteries for open circuits, the battery status indicator, the positive and negative circuit breaker, and the main circuit breaker for open circuits. Do not continue unless the indicator shows a charged battery.

If the vehicle runs in one direction only, then go to test #3.

If the vehicle runs slow in forward, but otherwise runs normal, then go to test #1.3.

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

1. CHECKING THE CONTROL LOGIC INPUTS

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.

TEST 1.1

Test the voltage across the ISO solenoid coil. This voltage should start at approximately 24 volts (high), then drop to approximately 15 volts after about 0.5 seconds. If the test is good, then go to test # 1.2.

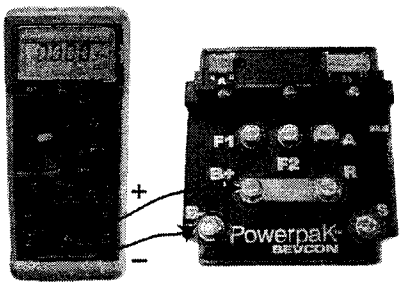
If the voltage starts high, drops to 15 volts, and then drops to 0 volts, then it indicates an open circuit to the main battery positive. Check the continuity of the ISO solenoid contacts, the main circuit breaker, and the wiring to the main battery positive post.

If the voltage is high and the solenoid does not pick up, then go to section #5.

If the voltage does not start high, then go to section #4.

TEST 1.2:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.



Test the voltage from B+ to B- on the Controller.

If the voltage equals battery volts, then go to test #1.3.

If the voltage does not equal battery volts, then:

Check the main positive wire to the circuit breaker for open circuits.

Check the wire from the circuit breaker to battery positive.

Check the wire from the contactor to B+ on the controller for open circuits.

Check the wire from B- to battery negative on the controller for open circuits.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 1.3:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.

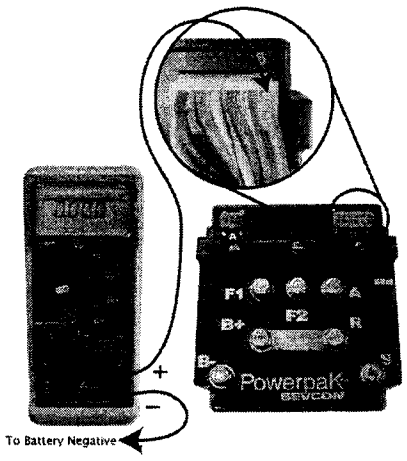
Test the voltage at pin #6 on the 12-pin logic card connector.

If the voltage is low, then go to test #1.4.

If the voltage is high, then check the wire to the High/Low switch and the High/Low switch for open circuits.

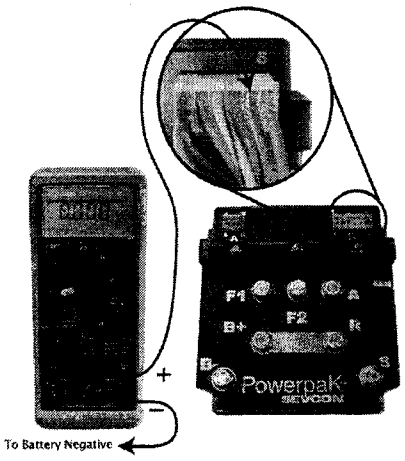
NOTE: The High/Low switch is optional and the vehicle may not have this option. If the vehicle is without this option, there is a jumper bypass installed in place of the switch in the dash.

Stop here, repair or replace the necessary parts, then test the vehicle.



TEST 1.4:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.



Test the voltage at pin #5 on the 12-pin logic card connector.

If the voltage is low, then go to test #1.5.

If the voltage is high, then:

Check the seat switch for open contacts.

Check that the seat switch is engaging the seat correctly.

Check the wire from the pin 5 to the seat switch for open circuits. Check the seat switch for open contacts.

If all of the above is in working order, then the logic card may have failed.

Stop here, repair or replace the necessary parts, then test the vehicle.

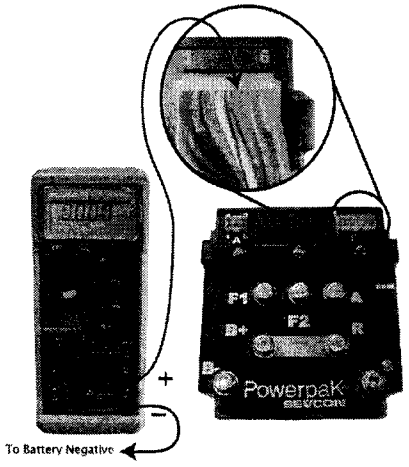
TEST 1.5:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.

Test the voltage at pin #4 on the 12-pin logic card connector.

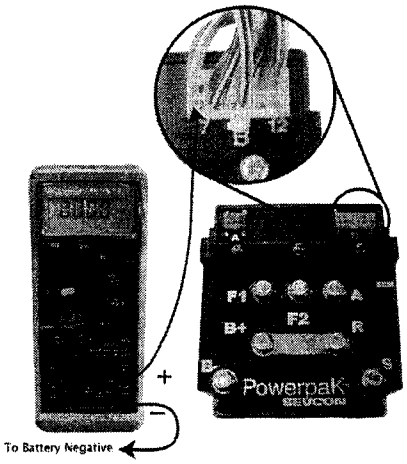
If the voltage is high, then go to test #1.6.

If the voltage is low, then go to section #6.



TEST 1.6:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then perform the following tests.



Test the voltage at pin #7 on the 12-pin logic card connector.

NOTE: Pin #7 is for a parking brake interlock switch. This switch is not available for all vehicles and may not be used.

If the voltage is high, then go to test #1.7.

If the voltage is low, then:

Check the park brake switch for shorted contacts.

Check the wire to the park brake switch for short circuits to B-.

Reaching this point indicates no problems were found in all of the previous tests and that the Sevcon power unit has failed. It is recommended to confirm that all of the previous tests up to this point were performed correctly before replacing the Sevcon power unit.

Stop here, repair or replace the necessary parts, then test the vehicle.

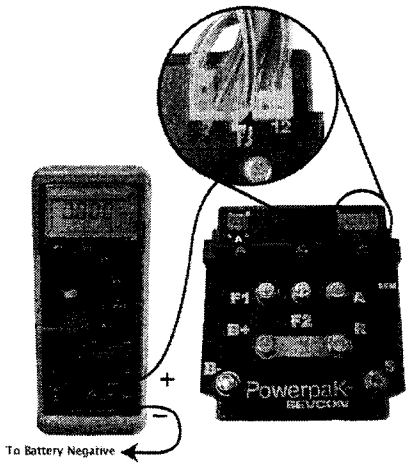
TEST 1.7:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, depress the accelerator pedal to engage the FS-1 only (creep speed), then perform the following tests.

Test the voltage at pin #10 on the 12-pin logic card connector.

If the voltage is below 0.3 volts, then go to test #1.8.

If the voltage is above 0.3 volts, then go to section #6.



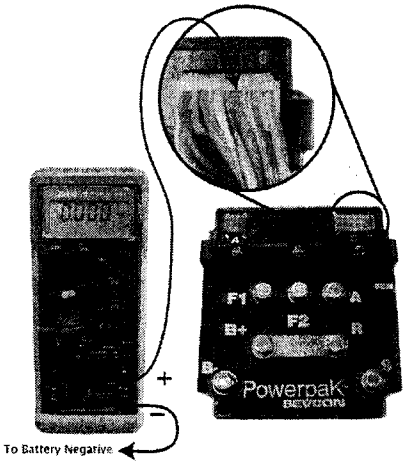
TEST 1.8:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, depress the accelerator pedal to engage the FS-1 only (creep speed), then perform the following tests.

Test the voltage at pin #4 on the 12-pin logic card connector.

If the voltage is low, then go to test #1.9.

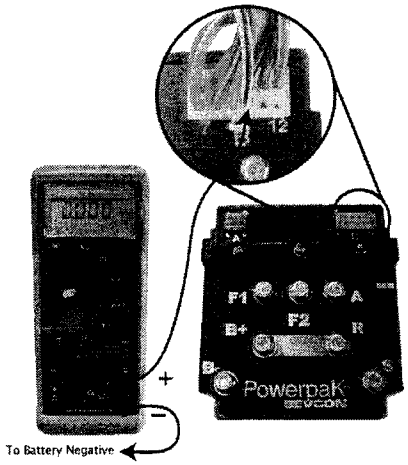
If the voltage is high, then go to section #6.



TEST 1.9:

The seat switch should be "CLOSED" and the high/low switch in the "HIGH" position (if applicable). Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, depress the accelerator pedal fully, then perform the following tests.

Test the voltage at pin #10 on the 12-pin logic card connector.



If the voltage is between 4.8 and 5.1 volts, then go to section #2.

If the voltage is not between 4.8 and 5.1 volts, then go to section #6.

2. TESTING THE MOTOR

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

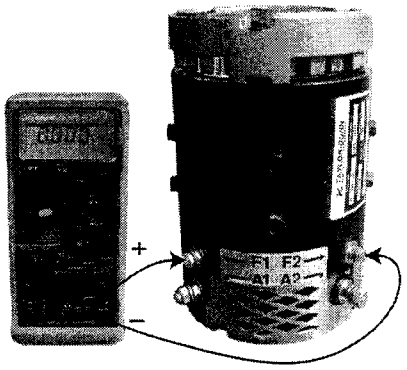
⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

Disconnect the negative and positive cables from the batteries, remove all wires from the motor terminals, then perform the following tests.

TEST 2.1:

Check the motor field resistance from the motor F1 to the motor F2 terminals.



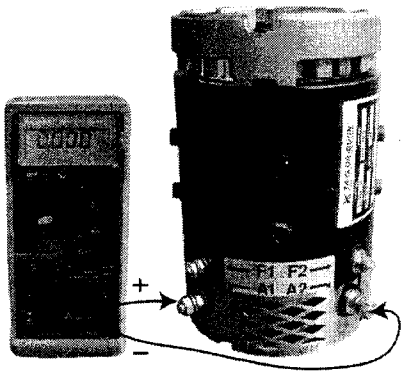
If the resistance is within the values given in the motor specification table, then go to test #2.2. (The motor specification can be found in Section 3 under "Motor Repair").

If the resistance is not within specification, then repair or replace the motor.

Test continuity from F1 to the frame of the motor. Any reading, other than an open circuit, indicates a short in the motor. if there is a short repair or replace the motor.

TEST 2.2:

Disconnect the negative and positive cables from the batteries, remove all wires from the motor terminals, then perform the following tests.



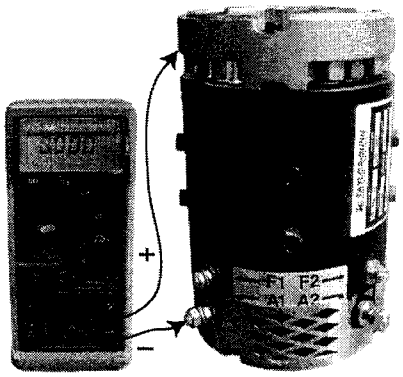
Check the resistance from the motor A1 to the A2 terminals.

If the resistance is less than 1 Ohm, then go to test #2.3.

If the resistance is greater than 1 Ohm , then the armature circuit is out of specification, repair or replace the motor.

TEST 2.3:

Disconnect the negative and positive cables from the batteries, remove all wires from the motor terminals, then perform the following tests.



Test the continuity from the motor A1 terminal to the frame on the motor and from F1 to A1 for open circuits.

Any reading, other than an open circuit, indicate a short in the motor. If the motor is shorted, repair or replace the motor.

TEST 2.4:

Check the continuity of all wires from the controller to the motor.

Stop here, repair or replace the necessary parts, then test drive the vehicle.

Reconnect all wires to the motor, then perform the following tests.

This completes testing for all external components in the control system. Reaching this point indicates no problems were found in all of the previous tests and that the Sevcon power unit has failed. It is recommended to confirm that all of the previous tests up to this point were performed correctly before replacing the Sevcon power unit.

3. THE VEHICLE RUNS IN ONE DIRECTION ONLY

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

If the vehicle runs in reverse only, then go to test #3.3.

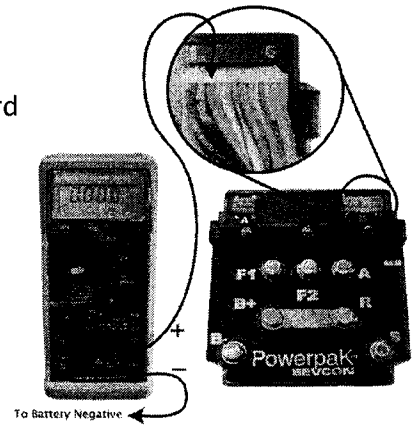
The seat switch should be "CLOSED". Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then place the forward and reverse switch in "FORWARD", then perform the following tests.

TEST 3.1

Test the voltage at pin-2 on the 12-pin logic card connector.

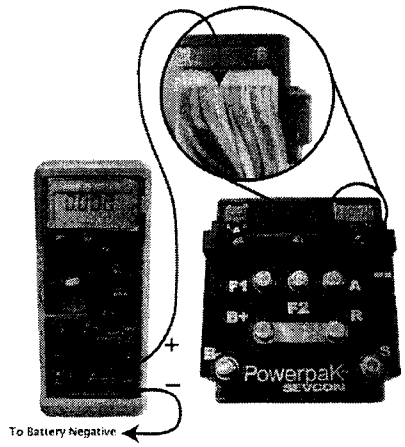
If the voltage is low, then go to test 3.2.

If the voltage is high, then go to section #7.



TEST 3.2:

The seat switch should be "CLOSED". Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then place the forward and reverse switch in "FORWARD", then perform the following tests.



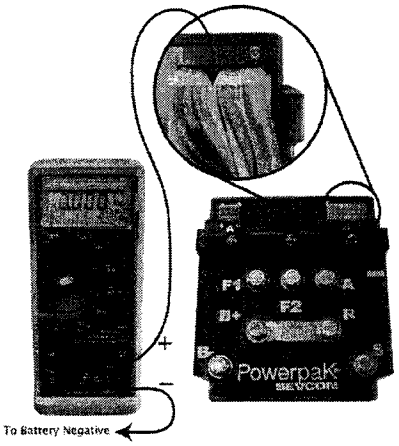
Test the voltage at pin #3 on the 12 pin logic card connector.

If the voltage is high, then go to test #3.3.

If the voltage is low, then go to section #7.

The seat switch should be "CLOSED". Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then place the forward and reverse switch in "REVERSE", then perform the following tests.

TEST 3.3:



Test the voltage at pin #3 on the 12 pin logic card connector.

If the voltage is low, then go to test #3.4.

If the voltage is high, then go to section #7.

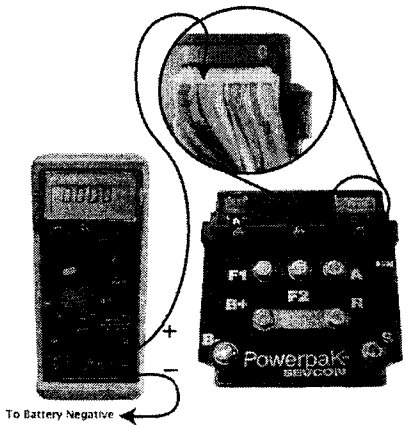
TEST 3.4:

The seat switch should be "CLOSED". Turn the key switch "ON," wait approximately 1 second, you will hear a click sound coming from the power electronics area, then place the forward and reverse switch in "REVERSE", then perform the following tests.

Test the voltage at pin #2 on the 12 pin logic card connector.

If the voltage is high, then see note at bottom of page.

If the voltage is low, then go to section #7.



Reaching this point indicates that no problems were found in all of the previous tests and that the Sevcon power unit has failed. It is recommended to confirm that all of the previous tests up to this point were performed correctly before replacing the Sevcon power unit.

4. KEY FAULT

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

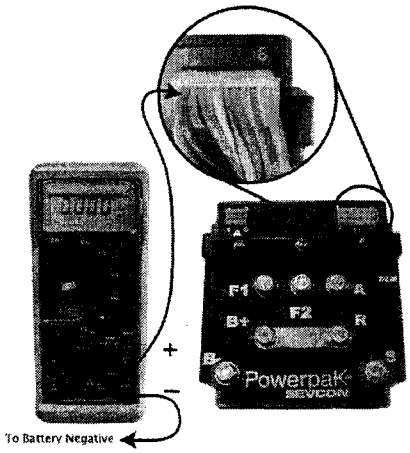
Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

TEST 4.1:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position.



Test the voltage at pin #1 on the 12 pin logic card connector.

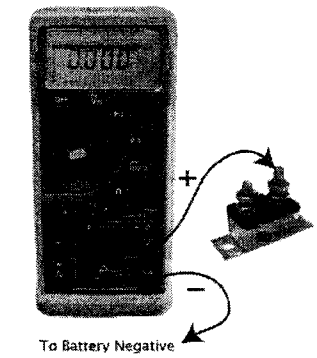
If the voltage equals battery volts, then go to section #5.

Test the voltage on both terminals of the battery voltage positive circuit breaker.

If the voltage on both terminals equals battery volts, then go to test #4.2.

If the voltage on both terminals does not equal battery volts, then check the circuit breaker and wiring to the main circuit breaker and to the batteries for open circuits.

Stop here, repair or replace the necessary parts, then test the vehicle.



TEST 4.2:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position.

Test the voltage at the hot terminal (red wire) on the key switch.

If the voltage equals battery volts, then go to test #4.3.

If the voltage does not equal battery volts, then check the wiring from the key switch to the battery voltage positive circuit breaker.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 4.3:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position.

Test the voltage at the cold side (violet/black wire) of the key switch.

If the voltage equals battery volts, then go to test #4.4.

If the voltage does not equal battery volts, then replace the key switch.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 4.4:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position.

Check the wire from the cold side of the key switch to pin #1 on the 12 pin logic card connector for open circuits.

Stop here, repair or replace the necessary parts, then test the vehicle.

5. CONTACTOR COIL FAULT

⚠WARNING **The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.**

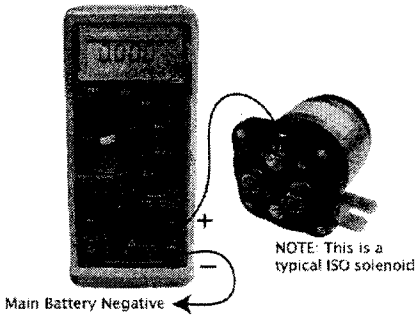
⚠WARNING **Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.**

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

TEST 5.1:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position. Disconnect the 12-pin logic card connector from the controller.



Check the voltage on the positive coil terminal of the ISO solenoid (violet wire).

If the voltage is within approximately 1 volt of the battery voltage, then go to test #5.2.

If the voltage is not within approximately 1 volt of the battery voltage, then check the diode in the positive wire to the ISO solenoid.

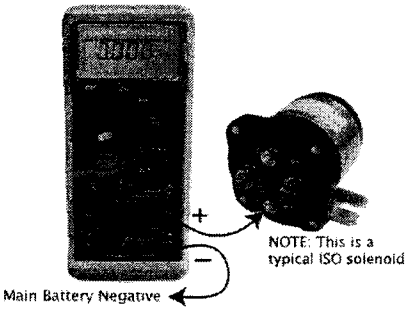
Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 5.2:

Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position. Disconnect the 12-pin logic card connector from the controller.

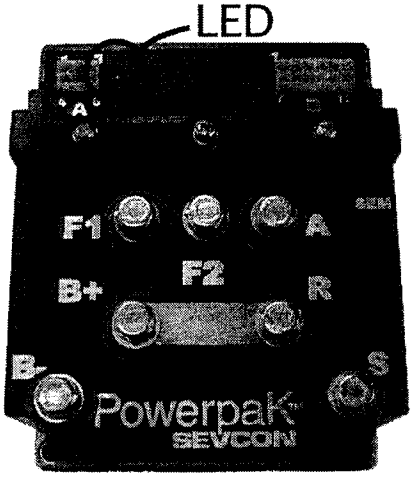
Check the voltage on the negative coil terminal of the contactor coil.

If the voltage is not within 1 volt of battery voltage, then the contactor coil is bad.



NOTE: An open contactor coil should be accompanied by a 4-flash code from the logic LED.

If the voltage is within 1 volt of battery voltage, then:



Check the wire from pin #8 in the 12 pin logic card connector to the contactor coil negative terminal for open circuits.

If the wire tests good, then the control logic may have failed.

Stop here, repair or replace the necessary parts, then test the vehicle.

This completes testing for all external components in the control system. Reaching this point without a solution indicates a possible failure in the main control unit. Recheck all tests. If all test are in working order, then either they were performed incorrectly or the control needs to be replaced.

6. ACCELERATOR MODULE FAULT

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

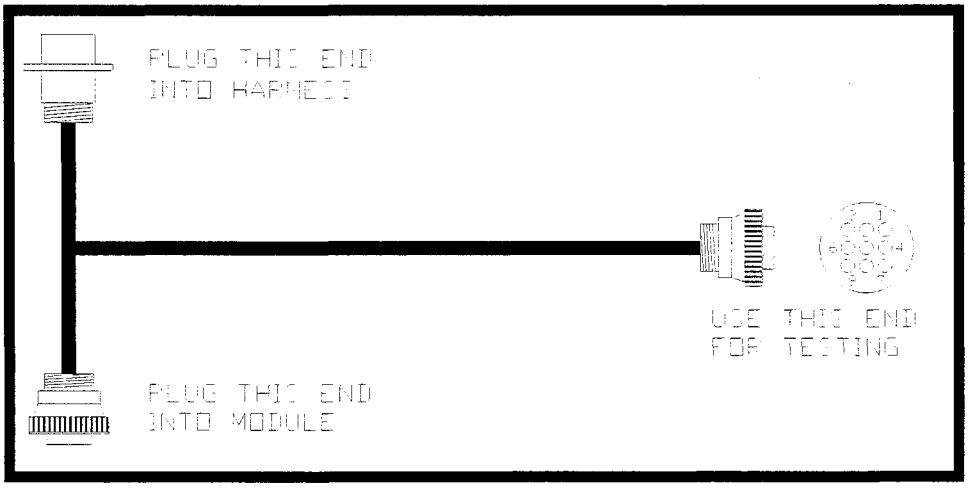
⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

Before beginning, be sure to disconnect the truck harness from the accelerator module. Connect the plug on the short end of the 75-089-00 test harness to the accelerator module (be sure that the short end of the test harness is connected to the truck harness and use the long end of the harness for testing).



Use the 75-089-00 module test harness for the following procedures.

TEST 6.1:

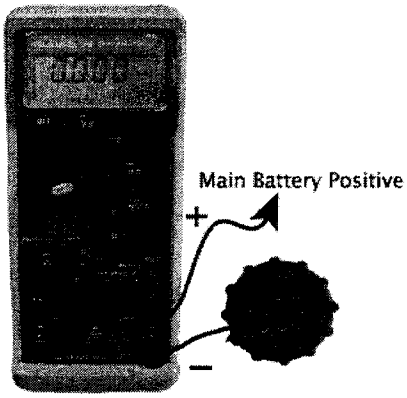
Turn the key switch "ON" and the accelerator pedal is in the "UP" position (FS-1 open).

Test the voltage from pin #9 to battery positive.

If the voltage equals battery volts, go to test #6.2.

If the voltage does not equal battery volts, then check the wire from pin #9 to the battery voltage negative circuit breaker.

Stop here, repair or replace the necessary parts, then test the vehicle.



TEST 6.2:

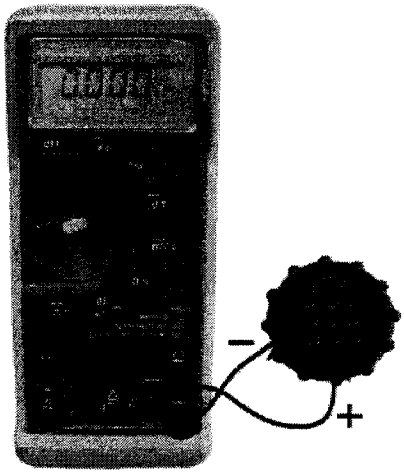
Turn the key switch "ON" and the accelerator pedal is in the "UP" position (FS-1 open).

Test the voltage from pin #9 to pin #8.

If the voltage equals battery volts, then go to test #6.3.

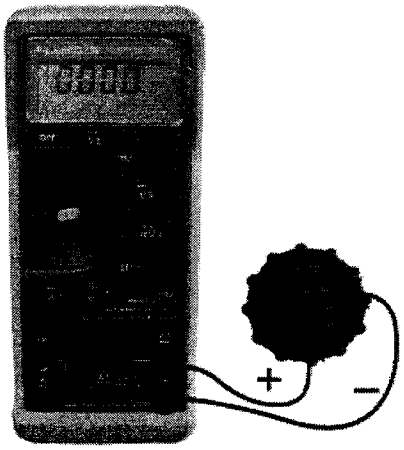
If the voltage does not equal battery volts, then check the wire from pin #8 to the key switch.

Stop here, repair or replace the necessary parts, then test the vehicle.



TEST 6.3:

Turn the key switch "ON" and the accelerator pedal is in the "UP" position (FS-1 open).



Test the voltage from pin #8 to pin #4.

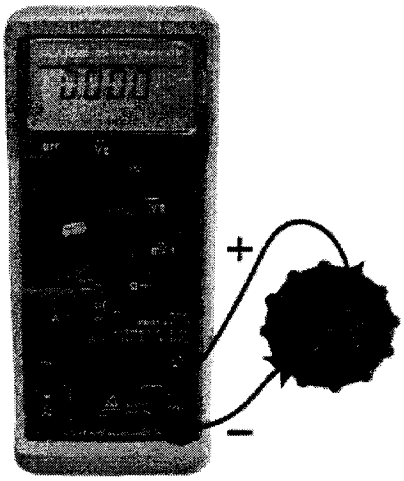
If the voltage equals battery volts, then go to test #6.4.

If the voltage does not equal battery volts, then check the wire from pin #4 to the battery voltage negative circuit breaker.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 6.4:

Make sure to depress the accelerator pedal to close the FS-1 switch (creep speed).



Test the voltage from pin #9 to pin #1.

If the voltage is below 0.3 volts, then go to test #6.5.

If the voltage is above 0.3 volts, then the module has failed.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 6.5:

Make sure to depress the accelerator pedal to close the FS-1 switch.

Test the voltage from pin #5 to pin #8.

If the voltage equals battery volts, then go to test #6.6.

If the voltage does not equal battery module volts, then the module has failed or the module return spring is broken.

Stop here, repair or replace the necessary parts, then test the vehicle.

⚠CAUTION

Failing this test indicates that the MS-1 or MS-3 switch is open. A short in the wiring can cause this problem. Installing a new module without correcting the short will damage the new module.

TEST 6.6:

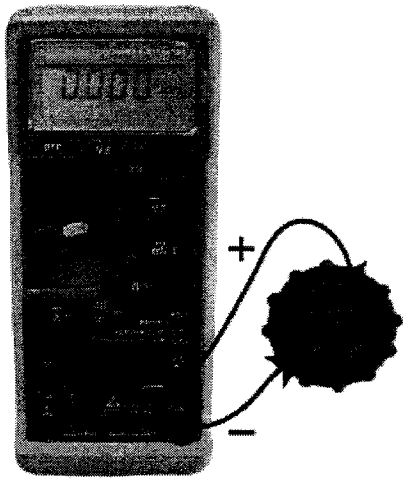
Make sure to depress the accelerator pedal fully.

Test the voltage from pin #9 to pin #1.

If the voltage is between 4.8 and 5.1 volts, then go to test #6.7.

If the voltage is not between 4.8 and 5.1 volts, then the module has failed.

Stop here, repair or replace the necessary parts, then test the vehicle.



TEST 6.7:

The following conditions are due to either a wiring problem in the vehicle or improper testing.

If the test at pin #4 on the 12 pin logic card connector failed, but the test at pin #5 at the accelerator module was good, then check the wire from pin #5 (module) to pin #4 (logic card).

If the test at pin #10 on the 12 pin logic card connector failed, but the test at pin #1 at the accelerator module was good, then check the wire from pin #1 (module) to pin #10 (logic card).

Stop here, repair or replace the necessary parts, then test the vehicle.

7. FORWARD AND REVERSE SWITCH

⚠WARNING

The rear drive wheels may rotate during some of the following tests. Block the front wheels, raise the rear drive wheels off the ground, and support the vehicle with jack stands. Failure to do so may cause the vehicle to move and cause property damage and/or seious bodily injury.

⚠WARNING

Rotating rear drive wheels are a potential hazard. Keep hands, arms, legs and loose clothing away from the rear drive wheels while conducting tests. Failure to do so may cause seious bodily injury.

⚠WARNING

1. **Make sure the key-switch is in the "OFF" position, then remove the key.**
2. **Place the forward-reverse switch in the center "OFF" position.**
3. **Set the park brake.**
4. **Place blocks under the front wheels to prevent vehicle movement.**

FAULT

TEST 7.1:

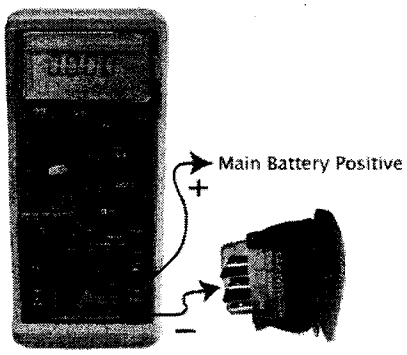
Turn the key switch "ON" and place the forward-reverse switch in the center "OFF" position.

Reference battery positive, test the voltage on the center terminal Black wire on the F&R switch.

If the voltage equals battery volts, then go to test #7.2.

If the voltage does not equal battery volts, then check the wire from the F&R switch to the battery voltage circuit breaker.

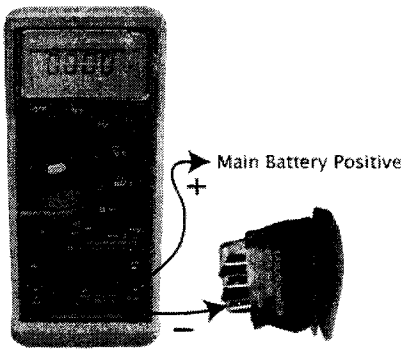
Stop here, repair or replace the necessary parts, then test the vehicle.



NOTE: The wires are disconnected for reference only. The test must be done with the wires connected to the switch.

TEST 7.2:

Make sure to place the forward and reverse switch in "FORWARD" for the following test.



NOTE: The wires are disconnected for reference only. The test must be done with the wires connected to the switch.

If the vehicle does not travel in reverse, go to test 7.3

Reference battery positive, test the voltage at the Blue/Black wire on the F&R switch.

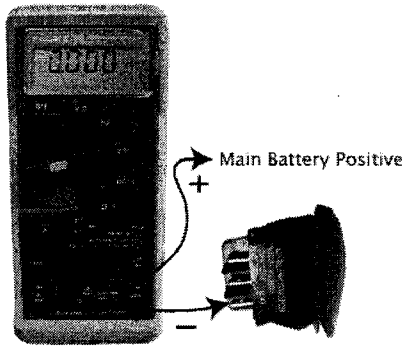
If the voltage equals battery volts, go to test #7.4.

If the voltage does not equal battery volts, then the F&R switch has failed.

Stop here, repair or replace the necessary parts, then test the vehicle.

Make sure to place the forward and reverse switch in "REVERSE" for the following test.

TEST 7.3:



NOTE: The wires are disconnected for reference only. The test must be done with the wires connected to the switch.

Skip this test if the vehicle does not travel in forward.

Reference battery positive. Test the voltage at the White/Black wire on the F&R switch.

If the voltage equals battery volts, go to test #7.4.

If the voltage does not equal battery volts, then the F&R switch has failed.

Stop here, repair or replace the necessary parts, then test the vehicle.

TEST 7.4:

The following test is performed due to either a wiring problem in the vehicle or improper testing

Check the wires from the F&R switch to the logic card connector for continuity.

This completes testing for all external components in the control system. Reaching this point indicates no problems were found in all of the previous tests and that the Sevcon power unit has failed. It is recommended to confirm that all of the previous tests up to this point were performed correctly before replacing the Sevcon power unit.

8. ANTI-ROLLOFF FAULT

⚠WARNING **Testing of the Anti-Rolloff feature must be done on a flat and level surface. Failure to do so may cause the vehicle to move and cause property damage and/or serious bodily injury.**

The Sevcon Controller has a feature called Anti-Rolloff. Anti-Rolloff will automatically slow the vehicle if it starts to roll. Anti-Rolloff is active when the key switch has been left in the "ON" position and the accelerator pedal is not depressed. Anti-Rolloff is deactivated when the key switch is in the "OFF" position

When the key switch is in the "ON" position and the truck is stationary, the controller supplies a small current to the field. This current is used to sense whether the armature is rotating. As the armature begins to rotate, the controller senses a fault condition and then supplies current to the field opposing the armature rotation, slowing the vehicle.

To test the Anti-rolloff feature:

Drive the vehicle onto a *flat* and *level* surface, stop, apply the park brake and leave the key switch in the "ON" position. **Place the forward-reverse switch in the center "OFF" position.**

TEST #8.1

Test the field current. If the field current is greater than the specification for the motor, see table below, then the Anti-Rolloff feature has failed. Check the status of the Anti-Rolloff feature using the hand held calibrator (62-027-40).

TEST #8.2

Drive the vehicle onto a *flat* and *level* surface, stop, apply the park brake and leave the key switch in the "ON" position. **Place the forward-reverse switch in the center "OFF" position.**

Test the motor field current. While monitoring the motor field current, release the park brake, and push the vehicle. Within approximately 10-feet, the field current should rise dramatically and the truck should become difficult to push. Stop pushing the vehicle. The field current should drop back down to the specification for the motor, see table below. This indicates that the Anti-Rolloff feature is operating normally.

If the current does not rise, then the Anti-Rolloff feature has failed or has been turned off. Check the status of the Anti-Rolloff feature using the hand held calibrator.

If the Anti-Rolloff feature is on, then the controller has failed and must be replaced.

If the Anti-Rolloff feature is off then the controller logic must be reprogrammed. Contact your dealer.

Note: Field current is not the same as battery current, as the field voltage is at a lower level (approximately 2 to 3 volts) during detection.

MOTOR FIELD CURRENT TABLE		
PART #	*MOTOR SPECIFICATION*	*MAX FIELD CURRENT*
70-054-40	2.1/3.2/4.4Kw	3 Amps
70-057-40	2.6/4.4/5.9Kw	5 Amps

Voltage Reference Table

Reference voltages at the 12 pin logic card connector. Tests made referencing main negative.

Pin#	Condition	Volts
1	Key switch off	0.0 volts
	Key switch on	Battery volts
2	F&R in forward	Low
	F&R in neutral	High
	F&R in reverse	
3	F&R in reverse	Low
	F&R in neutral	High
	F&R in forward	
4	Accelerator pedal up	High
	Accelerator pedal down	Low
5	Seat switch closed (depressed)	Low
	Seat switch open	High
6	High/low switch in high	High
	High/low Switch in low	Low
7	Hand brake switch closed	Low
	Hand brake switch open	High
8	Key switch on	Low
	Key switch off	0.0 volts
9	Not used	-
10	Accelerator pedal up	0.0-0.3 volts
	Accelerator pedal down	4.8-5.0 volts
11	Not used	-
12	Not used	-

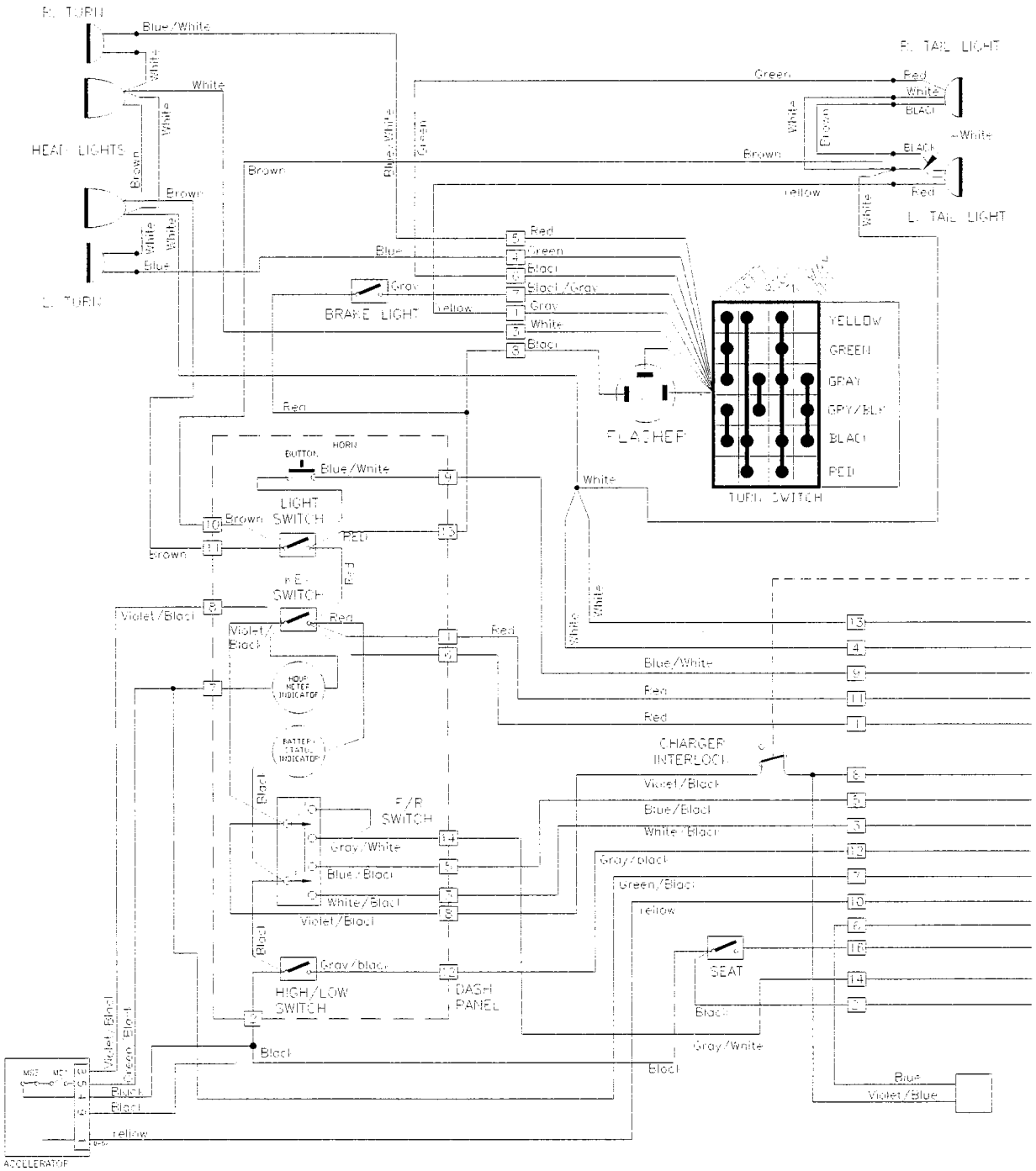
*After Capacitors Discharge

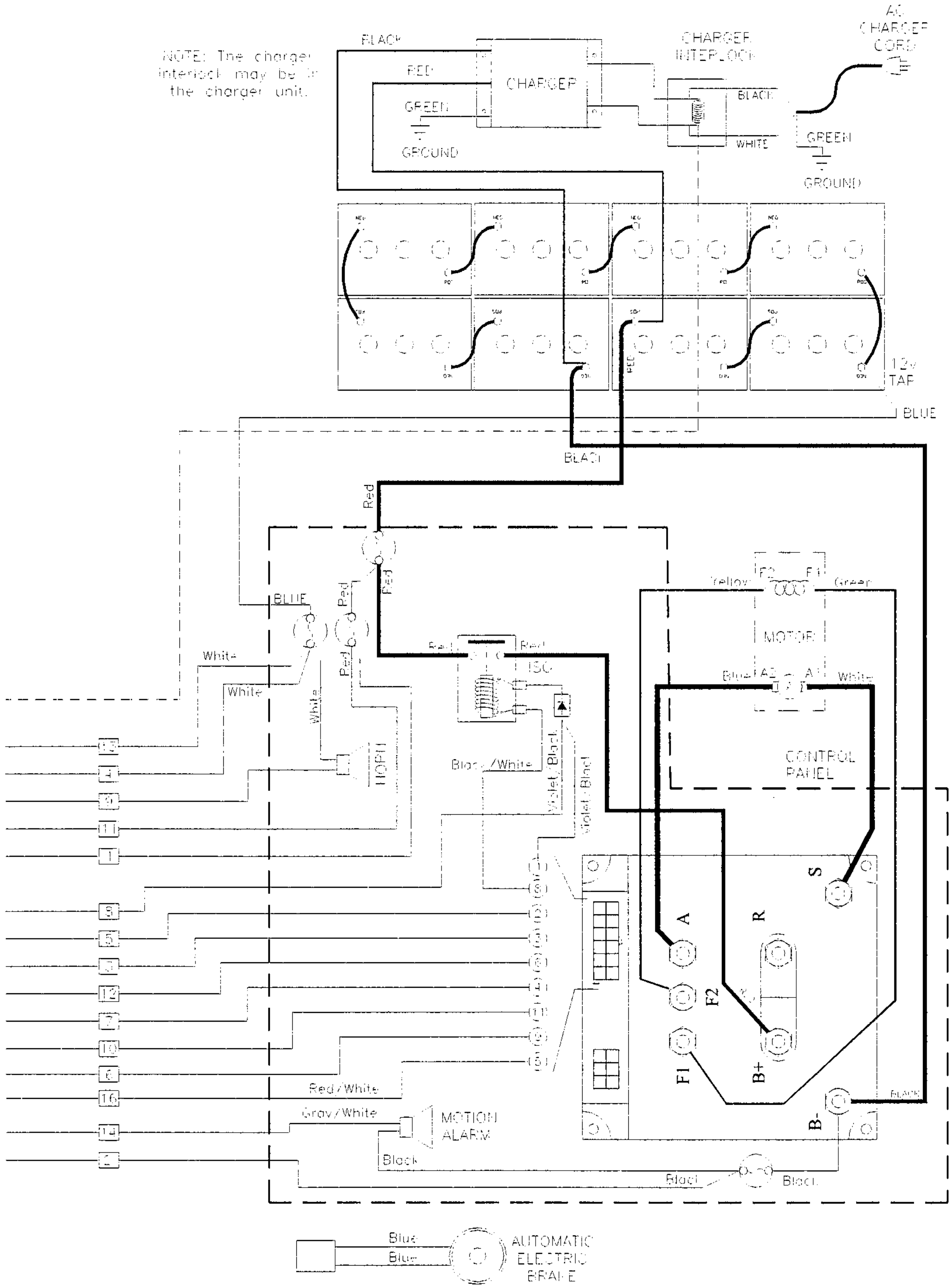
LED Status Chart

Check the status LED on the logic card. This chart can be used as a shortcut once you are familiar with the operation of the control.

Number of Flashes	*Fault Description*	*Possible Cause*	*Actions*
1	Personality fault	See dealer	–
2	Sequence fault	Startup switches not operated in the correct order	Reset the swithces and start over (See Section 2)
3	MOSFET or motor short	Burned Motor	Repair as required
4	Contactor fault or open motor	Contactor Failure Open Circuit	Check contactor and motor
5	Not used	–	–
6	Accelerator module fault	FS-1 Micro Switch Failure Faulty Wiring Accelerator Failure	Check accelerator module inputs
7	Discharged battery	Discharged battery or loose connections	Check battery and connections to controller
8	Controller overheated	Overloaded truck	Wait for controller to cool
9	ISO coil shorted	ISO Coil Short Circuit	Check coil continuity and replace as required

Schematic Diagram Taylor Truck (Typical)




NOTE: The charger interlock may be in the charger unit.
BLACK
RED
GREEN
GROUND
CHARGER
CHARGER INTERLOCK
AC CHARGER CORD
BLACK
WHITE
GREEN
GROUND
12v TAP
BLUE
BLACK
Red
Red
BLUE
Red
Red
White
White
White
HORN
Red
Red
ISO
Black/White
Violet/Black
Violet/Black
Yellow
F2
F1
Green
MOTOR
Blue
A2
A1
White
CONTROL PANEL
S
A
R
F2
F1
B+
B-
BLACK
Red/White
Gray/White
MOTION ALARM
Black
Black
Black
Blue
Blue
AUTOMATIC ELECTRIC BRAKE

Lestronic II Charger Troubleshooting

Operating Instructions and Theory of Operation Lester Lestronic II Battery Charger

The Lestronic II chargers are designed as semiautomatic chargers. The charger turns itself on when the built in charger is plugged into the wall outlet, or when the portable charger is plugged into the batteries. As the battery charges, the battery voltage rises. The charger periodically checks the battery voltage and compares it to the previous reading. When the battery voltage stops rising a predetermined amount, then the batteries are no longer accepting a charge and the charger shuts off. The charger will not turn back on unless the AC cord on built in chargers is disconnected from the wall outlet, or the DC plug on portable chargers is disconnected from the batteries.

The charger does not check the current state of charge when it is plugged in, it assumes that the batteries require charging when it is connected. For this reason, it is recommended to discharge the batteries approximately 50% (1175-1200 as indicated on a hydrometer) before connecting the charger. If the charger is connected before the batteries are discharged 50%, the batteries may enter an overcharge state before the charger can sense that the batteries are no longer accepting a charge.

The relay that operates the charger is powered by the batteries being charged. If the voltage on the batteries to be charged is less than approximately 65% of the rated charger DC voltage, the relay will not pick up and the charger will not turn on. In this situation, a manual charger would have to be used to bring the battery voltage up so that the Lestronic charger can sense that they are connected and turn itself on.

In typical installations, the charger will remain on for up to 12 hours depending on the state of charge of the battery when the charge cycle was started.

A charger could remain on for longer than 12 hours if:

- The charging cycle is interrupted at any time during the charging cycle.
- Defective batteries causing a fluctuating DC voltage that confuses the charger.
- A brownout (drop in AC line voltage) during the charging cycle.
- An electrically noisy charging environment.

A charger could turn off in less than 12 hours, but still show symptoms of overcharging if:

- The batteries were not discharged to 50% before connecting the charger.
- The electrolyte in the batteries is too high (boil over).
- The electrolyte in the batteries is too low (excessive gassing or sulfur smell).

To test the charger to see if it is turning off correctly is to monitor the battery voltage and the electrolyte specific gravity during the charging cycle.

Specific Gravity

Using a hydrometer take the specific gravity reading of several cells, at 1 hour intervals while charging. If the specific gravity of the electrolyte does not rise for three consecutive readings and the charger does not shut off, then the charger is running too long.

Battery Voltage

Using an accurate 5-1/2 digit digital voltmeter, monitor the battery voltage during the charging cycle. Take readings every 30 minutes. If the battery voltage does not increase 0.012 volts in two consecutive readings, then the charger is running too long.

Test Equipment Required for Troubleshooting

Digital multimeter (DMM) with diode and capacitor test function, FLUKE 79 model shown.

IMPORTANT NOTES and INSTRUCTIONS

- This troubleshooting guide assumes a familiarity with the use of a digital multimeter including, voltage tests, continuity tests and diode testing. If not familiar with any part of these tests, refer testing to a qualified technician.
- Make sure the AC electrical socket the charger is plugged into is in good condition.
- Make sure that the AC voltage at the electrical socket is the same as the AC voltage on the charger nameplate.
- Make sure the batteries are in good condition and no less than 80% discharged as per hydrometer.
- The battery voltage must be above approximately 65% of the chargers rated DC voltage. If the batteries are below approximately 65% of the chargers rated DC voltage, the charger will not turn on.
- If the charger exhibits intermittent problems, it must be in the failed mode for troubleshooting.
- Battery volts = Full voltage available at batteries at the time of test.
- This test procedure must be performed in the order it was written. If starting in the middle or skipping sections when not instructed to do so, the proper results will not occur. If the test result is good, then proceed to the next test or go to the next section if instructed to do so.

DURING ALL TESTS

⚠WARNING **The charger cabinet must remain electrically grounded. Disconnect both of the battery leads and unplug the charger from the AC source before disconnecting any electrical component or wire.**

Troubleshooting for Built-in Charger

⚠WARNING

1. Make sure the key-switch is in the "OFF" position, then remove the key.
2. Place the forward-reverse switch in the center "OFF" position.
3. Set the park brake.
4. Place blocks under the front wheels to prevent vehicle movement.

Disconnect the charger from the AC source.

⚠CAUTION

Make sure these two wires do not come into electrical contact with any other object.

Locate the charger harness connectors where the charger harness is connected to the vehicle's control harness. There will be two 10 gauge and two 14 gauge wires.
Slide the insulators off the connectors on the two 10 gauge wires and perform the following tests:

1) Test the voltage from the red wire to the main battery negative. This voltage should be equal to the battery voltage. If it is less than the battery voltage, then this wire is broken or has a bad connection.

Stop here and repair the problem.

2) Test the voltage from the red 10 gauge wire (+) to the other 10 gauge wire (white or black depending on model). This voltage should be equal to the battery voltage. If it is less than the battery voltage, then the white (or black) wire is broken or has a bad connection.

Stop here and repair the problem.

⚠WARNING

High Voltage. Do not touch the 14-gauge wires and make sure these two wires do not come into electrical contact with any other object. Failure to do so may result in serious bodily injury.

Connect the charger to the AC source and perform the following tests:

1) Test the voltage across the two 14 gauge wires. This voltage should be the same as the voltage at the AC receptacle (rated voltage of the charger). If it is less than the rated AC voltage of the charger then the 14 gauge white or black wire(s) is broken or has a bad connection between the charger connectors and the AC plug.

Stop here and repair the problem.

- Disconnect the charger from the AC source.
- Disconnect the batteries.
- Disconnect the charger from the vehicle's harness.
- Remove the charger from the vehicle.

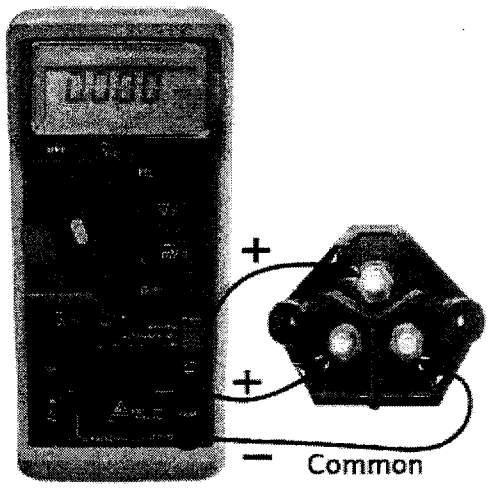
⚠WARNING

HIGH VOLTAGE may be stored in the capacitor. Discharge the capacitor before continuing. Connect a 2k ohm resistor across the capacitor terminals for 10 seconds. Do not touch the capacitor terminals with your hands. The resistor should be held with a pair of insulated pliers.

Remove the charger cover and perform the following tests:

1) Inspect the internal wiring of the charger and repair as required.
2) Check the continuity of both fuse links and replace if bad.
3) Disconnect one transformer lead from the capacitor. Test the capacitor using the capacitor test function of the meter. It is a 6 microfarad capacitor. If the capacitor is bad, it must be replaced.

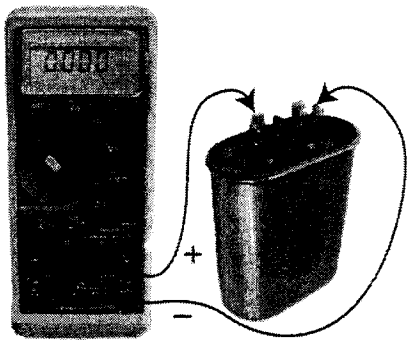
Stop here and repair the problem.

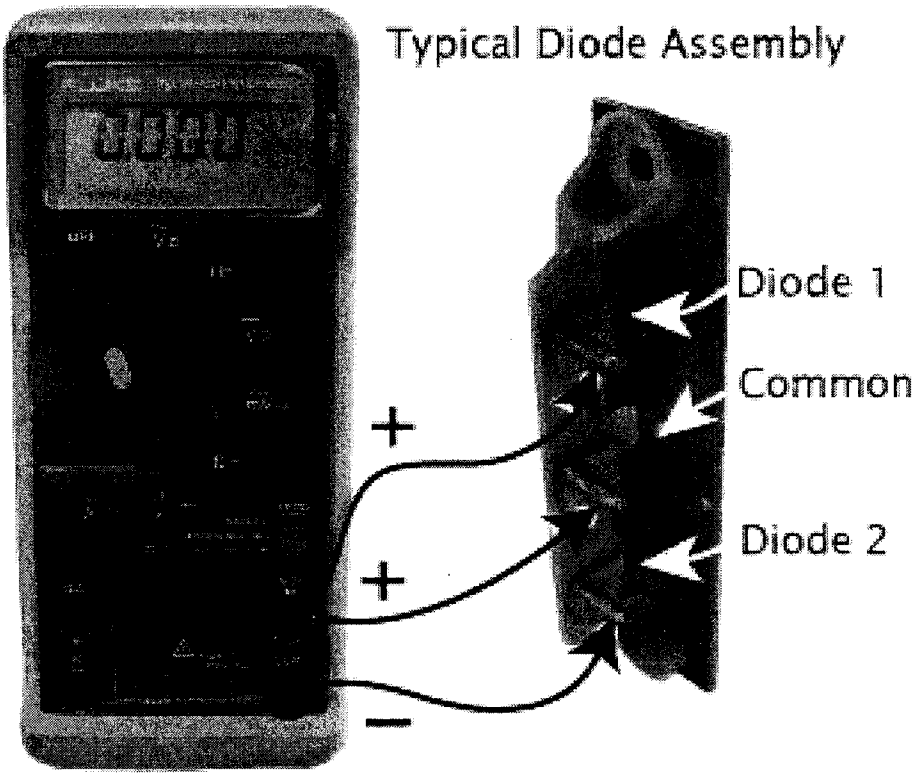


4) Reconnect the transformer lead to the capacitor and disconnect one transformer lead from one of the diodes. Test each of the diodes using the diode test function of your meter. If either one of the diodes are bad, replace the diode assembly.

Stop here and repair the problem.

5) Reconnect the lead to the diode.



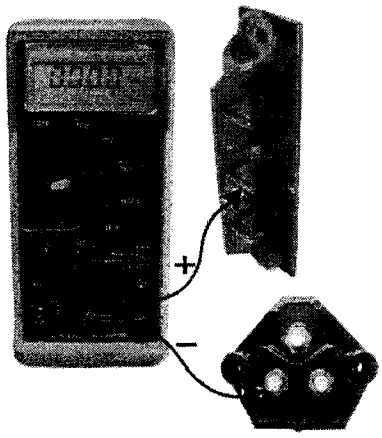


6) Reconnect the charger to the vehicle's harness and slide the wiring insulators back into place. Connect the charger to the AC source and perform the following tests:

⚠CAUTION **High Voltage inside the charger. Do not touch any internal components while the charger is plugged in. Failure to do so may result in serious bodily injury.**

- Test the voltage from the fuse assembly (-) to the diode block (+). This voltage should be equal to the battery voltage. If it is less than the battery voltage, then the wires from the harness connectors to the charger are bad.

Stop here and repair the problem.



- Test the voltage across the white and black wires that are connected to the timer board. This voltage should be the same as the rated AC voltage of the charger. If it is less than the rated AC voltage of the charger, then the wires from the harness connectors to the charger are bad.

Stop here and repair the problem.

- If the timer relay does not pickup (click) when the AC source is connected, then the timer control circuit or the relay is bad (refer to Timer Relay Test).

Stop here and repair the problem.

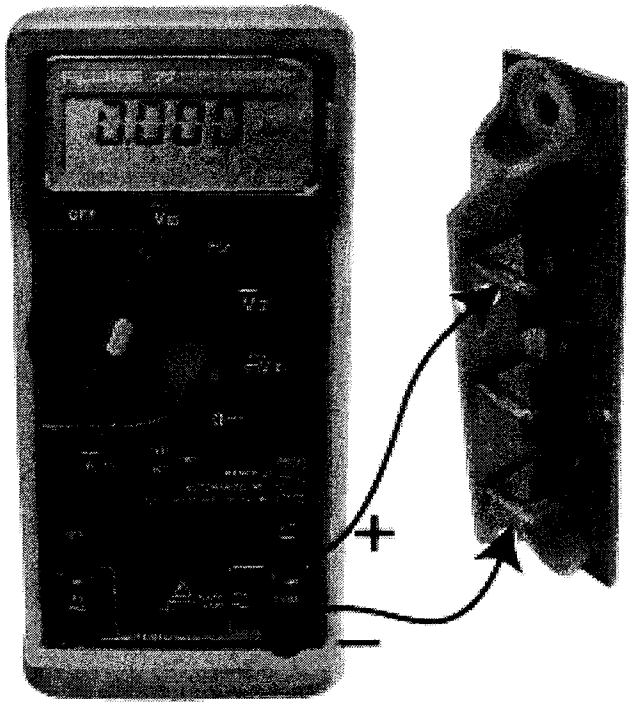
- Test the AC voltage across the transformer primary circuit. The transformer primary consists of the two solid wires with the brown fiber insulator that are connected to the timer board. This voltage should be the same as the rated AC voltage of

the charger. If it is less than the rated AC voltage of the charger, then the timer relay is bad.

Stop here and repair the problem.

- Test the AC voltage across the transformer low voltage secondary circuit. The transformer low voltage secondary circuit consists of the two solid wires with the brown fiber insulator that are connected to the two diodes. The voltage here will vary depending on the state of charge on the batteries. Look for a voltage between 208% and 250% of the rated DC voltage of the charger. If the voltage is not between 208% and 250% of the rated DC voltage of the charger, the transformer is bad and must be replaced.

Stop here and repair the problem.



Troubleshooting for Portable Charger

Disconnect the charger from the AC and DC source.

1) Test the voltage from the positive terminal on the vehicles DC receptacle to main battery negative. This voltage should be equal to the battery voltage. If it is less than the battery voltage then this wire is broken or has a bad connection.

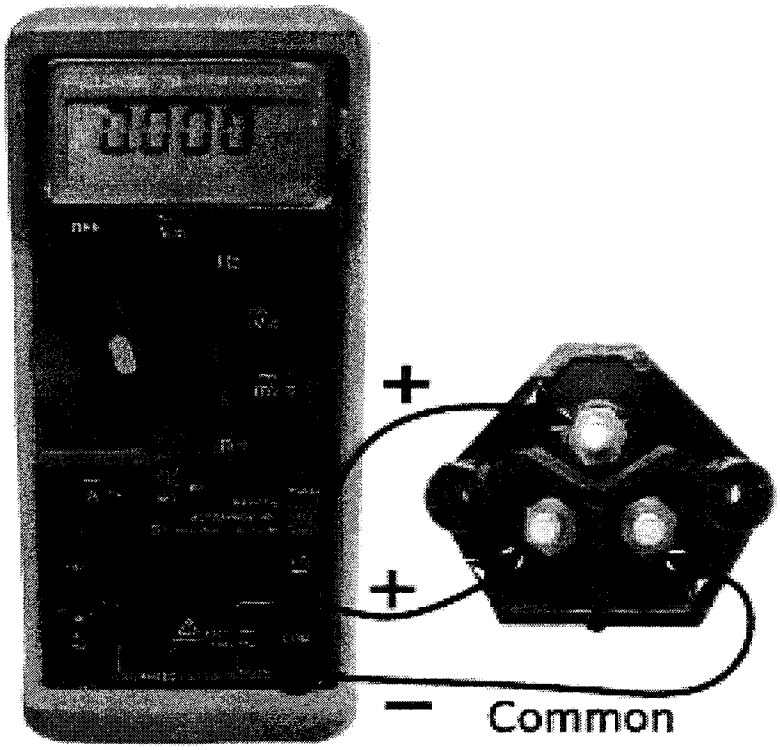
Stop here and repair the problem.

2) Test the voltage from the positive terminal on the DC receptacle to the negative terminal on the DC receptacle. This voltage should be equal to the battery voltage. If it is less than the battery voltage, then the wire on the negative terminal of the DC receptacle is broken or has a bad connection.

Stop here and repair the problem.

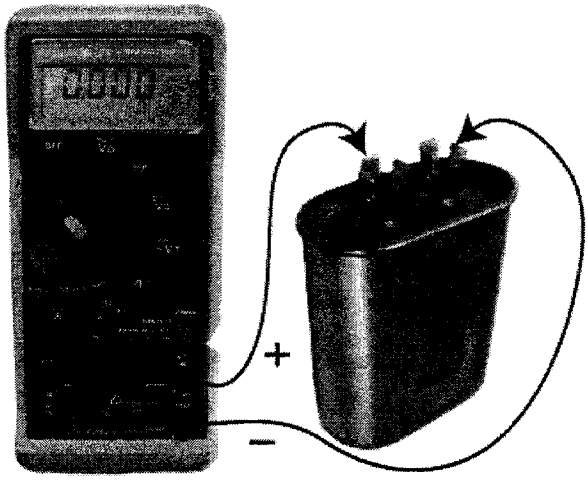
Remove the charger cover and perform the following tests:

1) Inspect the internal wiring of the charger and repair as required.
2) Check the continuity of both fuse links and replace if bad.



3) Disconnect one lead from the capacitor. Test the capacitor using the capacitor test function on the meter. It is a 6 microfarad capacitor. If the capacitor is bad, it must be replaced.

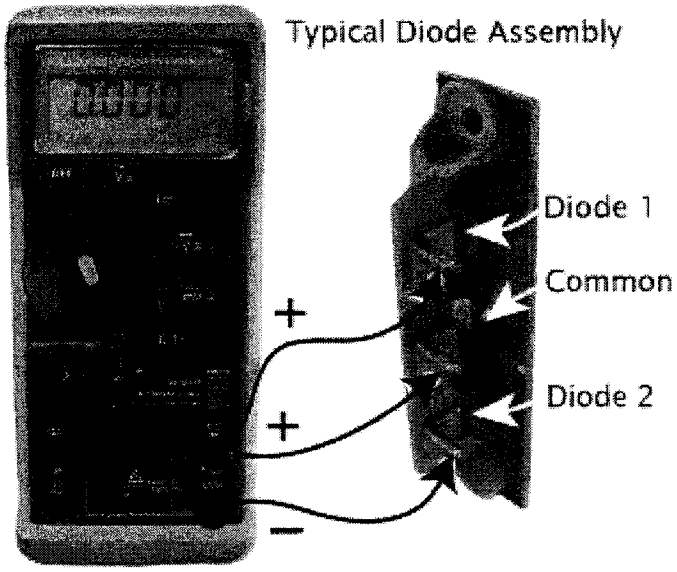
Stop here and repair the problem.



4) Reconnect the lead to the capacitor and disconnect one transformer lead from one of the diodes. Test each of the diodes using the diode test function on the meter. If either one of the diodes are bad, replace the diode assembly.

Stop here and repair the problem.

5) Reconnect the lead to the diode.



6) Connect the charger to the AC source. Insert the DC charger plug into the DC receptacle and perform the following tests:

⚠WARNING **High Voltage inside the charger. Do not touch any internal components with your hands or any conductive tools while the charger is plugged in. Failure to so may result in seious bodily injury.**

• Test the voltage from the fuse assembly (–) to the diode block (+). This voltage should be equal to the battery voltage. If it is less than the battery voltage, then the DC cord is bad.

Stop here and repair the problem.

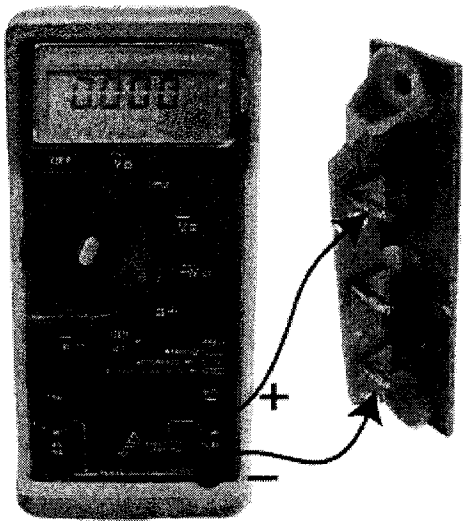
• Test the voltage across the white and black wires that are connected to the timer board. This voltage should be the same as the rated AC voltage of the charger. If it is less than the rated AC voltage of the charger then the AC cord is bad.

Stop here and repair the problem.

• If the timer relay does not pickup (click) within 5 seconds of connecting the DC charger plug, then the timer control circuit or the relay is bad (refer to Timer Relay Test).

Stop here and repair the problem.

• Test the AC voltage across the transformer primary circuit. This voltage should be the same as the rated AC voltage of the charger. If it is less than the rated AC voltage of the charger, then the timer relay is bad.



Stop here and repair the problem.

• Test the AC voltage across the transformer secondary circuit. The voltage here will vary depending on the state of charge on the batteries. Look for a voltage between 208% and 250% of the rated DC voltage of the charger. If the voltage is not between 208% and 250% of the charge's rated DC voltage, the transformer is bad and must be replaced.

Stop here and repair the problem.

TESTING THE TIMER RELAY

⚠WARNING **High Voltage inside the charger. Do not touch any internal components with your hands or any conductive tools while the charger is plugged in. Failure to do so may result in serious bodily injury.**

Test 1

1. Connect the batteries to the charger.
2. Plug the charger into the AC source.
3. Wait 5 seconds, then test the voltage at the timer relay coil terminals.

NOTE: This voltage should be close to the battery volts.

If the voltage is close to the battery volts, then skip to test 2.

If the voltage is not close to the battery volts, then the timer control circuit has failed and the timer must be replaced.

Test 2

1. Disconnect the batteries.
2. Unplug the charger from the AC source.
3. Discharge the capacitor.
4. Disconnect the wires from the contact terminals on the timer relay.
5. Reconnect the batteries.
6. Wait 5 seconds, then test the continuity across the timer relay contact terminals.

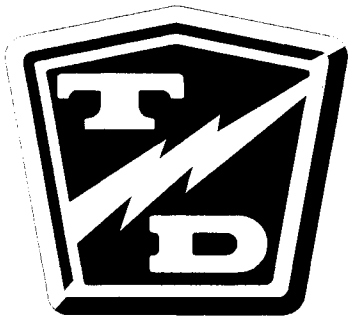
If this is a closed circuit, then the timer start up circuit is functioning normally.

If there is an open circuit, then the timer relay has failed and the relay must be replaced.

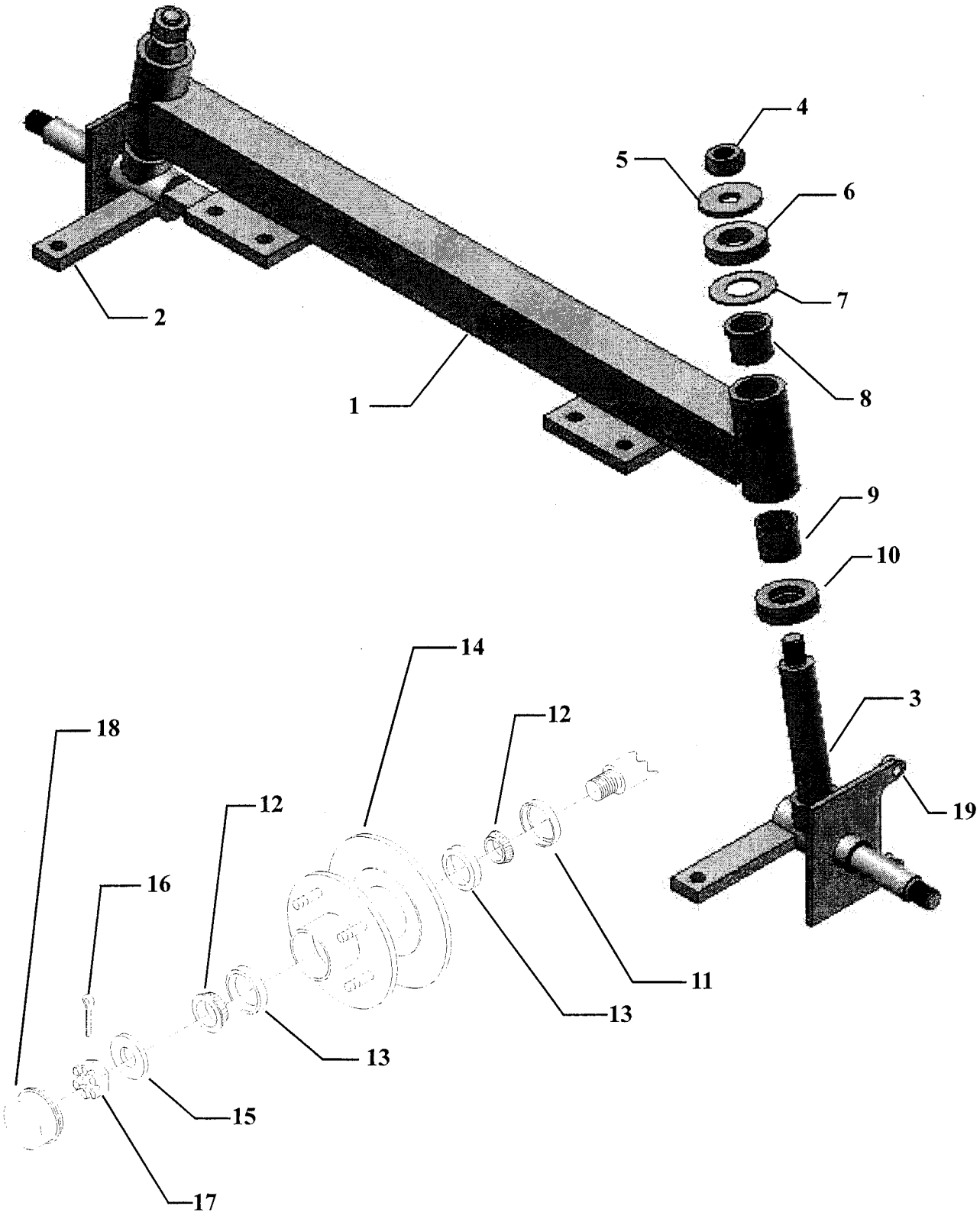

TAYLOR TRUCK

SECTION 5

Illustrated Parts List
Common



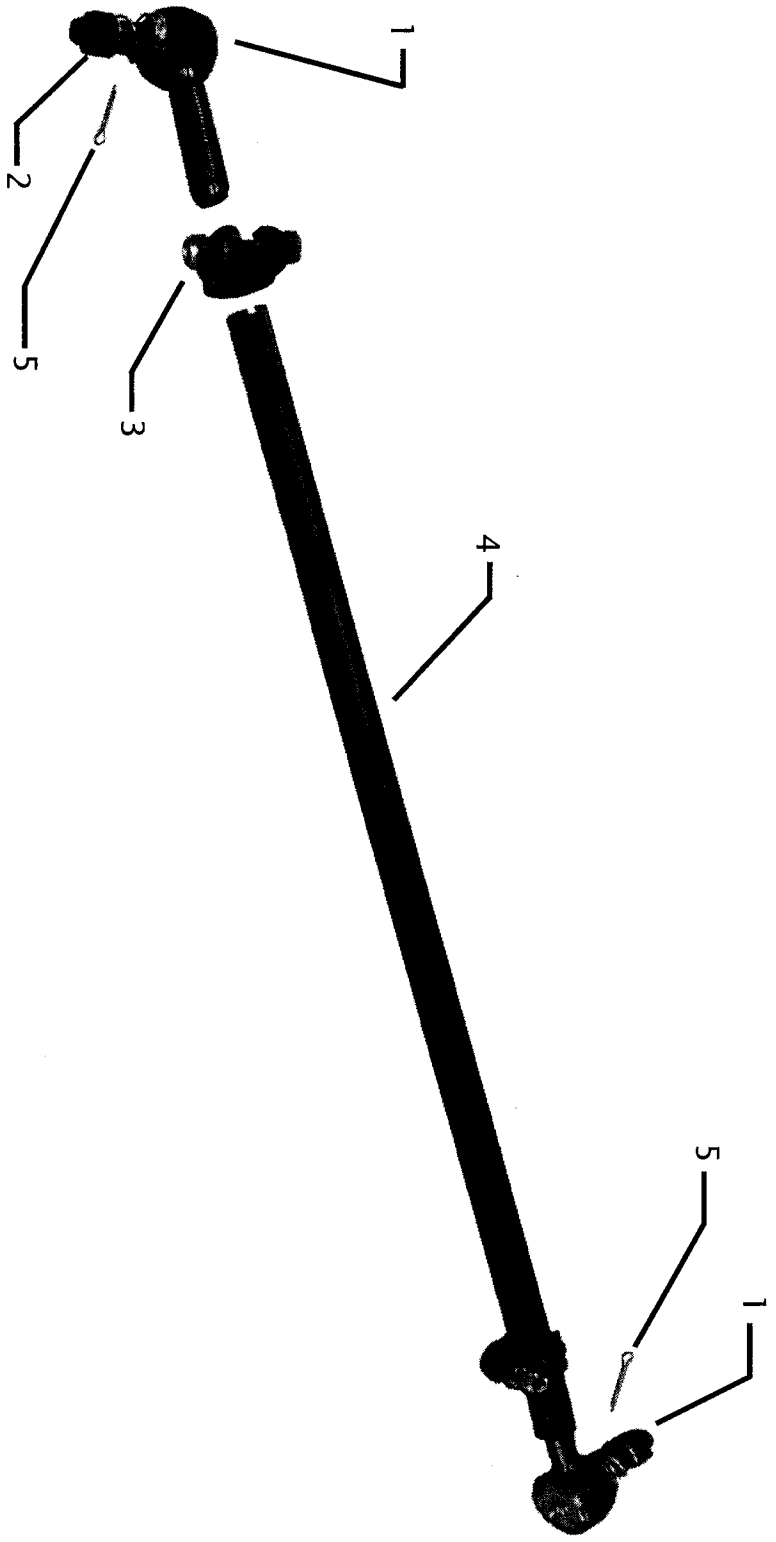
FRONT AXLE ASSEMBLY



FRONT AXLE ASSEMBLY TABLE

FRONT AXLE ASSEMBLY 15-049-15			
ITEM #	PART #	DESCRIPTION	QTY
1	15-210-70	Front Axle Weldment	1
2	21-020-17	Steering Yoke, Left	1
3	21-020-18	Steering Yoke, Right	1
4	88-239-86	Lock Nut 3/4" N/C	2
5	88-228-60	Washer 3/4"	2
6	98-603-07	Washer, Rubber	2
7	01-220-99	Washer, 1.25 ID X 2.00" OD	2
8	32-240-44	Flanged Sleeve Bushing	2
9	32-240-43	Sleeve Bushing	2
10	80-309-12	Thrust Bearing	2
11	45-338-00	Grease Seal	2
12	80-017-00	1" ID Tapered Bearing	4
13	80-103-00	Race Tapered Bearing	4
14	12-158-10	Hub, Disc, Wheel, 5 Stud (Includes # 11,13)	2
15	88-228-61	Washer, 3/4" SAE	2
16	88-527-14	1/8 X 1-1/2 Steel Cotter Pin	2
17	88-239-85	3/4 NF Hex Slotted Nut	2
18	92-104-01	Dust Cap	2
19	32-240-40	Bushing, Teflon (Not Shown)	4
FRONT SHOCKS AND HARDWARE			
	86-015-00	Shocks, Front	2
	88-180-18	Bolt, 5/8X 2-1/2 NC Hex Head (Not Shown)	4
	88-188-61	Washer, 5/8 (Not Shown)	4
	88-189-81	Locknut, 5/8 NC (Not Shown)	4

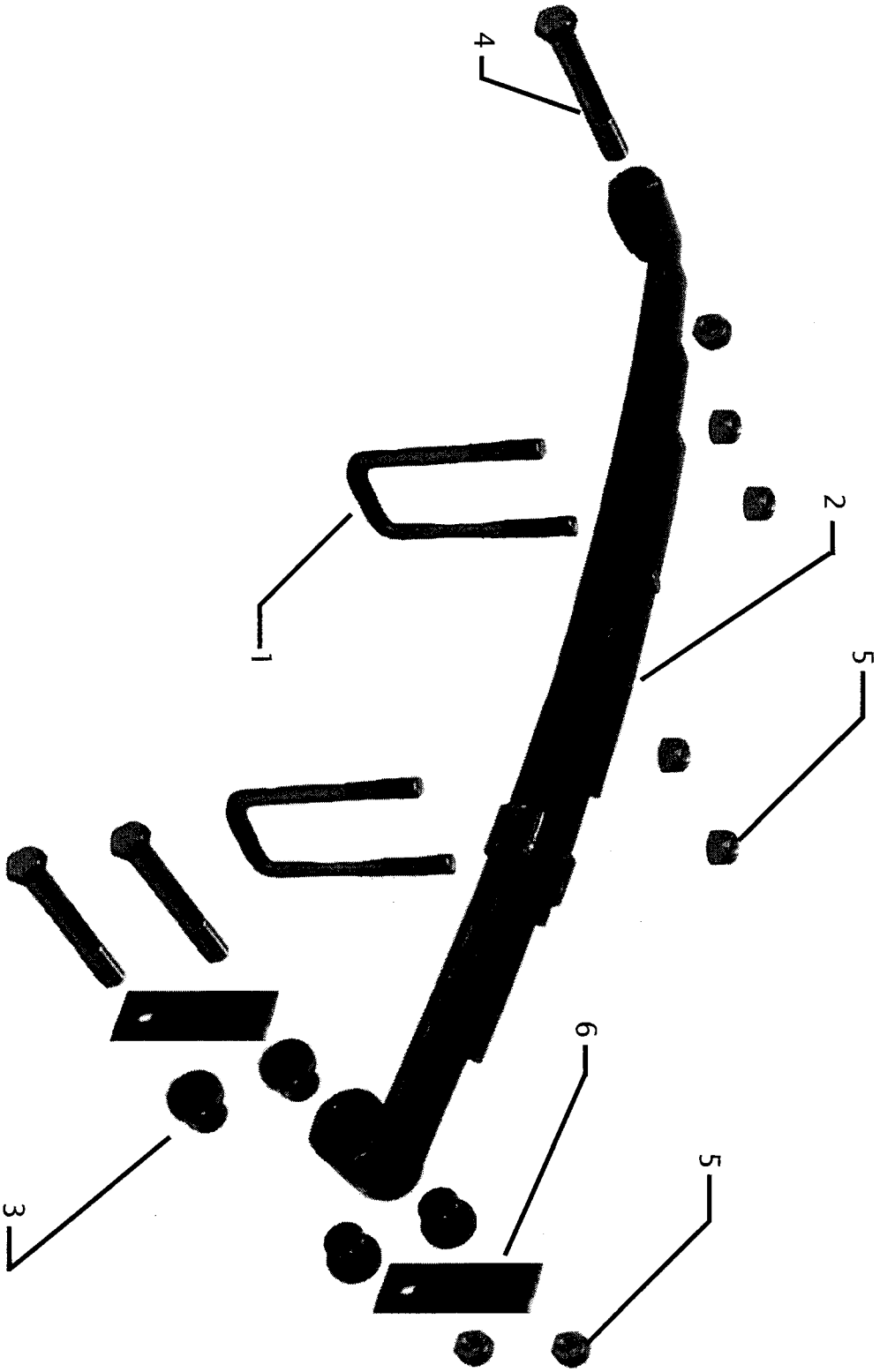
STEERING SLEEVE ASSEMBLY



STEERING SLEEVE ASSEMBLY TABLE

STEERING SLEEVE ASSEMBLY 18-057-00			
ITEM #	PART #	DESCRIPTION	QTY
1	86-501-98	Ball Joint, F1 & P2, Left W/Zerk Fitting	1
	86-501-99	Ball Joint, F1 & P2, Right W/Zerk Fitting	1
2	88-159-85	1/2-20 NF Slotted Hex Nut	2
3	86-510-00	Ball Joint Clamp Assembly	2
4	18-057-00	Sleeve, Steering, Adjust, 26"	1
5	88-527-11	1/8 X 1 Steel Cotter Pin	2

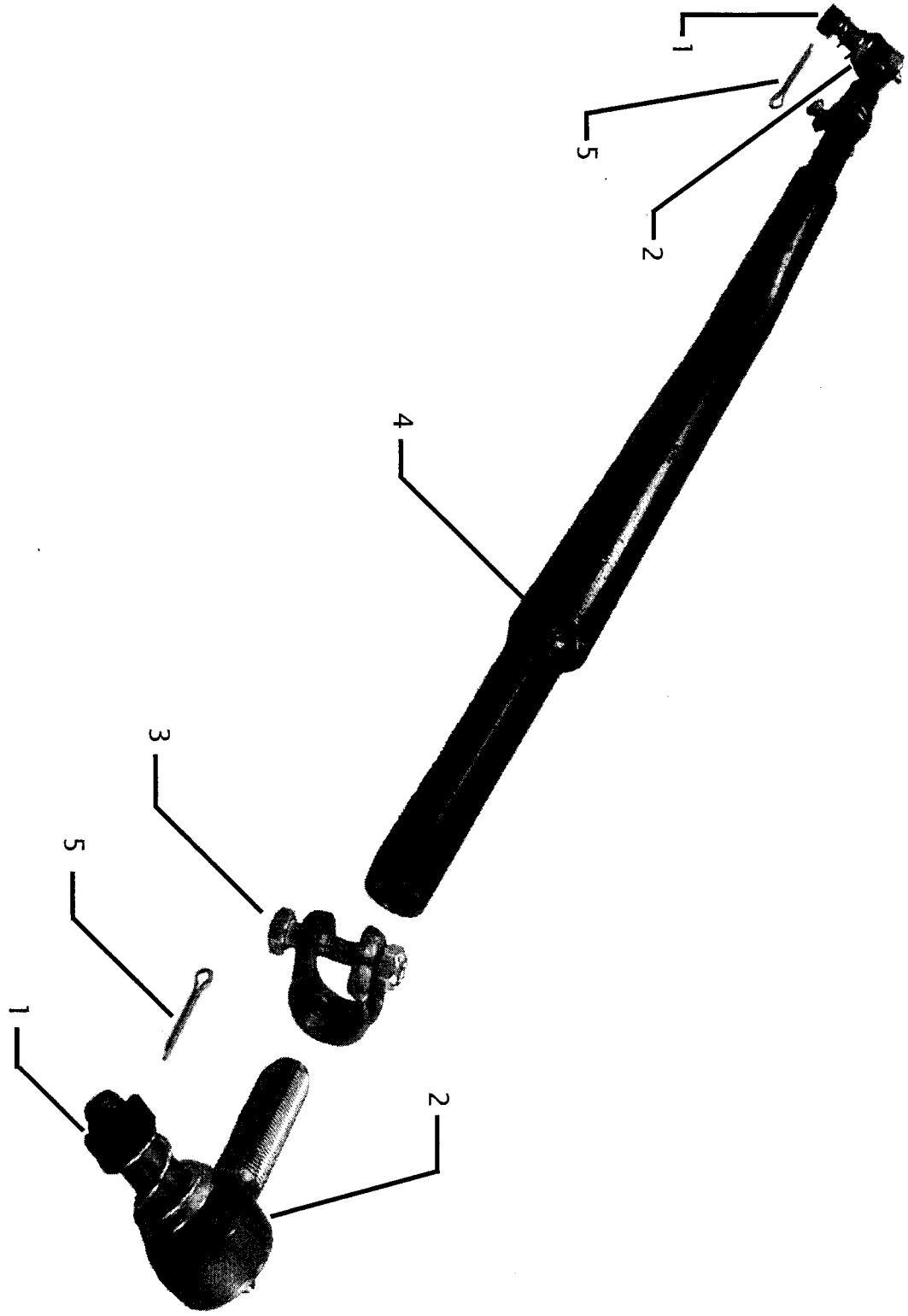
FRONT SUSPENSION



FRONT SUSPENSION TABLE

FRONT SUSPENSION			
ITEM #	PART #	DESCRIPTION	QTY
1	96-103-00	U-Bolt Length 3-1/2"	4
2	85-498-00 85-486-00	Leaf Spring Taylor Truck Leaf Spring ET 3000	2 2
3	32-214-50	Spring Bushing	12
4	96-240-00	Shackle Bolt	6
5	88-149-81	1/2 NC Lock Nut	14
6	16-872-00	Spring Shackle	4

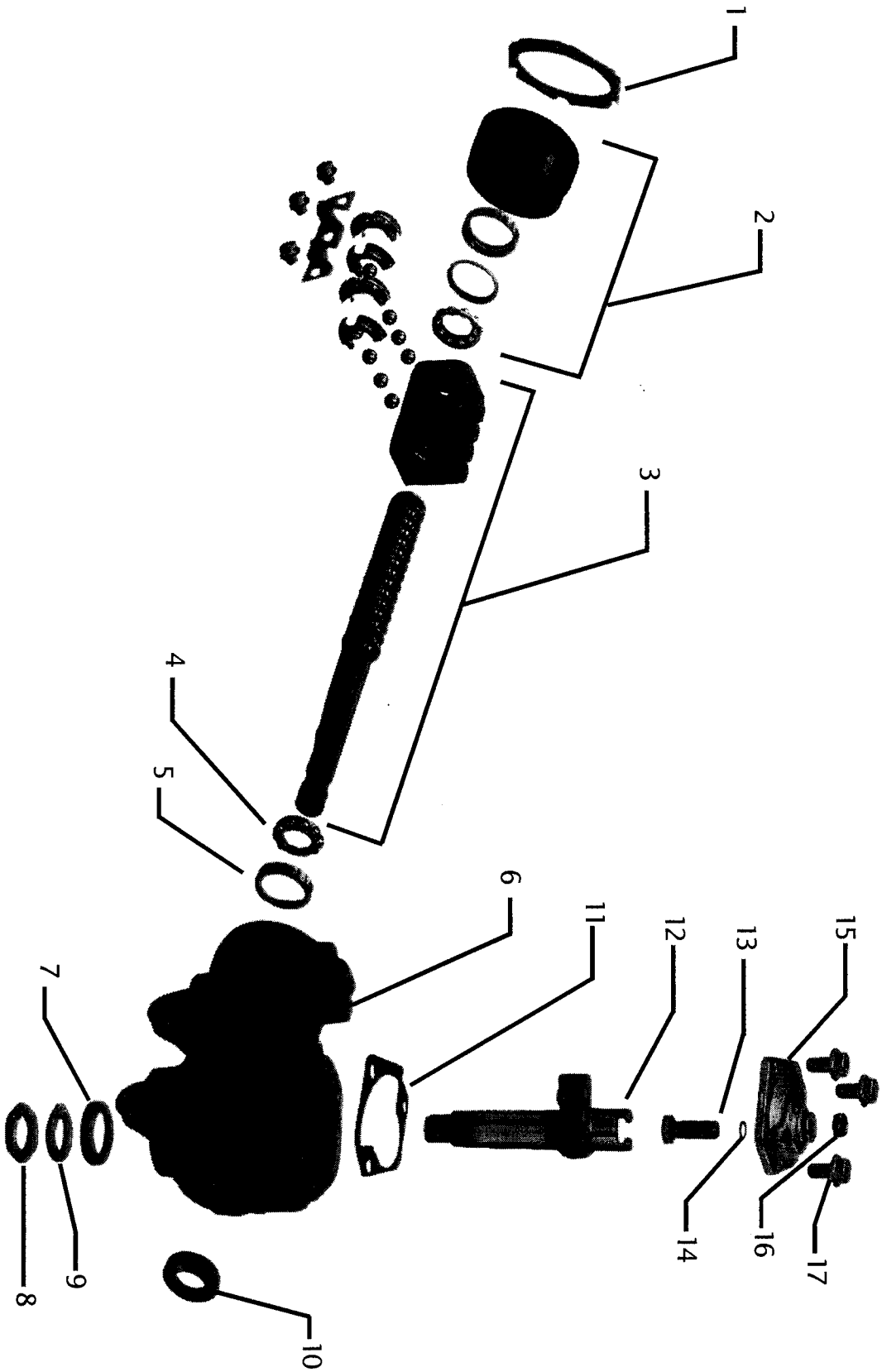
DRAG LINK



DRAG LINK TABLE

DRAG LINK 18-037-10			
ITEM #	PART #	DESCRIPTION	QTY
1	88-159-85	Castle Nut	2
2	86-501-98	Ball Joint w/Grease Fitting, Left	1
	86-501-99	Ball Joint w/Grease Fitting, Right	1
3	86-510-00	Ball Joint Clamp	2
4	18-037-00	Drag Link	1
5	88-527-11	1/8 X 1 Steel Cotter Pin	2

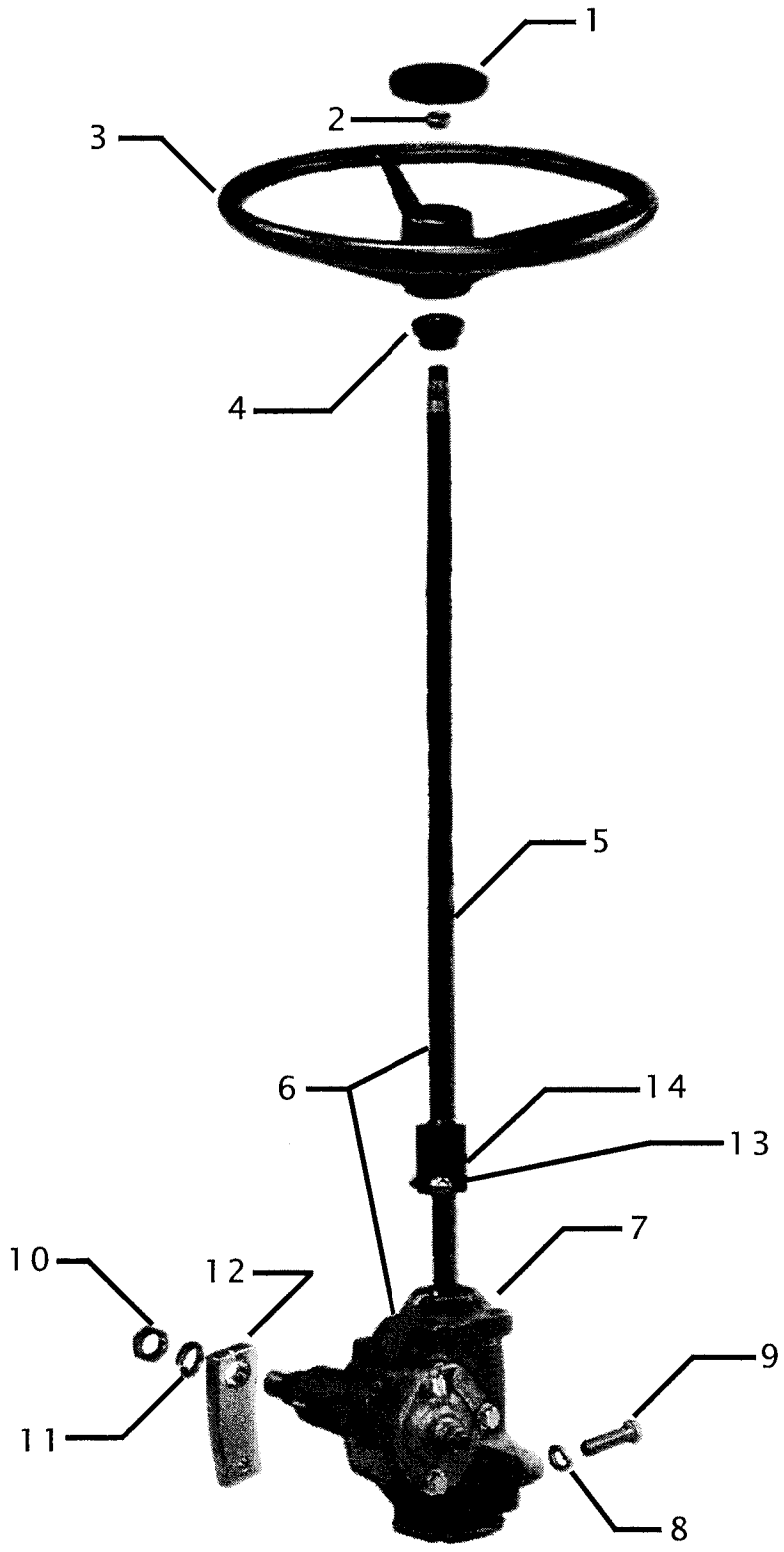
STEERING GEAR



STEERING GEAR TABLE

STEERING GEAR 18-308-21			
ITEM #	PART #	DESCRIPTION	QTY
1	18-308-70	Locknut, Worm Bearing Adjuster	1
2	18-308-71	Adjuster Assembly	1
3	18-308-72	Worm Assembly	1
4	18-308-23	Upper Worm Bearing	1
5	18-308-22	Upper Worm Bearing Race	1
6	18-308-77	Housing, Steering Gear	1
7	18-308-78	Seal, Pitman Shaft	1
8	18-308-80	Nut, Pitman Shaft	1
9	18-308-81	Lock Washer, Pitman Shaft	1
10	18-308-79	Seal, Worm Shaft	1
11	18-308-82	Gasket, Side Cover	1
12	18-308-76	Pitman Shaft	1
13	18-308-75	Lash Adjuster	1
14	18-308-85	Shim Kit	1
15	18-308-84	Side Cover	1
16	18-308-86	Nut, Lash Adjuster	1
17	18-308-83	Bolt, Side Cover	3

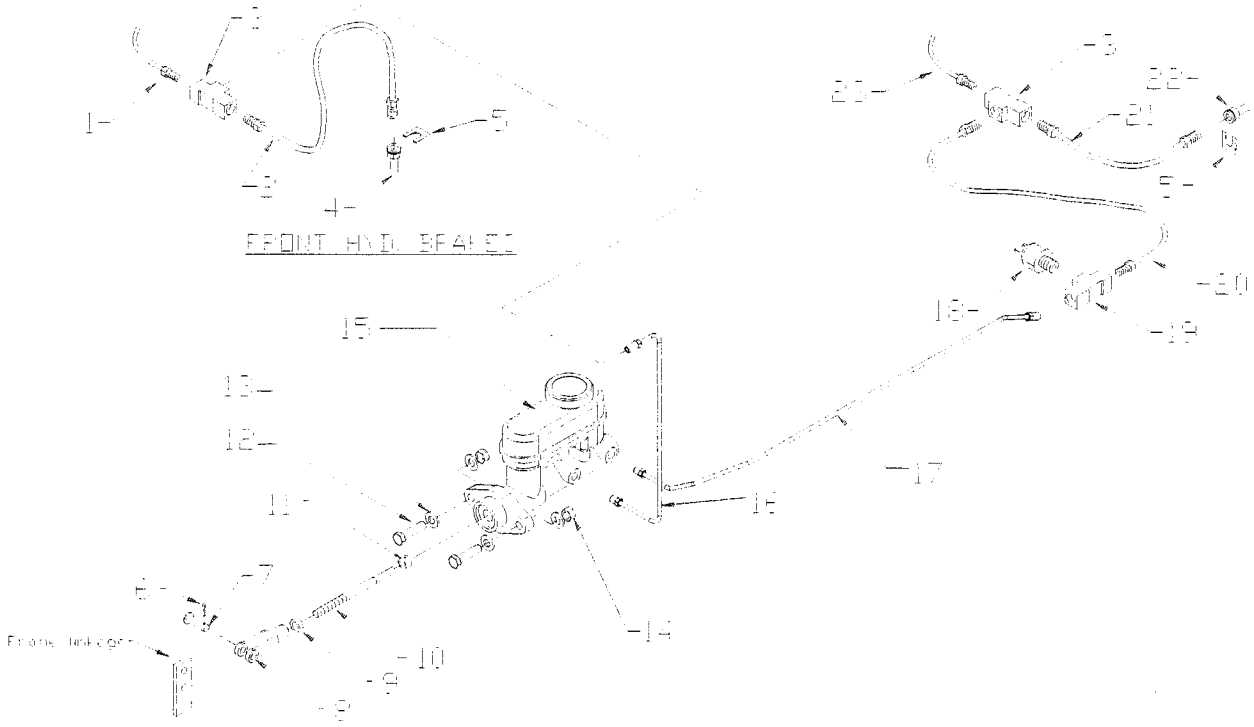
STEERING COLUMN ASSEMBLY

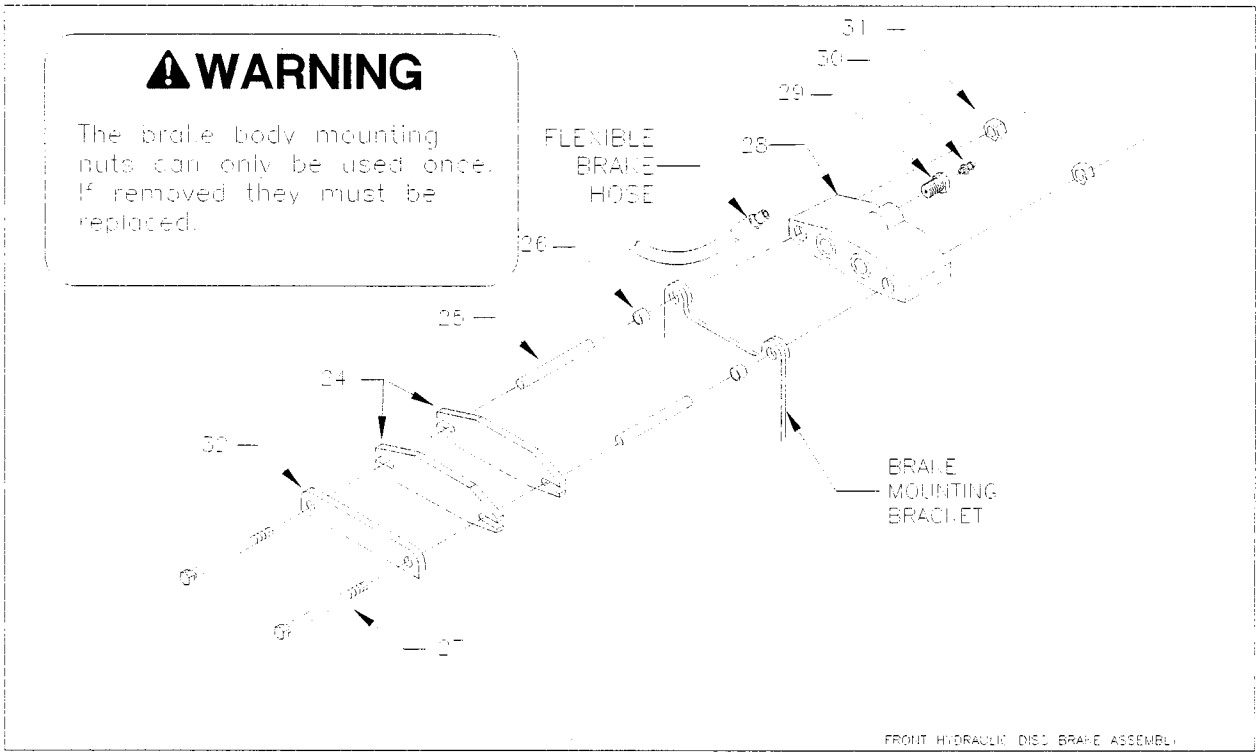


STEERING COLUMN ASSEMBLY TABLE

STEERING COLUMN ASSEMBLY			
ITEM #	PART #	DESCRIPTION	QTY
1	19-011-25	Steering Wheel Cap	1
2	88-199-82	5/8" NF Jam Nut	1
3	19-011-20	Steering Wheel	1
4	32-248-10	Steering Shaft Bearing	1
5	20-031-63	Kit, Steering Shaft w/Clamp	1
6	18-308-45	Assembly, Steering, Clamp (Includes #'s 5&7)	1
7	18-308-21	Steering Gear	1
8	88-128-62	7/16" Split Lock Washer	3
9	88-120-15	7/16" X 1" NC Hex Bolt	3
10	88-279-82	7/8" NF Jam Nut	1
11	88-268-62	7/8" Split Lock Washer	1
12	18-104-00	Pitman Arm	1
13	88-081-14	Bolt, 5/16 NF X 1-1/2 Grade 8	1
14	88-089-84	Nut, 5/16 NF Grade 8	1

MASTER CYLINDER, BRAKE LINE HARDWARE AND FRONT BRAKE ASSSEMBLY

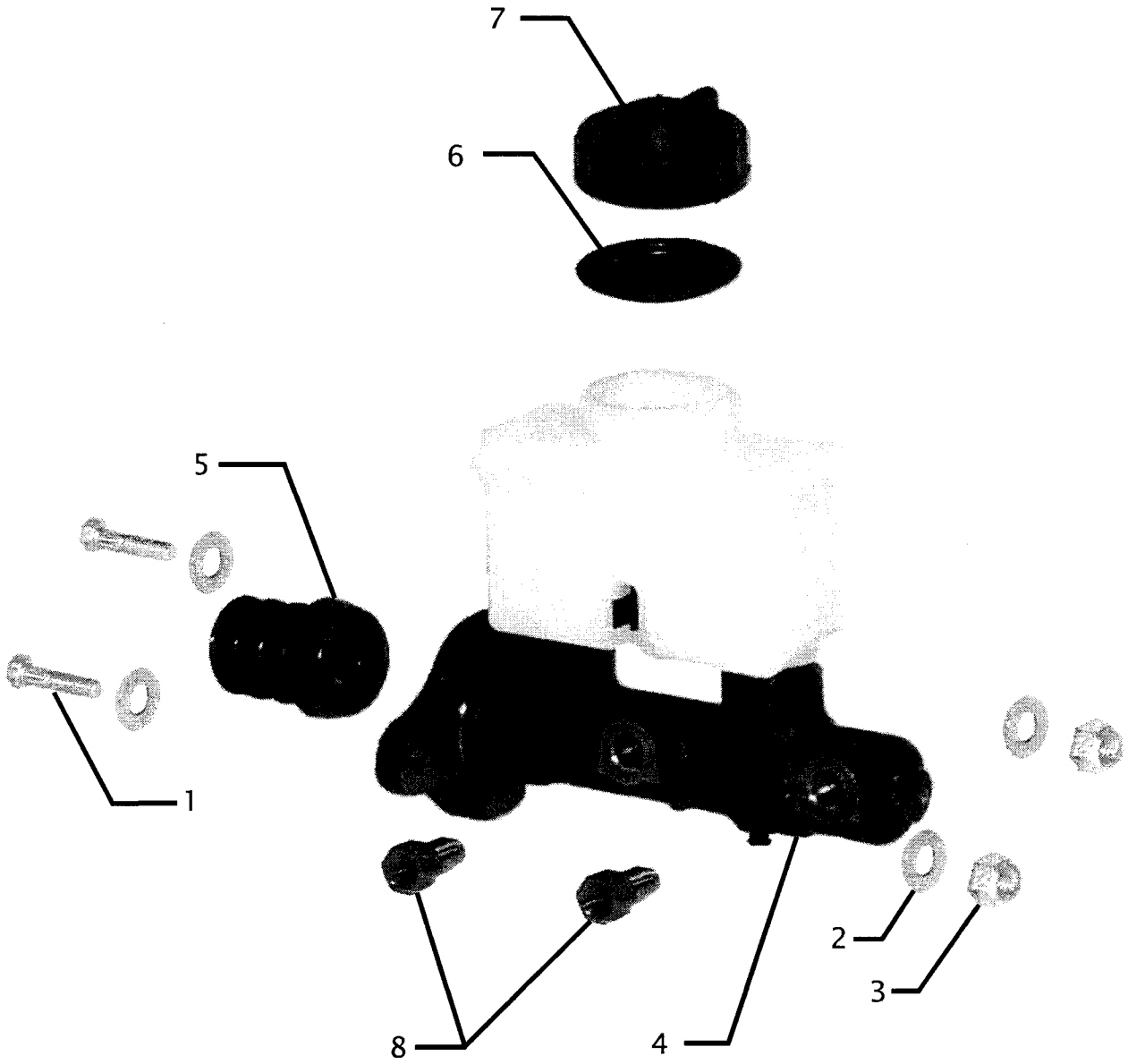




MASTER CYLINDER, BRAKE LINE HARDWARE AND FRONT BRAKE ASSSEMBLY TABLE

MASTER CYLINDER AND BRAKE HARDWARE			
ITEM #	PART #	DESCRIPTION	QTY
1	99-648-52	Brake Line Formed, Front, Right	1
2	99-648-51	Brake Line Formed, Front, Left	1
3	99-564-00	3/16" Union Tee Fitting	3
4	99-580-10	Brake Hose Flexible	2
5	99-576-00	Brake Hose Clip	4
6	88-527-11	1/8 X 1" Cotter Pin	1
7	96-772-00	Clevis Pin	1
8	96-762-00	3/8" Clevis	1
9	88-119-80	3/8" NF Hex Nut	1
10	50-009-05	Push Rod Master Cylinder	1
11	17-104-00	3/8 Collar, Shaft	1
12	88-080-14	5/16" X 1-1/2" NC Hex Bolt	2
13	88-088-61	5/16" Washer	4
14	88-089-81	5/16" Lock Nut	2
15	99-511-20	Master Cylinder	1
16	99-605-77	Brake Line Formed, Front, Master Cylinder	1
17	99-605-76	Brake Line Formed, Rear, Master Cylinder	1
18	71-110-00	Brake Light Switch	1
19	99-591-00	Female Tee Fitting 3/16 X 1/8 PipeClevis Pin	1
20	99-605-68	Brake Line, Rear	1
21	99-604-57	Brake Line Formed, Left, Rear	1
22	99-580-20	Brake Hose Flexible	2
23	99-604-56	Brake Line Formed, Right, Rear	1
	99-575-10	Adapter, 3/16 X 1/8	1
	98-200-00	Rubber Brake Pedal Pad (Not Shown)	1
FRONT HYDRAULIC DISC BRAKES			
24	41-348-70	Pad, Disc Brake	4
25	41-348-52	Spacer, Disc BrakePlate, Secondary, Hydraulic Disc	2
26	32-240-40	Bushing Mounting Bracket	4
27	88-067-21	Brake Body Bolt	4
28	41-350-30	Hydraulic Brake Body Assembly	2
28a	41-350-09	Boot, Hydraulic Brake Body (Not Shown)	2
28b	41-350-10	Piston, Hydraulic Brake Body (Not Shown)	2
28c	80-713-00	O-Ring, 1-1/8 X 3/32 Thick (Not Shown)	2
29	99-588-01	Bleeder Screw Adapter	2
30	99-588-00	Bleeder Screw	2
31	88-069-82	1/4 NC Locknut Gr. 8 Do Not Reuse	4
32	41-350-51	Plate, Secondary, Hydraulic Disc	2

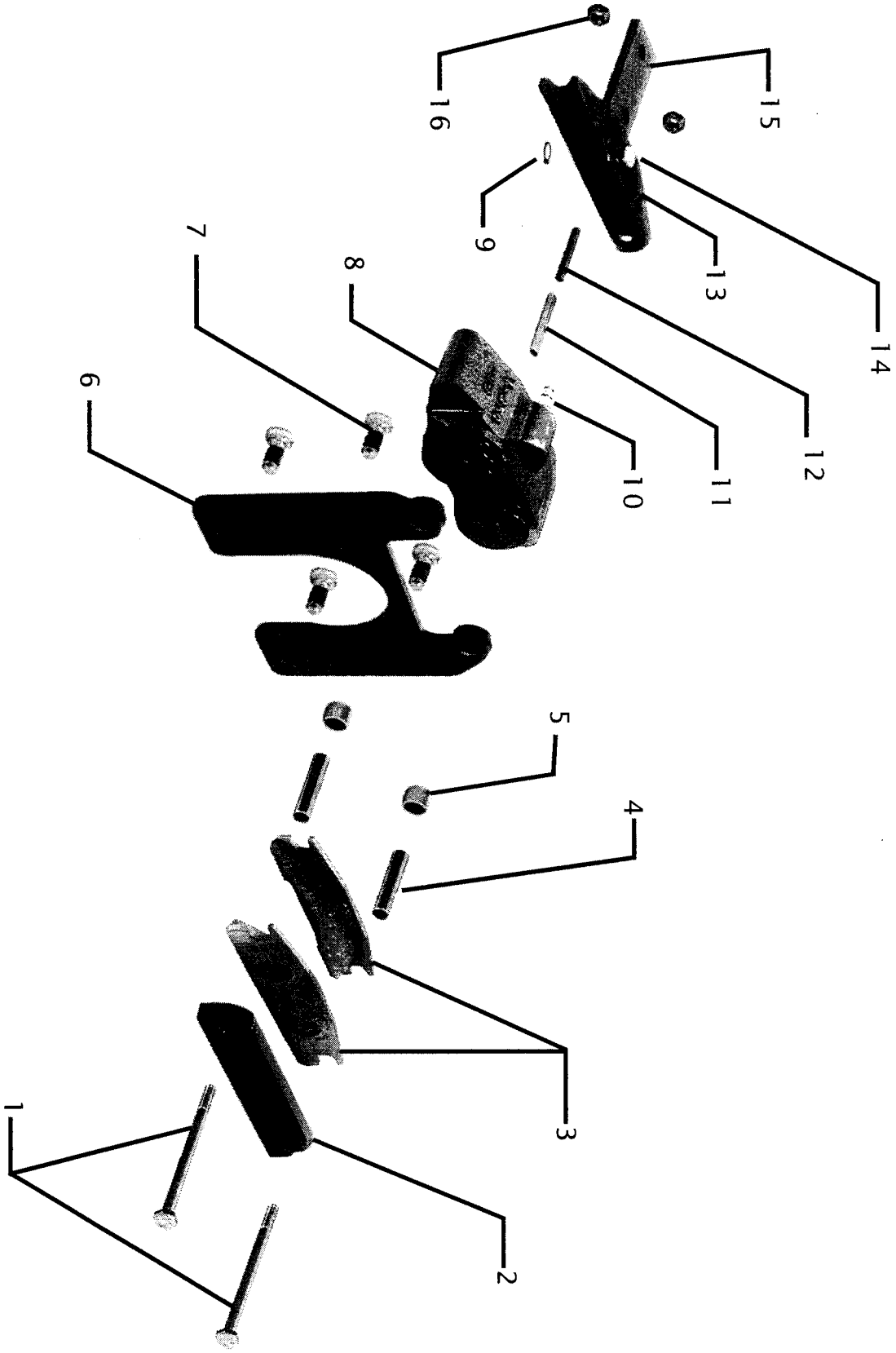
MASTER CYLINDER PARTS



MASTER CYLINDER PARTS TABLE

MASTER CYLINDER 99-511-20			
ITEM #	PART #	DESCRIPTION	QTY
1	88-080-14	5/16" X 1-1/2" NC Hex Bolt	2
2	88-088-61	5/16" Washer	4
3	88-089-81	5/16" Lock Nut	2
4	99-511-20	Master Cylinder	1
5	99-511-51	Rubber Boot, Master Cylinder	1
6	99-511-52	Cap Seal, Master Cylinder	1
7	99-511-53	Cap, Master Cylinder	1
8	99-575-32	Adapter, 3/16 X M10-1.0	2
	99-511-62	Kit, Repair Kit, Master Cylinder (Not Shown)	1

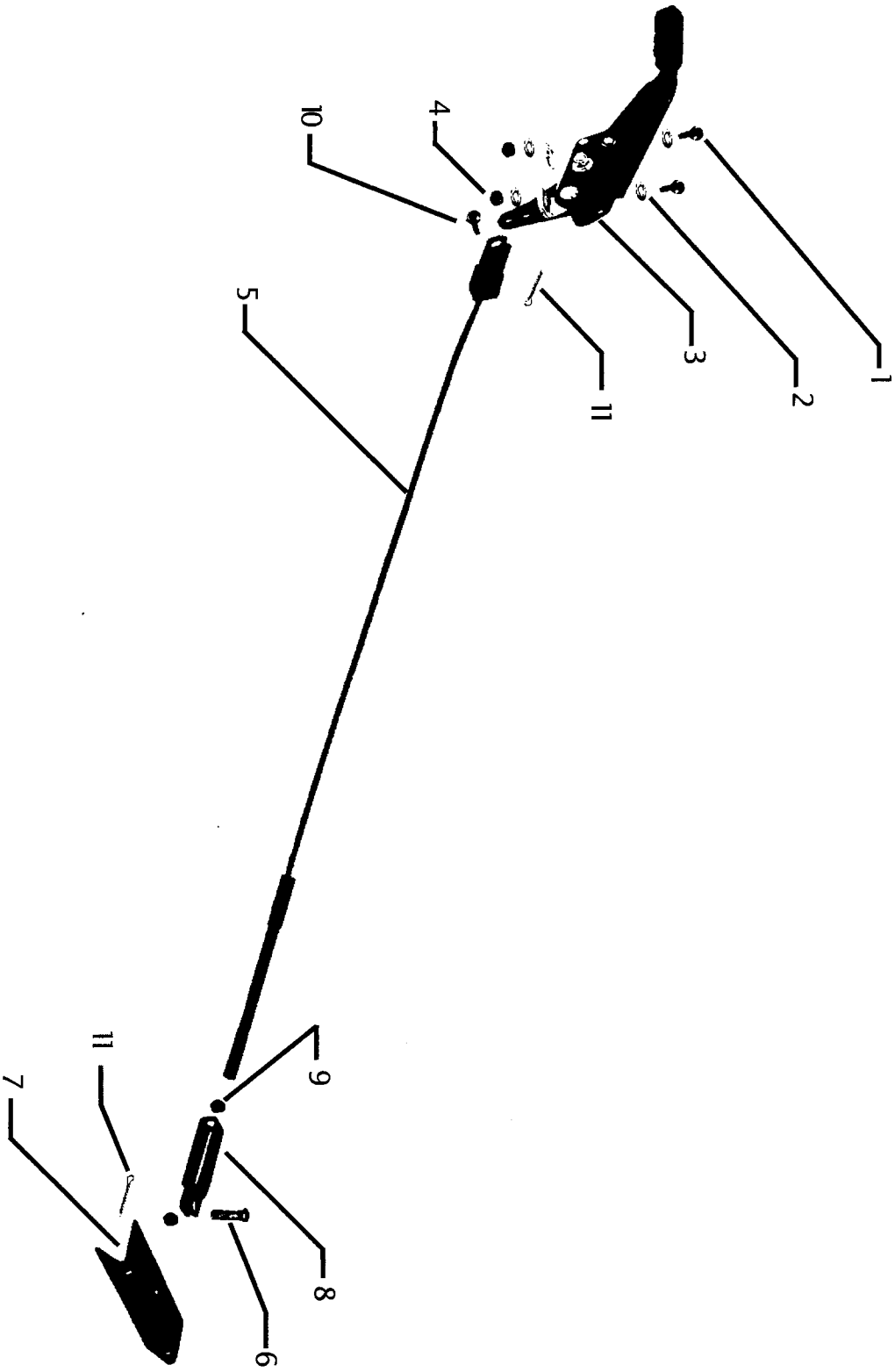
HYDRAULIC DISC BRAKES



HYDRAULIC DISC BRAKES TABLE

HYDRAULIC DISC BRAKES REAR			
ITEM #	*PART #*	*DESCRIPTION*	*QTY*
1	88-067-21	1/4 X 3-3/4" NC Hex Bolt Gr. 8	4
2	41-350-51	Plate, Secondary, Hydraulic Disc	2
3	41-348-70	Pad, Disc Brake	4
4	41-348-52	Spacer, Disc Brake	4
5	32-240-40	Bearing Teflon® Coated	4
6	41-350-28	Hydraulic Brake Bracket Weldment	2
7	96-327-10	Bolts 3/8 X 3/4 NF Gr. 5 with Thread Patch. Do Not Reuse	8
8	41-350-68	Hydraulic Brake Body Rear Assembly See Parts List Below	2
9	88-840-11	Retaining E-Ring	2
10	99-588-00 99-588-01	Bleeder Screw Bleeder Screw Adapter	2 2
11	32-220-03	Bushing for Park Brake Pin	2
12	41-350-56	Park Brake Pin	2
13	41-350-12	Park Brake Lever Bracket	2
14	41-350-52	Clevis Pin	2
15	41-350-53	Park Brake Arm	2
16	88-069-82	1/4 NC Locknut Gr. 8 Do Not Reuse	4
41-350-68 Hydraulic Brake Body Rear Assembly Includes			
11	32-220-03	Bushing for Park Brake Pin in Brake Body (Not Shown)	1
	41-886-00	Plug, 1/8 Pipe Hex Socket (Not Shown)	1
6a	41-350-70	Hydraulic Brake Body Assembly	1
7	99-588-00	Bleeder Screw	1
7	99-588-01	Bleeder Screw Adapter	1
6	41-350-66	Hydraulic Brake Body Assembly (Includes 6aa, 6ab, 6ac)	1
6aa	41-350-09	Hydraulic Disc Brake Body Boot	2
6ab	41-350-10	Hydraulic Disc Brake Body Piston (Not Shown)	2
6ad	80-713-00	O-Ring 1-1/8 ID X 3/32 Thick (Not Shown)	2

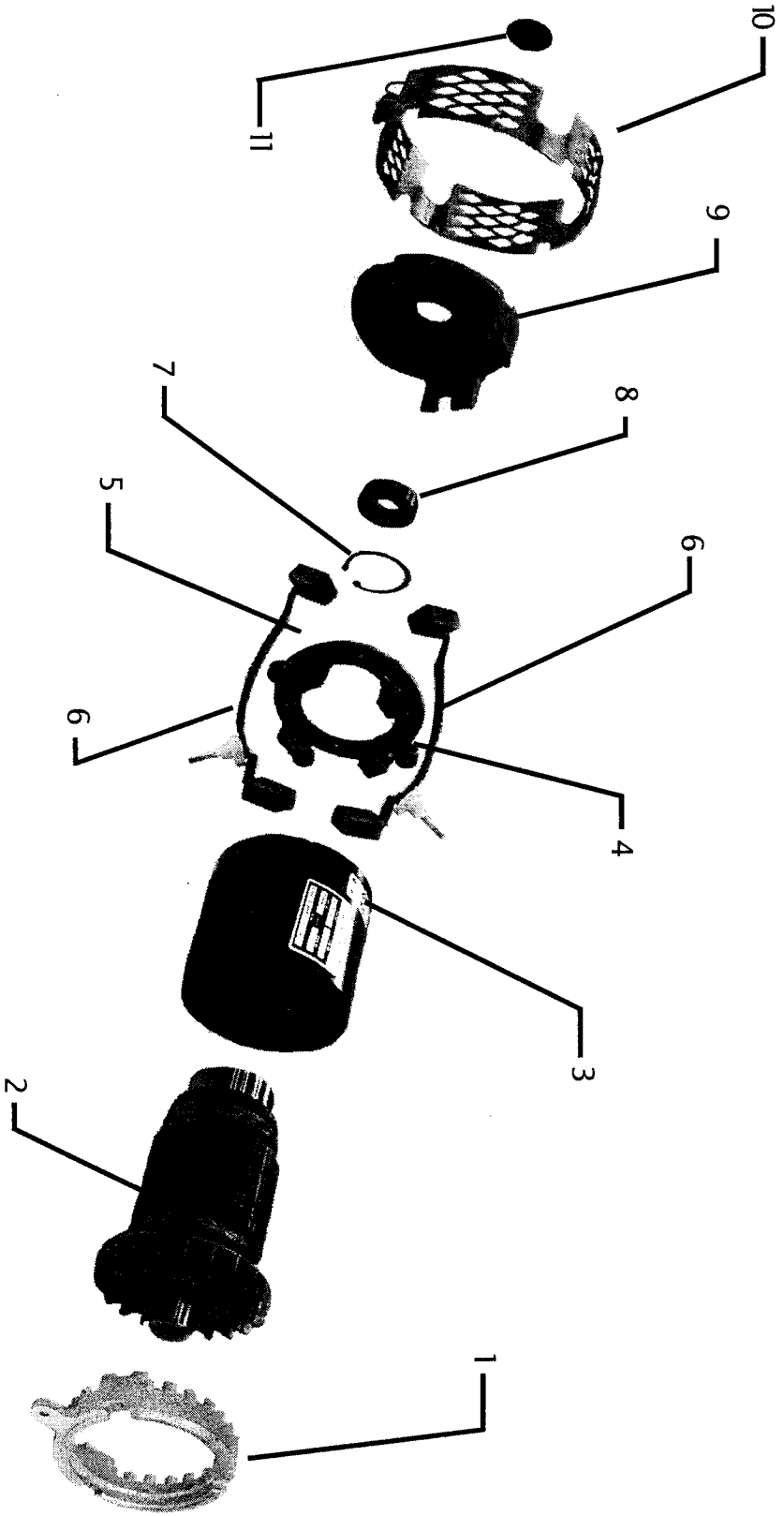
PARK BRAKE LINKAGE



PARK BRAKE LINKAGE TABLE

PARK BRAKE LINKAGE			
ITEM #	PART #	DESCRIPTION	QTY
1	88-080-11	5/16 x 1 Hex Head Screw	2
2	88-088-61	5/16 Washer	4
3	51-344-80	Park Brake	1
4	88-089-81	5/16 Locknut	2
5	96-812-00	Adjusting Brake Cable Assembly	1
6	96-771-00	3/8 x 3/4 Clevis Pin	1
7	01-204-32	Brake Equalizer	1
8	96-760-00	Brake Cable Clevis	1
9	88-099-80	5/16 Hex Head Nut	2
10	96-773-00	5/16 x 1 Clevis Pin	1
11	88-527-11	1/8 X 1 Steel Cotter Pin	2

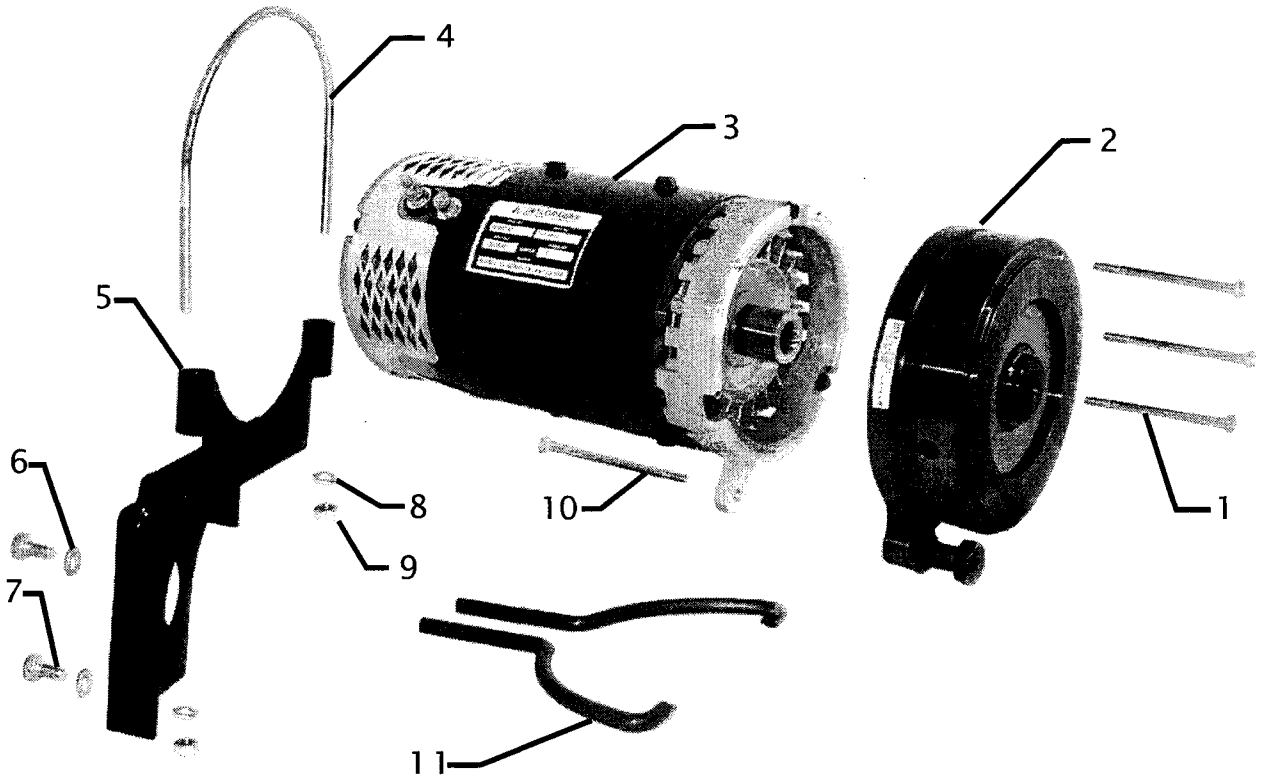
MOTOR

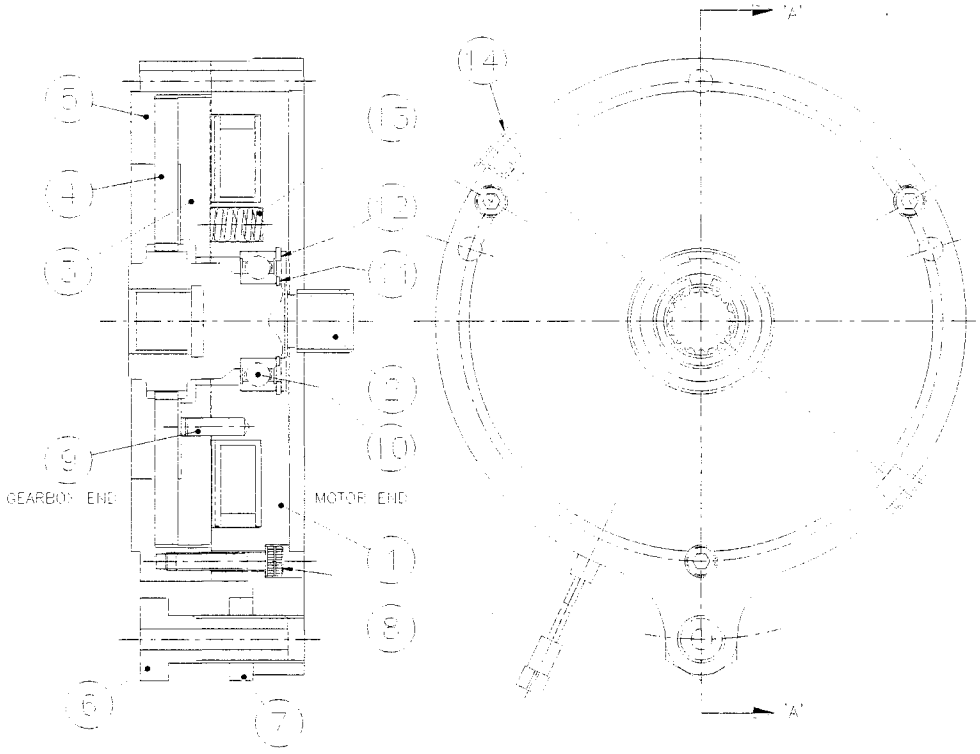


MOTOR TABLE

MOTOR (70-057-40)			
MOTOR SPECIFICATION NUMBER DV1-4003			
ITEM #	PART #	DESCRIPTION	QTY
1	70-421-10	Drive End Adapter Ring	1
2	70-400-10	Armature and Fan Assembly	1
3	70-209-40	Frame and Field Coil Assembly	1
4	85-403-00	Brush Spring	4
5	70-173-00	Brush Box Assembly	1
6	70-170-30	Lead Assembly Kit	2
7	70-417-00	Retaining Ring	1
8	80-212-00	Bearing	1
9	70-421-30	Commutator Endhead	1
10	70-421-40	Headband Assembly	1
11	95-930-00	Hole Cap	1

AUTOMATIC ELECTRIC BRAKE SYSTEM



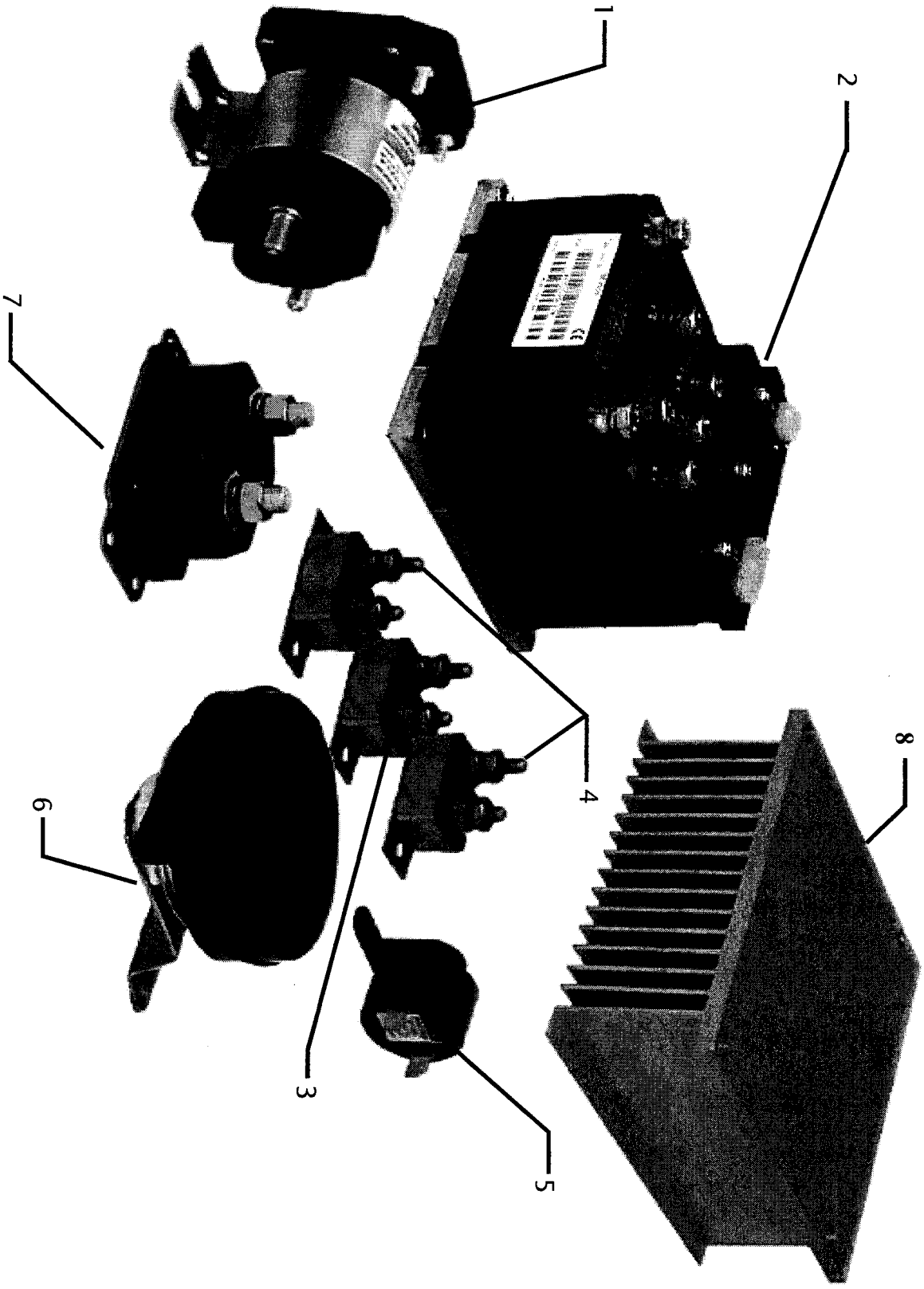


Automatic Electric Brake Component View

AUTOMATIC ELECTRIC BRAKE SYSTEM TABLE

AUTOMATIC ELECTRIC BRAKE SYSTEM			
ITEM #	PART #	DESCRIPTION	QTY
1	88-067-29	Bolt,1/4 X 4-1/4" NC, Grade 8	3
2	41-355-00	Automatic Electric Brake Unit	1
3		Motor (Typical)	1
4	96-114-10	U-Bolt, 5/16" NF, Motor Support	1
5	70-456-10	Motor, Support Bracket	1
6	88-128-62	Lockwasher, 7/16"	2
7	89-111-27	Bolt, 10m X 1.5 X 20 Hex Head	2
8		Lockwasher, 5/16"	2
9	88-099-80	Nut, 5/16" NF	2
10	88-067-23	Bolt, 1/4 X 3-1/4" NC, Grade 8	1
11	96-500-04	Tool, Manual Auto Electric Brake Release	2
	75-152-30	Wiring Harness (Not Shown)	1
AUTOMATIC ELECTRIC BRAKE PARTS SPECIAL ORDER			
1		Magnet and Coil Sub Assembly	1
2		Hub	1
3		Armature	1
4		Friction Plate	1
5		Mounting Plate	1
6		Hex Head Bolt Spacer	1
7		Locknut	1
8		Screw, Socket Head Cap	3
9		Dowel Pin	3
10		Ball Bearing, Deep Groove	1
11		External Circlip	1
12		Internal Circlip	1
13		Coil Compression Spring	6
14		Plastic Cap	2
NOTE: The electric brake parts listed above without part numbers may be special ordered through our parts department. When ordering have the vehicle serial number and model ready.			

CONTROL PANEL

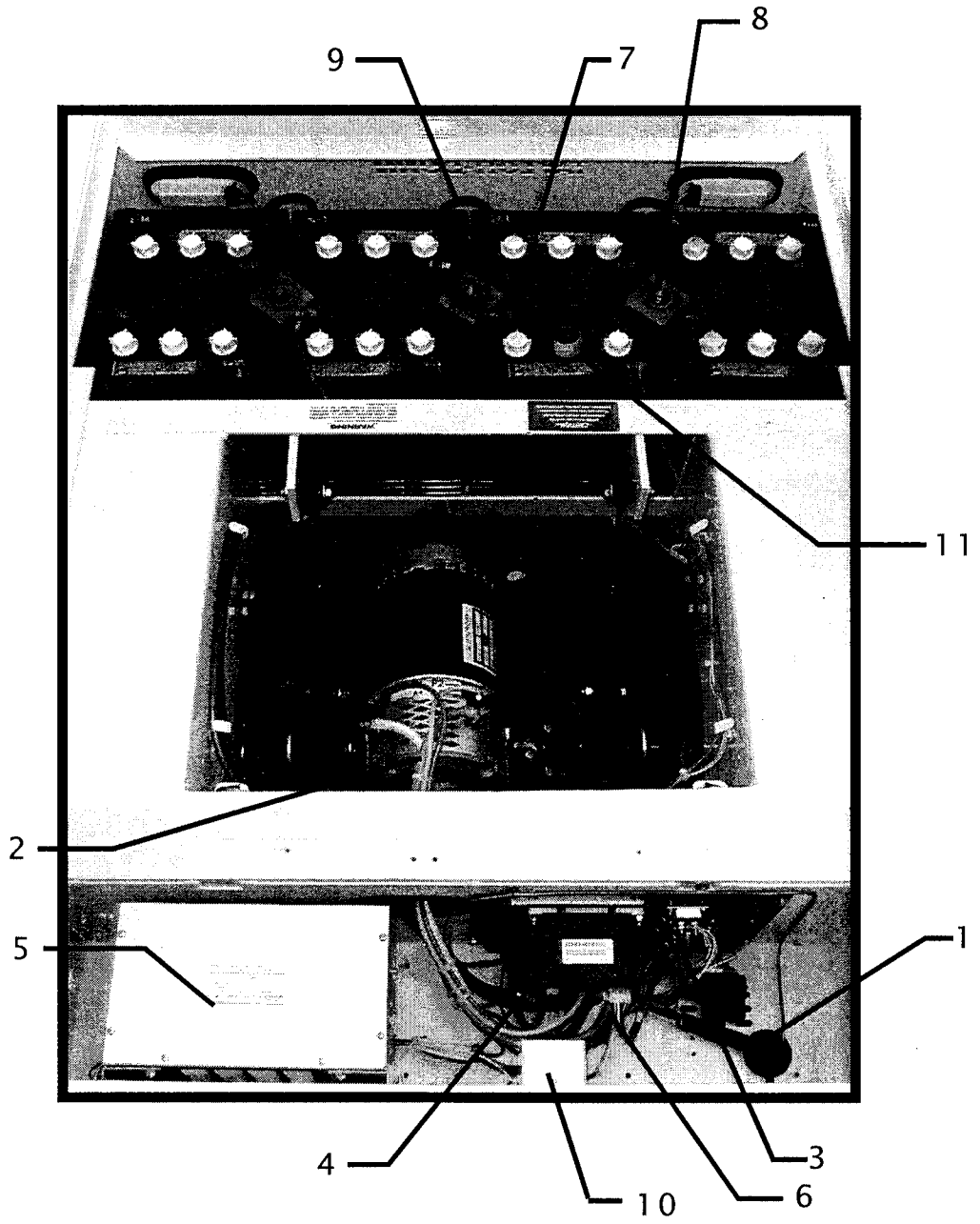


CONTROL PANEL TABLE

CONTROL PANEL ASSEMBLY 62-016-40			
ITEM #	PART #	DESCRIPTION	QTY
1	72-501-50	Solenoid, SPST 24 volt, 220 amp	1
2	62-400-15	Powerpak Controller (See Note Below)	1
3	79-840-00	Circuit Breaker, 10 amp	1
4	79-840-20	Circuit Breaker, 20 amp	2
5	73-005-01	Alarm	1
6	73-004-20	Horn	1
7	79-844-20	Circuit Breaker, 200 amp	1
8	62-400-11	Controller Heatsink	1
	01-200-08	Control Panel (Not Shown)	1
	62-027-61	Controller Calibrator, Handheld Kit, View Only (Not Shown)	1

NOTE: To order part number 62-400-15, you will need to provide the vehicle serial number. The controller will be programmed to match the vehicle as originally built.

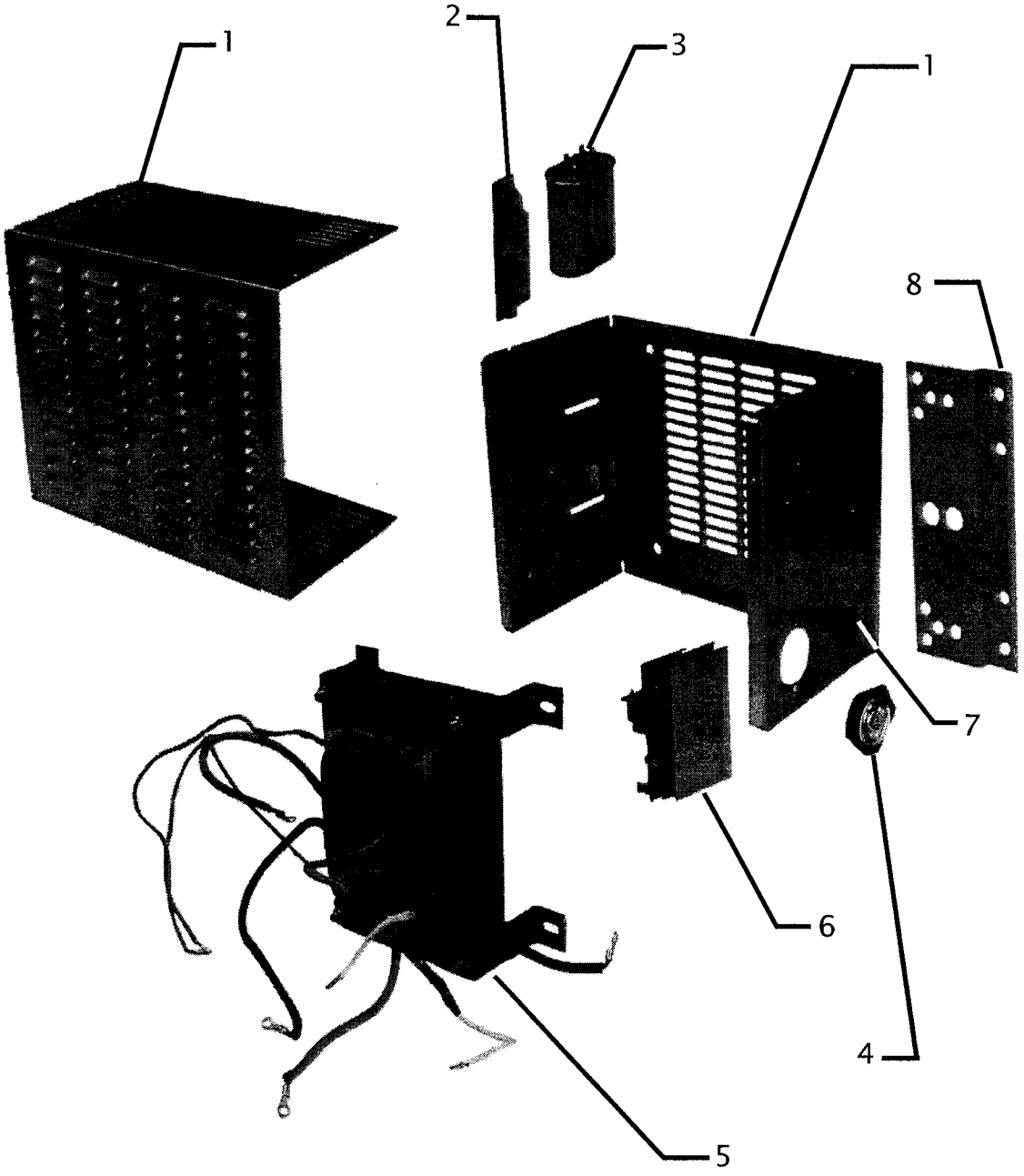
ELECTRICAL COMPONENTS (TYPICAL)



ELECTRICAL COMPONENT AND OPTION TABLE

WIRING			
ITEM #	PART #	DESCRIPTION	QTY
1	75-152-03	Main Wiring Harness	1
2	75-152-11	Power/Motor Leads	1
3	75-152-12	Controller Link Wires	1
4	62-016-40	Control Panel Assembly (Refer to page 25)	1
5	79-309-10	Charger 48V STD (Refer to page 30)	1
6	75-152-00	Controller Harness	1
	96-000-01	Controller Cover (Not Shown)	1
BATTERIES			
7	77-047-50	250 AMP Hour STD. 48V	8
7	77-042-50	217 AMP Hour (Not Shown)	8
7	77-047-00	244 AMP Hour (Not Shown)	8
7	77-047-80	244 AMP Hour Export (Not Shown)	8
BATTERY HARDWARE			
8	50-243-10	Battery Hold Down Rod	3
8	50-250-00	Battery Bat-Lok Clamp	3
8	88-069-81	Locknut, 1/4"	3
8	88-088-66	Washer, 5/16 X 1.5" O. D. Tin Lead	3
9	88-081-12	Bolt, 5/16 X 1" NC Square Head Stainless Steel	16
9	88-089-70	Lock Washer. 5/16, Stainless Steel	16
9	88-089-80	Nut, 5/16 Hex Head, Stainless Steel	16
9	75-237-00	Battery Jumper Cables 48V	7
CHARGER INTERLOCK AND REPLACEMENT PARTS			
10	79-306-12	Interlock, Charger 115V	1
10	79-306-61	Kit, Charger Interlock (Not Shown)	1
10	79-809-00	Charger Interlock Relay 115V (Not Shown)	1
10	79-306-23	Interlock, Charger 230V (Not Shown)	1
10	79-809-10	Charger Interlock Relay 230V (Not Shown)	1
MISCELLANEOUS			
11	77-055-01	Electro-Lite	1
11	77-055-60	Kit, Electro-Lite	1

CHARGER (TYPICAL BUILT-IN)

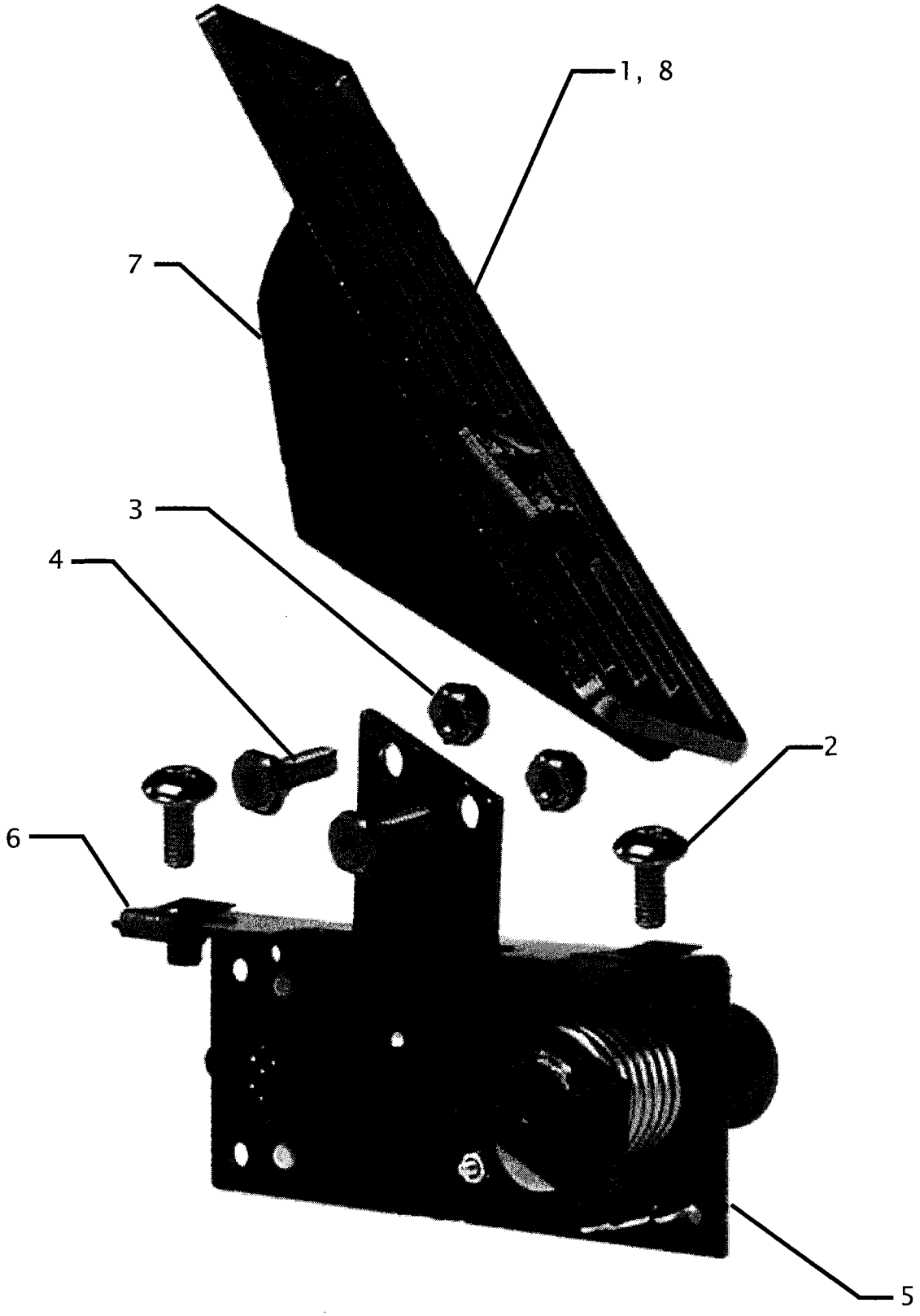


CHARGER TABLE

CHARGERS								
ITEM #			1	2	3	4	5	6
DESCRIPTION	CHARGER MODEL #	CHARGER PART #	CHARGER CASE #	DIODE ASSEMBLY #	CAPACITOR #	FUSE #	TRANSFORMER #	TIMER ASSEMBLY #
48V/25A BUILT-IN, 115/60 Hz, AC	16910	79-309-10	Special Order	79-749-13	79-902-00	79-831-0	79-309-10	79-805-68
48V/25A BUILT-IN, 230/50 Hz, AC	16920	79-309-20	Special Order	79-749-13	79-902-00	79-831-00	Special Order	Special Order
48V/25A PORTABLE, 115/60 Hz, AC	9695	79-309-00	Special Order	79-749-13	79-902-02	79-831-00	Special Order	79-805-65

CHARGERS (CONTINUED)								
ITEM #		6	7	7	7	8		
DESCRIPTION	CHARGER PART #	TIMER RELAY #	BUSHING 7W-2 #	BUSHING 7K-2 #	BUSHING 8P-2 #	MOUNTING BRACKET(2) #	AC CORD # NOT SHOWN	DC CORD # NOT SHOWN
48V/25A BUILT-IN, 115/60 Hz, AC	79-309-10	79-808-20	79-530-00	N/A	N/A	79-516-20	79-575-25	N/A
48V/25A BUILT-IN, 230/50 Hz, AC	79-309-20	79-808-20	79-530-00	N/A	N/A	79-516-20	N/A	N/A
48V/25A PORTABLE, 115/60 Hz, AC	79-309-00	N/A	79-530-00	N/A	N/A	N/A	79-575-10	79-566-10

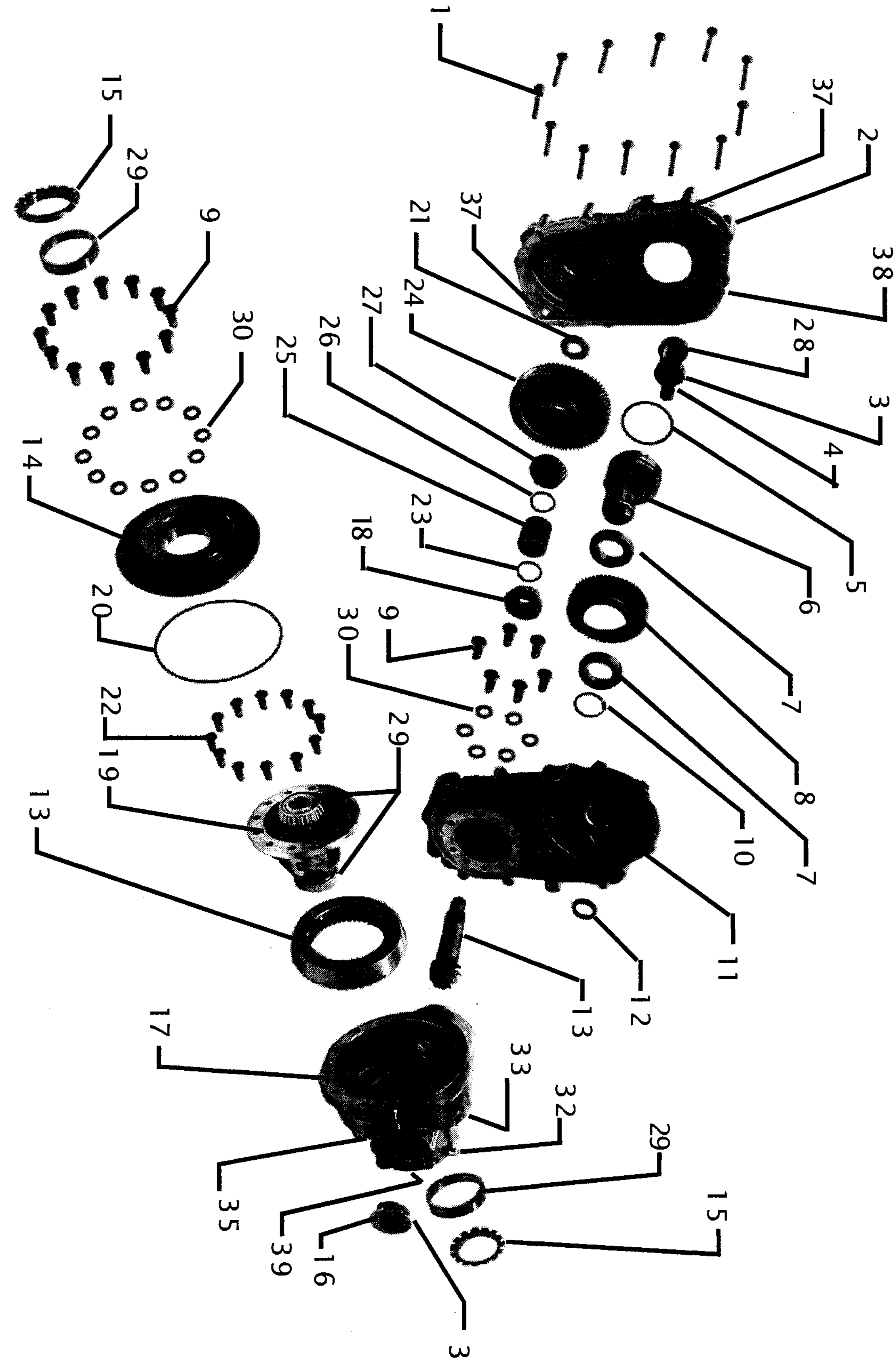
ACCELERATOR MODULE



ACCELERATOR MODULE TABLE

ACCELERATOR MODULE 62-033-48			
ITEM #	PART #	DESCRIPTION	QTY
1	98-254-00	Accelerator Pedal	1
2	88-065-08	1/4" x 5/8" Truss Head Screw	2
3	88-069-81	1/4" Lock Nut	2
4	88-060-09	1/4" x 3/4" Hex Bolt	2
5	62-033-48	Accelerator Module	1
6	97-211-20	1/4-20 U-Nut	2
7	98-254-25	Pedal Mounting Bracket	1
8	88-069-87	1/4 NC KEPS Nut (Not Shown)	2

DRIVE


1
37
2
38
28
3
4
5
6
7
8
7
10
11
12
13
15
29
9
30
14
20
22
19
13
21
37
27
24
26
25
23
18
9
30
29
17
33
32
29
15
35
39
16
31

DRIVE PARTS TABLE

DRIVE			
ITEM #	PART #	DESCRIPTION	QTY
1	GT-71682	Flanged Screw M8 x 60	12
2	GT-3287563	Half Housing Eccentric Side	1
3	GT-71259	Ball Bearing	1
4	GT-3287513	Input Shaft - 30 Ratio	1
	GT-3287523	Input Shaft - 24 Ratio	1
	GT-3287533	Input Shaft - 18 Ratio	1
	GT-3287543	Input Shaft - 12 Ratio	1
5	GT-71982	O-Ring	1
6	GT-3287503	Shaft (Eccentric for Idler Gear)	1
7	GT-72005	Ball Bearing	2
8	GT-3287493	Gear (Idler)	1
9	GT-70302	Screw M10 X 30	1
10	GT-71715	Snap Ring	1
11	GT-3287553	Half Housing Motor Side	1
12	GT-72019	Lip Seal	1
13	GT-3287183	Hypoidal Gear Kit	1
14	GT-3297193	Axle Cover	1
15	GT-3287133	Adjusting Ring	2
16	GT-70417	Plug	1
17	GT-3287113	Axle Housing	1
18	GT-71979	Tapered Rolling Bearing	1
19	GT-3287143	Differential Assembly	1
20	GT-72013	O-Ring	1
21	GT-3273633	Pinion Nut	1
22	GT-71896	Screw M10 X 25	12

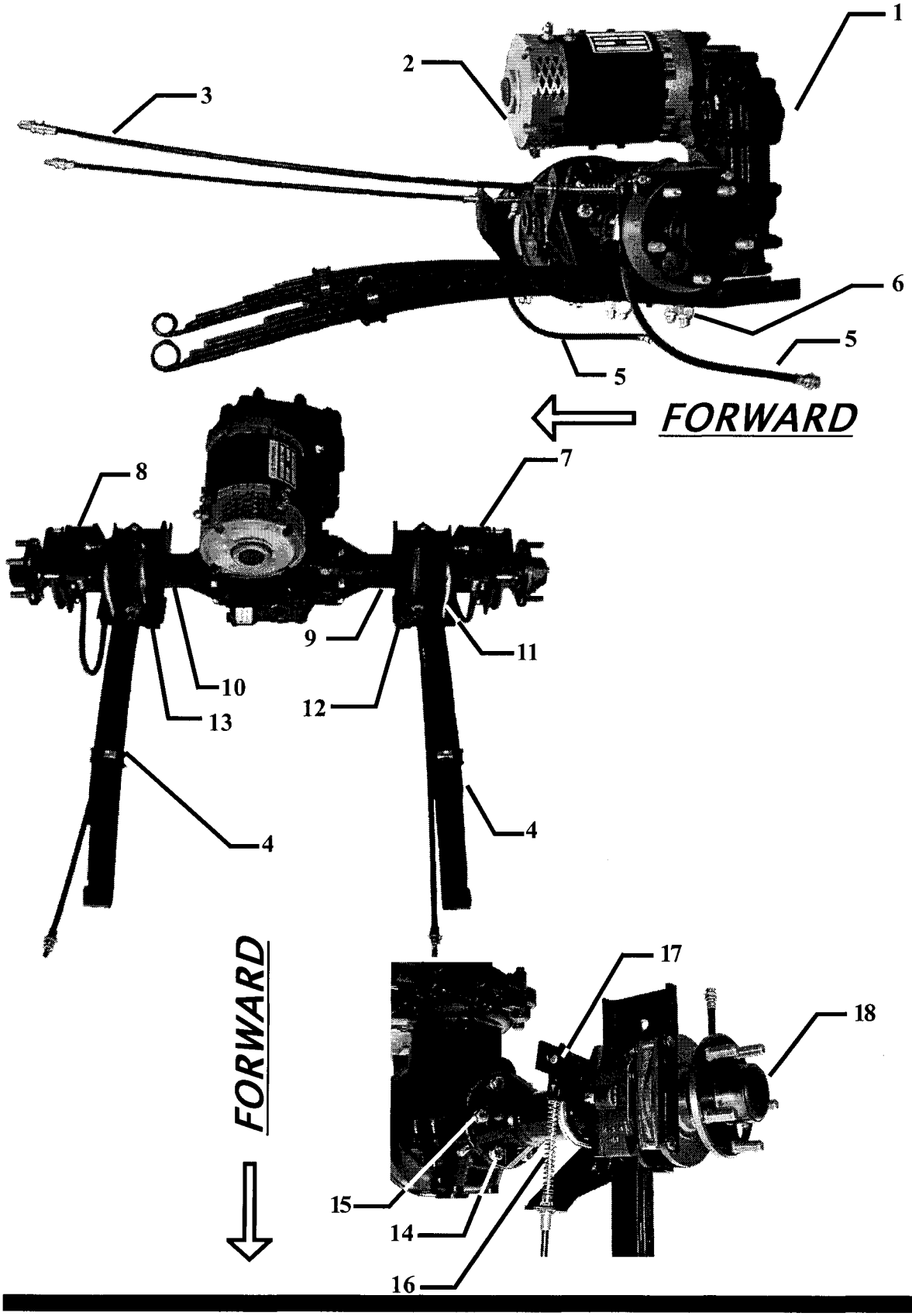
DRIVE PARTS TABLE (CONTINUED)

DRIVE			
ITEM #	PART #	DESCRIPTION	QTY
23	GT-3287213	Spacer - S=3.90mm	1
	GT-3287223	Spacer - S=3.95mm	1
	GT-3287233	Spacer - S=4.00mm	1
	GT-3287243	Spacer - S=4.05mm	1
	GT-3287253	Spacer - S=4.10mm	1
	GT-3287263	Spacer - S=4.15mm	1
	GT-3287273	Spacer - S=4.20mm	1
	GT-3287283	Spacer - S=4.25mm	1
	GT-3287293	Spacer - S=4.30mm	1
	GT-3287303	Spacer - S=4.35mm	1
	GT-3287313	Spacer - S=4.40mm	1
	GT-3287323	Spacer - S=4.45mm	1
	GT-3287333	Spacer - S=4.50mm	1
	GT-3287343	Spacer - S=4.55mm	1
	GT-3287353	Spacer - S=4.60mm	1
	GT-3287363	Spacer - S=4.65mm	1
	GT-3287373	Spacer - S=4.70mm	1
	GT-3287383	Spacer - S=4.75mm	1
	GT-3287393	Spacer - S=4.80mm	1
	GT-3287403	Spacer - S=4.85mm	1
	GT-3287413	Spacer - S=4.90mm	1
	GT-3287423	Spacer - S=4.95mm	1
	GT-3287433	Spacer - S=5.00mm	1
24	GT-3287453	Output Gear - 30 Ratio	1
	GT-3287463	Output Gear - 24 Ratio	1

DRIVE PARTS TABLE (CONTINUED)

DRIVE			
ITEM#	PART #	DESCRIPTION	QTY
24	GT-3287473	Output Gear - 18 Ratio	1
	GT-3287483	Output Gear - 12 Ratio	1
25	GT-3287813	Spacer - S=46.100mm	1
	GT-3289403	Spacer - S=46.125mm	1
	GT-3289413	Spacer - S=46.150mm	1
	GT-3289423	Spacer - S=46.175mm	1
26	GT-3287853	Shim - S=0.600mm	1
	GT-3287863	Shim - S=0.700mm	1
	GT-3287873	Shim - S=0.800mm	1
	GT-3287883	Shim - S=0.400mm	1
	GT-3287893	Shim - S=0.500mm	1
	GT-3287903	Shim - S=0.1000mm	1
27	GT-71068	Tapered Roller Bearing	1
28	GT-72022	Ball Bearing	1
29	GT-71978	Tapered Roller Bearing (Includes Bearing Race)	2
30	GT-70299	Washer 10mm ID	18
31	GT-71881	Seal 40-50 X 2 (Not Shown) (Location Indicated)	1
32	GT-70052	Vent 10 X 1mm	1
33	GT-70063	Seal 12-18 X 1 mm (Not Shown) (Location Indicated)	1
34	GT-70062	Plug M12 X 1.5 (Not Shown) (Location Indicated)	1
35	GT-71755	Seal 14-20 X 1.5mm (Not Shown) (Location Indicated)	1
36	GT-71804	Plug, Magnetic M14 X 1.5 (Not Shown) (Location Indicated)	1
37	GT-3252633	Dowel (Not Shown) (Location Indicated)	2
38	GT-71860	Pin 8 X 40mm (Not Shown) (Location Indicated)	1
39	GT-71422	Pin 5 X 24 (Not Shown) (Location Indicated)	1

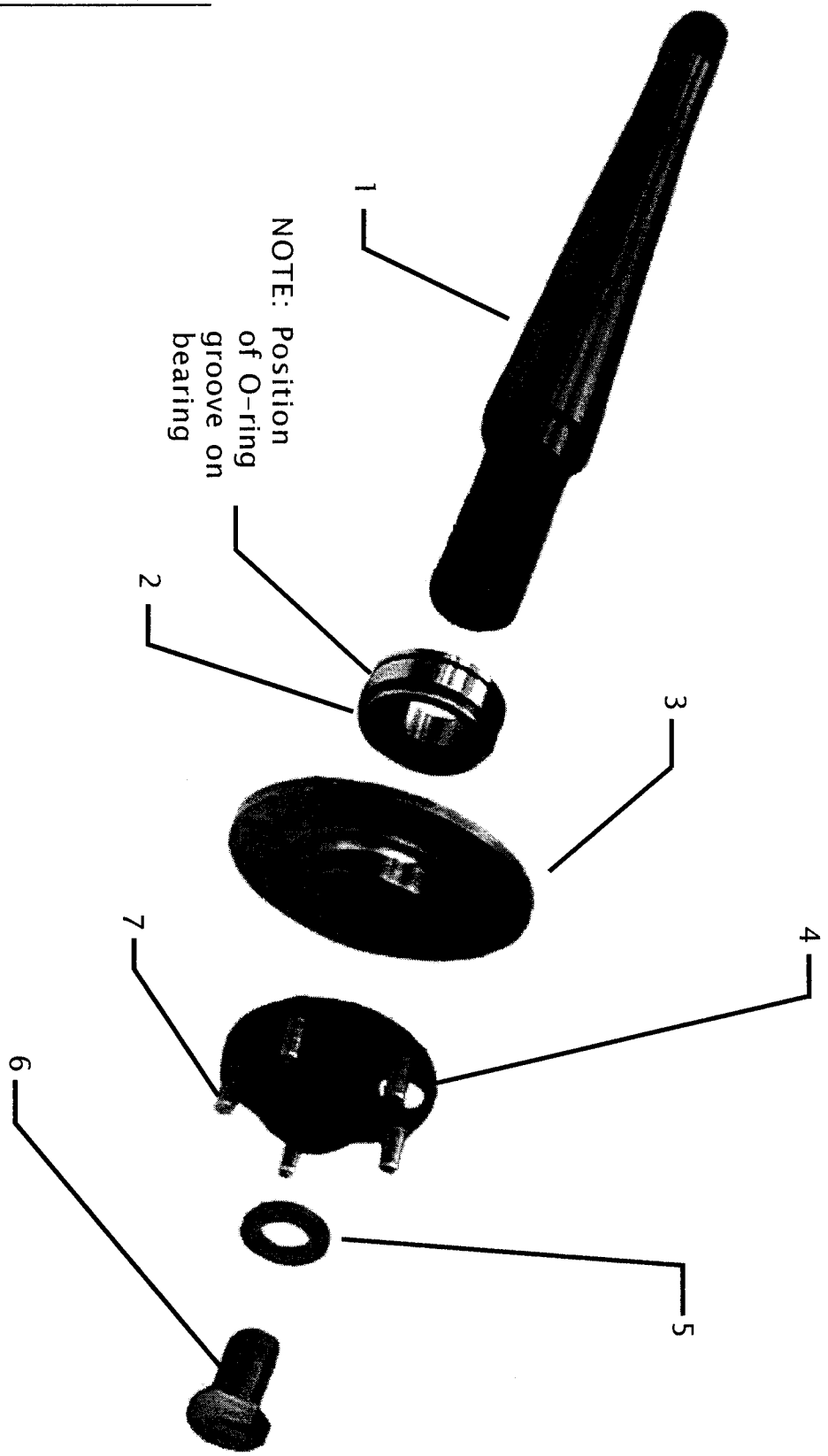
DRIVE ASSEMBLY



DRIVE ASSEMBLY TABLE

DRIVE ASSEMBLY			
ITEM #	PART #	DESCRIPTION	QTY.
1	4GT-0151-1033	Drive Standard (Refer to Page 36)	1
2	70-057-40	DC Motor (Refer to Page 22)	1
3	96-826-12	Park Brake Cable Assembly Rear	2
4	85-510-17	Leaf Springs Rear, Heavy Duty	2
5	99-580-20	Brake Hose	2
6	88-159-84	1/2 NF Nylock Locknut	8
7	41-350-78	Hydraulic Disc Brake Assembly Left	1
8	41-350-79	Hydraulic Disc Brake Assembly Right	1
9	41-290-46	Axle Tube Left	1
10	41-290-47	Axle Tube Right	1
11	96-114-00	U-Bolt	4
12	16-861-44	Spring Axle Mount Bracket Left	1
13	16-861-45	Spring Axle Mount Bracket Right	1
14	89-113-30	Bolt 12 X 1.75 X 30mm Gr. 8.8 Torque Specification: 35-40 ft-lbs.	12
15	89-113-60	Lock Washer 12mm	12
16	85-125-00	Spring	2
17	96-826-09	Cable Lock	2
17	96-754-00	Clevis	2
18	92-104-10	Dust Cap	2
	94-430-05	RTV Silicon Gasket Sealer, Blue (Not Shown)	1
	96-103-00	U-Bolt (Not Shown)	2
	88-149-81	1/2 NC Lock Nuts (Not Shown)	4
	50-460-00	Rear Axle Spacer Strap (Not Shown)	2
	98-002-00	Rear Overload Rubber Spring (Not Shown)	2
SHOCK ABSORBER REAR			
	86-602-00	Shock Absorber Rear	2
	88-120-17	Bolt, 7/16 X 2-1/4 NC Hex Head	4
	88-129-81	Locknut, 7/16 NC	4
	88-128-60	Washer, 7/16	4

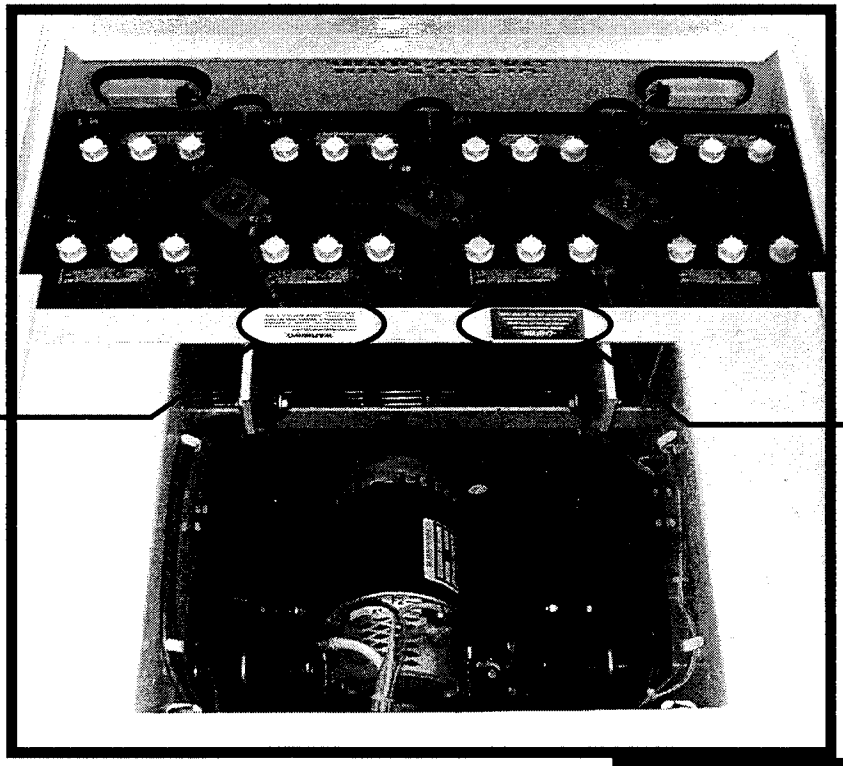
REAR AXLE

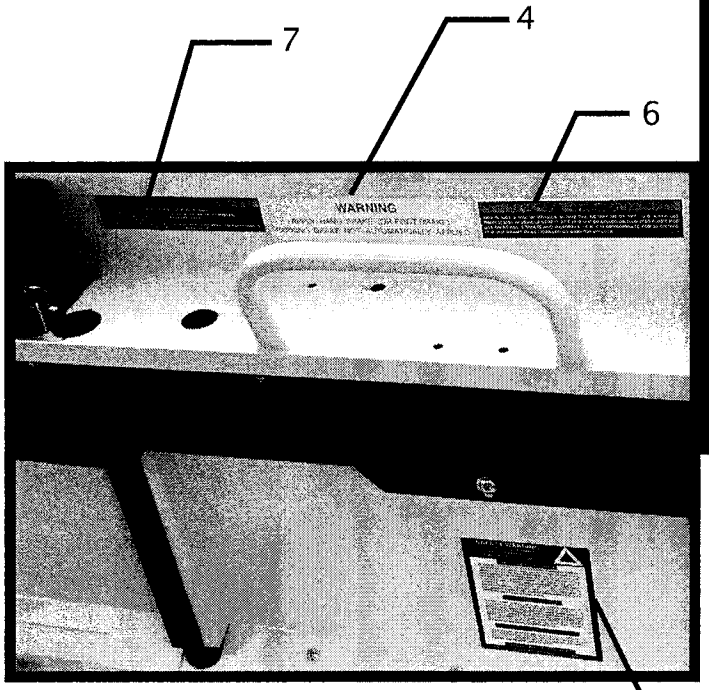


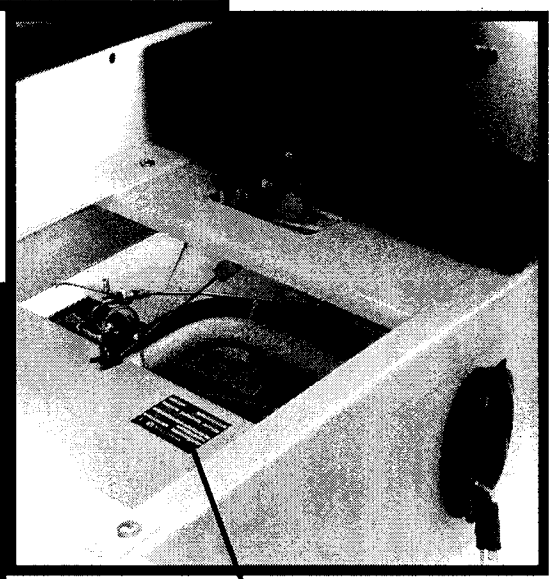
REAR AXLE TABLE

REAR AXLE 41-152-86			
ITEM #	PART #	DESCRIPTION	QTY
1	41-154-10	Axle Shaft	2
2	80-505-20	Ball Bearing	2
3	41-490-11	Brake Rotor	2
4	41-172-21	Wheel Hub	2
5	88-268-63	7/8 Washer	2
6	88-268-30	7/8-14 Screw Torque Specification: 275 ft-lbs	2
7	96-329-10	Wheel Lug Bolt	10

DECALS



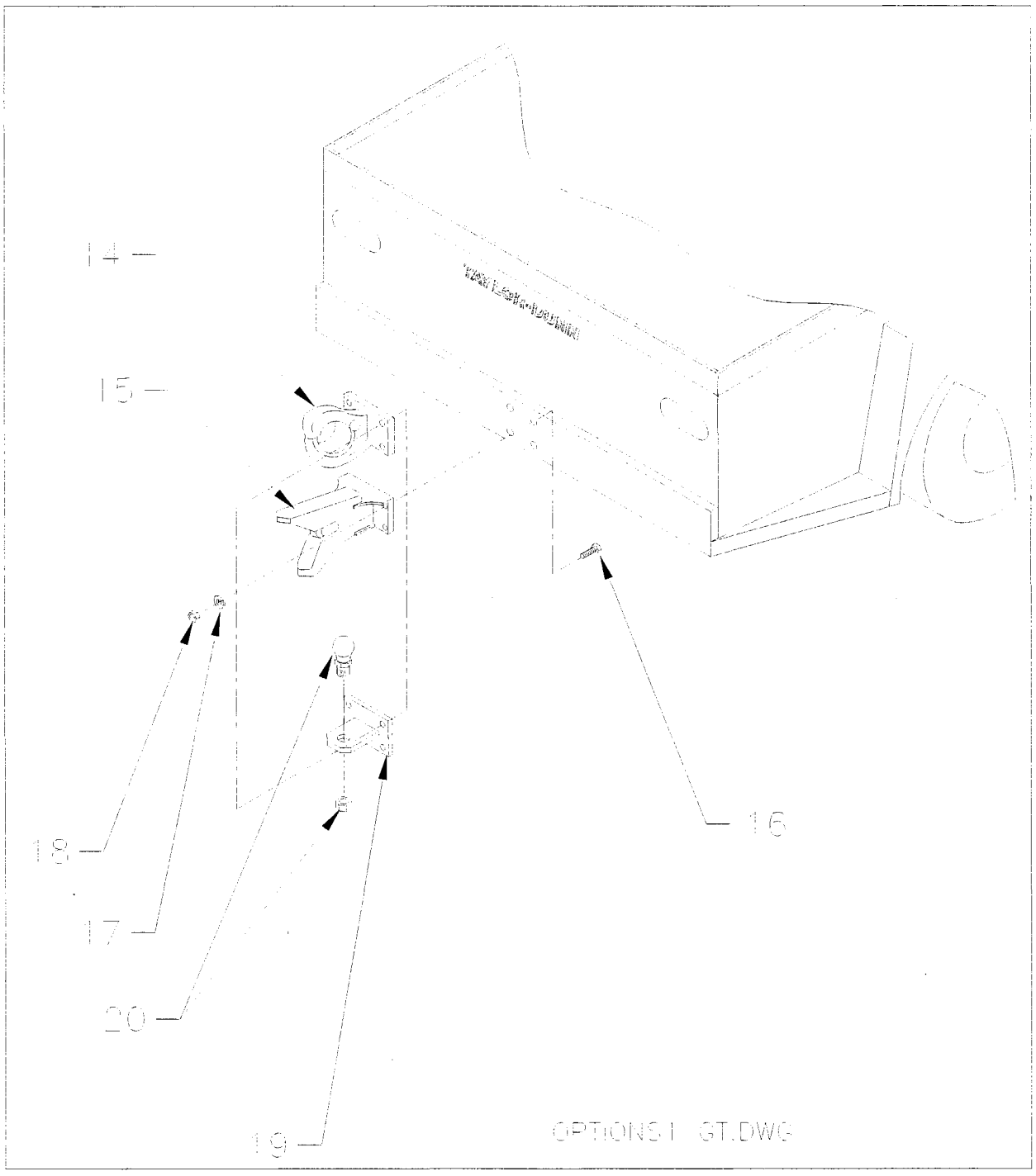




DECALS TABLE

DECALS			
ITEM #	PART #	DESCRIPTION	QTY
1	94-319-00	Battery Disconnect Decal	1
2	94-313-00	Battery Warning Decal	1
3	94-373-10	Vehicle Identification Decal	1
4	94-309-00	Brake Warning Decal	1
5	94-313-20	Safety Warning Decal	1
6	94-384-01	Not A Motor Vehicle Decal	1
7	94-384-14	Warning, When Leaving the Vehicle Decal	1

HITCH OPTIONS



HITCH OPTION TABLE

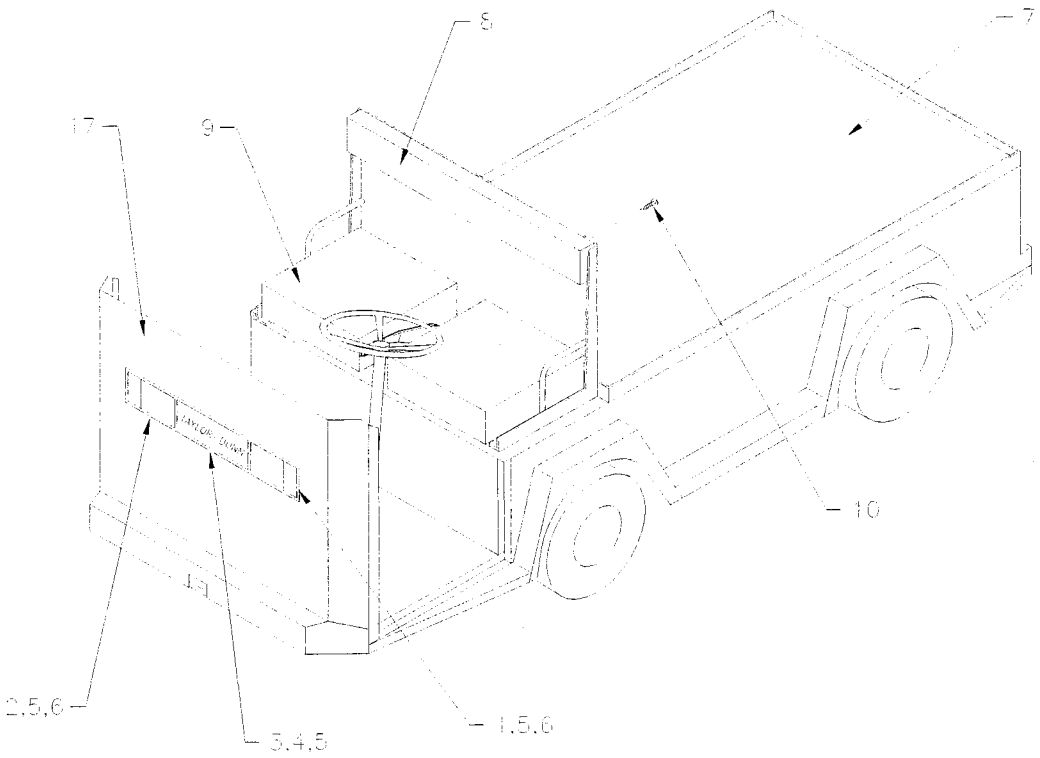
STANDARD PARTS			
ITEM #	PART #	DESCRIPTION	QTY
HITCHES			
14	97-804-01	Hitch, Pintle Type	1
15	97-808-00	Hitch Automatic Coupling	1
16	88-140-14	Bolt, 1/2 NC Hex Head	4
17	88-148-62	Lock Washer, 1/2"	4
18	88-149-80	Nut, 1/2 NC	4
19	97-805-00	Bracket, Ball Hitch Mounting, 1-7/8	1
19	97-807-00	Bracket, Ball Hitch Mounting, 2	1
20	97-811-00	Hitch, 1-7/8" Ball	1
20	97-821-00	Hitch, 2" Ball	1

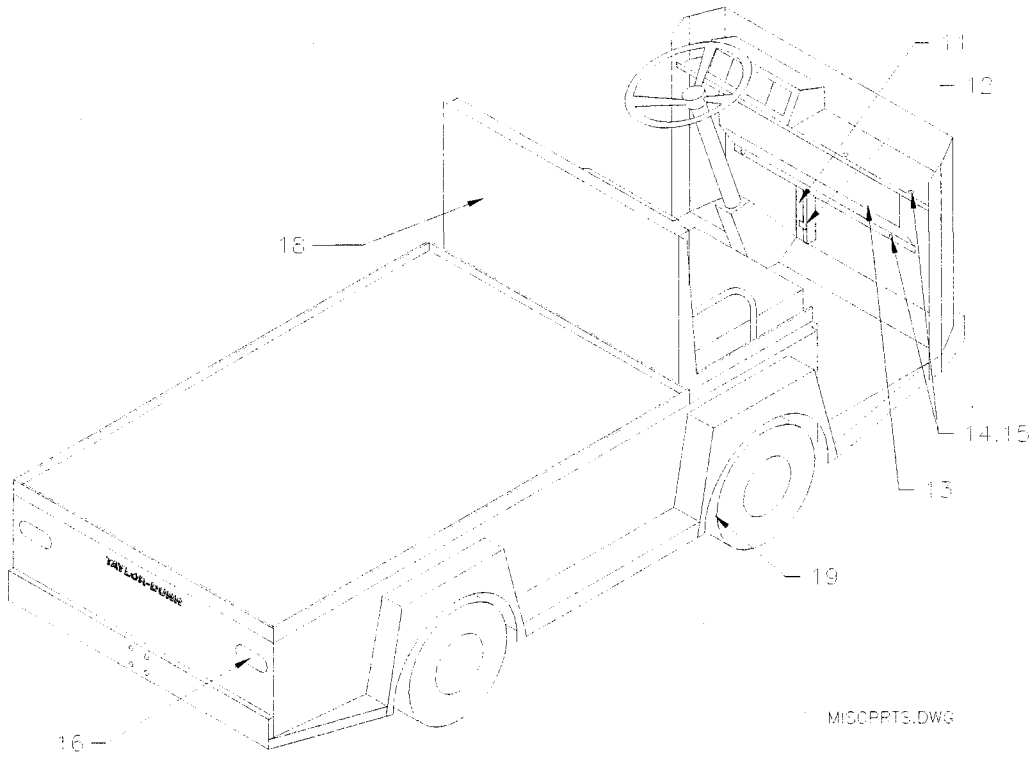

TAYLOR TRUCK

SECTION 5A

Illustrated Parts List
Taylor Truck

STANDARD PARTS

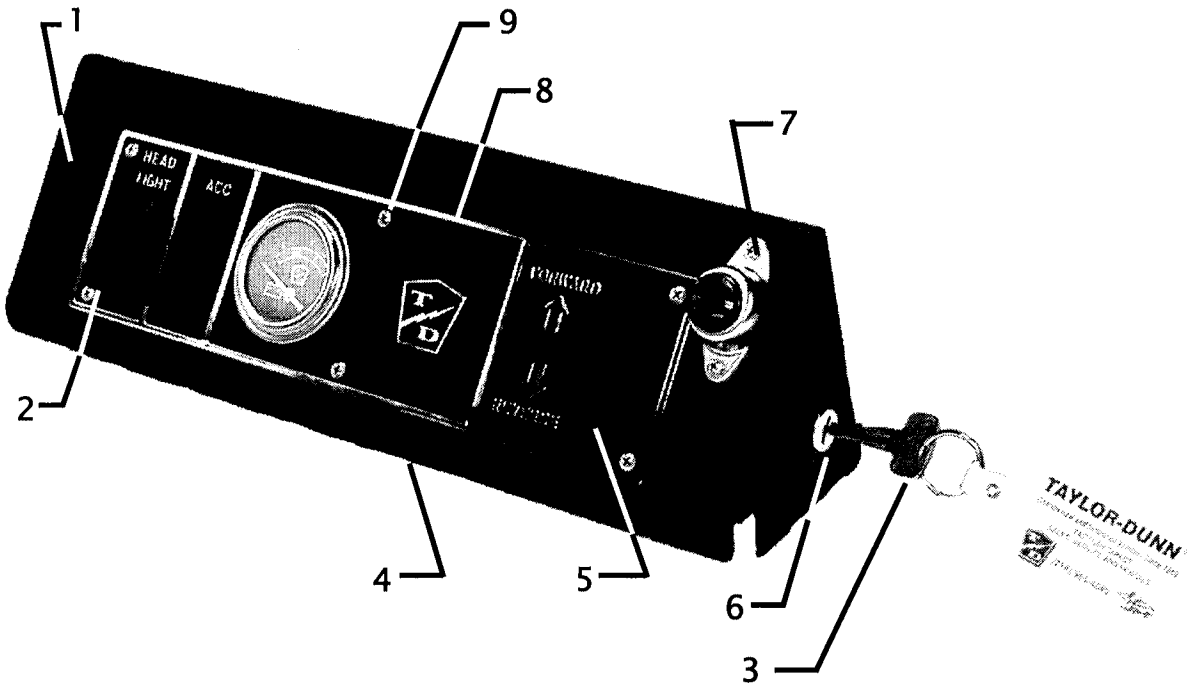


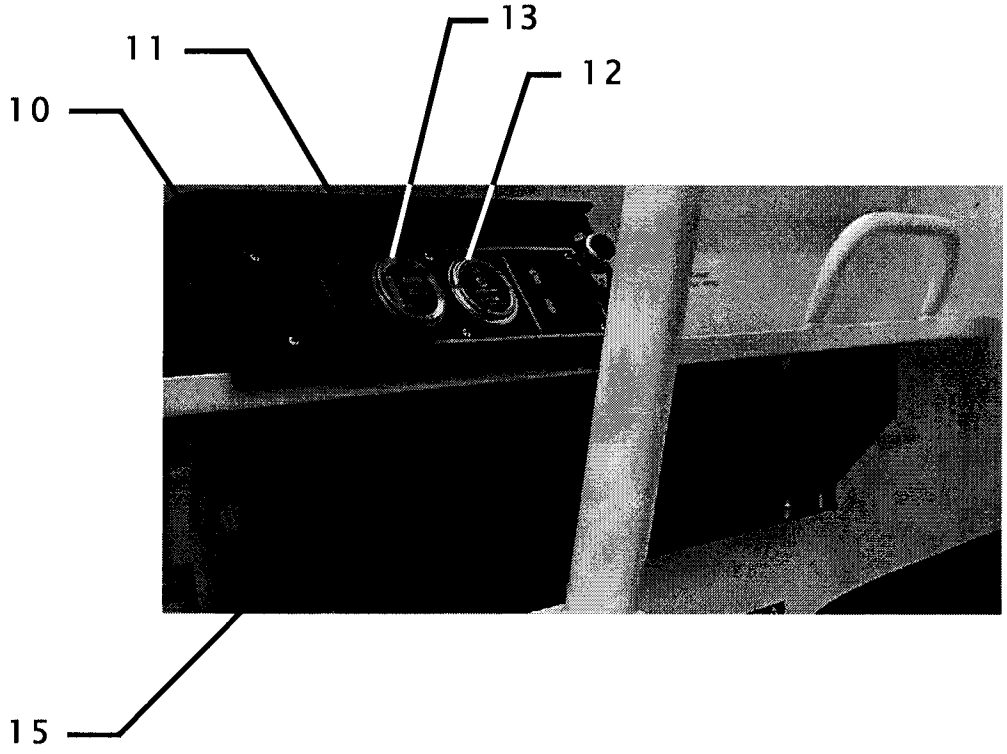


STANDARD PARTS TABLE

STANDARD PARTS			
ITEM #	PART #	DESCRIPTION	QTY.
1	94-050-10	Headlight, Left	1
2	94-050-11	Headlight, Right	1
3	94-201-10	Taylor-Dunn Name Plate	1
4	94-201-11	Fastner Strip, Plastic	2
5	88-817-07	Screw, #8 Self Tapping	14
6	94-050-04	Retainer, Headlight	4
7	90-444-00	Deckboard, Standard	1
8	90-140-00	Backrest	1
9	90-150-00	Seat Cushion	2
10	88-837-09	Screw, #14 Phillips Truss Head	12
11	02-210-25	Angle, Wire Cover	1
12	91-513-00	S-Clip	2
13	02-248-91	Light Guard	1
14	88-065-06	Screw, 1/4" NC Phillips Truss Hd	6
15	88-069-81	Locknut, 1/4 NC	6
16	72-025-00	Light, Stop, Turn & Tail	2
17	00-610-08	Front Cowl (Unpainted)	1
18	00-248-31	Seat Bulkhead (Unpainted)	1
TIRE/WHEEL ASSEMBLY			
19	13-746-14	20.5 X 8 X 10 Load Range E	4
TIRE WHEEL COMPONENTS			
19	97-236-00	Lug Nut (Not Shown)	20
19	13-989-00	Valve Stem (Not Shown)	1
19	94-423-20	Tire Treatment, Sealant (Not Shown)	1

INSTRUMENT PANEL AND COMPONENTS

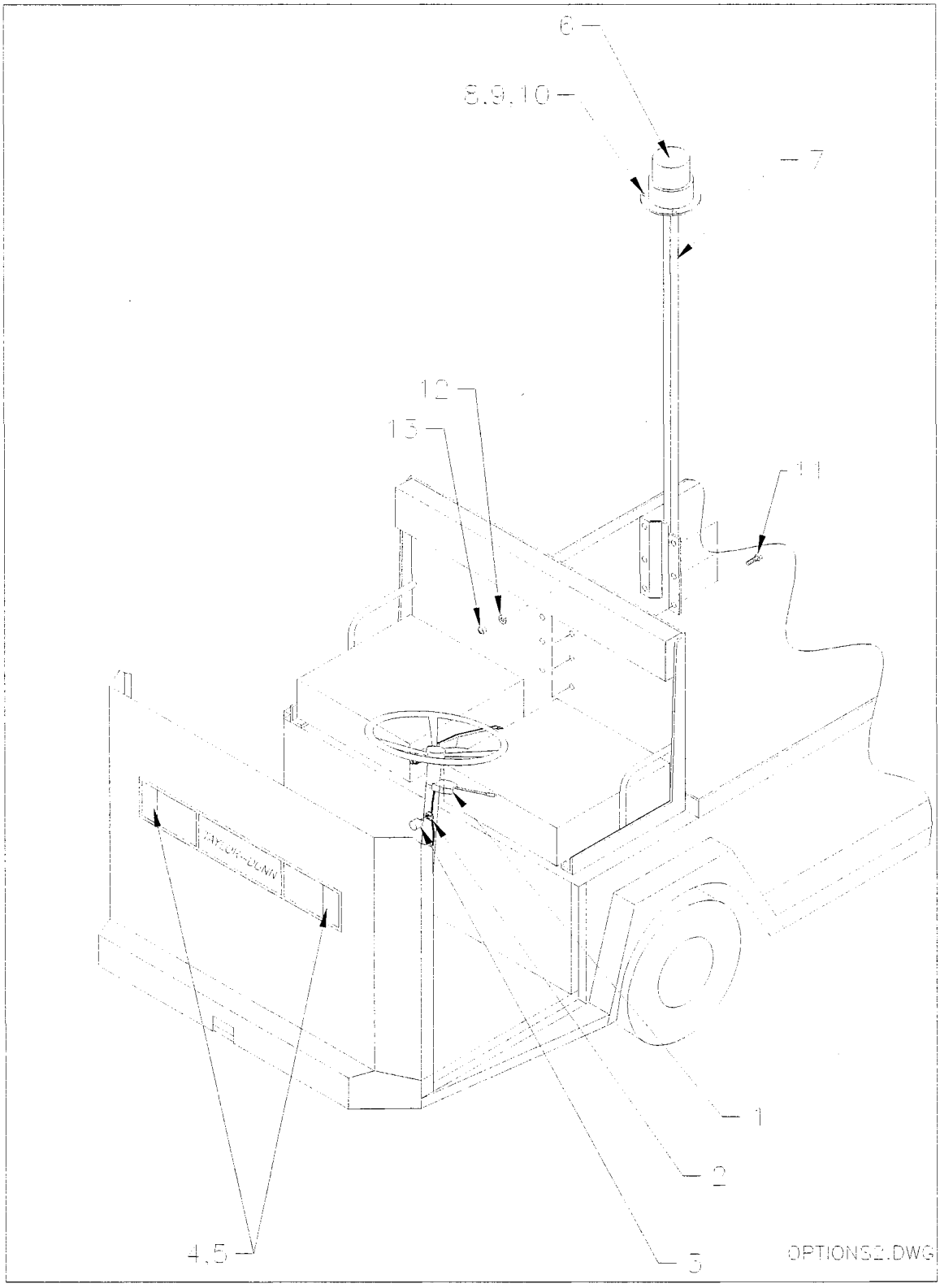




INSTRUMENT PANEL AND COMPONENTS TABLE

INSTRUMENT PANEL			
ITEM #	PART #	DESCRIPTION	QTY
1	95-913-00	Hole Plug (Not Shown)	2
2	71-039-11	Switch (Also Accessory)	1
3	71-120-90	Key	1
4	01-200-09	Console	1
5	71-039-02	Forward & Reverse Switch	1
6	71-120-10	Key Switch	1
	71-119-99	Key Switch Spacer (Not Shown)	1
7	71-501-00	Horn Button	1
8	94-304-14	Instrument Panel	1
9	88-817-07	#8 X 1/2 Phillips Oval Head Tapping (# 6 Head)	8
10	94-303-16	Dash Assembly 48V	1
11	01-204-19	Console Hood Standard	1
12	74-000-00	Hour Meter	1
13	74-009-48	Battery Status Indicator 48V	1
	75-152-04	Dash Harness (Not Shown)	1
	71-039-11	Accessory Rocker Switch (Optional Not Shown)	1
	71-100-00	Accessory Toggle Switch (Optional Not Shown)	1
STANDARD PARTS			
15	02-248-91	Light Guard	1
	30-807-00	Steering Gear Cover (Not Shown)	1

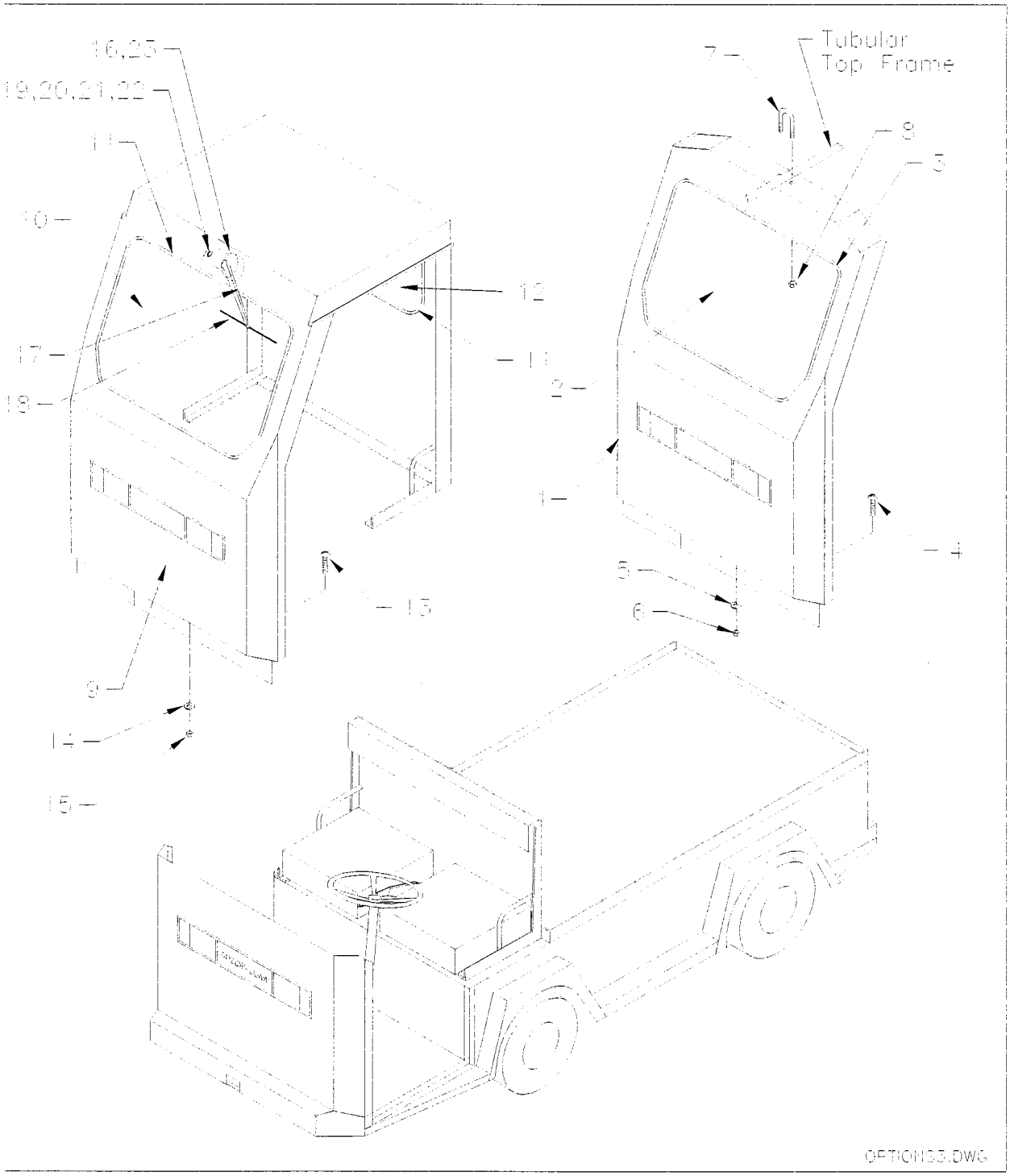
OPTIONAL PARTS



OPTIONAL PARTS TABLE

OPTIONAL PARTS			
ITEM #	PART #	DESCRIPTION	QTY
		DIRECTIONAL SIGNALS	
	71-141-61	Kit, Directional Signals, Standard Cowl and Steel Cab	1
1	75-141-20	Turn Signal Switch	1
2	76-352-00	Flasher Receptacle	1
3	71-900-05	Flasher, 12V	1
4	72-082-10	Turn Signal Bulb, 12V	2
5	72-082-20	Socket, Turn Signal	2
		STROBE LIGHT COMPONENTS	
6	72-023-20	Strobe Light Amber	1
7	72-023-30	Pole Mount	1
8	88-025-06	Screw, #8-32 X 1/2" Phillips Head	3
9	88-028-62	Lockwasher, #8	3
10	88-029-80	Nut, #8-32	3
11	88-065-08	Screw, 1/4 NC X 5/8 Phllips Head	4
12	88-065-62	Lockwasher, 1/4"	4
13	88-069-83	Acorn Nut, 1/4 NC	4
	71-039-11	Contura Toggle Switch (Not Shown)	1
	75-152-08	Harness, Strobe on Pole (Not Shown)	1

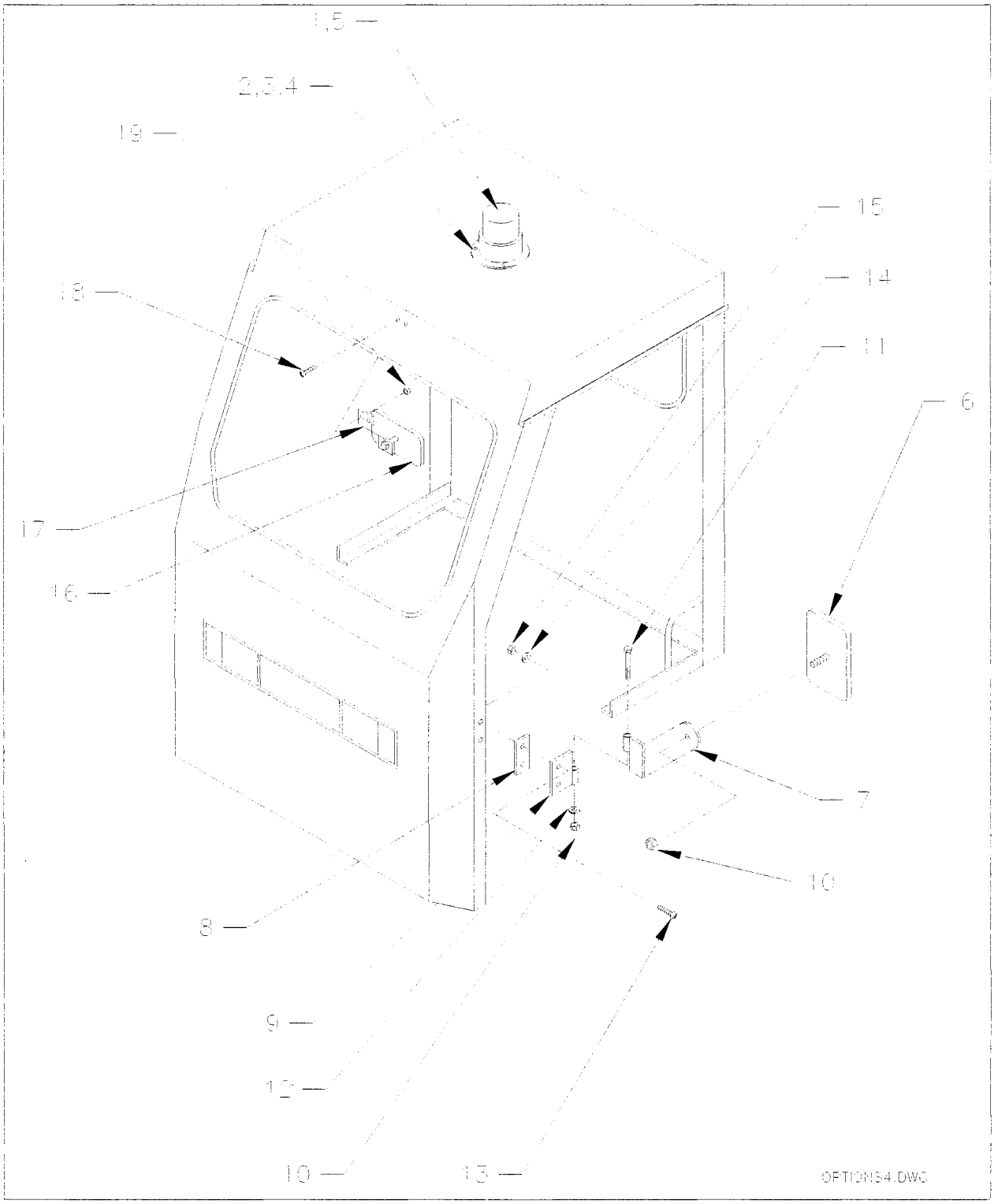
OPTIONAL PARTS



OPTIONAL PARTS TABLE

OPTIONAL PARTS TABLE			
ITEM #	PART #	DESCRIPTION	QTY
		COWL W/WINDSHIELD	
	91-013-64	Kit, Windshield, Orange (Requires Fiberglass or Surrey Top Cover)	1
	91-013-65	Kit, Windshield, Specify Color (Requires Fiberglass or Surrey Top Cover)	1
1	91-010-77	Cowl w/Windshield (unpainted)	1
2	90-852-30	Windshield	1
3	98-310-00	Window Channel, Rubber	12 ft.
4	88-102-15	Bolt 3/8 NC X 1-3/4" Carriage	4
5	88-108-60	Washer, 3/8"	4
6	88-109-87	Nut, 3/8" NC Keps	4
7	96-124-00	U-Bolt 1/4 NC X 1-3/4"	1
8	88-069-83	Acorn Nut, 1/4 NC	2
		CAB	
	91-012-62	Kit, Cab, Orange	1
	91-012-63	Kit, Cab, Specify Color	1
9	91-012-00	Cab (unpainted)	1
10	90-852-30	Windshield	1
11	98-310-00	Window Channel, Rubber	20 ft.
12	90-850-10	Rear Window	1
13	88-102-15	Bolt, 3/8 NC X 1-3/4" Carriage	4
14	88-108-60	Washer, 3/8"	4
15	88-109-87	Nut, 3/8 NC Keps	4
		WINDSHIELD WIPERS	
16	74-050-00	Windshield Wiper Motor	1
17	74-051-00	Arm, Windshield	1
18	74-052-00	Blade, Windshield Wiper	1
19	88-065-11	Screw, 1/4 NC X 1" Phillips Truss Head	1
20	88-068-61	Washer, 1/4" SAE	2
21	88-069-83	Acorn Nut, 1/4 NC	1
22	98-603-00	Grommet, 3/8" ID	1
23	98-618-00	Grommet, 3/4" ID	1
	75-152-09	Harness, Wiper and Light	1
	71-039-11	Switch Contura, Wiper (located in accessory slot on instrument)	1

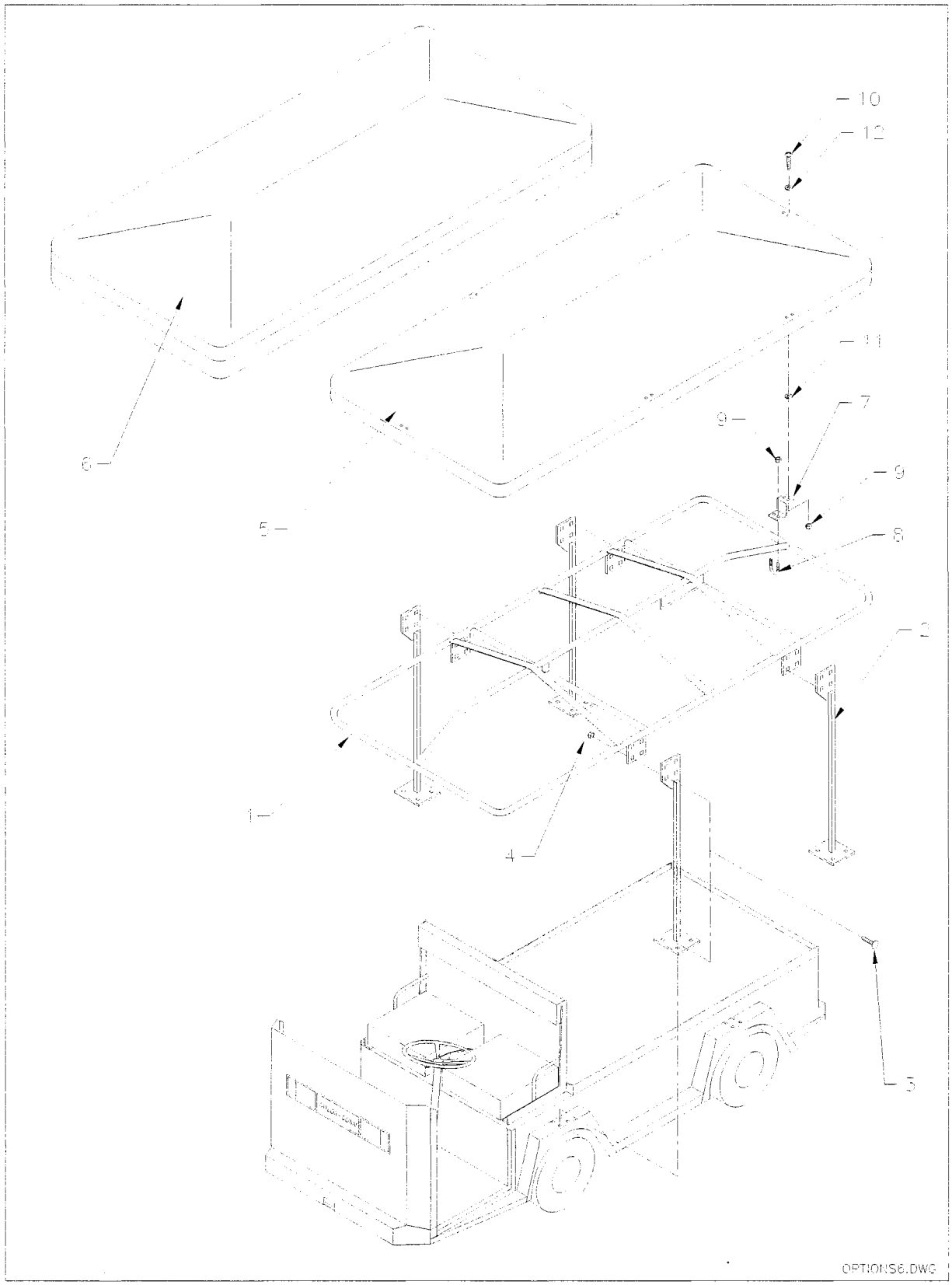
OPTIONAL PARTS



OPTIONAL PARTS TABLE

OPTIONAL PARTS			
ITEM #	PART #	DESCRIPTION	QTY.
STROBE LIGHT ON STEEL CAB			
1	72-023-20	Strobe, Light, Amber	1
2	88-025-06	Screw, #8-32 X 1/2" Truss Head	3
3	88-028-62	Lockwasher, #8	3
4	88-029-80	Nut, #8-32	3
5	98-603-00	Grommet, 3/8" ID	1
	75-152-10	Wiring Harness (Not Shown)	1
	71-039-11	Contura Toggle Switch (Not Shown)	1
MIRRORS, COWL, CAB, OR DOOR MOUNTED			
6	92-201-00	Mirror, 4-1/2" X 8-1/2"	1
7	92-202-12	Mirror Mounting Bracket, Left	1
7a	92-202-13	Mirror Mounting Bracket, Right	1
8	92-202-15	Spacer, Mirror Bracket	1
9	91-814-16	Hinge, Female, Left	1
9a	91-814-17	Hinge, Female, Right	1
10	88-069-81	Locknut, 1/4 NC	2
11	88-060-22	Bolt, 1/4NC X 3/4" Hex Head	1
12	88-068-61	Washer, 1/4" SAE	1
13	88-065-09	Screw, 1/4NC X 3/4" Phillips Truss Head	2
14	88-068-62	Lockwasher, 1/4"	2
15	88-069-83	Acorn Nut, 1/4" NC	2
MIRROR INSIDE CAB			
16	92-206-00	Mirror, Inside	1
17	02-210-70	Bracket, Inside Mirror	1
18	88-065-09	Screw, 1/4NC X 3/4" Phillips Truss Head	2
19	88-069-81	Locknut, 1/4" NC	2
MIRROR, WINKS, INSIDE CAB			
	91-810-00	Door Hinge (Not Shown)	2
	92-207-00	Mirror, 5 Panel (Not Shown)	1
DOME LIGHT			
	72-015-00	Dome Light	1
	75-105-25	Wiring Harness	1
FIBERGLASS CAB BUMPER			
	02-248-88	Bumper Bolt-on (Not Shown)	1
	88-102-13	3/8 NC X 1-1/4" Carriage Bolt (Not Shown)	6
	88-109-87	3/8" NC Keps Nut (Not Shown)	6
	88-108-60	3/8" Cut Washer (Not Shown)	6
	16-206-00	Spacer Bumper/Wheel (Not Shown)	2

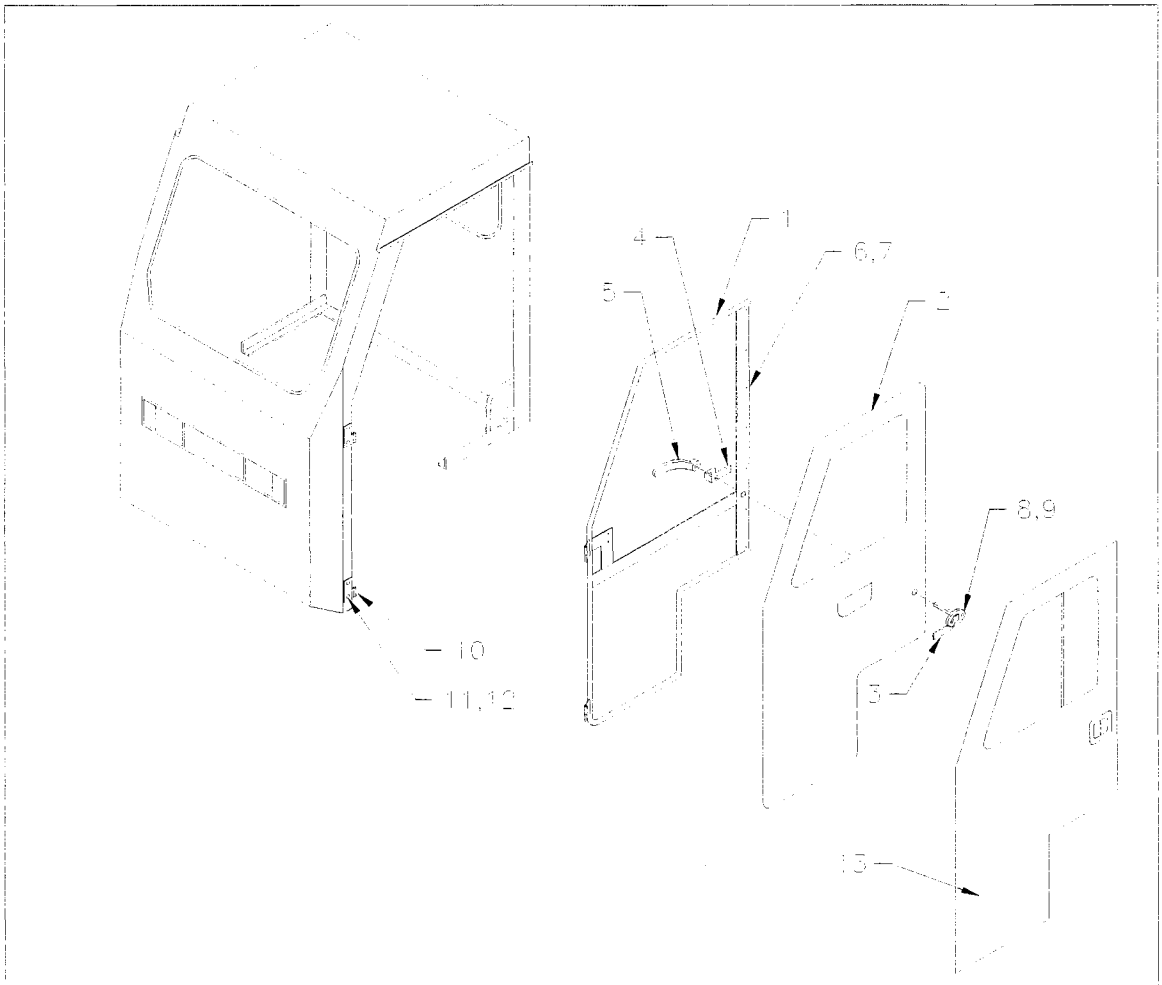
TOP COVER OPTION PARTS



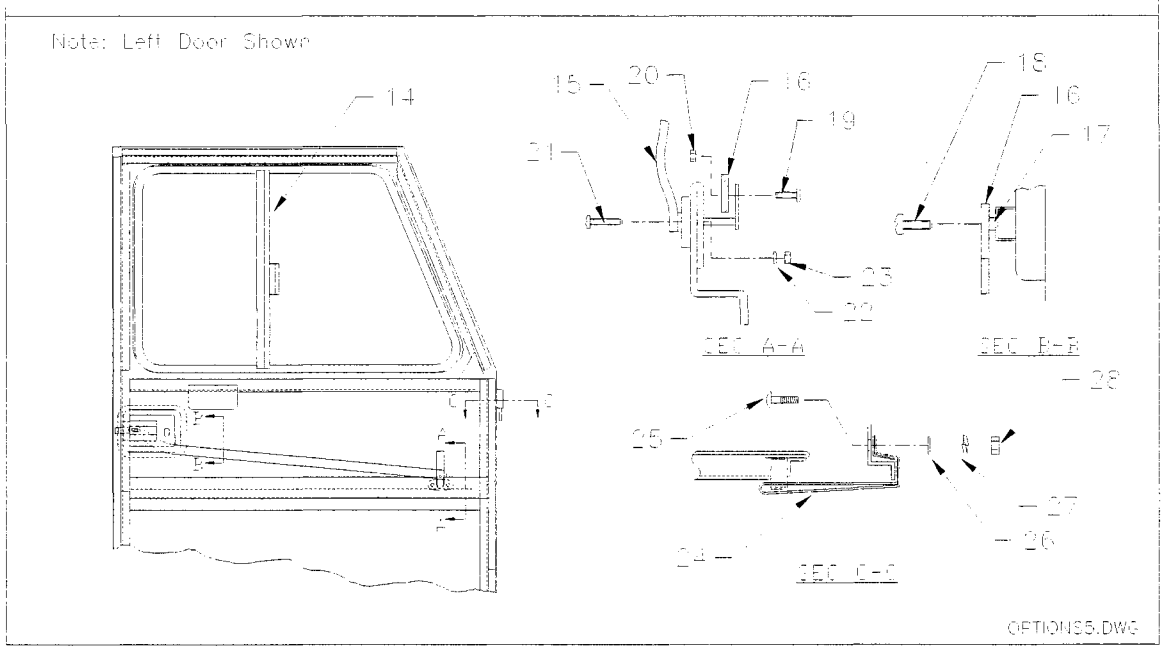
TOP COVER OPTION PARTS TABLE

OPTIONAL PARTS TABLE			
ITEM #	PART #	DESCRIPTION	QTY.
SURREY TOP COVER			
1	00-248-36	Tubular Top Frame	1
2	00-248-35	Post, Top Frame	4
3	88-102-11	Bolt, 3/8 NC X 1" Carriage	32
4	88-109-81	Locknut, 3/8 NC	32
6	91-101-00	Surrey Top, White	1
FIBERGLASS TOP COVER			
1	00-248-36	Tubular Top Frame	1
2	00-248-35	Post, Top Frame	4
3	88-102-11	Bolt, 3/8 NC X 1" Carriage	32
4	88-109-81	Locknut, 3/8 NC	32
5	91-151-00	Fiberglass Top, White	1
7	91-028-25	Z-Bracket	6
8	96-124-00	U-Bolt, 1/4 X 1-3/4"	6
9	88-069-81	Locknut, 1/4" NC	24
10	88-065-09	Screw, 1/4 NC X 3/4" Phillips Truss Head	12
11	97-176-00	Washer, Neoprene	12
12	88-068-60	Washer, 1/4 Cut	12

DOOR OPTIONS



Note: Left Door Shown

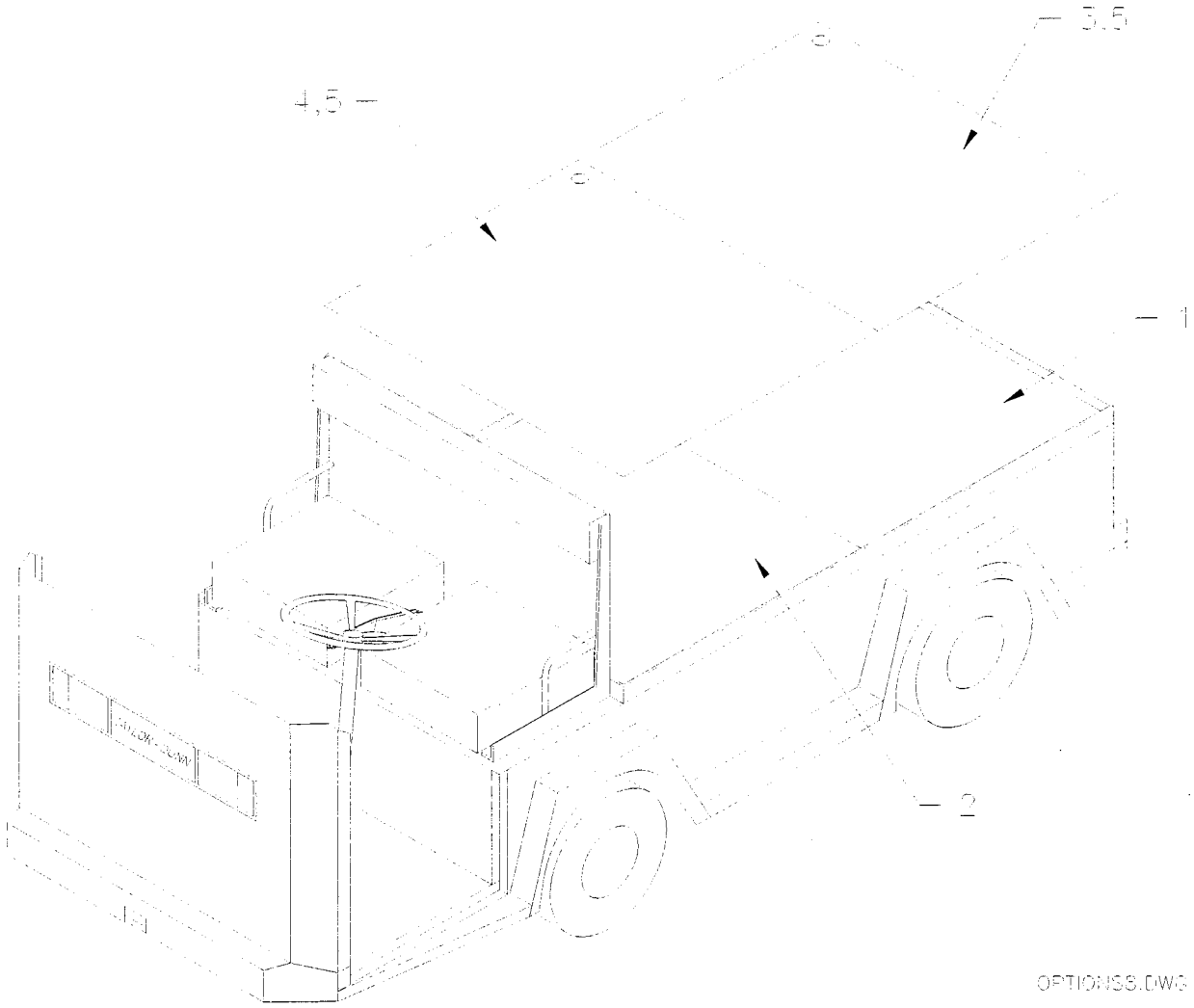


DOOR OPTION PARTS TABLE

OPTIONAL PARTS TABLE			
ITEM #	PART #	DESCRIPTION	QTY.
		CAB DOORS NAUGAHYDE	
	90-924-60	Kit, Naugahyde Door, Left	1
	90-924-61	Kit, Naugahyde Door, Right	1
1	90-923-98	Door Frame, Left	1
**	90-923-99	Door Frame, Right	1
2	90-924-98	Side Curtain, Left	1
**	90-924-99	Side Curtain Right	1
3	97-315-53	Handle Assembly, Outer	1*
4	97-315-51	Door Latch	1*
5	97-315-54	Handle Assembly Inside	1*
6	97-303-03	Snap Fastner	7*
7	88-727-06	Rivet, 5/32 X 5/8"	7*
8	88-025-08	Locknut, #8-32	2*
9	88-029-86	Screw, #8-32 X 5/8 Truss Head	2*
10	91-814-10	Hinge, Female, Left	2
**	91-814-11	Hinge, Female, Right	2
11	88-082-09	Bolt, 5/16 X 5/8 Carriage	4*
12	88-089-81	Locknut, 5/16 NC	4*
		CAB DOORS METAL	
13	91-011-66	Kit, Cab Door, Left, Specify Color (includes #10, 11,12)	1
13	91-011-68	Kit, Cab Door, Left, Orange (includes #10, 11,12)	1
**	91-011-67	Kit, Cab Door, Right, Specify Color (includes #10, 11,12)	1
**	91-011-69	Kit, Cab Door, Right, Specify Color (includes #10, 11,12)	1
14	90-853-10	Window, Left	1
**	90-853-11	Window, Right	1
15	97-315-58	Door Handle, Inner	1*
16	91-012-12	Connecting Bar	1*
17	16-510-00	Spacer	1*
18	88-065-06	Screw, 1/4 NC X 1/2" Phillips Truss Head	1*
19	88-045-08	Screw, #10-32 X 5/8" Truss Head	1*
20	88-049-86	Locknut, #10-32	1*
21	88-045-11	Screw, #10-32 X 1" Truss Head	2*
22	88-048-62	Lock Washer, #10	2*
23	88-049-80	Nut, #10-32	2*
24	91-012-45	Strap, Door Restraint	1*
25	88-082-11	Bolt, 5/16 NC X 1" Carriagee	1*
26	88-088-60	Washer, 5/16 Cut	1*
27	88-088-62	Lock Washer, 5/16"	1*
28	88-088-83	Acorn Nut, 5/16" NC	1*
29	91-011-31	Door Weldment, Left (unpainted)	1
**	91-011-32	Door Weldment, Right (unpainted)	1

* Quantities are for one door only
** Not Shown

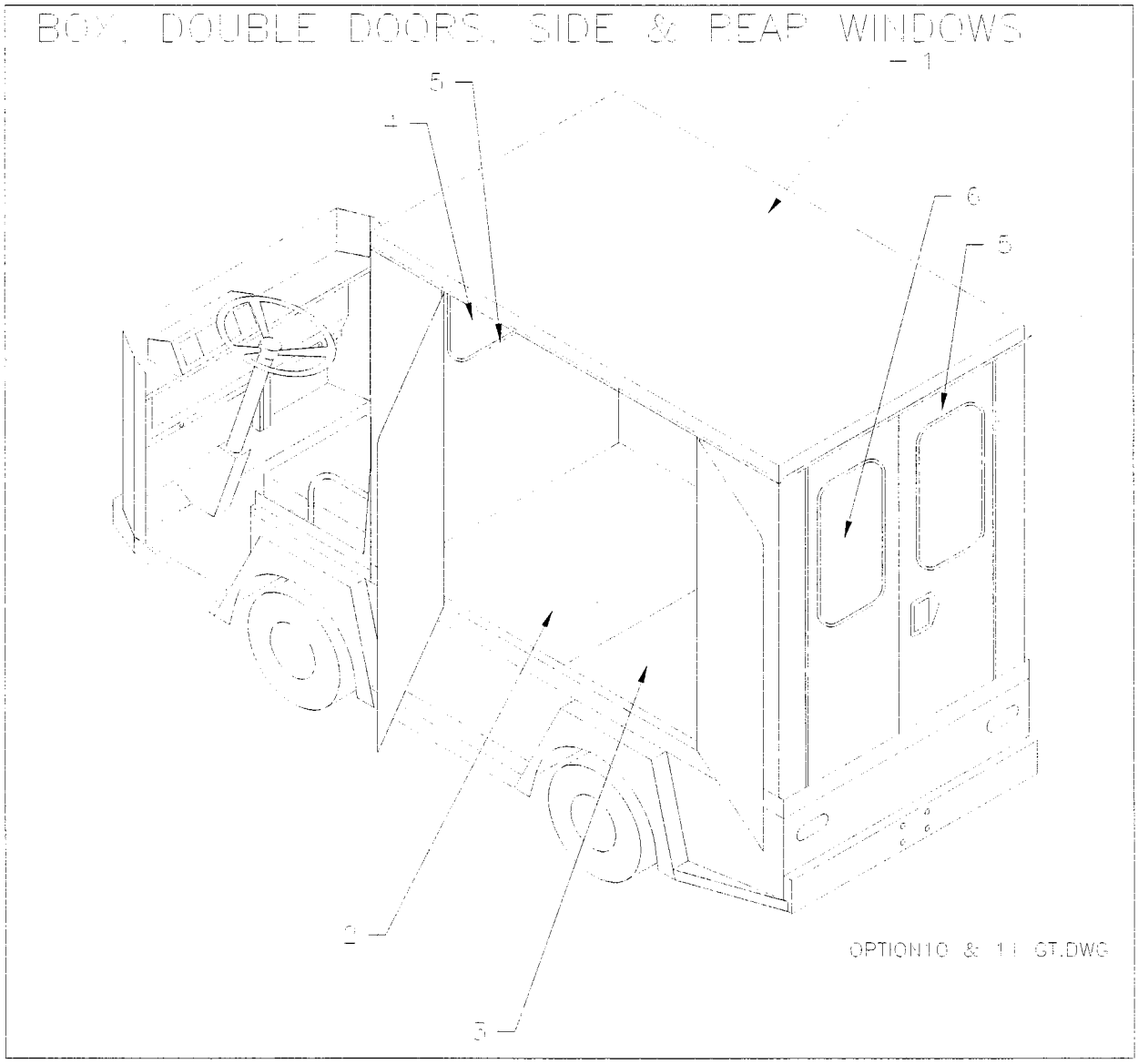
DECKBOARD OPTIONS



DECKBOARD OPTION PARTS TABLE

DECK BOARD TABLE			
ITEM #	PART #	DESCRIPTION	QTY.
DECK COVER, DIAMOND PLATE 2 PC., STD. BED			
	90-440-45	Kit, Diamond Cover, Std Bed, Black (does not include 1 and 2)	1
1	90-444-20	Deckboard, 41 X 38-1/2 X 5/8"	1
2	90-444-30	Deckboard, 41 X 36-5/8 X 5/8"	1
3	90-440-46	Deck Cover, Diamond Plate, Rear	1
4	90-440-47	Deck Cover, Diamond Plate, Front	1
5	88-607-09	Rivet, 1/4 X 1/2 Starpin	16
	00-210-23	Deck Support (Not Shown)	1
	88-065-08	Screw, 1/4 NC X 5/8 " Phillips Truss Head (Not Shown)	3
	88-069-87	Nut, 1/4 NC Keps (Not Shown)	3

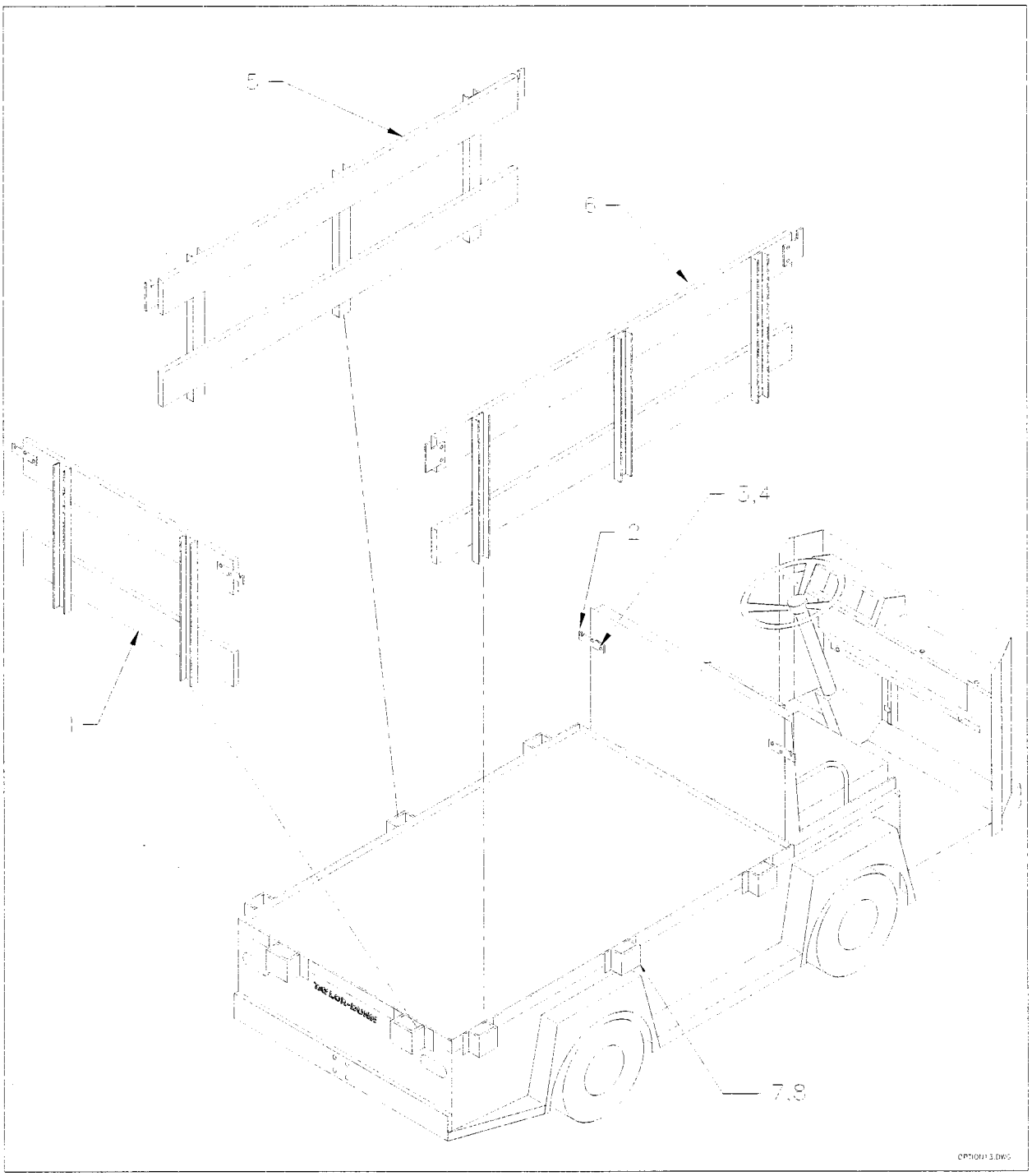
BOX WITH DOORS OPTIONS



BOX WITH DOORS OPTION PARTS AND WATERING SYSTEM OPTION PARTS TABLE

BOX, DOUBLE DOORS, SIDE & REAR WINDOWS			
ITEM #	PART #	DESCRIPTION	QTY.
	91-333-60	Kit, Box, Doors Left & Rear, W/Glass, Orange	1
	91-333-61	Kit, Box, Doors Left & Rear, W/Glass, Specify Colors	1
1	91-333-02	Box, Doors Left & Rear, Glass Front & Rear (unpainted)	1
2	90-471-00	Deckboard, Front, 40 X 35-1/2"	1
3	90-472-00	Deckboard, Rear, 40 X 38-3/4"	1
4	90-850-10	Window, 13-7/8 X 31-7/8"	1
5	98-310-00	Window Channel Rubber	19
6	90-851-00	Window, Rear, 12 X 18	2
	88-100-11	Bolt, 3/8 NC X 1" Hex Head (Not Shown)	2
	88-109-87	Nut, 3/8" NC (Not Shown)	2
	88-065-09	Screw, 1/4NC X 3/4" Phillips Truss Head (Not Shown)	21
	88-069-87	Nut, 1/4 NC Keps (Not Shown)	21
	94-320-10	Decal, Load Line Cargo Box (Not Shown)	1
WATERING SYSTEM 48 VOLT (NOT SHOWN)			
	77-201-60	Kit, Watering System 48 Volt	1
	77-201-40	Flow Indicator, Watering System	1
	77-201-41	Filler, Watering System	24
	77-201-42	Battery Cap, Watering System	1
	77-201-43	Tubing, Watering System	1
	77-201-44	Receptacle, Quick Connect	1
	77-201-45	Plug, Quick Connect	1
	77-201-46	Tee, Reducer, Watering System	1
	77-201-47	Tee, 0.25 Tubing, Watering System	1
	77-201-48	Elbow, 0.25 Tubing, Watering System	1
	77-201-62	Tank, Watering System (Without Platform)	1
	77-201-64	Tank, Watering System, (With Platform)	

STAKE SIDE OPTIONS



STAKE SIDE OPTION TABLE

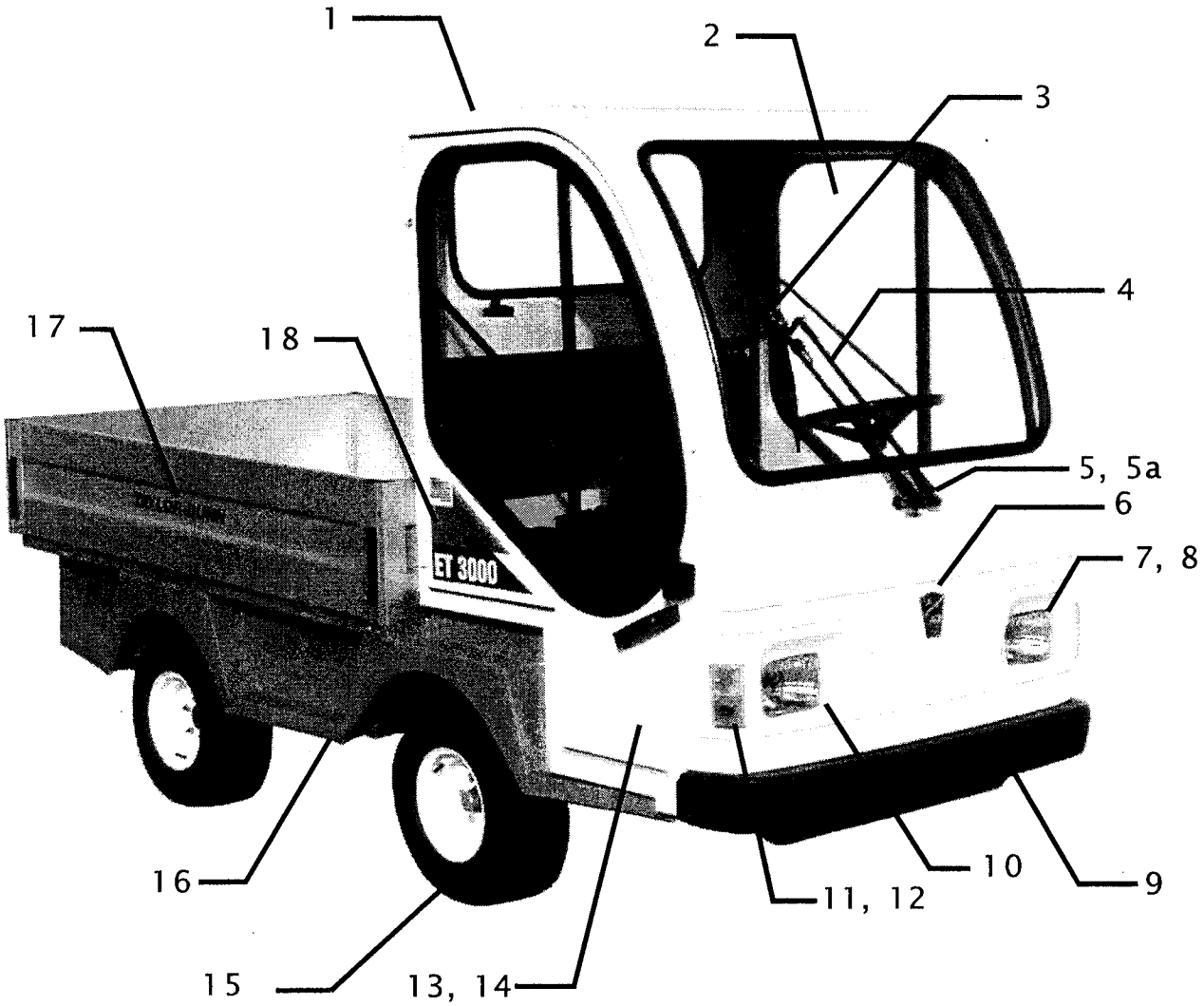
STAKE SIDES TABLE			
ITEM #	PART #	DESCRIPTION	QTY.
1	90-542-01	End Gate, Black	1
2	90-540-00	Gate Hook	2
3	88-065-13	Screw, 1/4 NC X 1-1/4" Phillips Truss Head	4
4	88-069-87	Nut, 1/4 NC Keps	4
5	90-542-05	Side Gate, Left Black	1
6	90-542-06	Side Gate, Right Black	1
7	90-544-20	Pocket, Outer, Weld on	8
8	90-544-21	Pocket, Inner, Weld on	8
STAKE SIDE KITS			
	90-545-61	Kit, Stake Sides, 2 Passenger, Std. Bed	1
	90-545-62	Kit, Stake Sides, 4 Passenger	1


TAYLOR TRUCK

SECTION 5B

Illustrated Parts List
ET 3000

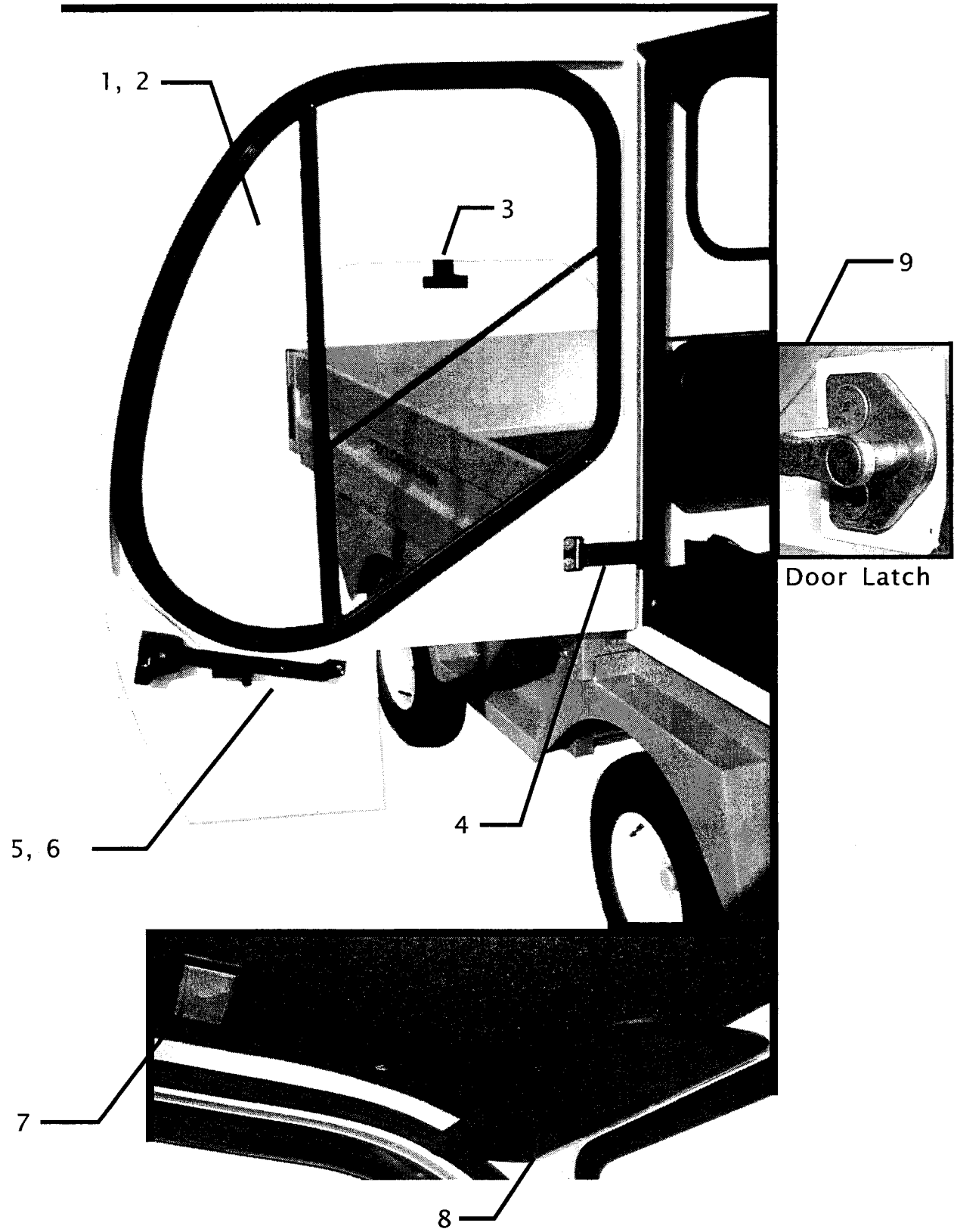
STANDARD PARTS



STANDARD PARTS TABLE

STANDARD PARTS ET 3000			
ITEM #	PART #	DESCRIPTION	QTY
1	91-017-60	ET 3000 Cab STD.	1
2	90-852-50	Windshield	1
3	74-015-16	Windshield Wiper Blade	1
4	74-015-15	Windshield Wiper Arm (Includes Hose)	1
5	74-015-11	Windshield Wiper, Plate Support	1
5a	74-015-10	Windshield Wiper Motor (Not Shown)	1
	74-015-00	Windshield Wiper Tank	1
6	94-201-00	Taylor-Dunn Emblem	1
7	72-005-20	Headlight,Left	1
8	72-005-25	Headlight, Right	1
9	91-017-65	Front Bumper	1
	88-103-09	Screw, Socket Head, 3/8 X 3/4" (Front Bumper Hardware)	2
	88-109-81	Locknut, 3/8" (Front Bumper Hardware)	2
10	72-005-21	Headlight, Support	1
11	72-052-00	Turn Signal Lens, Right	1
12	72-052-10	Turn Signal Lens, Left	1
13	91-017-51	Door Left	1
14	91-017-52	Door Right	1
TIRE/WHEEL ASSEMBLY			
15	13-746-14	20.5 X 8 X 10 Load Range E	4
TIRE WHEEL COMPONENTS			
15	97-236-00	Lug Nut (Not Shown)	20
15	13-989-00	Valve Stem (Not Shown)	1
15	94-423-20	Tire Treatment, Sealant (Not Shown)	1
16	B4-005-29	ET 3000 Frame	1
17	94-301-09	Decal, "TAYLOR-DUNN"	2
18	94-301-98 94-301-99	Decal, Two Tone, ET3000, Left Decal, Two Tone, ET3000, Right	1 1

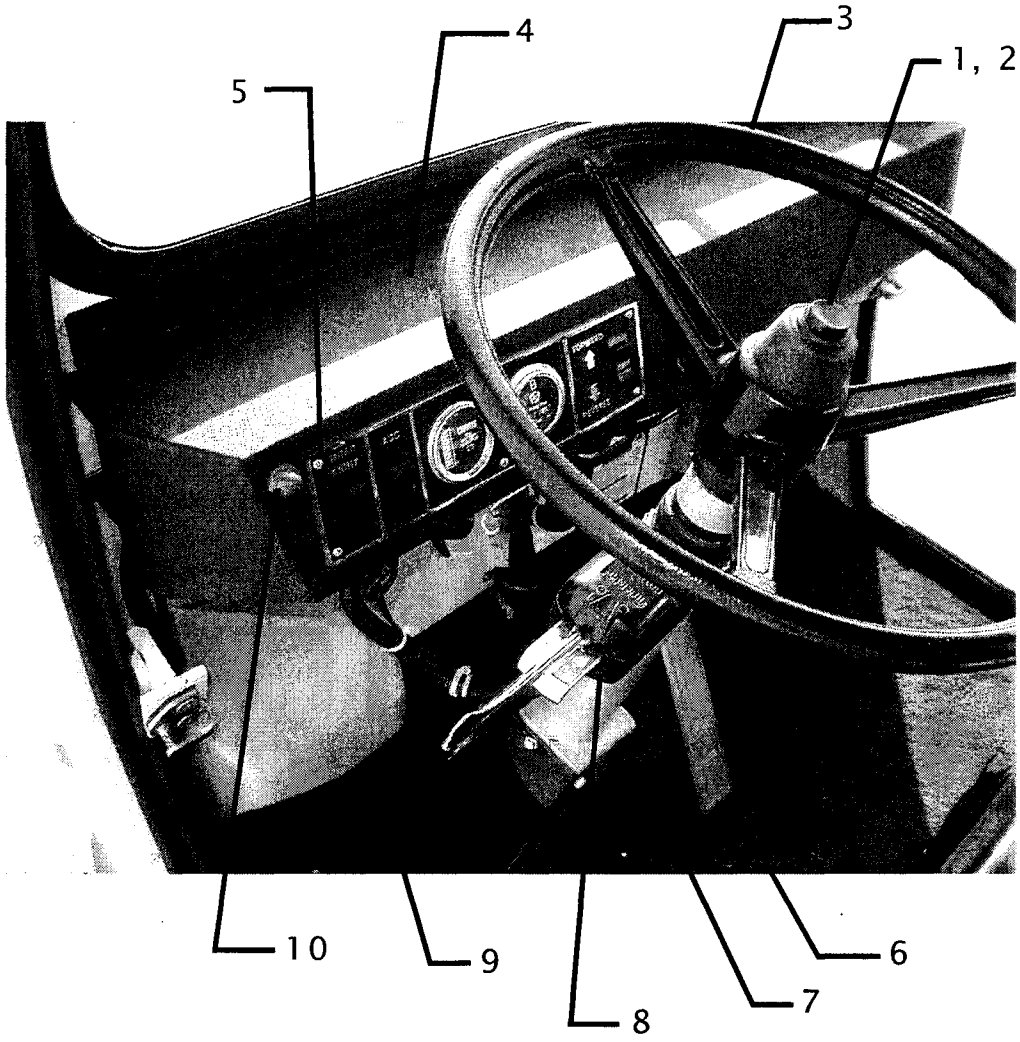
STANDARD PARTS

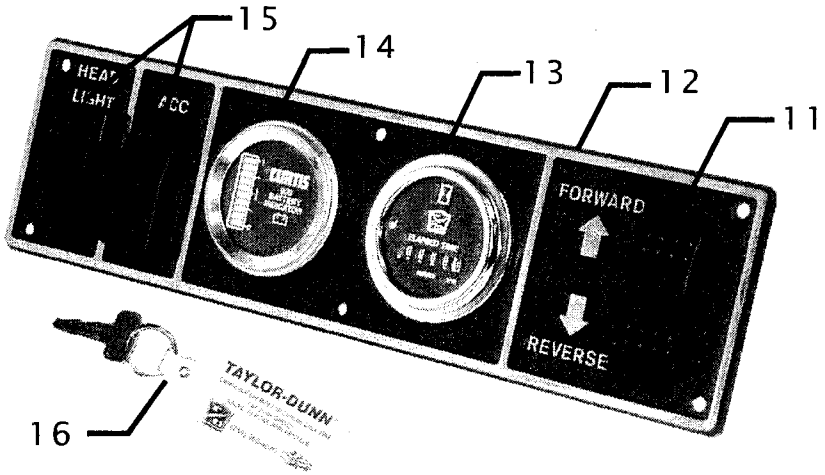


STANDARD PARTS TABLE

STANDARD PARTS			
ITEM #	PART #	DESCRIPTION	QTY
1	90-854-10	Window, Door, Left, 3 Pieces	1
2	90-854-20	Window, Door, Right, 3 Pieces	1
3	90-854-01	Latch, Window, Door	1
4	91-017-02	Strap, Door, Brackets Included	1
5	91-017-31	Handle, Inside, Door, Left	1
6	91-017-32	Handle, Inside, Door, Right	1
7	72-015-10	Light, Dome, Interior	1
8	91-017-15	Visor	1
9	91-017-01	Door Latch	1
10	91-017-10	Mirror, Rear View (Not Shown)	1

CAB INTERIOR STANDARD PARTS

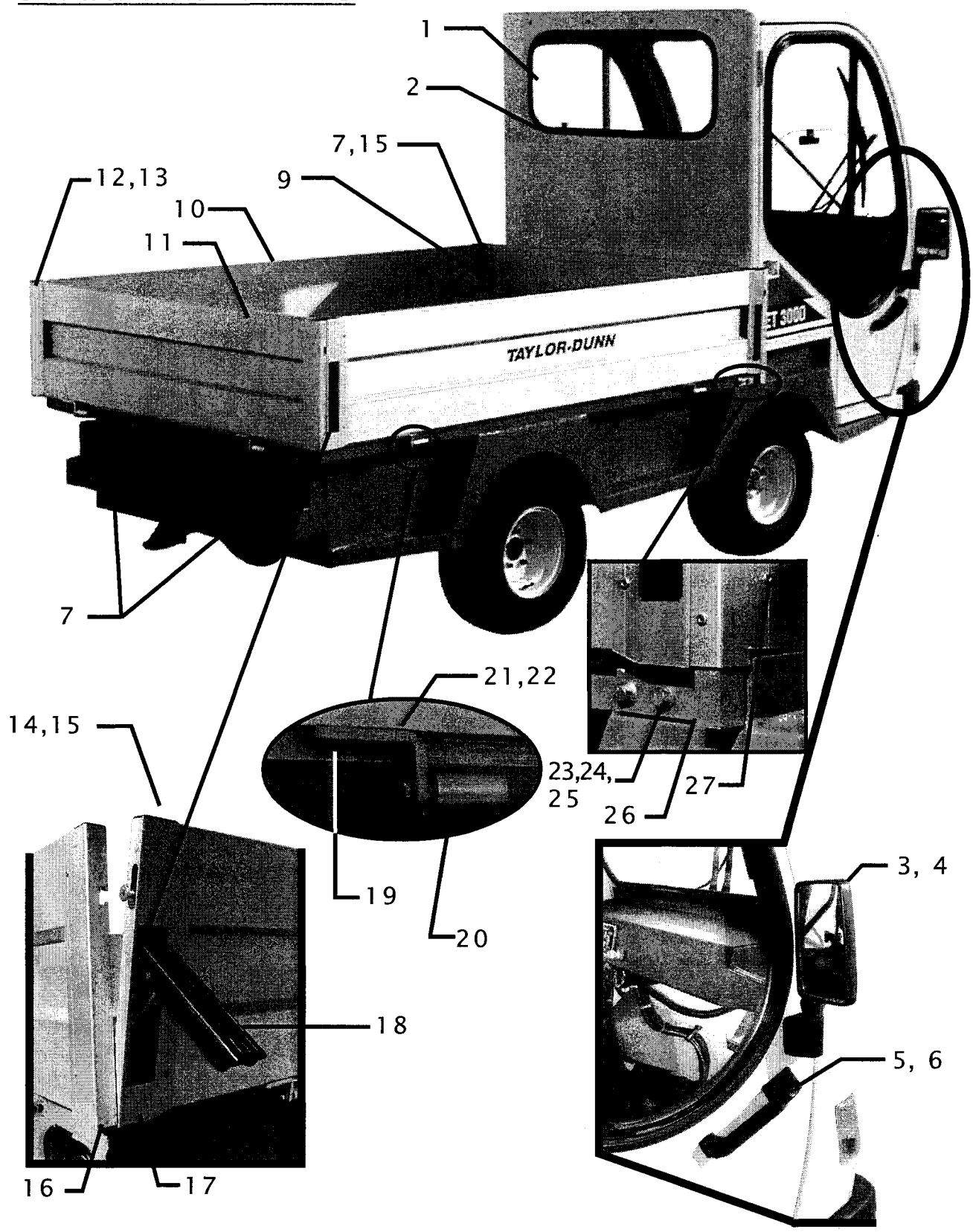




CAB INTERIOR STANDARD PARTS TABLE

CAB INTERIOR STANDARD PARTS			
ITEM #	PART #	DESCRIPTION	QTY
1	71-501-55	Horn Button	1
2	71-501-56	Horn Button Collar	1
2	75-148-64	Harness, Horn 6" Retractable (Not Shown)	1
2	75-442-30	Plug, Molex	1
2	75-442-50	Pin, Molex	2
3	19-011-20	Steering Wheel	1
4	00-201-80	Dash	1
5	88-817-07	Screw, Phillips, Oval Head, #6 Head	6
6		Accelerator Pedal (Typical)	1
7	98-200-00	Brake Pedal Rubber Pad, Taylor-Dunn Logo	1
8	71-141-22	Directional Signal Switch	1
8	71-900-05	Flasher, 12V, 3 Terminal (Not Shown)	1
8	76-352-00	Flasher Receptacle	1
9	30-807-00	Steering Gear Cover	1
	90-199-10	Seat Belts, Black, Set	1
	90-175-06	Seat Cushions, Black	2
	90-140-00	Seat Back, Cushion, Black	1
	88-837-09	Screws, #14 X 3/4", Phillips Head, Sheet Metal	8
DASH COMPONENTS			
	71-303-01	Relay, 12V, 20/30A, Key on Accessories and Running Lights (Not Shown)	2
10	71-102-06 71-102-10	Boot, Switch, Push Button Switch, Push Button	1 1
11	71-039-02	Switch, Forward/Reverse	1
12	94-304-12	Intsrument Panel	1
13	74-000-00	Hour Meter	1
14	74-009-48	Battery Status Indicator	1
15	71-039-11	Switch, On/Off	2
16	71-120-90	Key	1
	71-120-00	Switch, Key, On/Off, Sealed (Not Shown)	1
	71-119-99	Spacer, Key (Not Shown)	1
SEAT SWITCH COMPONENTS (NOT SHOWN)			
	71-102-10	Seat Switch	1
	85-030-00	Seat Switch, Springs	2
	88-527-11	Cotter Pin, 1/8 X 1"	2
	96-772-00	Clevis Pin, 3/8 X 1-1/8	2
	02-610-18	Mount Seat Switch	1

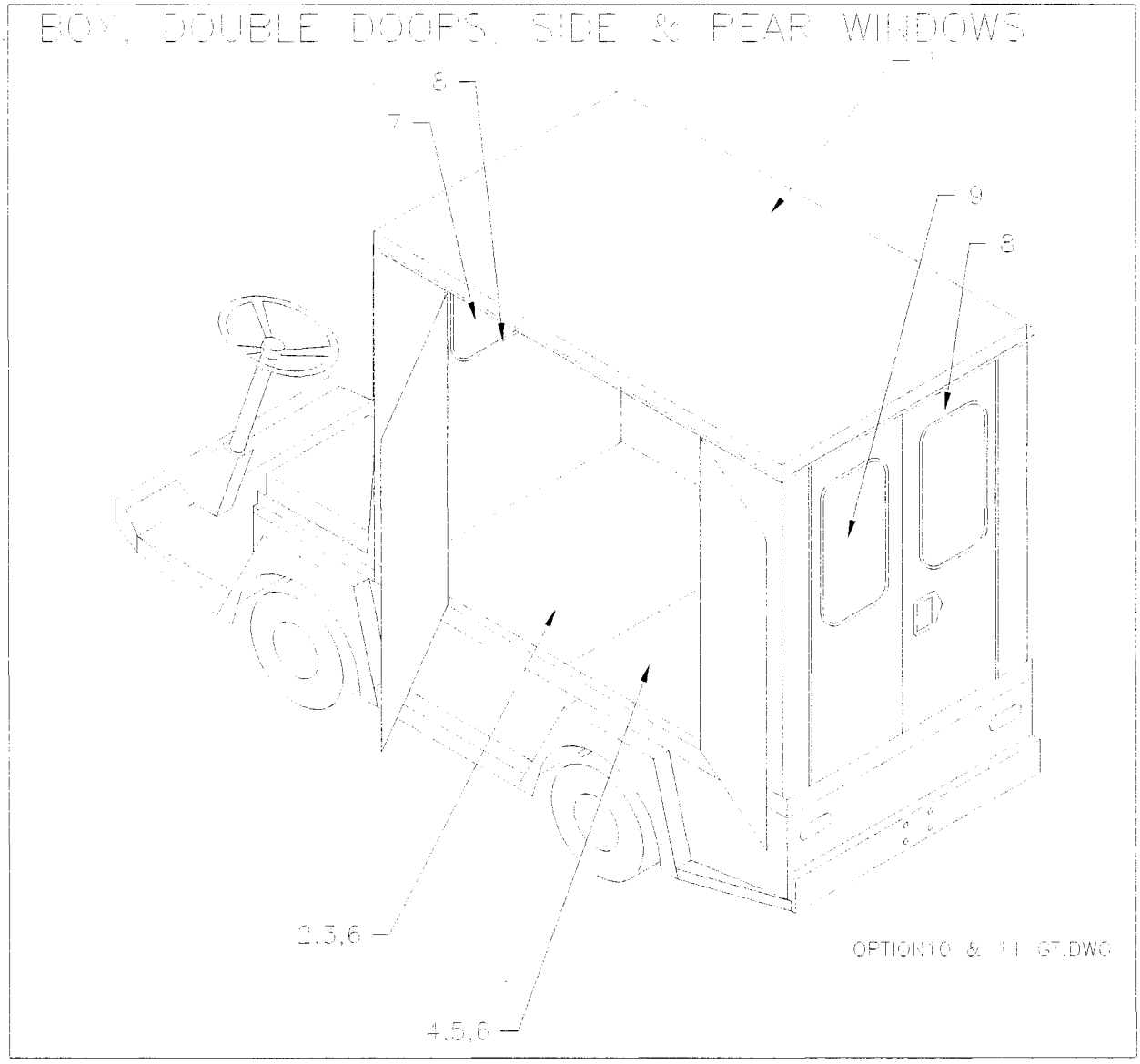
STANDARD PARTS



STANDARD PARTS TABLE

STANDARD PARTS			
ITEM #	PART #	DESCRIPTION	QTY
1	90-854-50	Window, Rear	1
2	98-319-00	Molding, Window, Rear	1
3	91-017-11	Mirror, Door, Left	1
4	91-017-12	Mirror, Door, Right	1
5	91-017-33	Handle, Outside, Door, Left	1
6	91-017-34	Handle, Outside, Door, Right	1
7	72-025-00	Tail and Brake Light (Rubber Seal Included)	2
ALUMINUM SIDE PANELS			
8		Header, Front, Left	1
9	90-556-49	Aluminum Front Panel	1
10	90-556-74	Aluminum Side Panel	2
11	90-556-48	Aluminum Rear Gate	1
12		Header, Rear, Left	1
13		Post, Right, Side Panel	2
14		Cap, 1-1/8 X 1-1/4	4
15		Cap, 1-1/8 X 1-3/4	4
16		Post, Left, Side Panel	2
17		Header, Rear, Right	1
18		Latch	4
19	89-080-16	Bolt, 8mm X 16	12
20		Hinge, Aluminum	6
21		Aluminum T-Hinge	6
22		Plate, Threaded, 8mm	6
23	88-081-11	Bolt, 5/16 X 1NC Hex Head	16
24	88-088-61	Washer, 5/16	28
25	88-089-81	Locknut, 5/16NC	14
26	99-556-07	Support, Forward Panel, Right	1
26	99-556-06	Support, Forward Panel, Left	1
27	88-737-10	Rivet, Aluminum, 3/16 X 1, Bulb Type	37
ALUMINUM SIDE PANEL KIT*			
	90-556-60	Kit, Latch and Hardware (Includes 7,11,12,13,14,15,16,17,19,20,21)	1
*NOTE: The kit does not include the side panels.			
DECK BOARD STANDARD OPTION (NOTSHOWN)			
	88-607-09	Rivet, 1/4 X 1/2, Starpin	16
	90-440-10	Deckboard, 41-1/4 X 56-1/8	1
	90-440-66	Deckboard, Diamond, 41-1/4 X 56-1/8	1
	90-440-67	Deckboard, Diamond, 17-1/2 X 41-1/4	1
	90-440-76	Deckboard, 17-1/2 X 41-1/4	1

BOX WITH DOORS OPTIONS

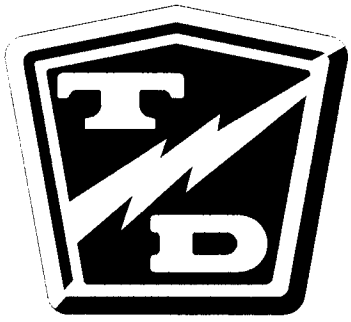


BOX WITH DOORS OPTION PARTS TABLE

BOX, DOUBLE DOORS, SIDE & REAR WINDOWS			
ITEM #	PART #	DESCRIPTION	QTY.
1	90-336-10	Box, Doors Left & Rear, Glass Front & Rear (unpainted)	1
2	90-444-80	Deckboard, Front, 43-3/4 X 55-1/2"	1
3	90-444-78	Deck, Plate, Diamond, 43-3/4 X 55-1/2"	1
4	90-472-00	Deckboard, Rear, 43-3/4 X 19"	1
5	90-444-79	Deck, Plate, Diamond, 43-3/4 X 19"	1
6	88-607-09	Rivet, 1/4 X 1/2, Starpin (Not Shown)	24
7	90-850-10	Window, 13-7/8 X 31-7/8"	1
8	98-310-00	Window Channel Rubber	19
9	90-851-00	Window, Rear, 12 X 18	2
	88-100-09	Bolt, 3/8 NC X 3/4" Hex Head (Not Shown)	6
	88-108-62	Washer, 3/8" (Not Shown)	6
	88-109-81	Nut, 3/8NC (Not Shown)	6
	94-320-10	Decal, Load Line Cargo Box (Not Shown)	1


ET 3000

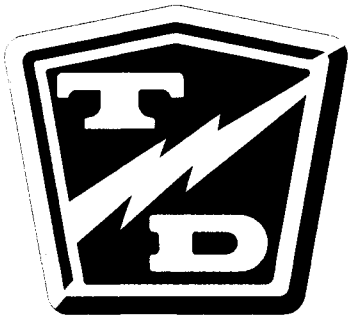
APPENDIX A



Special Tools

DESCRIPTION	PURPOSE	PART NUMBER
Disc Brake Boot Installation Tool	Used to install the rubber boot on all disc brake bodies.	41-350-13
Chain Case Centering Tool	Used to center the chain case on the pinion shaft on all chain drive trucks with the band style brake or the speed sensor on the chain case cover. Includes instructions.	41-532-50
Pinion Seal Installation Tool	Used to install the pinion seal on all chain drive trucks with the band style brake or the speed sensor on the chain case cover.	43-201-50
Test Light	Used for testing electrical circuits. Powered by the truck batteries, switchable for 12, 24, 36, and 48 volts.	62-027-00
Curtis PMC Handheld Programmer	Used to test and program the 62-215-00 PMC speed control used on early model C4-25 Huskey.	62-027-10
GE EV1 Analyzer	Used to test the GE EV1 speed control.	62-027-20
Accelerator Test Harness	Used to test the solid state accellerator module part number series 62-033-XX.	62-027-31
PMC Test Kit	Includes 62-027-00, 62-027-31, and supplementary troubleshooting manual M3-001-06. For controllers equipped with pins labeled KSI and #2 only.	62-027-60
Sevcon Hand Held Calibrator	Used on Sevcon eletronic controller to trouble shoot the controller. The callibrator is view only.	62-027-61
Solder Kit For Field Stud	Used to solder the aluminum field wire to the field stud. For use on motors with soldered connections only.	70-210-63
Pin Removing Tool	Used to remove pins and sockets from AMP connectors.	75-440-55
Pin Removing Tool	Used to remove pins and sockets from MOLEX connectors.	75-442-55
Hydrometer	Used to check the specific gravity of battery electrolyte.	77-200-00
Battery Filler	Used to safely add water to batteries.	77-201-00
Ring Nut Tool GT	Used to adjust the carrier bearing ring nuts in the GT drive only.	96-500-01
Differential Stand GT	Used to hold the GT drive on a stand for ease of repair to a drive.	96-500-02
Carrier Rotation Tool GT	Used to rotate the carrier while setting the gear lash.	96-500-03
Automatic Electric Brake Release Tool	Used to manually release the Electric Brakemomentarily when working on a vehicle.	96-500-04
Secondary Sheave Holder	Used to hold the secondary sheave (pulley) from turning on models R6-80 and B6-10 with the Yamaha drive.	96-500-14
Retaining Plate Depressor	Used to hold down the retaining plate when disassembling the steering gear on trucks equipped with the tilt steering.	96-500-39
Fork Collar Weld Jig	Used when replacing the fork collar on models MX-600 and SS5-36.	96-500-40
Pinion Gear Holding Tool GT	Used to prevent the Pinion Gear from rotating when setting the gear lash.	96-500-42

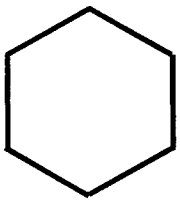
APPENDIX B



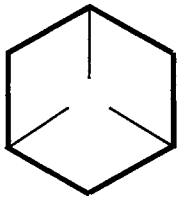
Recommended Torque Values Chart

Diameter and TPI	Grade 2 Tightening Torque (ft-lb)	Grade 5 Tightening Torque (ft-lb)	Grade 8 Tightening Torque (ft-lb)	L'9 Tightening Torque (ft-lb)
1/4-20	4-7	7-10	10-14	11
1/4-28	5-8	8-12	11-16	12
5/16-18	9-14	14-21	20-29	22
3/8-16	16-24	25-37	35-52	25
3/8-24	18-27	28-42	40-59	45
7/16-14	26-38	40-59	56-84	65
7/16-20	29-43	44-66	62-93	70
1/2-13	39-59	60-90	85-128	95
1/2-20	44-66	68-102	96-144	110
9/16-12	56-84	87-131	123-184	140
9/16-18	63-94	97-146	137-206	160
5/8-11	78-117	120-180	170-254	195
5/8-18	88-132	136-204	192-288	225
3/4-10	138-207	213-319	301-451	350
3/4-16	154-231	238-357	336-504	390
7/8-9	222-334	344-515	485-728	565
7/8-14	245-367	379-568	534-802	625
1-8	333-500	515-773	727-1091	850
1-14	373-560	577-866	815-1222	930
1.125-7	472-708	635-953	1030-1545	1700
1.125-12	530-794	713-1069	1156-1733	1850
1.25-7	666-999	896-1344	1454-2180	2950
1.25-12	738-1107	993-1489	1610-2414	3330

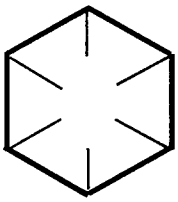
Head Markings



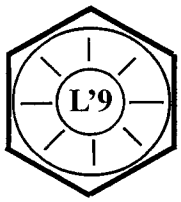
S.A.E. Grade 2



S.A.E. Grade 5

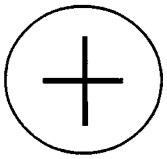


S.A.E. Grade 8

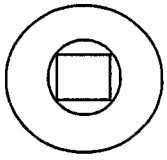


L'9

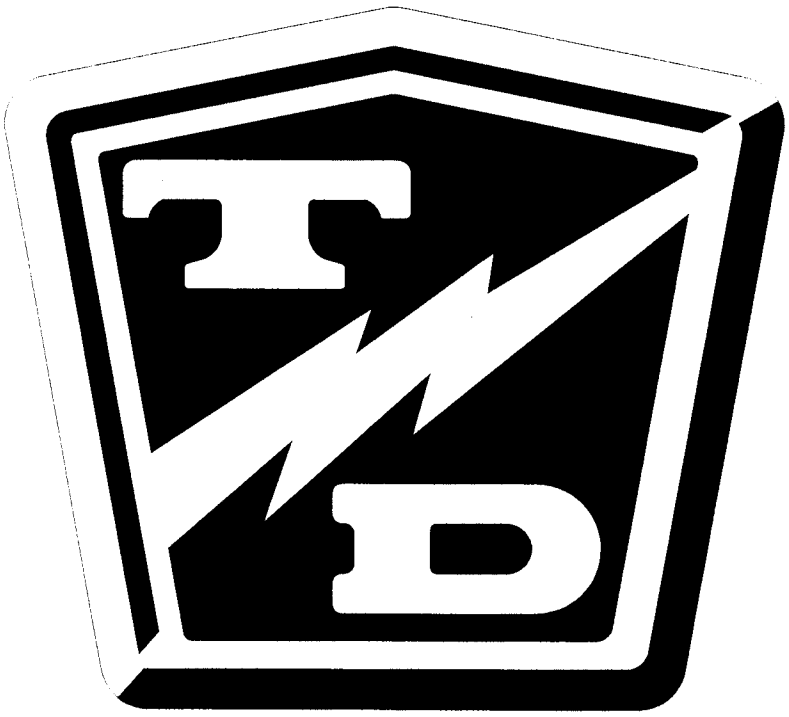
The following bolts are in accordance with Grade 2 torque values



Truss Head
1/4-20



Carriage Bolt
5/16-18 & 3/8-16



Taylor-Dunn® Mfg.
2114 W. Ball Rd.
Anaheim, CA 92804
(800)-688-8680
(714)-956-4040
FAX (714)-956-0504

Mailing Address:
P.O. Box 4240
Anaheim, California 92803

Visit our Website:
www.taylor-dunn.com