TAYLOR-DUNN®

MANUAL MR-680-03

OPERATORS and MAINTENANCE MANUAL

This Manual Covers Serial Numbers: 125712 & up

MODELS:

R6-80

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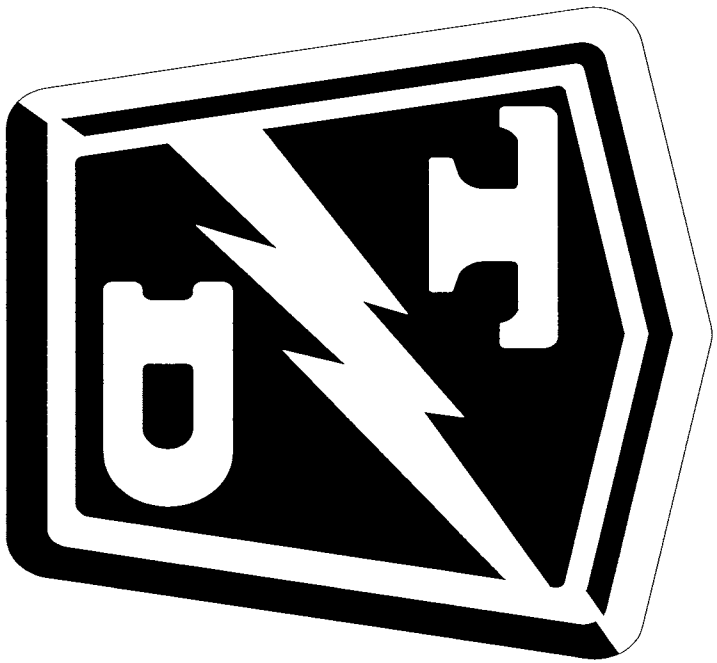

Introduction

Section 1

About This Manual

This manual provides you with information you need to safely operate and maintain this vehicle.

We assume that those who will perform maintenance or repair operations are trained vehicle service technicians capable of performing minor and major repairs and qualified to use the tools required.

We also assume that they have or will attend a training program designed to familiarize them with the safe operation and use of this particular vehicle.

This manual contains the following major sections:

SECTION 1: INTRODUCTION

Contains information about how to use this manual, and a description of the R6-80, how to do an incoming inspection and vehicle specifications.

SECTION 2: VEHICLE OPERATION

Provides safety rules and guidelines describes the driver training program and explains the operation of each control on the R6-80.

SECTION 3: MAINTENANCE PROCEDURES

This section contains a scheduled maintenance checklist, lubrication diagram, troubleshooting guide, and detailed maintenance procedures.

SECTION 4: ILLUSTRATED PARTS

Includes an illustration and parts list for each assembly that are used in this vehicle.

SECTION 5: ILLUSTRATED OPTIONAL PARTS

Includes an illustration and parts list of the most commonly used optional parts on this vehicle.

NOTATIONAL CONVENTIONS

The following types of conventions are used throughout this manual:

⚠WARNING ***A warning alerts you of something that may cause injury to yourself or others. Be sure you exercise special care and follow any instructions provided in a warning message.***

⚠CAUTION *A caution informs you of something that may cause damage to the vehicle. Be sure you exercise special care and follow any instructions provided in a caution message.*

A NOTE PROVIDES ADDITIONAL INFORMATION ABOUT A SUBJECT.

Vehicle Description

This manual applies to vehicles with serial numbers starting at 125712.

The R6-80 is designed to be driven on smooth surfaces in and around industrial plants, nurseries, institutions, motels, mobile home parks, and resorts.

This vehicle is not designed to be driven on public highways or to travel faster than 12mph, whether on a level or downhill surface. Do not exceed this speed. Exceeding this speed may result in steering difficulty, motor damage, and/or loss of control. It is not designed to be towed more than 5 mph.

The vehicle can handle a total payload (incl. cargo, optional equipment, passengers, and driver) of, up to 800 pounds (depending on model and options), ***see Standard Specifications Table on page 1-5.*** The Vehicle Specification Tag will indicate model and capacity. Do not exceed this capacity. Various options are available to enable you to customize the vehicle to suit your particular needs (consult your Taylor-Dunn salesperson or representative for current options).

This vehicle conforms to requirements for Type G 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).

The model and serial number for this vehicle are imprinted on a decal located on the inside of the front cowl,on the passenger side, just under the dash. It is also stamped in a main frame rail directly under the drivers seat cushion.

STANDARD SPECIFICATIONS R6-80

SPECIFICATION TABLE	
ITEM	SPECIFICATION
Standard Dimension	253L X 112W X 115.5 centimeters
	99-1/2"L X 44"W X 45-1/2"H inches
	Bed Size: 34" X 42-1/2" inches
Dry Weight	424.11 kg Including Batteries
	935 lbs. Including Batteries
Turning Radius	284 centimeters
	112 inches
Brakes	6" Rear Drum (Mechanical Standard)
Motor(Engine)	See Engine Specification Table, Below
Tires	5.70 X 8 Load Range B Pnuematic
Tire Pressure	50 psi max.
Maximum Load	800 lbs. (Including Driver and Optional Equipment)
Battery	12 volt

STANDARD R6-80 ENGINE SPECIFICATIONS

R6-80 ENGINE SPECIFICATION TABLE	
ITEM	SPECIFICATION
Power Rating @ 3600 rpm	6.72 kw
	9 hp
Displacement	296.53 cc
	18.06 Cu.in.
Bore	78.42 mm
	3.15 inches
Stroke	57.75 mm
	2.32 inches
Compression Ratio	8.5:2
Oil Type	SAE 30
Oil Capacity	1.2 Liters
	41 oz.
Lubrication System	Splash
Spark Plug	Champion-RC12YC
Spark Plug Gap	.75 mm
	.030 inches
Spark Plug Torque	18.7 Nm
	13.75 ft-lbs.
	165 in-lbs

TAKING DELIVERY OF YOUR VEHICLE

THIS VEHICLE SHOULD BE INSPECTED IMMEDIATELY AFTER DELIVERY. Use the following guidelines to make sure there are no obvious problems.

Inspecting the Vehicle

1. Examine the contents of all packages and accessories that may have come in separate packages with this vehicle.
2. Make sure everything listed on the packing slip is there and that nothing is broken or damaged.
3. Examine any visible wiring for obvious signs of damage and check that all connections are secure.
4. Check that battery connections are tight and all cells are filled.
5. Inspect the tires for obvious wear or damage and check the tire pressure.
6. Make sure that all wheel lugs are secure.
7. Check the body, seats, windshield (optional), trim and other external parts for obvious damage.
8. Operate each of the following controls before turning on the key-switch:

   - Accelerator pedal
   - Brake pedal
   - Forward - reverse selector lever
   - Parking brake
   - Steering wheel
   - Horn
   - Lights

NOTE

EACH CONTROL SHOULD OPERATE SMOOTHLY AND EASILY WITHOUT STICKING OR REQUIRING UNDUE EFFORT.

What To Do If You Find A Problem

If you find a problem with this vehicle, you must immediately file a claim with the carrier. The claim must be filed within 48 hours of receiving this vehicle. Forward a copy of the damage claim to your Taylor-Dunn dealer.

⚠WARNING ***Do not repair modify or adjust any part of this vehicle unless you are authorized to do so. Incorrect repairs may result in injury to yourself and others and cause the invalidation of your warranty.***

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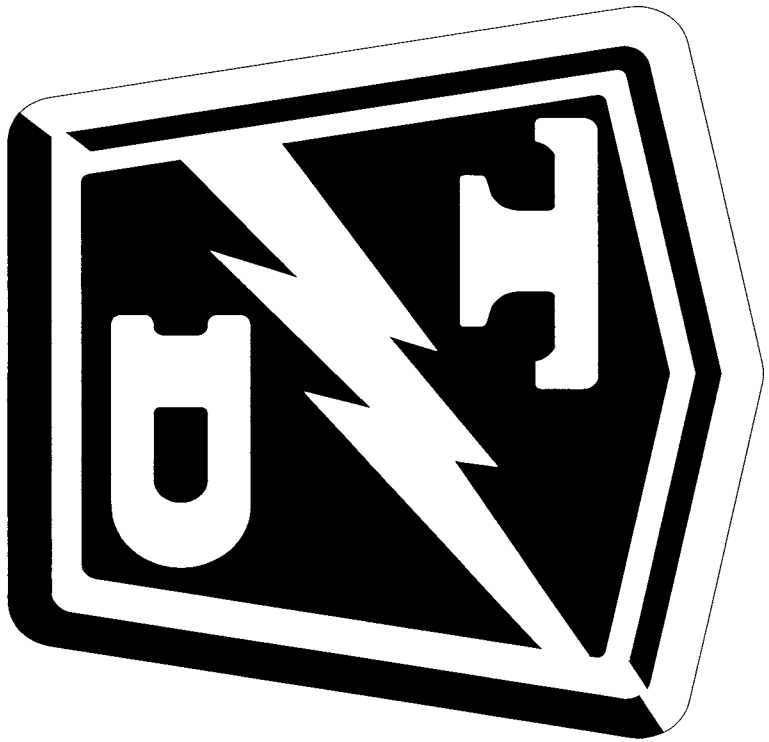

Safety Rules and Operational Information

Safety Rules and Guidelines

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. As well as, obeying the following safety rules and guidelines (extracted from the American National Standards Institute Personnel and Burden Carriers ANSI B56.8).

This vehicle is designed to be driven over smooth surfaces in and around places such as warehouses, nurseries, motels, parks, and resorts. Before you drive this vehicle, please observe the following safety rules and guidelines:

⚠WARNING ***This vehicle is not designed to be driven on public highways. The truck travels on a level surface with no load at a speed of 12 mph. Do not exceed this speed. Exceeding this speed may result in steering difficulty, motor damage, and/or loss of control. It is not designed to be towed more than 5 mph.***

- Do not drive this vehicle unless you are a qualified and trained operator.
- Keep all body parts (head, arms', legs') inside this vehicle while it is moving.
- Drive slowly when making a turn especially if the ground is wet slippery or when driving on an incline.
- This vehicle may overturn easily if turned sharply when driving at high speeds, especially when on an incline.
- Drive only on level surfaces or on surfaces having an incline of no more than 10% (5.6 degrees.).
- Do not drive over loose objects, holes, or bumps.
- Observe all traffic regulations and speed limits (15-mph max.).
- Keep to the right under normal conditions.
- Maintain a safe distance from all objects.
- Keep the vehicle under control at all times.
- Yield right of way to pedestrians, ambulances, fire trucks, or other vehicles in emergencies.
- Do not overtake another vehicle at intersections, blind spots, or other dangerous locations.
- Keep a clear view ahead at all times.

Driver Training Program

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

The Operator Training program shall include the following:

- Operation of this vehicle under circumstances normally associated with your particular environment.
- Emphasis on the safety of cargo and personnel.
- All safety rules contained within this manual.
- Proper operation of all vehicle controls.
- A vehicle operation and driving test.

Driver Qualifications

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.

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.

VEHICLE CONTROLS

The following describes the use of each control on this vehicle. (See Figure 2-1, page 2-6.)

NOTE SOME CONTROLS ARE OPTIONAL EQUIPMENT AND MAY NOT BE INSTALLED ON THIS VEHICLE.

Key-Switch /Starter

The key-switch, located on the right side of the instrument console, enables the vehicle's electrical systems. Rotate the key clockwise to turn the vehicle on, counterclockwise to turn the vehicle off. By turning the key to the on position, the engine will not start as it does in your car. Instead, this simply enables the electrical system and the start switch under the accelerator pedal. This key-switch is not an ignition switch.

This switch is also designed to secure and disable the vehicle. You can remove the key ONLY when the key-switch is in the off position. In addition, the key should be removed when the vehicle is not occupied by a driver.

Seat Interlock Switch

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

NOTE THIS IS AN ADDED SAFETY FEATURE AND SHOULD NEVER BE BY-PASSED.

Forward-Reverse Lever

The forward/reverse shift lever is located between the two front seats and determines the direction of travel (forward or reverse) of the vehicle. Push the lever forward to engage the transmission and travel forward. Push the lever back the engage the transmission and travel in reverse. The shift lever in this vehicle also has a neutral position. The vehicle is in neutral when the lever is positioned in the center. The vehicle should be in the neutral position any time the vehicle is towed.

⚠CAUTION *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. Shift before stepping on the accelerator. Failure to follow these guidelines may result in damage to the transmission.*

Accelerator Pedal

The accelerator pedal is located on the floorboard to the right of the brake pedal. It controls the speed of the vehicle and engages the motor. When the pedal is depressed the engine is started and the vehicle will travel in the direction indicated by the shift lever. When the pedal is released the ignition is off and the engine will stop.

DEPRESS THE PEDAL TO SPEED THE VEHICLE UP. RELEASE THE PEDAL TO SLOW DOWN.

Steering

The steering wheel and steering system is an automotive type. To turn right, turn the steering wheel to the right (clockwise). To turn left, turn the steering wheel to the left (counter clockwise).

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 the same as the brake in an automobile. Applying pressure to the brake pedal slows the vehicle according to the amount of pressure you apply. Removing your foot from the pedal releases the braking action.

Park Brake Lever

The park brake is actuated with a hand lever located between the two front seats. To set the park brake pull the lever back until it locks. To release the park push the lever all the way forward.

⚠CAUTION *Do not operate the vehicle with the parking brake applied. Severe motor/control damage will result.*

Horn Button

The horn button is located in the center of steering wheel. Depress the button to sound the horn, release it to turn it off.

Instrument Panel

The headlight switch is located of the left side of the instrument panel. An accessory switch, if any, is adjacent and to the right of it.

Hour Meter (optional)

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

Oil Level Indicator Light

This indicator is located on the center of the dash panel and will illuminate if the oil level is low.

Power Indicator Light

Located just above the key-switch. This light illuminates once the key-switch is in the on position.

Choke Knob

The choke knob is located between the front seats and beside the forward-reverse shift lever. When starting a cold engine, pull out the choke knob until the engine responds properly. As the engine warms up, push the knob in gradually.

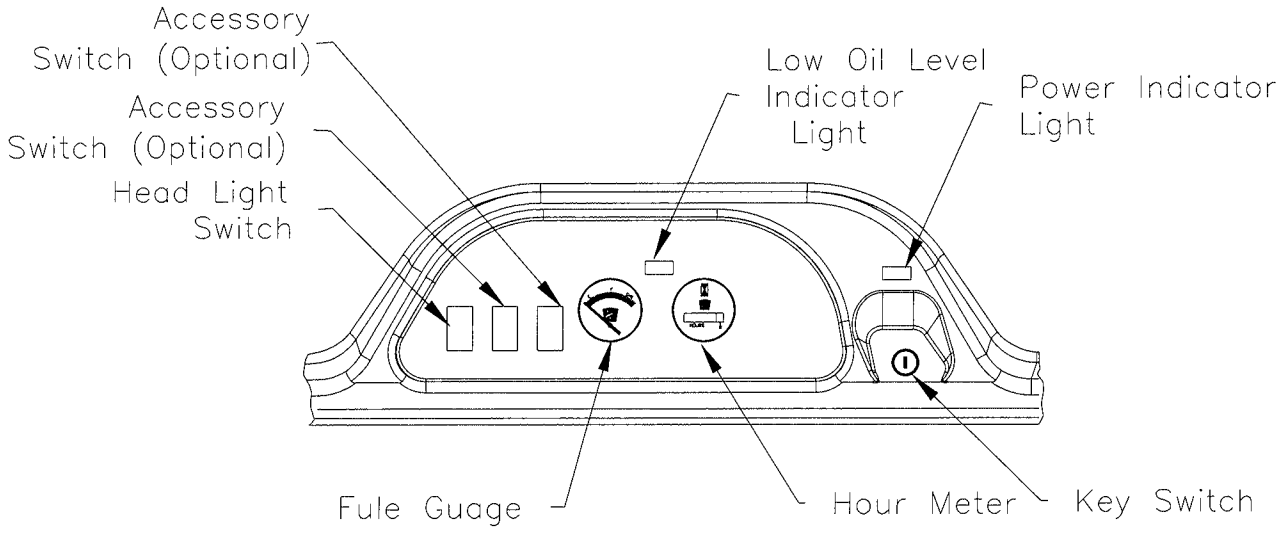

Figure 2-1: Dash Panel with Controls

Driving

While driving this vehicle you should obey all rules of the road as you would in any vehicle. The following items are specific to this type of vehicle and should be discussed and noted during training.

- Slow the vehicle and sound the horn when approaching a corner or other blind intersection.
- No horseplay or dangerous driving.
- Do not drive this vehicle in hazardous areas unless this vehicle is approved and labeled for such operation.
- Immediately report any accident or vehicle problem to your supervisor.

Loading and Unloading

The following items are very important when it comes to the safe operation of this vehicle and others like it. Ignoring any of these items can result in damage to the vehicle as well as injury.

- Do not load cargo that can easily fall off this vehicle.
- Do not exceed the cargo load capacity of this vehicle.
- Do not carry more than the maximum number of passengers allowed for this vehicle.
- Use caution when handling cargo. It is not to be longer, wider, or higher than the cargo area.

Parking

- Set the parking brake and place shift lever in neutral before leaving the vehicle. (See the headings labeled "Park Brake Lever" and "Forward/Reverse Shift Lever," on the previous pages.)
- If you will be away from this vehicle turn off the key-switch, remove the key and take the key with you.
- If you park this vehicle on an incline block the wheels.
- Do not block fire aisles, fire equipment, or stairways.

Towing

Before you tow this vehicle, it should be unloaded of cargo and passengers. Towing this vehicle with cargo and/or passenger is dangerous and can result in damage to the towing vehicle as well as damage or injury to cargo or passengers. Read the following caution and then continue with the steps below to tow this vehicle.

⚠WARNING ***Do not exceed 5 MPH or carry any passengers while towing this vehicle. Towing this vehicle faster than 5 MPH may result in damage to the vehicle or injuries to any passengers.***

1. Inspect the tow strap for any damage. *Do not assume the tow strap is good!*
2. Remove the drive belt from the engine pulleys. *(See "Drive Belt Removal," page 95.)*
3. Attach a tow strap to the front of the frame.
4. With a driver seated in the vehicle to be towed. Start slowly and tow the vehicle to the proper location for maintenance, at a speed not to exceed 5 miles per hour.

   The driver seated in the towed vehicle should be aware of everything that towing vehicle is doing. In other words if the towing vehicle begins a turn slows or stops. So should the vehicle being towed. It is the second drivers' responsibility to steer, stop, and maintain a safe distance between his/her vehicle and the vehicle in front. Being towed does not remove any of the responsibility of operating that vehicle from the driver.

Storing and Returning Batteries to Service

The following steps are to be followed in order to store your vehicle for an extended period.

1. Do not store the battery in a discharged condition. Fill, charge, and clean the battery fully before putting in storage. (See "Battery" page 78 and "Battery Storage," below.)
2. Lube all grease fittings.
3. Spray all exposed metal surfaces, except brake surfaces, with light oil.
4. Clean and dry all exposed electrical connections.
5. Inflate tires to proper pressure and then block them off the ground.
6. If stored for a prolonged period the battery should be charged as follows:

Battery Storage

Just as stated above the battery should not be stored in a discharged condition. These steps relate only to the storage of the battery over an extended period.

Use the table as a guide to maintain the charge of the battery while it is in storage. By not following this guide and allowing the battery to stand in a state of low charge. You are allowing an excessive amount of plate erosion to occur, which in turn will let the electrolyte freeze at higher temperatures. (10 – 15 degrees above zero.) Plate erosion will also effect the battery ability to accept and hold a charge.

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

Returning to Service

In order to return your vehicle to service follow the steps below.

1. Check state of charge of the battery and charge if necessary.
2. Perform **ALL** maintenance checks in the periodic checklist in section.
3. Test drive before putting into normal service.

Starting

As stated earlier in this manual the engine or motor does not start when the key-switch is placed into the on position. In order to start the engine, you must be prepared to travel in a given direction and press down on the accelerator. The motor will then begin to run and will engage the drive once the motor has reached the correct RPM's.

However once the motor starts it is posible for the vehicle to move in the direction indicated by the position of the forward/reverse lever.

It is not recommend that you attempt to idle the engine by pressing the accelerator and holdinmg it at a low rpm, or by placing the forward/reverse lever in neutral. Either of these practices can result in injury and property damagae.

Never run the engine in a closed building or confined area, and avoid inhaling engine fumes. Breathing the exhaust from the engine could result in serious injury.

Before attempting to start this vehicle be sure to read the "Before Starting," check list below and follow the steps in each procedure of "Starting the Engine," exactly when attempting to start the vehicle. ***(Starting the Engine is on page 2-8.)***

Before Starting

- ❒ Check oil level. Add oil if low. Oil Capacity 2.5 pints or 41 oz.
- ❒ Check fuel level. Add fuel if low.
- ❒ Check the air intake areas and external surfaces of the engine.
- ❒ They should be clean and unobstructed.
- ❒ Check that all air cleaner components, shrouds and guards are in place and securely fastened.

Starting the Engine

Engine Cold

1. Rotate the key switch clockwise all the way to the "ON" position.
2. Place the choke control in the 'ON' position, by pulling it out.
3. Select either the forward or reverse gear.
4. Depress the accelerator pedal.
5. Once the engine is started and it begins to warm, up gradually return the choke knob to the OFF position, by pushing it in.

Engine Warm

1. Rotate the key switch clockwise all the way to the "ON" position.
2. Place the choke control in the 'OFF' position, by checking to be sure that it is pressed all the way down.
3. Select either the forward or reverse gear.
4. Depress the accelerator pedal.

If you have, any problems starting this vehicle refer to the Trouble shooting guide located in the back of this manual.

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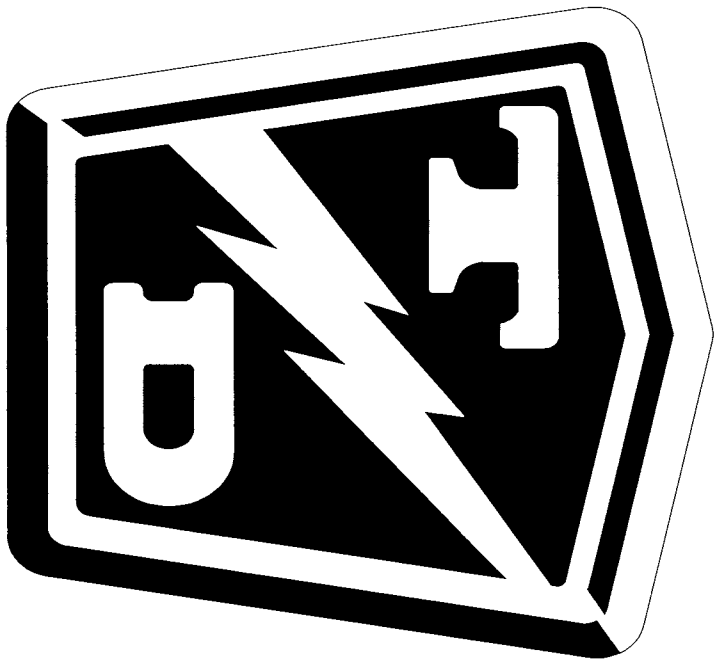


Maintenance and Service Procedures

This section explains how to perform the scheduled maintenance procedures. Use the Maintenance Checklist to determine how often you should perform each procedure. Vehicle maintenance or repairs should only be performed by a qualified mechanic.

This section contains the following:

- Maintenance guidelines.
- Maintenance checklist.
- Lubrication chart.
- Troubleshooting guide.
- Detailed maintenance procedures.

Maintenance Guidelines

- Allow only qualified and authorized personnel to maintain repair adjust and inspect the vehicle.
- Before starting any repairs or maintenance immobilize the vehicle by turning the key switch off, removing the key and setting the park brake.
- Disconnect both of the main battery leads before working on or disconnecting any electrical component or wire.
- Block the chassis with jack stands before working under a raised vehicle.
- Conduct vehicle performance checks in an authorized area where safe clearance exists.
- Before starting the vehicle, follow the recommended safety procedures in Section 2, "Safety Rules and Operational Information."
- Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check level or leakage of battery electrolyte. Do not use open pans of fuel or flammable fluids for cleaning parts.
- Ventilate the work area properly.
- Regularly inspect and maintain in a safe working condition, brakes, steering mechanisms, speed and directional control mechanisms, warning devices, lights, governors, guards and safety devices.
- Inspect and maintain battery limit switches, protective devices, electrical conductors and connections in conformance with Taylor-Dunn's recommended procedures.
- Keep the vehicle in clean condition to minimize fire hazards and facilitate detection of loose or defective parts.

Severe Duty Inspection: If these vehicles are operated in severe conditions all service procedures should be carried out twice as often as stated in the table on the next page. In addition the whole vehicle should be inspected monthly for signs of damage and repaired immediately.

The following list is meant as a guide and is not all inclusive.

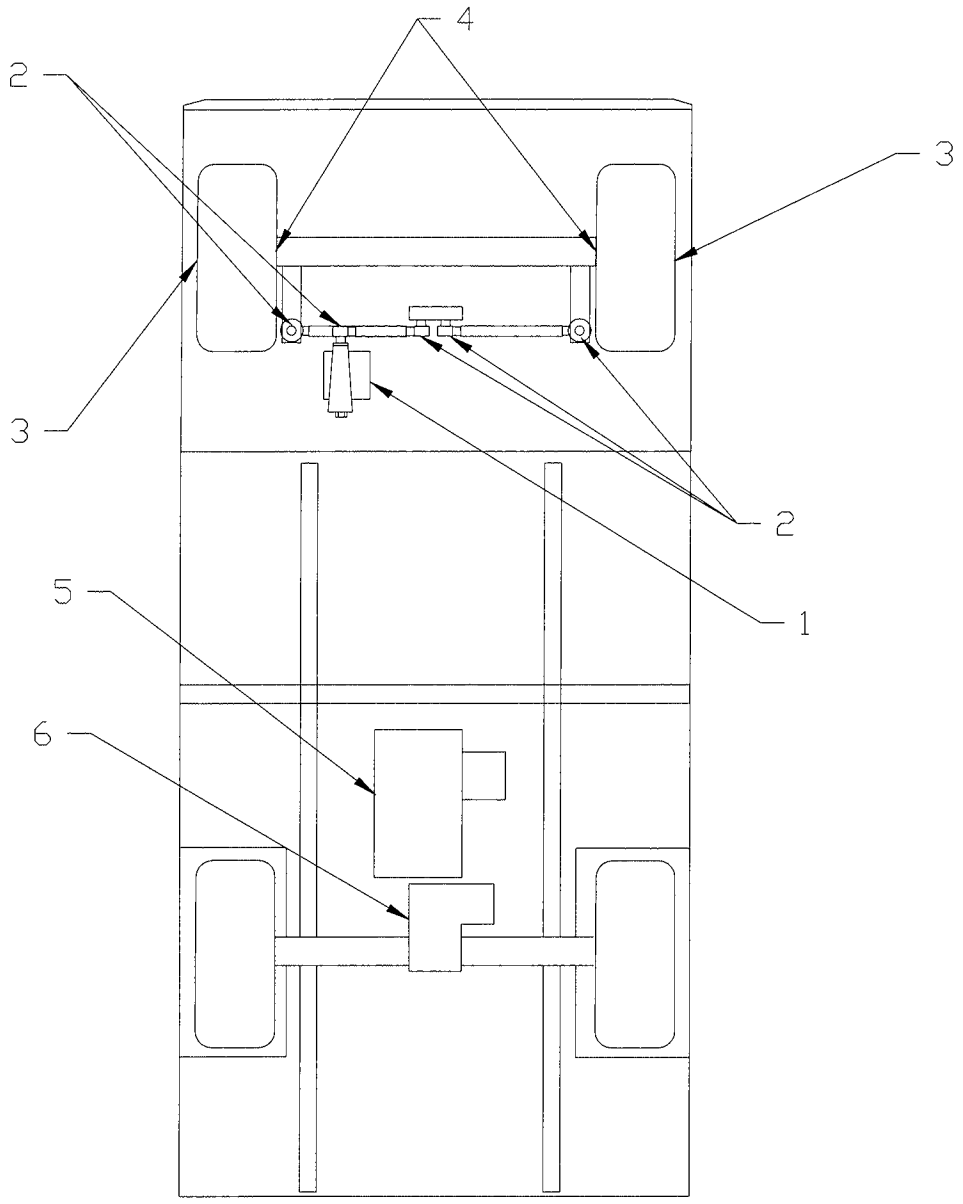
SEVERE CONDITIONS refer to operation:

- In extreme in temperature.
- On bumpy, dusty, or ill maintained roads.
- In excessivly wet areas.
- In corrosive or contaminated areas.
- At or near maximum capacity for more than 50% of the operating time.
- On multiple shifts.

Periodic Maintenance Checklist						
Maintenace Item	Weekly (20hrs)	Monthly (80hrs)	Quaterly (250hrs)	Semi - Annual (500hrs)	Annualy (1000hrs)	See Mfg's Spec.
Check Condition of Tires	X					
Check and Fill Battery	X					
Check Brake System		X				
Check Steering System		X				
Lubricate Vehicle			X			
Clean and Tighten All Wire Connections			X			
Wash and Service Batteries			X			
Check Park Brake				X		
Check Front Wheel Bearings				X		
Check Rear Axle Oil				X		
Change Rear Axle Oil						X (Page 3-13)
Check and Tighten all Nuts and Bolts					X	
Clean and Repack Front Wheel Bearings					X	

The page numbers listed in the table above are meant only as a guide to help you find the general infromation in this manual.

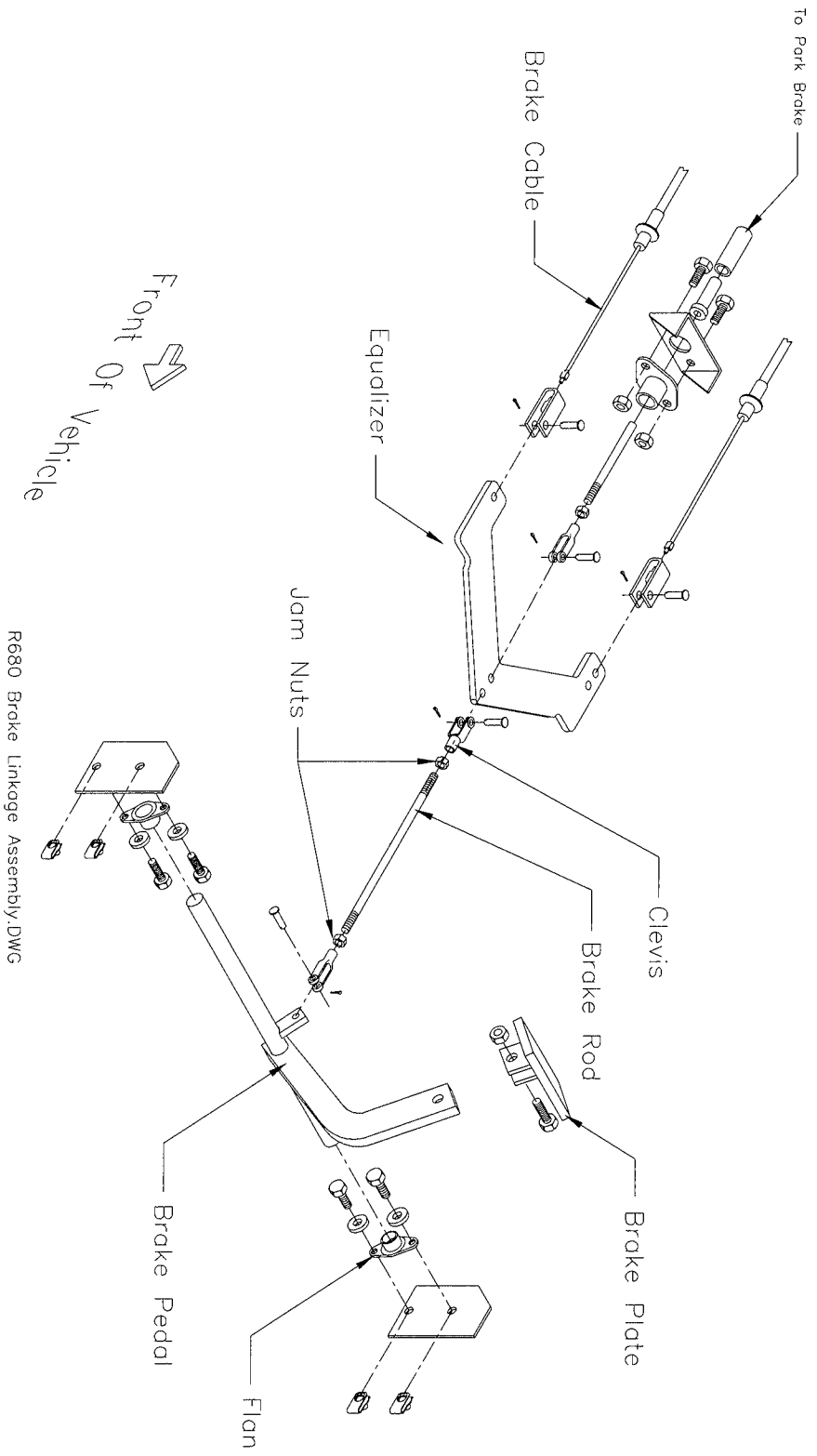
R6-80 LUBRICATION CHART



#	Description	Locations	Lubricant Type
1	Steering Gear Box	1	General Purpose Grease
2	Steering Ball Joints	6	General Purpose Grease
3	Front Wheel Bearings	2	Wheel Bearing Grease
4	King Pin	2	General Purpose Grease
5	Engine Oil	1	SAE 30 Detergent Motor Oil
6	Transmission	1	75W90 Synthetic Gear Oil

TROUBLESHOOTING GUIDE

Symptom	Probable Cause
Steering Pulls in One Direction	Front End Out of Alignment
	Low Tire Pressure
Hard Steering	Dry Lube Points in Steering Linkage
	Damaged King Pin/Ball Joint
	Low Tire Pressure
Excessive Steering Play	Worn Ball Joints
	Mis-Adjusted or Worn Steering Gear
	Loose Steering Linkage
Lack of Power or Slow Operation	Brakes or Parking Brakes Dragging
	Worn Drive Gears
	Front End Out of Alignment
	Defective Speed Control
Abnormal Noise	Worn Drive Gears or Bearings
	Worn Front /Rear Axle Bearings
	Loose Lug Nuts
	Motor Bearings Worn
Oil Leak in Rear Bearing Area	Rear Wheel Bearing and/or Gasket Failed
	Drive Over Filled
Brake Pedal Soft or Spongy	Air in Brake Lines
Brake Pedal Low	Brake Worn (1/16" Wear Limit)
	Brake Fluid Low
	Brakes Out of Adjustment
Braking Power Low	Brake Worn (1/16" Wear Limit)
	Brake Pads Contaminated with Fluid
	Brake Pedal Linkage Binding
	Brakes Out of Adjustment
	Air in Brake Lines


To Park Brake
Brake Cable
Front Of Vehicle
Equalizer
Jam Nuts
Clevis
Brake Rod
Brake Plate
Brake Pedal
Flan
R680 Brake Linkage Assembly.DWG

Brakes

The brake system consists of mechanical drum brakes, mounted on the rear wheels. These brakes self adjust and require only periodic inspection to ensure that they are in good operating condition, or to replace shoes and/or drums.

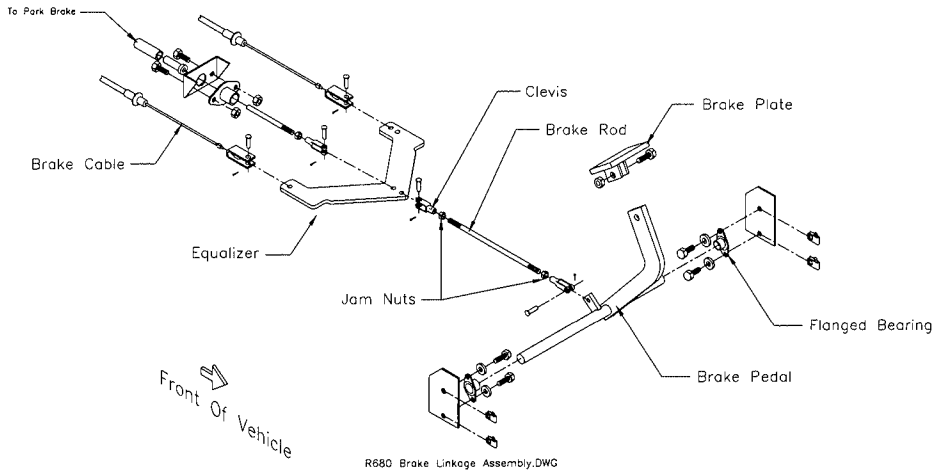
Brake Pedal and Linkage Replacement

To replace the brake pedal or linkage: ***(Refer to Brake Figure 1: Brake Linkage Assembly, below and the "Maintenance Guidelines" on page 3-2.)***

1. Disconnect the brake arm from the brake pedal.
2. Remove the pedal plate from the brake pedal.
3. Remove the brake rod from the brake pedal shaft by removing the clevis pins from the clevises on both ends. Replace as necessary.
4. Remove the flanged bearings holding the brake pedal and shaft in place.
5. Remove the brake pedal and shaft. Replace as necessary.
6. Reinstall all brake and linkage components by reversing the procedure above. Always use new cotter pins (see WARNING!).

⚠WARNING ***Always use new cotter pins. Cotter pins used more than once are weakened and may break, resulting in linkage and brake failure.***

NOTE IF ADJUSTMENT TO THE BRAKE LINKAGE IS NECESSARY, FOLLOW THE *"MECHANICAL BRAKE ADJUSTMENT"* PROCEDURE.



Brake Figure 1: Brake Linkage Assembly

Mechanical Rear Brakes

Servicing the rear mechanical brakes consists of replacing the brake shoes, and brake drum.

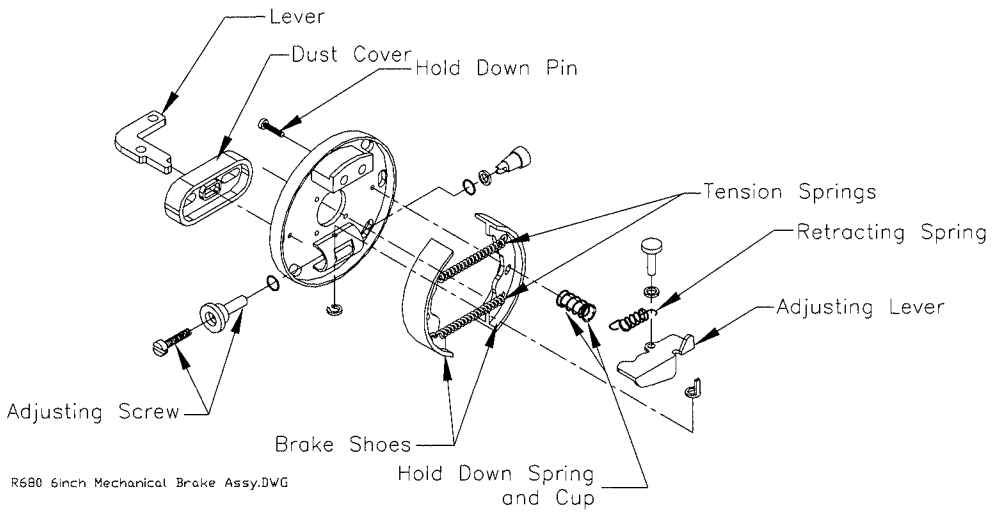
Brake Shoe Replacement

To replace the rear brake shoes, use the following procedure: ***(Refer to Brake Figure 2, below.)***

1. Place blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative battery terminals from the battery.
3. Raise the rear of the vehicle and support it 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 injury.***

4. Remove the rear wheels.
5. Remove the brake drum. ***(See Brake Figure 3, on next page.)***
6. Remove the worn brake shoes and inspect the brake drum. Replace as necessary.
7. Reinstall the brake drum and wheel.
8. Adjust the brake rod as described the ***"Foot Brake Adjustment"*** procedure on page 3-40.

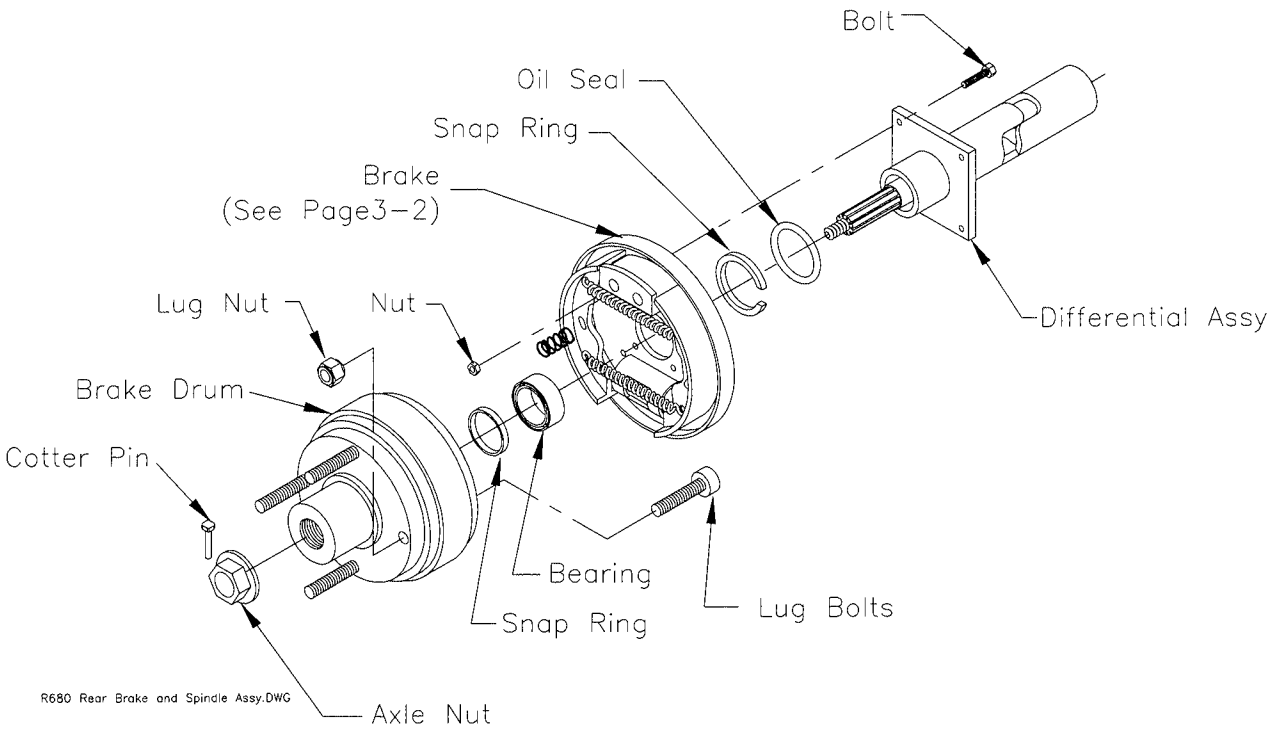


Brake Figure 2: Brake Shoe Replacement

Rear Brake Assembly Replacement

To replace the rear brakes: ***(Refer to the Figure Below.)***

1. Place blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the rear of the vehicle and support it with jack stands (see WARNING! On previous page).
4. Remove the rear wheels.
5. Disconnect the brake cable from the equalizer.
6. Remove the brake drum.
7. Remove the four nuts holding the brake assembly to the axle-housing flange.
8. Remove the entire brake assembly. Repair as necessary.
9. Install the brake drum and wheel.
10. Test the brakes to ensure proper installation and braking.



Brake Figure 3: Removal of Rear Brake

Foot Brake Adjustment

If the brake pedal travels to the floorboard and does not have full braking power, the pedal linkage is out of adjustment. ***Refer to Brake Figure 4 on the next page.***

NOTE THE BRAKE SHOES AND DRUMS SHOULD BE INSPECTED AND REPLACED, IF NECESSARY, BEFORE ANY ADJUSTMENTS ARE MADE.

To adjust the mechanical brake linkage:

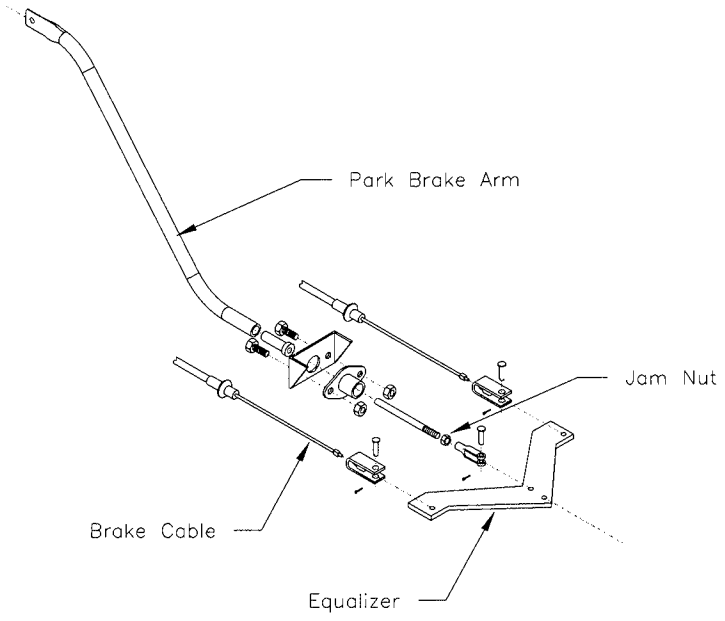
1. Place blocks under the wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Loosen the jam nut on the brake rod.
4. Rotate the brake rod until the linkage is tight, and without any brake drag.
5. Tighten the jam nuts on the brake rod being sure the rod does not turn.

Park Brake Linkage Adjustment

The park brake lever when pulled up actuates the park brake arm, which pushes the equalizer toward the front of the vehicle. Linkage from the equalizer pulls the brake cables, activating the rear brakes. ***(See the Figure below "Park Brake Linkage Assembly.")***

To adjust the park brake:

1. Place blocks under the wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Loosen the jam nut at the clevis on the park brake arm connected to the equalizer.
4. Rotate the threaded cable end into the clevis.
5. Tighten the jam nut at the clevis.



Brake Figure 4: Park Brake Cable Linkage

Front Axle

The standard front axle consists of a welded tubular steel axle, two yokes, two kingpins, and two hubs with bearings.

Servicing the Front Axle

If the front axle is bent or damaged, the axle must be removed and the damaged parts replaced. If the springs are damaged, refer to "Replacing Font Leaf Springs."

Use the following procedure to remove the front axle and springs. ***(Refer to Front Axle Figure 1 page 3-13 and the Illustrated Parts.)***

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it 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 injury.***

4. Remove the front wheels.
5. Disconnect the tie rods from the left and right yoke.
6. Remove the spring mounting bolts from the axle.

⚠CAUTION *Support the axle before removing the shock mounting bolts. Failure to support the axle properly may cause the axle to drop suddenly.*

7. With the axle properly supported, remove the front shock mounting bolts at the top of the front axle.
8. Remove the axle from the vehicle.
9. If the leaf spring(s) need to be replaced, refer to the 'Suspension Removal and Replacement' procedure.
10. Remove the nuts from the kingpins, and remove the kingpins. The kingpins will need to be tapped out of the yoke from the bottom, using a brass or wooden pin. Be careful to support the yokes when the kingpins are removed.

11. Inspect the bushings in the axle sleeves for wear and replace as necessary. Clean all surfaces of the bushings and kingpins. The bushings will need to be pressed into place.

    New kingpin bushings must be broached or reamed to 0.800 +0/-.001 after they are pressed into the axle.

12. Install yokes, thrust bearings, and king pins to the ends of the axle. The kingpin will have to be tapped in from the top to be seated properly.

13. Tighten new locknut on the kingpin until it meets the yoke. Do not tighten and squeeze the legs of the yoke together.

14. Install the axle to the leaf springs and shocks. Always use new locknuts.

⚠WARNING ***Always use new locknuts and cotter pins when repairing or working on the axle***

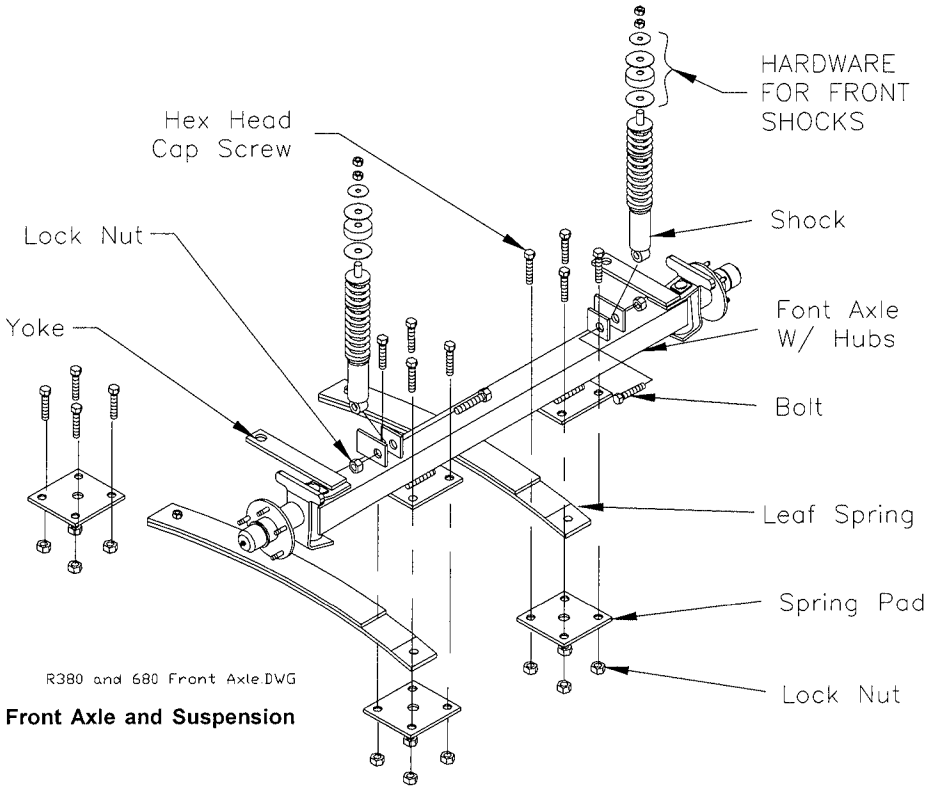
15. Reinstall the tie rods to the yoke arms. Use **new** cotter pins.

⚠WARNING ***Always use new cotter pins. Cotter pins used more than once can become weak or broken. Failure to use new cotter pins may cause the ball joint to become disconnected resulting in loss of steering and serious injury.***

16. Install the hubs onto the spindles. Tighten the spindle nut to 17-25 ft. lbs. Then back off one slot to align the cotter pin hole. Always use new cotter pins.

17. Reinstall the wheels onto the hubs.

    Adjust the toe-in of the front wheels. ***See "Adjusting the Toe-in.," page 3-14.***



Front Axle Figure 1: Front Axle and Suspension

Adjusting the Toe-in

The toe-in is the angle of the front wheels. Either in or out, and is determined by measuring the distance from the center of one tire to the center of the other tire.

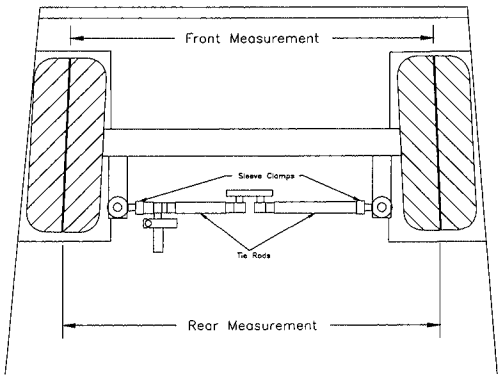
Toe-in should be checked periodically as routine maintenance, and should be set after replacement of the front axle, axle yokes, or steering adjustment sleeve.

To adjust the toe-in **(Refer to Figure below.):**

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it 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 injury.***

4. Using a marking pencil, rotate the tire while holding the pencil against the center of the tire. This will draw a line around the center of the tire. Mark both tires.
5. Loosen the steering adjustment sleeve clamps, so that the sleeve may be turned.
6. With the wheels straight ahead, measure the distance from the line on the one tire to the line on the other tire. First at the front of the tires, then at the back. Toe-in should be 0" difference between the two dimensions, to ¼" less on the front measurement.
7. Adjust the steering adjustment sleeves until the toe-in is as described above.
8. Tighten the clamps on the adjustment sleeves.
9. Turn the steering wheel to both locks (Left/Right), to make sure clamps do not contact anything.

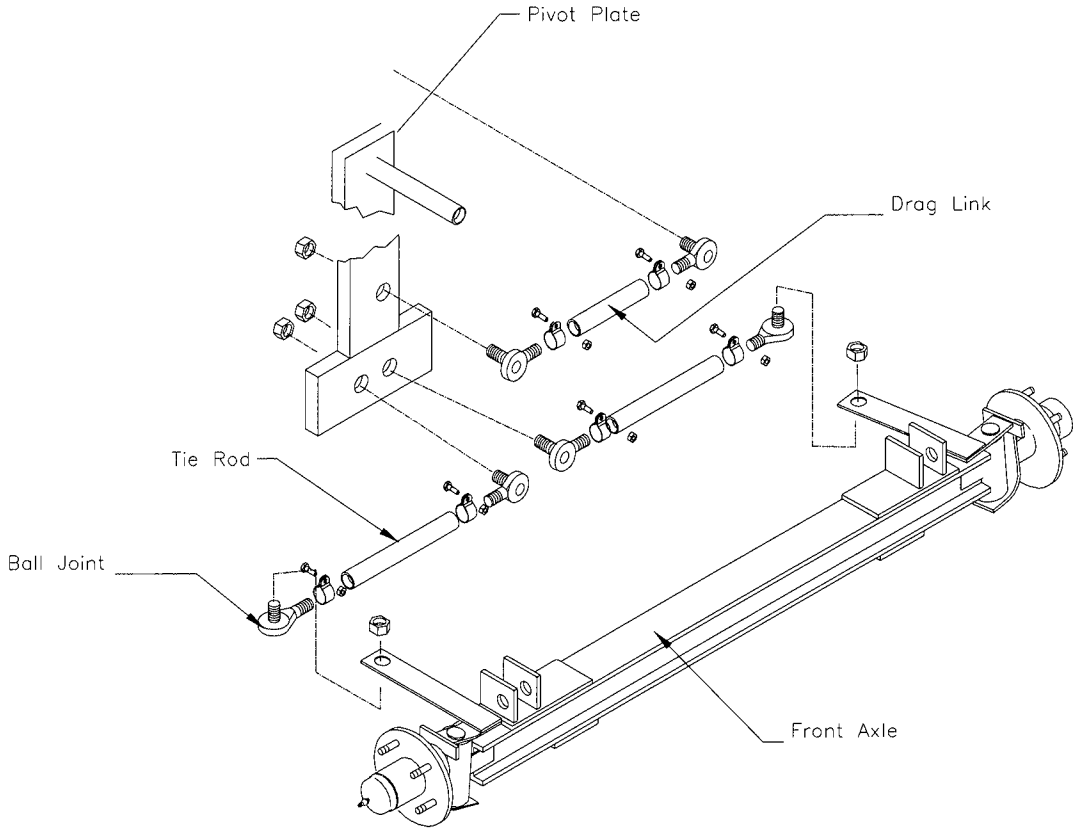


Front Axle Figure 2: Toe-In

Steering

The steering system consists of the steering wheel, column or tower, shaft, steering gear, pitman arm, drag link, pivot plate, and tie rods. Some of these parts are shown complete in the figure below. Study these parts and their locations for future reference. This figure or portions of it are duplicated in the appropriate locations to effect any repairs or services to the steering of this vehicle.

Steering Figure 1: Steering Components



In this segment, we will discuss how to remove and replace these parts from the steering system, with the exception of removing the steering wheel. The steering system has been designed for the easy removal and replacement of parts.

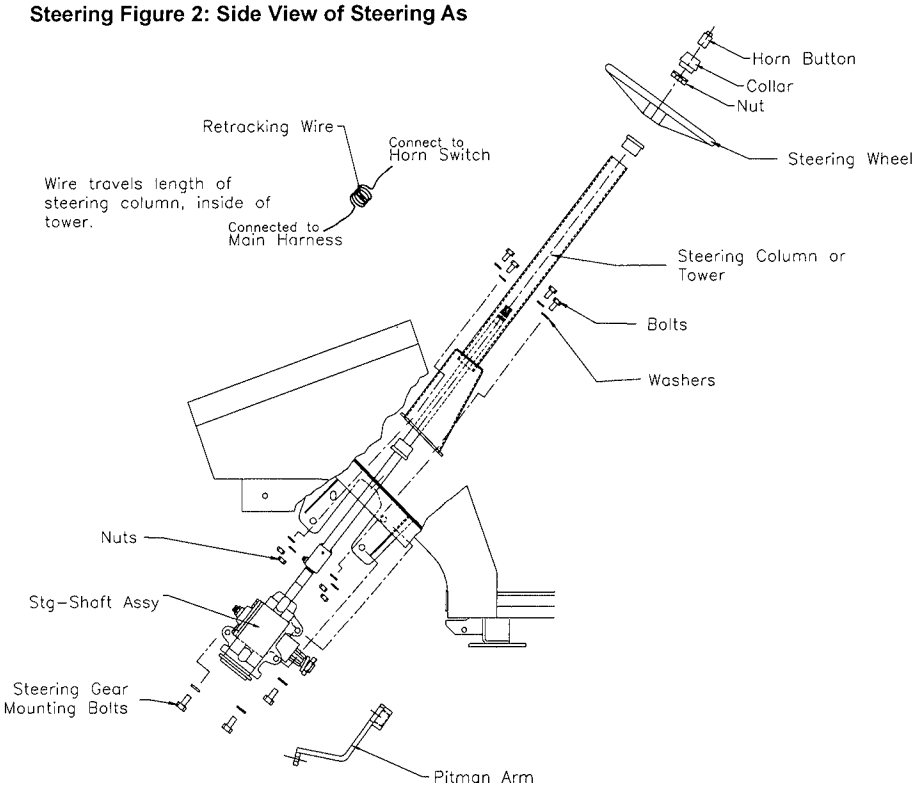
To Remove the Steering Wheel

In order to remove the steering wheel refer to the following procedure:

1. Turn the key-switch off and disconnect the battery.
2. Place Blocks under the rear wheel to prevent vehicle movement.
3. Remove the horn button from the center of the steering wheel and disconnect the button from the wires.
4. Using a slide hammer, remove the horn button collar.
5. Remove the nut from the center of the steering wheel.
6. The steering wheel may have to be hit with a dead blow hammer in order to free it from the steering shaft.

In order to install a new steering wheel reverse the order of the procedure above.

Steering Figure 2: Side View of Steering As



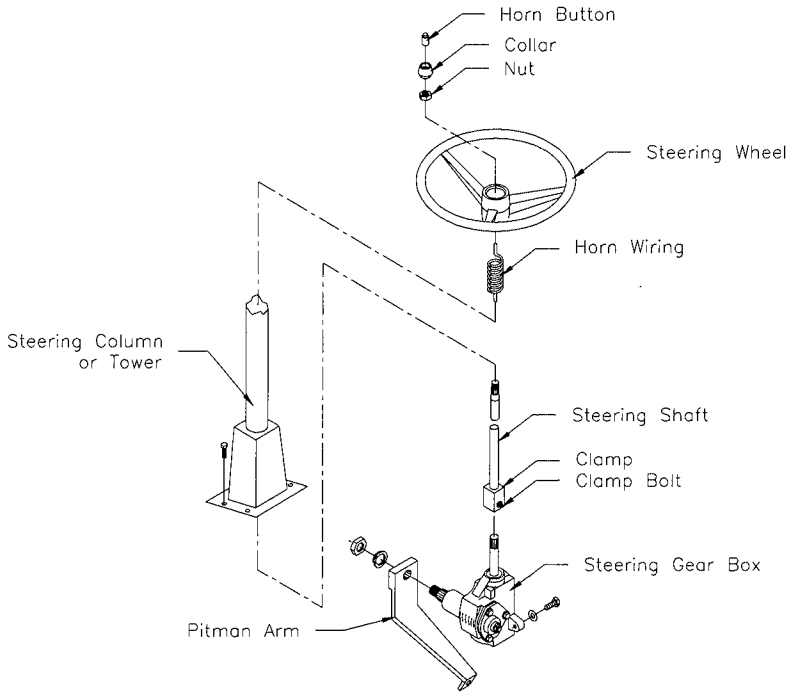
To Remove the Steering Column or Tower

To remove these components of the steering system, use the following procedure and ***refer to the Steeing Figures on pages 3-16 and 3-17 .***

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Disconnect the wire plug going to the horn button.
4. Remove the cover from the right side of the steering tower and the four bolts holding the tower to the floorboard.
5. Loosen the clamp at the base of the steering shaft and remove the bolt from the clamp.
6. Remove the steering column and tower from the vehicle.

NOTE

WHEN THE STEERING COLUMN AND TOWER ARE REMOVED THE HORN WIRE AND STEERING WHEEL WILL COME OFF AS WELL. BE SURE THAT YOU HAVE DISCONNECTED THE HORN WIRE BEFORE REMOVING THE TOWER AND COLUMN.



Steering Figure 3: Steering Assembly

To Install the Steering Column/Tower

At this point, the vehicle should still have blocks behind the wheels and the front end raised and being supported by jack stands. The pitman arm is on the steering gear and the other remaining parts are installed.

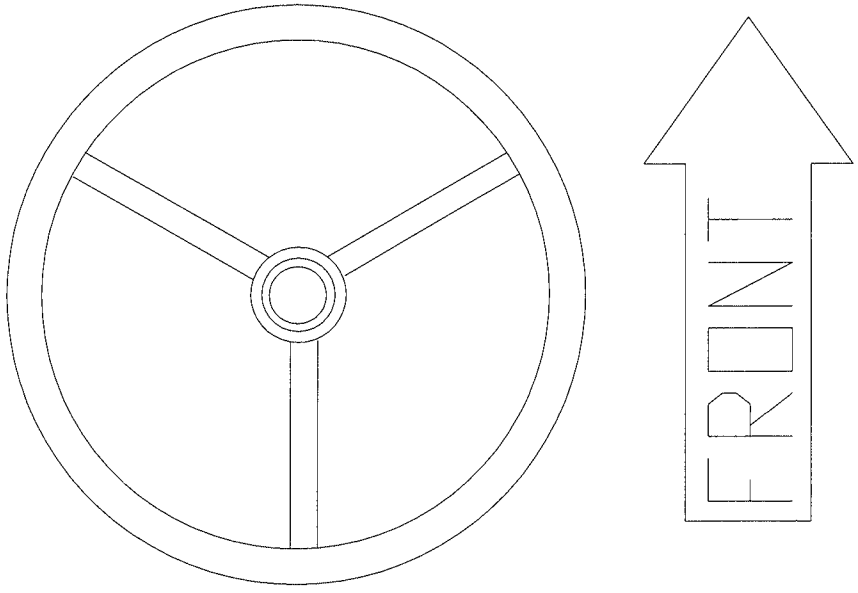
To install the steering column and tower follow these procedures:

1. Remove the jack stands and lower the vehicle to the ground. With the blocks still in place behind the wheel and the battery still disconnected.
2. Turn the steering wheel so that is aligned properly and the wheels are straight ahead. ***See Steering Figure 4,*** *below.*
3. Put the steering column and tower assembly into place. Line up the clamp at the end of the steering column. With the steering gear input shaft.
4. Insert the bolt into the clamp and tighten the clamp on the input shaft.
5. Line up the holes in the base of the steering tower with those on the floor-board and insert the bolts.

⚠WARNING

Always use <u>new</u> locknuts. Locknuts become less effective after being removed, and their locking ability is diminished. Failure to Always use <u>new</u> locknuts may cause the steering column to become loose and could result in serious injury.

Steering Figure 4: Position of Steering Wheel



Removal of Steering Gear

For the proper removal of the steering gear, use the following procedure:

1. Place blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative battery terminals from the battery.
3. Raise the front of the vehicle and support it 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 injury.

4. Remove the cover from the right side of the steering tower/column and remove the bolt from the clamp on the end of the steering shaft.
5. Remove the drag link from the pitman arm.
6. Remove the three bolts holding the steering gear to the frame and then remove the gear.

Installing the Steering Gear

If you are, installing a new steering gear or putting one back into place follow these procedures:

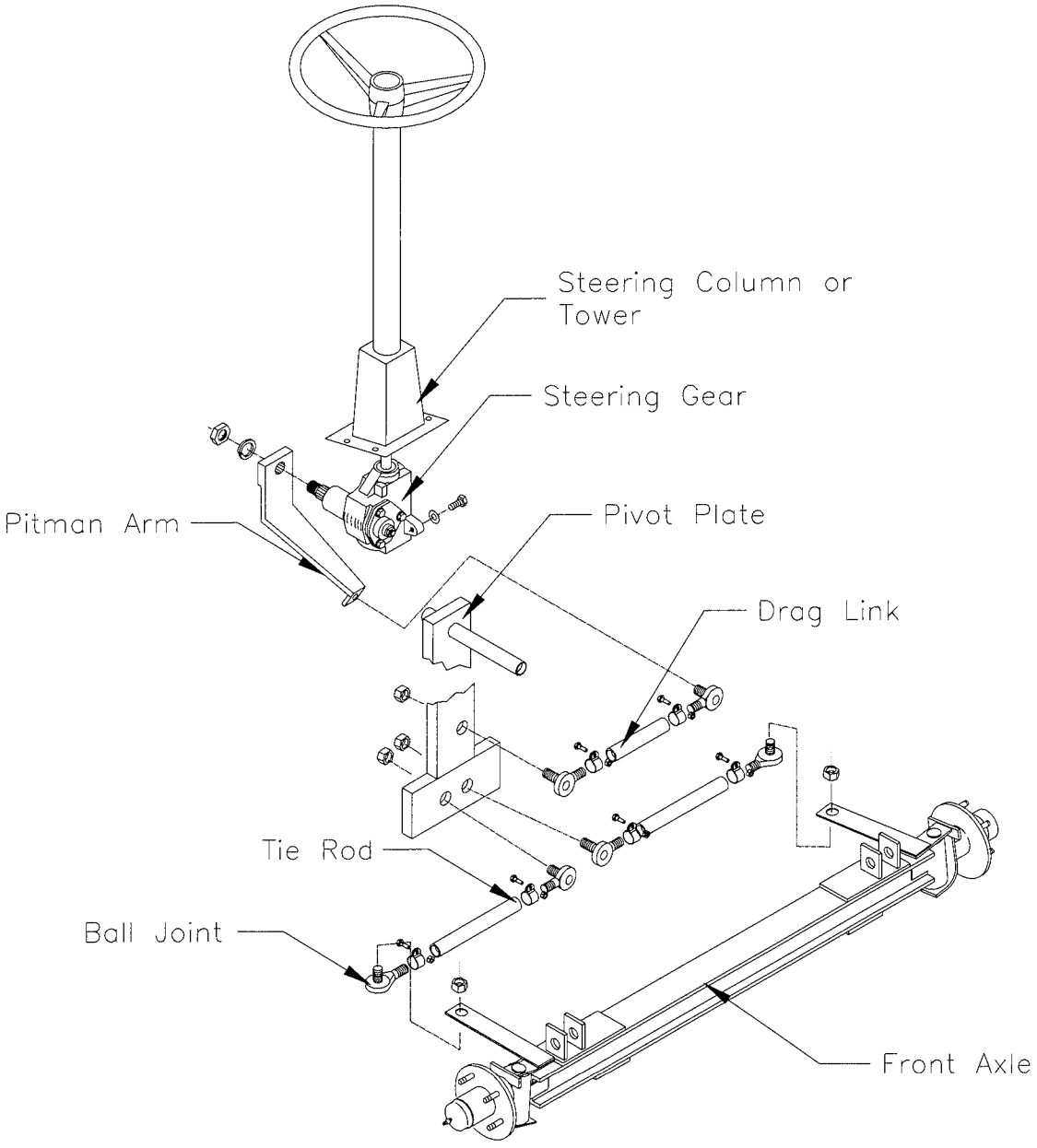
1. Place blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative battery terminals from the battery.
3. Raise the front of the vehicle and support it with jack stands.
4. Center the steering wheel. ***(Refer to the Steering Figure 4 on page 3-18.)***
5. Center the steering gear. ***(Refer to "Centering the Steering Gear" page 3-28.)***
6. While holding the gear with the mounting holes on the right side. Position the steering gear through the hole in the floorboard and line the input shaft up with the clamp on the end of the steering shaft.
7. Once the input shaft is in the clamp. Secure the steering gear to the frame using the mounting bolts. In addition, install the bolt into the clamp making sure it is secure.
8. Connect the pitman arm to the drag link.
9. Install the pitman arm on the output shaft of the steering gear. However, do not tighten the locknut into place, as you may need to make some adjustments later.
10. Check the front wheels to be sure that straight.
11. Tighten the locknut on the steering gear output shaft to secure the pitman arm into place. Always use <u>new</u> locknuts.

⚠WARNING ***Always use <u>new</u> locknuts. Locknuts become less effective after being removed, and their locking ability is diminished. Failure to use new locknuts may cause the steering column to become loose and could result in serious injury.***

If the pitman arm and the drag link to do not line up adjust the drag link so that the drag link matches the length between the centered pivot plate and the pitman arm. ***(See "Drag Link Adjustment" page 3-29.)***

12. Remove the jack stands and lower the vehicle.
13. Replace the cover on the right side of the steering column/tower.
14. Connect the main positive and negative to the battery.
15. Remove the blocks from the tires and test-drive the vehicle.

Steering Figure 5: Complete Steering Assmbly

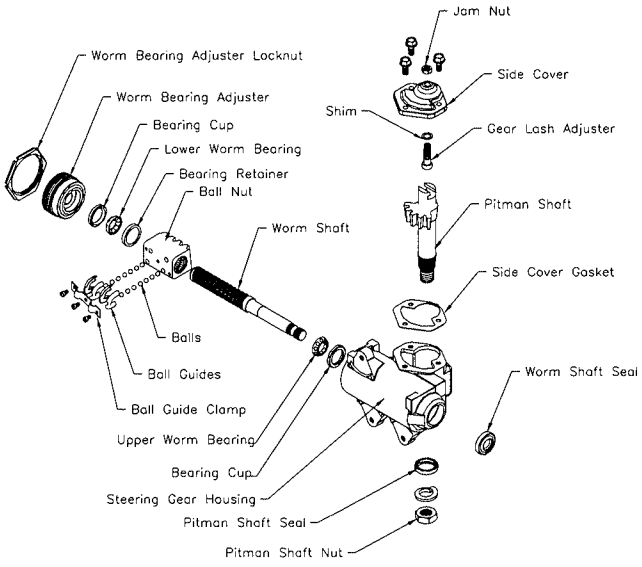


Steering Gear Disassembly and Repair

To replace components of the steering gear, use the following procedure and ***refer to Steering Figure 6, below.***

1. After removing the steering gear, mount it in a vise to hold it securely. Being careful not to damage any mounting surfaces.
2. Rotate the worm shaft until it is centered.
3. Remove the pre-load adjuster nut. In addition, remove the screws holding the side-cover in place.
4. Remove the side cover by turning the adjusting screw clockwise through the cover.
5. Remove the adjusting screw and shim keeping them together.
6. Remove the pitman shaft from the housing.
7. Remove the worm-bearing-adjuster locknut, worm bearing adjuster, bearing cup and lower worm bearing. *Replace as necessary.*
8. Remove the worm shaft and ball nut assembly from housing, being careful not to damage the worm shaft seal.

Steering Figure 6: Exploded View of Steering Gear



9. Remove the upper worm-bearing cup using a puller and slide hammer.
10. Inspect all bearings, bearing cups, seals, worm grooves, and teeth for scoring, pitting, or wear. Replace any parts having this type of wear.
11. Inspect the worm shaft seal. If damaged, remove with a screwdriver or punch, replace, and tap new seal into place.

NOTE ALL SEALS AND BEARINGS SHOULD BE PRELUBRICATED BEFORE REASSEMBLY.

12. Reinstall the upper bearing cup.
13. Position ball nut on shaft as shown in ***Steering Figure 7.***
14. Divide balls into two equal groups and install into the ball nut and ball guides, using all-purpose grease to help hold them in place. Rock the worm shaft slightly to aid in installing the balls.

⚠WARNING ***Do not rotate the worm shaft while installing balls. Balls may enter the crossover passage between circuits in the ball nut, causing improper operation.***

15. Place upper bearing onto worm shaft.
16. Position ball nut in the center of the worm shaft grooves and install shaft, ball nut, and bearing into the housing. Be careful not to damage the worm shaft seal.
17. Install lower bearing retainer, lower worm bearing, bearing cup, worm bearing adjuster, and adjuster locknut. Adjuster should be installed just tight enough to hold the bearing in place.
18. Install pitman shaft adjusting screw and shim to pitman shaft.

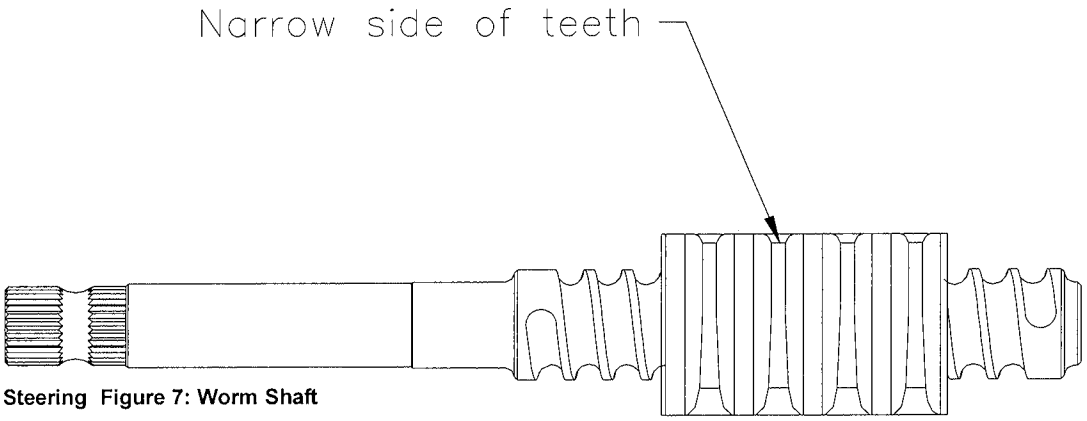
⚠WARNING ***Screw must be free to turn but have no more than .002" end play. If endplay in screw in slot is too tight or too loose, select a new shim to give proper clearance.***

19. Install the pitman shaft and adjusting screw with ball nut and pitman shaft gear centered in housing.
20. Install side cover and gasket onto the adjusting screw. Turn the screw counter-clockwise until it projects through the cover 5/8" to 3/4". Install the side cover bolts, leaving one out for injecting grease.
21. Tighten the pitman shaft adjusting screw so that the teeth of the shaft and the ball nut engage but do not bind.

22. Install the pitman shaft seal over the pitman shaft and into the housing.
23. Fill the steering gear with high-grade chassis lubricant through the side cover bolthole.

NOTE NEVER ALLOW THE BALL NUT TO CONTACT THE ENDS OF THE BALL RACES IN THE WORM. DAMAGE MAY OCCUR TO THE BALL GUIDES.

24. Turn the steering gear from one lock to the other lock checking for unusual binds
25. Make the final steering gear adjustments as described in the 'Steering Gear Adjustment' procedure.



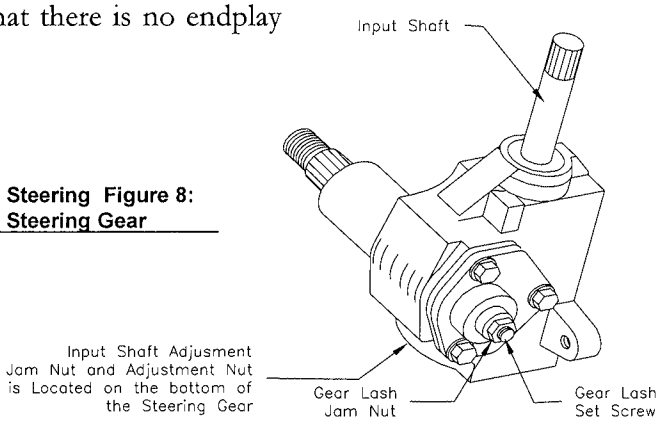
Steering Figure 7: Worm Shaft

End Play

The endplay of the input shaft may be adjusted so that the input shaft does not move up and down. The only time that you should have the make any adjustments for endplay is after the gear has been repaired.

To adjust the endplay, use the following procedure and ***refer to Steering Figure 8.***

1. Loosen the adjustment jam nut on the bottom of the steering gear.
2. Tighten the adjusting nut so that there is no endplay and the gear turns freely.
3. Tighten the jam nut.



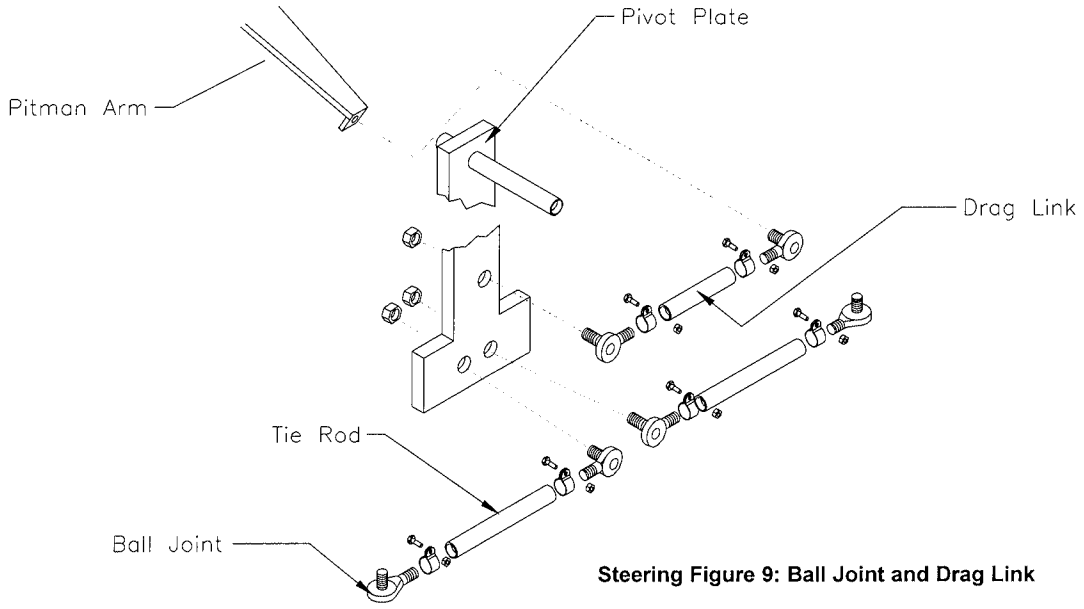
Steering Figure 8: Steering Gear

Gear Lash

The gear lash is the amount of play between the input shaft and the output shaft. It is how far the input shaft is turned before the output shaft begins to move. Adjusting for gear lash is a maintenance function and should be included in any maintenance schedule.

To adjust the gear lash, use the following procedure and ***refer to figure above.***

1. Disconnect the drag link from the pitman arm.
2. Center the steering gear.
3. Have a second person turn the steering wheel slightly in either direction and watch the output shaft to determine the amount of gear lash present.
4. If the gear lash needs adjustment. Loosen the setscrew jam nut.
5. Tighten the setscrew to decrease the amount of gear lash or loosen it to increase the gear lash. The gear lash should be set so that there is a slight drag when the steering gear passes through the center of its travel. (About three turns from lock).
6. Tighten the jam nut. Do not allow the setscrew to turn while tightening the jam nut.
7. Reinstall the drag link to the pitman arm. Always use a **new** cotter pins-see n



Steering Figure 9: Ball Joint and Drag Link

Replace Drag Link, Tie Rods and Ball Joints

As part of a service or maintenance, you may need to remove and replace these parts from the steering system. Before doing this however you should check the ball joints for excessive play, which means that the ball joints are worn out and need to be replaced. The following procedure shows you how to remove these parts and replace them as needed. ***See Steering Figure 9.***

1. Place Blocks under the rear wheel to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it with jack stands.
4. Remove the locknuts and cotter pins from each of the joints to be replaced.
5. Remove the drag links and tie rod from their connections and install new ball joints where needed.

⚠WARNING ***<u>Always use new locknuts</u> and cotter pins. Locknuts and cotter pins become less effective after being removed, and their locking ability is diminished. Failure to <u>Always use new locknuts</u> may cause the steering column to become loose and could result in serious injury.***

6. Insert the tie rod ball joints into the yoke and secure them in place with new locknuts and cotter pins.
7. Insert the opposite end of the tie rod into the pivot plate and secure them in place with the new locknuts and cotter pins.
8. Install the drag link and adjust it and the toe-in as needed by using the appropriate procedure.
9. Check all hardware for tightness.

Steering Gear Adjustment

Centering the Steering Gear

When doing any work on the steering gear it is important that you are sure that the gear is at the center of its travel. Especially when replacing the gear or reinstalling a steering gear that has been repaired.

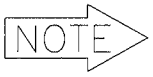
For the purpose of this instruction, we are assuming that the vehicle is already secured and the front end is lifted. Furthermore, we assume that the new or repaired steering gear is not installed yet.

1. Install the steering gear onto the end of the steering shaft and mount it in place.
2. Turn the steering wheel to the left or right until it reaches lock or stops.
3. Then turn the wheel back to center, which should be approximately three turns. This should be the center of its travel.

TO BE SURE THAT YOU ARE AT THE CENTER OF THE STEERING GEARS TRAVEL. CONTINUE TO TURN THE STEERING WHEEL UNTIL YOU REACH LOCK ON THE OPPOSITE END OF THE TURN. IT SHOULD HAVE TAKEN APPROXIMATELY THREE TURNS TO REACH THIS LOCK POSITION AS WELL.

IF IT TAKE MORE OR LESS THAN THREE TURNS TO REACH THE OPPOSITE LOCK POSITION THEN THE GEAR WILL NOT BE CENTERED. THE GEAR WILL HAVE TO BE REMOVED FROM THE VEHICLE, AND ADJUSTED BY HAND TO THE APPROXIMATE CENTER OF ITS TRAVEL, THEN REPEAT STEPS ONE THROUGH THREE ABOVE.

4. With the wheels straight ahead, install the pitman arm onto the steering gear output shaft.
5. The drag link should install easily into the pitman arm without moving the wheels from their straightforward position. If it does not, adjust the pitman arm until the drag link will install into the pitman arm without moving the wheels from their center or straight position.
6. The steering gear is now centered and the vehicle should be test driven to be sure that it can be steered properly.



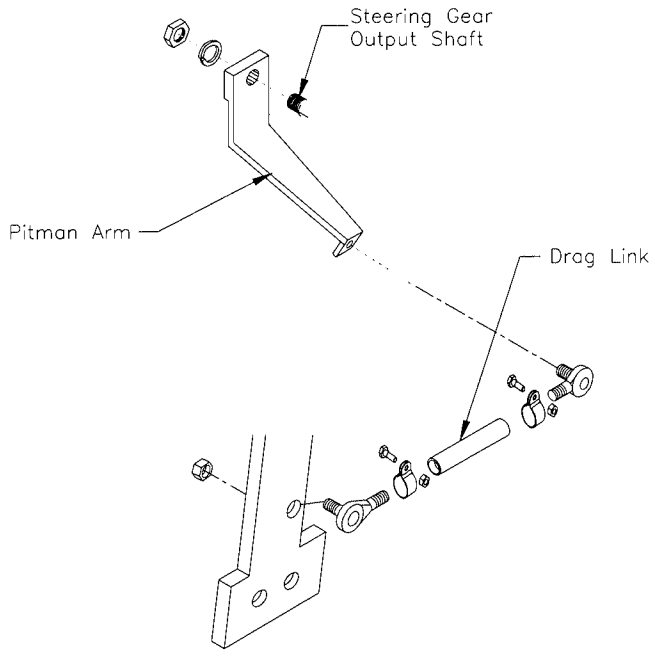
AT THIS POINT, THE STEERING WHEEL MAY NOT BE CENTERED WITH THE STEERING GEAR AND THE FRONT WHEELS. ***CHECK FIGURE 4 ON PAGE 3-18.*** IF THE STEERING WHEEL IS NOT IN THIS POSITION WHEN THE WHEELS ARE STRAIGHT AHEAD, REMOVE IT AND ALIGN IT PROPERLY.

Drag Link Adjustment

The following procedure is for the drag link adjustment. The procedure should be used if you have made repairs or serviced the steering system and the pitman arm will not line up with the drag link.

For proper drag link adjustment, use the following procedure:

1. Loosen the clamps on the drag link.
2. With the steering wheel positioned in the center as shown in ***Steering Figure 4 on page 3-18***. The steering gear and pitman arm should be in the center of their travel. Grasp the drag link and rotate it until the wheels are in their proper position.
3. Tighten the clamp onto the ball joint.



Steering Figure 10: Drag Link

Front Suspension

The front suspension consists of the leaf springs, spring plates, bolts, and mounting hardware. If any of the suspension components need to be replaced, use the Suspension Removal and Replacement procedure and ***refer to Front Susp Figure 1, Below.***

Suspension Replacement

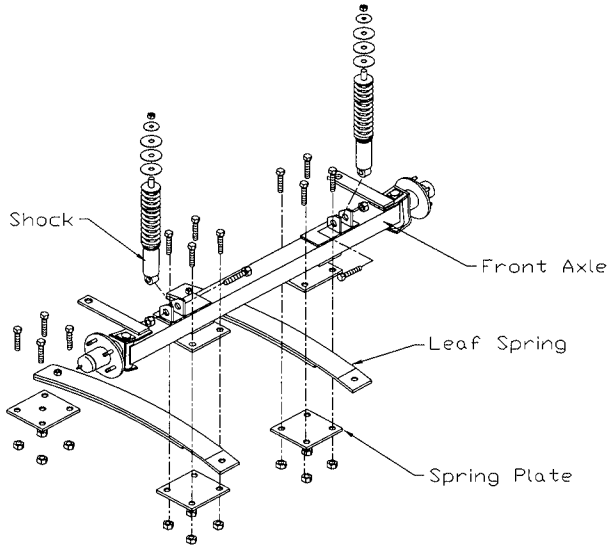
Remove Front Leaf Springs

We recommend that the leaf springs be replaced as a set to prevent uneven wear on the front end. It is also recommended that you carry out this procedure for one side and then repeat it on the other. Do not remove both leaf springs at the same time. To remove and replace components of the suspension system:

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle, securely supporting the front axle and the vehicle frame.

⚠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 injury.***

Front Susp Figure 1: Front Suspension



With the front axle properly supported to prevent it from falling, remove the bolts and spring plates from the leaf spring that is to be replaced

4. Install them in reverse order. Always use new locknuts.

recommend that you replace them as a set

⚠WARNING ***Always use new locknuts. Locknuts become less effective after being removed, and their locking ability is diminished. Failure to use new locknuts may cause the axle to become loose from the springs and result in serious injury.***

5. Lower the vehicle and test drive.

Front Shocks Replacement

Use the following procedure to remove and replace the shocks. ***Refer to Front Susp Figure 1.*** It is recommended that the shocks be replaced as a set.

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it 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 injury.***

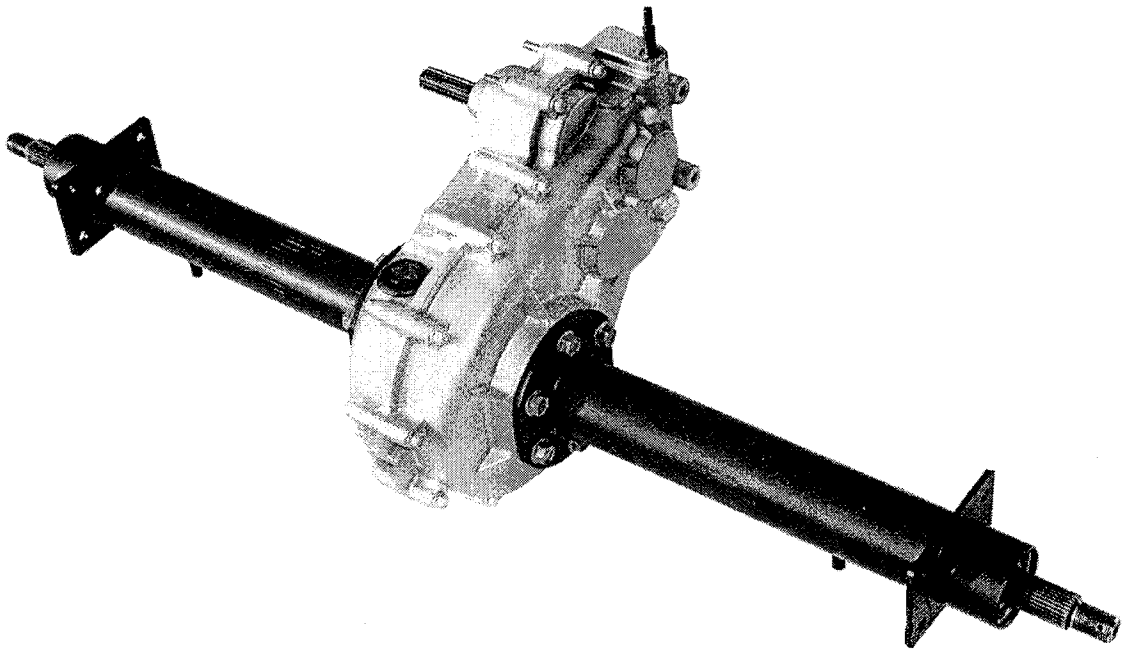
4. Remove the front nose panel from the vehicle, and disconnect the headlights and turn indicator lights if equipped.
5. With the front axle properly supported, remove the nuts and washers at the top of the shocks.
6. Remove the shock lower mounting bolts at the axle.
7. Install the new shocks to the upper mounts and install the lower mounting bolts loosely. Use new locknuts-see WARNING above!
8. Install the nuts and washers to the top of the shocks. Use new locknuts-see WARNING above!
9. Tighten the nuts holding the shocks to the mounts. Lower the vehicle and test dive.

NOTES

Drive and Rear Axle Assembly

In this section you will find the procedures for servicing the rear axle and some of the component parts, contained within these assemblies. You will also be given procedures on how to remove these assemblies and on how to install them. In some instances you will be referred to the Dana Supplement manual for instructions. These supplement manuals are available through your local Taylor-Dunn® dealer, or from a local Dana dealer. In order to obtain this manual from Taylor-Dunn order T-D Part number M7-001-07, or if ordering from Dana order their part number MM-12FNR-1M2/98.

Remember to read and follow all maintenance guidelines as written on page 3-2 of this manual.



General Cleaning and Inspection of Dana Drive

Cleaning

The following are the manufacture's recomended cleaning guidelines.

A. Parts should be cleaned with emulsion cleansers or petroleum based cleaners.

B. Clean, inspect and lubricate all bearings just prior to reassembly.

C. Clean all sealing surfaces of old gasket material.

Drying

The following are the manufacture's drying instrructions.

A. Use a soft, clean, lint free towel or rag to dry parts after cleaning.

B. Bearings should not be dried by spinning with com pressed air. This can damage the mating surfaces due to a lack of lubrication.

C. After drying, parts should be coated with a light coat of lubricant or rust preventive to prevent damage from corrosion. If the parts are to be stored for a period of time, they should be wrapped.

Inspection

The folowing is the manufacture's guidelines for inspecting this drive.

A. Prior to reassembly, inspect all parts for signs of wear or damage.

B. Bearing and seal surfaces should be inspected for pitting, wear or wverheating.

C. Inspect axle shafts for worn splines, bends or cracks. Replacement of these parts can prvent premature failure.

Oil Check and Change Intervals

The following are the manufacturer's guidelines and intervals for checking and changing the oil in the rear transaxle.

A. Checking- Only if signs of leakage are detected-then check oil level.

B. Changing-Change oil every 24 months or 1250 miles (2000Km) whichever occurs first.

C. Capacity-20 to 24 ounces, SAE 30 wt.

Rear Suspension

The rear suspension consists of the leaf springs, spring plates, and mounting hardware. If any of the suspension components need to be replaced, use the Suspension Removal and Replacement procedure below.

Rear Suspension Removal and Replacement

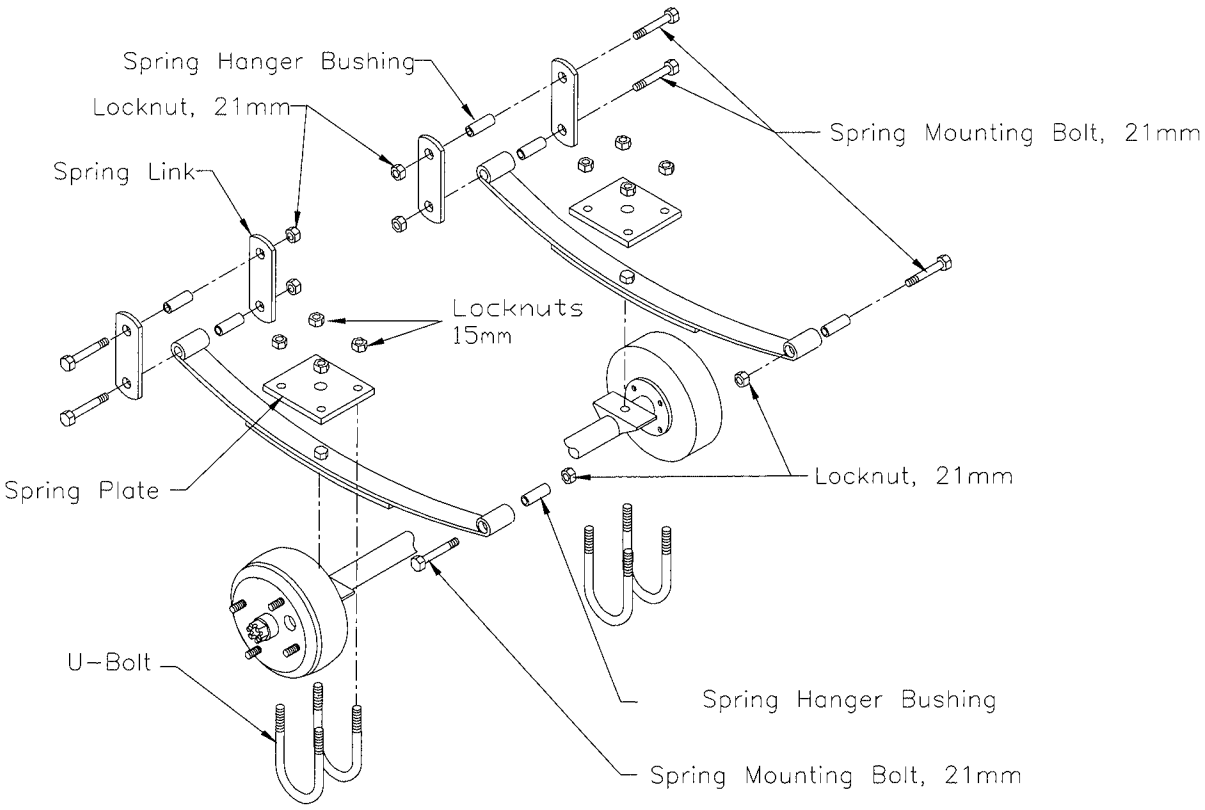
To remove and replace components of the suspension system:

1. Place blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Securely support the rear frame of the vehicle, but do not raise it.
4. Remove the nuts and u-bolts holding the spring plates to the leaf springs.

NOTE

IT MAY BE HELPFUL TO PLACE A FLOOR JACK UNDER THE REAR END TO SUPPORT THE DRIVE AND TO RELIEVE SOME OF THE TENSION ON THE LEAF SPRINGS.

5. Remove the front and rear spring mounting bolts. (Refer to Rear Suspension Figure 1, on the next page.)
6. Remove the leaf springs and inspect the springs and the leaf spring bushings. Replace as necessary.
7. Inspect the rear spring mount bushings and replace as necessary.
8. Reinstall the springs onto the rear end or drive assembly, with the u-bolts and spring plates. But do not tighten the u- bolts and locknuts completely. Always use new locknuts.
9. Use the floorjack to help reposition the drive assembly and leaf springs. Then install the mounting bolts and new locknuts. Always use new locknuts.
10. Remove the jackstands that were supporting the frame.
11. Lower the vehicle and test drive.



Rear Suspension Figure 1: Rear Suspension

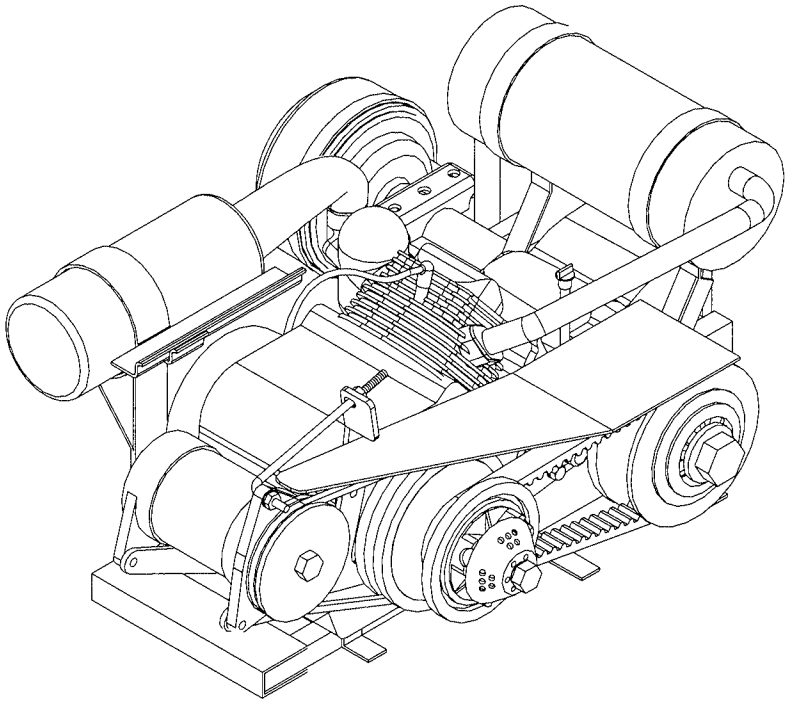
Engine Maintenance

Here we will cover how to remove and install the complete drive and engine assembly. Plus we will also cover how to service the engine assemblies. In some cases you will be referred to the supplement manuals for those assemblies. These supplement manuals are available through Taylor-Dunn by ordering manual number M7-007-08(Briggs&Stratton Repair Manual,) or for ordering from Briggs&Stratton(272147-11/93.) This supplement manual cover the services described in this manual plus complete overhaul procedures for the engine assemblies.

Remeber that this manual is not intended as a replacement for the manufactures repair and service manual. We are simply givng you the information needed to perform simple services and repairs to these assemblies. If your vehicle is in need of overhaul or major repairs, then you should obtain a copy of the manufactures repair and service manual.

Before begining these or service procedure be sure to read and follow the maintenance guidelines as written on page 3-2 of this manual. Read each procedure carefully before attempting to perform that procedure.

Extreme care should be taken while working on or around this vehicle. It is a gasoline powered engine and some service procedures will require that the engine be running during the service. Even with all the safety shrouds in place there is the potential for serious injury from fast moving parts. Any procedure requiring the engine to be running will be accompanied by the symbol at the left of this page as a warning to be aware of this hazard.



Engine

The R-680 is equipped with an 18.06 Cu.in overhead valve, air-cooled engine rated at nine-horse power. This engine has been designed specifically for this application and should be maintained and serviced as described in this segment.

Use only clean fresh unleaded gasoline with a pump sticker-octane rating of 87 or higher. (For countries using the ***Research*** method, the octane rating should be 90 or higher.)

In some areas only mandated, "oxygenated" gasolines may be available. These are acceptable for use but are not preferable. These oxygenated gasolines are irritating to the skin and can cause severe chemical burns. ***(Refer to the warning below.)***

⚠WARNING

Fuel is a very flammable liquid. It should be handled with extreme care. Do not expose fuel to any open flame or spark. Be sure the vehicle is in a well-ventilated area away from any flame or sparks. Avoid direct skin contact or contact with eyes. If you do come in direct skin or eye contact with the fuel flush area with large amounts of water and get immediate medical attention.

Never use gasoline as a cleaning agent or attempt to fill the fuel tank while the motor is running.

IMPORTANT: The engine manufacturer recommends that the oil be changed after the first five hours of operation.

Any references to hardware sizes is intended to show the size of the socket or wrench needed to remove or install that piece of hardware.

Engine Maintenance

The following table shows the frequency in which "required maintenance" of the vehicles engine is to be carried out. After this table, you will find procedures for servicing the engine. Such as changing the oil, air filter, etc as listed in the table below. For information about higher level mechanical repairs of the engine refer to the "Engine and Drive Service Manual," written and published by Briggs & Stratton. The Engine Service Manual is a supplement to and is intended for use only by qualified mechanics. It is available for purchase and is part number M7-001-08.

⚠WARNING

Do not attempt to service engine components immediately after operating the vehicle; allow sufficient time for the motor to cool before beginning service. Do not attempt to service engine components while the motor is operating. Attempting to do so will result in serious injury.

Never operate engine with the air cleaner removed, fire can result.

⚠CAUTION

To prevent accidental starting when servicing engine or equipment, always remove the spark plug wire from the spark plug and ground the spark plug wire to the engine block.

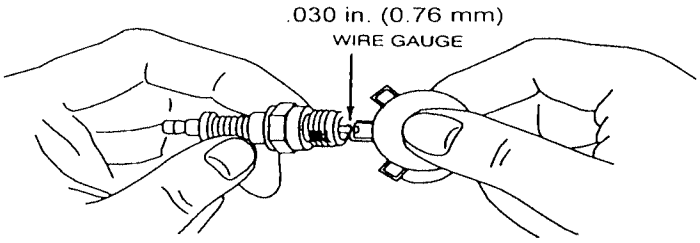
REQUIRED ENGINE MAINTENANCE	
MAINTENANCE ITEM	FREQUENCY
Clean Air Filter Compartment	Monthly
Clean Air Filter	Annually*
Check Air Filter	Every 200 Hours*
Check Oil Level	Daily
Check Fuel Filter	Every 400 Hours*
Change Engine Oil	Every 50 Hours*
Fill Fuel Tank	As Required
Replace Fuel Filter	Every 400 Hours*
Clean Cooling Fins and External Surfaces	Every 50 Hours*
Check Spark Plug	Every 200 Hours
Replace Spark Plug	Every 100 Hours
Check Valve Taper Clearance	Every 200 Hours
* Increase Frequency When Engine is Operated in Extreme Conditions.	

Spark Plug Servicing

The spark plug should be cleaned or replace every 100 hours of operation or annually whichever occurs first. For spark testing, refer to "Engine and Drive Service Manual."

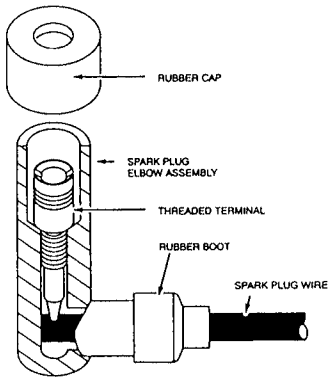
The standard spark plug for this engine is a Champion RC12YC or Autolite 3924 spark plug, with a gap of .030inches or 0.76mm. Use the following procedure to remove, clean, and replace the spark plug. *Refer to Figure 1 and 2 below.*

1. Block the rear wheels to prevent the vehicle from moving.
2. Turn the key-switch to the off position and disconnect the battery.
3. Remove the rear access panel.
4. Remove the spark plug from the engine.
5. Check the plug for carbon deposits or discoloration.
6. Clean any carbon from the plug using a wire brush.
7. Check and adjust the gap and replace the spark plug in the engine.



Engine Figure 1: Spark Plug Gap

8. Install the wire terminal firmly on the spark plug.



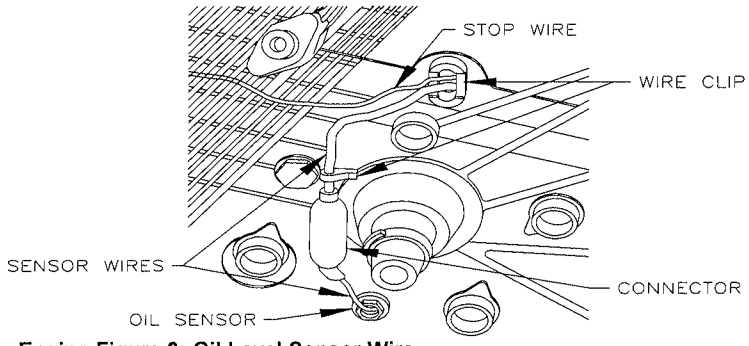
Engine Figure 2: Spark Plug Terminal Wire

Engine Oil

The following procedures outline how to check and change the engine oil. This engine has an oil capacity of 41 ounces (2.5 pints or 1.2 liters.). Use caution when changing or filling the engine with oil that you do not overfill it.

Oil Level Sensor

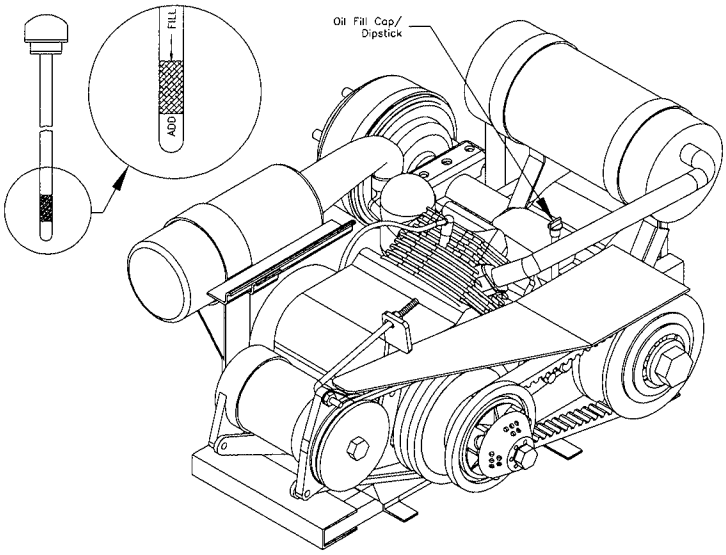
There is an oil level sensor on the engine as shown in Engine Figure 3, below. This sensor will cause the oil level light on the dashboard to illuminate when the oil level is extremely low. In addition, it will cut the engine off to prevent any damage from a lack of oil. Once the proper oil level is restored, the oil level sensor will allow the engine to be started again and oil level light on the dash will extinguish.



Engine Figure 3: Oil Level Sensor Wire

Measuring Oil Level

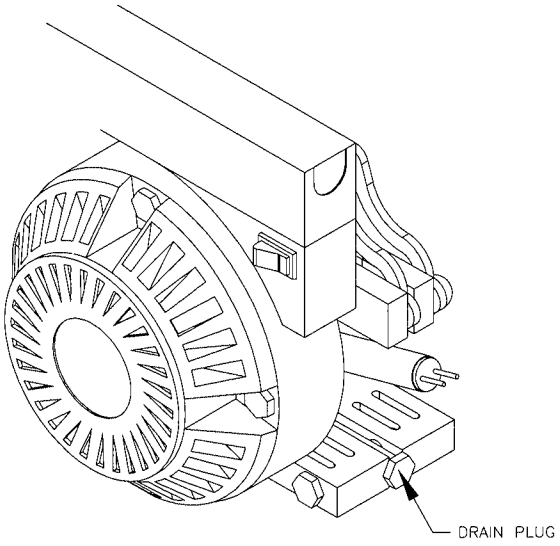
1. Park the vehicle on a level surface.
2. Remove the rear access panel from the vehicle.
3. Locate the dip stick/filler cap, just in front of the muffler exhaust manifold. *(See Engine Figure 4, page 3-43.)*
4. Unscrew the cap counterclockwise and remove the dipstick.
5. Wipe the dipstick off with a clean dry rag.
6. Replace the dipstick and screw the cap back into place.
7. Remove the dipstick again and inspect the oil level shown on the dipstick.



Engine Figure 4: Dipstick Location

8. Add oil as needed being careful not ot overfill.

Use only SAE 30 (API SE or SF) oil only.



Engine Figure 5: Engine Oil Drain Plug

Changing the Engine Oil

There are two-drain plug location on the engine, one on the rear of the engine between the transmission and the engine. In addition, there is one on the front of the engine, which is accessible through the cowling under the seats. We recommend that you use the plug located on the front of the engine directly under the seat cowling.

The engine manufacturer recommends that the oil be changed after the first five hours of operation and then every fifty hours thereafter or every twenty five hours under heavy load or high ambient temperatures.

⚠WARNING ***Use only SAE 30 (API SE or SF) oil only.***

1. Block the front wheels to prevent the vehicle from moving.
2. Turn the key-switch to the off position.
3. Place an oil pan or other approved receptacle for oil, under the vehicle.
4. With the engine still warm remove the drain plug from the engine and raise the rear of the vehicle slightly to facilitate drainage.
5. Once the oil has been drained replace the plug and lower the vehicle.
6. Remove the filler cap and fill the engine with oil. (*See "Measuring Oil Level" for proper level or amount of oil.)*
7. Check the oil level and test-drive the vehicle.
8. Check the oil level again. Fill as needed.

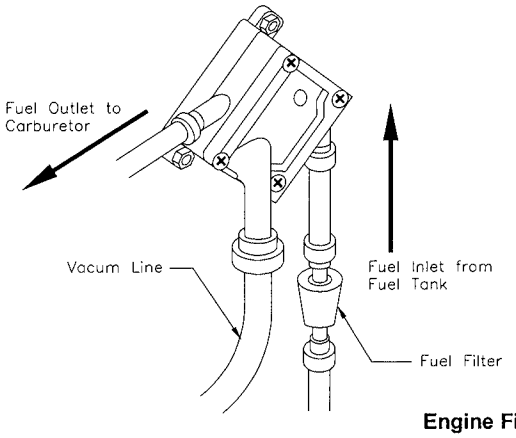
⚠WARNING ***Use only clean rags and tools when changing or checking the oil. Any contamination of the oil by the use of dirty tool or rags can result in internal damage to the engine.***

Engine Removal

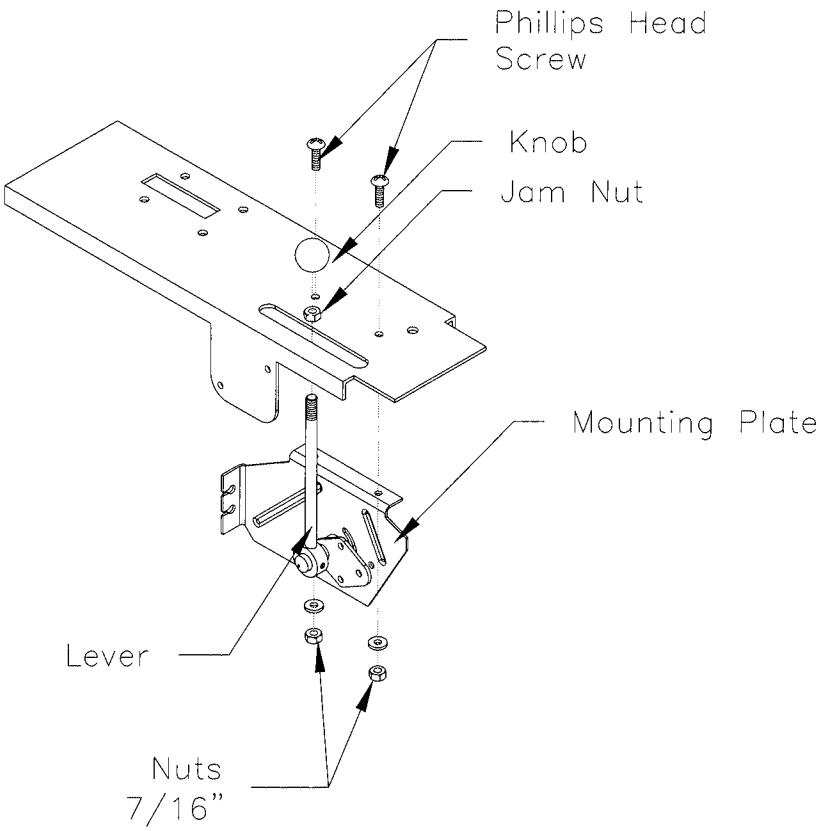
In this segment, we will cover how to remove the engine and rear end assembly from the vehicle as a complete unit. Refer to the figures in this procedure - for help with this procedure.

To remove the engine and rear assembly-follow these procedures:

1. Place Blocks under the front wheels to prevent vehicle movement.
2. Remove the front seats and raise the cowling securing it place.
3. Disconnect the main positive and negative at the battery.
4. Disconnect the following wires from the starter/generator:
    a. The negative battery cable, one white and four black wires.
    b. One light blue wire with dark blue stripe.
    c. One red wire with black stripe from the top terminal
5. Disconnect the wire harness plug located just above the engine on the right side.
6. Then disconnect the two wires going to the float on the fuel tank.
7. Remove the fuel and vacuum lines from the fuel pump and plug the ends with a 5/16" plug.
8. Remove the forward/reverse lever from the vehicle by:
    a. Removing the knob from the forward/reverse lever. By loosening the jam ut under the knob.
    b. Then using a 7/16" wrench and a Phillips head screwdriver remove the mount.



Engine Figure 6: Fuel Pump

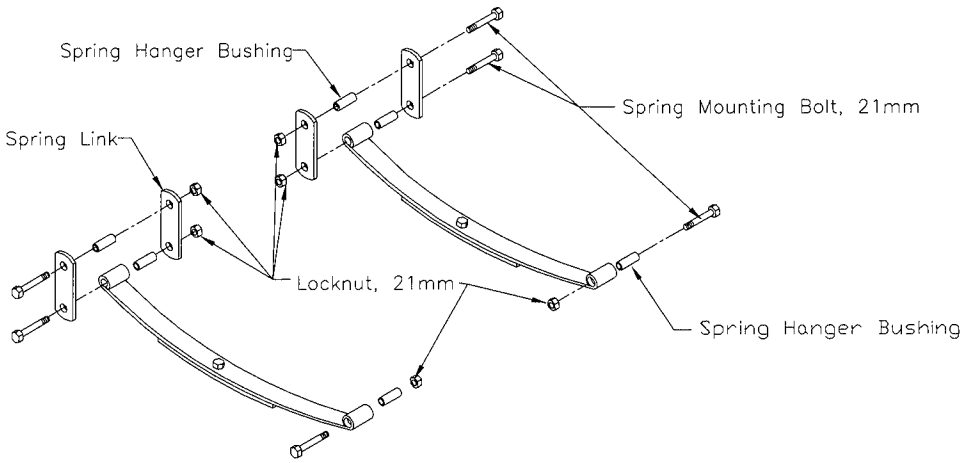


Engine Figure 6: Foward & Reverse Lever Mount

9. Raise the rear of the vehicle.
10. Place pallet jack or floor jack under the rear assembly and raise the jack several inches.
11. Lower the vehicle until the rear drive assembly rests on the jack.
12. Remove the mounting bolts from the rear leaf springs. *Refer to Engine Figure 8, page 3-47.*
13. Remove lower shock bolts (if equipped).
14. Disconnect the brake cables from the brake arms.

15. Remove the two pivot bolts from the front of the swing arm.
16. The rear assembly and engine should be resting on the jack. Raise the rear of the vehicle to gain access to the carburetor and disconnect the choke cable.
    a. This done by loosening the screw on the carburetor holding the choke cable to the carburetor linkage.
    b. Then remove the two securing clamps from the rear of the engine.
17 Pull the complete assembly out from under the vehicle.
18. Reinstall this assembly in reverse order.

WHEN REINSTALLING THE ENGINE AFTER INSTALLING NEW



Engine Figure 8: Leaf Spring Mount

NOTE

LEAF SPRINGS, DO NOT TIGHTEN THE MOUNTING BOLTS OR U-BOLTS, AS THEY WILL NEED TO BE ADJUSTED AS THE VEHICLE FRAME IS LOWERED. THEN LOWER THE FRAME UNTIL THE DRIVE IS PROPERLY POSITIONED UNDER THE VEHICLE AND THE SPRINGS ARE LINED UP WITH THEIR MOUNTS, TIGHTEN THE BOLTS AND NUTS TO THE SPRING PLATES. **ALWAYS USE NEW LOCKNUTS.**

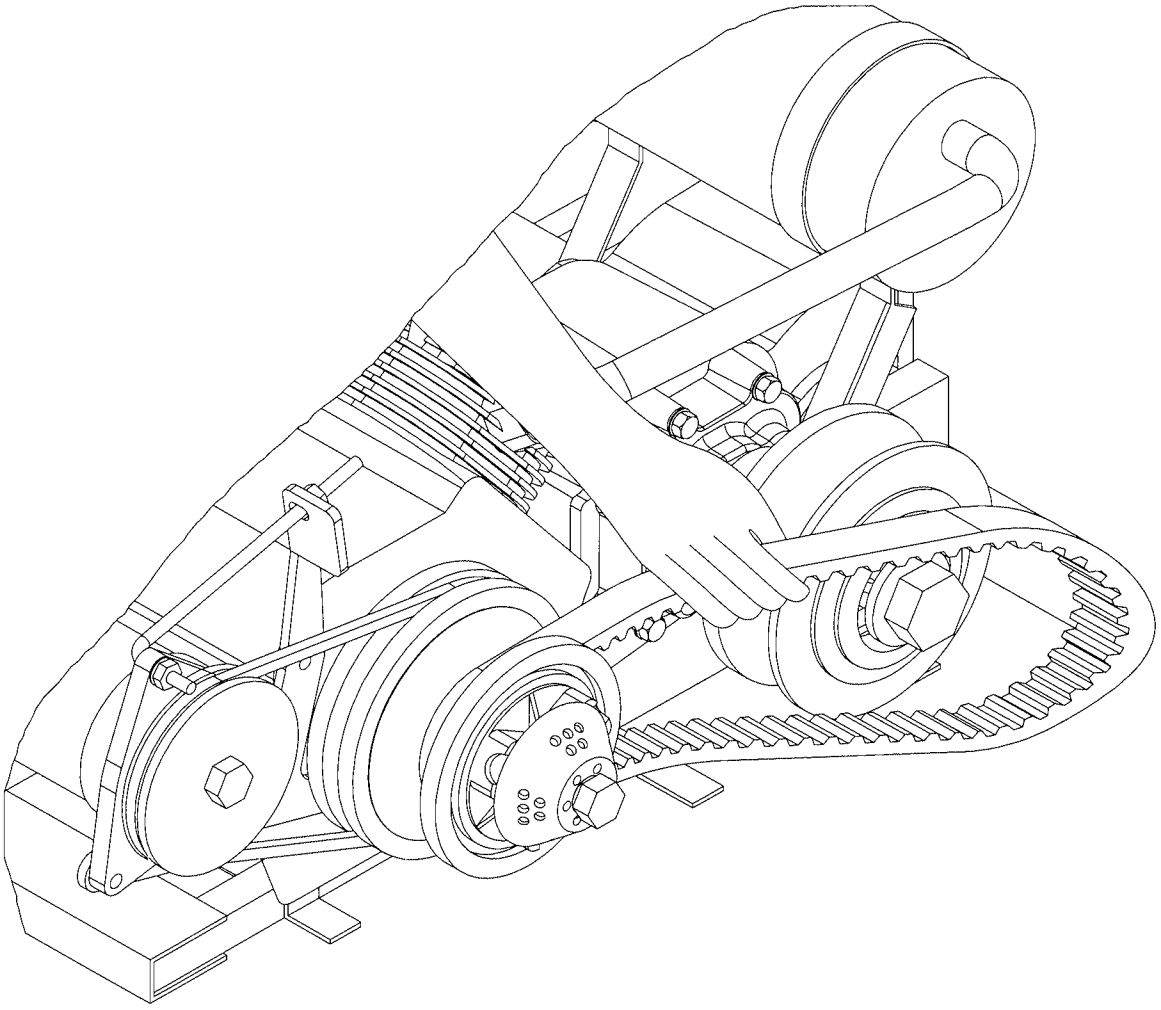
Drive Belt Removal

The drive belt is located on the left side of the vehicle around the driver and driven pulleys. In the following procedure, we will cover how to remove the drive belt from these pulleys. *Refer to Engine Figure 9.*

⚠WARNING ***Do not attempt to service the belt or any other engine component immediately after operating the vehicle, allow sufficient time for the motor to cool before beginning service. Do not attempt to service the engine or any of its components while the motor is operating.***

1. Place Blocks under the front wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery terminals.
3. Raise the rear of the vehicle so that the secondary sheave (or driven pulley) is accessible.
4. Remove drive belt shield.
5. Grasp the belt firmly and work one side of it over the outside edge of the pulley. *Refer to Engine Figure 9, on the next page.*
6. While continually pulling the belt toward the outside of the vehicle, rotate the pulley with your free hand.
7. The belt should begin to work itself off the pulley and then it can be removed from both pulleys altogether.
8. To install a new belt or to put a new belt on the pulleys, do the above procedure in reverse order.

NOTE WHEN INSTALLING NEW BELT YOU SHOULD BE PUSHING THE BELT OVER THE TOP OF THE SECONDARY SHEAVE TOWARD THE ENGINE.



Engine Figure 9: Removing the Drive Belt

Air Filter

The air filter container is located on the right side of the engine. It is held in place with a mounting bracket and a 10mm nut. The air filter container is connected to the carburetor by a rubber hose (air-cleaner-elbow assembly). Which is secured to the container and the carburetor by a hose clamp that can be remove by using a 6mm socket or wrench. To service the air filter, refer to the following procedures and *Engine Figure 10 on page 3-51*:

AIR FILTER CONTAINER

The container should be removed and cleaned regularly. (Bolt sizes are given above.)

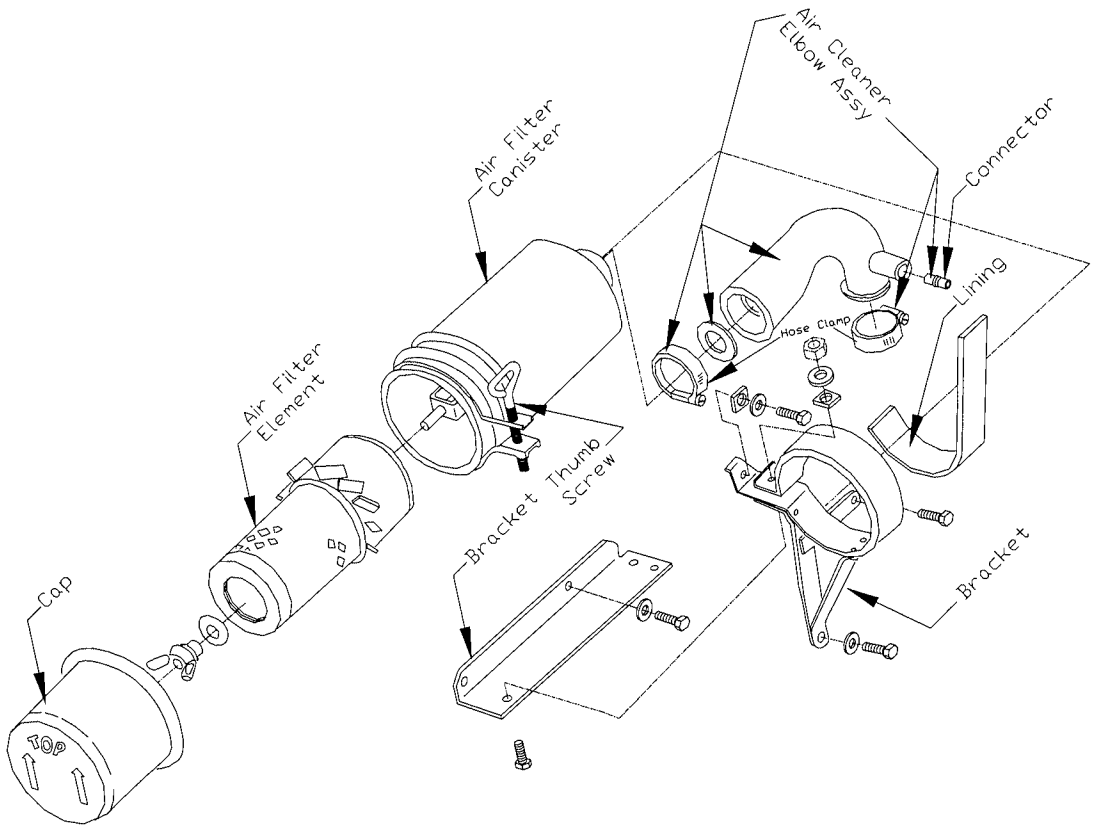
1. Place Blocks under the rear wheel to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Turn the key off and remove it from the key-switch.
4. Remove the hose clamp on the end of the container.
5. Remove the mounting bracket and container from the engine.
6. Disassemble the container and remove the filter element.
7. Inspect the filter element and replace as needed.
8. Wipe the inside of the container out thoroughly with a rag.
9. Replace the air filter and reinstall the container on the engine.

WHEN REASSEMBLING THE CONTAINER BE SURE THE PUT THE FRONT COVER ON SO THAT THE WORD TOP CAN BE READ, RIGHT SIDE UP.

FILTER ELEMENT

This should be removed and inspected every 200 hours. However, they generally need to be replaced once a year. In dirty conditions it should be inspected daily.

1. Place Blocks under the rear wheel to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Turn the key off and remove it from the key-switch.
4. Loosen the securing band thumbscrew, and move the band out of the way.
5. Remove the end of the container and loosen the wing nut in the center of the filter element.
6. Then pull the filter element from the container.
7. Inspect the filter for damage and for cleanliness. (Replace as needed.)



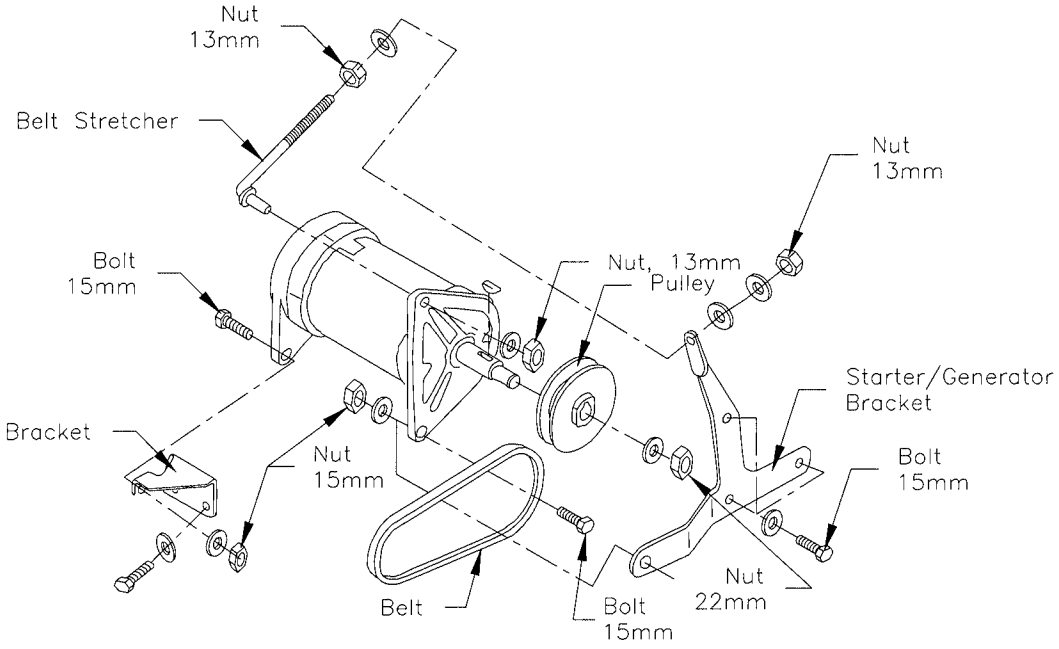
Engine Figure 10: Air Filter Assembly

Starter/Generator

The starter/generator is located on the front left corner of the engine. It is easily visible by removing the seats and lifting the cowling. The brush wear limit is 13mm or .59" in length. Remove the brushes from the starter/generator and measure their length. If they are, 13mm or less they should be replaced.

Starter/Generator Removal

1. Place Blocks under the rear wheel to prevent vehicle movement.
2. Open the seat cowling.
3. Disconnect the main positive and negative at the battery.
4. Remove the v-belt shield.
5. Disconnect the read lead with black stripe.
6. Disconnect the black and white leads.
7. Disconnect the blue lead with black stripe.
8. Loosen the pulley nut with a 23mm wrench.
9. Remove the 13mm nut from the belt stretcher and the 15mm mounting bolts from the bottom of the starter/generator.



Engine Figure 11: Starter/Generator

Brush Inspection

10. Remove the rubber brush covers and lead connecting screws.
11. Remove the brushes from the starter/generator.
12. Measure the length of each brush. If it is 15mm(.59 in)or less in length replace it.

Yoke, Commutator, Armature Service

This is done at the same time as the brush inspection since the starter/ generator is already removed from the engine. To begin ***refer to steps 1-12*** **of the Brush Inspection, and then continue with the procedures below.**

Disassembly

13. Remove the pulley.
14. Remove the three screws located behind the pulley.
15. Remove the end cap (pulley side) and the armature.
16. Remove the two bolts form the brush side end cap and separate the end cap from the yoke.
17. Clean the interior of the yoke and brackets with compressed air.

⚠WARNING ***Avoid inhaling the carbon dust created by cleaning the Yoke, Commutator, and Armature. A respirator or mask should be worn.***

18. Inspect the yoke and brackets for cracks or damage. Replace as needed.

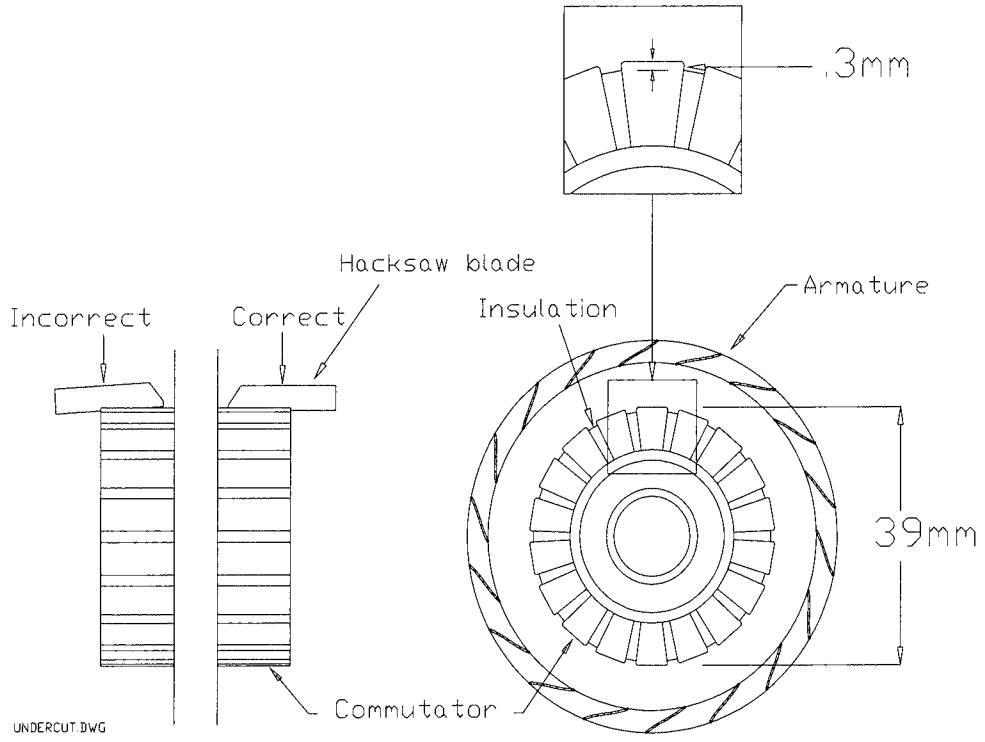
19. Inspect the yoke and armature assemblies for defects.

Yoke Inspection

20. Connect volt-ohmmeter to the yoke terminals F1, F2 and check for continuity
21. Connect a volt- ohmmeter to the red and green charging coil lead wires.
22. Measure the coil shunt resistance. 4.5~5.5Ω @ 20°C (68°F). If the resistance is incorrect replace coil.

Commutator Inspection

23. Place copper or aluminum plates over the jaws of a vise and lightly grip the armature with the vise.
24. Clean the armature, with #600 grit emery clothe.
25. Measure, the diameter of the commutator at which the brush contacts it. (The wear limit is 39mm (1.54in.) minimum diameter.)
26. Measure the mica or insulation depth between the commutator segments. (Depth limit 0.3mm (0.012in.))
27. If the mica or insulation depth is out of spec., using a hacksaw blade that is ground to fit in between the commutator segments. Scrape out the mica to its proper depth. *See Figure 12 Below.*



Engine Figure 12: Armature/Commutator Mica Depth

Armature Coil Inspection

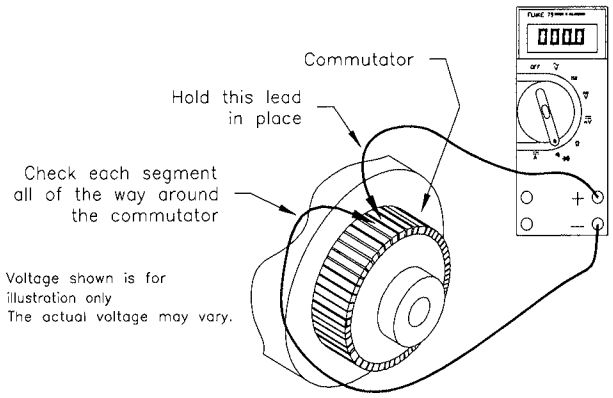
28. Check the armature coil for continuity and resistance.
29. Set the volt-ohmmeter to the X1k Ohm.
30. Connect the meter leads to the commutator and armature. The reading should be more than 1M Ohm @ 20°C (68°F). If the resistance reading is less than this replace the starter/generator.
31. Next, set the volt-ohmmeter to the X1Ohms range.
32. Test The Continuity of the Armature Commutator:
    Perform a continuity test around the armature commutator. Place one of the test leads on a single commutator segment. While holding the first test lead on the segment, check the continuity to the other segments around the commutator. ***Refer to the Figure at the Right.***

    Result:

    The meter reading should be 0000.

    Action:

    If you find an open segment the armature is bad and the motor must be replaced. **Stop here and repair the problem.**



Armature Commutator

Check Bearing Movement

33. Rotate the armature bearing with your fingers.
34. If it shows signs of wear or rotates roughly, replace it.

Reassembly and Installation

35. Reassemble the starter/generator in reverse order. Be sure that all nuts are secure.
36. Reverse the removal procedure to install the starter/generator on the motor. ***(Refer to Brush Inspection for the removal procedure.)***
37. Once the starter/generator is back in place, you will need to adjust the belt tension. ***(Refer to Starter/Generator Belt Adjustment, on page 64.)***
38. Tighten all mounting and adjusting nuts.

Fuel, Carburator and Accelerator System

The fuel system and accelerator system consists of the fuel tank, fuel filter, fuel line, fuel pump, carburator and the accelerator . In this section, we will show the location of each of these parts. In addition, how to service them. It is very important that you maintain a fire safety point with emergency equipment near by while working on the fuel system. Read all cautions and warnings carefully before beginning work.

⚠CAUTION *Do not use gasoline or gasoline additives containing methanol. Methanol can be corrosive to fuel system components.*

⚠CAUTION *Do not use gasoline left over from the previous season. Using gasoline left from the previous season will cause gum deposits in the fuel system and effect the starting capability of the engine.*

⚠WARNING ***Fuel is a very flammable liquid. It should be handled with extreme caution. Do not expose fuel to any open flame or spark. Be sure the vehicle is in a well-ventilated area away from any flame or sparks. Avoid direct skin contact or contact with eyes. If you do come in direct skin or eye contact with the fuel flush area with large amounts of water and get immediate medical attention.***

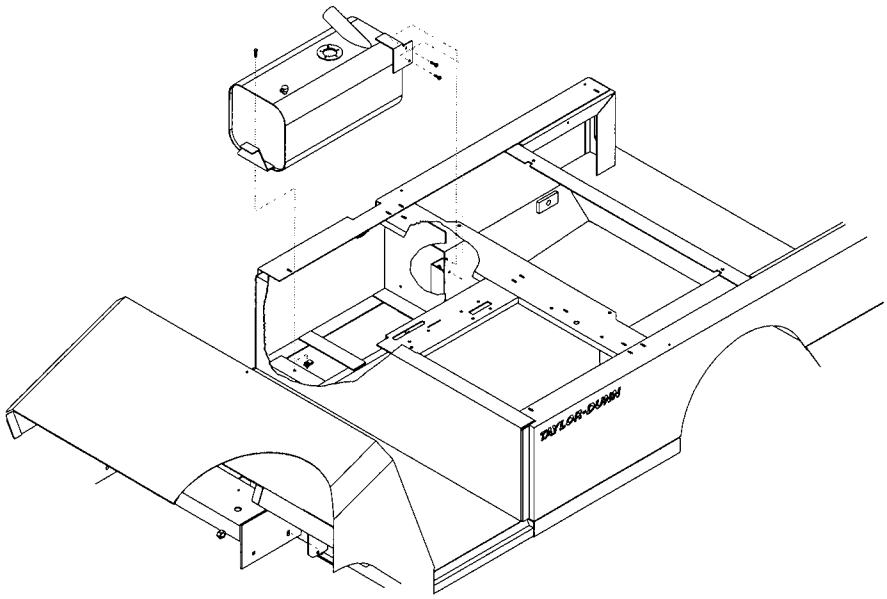
⚠WARNING ***Never use gasoline as a cleaning agent or attempt to fill the fuel tank while the motor is running.***

The Fuel System

The fuel system is easily maintained. in the following sections you will learn how to remove, replace and repair the various parts of the fuel system. For the purpose of this manual we will cover the fuel system up to its connection to the carbuerator. After that all other aspects of the fuel system as it relates to the caruerator will be covered under the carbuerator heading.

Fuel Tank

The fuel tank is located on the right side of the vehicle under the passenger seat. It is rated to hold approximately five US gallons of fuel. However, do not fill the tank to its full capacity a small amount of room should be left in the top of the tank for fuel expansion.



Fuel System 1: Fuel Tank Location

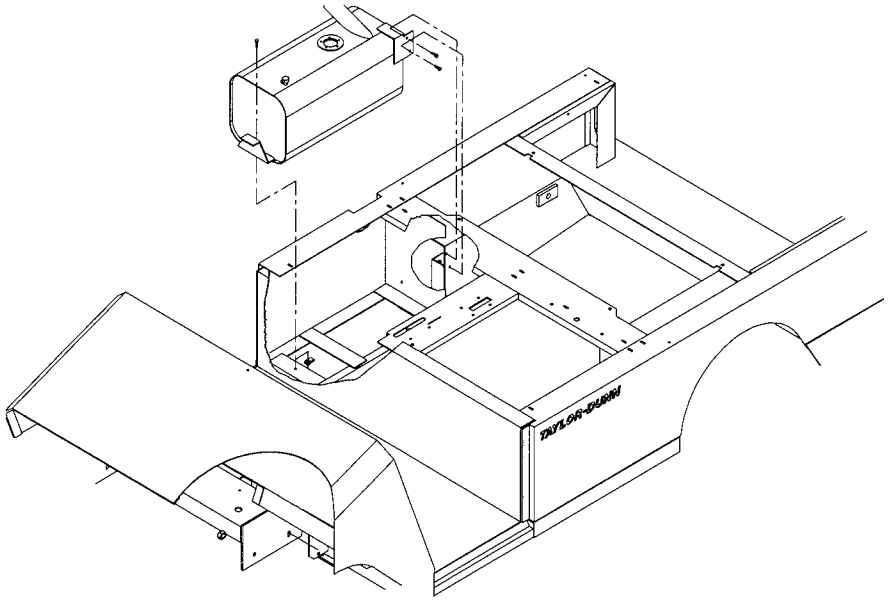
Servicing the Fuel Tank

The fuel tank is held in place by two clamps to secure it in place as shown in the figure below. These clamps can be removed in order to remove the fuel tank for servicing. The only reason the fuel tank should be removed is if extreme amount of water or dirt have been found in the fuel or if the tank has a leak.

Removing and draining the Fuel Tank

In order the remove the fuel tank from the vehicle it should be drained first. This can be accomplished from under the vehicle. Follow these procedures for removing the fuel tank:

1. Turn the key-switch off.
2. Place the shift lever into neutral.
3. Apply the park brake.
4. Place Blocks under the rear wheel to prevent vehicle movement.
5. Disconnect the main positive and negative at the battery.
6. Raise the front end of the vehicle and support it with jack stands. The vehicle should be raised approximately 4 inches off the ground.
7. Disconnect the fuel line from the tank, insert a 5/16" plug into the end of the line, and secure it with the hose clamp.
8. Remove the drain plug from the bottom side of the fuel tank and let it drain into a container.



Fuel System 1: Fuel Tank Location

9. Dispose of the fuel properly.
10. Put the drain plug back into place and lower the vehicle back to the floor.
11. Move the blocks to the front wheels and raise the rear of the vehicle a foot or so of off the ground.
12. Refer to, *"Engine Removal" on page 3-45*.
13. Remove the clamps from the tank and remove the tank from the vehicle. After the tank has been cleaned or repaired, it can be placed back into the vehicle.

⚠WARNING

Only qualified personnel should try to repair a fuel tank. Before any repairs can be done, the tank must be flushed of all fumes and fuel residue. TAYLOR-DUNN® does not authorize any one to repair these fuel tanks. Do not attempt to repair a fuel tank

Fuel Line and Vacuum Pump

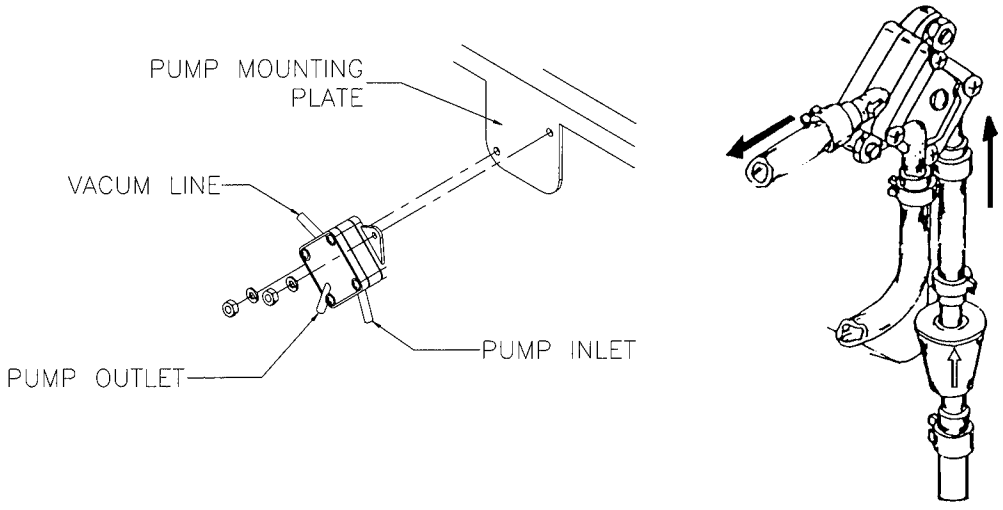
The fuel pump (Fuel System Figure 2, below) is located under the passenger seat and is mounted to the center support. The fuel line is made of non-metallic tubing that travels from the fuel tank to the inlet of the pump. The fuel line is then connected to output of the pump and then to the carburetor.

While looking at the fuel pump you will notice another line coming from the top left side of the pump. This line goes to the top of the crankcase to generate the vacuum pulses for the pump.

The fuel pump is not a serviceable item. In other words, there is no rebuild kit for it and it is not to be disassembled and cleaned on a schedule. With the non-metallic tubing, it is easy to see if fuel is being pumped into and out of the pump.

Fuel Filter

The fuel filter is located in the fuel line between the fuel pump and the fuel tank. This in line filter is easily accessible and visible from under the front seat cowling. It should be visually inspected periodically and replaced every 500 hours of operation or when dirty.



Fuel System Figure 2: Fuel Pump and Filter

NOTES

Carbuerator System

We will not go into great detail about the carbuerator in this section. We will cover how to adjust it and some minor service issues. But if you need detailed instructions on the servicing and repair of the carbuerator you can use the Briggs and Stratton Supplement manual #M7-001-08 from your local Taylor-Dunn dealer, or it may be purchased from a local Briggs&Stratton dealer by ordering their number 272147-11/93

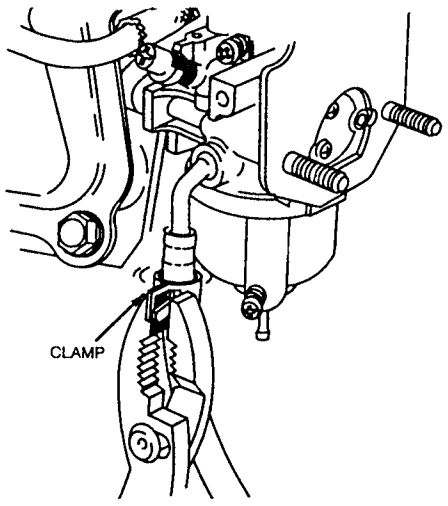
Carburetor

Here we will cover how to remove and clean the carburetor. Later we will cover how to adjust the carburetor.

To begine we are assuming that you have already removed the air filter and its parts from the motor and carburetor. If you have not done this, do it now and then continue with the following instructions.

Carburetor Removal

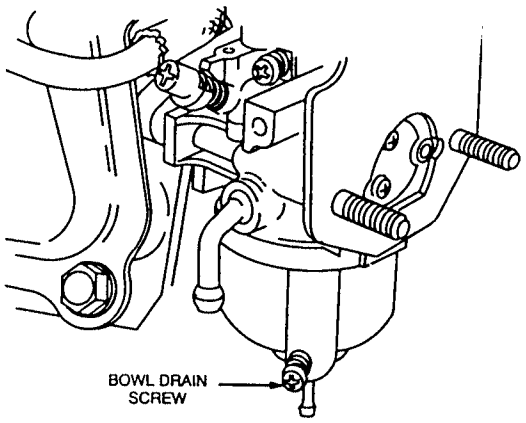
1. Park the vehicle on a level surface and block the front wheels.
2. Disconnect the main positve and negative terminals from the battery.
3. Allow the vehicle to cool down.
4. Raise the rear of the vehicle and support it with jack stands.
5. Remove the airfilter, if it has not already been done.
6. Place a container under the vehicle to catch any excess fuel that will come from the carburetor.
7. Using a pair of pliers remove the hose clamp and fuel hose from the carguretor inlet. ***(See the Figure below: Removing Fuel Line.)***
8. Open the float bowl drain screw and drain the fuel from the carburetor into the container.



Carburetor Figure 1: Removing Fuel Line

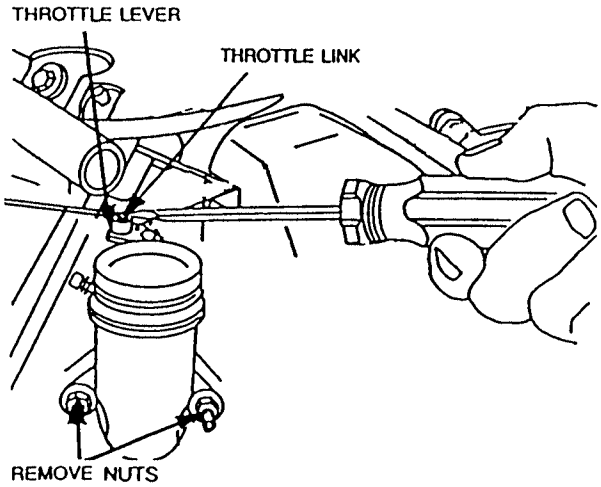
9. Remove the govenor link from the throttle lever on the carburetor.

10. Remove the nuts from the studs holding the intake elbow onto the carburetor, while supporting the carburetor so that it soes not fall.



Carburetor Figure 2: Draining Carburetor

11. Pull the carburetor off the mounting studs.



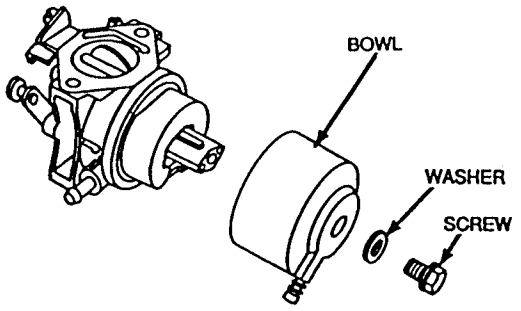
Carburetor Figure 4: Removing the Gonenor Link and Intake Elbow

Carburetor Disassembling and Cleaning

In order to properly clean the carburetor it must be disassenbled and cleaned using any commercially available carburetor cleaner.

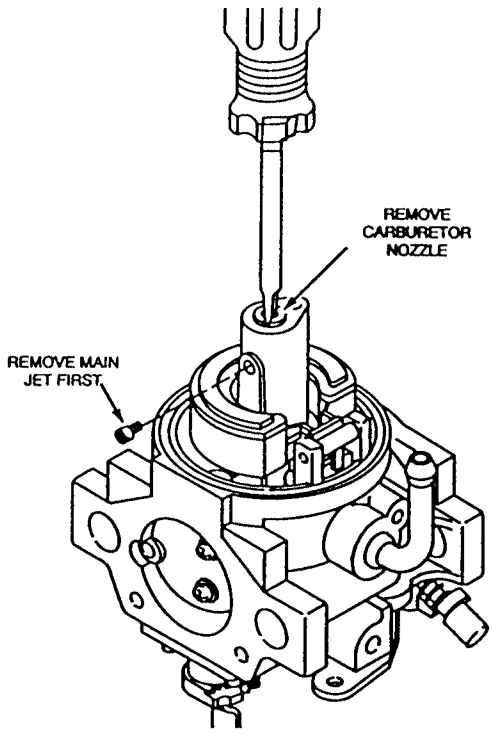
To disassemble the carburetor follow these procedures:

1. Remove the bowl from the carburetor as shown below.



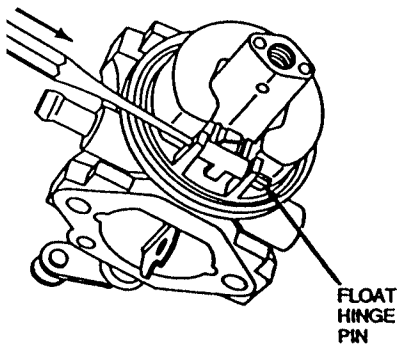
Carburetgor Figure 4: Disassembly

2. Remove the main jet and carburetor and nozzle.



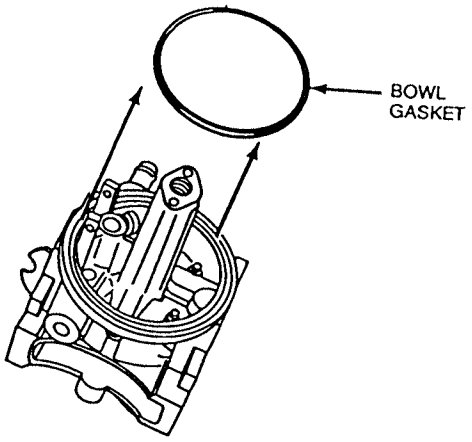
Carburetor Figure 5: Remove Main Jet

3. Remove the float assembly.

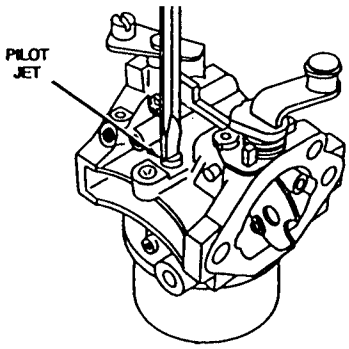


Carburetor Figure 6: Remove Float

4. Remove the float bowl gasket.



Carburetor Figure 7: Bowl Gasket



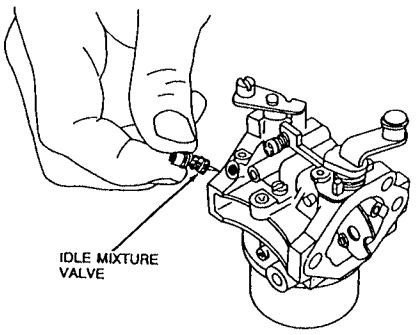
Carburetor Figure 8: Pilot Jet

NOTE

MAKE SURE THAT THE SCREWDRIVER FITS THE JET PROPERLY SO AS NOT TO DAMAGE THE JET.

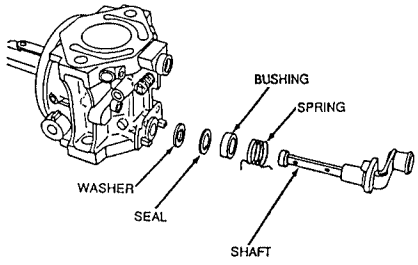
5. Remove the pilot jet.

6. Remove the idle mixture valve.



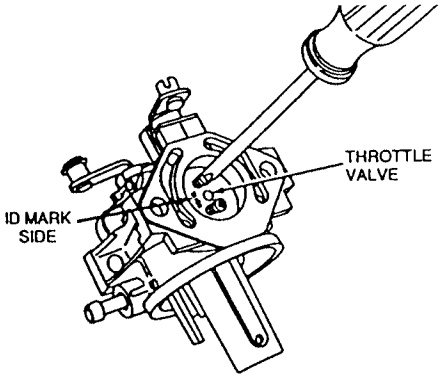
Carburetor Figure 9: Idle mixture

7. Remove the choke shaft and air jet by:
   a. Unhooking the choke shaft spring.
   b. Removing thechoke valve, shaft bushings, seals ans washers as shown.
   c. Then remove the air jet.



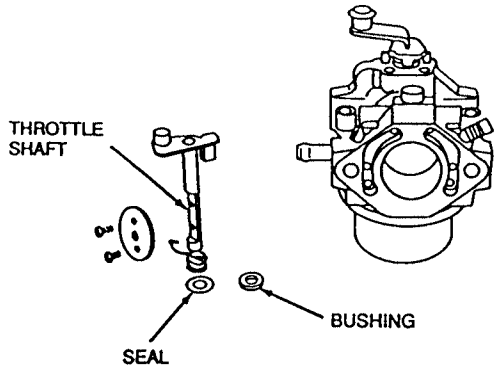
Carburetor Figure 10: Remove Choke Shaft and Air Jet

8. Note the location of the id mark on the throttle valve. Then remove the throttle valve as shown.



Carburetor Figure 11: Throttle Valve ID Marks

9. Remove the throttle shaft from the carburetor by:
   a. Removing the saft seal and bushing from the throttle shaft. Inspect the bushing and replace as needed.
   b. Then remove the shaft from the carburetor body.



Carburetor Figure 12: Remove Throttle Shaft

NOTE

BE SURE THAT THE CARBURETOR IS COMPLETELY DISAS-SEMBLED AND ALL PASTIC AND RUBBER PARTS ARE REOMOVED BEFORE USING THE CARBURETOR CLEANER.

10. Clean the carburetor throughly in any commercially available carburetor cleaner such as Bendix Carburetor Cleaner or its equivalent.

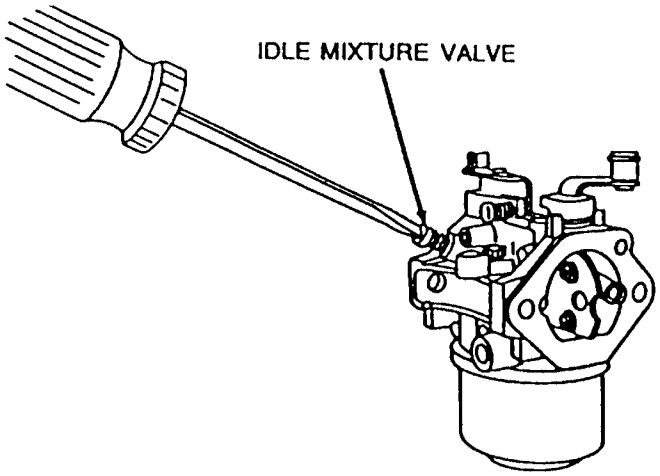
11. Reassemble the carburetor in reverse order.

Carburetor Adjustments

The OHV engine carburetor-fuel-mixture adjustment is unique and for this reason, the fuel mixture adjustment must be done in the order stated. All carburetor adjustments must be made with the air cleaner installed.

⚠WARNING *Never operate engine with the air cleaner removed, fire can result.*

Initial Adjustment



Carburetor Figure 13: Needle Valve Adjustment

1. Turn the needle valve clockwise until it seats. **Do not force it.**
2. Turn the needle valve counterclockwise 1-1/4 turns.

   This setting will permit the engine to start. The final adjustments will be made with the engine running.

⚠WARNING

The following procedure is very dangerous failure to properly support and block the vehicle will result in a run away vehicle, property damage, and injury. Before making any final adjustments be sure that the vehicles rear end is properly supported several inches off the ground and that the front wheels are blocked to prevent any movement. Use jack stands to keep the rear wheels from touching the ground.

Accelerator System

The accelerator system consists of the accelerator pedal, accelerator mount and throttle cable. The accelerator mount connects the accelerator pedal and the throttle cable to a fixed location on the floorboard. The accelerator mount is equipped with return springs to return the pedal to its original position.

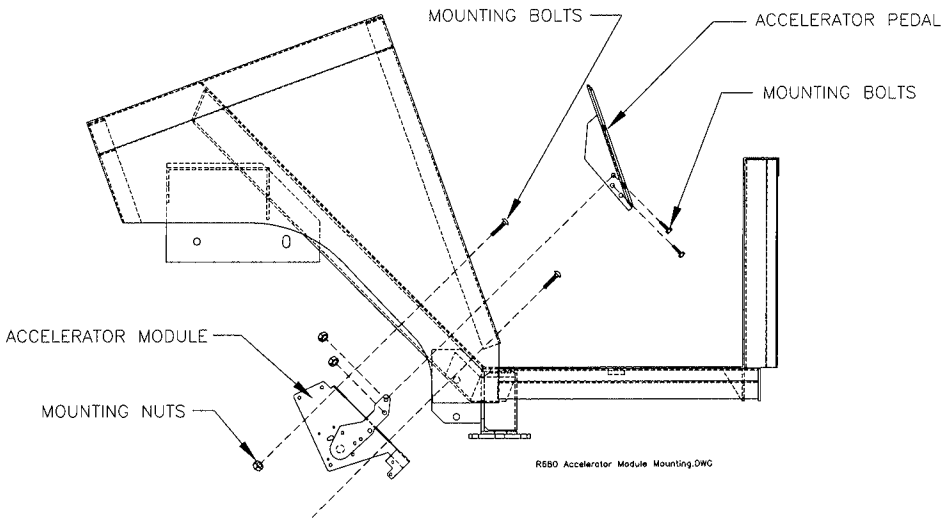
Accelerator Mount Replacement

To remove or replace the accelerator mount, use the following procedure and ***refer to Accel Figure 1 on page 3-71.***

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it with jack stands.
4. Remove the bolts holding the pedal to the accelerator mount and replace the pedal or pedal mount if damaged or bent.
5. Remove the locknuts holding the accelerator mount to the floorboard, and remove the mount.
6. Remove the throttle cable clamp and wire connector from the mount.
7. Remove and replace any damaged or broken return springs on the mount.
8. Reinstall the throttle cable and cable clamp to the accelerator mount.
9. Reinstall the mount to the floorboard using <u>new</u> locknuts.

⚠WARNING ***<u>Always use new locknuts.</u> Locknuts become less effective if used more than once. If the locknuts holding the accelerator to the floorboard come loose, serious injury may occur.***

10. Reinstall the pedal and pedal mount to the mount.
11. Adjust the mount per 'Accelerator Mount Adjustment' procedure.
12. Test-drive the vehicle.



Accel Figure 1: Acclerator Module Mounting

Accelerator Mount Adjustment

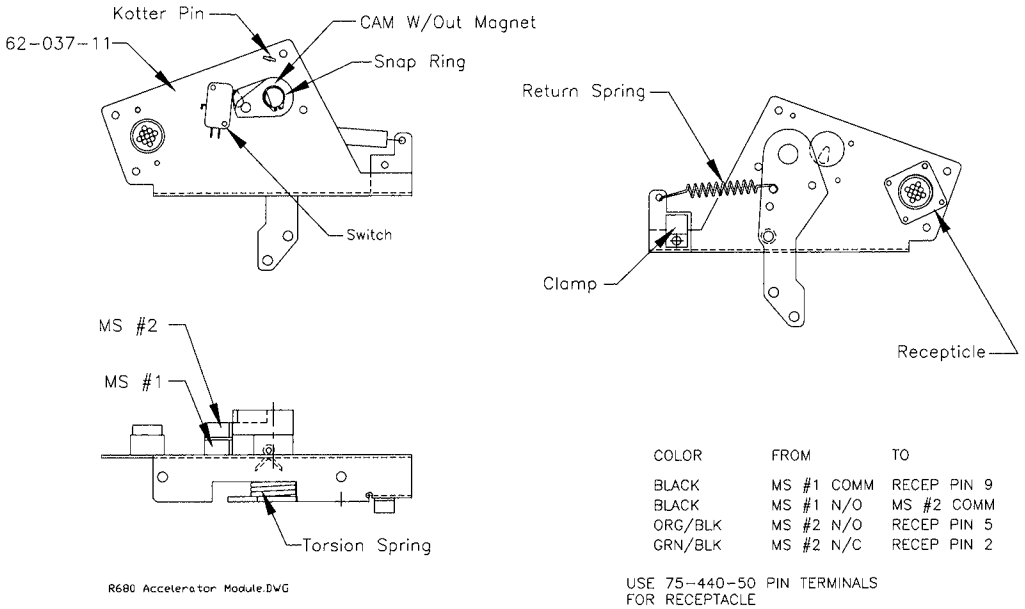
To adjust the accelerator mount follow this procedure:

1. Loosen the jam nut on the accelerator stop bolt.
2. Adjust the bolt until the micro switch is activated.
3. Tighten the jam nut.
4. Adjust the throttle cable. See ***"Throttle Cable Adjustment."***

Accelerator Return and Torsion Spring Replacement

In order to remove and replace the return and torsion springs in the accelerator mount follow these procedures and ***refer to Accel Figure 2 below:***

1. Place Blocks under the rear wheel to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.
3. Raise the front end of the vehicle and support it with jack stands.
4. Remove the accelerator mount as described in the "Accelerator Module Replacement," procedure.
5. Remove the return spring from the module.



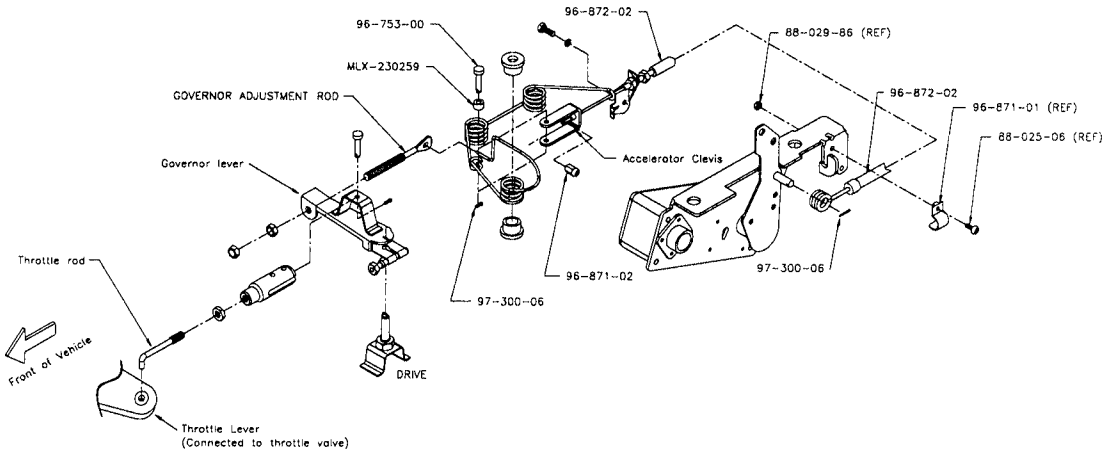
Accel Figure 2: Accelerator Module

6. Remove the snap ring holding the lever shaft to the module.
7. Slide the shaft and spring out of the module.
8. Install a new torsion spring by placing the shorter end of the spring through the washer and into the module.

NOTE MAKE SURE THE SPRING TAB ENGAGES THE MICRO SWITCHPROPERLY.

9. Inset the lever shaft into the module, and insert the longer spring end into the lever.
10. Rotate and push the lever into position. Tap the lever if necessary to allow the snap ring to be installed.
11. Install a new return spring if needed and reinstall the module onto the vehicle.

Throttle Cable Adjustment



To adjust the throttle-cable, read and follow these steps:

1. Place blocks under the rear wheels to prevent vehicle movement.
2. Disconnect the main positive and negative at the battery.

⚠CAUTION *Double check that the battery has been disconnected and that the key-switch is off and the key has been removed from the switch. Remember accidents do not just happen they are caused.*

3. Remove the air-cleaner elbow assembly from the carburetor.
4. Swing the governor lever towards the rear of the vehicle, until it stops and check that the throttle valve is fully open.
5. If the throttle valve is not fully open, remove the throttle rod from its socket in the throttle lever.
6. Loosen the locknut on the throttle rod.
7. Then turn the throttle rod either clockwise or counterclockwise to open or close the throttle valve when the rod is reattached to the throttle lever.

NOTE THE ADJUSTMENT SHOULD ALLOW COMPLETE OPENING AND CLOSING OF THE THROTTLE VALVE.

8. Reinsert the throttle rod into the throttle lever and check the throttle valve to see if it opens fully when the governor lever is swung clockwise to its stop position.

NOTE THE GOVERNOR LEVER MUST STOP MOVING AT THE SAME TIME THE ACCELERATOR CLEVIS STOPS. DO NOT PERMIT OVER-TRAVEL OF THE GOVERNOR LEVER BEYOND THAT OF THE ACCELERATOR CLEVIS.

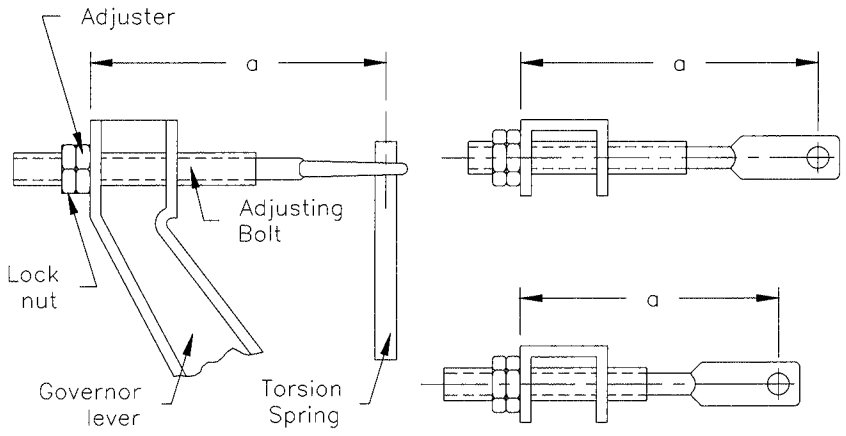
Governor Adjustment

The following procedure covers the adjustment of the governor. It may become necessary to adjust the governor after replacing the accelerator cable or after working on the carburetor. This instruction is not intended for the user or any one else to increase the maximum speed of the vehicle. The governor is adjusted at the factory, so no adjustment is normally required.

1. Turn the key-switch off and block the wheels.
2. Remove the rear access panel and place out of your way.
3. Disconnect the battery cables from the battery.

⚠CAUTION *Insure that the battery has been disconnected and that the key-switch is off with the key removed.*

4. Locate the governor lever on the right side of the engine.



Governor Figure 1: Governor Adjustment

5. Make a small paint mark on the governor showing the approximate starting distance of "a."(See governor figure 1 above for distance "a.")
6. Loosen the locknut on the adjusting bolt.
7. In order to reduce the maximum speed of the vehicle, turn the adjuster nut counterclockwise. To increase the maximum speed of the vehicle, turn the adjuster nut clockwise.
8. Tighten the locknut against the adjuster nut once you have made the adjustment.
9. Remove the blocks and test drive.

10. Repeat steps one through eight until the proper speed has been set.

The maximum speed that this vehicle is to be adjusted for is 12 MPH (11.37 km/h,) as governed by the ANSI. Z130.1 standard. Use the following table as a guide for adjusting and checking the speed of your vehicle.

In order to determine the speed that your vehicle is currently adjusted for, measure the time it takes the vehicle to travel a distance of 200 feet (60.7m) on a flat surface. Begin

V		t(s)
MPH	Km/h	
10	16.09	13.64
11	17.70	12.40
12	19.31	11.37
13	20.92	10.49
14	22.53	9.74
15	24.14	9.09

Table 3-1: Velocity and Time

measuring when the vehicle reaches full speed.

V = Velocity t(s) = Time is Seconds MPH = Miles per Hour
km/h = Kilometers per Hour

⚠WARNING *The ANSI Standard Z130.1 establishes safety requirements for the design and operation of electric and gasoline powered golf cars with respect to speed, acceleration, stability, and other systems. The governor of this or any vehicle is not to be adjusted or tampered with, by person or persons intentionally trying to make this vehicle exceed the maximum speed as provided in the ANSI Standard Z130.1.*

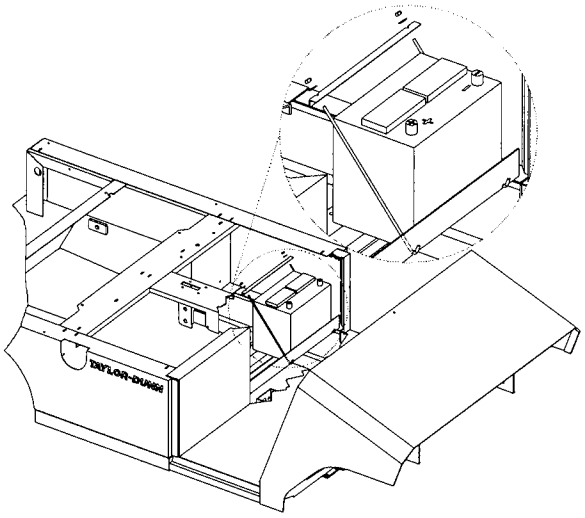
⚠WARNING *Adjusting the governor so that the vehicle will exceed the maximum speed of 12 MPH can result in serious injury and property damage.*

NOTES

This vehicle is equipped with a 12-volt automotive battery. The battery should be checked for proper electrolyte level and cleaned to maintain its optimum charge. This will help prevent corrosion to the battery terminals and wiring, as well as create a safer operating environment.

The location of the battery is shown in *figure 1, below.*

For the proper electrolyte levels refer to the heading ***"Electrolyte Levels,"*** on the next page.



Battery Figure 1: Battery Location

⚠WARNING

If there are any signs of damage or leaks, use extreme caution. Removing or working on a damaged battery may result in a serious acid burn. If you come in direct skin or eye contact with any of the electrolyte. Flush the area with large amounts of water immediately and get medical attention.

First Aid:

SKIN CONTACT: Wash the affected area immediately with large amounts of water and remove any contaminated clothing. Get medical attention immediately.

EYE CONTACT: Hold eyelids open and flush eye with large amounts of water and remove any contact lenses immediately. Get medical attention immediately.

Battery Service

Before working with or servicing any battery you should read and follow these steps. It is very important that you follow each of these steps exactly.

1. Park the vehicle in a well-ventilated area away from any possible flame or spark.
2. Be sure the vehicle is secured in place by blocking the tires.
3. Put the forward/reverse lever into the neutral position.
4. Disconnect the positive and negative terminals of the battery.
5. Wipe or brush off any excess dry dirt. Wet dirt may be an indication of a leak or the presence of battery acid. (See Cleaning Battery Acid.)
6. Inspect the electrolyte or water level. (Fill as needed. See Electrolyte Levels and figure 3-29.)
7. Inspect battery for any signs of damage or leaks. (Replace as needed.)

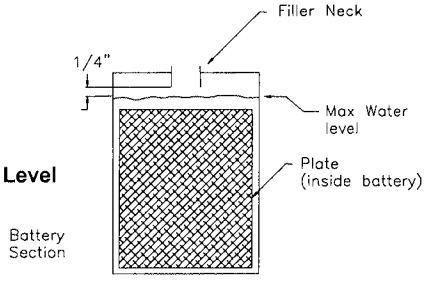
Electrolyte levels

To check the electrolyte level:

1. Visually inspect the electrolyte. It is low if the water level is more than ¼" below the bottom of the filler neck. (If low, fill with distilled water to the correct level using part number 77-201-00 battery filler. (See figure 3-29.))

⚠WARNING ***Do not overfill the battery. If the battery is filled too full, they may leak electrolytic acid and cause a serious chemical burn.***

2. Clean the battery as described previously.
3. Clean the cell caps, battery posts, and battery box area with water.



Battery Figure 2: Electrolyte Level

Cleaning Battery Acid

Dry dirt can be easily wiped or brushed off the battery. Wet dirt or wetness on the covers indicates the presence of battery acid.

To clean the battery:

1. Use nonmetallic brush with flexible bristles and a strong solution of water and baking soda (1 lb. of soda to 1 gal. of water) to wash the top of the battery.
2. Continue until all bubbling stops, which indicates that the acid has been neutralized. ***Do not get any of the soda solution in the battery cells.***
3. Insure the filler caps are securely in place.
4. Rinse thoroughly with clean water and dry.

Charging the Battery

At some point, it may become necessary to charge the battery. Follow this procedure in order to charge the battery correctly and safely. Be sure to read all cautions and warnings carefully.

⚠WARNING

Do not attempt to jump-start the engine. The motor in this vehicle will start only when the vehicles accelerator pedal is depressed and the key-switch turned on. Attempting to jump-start this vehicle will cause damage to the electrical parts of the engine and could cause serious injury.

Before you begin charging the battery, Follow this checklist and then charge the battery.

☐ Inspect the battery for signs of leaks and dirt. (Clean or replace as needed.)

Be sure to identify the negative (-) and positive (+) battery cables.

☐ Follow this procedure for connecting the battery to a charger and charging the battery:

1. Turn the key-switch OFF.
2. Block the tires to prevent the possibility of the vehicle rolling.
3. Set the park brake.
4. Disconnect the negative (-) battery cable from the battery.
5. Connect the red lead of the charger to the positive (+) terminal on the

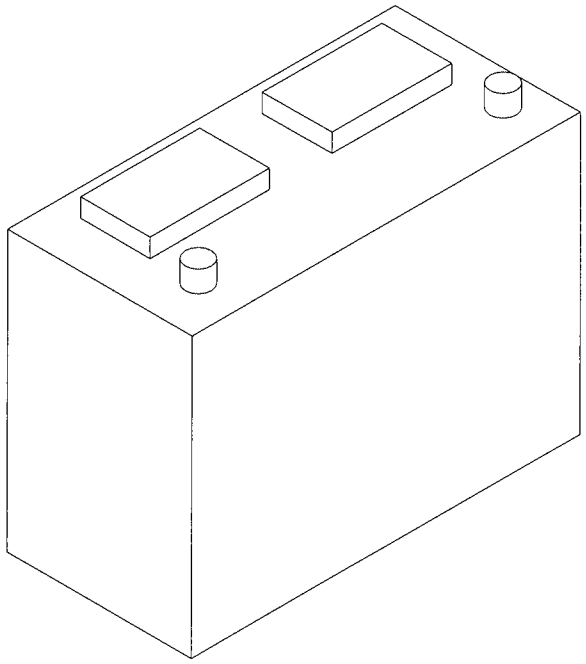
battery and the black lead to the negative (-) terminal of the battery.

6. Turn the charger on and begin charging the battery.

⚠WARNING ***Do not use a high amperage boost charger to charge the battery in this vehicle as this could cause damage to the electrical system of this vehicle.***

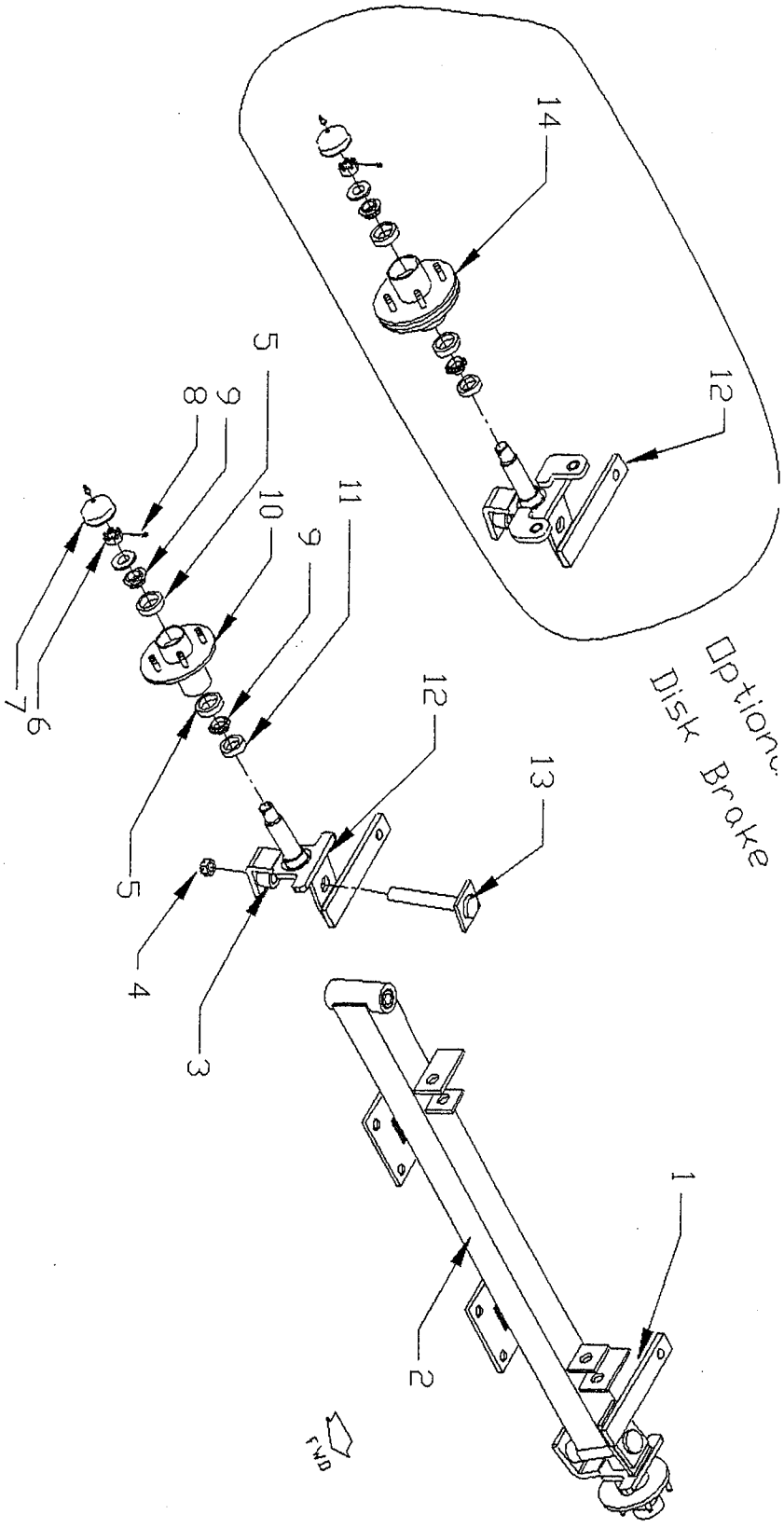
⚠WARNING ***Do not reverse the battery cables while connecting the charger or while reconnecting them to the battery as this could result in damage to the electrical system and or injury.***

7. Charge the battery until the specific gravity of the electrolyte reaches 1.260 @ 26.7°C (80°F).
8. After the charging cycle is complete remove the chargers cables and reconnect the negative (-) cable to the battery.
9. Remove the blocks from the tires and test-drive the vehicle.



Illustrated Parts List

STANDARD FRONT AXLE

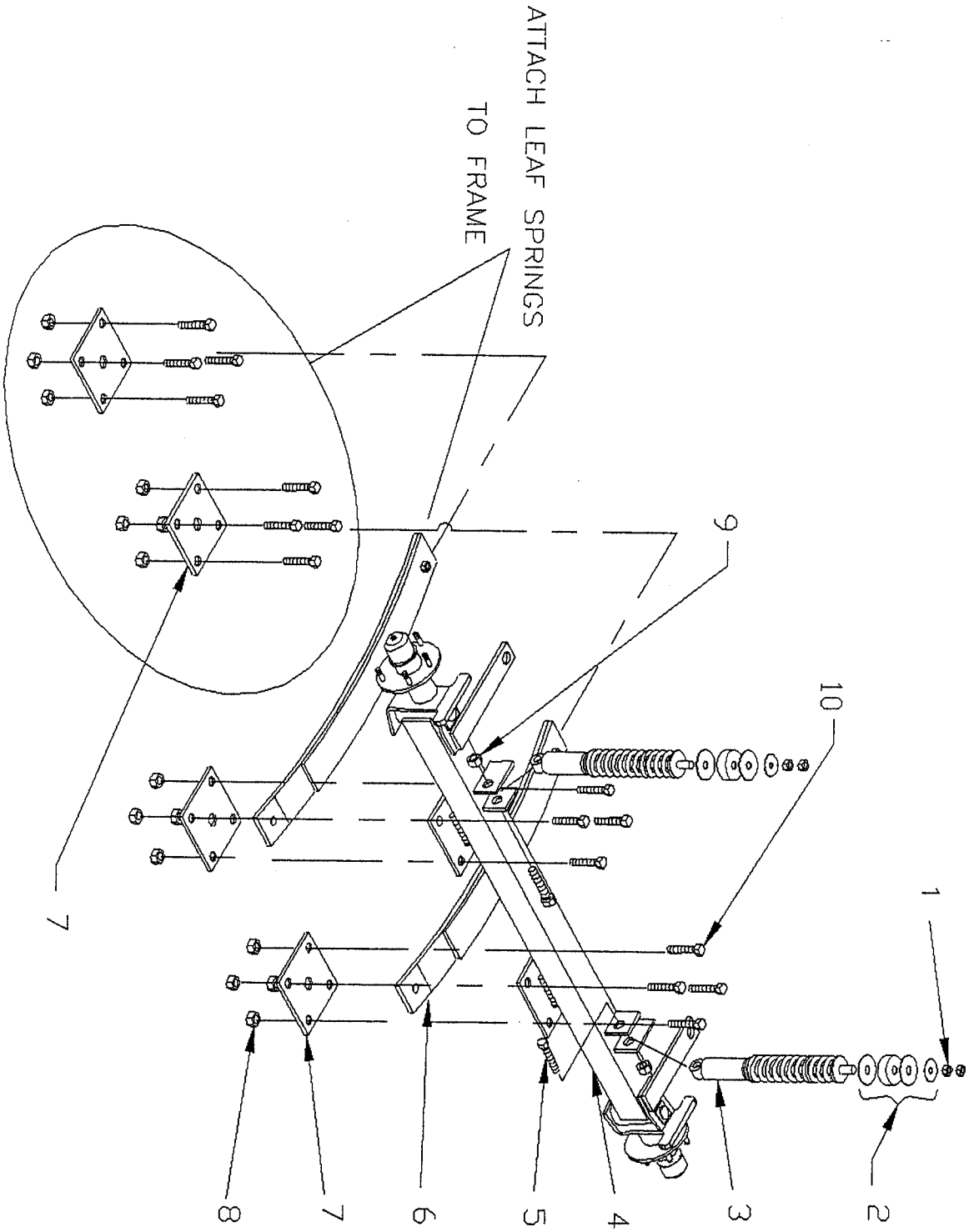


FRONT AXLE			
ITEM #	PART #	DESCRIPTION	QTY
1	14-380-80	Yoke, Left Side Without Brakes (Standard)	1
	14-240-08	Yoke, Left Side With Brakes (Optional)	1
	*14-380-92	Yoke, Left Side Without Brakes (Standard)	1
	*14-380-85	Yoke, Left Side With Brakes (Optional)	1
2	15-380-33	Front Axle Beam	1
	*15-380-31	Front Axle Beam	1
3	80-309-10	Bearing Pack	2
4	88-289-81	Nut	2
5	80-103-00	Bearing Race	2
6	88-239-85	3/4"NF, Slotted Nut	2
7	92-104-00	Dust Cap W/ Grease Fitting (Standard Axle)	2
	92-104-01	Dust Cap W/O Grease Fitting (Optional Axle W/Hyd Brakes)	2
8	88-527-11	1/8" X 1" Steel Cotter Pin	2
9	80-017-00	1" Bearing	2
10	12-124-15	Hub, W/O Disc (Standard Axle W/O Brakes)	2
11	45-338-00	Seal	2
12	14-380-81	Yoke, Right Side Without Brakes (Standard)	1
	14-240-07	Yoke, Right Side With Brakes (Optional)	1
	*14-380-93	Yoke, Right Side Without Brakes (Standard)	1
	*14-380-86	Yoke, Right Side With Brakes (Optional)	1
13	21-009-10	King Pin	2
14	12-158-10	Hub, With Disc (Optional Axle)	2

*THESE PARTS ARE FOR VEHICLES WITH SERIAL NUMBERS LESS THAN 124156

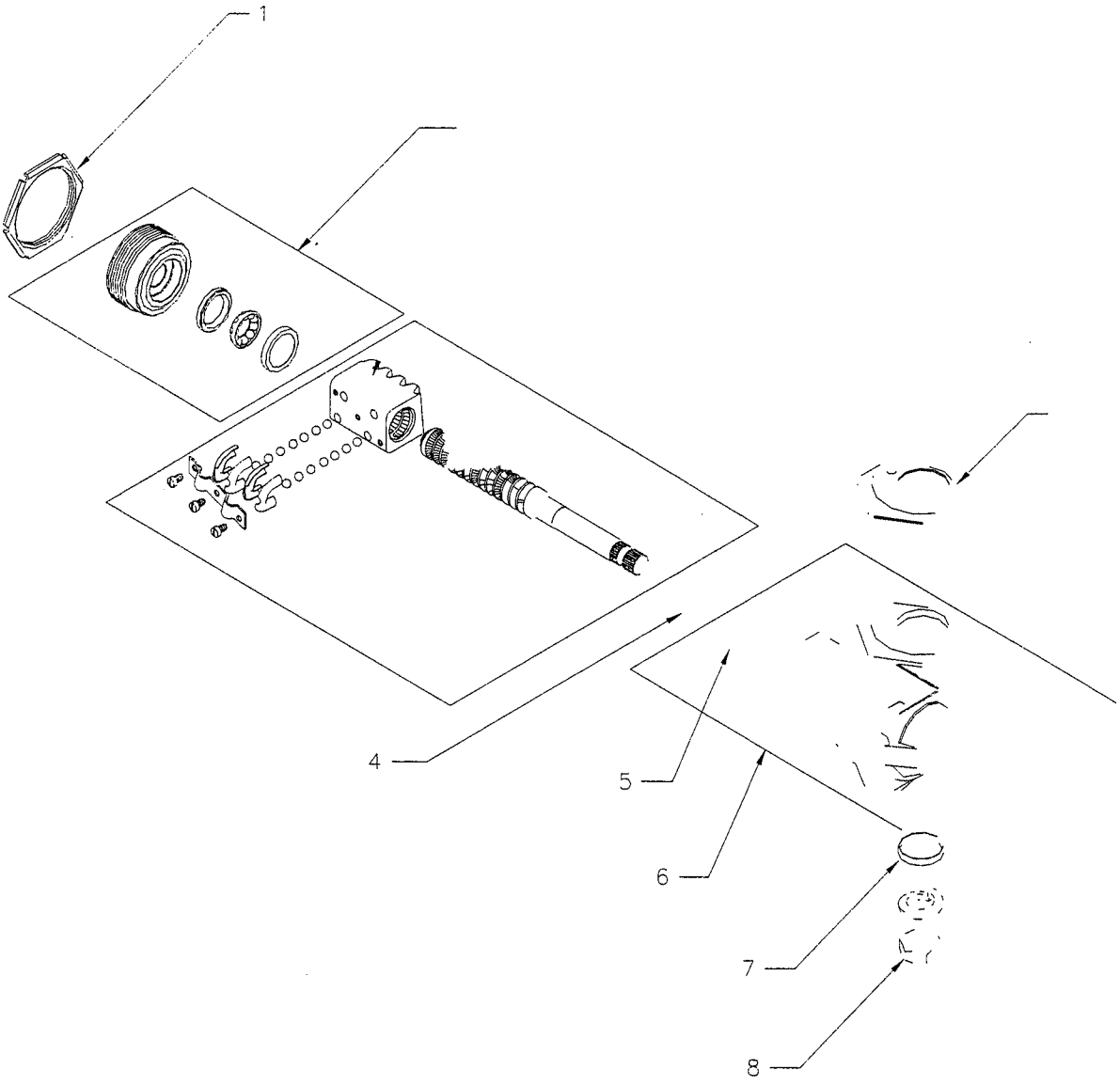
Section 4

FRONT SUSPENSION



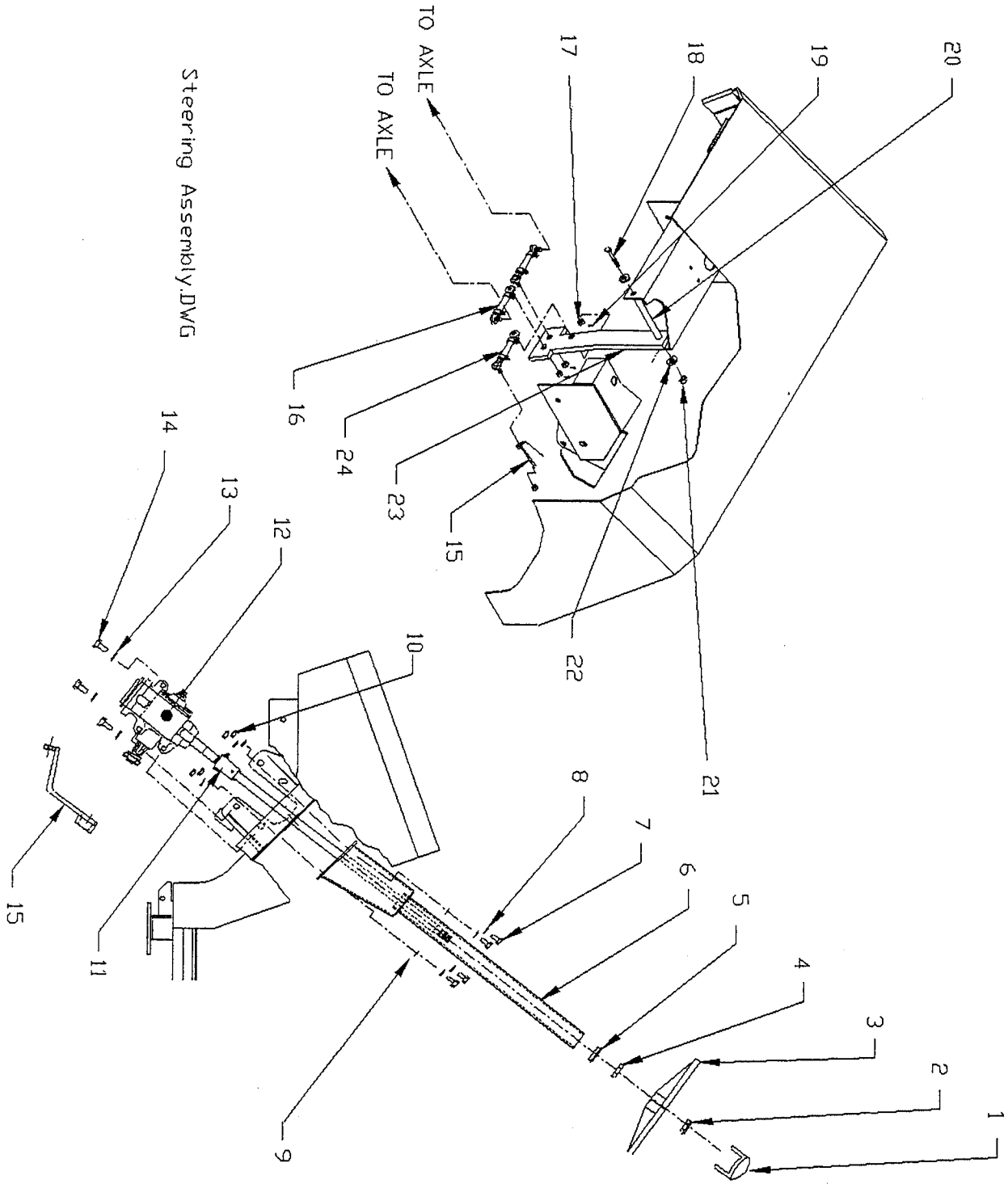
FRONT SUSPENSION			
ITEM#	PART #	DESCRIPTION	QTY
1	88-119-80	3/8" NF HEX HD Nut	4
2	86-006-01	Hardware, Shock Mounting	2
3	86-006-00	Shock Absorber	2
4	See Pg 4-3	Assy Front Axle W/Hubs	1
5	88-121-19	7/16" X 2-3/4"NC HEX Cap Screw GR5	2
6	85-506-01	Spring, 2 Leaf	2
7	01-680-61	Plate, Spring Pad	4
8	88-109-81	3/8" NC Lock Nut	16
9	88-129-81	7/16" NC Lock Nut	2
10	88-100-15	3/8" X 1-3/4" NC HEX Head Screw	16

STEERING GEAR



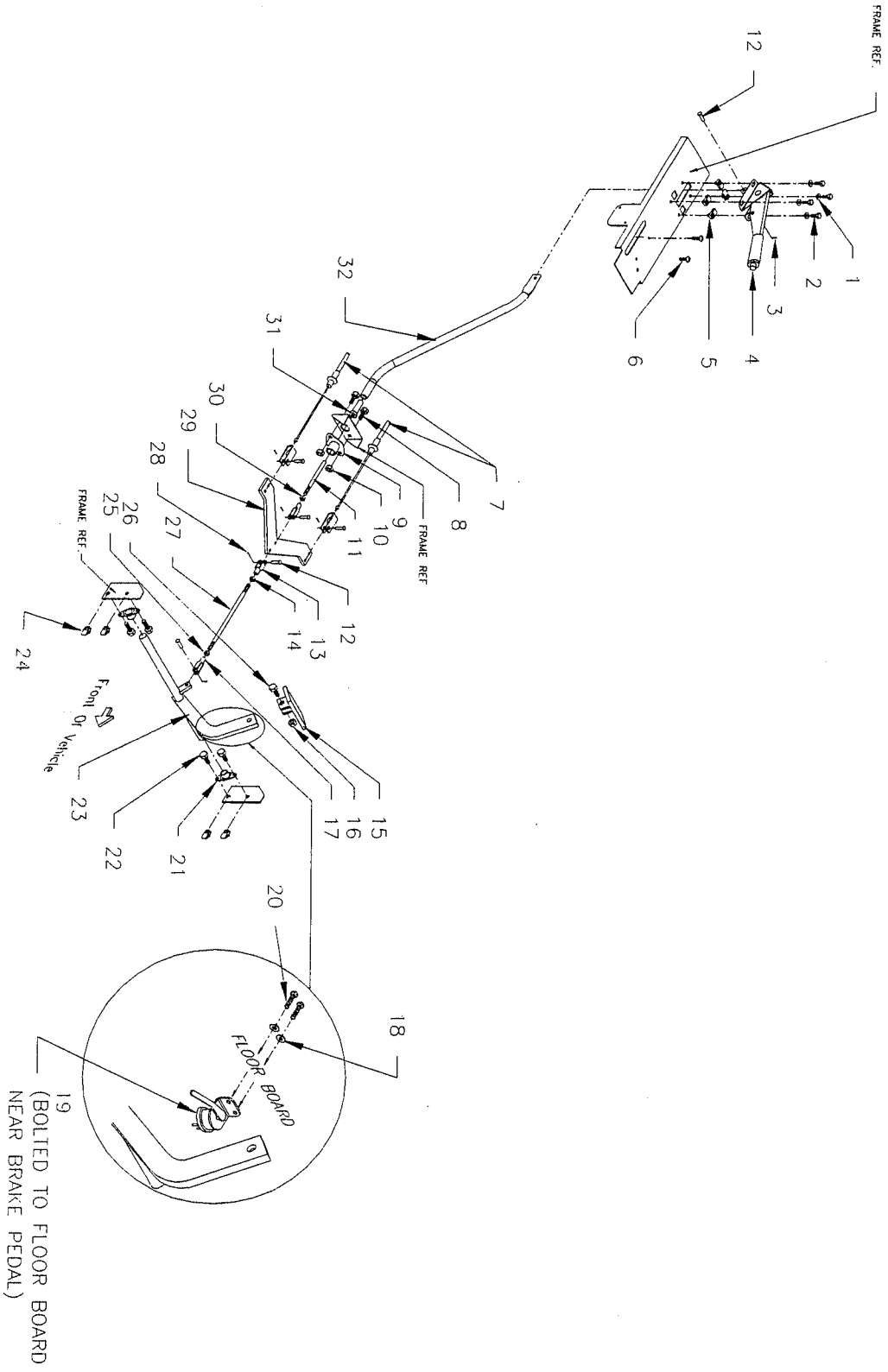
STEERING GEAR			
ITEM#	PART #	DESCRIPTION	QTY
1	18-308-70	Locknut, Worm Bearing Adjuster	1
2	18-308-71	Adjuster Assembly	1
3	18-308-72	Worm Assembly	1
4	18-308-23	Upper Worm Bearing	1
5	18-308-22	Upper Worm Bearing Race	1
6	18-308-77	Housing, Steering Gear	1
7	18-308-78	Seal, Pitman Shaft	1
8	18-308-80	Nut, Pitman Shaft	1
9	18-308-81	Lock Wahser, 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, Lask Adjuster	1
17	18-308-83	Bolt, Side Cover	3

STEERING ASSY



STEERING ASSEMBLY			
ITEM #	PART #	DESCRIPTION	QTY
1	19-011-23	Steering Wheel Cover	1
2	88-199-82	5/8"NF HEX Head Jam Nut	1
3	19-011-20	Wheel , Steering, 3 Spoke	1
4	97-200-00	Washer, Dust	1
5	32-248-10	3/4" ID Bushing	1
6	00-680-15	Steering Column	1
7	88-100-11	3/8" X 1" NC HEX Head Screw	4
8	88-108-62	3/8" Lockwasher	4
9	88-108-60	3/8" Cut Washer	8
10	97-211-30	3/8" U-Nut	4
11	20-031-44	Assembly, Steering, Clamp Type	1
12	18-308-21	Steering Gear	1
13	88-128-62	7/16" Lock Washer	3
14	88-120-11	7/16" X 1" NC HEX Head Cap Screw	3
15	00-680-13	Pitman Arm	1
16	50-002-07	Steering Sleeve Assembly	2
17	88-159-85	1/2-20 NF HEX, Slotted Nut	6
18	88-140-32	1/2" X 7" NC HEX Head Bolt	1
19	88-527-11	1/8" X 1" Steel Coter Pin	6
20	32-215-00	Bearing, FLANGETURCITEF	2
21	88-149-81	1/2"NC Lock Nut	1
22	88-148-61	1/2" SAE Washer	1
23	00-680-12	Steering Arm	1
24	50-002-07	Steering Sleeve Assembly, Drag Link, 5.0"	1

FOOT & PARK BRAKE LINKAGE

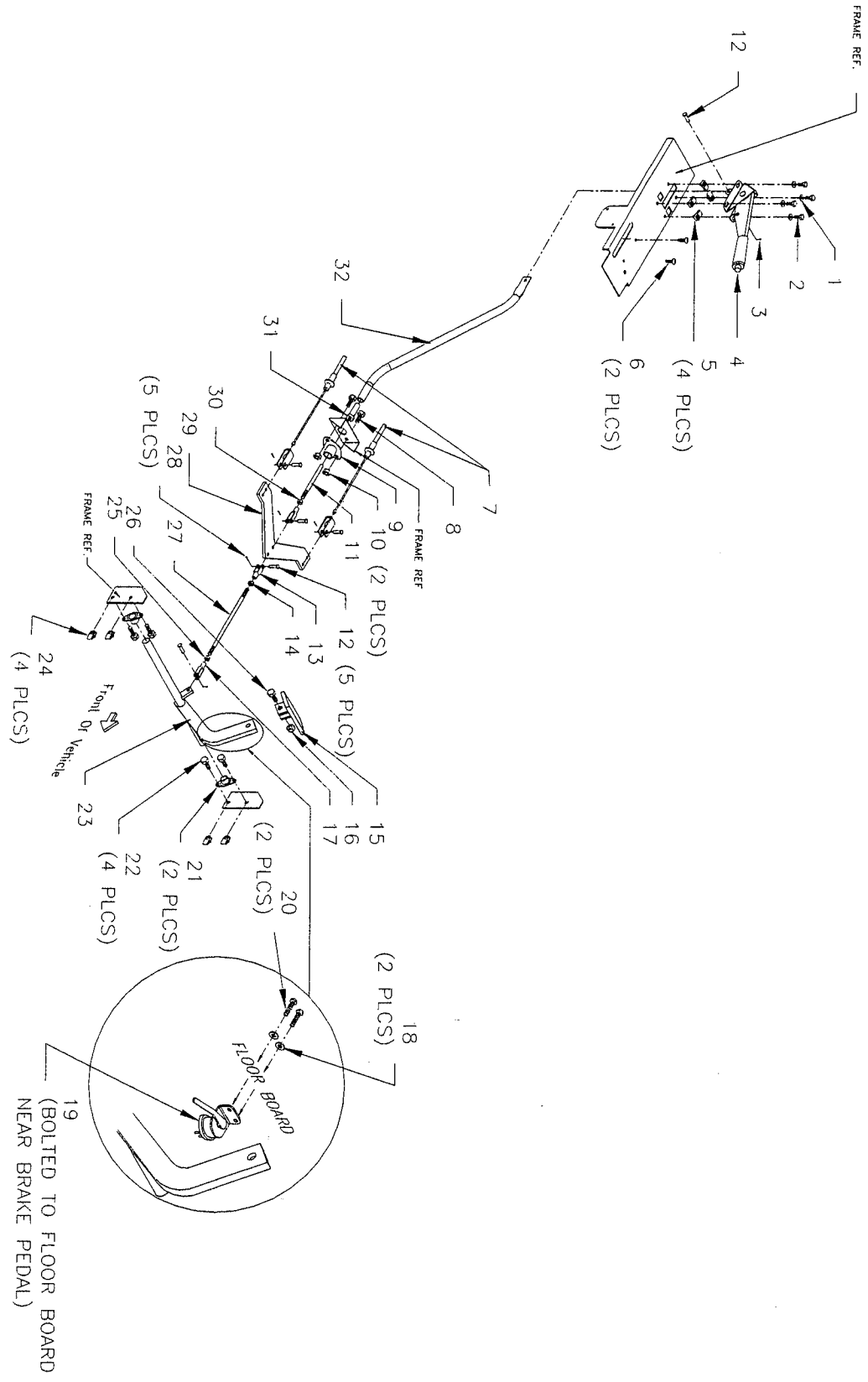


FOOT & PARK BRAKE LINKAGE			
ITEM#	PART #	DESCRIPTION	QTY
1	88-088-60	5/16" Cut Washer	4
2	88-088-11	5/16" X 1" NC Hex Head Cap Screw	4
3	88-527-11	1/8" X 1" Cotter Pin	6
4	51-344-50	Park Brake Lever, Ratchet	1
5	97-211-25	5/16"-18 U-Nut	4
6	88-065-09	1/4" X 3/4" NC Phillips Truss Head	2
7	*	Brake Cable MLX-310-197	1
8	88-100-11	3/8" X 1" Hex Head Cap Screw	2
9	01-680-62	.765 Id, 3/8" Blt, Bearing Flange	1
10	88-109-81	3/8" NC Locknut	2
11	01-680-53	4" Long, Brake Rod	1
12	96-773-00	5/16" X 1" Clevis Pin	6
13	96-763-00	5/16" Clevis Cast	1
14	88-099-80	5/16" NF Hex Head Nut	1
15	01-432-98	Brake Pedal	1
16	88-089-81	5/16" NC Lock Nut	1
17	96-765-00	5/16" Clevis, LH HF Thread	1
18	88-048-62	#10 Lock Washer	2
19	71-111-00	Brake Light Switch, Mechanical	1

* PART NUMBER NOT AVAILABLE AT TIME OF PRINTING.

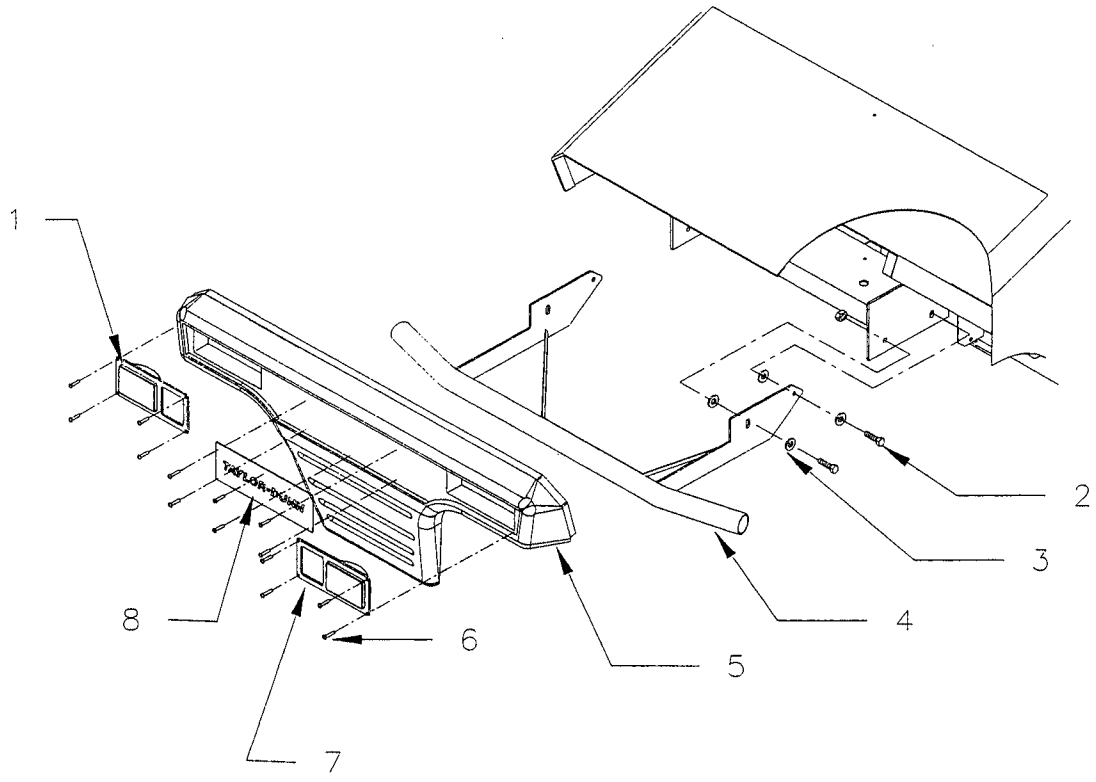
NUMBERS 20-32 ON THE NEXT PAGE.

FOOT & PARK BRAKE LINKAGE(CONT'D)



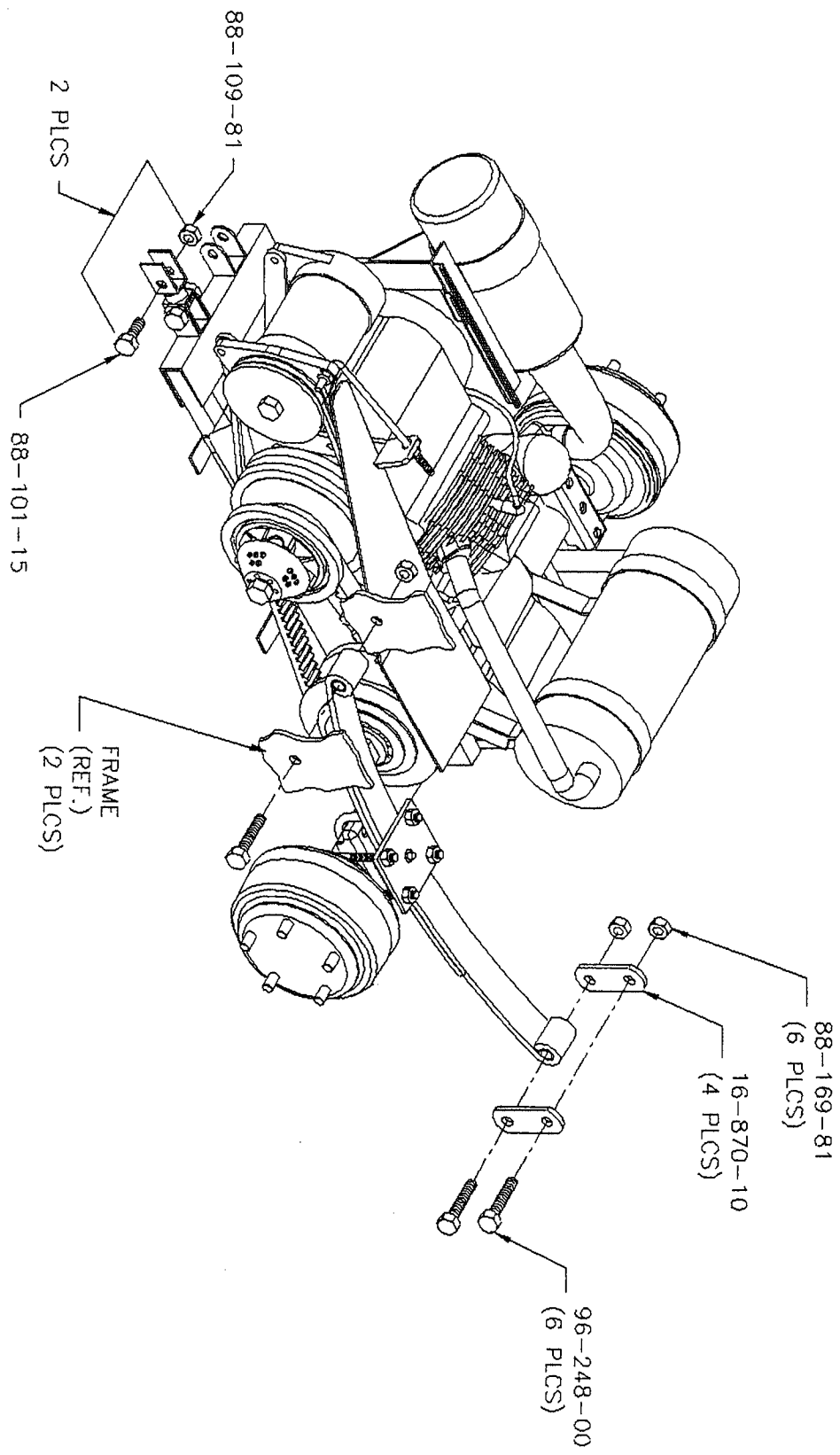
FOOT & PARK BRAKE LINKAGE (CONT'D)			
ITEM#	PART #	DESCRIPTION	QTY
20	88-045-06	10-32 X 182" Truss Head Machine Screw	2
21	80-410-20	3/4", 2 Bolt Bearing Flange, Brake Shaft	2
22	88-100-09	3/8" X 3/4" NC Hex Head Screw	4
23	00-680-07	Brake Lever	1
24	97-211-20	1/4"-20, U-Nut	4
25	88-099-81	5/16"NF Nut, LH Thread	1
26	88-080-11	5/16" X 1" NC Hex Head Cap Screw	1
27	01-680-71	9.75" Long, Brake Rod	1
28	88-527-11	1/8" X 1" Cotter Pin	1
29	01-680-44	Brake Equalizer	1
30	88-099-80	5/16" NF Hex Head Nut	1
31	01-680-59	.75 OD X .328 ID, Bushing, Uhmw	1
32	01-680-54	Park Brake Actuator	1

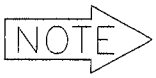
FRONT FACIA & BUMBER ASSEMBLY



FRONT FACIA & BUMBER ASSEMBLY			
ITEM#	PART #	DESCRIPTION	QTY
1	94-050-11	Lens and Light Assembly, RH	1
2	88-100-11	3/8" X 1" NC Hex Head Screw	4
3	88-108-60	3/8" Cut Washer	8
4	00-680-08	Front Bumper	1
5	03-680-04	R680 Facia	1
6	88-737-14	1/8" X 3/8" Rivet	14
7	94-050-10	Lens and Light Assembly, LH	1
8	94-201-10	Taylor-Dunn Emblem	1

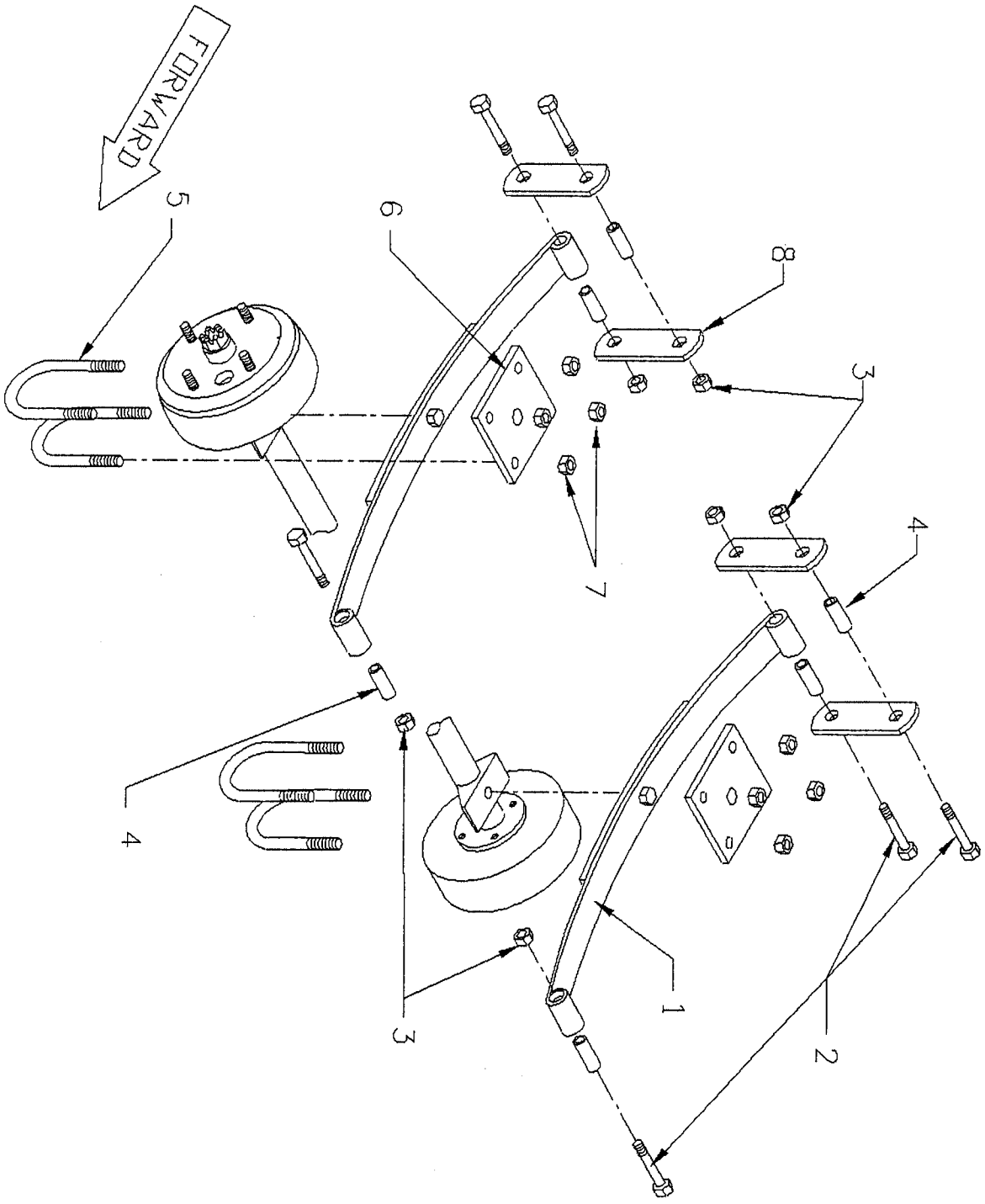
DRIVE & MOTOR


88-109-81
2 PLCS
88-101-15
FRAME
(REF.)
(2 PLCS)
88-169-81
(6 PLCS)
16-870-10
(4 PLCS)
96-248-00
(6 PLCS)



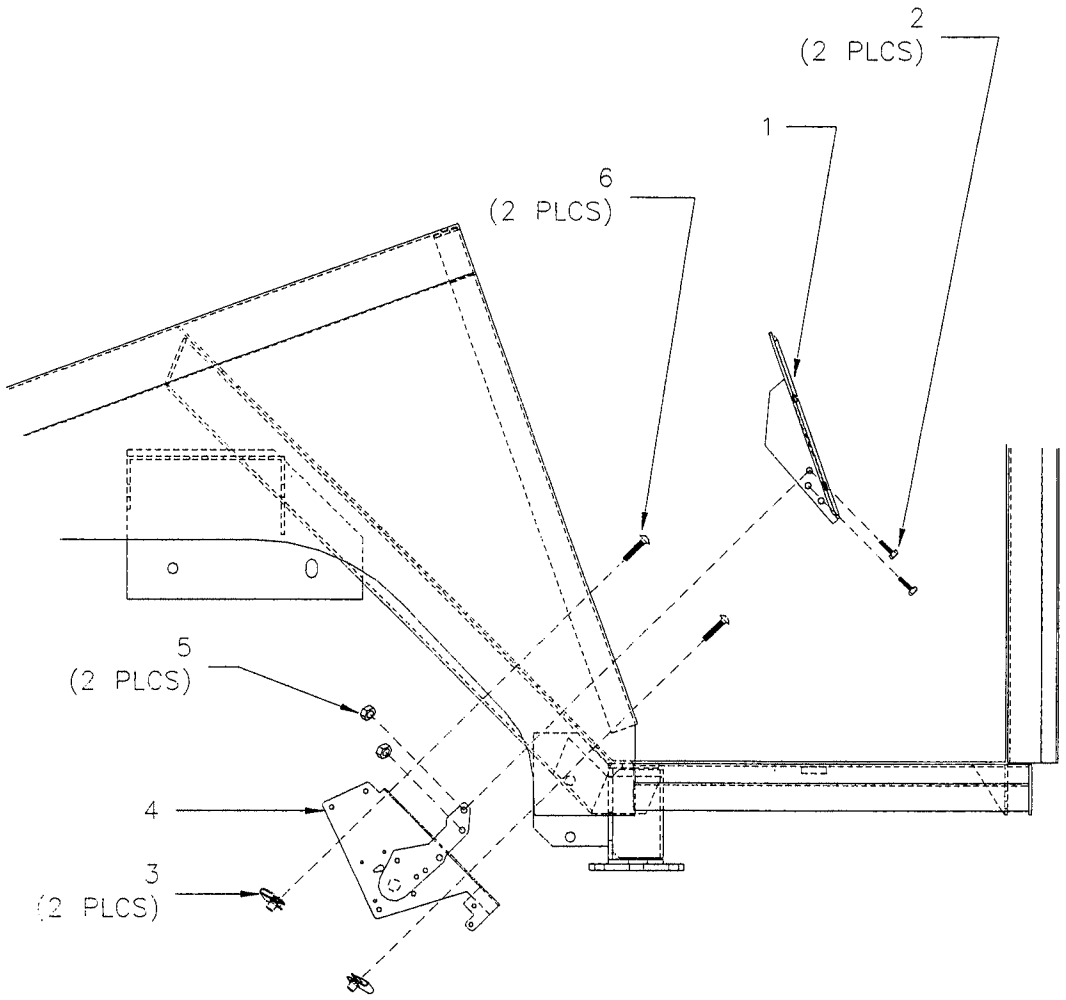
THERE IS NO PARTS LIST TABLE FOR THE DRIVE AND MOTOR ASSEMBLY. SUSPENSION PARTS ARE SHOWN UNDER THE REAR SUSPENSION PARTS PAGE. ALL OTHERS ARE AVAILABLE UNDER THE APPROPRIATE HEADINGS OR IN ENGINE AND DRIVE SUPPLEMENTS.

REAR SUSPENSION



REAR SUSPENSION			
ITEM#	PART #	DESCRIPTION	QTY
1	85-507-00	Leaf Spring	2
2	96-248-00	9/16"dia X 3" Bolt, Shackle	6
3	88-169-81	9/16"NC Hex Head Lock Nut	6
4	32-213-00	Bushing, 3/4"OD X .600 ID X 1.656 long	6
5	96-123-51	3/8"NC X 2-1/4"ID X 4" Long, U-Bolt	4
6	16-865-04	Spring Pad	2
7	88-109-81	3/8" NC Lock Nut	8
8	16-870-10	Link-Plate, 2-1/4", Zinc Plated	4

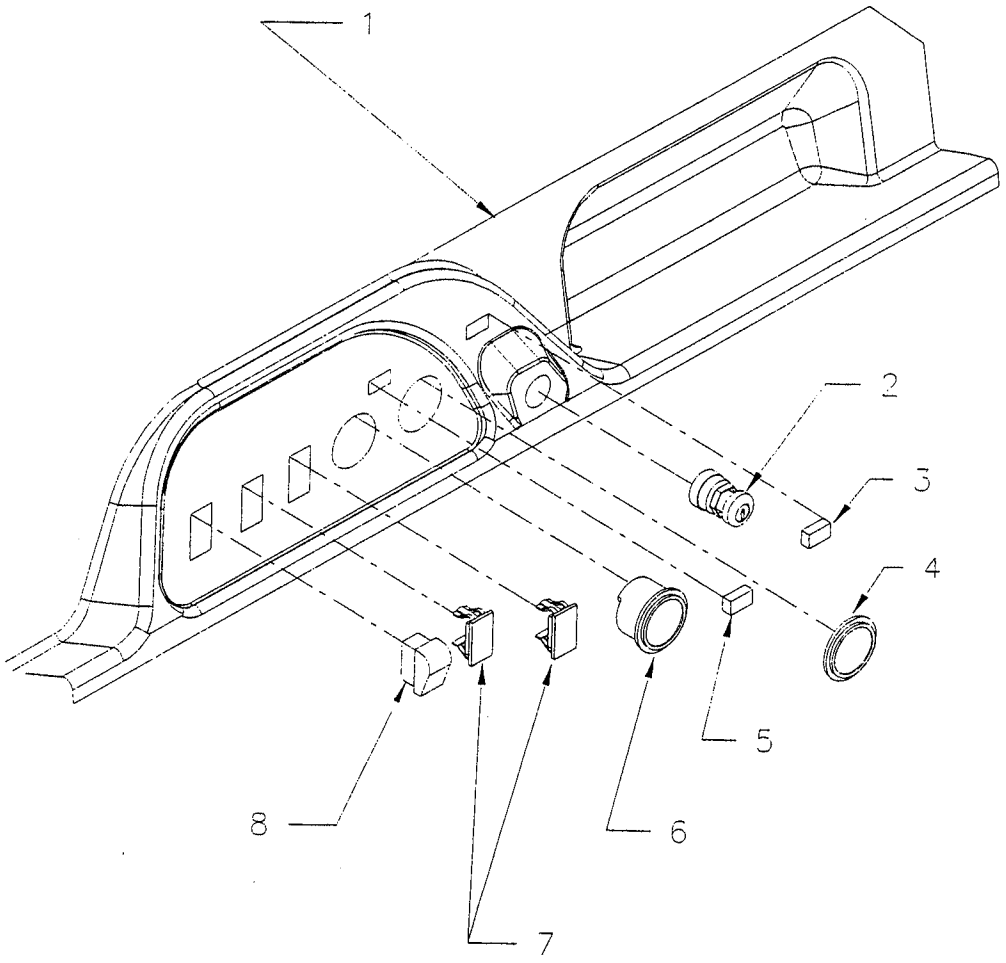
ACCELERATOR ASSEMBLY



ACCELERATOR ASSEMBLY			
ITEM#	PART #	DESCRIPTION	QTY
1	01-680-40	Accelerator Pedal	1
2	00-680-14	Pedal Mount	1
3	97-211-20	U-Nut, 1/4"-20	1
4	62-037-10	Accelerator Module	1
5	88-069-81	1/4"NC Nylon Insert Locknut	2
6	88-065-09	1/4" X 3/4"NC Phillips Truss Head	6

-- 96-872-03 ACCELERATOR CABLE

INSTRUMENT PANEL

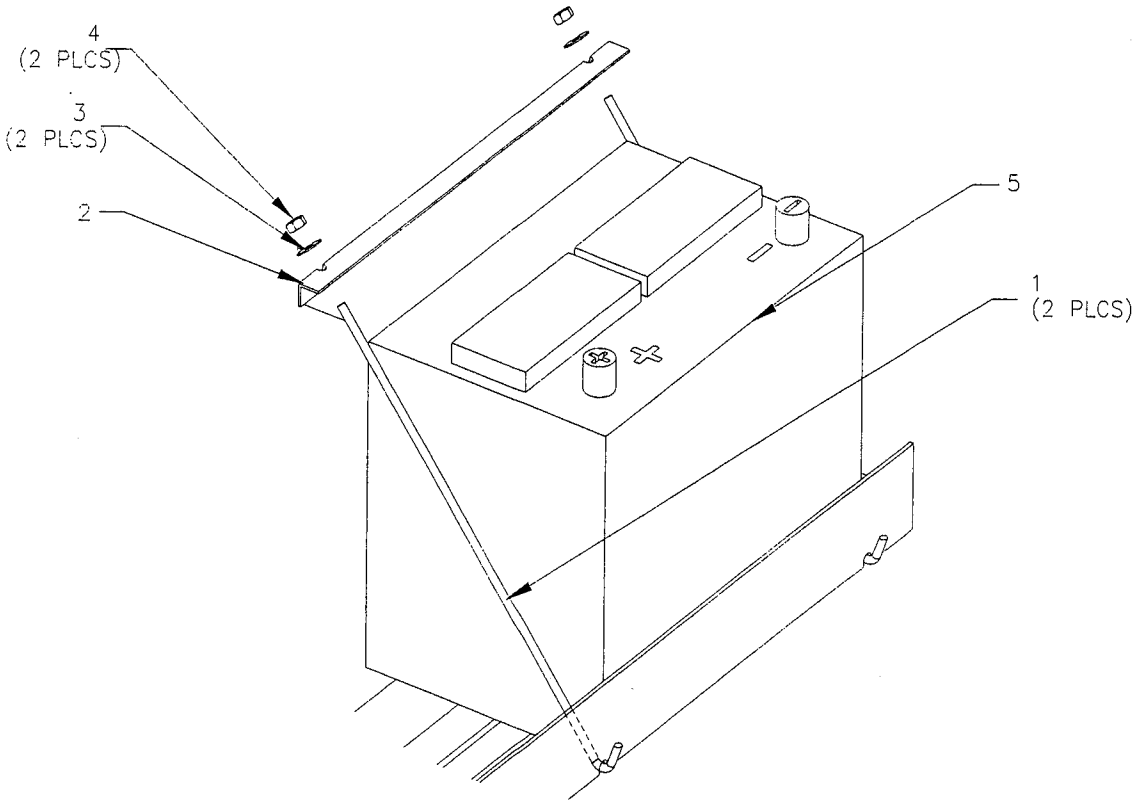


INSTRUMENT PANEL			
ITEM#	PART #	DESCRIPTION	QTY
1	03-680-05	Dash Panel, Plastic	1
2	71-120-00	Ignition Key Switch, Keyed Alike	1
	71-121-00	Ignition Key Switch, Not Keyed Alike	1
3	72-028-25	Light, Rectangular, Green	1
4	95-919-00	Plug, Plastic, for 2-1/8" Hole	1
5	72-028-20	Light, Rectangular, Red, 14V (Oil Level Light)	1
6	74-009-20	Fuel Guage	1
7	71-039-21	Plug, Contura	2
8	71-039-11	Rocker Switch (Option Switches Replace #7)	1
*	71-120-80	Keys for 71-120-00	1

* NOT SHOWN

75-148-65	Engine harness
75-148-66	Chassie harness
75-148-68	Dash harness

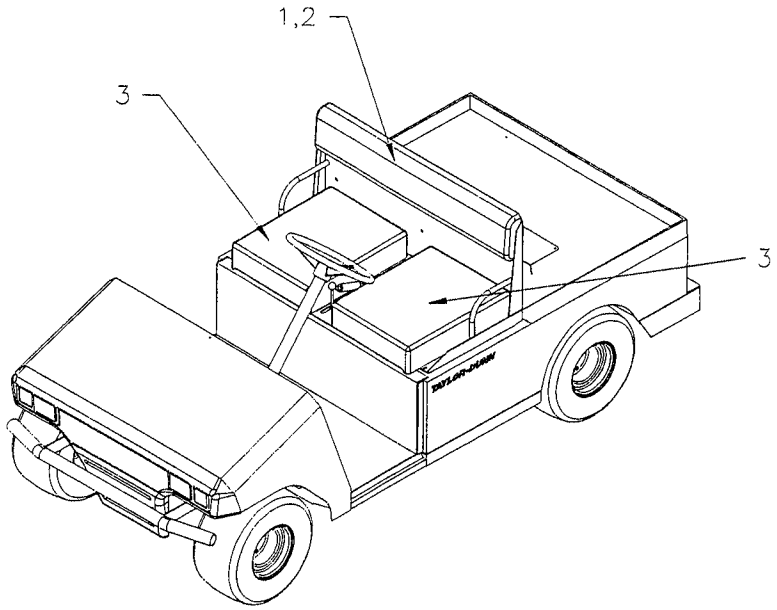
BATTERY

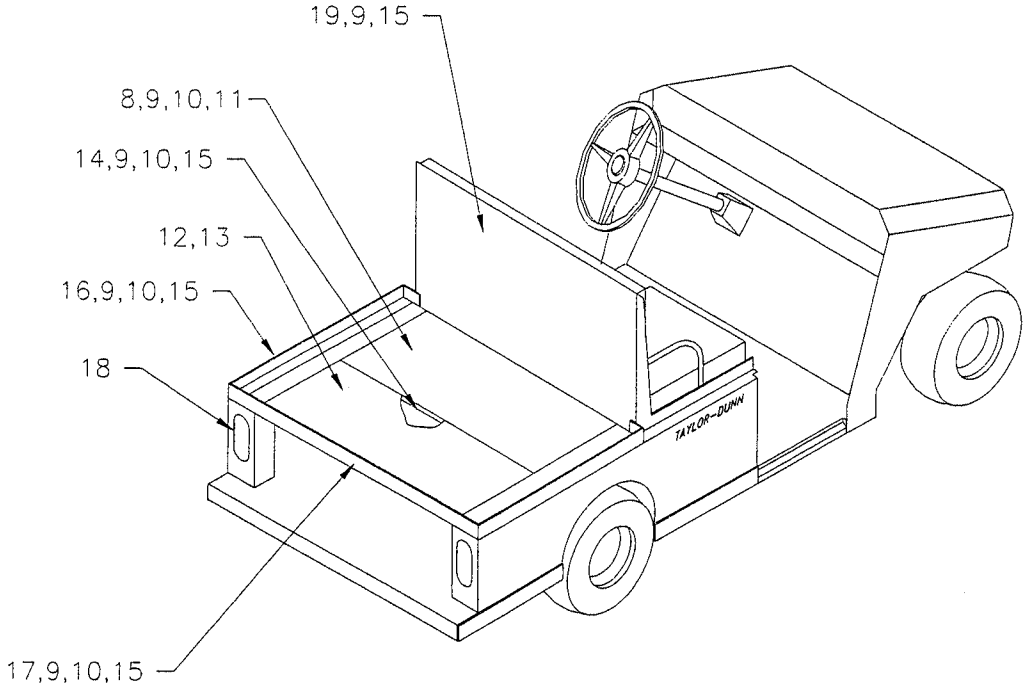


R680 BATTERY			
ITEM#	PART #	DESCRIPTION	QTY
1	01-200-61	Hold Down Rod	2
2	02-610-31	Angle Clamp	1
3	88-089-81	1/4"NC Lock Nut	2
4	88-069-81	5/16" Cut Wahser	2
5	77-054-10	Battery, 12Volt 16Amp Hour, Trojan W/Auto Posts	1

Section 4

SEAT & DECK PARTS



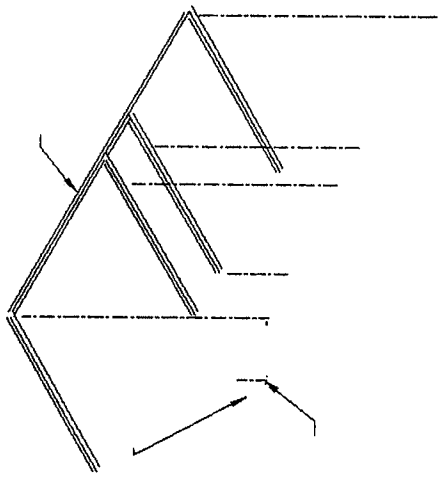


SEAT & DECK PARTS			
ITEM#	PART #	DESCRIPTION	QTY
1	90-179-00	Backrest	1
2	88-837-11	Screw, Sheet Metal, #14 x 1" Phillips Truss Hd	6
3	90-198-00	Seat Cushion, 16-1/2" x 21-1/4"	2
4	*		
5	*		
6	*		
7	*		
8	02-380-76	Deck, Rear Stationary	1
9	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	28
10	88-068-61	Washer, 1/4" SAE	19
11	97-211-20	U-Nut, 1/4NC	4
12	00-380-58	Deck, Rear	1
13	88-727-06	Rivet, 5/32" x 1/2"	12
14	02-680-20	Support, Rear Deck	1
15	88-069-81	Locknut, 1/4NC	24
16	03-380-41	Rail, Side (unpainted)	2
17	01-210-67	Rail, Rear (unpainted)	1
18	72-025-00	Light, Stop, Stun, & Tail	2
19	00-210-01	Seat Frame (unpainted)	1

* NOT AVAILABLE AT TIME OF PRINTING

Section 4

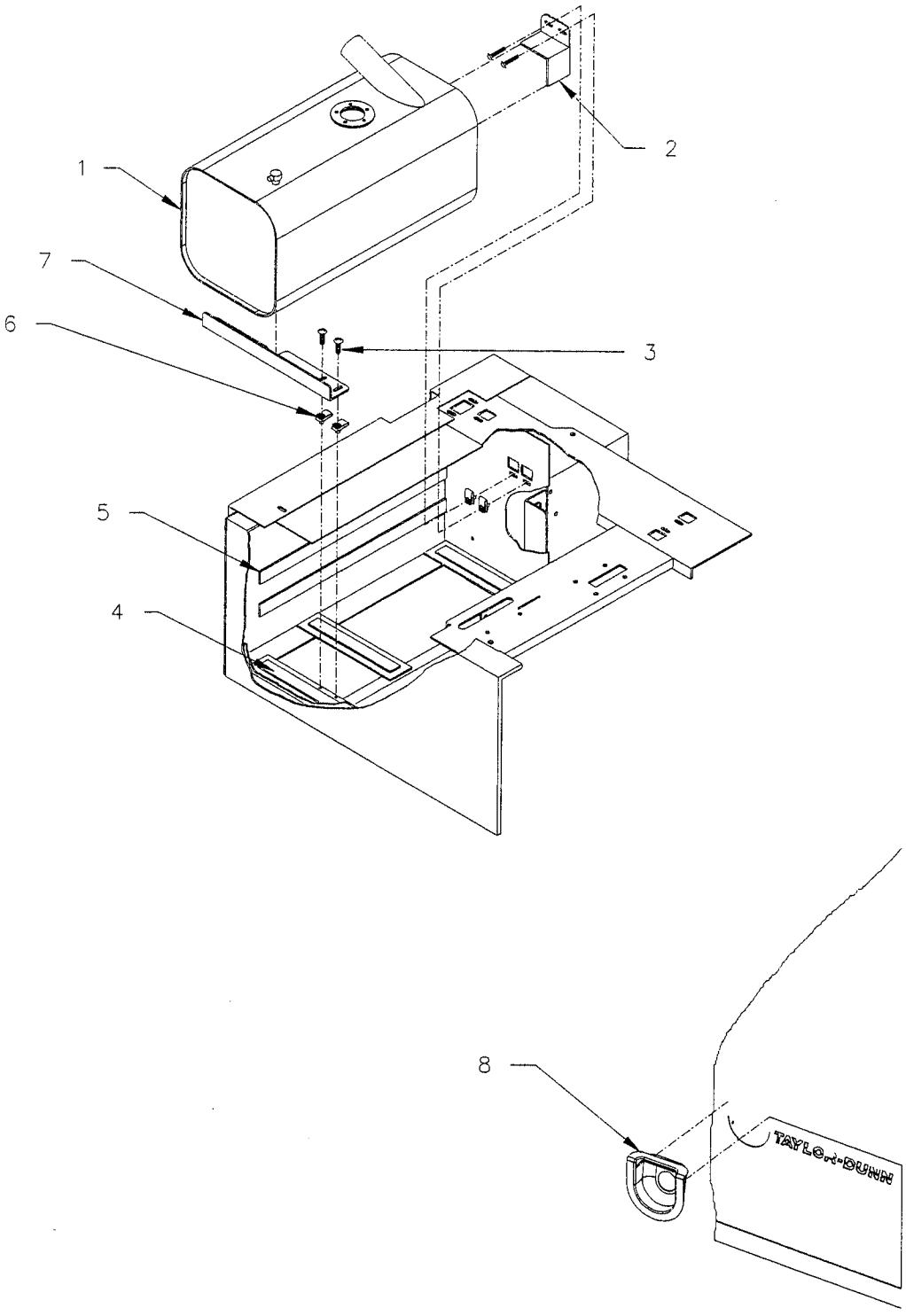
FRONT SERVICE ASSEMBLIES



FRONT SERVICE ASSEMBLIES			
ITEM#	PART #	DESCRIPTION	QTY
1	88-065-09	1/4" X 3/4" NC Phillips Truss Head	10
2	88-068-62	1/4" Lock Washer	10
3	88-068-60	1/4" Cut Washer	5
4	97-211-20	U-NUT, 1/4" - 20	10
5	88-109-87	3/8" NC KEPS Nut	4
6	88-109-83	3/8" Acorn Nut	4
7	85-030-00	Spring, Comp, Anchor Pin	2
8	96-773-00	5/16" X 1" Clevis Pin	2
9	71-102-10	Push Button Switch (Normally Closed)	1
10	02-610-18	Seat Switch Mount	1
11	88-527-11	1/8" X 1" Cotter Pin	2
12	94-400-32	3/4" Wide Foam Tape	110"
13	88-100-09	3/8" X 3/4" NC HEX Head Screw	4

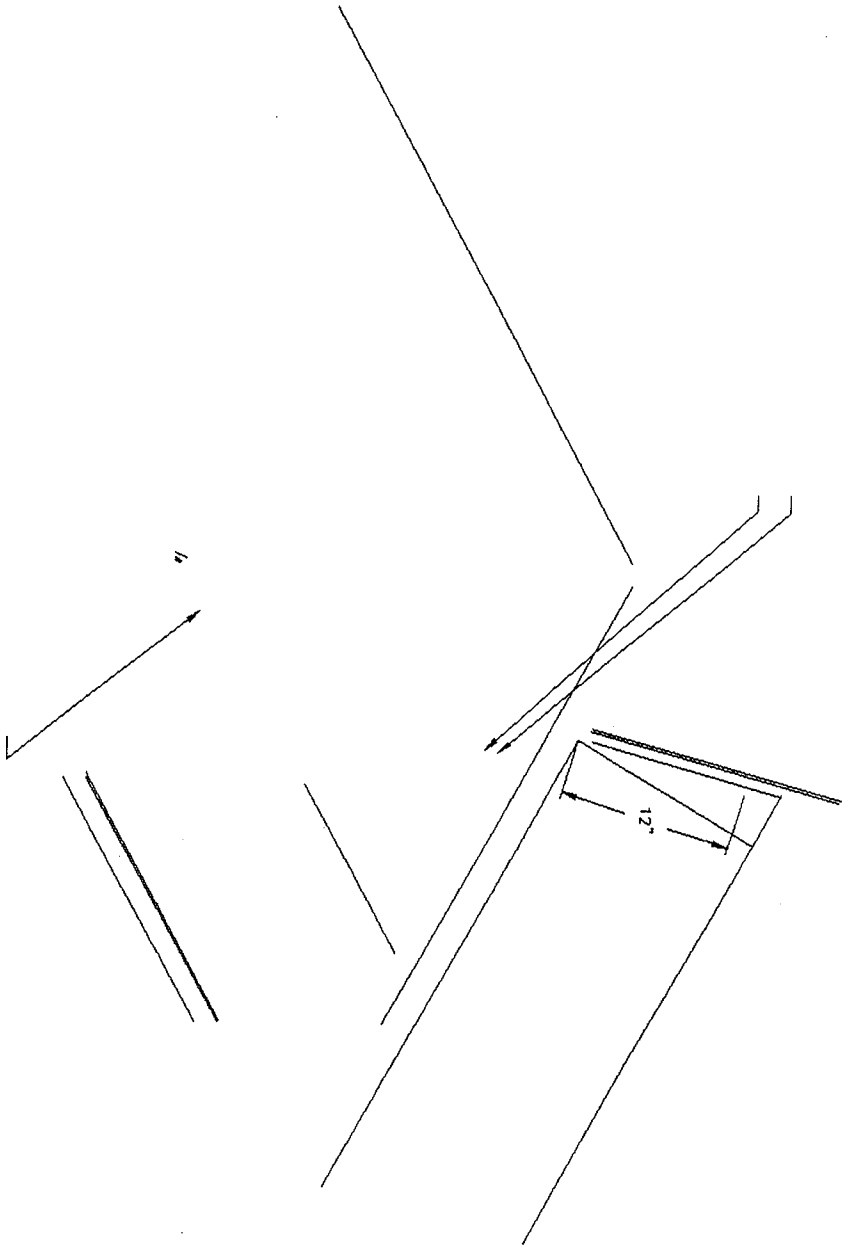
Section 4

FUEL TANK

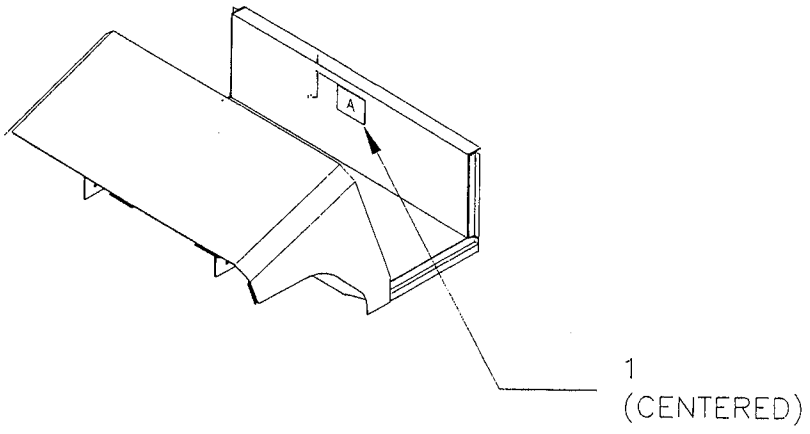


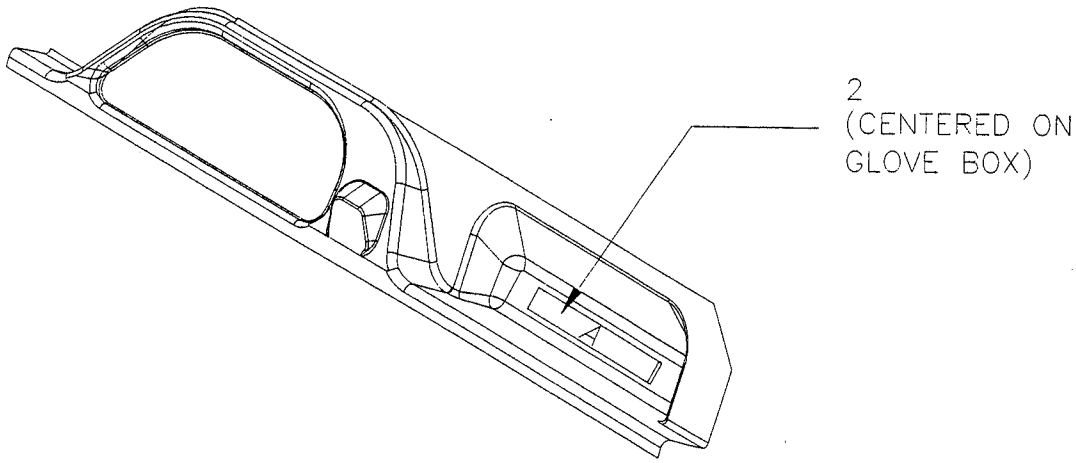
FUEL TANK			
ITEM#	PART #	DESCRIPTION	QTY
1	03-680-01	Gasoline Tank, R680	1
2	01-680-64	Retainer, Gas Tank	1
3	88-065-09	¼ X ¾ NC Phillips Truss HD	4
4	94-400-32	Tape, Transfer, Foam, ¾ wide 8" Long	3
5	94-400-32	Tape, Transfer, Foam, ¾ wide 18" Long	2
6	97-211-20	U-Nut, ¼ - 20	4
7	01-680-65	Retainer, Gas Tank	1
8	03-680-12	Gas Filler Spout	1

DECALS

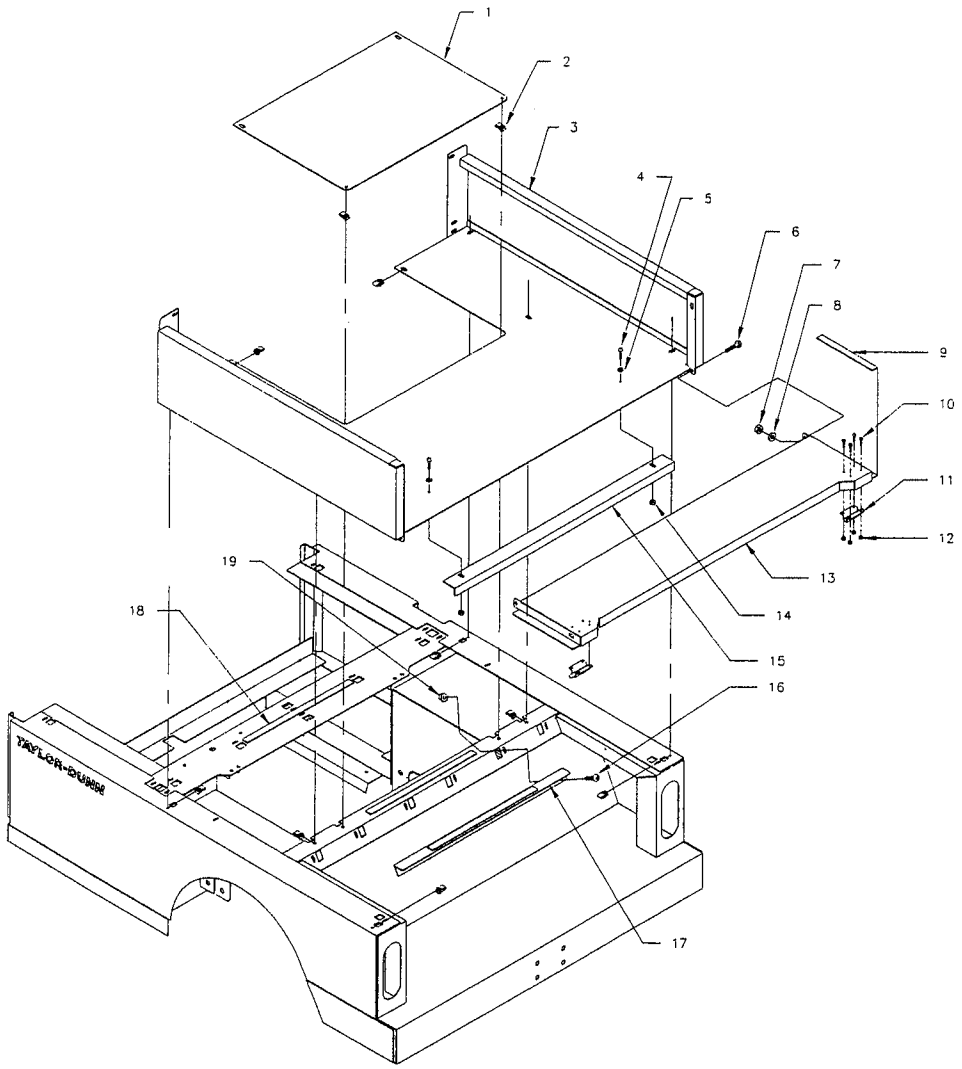


DECALS			
ITEM#	PART #	DESCRIPTION	QTY
1	94-309-00	Decal, Apply Brake	1
2	94-313-00	Decal, Battery Warning	1
3	94-306-01	Decal, Operator Warning	1
4	94-306-03	Decal, Heat Warning	1
5	94-306-02	Decal, Speed Warning	1
6	94-306-04	Decal, Rotating Parts Warning	2
7	94-384-01	Decal, Not Motor Vehicle	1
8	94-306-09	Decal, Do Not Change Shift Warning	1
9	94-373-07	Decal, Forward/Reverse	1
10	94-306-12	Decal, Choke	1
11	94-373-05	Decal, Vehicle Data	1


A
1
(CENTERED)


2
(CENTERED ON
GLOVE BOX)

DECAL (CONTD)			
ITEM#	PART #	DESCRIPTION	QTY
1	94-313-20	Decal, Safety Warn 5-5/8 X 4	1
2	94-306-11	Decal, Operator Warning, Pdl Str	1


1
2
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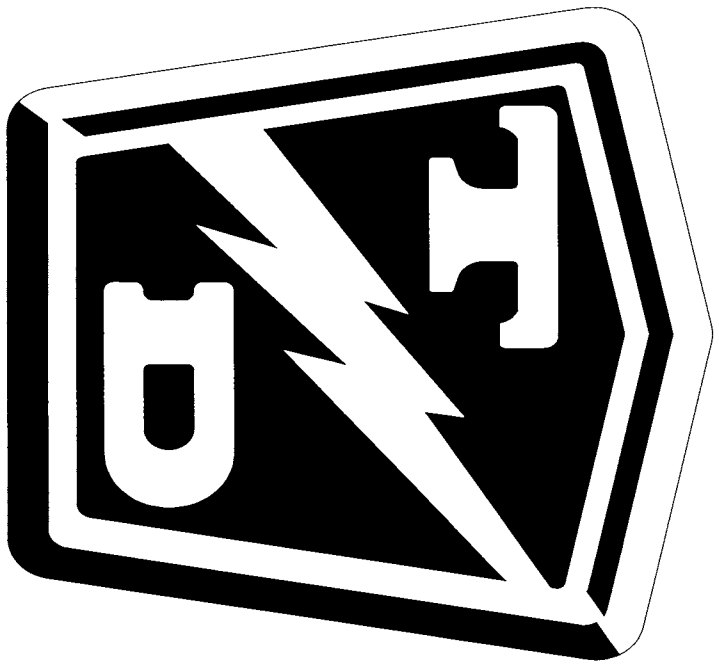
19

9" SIDE PANELS W/TAILGATE			
ITEM#	PART #	DESCRIPTION	QTY
1	01-680-96	Floor Cover,9" Solid Box	1
2	97-211-20	U-Nut, 1/4 - 20	10
3	00-680-25	Weldment,9" Solid Box	2
4	88-065-09	1/4 X 3/4 NC Phillips Truss Hd	2
5	88-108-61	3/8 SAE Washer	2
6	88-100-09	3/8 X 3/4 NC Hex Hd Screw	2
7	88-109-81	3/8 NC Lock Nut	2
8	88-108-66	Washer, Spring, Crescent Typ	2
9	94-400-32	Tape,Transfer,Foam,3/4 Wide	2
10	88-045-32	10-32 X 5/8 Truss Hd Mach Scr	8
11	97-307-00	Latch, Brl Bolt, Removable Seat	2
12	88-049-86	10-32 Flexlock Nut	8
13	00-680-26	Wldmnt, Rear Gate ,9" Solid Box	1
14	88-069-81	1/4nc Nyl Ins Locknut, Plt'd	2
15	01-680-97	Angle, Tool Box Latching	1
16	88-065-09	1/4 X 3/4 NC Phillips Truss Hd	2
17	02-680-20	Support, Top, Tool Box	1
18	94-400-32	Tape,Transfer,Foam,3/4 Wide	3

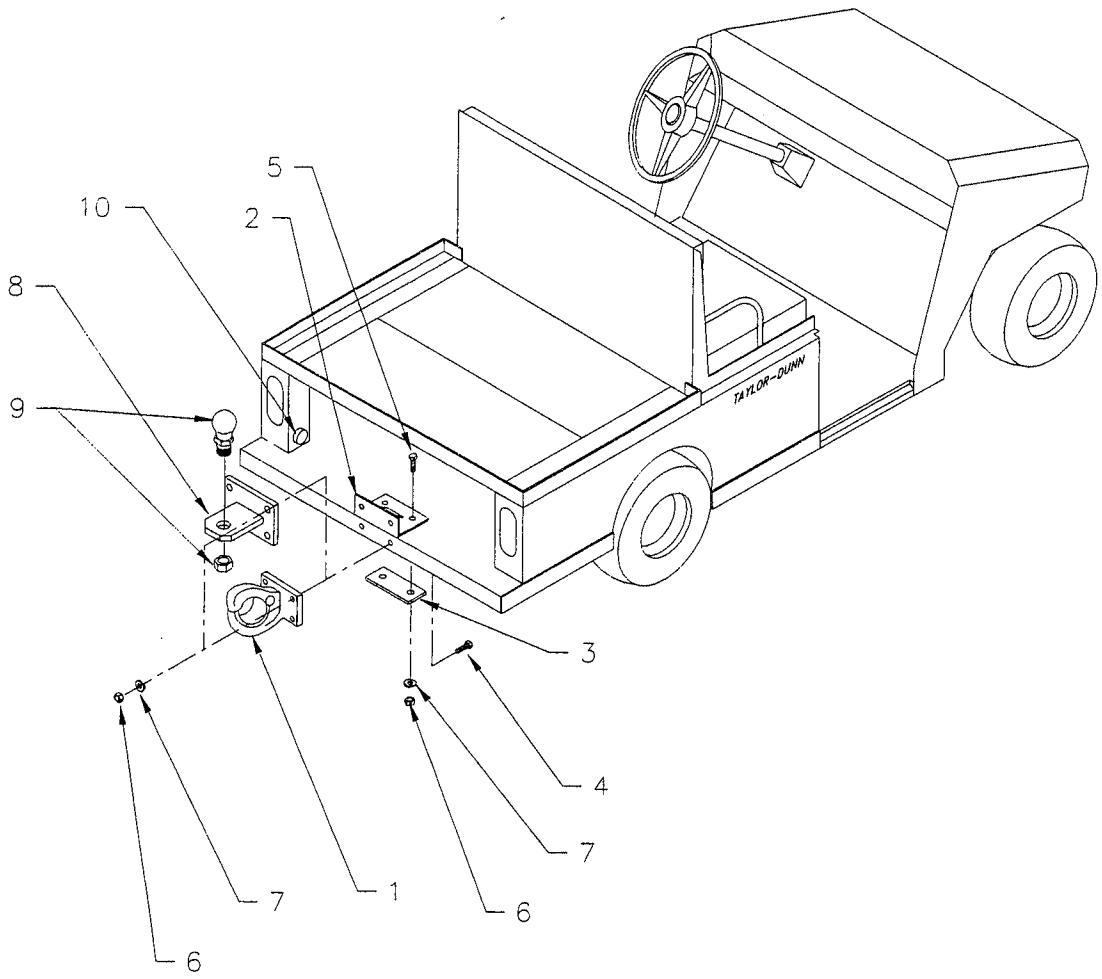
TAYLOR -DUNN®



Illustrated Optional Parts List

Section 5

HITCHES

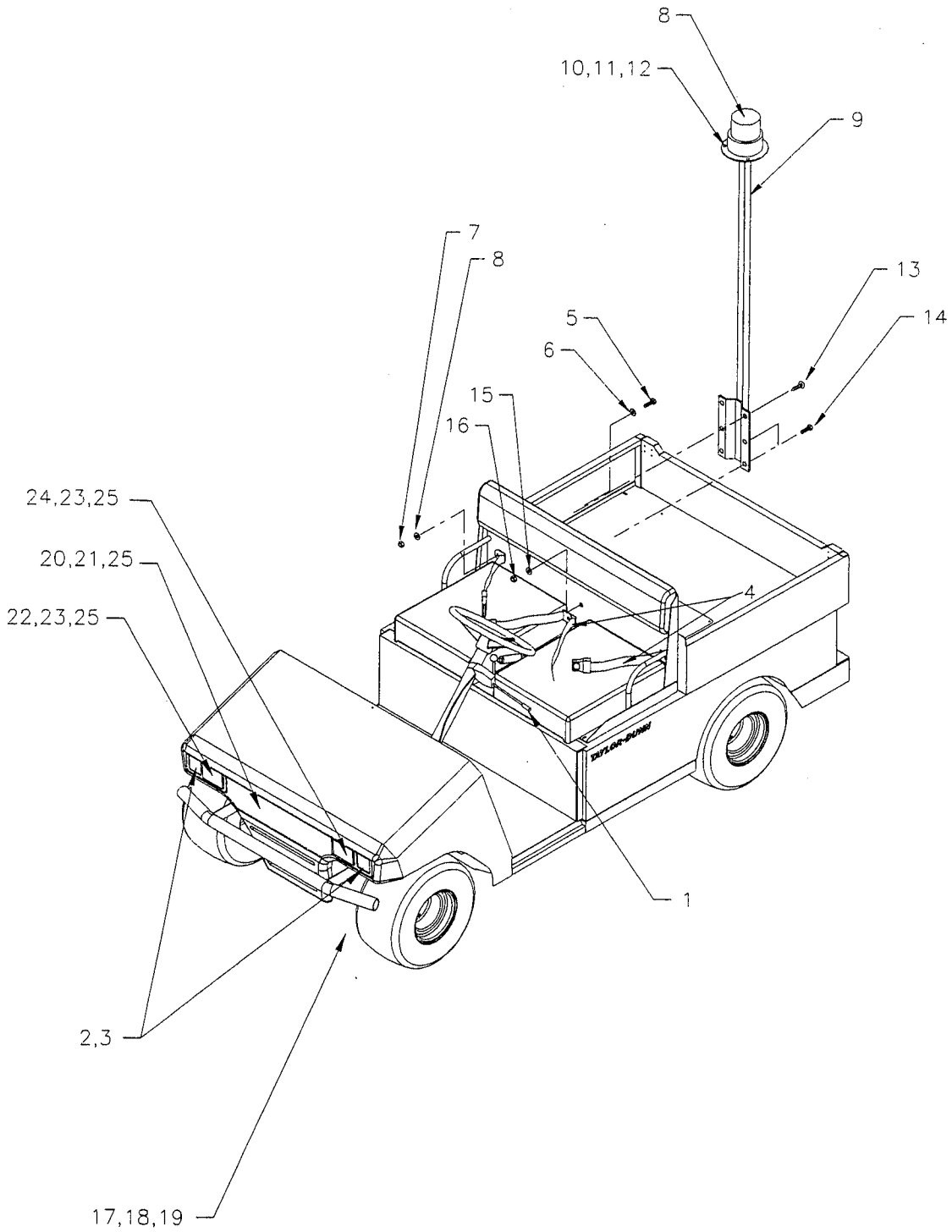


OPTNS-1.DWG

HITCHES			
ITEM#	PART #	DESCRIPTION	QTY
1	97-804-01	Hitch, Pintle Type	1
2	97-835-00	Angle, Hitch Mounting	1
3	97-835-10	Plate, Hitch Mounting	1
4	88-140-14	Bolt, 1/2NC x 1-1/2" Hex Hd	4
5	88-140-11	Bolt, 1/2NC x 1" Hex Hd	2
6	88-148-62	Lockwasher, 1/2"	6
7	88-149-80	Nut, 1/2NC	6
8	97-805-00	Bracket, Ball Hitch Mounting, 1-7/8"	1
	97-807-00	Bracket, Ball Hitch Mounting, 2"	1
9	97-811-00	Hitch, 1-7/8" Ball	1
	97-821-00	Hitch, 2" Ball	1
Reverse Warning/Motion Beeper			
10	73-005-05	Alarm, Pulsating	1

Section 5

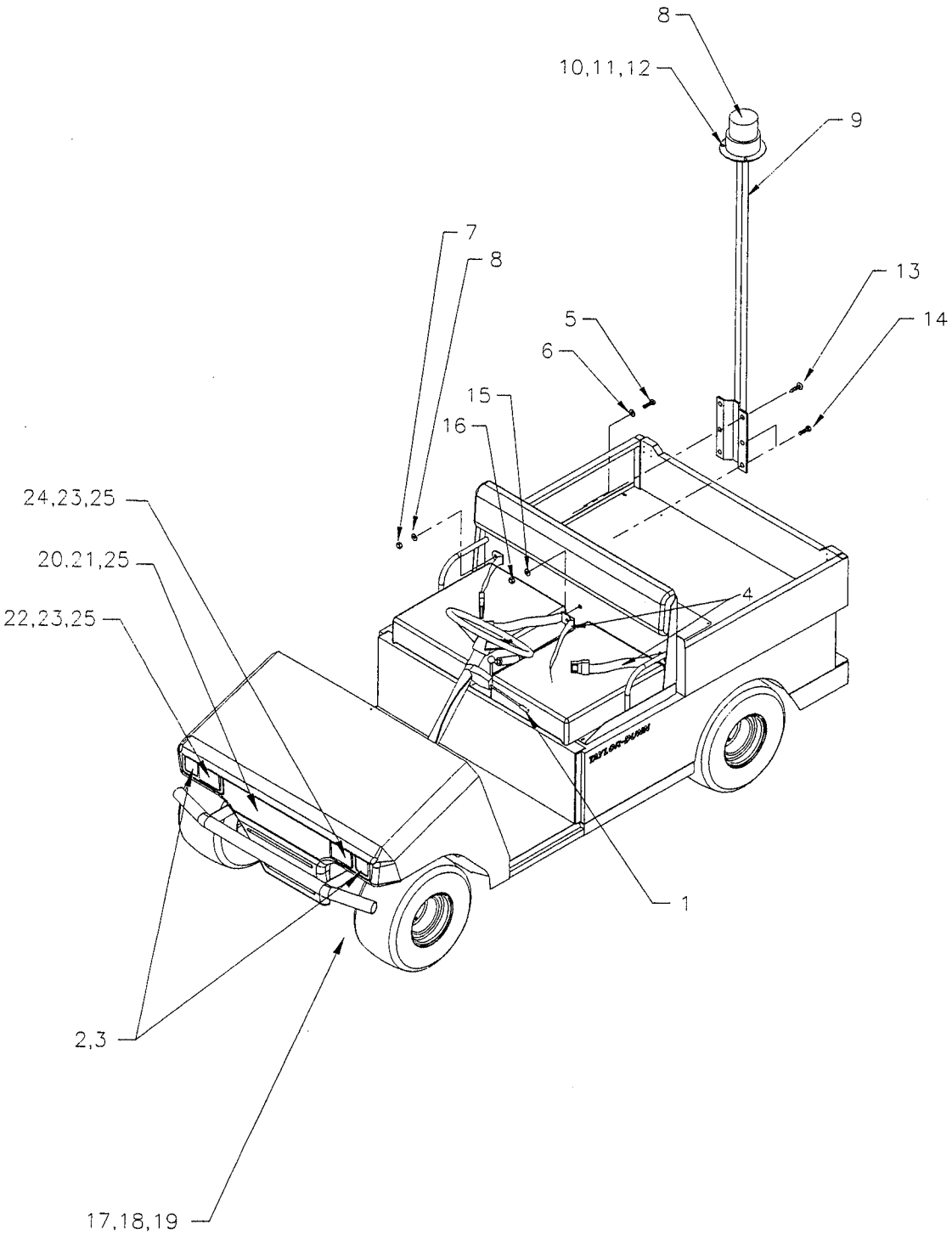
SEAT BELT AND TURN SIGNAL OPTIONS



SEAT BELT & LIGHT OPTIONS			
ITEM#	PART #	DESCRIPTION	QTY
1	75-141-21	Turn Signal Switch	1
*	76-352-00	Flasher Receptacle	1
*	71-900-05	Flasher, 12V	1
2	72-082-12	Turn Signal Bulb, 12V	2
3	72-082-22	Socket, Turn Signal	2
Seat Belts			
4	90-199-10	Seat Belt, Black	1
5	88-151-13	Bolt, 1/2NC x 1-1/4" Hex Hd, Grade 5	3
6	88-148-61	Washer, 1/2"	6
7	88-159-84	Locknut, 1/2NC	3

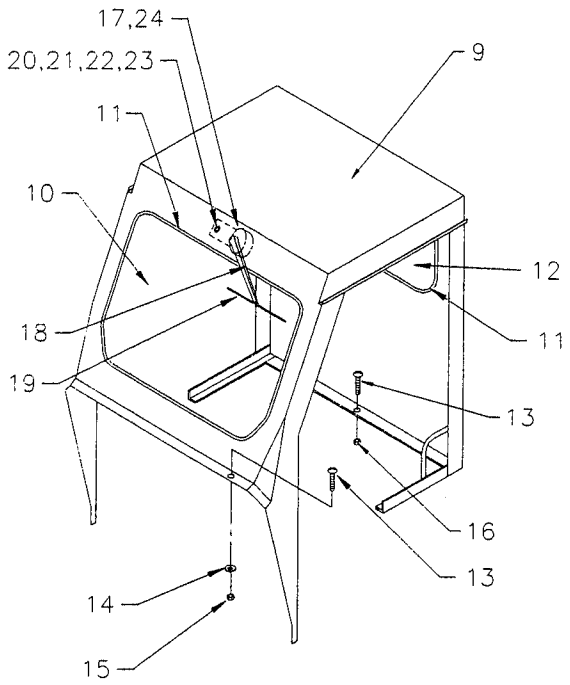
Section 5

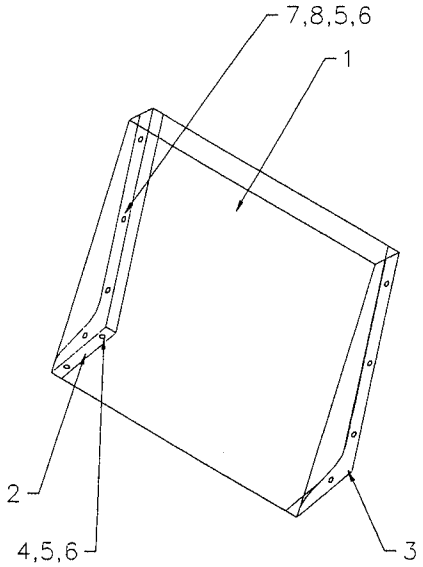
STROBE LIGHT AND HEAD LIGHTS

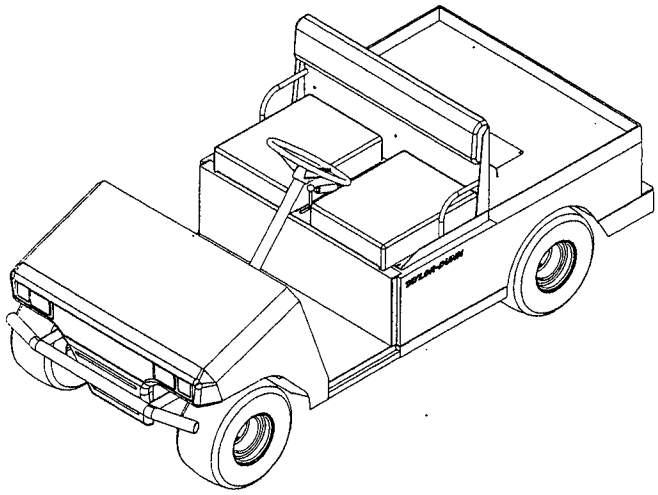


LIGHT OPTIONS			
ITEM#	PART #	DESCRIPTION	QTY
Pole Mounted Strobe Light			
8	72-023-20	Strobe Light, Amber	1
9	72-023-25	Pole Mount, Strobe Light	1
10	88-025-06	Screw, #8-32 x 1/2" Truss Hd	3
11	88-028-62	Lockwasher, #8	3
12	88-029-80	Nut, #8-32	3
13	88-817-09	Screw, Sheet Metal, #8 x 3/4" Phillips Hd	2
14	88-065-08	Screw, 1/4NC x 5/8" Phillips Truss Hd	4
15	88-068-62	Lockwasher, 1/4"	4
16	88-069-83	Acorn Nut, 1/4NC	4
*	71-039-11	Toggle Switch	1
*	75-115-17	Harness, Strobe On Pole	1
Front Panel With Headlights			
17	02-380-47	Front Nose Panel (unpainted)	1
18	88-065-06	Screw, 1/4NC x 1/2" Phillips Truss Hd.	6
19	88-069-87	Nut, 1/4NC Keps	6
20	94-201-10	Name Plate, Taylor-Dunn®	1
21	94-201-00	Fastener Strip, Name Plate	2
22	94-050-11	Headlight Assembly, Right	1
23	94-050-04	Retainer, Headlight	4
24	94-050-10	Headlight Assembly, Left	1
25	88-817-07	Screw, #8 x 1/2" Self Tapping	14

CAB AND WINDSHIELD OPTIONS

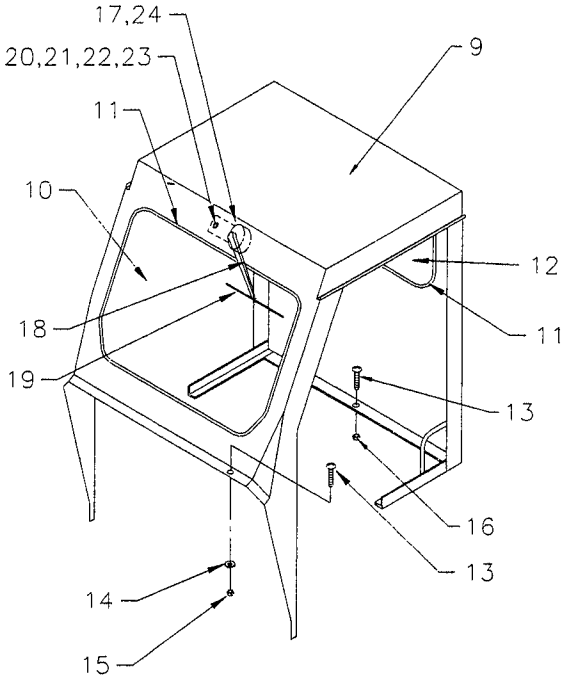


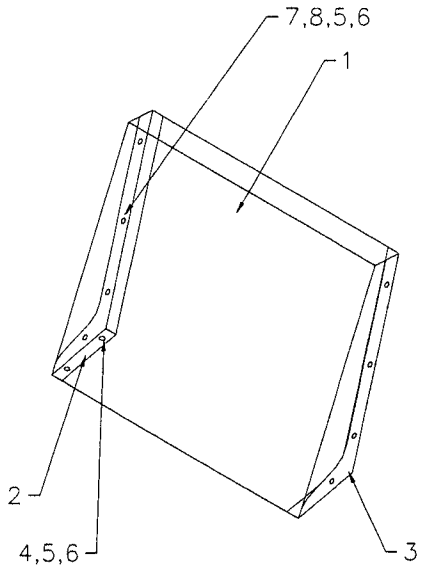


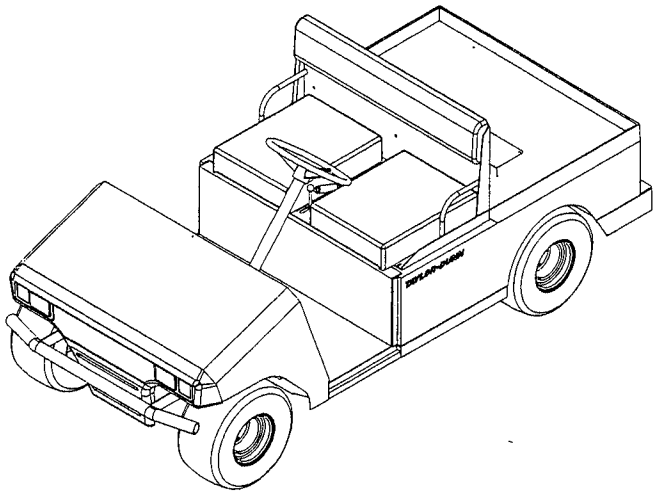


CAB AND WINDSHIELD OPTIONS			
ITEM#	PART #	DESCRIPTION	QTY
Cowl w/Windshield			
	90-825-62	Kit, Windshield	1
1	90-825-20	Windshield, Plexiglas	1
2	90-825-06	Bracket, Windshield Mounting, Right	1
3	90-825-05	Bracket, Windshield Mounting, Left	1
4	88-060-09	Bolt, 1/4NC x 3/4" Hex Hd	4
5	88-068-62	Lockwasher, 1/4"	12
6	88-069-83	Acorn Nut, 1/4NC	12
7	88-065-08	Screw, 1/4NC x 5/8" Phillips Truss Hd	8
8	88-068-61	Washer, 1/4" SAE	8

CAB AND WINDSHIELD OPTIONS CONT'D

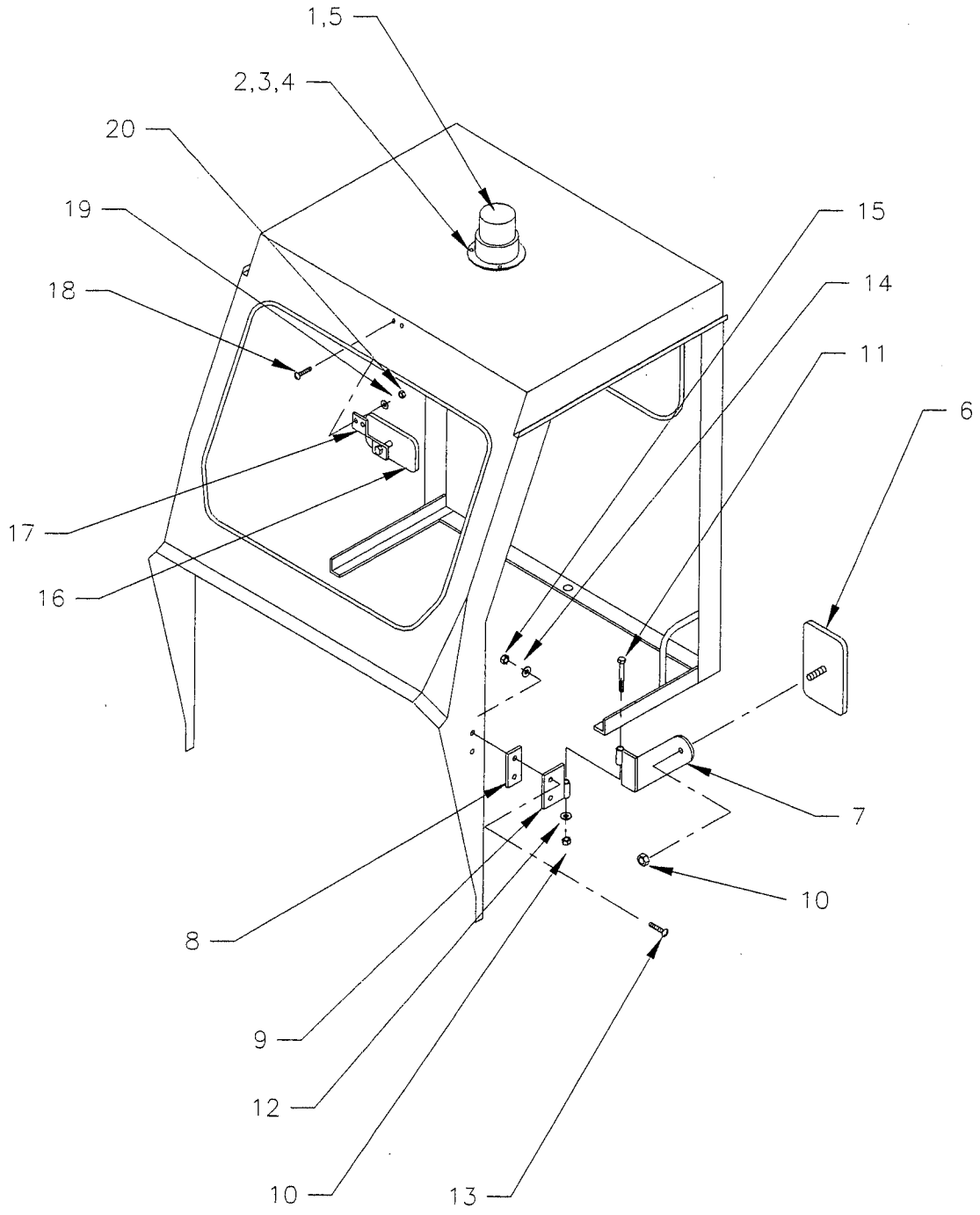






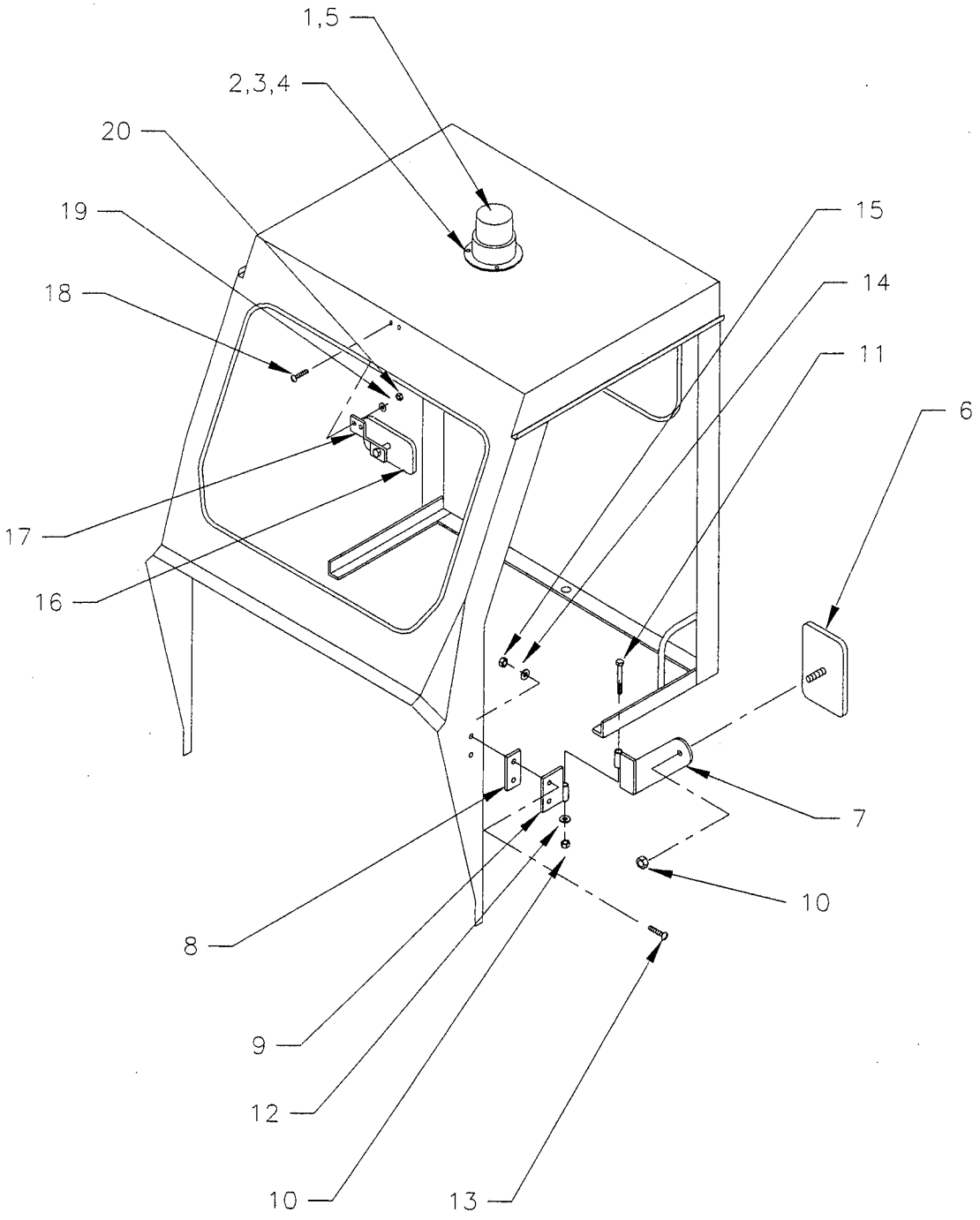
CAB AND WIPERS OPTION			
ITEM#	PART #	DESCRIPTION	QTY
Cab			
	91-011-64	Kit, Cab, Orange	1
	91-011-65	Kit, Cab, Specify Color	1
9	91-011-30	Cab (unpainted)	1
10	90-852-30	Windshield	1
11	98-310-00	Window Channel, Rubber	20 ft
12	90-850-10	Rear Window	1
13	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	18
14	88-068-62	Lockwasher, 1/4"	13
15	88-069-83	Acorn Nut, 1/4NC	13
16	88-069-81	Locknut, 1/4NC	5
Windshield Wipers			
17	74-050-00	Windshield Wiper Motor	1
18	74-051-00	Arm, Windshield Wiper	1
19	74-052-00	Blade, Windshield Wiper	1
20	88-065-11	Screw, 1/4NC x 1" Phillips Truss Hd	1
21	88-068-61	Washer, 1/4" SAE	2
22	88-069-83	Acorn Nut, 1/4NC	1
23	98-603-00	Grommet, 3/8" ID	1
24	98-618-00	Grommet, 3/4" ID	1
*	75-115-16	Harness, Wiper	1
*	71-039-11	Switch, Wiper (located in accessory slot on instrument panel)	1

MIRROR AND CAB MOUNTED STROBE



MIRROR AND CAB MOUNTED STROBE			
ITEM#	PART #	DESCRIPTION	QTY
Strobe Light On Cab			
1	72-023-20	Strobe Light, Amber	1
2	88-025-06	Screw, #8-32 x 1/2" Truss Hd	3
3	88-028-62	Lockwasher, #8	3
4	88-029-80	Nut, #8-32	3
5	98-606-00	Grommet, 3/16" ID	1
*	75-115-18	Harness, Strobe light	1
*	71-039-11	Toggle Switch	1
Mirrors, Cowl, Cab, or Door Mounted			
6	92-201-00	Mirror, 4-1/2" x 8-1/2"	1 or 2
7	92-202-12	Mirror Mounting Bracket, Left	1
	92-202-13	Mirror Mounting Bracket, Right	1
8	92-202-15	Spacer, Mirror Bracket	1 or 2
9	91-814-16	Hinge, Female, Left	1
	91-814-17	Hinge, Female, Right	1
10	88-069-81	Locknut, 1/4NC	2
11	88-060-22	Bolt, 1/4NC x 3-1/2" Hex Hd	1
12	88-068-61	Washer, 1/4" SAE	1
13	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	2 or 4
14	88-068-62	Lockwasher, 1/4"	2 or 4
15	88-069-83	Acorn Nut, 1/4NC	2 or 4

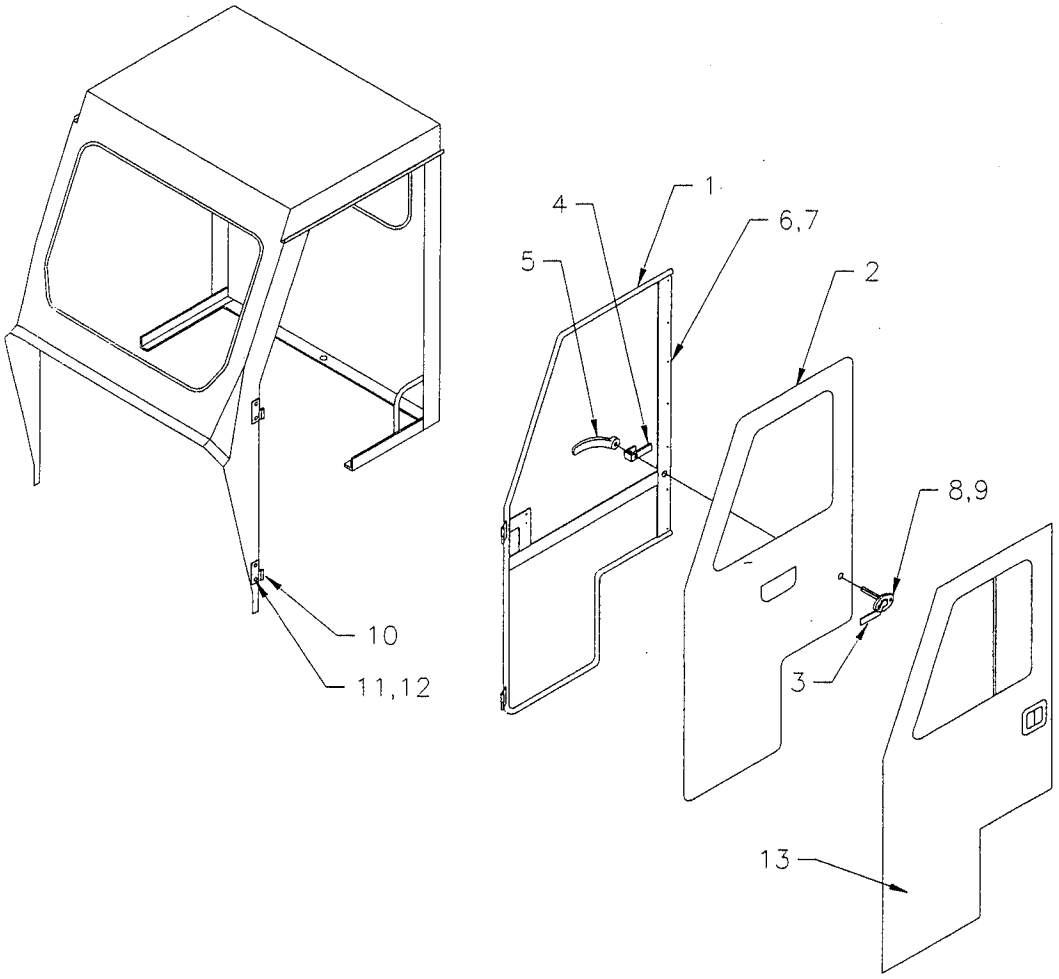
MIRROR AND CAB MOUNTED STROBE CONT'D



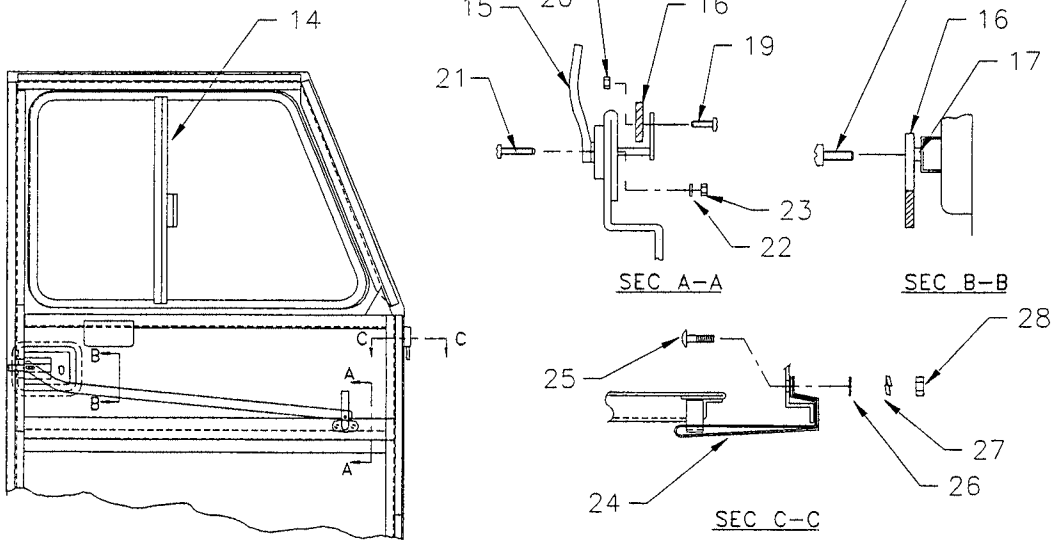
MIRROR AND CAB MOUNTED STROBE CONTD			
ITEM#	PART #	DESCRIPTION	QTY
Mirror, Inside Cab			
16	92-206-00	Mirror, Inside	1
17	02-210-70	Bracket, Inside Mirror	1
18	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	2
19	88-068-67	Lockwasher, Internal Tooth, 1/4"	2
20	88-069-80	Nut, 1/4NC	2
Mirror, Winks, Inside Cab			
*	91-810-00	Door Hinge	2
*	92-207-00	Mirror, 5 Panel	1

Section 5

CAB DOORS NAUGAHYDE



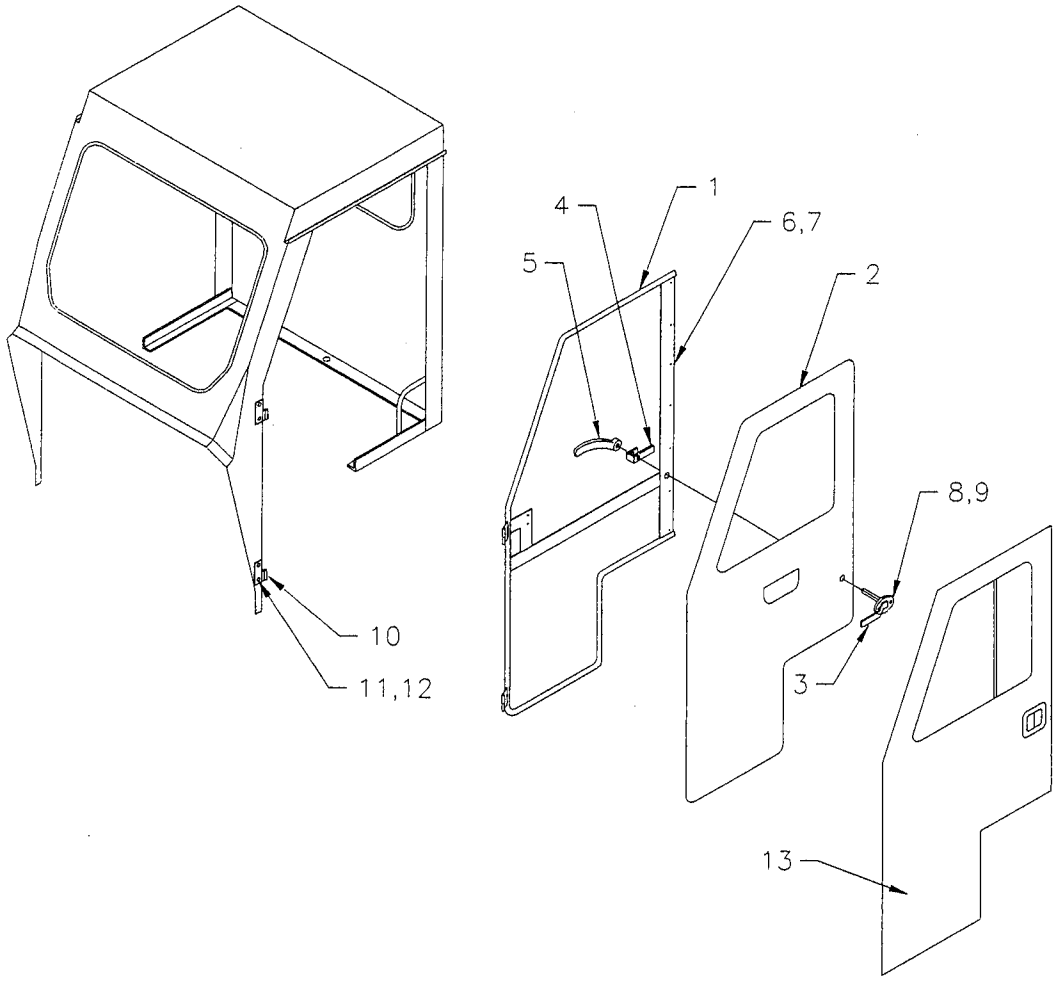
Note: Left Door Shown



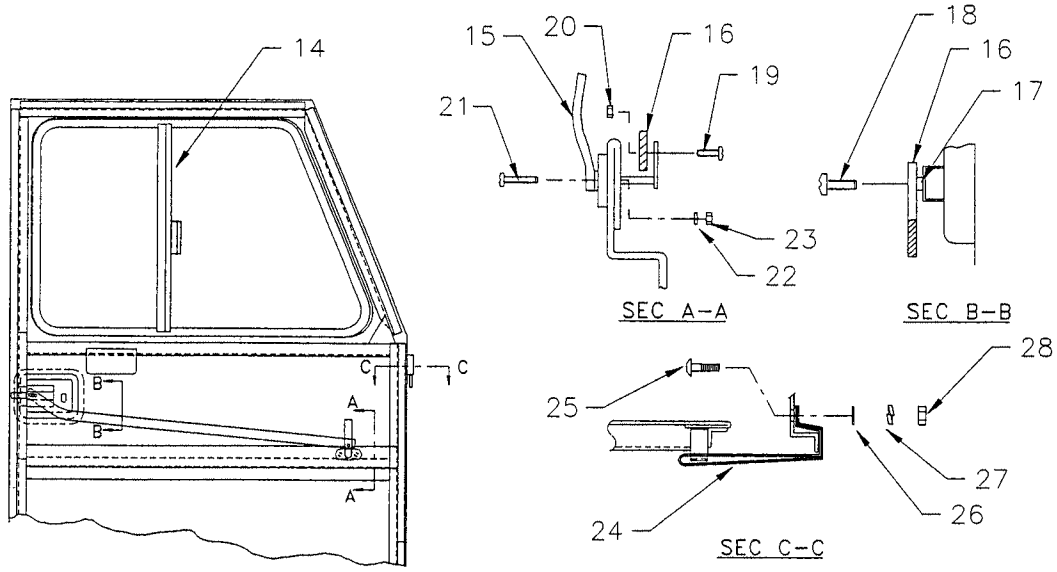
NAUGAHYDE CAB DOORS			
ITEM#	PART #	DESCRIPTION	QTY
	90-924-60	Kit, Naugahyde Door, Left	1
	90-924-61	Kit, Naugahyde Door, Right	1
1	90-923-98	Door Frame, Left	1
**	90-923-99	Door Frame, Right	1
2	90-924-98	Side Curtain, Left	1
**	90-924-99	Side Curtain, Right	1
3	97-315-53	Handle Assembly, Outer	1*
4	97-315-51	Door Latch	1*
5	97-315-54	Handle, Inner	1*
6	97-303-03	Snap Fastener, Female	7*
7	88-727-06	RIVET, 5/32" X 1/2"	7*
8	88-025-08	Screw, #8-32 x 5/8" Truss Hd	2*
9	88-029-86	Locknut, #8-32	2*
10	91-814-10	Hinge, Female, Left	2
**	91-814-11	Hinge, Female, Right	2
11	88-082-09	Bolt, 5/16NC x 5/8" Carriage	4*
12	88-089-81	Locknut, 5/16NC	4*

Section 5

CAB DOORS METAL



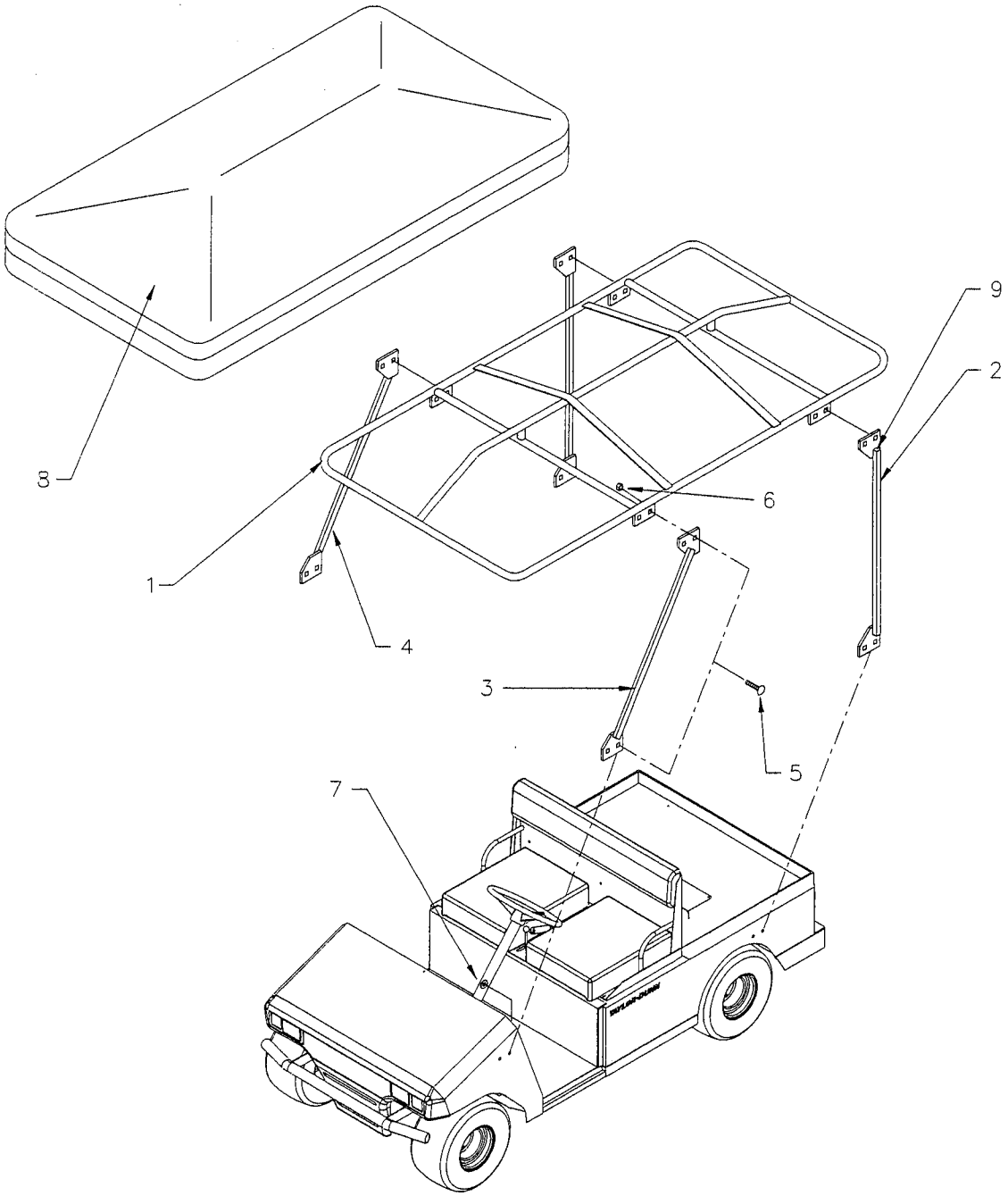
Note: Left Door Shown



METAL CAB DOORS			
ITEM#	PART #	DESCRIPTION	QTY
Cab Doors, Metal			
13	91-011-66	Kit, Cab Door, Left, Specify Color (includes #10,11,12)	1
	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, Orange (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, 1/4NC x 1/2" Phillips Truss Hd	1*
19	88-045-08	Screw, #10-32 x 5/8" Truss Hd	1*
20	88-049-86	Locknut, #10-32	1*
21	88-045-11	Screw, #10-32 x 1" Truss Hd	2*
22	88-048-62	Lockwasher, #10	2*
23	88-049-80	Nut, #10-32	2*
24	91-012-45	Strap, Door Restraint	1*
25	88-082-11	Bolt, 5/16NC x 1" Carriage	1*
26	88-088-60	Washer, 5/16" Cut	1*
27	88-088-62	Lockwasher, 5/16"	1*
28	88-089-83	Acorn Nut, 5/16NC	1*
29	91-011-31	Door Weldment, Left (unpainted)	1
**	91-011-32	Door Weldment, Right (unpainted)	1

Section 5

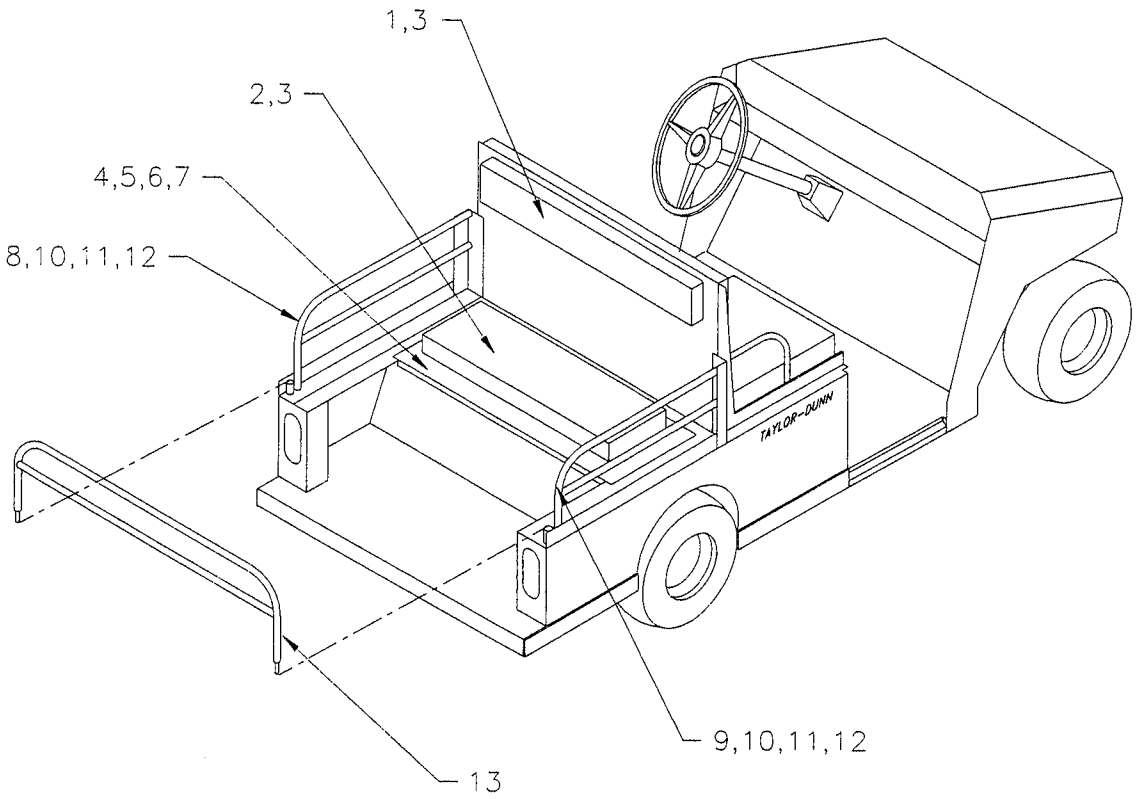
SURREY TOP



SURREY TOP COVER			
ITEM#	PART #	DESCRIPTION	QTY
	91-120-62	Kit, Surrey Top Cover	1
1	91-038-00	Tubular Top Frame	1
2	91-038-07	Post, Top Frame	2
3	91-038-08	Post, Top Frame, Front Left	1
4	91-038-09	Post, Top Frame, Front Right	1
5	88-102-11	Bolt, 3/8NC x 1" Carriage	16
6	88-109-81	Locknut, 3/8NC	16
7	88-108-61	Washer, 3/8" SAE	4
8	91-038-10	Surrey Top, White	1
9	95-911-00	Plastic Cap, Square	8

Section 5

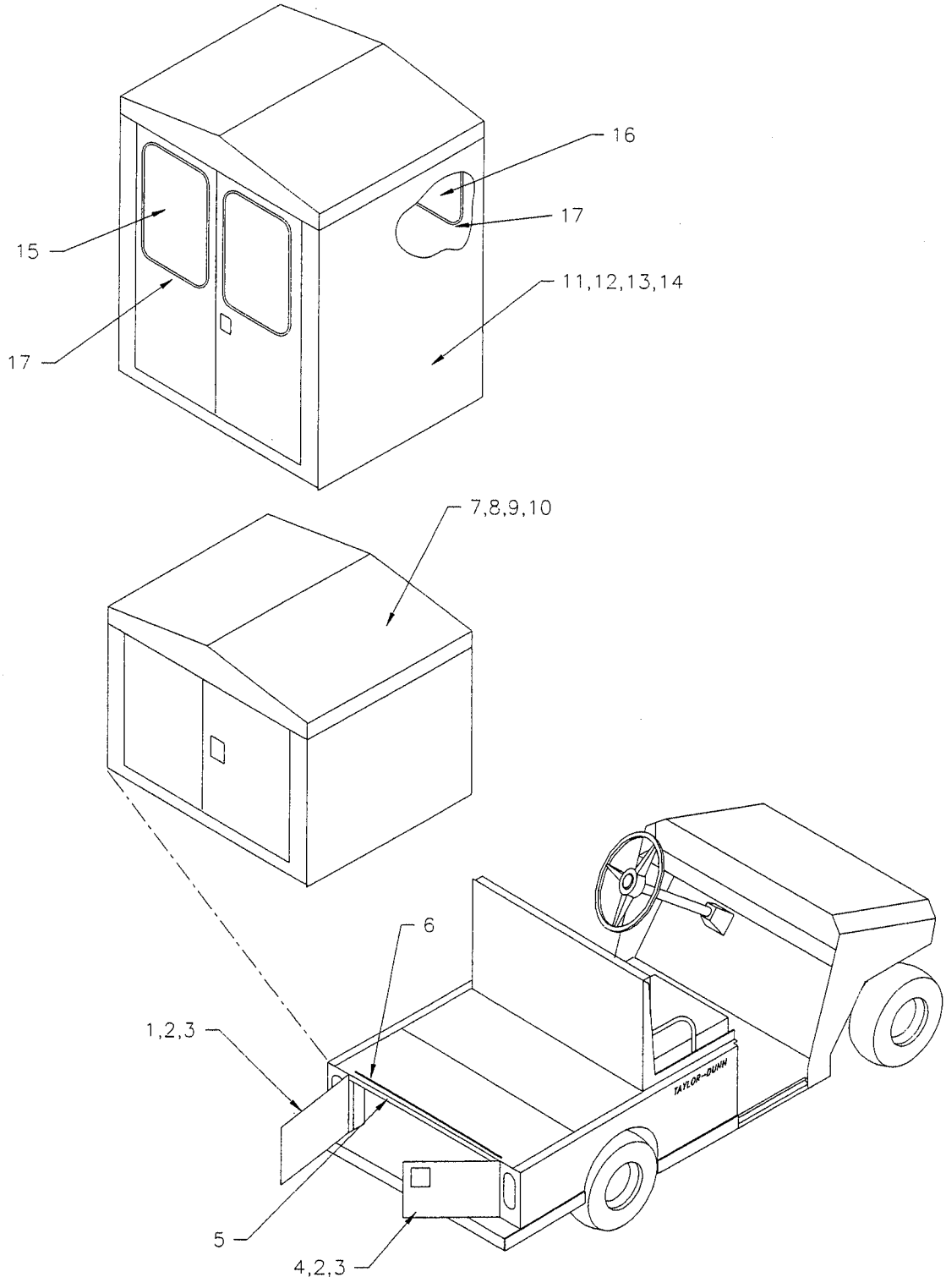
FOLD DOWN REAR SEAT AND PIPE RAILS



FOLD DOWN REAR SEAT AND PIPE RAILS			
ITEM#	PART #	DESCRIPTION	QTY
Fold Down Rear Seat			
	90-109-63	Kit, Fold Down Rear Seat	1
1	90-176-00	Backrest, 6" x 34", Black	1
2	90-177-00	Seat Cushion, Black	1
3	88-837-11	Screw, #14 x 1" Phillips Sheet Metal	8
4	00-380-67	Deck, Rear Flip-Up	1
5	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	6
6	88-068-61	Washer, 1/4" SAE	6
7	88-069-81	Locknut, 1/4NC	6
Pipe Side Rails			
8	00-680-22	Handrail, Left	1
9	00-680-23	Handrail, Right	1
10	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd	10
11	88-068-61	Washer, 1/4" SAE	10
12	88-069-81	Locknut, 1/4NC	10
Rear Gate			
13	00-680-24	End Gate, Rear	1

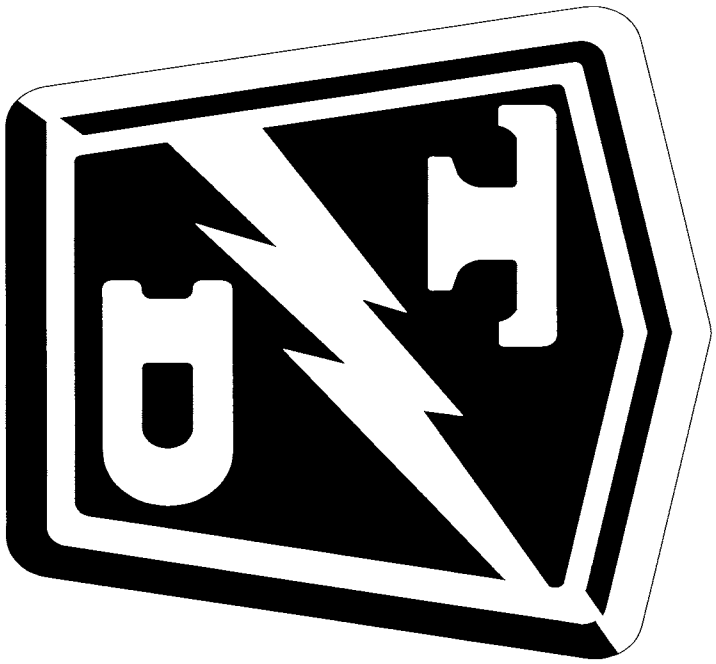
Section 5

REAR TOOL BOX



REAR TOOL BOX			
ITEM#	PART #	DESCRIPTION	QTY
	91-340-63	Kit, Rear Tool Box, Orange	1
1	00-380-70	Tool Box Door, Left	1
2	88-065-09	Screw, 1/4NC x 3/4" Phillips Truss Hd.	4
3	88-069-87	Nut, 1/4NC Keps	4
4	00-380-71	Tool Box Door, Right	1
5	98-451-11	Tape, Seal, 3/8" x 1"	3.17ft
6	98-451-20	Tape, Foam, 1/8" x 1/2"	3.00ft
24" Box w/Locking Doors			
	91-320-29	Kit, Box, 24" High, w/Locking Doors, Orange	1
7	91-320-20	Metal Box, 24" High (unpainted)	1
8	88-060-11	Bolt, 1/4NC x 1" Hex Hd	4
9	88-068-61	Washer, 1/4" SAE	4
10	88-069-81	Locknut, 1/4NC	4
Box w/Glass Front & Rear			
	91-322-21	Kit, Box, w/Glass F&R, Locking Doors, Orange	1
11	91-322-20	Box, w/Glass Front & Rear	1
12	88-060-11	Bolt, 1/4NC x 1" Hex Hd	4
13	88-068-61	Washer, 1/4" SAE	4
14	88-069-81	Locknut, 1/4NC	4
15	90-851-00	Window, 12" x 18"	2
16	90-850-10	Window, 13-7/8" x 31-7/8"	1
17	98-310-00	Rubber Window Channel	18.3-3ft
*	94-320-10	Decal, Load Line, Cargo Box	1

TAYLOR -DUNN®



MANUAL REVISION LIST			
Model: R3-80			
Revision Date	Version Number/ Rev. Letter	Description	Revised By
9/97	03/A	Original Release: New Manual writen to include part changes, correct errors from previous manual, optional parts and new format.	CAM
10/98	03/B	Manual updated and redone in Adobe 6.5 Format. This version corrects the errors printed in the previous Version A and Part Number Changes	CAM

NOTES

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