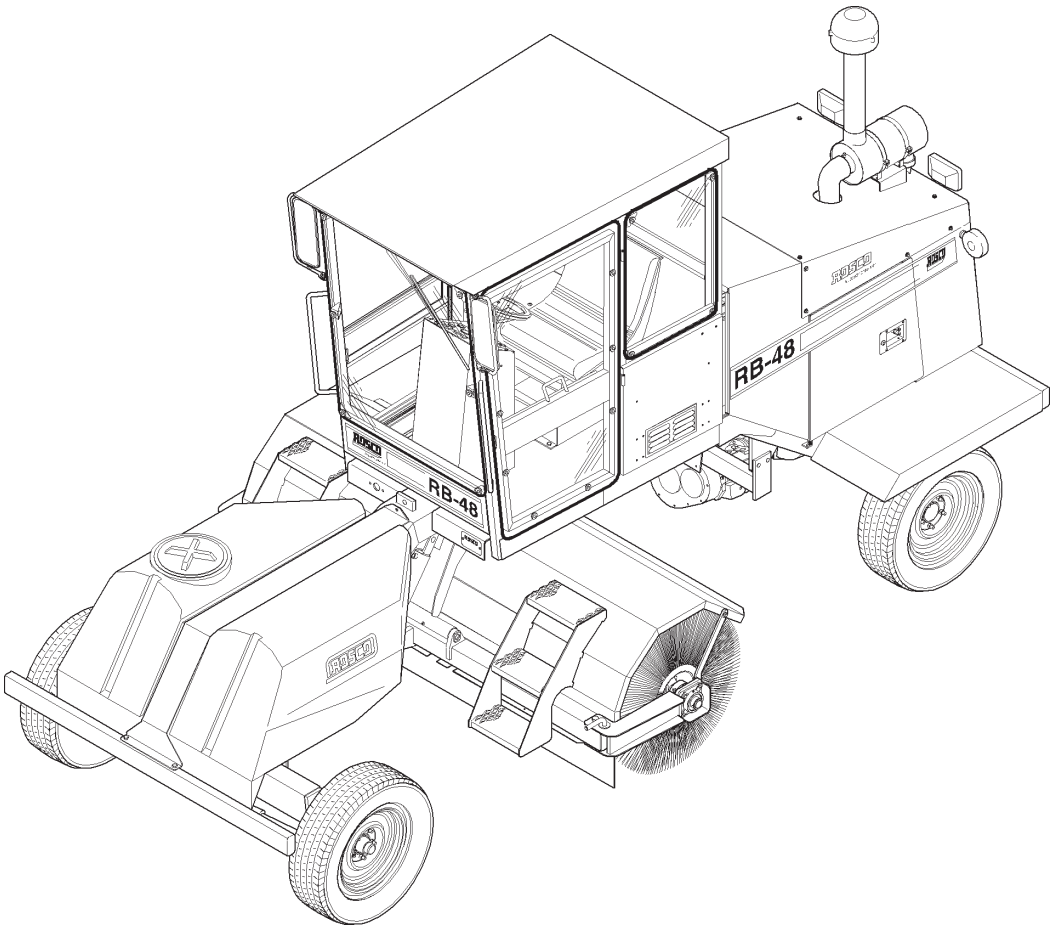
ROSCO

A LeeBoy Company

OPERATIONS, SERVICE AND PARTS MANUAL



RB48 BROOM

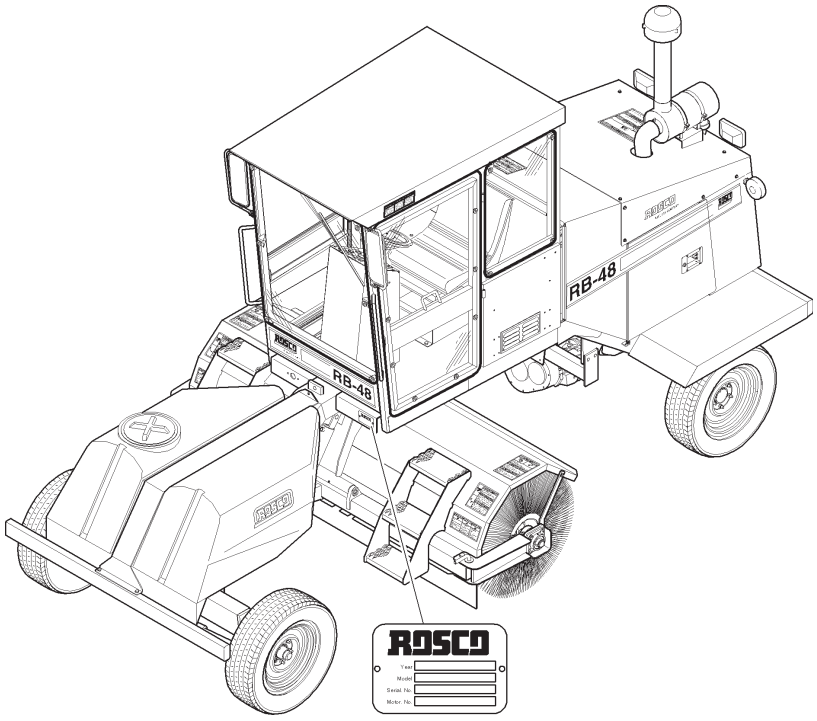
Manual No. 39139-01

For Units With Serial No. 44441 and higher

Revised 06-30-06

688 North Highway 16
Denver, North Carolina 28037
www.LeeBoy.com
704-966-3300

USERS' REFERENCE GUIDE



DELIVERY DATE _____

UNIT SERIAL NUMBER _____

ENGINE TYPE _____

ENGINE NUMBER _____

DEALER'S NAME AND ADDRESS

_____

_____

PHONE NUMBER _____

EQUIPMENT HOURS _____

SERVICE MANAGER _____

688 North Highway 16
Denver, North Carolina 28037
www.LeeBoy.com
704-966-3300

LIMITED WARRANTY
POLICY AND PROCEDURES
EFFECTIVE FOR UNITS SHIPPED AFTER DECEMBER 1, 2001

WARRANTY

1. If a defect in material or workmanship is found and the authorized dealer is notified during the warranty period, LeeBoy will repair or replace any part of component of the unit or part that fails to conform to the warranty during the warranty period.
2. The warranty date will begin upon the completion of the warranty form by the initial customer and will expire after twelve (12) months have passed. The Warranty Card should be filled out within ten (10) days of delivery of the unit.
3. Engines are warranted by their manufacturers and may have warranty coverage that differs from that of LeeBoy.
4. Replacement parts furnished by LeeBoy are covered for the remainder of the warranty period applicable to the unit or component in which such parts are installed.
5. LeeBoy has the right to repair any component or part before replacing it with a new part.
6. All new replacement parts purchased by a LeeBoy dealer will carry a six (6) month warranty. Remanufactured parts purchased by a LeeBoy dealer will carry a ninety (90) day warranty.

ITEMS NOT COVERED

LeeBoy is not responsible for the following:

1. Charges for travel time, mileage, or overtime.
2. Charges related to transporting the product to and from the place at which warranty work is performed.
3. Airfreight charges related to transporting repair parts to the place at which warranty work is performed.
4. All used units or used parts of any kind.
5. Repairs due to normal wear and tear, or brought about by abuse or lack of maintenance of the equipment, except for premature failures, conveyor chains, polytrack pads, and track rails.
6. Attachments not manufactured or installed by LeeBoy.
7. Liability for incidental or consequential damages of any type including, but not limited to lost profits or expenses of acquiring replacement equipment.
8. Miscellaneous charges.

LIMITATIONS

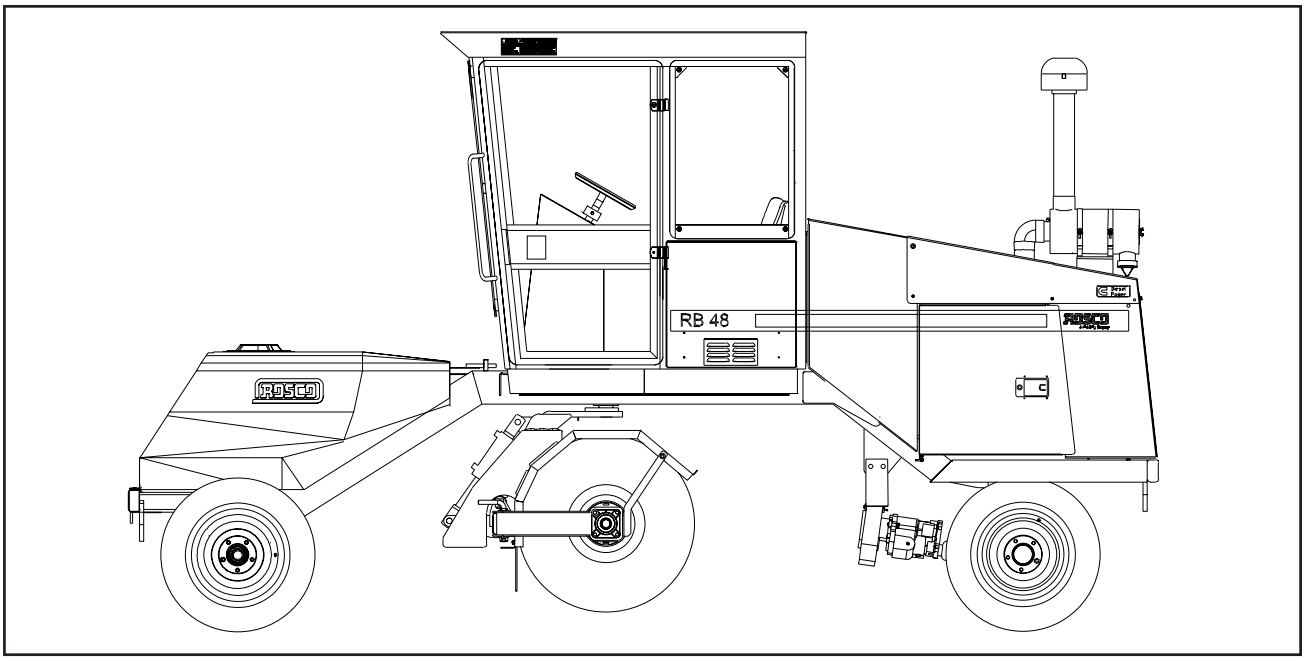
LeeBoy has no obligation under this warranty for:

1. Any defects caused by misuse, misapplication, negligence, accident or failure to maintain or use in accordance with the most current operating instructions.
2. Unauthorized alterations.
3. Defects or failures caused by any replacement parts or attachments not manufactured by or approved by LeeBoy.
4. Failure to conduct normal maintenance and operating service, including without limitation, providing lubricants, coolant, fuel, tune-ups, inspections or adjustments.
5. Unreasonable delay, as established by LeeBoy, in making the applicable units or parts available upon notification of a service notice ordered by LeeBoy.
6. The warranty responsibility on all engines and/or truck chassis rests with the respective manufacturer.
7. LeeBoy may have support agreements with some engine and/or truck chassis manufacturers for warranty and parts support.

OTHER WARRANTIES

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO UNITS, ENGINES, OR PARTS WITH LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT OR WARRANTY, OR ALLEGED NEGLIGENCE OR LIABILITY WITHOUT FAULT, SHALL LEEBOY BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT OR REVENUE, COST OF CAPITAL, COST OF SUBSTITUTED EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME COSTS, LABOR COSTS OR CLAIMS OF CUSTOMERS, PURCHASERS OR LESSEES FOR SUCH DAMAGES.

RB48 BROOM
OPERATION, MAINTENANCE AND PARTS MANUAL

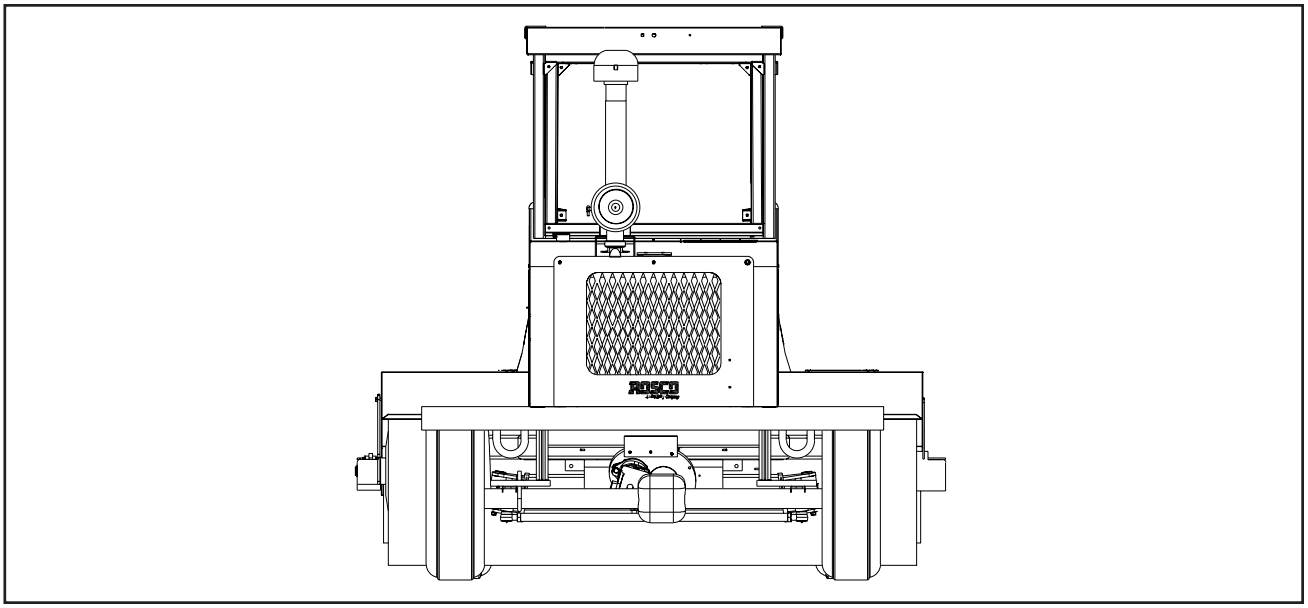


SIDE VIEW

This manual should be used with all related supplemental books, engine and transmission manuals, and parts books. Related Service Bulletins should be reviewed to provide information regarding some of the recent changes.

If any questions arise concerning this publication or others, contact your local ROSCO Distributor for the latest available information.

Contents of this manual are based on information in effect at the time of publication and are subject to change without notice.



REAR VIEW

TABLE OF CONTENTS

Section 1
INTRODUCTION & SAFETY

TABLE OF CONTENTS

Section 1
INTRODUCTION & SAFETY

FORWARD

LeeBoy's ROSCO brand RB48 self-propelled broom is used for cleanup and removal of dirt, debris and other foreign materials from roadways, at landfills, in landscaping, in road building or resurfacing projects and at industrial sites. The RB48's center-mounted rotary broom is commonly used in chip seal coating, asphalt milling, light snow removal and general construction site clean-up applications. The 150-gallon brush watering system can be used for dust control during sweeping. An optional strike-off blade is available for pushing heavy materials (such as millings) to the side to reduce broom stress and brush wear. An optional tow package allows the RB48 to be towed instead of driven or trailered to the jobsite. The optional curb brush provides sweeping ability outside the radius of the main broom core.

This manual contains the correct operation and routine maintenance procedures needed by the owner/operator for the safe and efficient use of the ROSCO RB48 Broom. In order to maximize the performance and efficiency of the RB48, it is VERY IMPORTANT that the owner/operator and maintenance personnel read this manual thoroughly before operating or servicing the broom.

Always keep this manual in a convenient place for instant reference and NEVER attempt to make repairs or adjustments that you do not fully understand. If you require additional information or service, contact your authorized ROSCO Dealer. Always give your dealer the Serial Number of your machine when ordering parts or when requesting service or other information.

The technical information found in this manual was correct at the time it was approved for publication. However, due to a continuous program of research and development, some procedures, specifications and parts may be altered in a constant effort to update and improve our products.

ROSCO Manufacturing Company reserves the right to make design or specification changes without prior notification and to make improvements without incurring an obligation to add them to any machine in existence. Please contact your local authorized ROSCO Dealer if you require further assistance.

RECEIVING THE RB48 BROOM

CAUTION: **Always set the parking brake before leaving the machine. Check parking brake before placing machine back in service.**

The RB48 Broom was inspected thoroughly at the factory. However, road hazards or vandalism may occur during transport, and result in damage. Inspect the machine as outlined below and perform necessary repairs before placing the machine in service.

1. Check engine oil level as shown in the manufacturer's manual.
2. Check fuel tank, cooling system, engine oil, and hydraulic reservoir for proper levels and contaminants. If contaminants are suspected, flush and fill the system.
3. Read this manual and understand the contents.
4. Check all hydraulic functions and repair or adjust as necessary. Have any repairs or adjustments performed by a qualified mechanic, or consult your local dealer.
5. Check for missing parts. If parts are missing or the machine is damaged, contact the local dealer.
6. Check the parking brake to make sure it is operating properly.
7. Check the seat belt to make sure it is operating properly.

OVERVIEW OF THE MANUAL

GENERAL INFORMATION

This manual contains Safety information, Specifications, Operation procedures, Maintenance and Troubleshooting guidelines, and an Illustrated Parts List for the RB48 Broom.

INTRODUCTION AND SAFETY

Important Safety precautions related to specific areas of the machine and workplace are included to insure your safety, the safety of those around you, and the correct operation of the broom.

SPECIFICATIONS

Refer to **Specifications**, Section 2 in this manual, for all major system specifications and detailed information on this machine's components and controls.

OPERATION

Refer to **Operation**, Section 3 in this manual, for information needed to operate the broom safely. The operator of this equipment should READ, UNDERSTAND, and FOLLOW all instructions and ALL Safety precautions found in Section 1 of this manual, as well as all Cautions and Warnings provided throughout all sections of this manual.

CAUTION: **Do not attempt to operate the RB48 Broom unless fully trained in the machine's operation. Only authorized personnel should operate this machine. All instructions provided in this manual and on the machine's operation and warning decals must be followed to prevent damage to the equipment and/or injury to operating personnel.**

MAINTENANCE AND TROUBLESHOOTING

Refer to **Maintenance**, Section 4 of this manual, for all maintenance and repair procedures, as well as charts and tables containing important machine-specific information.

CAUTION: **All maintenance instructions provided in this manual should be followed to insure the safety of the personnel performing the maintenance and to prevent damage to the machine.**

PRECAUTIONARY INSTRUCTIONS

This manual provides important information to familiarize you with safe operating and maintenance procedures. Even though you may be familiar with similar equipment, you MUST read and understand this manual before operating this unit.

Safety is everyone's business and is one of your primary concerns. Knowing the guidelines covered in the following paragraphs and throughout Section 1 will help provide for your safety, the safety of those around you, and the machine's proper operation.

LOOK FOR THESE SYMBOLS WHICH POINT OUT ITEMS OF EXTREME IMPORTANCE TO YOU AND YOUR COWORKERS. READ AND UNDERSTAND THE WARNINGS. HEED AND FOLLOW THE INSTRUCTIONS.

Note the use of the words DANGER, WARNING, CAUTION and ATTENTION with the message. The appropriate word for each message has been selected using the following guidelines:

DANGER: **An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.**

WARNING: **A specific hazard or unsafe practice which COULD result in severe personal injury or death if proper precautions are not taken.**

CAUTION: **Unsafe practices which COULD result in personal injury if proper practices are not taken, or as a reminder of good safety practices.**

ATTENTION: **Equipment on the machine could be damaged through improper performance of an operation, maintenance or repair procedure.**

MATERIAL SAFETY DATA SHEETS

In addition, some machines use or contain hazardous chemicals which may require a specific Material Safety Data Sheet (MSDS). If such information is necessary for the safe operation of this machine, those MSDSs are included on the following pages.

SAFETY DECALS

KNOW and UNDERSTAND the content and position of each safety decal.

KEEP the safety decals and signs CLEAN and legible.

REPLACE safety decals and signs that are missing or have become illegible. When replacing or painting machine parts, REPLACE safety decals as necessary. Refer to Decal Installation in Section 4, **Maintenance**.

OBTAIN replacement decals or signs from your dealer. Refer to the **Illustrated Parts List** in this manual for a list of part numbers.

The illustrations on this page will aid you in determining the proper location of decals. If you need more explicit instructions for their placement, contact your dealer.

NOTE: It is the responsibility of the owner and operator to make sure that all decals are readable and located on the machine as designated by the manufacturer.

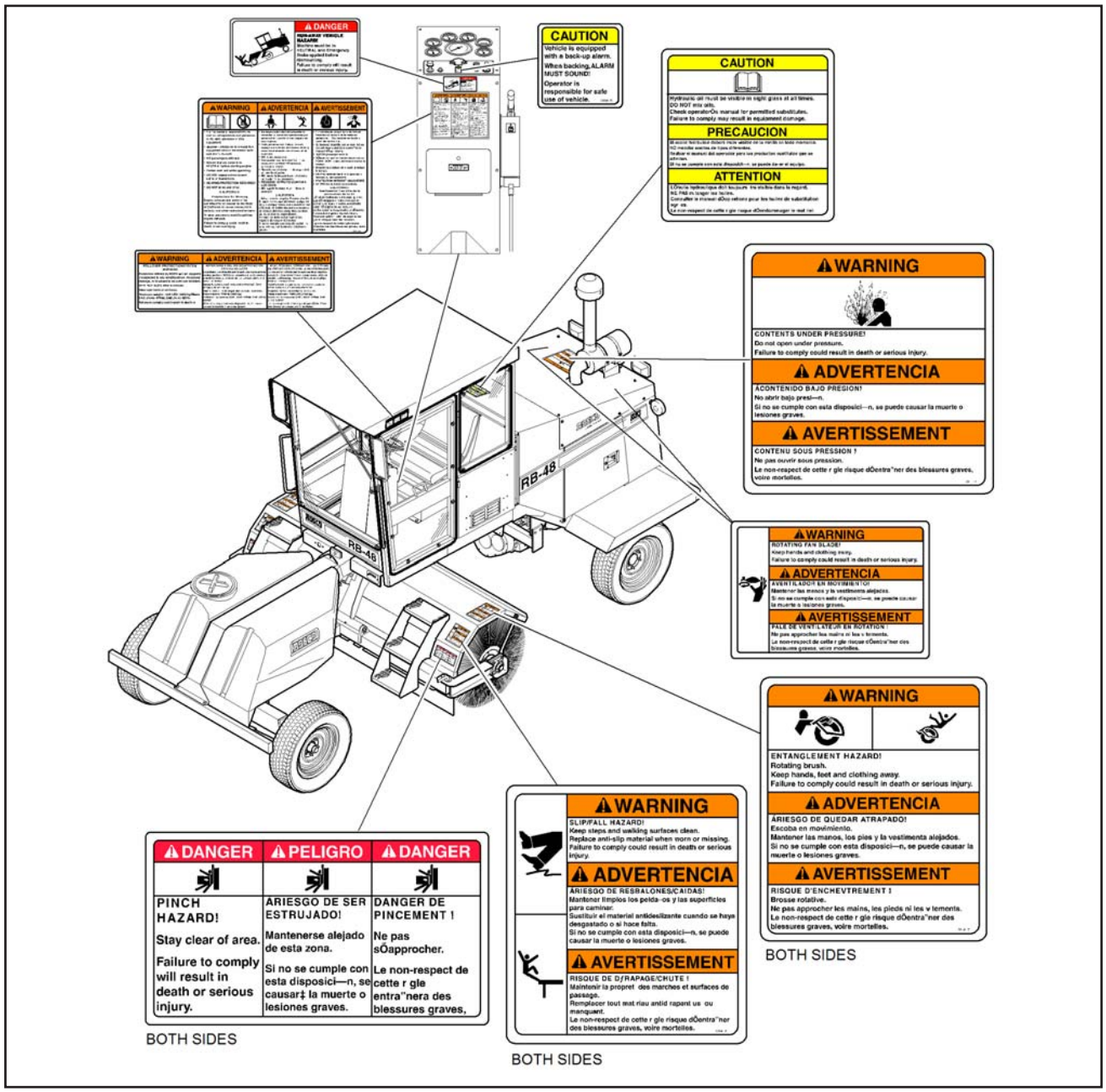


FIGURE 1-1. DECALS and DECAL LOCATIONS

SAFETY

PRE-START INSPECTION

INSPECT machine. Have any malfunctioning, broken or missing parts corrected or replaced before using the machine.

READ and UNDERSTAND the operator's manual as well as all instruction and safety decals.

Have a FIRST AID KIT available. KNOW how to use it.

Have a charged FIRE EXTINGUISHER within reach. Have the correct type for your situation:

TYPE A: Wood, paper, textile, rubbish.

TYPE B: Flammable liquid.

TYPE C: Electrical equipment.

CHECK hydraulic hoses daily for wear and leaks. Replace if damaged.

CHECK engine, transmission, and hydraulic oil levels. Fill to the correct level as necessary.

USE the correct hydraulic fluid grade for the operating season. Refer to the Hydraulic Fluids Chart in Section 4.

FILL the fuel tank with the engine off. NEVER fill fuel tank near an open flame, or when smoking.

CHECK for frayed or worn electrical wires and loose or corroded connections.

CHECK tires for wear, cuts, and damage. CHECK air pressure.

INSPECT wheels for loose, damaged, or missing hardware. TIGHTEN as necessary. Refer to the torque specification charts in Section 4.

CHECK pedals and levers for freedom of movement.

MAKE SURE operator's compartment, steps and hand holds are free of grease and debris.

CHECK steps and supports for damage. Repair as necessary.

CHECK protective devices, cab, ROPS, canopy, shields, and seat belt for wear or damage.

MAKE SURE all lights, reflectors and other protective devices are clean and operate correctly.

CHECK that all safety decals and signs are in place and readable. These are as important as any other equipment on the machine.

OPERATING SAFETY

WEAR OSHA required safety equipment when operating the machine.

WEAR appropriate ear protection when exposed to loud noise.

DO NOT wear loose fitting clothing, rings or wrist watches that could catch on moving parts.

ADJUST the seat and FASTEN the seat belt before starting the machine.

ALWAYS make sure no person or object is in your line of travel BEFORE starting.

DO NOT allow riders on the machine unless they are seated in appropriate seats.

KNOW and UNDERSTAND the job site traffic flow patterns. Work SLOWLY in tight areas and when turning.

DRIVE at speeds compatible with road, weather, and job site conditions.

AVOID steep hills, rough terrain, and sharp turns if possible.

ALWAYS look BEFORE changing your direction of travel.

DO NOT run engine in a closed building for long periods of time.

DO NOT start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on the ground. Start engine only from operator's seat, with all controls in neutral.

DO NOT leave the engine running without operator present.

USE recommended hand holds and steps with at least three points of support when getting on and off the machine. Face the machine and NEVER jump off or dismount while the machine is moving.

STOPPING SAFETY

ALWAYS park the machine on solid, level ground. If this is not possible, always park at a right angle to the slope.

ALWAYS engage parking brake.

USE proper flags, barriers and warning devices especially when parking in areas of traffic.

GENERAL MAINTENANCE SAFETY

NEVER work on the machine with the engine running.

DO NOT change the engine governor settings.

DO NOT work under the machine unless the machine is supported by approved jacks and jack stands.

ALWAYS replace damaged or lost decals.

REINSTALL safety devices, guards or shields after servicing or adjusting the machine.

CLEAN the service area. KEEP tools and parts off the floor. BE SURE electrical outlets and tools are properly grounded. USE adequate light for the job.

BATTERY SAFETY

DISCONNECT battery cables when working on the electrical system or when welding on the unit.

IF battery needs a charge, be sure battery charger is off when making connections.

BE SURE the correct battery polarity is observed [negative (-) to negative (-) and positive (+) to positive (+)], when connecting a battery charger or jumper cable.

DO NOT tip batteries more than 45 degrees. Electrolyte solution is caustic and explosive.

TIRE SAFETY

DO NOT change tires unless the machine is supported by approved jacks and jack stands.

DO NOT inflate tires beyond the maximum recommended pressure.

DO NOT hammer on rims with steel hammers. Use rubber, lead, plastic or brass faced mallets.

DO NOT mount a tire without the proper equipment and experience.

HANDLING FLUIDS SAFELY

NEVER fill the fuel tank with the engine running.

DO NOT smoke while refueling the machine.

DO NOT fill fuel tank to capacity. Allow room for expansion.

DO NOT use hands to find hydraulic leaks. High-pressure fluid can penetrate the skin, causing severe injury.

TRANSPORT

FOLLOW all local regulations regarding transporting equipment on public roads and highways.

KNOW and USE all required signal devices, including tail lights, slow moving vehicle signs, and warning beacons. Provide an escort when necessary.

BE SURE the lights and reflectors are clean, in good repair and can be seen clearly by all overtaking and oncoming traffic.

Refer to Section 3, **Operation**, for more detailed instructions.

TOWING

FOLLOW all local regulations and safety practices for towing trailer-type vehicles.

BE SURE that the towing vehicle is in sound operating condition and that it is properly equipped for towing a trailer.

DRIVE at safe towing speeds, typically 45 to 55 mph.

Refer to Section 3, **Operation**, for more detailed instructions.

STORAGE

STORE the machine in an area away from human activity.

BE SURE the unit is stored in an area that is firm, level and free of debris.

STORE the machine inside a building, or cover it with a weather-proof tarpaulin and support the wheels securely.

Refer to Section 4, **Maintenance**, for more detailed instructions.

ROSCO
A LeeBoy Company

Section 2
SPECIFICATIONS

TABLE OF CONTENTS

Section 2
SPECIFICATIONS

GENERAL INFORMATION

The descriptions and specifications provided in this section are applicable to the RB48 Broom. This section contains a description of how the major components operate. It also includes specifications for the major system components. Included in this section are machine weights, dimensions, performance, and major system specifications for the ROSCO RB48 Broom.

ENGINE

The RB48 Broom uses a four-cylinder, water cooled diesel engine to drive the hydraulic traction pump and the auxiliary pump for steering and brush control. The engine is mounted to the rear of the operating platform and accessible through doors in the engine cover.

A fuel lift pump mounted on the (Caterpillar only) tank inside the engine compartment draws diesel fuel from the fuel tank. The fuel tank is mounted behind the operator's platform.

An air cleaner mounted on the top of the engine filters intake air before use by the engine. The air cleaner removes fine particles such as dust, sand, chaff, and lint from the air.

A pre-cleaner mounted on top of the air cleaner assembly removes larger particles of dirt and debris before the air enters the air filter elements. The pre-cleaner relieves the load on the air filter elements and allows longer intervals between servicing. The materials trapped by the pre-cleaner are deposited in the pre-cleaner bowl.

As air is taken into the air cleaner assembly, a cyclone type action deposits some of the fine particles in the evacuator mounted on the bottom of the air cleaner housing. The evacuator is held closed during engine operation by suction. When the engine is shut off the weight of the debris helps to open the rubber flaps allowing the debris to fall out. The rubber flaps can also be squeezed together for cleaning.

Primary and secondary fuel filters remove contaminants from the diesel fuel before the fuel flows to the injection pump for injection into the engine combustion chamber.

A radiator mounted at the rear of the broom cools the engine. As coolant flows through the radiator, airflow from the engine-driven fan removes heat from the coolant.

Refer to the engine owner's manual for a complete description of the engine.

ELECTRICAL SYSTEM

The electrical system is powered by a 12-volt battery mounted inside the engine compartment.

The battery produces 12 volts DC and maintains 1000 cold cranking amperes (CCA). An engine-mounted alternator capable of 60 amperes charging capacity keeps the battery charged during normal operation.

The battery charge rate can be monitored using a voltmeter mounted in the instrument panel.

HYDRAULIC SYSTEM

The ROSCO RB48 Broom is a fully hydrostatic, self-propelled unit. The Hydrostatic Drive System and Hydraulic System, which powers the steering and brush drive, have one common oil reservoir.

Hydrostatic Drive System

This system propels the broom forward and reverse with dynamic braking. The system consists of a variable displacement pump driven off the rear of the diesel engine. This pump provides power to a variable displacement motor. The motor drives a mechanical rear axle through a drive shaft and gear transfer case arrangement.

Hydrostatic Drive Control

Control for the Drive System is provided by a manually operated lever at the driver's platform, located on the right side of the seat. A neutral position, which activates a neutral start switch, is included between forward and reverse directions of the control lever. This provides for easy and safe starting of the broom. There is also a toggle switch to engage the transmission Speed Selector.

ATTENTION: Never decelerate or change direction rapidly. Changing direction rapidly may cause excess heat and pressure in the hydrostatic drive system. This can shorten the system component life.

Steering & Brush Hydraulic System

A hydraulic pump, which is directly connected to the Hydrostatic System pump, has a built-in priority flow divider. The divider provides priority flow to the steering system and the brush lift and swing valves at approximately 4 gallons per minute. Excess flow from the pump provides power for the brush drive motor. The steering flow ALWAYS receives the priority flow so it is always powered.

Steering

Steering is performed by a hydraulically powered orbital system and operated by a steering wheel. In the event of a hydraulic power failure, the machine can still be steered.

Brush Control

The brush drive speed is regulated by the engine speed. Brush lift and swing is controlled by push buttons on the travel control lever. The buttons operate solenoid controlled hydraulic valves.

SPECIFICATIONS

Tables 2-1 through 2-7 list major system specifications for the RB48 Broom. Additional maintenance tables are shown in Section 4, **Maintenance**.

TABLE 2-1. ENGINE SPECIFICATIONS

ITEM	SPECIFICATION
ENGINE - CUMMINS 4B3.3	
Type	4 Cycle Diesel, Water Cooled
Number of Cylinders	Four
Bore & Stroke	3.7 in. (94 mm) x 4.5 in. (114 mm)
Displacement	199 cu. in. (3.3 liters)
Power @2500 RPM	85 HP (63 kw)
Idle Speed	1000 RPM
Engine Oil Type	15W-40
Oil Capacity	8.4 quarts (8 liters)
ENGINE - CATERPILLAR 3044T	
Type	4 Cycle Diesel, Water Cooled
Number of Cylinders	Four
Bore & Stroke	3.7 in. (94 mm) x 4.72 in. (120 mm)
Displacement	203 cu. in. (3.33 liters)
Power @2500 RPM	85 HP (63 kw)
Idle Speed	1000 RPM
Engine Oil Type	15W-40
Oil Capacity	8.4 quarts (8 liters)
ENGINE COOLING SYSTEM	
Type	Radiator
Capacity	4 gallons (15 liters)
ENGINE FUEL	
Type	Diesel
Capacity	30 gallons (114 liters)
FUEL FILTER	
Primary (Cartridge)	P/N 38734-02/Cummins; 38144-03/Caterpillar
In-Line	P/N 33291
OIL FILTER	
Cartridge	P/N 38734-01/Cummins; 38144-02/Caterpillar
AIR FILTER	
Primary (Dry-type)	P/N 36643-01
Safety (Cartridge)	P/N 171150

TABLE 2-2. ELECTRICAL SPECIFICATIONS

ITEM	SPECIFICATION
BATTERY	
Rating	1000 CCA
Voltage	12 Volt
ALTERNATOR	
Rating	60 Amps
Type and Voltage	12 Volt, negative ground

TABLE 2-3. MACHINE DIMENSIONS

ITEM	SPECIFICATION
Weight	5,540 lbs (2,513 kg)
Overall Length	15' 5" (4.7 m)
Overall Height	8' 11" (2.72 m)
Overall Width (Brush at 45°)	7' 9" (2.36 m)
Tread Width (Front & Rear)	5' 6" (1.68 m)
Wheelbase	11' 8" (3.56 m)
Turning Radius (Inside)	11' 0" (3.35 m)
Turning Radius (Outside)	18' 9" (5.72 m)
Ground Clearance	5" (13 cm)

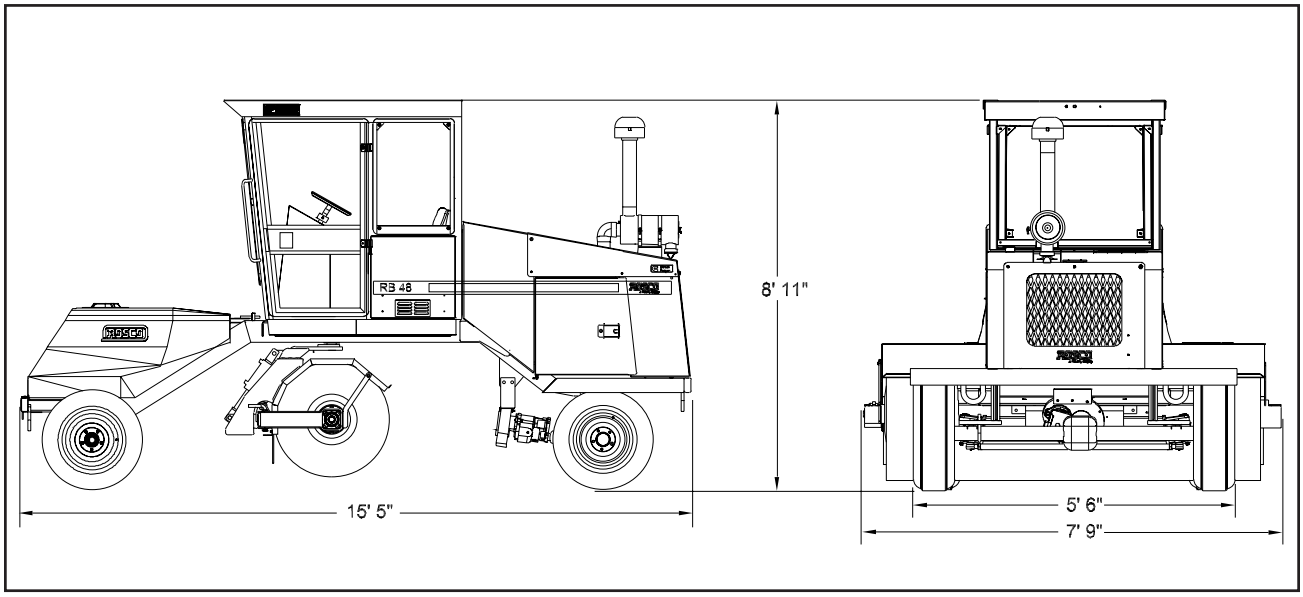


FIGURE 2-1. OUTLINE DIMENSIONAL DRAWING

TABLE 2-4. DRIVE SYSTEM SPECIFICATIONS

ITEM	SPECIFICATION
Transmission	2-Speed Hydrostatic
Steering	Hydraulic, Orbital Motor
	3.7 GPM (14 LPM) priority flow at 1500 psi (10 MPa)
Front Axle (No Brakes)	Heavy Duty Truck-Type, Oscillating
Tires	ST 225/75-15R
SPEED	
High (Travel)	0-22 mph (0-35 kph)
Low (Working)	0-12 mph (0-19 kph)
HYDROSTATIC DRIVE SYSTEM	
Pump Model and Manufacturer	Sauer/Danfoss M46 Series 40
Pump Displacement	2.8 CIR (46 cc)
Motor Model and Manufacturer	Sauer/Danfoss M46 Series 40
Motor Displacement (2-Speed)	2.8 CIR (46 cc)
Hydraulic Reservoir	25 gallons (95 liters)
Hydraulic Fluid	Refer to Section 4, **Maintenance**
Hydraulic Filters	7-Micron Spin-On Cartridge (P/N 34464)
Hydraulic Strainer	In-Tank (P/N 33148)
Oil Cooler	Flow-Thru
FINAL DRIVE SYSTEM	
Gear Box	4.533:1 Ratio
Rear Axle, Differential, Semi Float	3.55:1 Ratio
Brakes (Rear only)	Drum-Type Hydraulic

TABLE 2-5. BRUSH OPERATING SYSTEM

ITEM	SPECIFICATION
Pump (Gear-Type)	19 GPM (72 LPM), 3,000 psi (21 MPa)
Motor (Gerotor-Type)	Direct Drive
Brush Core (Welded Steel)	10 in. x 7 ft. 6 in. (25 cm x 2.3 m)
Brush Filler (Wafer-Type)	10 in. x 32 in. (25 cm x 81 cm)
Brush Filler (Tube-Type)	10 in. x 32 in. (25 cm x 81 cm)
Brush Cover (Steel)	160°, Full Length
Brush Speed	200 RPM maximum, Variable w/Engine RPM
Brush Angle	45°, Left or Right
Down Pressure Control	Hydraulic, Fully Adjustable
Brush Watering System	Poly Tank, 1@150 gallons (284 liters), Strainer, 12 Volt Diaphragm-Type Pump

TABLE 2-6. CAB SPECIFICATIONS

ITEM	SPECIFICATION
ROPS Cab	OSHA & SAE Certified
Windshield Wiper (Front)	12 Volt, 2-Speed
Seat	Padded with Seat Belt
Horn	12 volt, Automotive-Type
Back-up Alarm	97 db +/- 4 db at 4 ft. (122 cm)
Air Conditioning	22,000 Btu/Hr (6,448 Watt) Capacity
Heater	30,000 Btu/Hr (8,793 Watt) Capacity
Lights	Turn Indicators, Tail Lights, Work Lights, Stop Lights
Instrumentation	Oil Pressure, Coolant Temperature, Fuel Gauge, Ammeter, Hourmeter, and Tachometer

TABLE 2-7. OPTIONAL EQUIPMENT

ITEM	SPECIFICATION
Defroster Fan (Front or Rear)	12 Volt, Variable Speed
Windshield Wiper (Rear)	12 Volt, 2-Speed
Windshield Washer (Front or Rear)	12 Volt
Mirrors	West Coast, Inside Rear View
Rotating Beacon or Strobe	12 Volt
Ether Start	12 Volt
Engine Block Heater	12 Volt, 400 Watt
Engine Pre-Cleaner	Standard or Turbo-Type
Instrumentation	Hydraulic Oil Temperature, Engine Warning Light/Buzzer
Seat	Suspension, Adjustable, with Seat Belt
Strike-Off Blade	Refer to **Illustrated Parts List**
Curb Brush	Refer to **Illustrated Parts List**
Tow Package	Refer to **Illustrated Parts List**

Section 3
OPERATION

TABLE OF CONTENTS

Section 3
OPERATION

GENERAL INFORMATION

This section provides the Operating instructions for the RB48 Broom. Before starting or operating the machine, it is important to READ, UNDERSTAND, and FOLLOW all Operating instructions, Danger, Warning, and Caution messages in this section, as well as all Safety information contained in Section 1 of this manual.

DANGER: **Failure to observe the Operating instructions, Danger, Warning, and Caution messages in this manual can cause serious injury or death. Only authorized personnel, who are fully trained in the machine operation, can operate the RB48 Broom.**

This machine should be kept in good mechanical condition at all times.

WARNING: **Do not operate a machine needing repair. Put an information tag on the instrument panel that says DO NOT OPERATE. Remove the key from the ignition switch. Repair all damage at once. Minor damage can result in major system failures.**

OPERATING CONTROLS, INDICATORS, AND GAUGES

Operating controls for the RB48 Broom are shown in Figures 3-1 through 3-6 and listed in Tables 3-1 through 3-6. All controls, indicators and gauges are located in the operator's compartment.

WARNING: **Do not start or operate the RB48 Broom before reading, understanding and following all information given in this section and shown on the machine. The operator must read and understand the function of all controls, indicators, and gauges before starting the engine. Serious injury or death can result if these procedures are not followed.**

The ignition key-switch, light switches, gauges, and warning indicators are mounted on the steering wheel console in front of the operator. The parking brake lever is mounted on the right side of the steering wheel console.

The joystick, brush drive lever, speed selector switch, throttle control, and brush down pressure control are mounted in a panel to the right of the operator's seat.

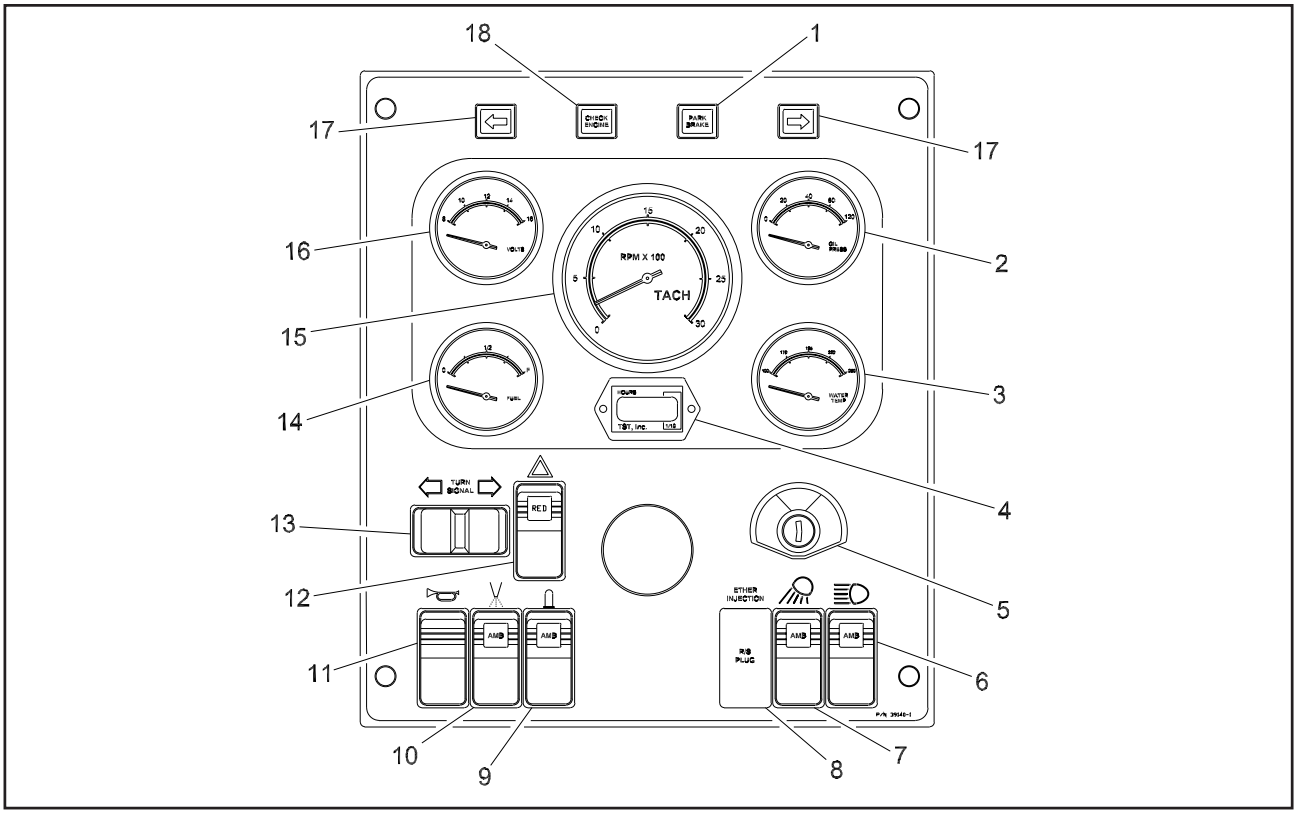


FIGURE 3-1. INSTRUMENT PANEL

TABLE 3-1. INSTRUMENT PANEL

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-1	1	Park Brake Light	Red Warning Light	Indicates that the park brake is set.
3-1	2	Oil Pressure Gauge		Displays engine oil pressure in pounds per square inch (psi).
3-1	3	Temperature Gauge		Displays engine coolant temperature.
3-1	4	Hour Meter		Displays total machine work hours.
3-1	5	Ignition Switch	Key	Used to start and stop the engine and activate switched power circuits.
3-1	6	Head Lights Switch	ON/OFF (Rocker Switch)	Activates the head lights.
3-1	7	Work Lights	ON/OFF (Rocker Switch)	Activates the work lights. Used to illuminate work area when working at night.
3-1	8	Option	ON/OFF (Rocker Switch)	Activates Ether Injection, used as an aid for engine cold start.
3-1	9	Beacon Light Switch	ON/OFF (Rocker Switch)	Controls cab-mounted strobe beacon light.. Warns traffic of slow moving equipment.
3-1	10	Brush Watering System Switch	ON/OFF (Rocker Switch)	Activates brush watering system.
3-1	11	Horn Switch	ON/OFF (Rocker Switch)	Sounds the horn when pressed.
3-1	12	Hazard Lights	ON/OFF (Rocker Switch)	Activates the hazard lights.
3-1	13	Turn Signal Switch	ON/OFF/ON (Toggle Switch)	Activates the left/right turn signals.
3-1	14	Fuel Gauge		Displays fuel level in the fuel tank.
3-1	15	Tachometer		Displays engine speed in revolutions per minute (RPM).
3-1	16	Voltmeter		Displays the condition of the battery charging system.
3-1	17	Directional Arrows	Green Flashing Light	Indicates left/right turn as selected with Turn Signal Switch (item 13).
3-1	18	Check Engine Light	Red Warning Light	Indicates engine malfunction. Check major components and fluid levels. Service immediately.

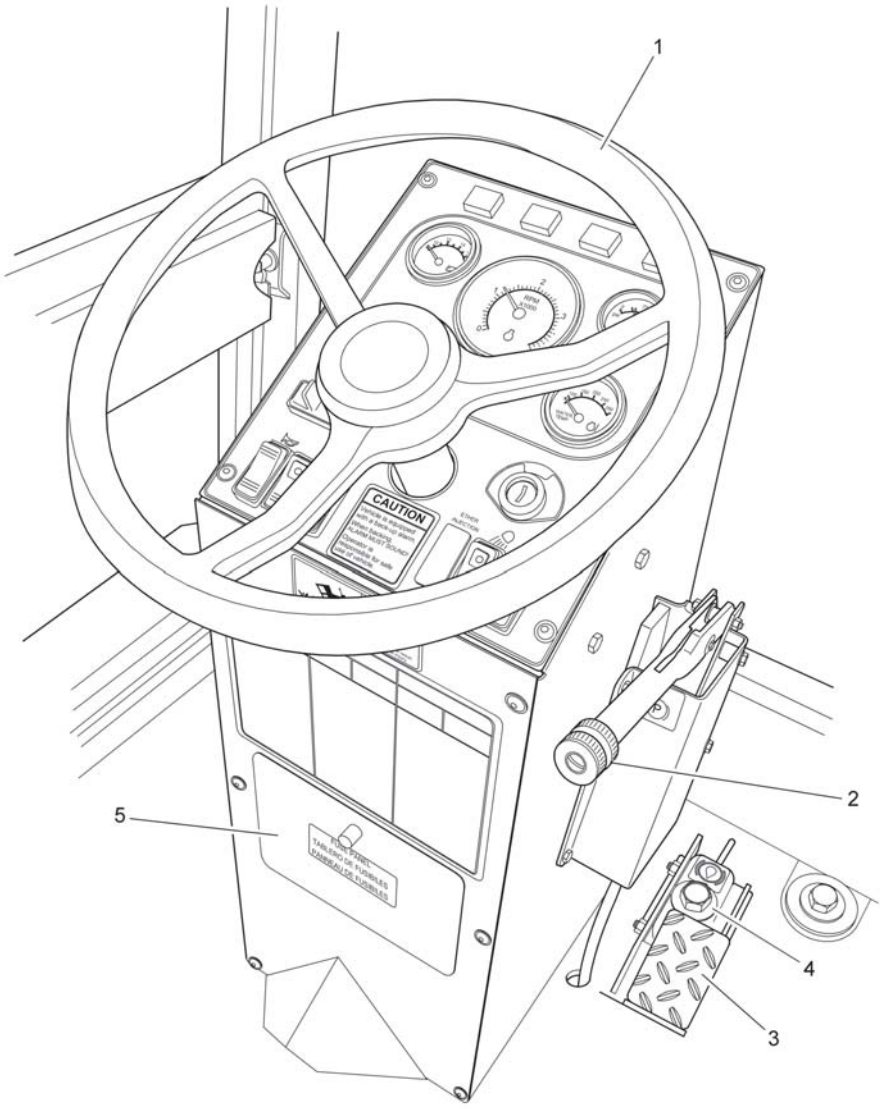


FIGURE 3-2. STEERING CONSOLE

TABLE 3-2. STEERING CONSOLE

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-2	1	Steering Wheel		Controls right and left steering function of the front wheels.
3-2	2	Park Brake Lever		Raise to set park/emergency brake. Lower lever to release.
3-2	3	Service Brake Pedal		Used to slow and stop the broom.
3-2	4	Brake Master Cylinder		Pressurizes the brake system.
3-2	5	Main Fuse Panel		Contains fuses for the instrument panel, brush controls, heat, blower fan, air conditioning, and exterior lights.
3-2	6	Option (Not Shown)	ON/OFF (Toggle Switch)	Left/Right. Activates the Curb Brush.
3-2	7	Option (Not Shown)	UP/DOWN (Toggle Switch)	Raises and lowers the Curb Brush.
3-2	8	Option (Not Shown)	LEFT/RIGHT (Toggle Switch)	Controls swing of Strike-Off Blade.
3-2	9	Option (Not Shown)	UP/DOWN (Toggle Switch)	Raises and lowers the Strike-Off Blade.

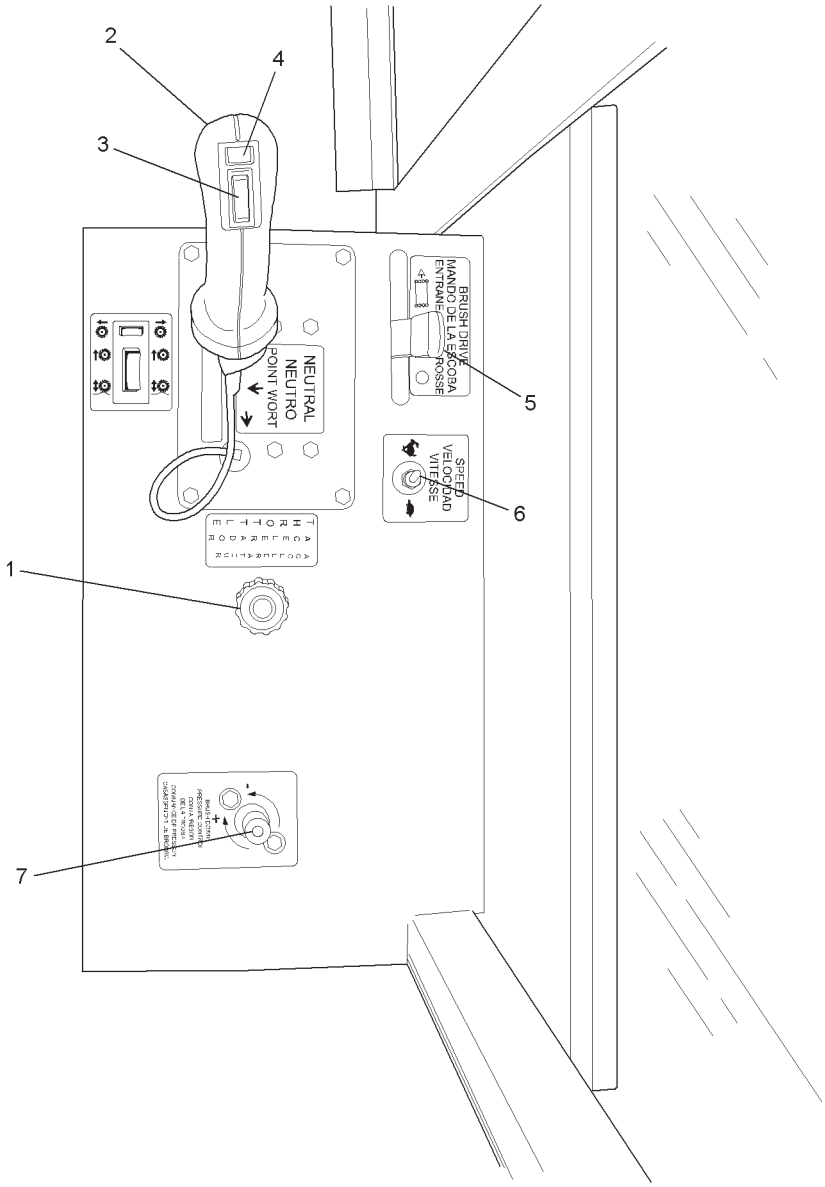


FIGURE 3-3. BRUSH CONTROL CONSOLE

TABLE 3-3. BRUSH CONTROL CONSOLE

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-3	1	Engine Throttle	PUSH/PULL and LEFT/RIGHT knob	Controls engine RPM, with center push-button.
3-3	2	Joystick/Transmission Selector Lever	FWD/NEUTRAL/ REVERSE	Controls speed and direction of machine's travel.
3-3	3	Brush Control Switch (Located on Joystick)	FORWARD/BACK (Rocker Switch)	Controls brush lift and float.
3-3	4	Brush Swing Switch (Located on Joystick)	LEFT/RIGHT (Rocker Switch)	Controls left and right brush swing.
3-3	5	Brush Drive Lever	ON/OFF	Turns brush rotation on and off.
3-3	6	Speed Selector Switch	HIGH/LOW (Toggle Switch)	Controls speed of brush rotation.
3-3	7	Brush Down Pressure Control	LEFT/RIGHT knob	Controls hydraulic pressure suspending the brush.

TABLE 3-4. HEAT & AIR CONDITIONING CONTROLS

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-4	1	Heater Control Knob	LEFT/RIGHT knob	Clockwise rotation to adjust heat.
3-4	2	Blower Fan Control	4-Position Knob	Controls blower fan for heater and air conditioning.
3-4	3	Air Conditioning Control	LEFT/RIGHT knob	Clockwise rotation to control temperature.

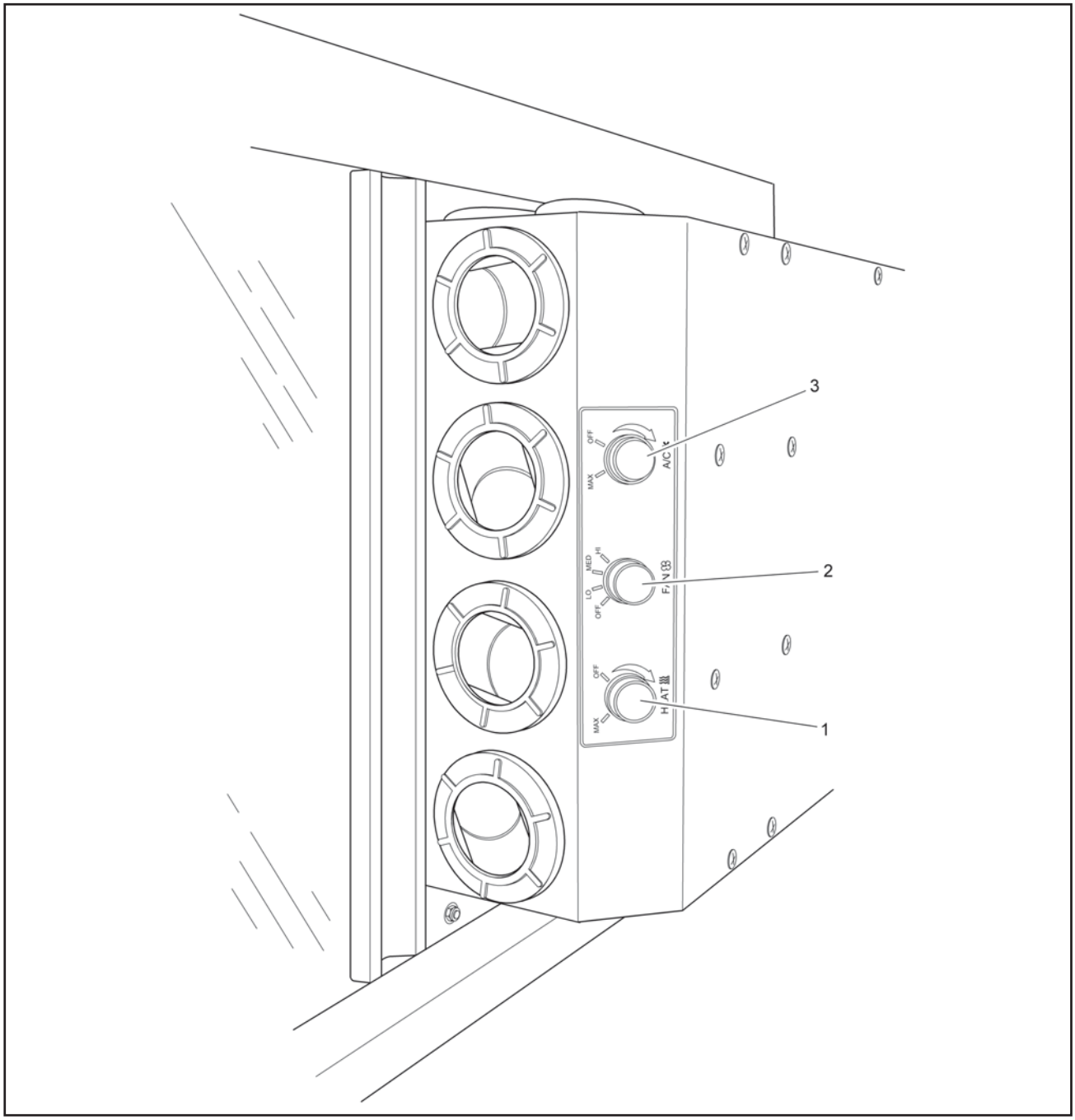


FIGURE 3-4. HEAT & AIR CONDITIONING CONTROLS

TABLE 3-5. WINDSHIELD WIPER, DEFROST & DOME LIGHT CONTROLS

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-5	1	Windshield Wiper and Washer Knob	HIGH/LOW wiper with push-to-wash	Controls front windshield wiper and washer.
3-5	2	Option	HIGH/LOW wiper with push-to-wash	Controls rear windshield wiper and washer.
3-5	3	Defroster Fan	HIGH/MED/LOW knob	Controls front cab-mounted windshield defroster fan.
3-5	4	Option	HIGH/MED/LOW knob	Controls rear cab-mounted windshield defroster fan.
3-5	5	Dome Light	ON/OFF (Push Button)	Lights cab interior with push button switch on top.

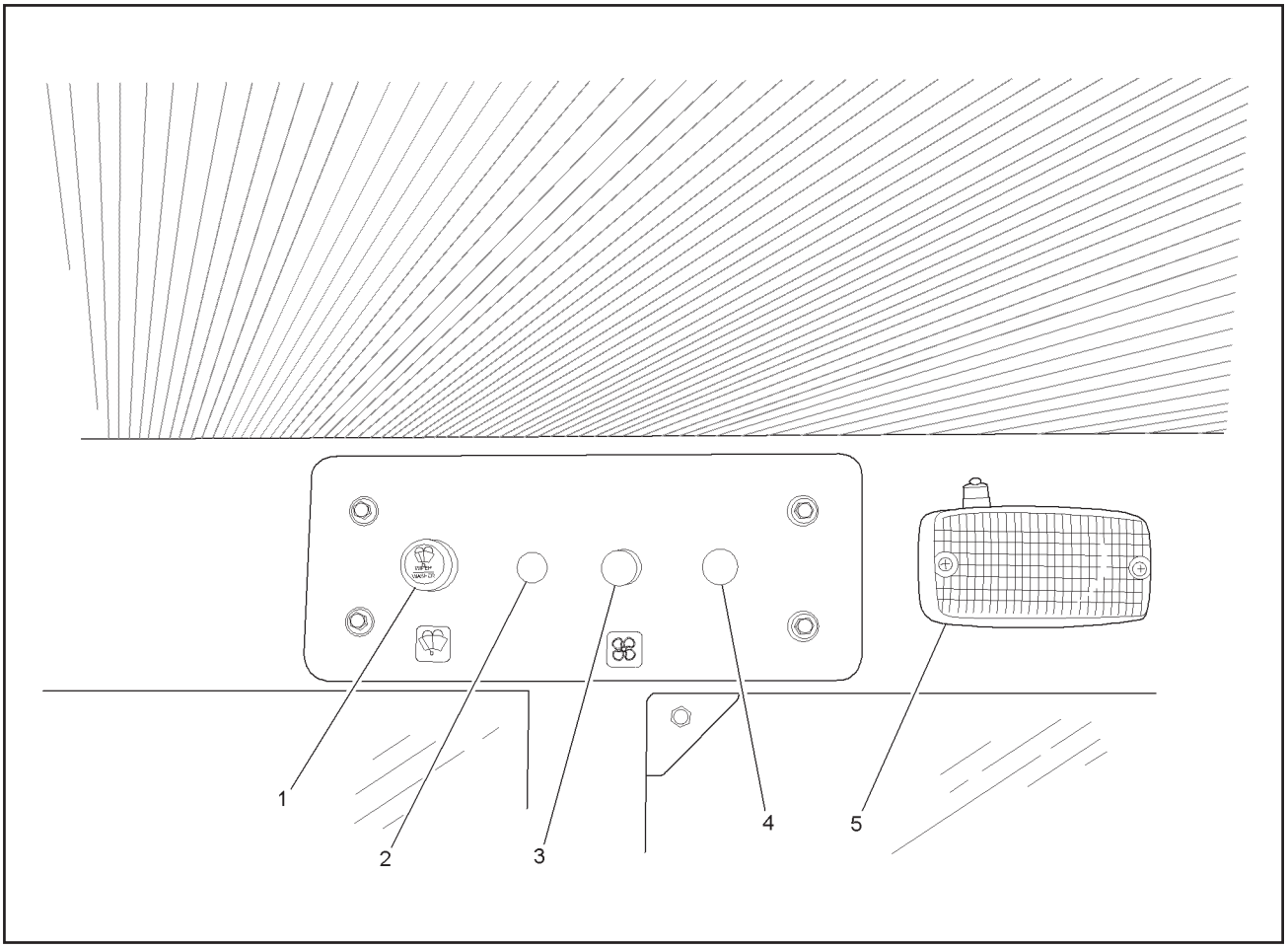


FIGURE 3-5. WINDSHIELD WIPER, DEFROST & DOME LIGHT CONTROLS

TABLE 3-6. DEFROSTER FAN & ACCESSORY FUSE PANEL

FIGURE	ITEM	CONTROL NAME	TYPE	FUNCTION
3-6	1	Front Cab-Mounted Windshield Defroster Fan		Directed toward front window to defrost the windshield.
3-6	2	Accessories Fuse Panel		Contains fuses for dome light, windshield wiper/washer, and defroster fan.

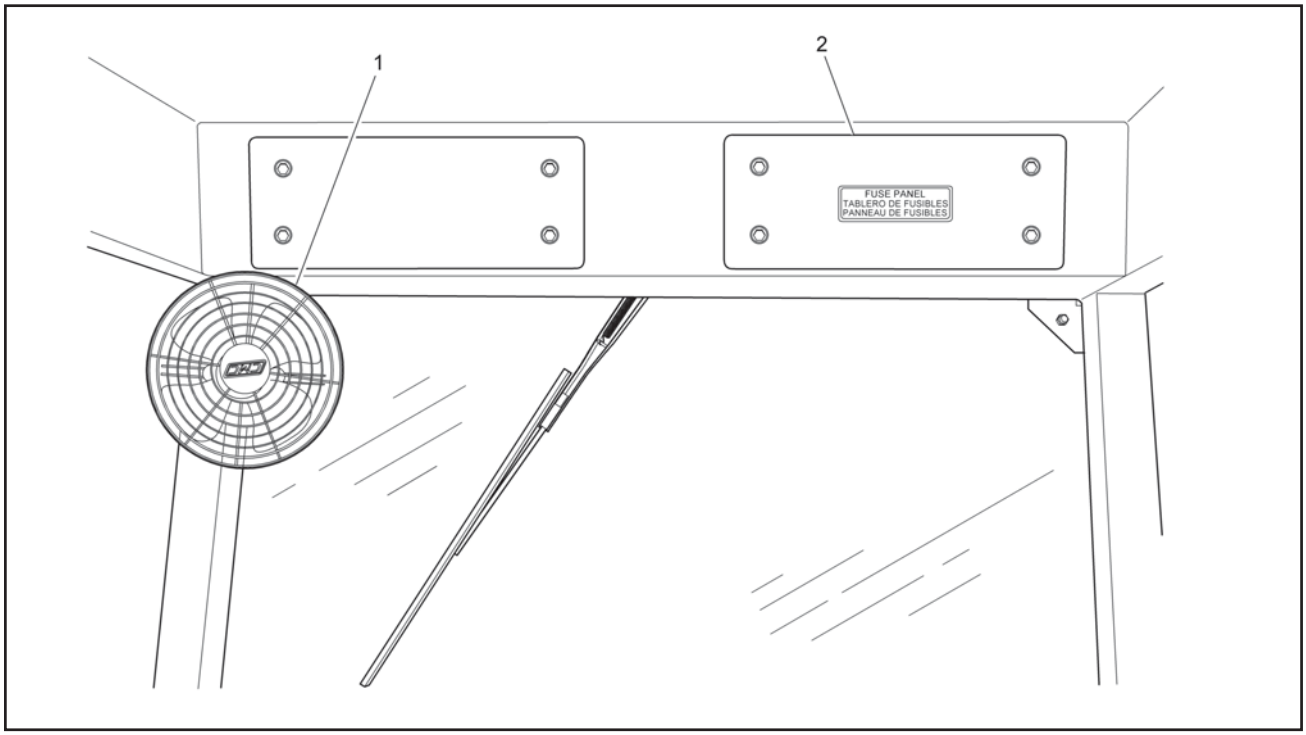


FIGURE 3-6. DEFROSTER FAN & ACCESSORY FUSE PANEL

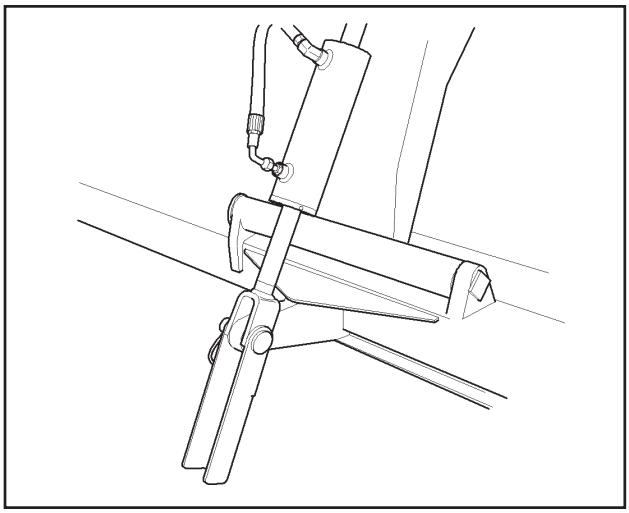


FIGURE 3-7. MECHANICAL BRUSH LIFT CYLINDER LOCK - OPEN

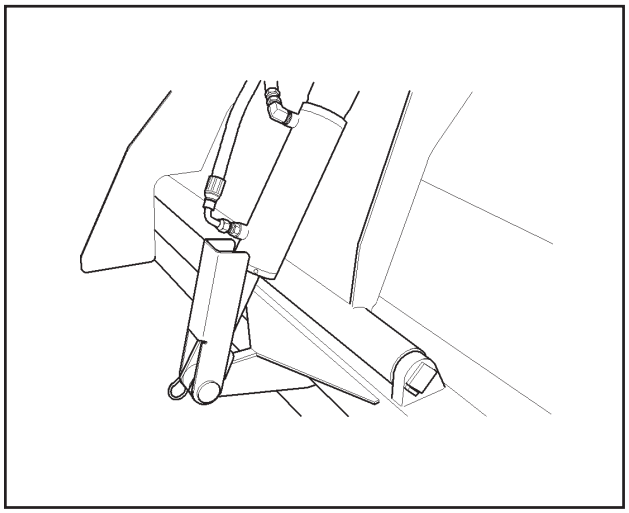


FIGURE 3-8. MECHANICAL BRUSH LIFT CYLINDER LOCK - LOCKED

PRE-OPERATION

Before starting or operating the machine, it is important to READ, UNDERSTAND, and FOLLOW all Operating instructions, Danger, Warning, and Caution messages in this section, as well as all Safety information contained in Section 1 of this manual. A pre-operation checklist is provided to ensure efficient and safe operation of the RB48 Broom.

Check the following areas before operating the machine and each time thereafter:

1. Recommended fluid types and required quantities are listed in **Specifications**, Section 2 of this manual. Replace fluids as detailed in the Maintenance Interval Chart in **Maintenance**, Section 4 of this manual. Check the following:
   a. Check ENGINE OIL. Add if low. Be careful not to overfill.
   b. Check HYDRAULIC OIL RESERVOIR. Add if low.
   c. Check ENGINE DIESEL FUEL TANK. Fill if low.
   d. Check ENGINE COOLANT LEVEL at radiator. Fill if low.
   e. Check BRAKE FLUID at Brake Master Cylinder. Fill to 1" below the top.
2. Check the Engine Air Filter Indicator. Clean or replace filters if indicator shows red or 20 inches of restriction.
3. Check engine belts and hoses for wear or fraying. Replace any that show signs of wear, cuts or abrasion.
4. Check park/emergency brake adjustment. See **Maintenance**, Section 4 for adjustment instructions.
5. Check the mechanical brush lift cylinder lock. Disengage it if it is in the up and locked position. (See Figures 3-7 and 3-8.)
6. Check Tire Pressure. Maintain even pressure in all four tires at 50 psi.
7. Make sure cab windows are clean and pressurizer air filters are clean.
8. Check the machine for loose bolts.
9. Check for signs of leaking hoses. Refer to **Maintenance**, Section 4 for hydraulic leak inspection procedures.
10. Check Engine manufacturer's manual for pre-operation information.

START-UP & ENGINE OPERATION

WARNING:  **Know the location and function of the controls before starting the engine. Refer to Figures 3-1 through 3-6 and Tables 3-1 through 3-6 for the position of all operating controls and system monitoring gauges.**

1. Place the Transmission Selector Lever (Figure 3-3, item 2) in the neutral position. A Neutral Start Switch has been installed to prevent operation of the engine starter when the transmission is not in neutral.

WARNING:  **Do not bypass the neutral start system. If the neutral start system malfunctions, it must be repaired. Failure to do so can cause the machine to jerk and throw an operator from the machine.**

2. Apply the park/emergency brake (Figure 3-2, item 2).

WARNING:  **Be sure the park brake is applied and the Transmission Selector Lever (Figure 3-3, item 2) is in the neutral position before starting the machine. Sudden movement of the machine can throw an operator from the machine.**

3. Set the Engine Throttle (Figure 3-3, item 1) to one-half speed by holding the center button depressed and pulling on the knob.
4. Turn the Ignition Switch key (Figure 3-1, item 5) to activate the engine starter. As soon as the engine starts, release the switch.

ATTENTION:  **Do not crank engine for more than 30 seconds at a time. Continuous cranking can cause starter failure.**

ATTENTION:  **If the starter does not turn the engine over, shut off the ignition key immediately and make no further attempts to start the engine until the condition is corrected. Refer to Troubleshooting in the Maintenance section of this manual (or the Diesel Engine manual) for possible solutions. For further analysis, contact your Diesel Engine Service Dealer.**

ATTENTION: **Allow the starter to cool down for 2 minutes between unsuccessful attempts to start the engine. Failure to follow these guidelines can damage the starter motor.**

5. As soon as the engine starts, move the Engine Throttle (Figure 3-3, item 1) to idle by holding the button depressed and pushing the knob fully down.

ATTENTION: **Be sure oil pressure is observed within 15 Seconds after starting the engine. If no oil pressure is shown on the gauge in 15 seconds, shut down the engine and determine the cause.**

6. Check the gauges on the instrument panel (Figure 3-1) for proper readings, and make the necessary corrections.
7. Adjust the position of the seat and mirrors for the operator's convenience.
8. When the engine is warm and running properly, fasten the seat belt and familiarize yourself with the operation of the controls.

WARNING: **Always wear a seat belt when operating the RB48 Broom. Sudden speed changes or a roll over will throw an unrestrained operator from the machine causing death or serious injury.**

ATTENTION: **Do not idle the engine for more than 10 minutes. Excess idling can damage the engine. During idling, combustion chamber temperature drops and fuel may not burn completely. Unburned fuel will dilute the crankcase oil, reducing its viscosity and its ability to protect the engine.**

ATTENTION: **Before moving the machine, be sure the park/emergency brake is released to prevent premature wear and possible failure of the brake shoes.**

SYSTEM CONTROLS

WARNING: **Know the location and function of the controls before starting the engine. Refer to Figures 3-1 through 3-6 and Tables 3-1 through 3-6 for the position of all operating controls and system monitoring gauges.**

ENGINE THROTTLE

The Engine Throttle (Figure 3-3, item 1) is a knob with a center push-button. It is located on the control panel to the right of the driver's seat.

Hold the button down while pulling or pushing the knob to increase or decrease throttle. Once the button is released the operator can fine-tune the engine RPM by turning the knob clockwise to increase throttle or counterclockwise to decrease throttle.

When first operating this machine, set the throttle to 1/2 or 3/4 open until you are familiar with the functions of the controls.

TRANSMISSION SELECTOR LEVER

The hydrostatic Transmission Selector Lever (Figure 3-3, item 2) is on the control panel on the operator's right side. With some experience, an operator should be able to operate this control along with the throttle to make the forward or reverse movement smooth and fluid-like.

SPEED SELECTOR SWITCH

The hydrostatic transmission system is equipped with a HIGH/LOW Speed Selector Switch (Figure 3-3, item 6) located on the control panel on the operator's right side. Use HIGH speed for road travel and LOW speed for sweeping operations.

ATTENTION: **Do not activate the Speed Selector Switch while the transmission is engaged. Excessive pressures are generated which can cause premature component failure.**

ATTENTION: **Do not use HIGH speed for sweeping operations. The operator cannot control the machine in a safe manner while sweeping in the HIGH range.**

SERVICE BRAKE PEDAL

The foot-operated Service Brake Pedal (Figure 3-2, item 3) is on the right side of the steering wheel console. The service brake may be overpowered by the hydrostatic drive. Always return the Transmission Selector Lever (Figure 3-3, item 2) to neutral as the service brakes are applied.

STEERING WHEEL

The Steering Wheel (Figure 3-2, item 1) is located in front of the operator's seat. Remember that steering takes priority over brush operations (rotation, lift and swing) when both are attempted at the same time.

STOPPING & BRAKING

Most operators seldom use the foot brake. Instead they use the throttle and hydrostatic transmission to slow down, stop and change directions.

The operator must become accustomed to using the hydrostatic transmission to assist in braking. This is best done by moving the Transmission Selector Lever (Figure 3-3, item 2) into the neutral position before applying the service brake.

CAUTION: **The Service Brake alone is not sufficient to stop the machine if it is in forward or reverse drive mode.**

If stopping on a grade, the distance needed to come to a stop will be longer, the steeper the grade. Familiarize yourself with the job site so you can anticipate these variables.

WARNING: **Before dismounting from the machine, place the Transmission Selector Lever (Figure 3-3, item 2) in neutral, turn off all accessories, set the park brake, shut off the engine, and remove the ignition key.**

BRUSH OPERATION

Brush operation controls are located in the control panel on the operator's right side. The RB48 Broom is equipped with the following brush operating controls:

BRUSH CONTROL SWITCH

The Brush Control Switch (Figure 3-3, item 3) is the forward/back switch on the joystick. It has three positions:

1. Up - Pushing fully forward lifts the brush carrier. When pressure on the switch is released, the switch automatically returns to the HOLD position.
2. Hold - This position holds or “locks” the brush carrier at the height used in the last UP or DOWN operation of the Brush Control Switch.
3. Down - Pushing back on the switch moves the brush carrier down towards the ground. This is a detented position. When the switch is in this position, the brush is in the FLOAT position.

BRUSH SWING SWITCH

The Brush Swing Switch (Figure 3-3, item 4) is the left/right switch on the joystick. Push the switch in gradual momentary adjustments to swing the brush left or right. Hold the switch in place to move the brush to its full swing position.

BRUSH DRIVE LEVER

The Brush Drive Lever (Figure 3-3, item 5) is on the control panel to the right of the operator. It turns the brush drive motor ON and OFF.

BRUSH SPEED

Brush speed is controlled by changing the engine's RPM. This is done by adjusting the Engine Throttle (Figure 3-3, item 1).

BRUSH DOWN PRESSURE CONTROL

The Brush Down Pressure Control (Figure 3-3, item 7) controls the amount of hydraulic pressure needed to keep the brush suspended over the work surface. Turn the valve clockwise to increase "down force" and counterclockwise to decrease "down force".

ATTENTION: **Do not apply excessive down pressure on the brush. Poor sweeping action and excessive brush wear will result. Brush stall can occur when applying excessive force. For best results, operate in the FLOAT position. Use the Brush Down Pressure Control knob to correct excessive down force.**

NOTE: **It is important to understand that by decreasing the hydraulic pressure suspending the brush, you are increasing the down force. Brush "down force" control only works with the Brush Control Switch in the DOWN, or FLOAT position.**

SWEEPING GUIDELINES

For best sweeping results, observe the following guidelines:

1. Sweep only with the tips of the brush bristles. This will provide maximum “flick” sweeping action. Control of sweeping action can be obtained by using the Brush Down Pressure Control knob.
2. Sweep only with the Speed Selector Switch (Figure 3-3, item 6) in LOW position.
3. For most normal sweeping operations, the FLOAT position works best. Practice will help the operator achieve the most effective operation of the broom.
4. For heavy sweeping, slow the ground speed and increase the brush RPM by increasing the engine RPM. The right combination of ground speed and brush speed will correct ineffective sweeping.
5. To get an ideal brush height setting, sprinkle some sand under the brush. Place the transmission in neutral and set the park brake. Engage the brush by moving the Brush Drive Lever (Figure 3-3, item 5) to the ON position.

WARNING: **To avoid entanglement in the brush, disengage the Brush Drive Lever before letting anyone check the sweeping swath.**

6. Move the Brush Drive Lever to the OFF position. When the brush is raised, there should be a 2" to 4" wide clean swath under the entire length of the brush.
7. Keep the rubber brush apron, located in front of the brush, in good working order and in place while sweeping. The brush apron protects the front of the broom as well as oncoming traffic and bystanders from flying debris.

ATTENTION: **If it is necessary to leave the RB48 Broom for an extended period of time, place Transmission Selector Lever (Figure 3-3, item 2) in neutral and use the mechanical brush lift cylinder lock to secure the brush in the raised position (See Figures 3-7 and 3-8). This will prevent a flat spot from forming on the brush bristles.**

BRUSH WATERING SYSTEM

In certain conditions, it may be necessary to sweep using the Brush Watering System to control dust. This system consists of a 150 gallon poly tank, an electric pump, and a corrosion resistant spraybar and piping system. The pump is turned on by a switch on the instrument panel (Figure 3-1, item 10).

TRANSPORTING THE BROOM

When transporting the machine on a flat bed vehicle, the vehicle must be capable of carrying the machine safely in all driving situations.

1. Clean the machine using a pressure washer. Remove all loose gravel, mud or debris from wheels, frame, and brush.
2. Make sure the combined height of the truck, trailer and loaded broom meet height restrictions for the local area, including bridges, overpasses, and overhead obstructions.
3. Park the transport vehicle on a level surface and set the park brake.
4. Install chocks or blocks against truck and trailer wheels.
5. Use a ramp or loading dock. Make sure the ramp weight capacity will support the machine and has a low angle of rise to the trailer bed.
6. Load the machine on the trailer bed by driving straight on, centered on the trailer. The broom centerline must be over the centerline of the trailer.
7. Set the park brake and block broom wheels in both directions to prevent rolling.
8. Using the Brush Swing Switch, center the brush.
9. Using the Brush Control Switch, raise the brush to its full upright position.
10. Use the mechanical brush lift cylinder lock to secure the brush in the raised position. (See Figures 3-7 and 3-8.)
11. Return the Brush Control Switch to the HOLD (center) position.
12. Raise and lock all attachments, such as the blade or curb brush.

CAUTION: **Secure the machine with chains, cables, and binders of sufficient strength to prevent the machine from moving or breaking loose during travel.**

ATTENTION: **Fasten chains or cables to machine frame. Do not place chains or cables over or against hydraulic lines, hoses or electrical harnesses.**

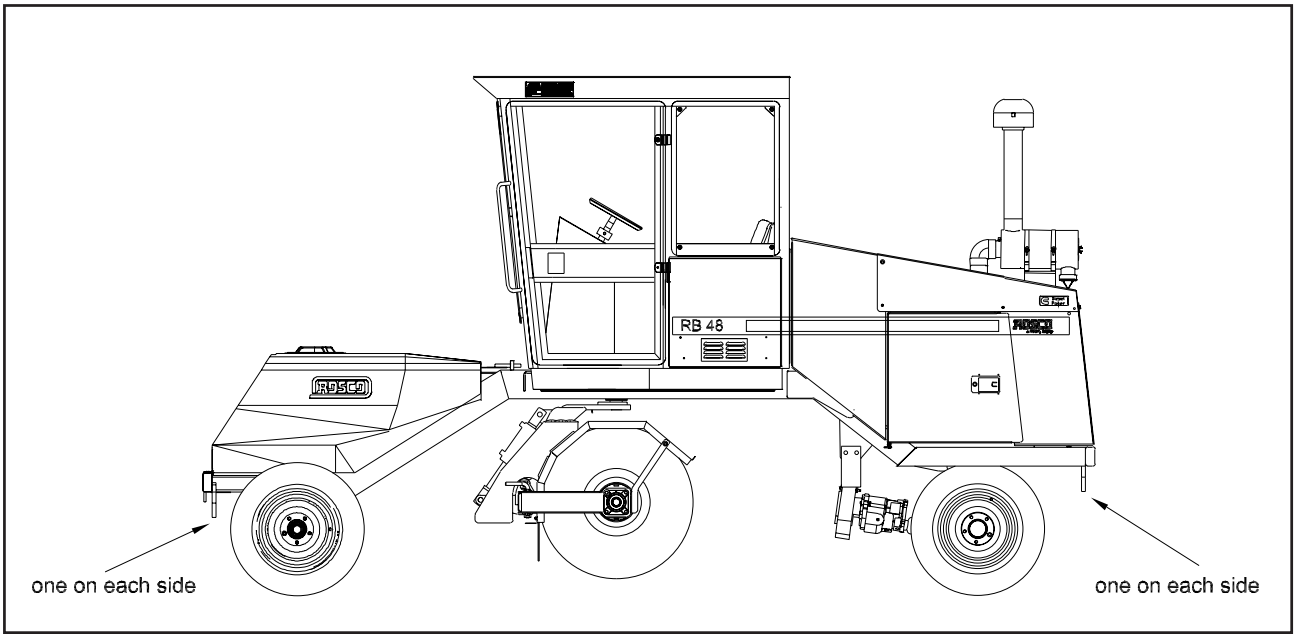


FIGURE 3-9. TIE-DOWN POINTS

13. Secure the machine to the trailer using the tie-downs located at two places on the front and rear of the machine frame. (See Figure 3-9.)
14. Idle the engine at 1/2 speed (RPM) for 3 to 5 minutes.
15. Place engine throttle at slow idle.
16. Place ignition switch in the OFF position and remove the key.
17. Cover the exhaust opening with heavy gauge plastic to prevent dust and moisture from entering the engine.

NOTE: Remove the plastic cover from the exhaust before operating the broom.

TOWING THE BROOM WITH OPTIONAL TOW BAR PACKAGE

ATTENTION: Do not tow the RB48 Broom unless unit is equipped with optional tow bar package. Serious mechanical damage can occur if tow bar package is not installed.

WARNING: Stay clear of tow chains and tow bars. Do not allow bystanders to enter the path between towing vehicles. A broken chain or cable can cause severe injury or death.

WARNING: Attach a SMV (Slow Moving Vehicle) plate to the rear of the broom.

When towing the broom, ensure that the towing vehicle is in sound operating condition and that it is properly equipped for towing a trailer. Follow all local regulations and safety practices for towing trailer-type vehicles. Use the following guidelines for towing:

1. Secure the machine to the towing vehicle with the ball or pintle eye on the tow bar. The ball or pintle eye can be adjusted to the proper height by using the adjustment bolts on the brake actuator.

WARNING: Always secure the safety chains from the towed broom to the towing vehicle. Failure to secure the safety chains may result in serious injury or death if the machine becomes disconnected from the towing vehicle.

2. Connect the lighting harness from the towed broom to the towing vehicle. Ensure that the brake, tail and turn lights are operational.
3. Disable the broom's steering to allow the broom to track the towing vehicle properly. To do this, open the selector valve located next to the steering cylinder. (See Figure 3-10.) This will equalize pressure on both sides of the steering cylinder, or allow any steering pressure to bypass the steering cylinder.

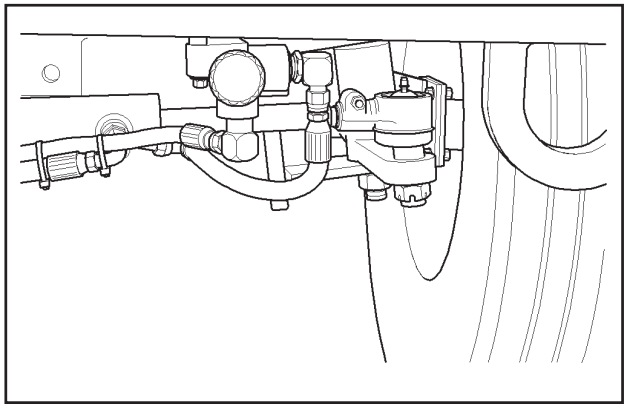


FIGURE 3-10. SELECTOR VALVE

WARNING: **Failure to open the selector valve and disable the broom's steering will allow the towed broom's steering to operate. This could result in death or serious injury to the towing vehicle operator or damage the broom and towing vehicle.**

4. Disconnect the broom's drive train. The disconnect pin is located on the gearbox, which is attached to the rear axle at the drive shaft. Lift the pin and move the arm away from the gear box. The pin has a positive engagement spring which locks the arm at the normal operational position, parallel to the gear box, or disconnected in the tow position. (See Figure 3-11.)

ATTENTION: **Failure to disengage this pin will allow the broom's drive train to move during towing and will damage the drive train.**

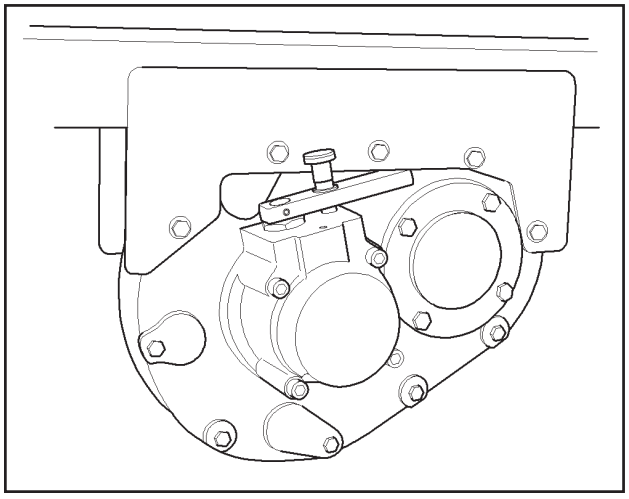


FIGURE 3-11. DISCONNECT PIN

5. Using the Brush Control Switch, raise and lock the brush in its full upright position.
6. Use the mechanical brush lift cylinder lock to secure the brush in the raised position. (See Figures 3-7 and 3-8.)
7. Return the Brush Control Switch to the FLOAT (down) position.

NOTE: **The tow bar brake system is a surge brake design. As more weight or force is applied, the system compresses, applying more brake pressure. When backing the towed vehicle, force is put on the surge brake actuator and the broom's brakes are set.**

ATTENTION: **Position the towed broom and the towing vehicle in such a way to eliminate the need for excessive backing. This will prevent unnecessary wear on the tow bar's brake system and the broom's tires.**

8. Adhere to safe towing speeds, typically 45 to 55 mph.
9. When the broom has been towed to its desired location, enable the broom's steering cylinder and engage the broom's drive train by reversing the procedures taken in steps 3 and 4 above.

WARNING: **Set the park brake and install chocks or blocks at the wheels of the broom before disconnecting the broom from the towing vehicle.**

10. Disconnect the towing vehicle, safety chains and light harness. Stow the tow bar in the storage position provided. Tie up the light harness and chains so that they do not drag on the ground.
11. Disengage the mechanical brush lift cylinder lock.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

GENERAL INFORMATION

This section gives the necessary procedures for routine and general maintenance on the RB48 Broom. Before starting any Maintenance program on the machine, it is important to READ, UNDERSTAND, and FOLLOW all Maintenance instructions, Danger, Warning, and Caution messages in this section, as well as all Safety information contained in Section 1 of this manual.

DANGER: **Failure to observe the Maintenance instructions, Danger, Warning, and Caution messages in this manual can cause serious injury or death.**

NOTE: **By following a careful service and maintenance program for your broom, you will insure many years of trouble** free operation.

PROPERLY MAINTAINED EQUIPMENT IS SAFE EQUIPMENT! The user of this product is responsible for inspecting the machine daily, and for having parts replaced or repaired when continued use would cause damage or excessive wear to other parts. General daily inspection of the broom should include inspection for missing guards, loose bolts, fluid leaks, worn or damaged hoses and debris or dirt accumulations which could cause a potential service or safety problem.

ROUTINE MAINTENANCE

GENERAL INFORMATION

Maintenance must be a planned program that includes periodic machine inspection and lubrication procedures.

The maintenance program must be done based on the machine's "Operating Hours" recorded on the hour meter, or on a "Periodic Schedule" which is done at daily, weekly, monthly or yearly intervals.

ATTENTION: **When performing any routine maintenance such as 50, 100, 250, 500, or 1000 hours, always include previous routine maintenance hours to the higher hourly schedule.**

Table 4-1, Maintenance Interval Chart, lists recommended maintenance procedures and time intervals between machine maintenance inspections and lubrication procedures. Tables 4-2 through 4-6 list recommended hydraulic oils and torque values for fittings and fasteners commonly used on this machine.

MACHINE LUBRICATION

Proper lubrication is necessary to maintain the machine at top efficiency. Refer to the lubrication information in Table 4-1, Maintenance Interval Chart. All lubrication points are shown in Figure 4-1.

TABLE 4-1. MAINTENANCE INTERVAL CHART

8 HOURS or DAILY		
Engine Oil Level	Check	SAE 15W40
Engine Coolant	Check	50/50 Antifreeze
Engine Air Filters		
Primary	Check	P/N 36643-01 Dry Type
Safety	Check	P/N 171150 Cartridge
Engine Fuel Filters		
Primary (Cartridge)	Check	P/N 38734-02/Cummins; 38144-03 Caterpillar
In-Line	Check	P/N 33291/Cummins; 38217/Caterpillar
Hydraulic Oil	Check	See Table 4.2
Hydraulic Filters	Check	P/N 34464 7-Micron Spin-On Cartridge
Drive Shaft	Check	Use Multi-Service Grease
Master Cylinder Brake Fluid	Check	P/N 90707 D.O.T. 3 Approved
Brush Shaft Bearing (item 1)	Lubricate	Use Multi-Service Grease
Brush Lift Bushings (item 2)	Lubricate	Use Multi-Service Grease
Brush Watering System	Check	Clean if Necessary
Brush Watering System Strainer	Clean	
Lighting System	Check	Clean and Repair as Necessary
FIRST 50 HOURS and WEEKLY		
Engine Oil	Replace	SAE 15W40
Engine Oil Filter	Replace	P/N 38144-02 Cartridge
Engine Air Filters		
Primary	Check	P/N 36643-01 Dry Type
Safety	Check	P/N 171150 Cartridge
100 HOURS or MONTHLY		
Engine Belts (Aux. V-Rib Belt)	Check	P/N 38842
Engine Air Filters		
Primary	Replace	P/N 36643-01 Dry Type
Safety	Check	P/N 171150 Cartridge
Hydraulic Oil (first 100 hrs, then 500 hrs)	Replace	See Table 4.2
Hydraulic Filters (first 100, then 500 hrs)	Replace	P/N 34464 7-Micron Spin-On Cartridge
Hydraulic Strainer (first 100 hours)	Clean	P/N 33148 In-Tank
Steering Axle		
Axle Pivot (item 3)	Lubricate	Use Multi-Service Grease
King Pins (item 4)	Lubricate	Use Multi-Service Grease
Tie Rods (item 5)	Lubricate	Use Multi-Service Grease
Driveshaft (item 6)	Lubricate	Use Multi-Service Grease
Transfer Case (first 100, then 500 hrs)	Replace	90W Gear Lubricant
Drive Axle (first 100, then 500) (item 9)	Replace	90W Gear Lubricant
250 HOURS or QUARTERLY		
Engine Air Filter (Safety)	Replace	P/N 171150 Cartridge
Engine Oil	Replace	SAE 15W40
Engine Oil Filter	Replace	P/N 38144-02 Cartridge
Engine Belts	Check	P/N 38734-03/Cummins; 984909-06/Caterpillar
Brush Swing Bearings (item 7)	Lubricate	Use Multi-Service Grease

TABLE 4-1. MAINTENANCE INTERVAL CHART (Continued)

500 HOURS or SEMI-ANUALLY		
Engine Fuel Filters		
Primary (Cartridge)	Replace	P/N 38734-02/Cummins; 38144-03/Cartridge
In-Line	Replace	P/N 33291/Cummins; 38217/Caterpillar
Engine Coolant	Replace	50/50 Antifreeze
Hydraulic Oil	Replace	See Table 4-2
Hydraulic Filters	Replace	P/N 34464 7-Micron Spin-On Cartridge
Hydraulic Strainer	Replace	P/N 33148 In-Tank
Steering Axle Bearings (item 8)	Re-Pack	Wheel Bearing Grease
Brake Linings	Check	P/N 37574-40 Brake Shoe Kit
Drive Axle (item 9)	Replace	90W Gear Lubricant
Transfer Case	Replace	90W Gear Lubricant
Spraybar Line and Nozzles	Clean	Remove End Caps and Flush

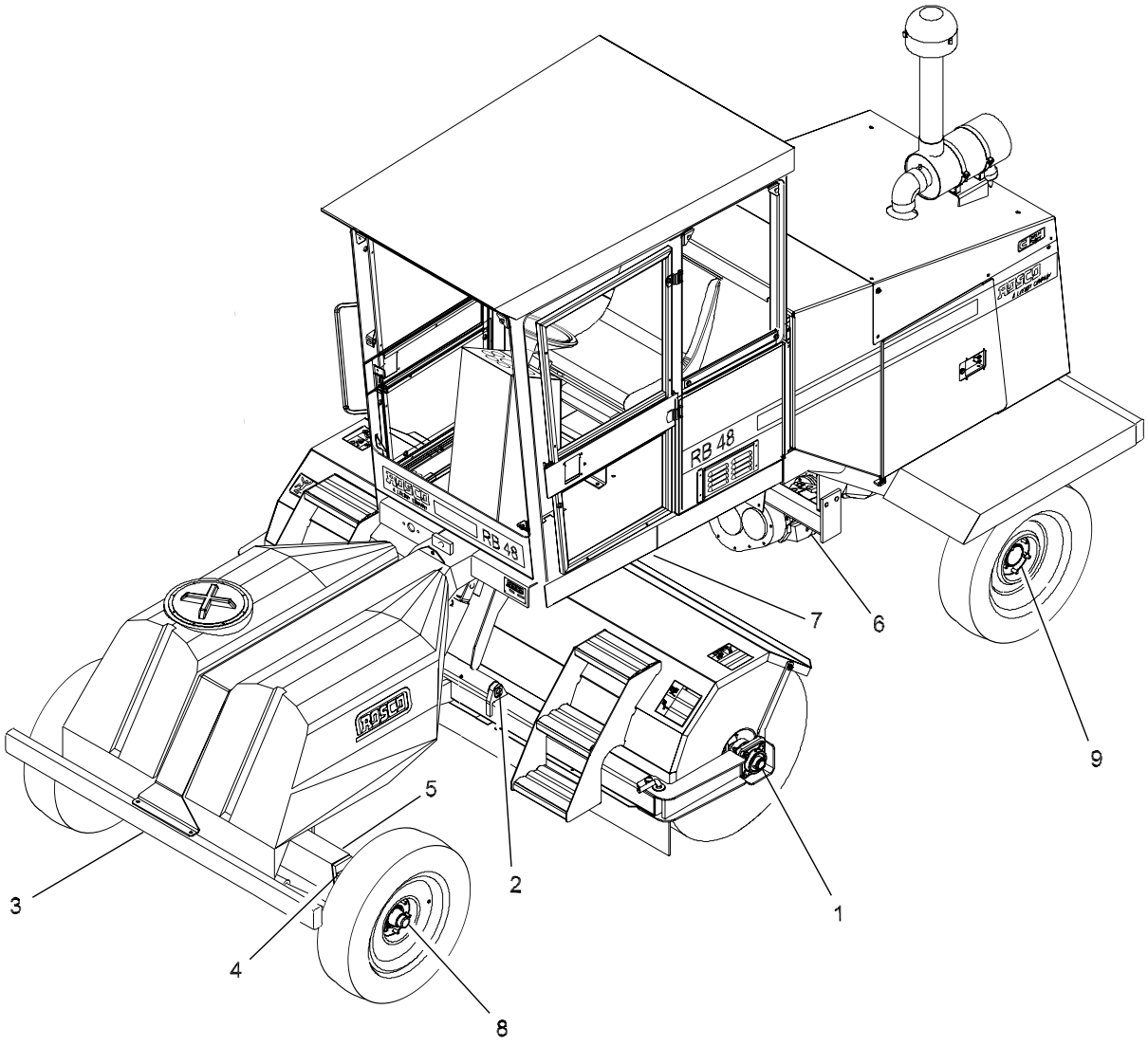


FIGURE 4-1. LUBRICATION POINTS

TABLE 4-2. HYDRAULIC FLUIDS CHART

ISO 46 / SAE 20	ISO 68	ISO 100 / SAE 30
AMBIENT TEMP. -15° F to 80° F (-26° C to 27° C)	AMBIENT TEMP. 0° F to 100° F (-18° C to 38° C)	AMBIENT TEMP. 15° F to 115° F (-9° C to 46° C)
Special Start-up Below 5°F (-15° C) Hyd Res Temp Max 165° F (74° C)	Special Start-up Below 20°F (-7° C) Hyd Res Temp Max 185° F (85° C)	Special Start-up Below 32°F (0° C) Hyd Res Temp Max 200° F (93° C)
MOBIL DTE 25 CITGO AW 46 CONOCO PHILLIPS 46 CHEVRON TEXACO AW 46 SHELL TELLUS 46 EXXON NUTO 46	MOBIL DTE 26 CITGO AW 68 CONOCO PHILLIPS 68 CHEVRON TEXACO AW 68 SHELL TELLUS 68 EXXON NUTO 68	MOBIL DTE AW 100/DTE 18M CITGO AW 100 CONOCO PHILLIPS 100 CHEVRON TEXACO AW 100 SHELL TELLUS 100 EXXON NUTO 100

NOTE: The hydraulic oils listed in Table 4-2 are recommended as replacements. It is best to use the heaviest weight oil that can safely be used for the temperature range of your machine's operation. If your machine will never be used at temperatures below 0° F, use a heavy weight oil.

ATTENTION: If you are considering using oil that is not listed, contact the factory to obtain the specifications that hydraulic oil must meet to provide needed lubrication and cooling for the unit's hydraulic components.

TIGHTENING FLARE TYPE TUBE FITTINGS

1. Check the flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second, tighten the swivel nut to the torque shown in Table 4-3.

TABLE 4-3. TORQUE SPECIFICATIONS FOR HYDRAULIC FITTINGS - FLARE TYPE TUBE

Tube Size OD	Nut Size Across Flats	Torque Value		Recommended Turns to Tighten (After Finger Tightening)	
(in)	(in)	(N.m)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1 1/4	102	75	3/4	1/8
7/8	1 3/8	122	90	3/4	1/8

TIGHTENING O-RING FITTINGS

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown in Table 4-4.
6. Tighten while holding body of fitting with a wrench.

TABLE 4-4. TORQUE SPECIFICATIONS FOR HYDRAULIC FITTINGS - O-RING TYPE

Tube Size OD	Nut Size Across Flats	Torque Value		Recommended Turns to Tighten (After Finger Tightening)	
(in)	(in)	(N.m)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1 1/2	1/4
1 1/16	1 1/4	102	75	1	1/6
1 3/16	1 3/8	122	90	1	1/6
1 5/16	1 1/2	142	105	3/4	1/8
1 5/8	1 7/8	190	140	3/4	1/8
1 7/8	2 1/8	217	160	1/2	1/12

TABLE 4-5. TORQUE SPECIFICATIONS FOR STANDARD INCH FASTENERS

The following table gives the correct torque values for standard fasteners and is intended as a guide for average applications involving typical stresses and machined surfaces. Values are based on physical limitations of clean, plated and lubricated hardware. Check tightness of bolts periodically, using this table as a guide. When using locking fastener, increase torque values by 5%.

CAUTION: **Aways replace original equipment with hardware of equal grade. When an individual torque value is specified, it should be followed instead of values given in this table.**

		CAPSCREWS: SAE GRADE 5				CAPSCREWS: SAE GRADE 8			
SIZE	THREAD	TORQUE FT. LB.		TORQUE N•m		TORQUE FT. LB.		TORQUE N•m	
		Dry	Lubed	Dry	Lubed	Dry	Lubed	Dry	Lubed
1/4	20 UNC	8	6	11	9	12	9	16	12
	28 UNF	10	7	13	10	14	10	19	14
5/16	18 UNC	17	13	24	18	25	18	33	25
	24 UNF	19	14	26	20	27	20	37	28
3/8	16 UNC	31	23	42	31	44	33	59	44
	24 UNF	35	26	47	36	49	37	67	50
7/16	14 UNC	49	37	67	50	70	52	95	71
	20 UNF	55	41	75	56	78	58	105	79
1/2	13 UNC	75	57	100	77	105	80	145	110
	20 UNF	85	64	115	86	120	90	165	120
9/16	12 UNC	110	82	145	110	155	115	210	155
	18 UNF	120	91	165	125	170	130	230	175
5/8	11 UNC	150	115	205	155	210	160	285	215
	18 UNF	170	130	230	175	240	180	325	245
3/4	10 UNC	265	200	360	270	375	280	510	380
	16 UNF	295	225	405	300	420	315	570	425
7/8	9 UNC	430	320	580	435	605	455	820	615
	14 UNF	475	355	640	480	670	500	905	680
1	8 UNC	645	485	875	655	910	680	1230	925
	14 UNF	720	540	980	735	1020	765	1380	1040
1-1/8	7 UNC	795	595	1080	805	1290	965	1750	1310
	12 UNF	890	670	1210	905	1440	1080	1960	1470
1-1/4	7 UNC	1120	840	1520	1140	1820	1360	2460	1850
	12 UNF	1240	930	1680	1260	2010	1500	2730	2050
1-3/8	6 UNC	1470	1100	1990	1490	2380	1780	3230	2420
	12 UNF	1670	1250	2270	1700	2710	2040	3680	2760
1-1/2	6 UNC	1950	1460	2640	1980	3160	2370	4290	3210
	12 UNF	2190	1650	2970	2230	3560	2670	4820	3620

N•m = Newton meter
FT. LBS = Foot Pound

TABLE 4-6. TORQUE SPECIFICATIONS FOR METRIC FASTENERS

The following table gives the correct torque values for standard fasteners and is intended as a guide for average applications involving typical stresses and machined surfaces. Values are based on physical limitations of clean, plated and lubricated hardware. Check tightness of bolts periodically, using this table as a guide. When using locking fastener, increase torque values by 5%.

CAUTION: **Aways replace original equipment with hardware of equal grade. When an individual torque value is specified, it should be followed instead of values given in this table.**

NOMINAL SIZE & PITCH	CLASS 8.8 (GRADE 5 EQUIVALENT)				CLASS 10.9 (GRADE 8 EQUIVALENT)			
	TORQUE FT. LB.		TORQUE N•m		TORQUE FT. LB.		TORQUE N•m	
	Dry	Lubed	Dry	Lubed	Dry	Lubed	Dry	Lubed
M4 x 0.7	2.27	1.70	3.07	2.30	2.27	2.31	4.17	3.13
M5 x 0.8	4.58	3.43	6.20	4.65	6.22	4.67	8.43	6.33
M6 x 1	7.75	5.83	10.5	7.9	10.60	7.97	14.3	10.8
M8 x 1.25	18.89	14.17	25.6	19.2	18.95	19.26	34.8	26.1
M10 x 1.25	39.11	29.52	53.0	40.1	53.87	40.59	73.0	55.0
M12 x 1.75	64.94	48.71	88.0	66.0	88.56	66.42	120.0	90.0
M14 x 2	103.32	77.49	140.0	105.0	140.22	107.01	190.0	145.0
M16 x 2	162.36	121.77	220.0	165.0	221.40	166.05	300.0	225.0
M20 x 2.5	317.34	236.16	430.0	320.0	428.04	321.03	580.0	435.0
M24 x 3	516.12	409.59	740.0	555.0	754.38	557.19	1010.0	755.0
M27 x 3	797.04	597.78	1080.0	810.0	1084.86	811.80	1470.0	1100.0
M30 x 3.5	1084.86	811.80	1470.0	1100.0	1476.00	1107.00	2000.0	1500.0

N•m = Newton meter
FT. LBS = Foot Pound

Section 4
MAINTENANCE

MAINTENANCE SCHEDULE

GENERAL INFORMATION

Preventive maintenance on the RB48 Broom will provide years of trouble-free operation. Adjustments can be performed in the field with ordinary hand tools. Engine preventive maintenance, other than oil, air, and fuel filter changes, is not covered in this section. Refer to the engine operator's manual for engine service information.

NOTE: Changing oil and cleaning the broom should only be done in a designated area that can contain the oil and chemicals involved in any maintenance requirement. These by-products should be discarded in accordance with environmental regulations.

CAUTION:

Do not substitute fasteners of any kind unless the fasteners are equal in size and grade to original equipment. See Tables 4-5 and 4-6 for torque specifications.

ATTENTION:

When performing any routine maintenance such as 50, 100, 250, 500, or 1000 hours, always include previous routine maintenance hours to the higher hourly schedule.

PREPARING THE MACHINE FOR MAINTENANCE

When performing maintenance, perform the following steps before leaving the operator's seat, unless the maintenance procedure instructs otherwise.

1. Park the machine on a flat even surface.
2. Lower all attachments to ground level.
3. Place transmission in neutral.
4. Engage park brake.
5. Turn off brush drive.
6. Run engine at 1/2 speed (RPM) for 3 to 5 minutes before checking engine oil level.
7. Reduce engine speed to slow idle.
8. Place ignition key in OFF position.

WARNING:

If maintenance must be performed with engine running, do not leave machine unattended.

CHECKS AND ADJUSTMENTS

1. Check the machine for indications of oil leakage around oil lines, hoses, and fittings.
2. Tighten fittings as necessary. Replace hoses and fittings as needed. Refer to Tables 4-3 and 4-4 for torque specifications.
3. Check and empty the precleaner bowl. Clean the bowl and dry with a lint free cloth.
4. Check air intake hoses from the engine to the air cleaner assembly, and from the air cleaner assembly to the precleaner. Replace worn or damaged hoses and tubes. Tighten or replace loose and damaged clamps.

ENGINE MAINTENANCE

WARNING:

Do not service the RB48 Broom while it is in motion or while the engine is running. If the engine must be running to service a component, place transmission in neutral, apply park brake, block wheels, and use extreme caution.

In addition to the following maintenance recommendations, consult the diesel engine manufacturer's manual for detailed instructions. A copy of this manual was provided with your RB48 Broom at the time of its shipment from the factory. If additional copies are needed, they can be obtained from your local dealer.

NEUTRAL START SYSTEM

A Neutral Start Switch has been installed to prevent operation of the engine starter when the transmission is not in neutral. To check this system:

1. Set the park brake.
2. Place transmission in the forward position.
3. Turn ignition key to START. Starter must not crank the engine. If starter cranks engine, release key. Do not operate machine.
4. Repeat test with the transmission in reverse.

CAUTION:

Do not operate machine if starter cranks the engine while transmission is in any gear except neutral. See local dealer for Neutral Start System repair.

5. Place transmission in neutral and turn ignition switch to START. Starter should crank engine.

COLD WEATHER STARTING

If it is necessary to use ether as a starting aid, do it promptly. Read and follow the steps below and the ether manufacturer's recommendations for safe and effective use.

1. Place transmission in neutral and set park brake.
2. Set throttle to idle.
3. Have another person crank the engine while you spray starting fluid into the air cleaner for no more than two (2) seconds at a time.

WARNING: **Never remove the air filter element and spray ether directly into the air inlet piping or the intake manifold.**

4. Be sure that engine oil pressure is indicated on the gauge within 15 seconds after starting.

DANGER: **Never use ether near open flames or with pre-heater or glo plugs. The combination can cause an explosion.**

WARNING: **Do not inhale ether fumes. They are extremely harmful. Seek medical attention if this occurs.**

ATTENTION: **Do not spray excessive amounts (two seconds per time) of ether starting fluid when starting the engine. Using too much ether will cause engine damage.**

If the unit is equipped with an Automatic Ether Injection System, use the following steps for starting in cold weather.

1. Put unit in neutral and set park brake.
2. Set throttle to idle.
3. While cranking the engine, inject a metered amount of ether starting fluid by pushing the Ether Injection button.
4. Be sure the engine oil pressure is indicated on the gauge within 15 seconds after starting.
5. Never inject ether for more than two (2) seconds at a time.

ENGINE BELTS

1. Check the diesel engine belt(s) for excessive wear, fraying and cracking every 250 service hours. Auxiliary V-belt drives should be inspected every 100 hours.
2. Adjust engine belt(s) as required to provide proper tension. Consult the diesel engine manufacturer's manual for correct tensioning instructions and specifications.
3. Your RB48 Broom may be equipped with an air conditioner with a V-belt drive. For proper operation, it is important to keep this belt tensioned properly.

DANGER: **Always shut down engine before adjusting belts. Severe injury can result if belts are adjusted on a running engine.**

4. When installing new belts, always shorten the distance between pulley centers so the belt can be installed without force. Never roll the belt over a pulley and never pry it with a tool such as a screw driver. This will damage belts and cause early failure.

CAUTION: **Keep belt guards in place at all times. Severe personal injury may result from contact with turning belts and pulleys.**

FUEL AND FLUIDS

Keep the fuel tank full to prevent condensation from forming. Fill the fuel tank at the end of each day.

Fuel Requirements

Use clean, good quality ASTM No. 2-O or No. 2-D climatized diesel fuel. If the broom will be used often in cold weather (below 20° F), blended fuels or No. 1 diesel fuel is recommended to prevent gelling of the fuel filters. Using No. 1 diesel fuel may reduce the engine performance by approximately 10%.

ATTENTION: **Avoid using contaminated fuel. Fuel contaminated by water or dirt can cause severe damage to engine components. Fuel tanks contaminated with water will promote the growth of microbes which form a "slime" that can clog fuel filters and lines.**

Caterpillar Fuel Filter and Water Separator

Caterpillar diesel engine injection systems use fuel for lubrication of close tolerance internal engine parts. Proper maintenance of the fuel filters and the fuel tank are required for continued top performance, and to prevent damage to internal engine components.

The engine fuel filter and water separator are located on the left side of the engine. A drain valve is provided on the bottom of the water separator (Figure 4-2).

1. Before operating the engine, use the valve to drain a small quantity of fuel from the water separator into a clean, clear container.

ATTENTION: This is a necessary daily routine to prevent damage to internal engine components.

2. If water or contaminants are found in the fuel you drained, DO NOT attempt to start the engine. Continue to drain fuel into the container until it runs clear.
3. If large amounts of contamination are found, drain the fuel tank until the lines run clear. Replace the filters. Fill new filters with fresh clean fuel and install.

The manufacturer's diesel engine manual provided with your broom contains more detailed information on fuel system maintenance procedures.

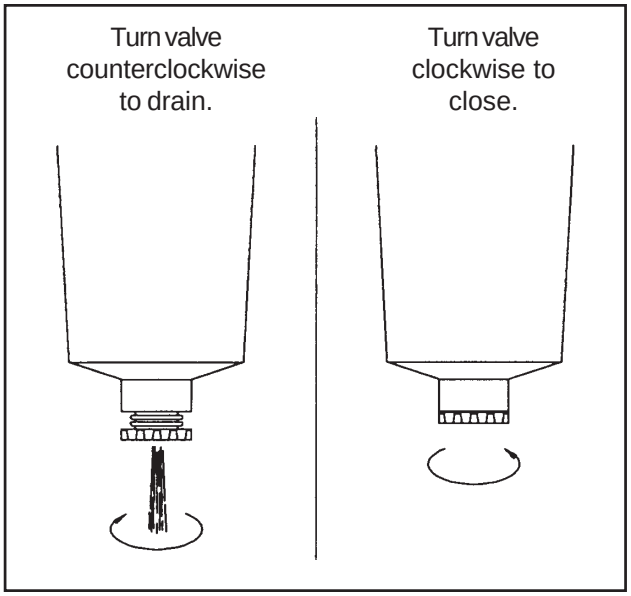


FIGURE 4-2. ENGINE WATER SEPARATOR

Crankcase Oil

1. Engine crankcase oil level should be checked daily prior to each day's use of the broom. The machine must be parked on a level surface when checking the oil to assure accurate measurements. When checking oil while the engine is warm, wait until the engine has been OFF for at least five minutes. This allows oil to drain back to the crankcase.
2. The oil dipstick is located on the side of the engine. If the oil measures below the "L" mark on the dipstick, add the proper amount of oil specified in the Table 4-1, Maintenance Interval Chart. After adding oil, recheck the level with the dipstick and make sure it doesn't measure above the "H" mark.

ATTENTION: Never operate the engine with the oil level below the "L" (Low) mark or above the "H" (High) mark.

3. Engine crankcase oil and oil filter should be changed after the first 50 hours of service and every 250 hours or every 3 months thereafter.
4. Refer to the Table 4-1 and/or engine manufacturer's manual for engine oil recommendations.

Brake Master Cylinder

Check fluid level daily and fill to 1" below top with D.O.T. 3 approved commercial brake fluid. Refer to Table 4-1, Maintenance Interval Chart for the ROSCO/ LeeBoy part number. Check hydraulic system for leaks if the brake cylinder is frequently low.

AIR INTAKE SYSTEM

The heavy-duty engine air cleaner is mounted on top of the hood. A restriction indicator is mounted on the outlet side of the air cleaner assembly housing, near the large inlet tube to the engine (Figure 4-3).

1. Prior to daily operation, inspect all air intake system components for damage, cracked hoses or loose clamps.
2. Inspect the restriction indicator several times daily during operation (Figure 4-3). If the red indicator flag on the restriction indicator is visible, the air cleaner element must be replaced.

ATTENTION: Be sure to clean the inside of the air cleaner body assembly BEFORE removing the safety element to prevent introducing contaminants into the system.

a. Before replacing any new element to the air filter housing, wipe the inside of the housing with a damp cloth. Reset the restriction indicator. Be sure not to introduce any contaminants into the engine intake tube.

b. When replacing body assembly or rubber adaptors, torque the T-clamp bolts to 50 inch pounds.

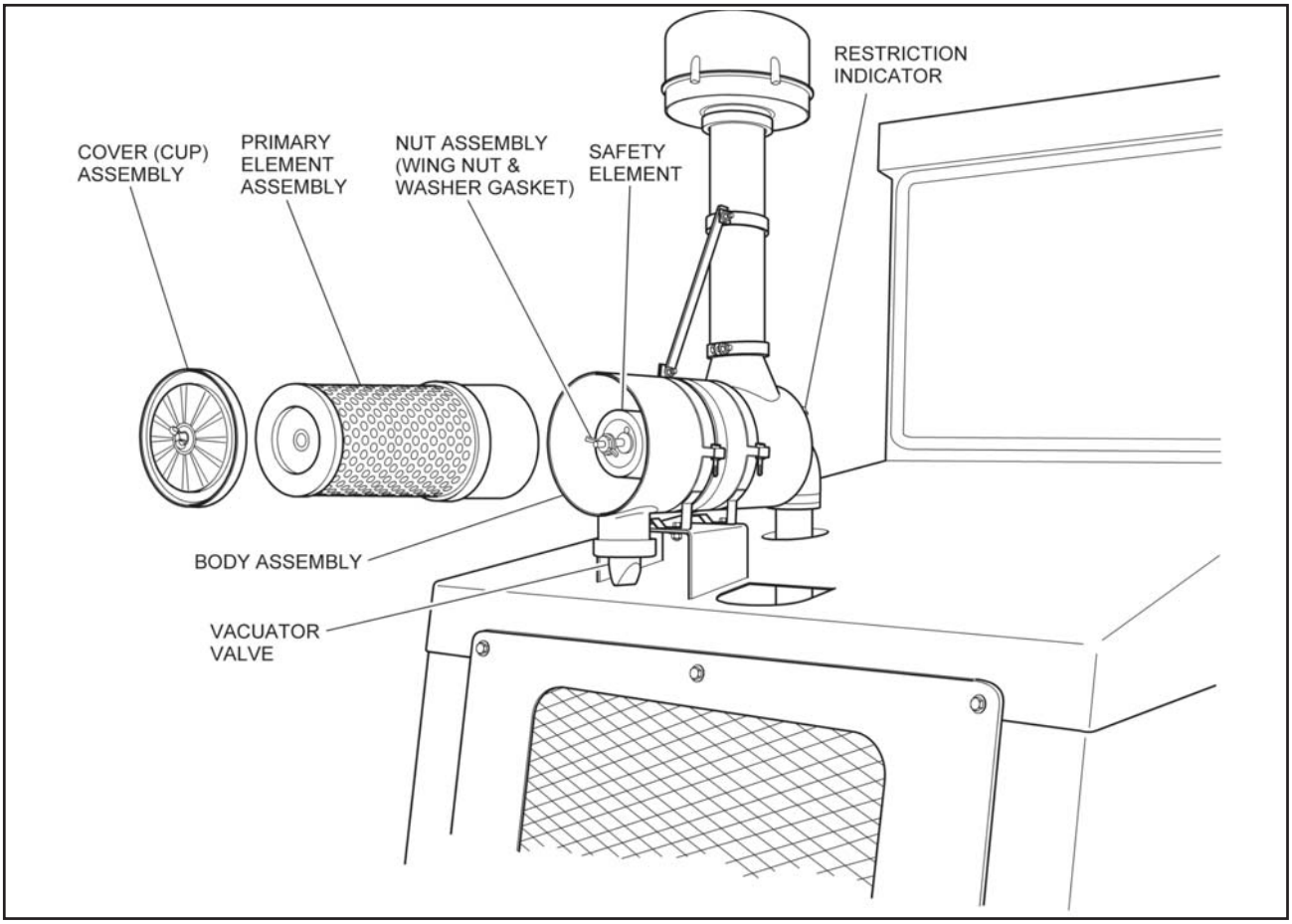


FIGURE 4-3. ENGINE AIR CLEANER ASSEMBLY

3. DO NOT replace the filter elements until the maintenance interval has been reached or the restriction indicator flag is visible.
4. Replace the primary filter elements monthly or every 100 service hours. Replace the safety element quarterly or every 250 hours. Refer to Table 4-1, Maintenance Interval Chart for the correct part number.
5. The air precleaner should not require maintenance or service unless visible damage is apparent.

ATTENTION: Never operate the engine without an air cleaner. Destruction of internal engine components will occur within minutes.

RADIATOR AND COOLANT

ATTENTION: A partially blocked radiator will reduce the efficiency of the radiator and could cause overheating and premature failure of the engine or its components.

1. Check the engine radiator daily for rocks and debris.

CAUTION: Wear eye protection when using compressed air. Flying debris can cause serious eye injury.

2. Use compressed air to remove rocks or debris from the radiator.

WARNING: Do not remove the radiator cap when engine is hot. Escaping hot coolant can cause serious burns. Add coolant to the radiator only when the engine is stopped and fully cooled.

3. Check radiator coolant level prior to each day's use of the broom. When the engine is cold, the coolant level should cover the radiator core. When the engine is warm, the coolant level should be at the bottom of the filler tube.
4. Refill the cooling system when necessary with 50% water and 50% ethylene-glycol antifreeze.

5. Seasonally, or after every 500 service hours, flush the cooling system. Any good commercial automotive cooling system cleaning solution can be used.

Before replacing the coolant after flushing, refer to Table 4-1, Maintenance Interval Chart to find the total cooling system capacity for your engine. Prepare the coolant as recommended by the engine manufacturer and refill according to step 3 above.

BATTERY

The RB48 Broom is factory equipped with a maintenance-free battery that is sized to provide efficient starting for the diesel engine on the machine. With proper care, the battery will provide years of trouble-free service.

ATTENTION: When welding on the machine, always turn the machine off and remove the battery ground (-) cable to prevent damage to the machine's electrical system.

1. Starting an engine depends heavily upon good cranking speed. It is important that the battery is fully charged and that all cables and terminals are clean and properly connected to the battery.
2. Check the level of the battery electrolyte regularly. Add distilled water if necessary. DO NOT overfill. Overfilling can cause poor performance or early failure. A maintenance free battery should rarely require additional electrolyte.
3. Keep the top of the battery clean. When necessary, wash with a baking soda solution (1 part baking soda to 4 parts water) and rinse with fresh water. DO NOT allow the soda solution to enter the battery cells.
4. Inspect the cables, clamps and hold-down bracket regularly. Clean and apply a light coating of grease when needed. Replace corroded or damaged parts.

CAUTION: When servicing the battery, always disconnect the battery ground (-) cable first. Always reconnect the positive (+) battery cable first.

5. If the battery becomes discharged repeatedly, check the electrical charging system. If the engine is difficult to start or the battery seems weak, clean and check the terminal connections. If the problem continues, use a battery tester and check voltage and current draw.
   a. Shut down engine and remove ignition key.
   b. Place the positive (red) multimeter lead on the positive (+) battery terminal, and the negative (black) multimeter lead on the grounded (-) battery terminal.
   c. With the multimeter set at 12 VDC, the battery must show a charge of at least 12 volts. If necessary, charge the battery or perform a load test.
   d. Start the engine.
   e. With an operator in the operator's seat, check the battery charge level. The multimeter should read at least 13.5 volts.
   f. If the multimeter does not indicate minimum charge, check the machine's charging system.

WARNING: Explosive gas may remain in and around the battery for several hours after charging. Sparks or flame can ignite this gas causing an explosion which could shatter the battery and cause serious personal injury. Always shut off the battery charger before disconnecting cables from the battery terminals.

CAUTION: Always wear eye protection when servicing batteries. Caustic solutions can cause serious eye injuries.

6. If the broom is to be stored for more than 30 days, remove the battery from the broom and store it in a cool, dry place. During storage, keep the battery fully charged and check the level of the electrolyte regularly.

CAUTION: When removing or replacing the battery, always disconnect the battery ground (-) cable first. Always reconnect the positive (+) battery cable first.

NOTE: When replacing the battery, discard the old battery properly.

The alternator supplies electrical current for charging the battery and electrical power to the electronic controls. The built-in regulator controls the voltage output. If the wires must be disconnected from the alternator, mark them so they can be reconnected properly.

ATTENTION: Never polarize an alternator. Never ground alternator terminals or circuits.

ATTENTION: Always disconnect the battery before disconnecting or connecting the alternator. Never disconnect the alternator with it operating. Be sure wiring is properly connected before connecting the battery.

ELECTRICAL MAINTENANCE

CAUTION: When servicing the electrical system, always disconnect the battery ground (-) cable first. Always reconnect the positive (+) battery cable first.

The RB48 Broom's electrical system is protected from overload damage by fuses. If an electrical component fails to operate, check the fuse panel first to make sure that a fuse is not blown. The fuse panel is located in the front of the instrument panel directly in front of the operator's seat. See Figure 4-4.

Fuses that blow may be replaced but will continue to blow until the cause of the overload is found and corrected. Refer to Figure 4-5 for replacement fuse sizes.

ATTENTION: Always replace a blown fuse with the same rating as specified. Never replace with a higher amperage rating. Severe wiring damage and possible fire could result.

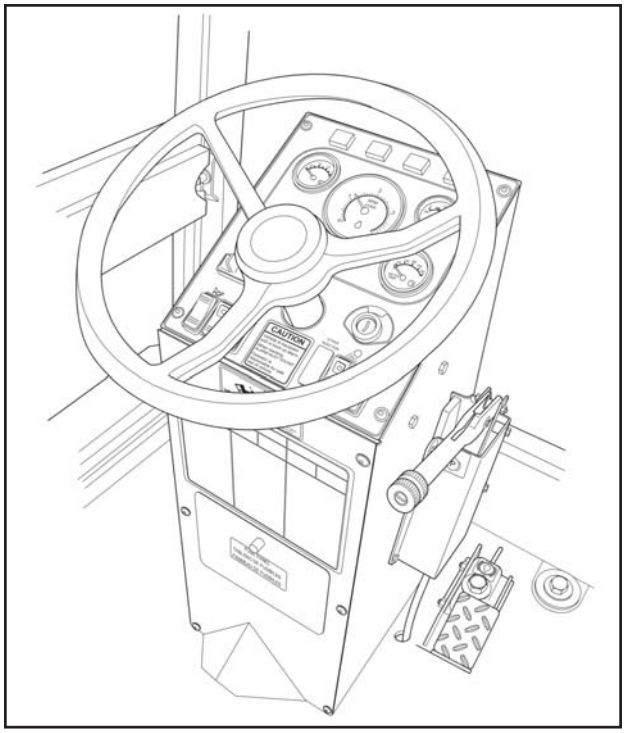


FIGURE 4-4. FUSE PANEL LOCATION

LIGHTING

1. Inspect lights daily for proper operation.
2. If a light or group of lights does not function:
   a. Check the fuse panel located in the front of the instrument panel for a blown fuse. See Figure 4-5 for replacement fuse sizes.
   b. Examine all visible wiring connections, making sure that they are securely fastened.
   c. If the light(s) still does not work, remove the lens from the light and inspect the bulb(s), replacing any that appear damaged or discolored.
   d. Check lighting mounts for proper grounds.
   e. If the trouble is not located, inspect the wiring harnesses for damage. Wiring schematics are provided in the **Illustrated Parts List** to assist in troubleshooting the broom's electrical system.

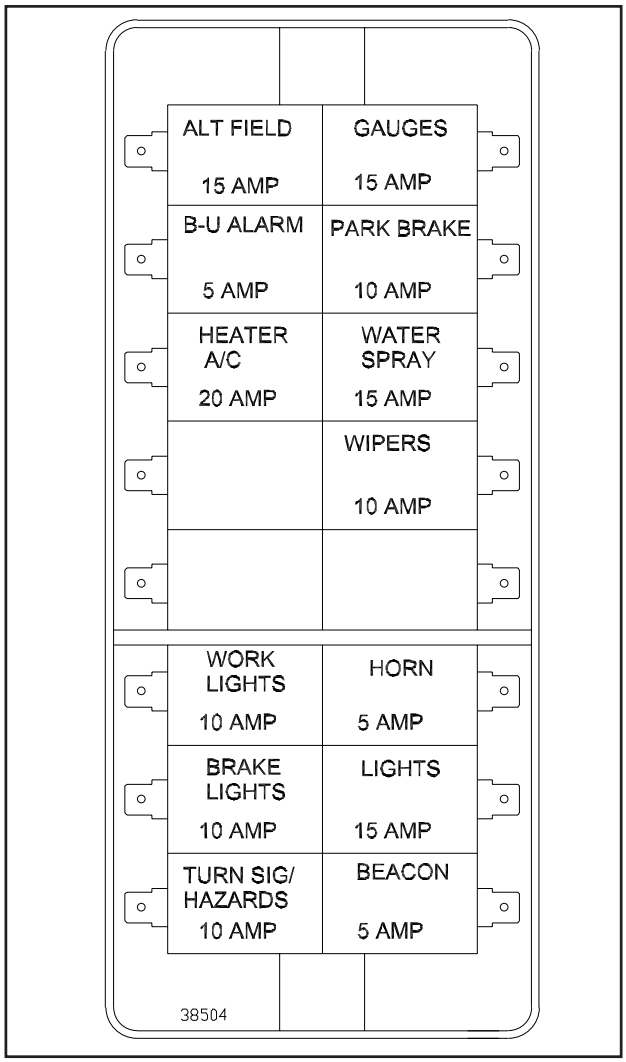


FIGURE 4-5. FUSE REPLACEMENT SIZES

3. If broken wires are found, it is recommended that they be soldered together and covered by a shrink wrap type of plastic covering (preferred) or electrician's tape to prevent contamination of the solder joint by moisture.
4. After making repairs to a wiring harness on the broom, always replace or repair the protective loom which covers the wiring to prevent future damage to the wiring harness. Examine the routing of the harness and make sure it is not subjected to the type of excessive movement which causes broken wiring.

HYDRAULIC SYSTEM MAINTENANCE

WARNING: **Do not service the RB48 Broom while it is in motion or while the engine is running. If the engine must be running to service a component, place transmission in neutral, apply park brake, block wheels, and use extreme caution.**

Your RB48 Broom consists of a variable displacement Sauer/Danfoss M46 Series 40 pump and motor which provide drive power for the broom. A gear-type hydraulic pump is directly connected to the Sauer/Danfoss pump, and provides operational pressure for the power steering, brush lift, brush swing and brush drive.

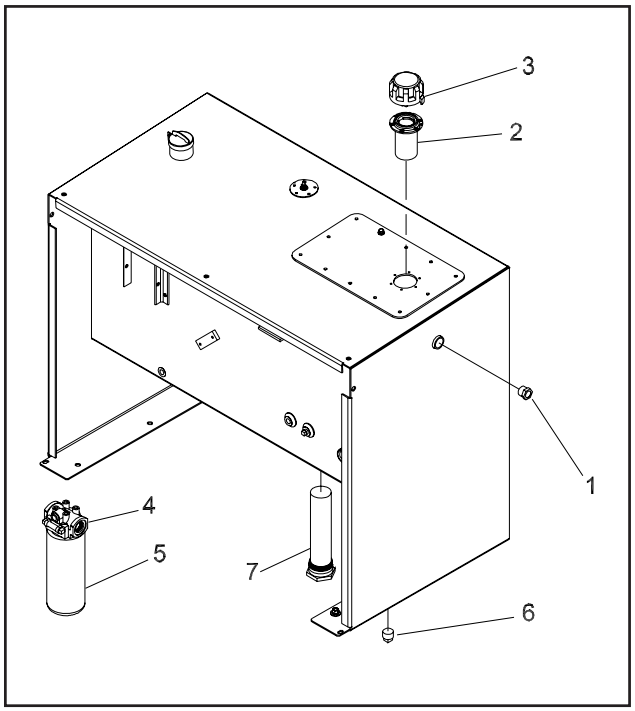


FIGURE 4-6. HYDRAULIC RESERVOIR

A 25 gallon hydraulic reservoir and filter(s) complete the Hydraulic System (Figure 4-6). This manual contains general system maintenance guidelines. Detailed service and maintenance information is available directly from the hydraulic component manufacturers if necessary.

HYDRAULIC FLUID

The ambient temperatures of your geographic area dictate the factory fill hydraulic fluid in your broom.

When adding or changing hydraulic fluid, refer to Table 4-2, Hydraulic Fluids Chart. The use of hydraulic oils or fluids that are not equal to those listed could result in substandard performance or failure of the broom's hydraulic components. If you are not sure whether a specific hydraulic oil is suitable for use in your broom, consult your authorized dealer.

HYDRAULIC OIL REQUIREMENTS

ATTENTION: **Do not mix manufacturers or grade weights when adding hydraulic oil. Substandard performance or hydraulic component failure can occur.**

1. Be sure hydraulic oil selection is compatible with your hydraulic system.
2. Be sure to use mineral base hydraulic oil.
3. Be sure hydraulic oil selection assistance is from a reputable supplier.

Hydraulic oil must provide anti-wear properties that meet or exceed those found in the API (American Petroleum Institute) classification SD, SE or CC crank case oil.

Hydraulic oil viscosity must not fall below 70 SUS (13 cs) in the reservoir under the most adverse conditions. The best viscosity rating is 80-300 SUS (17 cs to 65 cs). The viscosity rating at the lowest expected start-up temperature should not exceed 10,000 SUS (2158 cs).

Hydraulic oil must have rust and oxidation inhibitors that will maintain chemical stability. When changing the hydraulic oil with oil other than the specific factory fill oil listed in Table 4-2, the hydraulic system must be completely drained. Be sure to purge or drain all hoses, cylinders, valves, motors and pumps of hydraulic oil. All hydraulic oil filters must also be changed at this time.

HYDRAULIC RESERVOIR

The hydraulic reservoir is located in the engine compartment on the right side of the machine. The fill cap is on top of the front engine panel. The hydraulic reservoir has a sight gauge on the right side used to monitor hydraulic oil levels. Refer to Figure 4-6.

1. Check the level of hydraulic oil prior to each day's operation of the broom. Hydraulic oil should be visible in the sight gauge (Figure 4-6, item 1). If not, fill the tank until oil is visible in the sight gauge.
2. The fill cap strainer (item 2) should be cleaned each time hydraulic oil is added or changed.

ATTENTION: Use extreme caution when removing the filler cap to prevent any foreign matter from entering the hydraulic reservoir.

3. The filler cap (item 3) should be padlocked, when possible, to eliminate tampering.
4. Condensation that may build up in the hydraulic system is capable of clogging the filter elements. This can lead to insufficient hydraulic fluid at the pump, which will degrade performance. Clogged filter elements can damage the hydraulic pump and other system components.
5. Warm the hydraulic system to 100° F (38° C) and check filter indicator (item 4). If the filter indicator is in the RED, the filter element (item 5) should be replaced. See Table 4-1, Maintenance Interval Chart for the part number of the filter element.

NOTE: Use only genuine ROSCO/LeeBoy replacement parts. Other parts could be substandard and cause hydraulic system failure. The use of other than approved filter elements will void the warranty on hydraulic components.

6. Drain and replace hydraulic oil and filter after the first 100 hours of service, and after every 500 hours of service or seasonally, whichever comes first. Drain the hydraulic oil by removing the plug (item 6). For convenience, a customer supplied drain hose can be attached to drain fluid into a container.
7. The suction strainer (item 7) should be removed and cleaned at the 500 hour service interval or whenever the hydraulic oil is changed.

HYDRAULIC SYSTEM CHECKS

Before each day's use, inspect the RB48 Broom for hydraulic leaks. Check weekly to make sure that all hose fittings are secure and tight.

DANGER: Never use your hand to locate hydraulic leaks. Hydraulic fluid under pressure will pierce the skin and is dangerous. Use a piece of wood or cardboard to locate leaks. If hydraulic oil has pierced the skin, get immediate medical attention.

DANGER: Always wear eye protection when inspecting for leaks in the hydraulic system.

1. If leaking fluid is found, it is probably on the pressure side of the hydraulic system. Find and repair the leaking component before starting the broom.
2. Leaks on the suction side of the hydraulic system are more difficult to find. This condition is serious since air or dirt introduced into the hydraulic system causes rapid component wear and eventual failure. Some symptoms of suction leakage are:
   - Foaming of hydraulic oil
   - Sluggish hydraulic system operation
   - Unusual noise in hydraulic pump or motor

   a. If a suction side leak is suspected, verify that all reservoir connectors and fittings are properly tightened.

   b. If the problem persists, replace the defective hose assembly or fitting.

WARNING: Never attempt to repair hydraulic hoses with tape, clamps, or cements. The hydraulic system operates under extremely high pressure. Temporary repairs will fail, creating a hazardous condition.

3. The operator should inspect the broom during operation for hydraulic leaks which may only be noticeable while the unit is running.

PUMPS AND MOTORS

The hydraulic pump and motor generally require no regularly scheduled maintenance. As stated above, frequent inspection for leaks will indicate the need for service of these components.

ADJUSTING PRIORITY RELIEF VALVE

The Priority Circuit on the hydraulic pump supplies the power steering with approximately 4 GPM of hydraulic flow. This flow goes to the steering circuit before any other circuit.

The Priority Relief Valve controls the maximum operating pressure for the power steering and brush lift and swing circuits. The Relief Valve is located in the hydraulic pump attached to the rear of the hydrostatic pump on the engine flywheel housing.

The following are signs that the Priority Relief Valve needs adjusting:

- Total or partial loss of steering functions or hard steering
- Constant noise from hydraulic pump when using steering or brush lift and swing
- Hydraulic oil overheating

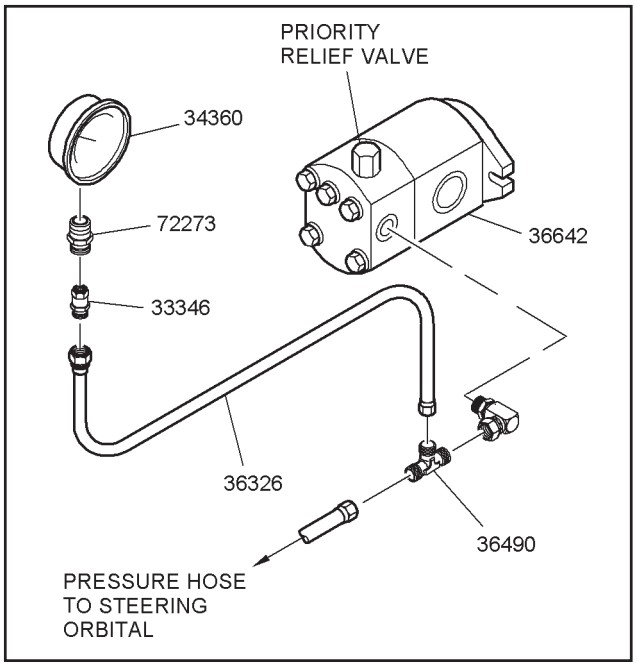


FIGURE 4-7. SETTING PRIORITY RELIEF VALVE

If it becomes necessary to readjust the Relief Valve setting, follow these steps:

1. Plumb a 0 to 5000 psi pressure gauge into the Priority Flow Circuit as shown in Figure 4-7. Parts needed for this, including a pressure gauge, can be obtained from your authorized dealer. Part numbers are listed in Figure 4-7.
2. Start the engine and warm the hydraulic oil to at least 100° F.
3. Set the park brake and be sure the transmission is in neutral. Use the foot brake as an extra precaution.

CAUTION: **Use extreme caution when working under the RB48 Broom while adjusting priority relief pressure. Have another person who is familiar with the machine assist you.**

4. Increase engine speed to 2500 RPM.
5. Raise the brush using the lift circuit until it stops. Continue to hold pressure to lift cylinder until a gauge reading can be taken.
6. The pressure gauge should read 1500 +/- 50 psi.
7. Adjust relief pressure by removing the locknut and turning the adjusting screw clockwise to increase pressure and counterclockwise to decrease pressure.

ADJUSTING BRUSH DRIVE RELIEF VALVE

The Brush Drive Circuit gets its hydraulic flow from the excess flow port of the hydraulic pump. This flow has no relief valve at the pump. The relief valve is built into the brush rotation control valve. This valve controls the rotation of the brush drive motor. The valve is located below the operator's platform on the right side of the broom.

Adjust the relief valve if:

- Brush stalls frequently
- Brush lacks sweeping power
- There is a constant noise while sweeping

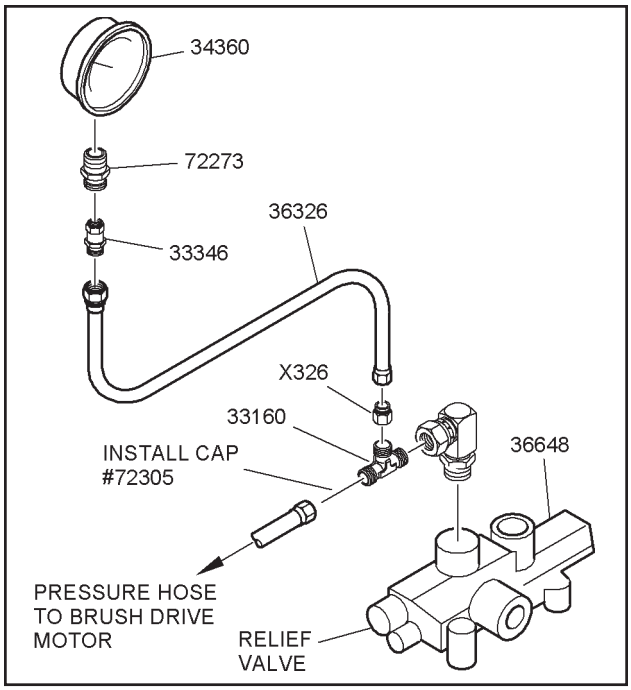


FIGURE 4-8. SETTING BRUSH DRIVE RELIEF VALVE

To adjust the Brush Drive Relief Valve:

1. Plumb a 0 to 5000 psi gauge into the Brush Rotation Flow Circuit as shown in Figure 4-8. Parts needed for this step, including a pressure gauge, can be obtained from your authorized dealer. Part numbers are shown. Pressure port to Brush Motor must be blocked with cap as shown.
2. Turn Brush Float control valve OFF (clockwise until stopped).
3. Start the engine and warm up the hydraulic oil to at least 100° F.
4. Set the park brake and be sure the transmission is in neutral.

CAUTION: **Use extreme caution when working under the RB48 Broom while adjusting Brush Rotation hydraulic pressure. Have another person who is familiar with the machine assist you.**

5. Engage the Brush Drive control handle to turn the brush in the forward direction.
6. Increase engine speed to 2500 RPM.
7. Take a pressure reading. The pressure gauge should read 2500 +/- 100 psi.
8. Disengage the Brush Drive control lever.
9. Adjust the Relief Valve by removing locknut and turning the adjusting screw clockwise to increase pressure and counterclockwise to decrease pressure. Turn adjusting screw in 1/8 turn increments and repeat steps 5 through 8 until correct pressure is obtained.

BRUSH SYSTEM MAINTENANCE

WARNING: **Do not service the RB48 Broom while it is in motion or while the engine is running. If the engine must be running to service a component, place transmission in neutral, apply park brake, block wheels, and use extreme caution.**

Grease the brush core shaft pillow block bearing and brush lift pivot bushings daily using a multi-purpose grease.

Grease the brush swing bearings with a multi-purpose grease every 250 hours.

CHANGING THE BRUSH CORE

1. Lower the brush completely to the ground but do not put pressure on the brush. Put unit in neutral and set park brake.
2. Remove cotter pin from brush cover pin. Remove the cover latch pin.
3. On the under side of the swing arm, remove hairpin clip from the swing arm pin. Remove pin and pull swing arm away from brush core.
4. Pull the core away from the drive hub and slide it out of the way.
5. Your unit may be equipped with Lube For Life U-Joints. If it is not, check both hubs for any damage and grease the U-joint on the idle hub.
6. Slide new brush onto slotted drive hub making sure that the key stock inside the brush core goes onto the drive hub side.
7. Align the idle hub with the smooth end of the brush core and push the swing arm back into position into the brush core. Carefully guide the hub by hand if necessary to start into the core center. Keep hands away from pinch points.

NOTE: **Brush carriage may have to be raised slightly to install a new core if the old brush core was well worn.**

8. Once the idle hub is fully engaged, replace the swing arm pin. Be sure pin is fully locked and replace hairpin clip.
9. Replace cotter pin on brush cover pin.

BRUSH WATERING SYSTEM

1. Clean the spraybar water system strainer daily to prevent nozzle clogging.
2. Inspect the spraybar water system daily to confirm operation of all nozzles on the spraybar.
3. If a spraybar nozzle becomes plugged, remove it from the bar, clean the nozzle slots, and replace. You may also pierce the small holes of the spraybar openings with wire. Be careful not to ream the nozzle opening, as spray pattern will be affected.
4. At the end of each operating season (or more often if required), alternately remove the end caps on the spraybar pipe and flush out the line and nozzles.
5. For storage in temperatures below freezing, make sure the water tank, strainer, pump and all lines are completely drained to prevent damage from freezing.

CHASSIS & RUNNING GEAR MAINTENANCE

WARNING:  **Do not service the RB48 Broom while it is in motion or while the engine is running. If the engine must be running to service a component, place transmission in neutral, apply park brake, block wheels, and use extreme caution.**

DRIVE SHAFT AND TRANSFER CASE

1. Check the Drive Shaft daily for wear and loose bolts.
2. Grease the driveshaft universal joints and slip yoke every 100 hours of service using a multi-purpose grease.
3. Check the lube level in the Transfer Case every 100 hours. The lube should be up to the middle plug level. Add if necessary. See Table 4-1, Maintenance Interval Chart, for lubricant information.

TIRES AND WHEELS

1. Check tires with an accurate gauge prior to each day's use. Repair or replace damaged tires to provide safe operation of the broom.

ATTENTION:  **Never operate the RB48 Broom with less than four wheels and tires installed. Tires should be inflated to 50 psi when tires are cold.**

ATTENTION:  **Never exceed tire manufacturer's maximum recommended inflation pressure.**

2. Protect tires from contact with petroleum products and chemicals.

ATTENTION:  **The drive shaft must be removed prior to towing, unless equipped with gearbox disconnect. Failure to do this could result in serious damage.**

3. Wheel lug nuts should be checked for tightness weekly. Torque to 85 ft-lbs.
4. Visually inspect the wheels for damage prior to each day's use of the broom. Replace bent or cracked wheels.

AXLES AND BRAKES

WARNING:  **Securely support chassis when removing the wheels. Do not lie under the machine while it is supported only by a jack. Use jackstands on a solid surface to prevent tipping of the machine when it is raised. Block the remaining wheels to prevent rolling of the machine when it is raised.**

1. Grease king pin bushings, tie rod ends, steering cylinder rod end and steering axle pivot bushings every 100 hours of service with a good quality chassis lube.
2. Steering axle wheel bearings should be removed, inspected, and repacked with a high quality axle bearing grease after every 500 service hours or seasonally.
3. To reinstall bearings and hub, tighten the retaining nut until the wheel drags during hand rotation. Then back off the nut 1/8 of a turn and bend over the locking tab or install the cotter pin, depending on the design configuration.
4. Check the lube level in the drive axle every 500 hours or seasonally. The lube should be at the plug hole. Add if necessary. Refer to Table 4-1, Maintenance Interval Chart for lubricant specifications.
5. Inspect and adjust brake pad linings in brake drums after every 500 hours of operation or seasonally. Remove wheel and hub. Inspect brake pad linings for excessive wear and proper operation. Linings should be replaced if they are 1/16" thick or less in the thinnest spot.

ATTENTION:  **Only qualified technicians should perform brake adjustment. Information on proper brake adjustment can be found in the brake manufacturer's manual.**

6. Check brake fluid level daily. When filling the brake fluid reservoir, only fill to 1 inch below the top of the fill neck. To prevent fluid from leaking out of the cap vent hole, locate the hole toward the rear of the machine when replacing the cap.

OPTIONAL ACCESSORIES MAINTENANCE

CURB BRUSH

The Curb Brush is in two half-circle sections.

1. Raise the brush to its full upright and locked position.
2. Shut down the engine and set the park brake.

CAUTION: **Hold brush sections as bolts are removed to keep them from falling. Brush bristles are sharp.**

3. Remove three bolts holding one section of the plastic back brush to the plate. Follow the same procedure for the second half-circle section.
4. Clean the brush plate thoroughly.
5. Examine and clean the existing hardware. Replace any hardware that shows signs of excess wear.
6. Replace each half-circle section of brush. Tighten bolts.

STRIKE-OFF BLADE

1. Two persons are needed to replace the Strike-Off Blade cutting edge.
2. Raise the blade to its full upright and locked position.

WARNING: **Support the blade with jack stands to prevent injury to maintenance personnel.**

3. Shut down the engine and set the park brake.
4. With one person holding the cutting edge, the second person removes the attaching bolts, starting at the center.
5. Remove the nine bolts moving to the outside two bolts last. Remove the cutting edge.
6. Clean the blade-mounting surface thoroughly.
7. Examine and clean the existing hardware. Replace any hardware that shows signs of excess wear.
8. Install the new cutting edge, beginning with the two outside bolts.
9. Use one person to hold the cutting edge and the other to tighten the bolts.

NOTE: **If the blade height has been adjusted because of wear on the blade cutting edge, it may be necessary to re-adjust the blade levelers at this time.**

STORAGE

PREPARING FOR LONG TERM STORAGE

A stored machine requires as much periodic maintenance as a machine at work. Stored units must receive periodic scheduled maintenance.

1. Clean the machine. Paint chipped or rusty areas to prevent rusting.
2. Inspect the machine thoroughly and repair worn or damaged parts.
3. Retract all hydraulic cylinders, as far as possible.
4. Coat with grease or rust inhibitor all exposed cylinder rods, seals, and o-rings to prevent cracking.

ATTENTION: **Some rust inhibitors can destroy painted surfaces. Do not spray rust inhibitor on painted surfaces.**

5. Lubricate all grease points. Make sure all grease cavities are filled with grease. See Table 4-1, Maintenance Interval Chart.
6. Remove alternator belt.
7. Remove the battery and store in a cool, dry place.
8. Check air filter restriction gauge. Clean the air cleaner assembly and precleaner. Replace air filter elements if restricted.
9. Top up all fluid levels to minimize condensation forming inside the tanks.
10. Check engine oil level and fill as necessary.
11. Perform specific gravity test on engine coolant. Drain and replace or fill coolant reservoir as needed to prevent freeze damage.
12. Check hydraulic oil sight gauge and fill as necessary.
13. Inspect all air and hydraulic hoses, couplers, fittings and cylinders. Tighten any loose fittings and replace any hoses that are worn.
14. Check all safety decals. Replace any decals that are damaged or illegible. Refer to Decal Installation in this section.
15. Use the mechanical brush lift cylinder lock to secure brush in the raised position. (Refer to Figures 4-9 and 4-10.) This will prevent a flat spot from forming on the brush bristles.
16. Place transmission lever in neutral, idle the engine a few minutes before shutting it down, and set the park/emergency brake.
17. If possible, raise and support machine with tires off the ground, or park machine on a hard surface to prevent tires from freezing to ground.

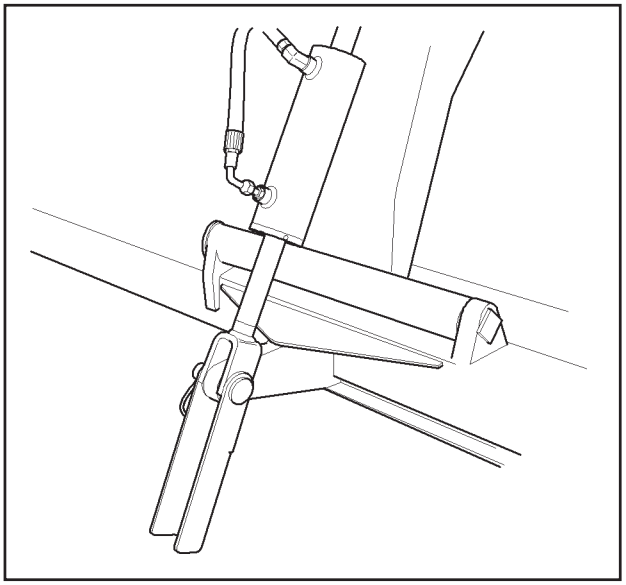


FIGURE 4-9. MECHANICAL BRUSH LIFT CYLINDER LOCK - OPEN

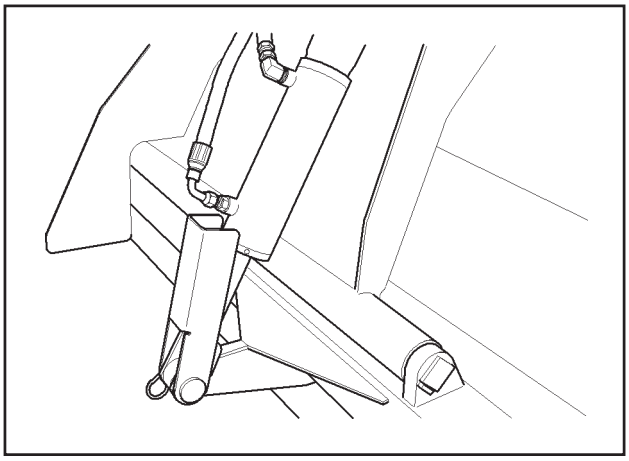


FIGURE 4-10. MECHANICAL BRUSH LIFT CYLINDER LOCK - LOCKED

18. Remove ignition key, lock any optional panels, cab doors, and spare tire. Cover seat with plastic, and place a DO NOT OPERATE tag on the steering wheel.
19. Store machine in a dry, protected area. If stored outside, cover with waterproof material.

PERIODIC MAINTENANCE DURING STORAGE

If a unit will not be used for more than two months, refer to Table 4-1, Maintenance Interval Chart, and follow procedures for 100-Hours interval, as well as these preventive maintenance procedures:

1. Keep battery fully charged and check the level of the electrolyte regularly.
2. Check for water in hydraulic fluid. Any machine that is stored for an extended period in a climate that has a wide range of temperatures and/or humidity, will develop condensation on the inside of the tank walls. Check the hydraulic fluid on a regular basis for possible moisture contamination.

ATTENTION: Hydraulic oil that is contaminated, must be drained, the filter elements replaced and the tank refilled with ROSCO approved fluid. Failure to do this could result in premature failure of the pumps and/or motors.

3. Start and run the engine until it is warm. Cycle all hydraulic and/or hydrostatic functions until all components are warm and the hydraulic fluid is up to operating temperature.
4. After the machine is warmed up, grease all pivot points.

REMOVING THE MACHINE FROM STORAGE

1. Follow steps above in **Periodic Maintenance During Storage**.
2. Refer to Table 4-1, Maintenance Interval Chart. Check all fluid levels, belt tensions, and bolt torques.
3. Replace alternator belt.
4. Replace battery. Refer to Battery maintenance earlier in this section for additional instructions.
5. Clean grease or rust inhibitor from all exposed cylinder rods, seals, and o-rings.
6. Disengage mechanical brush lift cylinder lock.

DECAL INSTALLATION

1. Be sure that the installation area is clean and dry. Use hot soapy water and dry the area thoroughly before installing decals.
2. Determine the exact position by taking measurements and test fitting before you remove the backing paper.
3. For decals with no top protection paper, determine the decal location and remove the smallest portion of the split backing paper.

4. Align the decal over the specified area and carefully press the small portion with the exposed adhesive backing into place.
5. Peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
6. Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.
7. If the decal has a protective top paper, use hot soapy water on the surface to which the decal is being applied. Leave wet. After determining the location, remove the backing paper and soak the decal in clean soapy water before application. This will help prevent air bubbles in the finished decal.
8. Smooth the decal into place with a sponge and check for air bubbles. Small air pockets may be pierced with a pin and smoothed out. When the decal is completely smoothed out, carefully remove the top paper.

TROUBLESHOOTING

GENERAL INFORMATION

The troubleshooting chart below identifies the most common symptoms of failure. Use this chart to help identify the failed component.

For specific engine and hydraulic problems not covered here, see the Engine or Hydraulic Pump and/or Motor Manufacturer's manual.

ATTENTION:  **Do not attempt to service or repair major components such as the engine, hydrostatic pump or motor unless authorized to do so by your ROSCO dealer. ANY UNAUTHORIZED REPAIR WILL VOID THE WARRANTY.**

TROUBLESHOOTING CHARTS

SYMPTOM	CAUSE	REMEDY
Engine doesn't crank.	Battery weak or dead.	Charge or replace battery.
	Neutral start switch not activated.	Put direction control lever in neutral.
	Faulty ignition switch.	Replace.
	Faulty start solenoid.	Replace.
	Faulty starter.	Repair or replace.
Engine cranks but won't start.	No fuel in tank.	Add fuel to tank.
	No voltage to fuel shutoff solenoid.	Voltage should be 9 volts with the ignition switch in the ON or START position.
	No fuel to injector pump.	Check fuel supply system.
	Fuel connections loose on suction side of injector pump.	Tighten all fuel filter fittings and connections from fuel tank to injector pump.
	Fuel filter plugged or restricted.	Replace fuel filter.
	Intake or exhaust system restricted.	Check for and remove restrictions.
Engine difficult to start, or won't start.	Engine cranking speed too low.	Clean battery terminal connections. Charge or replace battery.
	Insufficient fuel supply to injector nozzles.	Check fuel system. Clean or replace fuel filter.
	Fuel solenoid defective.	Check/replace defective fuel solenoid. See Engine Manufacturer's manual.
	Fuel filter plugged.	Replace fuel filter.
	Air in the fuel system.	Check for air leaks in the low pressure side of the fuel system. Prime fuel system. See Engine Manufacturer's manual.

TROUBLESHOOTING CHARTS

SYMPTOM	CAUSE	REMEDY
Engine difficult to start, or won't start (continued).	Fuel supply contaminated.	Verify by operating engine with a known fuel quality.
	Intake air system restricted.	Check for and remove restrictions.
Unit doesn't move with engine running, or moves in one direction only.	Parking brake engaged.	Release parking brake.
	Brush rotation control valve is bypassing oil at low pressure.	Repair or replace relief valve cartridge(s).
	Damaged hydrostatic pump.	Repair or replace hydrostatic pump.
	Damaged hydrostatic motor.	Repair or replace hydrostatic motor.
Unit jerks when operating in Forward or Reverse.	Fast movement of direction control handle.	Move handle slowly when changing speed and/or direction.
	Parking brake not disengaged.	Release parking brake. Check for binding parking brake cable(s).
	Engine speed set too low.	Run engine at higher RPM.
	Low hydraulic fluid level.	Fill reservoir with correct fluid until visible in sight gauge.
	Air leaking into hydraulic system.	Tighten or replace hoses, fittings and/or filter(s).
	Hydrostatic pump is malfunctioning.	Repair or replace pump.
Engine power output is low.	Operating engine at high altitude.	De-rate engine power output for altitudes above 10,000 feet.
	Air intake piping restricted.	Remove restrictions.
	Air cleaner element dirty.	Clean or replace air cleaner elements.
	Fuel suction line or filter restricted.	Check fuel line for restrictions. Replace fuel filter element(s).
	Fuel return system restricted.	Correct restricted fuel return system.
	Fuel quality poor.	Verify by operating with a known fuel quality.
	Fuel transfer pump malfunctioning.	Replace fuel transfer pump. See Engine Manufacturer's manual.
	Throttle improperly adjusted.	Adjust throttle controls.
	Injector malfunctioning.	Replace injector. See Engine Manufacturer's manual.

TROUBLESHOOTING CHARTS

SYMPTOM	CAUSE	REMEDY
Engine won't shut off.	Electrical wiring fault supplying power to fuel solenoid when key is in OFF position.	Repair wiring.
	Faulty diode in engine wire harness at alternator.	Check diode wire connection and/or replace diode.
	Injection pump fuel solenoid inoperative.	Check solenoid for defects or foreign material inhibiting proper operations.
	Engine operating on fumes drawn into air intake.	Locate and isolate the source of fumes.
	Low idle set too high.	Set idle to specifications.
Transmission won't shift to HIGH.	Faulty switch.	Replace if necessary.
	Loose wiring or connector to 2-speed solenoid valve.	Repair wiring or connection.
	Faulty solenoid on 2-speed solenoid valve.	Repair or replace solenoid cartridge and/or coil.
Brush stalls or lacks power.	Brush drive relief valve set too low or defective.	Adjust relief valve to 2500 psi. Replace if defective. See Pumps and Motors in this section.
	Sweeping with too much down pressure.	See Brush Down Pressure Control in Section 3, Operation.
	Ground speed too fast.	Pull back on hydrostatic control lever and increase engine RPM to increase brush speed. Always sweep in LOW range.
Steering is difficult.	Low hydraulic fluid level.	Add fluid to proper level. See Hydraulic Maintenance in this section.
	Hydraulic filters contain contamination.	Check filter(s) for contamination and replace if necessary. See Hydraulic Maintenance.
	Hydraulic pump priority relief valve set incorrectly.	Check relief valve setting. It should be 1500 psi. Adjust setting if necessary. See Pumps and Motors in this section.
	Worn hydraulic pump.	Check for worn pump and repair or replace.
	Worn steering orbitrol motor.	Check for worn steering orbitrol motor and repair or replace.

TROUBLESHOOTING CHARTS

SYMPTOM	CAUSE	REMEDY
Steering is difficult (continued).	Worn steering cylinder.	Repair or replace steering cylinder.
Hydraulic system overheats (temperature above 200° F).	Low hydraulic fluid level.	Fill with correct fluid until visible in sight gauge.
	Defective temperature gauge or sender giving wrong temperature reading.	Replace gauge or sender.
	Brush drive relief valve set too low or defective.	Adjust relief valve to 2500 psi. Replace if defective. See Pumps and Motors in this section.
	Excessive ambient air temperature and high duty cycle.	Operate unit at slower ground speed and maximum engine RPM during hot weather.
	Plugged fins on fluid cooler.	Clean fins and correct any other problems with cooling air flow.
	Hydrostatic pump bypass valve defective or open.	Repair or replace. If valve is open, turn valve clockwise until seated and torque to 7 to 10 ft-lbs (9.5 to 14 Nm). Overtorquing will damage valve.
	Worn hydrostatic pump.	Repair or replace.
Engine oil pressure is low.	Electrical power not being supplied to gauge.	Check fuse.
	Incorrect oil level. Too high or too low.	Check for leaks. Add or drain engine oil. Check dipstick calibration.
	Oil filter plugged.	Change oil filter.
	Oil diluted with fuel.	Replace fuel injector, fuel transfer pump and/or injection pump.
	Oil diluted with coolant.	See authorized engine repair facility.
	Incorrect oil specifications.	Change oil. Check oil specifications. See Engine Maintenance in this section. See Engine Manufacturer's manual.
	Oil pressure sender or gauge malfunctioning.	Replace oil pressure sender or gauge.
	Coolant level too low.	Add coolant.
Engine coolant termperature above normal.	Radiator fins damaged or obstructed.	Inspect radiator fins. Clean, repair or replace.

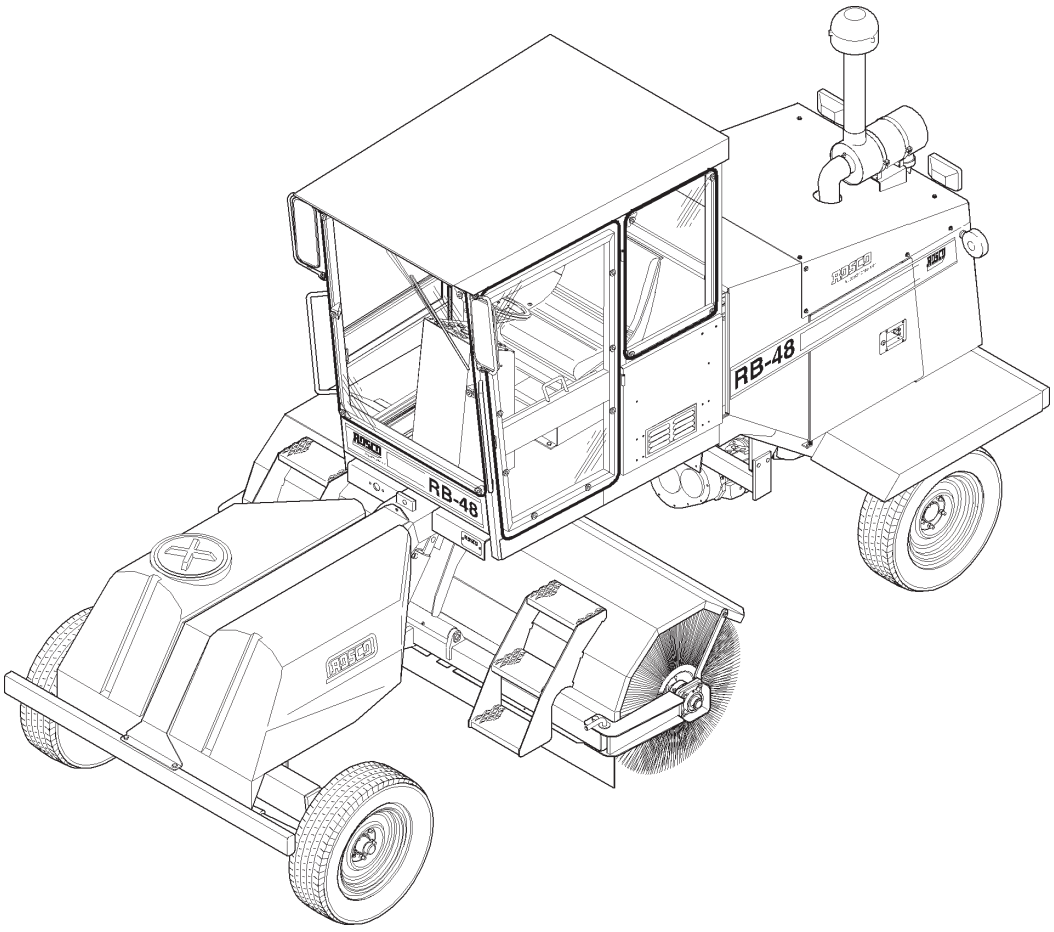
TROUBLESHOOTING CHARTS

SYMPTOM	CAUSE	REMEDY
Engine coolant temperature above normal (continued).	Collapsed or restricted radiator hose.	Inspect hoses. Replace if necessary.
	Loose fan drive belt.	Check belt tension and tighten if necessary.
	Cooling fan shroud damaged or missing.	Inspect shroud. Repair, replace or install as needed.
	Incorrect or malfunctioning radiator cap.	Check the radiator cap. Replace if necessary.
	Temperature gauge or sender malfunctioning.	Repair or replace sender and/or gauge.
	Thermostat stuck in closed position.	Test thermostat. Replace if necessary.
	Dirt, scale or rust in the cooling system.	Clean cooling system.
Alternator not charging.	Loose wiring or faulty connection.	Repair or replace loose wiring or connector.
	Diode at alternator loose or faulty.	Tighten connection or replace diode.
	Alternator belt loose or broken.	Adjust or replace belt.
	Alternator malfunctioning.	Replace alternator.
Instrument gauges don't work.	Faulty gauge or sender.	Replace gauge or sender.
	Alternator not charging.	Repair wiring or replace alternator.
	Faulty wiring.	Replace wiring or connector.

ROSCO

A LeeBoy Company

ILLUSTRATED PARTS LIST



RB48 BROOM

Manual No. 39139-01

For Units With Serial No. 44441 and higher

Revised 06-30-06

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

This Illustrated Parts List (IPL) is intended for use in identifying and requisitioning replacement parts.

ILLUSTRATED PARTS LIST

HOW TO USE THE IPL

In column 1, FIG refers to the corresponding illustration, and ITEM refers to the item number for the referenced illustration.

Parts with a dash preceding the ITEM number are not illustrated.

In column 2, PART NUMBER refers to the associated FIG or ITEM in column 1.

In column 3, NOMENCLATURE refers to the description of the associated PART NUMBER. Bullets preceding the description are explained in **General System Of Assembly Order**, in following paragraphs.

In the case of sub-assemblies, parts are captioned ATTACHING PARTS and are listed immediately following the attached part(s). The -----*----- symbol follows the last item of the attached parts group.

In column 4, UNITS PER ASSY refers to the quantity required to assemble the item illustrated in the associated FIG. Unit of measure may be EACH, FT, LBS or other.

In the case of sub-assemblies, the quantities listed for the attaching parts are the quantity required to attach one item.

NHA notations at item descriptions refer to Next Higher Assembly.

On the associated illustrations, numbers in parentheses next to the item number, refer to the quantities used at that assembly location.

EXPLANATION OF PART NUMBERS

If standard parts (those with AN, MS, NAF, NAS prefixes) are used, the standard part number is listed in the PART NUMBER column.

If a company other than LeeBoy is referred to as the original manufacturer, these parts may carry the original manufacturer's part number or a LeeBoy part number. These manufacturers are identified by an appropriate vendor code following the nomenclature. If the part number is a LeeBoy part number, the original manufacturer's part number is given after his vendor code. Vendor codes are in accordance with the current issue of Cataloguing Handbook , "Commercial and Government Entity" (H4-1 and H4-2) and are preceded by the capital letter "V".

When a vendor code cannot be obtained from the H4-1 and H4-2 Cataloguing Handbook, the manufacturer's full name and address are included in the parts list. Government standard parts such as AN, MS, NAF and NAS parts are not identified with a vendor code.

GENERAL SYSTEM OF ASSEMBLY ORDER

The indenture system used in the Illustrated Parts List shows relationship of parts and assemblies to the next higher assembly or installation as follows:

1 2 3 4 5 6 7

Installation

- Detail parts for installation
- Assembly
- Attaching parts for assembly

-----*-----

•• Detail parts for assembly

•• Sub-assembly

•• Attaching parts for sub-assembly

-----*-----

••• Detail parts for sub-assembly

••• Sub-sub-assembly

••• Attaching parts for sub-sub-assembly

-----*-----

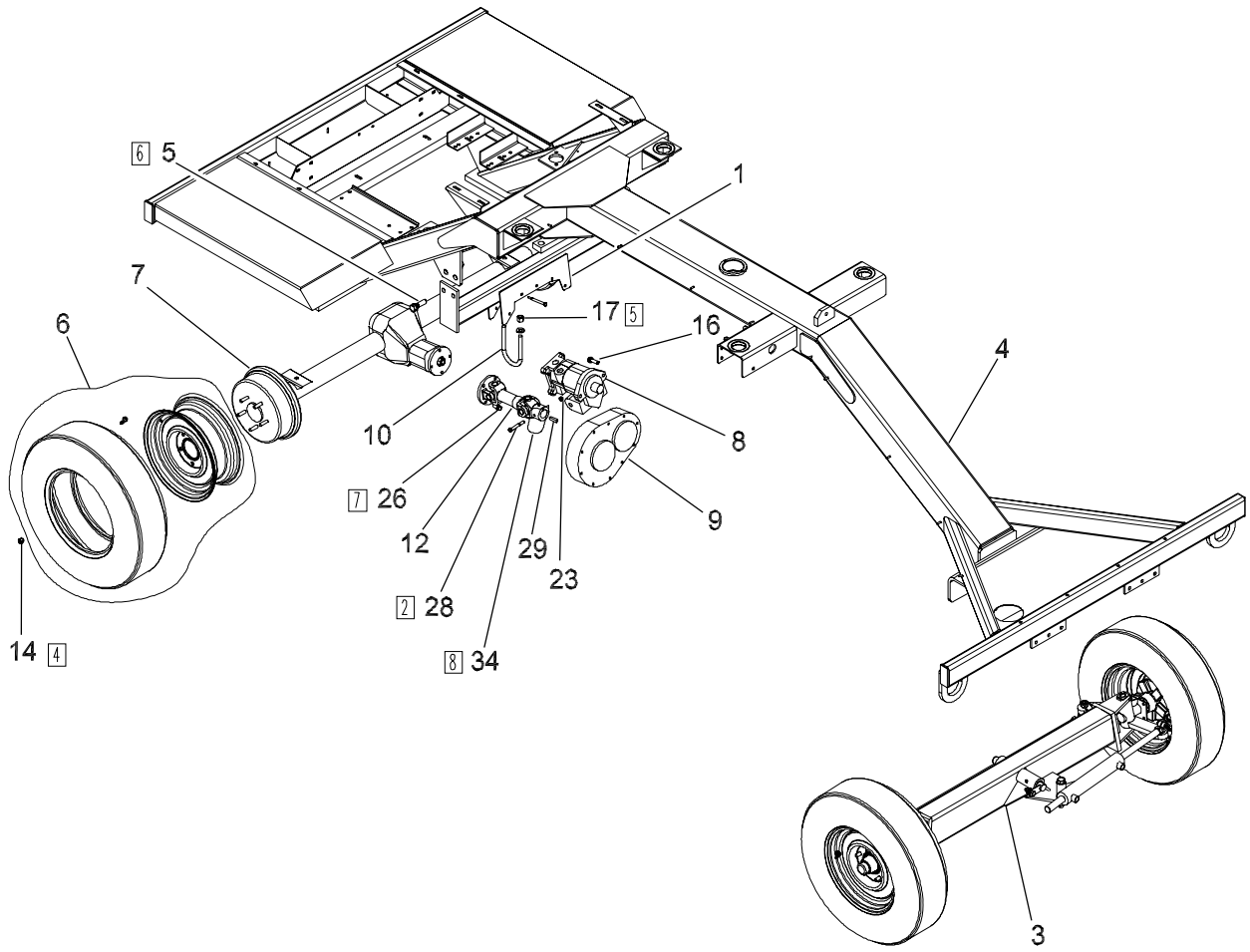
•••• Detail parts for sub-sub-assembly

ALPHABETICAL INDEX

An Alphabetical Index is provided as a supplement at the end of the Illustrated Parts List.

EQUIPMENT DESIGNATOR INDEX

If equipment designators are used in place of part numbers at any place in the IPL, an Equipment Designator Index is provided, listing all equipment designators listed in the Illustrated Parts List.



NOTE: Item #25 not used with optional front brakes.

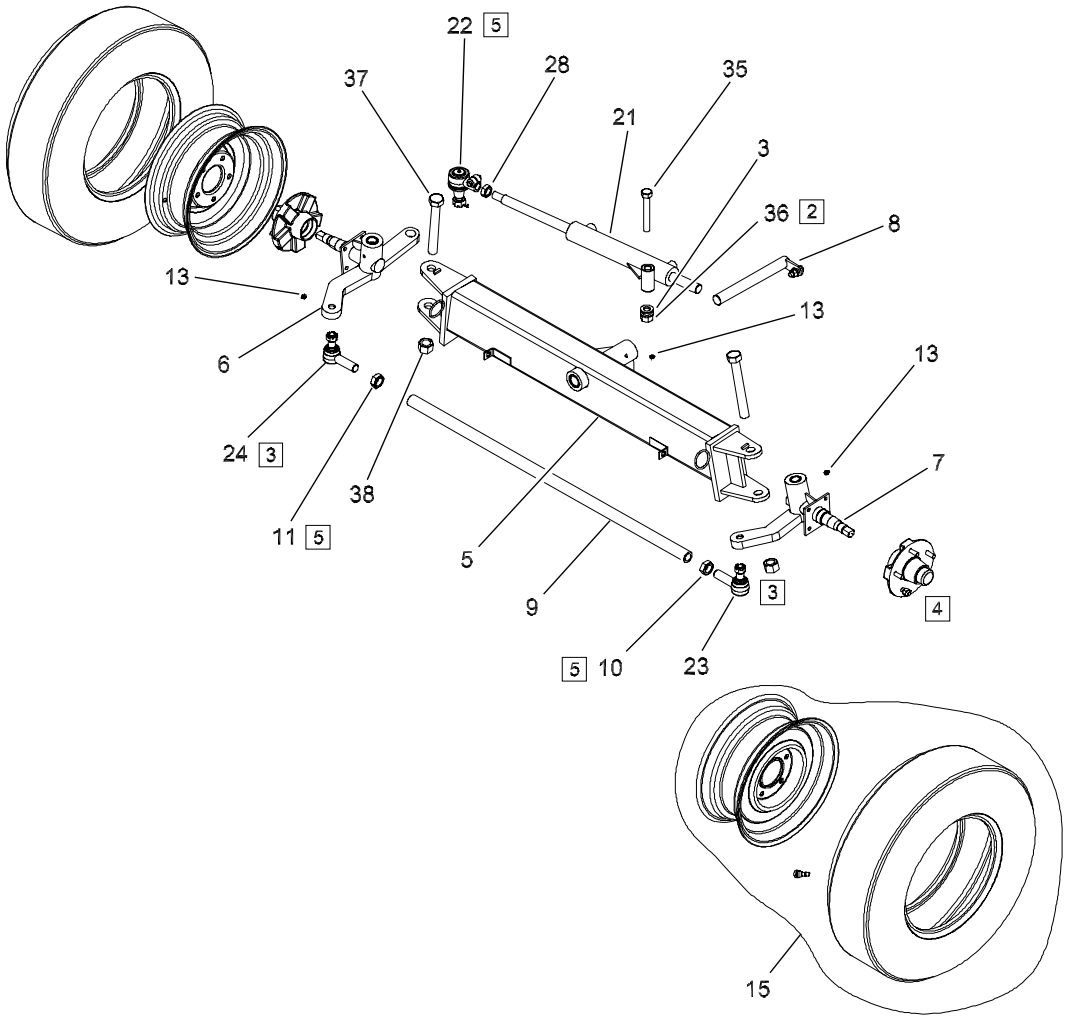
2. Torque to 46 FT. LBS.
4. Torque to 85 FT. LBS.
5. Torque to 150 FT. LBS.
6. Torque to 250 FT. LBS.
7. Torque to 65 FT. LBS.
8. Route wire through the set screw, around the shaft and tie.

FIGURE 1. FRAME ASSEMBLY

FIGURE 1. FRAME ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
1	**29084**	**FRAME ASSEMBLY**	**1**
1	29027	•GEARBOX,MOUNT W/M	1
3	29043	•AXLE ASSY,FRONT (SEE FIGURE 2 FOR BREAKDOWN)	1
4	29171	•FRAME W/M,RB48	1
5	33137	•CSHH,.750-10X2.50,GR5	4
6	981678	•WHEEL,BROOM,ST225/75-R15,C	2
		ATTACHING PARTS	
-601	33799	••TIRE VALVE,TUBELESS,.453,1.25	1
-602	35342	••TIRE,RADIAL,ST225/75-R15,C	1
-603	39027	••WHEEL,15X6.5 HOLE,5.5BC,FORD	1
		-----*-----	
7	984260	•AXLE,RB48,DANA,044AA532-12	1
8	35330	•MOTOR,HYD,M46 VAR,2.8/1.45 CIR	1
9	35338	•GEARBOX B PAD 15T 4.533 RATIO (SEE FIGURE 3)	1
10	35339	•U-BOLT,AXLE MOUNT	4
12	984395	•DRIVESHAFT,BROOM,DANA AXLE	1
14	620520	•NUT,LUG,.500-20	10
-15	71627	•CSHH,.500-13X1.50,GR5	1
16	71631	•CSHH,.500-20X1.75,GR5 NF HT	1
17	80356	•NUT,FLEXLOC,.625-11,FULL,LT	8
-18	80043	•NUT,HEX,.750-10	4
-19	80147	•WASHER,FLAT,USS,.750	4
-20	80164	•WASHER,LOCK,.500	3
-21	81201	•WASHER,FLAT,SAE,.625,HARDENED	8
-22	80168	•WASHER,LOCK,.750	4
23	80352	•NUT,FLEXLOC,.375-16,FULL,LT	1
-24	80484	•WASHER,LOCK,M12	4
-25	27791	•HUB ASSY,WHEEL,W/DUST SHIELD (SEE FIGURE 4)	1
26	81009	•CSHH,M12-1.75X30MM,CL8.8	4
-27	81010	•CSHH,.312-18X4.00,GR8	3
28	81048	•CSHH,.375-16X3.00,GR8	1
29	010990739	•KEYSTOCK,.375X1.625	1
-32	81141	•WASHER,FLAT,SAE,.500,HARDENED	4
-33	71634	•CSHH,.500-20X2.00,GR5	1
34	38620	•WIRE,MECHANICS,16.5 GA	0.8
-TBD	20663	•WASHER,SPINDLE	1
-TBD	38343	•MOUNTING PAD	2

- ITEM NOT ILLUSTRATED



NOTES:

2. Torque to 200 FT. LBS.
3. Torque to 250 FT. LBS.
4. Torque to 85 FT. LBS. for lug nuts.
5. Torque to 400 FT. LBS.

FIGURE 2. FRONT AXLE ASSEMBLY

FIGURE 2. FRONT AXLE ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
2	**29043**	**•FRONT AXLE ASSEMBLY (SEE FIGURE 1 FOR NHA)**	**1**
3	16935	••SLEEVE,STEERING CYL MOUNT	1
5	28451	••FRONT AXLE W/M,RB48	1
6	25282	••SPINDLE W/M,LH	1
7	25283	••SPINDLE W/M,RH	1
8	20724	••SHAFT W/M,PIVOT,FRONT AXLE	1
9	20727	••TUBE,TIE ROD	1
10	21113	••NUT,HEX,JAM,1.00-16,RH	1
11	21114	••NUT,HEX,JAM,1.00-16,LH	1
13	33684	••FITT,LUBE,STR,02MP,SHORT	3
15	981678	••WHEEL,BROOM,ST225/75-R15,C	2
		ATTACHING PARTS	
-1501	33799	•••TIRE VALVE,TUBELESS,.453,1.25	1
-1502	35342	•••TIRE,RADIAL,ST225/75-R15,C	1
-1503	39027	•••WHEEL,15X6.5 HOLE,5.5BC,FORD	1
		-----*-----	
21	36754	••CYL,HYD,2.00X10.75X1.00 ROD	1
-2101	33805-01	•••SEAL KIT,STEERING CYL	A/R
22	36755	••BALL JOINT,STEERING CYL END	1
23	36756	••BALL JOINT,RH	1
24	36757	••BALL JOINT,LH	1
28	80097	••NUT,HEX,JAM,.875-14	1
-30	81154	••WASHER,FLAT,SAE,.750,HARDENED	1
-32	80248	••CSHH,.500-13X1.00,GR5	2
-33	71627	••CSHH,.500-13X1.50,GR5	1
-34	80040	••NUT,HEX,.500-13	1
35	80839	••CSHH,.750-10X5.00,GR5	1
36	80357	••NUT,FLEXLOC,.750-10,FULL,LT	1
37	81184	••CSHH,1.000-8X8.0,GR5	2
38	80359	••NUT,FLEXLOC,1.000-8,FULL,LT	2
-TBD	610250-1	••FLAT WASHER, FRONT SPINDLE	2
-TBD	610260	••NUT,SPINDLE	2

- ITEM NOT ILLUSTRATED

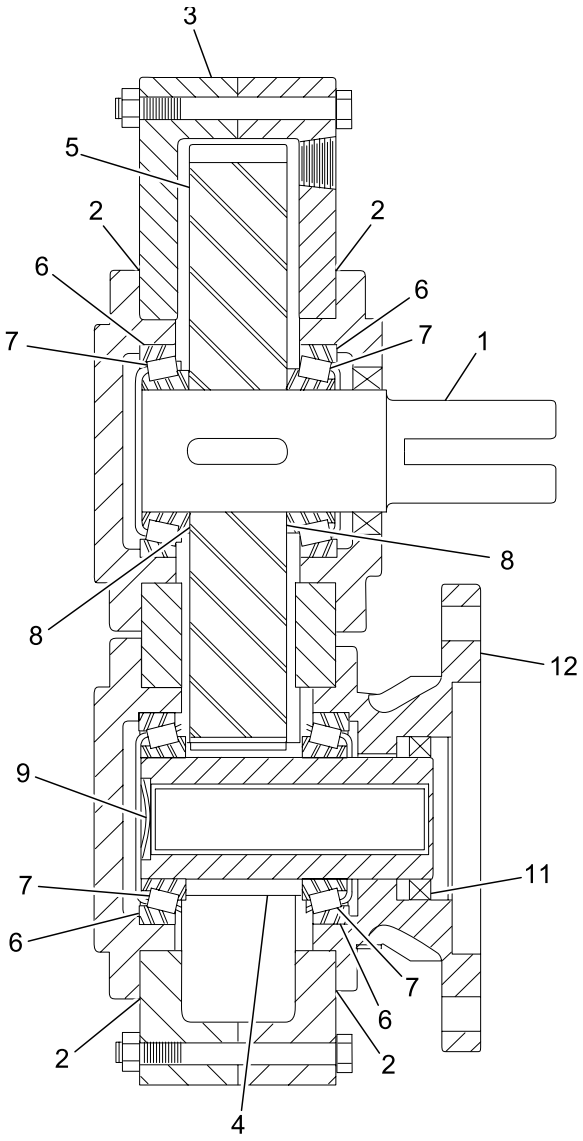
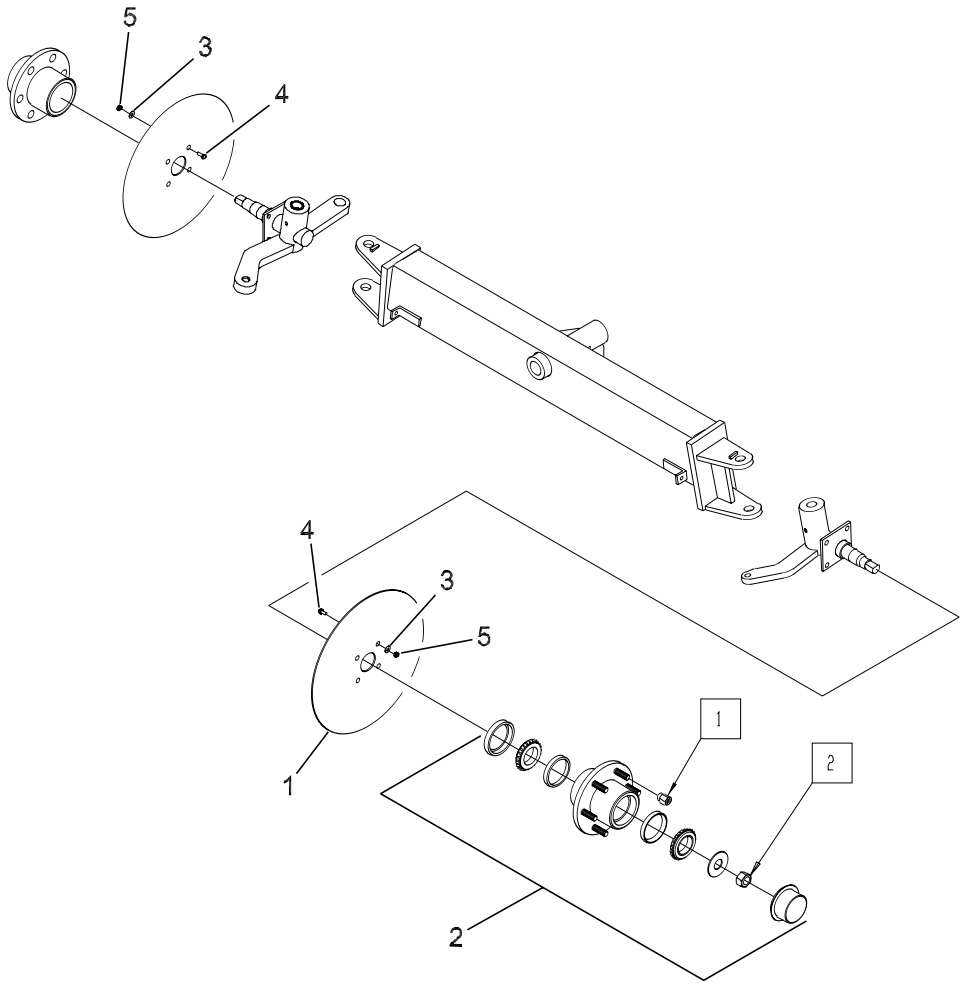


FIGURE 3. GEARBOX B PAD

FIGURE 3. GEARBOX B PAD

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
3	**35338**	**•GEARBOX B PAD (SEE FIGURE 1 FOR NHA)**	**1**
1	35338-01	••SHAFT	1
2	35338-02	••GASKET,BLUE SHIM	8
3	35338-03	••GASKET	1
4	35338-04	••GEAR,INT HEL LH 15T (NOT SOLD INDIVIDUALLY)	1
5	35338-05	••GEAR,HEL RH 68T (NOT SOLD INDIVIDUALLY)	1
6	35338-06	••CUP,BEARING	4
7	35338-07	••CONE,BEARING	4
8	35338-08	••SPACER,BEARING	2
9	35338-09	••PLUG,EXPANSION DISC (BUY LOCALLY)	1
-10	35338-10	••PLUG,VENTED (BUY LOCALLY)	1
11	35338-11	••SEAL	2
12	35338-12	••FLANGE,SAE B,2-HOLE	1
-13	35338-13	••KEY,OUTPUT SHAFT/GEAR	1
-14	35338-14	••HOUSING HALF,GEAR BOX,BLIND END	1
-15	35338-15	••HOUSING HALF,GEAR BOX,MOTOR END	1
-16	35338-16	••CAP,OPEN	1
-17	35338-17	••CAP,CLOSED	2
-18	35338-18	••GASKET,RED SHIM	8

- ITEM NOT ILLUSTRATED



NOTES:

1. Torque to 85 FT. LBS.
2. Tighten bearings until they drag, then back off to first cotter pin hole.

FIGURE 4. HUB ASSEMBLY

FIGURE 4. HUB ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
4	**27791**	**•HUB ASSEMBLY (SEE FIGURE 1 FOR NHA)**	**1**
1	29021	••SHIELD,DUST,W/OUT BRAKES,E150	2
2	37938	••HUB ASSY,5-BOLT,5.50INBC (SEE FIGURE 5)	2
3	80142	••WASHER,FLAT,USS,.375	8
4	80221	••CSHH,.375-16X1.00,GR5	8
5	80352	••NUT,FLEXLOC,.375-16,FULL,LT	8

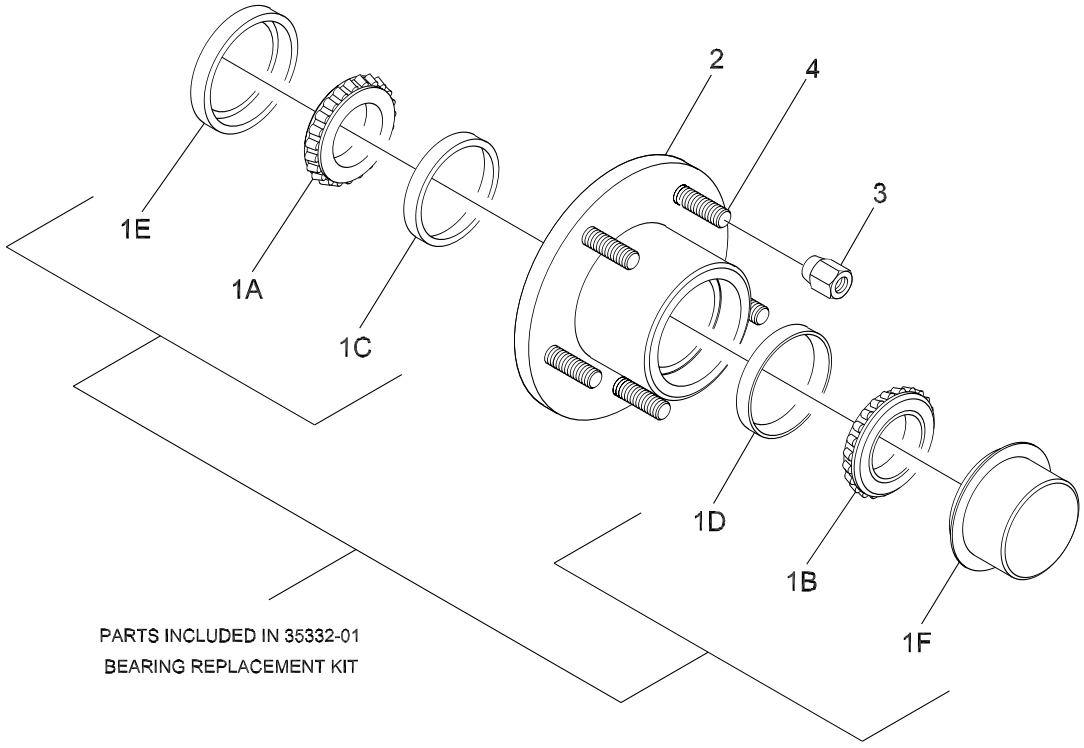


FIGURE 5. HUB ASSEMBLY, 5 BOLT

FIGURE 5. HUB ASSEMBLY, 5 BOLT

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
5	**37938**	**••HUB ASSEMBLY, 5-BOLT (SEE FIGURE 4 FOR NHA)**	**2**
1	35332-01	•••BEARING REPLACEMENT KIT	1
1A		•••INNER BEARING	1
1B		•••OUTER BEARING	1
1C		•••INNER CUP	1
1D		•••OUTER CUP	1
1E		•••GREASE SEAL	1
1F		•••DUST CAP	1
2	37938-01	•••HUB W/O BRAKES	1
3	620520	•••WHEEL NUT,1/2-20	6
4	37938-02	•••WHEEL STUD,1/2-20	6

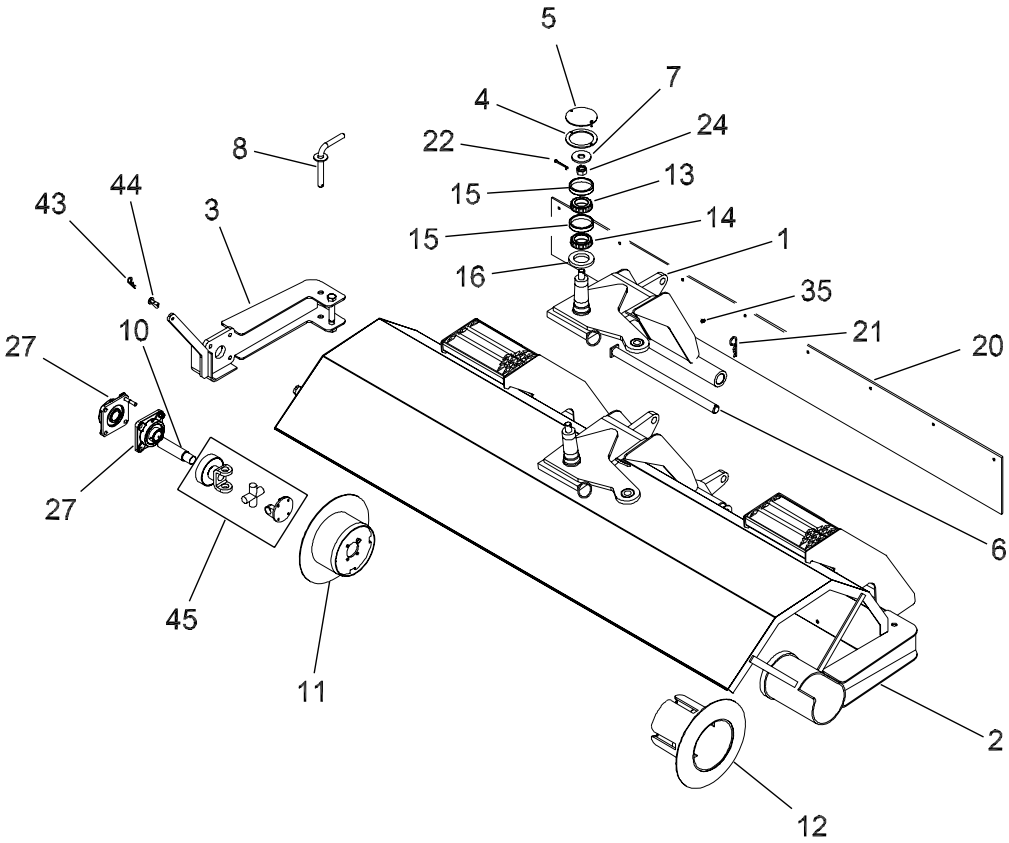


FIGURE 6. BRUSH FRAME GROUP, QWK CHANGE

FIGURE 6. BRUSH FRAME GROUP, QWK CHANGE (PAGE 1 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
6	**28855**	**BRUSH FRAME GROUP, QWK CHANGE**	**1**
1	20728	•FRAME W/M,PIVOT	1
2	28768	•BRUSH FRAME W/M,RB48,QWK CHG	1
3	28772	•SWING ARM W/M,RB48,QWK CHG	1
4	21342	•SPACER,SPINDLE CAP	1
5	20891	•CAP,SPINDLE	1
6	20909	•PIN,PIVOT,BRUSH FRAME	1
7	20663	•WASHER,SPINDLE	1
8	28878	•PIN,HITCH,W/M	1
10	28461	•PIN,IDLE SHAFT	1
11	28828	•IDLE HUB,W/M	1
12	28570	•DRIVE HUB,W/M	1
13	36827	•BEARING,TPR RLR,1.875BORE	1
14	36828	•BEARING,TPR RLR,2.000BORE	1
15	36829	•BEARING,TPR RLR,CUP3.50ODX.650	2
16	36830	•SEAL,3.628ODX2.250IDX.468	1
20	38989	•APRON,RUBBER,RB48	1
21	36544	•PIN,COTTER,.177,7GA	1
22	80338	•COTTER PIN,.188X2.00	1
24	80132	•NUT,HEX,CASTLE,.875-14	1
27	312030	•BEARING,FLANGE,4-BOLT,1.50	2
35	33684	•FITT,LUBE,STR,02MP,SHORT	1
43	7303	•HAIR PIN,COTTER,#11,.125 DIA	1
44	28920	•PIN,LOCKING,W/M	1
45	39138	•HUB ASSY	1
		ATTACHING PARTS	
-4501	26954	••GUARD,IDLER HUB	1
-4502	38285	••YOKE,FLANGE	1
-4503	39125	••BEARING KIT, U-JOINT CROSS	1
		-----*-----	

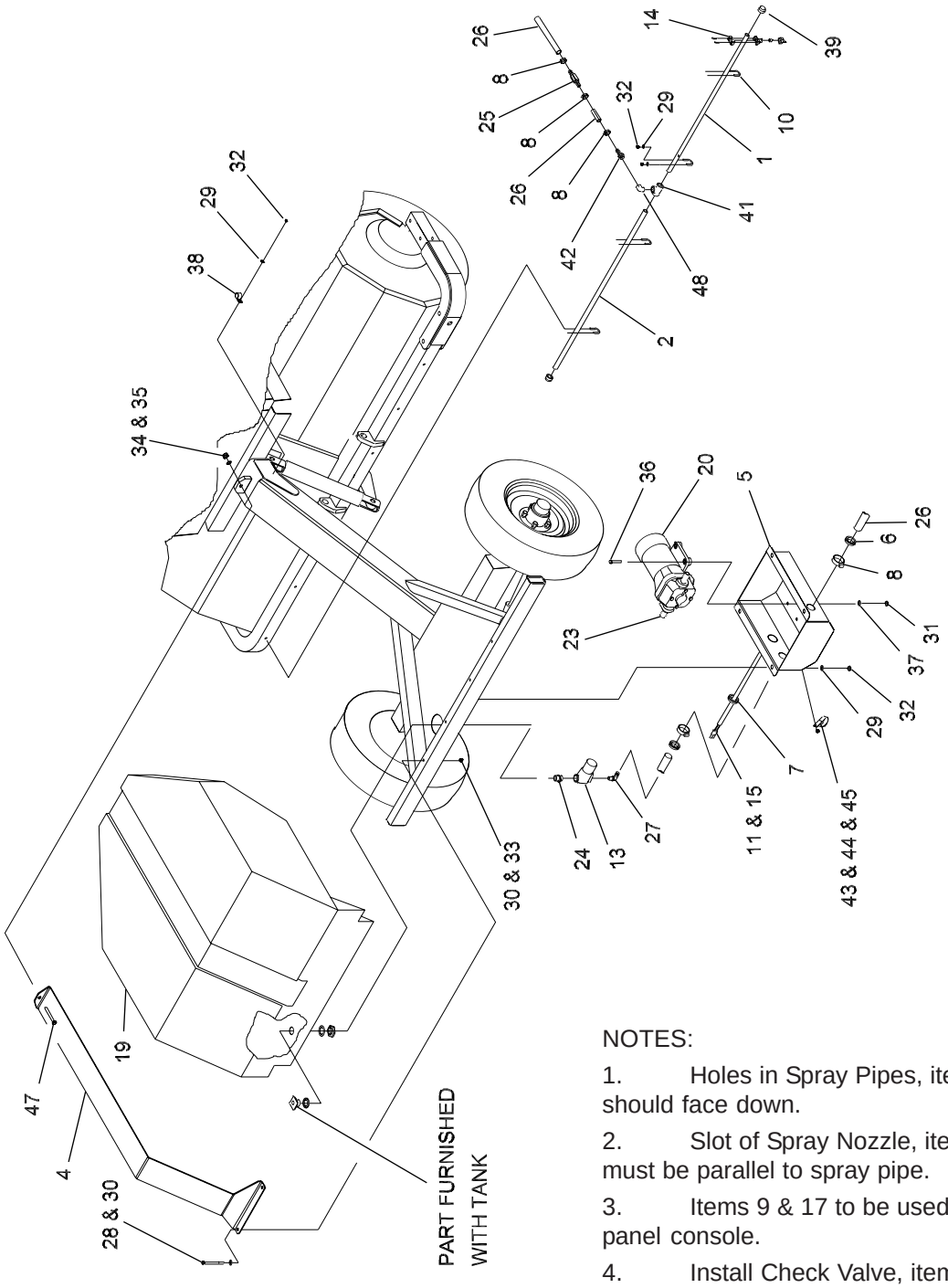
- ITEM NOT ILLUSTRATED

FIGURE TABLE 6. BRUSH FRAME GROUP, QWK CHANGE (PAGE 2 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
6	**28855**	**BRUSHFRAME GROUP, QWK CHANGE**	**1**
-23	80969	•WASHER,FLAT,SAE,1.250	1
-25	871071601	•WASHER,LOCK,#10	2
-26	80852	•MACH SCR,RH,#10-24X.75	2
-28	80142	•WASHER,FLAT,USS,.375	9
-29	80162	•WASHER,LOCK,.375	9
-30	80221	•CSHH,.375-16X1.00,GR5	9
-31	80352	•NUT,FLEXLOC,.375-16,FULL,LT	9
-32	80295	•CSHH,.750-10X5.50,GR5	1
-33	80147	•WASHER,FLAT,USS,.750	1
-34	80357	•NUT,FLEXLOC,.750-10,FULL,LT	1
-36	80224	•CSHH,.375-16X1.25,GR5	4
-37	80038	•NUT,HEX,.375-16	4
-38	80775	•CSHH,.438-14X2.75,GR5	4
-39	80143	•WASHER,FLAT,USS,.438	4
-40	80163	•WASHER,LOCK,.438	4
-41	80039	•NUT,HEX,.438-14	4
-42	80311	•SET S,SQ,.312-18X1.00	1
		ATTACHING PARTS	
	TBD	BRUSH GROUPS	
-100	*28766	•BRUSH CORE GROUP	1
-101	28773	••BRUSH CORE,W/M,QWK CHG	1
-102	28854	••PLATE,BRUSH RING	1
-103	81256	••CSSBH,.312-18X1.0	4
-200	6375P	•WAFER,POLY,10X32,W/SPACERS	27 / box
-201	37638	••SPACERS,BRUSH	A/R
-300	6375S	•WAFER,STL,10X32,W/SPACERS	27 / box
-301	37638	••SPACERS,BRUSH	A/R
-400	38806	•BRUSH,TUBE,32"X90",POLY	1
-500	38831	•BRUSH,TUBE,32"X90",POLY/STEEL	1
		-----*-----	

* Brush Core Group is required with all wafer options except Tube Brushes.

- ITEM NOT ILLUSTRATED



NOTES:

1. Holes in Spray Pipes, items 1 & 2, should face down.
2. Slot of Spray Nozzle, item 22, must be parallel to spray pipe.
3. Items 9 & 17 to be used in control panel console.
4. Install Check Valve, item 25, so that water flow is in direction of the arrow on the valve.

FIGURE 7. WATER SPRAY GROUP

FIGURE 7. WATER SPRAY GROUP (PAGE 1 OF 2)

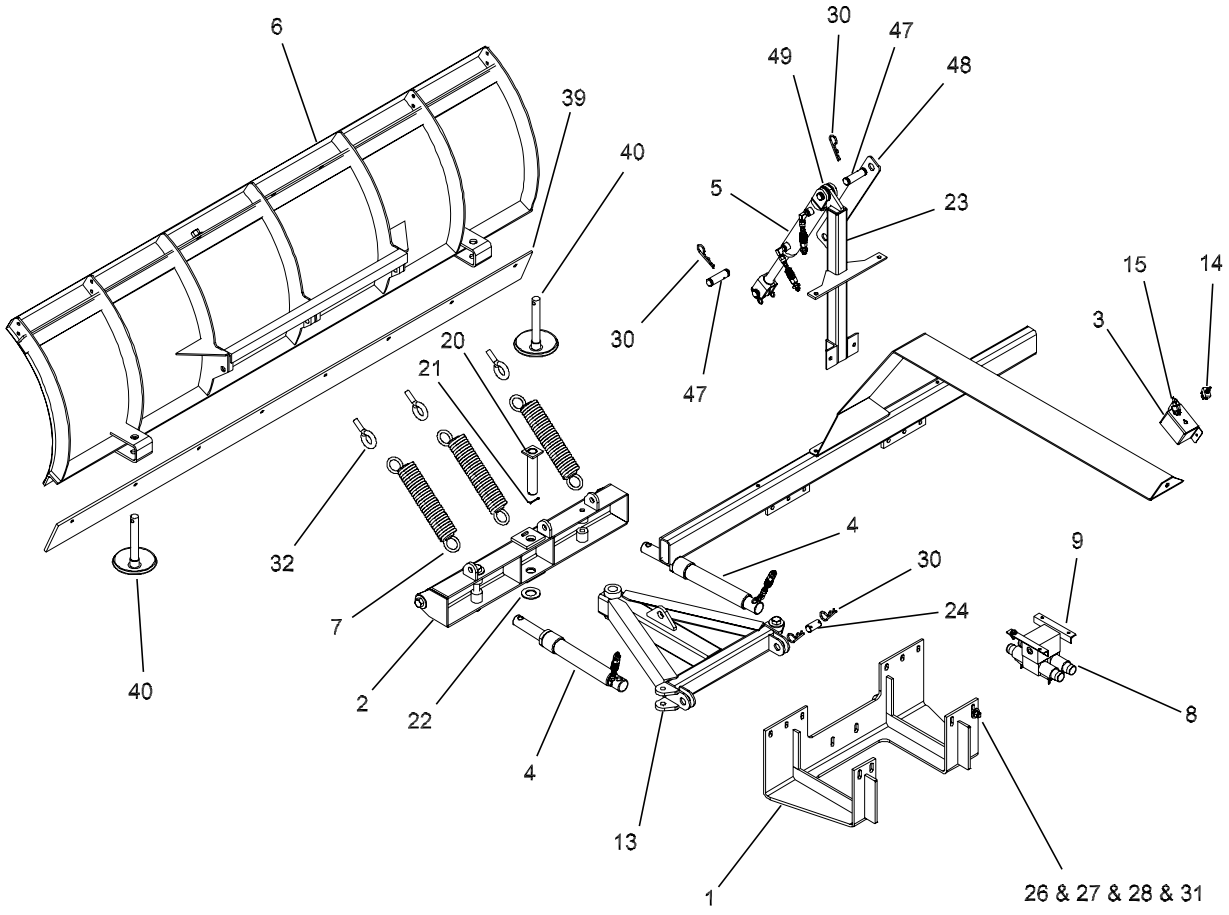
FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
7	**28241**	**WATER SPRAY GROUP**	**1**
1	21143	•SPRAY PIPE,RH	1
2	21144	•SPRAY PIPE,LH 39"	1
4	27681	•TANK STRAP	1
5	25798	•BOX,WATER PUMP	1
6	35465-07	•GROMMET,INSULATION,.750ID	2
7	35465-09	•GROMMET,INS,.375ID X 1.00GRV	1
8	33164	•CLAMP,HOSE,# 10	6
-9	33607	•TERM,RING,16-14 GA,.250 STUD	1
10	35077	•U-BOLT,.250-20,1.00IW,1.75IL	4
11	28369	•WIRE HARNESS,WATER PUMP	1
13	36926	•STRAINER ASSY	1
14	986502	•NOZZLE,ASSY,08 PIPE NYL,STR	8
		ATTACHING PARTS	
-1401	38655	••NOZZLE,EYELET,08 PIPE,NYLON	1
-1402	38656	••CAP,WATER SPRAY NOZZLE W/SEAL	1
-1403	38657	••NOZZLE,80 DEG,.094 ORF,NYLON	1
		-----*-----	
15	33602	•CONN,BUTT,16-14 GA	2
-16	70318	•FITT,STR 08MP-08HB,BLK POLY	1
-17	36341	•FUSE,15 AMP,ATC	1
19	36727	•TANK,WATER,150GAL,PLAST,RB48	1
20	36730	•PUMP,WATER,DIAPHRAM	1
23	38093	•PORT KIT,.50 STR HOSE BARB	1
24	36810	•PIPE,NIPPLE,.500XCLOSE,PVC	1
25	36883	•VALVE,CHECK,.500 HB,5 PSI,POLY	1
26	6352	•HOSE,08,PUSH-ON,250	14
27	70319	•FITT,90 08MP-08HB,POLY	1
28	71617	•CSHH,.375-16X5.00,GR5	2
29	80140	•WASHER,FLAT,USS,.250	19
30	80142	•WASHER,FLAT,USS,.375	4
31	81077	•NUT,FLEXLOC,#10-32,FULL,LT	4
32	80350	•NUT,FLEXLOC,.250-20,FULL,LT	19
33	80352	•NUT,FLEXLOC,.375-16,FULL,LT	2
34	80354	•NUT,FLEXLOC,.500-13,FULL,LT	1

- ITEM NOT ILLUSTRATED

FIGURE 7. WATER SPRAY GROUP (PAGE 2 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
7	**28241**	**WATER SPRAY GROUP**	**1**
35	80695	•WASHER,FLAT,SAE,.500	1
36	80891	•MACH SCR,PH,#10-32X1.00	4
37	80995	•WASHER,FLAT,USS,#10	4
38	34797	•CLAMP,INSULATED BAND,15/16”	7
39	91152	•PIPE,CAP,.500,GALV	2
41	99845	•PIPE,TEE,08FP,GALV	1
44	80208	•CSHH,.312-18X1.00,GR5	1
45	80037	•NUT,HEX,.312-18	2
-46	871111602	•CLAMP,INSULATED BAND,3/4"	5
47	80722	•CSHH,.500-13X4.00,GR5	1
48	38843	•ELBOW,PIPE,90,.500 STREET,GALV	1

- ITEM NOT ILLUSTRATED



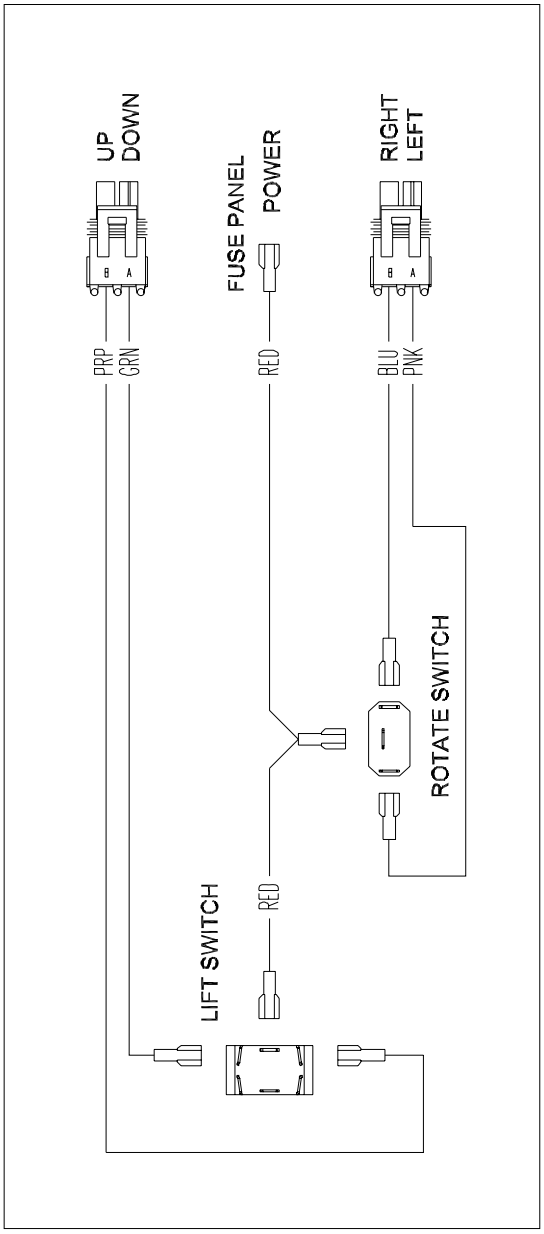
NOTE: Mount Valve Assembly below cab floor behind Lift and Rotate Valve Assembly. Drill holes at assembly.

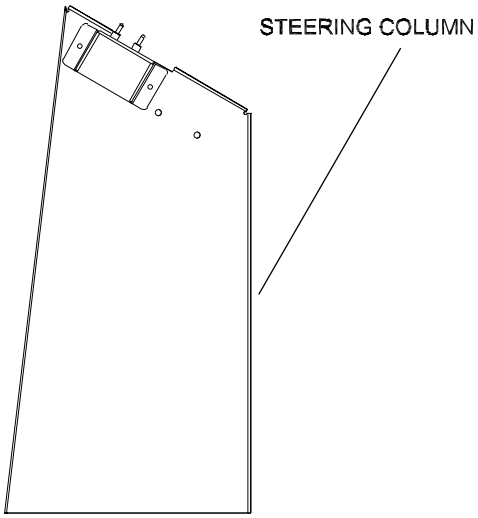
FIGURE 8. OPTIONAL STRIKE-OFF BLADE GROUP (SHEET 1 OF 2)

FIGURE 8. OPTIONAL STRIKE-OFF BLADE GROUP (PAGE 1 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
8	**28753**	**STRIKE-OFF BLADE GROUP**	**1**
1	28740	•MOUNT,W/M,SNOW PLOW	1
2	28718	•BRACKET,W/M,FRONT	1
3	28726	•CONTROL BOX,SNOW PLOW	1
4	38224-26	•CYL,HYD,SNOW PLOW (BOSS)	2
5	610110	•CYL,HYD,2.00X8.00X1.00 ROD	1
6	38224-01	•BLADE(7'6"STANDARD DUTY)	1
7	38224-32	•TRIP SPRING	3
8	38814	•MANIFOLD,HYD,2 STA,D03	1
		ATTACHING PARTS	
-801	37647-01	••COIL,SOLENOID 12V,BOSCH DO3	A/R
-802	37647-04	••SEAL KIT,VALVE,BOSCH DO3	A/R
-803	38814-01	••MANIFOLD	1
-804	37488-01	••VALVE	2
-805	35139	••CONNECTOR,SEALED,TOWER,2-PIN	2
-806	36165	••TERM,SEALED CONN,16-14 GA,FEM	4
-807	36166	••SEAL,CABLE,18-16 GA	4
-808	71060	••LOOM,SPLIT,CONVOLUTED,.250	3
-809	851201417	••TIE WRAP,.094X4.00	3
		-----*-----	
9	28492	•MOUNT,VALVE BLOCK	2
-10	38983	•HOSE KIT,RB48,STRIKE-OFF BLADE (SEE FIG 9)	1
-11	38641	•VALVE,CHECK,.375 MJ,20 PSI	1
13	28719	•FRAME,W/M,PLOW LIFT	1
14	38961	•SWITCH,TOG,DPDT,3POS,MOM,DETEN	1
15	37516	•SWITCH,TOGGLE,SPDT,3-POS,MOM	1
16	80147	•WASHER,FLAT,USS,.750	8
-17	80357	•NUT,FLEXLOC,.750-10,FULL,LT	0
-18	71680	•CSHH,.625-11X6.00,GR5	2
-19	71683	•CSHH,.625-11X4.00,GR5	2
20	28758	•PIVOT PIN,W/M	1
21	80336	•PIN,COTTER,.188X1.50	1
22	80150	•WASHER,FLAT,USS,1.125	1
23	28717	•LIFT MOUNT,W/M	1
24	28781	•PIN,1.00X2.00 W/HOLES	2
-25	71645	•CSHH,.750-10X3.50,GR5	2

- ITEM NOT ILLUSTRATED





NOTE: Mount Switch Box to side of Steering Column. Drill mounting holes at assembly.

FIGURE 8. OPTIONAL STRIKE-OFF BLADE GROUP (SHEET 2 OF 2)

FIGURE 8. OPTIONAL STRIKE-OFF BLADE GROUP (PAGE 2 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
8	**28753**	**STRIKE-OFF BLADE GROUP**	**1**
26	80144	•WASHER,FLAT,USS,.500	24
27	80164	•WASHER,LOCK,.500	12
28	80040	•NUT,HEX,.500-13	12
-29	80838	•CSHH,.750-10X4.50,GR5	1
30	36544	•PIN,COTTER,.177,7GA	5
31	80186	•CSHH,.500-13X1.75,GR5	12
32	38967	•BOLT,EYE,.625-11X1.75X1.38ID	3
-33	80356	•NUT,FLEXLOC,.625-11,FULL,LT	6
-34	80146	•WASHER,FLAT,USS,.625	9
39	38224-03	•CUTTING EDGE,7'6",SNOW PLOW	0
40	38224-05	•PLOW SHOE ASSY	2
-41	28755	•WIRE HARNESS,SNOW PLOW	1
-43	80208	•CSHH,.312-18X1.00,GR5	4
-44	80161	•WASHER,LOCK,.312	4
-45	80141	•WASHER,FLAT,USS,.313	8
-46	80037	•NUT,HEX,.312-18	4
47	28949	•CLEVIS PIN,3.50,MODIFIED	2
48	28948	•LOCK,HYD CYLINDER	1
49	80706	•WASHER,FLAT,SAE,1.000	8
-50	38959	•DECAL,CONTROL BOX,SNOW PLOW	1
-TBD	210060	•PIN,CLEVIS,1.00X2.625 W/1.5HD	2
-TBD	870307	•HAIR PIN CLIP,CLEVIS PIN	8
-90	985619	•ASSY,FRONT,AXLE,HEAVY	1
*	29043	•AXLE ASSY,FRONT (SEE FIGURE 2)	1.0000-

* Part 985619, item #90, replaces part 29043 with this option.

- ITEM NOT ILLUSTRATED

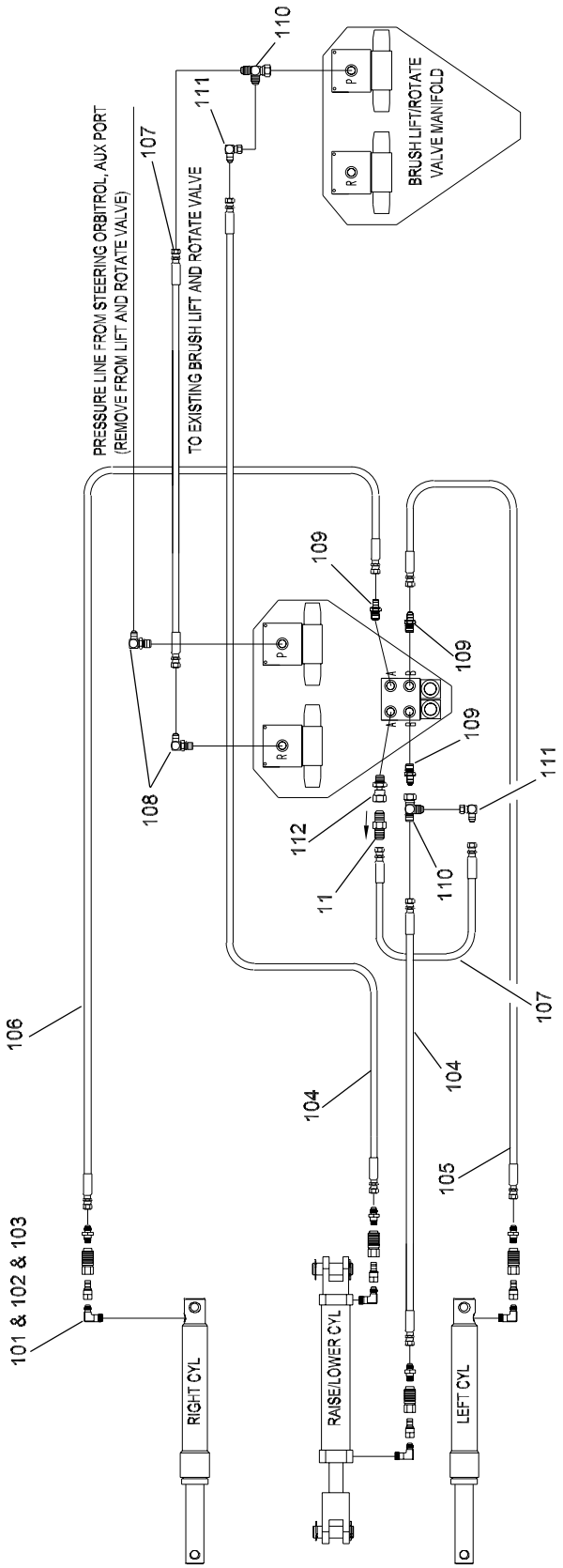
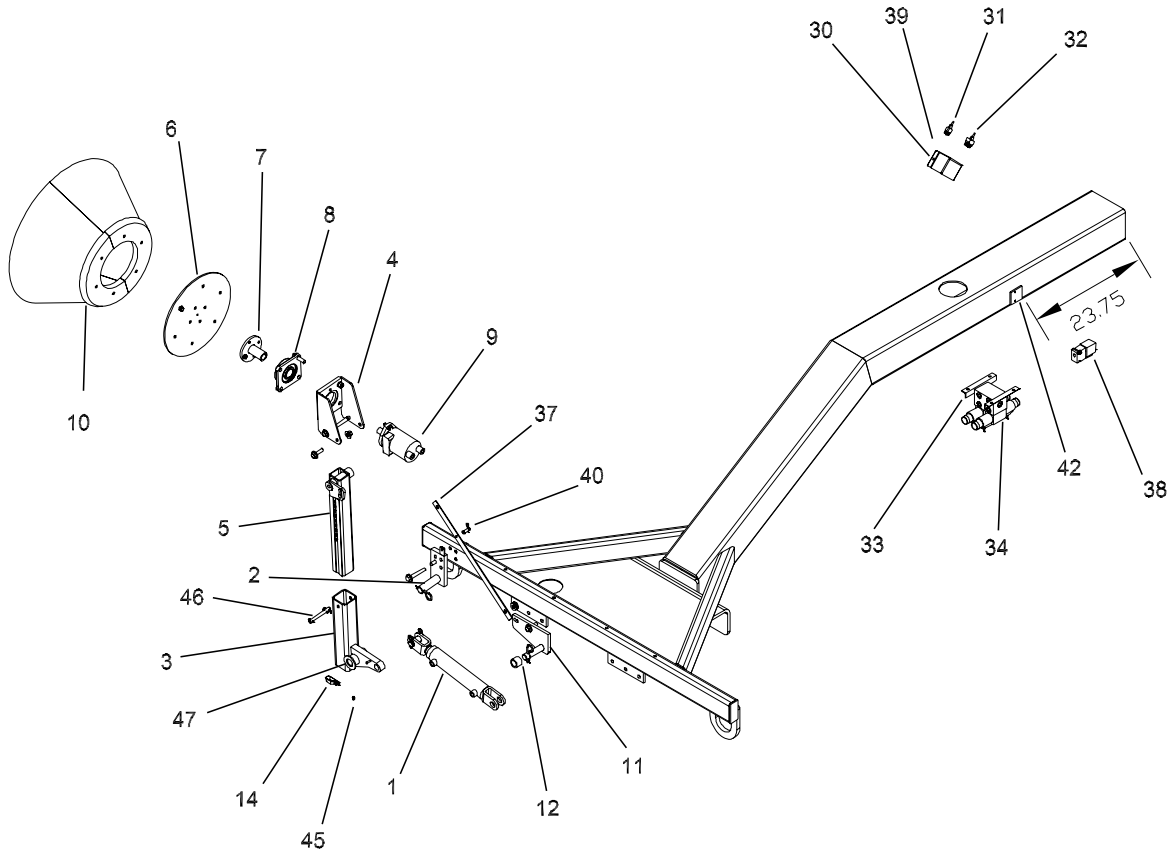


FIGURE 9. HOSE KIT, OPTIONAL STRIKE-OFF BLADE GROUP

FIGURE 9. HOSE KIT, OPTIONAL STRIKE-OFF BLADE GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
9	**38983**	**•HOSE KIT, STRIKE-OFF BLADE (SEE FIG 8 FOR NHA)**	**1**
11	38641	•VALVE,CHECK,.375 MJ,20 PSI (Part of Strike-Off Blade Group)	REF
101	35499	••FITT,STR 06MJ-06MP	4
102	953182310	••FITT,QD 06 FP,SET	4
103	853211085	••FITT,90 06MP-06MP	4
104	72550-134	••HOSE,06,06FJX-06FJX,3000	2
105	72550-152	••HOSE,06 06FJX-06FJX,3000	1
106	72550-160	••HOSE,06 06FJX-06FJX,3000	1
107	36524-06	••HOSE ASSY,3000 PSI,-06 X 29.00	2
108	33892	••FITT,90 06MJ-06MB	2
109	X217	••FITT,STR 06MJ-06MB	3
110	36490	••FITT,TEE 06MJ-06FJX-06MJ	2
111	X387	••FITT,90 06MJ-06FJX	2
112	37536	••FITT,STR 06MB-06FJX	1



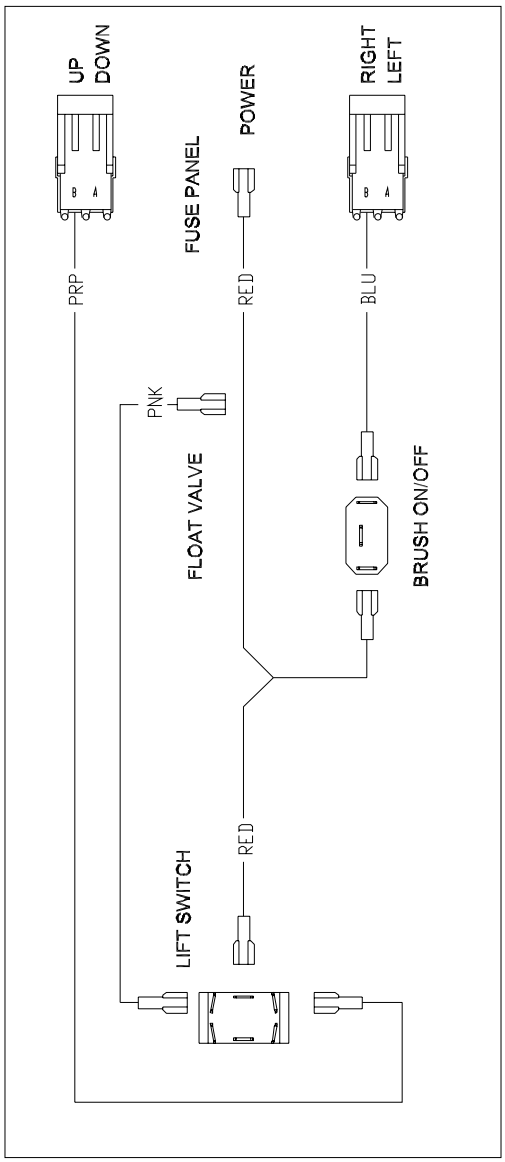
NOTE: Mount Valve Assembly below cab floor behind Lift and Rotate Valve Assembly. Drill holes at assembly.

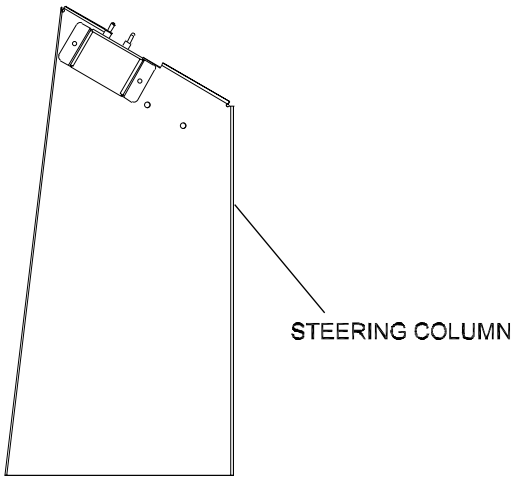
FIGURE 10. OPTIONAL CURB BRUSH GROUP (SHEET 1 OF 2)

FIGURE 10. OPTIONAL CURB BRUSH GROUP (PAGE 1 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
10	**29029**	**CURB BRUSH GROUP**	**1**
1	610110	•CYL,HYD,2.00X8.00X1.00 ROD	1
2	28941	•BUMPER MOUNT,W/M	1
3	28937	•TUBE,LENGTH ADJ. W/M	1
4	28931	•MOTOR MOUNT,W/M	1
5	28943	•ADJ. PLATE,W/M	1
6	28925	•PLATE,BRUSH MOTOR	1
7	28928	•BRUSH MOUNT,MOTOR, W/M	1
8	312030	•BEARING,FLANGE,4-BOLT,1.50	1
9	38122	•MOTOR,HYD,LSHT,8.0 DISP	1
10	39000	•BRUSH,GUTTER,PLASTIC BACK,2 PC	1
11	28946	•MOUNT,CENTER BUMPER,W/M	1
12	28932	•TUBE,RND SPACER	1
13	36544	•PIN,COTTER,.177,7GA	2
14	35786	•CLAMP,DOUBLE TUBE,.75 ID	1
15	80186	•CSHH,.500-13X1.75,GR5	3
-16	80695	•WASHER,FLAT,SAE,.500	10
-17	80164	•WASHER,LOCK,.500	12
18	80040	•NUT,HEX,.500-13	10
-19	80266	•CSHH,.500-13X3.50,GR5	3
-20	80354	•NUT,FLEXLOC,.500-13,FULL,LT	2
-21	80389	•PIN,COTTER,.125X1.00	4
-22	71652	•CSHH,.500-13X6.50,GR5	1
-23	80162	•WASHER,LOCK,.375	4
-24	80219	•CSHH,.375-16X.75,GR5	4
-25	80163	•WASHER,LOCK,.437	6
-26	80771	•CSHH,.437-14X.75,GR5	6
-27	80772	•CSHH,.437-14X1.25,GR5	2
-28	80255	•CSHH,.500-13X2.00,GR5	4
-29	80350	•NUT,FLEXLOC,.250-20,FULL,LT	1
30	28726	•CONTROL BOX,SNOW PLOW	1
31	38157	•SWITCH,TOGGLE,DPST,2 POS	1
32	38961	•SWITCH,TOG,DPDT,3POS,MOM,DETEN	1
33	28492	•MOUNT,VALVE BLOCK	2
34	38814	•MANIFOLD,HYD,2 STA,D03	1

- ITEM NOT ILLUSTRATED





NOTE: Mount Switch Box to side of Steering Column. Drill mounting holes at assembly.

FIGURE 10. OPTIONAL CURB BRUSH GROUP (SHEET 2 OF 2)

FIGURE 10. OPTIONAL CURB BRUSH GROUP (PAGE 2 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
10	**29029**	**CURB BRUSH GROUP**	**1**
-35	39062	•HOSE KIT,RB48,CURB BRUSH (SEE FIG 11)	1
-36	29124	•WIRE HARNESS,CURB BRUSH	1
37	29121	•LOCK,BAR,RAISED	1
38	38937	•VALVE,SOLENOID,HYD,2-WAY	1
39	39141-23	•DECAL,BROOM,GUTTER BRUSH OPER (Part of Decal Kit)	REF
40	81214	•PIN,CLEVIS,.375X1.25,1.015GRIP	1
-41	37108	•PIN,COTTER,.094,.250,.500	2
42	28804	•PLATE,FLOAT MOUNT	1
-43	80194	•CSHH,.250-20X1.50,GR5	2
-44	80140	•WASHER,FLAT,USS,.250	2
45	33684	•FITT,LUBE,STR,02MP,SHORT	1
46	29130	•PIN,ADJ/LOCKING	1
47	80151	•WASHER,FLAT,USS,1.250	1
-80	984235	•MOUNT, FLOW DIVIDER	1
-85	500080	•VALVE,RELIEF,2000 PSI	1
-90	982958	•PUMP,HYD,GEAR,TANDEM	1
-95	982959	•FLOW DIVIDER,FIXED,W/PSI RELIEF	1

- ITEM NOT ILLUSTRATED

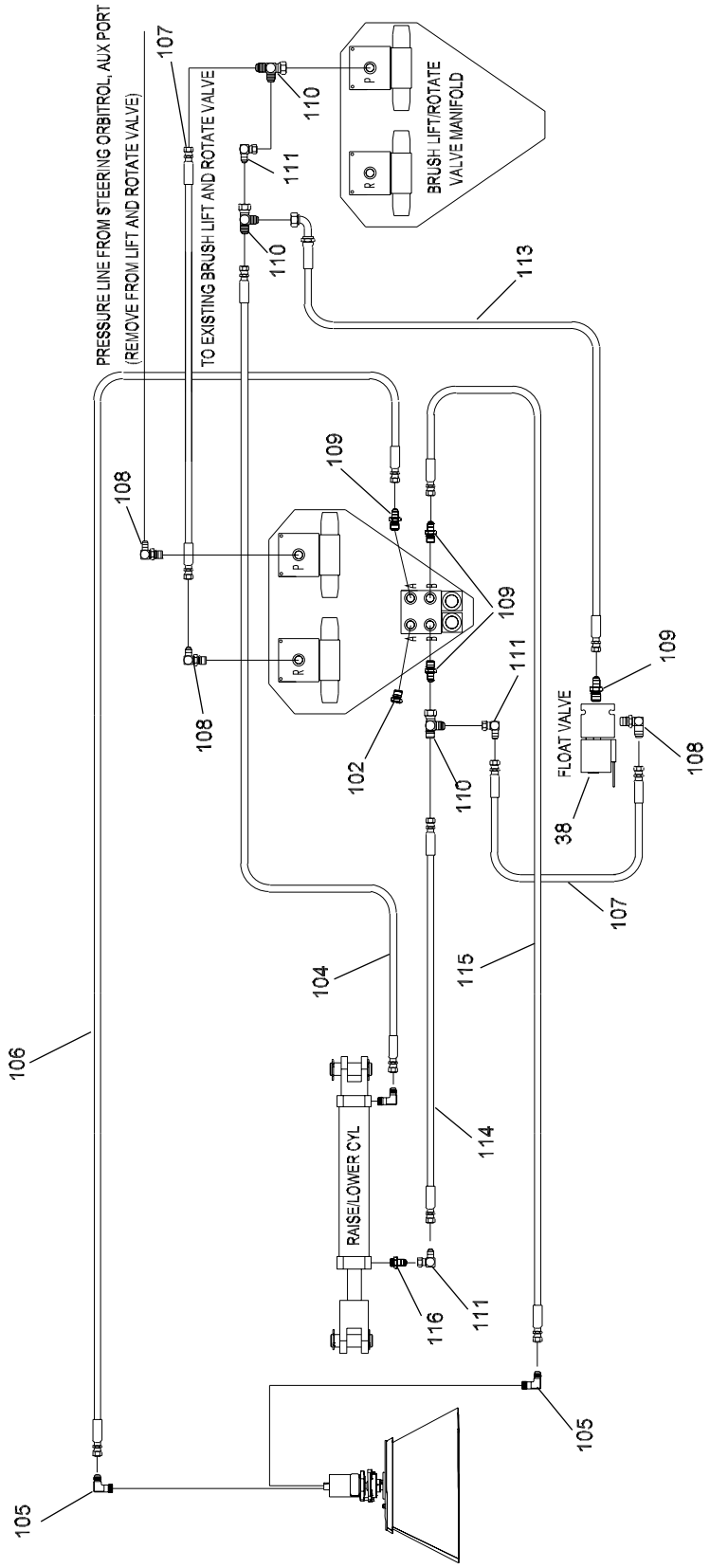
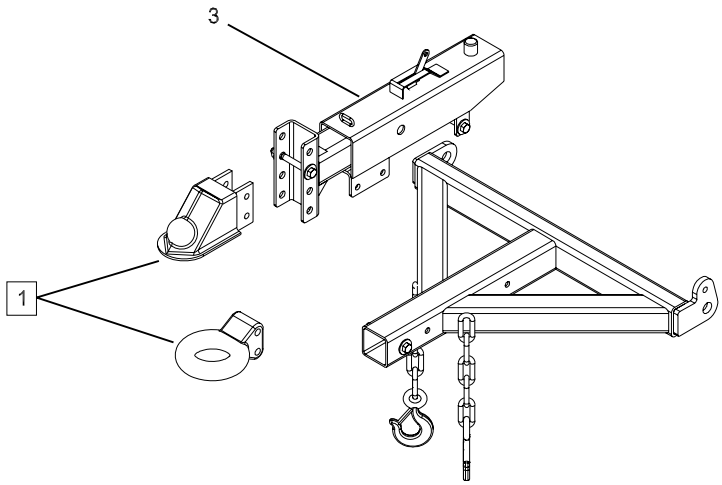


FIGURE 11. HOSE KIT, OPTIONAL CURB BRUSH

FIGURE 11. HOSE KIT, OPTIONAL CURB BRUSH

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
11	**39062**	**•HOSE KIT, CURB BRUSH (SEE FIG 10 FOR NHA)**	**1**
38	38937	•VALVE,SOLENOID,HYD,2-WAY (Part of Curb Brush Group)	REF
-101	35499	••FITT,STR 06MJ-06MP	4
102	6408	••FITT,PLUG 06MB,HEX	1
-103	X383	••FITT,90 06MJ-06MP	1
104	72550-134	••HOSE,06,06FJX-06FJX,3000	1
105	34535	••FITT,90 06MJ-08MB	2
106	72550-185	••HOSE,06,06FJX-06FJX,3000	1
107	36524-06	••HOSE ASSY,3000 PSI,-06 X 29.00	2
108	33892	••FITT,90 06MJ-06MB	3
109	X217	••FITT,STR 06MJ-06MB	4
110	36490	••FITT,TEE 06MJ-06FJX-06MJ	3
111	X387	••FITT,90 06MJ-06FJX	3
-112	37536	••FITT,STR 06MB-06FJX	1
113	72549-011	••HOSE,06,06FJX-06RJ90,3000	1
114	72550-146	••HOSE,06,06FJX-06FJX,3000	1
115	72550-186	••HOSE,06,06FJX-06FJX,3000	1
116	37297	••FITT,STR 06MJ-06MP,.078 ORF	1

- ITEM NOT ILLUSTRATED



NOTE: Part #39052, Coupler, Lever Lock
or Part #35481-01, Lunette

FIGURE 12. OPTIONAL BRAKE ACTUATOR

FIGURE 12. OPTIONAL TOW PACKAGE WITH BLADE

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
12	**985878**	**TOW PACKAGE WITH BLADE**	**1**
-1	983269	•ASSY,TOWBAR,W/,FRONT,BLADE (SEE FIG 13)	1
-2	29131	•BRACKET,LOCKING	4
3	39051	•BRAKE ACTUATOR,7500 LBS	1
-5	29129	•RND,1.000X2.50,W/HOLES	2
-6	72836	•PIN,.50X3.00,W/HAIRPIN COTTER	1
-7	36544	•PIN,COTTER,.177,7GA	4
-13	29192	•BRAKE LINE BRACKET	1
-16	29122	•KIT,BRAKES/STEERING,TOW GRP (SEE FIG 14)	1
*	35338	•GEARBOX B PAD 15T 4.533 RATIO (SEE FIGURE 3)	1.0000-
-18	39021	•GEARBOX B PAD,4.53 R,DISCONECT	1
-19	29127	•HARNESS,WIRE,LIGHTS,TOW (SEE FIG 15)	1
-20	986599	•DISCONNECT,STEERING,RETRO,RB48	1
		ATTACHING PARTS	
-201	34536	••FITT,90 06MJ-08MP	2
-202	986602	••PLATE,STEER'G,DISCONNECT,RETRO	1
-203	910080	••VALVE,SELECTOR	1
-204	99537	••PIPE,PLUG,08MP,SQ HEAD	1
-205	984588	••HOSE,HYD,-06,3000 PSI	4
		-----*-----	
-TBD	35848-01	•LUNETTE,3 ADJ	A/R
-TBD	39052	•COUPLER,LEVER LOCK,2.31	A/R

* Part 39021, item #18, replaces part 35338 with this option.

\- ITEM NOT ILLUSTRATED

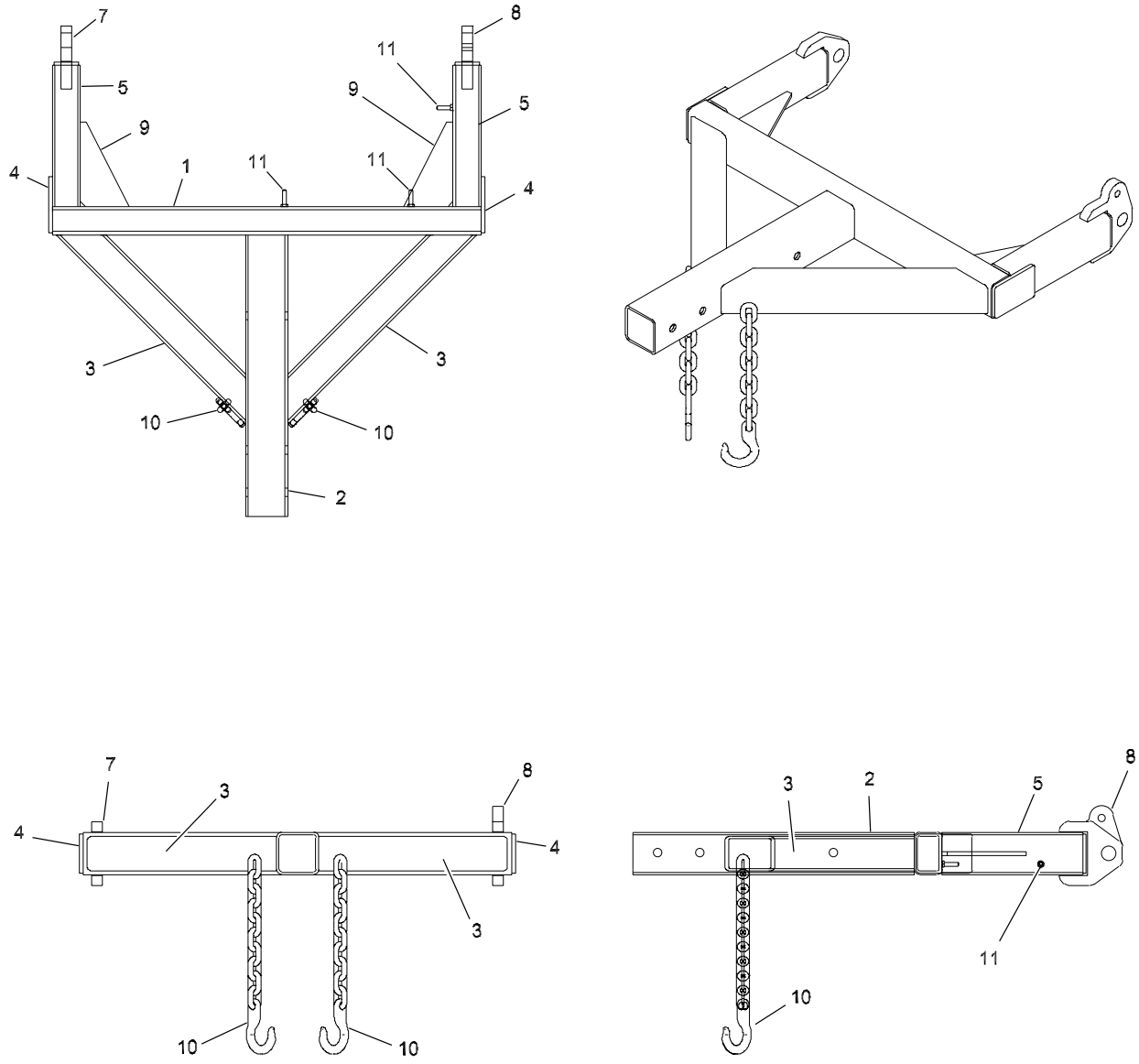


FIGURE 13. OPTIONAL TOWBAR ASSEMBLY

FIGURE 13. OPTIONAL TOWBAR ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
13	**983269**	**•TOWBAR ASSEMBLY (SEE FIGURE 12 FOR NHA)**	**1**
1	29050	••TUBE,RECT,3.00X2.00X.25X30.50	1
2	29024	••TUBE,SQ,3.00X.188X20.00	1
3	29028	••TUBE,RECT,2.50 SUPPORT BAR	2
4	983264	••BRACE,TOWBAR,END,CAP	2
5	983265	••TUBE,TOWBAR,EXTENSION,LEG	2
6	983266	••CAP,TOWBAR,EXTENSION,LEG	2
7	983267	••LUG,TOWBAR,MOUNTING	1
8	983268	••LUG,TOWBAR,MOUNTING,W/,LOCK	1
9	27924	••GUSSET,.25X3.50X6.00	2
10	32174	••CHAIN,SAFETY,PER DWG	2
11	TBD	••BOLT,1/4 X 20 X 1	3

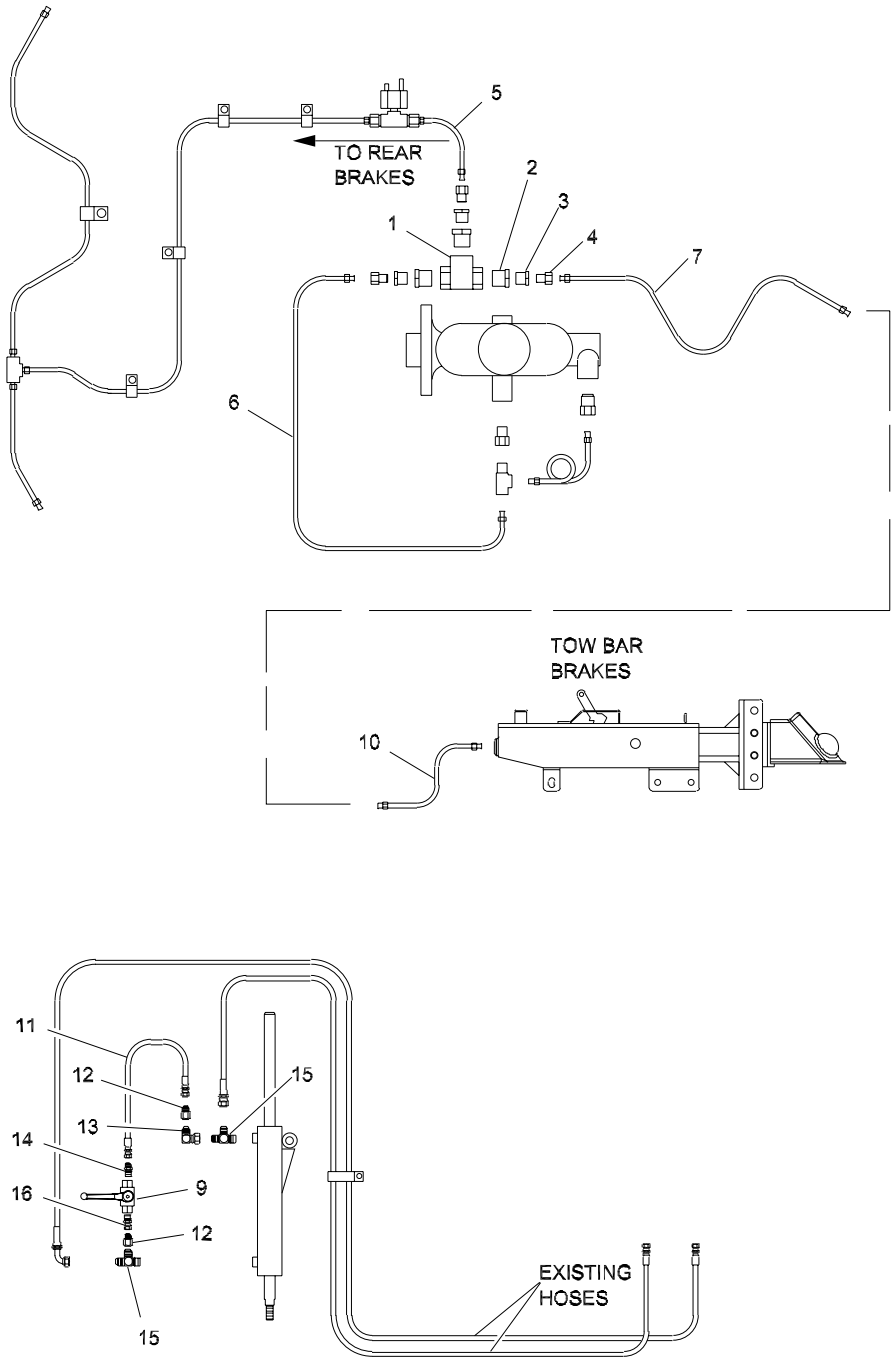
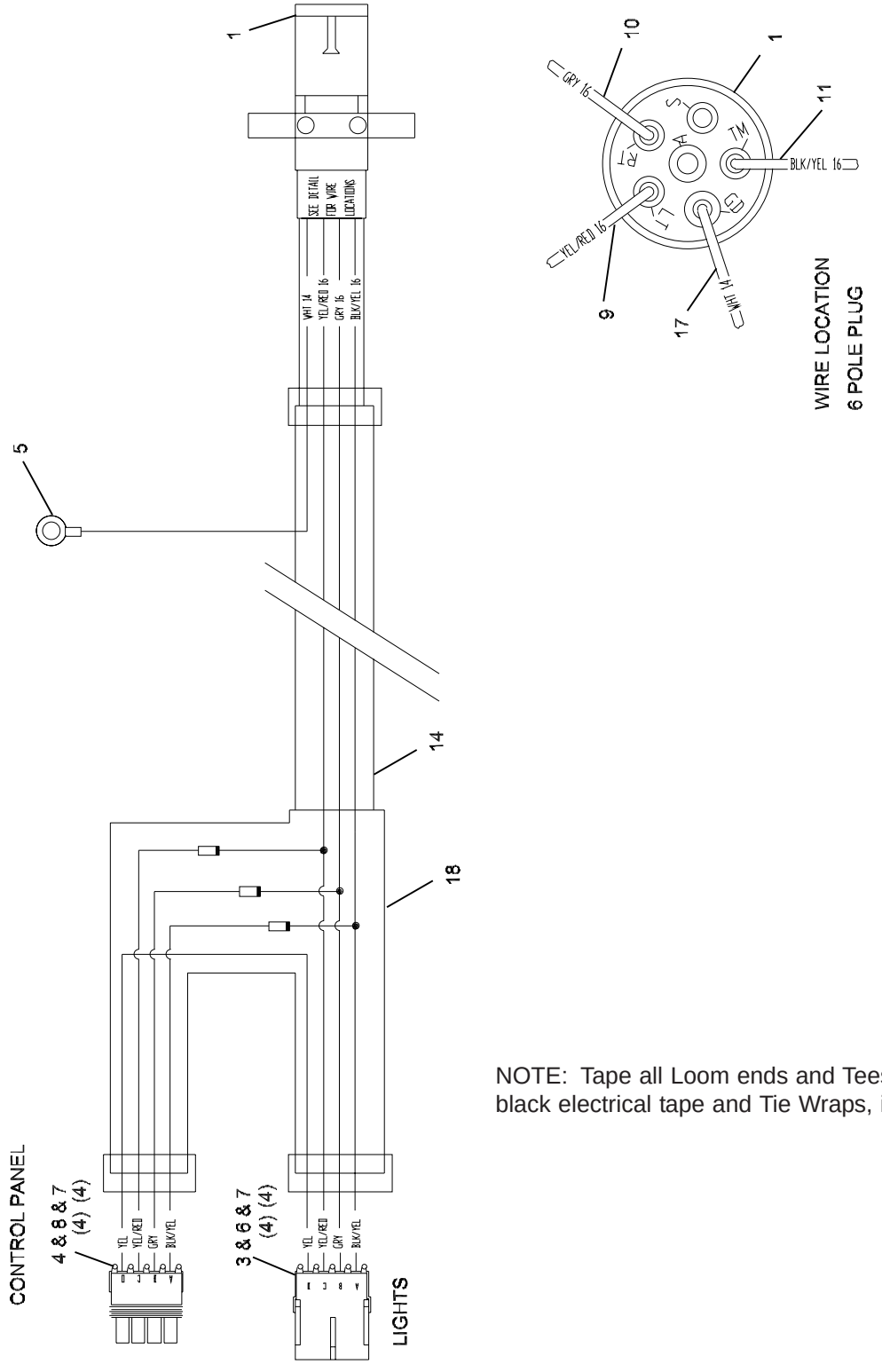


FIGURE 14. KIT, BRAKES/STEERING, OPTIONAL TOW GROUP

FIGURE 14. KIT, BRAKES/STEERING, OPTIONAL TOW GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
14	**29122**	**•KIT, BRAKES/STEERING (SEE FIG 12 FOR NHA)**	**1**
1	72811	••VLV,SHUTTLE,06 O-RING PORTS	1
2	39066	••FITT,STR 06MB-04FP	3
3	32638	••PIPE,BUSH,04MP-02FP,STL	3
4	39059	••FITT,STR 02MP-03IFF,BRASS	3
5	33953-10	••BRAKE LINE,.188X10	1
6	33953-15	••BRAKE LINE,.188X15	1
7	33953-90	••BRAKE LINE,.188X90	1
9	39063	••VLV,BALL,06 ORB,3000 PSI	1
10	32953	••BRAKE HOSE ASSY	1
11	72550-024	••HOSE,06,06FJX-06FJX,3000	1
12	37631	••FITT,STR 06MJ-08FJ	2
13	33900	••FITT,90 08MJ-08FJX	1
14	X217	••FITT,STR 06MJ-06MB	1
15	36098	••FITT,TEE 08MJ-08MB-08MJ	2
16	37536	••FITT,STR 06MB-06FJX	1



NOTE: Tape all Loom ends and Tees with black electrical tape and Tie Wraps, item #16.

FIGURE 15. WIRE HARNESS, LIGHTS, OPTIONAL TOW PACKAGE

FIGURE 15. WIRE HARNESS, LIGHTS, OPTIONAL TOW PACKAGE

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
15	**29127**	**•WIRE HARNESS, LIGHTS, TOW PKG (SEE FIG 12 FOR NHA)**	**1**
1	32996	••PLUG,ELEC,6 POLE,MALE	1
2	35044	••DIODE,3 AMP,PLASTIC	3
3	36351	••CONNECTOR,SEALED,SHROUD,4-PIN	1
4	36352	••CONNECTOR,SEALED,TOWER,4-PIN	1
5	33607	••TERM,RING,16-14 GA,.250 STUD	1
6	36164	••TERM,SEALED CONN,16-14 GA,MALE	4
7	36166	••SEAL,CABLE,18-16 GA	8
8	36165	••TERM,SEALED CONN,16-14 GA,FEM	4
9	33271-14	••WIRE,16 GA,YELLOW/RED STRIPE	8
10	33271-0	••WIRE,16 GA,GRAY	24.5
11	33271-13	••WIRE,16 GA,BLACK/YELLOW STRIPE	24.5
-12	33271-2	••WIRE,16 GA,YELLOW	24.5
14	71060	••LOOM,SPLIT,CONVOLUTED,.250	24
-15	35504	••TUBING,HEAT SHRINK,.250	0.2
-16	33596	••TIE WRAP,.188X7.5	10
17	71862	••WIRE,14 GA,WHITE	8
18	71864	••LOOM,SPLIT,CONVOLUTED,.375	1.5

- ITEM NOT ILLUSTRATED

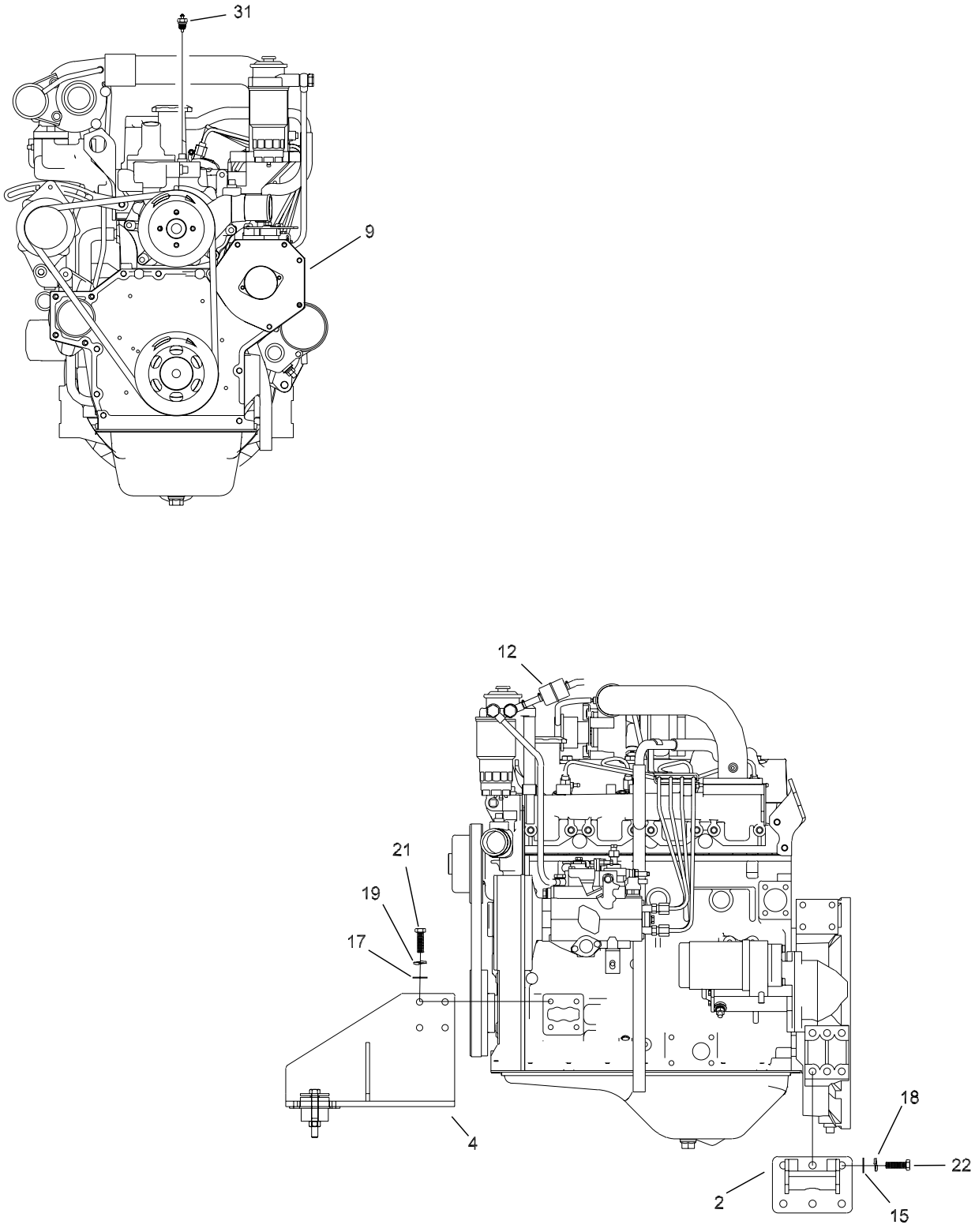


FIGURE 16. ENGINE SUBASSEMBLY, CUMMINS (SHEET 1 OF 2)

FIGURE 16. ENGINE SUBASSEMBLY, CUMMINS (PAGE 1 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
16	**29187**	**ENGINE SUBASSEMBLY, CUMMINS**	**1**
2	27912	•MOUNT,ENGINE,FLYWHEEL,CUMB3.3	2
4	29204	•MOUNT,WLDMT,ENGINE,RH R,CUMMIN	1
9	38734	•ENGINE,CUMMINS,4B3.3T	1
12	33291	•FILTER,FUEL,INLINE	1
15	81155	•WASHER,FLAT,SAE,.375,HARDENED	10
17	81141	•WASHER,FLAT,SAE,.500,HARDENED	8
18	80478	•WASHER,LOCK,M10	8
19	80484	•WASHER,LOCK,M12	8
21	80516	•CSHH,M10-1.50X30MM,CL8.8	8
22	81009	•CSHH,M12-1.75X30MM,CL8.8	8
31	39081	•SENDER,PRESS,OIL,1-150 PSI,HD	1

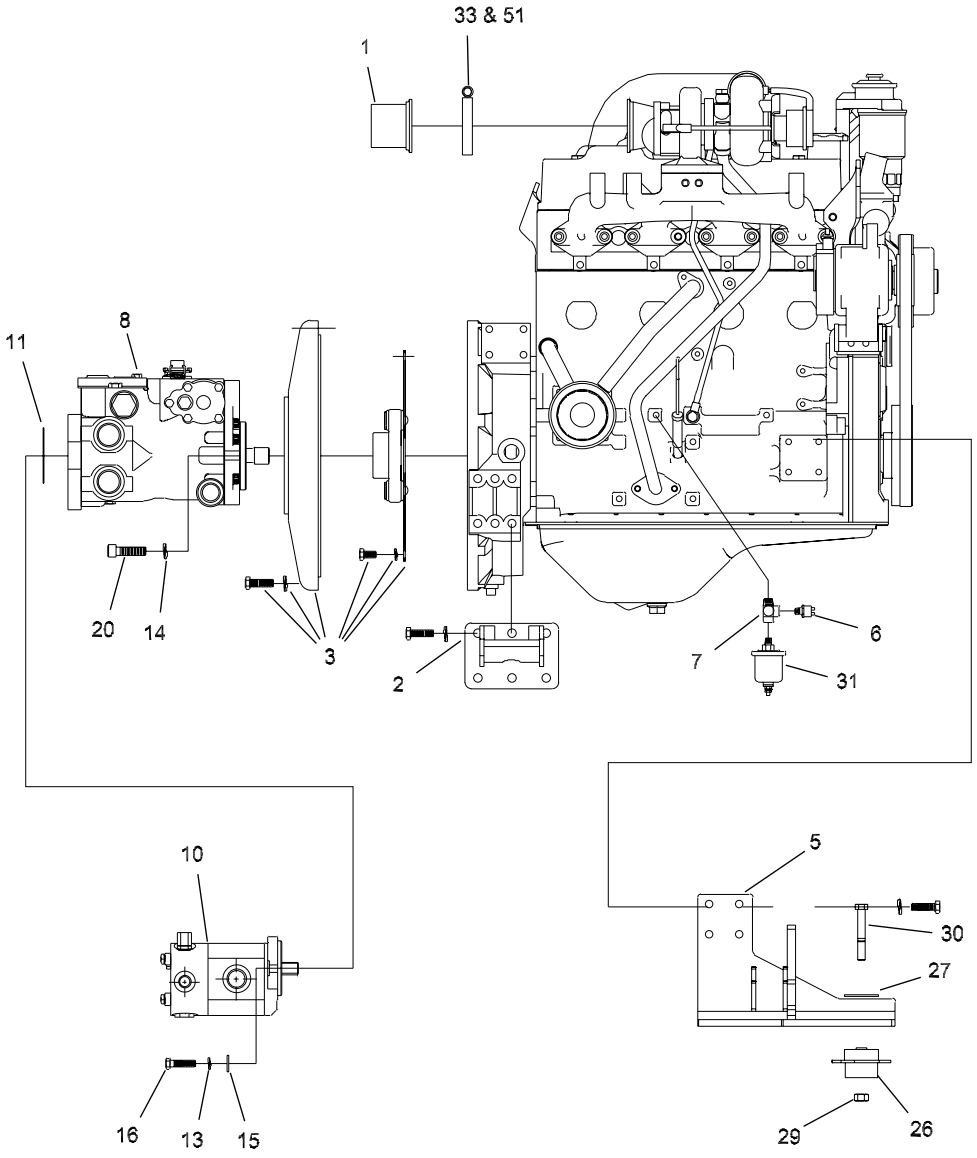


FIGURE 16. ENGINE SUBASSEMBLY, CUMMINS (SHEET 2 OF 2)

FIGURE 16. ENGINE SUBASSEMBLY, CUMMINS (PAGE 2 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
16	**29187**	**ENGINE SUBASSEMBLY, CUMMINS**	**1**
1	28256	•MOUNT,SOLENOID/THROTTLE,3.3	1
2	27912	•MOUNT,ENGINE,FLYWHEEL,CUMB3.3	2
3	38732	•DRIVE PLATE ASSY,SAE#4,B MT	1
5	29207	•MOUNT,WLDMT,ENGINE,LH REAR	1
6	39083	•SWITCH,PRESS,2-6 PSI,N/O,02MP	1
7	36066	•FITT,TEE 02MP-02FP-02FP,STL	1
8	37833	•PUMP,HYD,PISTON,2.8 CIR	1
10	36642	•PUMP,HYD,GEAR,1.8 CIR	1
11	36808	•ORING,3.237 ID X .103,SAE 152	1
13	80162	•WASHER,LOCK,.375	2
14	80164	•WASHER,LOCK,.500	2
15	81155	•WASHER,FLAT,SAE,.375,HARDENED	10
16	80224	•CSHH,.375-16X1.25,GR5	2
20	80503	•CSSH,.500-13X1.75	2
26	39082	•MOUNT,ISOLATION,425#	4
27	38827-01	•WASHER,SNUBBING,2.00ODX.450OD	4
29	80353	•NUT,FLEXLOC,.438-14,FULL,LT	4
30	80776	•CSHH,.437-14X3.00,GR5	4
31	39081	•SENDER,PRESS,OIL,1-150 PSI,HD	1
33	986179	•HARNESS,RB48/SWPRO,MAIN (Schematic at end of IPL)	1
51	986305	•HARNESS,ENG,CUMMINS 3.3 (Schematic at end of IPL)	1

FIGURE 16. ENGINE SUBASSEMBLY, CUMMINS (PAGE 3 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
16	**29187**	**ENGINE SUBASSEMBLY, CUMMINS**	**1**
-23	81007	•NUT,HEX,M05-80	1
-24	81008	•NUT,HEX,M10-1.50	1
-25	81043	•WASHER,LOCK,M05	1
-28	80163	•WASHER,LOCK,.437	4
-32	35367	•SENDER,TEMP GAUGE,08 MP	1
-34	91505	•PIPE,COUPLING,.500,GALV	1
-35	99834	•PIPE,NIPPLE,.500XCLOSE,GALV	2
-36	26166	•THROTTLE CABLE ASSY,RB48	1
-37	33146-6	•BATTERY,12V,1000 CRK AMPS	1
-38	400020	•CABLE,BATTERY,NEG,16",EYE/POST	1
-39	800072	•CABLE,BATTERY,POS,16",EYE/POST	1
-40	5804	•CABLE,BATTERY,NEG,13",EYE/EYE	1
-41	70437	•BATTERY BOOT,POS(RED)	1
-43	38954	•RELAY,STARTER	1
-44	80453	•NUT,HEX,M06-1.00	1
-45	28701	•WIRE,JUMPER,GROUND	1
-46	38955	•HOSE,RADIATOR,LOWER,3.3 ENG	1
-47	38798	•HOSE,RADIATOR,UPPER,1.25 ID	1
-48	38785	•FAN,CUMMINS 3.3,20.00 OD X 30°	1
-100	33365	•FITT,90 04MP-06HB,CRIMPED	2
-105	36045	•CLAMP,T-BOLT,2.50 NOMINAL	2
-110	38734-05	•FAN SPACER, 3.3 ENGINE	1
-115	38821	•ELBOW,RUBBER,90,2.50 ID	1
-120	72062	•DECAL,DIESEL POWER,CUMMINS	2
-125	90607-03	•TUBE,RND,2.50X16GAX12.50LG	1
-130	99838	•TUBE,RND,2.375X.281,SMLS	2
-135	X342	•HOSE,08X8.50,08FJX(2),250	1
-140	91502	•RND,.375,SS 203EZ	2
-145	33164	•CLAMP,HOSE,# 10	1
-150	33167	•CLAMP,HOSE,# 20	4

- ITEM NOT ILLUSTRATED

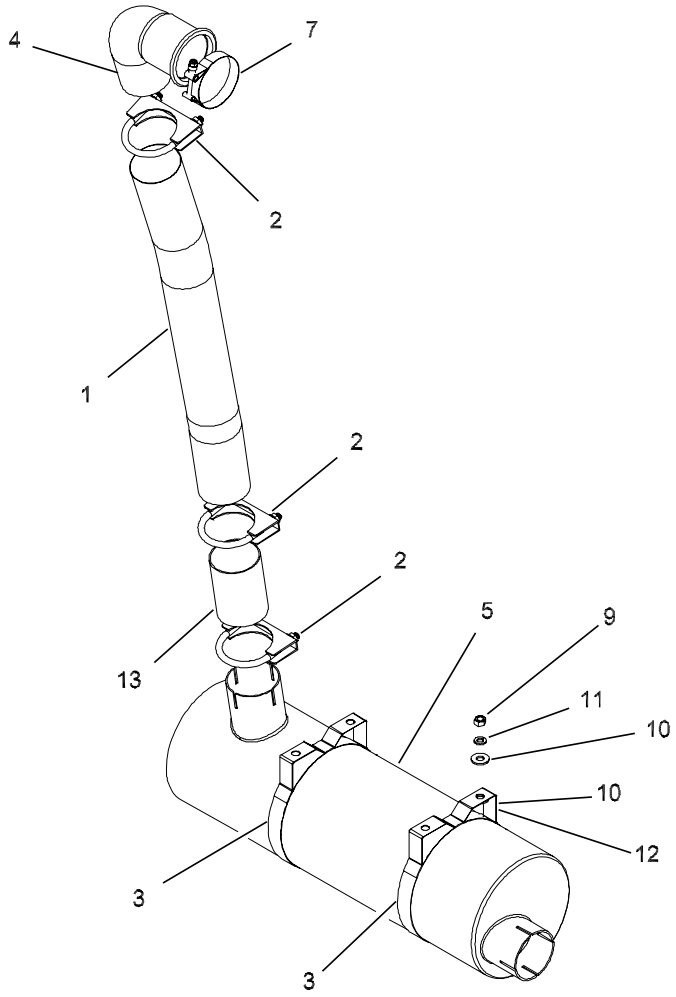


FIGURE 17. EXHAUST ASSEMBLY, CUMMINS

FIGURE 17. EXHAUST ASSEMBLY, CUMMINS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
17	**27984**	**EXHAUST ASSEMBLY, CUMMINS**	**1**
1	982979	•TUBE,FLEX,EXHAUST,2.5IDX27.50	1
2	161250	•CLAMP,MUFFLER 3"	3
3	34033	•MOUNTING BAND,6.50 ID	2
4	28178	•EXHAUST,CUM 3.3 ELBOW W/M	1
5	34074	•MUFFLER,EXH 6.50 OD,2.5 IN/OUT	1
7	38737	•CLAMP,V BAND,2.75	1
9	80037	•NUT,HEX,.312-18	4
10	80141	•WASHER,FLAT,USS,.313	8
11	80161	•WASHER,LOCK,.312	4
12	80208	•CSHH,.312-18X1.00,GR5	4
13	15481	•PIPE,EXH,CUMMINS	1

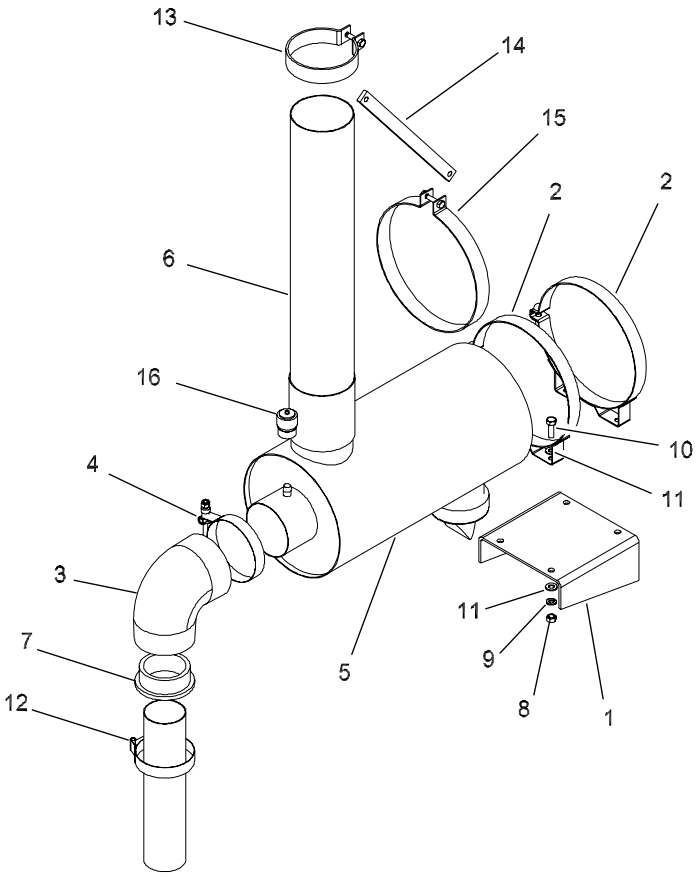


FIGURE 18. AIR INTAKE GROUP, CUMMINS

FIGURE 18. AIR INTAKE GROUP, CUMMINS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
18	**27976**	**AIR INTAKE GROUP, CUMMINS**	**1**
1	28298	•MOUNT,AIR CLEANER (Part of Engine Cover Assembly)	REF
2	171100	•CLAMP,AIR CLEANER MOUNT,8"ID	2
3	171170	•ELBOW,RUBBER,90,3.50X3.00 ID	1
4	171090	•CLAMP,T-BOLT,3.00 NOMINAL	1
5	171130	•AIR CLEANER ASSY,685 #140 UP	1
6	28141	•TUBE,AIR INTAKE,MODIFIED	1
7	38830	•ADPTR,RUBBER,INSERT,3.00X2.50	1
8	80037	•NUT,HEX,.312-18	4
9	80161	•WASHER,LOCK,.312	4
10	80208	•CSHH,.312-18X1.00,GR5	4
11	80963	•WASHER,FLAT,SAE,.312	8
12	171190	•CLAMP,T-BOLT,3.50 NOMINAL	1
13	28381	•CLAMP,HOSE,4.00 ID	1
14	28818	•BAR,SUPPORT	1
15	28819	•CLAMP,HOSE,8.00 ID	1
16	171220	•INDICATOR,AIR FILTER SERVICE	1
-17	80185	•CSHH,.250-20X1.00,GR5	2
-18	80350	•NUT,FLEXLOC,.250-20,FULL,LT	2
-19	37587	•PRE-CLEANER,4.00ID	1
-20	37587-2	•INSERT,RUBBER,4.00 TO 3.75	1

- ITEM NOT ILLUSTRATED

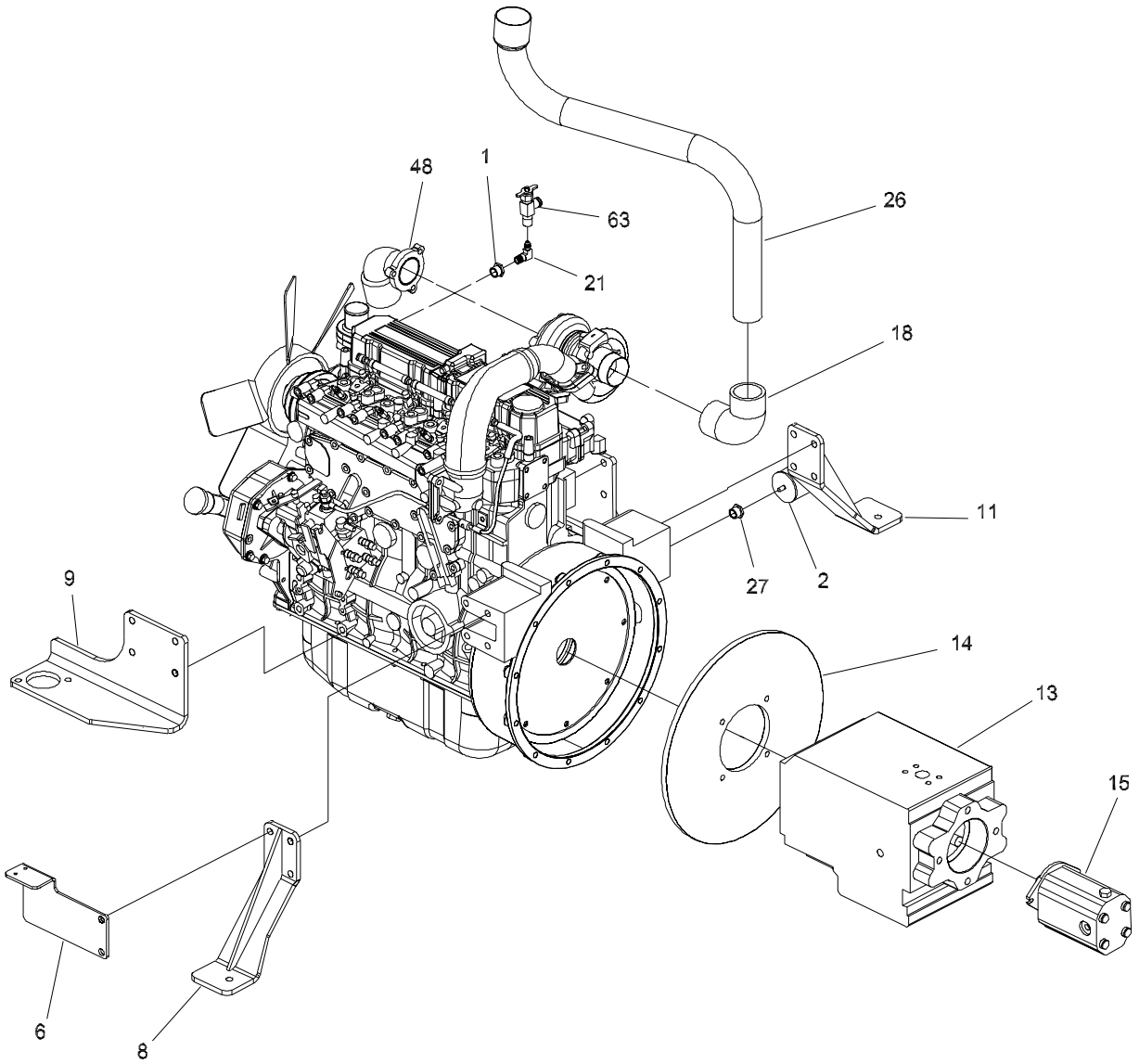


FIGURE 19. ENGINE SUBASSEMBLY, CATERPILLAR (SHEET 1 OF 2)

FIGURE 19. ENGINE SUBASSEMBLY, CATERPILLAR (PAGE 1 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
19	**986131**	**ENGINE SUBASSEMBLY, CATERPILLAR**	**1**
1	33356	•PIPE,BUSH,08MP-06FP,BRASS	1
2	39081	•SENDER,PRESS,OIL,1-150 PSI,HD	1
-3	36066	•FITT,TEE 02MP-02FP-02FP,STL	1
-5	984909	•ENGINE,CAT,3044T,80 HP	1
6	983185	•BRKT,THROTTLE,CABLE,CAT/PER3.3	1
-7	39146-14	•SWITCH,IGNITION,PERKINS 3.3	1
8	983386	•ASSY, LH FLYWHEEL END MOUNT	1
9	983189	•MOUNT, PERKINS RH FAN END	1
-10	983225	•MOUNT,W/M,COND PUMP PERKINS3.3	1
11	983385	•ASSY, RH FLYWHEEL END MOUNT	1
-12	5804	•CABLE,BATTERY,NEG,13",EYE/EYE	1
13	36642	•PUMP,HYD,GEAR,1.8 CIR	1
14	983192	•DRIVE PLATE ASSY,SAE#4,B MT	1
15	37833	•PUMP,HYD,PISTON,2.8 CIR	1
-16	34799	•CLAMP,INSULATED BAND,1-5/8"	2
-17	35045	•FITT,45 04MP-04HB,CRIMPED	2
18	38387	•ADPTR,RUBBER 90,2.00ID	1
-19	38954	•RELAY,STARTER	1
-20	39146-05	•FILTER ASSY,FUEL,PERKINS 3.3	1
21	71796	•FITT,90 02MP-04HB,CRIMPED,BRAS	1
-22	852510	•CABLE,BATTERY,POS,44",EYE/POST	1
-24	983281	•HOSE,RADIATOR,UPPER	1
-25	983285	•SHROUD, FLAT REDUCING FAN	1
26	983286	•TUBE,AIR INTAKE,PERKINS (Part of Air Intake Assembly)	REF
27	984493	•CPLG,02BSPP X 02FP	1
-28	985757	•HARNESS,ENGINE,CAT 3.3 (Schematic at end of IPL)	1
-29	986179	•HARNESS,RB48/SWPRO,MAIN (Schematic at end of IPL)	1
-30	986461	•ADAPTER,HOSE,1.5 X 1.25	1
-31	986462	•HOSE,FLEX,1.5X1.75X15	1
-32	986687	•KIT,FUEL LIFT PUMP,CAT	1
-47	400020	•CABLE,BATTERY,NEG,16",EYE/POST	1
48	39146-01	•WELDMENT,EXHAUST,PERKINS 3.3	1
-4801	983255	••ADAPTER,TURBO,PERKINS 3.3	1
-4802	983256	••ELBOW,EXHAUST,90,2.00 ODX 2.50 OD	1
63	35546	•VALVE,HEATER SHUT OFF	1

- ITEM NOT ILLUSTRATED

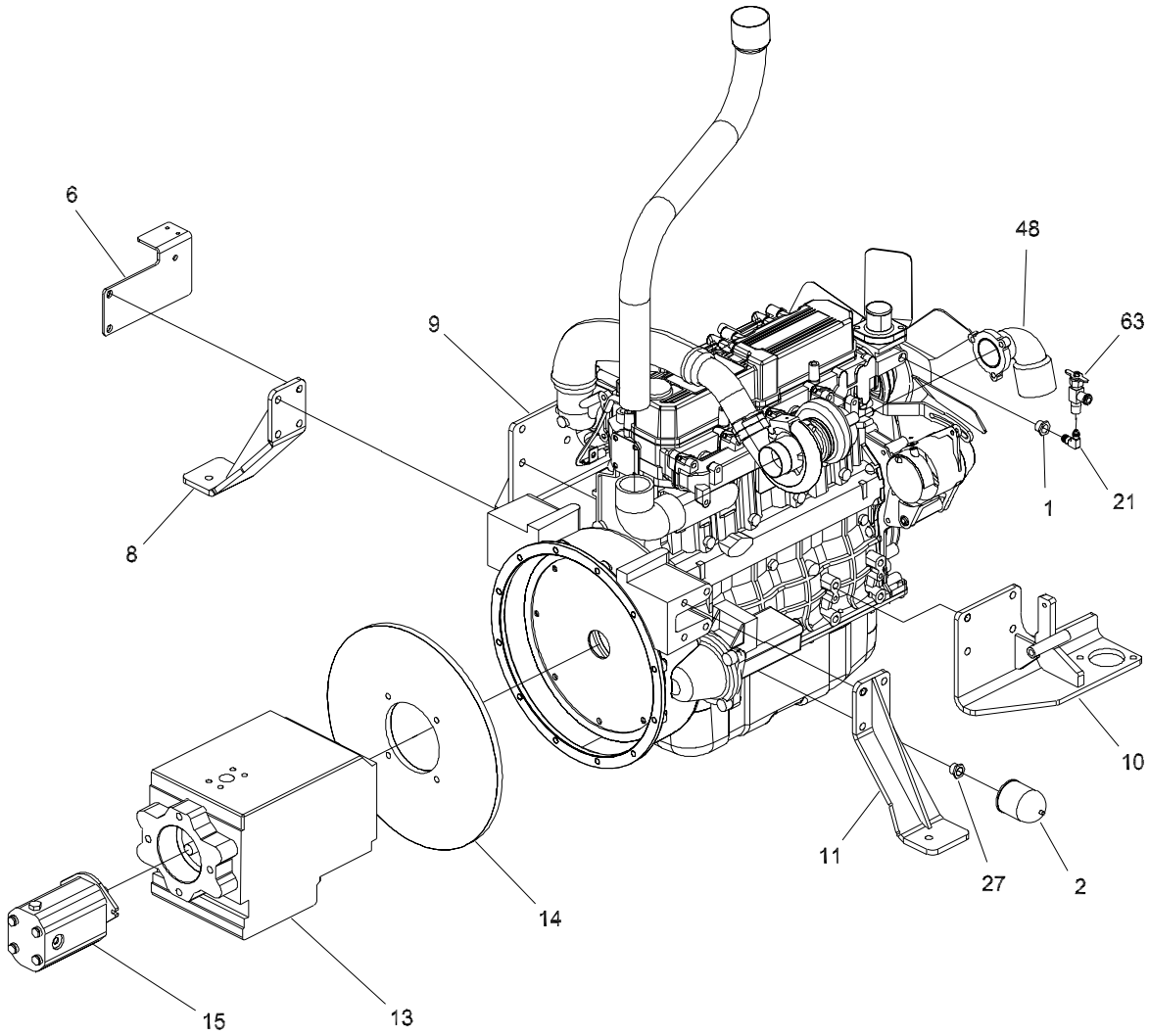


FIGURE 19. ENGINE SUBASSEMBLY, CATERPILLAR (SHEET 2 OF 2)

FIGURE 19. ENGINE SUBASSEMBLY, CATERPILLAR (PAGE 2 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
19	**986131**	**ENGINE SUBASSEMBLY, CATERPILLAR**	**1**
1	33356	•PIPE,BUSH,08MP-06FP,BRASS	1
2	39081	•SENDER,PRESS,OIL,1-150 PSI,HD	1
-3	36066	•FITT,TEE 02MP-02FP-02FP,STL	1
-5	984909	•ENGINE,CAT,3044T,80 HP	1
6	983185	•BRKT,THROTTLE,CABLE,CAT/PER3.3	1
-7	39146-14	•SWITCH,IGNITION,PERKINS 3.3	1
8	983386	•ASSY, LH FLYWHEEL END MOUNT	1
9	983189	•MOUNT, PERKINS RH FAN END	1
10	983225	•MOUNT,W/M,COND PUMP PERKINS3.3	1
11	983385	•ASSY, RH FLYWHEEL END MOUNT	1
-12	5804	•CABLE,BATTERY,NEG,13",EYE/EYE	1
13	36642	•PUMP,HYD,GEAR,1.8 CIR	1
14	983192	•DRIVE PLATE ASSY,SAE#4,B MT	1
15	37833	•PUMP,HYD,PISTON,2.8 CIR	1
-16	34799	•CLAMP,INSULATED BAND,1-5/8"	2
-17	35045	•FITT,45 04MP-04HB,CRIMPED	2
-18	38387	•ADPTR,RUBBER 90,2.00ID	1
-19	38954	•RELAY,STARTER	1
-20	39146-05	•FILTER ASSY,FUEL,PERKINS 3.3	1
21	71796	•FITT,90 02MP-04HB,CRIMPED,BRAS	1
-22	852510	•CABLE,BATTERY,POS,44",EYE/POST	1
-24	983281	•HOSE,RADIATOR,UPPER	1
-25	983285	•SHROUD, FLAT REDUCING FAN	1
-26	983286	•TUBE,AIR INTAKE,PERKINS (Part of Air Intake Assembly)	REF
27	984493	•CPLG,02BSPP X 02FP	1
-28	985757	•HARNESS,ENGINE,CAT 3.3 (Schematic at end of IPL)	1
-29	986179	•HARNESS,RB48/SWPRO,MAIN (Schematic at end of IPL)	1
-30	986461	•ADAPTER,HOSE,1.5 X 1.25	1
-31	986462	•HOSE,FLEX,1.5X1.75X15	1
-32	986687	•KIT,FUEL LIFT PUMP,CAT	1
-47	400020	•CABLE,BATTERY,NEG,16",EYE/POST	1
48	39146-01	•WELDMENT,EXHAUST,PERKINS 3.3	1
-4801	983255	••ADAPTER,TURBO,PERKINS 3.3	1
-4802	983256	••ELBOW,EXHAUST,90,2.00 ODX 2.50 OD	1
63	35546	•VALVE,HEATER SHUT OFF	1

FIGURE 19. ENGINE SUBASSEMBLY, CATERPILLAR (PAGE 3 OF 3)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
19	**986131**	**ENGINE SUBASSEMBLY, CATERPILLAR**	
-49	80164	•WASHER,LOCK,.500	2
-50	81141	•WASHER,FLAT,SAE,.500,HARDENED	8
-51	80478	•WASHER,LOCK,M10	8
-52	80484	•WASHER,LOCK,M12	8
-53	80503	•CSSH,.500-13X1.75	2
-54	80516	•CSHH,M10-1.50X30MM,CL8.8	8
-55	81009	•CSHH,M12-1.75X30MM,CL8.8	8
-56	81007	•NUT,HEX,M05-80	1
-57	81008	•NUT,HEX,M10-1.50	1
-58	81043	•WASHER,LOCK,M05	1
-59	80163	•WASHER,LOCK,.437	4
-60	80353	•NUT,FLEXLOC,.438-14,FULL,LT	4
-61	80776	•CSHH,.437-14X3.00,GR5	4
-62	80453	•NUT,HEX,M06-1.00	1

- ITEM NOT ILLUSTRATED

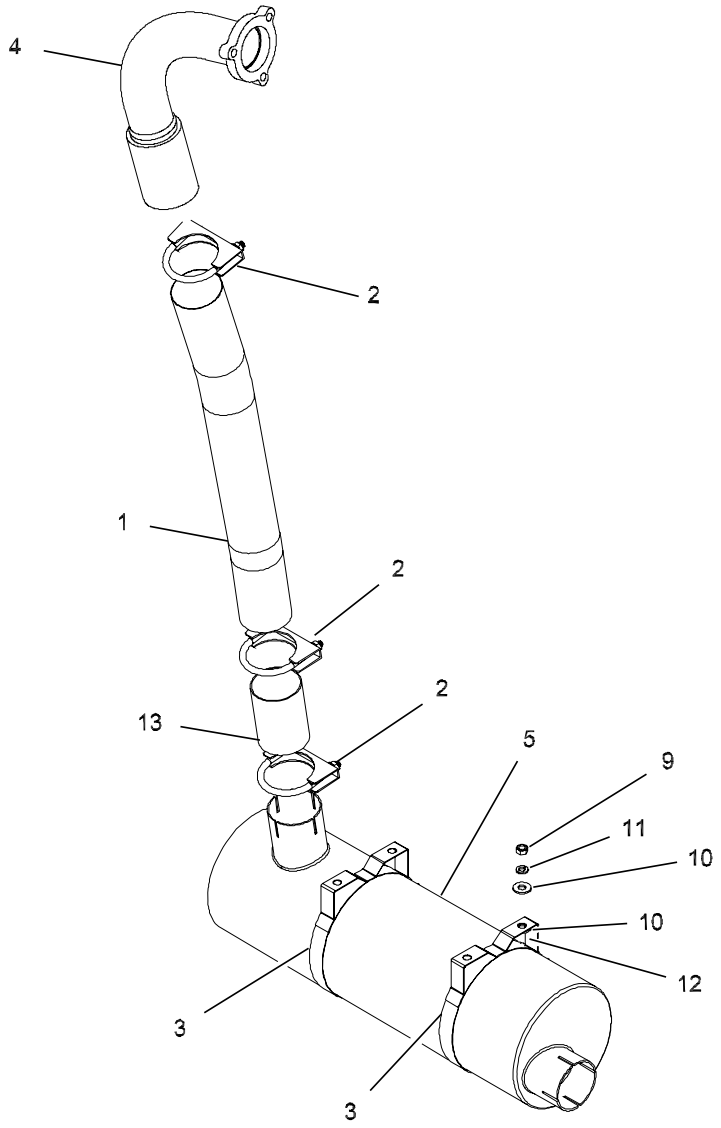


FIGURE 20. EXHAUST GROUP, CATERPILLAR

FIGURE 20. EXHAUST GROUP, CATERPILLAR

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
20	**986381**	**EXHAUST GROUP, CATERPILLAR**	**1**
1	982979	•TUBE,FLEX,EXHAUST,2.5IDX27.50	1
2	161250	•CLAMP,MUFFLER 3"	3
3	34033	•CLAMP,AIR CLEANER MOUNT,6.5"ID	2
4	986387	•ADAPTER,EXHAUST,CAT	1
5	34074	•MUFFLER,2-1/2" ID SIDE INLET	1
9	80037	•NUT,HEX,.312-18	4
10	80141	•WASHER,FLAT,USS,.313	8
11	80161	•WASHER,LOCK,.312	4
12	80208	•CSHH,.312-18X1.00,GR5	4
13	15481	•PIPE,EXH,CUMMINS	1

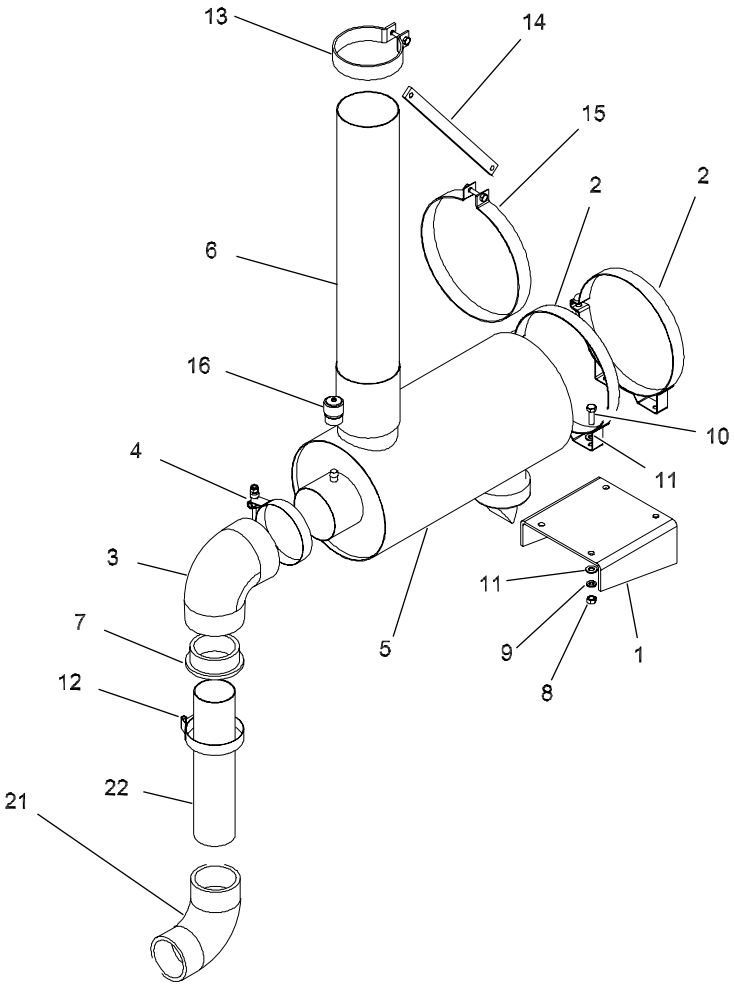


TABLE 21. AIR INTAKE, CATERPILLAR

FIGURE 21. AIR INTAKE, CATERPILLAR

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
21	**986380**	**AIR INTAKE, CATERPILLAR**	**1**
1	28298	•MOUNT,AIR CLEANER (Part of Engine Cover)	REF
2	171100	•CLAMP,AIR CLEANER MOUNT,8"ID	2
3	171170	•ELBOW,RUBBER,90,3.50X3.00 ID	1
4	171090	•CLAMP,T-BOLT,3.00 NOMINAL	1
5	171130	•AIR CLEANER ASSY,685 #140 UP	1
6	28141	•TUBE,AIR INTAKE,MODIFIED	1
7	38830	•ADPTR,RUBBER,INSERT,3.00X2.50	1
8	80037	•NUT,HEX,.312-18	4
9	80161	•WASHER,LOCK,.312	4
10	80208	•CSHH,.312-18X1.00,GR5	4
11	80963	•WASHER,FLAT,SAE,.312	8
12	171190	•CLAMP,T-BOLT,3.50 NOMINAL	1
13	28381	•CLAMP,HOSE,4.00 ID	1
14	28818	•BAR,SUPPORT	1
15	28819	•CLAMP,HOSE,8.00 ID	1
16	171220	•INDICATOR,AIR FILTER SERVICE	1
-17	80185	•CSHH,.250-20X1.00,GR5	2
-18	80350	•NUT,FLEXLOC,.250-20,FULL,LT	2
-19	37587	•PRE-CLEANER,4.00ID	1
-20	37587-2	•INSERT,RUBBER,4.00 TO 3.75	1
21	38387	•ADPTR,RUBBER 90,2.00ID	1
22	983286	•TUBE, AIR INTAKE PERKINS	1

- ITEM NOT ILLUSTRATED

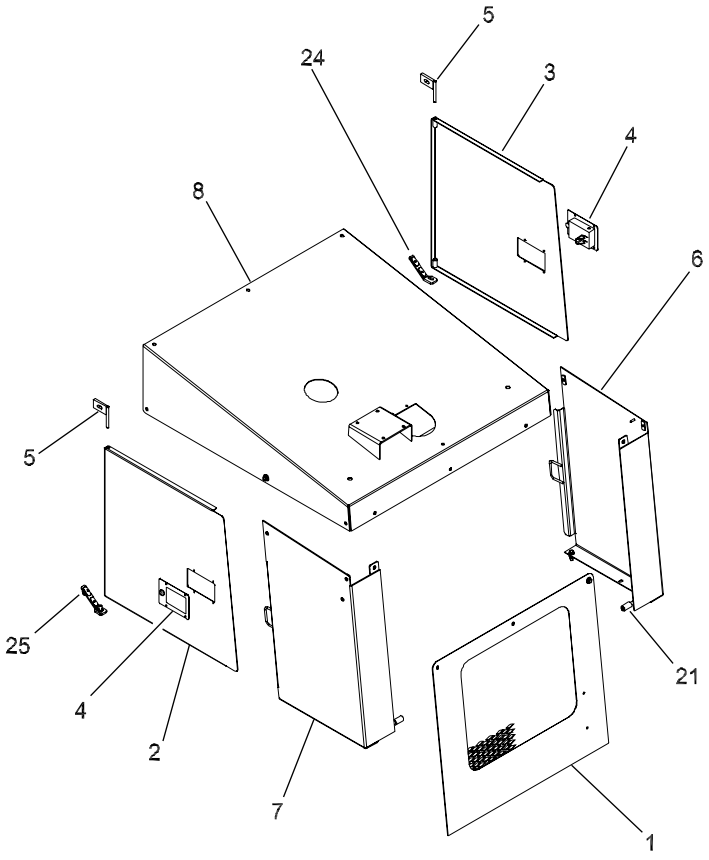


FIGURE 22. ENGINE COVER ASSEMBLY

FIGURE 22. ENGINE COVER ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
22	**29048**	**ENGINE COVER ASSEMBLY**	**1**
1	28318	•GRILL W/M,ENGINE COVER	1
-101	28315	••HOOK,GRILL OPENING	2
-102	28595	••SUPPORT,ENG COVER GRILL	1
2	28320	•DOOR W/M,LEFT	1
3	28321	•DOOR W/M,RIGHT	1
4	38832	•LATCH ASSY,CH751 KEY	2
5	28495	•TOP HINGE W/M, RB48 ENG DOOR	2
6	28635	•ENGINE COVER,W/M RIGHT REAR	1
7	28634	•ENGINE COVER,W/M LEFT REAR	1
8	29109	•ENGINE COVER,W/M,TOP	1
-801	28298	••MOUNT,AIR CLEANER	1
-9	80207	•CSHH,.312-18X.75,GR5	3
-10	80161	•WASHER,LOCK,.312	7
-11	80141	•WASHER,FLAT,USS,.313	7
-12	80224	•CSHH,.375-16X1.25,GR5	6
-13	80996	•WASHER,SAE PLAIN,.375	10
-14	80162	•WASHER,LOCK,.375	13
-15	80038	•NUT,HEX,.375-16	13
-16	871052400	•MACH SCR,RH,#10-24X.50	8
-17	80824	•NUT,HEX,#10-24	8
-18	80074	•NUT,HEX,JAM,.375-16	2
-19	80221	•CSHH,.375-16X1.00,GR5	9
-20	80142	•WASHER,FLAT,USS,.375	18
21	6352	•HOSE,08,PUSH-ON,250	0.33
-22	38043	•RUBBER STRIP,SPONGE,.18X.75	4
-23	80208	•CSHH,.312-18X1.00,GR5	4
24	29175	•BRACKET,DOOR,RH,W/M	1
25	29176	•BRACKET,DOOR,LH,W/M	1

- ITEM NOT ILLUSTRATED

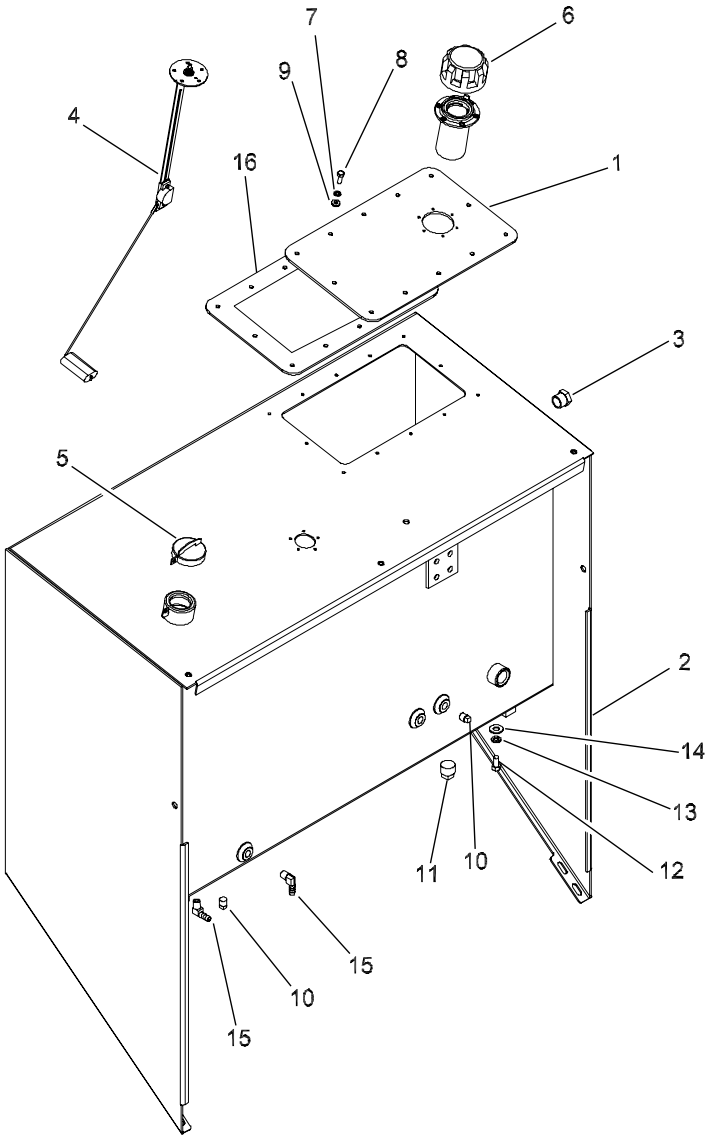


FIGURE 23. FUEL TANK ASSEMBLY

FIGURE 23. FUEL TANK ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
23	**29132**	**FUEL TANK ASSEMBLY**	**1**
1	28559	•COVER,HYD TANK CLEANOUT	1
2	29110	•TANK W/M,FUEL/HYD	1
3	500070	•GAUGE,SIGHT,TEMP	1
4	35370-2	•SENDER,FUEL LEVEL,24.00 TANK	1
5	36105	•CAP,FUEL,W/LOCK LUG	1
6	37680	•FILLER,HYD FLUID,10 PSI	1
7	80160	•WASHER,LOCK,.250	12
8	80192	•CSHH,.250-20X.75,GR5	12
9	81161	•WASHER,WEATHER SEAL,#10	12
10	99535	•PIPE,PLUG,04MP,SQ HD,MI	2
11	99538	•PIPE,PLUG,12MP,SQ HD,MI	1
12	80219	•CSHH,.375-16X.75,GR5	4
13	80162	•WASHER,LOCK,.375	4
14	80142	•WASHER,FLAT,USS,.375	4
15	33365	•FITT,90 04MP-06HB,CRIMPED	2
16	986371	•GASKET,HYD TANK CLEANOUT	1

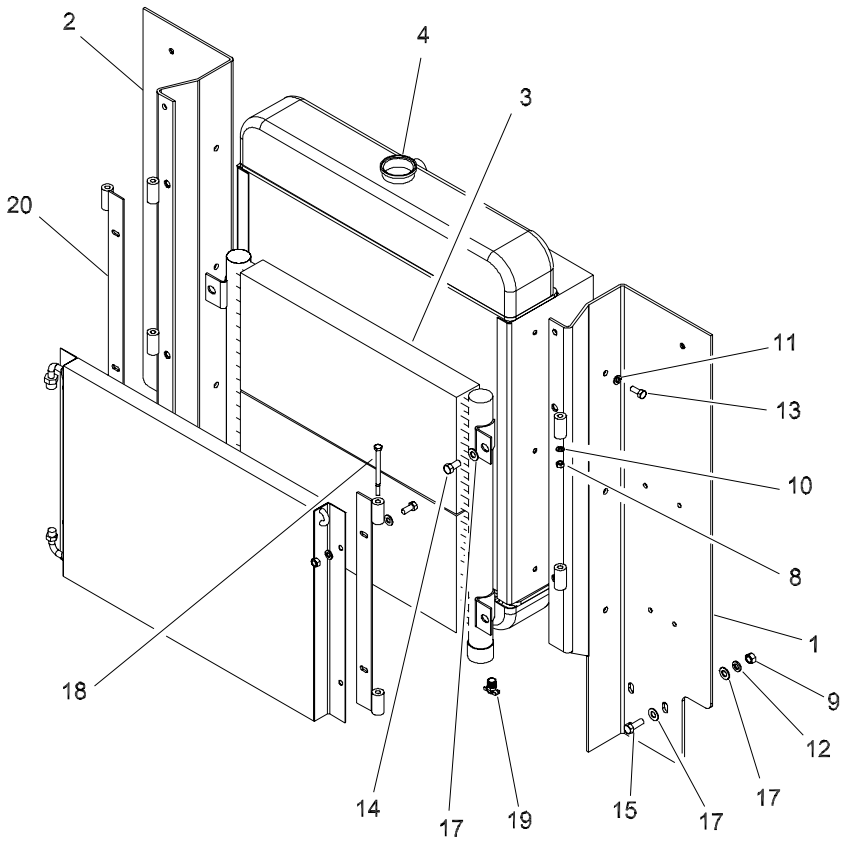
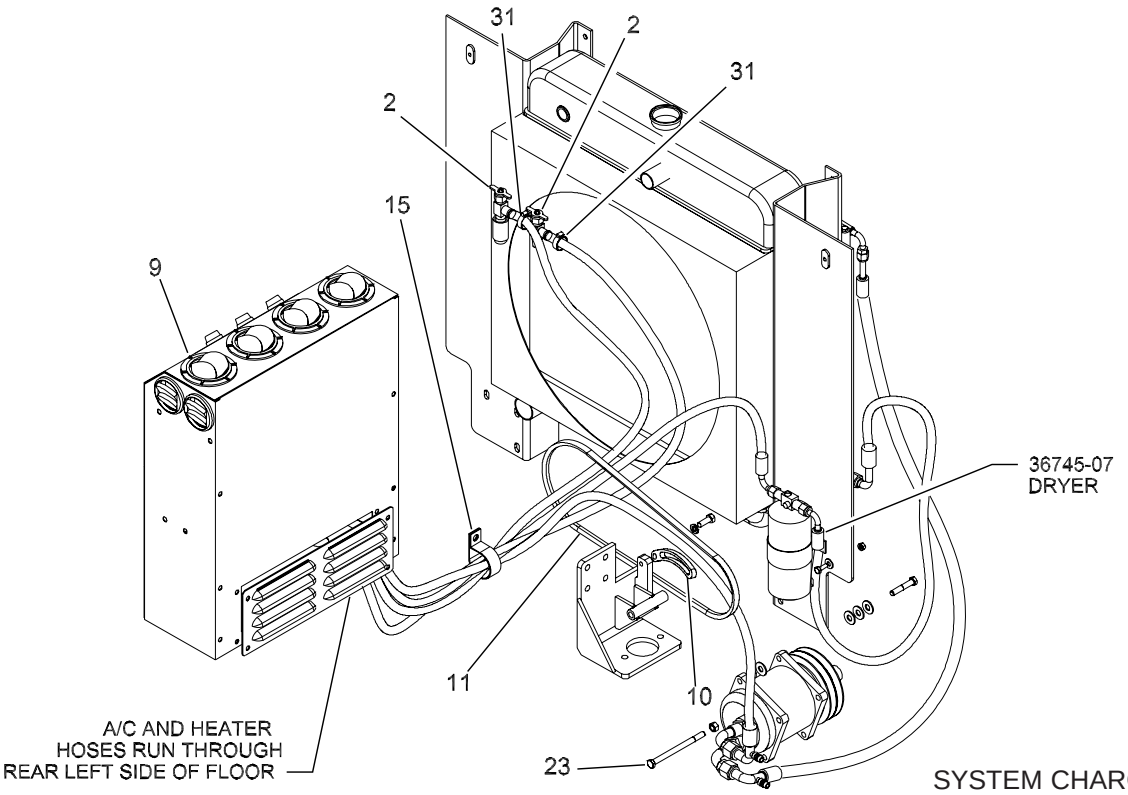


FIGURE 24. RADIATOR/COOLER ASSEMBLY

FIGURE 24. RADIATOR/COOLER ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
24	**28221**	**RADIATOR/COOLER ASSEMBLY**	**1**
1	28175	•MOUNT,RADIATOR,LH,W/M	1
2	28176	•MOUNT,RADIATOR,RH,W/M	1
3	35423	•COOLER,OIL	1
4	38784	•RADIATOR,CUMMINS 3.3 ENGINE	1
-401	33770	••RADIATOR CAP	A/R
8	80036	•NUT,HEX,.250-20	4
9	80038	•NUT,HEX,.375-16	6
10	80160	•WASHER,LOCK,.250	4
11	80161	•WASHER,LOCK,.312	6
12	80162	•WASHER,LOCK,.375	10
13	80207	•CSHH,.312-18X.75,GR5	6
14	80219	•CSHH,.375-16X.75,GR5	4
15	80221	•CSHH,.375-16X1.00,GR5	6
-16	80963	•WASHER,FLAT,SAE,.312	4
17	80996	•WASHER,FLAT,SAE,.375	4
18	81072	•CSHH,.250-20X3.50,GR5	4
19	910150	•VALVE,DRAIN COCK,.250 NPT	1
20	28224	•CONDENSER HINGE,W/M	1

- ITEM NOT ILLUSTRATED



SYSTEM CHARGING NOTES:

1. Add 1.0 oz. Compressor Oil.
2. Add 2.75 - 3.25 lbs. R-134A freon.
3. Maximum pressure = 213 - 242 PSI.

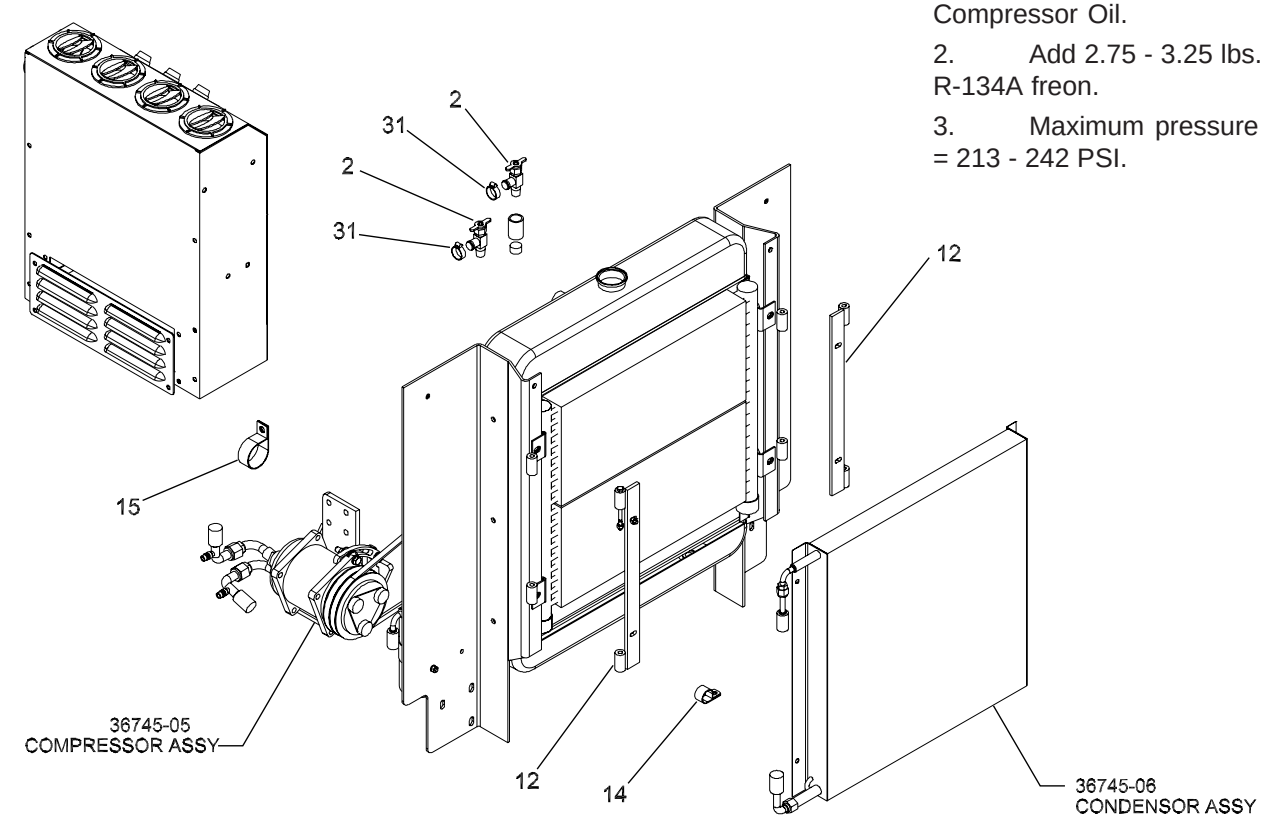


FIGURE 25. HEAT/AIR CONDITIONING GROUP

FIGURE 25. HEAT/AIR CONDITIONING GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
17	**28303**	**HEAT/AIR CONDITIONING GROUP**	**1**
-1	35138	•CONNECTOR,SEALED,SHROUD,2-PIN	1
2	35546	•VLV,HEATER SHUTOFF	2
-3	36164	•TERM,SEALED CONN,16-14 GA,MALE	2
-4	36166	•SEAL,CABLE,18-16 GA	1
-5	36342	•FUSE,BLADE,20AMP,ATC-20	1
-6	36623	•SEAL,CABLE,14 GA	1
-7	36712	•HOSE,HEATER,.625 ID	12
-8	38106	•REFRIGERANT,OIL	0.12
9	38653	•CAB AIR COND/HEATER KIT (SEE FIG 26 FOR BREAKDOWN)	1
10	26778	•BRACKET,A/C COMPRESSOR	1
11	38842	•V BELT,4L 39.00X.500	1
12	28224	•CONDENSER HINGE W/M	2
-13	38105	•REFRIGERANT,R134A FREON	0.09
14	33595	•CLAMP,LOOP,1.00 OD,REM CUSHION	1
15	36894	•CLAMP,LOOP,2.00 OD,PLSTC COVER	1
-18	80230	•CSHH,.375-16X2.00,GR5	1
-19	80038	•NUT,HEX,.375-16	1
-20	80162	•WASHER,LOCK,.375	2
-21	80142	•WASHER,FLAT,USS,.375	4
-22	80221	•CSHH,.375-16X1.00,GR5	1
23	71617	•CSHH,.375-16X5.00,GR5	1
-24	80352	•NUT,FLEXLOC,.375-16,FULL,LT	1
-25	80192	•CSHH,.250-20X.75,GR5	16
-26	80140	•WASHER,FLAT,USS,.250	2
-27	80160	•WASHER,LOCK,.250	2
-28	80350	•NUT,FLEXLOC,.250-20,FULL,LT	8
-29	81072	•CSHH,.250-20X3.50,GR5	4
-30	80036	•NUT,HEX,.250-20	2
31	33164	•CLAMP,HOSE,# 10	4
-32	81006	•WASHER,FLAT,USS,.188	10

- ITEM NOT ILLUSTRATED

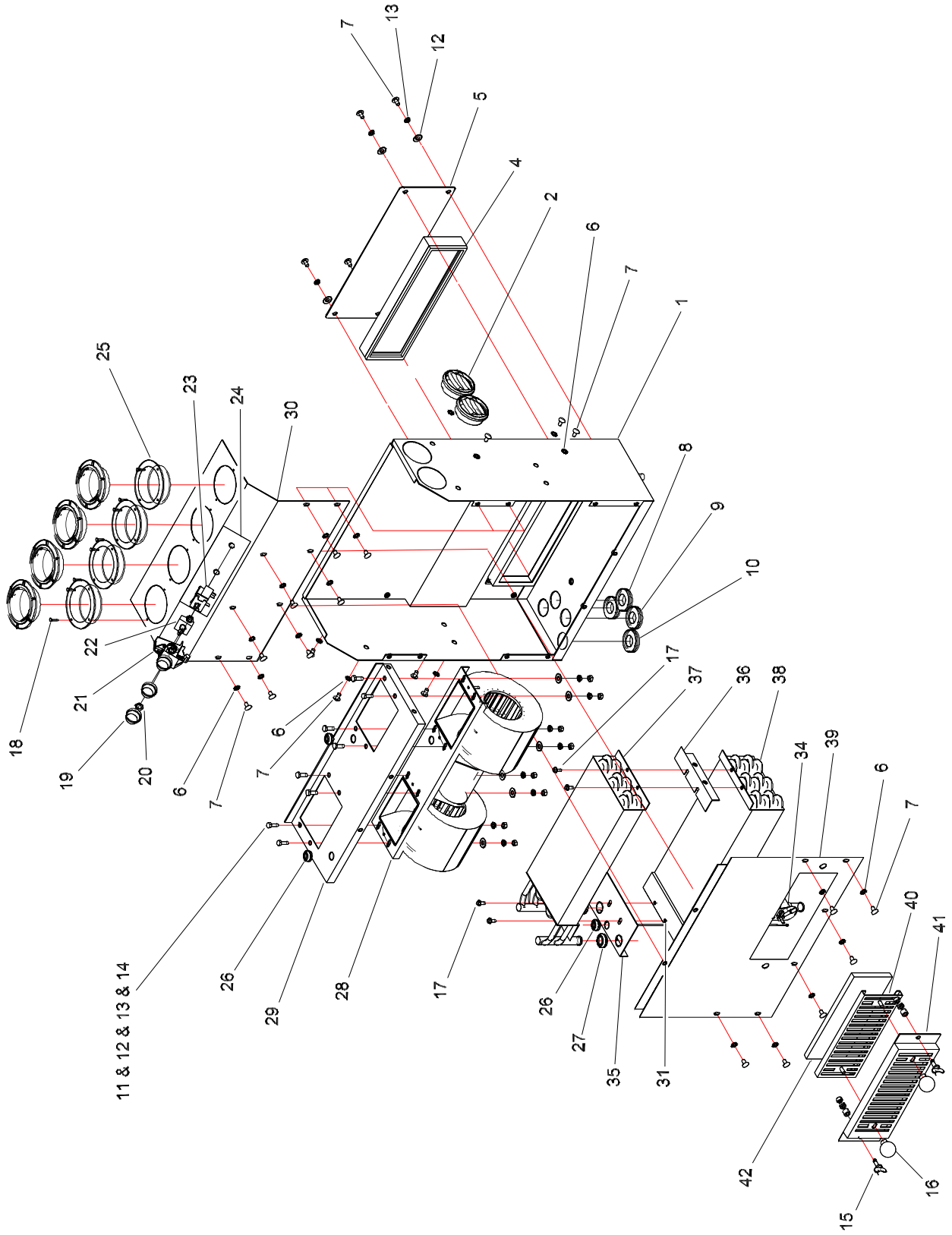


FIGURE 26. CAB AIR CONDITIONING/HEATER KIT (SHEET 1 OF 2)

FIGURE 26. CAB AIR CONDITIONING/HEATER KIT (PAGE 1 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
26	**38653**	**•CAB AIR CONDITIONING/HEATER KIT (SEE FIG 25 FOR NHA)**	**1**
1	38653-04	••HOUSING	1
2	36745-17	••LOUVERS	2
4	38653-01	••FILTER ELEMENT,CAB AIR	1
5	38653-02	••LOUVER DOOR	1
6	N/A	••WASHER,EXT. TOOTH	22
7	N/A	••SCREW,1/4-20,TRUSS HEAD	26
8	38606-16	••GROMMET	1
9	38606-15	••GROMMET	1
10	38525-34	••GROMMET	2
11	N/A	••BOLT,1/4-20	8
12	N/A	••WASHER,FLAT,1/4-20	12
13	N/A	••WASHER,LOCK,1/4-20	12
14	N/A	••NUT,1/4-20	8
15	36745-36	••FASTENER,TURN,1/4	2
16	37645-20	••KNOBS	2
17	N/A	••SCREW,WHIZLOCK,1/2-24,#10	4
18	N/A	••SCREW,FLAT HEAD,3/4-#6	8
19	36745-21	••KNOBS	3
20	38525-22	••NUT,MOUNTING CONTROL	4
21	36749-03	••CABLE,ROTARY CONTROL	1
22	36745-18	••SWITCH,FAN	1
23	36745-19	••COLD CONTROL	1
24	36745-22	••DECAL	1
25	36745-16	••LOUVERS	4
26	38653-09	••GROMMET	3
27	38653-08	••GROMMET	2
28	36745-13	••BLOWER	1
29	36745-26	••BLOWER PLATE	1
30	36745-24	••COVER,TOP	1
31	36749-04	••CABLE,ROTARY CONTROL	1
34	36749-01	••VALVE,WATER	1
35	38653-07	••BRACKET,RH COIL	1
36	38653-06	••BRACKET,LH COIL	1
37	36749-02	••COIL,HEATER	1
38	38653-05	••COIL,ASSY,EVAP.	1
39	36745-25	••COVER,BOTTOM	1
40	36745-30	••FILTER HOLDER,RECIRC.	1
41	36745-29	••COVER,RECIRC.	1
42	36745-31	••FILTER PAD,CAB AIR	1

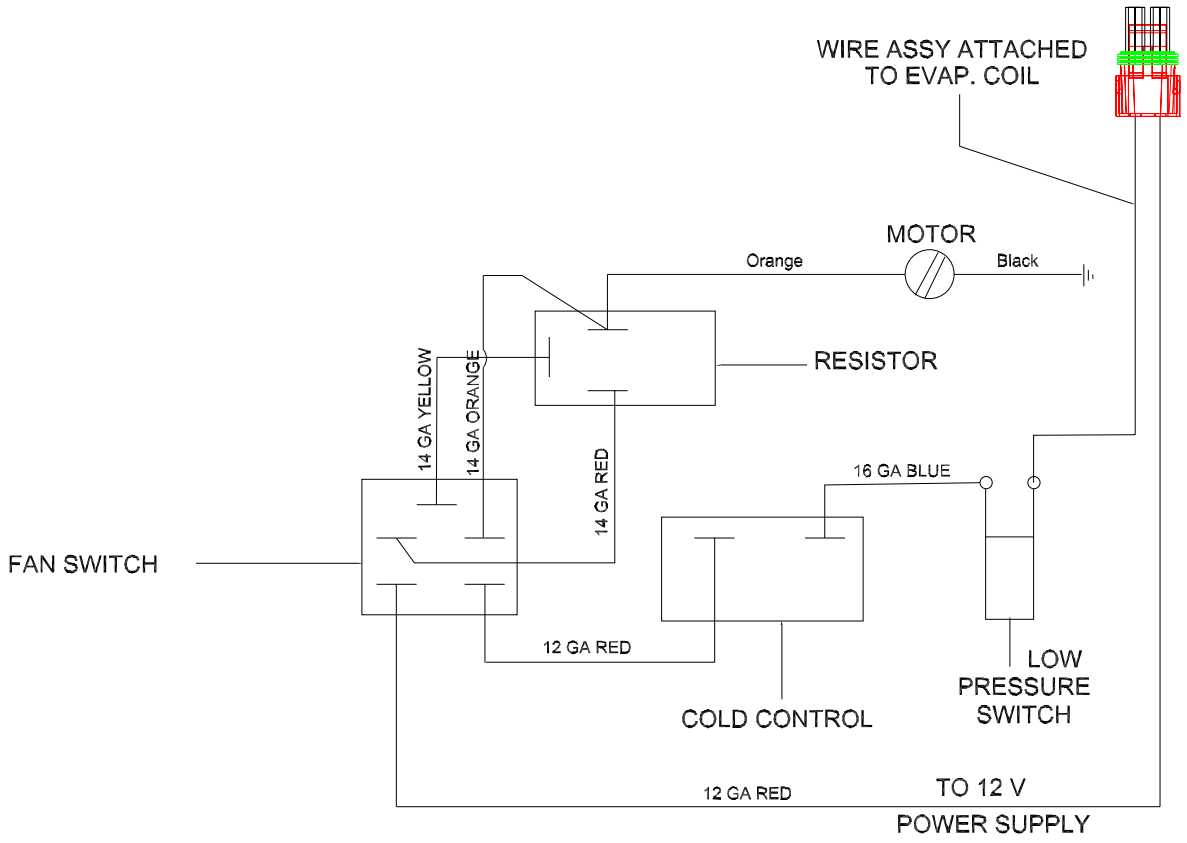
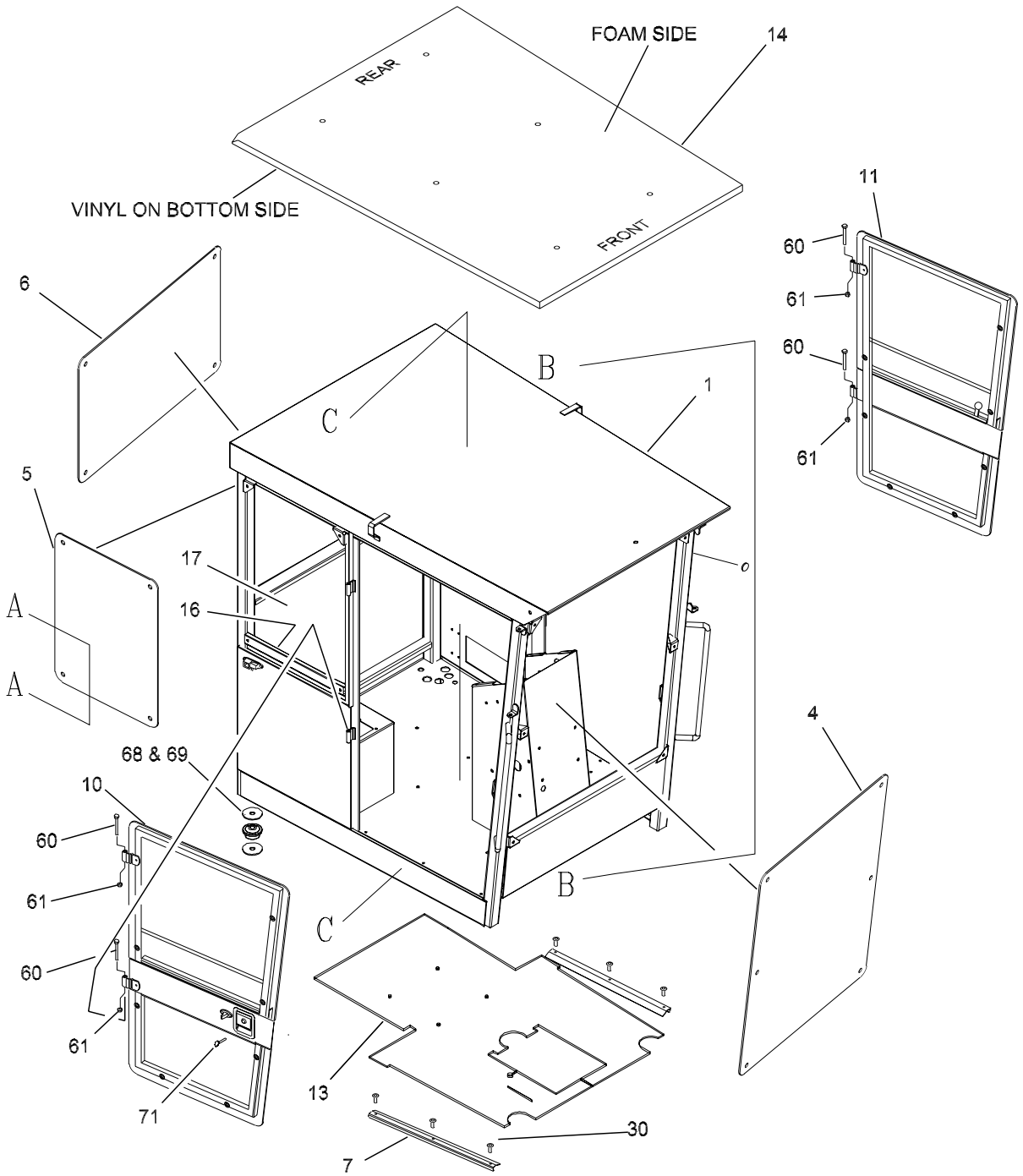


FIGURE 26. CAB AIR CONDITIONING/HEATER KIT (SHEET 2 OF 2)

FIGURE 26. CAB AIR CONDITIONING/HEATER KIT (PAGE 2 OF 2)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
26	**38653**	**CAB AIR CONDITIONING/HEATER KIT (SEE FIG 25 FOR NHA)**	**1**
-100	36745-01	••HOSE,COMP-CONDEN,13/32	1
-105	36745-02	••HOSE,COMP-EVAPOR,1/2	1
-110	36745-03	••HOSE,EVAPOR-DRYER,5/16	1
-115	36745-04	••HOSE,DRYER-CONDEN,5/16	1
-120	36745-05	••COMPRESSOR ASSY	1
-125	36745-06	••CONDENSER ASSY	1
-130	36745-07	••RECEIVER DRYER	1
-135	36745-08	••CLAMP,RECEIVER DRYER	1
-140	36745-09	••SWITCH,HIGH PRESSURE	1
-145	36745-10	••O-RING,#10	2
-150	36745-11	••O-RING,#8	2
-155	36745-12	••O-RING,#6	4
-160	38653-03	••HEATER EVAPORATOR ASSY	1
-165	36745-32	••VALVE,THERMAL EXPANSION	1
-170	36745-34	••SWITCH,LOW PRESSURE	1

- ITEM NOT ILLUSTRATED



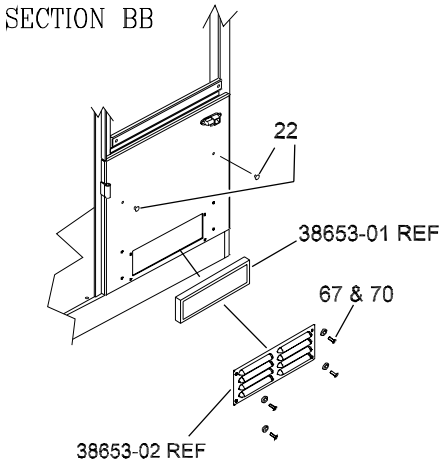
NOTE: Install item #59 (see section DD) before item #16.
Adhere item #16 & #17 to cab with item #18.

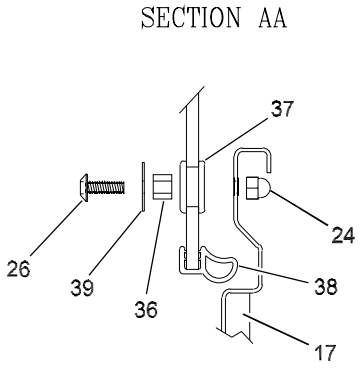
FIGURE 27. CAB ASSEMBLY (SHEET 1 OF 6)

FIGURE 27. CAB ASSEMBLY (PAGE 1 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
27	**28235**	**CAB ASSEMBLY**	**1**
1	28171	•RB48 CAB,W/M,2 DOOR (SEE FIG 28 FOR BREAKDOWN)	1
4	36688-04P	•GLASS,FRONT WINDOW	1
5	36688-02P	•GLASS,SIDE WINDOW	2
6	36688-05P	•GLASS,REAR WINDOW	1
7	36688-07	•SILL,DOOR	2
10	36688-41	•ASSY,DOOR,RH ENTRANCE (SEE FIG 29 FOR BREAKDOWN)	1
11	36690R	•ASSY,DOOR,LH ENTRANCE	1
-18	38462	•ADHESIVE,AEROSOL SPRAY,CAN	0.17
30	81282	•CSBHS,.250-20X1.25,SS	6
60	80882	•CSHH,.375-16X4.75,GR8	4
61	80352	•NUT,FLEXLOC,.375-16,FULL,LT	4
68	36072	•MOUNT,RUBBER,TUBE FORM	4
69	36073	•WASHER,.80X3.25X.188THICK	12
71	36688-32	•KEY,PADDLE LATCH	1
-TBD	28549	•CONSOLE,SIDE COVER	1
-TBD	985514	•KIT,RB48,CAB,INSULATION	1
		ATTACHING PARTS	
13	28342	••FLOORMAT,RB48	1
14	36688-12	••HEADLINER	1
16	36688-14	••FOAM,RIGHT SIDE	2
17	36688-15	••FOAM,REAR PANEL	1
		-----*-----	

- ITEM NOT ILLUSTRATED





NOTE:
Splice item #38 onto bottom of glass, all locations.

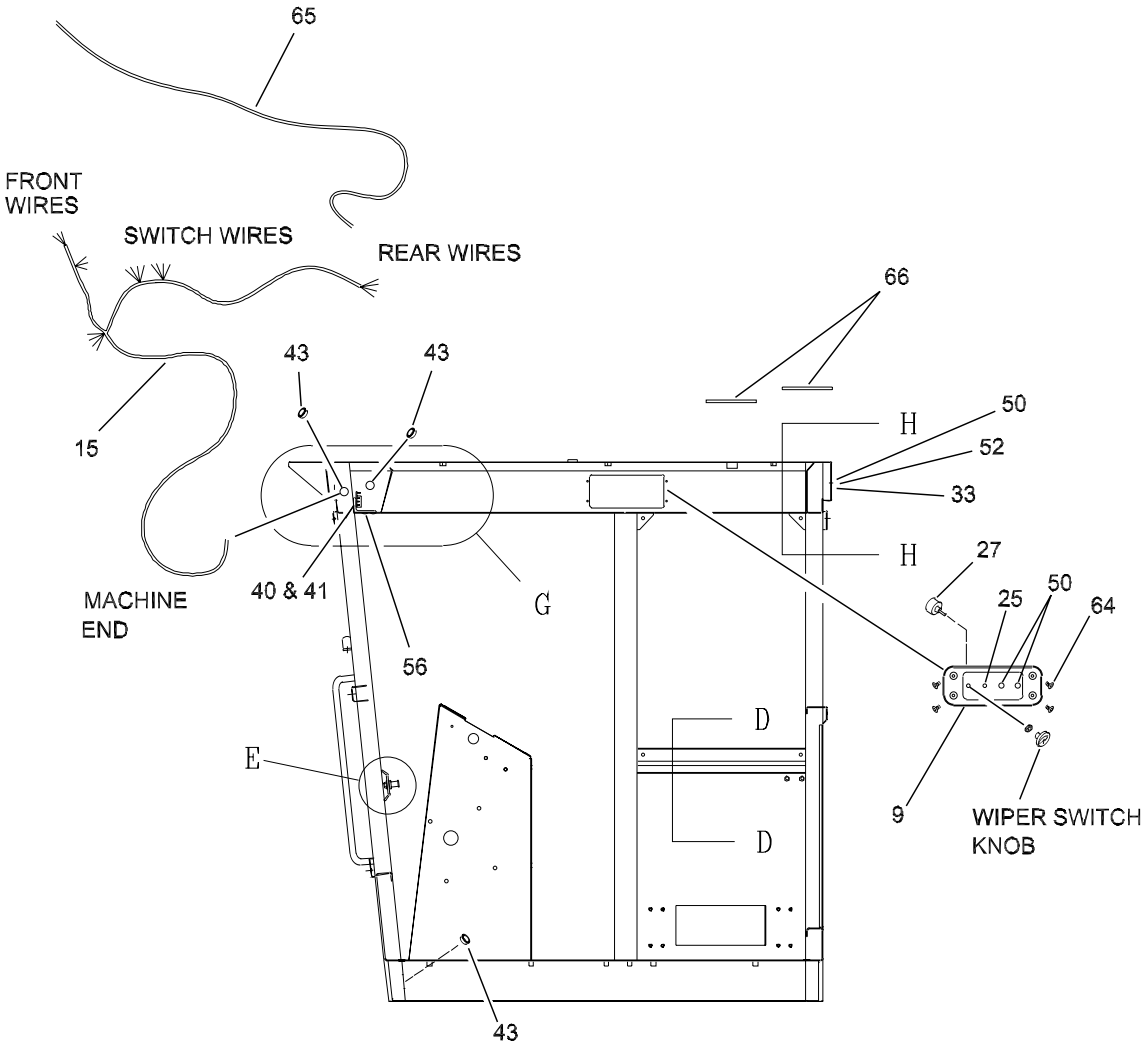
FIGURE 27. CAB ASSEMBLY (SHEET 2 OF 6)

FIGURE 27. CAB ASSEMBLY (PAGE 2 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
27	**28235**	**CAB ASSEMBLY**	**1**
22	35136-21	•PLUG,HOLE,.312,FLUSH MT,PLSTC	2
24	81275	•NUT,ACORN,.250-20,SS	18
26	81277	•CSBHS,.250-20X.88,SS	18
36	36688-16	•BUSHING,NYLON	18
37	36688-17	•GROMMET,.250	18
38	36688-18	•SEAL,WINDOW	44
39	81278	•WASHER,FLAT,.250X1.00,SS	20
67	80192	•CSHH,.250-20X.75,GR5	4
70	80140	•WASHER,FLAT,USS,.250	4
-TBD	985514	•KIT,RB48,CAB,INSULATION	1
		ATTACHING PARTS	
-13	28342	••FLOORMAT,RB48	1
-14	36688-12	••HEADLINER	1
-16	36688-14	••FOAM,RIGHT SIDE	2
17	36688-15	••FOAM,REAR PANEL	1
		-----*-----	

- ITEM NOT ILLUSTRATED

SECTION CC



WIRE HARNESS INSTALLATION:

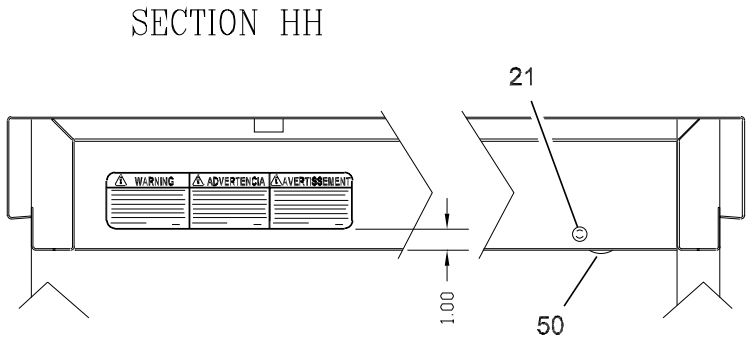
Insert machine end of wire harness through #43, down right front ROPS tube, out through #43 on bottom of ROBS tube under floor. Tie excess harness to grab-handle. Place front wires across front crossmember. Insert rear wire end through #43 in side crossmember. Position such that the switch wires are located in front of the access opening. Wire fuse block, wiper switch, and wiper motor as shown.

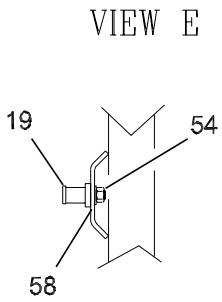
FIGURE 27. CAB ASSEMBLY (SHEET 3 OF 6)

FIGURE 27. CAB ASSEMBLY (PAGE 3 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
27	**28235**	**CAB ASSEMBLY**	**1**
9	36688-09	•COVER,SIDE ACCESS	1
15	36688-13	•WIRE HARNESS (Schematic at end of IPL)	1
25	35136-19	•PLUG,HOLE,.438,FLUSH MT,PLSTC	1
27	853090	•SWITCH,WIPER/WASHER (3000)	1
33	35136-1	•PLUG,HOLE,.250,FLUSH MT,PLSTC	1
40	151170	•MOTOR,WINDSHIELD WIPER	1
41	29262	•BRACKET,FUSE BLOCK	1
43	36688-54	•GROMMET,.94ID,1.12HOLE,SNAP IN	3
50	35136-5	•PLUG,HOLE,.625,FLUSH MT,PLSTC	7
52	35136-4	•PLUG,HOLE,.500,FLUSH MT,PLSTC	2
56	35136-20	•PLUG,HOLE,.562,FLUSH MT,PLSTC	2
64	80322	•SCR,SLFTPG,HH,.250-20X.50	17
65	35550	•HOSE,WINDSHIELD WASHER .188ID	3
66	33630-1	•STRIPPING,EDGE,.125	0.5

Additional wiring schematic at end of IPL.





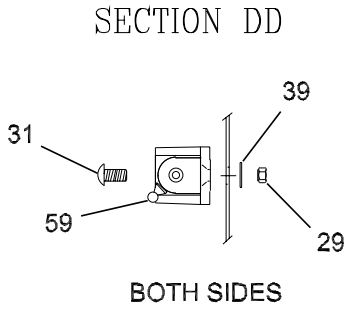
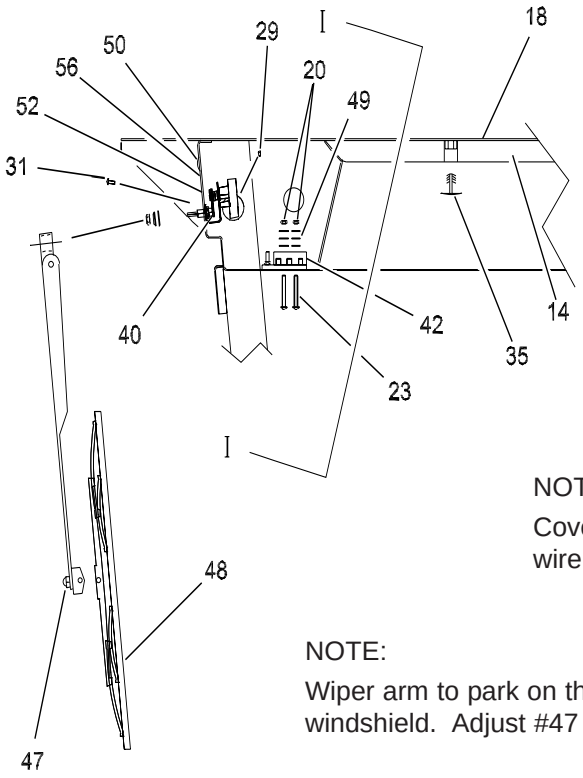


FIGURE 27. CAB ASSEMBLY (SHEET 4 OF 6)

FIGURE 27. CAB ASSEMBLY (PAGE 4 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
27	**28235**	**CAB ASSEMBLY**	**1**
19	36688-49	•STRIKER,EXTERNAL THREAD	2
21	35136-3	•PLUG,HOLE,.375,FLUSH MT,PLSTC	2
29	80350	•NUT,FLEXLOC,.250-20,FULL,LT	5
31	81106	•CSBHS,.250-20X.75,SS	6
39	81278	•WASHER,FLAT,.250X1.00,SS	20
50	35136-5	•PLUG,HOLE,.625,FLUSH MT,PLSTC	7
54	36688-52	•NUT,CENTERLOCK,.438-14	3
58	80142	•WASHER,FLAT,USS,.375	3
59	36688-34	•DOOR HOLD RB-48	2

VIEW G



NOTE:

Wire #40 & #42 as shown in schematic #28235 before fastening with items #20, 49, 23, 32, 23, as well as washers and nuts included with item #40.

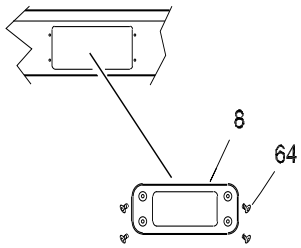
NOTE:

Cover assembled threaded stud, nut, and wire with item 62 (MSD 154).

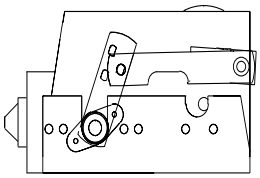
NOTE:

Wiper arm to park on the right side of windshield. Adjust #47 to 16".

SECTION II



WIPER MOTOR DETAIL



NOTE:

Use middle mount hole, 85° wipe.

FIGURE 27. CAB ASSEMBLY (SHEET 5 OF 6)

FIGURE 27. CAB ASSEMBLY (PAGE 5 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
27	**28235**	**CAB ASSEMBLY**	**1**
8	36688-08	•COVER,PLASTIC	3
18	38462	•ADHESIVE,AEROSOL SPRAY,CAN	0.17
20	80824	•NUT,HEX,#10-24	3
23	81281	•CSBHS,10-24X1.50,SS	2
29	80350	•NUT,FLEXLOC,.250-20,FULL,LT	5
31	81106	•CSBHS,.250-20X.75,SS	6
35	36688-43	•FASTENER,X-MAS TREE,1.00 IN	6
40	151170	•MOTOR,WINDSHIELD WIPER	1
42	36695	•FUSE BLOCK,6 GANG,ATC	1
-46	36340	•FUSE,10 AMP,ATC	1
47	151180	•ARM,WINDSHIELD WIPER	1
48	33744-01	•BLADE,WIPER	1
49	871071601	•WASHER,LOCK,#10	6
50	35136-5	•PLUG,HOLE,.625,FLUSH MT,PLSTC	7
52	35136-4	•PLUG,HOLE,.500,FLUSH MT,PLSTC	2
56	35136-20	•PLUG,HOLE,.562,FLUSH MT,PLSTC	2
-62	33707	•SEALANT,SILICONE,CLEAR	0.0011
64	80322	•SCR,SLFTPG,HH,.250-20X.50	17
-TBD	985514	•KIT,RB48,CAB,INSULATION	1
		ATTACHING PARTS	
-13	28342	••FLOORMAT,RB48	1
14	36688-12	••HEADLINER	1
-16	36688-14	••FOAM,RIGHT SIDE	2
-17	36688-15	••FOAM,REAR PANEL	1
		-----*-----	

- ITEM NOT ILLUSTRATED

FIGURE 27. CAB ASSEMBLY (PAGE 6 OF 6)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
	TBD	OPTIONAL WINDSHIELD WIPER/WASHER GROUPS	
-1	21166	•REAR WINDSHIELD WIPER	
-101	33744	••ARM,WIPER	1
-102	33744-01	••BLADE,WIPER	1
-103	36741	••WIPER MOTOR,2-SPEED	1
-104	853090	••SWITCH,WIPER/WASHER (3000)	1
-105	36747	••FUSE,4 AMP,ATC	1
-106	80140	••WASHER,FLAT,USS,.250	1
-107	80192	••CSHH,.250-20X.75,GR5	1
-108	80350	••NUT,FLEXLOC,.250-20,FULL,LT	1
-2	21167	•WINDSHIELD WASHER, FRONT OR REAR	
-201	33745-1	••WASHER,TANK AND PUMP	1
-202	35465-07	••GROMMET,INSULATION,.750ID	1
-203	36687	••CSBHS,.312-18X.75,BLACK FINISH	4
-204	36753	••WASHER NOZZLE & TEE KIT	1
-205	80037	••NUT,HEX,.312-18	4
-206	80141	••WASHER,FLAT,USS,.313	4
-207	35550	••HOSE,WINDSHIELD WASHER .188ID	11

- ITEM NOT ILLUSTRATED

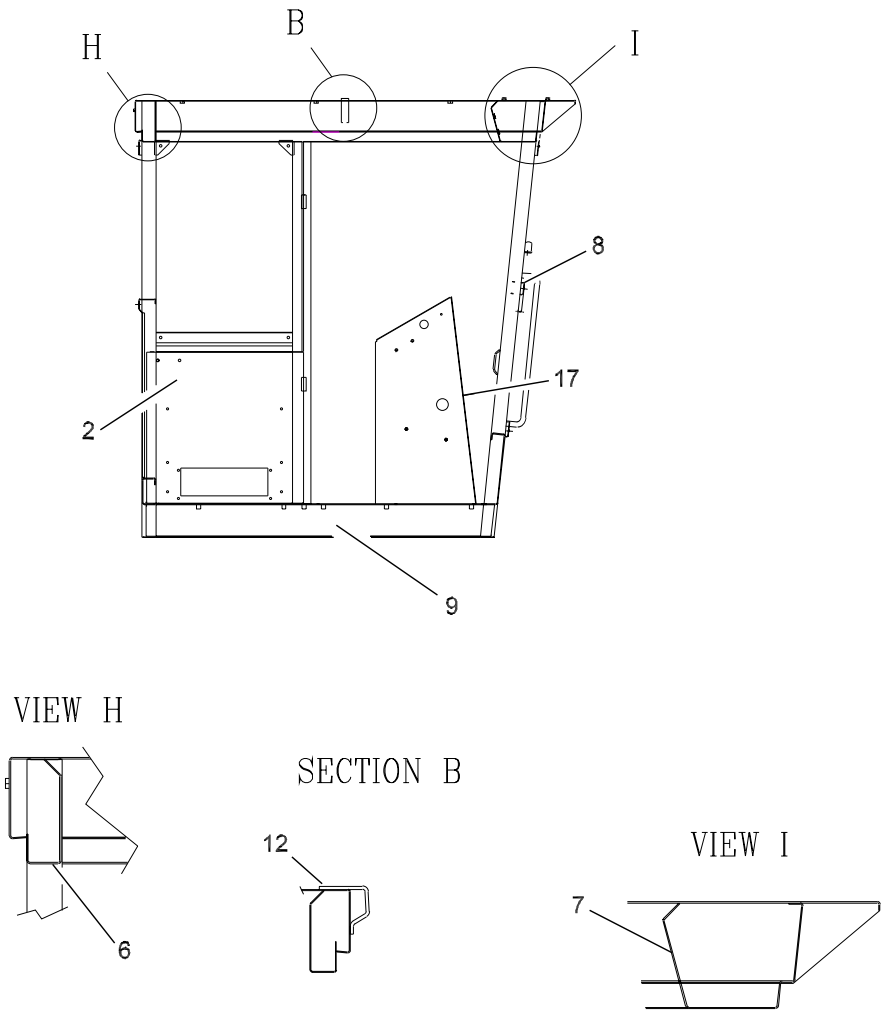


FIGURE 28. CAB, 2 DOOR

FIGURE 28. CAB, 2 DOOR

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
28	**28171**	**•CAB, 2 DOOR (SEE FIGURE 27 FOR NHA)**	**1**
-1	76003-01	••CAB W/M,RH SIDE,RB48	1
2	27572	••CAB,W/M LH SIDE,RB48	1
-3	76005-01	••PANEL,REAR	1
-4	76008-01	••GUSSET,GLASS SUPPORT	6
-5	78008-01	••ROOF (OPEN ROPS)	1
6	76013-01	••CROSSBRACE,UPPER REAR	1
7	76014-01	••CROSSBRACE,UPPER FRONT	1
8	76017-01	••GUSSET,CENTER	2
9	28259	••FLOOR	1
-11	80959	••NUT,WELD,.312-18	3
12	269905	••EYE,LIFTING,RB48	2
-14	28258	••PLATE,CONSOLE	1
-15	81042	••NUT,WELD,.250-20	14
-16	81268	••NUT,HEX,HEAVY,.375-16 UNFINISH	6
17	28243	••STAND,STEERING CONSOLE	1
-18	21034	••MOUNT,ROTATION CONTROL LEVER	1
-19	81090	••NUT,WELD,.375-16	4

- ITEM NOT ILLUSTRATED

NOTE 1:

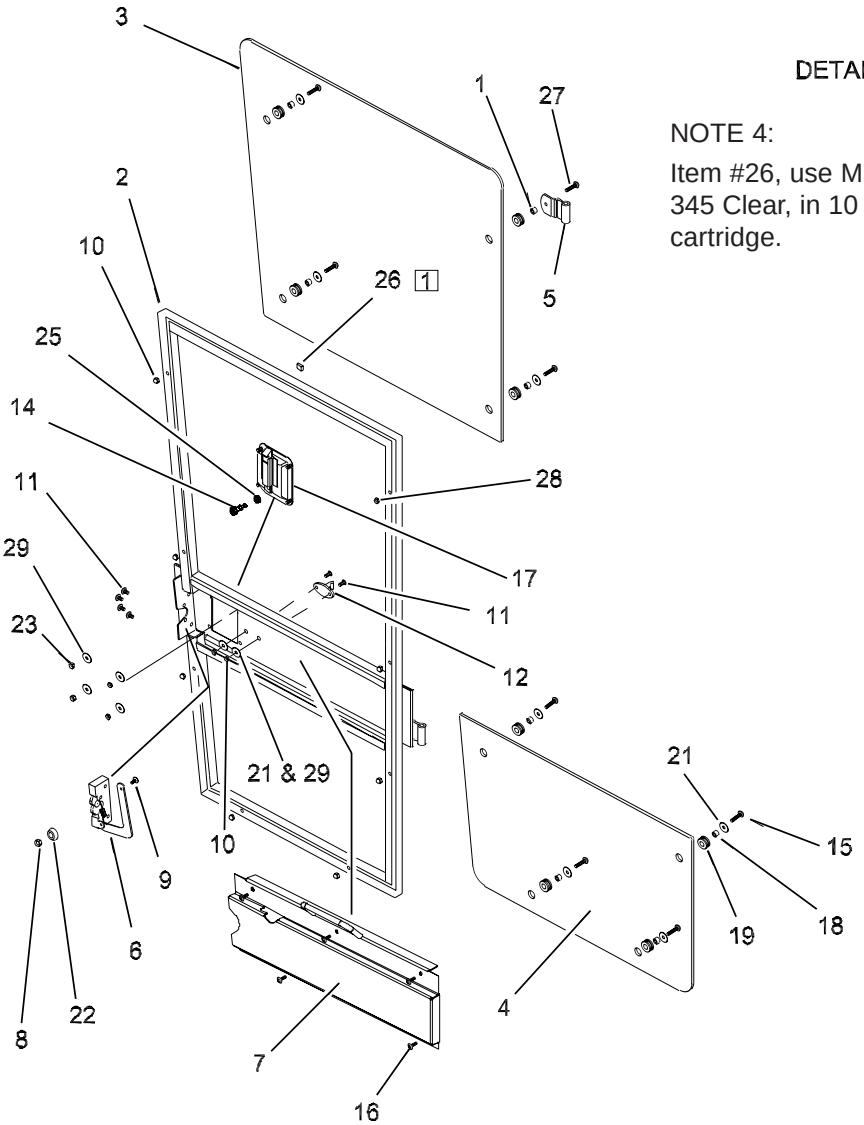
Adhere item 26 (1.00”) to center of top horizontal door tube.

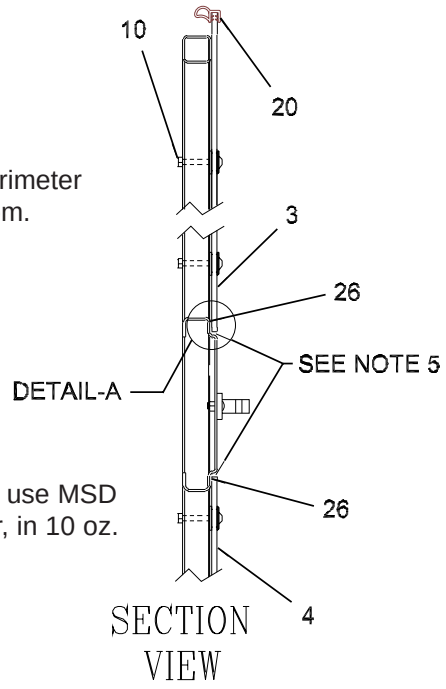
NOTE 2:

Apply item #26 before installing item #20.

NOTE 3:

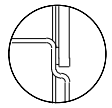
Install item #20 around perimeter of door with splice at bottom.





NOTE 4:

Item #26, use MSD 345 Clear, in 10 oz. cartridge.



DETAIL-A

NOTE 5:

MSD 149 on outside edge of door only, at 4 places.

FIGURE 29. DOOR ASSEMBLY, ENTRANCE, RH

FIGURE 29. DOOR ASSEMBLY, ENTRANCE, RH

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
29	**36688-41**	**•DOOR ASSEMBLY (SEE FIGURE 27 FOR NHA)**	**1**
1	27481	••BUSHING,.334 IDX.500 OD	1
2	36688-23	••W/M,DOOR RH	1
3	36688-03P	••GLASS,UPPER DOOR	1
4	36688-06P	••GLASS,LOWER DOOR	1
5	36688-39	••HINGE,LEFT,PAINTED	1
6	36688-25	••CAM LATCH,RH	1
7	36688-27	••LATCH COVER W/M,RH	1
8	80824	••NUT,HEX,#10-24	1
9	871052400	••MACH SCR,RH,#10-24X.50	1
10	80350	••NUT,FLEXLOC,.250-20,FULL,LT	10
11	81106	••CSBHS,.250-20X.75,SS	4
12	36688-34	••DOOR HOLD RB-48	1
14	81262	••SHLDR SCR,.500X.625X.375-16	1
15	81279	••CSBHS,.250-20X2.00,SS	7
16	80322	••SCR,SLFTPG,HH,.250-20X.50	5
17	36688-31	••PADDLE LATCH	1
18	36688-16	••BUSHING,NYLON	7
19	36688-17	••GROMMET,.250	8
20	36688-18	••SEAL,WINDOW	14
21	81278	••WASHER,FLAT,.250X1.00,SS	9
22	36688-55	••KNOB,INSIDE RELEASE	1
23	80036	••NUT,HEX,.250-20	6
-24	33707	••SEALANT,SILICONE,CLEAR	0.0011
25	80038	••NUT,HEX,.375-16	1
26	73064	••RUBBER STRIP,SPONGE,.250X.50	5
27	81280	••CSBHS,.312-18X2.25,SS	1
28	80351	••NUT,FLEXLOC,.312-18,FULL,LT	1
29	80160	••WASHER,LOCK,.250	6
-TBD	19871	••SEAL,DOOR	1
-TBD	36688-49	••STRIKER,EXTERNAL THREAD	1

- ITEM NOT ILLUSTRATED

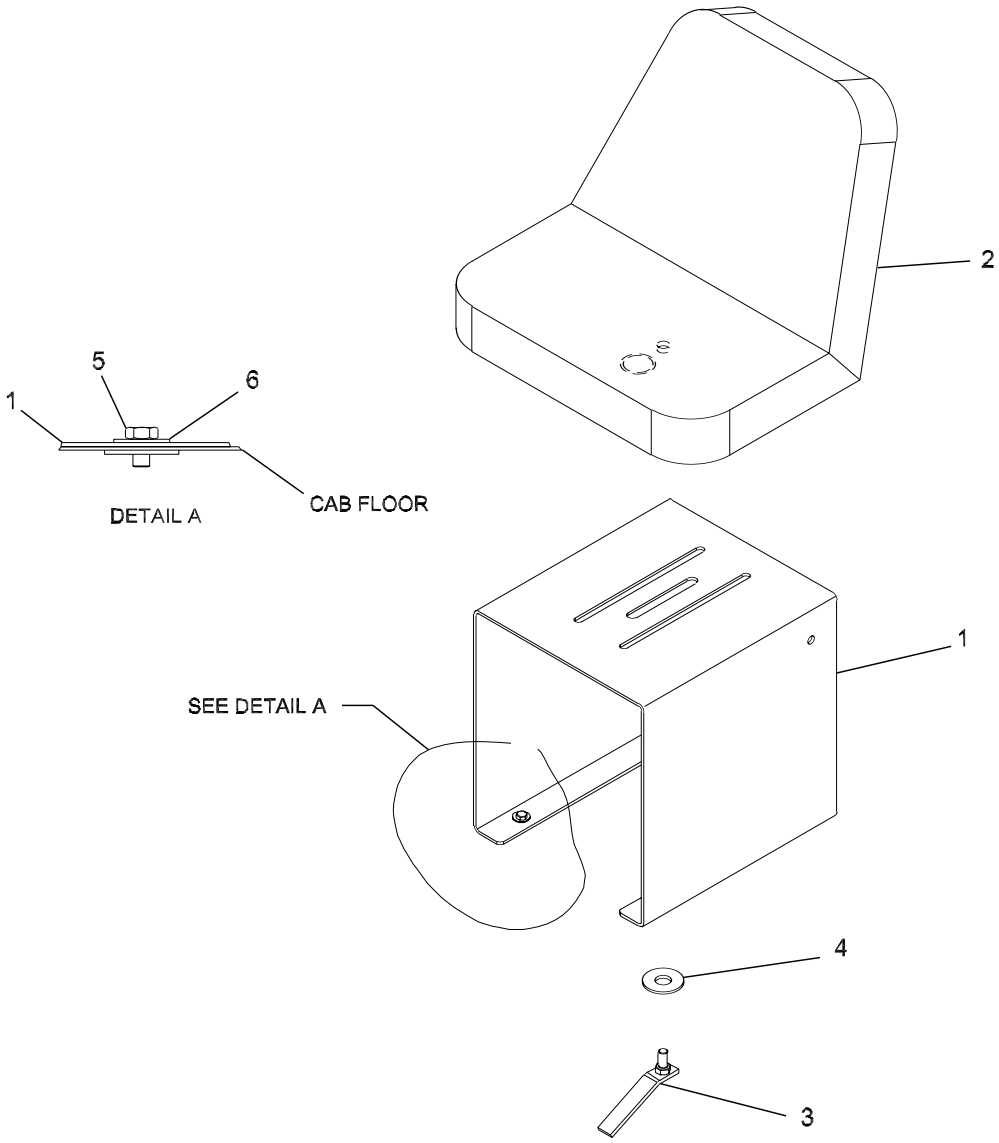


FIGURE 30. STANDARD SEAT

FIGURE 30. STANDARD SEAT

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
22	**25035**	**STANDARD SEAT**	**1**
1	24511	•PEDESTAL,STD SEAT	1
2	6576	•SEAT,BLACK,PLAIN	1
3	14039	•SEAT ADJUSTMENT LEVER WELDMENT	1
4	80144	•WASHER,FLAT,USS,.500	1
5	80237	•CSHH,.438-14X1.50,GR5	4
6	80143	•WASHER,FLAT,USS,.438	4

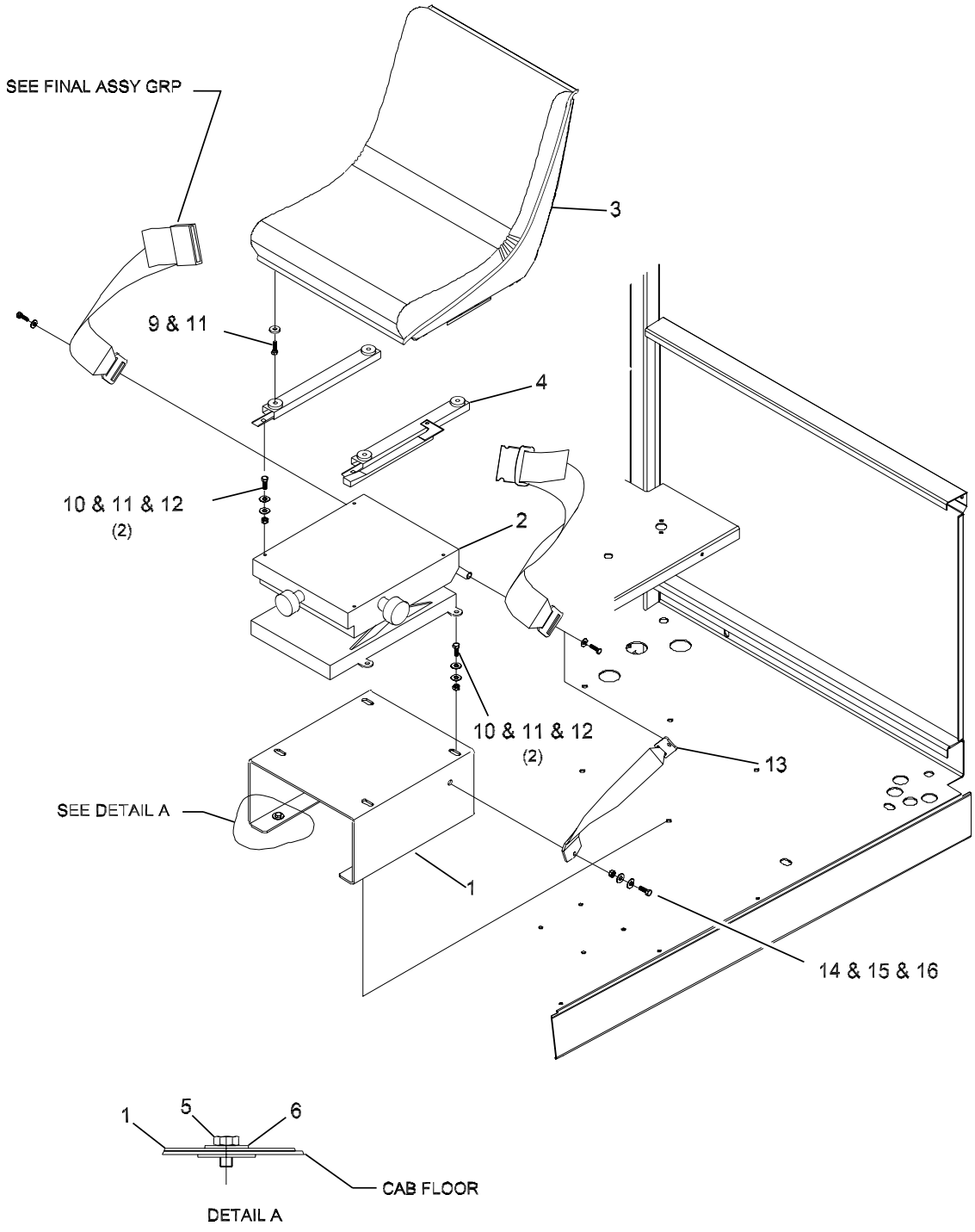


FIGURE 31. OPTIONAL SPRING SEAT

FIGURE 31. OPTIONAL SPRING SEAT

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
31	**28723**	**SPRING SEAT**	**1**
1	25037	•PEDESTAL,SPRING SEAT	1
2	140600	•SEAT,SUSPENSION,LOW PROFILE	1
3	360010B	•SEAT ASSY,BLACK,W/ARMREST	1
4	72527-01	•SLIDER SET,SEAT BASE	1
5	80237	•CSHH,.438-14X1.50,GR5	4
6	80143	•WASHER,FLAT,USS,.438	4
9	80207	•CSHH,.312-18X.75,GR5	4
10	80208	•CSHH,.312-18X1.00,GR5	8
11	80141	•WASHER,FLAT,USS,.313	20
12	80351	•NUT,FLEXLOC,.312-18,FULL,LT	8
13	37982	•TETHER KIT,12.0	1
14	80233	•CSHH,.438-14X1.00,GR5	2
15	80143	•WASHER,FLAT,USS,.438	4
16	80039	•NUT,HEX,.438-14	2
-TBD	72527-03	•SPACER,SEAT SLIDE,PLASTIC	4

- ITEM NOT ILLUSTRATED

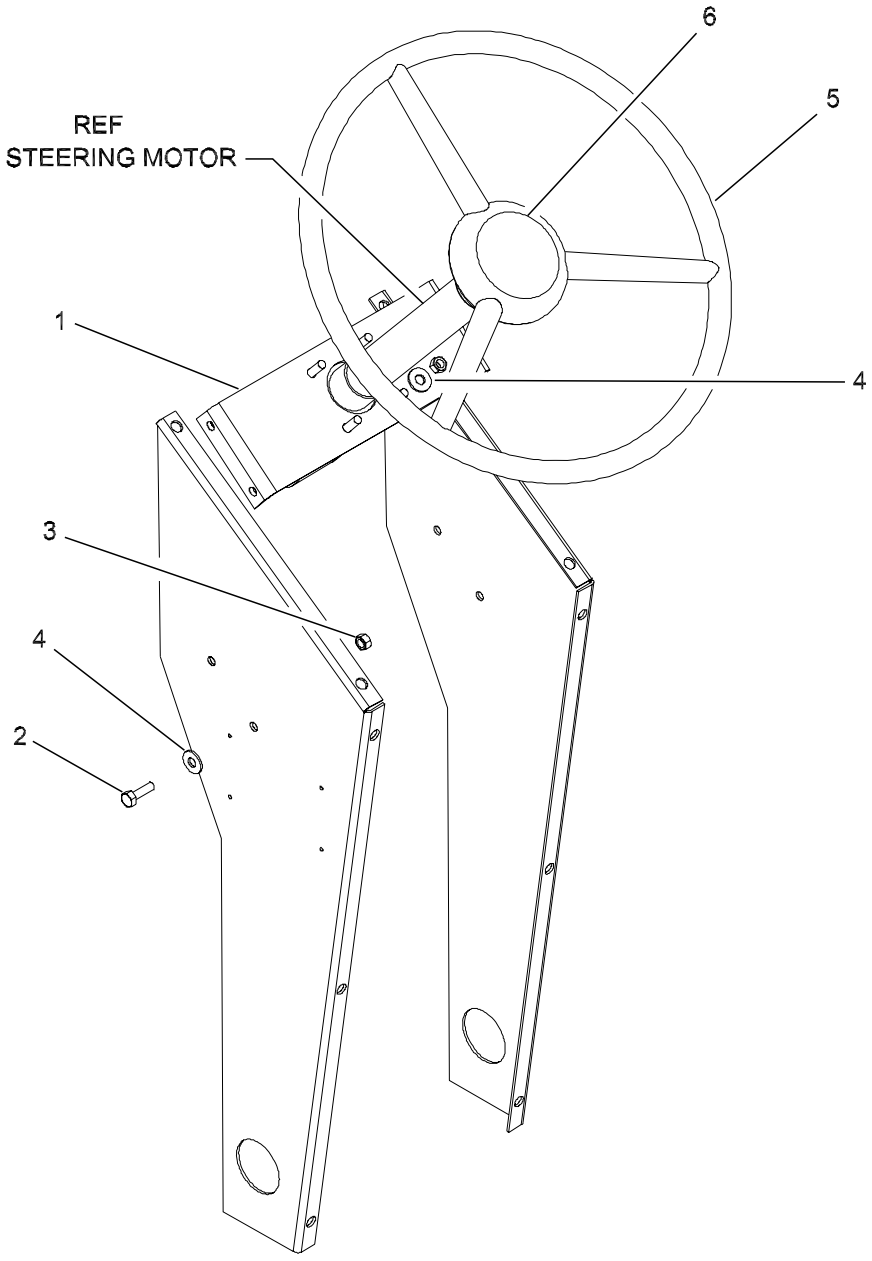


FIGURE 32. STEERING ORBITAL MOUNT ASSEMBLY

FIGURE 32. STEERING ORBITAL MOUNT ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
32	**27525**	**STEERING ORBITAL MOUNT ASSEMBLY**	**1**
1	21075	•MOUNT,STEERING ORBITAL	1
2	80208	•CSHH,.312-18X1.00,GR5	4
3	80037	•NUT,HEX,.312-18	4
4	81130	•WASHER,SAE,HARDENED,.312	8
5	300030	•STEERING WHEEL,17.00,36 SPLINE	1
6	300010	•CAP,STEERING WHEEL	1

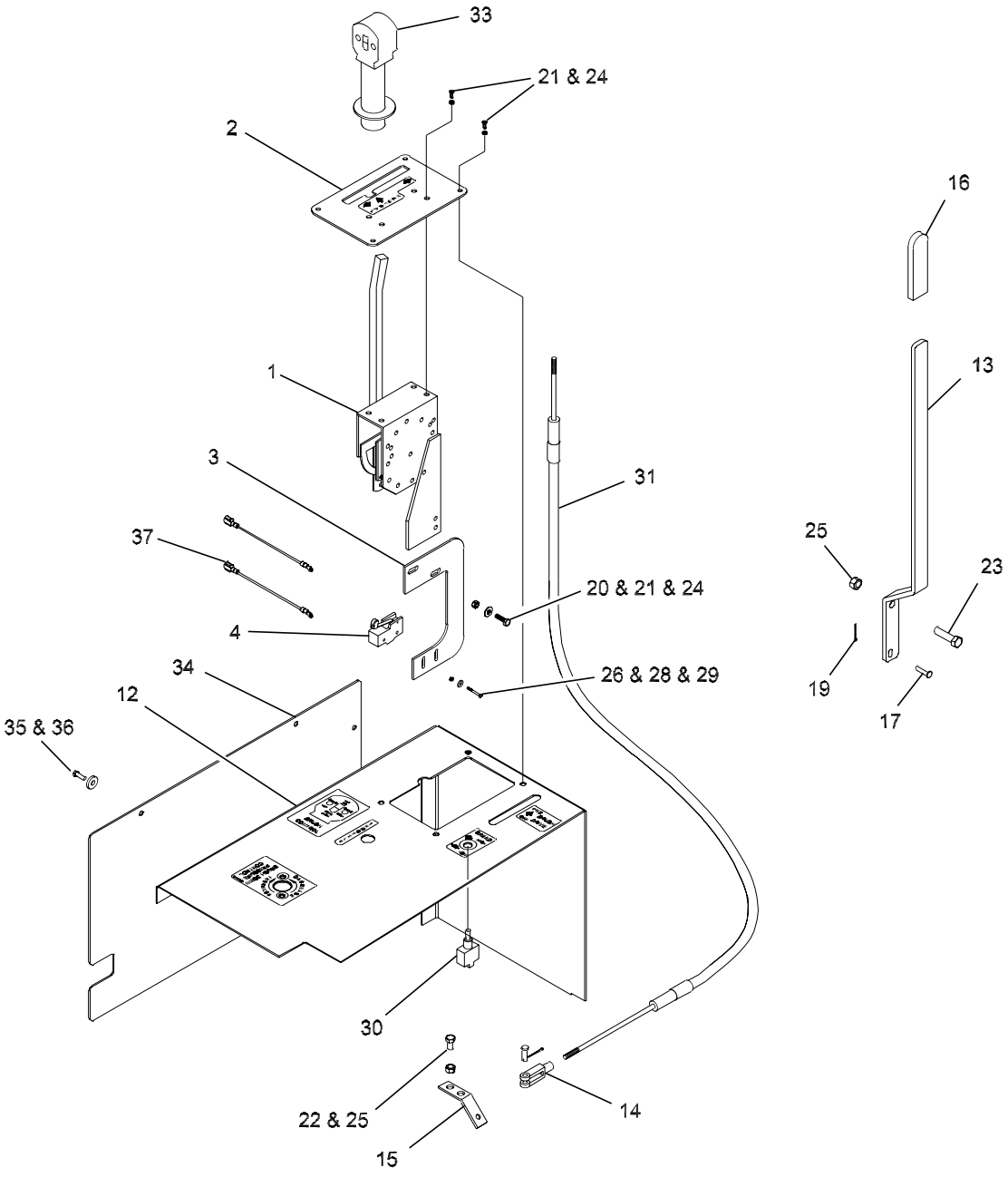


FIGURE 33. CONTROL GROUP

FIGURE 33. CONTROL GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
33	**28240**	**CONTROL GROUP**	**1**
1	29157	•REWORK,CONTROL SHIFT LEVER	1
2	986787	•PLATE,TRAVEL,CONTROL,Z-GATE	1
3	25021	•BRACKET,NEUTRAL SAFETY	1
4	37941	•SWITCH,SNAP ACTING,W/ROLLER	1
10	80354	•NUT,FLEXLOC,.500-13,FULL,LT	1
12	38819	•DECAL SET,CONTROLS,RB48 (Part of Decal Kit)	REF
13	28158	•LEVER,BRUSH ROTATION CONTROL	1
14	350050	•CLEVIS,.250-28	1
15	28491	•LEVER,PUMP ACTUATOR	1
16	36735	•GRIP,.250X1.000X4.0	1
17	37595	•PIN,CLEVIS,.188X1.00	1
19	71714	•PIN,COTTER,.094X.75	1
20	80140	•WASHER,FLAT,USS,.250	2
21	80192	•CSHH,.250-20X.75,GR5	10
22	80219	•CSHH,.375-16X.75,GR5	2
23	80226	•CSHH,.375-16X1.50,GR5	2
24	80350	•NUT,FLEXLOC,.250-20,FULL,LT	10
25	80352	•NUT,FLEXLOC,.375-16,FULL,LT	5
26	80493	•NUT,HEX,#6-32	2
28	80927	•MACH SCR,#6-32X1.25	2
29	81188	•WASHER,FLAT,USS,#6	2
30	851391	•SWITCH,TOGGLE,SPST,2-POS	1
31	32939-2	•CABLE,PUSH/PULL,54"X3" STROKE	1
-32	28476	•HARNESS,JOYSTICK TO VLV,RB48 (SEE FIGURE 34)	1
33	28477	•CONTROL HANDLE,WIRING,RB48 (SEE FIGURE 35)	1
34	28549	•CONSOLE,SIDE COVER	1
35	80423	•CSHH,.250-20X.50,GR5	4
36	80140	•WASHER,FLAT,USS,.250	4
37	28763	•WIRE,JUMPER	2

- ITEM NOT ILLUSTRATED

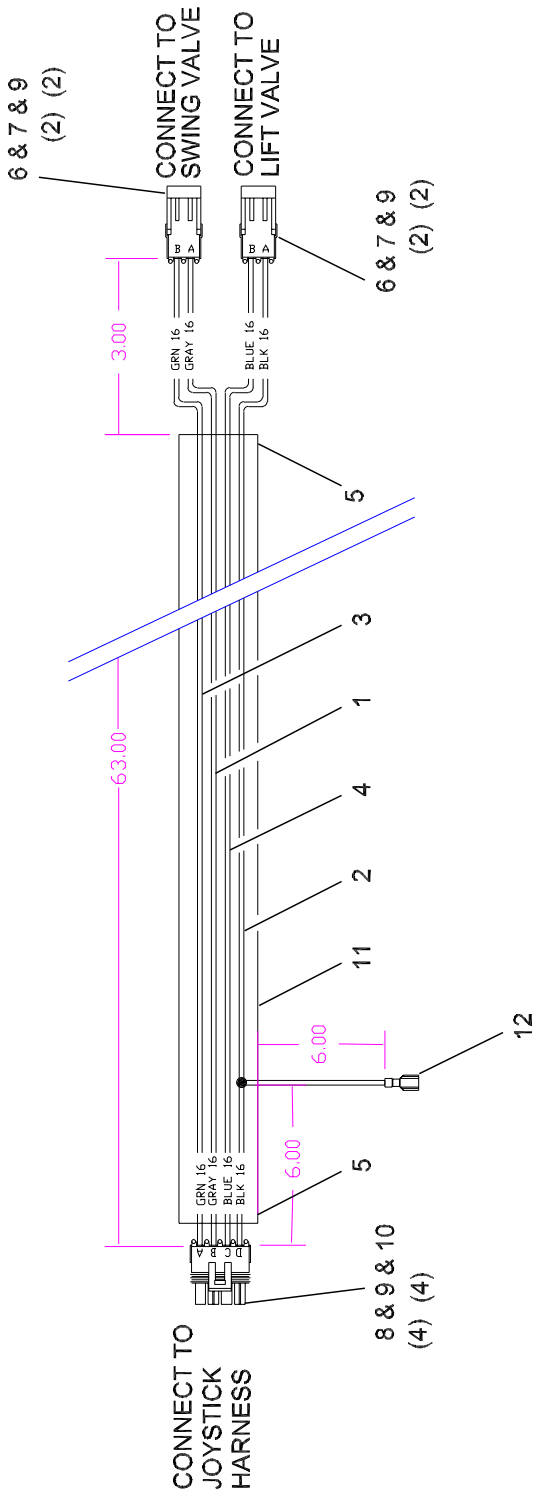
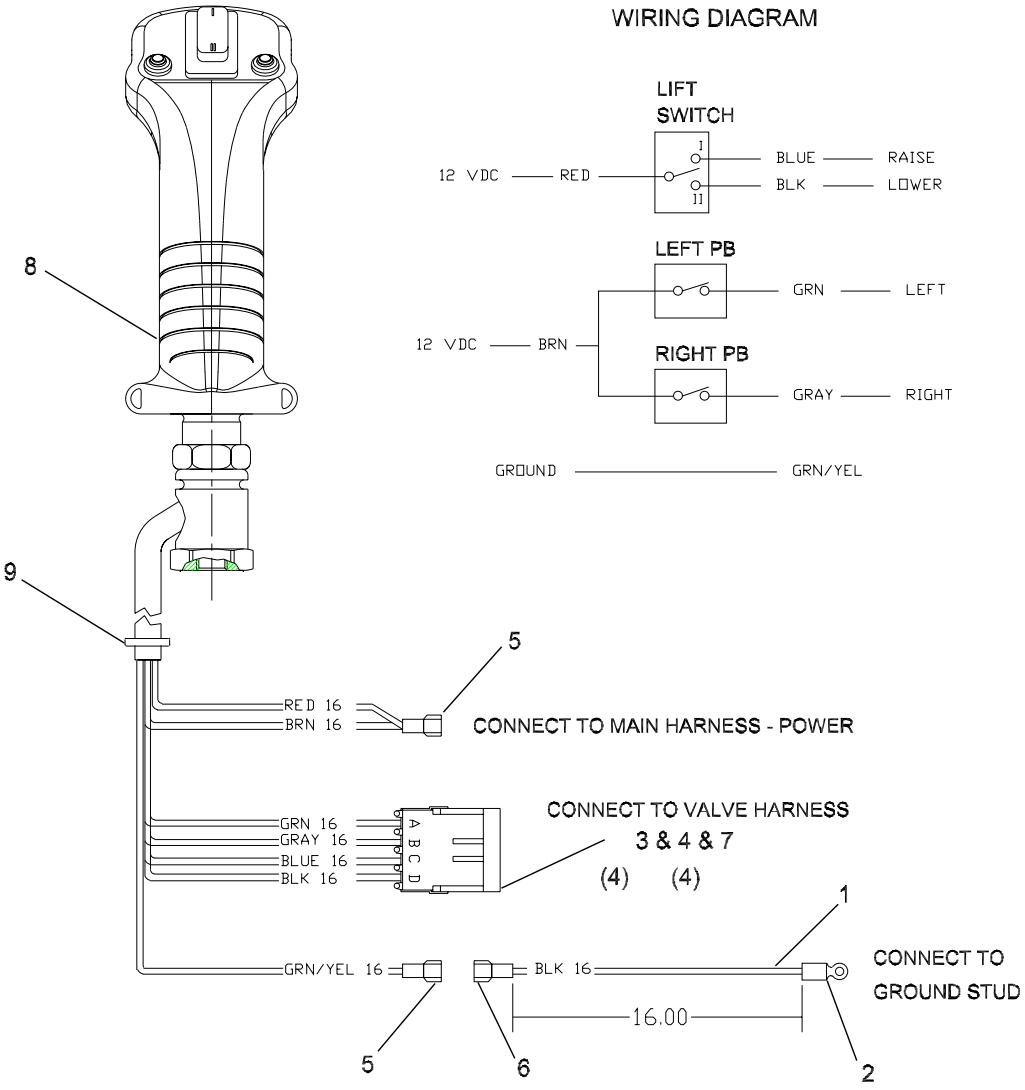


FIGURE 34. HARNESS, JOYSTICK TO VALVE

FIGURE 34. HARNESS, JOYSTICK TO VALVE

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
34	**28476**	**•HARNESS,JOYSTICK TO VALVE (SEE FIG 33 FOR NHA)**	**1**
1	33271-0	••WIRE,16GA,GRAY	5.5
2	33271-1	••WIRE,16GA,BLACK	6
3	33271-4	••WIRE,16GA,GREEN	5.5
4	33271-11	••WIRE,16GA,BLUE	5.5
5	33596	••TIE WRAP,.188X7.500	2
6	35138	••CONNECTOR,SEALED,SHROUD,2-PIN	2
7	36164	••TERM,SEALED CONN,16-14 GA,MALE	4
8	36165	••TERM,SEALED CONN,16-14 GA,FEM	4
9	36166	••SEAL,CABLE,18-16 GA,GREEN	8
10	36352	••CONNECTOR,SEALED,TOWER,4-PIN	1
11	71060	••LOOM,SPLIT,CONVOLUTED,.250	5.25
12	36348	••TERM,PUSH-ON,.25,M,18-14,SLV	1



NOTE: Do not put pins into 4-pin watertight shroud. Wires to be run through hole in mounting plate, then the pins inserted into shroud.

FIGURE 35. CONTROL HANDLE

FIGURE 35. CONTROL HANDLE

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
35	**28477**	**•CONTROL HANDLE (SEE FIGURE 33 FOR NHA)**	**1**
1	33271-1	••WIRE,16 GA,BLACK	1.33
2	33607	••TERM,RING,16-14 GA,.250 STUD	1
3	36164	••TERM,SEALED CONN,16-14 GA,MALE	4
4	36166	••SEAL,CABLE,18-16 GA	4
5	36348	••TERM,PUSH-ON,.25,M,18-14,SLV	2
6	36349	••TERM,PUSH-ON,.25,FEM,18-14,SLV	1
7	36351	••CONNECTOR,SEALED,SHROUD,4-PIN	1
8	38820	••CONTROL HANDLE,RB48	1
9	35465-06	••GROMMET,INSULATION,.375ID	1

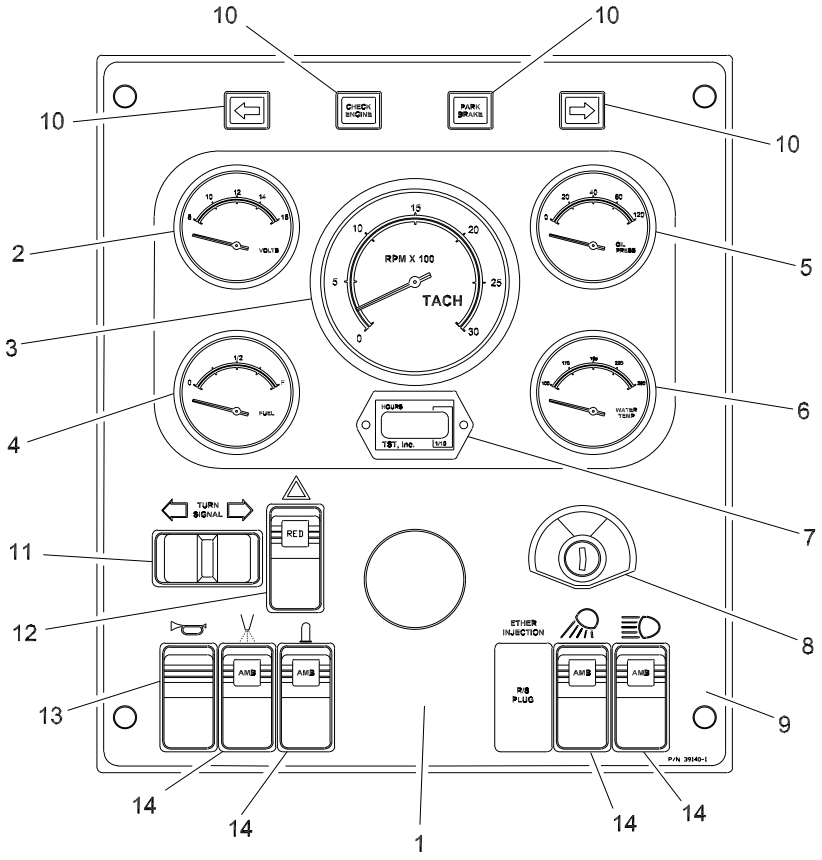


FIGURE 36. INSTRUMENT PANEL

FIGURE 36. INSTRUMENT PANEL

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
36	**39140**	**INSTRUMENT PANEL**	**1**
1	39140-1	•DECAL,RB48,INSTRUMENT PANEL	1
2	39140-2	•VOLTMETER	1
3	39140-3	•TACHOMETER	1
4	39140-4	•GAUGE,FUEL	1
5	39140-5	•GAUGE,OIL PRESSURE	1
6	39140-6	•GAUGE,WATER TEMP	1
7	39140-7	•HOURMETER,DIGITAL	1
8	39140-8	•SWITCH,KEY,OFF-ON-(ON)	1
9	39140-9	•OVERLAY	1
10	39140-10	•LIGHTS,EURO,SMOKED LENS,GREEN/RED FILTER	4
11	39140-11	•ROCKER,PADDLE,ON-OFF-ON,N.I.,DPDT	1
12	39140-12	•ROCKER,ON-OFF,RED W.I.,SPST	1
13	39140-13	•ROCKER,ON-OFF,N.I.,SPST	1
14	31940-14	•ROCKER,ON-OFF,AMBER W.I.,SPST	4
15	29403	•WIRING SCHEMATIC,RB48/SWEEPPRO (Schem. at end of IPL)	1
-50	**21168**	**DEFROSTER FAN GROUP, SINGLE**	**1**
-501	33271-5	•WIRE,16 GA,WHITE	0.5
-502	35425	•DEFROSTER FAN ASSY 12 VOLT	1
-503	35426	•SWITCH,DEFROSTER FAN	1
-504	35465-06	•GROMMET,INSULATION,.375ID	1
-505	36348	•TERM,PUSH-ON,.25,M,18-14,SLV	1
-506	36739	•CONN,1 WAY,MALE,LOCKING	1
-507	36747	•FUSE,4 AMP,ATC	1
-508	70953	•CONN,MALE TERMINAL	1
-509	851390204	•TERM,RING,16-14 GA,#10 STUD	1

- ITEM NOT ILLUSTRATED

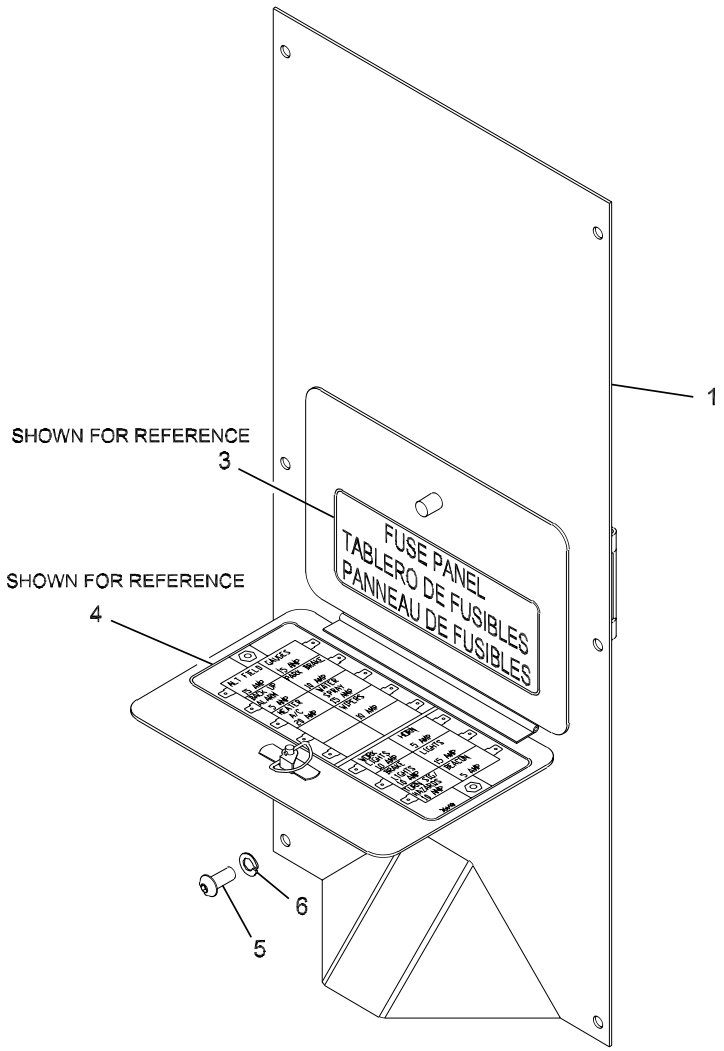


FIGURE 37. INSTRUMENT FUSE PANEL

FIGURE 37. INSTRUMENT FUSE PANEL

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
37	**28032**	**INSTRUMENT FUSE PANEL**	**1**
1	21078	•INSTRUMENT PANEL W/M,RB48	1
-2	26970	•FUSE PANEL SUB-ASSY (SEE FIGURE 38 FOR BREAKDOWN)	1
3	36696	•DECAL,FUSE PANEL (Part of Decal Group)	REF
4	38504	•DECAL,FUSE PANEL (Part of Decal Group)	REF
5	81106	•CSBHS,.250-20X.75,SS	6
6	80160	•WASHER,LOCK,.250	6

- ITEM NOT ILLUSTRATED

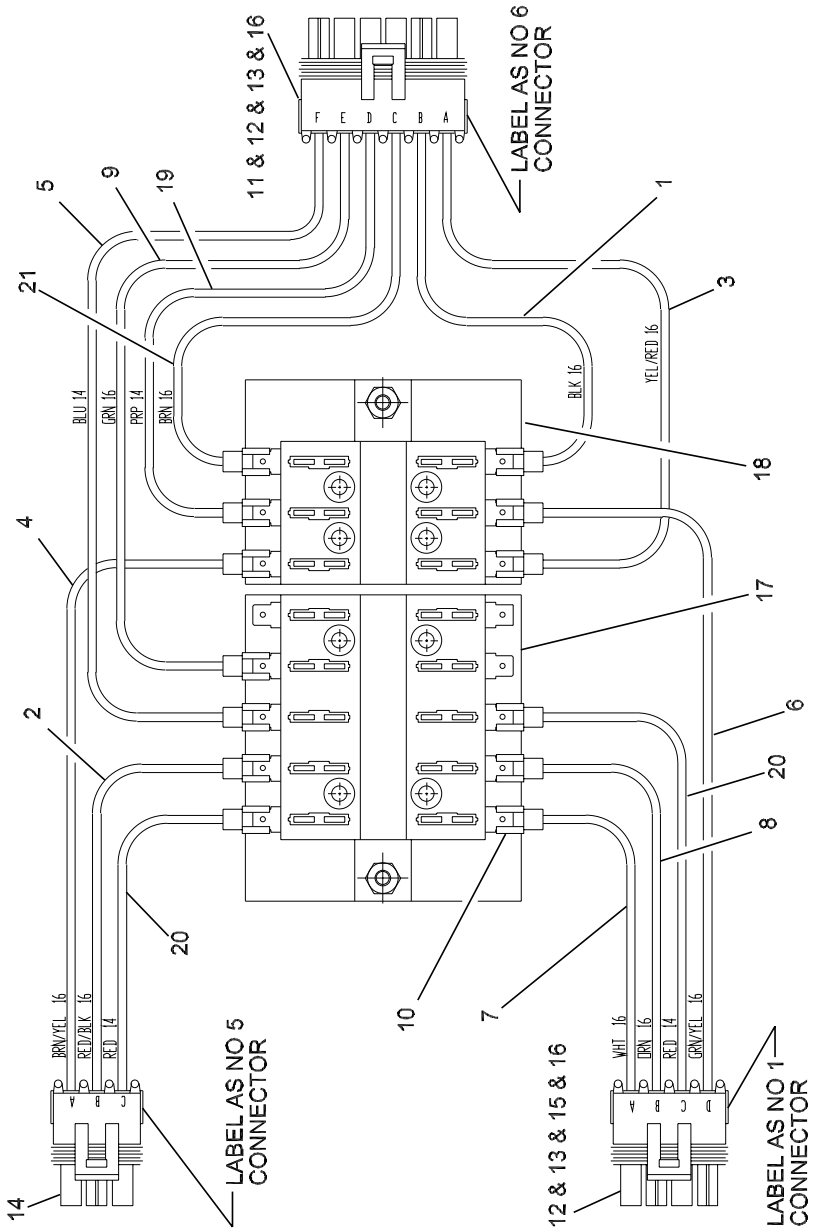


FIGURE 38. FUSE PANEL SUB-ASSEMBLY

FIGURE 38. FUSE PANEL SUB-ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
38	**26970**	**•FUSE PANEL SUB-ASSEMBLY (SEE FIGURE 37 FOR NHA)**	**1**
1	33271-1	••WIRE,16 GA,BLACK	1
2	33271-12	••WIRE,16 GA,RED/BLACK STRIPE	1
3	33271-14	••WIRE,16 GA,YELLOW/RED STRIPE	1
4	33271-15	••WIRE,16 GA,BROWN/YELLOW STRIPE	1.25
5	71062	••WIRE,14 GA,BLUE	1.25
6	33271-19	••WIRE,16 GA,GREEN/YEL STRIPE	1.33
7	33271-5	••WIRE,16 GA,WHITE	1
8	33271-6	••WIRE,16 GA,ORANGE	1
9	33271-4	••WIRE,16 GA,GREEN	1.25
10	33600	••TERM,PUSH-ON,.25,FEM,16-14 GA	13
11	36163	••CONNECTOR,SEALED,TOWER,6-PIN	1
12	36165	••TERM,SEALED CONN,16-14 GA,FEM	13
13	36166	••SEAL,CABLE,18-16 GA	10
14	36300	••CONNECTOR,SEALED,TOWER,3-PIN	1
15	36352	••CONNECTOR,SEALED,TOWER,4-PIN	1
16	36623	••SEAL,CABLE,14 GA	3
17	36694	••FUSE BLOCK,10 GANG,ATC	1
18	36695	••FUSE BLOCK,6 GANG,ATC	1
19	35174	••WIRE,14 GA,PURPLE	1
20	71065	••WIRE,14 GA,RED	2
21	33271-3	••WIRE,16 GA,BROWN	1.25

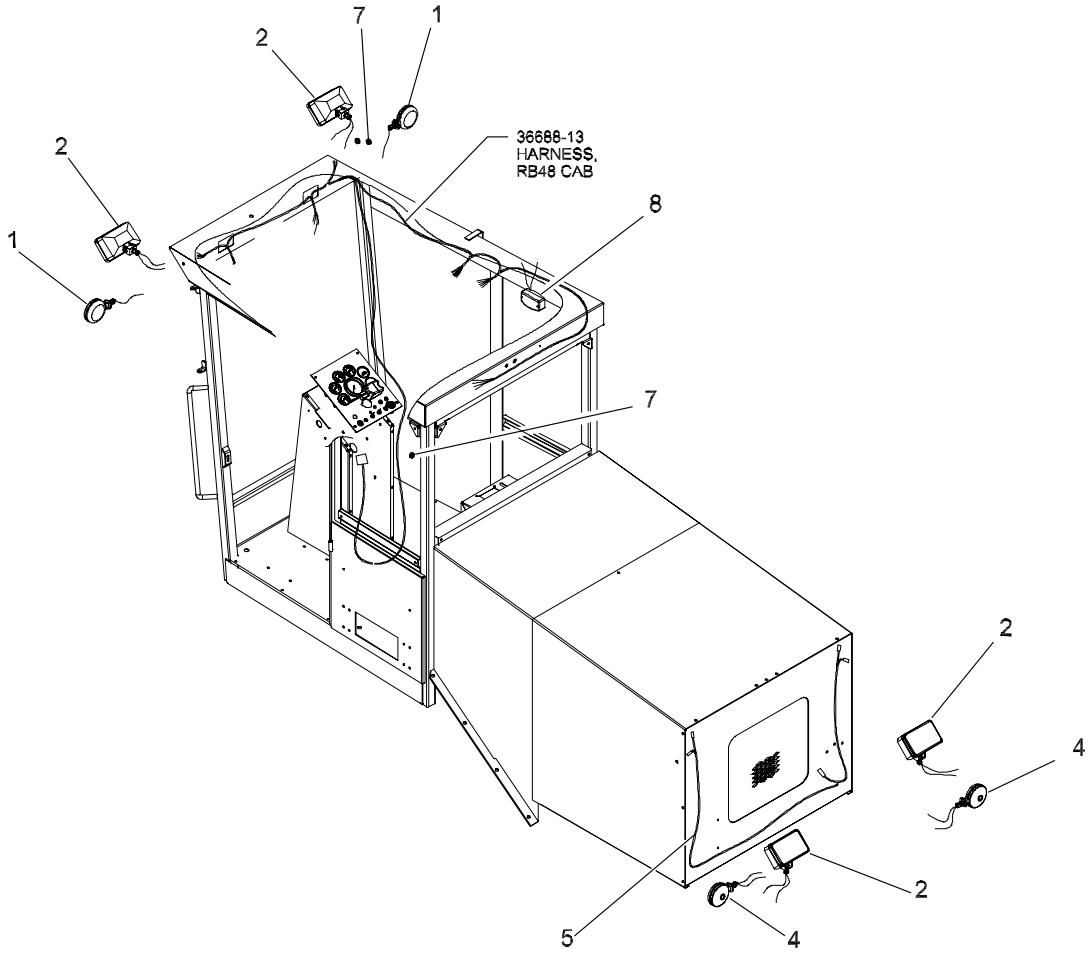


FIGURE 39. LIGHTS AND MIRROR GROUPS

FIGURE 39. LIGHTS AND MIRROR GROUPS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
39	**28246**	**LIGHTS AND MIRROR GROUPS**	**1**
1	6161	•LIGHT,TURN SIGNAL,AMBER	2
2	160040A	•WORK LIGHT	4
4	851342007	•LIGHT,TURN/BRAKE,RED	2
5	28353	•WIRE HARNESS,REAR/WORK LIGHTS (Schem at end of IPL)	1
7	35465-06	•GROMMET,INSULATION,.375ID	3
8	38840	•LIGHT,DOME	1
-9	35139	•CONNECTOR,SEALED,TOWER,2-PIN	2
-10	35213	•HOLDER,WIRE TIE,ADHESIVE BACK	1
-11	36165	•TERM,SEALED CONN,16-14 GA,FEM	4
-12	36166	•SEAL,CABLE,18-16 GA	4
-13	36340	•FUSE,10 AMP,ATC	1
-14	36349	•TERM,PUSH-ON,.25,FEM,18-14,SLV	7
-15	36746	•FUSE,5 AMP,ATC	1
-16	70953	•CONN,MALE TERMINAL	6
-17	72135	•TERM,RING,12-10 GA,.500 STUD	2
-19	851390204	•TERM,RING,16-14 GA,#10 STUD	3
-TBD	38687	•LIGHT,STROBE,AMBER,8J,80SFPM	1
-50	**21176**	**MOUNT,WARNING LIGHT GROUP**	**1**
-501	16962	•MOUNT,RISER,STROBE LIGHT	1
-502	35465-06	•GROMMET,INSULATION,.375ID	2
-503	36746	•FUSE,5 AMP,ATC	1
-504	80140	•WASHER,FLAT,USS,.250	4
-505	80141	•WASHER,FLAT,USS,.313	4
-506	80161	•WASHER,LOCK,.312	4
-507	80192	•CSHH,.250-20X.75,GR5	4
-508	80202	•CSHH,.312-18X.50,GR5	4
-509	80350	•NUT,FLEXLOC,.250-20,FULL,LT	4
-60	**25703**	**MIRROR GROUP, 7x16 WEST COAST**	**1**
-601	38057	•MIRROR,WEST COAST,7X16	1
-602	80219	•CSHH,.375-16X.75,GR5	2
-603	80142	•WASHER,FLAT,USS,.375	4
-604	80352	•NUT,FLEXLOC,.375-16,FULL,LT	2

- ITEM NOT ILLUSTRATED

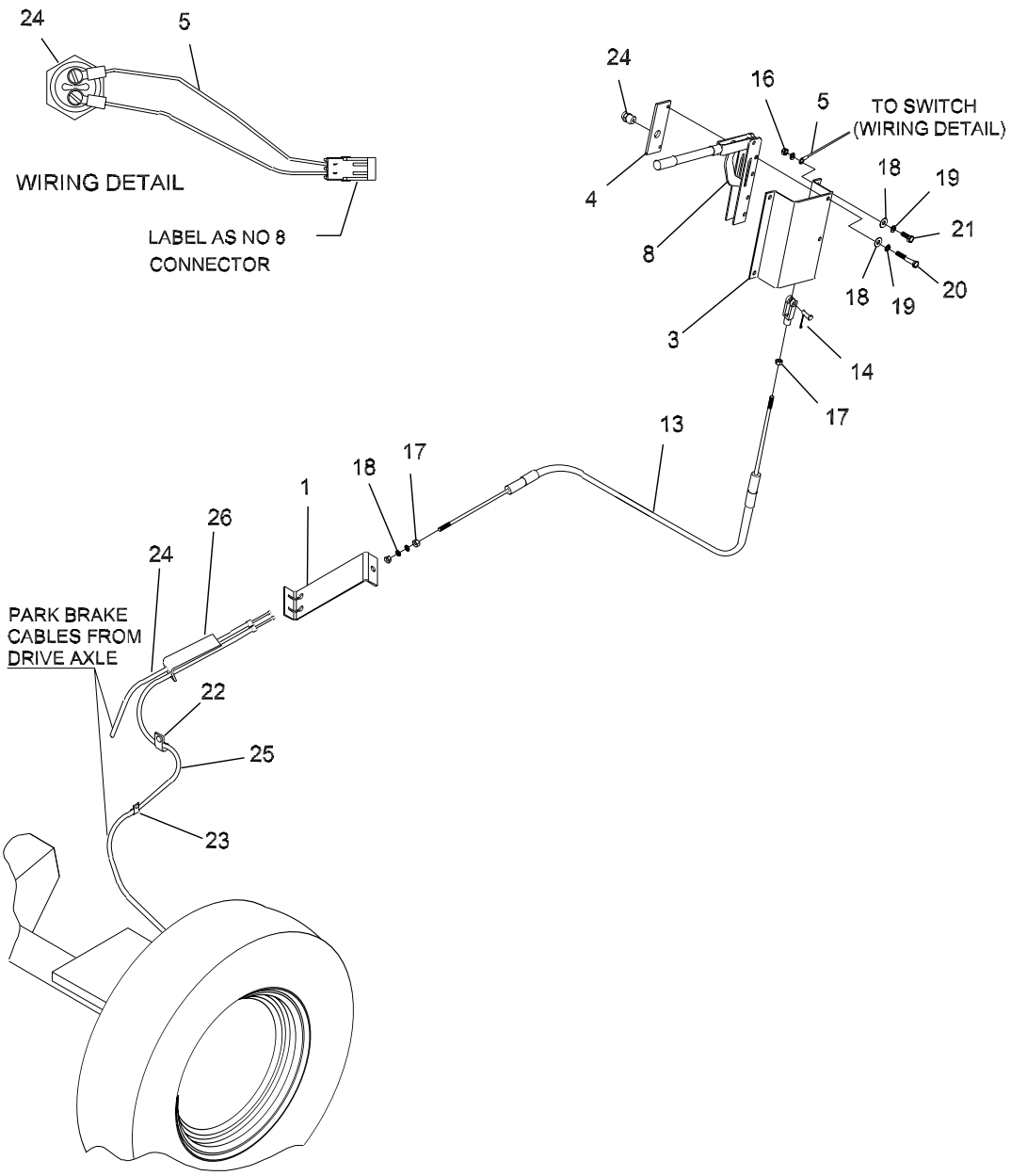


FIGURE 40. PARK BRAKE GROUP

FIGURE 40. PARK BRAKE GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
40	**21250**	**PARK BRAKE GROUP**	**1**
1	16837	•PULLEY,PARK BRAKE CABLE	1
3	21217	•BRACKET,BRAKE LEVER	1
4	21218	•MOUNT,BRAKE SWITCH	1
5	33271-1	•WIRE,16 GA,BLACK	0.5
8	34299	•LEVER,BRAKE,12 IN HANDLE	1
13	36797	•CABLE,BRAKE,	1
14	6427	•CLEVIS,.313-24 UNF W/PIN	2
16	80037	•NUT,HEX,.312-18	1
17	80055	•NUT,HEX,.312-24	2
18	80141	•WASHER,FLAT,USS,.313	6
19	80161	•WASHER,LOCK,.312	7
20	80208	•CSHH,.312-18X1.00,GR5	4
21	80214	•CSHH,.312-18X2.25,GR5	2
22	871111602	•CLAMP,INSULATED BAND,3/4”	1
23	871111605	•CLAMP,INSULATED BAND,1/2”	1
24	951091224	•SWITCH,SAFETY START	1
25	983573	•CABLE,PARK BRAKE,LH,BROOMS	1
26	983574	•CABLE,PARK BRAKE,RH,BROOMS	1
-27	984206	•ANGLE,BRAKE CABLE BRKT	1

- ITEM NOT ILLUSTRATED

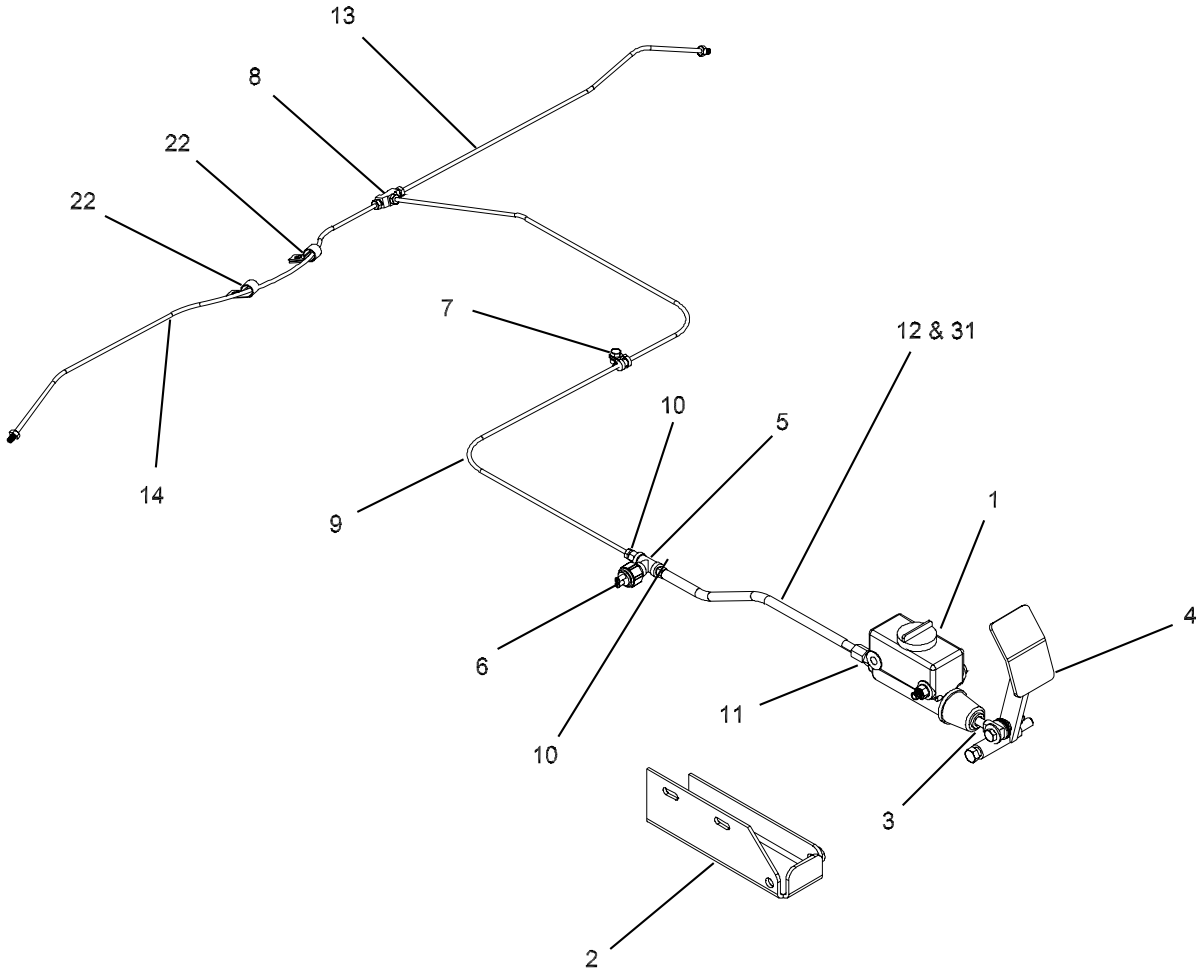


FIGURE 41. HYDRAULIC BRAKE GROUP

FIGURE 41. HYDRAULIC BRAKE GROUP

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
41	**28242**	**HYDRAULIC BRAKE GROUP, REAR ONLY**	**1**
1	38314	•MASTER CYL,BRAKE	1
2	28649	•BRACKET,BRAKE PEDAL/CYLINDER	1
3	28647	•PUSHROD,BRAKE	1
4	28650	•BRAKE PEDAL,W/M	1
5	33557	•FITT,TEE 02FM,BRASS	1
6	32131	•SWITCH,STOP LAMP,HYD TYPE,NO	1
7	33594	•CLAMP,LOOP,.25 OD,REM CUSHION	9
8	33949	•FITT,TEE 03IFF,BRASS	1
9	33953-116	•BRAKE LINE,.188X116	1
10	39059	•FITT,STR 02MP-03IFF,BRASS	2
11	38277	•FITT,MASTER CYL ADAPTOR	1
12	33953-15	•BRAKE LINE,.188X15	1
13	33953-20	•BRAKE LINE,.188X20	1
14	33953-50	•BRAKE LINE,.188X50	1
-15	80038	•NUT,HEX,.375-16	2
-17	80095	•NUT,HEX,JAM,.625-18	1
-18	80160	•WASHER,LOCK,.250	3
-19	80162	•WASHER,LOCK,.375	2
-20	80192	•CSHH,.250-20X.75,GR5	3
-21	871111602	•CLAMP,INSULATED BAND,3/4"	1
22	871111605	•CLAMP,INSULATED BAND,1/2"	2
-23	80350	•NUT,FLEXLOC,.250-20,FULL,LT	1
-24	80142	•WASHER,FLAT,USS,.375	10
-25	80230	•CSHH,.375-16X2.00,GR5	1
-26	80353	•NUT,FLEXLOC,.438-14,FULL,LT	1
-27	80790	•CSHH,.437-14X3.75,GR5	1
-28	71620	•CSHH,.375-16X3.00,GR5	2
-29	38278	•GASKET,MASTER CYL	1
-30	80093	•NUT,HEX,JAM,.500-20	1
31	71870	•LOOM,SPLIT,CONVOLUTED,.750	1.3
-32	90707	•FLUID,BRAKE	0.1255

- ITEM NOT ILLUSTRATED

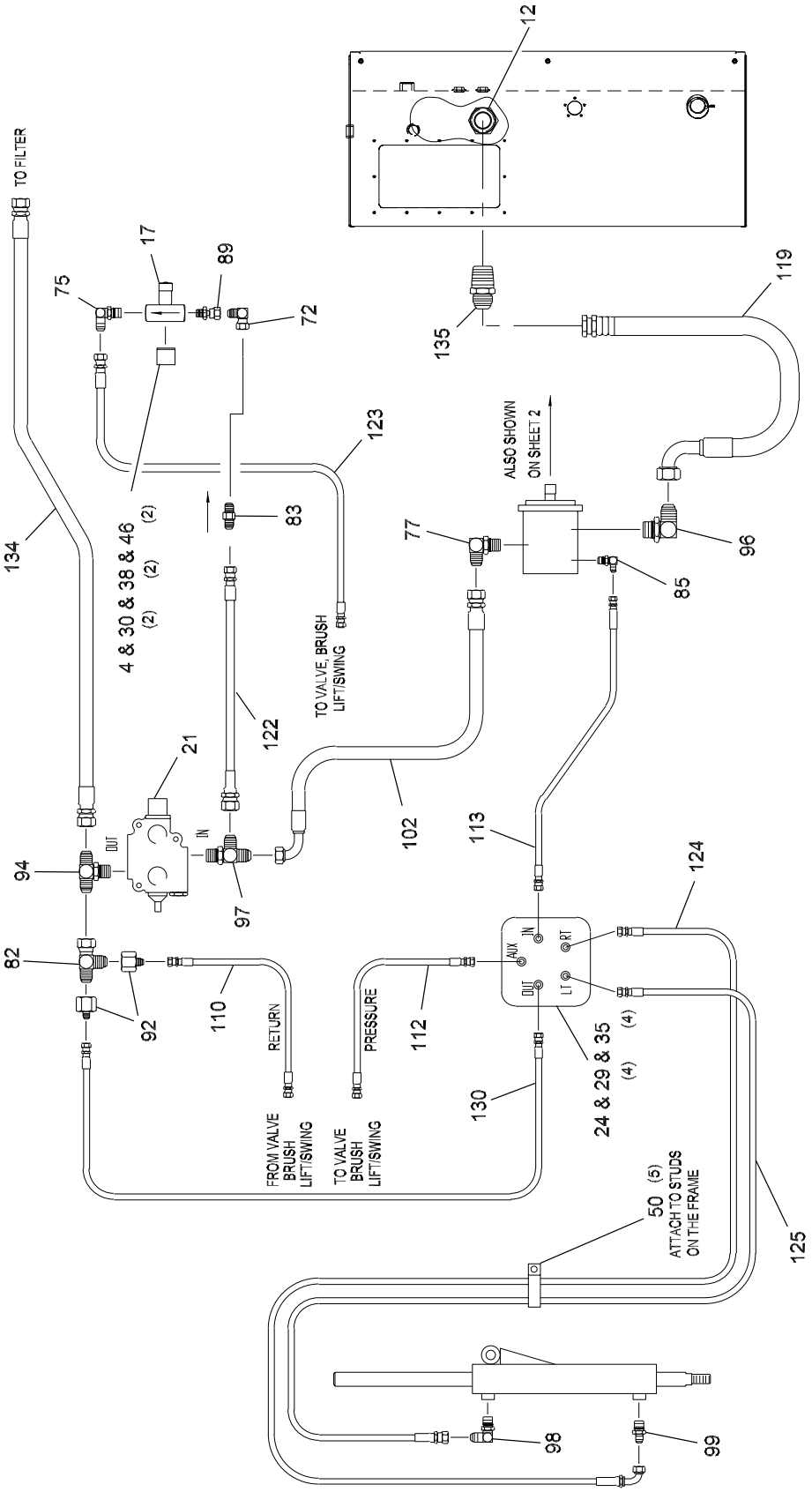


FIGURE 42. HYDRAULICS GROUP (SHEET 1 OF 5)

FIGURE 42. HYDRAULICS GROUP (PAGE 1 OF 5)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
42	**29085**	**HYDRAULICS GROUP**	**1**
4	17670	•CLAMP,NEEDLE VALVE	1
12	33148	•STRAINER,SUCT,2NPT,25GPM,100ME	1
17	35552	•VLV,NEEDLE,HYDRAULIC	1
21	36648	•VLV,MOTOR	1
24	39045	•MOTOR,HYD,POWER STEERING	1
29	80055	•NUT,HEX,.312-24	4
35	80161	•WASHER,LOCK,.312	36
38	80192	•CSHH,.250-20X.75,GR5	2
46	80350	•NUT,FLEXLOC,.250-20,FULL,LT	2
50	35786	•CLAMP,DOUBLE TUBE,.75 ID	6
83	38641	•VALVE,CHECK,.375 MJ,20 PSI	2
-22	39077	•HOSE KIT,RB48,2003	1
		ATTACHING PARTS	
72	X387	••FITT,90 06MJ-06FJX	5
75	70754	••FITT,90 08MJ-06MB	1
77	71775	••FITT,90 12MJ-12MB	5
82	33160	••FITT,TEE 12MJ-12FJX-12MJ	2
85	33892	••FITT,90 06MJ-06MB	3
89	37536	••FITT,STR 06MB-06FJX	2
92	X326	••FITT,STR 06MJ-12FJ	2
94	72566	••FITT,TEE 12MJ-12MJ-12MB	1
96	X319	••FITT,90 16MJ-16MB	4
97	X324	••FITT,TEE 12MJ-12MB-12MJ	2
98	6410	••FITT,90 08MJ-08MB	1
99	70062	••FITT,STR 08MJ-08MB	1
102	36802	••HOSE,12,12FJX-12RJ90,3000	1
110	72550-045	••HOSE,06,06FJX-06FJX,3000	1
112	72550-072	••HOSE,06,06FJX-06FJX,3000	1
113	72550-073	••HOSE,06,06FJX-06FJX,3000	1
119	72569-038	••HOSE,16,16FJX-16RJ90,250	1
122	38817-022	••HOSE,08,06FJX-12FJX,3000	1
123	72597-059	••HOSE,08,06FJX-08FJX,3000	1
124	72598-132	••HOSE,06,06FJX-08RJ90,3000	1
125	72599-121	••HOSE,06FJX-08FJX,3000	1
130	36524-07	••HOSE ASSY,3000 PSI,-06 X 51.00	1
134	72560-058	••HOSE,12,12FJX-12FJX,1250	1
135	35780	••FITT,STR 16MJ-20MP	1
		-----*-----	

- ITEM NOT ILLUSTRATED

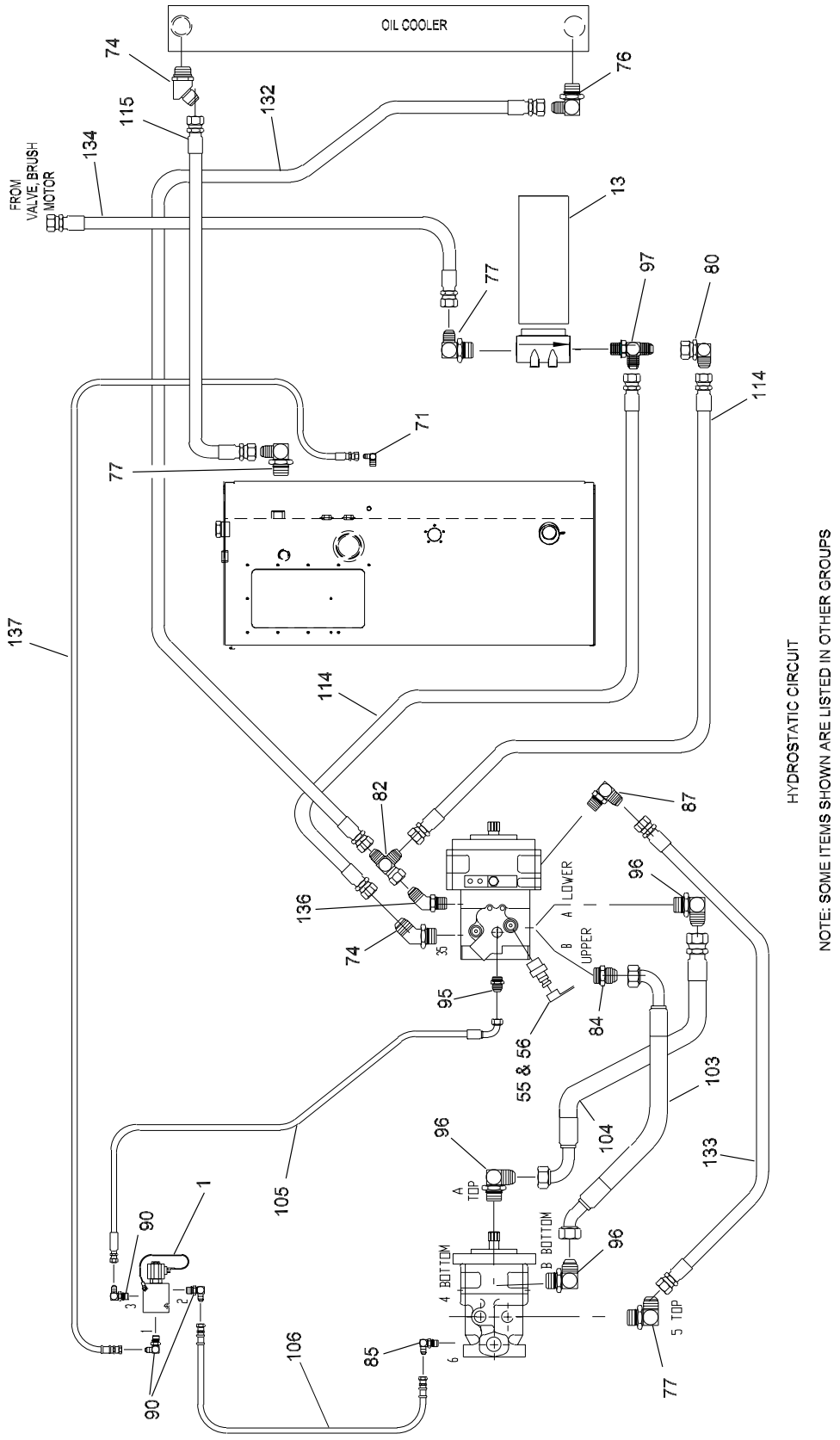


FIGURE 42. HYDRAULICS GROUP (SHEET 2 OF 5)

FIGURE 42. HYDRAULICS GROUP (PAGE 2 OF 5)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
42	**29085**	**HYDRAULICS GROUP**	**1**
1	16919	•HARNESS,WIRE,JUMPER	1
13	34463	•FILTER ASSY,HYD RETURN	1
55	72372	•FITT,PLUG 02PD,DUST	1
56	72689	•FITT,TEST 06MB-02PD	1
-22	39077	•HOSE KIT,RB48,2003	1
		ATTACHING PARTS	
71	71822	••FITT,90 04MJ-04MP	1
74	38203	••FITT,45 12MJ-16MB	2
76	71771	••FITT,90 12MJ-16MB	1
77	71775	••FITT,90 12MJ-12MB	5
78	71882	••FITT,STR 12MJ-10MB	2
80	X365	••FITT,90 12MJ-12FJX	3
82	33160	••FITT,TEE 12MJ-12FJX-12MJ	2
84	33887	••FITT,STR 16MJ-16MB	1
85	33892	••FITT,90 06MJ-06MB	3
87	34083	••FITT,90 12MJ-10MB	2
90	35562	••FITT,90 04MJ-06MB	3
95	X217	••FITT,STR 06MJ-06MB	4
96	X319	••FITT,90 16MJ-16MB	4
97	X324	••FITT,TEE 12MJ-12MB-12MJ	2
103	36803	••HOSE,16,16RJ45-16RJ90,6000	1
104	36804	••HOSE,16,16FJX-16RJ90,6000	1
105	72415-019	••HOSE,04,04FJX-06FJX,3000	1
106	72415-047	••HOSE,04,04FJX-06FJX,3000	1
114	72560-040	••HOSE,12,12FJX-12FJX,1250	2
115	72560-070	••HOSE,12,12FJX-12FJX,1250	1
132	72560-082	••HOSE,12,12FJX-12FJX,1250	1
133	72560-030	••HOSE,12,12FJX-12FJX,1250	1
134	72560-058	••HOSE,12,12FJX-12FJX,1250	1
136	33327	••FITT,45 12MJ-12MB	1
137	72416-015	••HOSE,04,04FJ-04FJ,2500	1
		-----*-----	

- ITEM NOT ILLUSTRATED

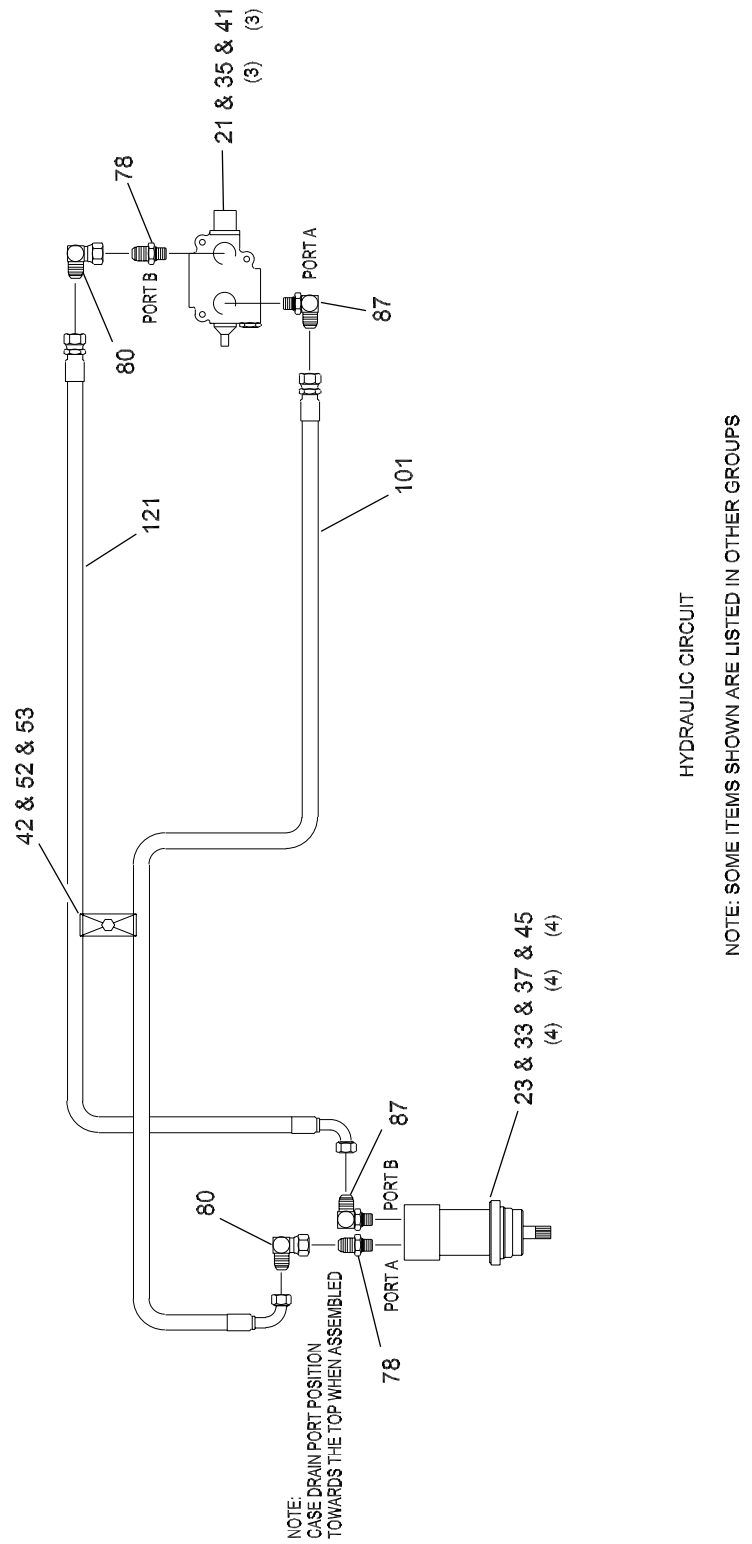


FIGURE 42. HYDRAULICS GROUP (SHEET 3 OF 5)

FIGURE 42. HYDRAULICS GROUP (PAGE 3 OF 5)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
42	**29085**	**HYDRAULICS GROUP**	**1**
21	36648	•VLV,MOTOR	1
23	983599	•MOTOR,HYD,BRUSH DRIVE	1
33	80144	•WASHER,FLAT,USS,.500	4
35	80161	•WASHER,LOCK,.312	36
37	80164	•WASHER,LOCK,.500	4
41	80209	•CSHH,.312-18X1.50,GR5	3
42	80214	•CSHH,.312-18X2.25,GR5	2
45	80253	•CSHH,.500-20X1.50,GR5	4
52	35541	•CLAMP,COVER PLATE	2
53	38280	•CLAMP HALF,1-1/4" HOSE	4
-22	39077	•HOSE KIT,RB48,2003	1
		ATTACHING PARTS	
78	71882	••FITT,STR 12MJ-10MB	2
80	X365	••FITT,90 12MJ-12FJX	3
87	34083	••FITT,90 12MJ-10MB	2
101	36801-110	••HOSE,12,12FJX-12RJ90,3000	1
121	36801-114	••HOSE,12,12FJX-12RJ90,3000	1
		-----*-----	

- ITEM NOT ILLUSTRATED

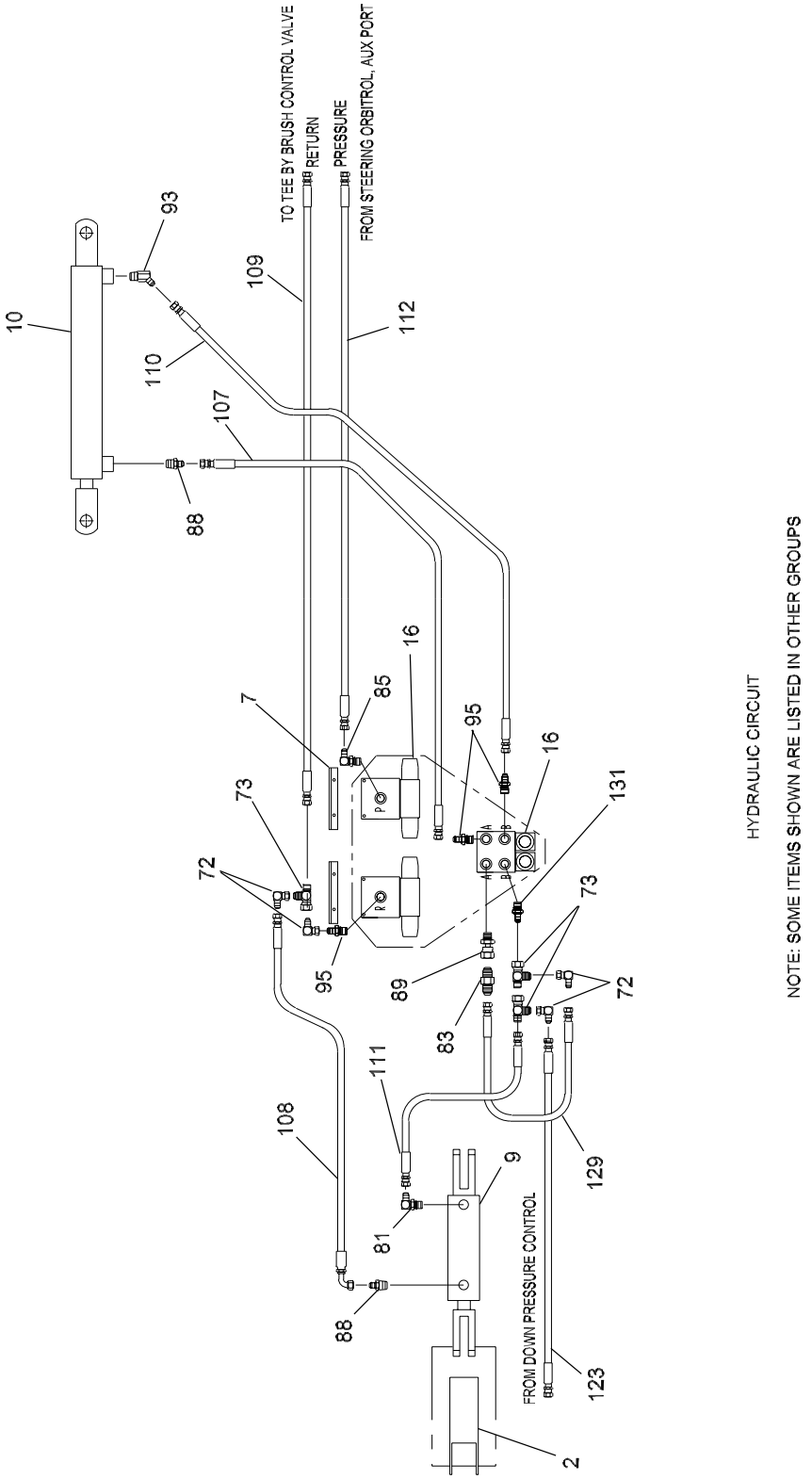


FIGURE 42. HYDRAULICS GROUP (SHEET 4 OF 5)

FIGURE 42. HYDRAULICS GROUP (PAGE 4 OF 5)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
42	**29085**	**HYDRAULICS GROUP**	**1**
2	17490	•CYLINDER STOP,LIFT CYLINDER	1
7	28492	•MOUNT,VALVE BLOCK	2
9	31884A	•CYL,HYD,2.50X6.00X1.125 ROD	1
10	750610	•CYL,HYD,2.50X16.00X	1
16	38814	•MANIFOLD,HYD,2 STA,D03	1
		ATTACHING PARTS	
-1601	38814-01	••MANIFOLD	1
-1602	37488-01	••VALVE	2
-1603	35139	••CONNECTOR,SEALED,TOWER,2-PIN	2
-1604	36165	••TERM,SEALED CONN,16-14 GA,FEM	4
-1605	36166	••SEAL,CABLE,18-16 GA	4
-1606	851390257	••TERM,RING,12-10 GA,.250 STUD	2
-1607	71060	••LOOM,SPLIT,CONVOLUTED,.250	3
-1608	851201417	••TIE WRAP,.094X4.00	3
		-----*-----	
83	38641	•VALVE,CHECK,.375 MJ,20 PSI	2
-22	39077	•HOSE KIT,RB48,2003	1
		ATTACHING PARTS	
72	X387	••FITT,90 06MJ-06FJX	5
73	36490	••FITT,TEE 06MJ-06FJX-06MJ	3
81	X383	••FITT,90 06MJ-06MP	1
85	33892	••FITT,90 06MJ-06MB	3
88	37297	••FITT,STR 06MJ-06MP,.078 ORF	2
89	37536	••FITT,STR 06MB-06FJX	2
93	36635	••FITT,45 06MJ-06MP	1
95	X217	••FITT,STR 06MJ-06MB	4
107	72550-035	••HOSE,06,06FJX-06FJX,3000	1
108	72549-077	••HOSE,06,06FJX-06RJ90,3000	1
109	72550-041	••HOSE,06,06FJX-06FJX,3000	1
110	72550-045	••HOSE,06,06FJX-06FJX,3000	1
111	72550-068	••HOSE,06,06FJX-06FJX,3000	1
112	72550-072	••HOSE,06,06FJX-06FJX,3000	1
123	72597-059	••HOSE,08,06FJX-08FJX,3000	1
129	36524-06	••HOSE ASSY,3000 PSI,-06 X 29.00	1
131	39014	••FITT,STR 06MJ-06MB,W/.125 ORF.	1
		-----*-----	

- ITEM NOT ILLUSTRATED

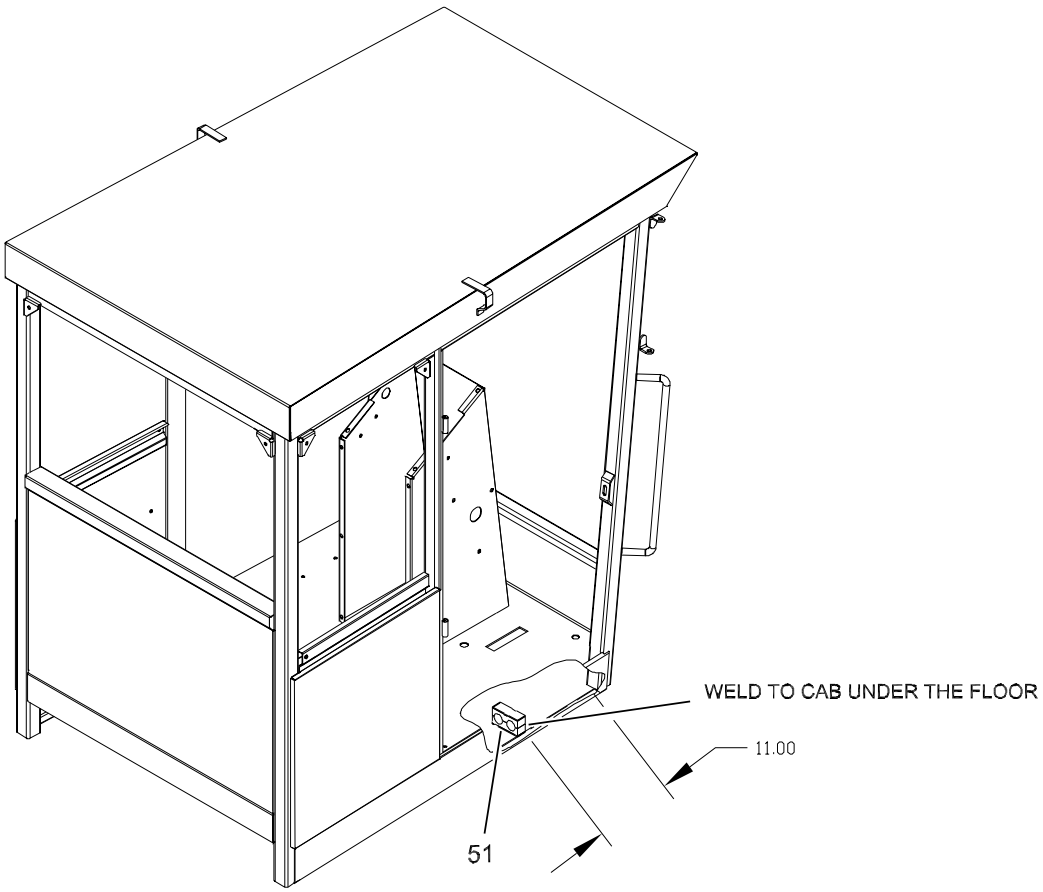


FIGURE 42. HYDRAULICS GROUP (SHEET 5 OF 5)

FIGURE 42. HYDRAULICS GROUP (PAGE 5 OF 5)

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
42	**29085**	**HYDRAULICS GROUP**	**1**
-3	34798	•CLAMP,INSULATED BAND,1-1/4"	2
-28	72149	•VLV,HYD,SOL,3 WAY,06 ORB PORTS	1
-30	80140	•WASHER,FLAT,USS,.250	4
-31	80141	•WASHER,FLAT,USS,.313	12
-32	80142	•WASHER,FLAT,USS,.375	6
-34	80160	•WASHER,LOCK,.250	2
-36	80162	•WASHER,LOCK,.375	12
-39	80194	•CSHH,.250-20X1.50,GR5	2
-40	80208	•CSHH,.312-18X1.00,GR5	32
-43	80219	•CSHH,.375-16X.75,GR5	8
-44	80221	•CSHH,.375-16X1.00,GR5	6
-47	80352	•NUT,FLEXLOC,.375-16,FULL,LT	2
-49	99605	•PIPE,NIPPLE,.750X8.00	1
51	35543	•WELD PLATE	1
-54	RES1001	•HYD OIL SPECIFICATIONS	A/R
-TBD	210060	•PIN,CLEVIS,1.00X2.625 W/1.5HD	3

- ITEM NOT ILLUSTRATED

FIGURE 43. FILTER KITS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
	TBD	FILTER KITS	A/R
-1	28817	•KIT,FILTER,RB48,CUM 3.3	1
-101	33291	••FILTER,FUEL,INLINE	1
-102	34464	••FILTER ELEMENT,HYD	2
-103	36643-01	••FILTER ELEMENT,AIR,PRIMARY	1
-104	38734-01	••FILTER ELEMENT,OIL	1
-105	38734-02	••FILTER ELEMENT,FUEL	1
-106	171150	••FILTER ELEMENT,AIR,SAFETY	1
-2	28825	•KIT,FILTER/BELT,RB48,CUM 3.3	1
-201	33291	••FILTER,FUEL,INLINE	1
-202	34464	••FILTER ELEMENT,HYD	2
-203	36643-01	••FILTER ELEMENT,AIR,PRIMARY	1
-204	36745-31	••FILTER PAD,CAB AIR	1
-205	38653-01	••FILTER ELEMENT,CAB AIR	1
-206	38734-01	••FILTER ELEMENT,OIL	1
-207	38734-02	••FILTER ELEMENT,FUEL	1
-208	38734-03	••BELT,ALT,3.3 ENG	1
-209	38842	••V BELT,4L 39.00X.500	1
-210	171150	••FILTER ELEMENT,AIR,SAFETY	1
-3	28890	•KIT,FILTER,RB48,CATERPILLAR	1
-301	171150	••FILTER ELEMENT,AIR,SAFETY	1
-302	34464	••FILTER ELEMENT,HYD	2
-303	36643-01	••FILTER ELEMENT,AIR,PRIMARY	1
-304	38144-02	••FILTER ELEMENT,OIL	1
-305	38144-03	••FILTER ELEMENT,FUEL	1
-306	38217	••FILTER,FUEL,INLINE,5/16 HOSE	1

- ITEM NOT ILLUSTRATED

FIGURE 44. FINAL AND MISCELLANEOUS GROUPS

FIG ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
	21092	**FINAL GROUP**	**1**
-1	730-3050	•SEAT BELT,2.00 W/HARDWARE	1
-2	80141	•WASHER,FLAT,USS,.313	2
-3	80208	•CSHH,.312-18X1.00,GR5	2
-4	80351	•NUT,FLEXLOC,.312-18,FULL,LT	2
-5	81159	•TACK,DIA.146/.104X.04 GRIP LG	4
-6	160450	•LATCH,ENG ACCESS PANEL	2
-7	33963	•ALARM,BACK UP	1
-8	34096	•PIN	2
-9	35136-11	•PLUG,HOLE,1.50,FLUSH MT,PLSTC	1
-10	35136-17	•PLUG,HOLE,3.50,FLUSH MT,PLSTC	1
-11	35136-19	•PLUG,HOLE,.438,FLUSH MT,PLSTC	1
-12	36735	•GRIP,.250X1.000X4.0	1
-13	38257	•DECAL,GREASE DAILY	1
-14	39141	•KIT,DECAL,RB48/SWEEPPR0	1
-15	5029	•FITT,90 02MP-04MC,BRASS	12
-16	720110	•HORN,12V	1
-17	72313	•HOLD DOWN,BATTERY	1
-18	P77703	•GASKET	2
-19	986425	•KIT,DECAL,DECORATIVE,RB48	1
-50	**984622**	**PAINT GROUP**	**1**
-501	853240	CATALYST,TOPCOAT	.9 GL
-502	853220	PAINT,YELLOW,LEEBOY TOPCOAT	4 GL
-503	981666	PAINT,BLACK,URETHANE,H-SOLID	.5 GL
-504	853230	PAINT,WHITE,PRIMER	2.3 GL
-60	**17898**	**SLOW MOVING VEHICLE SIGN**	**1**

- ITEM NOT ILLUSTRATED

ALPHABETICAL INDEX

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
29	36745-26	BLOWER PLATE	73
11	TBD	BOLT,1/4 X 20 X 1	39
11	N/A	BOLT,1/4-20	73
32	38967	BOLT,EYE,.625-11X1.75X1.38ID	27
5	25798	BOX,WATER PUMP	21
4	983264	BRACE,TOWBAR,END,CAP	39
10	26778	BRACKET,A/C COMPRESSOR	71
3	21217	BRACKET,BRAKE LEVER	113
2	28649	BRACKET,BRAKE PEDAL/CYLINDER	115
25	29176	BRACKET,DOOR,LH,W/M	65
24	29175	BRACKET,DOOR,RH,W/M	65
41	29262	BRACKET,FUSE BLOCK	81
36	38653-06	BRACKET,LH COIL	73
2	29131	BRACKET,LOCKING	37
3	25021	BRACKET,NEUTRAL SAFETY	99
35	38653-07	BRACKET,RH COIL	73
2	28718	BRACKET,W/M,FRONT	25
3	39051	BRAKE ACTUATOR,7500 LBS	37
10	32953	BRAKE HOSE ASSY	41
13	29192	BRAKE LINE BRACKET	37
5	33953-10	BRAKE LINE,.188X10	41
9	33953-116	BRAKE LINE,.188X116	115
12	33953-15	BRAKE LINE,.188X15	115
6	33953-15	BRAKE LINE,.188X15	41
13	33953-20	BRAKE LINE,.188X20	115
14	33953-50	BRAKE LINE,.188X50	115
7	33953-90	BRAKE LINE,.188X90	41
4	28650	BRAKE PEDAL,W/M	115
6	983185	BRKT,THROTTLE,CABLE,CAT/PER3.3	55, 57
100	28766	BRUSH CORE GROUP	19
101	28773	BRUSH CORE,W/M,QWK CHG	19
2	28768	BRUSH FRAME W/M,RB48,QWK CHG	17
7	28928	BRUSH MOUNT,MOTOR, W/M	31
10	39000	BRUSH,GUTTER,PLASTIC BACK,2 PC	31
400	38806	BRUSH,TUBE,32"X90",POLY	19
500	38831	BRUSH,TUBE,32"X90",POLY/STEEL	19
2	28941	BUMPER MOUNT,W/M	31
1	27481	BUSHING,.334 IDX.500 OD	91
18	36688-16	BUSHING,NYLON	91
36	36688-16	BUSHING,NYLON	79
		C	
9	38653	CAB AIR COND/HEATER KIT	71

ALPHABETICAL INDEX

ROSCO
A LeeBoy Company

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
1	76003-01	CAB W/M,RH SIDE,RB48	89
2	27572	CAB,W/M LH SIDE,RB48	89
12	5804	CABLE,BATTERY,NEG,13",EYE/EYE	55, 57
40	5804	CABLE,BATTERY,NEG,13",EYE/EYE	49
38	400020	CABLE,BATTERY,NEG,16",EYE/POST	49
47	400020	CABLE,BATTERY,NEG,16",EYE/POST	55, 57
39	800072	CABLE,BATTERY,POS,16",EYE/POST	49
22	852510	CABLE,BATTERY,POS,44",EYE/POST	55, 57
13	36797	CABLE,BRAKE,	113
25	983573	CABLE,PARK BRAKE,LH,BROOMS	113
26	983574	CABLE,PARK BRAKE,RH,BROOMS	113
31	32939-2	CABLE,PUSH/PULL,54"X3" STROKE	99
21	36749-03	CABLE,ROTARY CONTROL	73
31	36749-04	CABLE,ROTARY CONTROL	73
6	36688-25	CAM LATCH,RH	91
17	35338-17	CAP,CLOSED	11
5	36105	CAP,FUEL,W/LOCK LUG	67
16	35338-16	CAP,OPEN	11
5	20891	CAP,SPINDLE	17
6	300010	CAP,STEERING WHEEL	97
6	983266	CAP,TOWBAR,EXTENSION,LEG	39
1402	38656	CAP,WATER SPRAY NOZZLE W/SEAL	21
501	853240	CATALYST,TOPCOAT	126
10	32174	CHAIN,SAFETY,PER DWG	39
53	38280	CLAMP HALF,1-1/4" HOSE	121
3	34033	CLAMP,AIR CLEANER MOUNT,6.5"ID	61
2	171100	CLAMP,AIR CLEANER MOUNT,8"ID	53, 63
52	35541	CLAMP,COVER PLATE	121
14	35786	CLAMP,DOUBLE TUBE,.75 ID	31
50	35786	CLAMP,DOUBLE TUBE,.75 ID	117
145	33164	CLAMP,HOSE,# 10	49
31	33164	CLAMP,HOSE,# 10	71
8	33164	CLAMP,HOSE,# 10	21
150	33167	CLAMP,HOSE,# 20	49
13	28381	CLAMP,HOSE,4.00 ID	53, 63
15	28819	CLAMP,HOSE,8.00 ID	53, 63
22	871111605	CLAMP,INSULATED BAND,1/2"	115
23	871111605	CLAMP,INSULATED BAND,1/2”	113
3	34798	CLAMP,INSULATED BAND,1-1/4"	125
38	34797	CLAMP,INSULATED BAND,15/16”	23
16	34799	CLAMP,INSULATED BAND,1-5/8"	55, 57
21	871111602	CLAMP,INSULATED BAND,3/4"	115

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
46	871111602	CLAMP,INSULATED BAND,3/4"	23
22	871111602	CLAMP,INSULATED BAND,3/4”	113
7	33594	CLAMP,LOOP,.25 OD,REM CUSHION	115
14	33595	CLAMP,LOOP,1.00 OD,REM CUSHION	71
15	36894	CLAMP,LOOP,2.00 OD,PLSTC COVER	71
2	161250	CLAMP,MUFFLER 3"	51, 61
4	17670	CLAMP,NEEDLE VALVE	117
135	36745-08	CLAMP,RECEIVER DRYER	75
105	36045	CLAMP,T-BOLT,2.50 NOMINAL	49
4	171090	CLAMP,T-BOLT,3.00 NOMINAL	53, 63
12	171190	CLAMP,T-BOLT,3.50 NOMINAL	53, 63
7	38737	CLAMP,V BAND,2.75	51
47	28949	CLEVIS PIN,3.50,MODIFIED	27
14	350050	CLEVIS,.250-28	99
14	6427	CLEVIS,.313-24 UNF W/PIN	113
38	38653-05	COIL,ASSY,EVAP.	73
37	36749-02	COIL,HEATER	73
801	37647-01	COIL,SOLENOID 12V,BOSCH DO3	25
23	36745-19	COLD CONTROL	73
120	36745-05	COMPRESSOR ASSY	75
125	36745-06	CONDENSER ASSY	75
12	28224	CONDENSER HINGE W/M	71
20	28224	CONDENSER HINGE,W/M	69
7	35338-07	CONE,BEARING	11
506	36739	CONN,1 WAY,MALE,LOCKING	105
15	33602	CONN,BUTT,16-14 GA	21
16	70953	CONN,MALE TERMINAL	111
508	70953	CONN,MALE TERMINAL	105
1	35138	CONNECTOR,SEALED,SHROUD,2-PIN	71
6	35138	CONNECTOR,SEALED,SHROUD,2-PIN	101
3	36351	CONNECTOR,SEALED,SHROUD,4-PIN	43
7	36351	CONNECTOR,SEALED,SHROUD,4-PIN	103
1603	35139	CONNECTOR,SEALED,TOWER,2-PIN	123
805	35139	CONNECTOR,SEALED,TOWER,2-PIN	25
9	35139	CONNECTOR,SEALED,TOWER,2-PIN	111
14	36300	CONNECTOR,SEALED,TOWER,3-PIN	109
10	36352	CONNECTOR,SEALED,TOWER,4-PIN	101
15	36352	CONNECTOR,SEALED,TOWER,4-PIN	109
4	36352	CONNECTOR,SEALED,TOWER,4-PIN	43
11	36163	CONNECTOR,SEALED,TOWER,6-PIN	109
34	28549	CONSOLE,SIDE COVER	99
TBD	28549	CONSOLE,SIDE COVER	77

ALPHABETICAL INDEX

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
3	28726	CONTROL BOX,SNOW PLOW	25
30	28726	CONTROL BOX,SNOW PLOW	31
8	38820	CONTROL HANDLE,RB48	103
33	28477	CONTROL HANDLE,WIRING,RB48	99
3	35423	COOLER,OIL	69
22	80338	COTTER PIN,.188X2.00	17
TBD	39052	COUPLER,LEVER LOCK,2.31	37
39	36745-25	COVER,BOTTOM	73
1	28559	COVER,HYD TANK CLEANOUT	67
8	36688-08	COVER,PLASTIC	85
41	36745-29	COVER,RECIRC.	73
9	36688-09	COVER,SIDE ACCESS	81
30	36745-24	COVER,TOP	73
27	984493	CPLG,02BSPP X 02FP	55, 57
7	76014-01	CROSSBRACE,UPPER FRONT	89
6	76013-01	CROSSBRACE,UPPER REAR	89
11	81106	CSBHS,.250-20X.75,SS	91
31	81106	CSBHS,.250-20X.75,SS	83, 85
5	81106	CSBHS,.250-20X.75,SS	107
26	81277	CSBHS,.250-20X.88,SS	79
30	81282	CSBHS,.250-20X1.25,SS	77
15	81279	CSBHS,.250-20X2.00,SS	91
203	36687	CSBHS,.312-18X.75,BLACK FINISH	87
27	81280	CSBHS,.312-18X2.25,SS	91
23	81281	CSBHS,10-24X1.50,SS	85
35	80423	CSHH,.250-20X.50,GR5	99
107	80192	CSHH,.250-20X.75,GR5	87
20	80192	CSHH,.250-20X.75,GR5	115
21	80192	CSHH,.250-20X.75,GR5	99
25	80192	CSHH,.250-20X.75,GR5	71
38	80192	CSHH,.250-20X.75,GR5	117
507	80192	CSHH,.250-20X.75,GR5	111
67	80192	CSHH,.250-20X.75,GR5	79
8	80192	CSHH,.250-20X.75,GR5	67
17	80185	CSHH,.250-20X1.00,GR5	53, 63
39	80194	CSHH,.250-20X1.50,GR5	125
43	80194	CSHH,.250-20X1.50,GR5	33
18	81072	CSHH,.250-20X3.50,GR5	69
29	81072	CSHH,.250-20X3.50,GR5	71
508	80202	CSHH,.312-18X.50,GR5	111
13	80207	CSHH,.312-18X.75,GR5	69
9	80207	CSHH,.312-18X.75,GR5	65, 95

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
10	80208	CSHH,.312-18X1.00,GR5	53, 63, 95
12	80208	CSHH,.312-18X1.00,GR5	51, 61
2	80208	CSHH,.312-18X1.00,GR5	97
20	80208	CSHH,.312-18X1.00,GR5	113
23	80208	CSHH,.312-18X1.00,GR5	65
3	80208	CSHH,.312-18X1.00,GR5	126
40	80208	CSHH,.312-18X1.00,GR5	125
43	80208	CSHH,.312-18X1.00,GR5	27
44	80208	CSHH,.312-18X1.00,GR5	23
41	80209	CSHH,.312-18X1.50,GR5	121
21	80214	CSHH,.312-18X2.25,GR5	113
42	80214	CSHH,.312-18X2.25,GR5	121
27	81010	CSHH,.312-18X4.00,GR8	7
12	80219	CSHH,.375-16X.75,GR5	67
14	80219	CSHH,.375-16X.75,GR5	69
22	80219	CSHH,.375-16X.75,GR5	99
24	80219	CSHH,.375-16X.75,GR5	31
43	80219	CSHH,.375-16X.75,GR5	125
602	80219	CSHH,.375-16X.75,GR5	111
15	80221	CSHH,.375-16X1.00,GR5	69
19	80221	CSHH,.375-16X1.00,GR5	65
22	80221	CSHH,.375-16X1.00,GR5	71
30	80221	CSHH,.375-16X1.00,GR5	19
4	80221	CSHH,.375-16X1.00,GR5	13
44	80221	CSHH,.375-16X1.00,GR5	125
12	80224	CSHH,.375-16X1.25,GR5	65
16	80224	CSHH,.375-16X1.25,GR5	47
36	80224	CSHH,.375-16X1.25,GR5	19
23	80226	CSHH,.375-16X1.50,GR5	99
18	80230	CSHH,.375-16X2.00,GR5	71
25	80230	CSHH,.375-16X2.00,GR5	115
28	71620	CSHH,.375-16X3.00,GR5	115
28	81048	CSHH,.375-16X3.00,GR8	7
60	80882	CSHH,.375-16X4.75,GR8	77
23	71617	CSHH,.375-16X5.00,GR5	71
28	71617	CSHH,.375-16X5.00,GR5	21
26	80771	CSHH,.437-14X.75,GR5	31
27	80772	CSHH,.437-14X1.25,GR5	31
30	80776	CSHH,.437-14X3.00,GR5	47
61	80776	CSHH,.437-14X3.00,GR5	59
27	80790	CSHH,.437-14X3.75,GR5	115
14	80233	CSHH,.438-14X1.00,GR5	95

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
5	80237	CSHH,.438-14X1.50,GR5	93, 95
38	80775	CSHH,.438-14X2.75,GR5	19
32	80248	CSHH,.500-13X1.00,GR5	9
15	71627	CSHH,.500-13X1.50,GR5	7
33	71627	CSHH,.500-13X1.50,GR5	9
15	80186	CSHH,.500-13X1.75,GR5	31
31	80186	CSHH,.500-13X1.75,GR5	27
28	80255	CSHH,.500-13X2.00,GR5	31
19	80266	CSHH,.500-13X3.50,GR5	31
47	80722	CSHH,.500-13X4.00,GR5	23
22	71652	CSHH,.500-13X6.50,GR5	31
45	80253	CSHH,.500-20X1.50,GR5	121
16	71631	CSHH,.500-20X1.75,GR5 NF HT	7
33	71634	CSHH,.500-20X2.00,GR5	7
19	71683	CSHH,.625-11X4.00,GR5	25
18	71680	CSHH,.625-11X6.00,GR5	25
5	33137	CSHH,.750-10X2.50,GR5	7
25	71645	CSHH,.750-10X3.50,GR5	25
29	80838	CSHH,.750-10X4.50,GR5	27
35	80839	CSHH,.750-10X5.00,GR5	9
32	80295	CSHH,.750-10X5.50,GR5	19
37	81184	CSHH,1.000-8X8.0,GR5	9
21	80516	CSHH,M10-1.50X30MM,CL8.8	45
54	80516	CSHH,M10-1.50X30MM,CL8.8	59
22	81009	CSHH,M12-1.75X30MM,CL8.8	45
26	81009	CSHH,M12-1.75X30MM,CL8.8	7
55	81009	CSHH,M12-1.75X30MM,CL8.8	59
103	81256	CSSBH,.312-18X1.0	19
20	80503	CSSH,.500-13X1.75	47
53	80503	CSSH,.500-13X1.75	59
6	35338-06	CUP,BEARING	11
39	38224-03	CUTTING EDGE,7'6",SNOW PLOW	27
21	36754	CYL,HYD,2.00X10.75X1.00 ROD	9
1	610110	CYL,HYD,2.00X8.00X1.00 ROD	31
5	610110	CYL,HYD,2.00X8.00X1.00 ROD	25
10	750610	CYL,HYD,2.50X16.00X	123
9	31884A	CYL,HYD,2.50X6.00X1.125 ROD	123
4	38224-26	CYL,HYD,SNOW PLOW (BOSS)	25
2	17490	CYLINDER STOP,LIFT CYLINDER	123
		D	
24	36745-22	DECAL	73
39	39141-23	DECAL,BROOM,GUTTER BRUSH OPER	33

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
50	38959	DECAL,CONTROL BOX,SNOW PLOW	27
120	72062	DECAL,DIESEL POWER,CUMMINS	49
3	36696	DECAL,FUSE PANEL	107
4	38504	DECAL,FUSE PANEL	107
13	38257	DECAL,GREASE DAILY	126
1	39140-1	DECAL,RB48,INSTRUMENT PANEL	105
502	35425	DEFROSTER FAN ASSY 12 VOLT	105
50	21168	DEFROSTER FAN GROUP, SINGLE	105
2	35044	DIODE,3 AMP,PLASTIC	43
20	986599	DISCONNECT,STEERING,RETRO,RB48	37
12	36688-34	DOOR HOLD RB-48	91
59	36688-34	DOOR HOLD RB-48	83
2	28320	DOOR W/M,LEFT	65
3	28321	DOOR W/M,RIGHT	65
12	28570	DRIVE HUB,W/M	17
3	38732	DRIVE PLATE ASSY,SAE#4,B MT	47
14	983192	DRIVE PLATE ASSY,SAE#4,B MT	55, 57
12	984395	DRIVESHAFT,BROOM,DANA AXLE	7
1F		DUST CAP	15
		E	
4802	983256	ELBOW,EXHAUST,90,2.00 ODX 2.50 OD	55, 57
48	38843	ELBOW,PIPE,90,.500 STREET,GALV	23
115	38821	ELBOW,RUBBER,90,2.50 ID	49
3	171170	ELBOW,RUBBER,90,3.50X3.00 ID	53, 63
7	28634	ENGINE COVER,W/M LEFT REAR	65
6	28635	ENGINE COVER,W/M RIGHT REAR	65
8	29109	ENGINE COVER,W/M,TOP	65
5	984909	ENGINE,CAT,3044T,80 HP	55, 57
9	38734	ENGINE,CUMMINS,4B3.3T	45
4	28178	EXHAUST,CUM 3.3 ELBOW W/M	51
12	269905	EYE,LIFTING,RB48	89
		F	
110	38734-05	FAN SPACER, 3.3 ENGINE	49
48	38785	FAN,CUMMINS 3.3,20.00 OD X 30°	49
15	36745-36	FASTENER,TURN,1/4	73
35	36688-43	FASTENER,X-MAS TREE,1.00 IN	85
6	37680	FILLER,HYD FLUID,10 PSI	67
20	39146-05	FILTER ASSY,FUEL,PERKINS 3.3	55, 57
13	34463	FILTER ASSY,HYD RETURN	119
103	36643-01	FILTER ELEMENT,AIR,PRIMARY	127
203	36643-01	FILTER ELEMENT,AIR,PRIMARY	127
303	36643-01	FILTER ELEMENT,AIR,PRIMARY	127

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
106	171150	FILTER ELEMENT,AIR,SAFETY	127
210	171150	FILTER ELEMENT,AIR,SAFETY	127
301	171150	FILTER ELEMENT,AIR,SAFETY	127
205	38653-01	FILTER ELEMENT,CAB AIR	127
4	38653-01	FILTER ELEMENT,CAB AIR	73
305	38144-03	FILTER ELEMENT,FUEL	127
105	38734-02	FILTER ELEMENT,FUEL	127
207	38734-02	FILTER ELEMENT,FUEL	127
102	34464	FILTER ELEMENT,HYD	127
202	34464	FILTER ELEMENT,HYD	127
302	34464	FILTER ELEMENT,HYD	127
304	38144-02	FILTER ELEMENT,OIL	127
104	38734-01	FILTER ELEMENT,OIL	127
206	38734-01	FILTER ELEMENT,OIL	127
40	36745-30	FILTER HOLDER,RECIRC.	73
204	36745-31	FILTER PAD,CAB AIR	127
42	36745-31	FILTER PAD,CAB AIR	73
101	33291	FILTER,FUEL,INLINE	127
12	33291	FILTER,FUEL,INLINE	45
201	33291	FILTER,FUEL,INLINE	127
306	38217	FILTER,FUEL,INLINE,5/16 HOSE	127
17	35045	FITT,45 04MP-04HB,CRIMPED	55, 57
93	36635	FITT,45 06MJ-06MP	123
136	33327	FITT,45 12MJ-12MB	119
74	38203	FITT,45 12MJ-16MB	119
21	71796	FITT,90 02MP-04HB,CRIMPED,BRAS	55, 57
15	5029	FITT,90 02MP-04MC,BRASS	126
71	71822	FITT,90 04MJ-04MP	119
90	35562	FITT,90 04MJ-06MB	119
100	33365	FITT,90 04MP-06HB,CRIMPED	49
15	33365	FITT,90 04MP-06HB,CRIMPED	67
111	X387	FITT,90 06MJ-06FJX	29, 35
72	X387	FITT,90 06MJ-06FJX	117, 123
108	33892	FITT,90 06MJ-06MB	29, 35
85	33892	FITT,90 06MJ-06MB	117, 119, 123
103	X383	FITT,90 06MJ-06MP	35
81	X383	FITT,90 06MJ-06MP	123
105	34535	FITT,90 06MJ-08MB	35
201	34536	FITT,90 06MJ-08MP	37
103	853211085	FITT,90 06MP-06MP	29
75	70754	FITT,90 08MJ-06MB	117
13	33900	FITT,90 08MJ-08FJX	41

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
98	6410	FITT,90 08MJ-08MB	117
27	70319	FITT,90 08MP-08HB,POLY	21
87	34083	FITT,90 12MJ-10MB	119, 121
80	X365	FITT,90 12MJ-12FJX	119, 121
77	71775	FITT,90 12MJ-12MB	117, 119
76	71771	FITT,90 12MJ-16MB	119
96	X319	FITT,90 16MJ-16MB	117, 119
13	33684	FITT,LUBE,STR,02MP,SHORT	9
35	33684	FITT,LUBE,STR,02MP,SHORT	17
45	33684	FITT,LUBE,STR,02MP,SHORT	33
11	38277	FITT,MASTER CYL ADAPTOR	115
55	72372	FITT,PLUG 02PD,DUST	119
102	6408	FITT,PLUG 06MB,HEX	35
102	953182310	FITT,QD 06 FP,SET	29
10	39059	FITT,STR 02MP-03IFF,BRASS	115
4	39059	FITT,STR 02MP-03IFF,BRASS	41
2	39066	FITT,STR 06MB-04FP	41
112	37536	FITT,STR 06MB-06FJX	29, 35
16	37536	FITT,STR 06MB-06FJX	41
89	37536	FITT,STR 06MB-06FJX	117, 123
109	X217	FITT,STR 06MJ-06MB	29, 35
14	X217	FITT,STR 06MJ-06MB	41
95	X217	FITT,STR 06MJ-06MB	119, 123
131	39014	FITT,STR 06MJ-06MB,W/.125 ORF.	123
101	35499	FITT,STR 06MJ-06MP	29, 35
116	37297	FITT,STR 06MJ-06MP,.078 ORF	35
88	37297	FITT,STR 06MJ-06MP,.078 ORF	123
12	37631	FITT,STR 06MJ-08FJ	41
92	X326	FITT,STR 06MJ-12FJ	117
99	70062	FITT,STR 08MJ-08MB	117
16	70318	FITT,STR 08MP-08HB,BLK POLY	21
78	71882	FITT,STR 12MJ-10MB	119, 121
84	33887	FITT,STR 16MJ-16MB	119
135	35780	FITT,STR 16MJ-20MP	117
5	33557	FITT,TEE 02FM,BRASS	115
3	36066	FITT,TEE 02MP-02FP-02FP,STL	55, 57
7	36066	FITT,TEE 02MP-02FP-02FP,STL	47
8	33949	FITT,TEE 03IFF,BRASS	115
110	36490	FITT,TEE 06MJ-06FJX-06MJ	29, 35
73	36490	FITT,TEE 06MJ-06FJX-06MJ	123
15	36098	FITT,TEE 08MJ-08MB-08MJ	41
82	33160	FITT,TEE 12MJ-12FJX-12MJ	117, 119

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
97	X324	FITT,TEE 12MJ-12MB-12MJ	117, 119
94	72566	FITT,TEE 12MJ-12MJ-12MB	117
56	72689	FITT,TEST 06MB-02PD	119
12	35338-12	FLANGE,SAE B,2-HOLE	11
TBD	610250-1	FLAT WASHER, FRONT SPINDLE	9
9	28259	FLOOR	89
13	28342	FLOORMAT,RB48	77, 79, 85
95	982959	FLOW DIVIDER,FIXED,W/PSI RELIEF	33
32	90707	FLUID,BRAKE	115
17	36688-15	FOAM,REAR PANEL	77, 79, 85
16	36688-14	FOAM,RIGHT SIDE	77, 79, 85
1	20728	FRAME W/M,PIVOT	17
4	29171	FRAME W/M,RB48	7
13	28719	FRAME,W/M,PLOW LIFT	25
5	28451	FRONT AXLE W/M,RB48	9
17	36694	FUSE BLOCK,10 GANG,ATC	109
18	36695	FUSE BLOCK,6 GANG,ATC	109
42	36695	FUSE BLOCK,6 GANG,ATC	85
2	26970	FUSE PANEL SUB-ASSY	107
13	36340	FUSE,10 AMP,ATC	111
46	36340	FUSE,10 AMP,ATC	85
17	36341	FUSE,15 AMP,ATC	21
105	36747	FUSE,4 AMP,ATC	87
507	36747	FUSE,4 AMP,ATC	105
15	36746	FUSE,5 AMP,ATC	111
503	36746	FUSE,5 AMP,ATC	111
5	36342	FUSE,BLADE,20AMP,ATC-20	71
		G	
3	35338-03	GASKET	11
18	P77703	GASKET	126
2	35338-02	GASKET,BLUE SHIM	11
16	986371	GASKET,HYD TANK CLEANOUT	67
29	38278	GASKET,MASTER CYL	115
18	35338-18	GASKET,RED SHIM	11
4	39140-4	GAUGE,FUEL	105
5	39140-5	GAUGE,OIL PRESSURE	105
3	500070	GAUGE,SIGHT,TEMP	67
6	39140-6	GAUGE,WATER TEMP	105
5	35338-05	GEAR,HEL RH 68T	11
4	35338-04	GEAR,INT HEL LH 15T	11
9	35338	GEARBOX B PAD 15T 4.533 RATIO	7
18	39021	GEARBOX B PAD,4.53 R,DISCONECT	37

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
1	29027	GEARBOX,MOUNT W/M	7
4	36688-04P	GLASS,FRONT WINDOW	77
4	36688-06P	GLASS,LOWER DOOR	91
6	36688-05P	GLASS,REAR WINDOW	77
5	36688-02P	GLASS,SIDE WINDOW	77
3	36688-03P	GLASS,UPPER DOOR	91
1E		GREASE SEAL	15
1	28318	GRILL W/M,ENGINE COVER	65
12	36735	GRIP,.250X1.000X4.0	126
16	36735	GRIP,.250X1.000X4.0	99
10	38525-34	GROMMET	73
9	38606-15	GROMMET	73
8	38606-16	GROMMET	73
27	38653-08	GROMMET	73
26	38653-09	GROMMET	73
19	36688-17	GROMMET,.250	91
37	36688-17	GROMMET,.250	79
43	36688-54	GROMMET,.94ID,1.12HOLE,SNAP IN	81
7	35465-09	GROMMET,INS,.375ID X 1.00GRV	21
502	35465-06	GROMMET,INSULATION,.375ID	111
504	35465-06	GROMMET,INSULATION,.375ID	105
7	35465-06	GROMMET,INSULATION,.375ID	111
9	35465-06	GROMMET,INSULATION,.375ID	103
202	35465-07	GROMMET,INSULATION,.750ID	87
6	35465-07	GROMMET,INSULATION,.750ID	21
4501	26954	GUARD,IDLER HUB	17
9	27924	GUSSET,.25X3.50X6.00	39
8	76017-01	GUSSET,CENTER	89
4	76008-01	GUSSET,GLASS SUPPORT	89
		H	
TBD	870307	HAIR PIN CLIP,CLEVIS PIN	27
43	7303	HAIR PIN,COTTER,#11,.125 DIA	17
51	986305	HARNESS,ENG,CUMMINS 3.3	47
28	985757	HARNESS,ENGINE,CAT 3.3	55, 57
32	28476	HARNESS,JOYSTICK TO VLV,RB48	99
29	986179	HARNESS,RB48/SWPRO,MAIN	55, 57
33	986179	HARNESS,RB48/SWPRO,MAIN	47
1	16919	HARNESS,WIRE,JUMPER	119
19	29127	HARNESS,WIRE,LIGHTS,TOW	37
14	36688-12	HEADLINER	77, 79, 85
160	38653-03	HEATER EVAPORATOR ASSY	75
5	36688-39	HINGE,LEFT,PAINTED	91

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
121	36801-114	HOSE,12,12FJX-12RJ90,3000	121
119	72569-038	HOSE,16,16FJX-16RJ90,250	117
104	36804	HOSE,16,16FJX-16RJ90,6000	119
103	36803	HOSE,16,16RJ45-16RJ90,6000	119
100	36745-01	HOSE,COMP-CONDEN,13/32	75
105	36745-02	HOSE,COMP-EVAPOR,1/2	75
115	36745-04	HOSE,DRYER-CONDEN,5/16	75
110	36745-03	HOSE,EVAPOR-DRYER,5/16	75
31	986462	HOSE,FLEX,1.5X1.75X15	55, 57
7	36712	HOSE,HEATER,.625 ID	71
205	984588	HOSE,HYD,-06,3000 PSI	37
46	38955	HOSE,RADIATOR,LOWER,3.3 ENG	49
24	983281	HOSE,RADIATOR,UPPER	55, 57
47	38798	HOSE,RADIATOR,UPPER,1.25 ID	49
207	35550	HOSE,WINDSHIELD WASHER .188ID	87
65	35550	HOSE,WINDSHIELD WASHER .188ID	81
7	39140-7	HOURMETER,DIGITAL	105
1	38653-04	HOUSING	73
14	35338-14	HOUSING HALF,GEAR BOX,BLIND END	11
15	35338-15	HOUSING HALF,GEAR BOX,MOTOR END	11
45	39138	HUB ASSY	17
2	37938	HUB ASSY,5-BOLT,5.50INBC	13
25	27791	HUB ASSY,WHEEL,W/DUST SHIELD	7
2	37938-01	HUB W/O BRAKES	15
54	RES1001	HYD OIL SPECIFICATIONS	125
		I	
11	28828	IDLE HUB,W/M	17
16	171220	INDICATOR,AIR FILTER SERVICE	53, 63
1A		INNER BEARING	15
1C		INNER CUP	15
20	37587-2	INSERT,RUBBER,4.00 TO 3.75	53, 63
1	21078	INSTRUMENT PANEL W/M,RB48	107
		K	
13	35338-13	KEY,OUTPUT SHAFT/GEAR	11
71	36688-32	KEY,PADDLE LATCH	77
29	010990739	KEYSTOCK,.375X1.625	7
16	29122	KIT,BRAKES/STEERING,TOW GRP	37
19	986425	KIT,DECAL,DECORATIVE,RB48	126
14	39141	KIT,DECAL,RB48/SWEEPPR0	126
3	28890	KIT,FILTER,RB48,CATERPILLAR	127
1	28817	KIT,FILTER,RB48,CUM 3.3	127
2	28825	KIT,FILTER/BELT,RB48,CUM 3.3	127

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
32	986687	KIT,FUEL LIFT PUMP,CAT	55, 57
TBD	985514	KIT,RB48,CAB,INSULATION	77, 79, 85
22	36688-55	KNOB,INSIDE RELEASE	91
19	36745-21	KNOBS	73
16	37645-20	KNOBS	73
		L	
4	38832	LATCH ASSY,CH751 KEY	65
7	36688-27	LATCH COVER W/M,RH	91
6	160450	LATCH,ENG ACCESS PANEL	126
8	34299	LEVER,BRAKE,12 IN HANDLE	113
13	28158	LEVER,BRUSH ROTATION CONTROL	99
15	28491	LEVER,PUMP ACTUATOR	99
23	28717	LIFT MOUNT,W/M	25
8	38840	LIGHT,DOME	111
TBD	38687	LIGHT,STROBE,AMBER,8J,80SFPM	111
1	6161	LIGHT,TURN SIGNAL,AMBER	111
4	851342007	LIGHT,TURN/BRAKE,RED	111
10	39140-10	LIGHTS,EURO,SMOKED LENS,GREEN/RED FI	105
37	29121	LOCK,BAR,RAISED	33
48	28948	LOCK,HYD CYLINDER	27
11	71060	LOOM,SPLIT,CONVOLUTED,.250	101
14	71060	LOOM,SPLIT,CONVOLUTED,.250	43
1607	71060	LOOM,SPLIT,CONVOLUTED,.250	123
808	71060	LOOM,SPLIT,CONVOLUTED,.250	25
18	71864	LOOM,SPLIT,CONVOLUTED,.375	43
31	71870	LOOM,SPLIT,CONVOLUTED,.750	115
5	38653-02	LOUVER DOOR	73
25	36745-16	LOUVERS	73
2	36745-17	LOUVERS	73
7	983267	LUG,TOWBAR,MOUNTING	39
8	983268	LUG,TOWBAR,MOUNTING,W/,LOCK	39
TBD	35848-01	LUNETTE,3 ADJ	37
		M	
28	80927	MACH SCR,#6-32X1.25	99
36	80891	MACH SCR,PH,#10-32X1.00	23
16	871052400	MACH SCR,RH,#10-24X.50	65
9	871052400	MACH SCR,RH,#10-24X.50	91
26	80852	MACH SCR,RH,#10-24X.75	19
803	38814-01	MANIFOLD	25
1601	38814-01	MANIFOLD	123
16	38814	MANIFOLD,HYD,2 STA,D03	123
34	38814	MANIFOLD,HYD,2 STA,D03	31

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
8	38814	MANIFOLD,HYD,2 STA,D03	25
1	38314	MASTER CYL,BRAKE	115
60	25703	MIRROR GROUP, 7x16 WEST COAST	111
601	38057	MIRROR,WEST COAST,7X16	111
4	28931	MOTOR MOUNT,W/M	31
23	983599	MOTOR,HYD,BRUSH DRIVE	121
9	38122	MOTOR,HYD,LSHT,8.0 DISP	31
8	35330	MOTOR,HYD,M46 VAR,2.8/1.45 CIR	7
24	39045	MOTOR,HYD,POWER STEERING	117
40	151170	MOTOR,WINDSHIELD WIPER	81, 85
80	984235	MOUNT, FLOW DIVIDER	33
9	983189	MOUNT, PERKINS RH FAN END	55, 57
1	28298	MOUNT,AIR CLEANER	53, 63
801	28298	MOUNT,AIR CLEANER	65
4	21218	MOUNT,BRAKE SWITCH	113
11	28946	MOUNT,CENTER BUMPER,W/M	31
2	27912	MOUNT,ENGINE,FLYWHEEL,CUMB3.3	45, 47
26	39082	MOUNT,ISOLATION,425#	47
1	28175	MOUNT,RADIATOR,LH,W/M	69
2	28176	MOUNT,RADIATOR,RH,W/M	69
501	16962	MOUNT,RISER,STROBE LIGHT	111
18	21034	MOUNT,ROTATION CONTROL LEVER	89
68	36072	MOUNT,RUBBER,TUBE FORM	77
1	28256	MOUNT,SOLENOID/THROTTLE,3.3	47
1	21075	MOUNT,STEERING ORBITAL	97
33	28492	MOUNT,VALVE BLOCK	31
7	28492	MOUNT,VALVE BLOCK	123
9	28492	MOUNT,VALVE BLOCK	25
10	983225	MOUNT,W/M,COND PUMP PERKINS3.3	55, 57
1	28740	MOUNT,W/M,SNOW PLOW	25
50	21176	MOUNT,WARNING LIGHT GROUP	111
5	29207	MOUNT,WLDMT,ENGINE,LH REAR	47
4	29204	MOUNT,WLDMT,ENGINE,RH R,CUMMIN	45
3	34033	MOUNTING BAND,6.50 ID	51
TBD	38343	MOUNTING PAD	7
5	34074	MUFFLER,2-1/2" ID SIDE INLET	61
5	34074	MUFFLER,EXH 6.50 OD,2.5 IN/OUT	51
		N	
1403	38657	NOZZLE,80 DEG,.094 ORF,NYLON	21
14	986502	NOZZLE,ASSY,08 PIPE NYL,STR	21
1401	38655	NOZZLE,EYELET,08 PIPE,NYLON	21
14	N/A	NUT,1/4-20	73

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
24	81275	NUT,ACORN,.250-20,SS	79
54	36688-52	NUT,CENTERLOCK,.438-14	83
31	81077	NUT,FLEXLOC,#10-32,FULL,LT	21
10	80350	NUT,FLEXLOC,.250-20,FULL,LT	91
108	80350	NUT,FLEXLOC,.250-20,FULL,LT	87
18	80350	NUT,FLEXLOC,.250-20,FULL,LT	53, 63
23	80350	NUT,FLEXLOC,.250-20,FULL,LT	115
24	80350	NUT,FLEXLOC,.250-20,FULL,LT	99
28	80350	NUT,FLEXLOC,.250-20,FULL,LT	71
29	80350	NUT,FLEXLOC,.250-20,FULL,LT	31, 83, 85
32	80350	NUT,FLEXLOC,.250-20,FULL,LT	21
46	80350	NUT,FLEXLOC,.250-20,FULL,LT	117
509	80350	NUT,FLEXLOC,.250-20,FULL,LT	111
12	80351	NUT,FLEXLOC,.312-18,FULL,LT	95
28	80351	NUT,FLEXLOC,.312-18,FULL,LT	91
4	80351	NUT,FLEXLOC,.312-18,FULL,LT	126
23	80352	NUT,FLEXLOC,.375-16,FULL,LT	7
24	80352	NUT,FLEXLOC,.375-16,FULL,LT	71
25	80352	NUT,FLEXLOC,.375-16,FULL,LT	99
31	80352	NUT,FLEXLOC,.375-16,FULL,LT	19
33	80352	NUT,FLEXLOC,.375-16,FULL,LT	21
47	80352	NUT,FLEXLOC,.375-16,FULL,LT	125
5	80352	NUT,FLEXLOC,.375-16,FULL,LT	13
604	80352	NUT,FLEXLOC,.375-16,FULL,LT	111
61	80352	NUT,FLEXLOC,.375-16,FULL,LT	77
26	80353	NUT,FLEXLOC,.438-14,FULL,LT	115
29	80353	NUT,FLEXLOC,.438-14,FULL,LT	47
60	80353	NUT,FLEXLOC,.438-14,FULL,LT	59
10	80354	NUT,FLEXLOC,.500-13,FULL,LT	99
20	80354	NUT,FLEXLOC,.500-13,FULL,LT	31
34	80354	NUT,FLEXLOC,.500-13,FULL,LT	21
17	80356	NUT,FLEXLOC,.625-11,FULL,LT	7
33	80356	NUT,FLEXLOC,.625-11,FULL,LT	27
17	80357	NUT,FLEXLOC,.750-10,FULL,LT	25
34	80357	NUT,FLEXLOC,.750-10,FULL,LT	19
36	80357	NUT,FLEXLOC,.750-10,FULL,LT	9
38	80359	NUT,FLEXLOC,1.000-8,FULL,LT	9
17	80824	NUT,HEX,#10-24	65
20	80824	NUT,HEX,#10-24	85
8	80824	NUT,HEX,#10-24	91
26	80493	NUT,HEX,#6-32	99
23	80036	NUT,HEX,.250-20	91

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
30	80036	NUT,HEX,.250-20	71
8	80036	NUT,HEX,.250-20	69
16	80037	NUT,HEX,.312-18	113
205	80037	NUT,HEX,.312-18	87
3	80037	NUT,HEX,.312-18	97
45	80037	NUT,HEX,.312-18	23
46	80037	NUT,HEX,.312-18	27
8	80037	NUT,HEX,.312-18	53, 63
9	80037	NUT,HEX,.312-18	51, 61
17	80055	NUT,HEX,.312-24	113
29	80055	NUT,HEX,.312-24	117
15	80038	NUT,HEX,.375-16	65, 115
19	80038	NUT,HEX,.375-16	71
25	80038	NUT,HEX,.375-16	91
37	80038	NUT,HEX,.375-16	19
9	80038	NUT,HEX,.375-16	69
16	80039	NUT,HEX,.438-14	95
41	80039	NUT,HEX,.438-14	19
18	80040	NUT,HEX,.500-13	31
28	80040	NUT,HEX,.500-13	27
34	80040	NUT,HEX,.500-13	9
18	80043	NUT,HEX,.750-10	7
24	80132	NUT,HEX,CASTLE,.875-14	17
16	81268	NUT,HEX,HEAVY,.375-16 UNFINISH	89
18	80074	NUT,HEX,JAM,.375-16	65
30	80093	NUT,HEX,JAM,.500-20	115
17	80095	NUT,HEX,JAM,.625-18	115
28	80097	NUT,HEX,JAM,.875-14	9
11	21114	NUT,HEX,JAM,1.00-16,LH	9
10	21113	NUT,HEX,JAM,1.00-16,RH	9
23	81007	NUT,HEX,M05-80	49
56	81007	NUT,HEX,M05-80	59
44	80453	NUT,HEX,M06-1.00	49
62	80453	NUT,HEX,M06-1.00	59
24	81008	NUT,HEX,M10-1.50	49
57	81008	NUT,HEX,M10-1.50	59
14	620520	NUT,LUG,.500-20	7
20	38525-22	NUT,MOUNTING CONTROL	73
TBD	610260	NUT,SPINDLE	9
15	81042	NUT,WELD,.250-20	89
11	80959	NUT,WELD,.312-18	89
19	81090	NUT,WELD,.375-16	89

ALPHABETICAL INDEX

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
		O	
145	36745-10	O-RING,#10	75
155	36745-12	O-RING,#6	75
150	36745-11	O-RING,#8	75
11	36808	ORING,3.237 ID X .103,SAE 152	47
1B		OUTER BEARING	15
1D		OUTER CUP	15
9	39140-9	OVERLAY	105
		P	
17	36688-31	PADDLE LATCH	91
50	984622	PAINT GROUP	126
503	981666	PAINT,BLACK,URETHANE,H-SOLID	126
504	853230	PAINT,WHITE,PRIMER	126
502	853220	PAINT,YELLOW,LEEBOY TOPCOAT	126
3	76005-01	PANEL,REAR	89
1	25037	PEDESTAL,SPRING SEAT	95
1	24511	PEDESTAL,STD SEAT	93
8	34096	PIN	126
6	72836	PIN,.50X3.00,W/HAIRPIN COTTER	37
24	28781	PIN,1.00X2.00 W/HOLES	25
46	29130	PIN,ADJ/LOCKING	33
17	37595	PIN,CLEVIS,.188X1.00	99
40	81214	PIN,CLEVIS,.375X1.25,1.015GRIP	33
TBD	210060	PIN,CLEVIS,1.00X2.625 W/1.5HD	27, 125
41	37108	PIN,COTTER,.094,.250,.500	33
19	71714	PIN,COTTER,.094X.75	99
21	80389	PIN,COTTER,.125X1.00	31
13	36544	PIN,COTTER,.177,7GA	31
21	36544	PIN,COTTER,.177,7GA	17
30	36544	PIN,COTTER,.177,7GA	27
7	36544	PIN,COTTER,.177,7GA	37
21	80336	PIN,COTTER,.188X1.50	25
8	28878	PIN,HITCH,W/M	17
10	28461	PIN,IDLE SHAFT	17
44	28920	PIN,LOCKING,W/M	17
6	20909	PIN,PIVOT,BRUSH FRAME	17
3	32638	PIPE,BUSH,04MP-02FP,STL	41
1	33356	PIPE,BUSH,08MP-06FP,BRASS	55, 57
39	91152	PIPE,CAP,.500,GALV	23
34	91505	PIPE,COUPLING,.500,GALV	49
13	15481	PIPE,EXH,CUMMINS	51, 61
35	99834	PIPE,NIPPLE,.500XCLOSE,GALV	49

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
24	36810	PIPE,NIPPLE,.500XCLOSE,PVC	21
49	99605	PIPE,NIPPLE,.750X8.00	125
10	99535	PIPE,PLUG,04MP,SQ HD,MI	67
204	99537	PIPE,PLUG,08MP,SQ HEAD	37
11	99538	PIPE,PLUG,12MP,SQ HD,MI	67
41	99845	PIPE,TEE,08FP,GALV	23
20	28758	PIVOT PIN,W/M	25
6	28925	PLATE,BRUSH MOTOR	31
102	28854	PLATE,BRUSH RING	19
14	28258	PLATE,CONSOLE	89
42	28804	PLATE,FLOAT MOUNT	33
202	986602	PLATE,STEER'G,DISCONNECT,RETRO	37
2	986787	PLATE,TRAVEL,CONTROL,Z-GATE	99
40	38224-05	PLOW SHOE ASSY	27
1	32996	PLUG,ELEC,6 POLE,MALE	43
9	35338-09	PLUG,EXPANSION DISC	11
33	35136-1	PLUG,HOLE,.250,FLUSH MT,PLSTC	81
22	35136-21	PLUG,HOLE,.312,FLUSH MT,PLSTC	79
21	35136-3	PLUG,HOLE,.375,FLUSH MT,PLSTC	83
11	35136-19	PLUG,HOLE,.438,FLUSH MT,PLSTC	126
25	35136-19	PLUG,HOLE,.438,FLUSH MT,PLSTC	81
52	35136-4	PLUG,HOLE,.500,FLUSH MT,PLSTC	81, 85
56	35136-20	PLUG,HOLE,.562,FLUSH MT,PLSTC	81, 85
50	35136-5	PLUG,HOLE,.625,FLUSH MT,PLSTC	81, 83, 85
9	35136-11	PLUG,HOLE,1.50,FLUSH MT,PLSTC	126
10	35136-17	PLUG,HOLE,3.50,FLUSH MT,PLSTC	126
10	35338-10	PLUG,VENTED	11
23	38093	PORT KIT,.50 STR HOSE BARB	21
19	37587	PRE-CLEANER,4.00ID	53, 63
1	16837	PULLEY,PARK BRAKE CABLE	113
10	36642	PUMP,HYD,GEAR,1.8 CIR	47
13	36642	PUMP,HYD,GEAR,1.8 CIR	55, 57
90	982958	PUMP,HYD,GEAR,TANDEM	33
15	37833	PUMP,HYD,PISTON,2.8 CIR	55, 57
8	37833	PUMP,HYD,PISTON,2.8 CIR	47
20	36730	PUMP,WATER,DIAPHRAM	21
3	28647	PUSHROD,BRAKE	115
		R	
401	33770	RADIATOR CAP	69
4	38784	RADIATOR,CUMMINS 3.3 ENGINE	69
1	28171	RB48 CAB,W/M,2 DOOR	77
1	21166	REAR WINDSHIELD WIPER	87

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
2	6576	SEAT,BLACK,PLAIN	93
2	140600	SEAT,SUSPENSION,LOW PROFILE	95
4	35370-2	SENDER,FUEL LEVEL,24.00 TANK	67
2	39081	SENDER,PRESS,OIL,1-150 PSI,HD	55, 57
31	39081	SENDER,PRESS,OIL,1-150 PSI,HD	45, 47
32	35367	SENDER,TEMP GAUGE,08 MP	49
42	80311	SET S,SQ,.312-18X1.00	19
1	35338-01	SHAFT	11
8	20724	SHAFT W/M,PIVOT,FRONT AXLE	9
1	29021	SHIELD,DUST,W/OUT BRAKES,E150	13
14	81262	SHLDR SCR,.500X.625X.375-16	91
25	983285	SHROUD, FLAT REDUCING FAN	55, 57
7	36688-07	SILL,DOOR	77
3	16935	SLEEVE,STEERING CYL MOUNT	9
4	72527-01	SLIDER SET,SEAT BASE	95
60	17898	SLOW MOVING VEHICLE SIGN	126
8	35338-08	SPACER,BEARING	11
TBD	72527-03	SPACER,SEAT SLIDE,PLASTIC	95
4	21342	SPACER,SPINDLE CAP	17
201	37638	SPACERS,BRUSH	19
301	37638	SPACERS,BRUSH	19
6	25282	SPINDLE W/M,LH	9
7	25283	SPINDLE W/M,RH	9
2	21144	SPRAY PIPE,LH 39"	21
1	21143	SPRAY PIPE,RH	21
17	28243	STAND,STEERING CONSOLE	89
5	300030	STEERING WHEEL,17.00,36 SPLINE	97
13	36926	STRAINER ASSY	21
12	33148	STRAINER,SUCT,2NPT,25GPM,100ME	117
19	36688-49	STRIKER,EXTERNAL THREAD	83
TBD	36688-49	STRIKER,EXTERNAL THREAD	91
66	33630-1	STRIPPING,EDGE,.125	81
102	28595	SUPPORT,ENG COVER GRILL	65
3	28772	SWING ARM W/M,RB48,QWK CHG	17
503	35426	SWITCH,DEFROSTER FAN	105
22	36745-18	SWITCH,FAN	73
140	36745-09	SWITCH,HIGH PRESSURE	75
7	39146-14	SWITCH,IGNITION,PERKINS 3.3	55, 57
8	39140-8	SWITCH,KEY,OFF-ON-(ON)	105
170	36745-34	SWITCH,LOW PRESSURE	75
6	39083	SWITCH,PRESS,2-6 PSI,N/O,02MP	47
24	951091224	SWITCH,SAFETY START	113

ALPHABETICAL INDEX

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
4	37941	SWITCH,SNAP ACTING,W/ROLLER	99
6	32131	SWITCH,STOP LAMP,HYD TYPE,NO	115
14	38961	SWITCH,TOG,DPDT,3POS,MOM,DETEN	25
32	38961	SWITCH,TOG,DPDT,3POS,MOM,DETEN	31
31	38157	SWITCH,TOGGLE,DPST,2 POS	31
15	37516	SWITCH,TOGGLE,SPDT,3-POS,MOM	25
30	851391	SWITCH,TOGGLE,SPST,2-POS	99
104	853090	SWITCH,WIPER/WASHER (3000)	87
27	853090	SWITCH,WIPER/WASHER (3000)	81
		T	
3	39140-3	TACHOMETER	105
5	81159	TACK,DIA.146/.104X.04 GRIP LG	126
4	27681	TANK STRAP	21
2	29110	TANK W/M,FUEL/HYD	67
19	36727	TANK,WATER,150GAL,PLAST,RB48	21
10	33600	TERM,PUSH-ON,.25,FEM,16-14 GA	109
14	36349	TERM,PUSH-ON,.25,FEM,18-14,SLV	111
6	36349	TERM,PUSH-ON,.25,FEM,18-14,SLV	103
12	36348	TERM,PUSH-ON,.25,M,18-14,SLV	101
5	36348	TERM,PUSH-ON,.25,M,18-14,SLV	103
505	36348	TERM,PUSH-ON,.25,M,18-14,SLV	105
1606	851390257	TERM,RING,12-10 GA,.250 STUD	123
17	72135	TERM,RING,12-10 GA,.500 STUD	111
19	851390204	TERM,RING,16-14 GA,#10 STUD	111
509	851390204	TERM,RING,16-14 GA,#10 STUD	105
2	33607	TERM,RING,16-14 GA,.250 STUD	103
5	33607	TERM,RING,16-14 GA,.250 STUD	43
9	33607	TERM,RING,16-14 GA,.250 STUD	21
11	36165	TERM,SEALED CONN,16-14 GA,FEM	111
12	36165	TERM,SEALED CONN,16-14 GA,FEM	109
1604	36165	TERM,SEALED CONN,16-14 GA,FEM	123
8	36165	TERM,SEALED CONN,16-14 GA,FEM	43, 101
806	36165	TERM,SEALED CONN,16-14 GA,FEM	25
3	36164	TERM,SEALED CONN,16-14 GA,MALE	71, 103
6	36164	TERM,SEALED CONN,16-14 GA,MALE	43
7	36164	TERM,SEALED CONN,16-14 GA,MALE	101
13	37982	TETHER KIT,12.0	95
36	26166	THROTTLE CABLE ASSY,RB48	49
1608	851201417	TIE WRAP,.094X4.00	123
809	851201417	TIE WRAP,.094X4.00	25
16	33596	TIE WRAP,.188X7.5	43
5	33596	TIE WRAP,.188X7.500	101

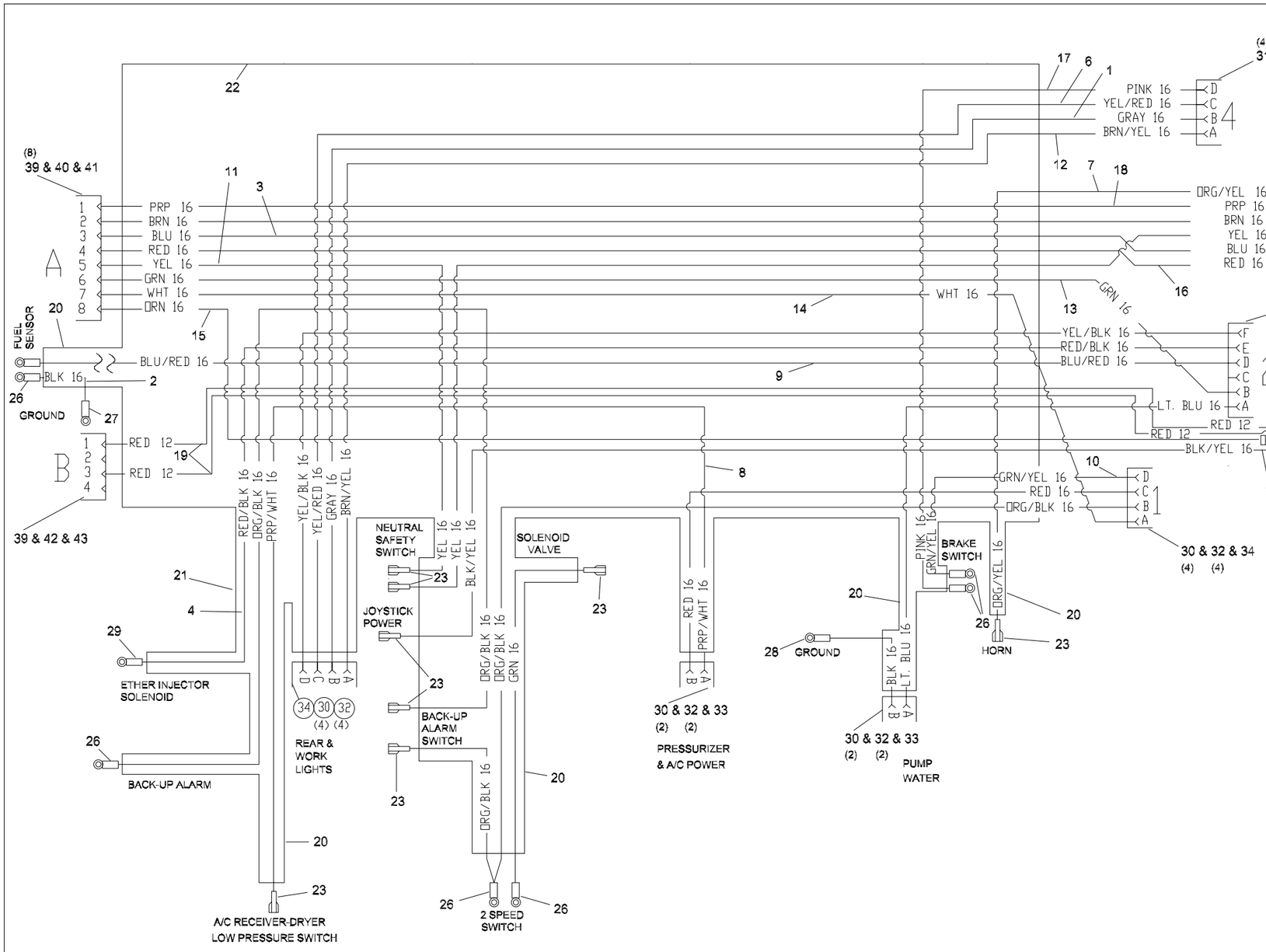
ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
1501	33799	TIRE VALVE,TUBELESS,.453,1.25	9
601	33799	TIRE VALVE,TUBELESS,.453,1.25	7
1502	35342	TIRE,RADIAL,ST225/75-R15,C	9
602	35342	TIRE,RADIAL,ST225/75-R15,C	7
5	28495	TOP HINGE W/M, RB48 ENG DOOR	65
7	38224-32	TRIP SPRING	25
22	983286	TUBE, AIR INTAKE PERKINS	63
6	28141	TUBE,AIR INTAKE,MODIFIED	53, 63
26	983286	TUBE,AIR INTAKE,PERKINS	55, 57
1	982979	TUBE,FLEX,EXHAUST,2.5IDX27.50	51, 61
3	28937	TUBE,LENGTH ADJ. W/M	31
3	29028	TUBE,RECT,2.50 SUPPORT BAR	39
1	29050	TUBE,RECT,3.00X2.00X.25X30.50	39
12	28932	TUBE,RND SPACER	31
130	99838	TUBE,RND,2.375X.281,SMLS	49
125	90607-03	TUBE,RND,2.50X16GAX12.50LG	49
2	29024	TUBE,SQ,3.00X.188X20.00	39
9	20727	TUBE,TIE ROD	9
5	983265	TUBE,TOWBAR,EXTENSION,LEG	39
15	35504	TUBING,HEAT SHRINK,.250	43
		U	
10	35077	U-BOLT,.250-20,1.00IW,1.75IL	21
10	35339	U-BOLT,AXLE MOUNT	7
		V	
11	38842	V BELT,4L 39.00X.500	71
209	38842	V BELT,4L 39.00X.500	127
1602	37488-01	VALVE	123
804	37488-01	VALVE	25
11	38641	VALVE,CHECK,.375 MJ,20 PSI	25, 29
83	38641	VALVE,CHECK,.375 MJ,20 PSI	117, 123
25	36883	VALVE,CHECK,.500 HB,5 PSI,POLY	21
19	910150	VALVE,DRAIN COCK,.250 NPT	69
63	35546	VALVE,HEATER SHUT OFF	55, 57
85	500080	VALVE,RELIEF,2000 PSI	33
203	910080	VALVE,SELECTOR	37
38	38937	VALVE,SOLENOID,HYD,2-WAY	33, 35
165	36745-32	VALVE,THERMAL EXPANSION	75
34	36749-01	VALVE,WATER	73
9	39063	VLV,BALL,06 ORB,3000 PSI	41
2	35546	VLV,HEATER SHUTOFF	71
28	72149	VLV,HYD,SOL,3 WAY,06 ORB PORTS	125
21	36648	VLV,MOTOR	117, 121

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
206	80141	WASHER,FLAT,USS,.313	87
31	80141	WASHER,FLAT,USS,.313	125
45	80141	WASHER,FLAT,USS,.313	27
505	80141	WASHER,FLAT,USS,.313	111
14	80142	WASHER,FLAT,USS,.375	67
20	80142	WASHER,FLAT,USS,.375	65
21	80142	WASHER,FLAT,USS,.375	71
24	80142	WASHER,FLAT,USS,.375	115
28	80142	WASHER,FLAT,USS,.375	19
3	80142	WASHER,FLAT,USS,.375	13
30	80142	WASHER,FLAT,USS,.375	21
32	80142	WASHER,FLAT,USS,.375	125
58	80142	WASHER,FLAT,USS,.375	83
603	80142	WASHER,FLAT,USS,.375	111
15	80143	WASHER,FLAT,USS,.438	95
39	80143	WASHER,FLAT,USS,.438	19
6	80143	WASHER,FLAT,USS,.438	93, 95
26	80144	WASHER,FLAT,USS,.500	27
33	80144	WASHER,FLAT,USS,.500	121
4	80144	WASHER,FLAT,USS,.500	93
34	80146	WASHER,FLAT,USS,.625	27
16	80147	WASHER,FLAT,USS,.750	25
19	80147	WASHER,FLAT,USS,.750	7
33	80147	WASHER,FLAT,USS,.750	19
22	80150	WASHER,FLAT,USS,1.125	25
47	80151	WASHER,FLAT,USS,1.250	33
25	871071601	WASHER,LOCK,#10	19
49	871071601	WASHER,LOCK,#10	85
10	80160	WASHER,LOCK,.250	69
18	80160	WASHER,LOCK,.250	115
27	80160	WASHER,LOCK,.250	71
29	80160	WASHER,LOCK,.250	91
34	80160	WASHER,LOCK,.250	125
6	80160	WASHER,LOCK,.250	107
7	80160	WASHER,LOCK,.250	67
10	80161	WASHER,LOCK,.312	65
11	80161	WASHER,LOCK,.312	51, 61, 69
19	80161	WASHER,LOCK,.312	113
35	80161	WASHER,LOCK,.312	117, 121
44	80161	WASHER,LOCK,.312	27
506	80161	WASHER,LOCK,.312	111
9	80161	WASHER,LOCK,.312	53, 63

ALPHABETICAL INDEX

ITEM NUMBER	PART NUMBER	NOMENCLATURE	IPL PAGE NUMBER
12	80162	WASHER,LOCK,.375	69
13	80162	WASHER,LOCK,.375	47, 67
14	80162	WASHER,LOCK,.375	65
19	80162	WASHER,LOCK,.375	115
20	80162	WASHER,LOCK,.375	71
23	80162	WASHER,LOCK,.375	31
29	80162	WASHER,LOCK,.375	19
36	80162	WASHER,LOCK,.375	125
25	80163	WASHER,LOCK,.437	31
28	80163	WASHER,LOCK,.437	49
59	80163	WASHER,LOCK,.437	59
40	80163	WASHER,LOCK,.438	19
14	80164	WASHER,LOCK,.500	47
17	80164	WASHER,LOCK,.500	31
20	80164	WASHER,LOCK,.500	7
27	80164	WASHER,LOCK,.500	27
37	80164	WASHER,LOCK,.500	121
49	80164	WASHER,LOCK,.500	59
22	80168	WASHER,LOCK,.750	7
13	N/A	WASHER,LOCK,1/4-20	73
25	81043	WASHER,LOCK,M05	49
58	81043	WASHER,LOCK,M05	59
18	80478	WASHER,LOCK,M10	45
51	80478	WASHER,LOCK,M10	59
19	80484	WASHER,LOCK,M12	45
24	80484	WASHER,LOCK,M12	7
52	80484	WASHER,LOCK,M12	59
13	80996	WASHER,SAE PLAIN,.375	65
4	81130	WASHER,SAE,HARDENED,.312	97
27	38827-01	WASHER,SNUBBING,2.00ODX.450OD	47
7	20663	WASHER,SPINDLE	17
TBD	20663	WASHER,SPINDLE	7
201	33745-1	WASHER,TANK AND PUMP	87
9	81161	WASHER,WEATHER SEAL,#10	67
51	35543	WELD PLATE	125
48	39146-01	WELDMENT,EXHAUST,PERKINS 3.3	55, 57
3	620520	WHEEL NUT,1/2-20	15
4	37938-02	WHEEL STUD,1/2-20	15
1503	39027	WHEEL,15X6.5 HOLE,5.5BC,FORD	9
603	39027	WHEEL,15X6.5 HOLE,5.5BC,FORD	7
15	981678	WHEEL,BROOM,ST225/75-R15,C	9
6	981678	WHEEL,BROOM,ST225/75-R15,C	7

ILLUSTRATED PARTS LIST

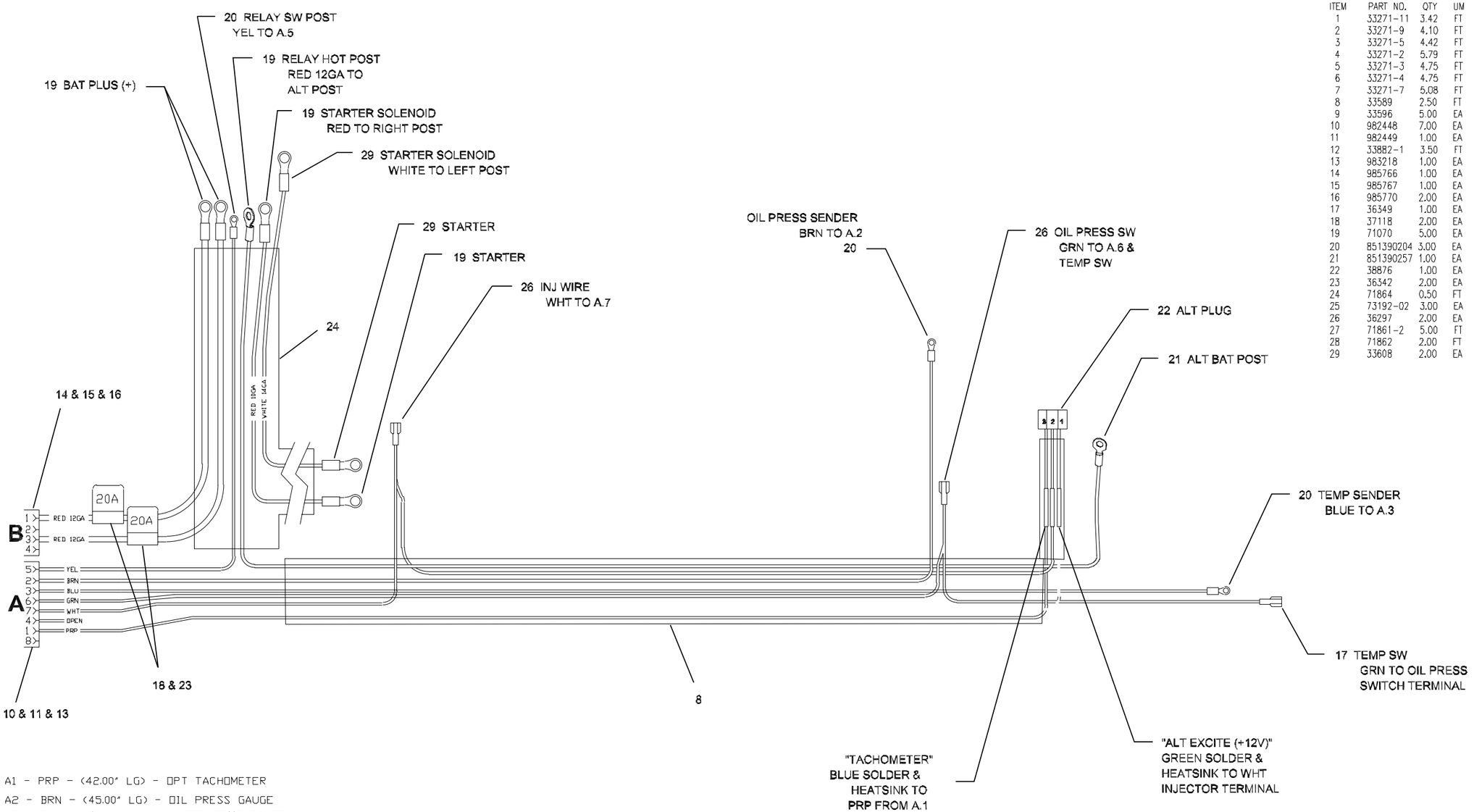


ITEM	PART #	QTY	UM	DESCRIPTION
1	33271-0	11.75	FT	WIRE,16GA,GRAY
2	33271-1	7.25	FT	WIRE,16GA,BLACK
3	33271-11	19.5	FT	WIRE,16GA,BLUE
4	33271-12	13.5	FT	WIRE,16GA,RED,BLACK STRIPE
5	33271-13	11.75	FT	WIRE,16GA,BLK,YELLOW STRIPE
6	33271-14	11.75	FT	WIRE,16GA,YELLOW,RED STRIPE
7	33271-15	4.5	FT	WIRE,16GA,BR,YELLOW STRIPE
8	33271-16	15	FT	WIRE,16GA,PRPL,WHITE STRIPE
9	33271-18	15.75	FT	WIRE,16GA,BLUE,RED STRIPE
10	33271-19	4.25	FT	WIRE,16GA,GRN,YELLOW STRIPE
11	33271-2	26.5	FT	WIRE,16GA,YELLOW
12	33271-3	21	FT	WIRE,16GA,BROWN
13	33271-4	16.75	FT	WIRE,16GA,GREEN
14	33271-5	9	FT	WIRE,16GA,WHITE
15	33271-6	31	FT	WIRE,16GA,ORANGE
16	33271-7	3	FT	WIRE,16GA,RED
17	33271-8	4.5	FT	WIRE,16GA,PINK
18	33271-9	9.25	FT	WIRE,16GA,PURPLE
19	71861-2	10.25	FT	WIRE,10GA,RED
20	71060	38.25	FT	LOOM,SPLIT,CONVOLUTED,.250
21	71864	3	FT	LOOM,SPLIT,CONVOLUTED,.375
22	71870	8.75	FT	LOOM,SPLIT,CONVOLUTED,.750
23	36349	9	EA	TERM,PUSH-ON,.25,FEM,16-14,SLV
24	36297	1	EA	TERM,PUSH-ON,.25,FEM,12-10,SLV
25	33620	1	EA	TERM,RING,12-10 GA,#10 STUD
26	851390204	7	EA	TERM,RING,16-14 GA,#10 STUD
27	33609	1	EA	TERM,RING,16-14 GA,.375 STUD
28	33607	1	EA	TERM,RING,16-14 GA,.250 STUD
29	35123	1	EA	TERM,RING,16-14 GA,#6 STUD
30	36164	18	EA	TERM,SEALED CONN,16-14 GA,MA
31	36165	10	EA	TERM,SEALED CONN,16-14 GA,FEM
32	36166	28	EA	SEAL,CABLE,18-16 GA,GREEN
33	35138	2	EA	CONN,SEALED,SHROUD,2-PIN
34	36351	2	EA	CONN,SEALED,SHROUD,4-PIN
35	36352	1	EA	CONN,SEALED,TOWER,4-PIN
36	36163	1	EA	CONN,SEALED,TOWER,6-PIN
37	36162	1	EA	CONN,SEALED,SHROUD,6-PIN
38	33596	22	EA	TIE WRAP,.188X7.500
39	982456	9	EA	TERM,PIN,DEUTSCH,14-16AWG
40	983216	1	EA	CONN,WEDGE,RECP,8P,DEUTSCH
41	983204	1	EA	CONN,SOC,DT04-6P,DEUTSCH
42	985768	1	EA	CONN,WEDGE,SOC,4P,DTP,DEUT
43	985765	1	EA	CONN,SOC,DTP-4P,DEUTSCH

NOTES:
1. TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 38).
2. WHEN REDUCING, LAY SMALLER LOOM INSIDE LARGER LOOM FOR A LENGTH OF 2.50".
3. AT TEES, SPLIT BRANCHING LOOM ON SIDE OPPOSITE EXISTING SPLIT FOR 2.50" AND RESULTING STRIPS INSIDE MAIN LOOM BEFORE TAPING AND TIE WRAPPING.
4. USE BRAIDED LOOM IN PLACE OF CONVOLUTED LOOM PROVIDED THERE IS LITTLE OR NO DIFFERENCE IN COST.
5. USE SMALLEST SIZE OF LOOM IN ALL CASES. PRINT MAY BE OVERLY GENEROUS IN LOOM SIZES.

986179 REV. B
MAIN HARNESS

SHEET 1 OF 1



ITEM	PART NO.	QTY	UM	DESCRIPTION
1	33271-11	3.42	FT	WIRE,16GA,BLUE
2	33271-9	4.10	FT	WIRE,16GA,PURPLE
3	33271-5	4.42	FT	WIRE,16GA,WHITE
4	33271-2	5.79	FT	WIRE,16GA,YELLOW
5	33271-3	4.75	FT	WIRE,16GA,BROWN
6	33271-4	4.75	FT	WIRE,16GA,GREEN
7	33271-7	5.08	FT	WIRE,16GA,RED
8	33589	2.50	FT	LOOM,SPLIT,CONVOLUTED,.500
9	33596	5.00	EA	TIE WRAP,.188X7.5
10	982448	7.00	EA	TERM,SOC,DEUTSCH,14-16AWG
11	982449	1.00	EA	CONN,SOC,DEUTSCH,8P,TYPE A
12	33882-1	3.50	FT	WIRE,12GA,RED
13	983218	1.00	EA	CONN,WEDGE,PLUG,8P,DEUTSCH
14	985766	1.00	EA	CONN,PLUG,4P,DTP,DEUTSCH
15	985767	1.00	EA	CONN,WEDGE,PLUG,4P,DTP,DEUTSCH
16	985770	2.00	EA	TERM,SOC,DTP,10 GA
17	36349	1.00	EA	TERM,PUSH-ON,.25,FEM,18-14,SLV
18	37118	2.00	EA	FUSE HOLDER,IN-LINE,BLADE,SEAL
19	71070	5.00	EA	TERM,RING,12-10 GA,.312 STUD
20	851390204	3.00	EA	TERM,RING,16-14 GA,#10 STUD
21	851390257	1.00	EA	TERM,RING,12-10 GA,.250 STUD
22	38876	1.00	EA	HARNESS,ALTERNATOR,3.3CUMMINS
23	36342	2.00	EA	FUSE,BLADE,20AMP,ATC-20
24	71864	0.50	FT	LOOM,SPLIT,CONVOLUTED,.375
25	73192-02	3.00	EA	PLUG,CAVITY,DEUTSCH CONN
26	36297	2.00	EA	TERM,PUSH-ON,.25,FEM,10-12GA
27	71861-2	5.00	FT	WIRE,10GA,RED
28	71862	2.00	FT	WIRE,14GA,WHITE
29	33608	2.00	EA	TERM,RING,16-14GA,.312 STUD

A1 - PRP - (42.00" LG) - OPT TACHOMETER
A2 - BRN - (45.00" LG) - OIL PRESS GAUGE
A3 - BLU - (45.00" LG) - WATER TEMP GAUGE
A4 - OPEN
A5 - YEL - (20.00 " LG) - START RELAY
A6 - GRN - (40.00" & 28.00" LG) - WARNING SYSTEM
A7 - WHT - (18.00" LG) - IGNITION SWITCH
A8 - NOT USED - PLUG

B1 - RED 12GA - (20.00"LG) - BATTERY TERM IGN SW
B2 - NOT USED - PLUG
B3 - RED 12GA - (20.00" LG) - FOR LIGHTS
B4 - NOT USED - PLUG

986305 REV. B
CUMMINS 3.3 ENGINE HARNESS

SHEET 1 OF 1

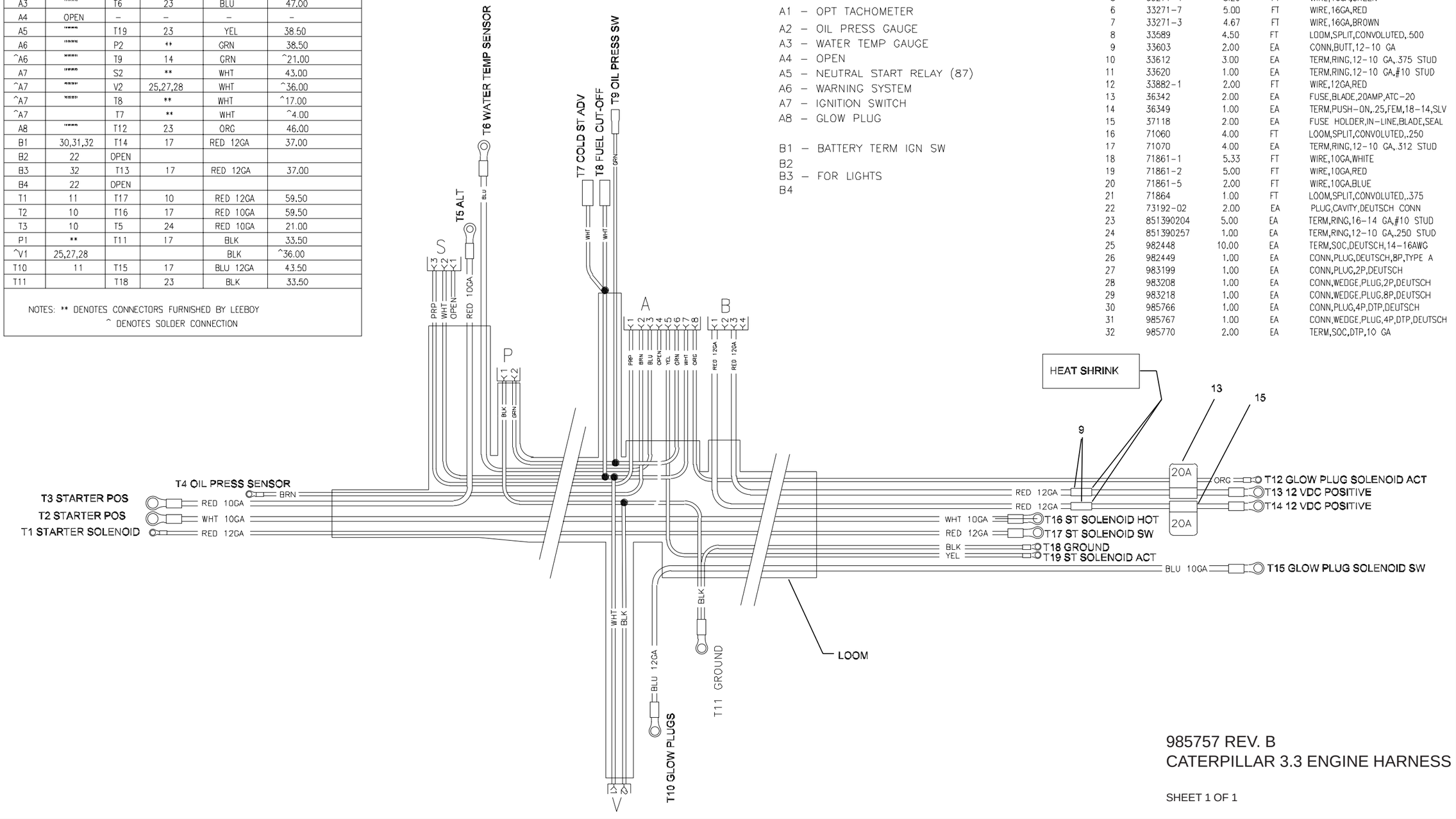
CONN/TERM				COLOR	WIRE
FROM	ITEM NO	TO	ITEM NO	WIRE	LENGTH INCH
A1	25,26,29	S3	**	PRP	43.00
A2	""	T4	23	BRN	41.50
A3	""	T6	23	BLU	47.00
A4	OPEN	–	–	–	–
A5	""	T19	23	YEL	38.50
A6	""	P2	**	GRN	38.50
^A6	""	T9	14	GRN	^21.00
A7	""	S2	**	WHT	43.00
^A7	""	V2	25,27,28	WHT	^36.00
^A7	""	T8	**	WHT	^17.00
^A7		T7	**	WHT	^4.00
A8	""	T12	23	ORG	46.00
B1	30,31,32	T14	17	RED 12GA	37.00
B2	22	OPEN			
B3	32	T13	17	RED 12GA	37.00
B4	22	OPEN			
T1	11	T17	10	RED 12GA	59.50
T2	10	T16	17	RED 10GA	59.50
T3	10	T5	24	RED 10GA	21.00
P1	**	T11	17	BLK	33.50
^V1	25,27,28			BLK	^36.00
T10	11	T15	17	BLU 12GA	43.50
T11		T18	23	BLK	33.50

NOTES: ** DENOTES CONNECTORS FURNISHED BY LEEBOY
^ DENOTES SOLDER CONNECTION

A1 – OPT TACHOMETER
A2 – OIL PRESS GAUGE
A3 – WATER TEMP GAUGE
A4 – OPEN
A5 – NEUTRAL START RELAY (87)
A6 – WARNING SYSTEM
A7 – IGNITION SWITCH
A8 – GLOW PLUG

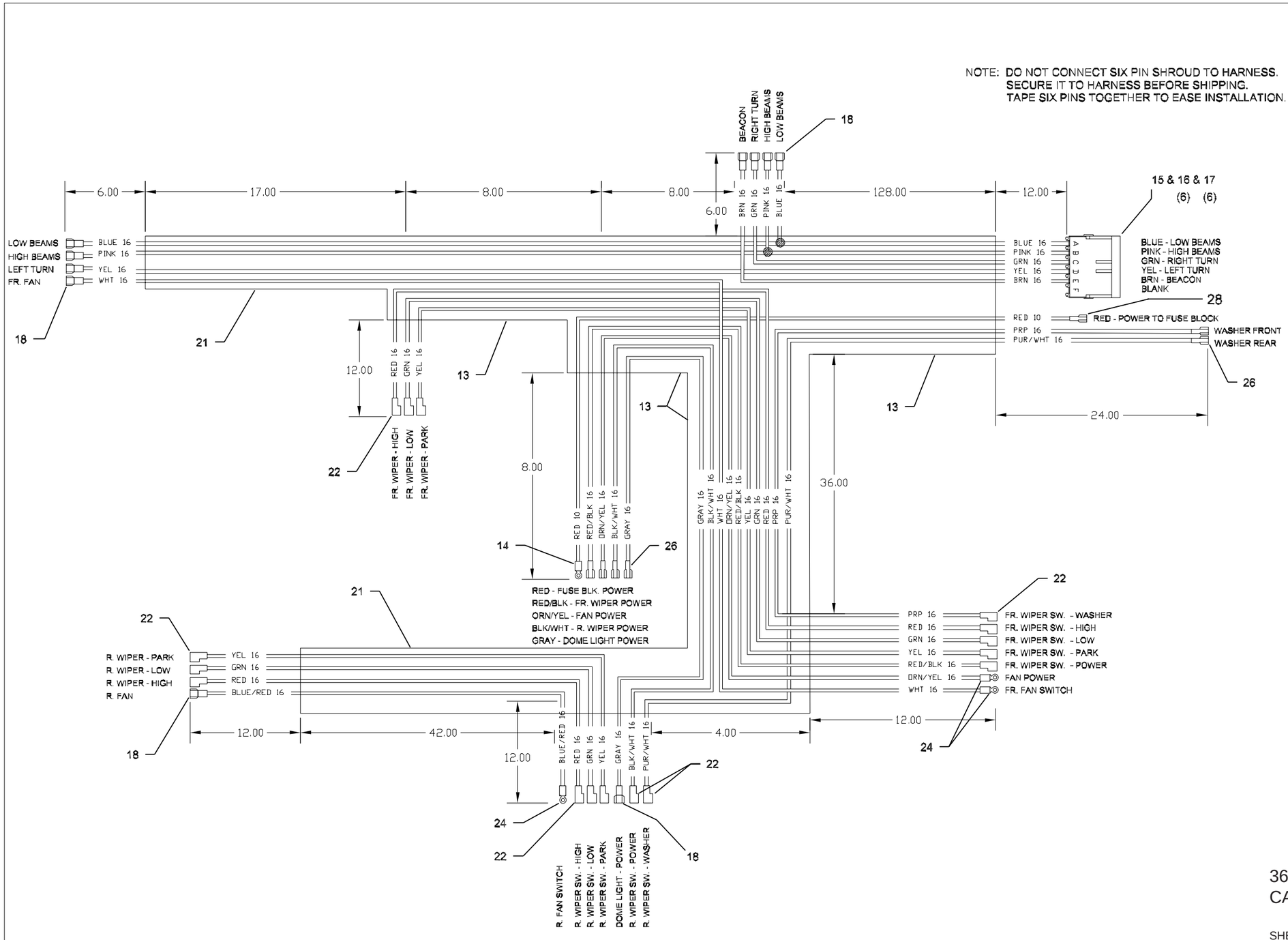
B1 – BATTERY TERM IGN SW
B2
B3 – FOR LIGHTS
B4

ITEM	PART NO	QTY	UOM	DESCRIPTION
1	33271-11	5.50	FT	WIRE,16GA,BLUE
2	33271-9	5.00	FT	WIRE,16GA,PRUPLE
3	33271-5	4.67	FT	WIRE,16GA,WHITE
4	33271-2	2.00	FT	WIRE,16GA,YELLOW
5	33271-4	8.20	FT	WIRE,16GA,GREEN
6	33271-7	5.00	FT	WIRE,16GA,RED
7	33271-3	4.67	FT	WIRE,16GA,BROWN
8	33589	4.50	FT	LOOM,SPLIT,CONVOLUTED,.500
9	33603	2.00	EA	CONN,BUTT,12-10 GA
10	33612	3.00	EA	TERM,RING,12-10 GA,.375 STUD
11	33620	1.00	EA	TERM,RING,12-10 GA,#10 STUD
12	33882-1	2.00	FT	WIRE,12GA,RED
13	36342	2.00	EA	FUSE,BLADE,20AMP,ATC-20
14	36349	1.00	EA	TERM,PUSH-ON,.25,FEM,18-14,SLV
15	37118	2.00	EA	FUSE HOLDER,IN-LINE,BLADE,SEAL
16	71060	4.00	FT	LOOM,SPLIT,CONVOLUTED,.250
17	71070	4.00	EA	TERM,RING,12-10 GA,.312 STUD
18	71861-1	5.33	FT	WIRE,10GA,WHITE
19	71861-2	5.00	FT	WIRE,10GA,RED
20	71861-5	2.00	FT	WIRE,10GA,BLUE
21	71864	1.00	FT	LOOM,SPLIT,CONVOLUTED,.375
22	73192-02	2.00	EA	PLUG,CAVITY,DEUTSCH CONN
23	851390204	5.00	EA	TERM,RING,16-14 GA,#10 STUD
24	851390257	1.00	EA	TERM,RING,12-10 GA,.250 STUD
25	982448	10.00	EA	TERM,SOC,DEUTSCH,14-16AWG
26	982449	1.00	EA	CONN,PLUG,DEUTSCH,8P,TYPE A
27	983199	1.00	EA	CONN,PLUG,2P,DEUTSCH
28	983208	1.00	EA	CONN,WEDGE,PLUG,2P,DEUTSCH
29	983218	1.00	EA	CONN,WEDGE,PLUG,8P,DEUTSCH
30	985766	1.00	EA	CONN,PLUG,4P,DTP,DEUTSCH
31	985767	1.00	EA	CONN,WEDGE,PLUG,4P,DTP,DEUTSCH
32	985770	2.00	EA	TERM,SOC,DTP,10 GA



985757 REV. B
CATERPILLAR 3.3 ENGINE HARNESS

SHEET 1 OF 1

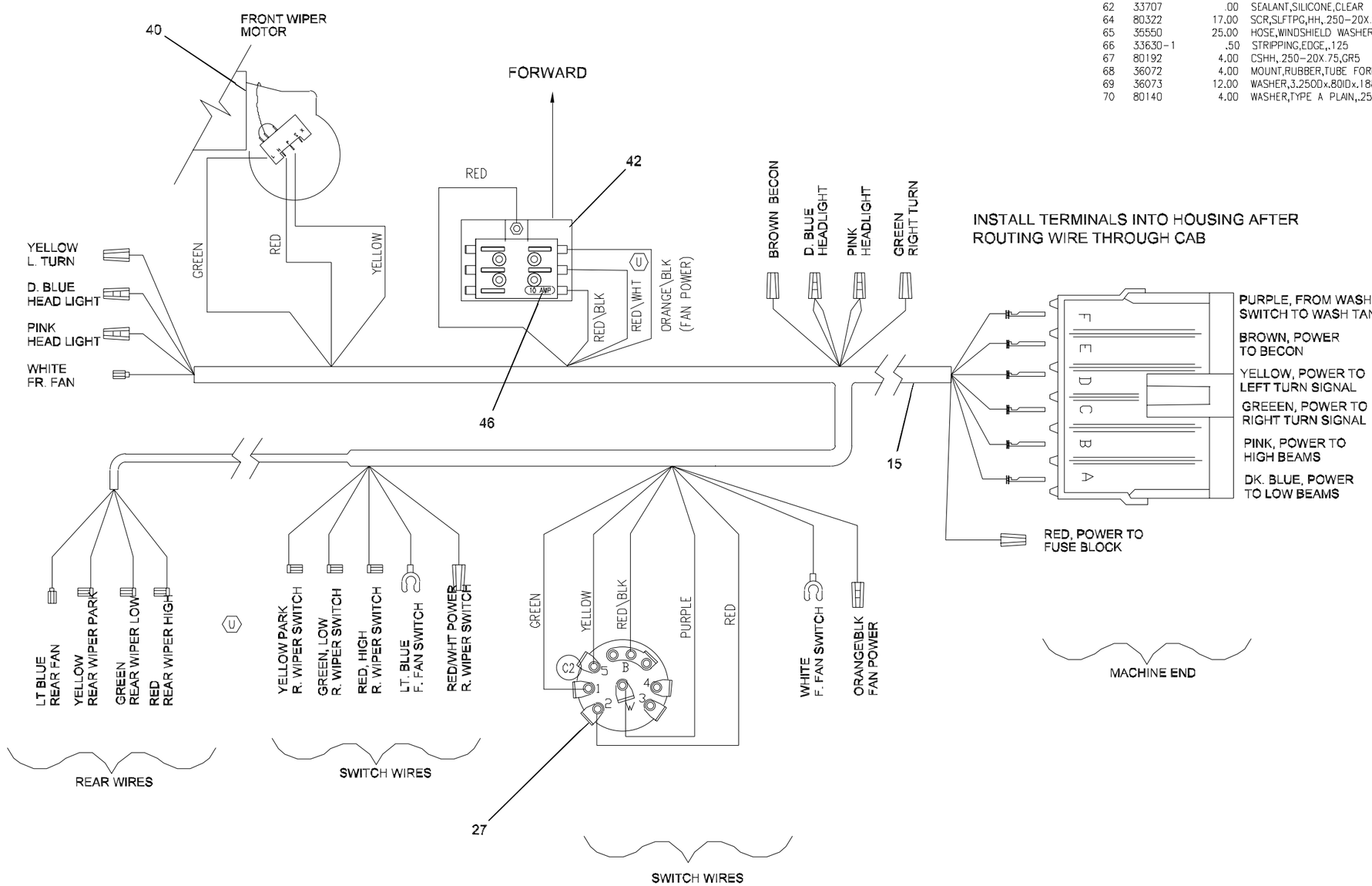


Item	Part No.	Qty	Description
1	33271-2	20.42	WIRE,16 GA,YELLOW
2	33271-3	12.16	WIRE,16 GA,BROWN
3	33271-4	17.66	WIRE,16 GA,GREEN
4	33271-5	7.25	WIRE,16 GA,WHITE
5	33271-7	11.83	WIRE,16 GA,RED
6	33271-8	15.41	WIRE,16 GA,PINK
7	33271-9	15.67	WIRE,16 GA,PURPLE
8	33271-11	15.41	WIRE,16 GA,BLUE
9	33271-12	5.00	WIRE,16 GA,RED/BLACK STRIPE
10	33271-17	5.33	WIRE,16 GA,WHITE/BLACK STRIPE
11	33271-18	5.50	WIRE,16 GA,BLUE/RED STRIPE
12	33271-21	5.33	WIRE,16 GA,ORANGE/YEL STRIPE
13	33589	15.00	LOOM,SPLIT,CONVOLUTED,.500
14	33620	1.00	TERM.RING,12-10 GA,#10 STUD
15	36162	1.00	CONNECTOR,SEALED,SHROUD,6-PIN
16	36164	6.00	TERM,SEALED CONN,16-14 GA,MALE
17	36166	6.00	SEAL,CABLE,18-16 GA
18	36348	10.00	TERM,PUSH-ON,.25,M.18-14,SLV
21	71864	5.25	LOOM,SPLIT,CONVOLUTED,.375
22	72997	16.00	TERM,PUSH-ON,.25,FEM,16-14G,90
23	851201417	15.00	TIE WRAP,.094X4.00
24	851390204	3.00	TERM,RING,16-14 GA,#10 STUD
25	33271-0	5.33	WIRE,16 GA,GRAY
26	36349	6.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
27	33271-16	17.00	WIRE,16 GA,PURPLE/WHITE STRIPE
28	36297	1.00	TERM.PUSH-ON,.25,FEM.12-10,SLV

36688-13 REV. D
CAB HARNESS

SHEET 1 OF 1

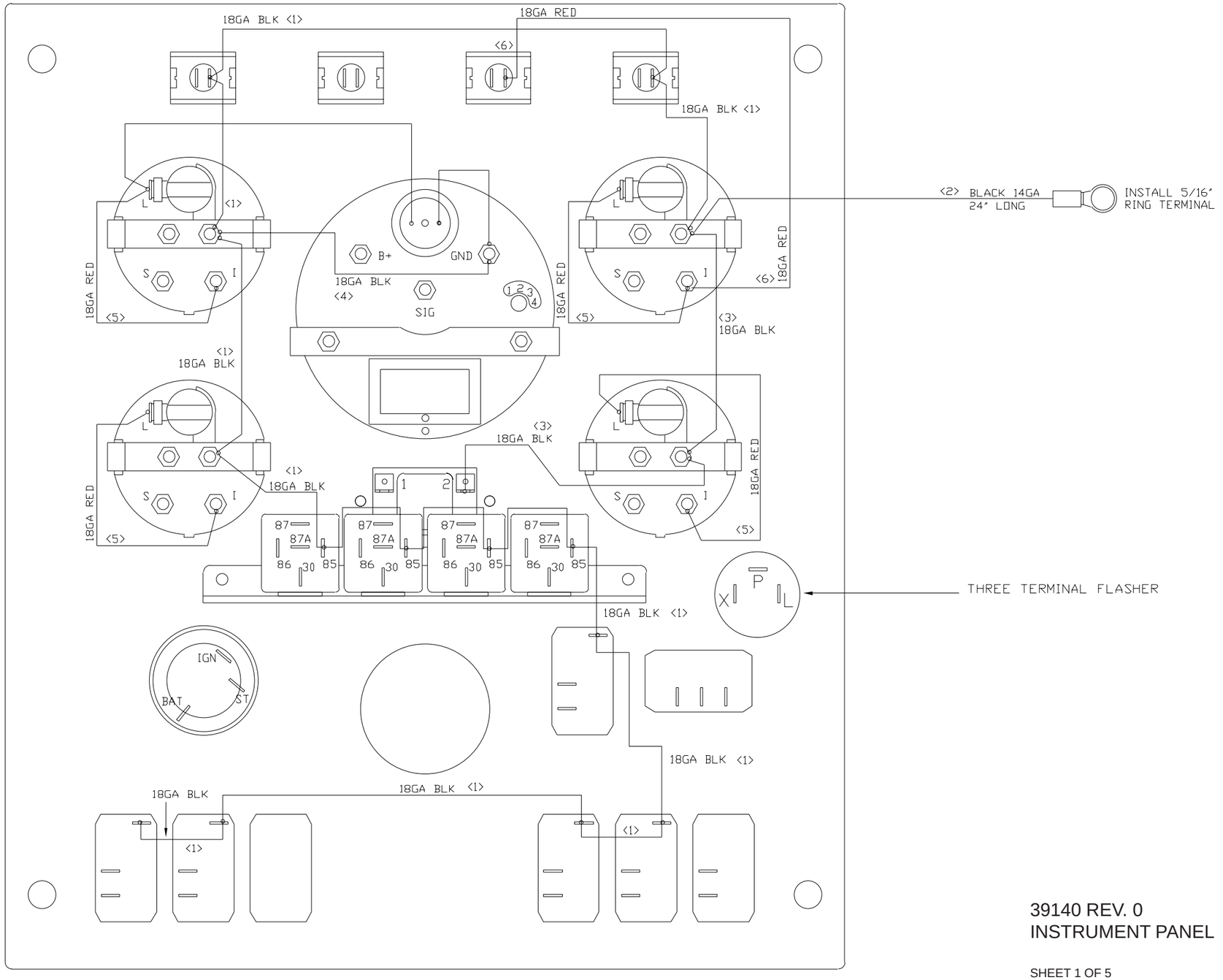
USE 4 AMP FUSE WITH OPTIONAL REAR WIPER MOTOR.
USE 4 AMP FUSE WITH ONE DEFROSTER FAN,
USE 10 AMP FUSE WITH 2 DEFROSTER FANS.
USE 10 AMP FUSE WITH FRONT WIPER MOTOR.



Item	Part No.	Qty	Description
51	38593	1.00	DECAL,WARNING,ROPS
52	35136-4	2.00	PLUG,HOLE,.500,FLUSH MT,PLSTC
54	36688-52	3.00	NUT,CENTERLOCK,.438-14
56	35136-20	2.00	PLUG,HOLE,.562,FLUSH MT,PLSTC
58	80142	3.00	WASHER,TYPE A PLAIN,.375
59	36688-34	2.00	DOOR HOLD
60	80882	4.00	CSHH,.375-16X4.75,GR8
61	80352	4.00	NUT,FLEXLOC,.375-16,FULL,LT
62	33707	.00	SEALANT,SILICONE,CLEAR
64	80322	17.00	SCR,SLFTPG,HH,.250-20X.50
65	35550	25.00	HOSE,WINDSHIELD WASHER .188ID
66	33630-1	.50	STRIPPING,EDGE,.125
67	80192	4.00	CSHH,.250-20X.75,GR5
68	36072	4.00	MOUNT,RUBBER,TUBE FORM
69	36073	12.00	WASHER,3.250Dx.80IDx.188T
70	80140	4.00	WASHER,TYPE A PLAIN,.250
1	28171	1.00	RB48 CAB,W/M,2 DOOR
4	36688-04	1.00	GLASS,FRONT WINDOW
5	36688-02	2.00	GLASS,SIDE WINDOW
6	36688-05	1.00	GLASS,REAR WINDOW
7	36688-07	2.00	SILL,DOOR
8	36688-08	3.00	COVER,PLASTIC
9	36688-09	1.00	COVER,SIDE ACCESS
10	36688-41	1.00	DOOR ASSY,ENTRANCE,RH
11	36690R	1.00	ASSY,LEFT ENTRANCE DOOR
13	28342	1.00	FLOOORMAT,RB48
14	36688-12	1.00	HEADLINER
15	36688-13	1.00	WIRE HARNESS
16	36688-14	2.00	FOAM,RIGHT SIDE
17	36688-15	1.00	FOAM,REAR PANEL
18	38462	.17	ADHESIVE,AEROSOL SPRAY,CAN
19	36688-49	2.00	STRIKER,EXTERNAL THREAD
20	80824	3.00	NUT,HEX,#10-24
21	35136-3	2.00	PLUG,HOLE,.375,FLUSH MT,PLSTC
22	35136-21	2.00	PLUG,HOLE,.312,FLUSH MT,PLSTC
23	81281	2.00	CSBHS,10-24X1.50,SS
24	81275	18.00	NUT,ACORN,.250-20,SS
25	35136-19	1.00	PLUG,HOLE,.438,FLUSH MT,PLSTC
26	81277	18.00	CSBHS,.250-20X.88,SS
27	853090	1.00	SWITCH,WIPER/WASHER
29	80350	5.00	NUT,FLEXLOC,.250-20,FULL,LT
30	81282	6.00	CSBHS,.250-20X1.25,SS
31	81106	6.00	CSBHS,.250-20X.75,SS
33	35136-1	1.00	PLUG,HOLE,.250,FLUSH MT,PLSTC
35	36688-43	6.00	FASTENER,X-MAS TREE,1.00 IN
36	36688-16	18.00	BUSHING,NYLON
37	36688-17	18.00	GROMMET,.250
38	36688-18	44.00	SEAL,WINDOW
39	81278	20.00	WASHER,.250,1.00 OD,SS
40	151170	1.00	WIPER MOTOR
41	29262	1.00	BRACKET,FUSE BLOCK
42	36695	1.00	FUSE BLOCK,BLADE-TYPE,6 POS
43	36688-54	3.00	GROMMET,.94ID,1.12HOLE,SNAP IN
46	36340	1.00	FUSE,BLADE,10AMP,ATC-10
47	151180	1.00	WIPER ARM,BLACK,16 IN.
48	33744-01	1.00	WIPER BLADE,16 IN.
49	871071601	6.00	WASHER,SPLIT LOCK,#10
50	35136-5	7.00	PLUG,HOLE,.625,FLUSH MT,PLSTC

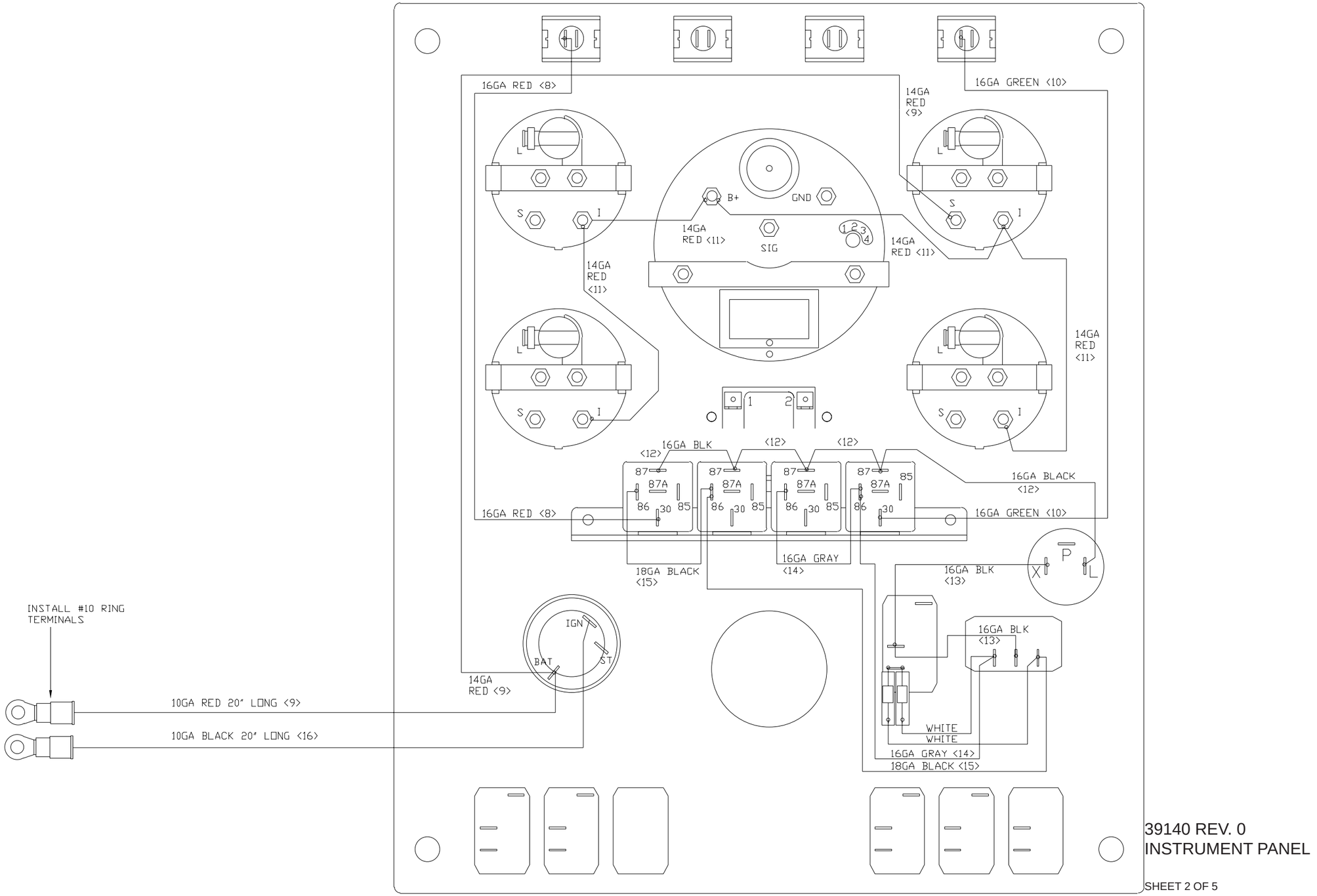
28235 REV. J
CAB ASSEMBLY, 2-DOOR

SHEET 1 OF 1



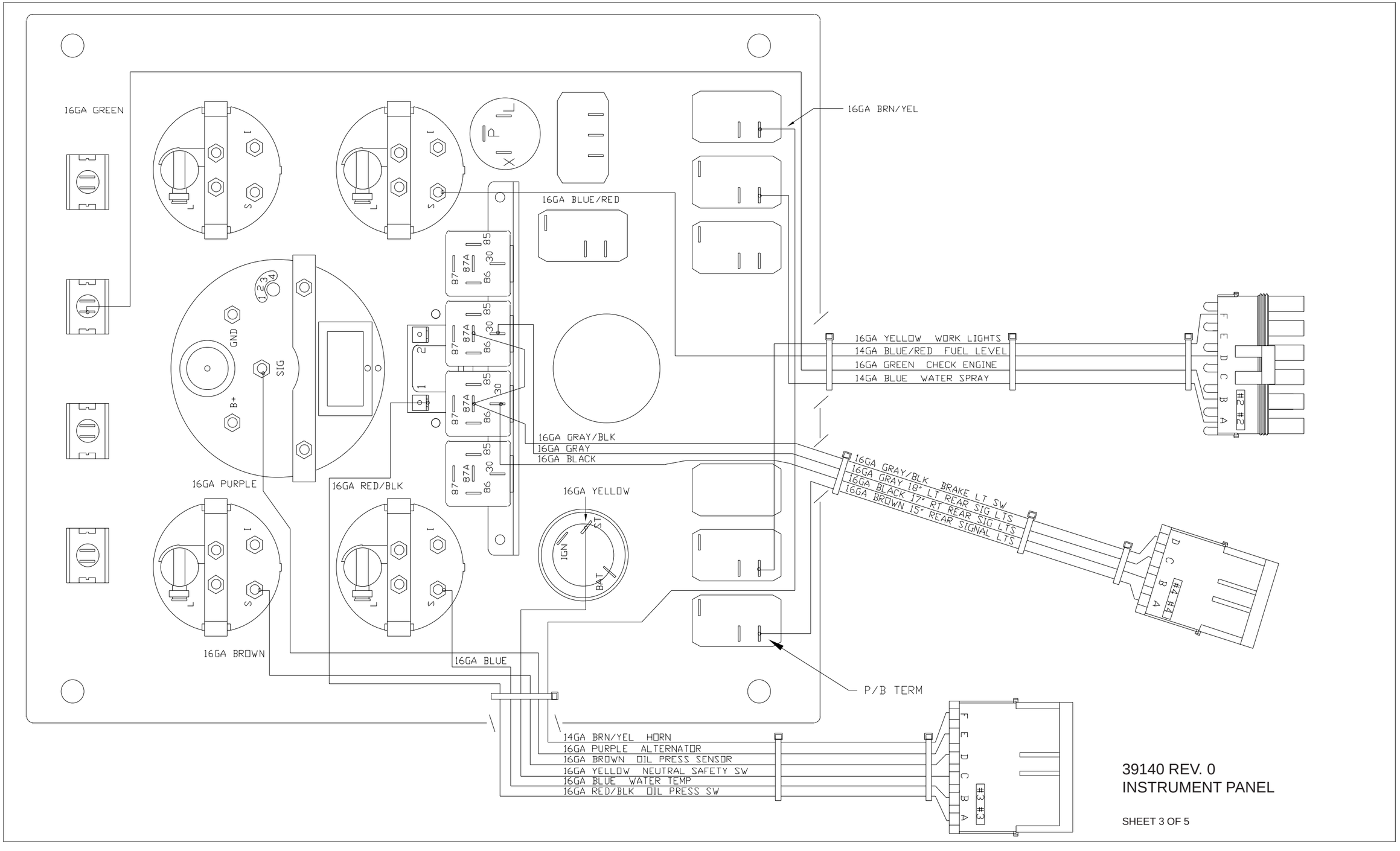
39140 REV. 0
INSTRUMENT PANEL

SHEET 1 OF 5



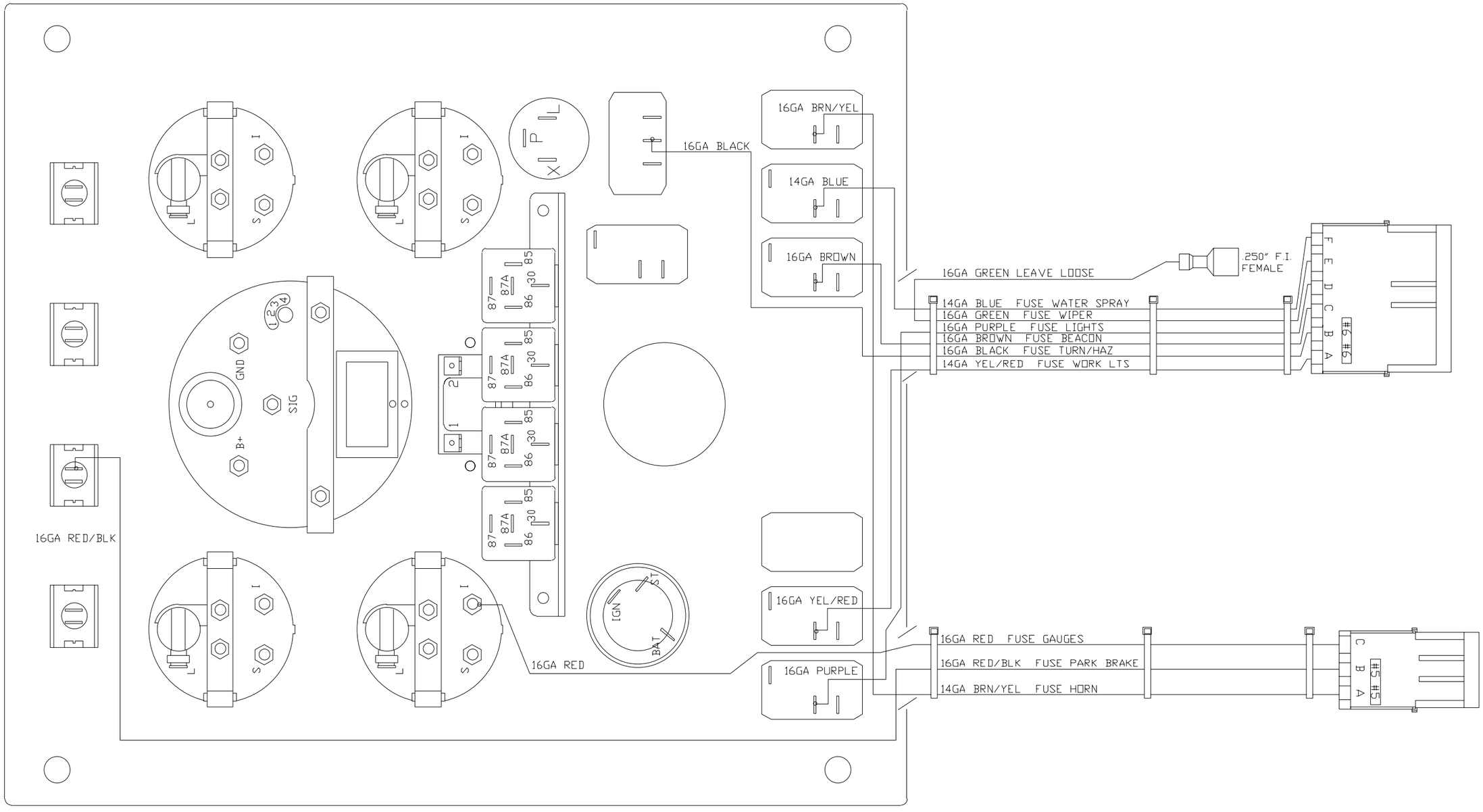
39140 REV. 0
INSTRUMENT PANEL

SHEET 2 OF 5



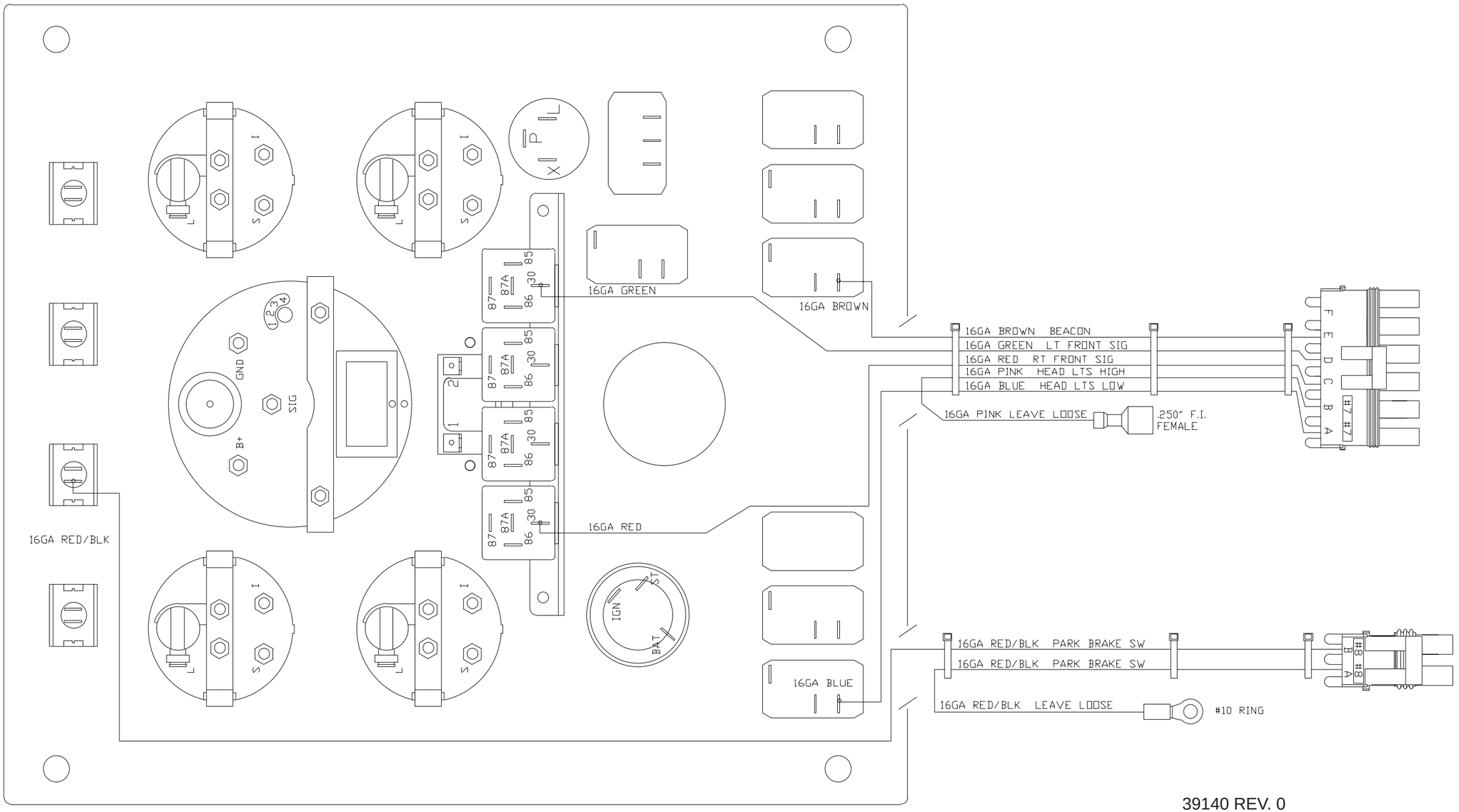
39140 REV. 0
INSTRUMENT PANEL

SHEET 3 OF 5



39140 REV. 0
INSTRUMENT PANEL

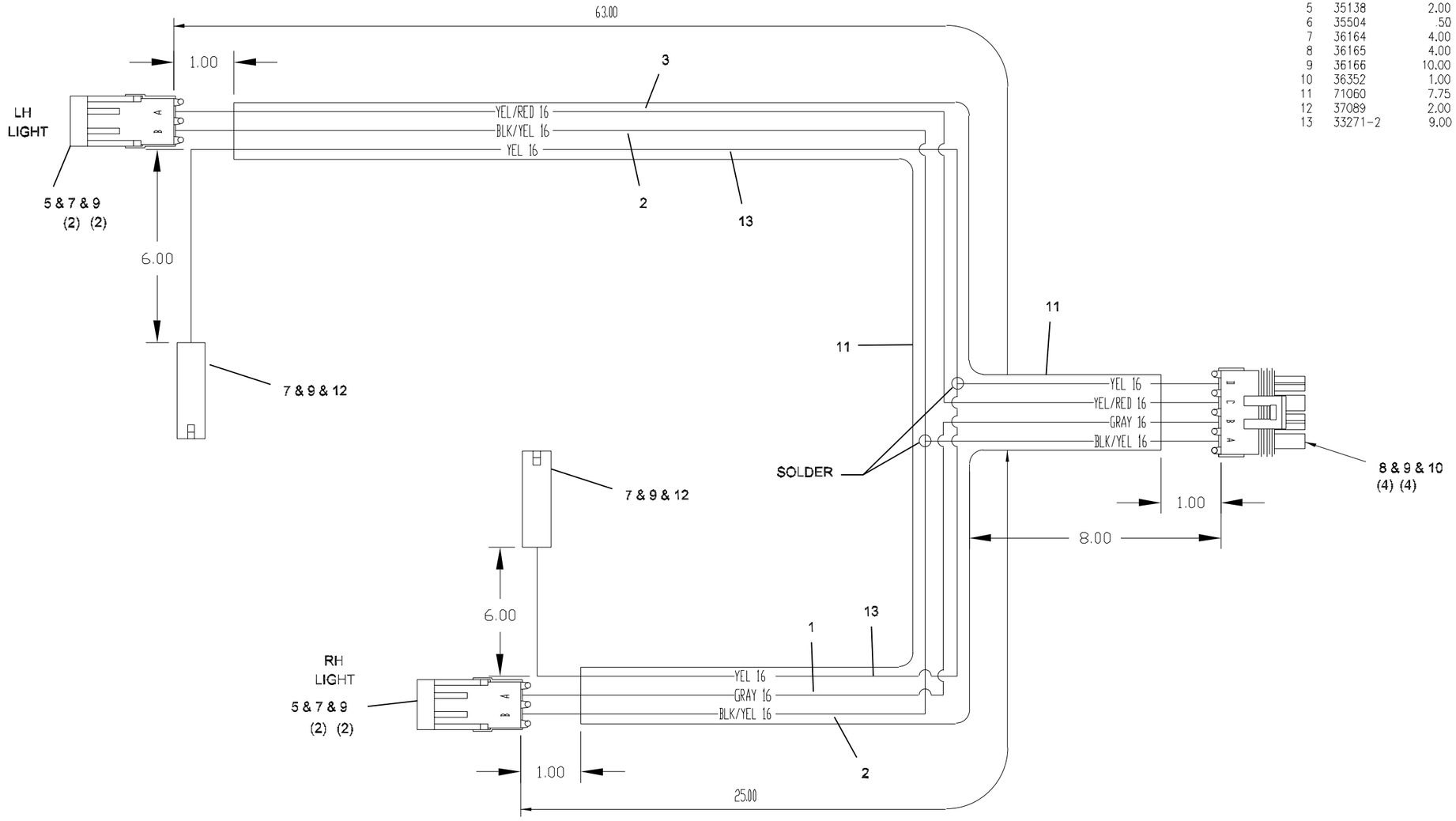
SHEET 4 OF 5



39140 REV. 0
INSTRUMENT PANEL

SHEET 5 OF 5

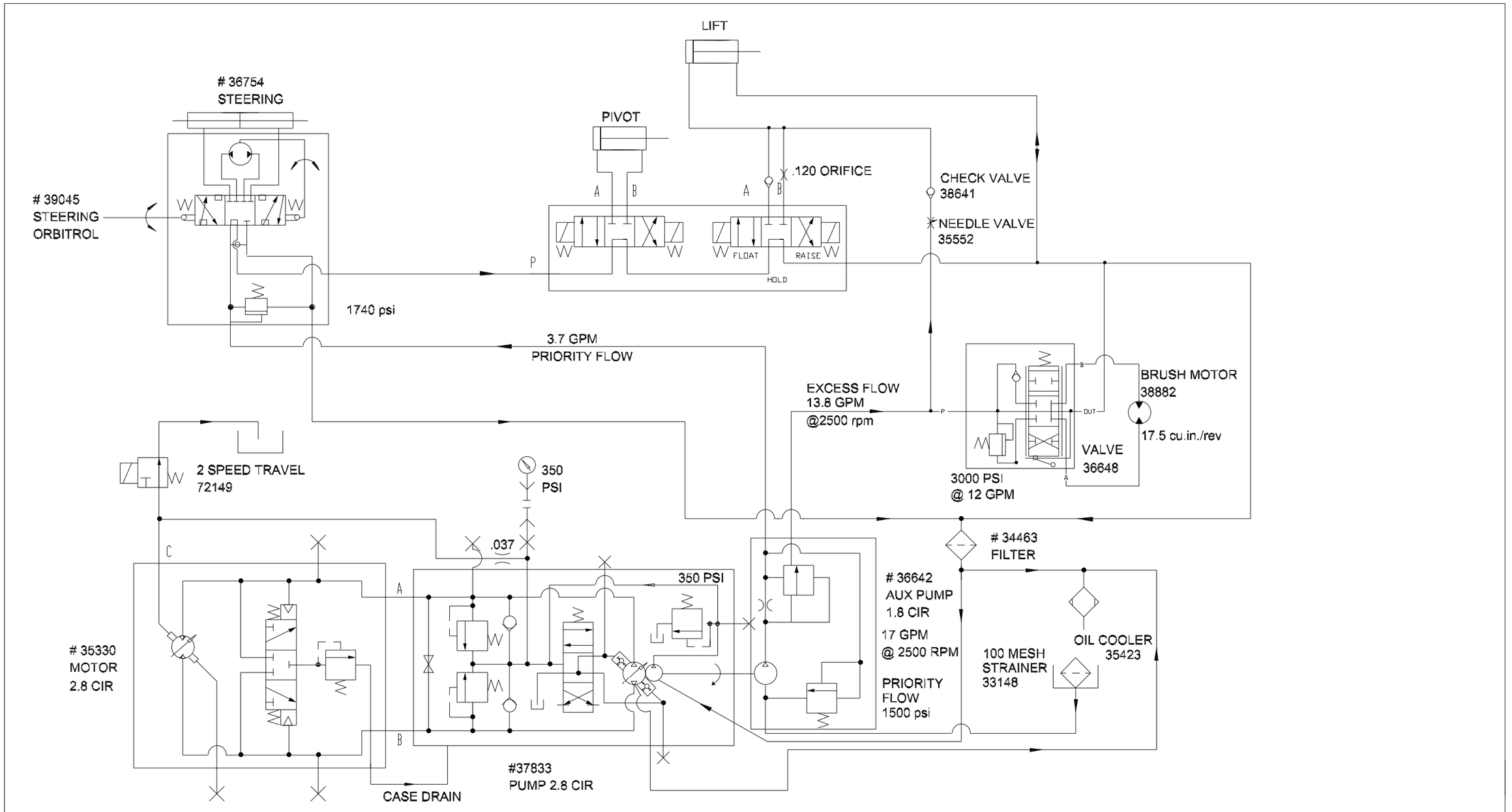
Item	Part No.	Qty	Description
1	33271-0	3.00	WIRE,16 GA,GRAY
2	33271-13	8.25	WIRE,16 GA,BLACK/YELLOW STRIPE
3	33271-14	6.25	WIRE,16 GA,YELLOW/RED STRIPE
4	33596	2.00	TIE WRAP,.188X7.5
5	35138	2.00	CONNECTOR,SEALED,SHROUD,2-PIN
6	35504	.50	TUBING,HEAT SHRINK,.250
7	36164	4.00	TERM,SEALED CONN,16-14 GA,MALE
8	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
9	36166	10.00	SEAL,CABLE,18-16 GA
10	36352	1.00	CONNECTOR,SEALED,TOWER,4-PIN
11	71060	7.75	LOOM,SPLIT,CONVOLUTED,.250
12	37089	2.00	CONNECTOR,SEALED,SHROUD,1-PIN
13	33271-2	9.00	WIRE,16 GA,YELLOW



NOTES:
1. TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 4).
2. AT TEES, SPLIT BRANCHING LOOM ON SIDE OPPOSITE EXISTING SPLIT FOR 2.50" AND RESULTING STRIPS INSIDE MAIN LOOM BEFORE TAPING AND TIE WRAPPING.

38353 REV. 0
REAR/WORK LIGHTS

SHEET 1 OF 1



982589 REV. 0
HYDRAULIC SCHEMATIC

SHEET 1 OF 1