

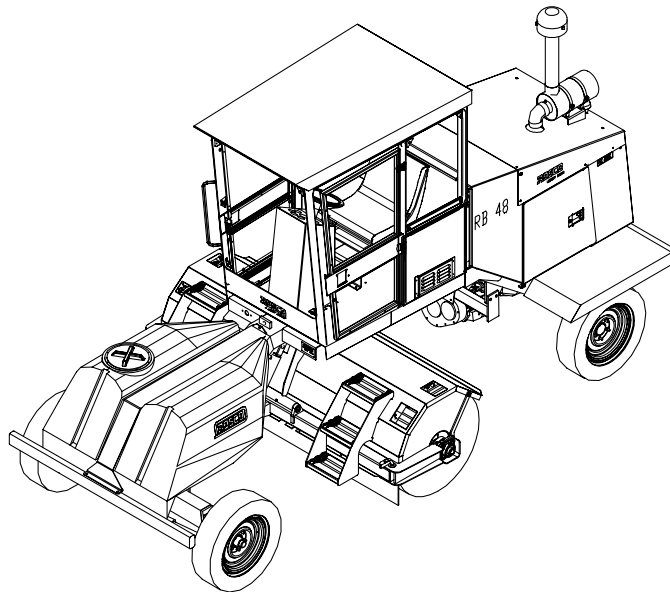
# **ROSCO**

*A LeeBoy Company*

## **RB48 BROOM**

### **OPERATION, SERVICE & PARTS MANUAL**

**Manual Part No. 39139  
For Serial Number 38728 and Higher  
Publish Date August 1, 2003**



**NOTE:** It is the responsibility of the customer or user's management to train, educate or supervise his employees in the proper operation and maintenance of this equipment.

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## CUSTOMER INFORMATION

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## INTRODUCTION

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This manual has been compiled to assist the owner and/or operator with the correct operation and routine preventive maintenance procedures for ROSCO Broom. A parts catalog is also included in this manual to allow for the accurate ordering of repair parts from Authorized Rosco Dealers/Distributors.

**THIS MANUAL HAS BEEN ORGANIZED INTO SIX (6) MAJOR SECTIONS:**

- |                 |                    |
|-----------------|--------------------|
| 1. INTRODUCTION | 4. MAINTENANCE     |
| 2. SAFETY       | 5. TROUBLESHOOTING |
| 3. OPERATION    | 6. PARTS CATALOG   |

A general contents page is located at the beginning of this manual as a quick reference to these sections and their major subsections. In order to receive the performance and efficiency that has been designed into your broom, it is very important to:

- A. Read this manual thoroughly before operating or servicing.
- B. Keep this manual in a convenient place for ready reference.
- C. Not attempt repairs or adjustments you do not understand.

If you require additional information or service, contact your Authorized Rosco Dealer/Distributor.

Throughout this manual references are made to the **LEFT SIDE** and **RIGHT SIDE** of the broom. These terms are used as the machine is viewed from the **rear**.

**Serial Number** - It is important to know the Serial Number of this equipment. The Serial Number Plate is located on the front left-hand Cab/Rops Support as shown on page 3 (ITEM 5) of the Parts Book, Section 6 of this manual. Record the Serial Number in the space below. Use the Serial Number in all correspondence referring to your ROSCO Broom, and when ordering parts.

**Model** \_\_\_\_\_

**Serial Number** \_\_\_\_\_

**Production Year** \_\_\_\_\_

**Design Specifications** - ROSCO MANUFACTURING COMPANY reserves the right to make design or specification changes without prior notification, or to make any other improvements without incurring obligations to add them to any machine in existence.

**Technical Information** - ROSCO MANUFACTURING COMPANY is continuously improving its products. The technical information found in this manual was correct at the time it was approved for publication. However, if you find differences between your broom and the information contained in this manual, please contact your local Authorized ROSCO Dealer/Distributor.

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## WARRANTY

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### A. WARRANTY

1. If a defect in material or workmanship is found and the authorized Dealer is notified during the warranty period, ROSCO will repair or replace any part or component of the unit or part that fails to conform to the warranty during the warranty period.
2. The warranty 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 must be filled out within ten (10) days of delivery of the unit.
3. Engines and truck chassis are warranted by their manufacturers and may have warranty coverage that differs from that of ROSCO.
4. Replacement parts furnished by ROSCO are covered for the remainder of the warranty period applicable to the unit or component in which such parts are installed.
5. ROSCO has the right to repair any component or part before replacing it with a new part.
6. All new replacement parts purchased by a ROSCO dealer will carry a six (6) month warranty. Remanufactured parts purchased by a ROSCO dealer will carry a ninety (90) day warranty.

### B. LIMITATIONS

ROSCO 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 ROSCO.
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 ROSCO, in making the applicable units or parts available upon notification of a service notice ordered by ROSCO.
6. The warranty responsibility on all engines and/or truck chassis rests with the respective manufacturer.
7. ROSCO may have support agreements with some engine and/or truck chassis manufacturers for warranty and parts support.

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## WARRANTY

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### C. ITEMS NOT COVERED

ROSCO 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. Freight 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 made necessary by normal wear and tear or brought about by abuse or lack of maintenance of the equipment, except for premature failures.
6. Attachments not manufactured or installed by ROSCO.
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.

### D. OTHER WARRANTIES

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED, STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO UNITS, ENGINES OR PARTS, WITHOUT LIMITATION, AND 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 ROSCO 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, DOWN TIME COSTS, LABOR COSTS OR CLAIMS OF CUSTOMERS, PURCHASERS OR LESSEES FOR SUCH DAMAGES.

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## SPECIFICATIONS

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**ROSCO Manufacturing Company** reserves the right to make design or specification changes without prior notifications or to make any other improvements without incurring obligations to add them to any machine in existence.

**ROSCO Manufacturing Company** is continuously improving its products. The information found in this manual was correct at the time it was approved for publication.

### DIMENSIONS

LENGTH, overall .....	185 inches (470 cm)
WIDTH, brush in travel position (45°) .....	93 inches (236 cm)
HEIGHT, ROPS or Cab .....	107 inches (272 cm)
WEIGHT, standard equipped .....	5,200 lbs (2360 kg)
WHEELBASE .....	140 inches (356 cm)
TURNING RADIUS, outside .....	225 inches (572 cm)
GROUND CLEARANCE, brush .....	5 inches (13 cm)
TREAD WIDTH, front & rear .....	66 inches (168 cm)
TIRE SIZE .....	ST 225/75 R15

### DRIVE TRAIN

#### ENGINE - CUMMINS

Type .....	4-Cylinder, Water Cooled, Diesel
Make and Model .....	Cummins 4B3.3
Displacement .....	199 in <sup>3</sup> (3.3 liters)
Bore .....	3.7 inches (94 mm)
Stroke .....	4.5 inches (114 mm)
Power @ 2500 RPM .....	85 HP (63 kw)
Ignition System .....	12 volt
Battery .....	12 volt, 1000 CCA Rated
Alternator .....	60 Amp Rated
Air Cleaner .....	Dry Type, Dual Element
Oil Filter .....	Full Flow
Oil Capacity .....	8.4 quarts (8 liters)
Idle Speed .....	1000 RPM
Fuel Tank Capacity .....	30 US Gallon (114 liters)
Cooling System Capacity .....	4 gallons (15 liters)

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## SPECIFICATIONS

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### DRIVE TRAIN - Continued

#### ENGINE - PERKINS

Type .....	4-Cylinder, Water Cooled, Diesel
Make and Model .....	Perkins 1004.42
Displacement.....	258 in <sup>3</sup> (4.2 liters)
Bore .....	4.05 inches (103 mm)
Stroke .....	5.0 inches (127 mm)
Power @ 2500 RPM .....	85 HP (63 kw)
Ignition System .....	12 volt
Battery .....	12 volt, 950 CCA Rated
Alternator .....	60 Amp Rated
Air Cleaner .....	Dry Type, Dual Element
Oil Filter .....	Full Flow
Oil Capacity .....	11 quarts (10.4 liters)
Idle Speed .....	800 RPM
Fuel Tank Capacity .....	30 US Gallon (114 liters)
Cooling System Capacity .....	4 gallons (15 liters)

#### STEERING

Type .....	Full Hydraulic, Orbitrol Motor, w/Automotive Steering Wheel
.....	3.7 GPM (14 LPM) Priority Flow at 1500 PSI (10 MPa)

#### FRONT AXLE

Type .....	Heavy Duty Truck-type, Oscillating
Brakes .....	None

#### HYDROSTATIC DRIVE SYSTEM

Pump, Make and Model .....	Sauer/Danfoss 40 Series
Pump, Displacement .....	2.8 CIR (46 cc)
Motor, Make and Model .....	Sauer/Danfoss 40 Series
Motor, Displacement, 2-Speed .....	2.8 CIR (46 cc)
Hydraulic Reservoir .....	25 US Gallon (94.6 liters)
Fluid Type .....	See Chart, Maintenance Section
Filter(s) .....	7 Micron Spin-on Type
Oil Cooler .....	Flow-Thru Type

#### FINAL DRIVE SYSTEM

Gear Box .....	4.533:1 Ratio
Rear Axle, Differential-type, Semi Float.....	3.55:1 Ratio
.....	Drum-Type Hydraulic Brakes w/Parking Brake



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## SPECIFICATIONS

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### BRUSH OPERATING SYSTEM

Pump .....	Gear-Type, 19 GPM (72 LPM), 3000 PSI (21 MPa)
Motor .....	Gerotor-Type, Direct Driven
Brush Core .....	10 in (25.4 cm) x 8 ft (2.4 m) Welded Steel
Brush Filler .....	10 in (25.4 cm) x 32 in (81.3 cm) Wafer-Type or, 10 in (25.4 cm) x 32 in (81.3 cm) x 8 ft (2.4 m) Tube Brush
Brush Cover .....	Steel, 160° Full Length
Brush Speed .....	200 RPM Max, Variable w/Engine RPM
Brush Angle .....	45°, Left or Right
Down Pressure Control .....	Hydraulic, Fully Adjustable

### MISCELLANEOUS EQUIPMENT

Instrumentation .....	Oil Pressure, Coolant Temperature, ..... Fuel Gauge, Ammeter, Hourmeter and Tachometer
Seat .....	with Seat Belt
Horn .....	12 Volt, Automotive-Type
Back-up Alarm .....	97 db +/- 4 db at 4 ft (122 cm)
ROPS Cab .....	OSHA & SAE Certified
Air Conditioning .....	22,000 Btu/Hr (6448 Watt) Capacity
Heater .....	30,000 Btu/Hr (8793 Watt) Capacity
Lights .....	Work Lights, Stop, Tail and Turn

### OPTIONAL EQUIPMENT

Defroster Fan(s) .....	12 Volt, Variable Speed, Front or Rear
Windshield Wiper(s) .....	12 Volt, 2-Speed, Front or Rear
Windshield Washer(s) .....	12 Volt, Front or Rear
Mirrors .....	West Coast Type, 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
Optional Instrumentation .....	Hydraulic Oil Temperature, ..... Engine Warning Light/Buzzer
Water Spray System .....	Poly Tank, 150 Gallons, w/Strainer, ..... 12 Volt Diaphragm-Type Pump
Optional Seat .....	Suspension-Type, Fully Adjustable, w/Seat Belt

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# SAFETY SECTION

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## SAFETY ALERT SYMBOLS

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This Safety Alert symbol means  
**ATTENTION! BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**



The Safety Alert symbol identifies important safety messages on the ROSCO Broom and in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

**3 Big Reasons:**

- \*Accidents Disable and Kill**
- \*Accidents Cost**
- \*Accidents Can be Avoided**

### Signal Words

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Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety message. The appropriate signal 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.

### Equipment Safety Symbol

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Throughout this manual, whenever you see this "Broken Bolt" symbol, it means:

#### **ATTENTION**

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

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## SAFETY

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**You** are responsible for the safe operation and maintenance of your ROSCO Broom. **You** must ensure that you and anyone else who is going to operate, maintain or work around the machine be familiar with the operating and maintenance procedures. Special attention should be given to learning and understanding the safety information contained in this manual.

In accordance with OSHA regulations 1928.51 and 1928.52, operating instructions must be provided initially to operators or employees before allowing them to operate the ROSCO Broom, and at least annually thereafter.

The most important safety device on this equipment is a well trained and safe operator. It is his/her responsibility to read and understand all safety and operating instructions in this manual. A person who has not read and understood all operating and safety instructions is not qualified to operate the ROSCO Broom. An untrained operator exposes himself/herself and bystanders to possible serious injury or death. All accidents can be avoided!

**Do not** modify the ROSCO Broom in any way. Unauthorized modification may impair function and/or safety and affect the working life of the equipment.

ROSCO Manufacturing Company assumes **NO LIABILITY** for accident or injury incurred through the improper use of this equipment.

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### SAFETY PRECAUTIONS

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#### GENERAL

1. Read and fully understand the operator's manual and the safety decals on the machine **before** trying to operate or service this equipment.



2. Have a first aid kit available and **know how to use it**.



3. Keep a "charged" fire extinguisher within reach whenever you work in an area where fire may occur. Have the correct type of extinguisher for your situation and **know how to use it**.



**Type A:** Wood, paper, textile and rubbish.

**Type B:** Flammable liquid.

**Type C:** Electrical equipment.

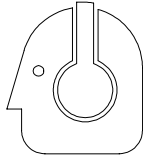
4. Wear safe work clothing. **Do not** wear clothing that is loose fitting or in poor repair when working on machinery. **Do not** wear rings or wrist watches when working on machinery. They can catch on moving parts and pull you into the machinery, causing serious injury. Wear sturdy, rough-soled work shoes, safety glasses and any other protective gear that is warranted by the work environment.



5. Keep work area organized and clean. Wipe up oil spills of any kind. Keep tools and parts off floor. Eliminate the possibility of a fall which could result in serious injury.

## SAFETY

6. Wear appropriate ear protection when exposed to loud noise for prolonged periods of time. Permanent loss of hearing can result from prolonged exposure.



7. **Do not hurry!** Use recommended hand holds and steps with at least three points of support when getting on and off the broom. Keep steps, floor, hand holds and controls clean and free from grease. Face the machine when climbing up and down and **never** jump off or dismount while the machine is in motion.



### PRE-OPERATING

1. Follow the pre-start instructions in the **Operations Section** of this manual before operation. Be sure all controls and gauges are operating properly before starting a job. **Do not** operate the broom if any of the warning buzzers / lights are "on". If any malfunctions are found prior to or during operation, **shut down the broom and report the problem to a supervisor.**

2. Keep all hydraulic lines, fittings and couplers tight and free of leaks. **Leaking fittings are a fire hazard.** Hydraulic fluid under pressure can pierce skin, causing serious injury or toxic reaction. **Do not feel for hydraulic leaks with your hands.**

3. Clear the area of people **before** starting or operating the broom. Death or serious injury can occur to bystanders from being crushed under a moving machine or being hit by debris.

4. **Know and understand** the job site traffic flow patterns and obey flagmen, road signs and signals.

5. When transporting the broom, **know and use** all required signal devices. Use tail lights, slow moving vehicle signs and warning beacons when on public roads. Provide an escort when necessary.

6. **Do not** allow riders on the broom when transporting. Death or serious injury can occur if riders fall off or under the machine while it is in motion.

7. Clean reflectors and lights before transporting to help avoid collisions.

8. **Do not** tow the broom, except to remove it from the road or load it on a trailer, unless equipped with optional tow package.

### STARTING AND STOPPING

1. Walk around the broom and be sure to warn all personnel in the area before starting the broom. **Be sure the area is clear before starting.** Death or serious injury can occur to bystanders from being crushed under a moving machine or being hit by debris.

2. Adjust, secure and latch the seat and fasten the seat belt **before** starting the broom. Start or operate the machine **only** from the operator's seat.

3. **Be sure** the parking brake is applied and the Forward/Reverse control is in the neutral position before starting the broom.

4. **Do not** bypass the neutral-start system. The neutral-start system must be repaired if it malfunctions.

5. **Do not** operate the engine in an enclosed area without adequate ventilation. Exhaust gases contain carbon monoxide, an odorless and deadly poison.



6. Park the broom on level ground whenever possible. Apply the parking brake. On grades, park the broom with the wheels securely blocked.

7. **Before** dismounting from the unit, place the Forward/Reverse handle in neutral, turn off all accessories, set the parking brake, shut off the engine and remove the ignition key.

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## SAFETY

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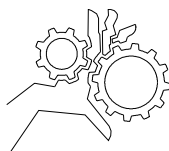
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### BRAKING

1. The operator must become accustomed to using the hydrostatic transmission to assist in braking. This is best done by moving the Speed/Direction joystick into the neutral position **before** applying the service brake with the foot pedal.
2. The service brakes alone are **not** sufficient to stop the broom if it is in forward or reverse drive mode.
3. Stopping distances must be anticipated for **all** conditions. If stopping on a grade, the distance needed to come to a stop will be longer the steeper the grade. Familiarize yourself with these variables so you can anticipate when a longer stopping distance is required.

### OPERATING

1. Wear the seat belt when operating the broom to maximize the protection capability of the ROPS cab.
2. **Know and use** the hand signals required for each job and know who has the responsibility for signaling.
3. Keep hands, feet, hair and clothing away from moving parts. Death or serious injury can occur from entanglement in moving parts.
4. Watch for bystanders and **never** allow anyone to reach into the broom while it is operating.



5. If any of the controls such as steering, service brakes or engine, fail during operation, **stop the broom immediately**. Apply the parking brake, turn off engine and block the wheels until the unit can be repaired or safely towed away.

6. Place **all** controls in neutral, stop engine, set park brake, remove ignition key and wait for **all** moving parts to stop **before** servicing, adjusting, repairing or unplugging. Death or serious injury can occur from entanglement in moving parts.

7. **Do not** go under the broom when the engine is running. Death or serious injury can occur if one becomes crushed by or entangled in moving parts.

8. After servicing, be sure that **all** tools, parts or servicing equipment are stored properly.

9. Reinstall safety devices, guards or shields after adjusting and/or servicing the machine.

10. When traveling down hill, put the broom in "low" range and keep engine RPM at maximum.

11. Drive the broom at speeds compatible with road and weather conditions. Special care should be taken on slopes, rough ground or when turning. Avoid hazards such as ditches, underground lines, trees, cliffs and overhead wires.

### MAINTENANCE

1. **Do not attempt repairs unless trained**. Refer to manuals and experienced repair personnel for help.
2. Follow **all** operating, maintenance and safety information in the manual.
3. Support the machine with blocks or safety stands when changing tires or working beneath it. Death or serious injury can result from the machine falling off a jack and crushing you.
4. Place **all** controls in neutral, stop engine, remove ignition key and wait for **all** moving parts to stop **before** servicing, adjusting or repairing. Death or serious injury can occur from entanglement in moving parts.
5. Follow good shop practices: **Keep** service area clean and dry. **Be sure** electrical outlets and tools are properly grounded. **Use** adequate light for the job at hand.



## SAFETY

6. Make sure **all** guards are in place and properly secured when maintenance work is completed. Serious injury can occur from being caught in unguarded moving parts.

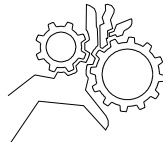
7. **Never** wear baggy or frayed clothing when working around or on any of the drive system components. Loose garments can become entangled in moving parts, pulling you into the machine, causing serious injury or death.

8. **Before** applying pressure to a hydraulic system, **be sure** all lines, fittings and couplers are tight and in good condition. Leaking fittings are a fire hazard. Hydraulic fluid under pressure can pierce the skin, causing serious injury or toxic reaction.



9. Wear protective glasses and other required safety equipment when servicing or repairing the broom.

10. Keep hands, feet, hair and clothing away from moving parts. Death or serious injury can occur from entanglement in moving parts.



11. Clear the area of bystanders when carrying out any maintenance, repairs or adjustments.

12. **Do not** service the broom while it is in motion or while the engine is running. If the engine must be running to service a component, place Forward/Reverse control in neutral, apply parking brake, block wheels and use **extreme caution**.

13. Do not make repairs on pressurized components, fluid, gas or machinery until the pressure has been properly relieved. Use **extreme caution** when removing radiator cap, drain plug, grease fitting or pressure taps. Park the broom and let it cool before opening a pressurized compartment.

14. When inflating tires, use a self attaching inflation chuck with a remote shut-off and **stand clear** of the tire. A tire can explode with great force.

15. **Do not** operate the unit with loose wheels or rims. Check wheel nuts periodically for tightness. Refer to the Bolt Torque chart at the end of the **Maintenance** Section of this manual.

16. Keep brakes and steering systems in good operating condition.

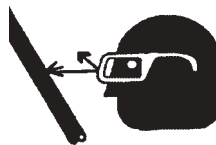
### HYDRAULICS

1. Make sure that **all** components in the hydraulic system are kept in good condition and are clean.

2. **Replace** any worn, cut, abraded, flattened or crimped hoses and metal lines.

3. **Do not** attempt makeshift repairs using tape, clamps or cements. The hydraulic system operates under **extremely** high pressure. Such repairs can fail, creating a hazardous condition.

4. Wear proper hand and eye protection when searching for a high pressure leak. Use a piece of wood or cardboard as a back stop to isolate and identify leaks.



**Do not use your hands.** Relieve pressure on the system before doing any repairs or disconnecting lines, hoses or valves.

Before reapplying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good repair.

5. Pressurized hydraulic fluid or oil has sufficient force to penetrate the skin. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin. If injured by a concentrated high pressure stream of hydraulic fluid, **seek medical attention immediately.**



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## SAFETY

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**TRANSPORT**

1. Make sure you are in compliance with all local regulations regarding transporting of equipment on public roads and highways. **DO NOT DRINK AND DRIVE and ALWAYS USE SEAT BELTS.**

2. **Be sure** the lights and reflectors that are required by local highway and transport authorities are in place, are clean, are in good repair and can be seen clearly by **all** overtaking and oncoming traffic.

3. Raise and secure the broom **before** transporting.

**TOWING THE BROOM**

1. Follow all local regulations and safety practices for towing trailer-type vehicles. Ensure that the towing vehicle is in sound operating condition and that it is properly equipped for towing a trailer.

2. Secure safety chains from the towed broom to the towing vehicle.

3. Connect the lighting harness from the towed broom to the towing vehicle. Ensure that the brake, tail and turn lights are operational.

4. Disable the broom's steering by opening the ball valve located next to the steering cylinder.

5. Disconnect the broom's drive train by lifting the disconnect pin and swinging the arm away from the gearbox.

6. Adhere to safe towing speeds, typically 45 to 55 mph.

**STORAGE**

1. Store the broom in an area away from human activity.

2. **Do not** permit children to play on or around the stored machine.

3. Make sure the unit is stored in an area that is firm, level and free of debris.

4. Store the broom inside a building, or cover it with a weather-proof tarpaulin and support it securely.

**TIRES**

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

2. **Do not** attempt to mount a tire unless you have the proper equipment and experience. If in doubt, have a qualified tire dealer or repair person perform required tire maintenance.

4. When inflating tires, use a self attaching chuck with remote shut off. Stand clear of the tire.

5. **Do not** inflate tires beyond the maximum recommended inflation pressure.

6. **Do not** hammer on rims with steel hammers. Use rubber, lead, plastic or brass faced mallets if necessary.

7. Put hardwood blocks under the jacks regardless of how hard the ground is. Block wheels on opposite side of the vehicle before you place a jack in position. **Always** support the vehicle with blocks or preferably jack stands in case the jack slips.

8. Do not operate the machine with loose wheels or rims. Check wheel nuts for proper torque.

**REFUELING**

1. Handle fuel with care. It is highly flammable. When refuelling, keep the hose nozzle or funnel in contact with the metal of the tank to avoid an electrical shock igniting the fuel. Maintain control of the filler nozzle.



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## SAFETY

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2. Clean up spilled fuel **before** restarting the engine. A spark could ignite the spillage.

3. **Do not** smoke while refueling the machine.

**Do not** refuel the machine near open flame or sparks. **Do not** refuel while the engine is running. **Do not** use fuel for cleaning purposes. Death or serious injury can occur from explosion or fire.



4. Fill fuel tank outdoors to reduce the chance of fumes accumulating and causing a fire or explosion. Keep the hose nozzle or funnel inside the tank while filling to avoid spilling fuel. Spilled fuel is a fire hazard.



5. Prevent fires by keeping machine clean of accumulated trash, grease and debris.



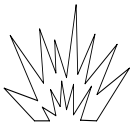
6. **Do not** fill tank to capacity. Allow room for expansion. Expansion and spillage create a fire hazard.

7. Tighten the fuel tank cap securely. If cap is lost, replace it only with the original manufacturer's approved cap. A non-approved cap without proper venting may result in pressurization of the tank.

8. Use the correct fuel grade for the operating season. Refer to the Hydraulic Fluid chart in the **Maintenance** section of this manual.

### BATTERY

1. Keep all sparks and flames away from batteries. Fumes from the battery's electrolyte solution is **extremely explosive**. Acid propelled by an explosion can cause blindness if it comes in contact with eyes.



2. Wear safety glasses when working near batteries. If you come in contact with battery electrolyte solution wash it off **immediately**.

3. **Do not** tip batteries more than 45 degrees to avoid spilling electrolyte solution and causing a chemical burn.

4. To avoid injury from spark or short circuit, **disconnect battery ground cable** before servicing any part of the electrical system. Failure to do so can result in electrical shock or burn.

5. Use jumper cables **only** in recommended manner. Improper use can result in battery explosion or unexpected broom motion. Refer to the Engine and Battery pages of the **Maintenance** section of this manual.

### SAFETY DECALS

1. Keep safety decals and signs clean and legible at all times.

2. Become familiar with the content and position of each safety decal. Refer to the **Safety Decal** section in this manual for position and part number.

3. Replace safety decals and signs that are missing or have become illegible.

4. When replacing parts, be sure to check that any safety decals that were on the original part are also on the new part.

5. Obtain safety decals or signs from your Authorized ROSCO Dealer/Distributor.

### 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. Decide on the exact position by taking measurements and test fitting before you remove the backing paper.

3. For decals with no top protection paper, decide on the decal location and remove the smallest portion of the split backing paper.

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4. Align the decal over the specified area and carefully press the small portion with the exposed adhesive backing into place.

5. Slowly 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 deciding on 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.






## SAFETY DECAL LOCATIONS

Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area, or the particular function related to that area, which requires your Safety awareness.

Decals not shown on these pages are listed in the **Parts Section** of this manual.

### Think SAFETY! Work SAFELY!

<b>⚠ WARNING</b>	<b>⚠ ADVERTENCIA</b>	<b>⚠ AVERTISSEMENT</b>
		
<ul style="list-style-type: none"> <li>• It's the owner's responsibility to instruct all operators and personnel in the safe operation of this equipment.</li> <li>• Anyone working on or around this equipment should be familiar with operator's manual.</li> <li>• <b>NO passengers allowed.</b></li> <li>• Ensure transmission is in <b>NEUTRAL</b> before starting engine.</li> <li>• Fasten seat belt while operating.</li> <li>• <b>DO NOT</b> sweep debris toward traffic or bystanders.</li> </ul> <p style="text-align: center;"><b>CALIFORNIA</b> Proposition 65 Warning Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. Always use care to avoid breathing engine exhaust. Failure to comply could result in death or serious injury.</p>	<ul style="list-style-type: none"> <li>• Es responsabilidad del propietario capacitar a todos los operadores y al personal en cuanto al uso seguro de este equipo.</li> <li>• Toda persona que trabaje en este equipo o alrededor del mismo deberá estar familiarizado con el manual del operador.</li> <li>• <b>NO llevar pasajeros.</b></li> <li>• Comprobar que la transmisión se encuentra en <b>NEUTRO</b> antes de arrancar el motor.</li> <li>• Abrocharse el cinturón de seguridad al usar la máquina.</li> <li>• <b>NO barrer la basura hacia el tránsito vehicular ni los peatones.</b></li> </ul> <p style="text-align: center;"><b>CALIFORNIA</b> Advertencia según Proposición 65 El vapor de escape del motor y algunas de sus componentes son conocidas por el Estado de California como causantes de cáncer, defectos congénitos y otros daños al sistema reproductivo. Siempre se debe evitar aspirar los vapores de escape del motor. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.</p>	<ul style="list-style-type: none"> <li>• Il incombé au propriétaire de former tous les opérateurs et le reste du personnel à l'utilisation en toute sécurité de ce matériel.</li> <li>• Quelqu'un travaille sur ce matériel ou à ses alentours doit bien connaître le manuel d'opérations.</li> <li>• <b>AUCUN</b> passager autorisé.</li> <li>• S'assurer que la transmission est au <b>POINT MORT</b> avant de faire démarrer le moteur.</li> <li>• Bouclier la ceinture de sécurité pendant le travail.</li> <li>• <b>NE PAS</b> balayer les débris vers les véhicules ou les passants.</li> </ul> <p style="text-align: center;"><b>CALIFORNIE</b> Avertissement en vertu de la proposition de loi 65 L'état de Californie a déterminé que les gaz d'échappement des moteurs et certains de leurs éléments constitutifs sont à l'origine de cancers, de malformations congénitales et d'autres lésions des organes reproducteurs. Travaux veiller à éviter de respirer les gaz d'échappement des moteurs. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.</p>

*Part # 39141-2 - Located on front of operator's console*

<b>⚠ WARNING</b>	<b>⚠ ADVERTENCIA</b>	<b>⚠ AVERTISSEMENT</b>
		
<p style="text-align: center;"><b>ROLLOVER PROTECTION SYSTEM WARNING</b></p> <p>Protection offered by ROPS will be impaired if subjected to any modifications, structural damage, or involved in an overturn incident. <b>REPLACE ROPS</b> after a rollover.</p> <p>Wear seat belts at all times. Maximum weight: 7500 LBS (3402 kg) Meets SAE: J1040 APR88, SAE J1043 SEP87 Failure to comply could result in death or serious injury.</p>	<p style="text-align: center;"><b>ADVERTENCIA DEL SISTEMA PROTECTOR CONTRA VUELOS</b></p> <p>La protección ofrecida por la estructura protectora contra vuelcos (ROPS) se perjudica si se le somete a modificaciones, al darse daños estructurales, o si sufre un vuelco. <b>REEMPLAZAN LA ESTRUCTURA PROTECTORA</b> después de un vuelco.</p> <p>Usar el cinturón de seguridad en todo momento. Peso máximo: 7500 lb (3402 kg) Satisface las normas SAE J1040 APR88, SAE J1043 SEP87 Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.</p>	<p style="text-align: center;"><b>AVERTISSEMENT CONCERNANT LE SYSTÈME DE PROTECTION CONTRE LE RETOURNEMENT</b></p> <p>La protection offerte par le système de protection contre le retournement sera compromise s'il est modifié, endommagé structurellement ou impliqué dans un retournement. <b>REEMPLACER</b> le système de protection contre le retournement après un retournement.</p> <p>Toujours porter les ceintures de sécurité. Poids maximum : 7500 LBS (3402 kg) Conforme aux normes SAE : J1040 APR88, SAE J1043 SEP87 Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.</p>

*Part # 39141-4 - Located on top left side of cab*

**REMEMBER** - If Safety Decals are illegible or missing because of wear or replacement of parts, new decals must be applied. New decals are available from your Authorized ROSCO Dealer.

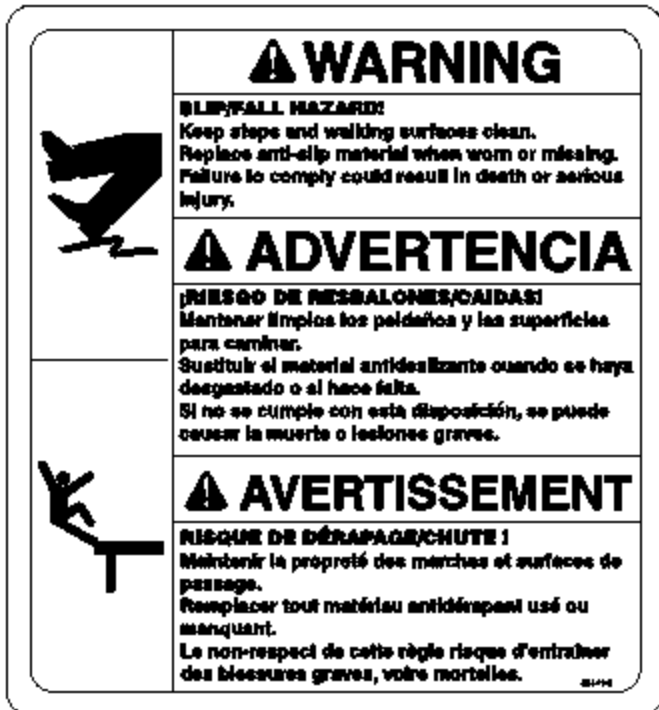
## SAFETY DECAL LOCATIONS



Part # 39141-1 - Located on top of engine hood



Part # 39141-7 - Located on top of brush hood at each end



Part # 39141-8 - Located on each side of cab, under door


**REMEMBER** - If Safety Decals are illegible or missing because of wear or replacement of parts, new decals must be applied. New decals are available from your Authorized ROSCO Dealer.

## SAFETY DECAL LOCATIONS



	<p><b>▲ WARNING</b></p> <p><b>ROTATING FAN BLADE!</b> Keep hands and clothing away. Failure to comply could result in death or serious injury.</p>
	<p><b>▲ ADVERTENCIA</b></p> <p><b>¡VENTILADOR EN MOVIMIENTO!</b> Mantener las manos y la vestimenta alejadas. Si no se cumple con esta disposición, se puede causar la muerte o lesiones graves.</p>
	<p><b>▲ AVERTISSEMENT</b></p> <p><b>PALE DE VENTILATEUR EN ROTATION !</b> Ne pas approcher les mains ni les vêtements. Le non-respect de cette règle risque d'entraîner des blessures graves, voire mortelles.</p>

Part # 39141-3 - Located inside engine compartment (2 places)

	<p><b>▲ DANGER</b></p> <p><b>PINCH HAZARD!</b> Stay clear of area. Failure to comply will result in death or serious injury.</p>	<p><b>▲ PELIGRO</b></p> <p><b>RIESGO DE SER ESTRUJADO!</b> Mantenerse alejado de esta zona. Si no se cumple con esta disposición, se causará la muerte o lesiones graves.</p>	<p><b>▲ DANGER</b></p> <p><b>DANGER DE PINCEMENT !</b> Ne pas s'approcher. Le non-respect de cette règle entraînera des blessures graves, voire mortelles.</p>
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Part # 39141-6 - Located on top of brush hood at each end

**REMEMBER** - If Safety Decals are illegible or missing because of wear or replacement of parts, new decals must be applied. New decals are available from your Authorized ROSCO Dealer.

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# OPERATION

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General Description ..... 3.2 - 3.4

Pre-Operation Checklist ..... 3.5

Start Up ..... 3.6

Controls ..... 3.7 - 3.8

Sweeping Guidelines ..... 3.9

Towing The Broom ..... 3.9 - 3.10

Shut Down ..... 3.10

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## OPERATION

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### GENERAL

It is very important that ROSCO Broom owners and operators fully realize the overall operating characteristics of the equipment furnished. An understanding of the operating procedures will ensure safe operation and high productivity. Please study this manual BEFORE operating or servicing the broom.

The ROSCO 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.

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### GENERAL DESCRIPTION

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**Hydrostatic Drive System** - This system propels the Sweeper forward and reverse with dynamic braking. The system consists of a variable displacement pump driven off the rear of the diesel engine which provides power to a variable displacement motor, and which in turn 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, that activates a neutral start switch, is included between forward and reverse directions of the control lever, which provides for easy and safe starting of the broom. There is also a toggle switch to engage the transmission Speed Selector.



**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.**

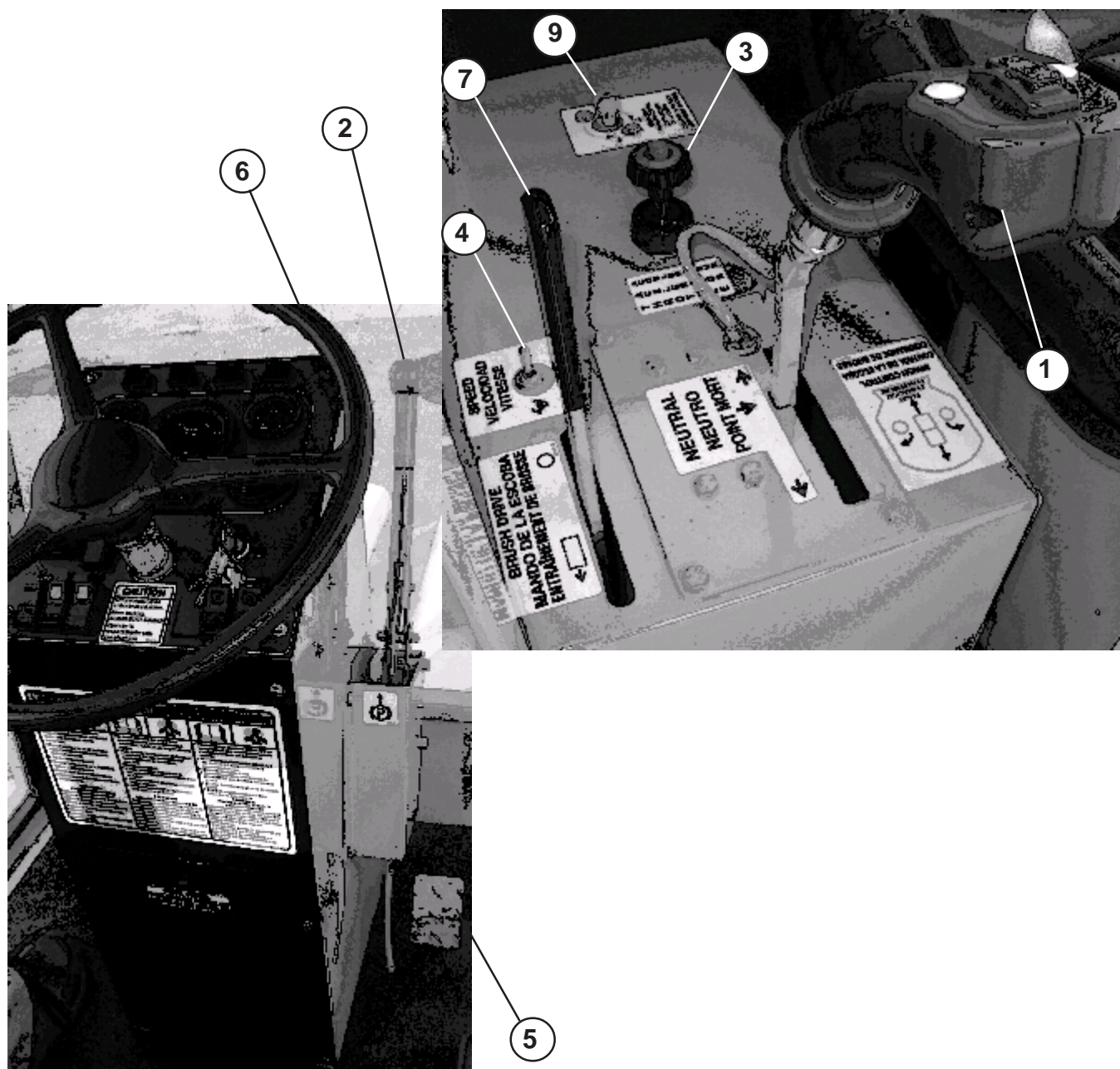
**Steering & Brush Hydraulic System** - A hydraulic pump, which is directly connected to the Hydrostatic System pump, has a built-in priority flow divider. The divider provides priority flow to the steering system and the brush lift and swing valves at approximately 4 gallons per minute. Excess flow 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. Control of the brush lift and swing is done by push buttons on the travel control lever, which operate solenoid controlled hydraulic valves.



# OPERATION

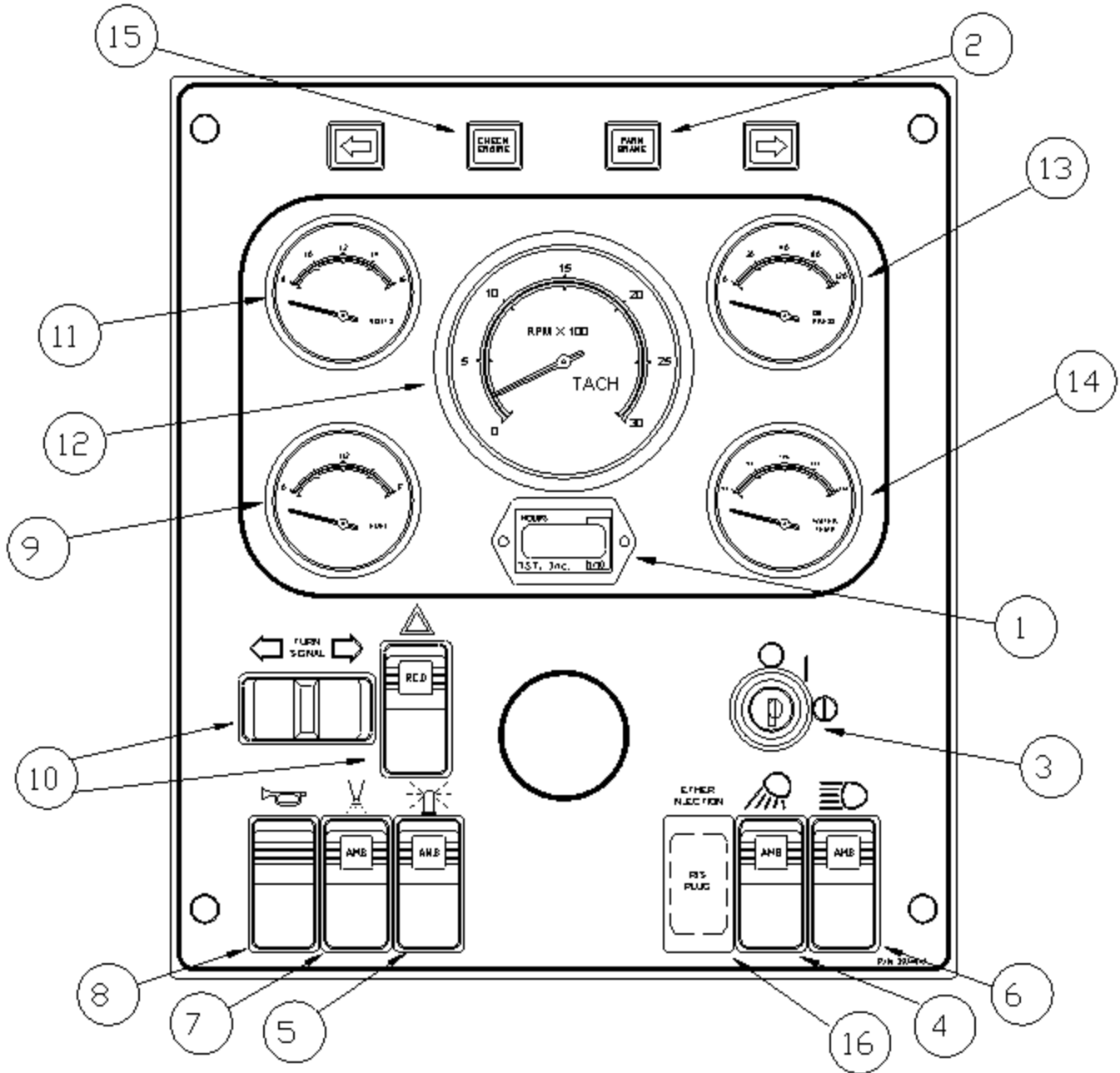


**Figure 3-A**

Operators Deck

- |   |                                |
|---|--------------------------------|
| 1. Joystick with Brush Control Switches and Transmission Control Selector Lever | 6. Steering Wheel              |
| 2. Park/Emergency Brake Lever   | 7. Brush Drive Lever           |
| 3. Engine Throttle  | 8. Operators Seat              |
| 4. Speed Selector Switch  | 9. Brush Down Pressure Control |
| 5. Service Brake Pedal  |                                |

# OPERATION



**Figure 3-B**  
Dashboard Layout

- |    |                       |     |                               |
|----|-----------------------|-----|-------------------------------|
| 1. | Hour Meter            | 9.  | Fuel Level Gauge              |
| 2. | Park Brake Light      | 10. | Turn Signal with Hazard       |
| 3. | Ignition Switch       | 11. | Ammeter                       |
| 4. | Work Lights           | 12. | Tachometer                    |
| 5. | Beacon Light Switch   | 13. | Oil Pressure Gauge            |
| 6. | Head Lights           | 14. | Water Temperature Gauge       |
| 7. | Water Spraybar Switch | 15. | Engine Warning Light          |
| 8. | Horn Switch           | 16. | Ether Injection Switch (Opt.) |

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## OPERATION

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### PRE-OPERATION

**Every operator must** read and understand the operating procedures and safety precautions outlined in this section. A pre-operation checklist is provided. Follow this checklist to ensure efficient and safe operation of the ROSCO Broom.

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

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#### PRE-OPERATION CHECKLIST

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1. Recommended fluid types and quantities required are listed in the **Specifications** Section of this manual.

Check all fluid levels as detailed in the **Maintenance** Section of this manual, including 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 FULL line.

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 for adjustment.

5. Check Tire Pressure. Maintain even pressure in all four tires at 50 psi.

6. If equipped with optional cab, make sure cab windows are clean and pressurizer air filters are clean.

7. Check the broom for possible loose bolts or signs of leaking hoses. Refer to the **Maintenance** Section for hydraulic leak inspection procedures.



**Know the location and function of the controls before starting the engine.** Refer to Figures 3-A and 3-B on pages 3-3 and 3-4 of this section for the position of all operating controls and system monitoring gauges.

# OPERATION

## START-UP

In the following procedures, the item numbers listed in ( ) refer to Figure 3-A on page 3-3 (unless otherwise noted). These illustrate the location of operator controls.



**WARNING:** Read manual before starting.  
 Train all operators before they work with this machine.  
 Do not smoke around the unit.  
 Wear protective gear and clothing.  
 Operators must meet all state & local licensing requirements.

### START-UP & ENGINE OPERATION

1. Place the Transmission Selector Lever (item 1) 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.

2. Apply the Park/Emergency brake (item 2).

3. Set the Engine Throttle (item 3) to one-half speed.

4. Turn the Ignition Switch key which activates the engine starter. As soon as the engine starts, release the switch.

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



**NOTE: 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 Trouble Shooting Section 5 of this manual (or the Diesel Engine manual) for possible solutions. For further analysis, contact your Diesel Engine Service Dealer.



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. Move the Engine Throttle to **idle** as soon as the engine starts.

**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 dash panel (see Figure 3-B) for proper readings and make the necessary corrections.

7. Adjust the position of the seat and mirrors (if so equipped) 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.



**CAUTION: Always** wear seat belts when operating the broom. Sudden speed changes or a roll over will throw an unrestrained operator from the machine causing death or serious injury.

**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.



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## OPERATION

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**Before moving the broom, be sure the Park/Emergency Brake is released to prevent premature wear and possible failure of the brake shoes.**

### CONTROLS

For best overall sweeping results, it is important for the operator to be familiar with all broom controls and recommended procedures **before** proceeding with sweeping operations.

In the following paragraphs, the item numbers listed in ( ) refer to Figure 3-A on page 3-3 in this section, which illustrates the location of operator controls.

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### GENERAL DESCRIPTION

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**Engine Throttle** - The engine throttle (item 3) is a knob with a center push-button located on the control panel to the right of the driver's seat. Holding the button depressed while pulling or pushing the knob allows the operator 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 (item 1) is also 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 of the broom smooth and fluid-like.

**Speed Selector Switch** - The hydrostatic transmission system on the broom is equipped with a HIGH - LOW Speed Selector Switch (item 4) located on the control panel on the operator's right side. Use HIGH speed for road travel and LOW speed for sweeping operations.

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



**Do not use HIGH speed for sweeping operations. The operator cannot control the broom in a safe and precise manner while sweeping in the HIGH range of the hydrostatic transmission.**

**Service Brake Pedal** - The foot-operated Service Brake Pedal (item 5) is on the right side of the operator's platform. The service brake may be overpowered by the hydrostatic drive. **Always** return the Transmission Selector Lever to NEUTRAL as the service brakes are applied. Most operators seldom use the foot brake. Instead they use the throttle and hydrostatic control to slow down, stop and change directions.

**Steering Wheel** - The Steering Wheel (item 6) is located directly in front of the operator's seat. Remember that steering operations take priority over brush operations (rotation, lift and swing) in situations where both are being attempted at the same time.

## OPERATION

### BRUSH CONTROLS

The ROSCO Broom is equipped with the following controls to provide operation of the brush:

**Brush Drive Lever** - The Brush Drive Lever (item 7) is located on the control panel on the operator's right side.

**Brush Speed** - As previously mentioned, brush speed is controlled and adjusted by changing the engine operating RPM.

**Brush Swing Switches** - The Brush Swing Switches (item 1) are located on the joystick on the control panel to the operator's right.

**Operating Positions** - The Brush Control Switch has three possible positions as indicated by the decal in Figure 3-C:

- A. **Up** - Pushing fully forward lifts the brush carrier. When pressure on the switch is released, the switch automatically returns to the HOLD position.
- B. **Hold** - This position holds or "locks" the brush carrier at the height it was moved to by the last UP or DOWN operation of the Brush Control Switch.
- C. **Down** - Pushing back on the switch moves the brush carrier down towards the ground. This is a detented position. When the switch is in the DOWN position, the brush is in the FLOAT position.

**Do not** apply excessive DOWN force 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 and use the Brush Down Pressure Control. Refer to **Brush**

**Down Pressure Control** in this section to correct excessive down force.

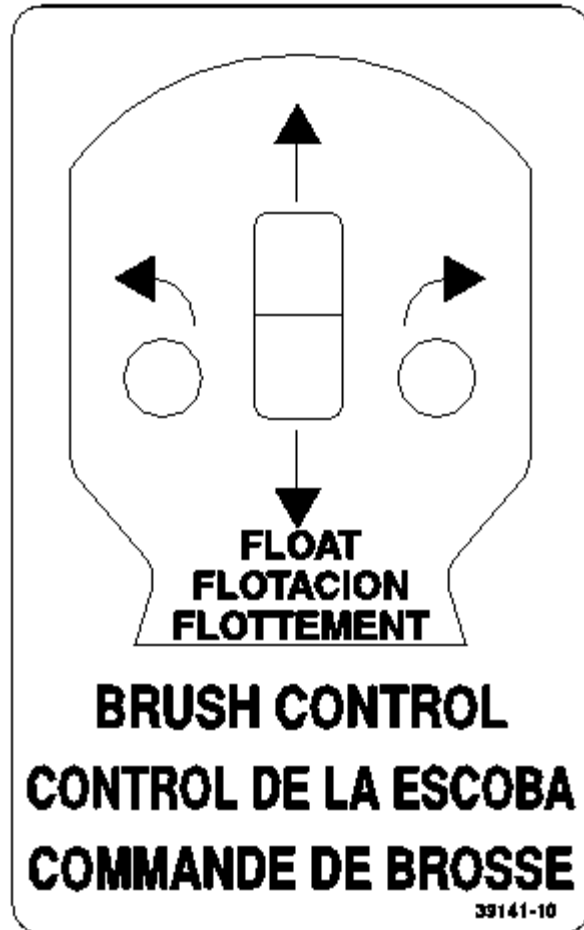


Figure 3-C  
(Part #39141-10)

**Brush Down Pressure Control** - The Brush Down Pressure Control (item 9) is on the control panel to the right of the operator. This knob 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".

**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.

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## OPERATION

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### SWEEPING GUIDELINES

For best sweeping results, please observe the following recommended 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 Valve.
2. The right combination of ground speed to brush speed will correct ineffective sweeping. For heavy sweeping, slow the ground speed and increase the brush RPM by increasing engine RPM.
3. Sweep only with the Speed Selector Switch (item 4) in LOW Speed.
4. To get an ideal brush height setting, sprinkle some sand under the brush and engage the brush with the machine in a stationary position. When the brush is raised, there should be a 2" to 4" wide clean swath under the entire length of the brush.
5. For most normal sweeping operations, the FLOAT position works best. Practice will help the operator achieve the most effective operation of the broom.
6. 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.
7. **Water Spray System** - In certain conditions, it may be necessary to sweep using the optional Water Spray 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 operator's dash panel (item 7, Figure 3-B).

### TOWING 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 broom 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 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 broom 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 ball valve located next to the steering cylinder. This will equalize pressure on both sides of the steering cylinder, or allow any steering pressure to bypass the steering cylinder.

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



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## OPERATION

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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.



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

5. Adhere to safe towing speeds, typically 45 to 55 mph.

6. 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 procedures taken in steps 3 and 4 above.

7. 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.

**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.**



*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.*

### SHUT DOWN

When it is necessary to leave the ROSCO Broom for any extended period of time:

1. Place transmission lever in neutral.
2. Stop rotation of the brush and use mechanical brush lift cylinder lock to secure brush in the raised position. This will prevent a flat spot from forming on the brush bristles. **Be sure** to do this if the unit will be parked for an extended period.
3. Set the Park/Emergency brake.
4. Idle the engine a few minutes before shutting it down.
5. Remove the ignition key to prevent unauthorized operation.
6. Lock any optional panels, cab doors, spare tire etc. before leaving the machine unattended. This will help prevent theft and/or vandalism while machine is not in use.



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## MAINTENANCE SECTION

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Engine Maintenance ..... 4.2 - 4.6

Hydraulic System Maintenance ..... 4.7 - 4.10

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# MAINTENANCE

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The suggestions and recommendations contained in this manual for maintenance should be followed as closely as possible to obtain long life and best performance from your ROSCO Broom.

**PROPERLY MAINTAINED EQUIPMENT IS SAFE EQUIPMENT!** The user of this product is responsible for inspecting the broom daily, and for having parts replaced or repaired when continued use of the machine would cause damage or excessive wear to other parts. General daily inspection of the broom should include observation 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.

**A PREVENTIVE MAINTENANCE CHART** is included at the end of this section as a guide for establishing a Preventive Maintenance Schedule.

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## ENGINE MAINTENANCE

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In addition to the following maintenance recommendations, also consult the diesel engine manufacturer's Operation & Maintenance Manual for detailed instructions. A copy of this manual was provided with your ROSCO Broom at the time of its shipment from the factory. If additional copies are needed, they can be obtained from your local authorized Rosco Dealer/Distributor or through a local equipment dealer who sells or services the particular engine with which your broom is equipped.

### Fuel Requirements

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

the ether manufacturer's recommendations for safe and effective use.

- A. Place unit in neutral and set parking brake.
- B. Set throttle to idle.
- C. 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. **Never remove the air filter element and spray ether directly into the air inlet piping or the intake manifold.**
- D. Be sure that engine oil pressure is indicated on the gauge within 30 seconds after starting.



**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.

### Cold Weather Starting

If it is necessary to use ether as a starting aid, **do it promptly.** Read and follow the steps below and



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

## MAINTENANCE



**WARNING:** Do not inhale ether fumes. They are extremely harmful.

**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 described steps for starting in cold weather.

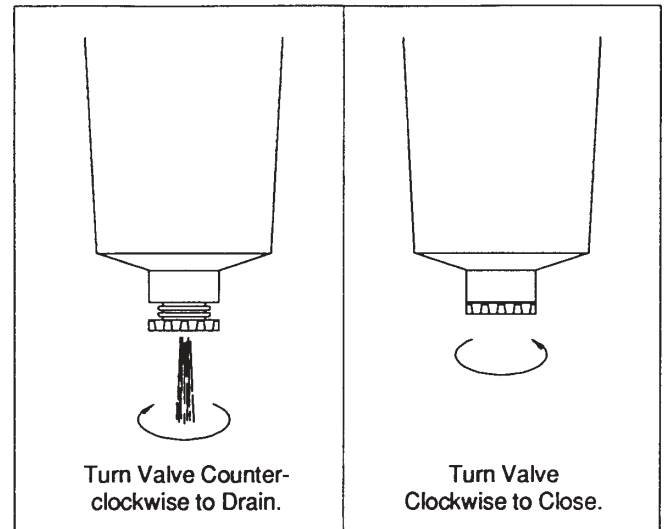
- A. Put unit in neutral and set parking brake.
- B. Set throttle to idle.
- C. While cranking the engine, inject a metered amount of ether starting fluid by pushing the Ether Injection button.
- D. Be sure the engine oil pressure is indicated on the gauge within 30 seconds after starting.
- E. **Never inject ether for more than two (2) seconds at a time.**

### Fuel Filter and Water Separator

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-A).

- A. Before operating the engine, use the valve to drain a small quantity of fuel from the water separator into a clean, clear container. **This is an absolutely necessary daily routine.**



**Figure 4-A**  
Engine Water Separator

- B. 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.
  - C. 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.

### Crankcase Oil

- A. 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.

## MAINTENANCE

B. The oil dipstick is located on the right side of the broom or the left side of the engine. If the oil measures below the "L" mark on the dipstick, add the proper amount of oil specified in the Preventive Maintenance Chart found at the end of this section. After adding oil, recheck the level with the dipstick and make sure it doesn't measure above the "H" mark.



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

C. 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.

D. Refer to the Preventive Maintenance Chart and/or engine manufacturer's manual for engine oil recommendations.

### 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-B).

A. Prior to daily operation, inspect all air intake system components for damage, cracked hoses or loose clamps.

B. Inspect the restriction indicator several times daily during operation (Figure 5-B). If the red indicator flag on the restriction indicator is visible, the air cleaner element must be replaced.



**Be sure to clean the inside of the air cleaner body assembly BEFORE removing the safety element.**

1. 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.**
2. When replacing body assembly or rubber adaptors, torque the T-clamp bolts to 50 inch pounds (see Section 6, Parts Catalog, Air Intake Group).

C. **DO NOT** replace the filter elements until the maintenance interval has been reached or the restriction indicator flag is visible.

D. Replace the primary filter elements every 100 service hours. Replace the safety element during every third replacement of the primary element. Refer to Section 6, Parts Catalog, or the Preventive Maintenance Chart in this manual for the correct part number.

E. The air precleaner should not require maintenance or service unless visual damage is noticed.



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

### Radiator and Coolant

A. Check the engine radiator daily for rocks and debris. A partially blocked radiator will significantly reduce the efficiency of the radiator and could cause overheating and possible premature failure of the engine or its components.

B. Compressed air can be used to remove rocks or debris from the radiator.



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

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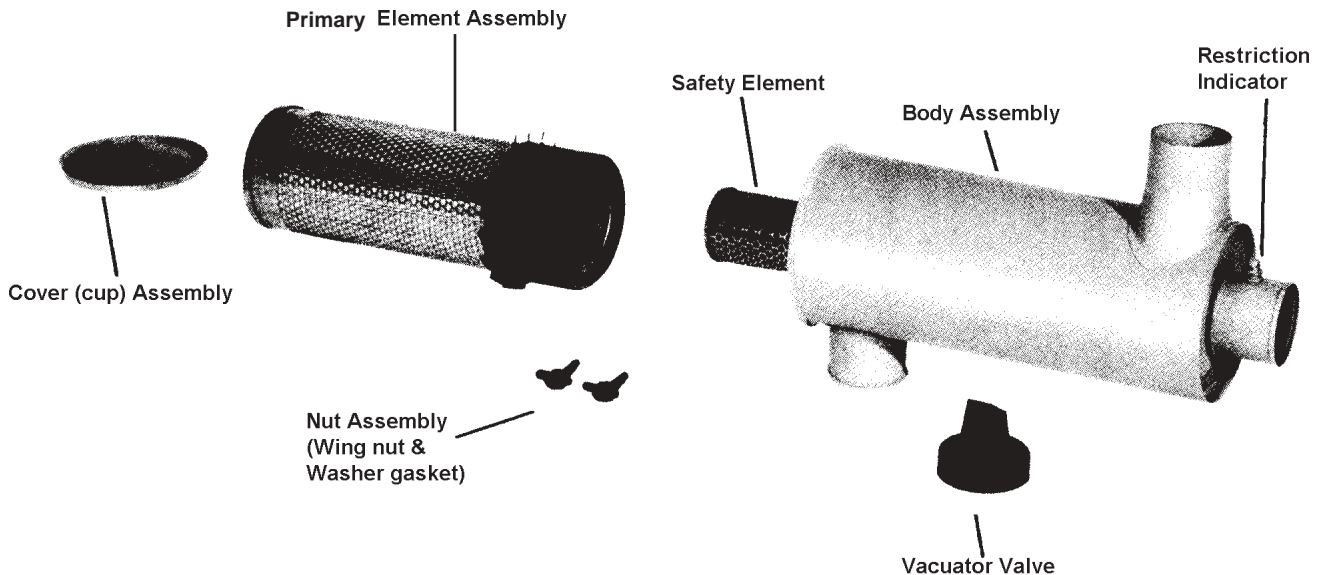
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## MAINTENANCE

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**Figure 4-B**  
Engine Air Cleaner Assembly

C. Check radiator coolant level prior to each day's use of the broom. The coolant level when the engine is cold should cover the radiator core. The coolant level when the engine is warm should be at the bottom of the filler tube.



**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.

D. Refill the cooling system when necessary with a mixture of 50% water and 50% ethylene-glycol antifreeze.

E. Seasonally, or after every 500 service hours, flush the cooling system. Consult the diesel engine manufacturer's manual for recommendations on the type of cleaner and procedures to use for this operation.

Any good commercial automotive cooling system cleaning solution can be used. Before replacing the coolant after cleaning, consult the Preventive Maintenance Chart in this manual to find the total

cooling system capacity for your engine. Prepare the coolant as recommended by the engine manufacturer and refill to the level given in paragraph B above.

### Battery

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

A. 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 cleaned and properly connected to the battery.

B. 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.

## MAINTENANCE

C. 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.

D. 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:** *Always disconnect the battery ground (-) cable first. Always reconnect the positive (+) battery cable first when servicing battery cables and when removing or replacing the battery. Remove the battery ground (-) cable when welding on the machine.*



E. Check the electrical charging system if the battery becomes discharged repeatedly. If the engine is difficult to start or the battery seems weak, clean and check the terminal connections. If the problem continues, the battery should be tested using a battery tester for voltage and current draw.

**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.*

F. 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.

### Engine Belts

A. Check the diesel engine belt(s) for excessive wear, fraying and cracking every 250 service hours. Auxilliary V-belt drives should be inspected every 100 hours.

B. Adjust engine belt(s) as required to provide proper tension. Consult the diesel engine manufacturer's manual for correct tensioning instructions and specifications.

C. Your ROSCO 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.*

D. 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.*



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## MAINTENANCE

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Your ROSCO Broom consists of a variable displacement Sauer/Danfoss 40 Series pump and motor which provide drive power for the ROSCO 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.

A 25 gallon hydraulic reservoir and filter(s) complete the Hydraulic System (Figure 4-C, page 4.8). This manual contains general system maintenance guidelines, however, more detailed service and maintenance information is available directly from the hydraulic component manufacturers if necessary.

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### HYDRAULIC SYSTEM MAINTENANCE

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#### Hydraulic Fluid

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

When adding or changing hydraulic fluid, refer to the Hydraulic Fluids Chart on page 17 of this section. The use of hydraulic oils or fluids that are not equal to those listed could result in substandard performance or possible 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 Rosco Dealer/Distributor or Rosco's Factory Service department.

#### 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.

The numbers in ( ) refer to the items shown in Figure 4-C on page 4.8.

A. Check the level of hydraulic oil prior to each day's operation of the broom. Hydraulic oil should be visible in the sight gauge (1). If not, fill the tank until oil is visible in the sight gauge.

B. The fill cap strainer (2) should be cleaned each time hydraulic oil is added or changed.



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

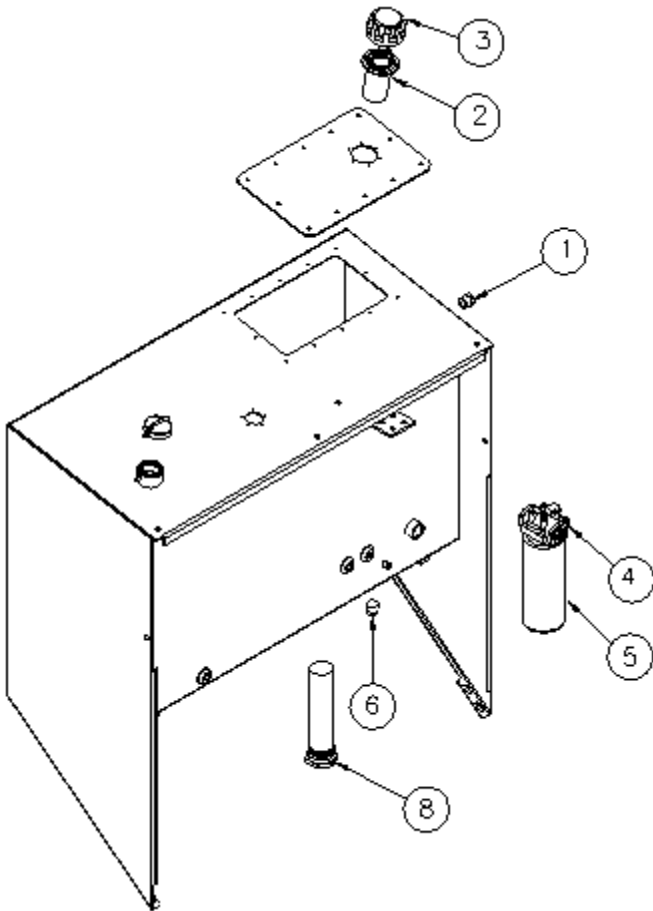
C. The filler cap (3) should be padlocked in place when practical to eliminate the possibility of tampering.

D. Condensation that may build up in the hydraulic system is capable of clogging the filter elements. This condition can lead to insufficient hydraulic fluid at the pump, which will in turn degrade the performance of and possibly damage the hydraulic pump and other system components.

E. Warm the hydraulic system to above 100° F (38° C) and check filter indicator (4). If the filter indicator is in the RED, the filter element (5) should be replaced. Refer to the Preventive Maintenance Chart at the end of this section for Rosco part number for filter element.

**NOTE: Use only genuine ROSCO 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.**

# MAINTENANCE



**Figure 4-C**  
Hydraulic Reservoir

F. 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. Use genuine Rosco replacement parts when changing the filter element. Refer to the Preventive Maintenance Chart at the end of this section for part number. Drain the hydraulic oil by removing the plug (6). For convenience, a customer supplied drain hose can be attached to drain fluid into a container.

G. The suction strainer (8) should be removed and cleaned at the 500 hour service interval or whenever the hydraulic oil is changed. There is no need to remove and clean suction strainer at the 100 hour service interval.

## Hydraulic System Checks

Before each day's use, inspect the ROSCO Broom for possible hydraulic leaks. A weekly check should be performed 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.

A. 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.

B. Leaks on the suction side of the hydraulic system are more difficult to find. Some symptoms of suction leakage which cause air and dirt to enter the system are:

- Foaming of hydraulic oil
- Sluggish hydraulic system operation
- Unusual noise in hydraulic pump or motor

This condition is serious since air or dirt introduced into the hydraulic system causes rapid component wear and eventual failure.

1. If a suction side leak is suspected, verify that all reservoir connectors and fittings are properly tightened.
2. If the problem persists, wrap the suction side hose and connectors with a high-quality electrical tape. Start at the pump inlet(s) and work toward the hydraulic reservoir.



## MAINTENANCE

3. If this technique isolates the leak, **replace the defective hose assembly or fitting. Never attempt to repair hydraulic hoses and/or leave tape attached.**

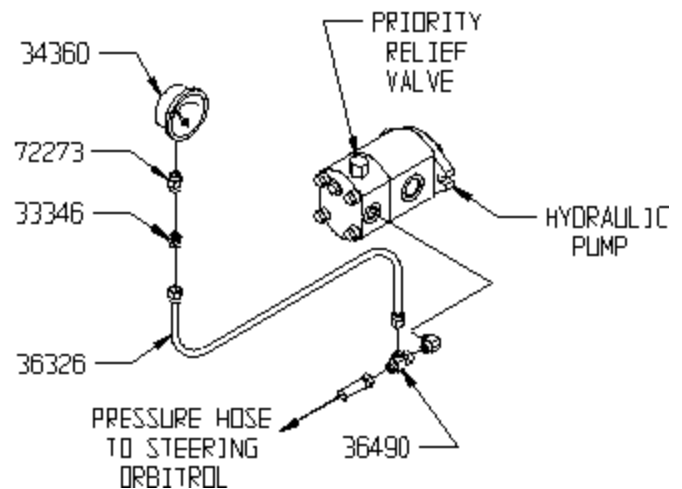
C. An operator should inspect the broom during operation for hydraulic leaks which may only be noticeable while the unit is running.

### 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.

A. **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. Occasionally, it may be necessary to readjust the Relief Valve setting. 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
1. Plumb in a 0 to 5000 psi pressure gauge into the Priority Flow Circuit as shown in Figure 4-D. Parts needed for this, including a pressure gauge, can be obtained from your authorized Rosco dealer. Part numbers are listed in Figure 4-D.
  2. Start the engine and warm the hydraulic oil to at least 100° F.



**Figure 4-D**  
Setting Priority Relief Valve

3. Set the parking 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 ROSCO 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.

## MAINTENANCE

### B. Adjusting Brush Rotation Relief Valve -

The Brush Rotation 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 forward and reverse rotation of the brush drive motor. The valve is located below the operator's platform on the right side of the broom.

4. Set the parking brake and be sure the transmission is in neutral.



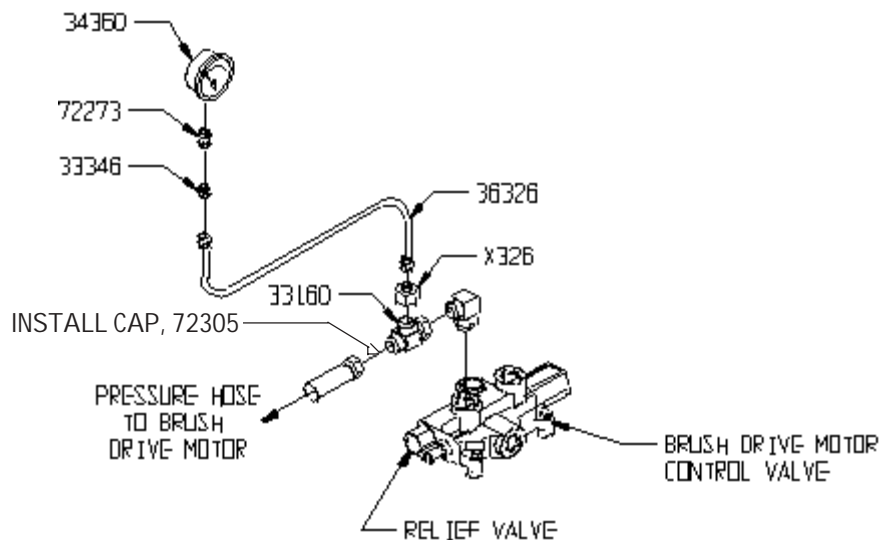
**CAUTION:** Use extreme caution when working under the ROSCO Broom while adjusting Brush Rotation hydraulic pressure. Have another person who is familiar with the machine assist you.

Adjust the relief valve if:

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

1. Plumb a 0 to 5000 psi gauge into the Brush Rotation Flow Circuit as shown in Figure 4-E. Parts needed for this step, including a pressure gauge, can be obtained from your authorized Rosco 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.

5. Engage the Brush Rotation 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 3000 +/- 100 psi.
8. Disengage the Brush Rotation 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 thru 8 until correct pressure is obtained.



**Figure 4-E**  
Setting Brush Rotation Relief Valve

# MAINTENANCE

## ELECTRICAL MAINTENANCE

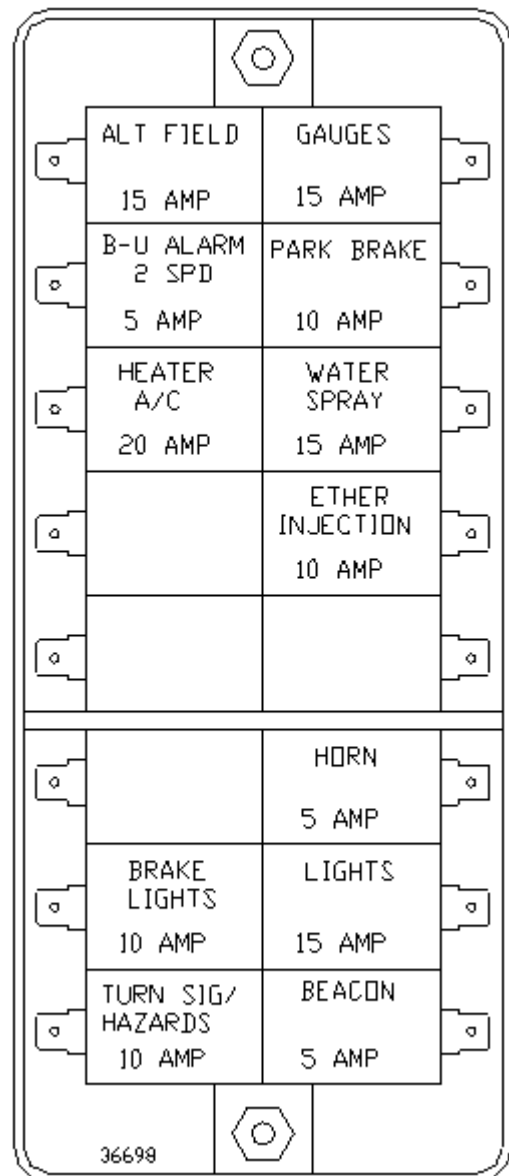
The ROSCO Broom's electrical system is protected from overload damage by fuses. Should an electrical component fail to operate, check the fuse panel first to make sure that a fuse is not blown. The fuse panel is located in the front of the instrument panel directly in front of the operator's seat. See Figure 4-F. Refer to Figure 4-G for replacement fuse sizes. Fuses that blow may be replaced but will continue to blow until the cause of the overload is found and corrected.



**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-F**  
Fuse Panel Location



**Figure 4-G**  
Fuse Replacement Sizes

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## MAINTENANCE

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----- **BRUSH SYSTEM MAINTENANCE** -----

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

Grease the brush swing pivot bushings with a multi-purpose grease every 500 hours or seasonally.

### To Change the Brush Core:

- A. Lower the brush completely to the ground but **do not** put pressure on the brush. Put unit in neutral and set parking brake..
- B. Remove cotter pin from brush cover pin. Remove the cover latch pin.
- C. Remove hairpin clip from the swing arm pin. Remove pin and pull swing arm away from brush core.
- D. Pull the core away from the drive hub and slide it out of the way.
- E. Check both hubs for any damage and grease the U-joint on the idle hub.

F. Slide new brush onto slotted drive hub making sure that the drive hub inside the brush core goes onto the drive hub side.

G. 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 new core if old brush core was well worn.**

H. Once the idle hub is fully engaged, replace the swing arm pin. Be sure pin is fully locked and replace hairpin clip.

I. Replace cotter pin on brush cover pin.

----- **CHASSIS & RUNNING GEAR MAINTENANCE** -----

### Drive Shaft and Transfer Case

- A. Check the Drive Shaft for loose bolts and wear daily.
- B. Grease the driveshaft universal joints and slip yoke every 100 hours of service using a multi-purpose grease.
- C. Check the lube level in the Transfer Case every 100 hours. The lube should be up to the middle plug level. Add if necessary. Refer to the Preventive Maintenance Chart at the end of this section for lubricant information.

### Tires and Wheels

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



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

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## MAINTENANCE

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**Never** exceed tire manufacturers maximum recommended inflation pressure.

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

The drive shaft **must be removed** prior to towing, unless equipped with gearbox disconnect, or serious damage could result.



C. Wheel lug nuts should be checked for tightness weekly. Torque to 85 ft-lbs.

D. Visually inspect the wheels for damage prior to each day's use of the ROSCO Broom. Replace bent or cracked wheels.

### Axles and Brakes

A. Grease king pin bushings, tie rod ends, steering cylinder rod end and rear axle pivot bushings every 100 hours of service with a good quality chassis lube.

B. Inspect brake pad linings and 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.

C. 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.

**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.



D. Adjust the brakes after every 500 service hours or at the beginning of each season. Information on proper brake adjustment can be found in the brake manufacturer's manual. Only qualified technicians should perform brake adjustment.

E. Axle bearings should be removed, inspected, and repacked with a high quality axle bearing grease after every 500 service hours or seasonally.

F. 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.

G. Check the lube level in the rear axle every 500 hours or seasonally. The lube should be 1 inch below the plug hole. Add if necessary. Refer to the Preventive Maintenance Chart at the end of this section for lubricant specifications.

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## MAINTENANCE

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----- OPTIONAL EQUIPMENT MAINTENANCE -----

### Spraybar Water System

- A. Clean the spraybar water system strainer daily to prevent nozzle clogging.
- B. Inspect the spraybar water system daily to confirm operation of all nozzles on the spraybar.
- C. 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.
- D. 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.
- E. For storage in temperatures below freezing, make sure the water tank, strainer, pump and all lines are completely drained to prevent damage from freezing.

### Lighting

- A. If the broom is equipped with a lighting system, inspect lights daily for proper operation.
- B. If a light or group of lights does not function:
  - 1. Check the fuse panel located in the front of the instrument panel for a blown fuse. See Figure 4-G on page 4-11 for more information.
  - 2. Examine all visible wiring connections, making sure that they are securely fastened.

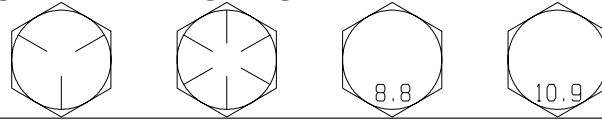
- 3. If the light(s) still does not work, remove the lens from the light and inspect the bulb(s), replacing any that appear damaged or discolored.
- 4. Check lighting mounts for proper grounds.
- 5. If the trouble is not located, inspect the wiring harnesses for damage. Wiring schematics are provided in the Parts Catalog section of this manual to assist in troubleshooting the ROSCO Broom's electrical system.
- C. 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.
- D. 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.



## BOLT TORQUE CHART

The table below gives correct torque values for various **NON-LUBRICATED** bolts. **DO NOT** lubricate bolts unless otherwise specified in this manual. Check tightness of bolts periodically, using this table as a guide. **ALWAYS** replace hardware with an equal strength fastener. When using locking fasteners, increase torque values by 5%.

### BOLT IDENTIFICATION BY HEAD MARKINGS:



BOLT SIZE	ENGLISH				METRIC			
	GRADE 5		GRADE 8		CLASS 8.8		CLASS 10.9	
	FT-LB	N-M	FT-LB	N-M	FT-LB	N-M	FT-LB	N-M
M6	-	-	-	-	7	10	11	15
1/4	9	12	12	17	-	-	-	-
5/16	19	25	27	36	-	-	-	-
M8	-	-	-	-	18	25	26	35
3/8	33	45	45	63	-	-	-	-
M10	-	-	-	-	37	50	52	70
7/16	53	72	75	100	-	-	-	-
M12	-	-	-	-	66	90	92	125
1/2	80	110	115	155	-	-	-	-
M14	-	-	-	-	103	140	148	200
9/16	115	155	165	220	-	-	-	-
5/8	160	215	220	305	-	-	-	-
M16	-	-	-	-	166	225	229	310
3/4	290	390	400	540	-	-	-	-
M20	-	-	-	-	321	435	450	610
7/8	420	570	650	880	-	-	-	-
M24	-	-	-	-	553	750	774	1050
1	630	850	970	1320	-	-	-	-
M30	-	-	-	-	1103	1495	1550	2100



# MAINTENANCE

## HYDRAULIC FLUIDS

The below recommended hydraulic oils have been reviewed by Rosco and are recommended as replacements. It is best to use the heaviest weight oil that can be safely used for the temperature range of machine operation. If your machine will never be used at below 0°F temperatures, we

recommend that you use a heavier weight oil. If you are considering using an oil that is not listed, contact the Rosco factory to obtain the specifications that the hydraulic oil must meet to provide the needed lubrication and cooling for the units' hydraulic components.

### HYDRAULIC OIL REQUIREMENTS AND APPROVED BRANDS FOR FIELD FILL:



*DO NOT MIX manufacturers or grade weights when adding hydraulic oil.*

**Be sure** hydraulic oil selection is compatible with your hydraulic system.

**Be sure** to use mineral base hydraulic oil.

**Be sure** hydraulic oil selection assistance is from a reputable supplier.

**Be sure** the hydraulic specifications meet or exceed the following specifications.

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 being 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 below, 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.

<b>ISO 46 / SAE 20 AMBIENT TEMP.</b> -15° F TO 80° F (-26° TO 27° C)	<b>ISO 68 AMBIENT TEMP.</b> 0° F TO 100° F (-18° TO 38° C)	<b>ISO 100 / SAE 30 AMBIENT TEMP.</b> 15° F TO 115° F (-9° TO 46° C)
Special Start-up Below 5° F (-15° C) Hyd Res Temp Max 165° (74° C)	Special Start-up Below 20° F (-7° C) Hyd Res Temp Max 186° F (85° C)	Special Start-up Below 32° F (0° C) Hyd Res Temp Max 200° F (93° C)
MOBIL DTE 25	MOBIL DTE 26	MOBIL DTE AW 100/DTE 18M
CITGO AW 46	CITGO AW 68	CITGO AW 100
CONOCO PHILLIPS 46	CONOCO PHILLIPS 68	CONOCO PHILLIPS 100
CHEVRON TEXACO AW 46	CHEVRON TEXACO AW 68	CHEVRON TEXACO AW 100
SHELL TELLUS 46	SHELL TELLUS 68	SHELL TELLUS 100
EXXON NUTO 46	EXXON NUTO 68	EXXON NUTO 100

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## TROUBLESHOOTING

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Engine doesn't crank .....	5.2
Engine cranks, but won't start (no smoke from exhaust) .....	5.2
Engine difficult to start -or- won't start (exhaust smoke present) .....	5.3
Unit doesn't move -or- one direction only with engine running .....	5.3
Unit jerks when operating in forward or reverse .....	5.3
Engine power output low .....	5.4
Steering is difficult .....	5.4
Hydraulic system overheats (Temp above 200° F).....	5.5
Engine oil pressure low .....	5.5
Engine coolant temperature above normal .....	5.6
Alternator not charging .....	5.6
Instruments and/or tachometer don't work .....	5.6
Engine won't shut off .....	5.7
Transmission won't shift into high range .....	5.7
Brush stalls/lacks power .....	5.7

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## TROUBLESHOOTING

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The following Troubleshooting Guide includes some problems that an operator may encounter during the course of operating your ROSCO Broom. It also includes some acceptable corrections to these problems. Unless otherwise noted, the problems listed here are those which an operator can diagnose and repair. See an Authorized ROSCO Dealer/Distributor for diagnosis and repair of problems **not** listed. For specific engine and hydraulic problems not covered by this guide, please refer to the Engine or Hydraulic Pump/Motor Manufacturer's manual.



***DO NOT Attempt to Service or Repair Major Components, such as Engine, Hydrostatic Pump or Motor, etc., unless authorized to do so by your ROSCO Dealer/Distributor. ANY UNAUTHORIZED REPAIR WILL VOID THE WARRANTY.***

**When a problem occurs, don't overlook the simple causes.** For example, a starting problem could be caused by something as simple as an empty fuel tank. After a mechanical failure has been corrected, be sure to locate and correct the cause of the problem.

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Problem	Cause	Solution
<b>Engine Doesn't Crank</b>	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 / Replace
<b>Engine Cranks But Won't Start</b>	No fuel in tank	Add fuel to tank
	No voltage to fuel shutoff solenoid	Check fuel shutoff voltage. Voltage should be a minimum of 9 volts both with the ignition switch in the ON and START positions.
	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 the fuel tank to the injector pump
	Fuel filter plugged or restricted	Replace fuel filter
	Intake or exhaust system restricted	Check for and remove restrictions

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Engine Difficult to Start, Or Won't Start</b>	Engine cranking speed too low	Repair/clean battery terminal connection. Charge/Replace.
	Insufficient fuel supply to injector nozzles	Check fuel system. Clean/Replace fuel filter.
	Fuel solenoid defective	Check/Replace defective fuel solenoid. <b>See Engine manual.</b>
	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. <b>See Engine manual.</b>
	Fuel supply contaminated	Verify by operating engine with a known fuel quality
	Intake air system restricted	Check for and remove restrictions
<b>Unit Doesn't Move With Engine Running, Or Moves In One Direction Only</b>	Parking brake engaged	Release parking brake
	Hydrostatic pump bypass valve open	The bypass valve is fully open at 2 revolutions. Close valve by turning clockwise. Torque to 7-10 ft lb (9.5 to 14 Nm). DO NOT overtorque.
	Forward/Reverse relief valves are bypassing oil at low pressure	Repair/Replace relief valve cartridge(s)
	Damaged hydrostatic pump	Repair/Replace hydrostatic pump
	Damaged hydrostatic motor	Repair/Replace hydrostatic motor
<b>Unit Jerks When Operating In Forward or Reverse</b>	Fast movement of direction control handle	Move handle slowly when changing speed and/or direction
	Parking brake not disengaged	Release parking brake and/or 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 to visible in sight gauge
	Air leaking into hydraulic system	Tighten or replace hoses, fittings and/or filter(s)

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Unit Jerks When Operating In Forward or Reverse</b>	Hydrostatic pump is malfunctioning	Repair/Replace pump
<b>Engine Power Output Low</b>	Operating engine at high altitude	De-rate engine power output for altitudes above 1000 feet
	Air intake piping restricted	Remove restrictions.
	Air cleaner element dirty	Clean/Replace air cleaner elements
	Fuel suction line or filter restricted	Check fuel line for restrictions. Replace fuel filter element(s)
	Fuel return system restricted	Check/Correct restricted fuel return system
	Fuel quality poor	Verify by operating with a known fuel quality
	Fuel transfer pump malfunctioning	Check/Replace fuel transfer pump. <b>See Engine manual.</b>
	Throttle improperly adjusted	Check/Adjust throttle controls
	Injector malfunctioning	Check/Replace injector. <b>See Engine manual</b>
<b>Steering Is Difficult</b>	Low hydraulic fluid level.	Add fluid to proper level. <b>See Maintenance Section.</b>
	Hydraulic reservoir return filters contain contamination.	Check return filter(s) for contamination and replace if necessary. <b>See Maintenance Section.</b>
	Hydraulic pump priority relief valve set incorrectly.	Check relief valve setting. It should be set at 1500 PSI. Adjust setting if necessary. <b>See Maintenance Section.</b>
	Worn hydraulic pump.	Check for worn pump and repair or replace if necessary.
	Worn steering orbitrol motor.	Check for worn steering orbitrol motor and repair or replace if necessary.
	Worn steering cylinder	Repair or replace steering cylinder.

Problem	Cause	Solution
<b>Hydraulic System Overheats (Temperature above 200°F)</b>	Low hydraulic fluid level	Fill with correct fluid to visible in sight gauge
	Defective optional hydraulic fluid 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 3000 psi or replace if defective. <b>See Maintenance Section.</b>
	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.
<b>Engine Oil Pressure Low</b>	Electrical power not being supplied to gauge	Check fuse.
	Incorrect oil level	Check for oil leaks. Add or drain engine oil. Check dipstick calibration.
	Oil filter plugged	Change full flow oil filter
	Oil diluted with fuel	Check/Replace injector, fuel transfer pump and/or injection pump
	Oil diluted with coolant	<b>See authorized Engine repair facility</b>
	Incorrect oil specifications	Change oil and check oil specifications. <b>See Maintenance Section and Engine Manual</b>
	Oil pressure sender or gauge malfunctioning	Replace oil pressure sender or gauge.
	Coolant level too low	Add coolant

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Engine Coolant Temperature Above Normal</b>	Radiator fins damaged or obstructed with debris	Inspect radiator fins, clean/repair or replace
	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/malfunctioning radiator cap	Check the radiator cap, replace if necessary
	Temperature gauge or sender malfunctioning	Repair/Replace sender or gauge
	Thermostat stuck in closed position	Test thermostat, replace if necessary
<b>Alternator Not Charging</b>	Dirt, scale or rust in the cooling system	Clean cooling system
	Loose wiring or faulty connection	Repair/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.
<b>Instrument(s) Don't Work</b>	Alternator malfunctioning	Replace alternator
	Faulty gauge or sender.	Replace gauge or sender
	Alternator not charging	Repair wiring or replace alternator
	Faulty wiring	Check/Replace wiring or connector

Problem	Cause	Solution
<b>Engine Won't Shut Off</b>	Electrical wiring fault supplying power to fuel solenoid when key is in "OFF" position.	Check/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.
<b>Transmission Won't Shift to High Range</b>	Faulty switch	Check/Replace if necessary
	Loose wiring or connector to two speed solenoid valve	Repair wiring or connection
	Faulty solenoid on two speed solenoid valve	Replace/Repair solenoid cartridge and/or coil
<b>Brush Stalls or Lacks Power</b>	Brush drive relief valve set too low or defective	Adjust relief valve to 3000 psi or replace if defective. <b>See Maintenance Section.</b>
	Sweeping with too much down pressure	<b>See Brush Down Pressure Control in Operation Section</b>
	Ground speed too fast	Pull back on hydrostatic control lever and increase engine RPM to Increase brush speed. Always sweep in LOW range.





## **RB48 BROOM**

### **PARTS MANUAL**

**Manual Part No. 39139**

**For Serial Number 38728 and Higher**

**Publish Date August 1, 2003**

**NOTE:** It is the responsibility of the customer or user's management to train, educate or supervise his employees in the proper operation and maintenance of this equipment.

***ROSCO - A LeeBoy Company***

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Denver, NC 28037**

**Telephone: (704) 483-9721 or (704) 966-3300**

**Fax: (704) 483-5802**

# Parts Catalog

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SMV SIGN			
DEFROST FAN - SINGLE		<b>SCHEMATICS</b> .....	<b>AT END OF SECTION</b>
MOUNT, WARNING LIGHT		<b>INSTRUMENT PANEL</b> .....	<b>#29403</b>
WEST COAST MIRRORS		MAIN ELECTRICAL .....	<b>#28338</b>
PRECLEANER		CAB/CANOPY .....	<b>#36688-13</b>
STROBE LIGHT		WORK LIGHTS .....	<b>#28353</b>
OIL		HYDRAULICS .....	<b>#29391</b>
ANTIFREEZE			

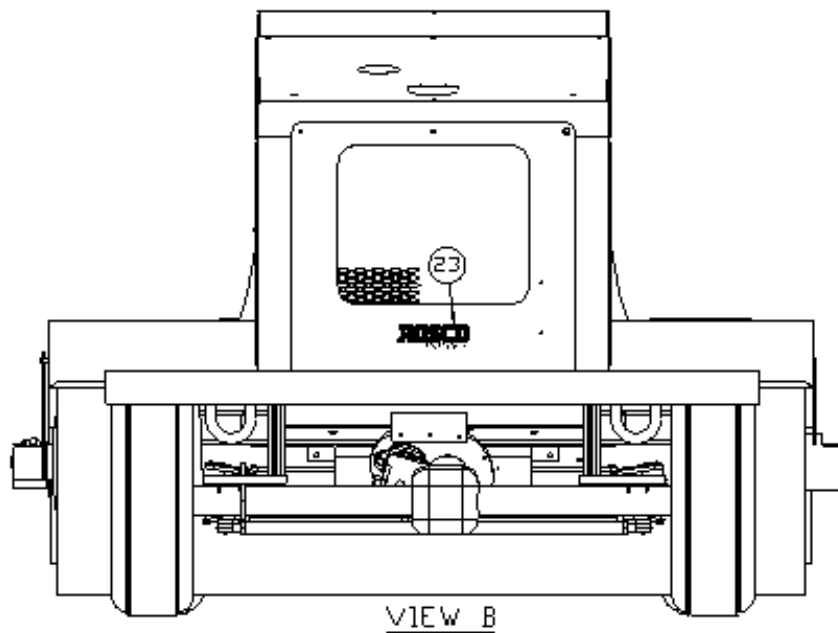
**RB48 BROOM**

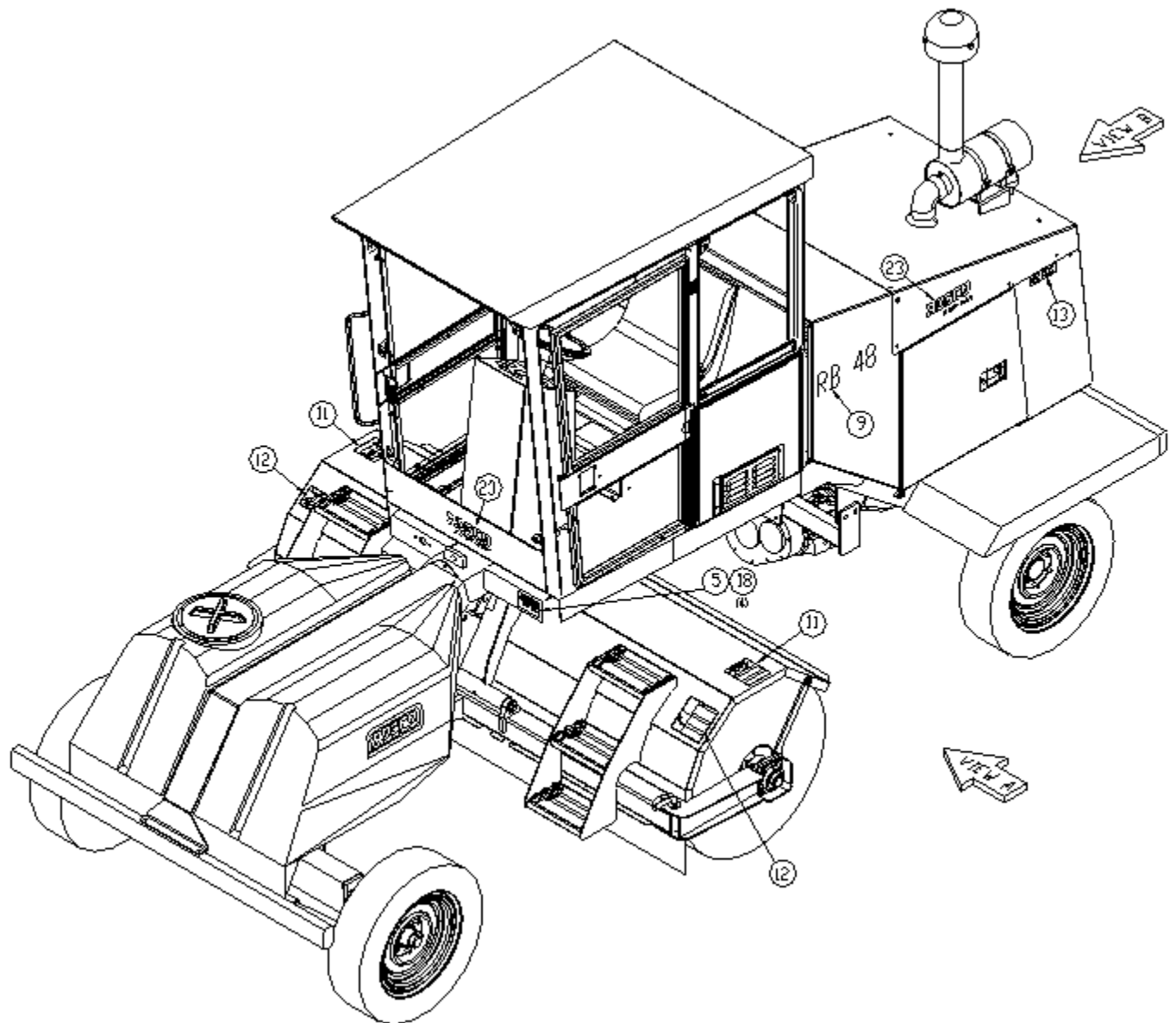
**FINAL & DETAIL GROUP**

REF. 21092

REV. N

ITEM	PART NO.	QTY	DESCRIPTION
1	39141	1.00	DECAL KIT,RB48/SWEEPPRO
2	36898	1.00	SEAT BELT,3.00 W/HARDWARE
3	39141-01	1.00	DECAL,WARNING,PRESSURE
4	39141-02	1.00	DECAL,CAUTION,RB 48
5	35355	1.00	PLATE,SERIAL NUMBER,ROSCO
6	39141-03	2.00	DECAL,DANGER,FAN BLADES
7	39141-04	1.00	DECAL,ROPS
8	39141-05	1.00	DECAL,HYD OIL
9	36725	2.00	DECAL,RB 48
10	39141-06	2.00	DECAL,PINCH HAZARD
11	39141-07	2.00	DECAL,WARNING,ROTATING BRUSH
12	39141-08	2.00	DECAL,SLIP/FALL HAZARD
13	72062	2.00	DECAL,DIESEL POWER,CUMMINS
14	80141	2.00	WASHER,TYPE A PLAIN,.312
15	80208	2.00	CSHH,.312-18X1.00,GR5
16	80351	2.00	NUT,FLEXLOC,.312-18,FULL,LT
17	39141-09	1.00	DECAL,THROTTLE
18	81159	4.00	TACK,DIA.146/.104X.04 GRIP LG
19	951250115	1.00	KIT,HORN
20	39141-10	1.00	DECAL,BRUSH CONTROL
21	39141-11	1.00	DECAL,NEUTRAL POINT
23	D50	4.00	DECAL,ROSCO LOGO,MEDIUM,BLACK
25	39141-12	1.00	DECAL,BRUSH DRIVE
26	39141-13	1.00	DECAL,SPEED
27	39141-14	1.00	DECAL,BRUSH DOWN PRESSURE
28	39141-15	1.00	DECAL,BRAKE FLUID
29	39141-16	2.00	DECAL,WIPERS
30	39141-17	1.00	DECAL,PARK BRAKE
31	39141-18	2.00	DECAL,WATER
32	39141-19	1.00	DECAL,CAUTION,BACK-UP ALARM
33	39141-20	1.00	DECAL,FUSE PANEL
34	39141-21	1.00	DECAL,DIESEL FUEL



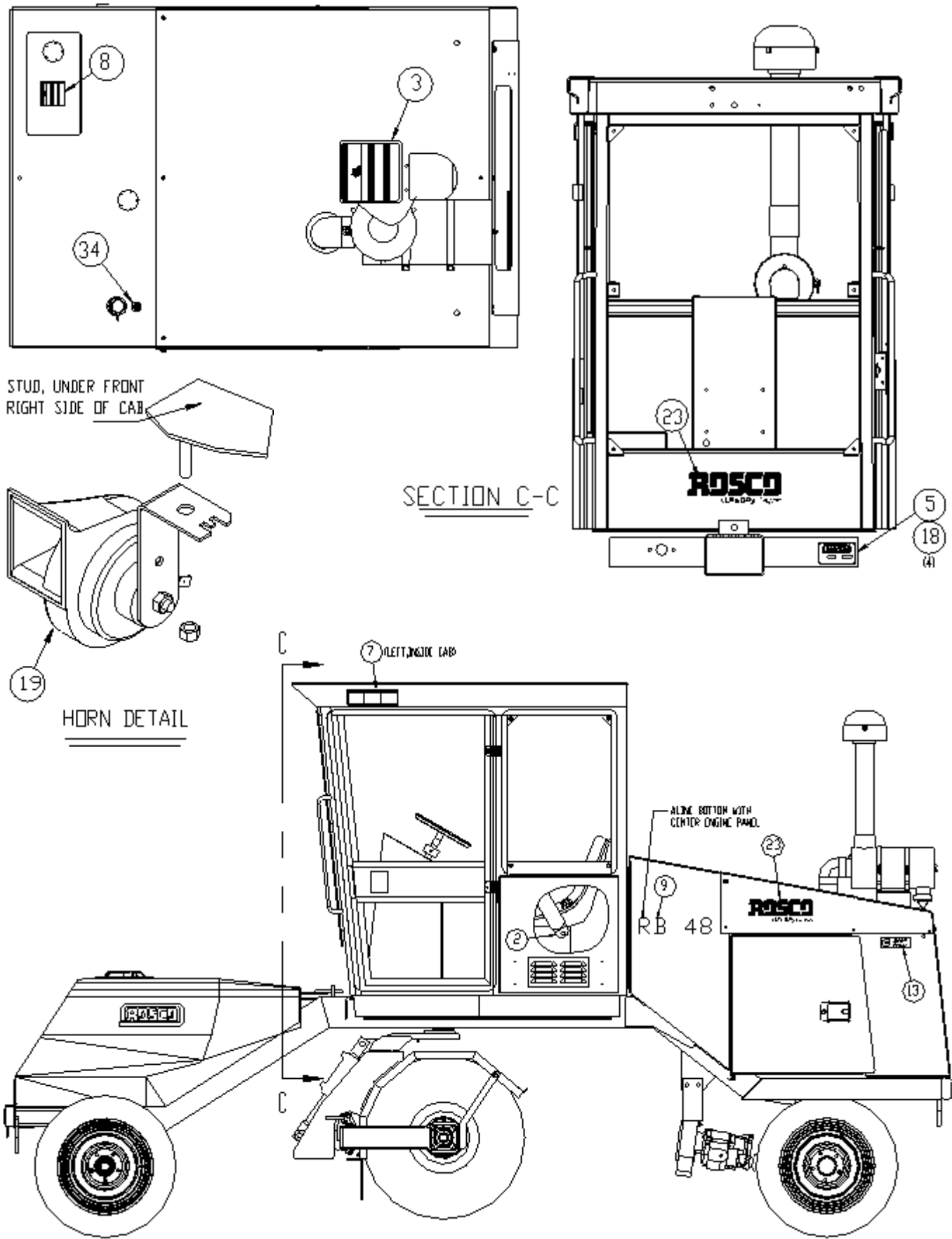


**RB48 BROOM**

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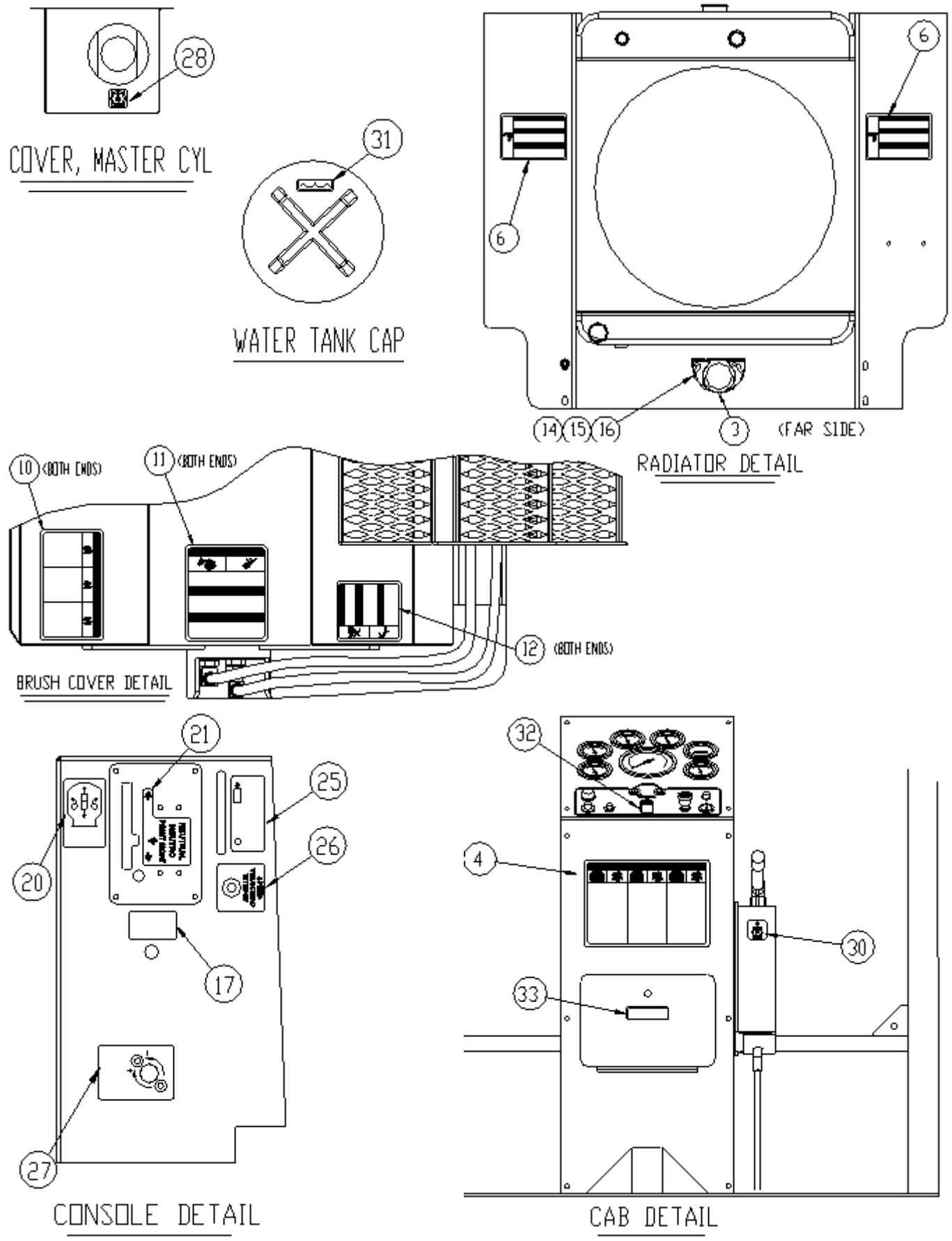
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**FINAL & DETAIL GROUP**



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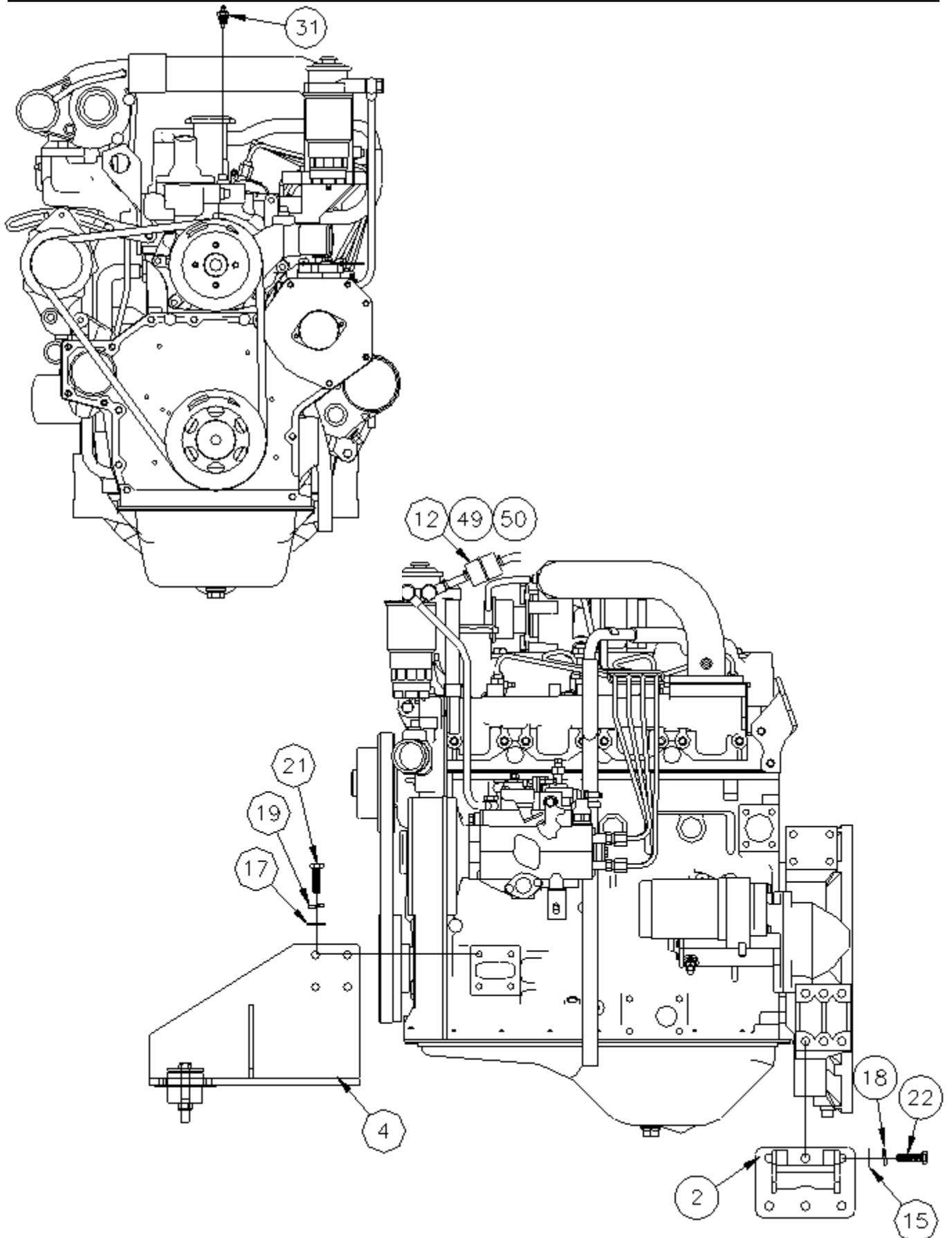
**RB48 BROOM****ENGINE SUB-ASSEMBLY-CUMMINS**

REF. 29187

REV. D

ITEM	PART NO.	QTY	DESCRIPTION
1	28256	1.00	MOUNT,SOLENOID/THROTTLE,3.3 TR
2	27912	2.00	MOUNT,ENGINE,FLYWHEEL,CUMB3.3
3	38732	1.00	DRIVE PLATE ASSY,SAE#4,B MT
4	29204	1.00	MOUNT,WLDMT,ENGINE,RH R,CUMMIN
5	29207	1.00	MOUNT,WLDMT,ENGINE,LH REAR
6	35571	1.00	SWITCH,PRESSURE,02 MP,NO & NC
7	36066	1.00	FITT,TEE 02MP-02FP-02FP,STL
<b>8</b>	<b>37833</b>	<b>1.00</b>	<b>PUMP,HYDRO M46 2.8 CIR (See Service Manual)</b>
<b>9</b>	<b>38734</b>	<b>1.00</b>	<b>ENGINE,CUMMINS,4B3.3T,DIESEL (See Svc. Manual)</b>
N/S	28817	1.00	FILTER KIT,RB48
N/S	28825	1.00	FILTER KIT,BELT,RB48
10	36642	1.00	PUMP,1.8CIR,SAEA,W/3.7 PRI DIV
11	36808	1.00	ORING,3.237 ID X .103,SAE 152
12	33291	1.00	FILTER,FUEL,DIESEL,INLINE
13	80162	2.00	WASHER,SPLIT LOCK,.375
14	80164	2.00	WASHER,SPLIT LOCK,.500
15	81155	10.00	WASHER,SAE,HARDENED,.375
16	80224	2.00	CSHH,.375-16X1.25,GR5
17	81141	8.00	WASHER,SAE,HARDENED,.500
18	80478	8.00	WASHER,SPLIT LOCK,M10
19	80484	8.00	WASHER,SPLIT LOCK,M12
20	80503	2.00	CSSH,.500-13X1.75
21	80516	8.00	CSHH,M10X1.5X30,CL8.8
22	81009	8.00	CSHH,M12X1.75X30,CL8.8
23	81007	1.00	NUT,HEX,M5X.80
24	81008	1.00	NUT,HEX,M10X1.50
25	81043	1.00	WASHER,SPLIT LOCK,M5
26	39082	4.00	MOUNT,ISOLATION,425#
27	38827-01	4.00	WASHER,SNUBBING,2.00ODX.450OD
28	80163	4.00	WASHER,SPLIT LOCK,.438
29	80353	4.00	NUT,FLEXLOC,.438-14,FULL,LT
30	80776	4.00	CSHH,.438-14X3.00,GR5
31	39081	1.00	SENDER,OIL PRESS,150 PSI,HD
32	35367	1.00	SENDER,TEMP GAUGE,08 MP
<b>33</b>	<b>28338</b>	<b>1.00</b>	<b>HARNES,MAIN,RB48,3.3 ENG (See Schematic)</b>
N/S	38876		HARNES,ALTERNATOR

REF. 29187  
REV. D





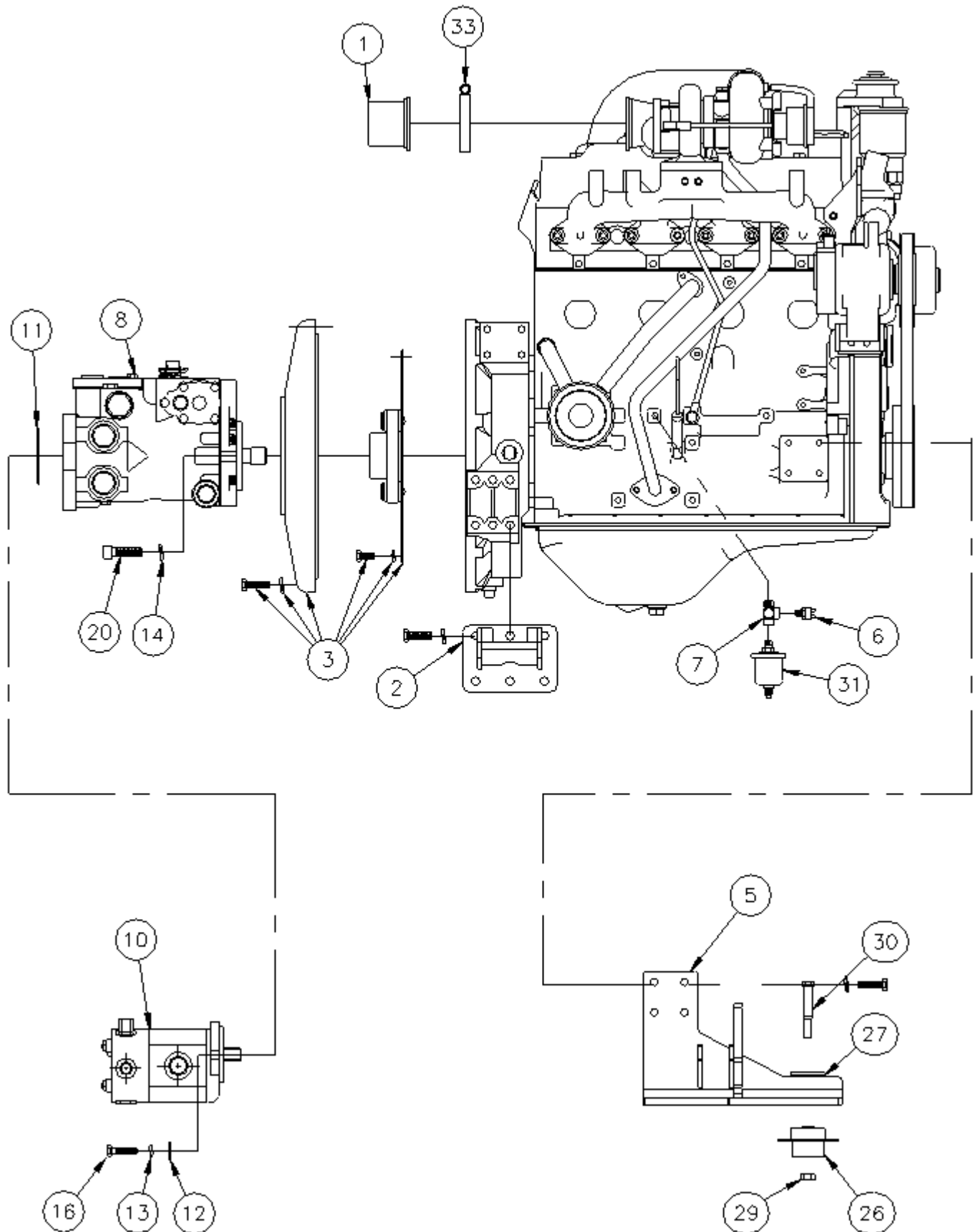
**RB48 BROOM****ENGINE SUB-ASSEMBLY - CUMMINS**

REF. 29187

REV. D

ITEM	PART NO.	QTY	DESCRIPTION
34	91522	1.00	PIPE,CPLG,06FP,GALV
35	91523	1.00	PIPE,NIPPLE,06XCLOSE,GALV
36	26166	1.00	THROTTLE CABLE ASSY,RB48
37	33146-6	1.00	BATTERY,12V,1000 CRK AMPS
38	36018	1.00	CABLE,BATTERY,NEG,14XOGA
39	36031	1.00	CABLE,BATTERY,POS,16X0GA
40	5804	1.00	CABLE,BATTERY,2 LUG,0GAX13
41	70437	1.00	BATTERY BOOT,POS(RED)
42	72313	1.00	HOLD DOWN,BATTERY
43	38954	1.00	RELAY,STARTER
44	80453	1.00	NUT,HEX,M6X1.00
45	28701	1.00	WIRE,JUMPER,GROUND
46	38955	1.00	HOSE,RADIATOR,LOWER,3.3 ENG
47	38798	1.00	HOSE,RADIATOR,UPPER,1.25 ID
48	38785	1.00	FAN,CUMMINS 3.3,20.00 OD X 30°
49	33162	6.00	CLAMP,HOSE,.44-.78,WORM,#06
50	38579	7.00	HOSE,06,LOW PRESS PUSH ON

REF. 29187  
REV. D

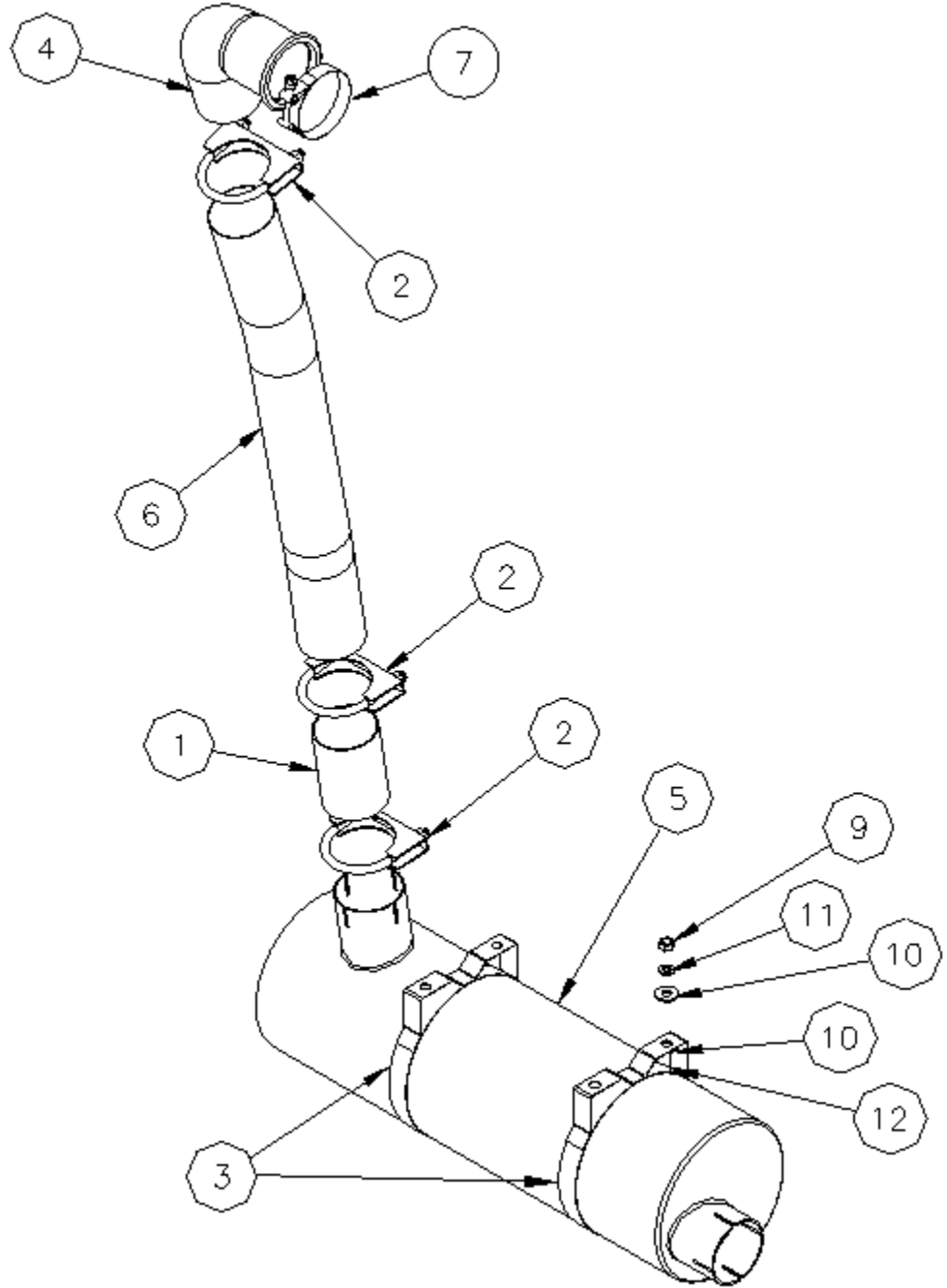


**RB48 BROOM**

**EXHAUST ASSEMBLY - CUMMINS**

REF. 27984  
 REV. A

ITEM	PART NO.	QTY	DESCRIPTION
1	19287-02	1.00	TUBING,2.50 OD x 16 GA x 4
2	33312	3.00	CLAMP,MUFFLER,2.5
3	34033	2.00	MOUNTING BAND,6.50 ID
4	28178	1.00	EXHAUST,CUM 3.3 ELBOW W/M
5	34074	1.00	MUFFLER,EXH 6.50 OD,2.5 IN/OUT
6	35653	2.25	TUBE,FLEX EXHAUST,2.50 ID
7	38737	1.00	CLAMP,V BAND,2.75
9	80037	4.00	NUT,HEX,.312-18
10	80141	8.00	WASHER,TYPE A PLAIN,.312
11	80161	4.00	WASHER,SPLIT LOCK,.312
12	80208	4.00	CSHH,.312-18X1.00,GR5



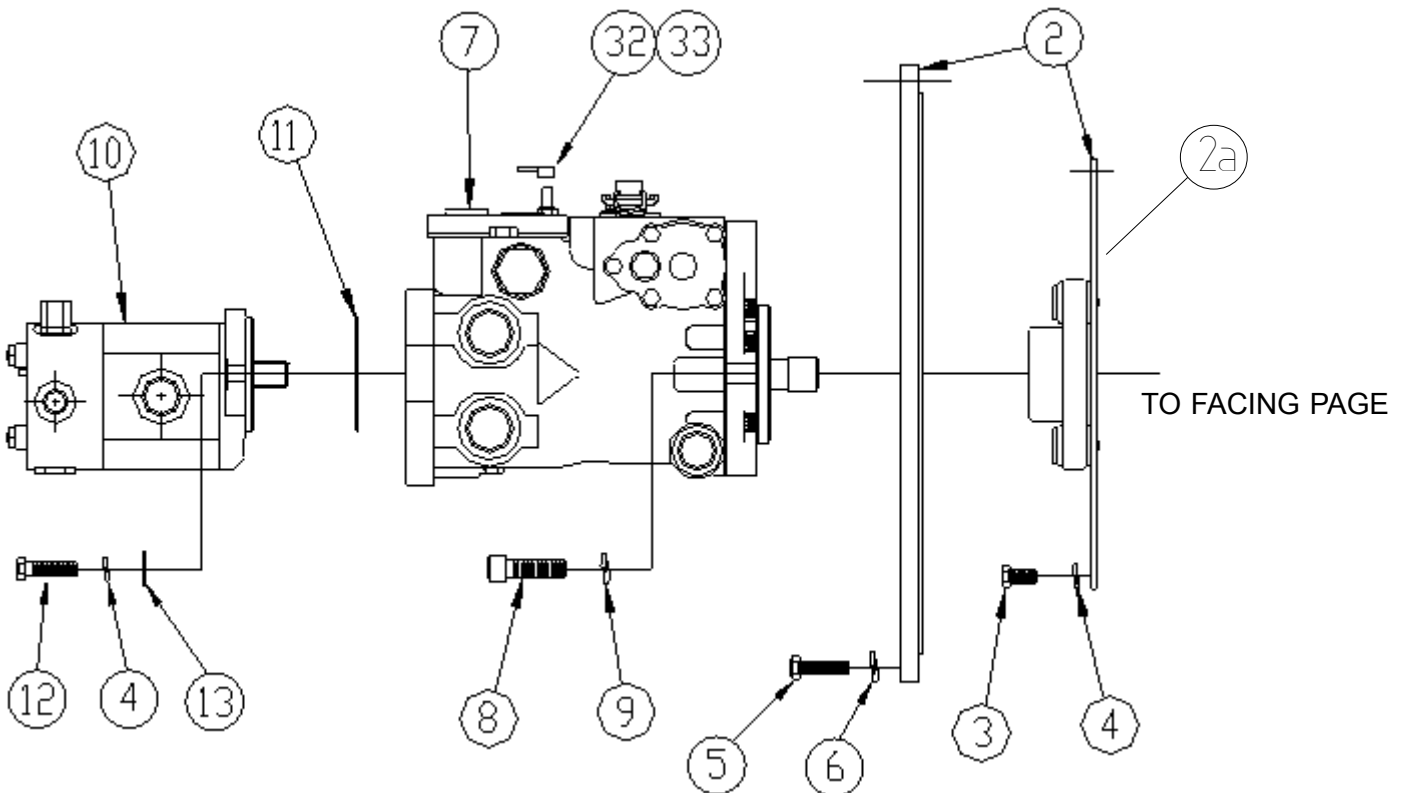


**RB48 BROOM**

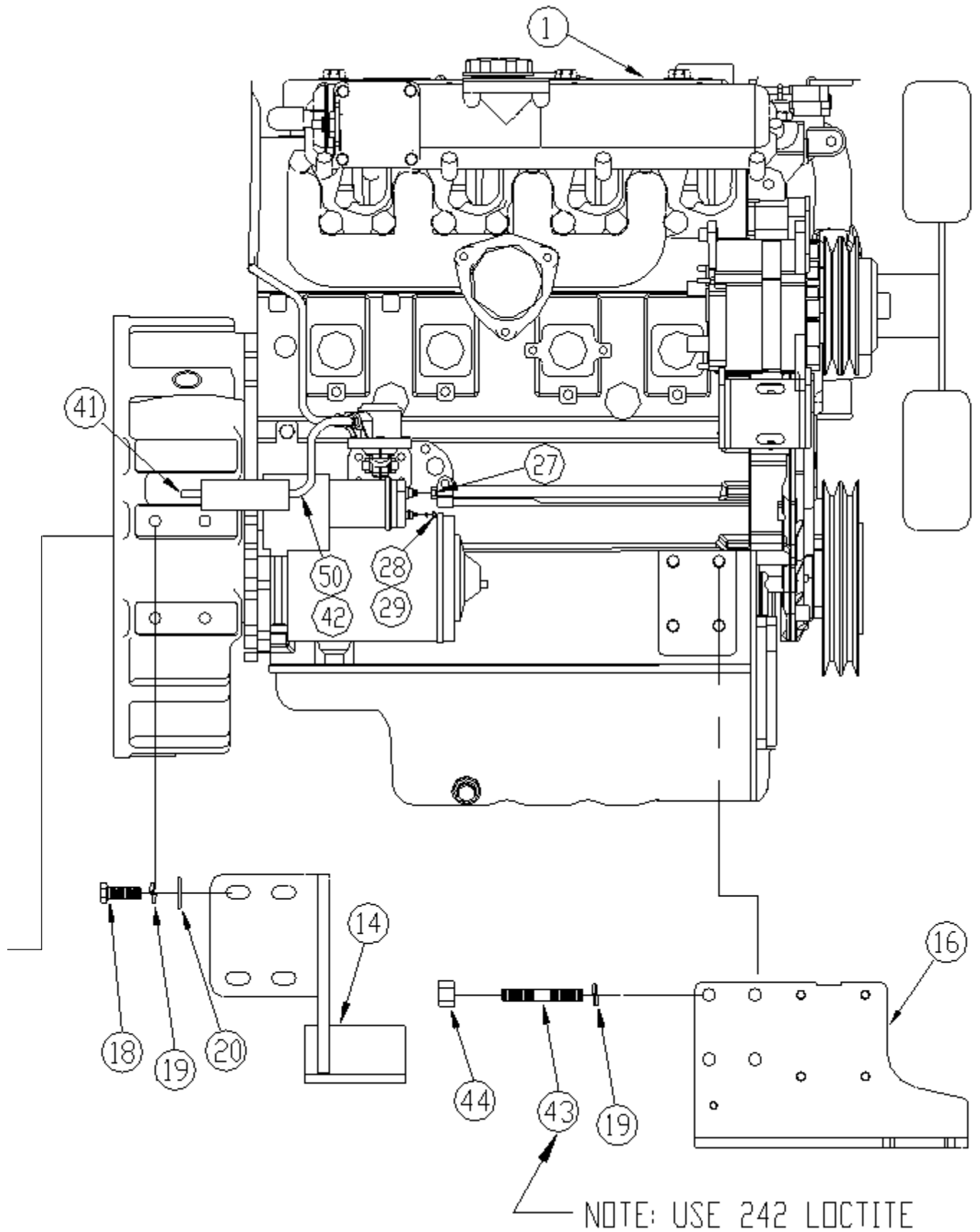
**ENGINE SUB-ASSEMBLY - PERKINS**

REF. 29188  
REV. C

ITEM	PART NO.	QTY	DESCRIPTION
1	38144	1.00	ENGINE,PERKINS,1004-42
N/S	38144-01		EXHAUST FLANGE
N/S	38144-02		FILTER,OIL,PERKINS 1000
N/S	38144-03		FILTER,FUEL ELEMENT,PERKINS
N/S	38144-04		BELT,FAN/ALT,PERKINS 1000
N/S	38144-05		STARTER,PERKINS 1000
N/S	38144-06		ALTERNATOR,PERKINS 1000
N/S	38144-07		FAN,20.0 SUCKER,PERKINS
N/S	38144-08		PULLEY,AUX DRIVE
N/S	38144-10		WIRE,TACH/ALTERNATOR
N/S	38144-11		WIRE HARNESS,ALTERNATOR
2	35340	1.00	DRIVE PLATE ASSY,SAE 3XB MT
2a	35340-1		FLEX PLATE & COUPL 15T 7/8"OD
3	81219	8.00	CSSH,.375-24X1.00
4	80162	10.00	WASHER,SPLIT LOCK,.375
5	80990	12.00	CSHH,M10X1.5X35,CL8.8
6	80478	13.00	WASHER,SPLIT LOCK,M10
7	37833	1.00	PUMP,HYDRO M46 2.8 CIR
8	80503	2.00	CSSH,.500-13X1.75
9	80164	2.00	WASHER,SPLIT LOCK,.500
10	36642	1.00	PUMP,1.8CIR,SAEA,W/3.7 PRI DIV
11	36808	1.00	ORING,3.237 ID X .103,SAE 152
12	80226	2.00	CSHH,.375-16X1.50,GR5
13	80142	2.00	WASHER,TYPE A PLAIN,.375



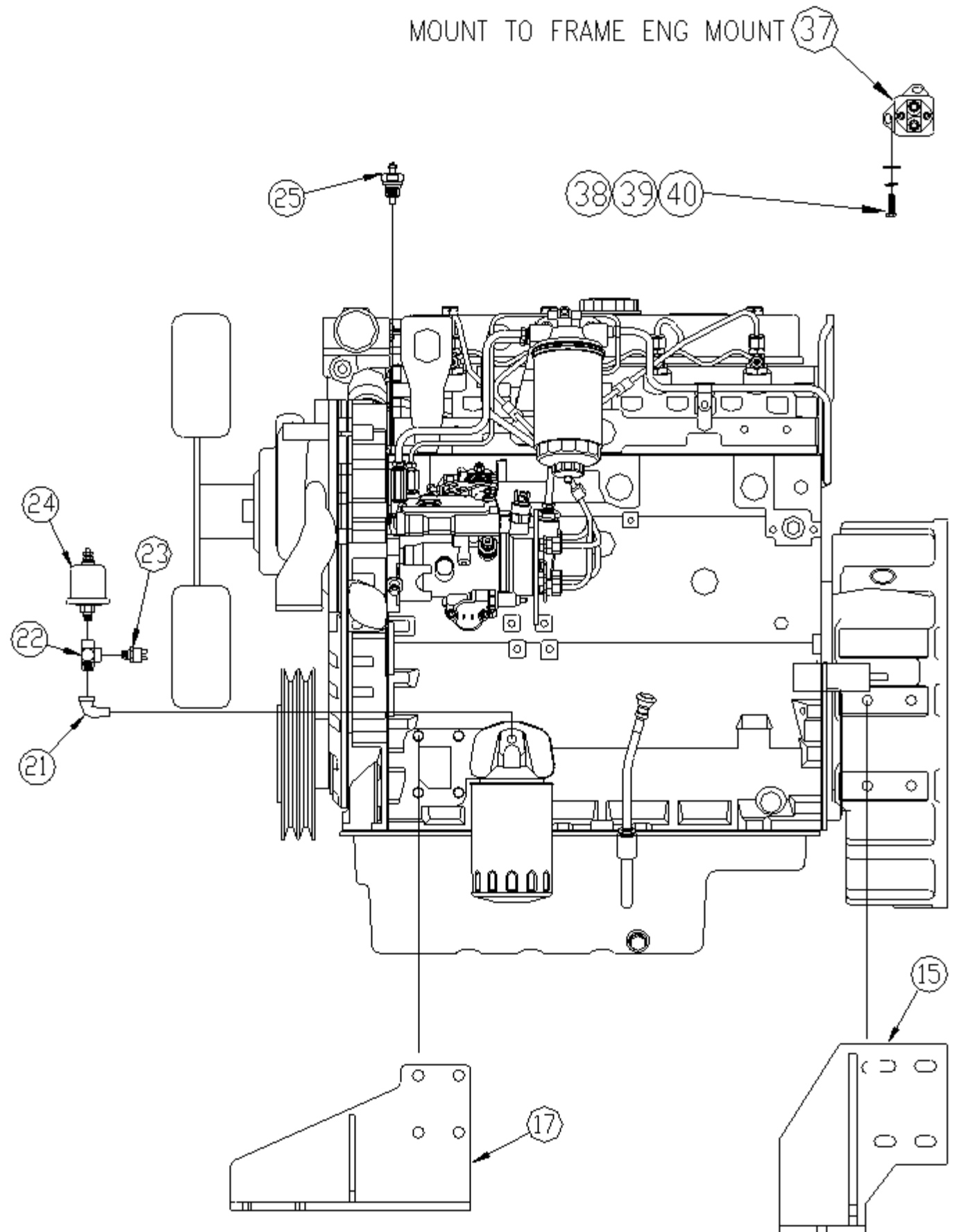
REF. 29188  
REV. C



**RB48 BROOM****ENGINE SUB-ASSEMBLY - PERKINS**REF. 29188  
REV. C

ITEM	PART NO.	QTY	DESCRIPTION
14	29140	1.00	MOUNT,W/M,ENG,PERKINS,REAR,RH
15	29137	1.00	MOUNT,W/M,ENG,PERKINS,REAR,LH
16	29201	1.00	MOUNT,ENG,LH,REAR,PERKINS
17	29203	1.00	MOUNT,ENG,RH,REAR,PERKINS
18	80877	16.00	CSHH,M12X1.75X35,CL8.8
19	80484	16.00	WASHER,SPLIT LOCK,M12
20	80475	16.00	WASHER,PLAIN,M12
21	37311	1.00	FITT,90 02MP-02FP,BRASS
22	36066	1.00	FITT,TEE 02MP-02FP-02FP,STL
23	35571	1.00	SWITCH,PRESSURE,02 MP,NO & NC
24	35363	1.00	SENDER,PRESS,OIL,02 MP
25	35367	1.00	SENDER,TEMP GAUGE,08 MP
27	81008	1.00	NUT,HEX,M10X1.50
28	81007	1.00	NUT,HEX,M5X.80
29	81043	1.00	WASHER,SPLIT LOCK,M5
30	81217	1.00	CSHH,M12X1.75X20,CL8.8
31	81216	1.00	CSHH,M10X1.5X20,CL8.8
32	72689	1.00	FITT,TEST 06MB-02PD
33	72372	1.00	FITT,PLUG 02PD,DUST
34	39082	4.00	MOUNT,ISOLATION,425#
35	33146-6	1.00	BATTERY,12V,1000 CRK AMPS
36	36018	1.00	CABLE,BATTERY,NEG,14X0GA
37	38954S	1.00	KIT,STARTER RELAY
38	80192	2.00	CSHH,.250-20X.75,GR5
39	80140	2.00	WASHER,TYPE A PLAIN,.250
40	80036	2.00	NUT,HEX,.250-20
41	38217	1.00	FILTER,INLINE FUEL,.31 HOSE
42	71812	3.00	HOSE,05,PUSH-ON,.3125
43	38186	8.00	STUD,M12X1.75X50
44	81212	8.00	NUT,HEX,M12X1.75
45	38426	1.00	FITT,STR 05TUBE-05HB
46	38427	1.00	FITT,STR 04TUBE-04HB
47	38279	1.00	FITT,90 04MP-05HB
48	33324	1.00	FITT,STR 04MP-04HB,BRASS
49	32882	3.00	HOSE,04,PUSH-ON,250
50	33162	6.00	CLAMP,HOSE,.44-.78,WORM,#06
51	27349	1.00	HARNESS,JUMPER,OIL SW-GROUND
52	27350	1.00	HARNESS,JUMPER,TEMP SW-INJ PMP
53	27351	1.00	HARNESS,JUMPER,OIL SW-INJ PUMP
54	39093	1.00	HOSE,RADIATOR,PERKINS,UPPER
55	39094	1.00	HOSE,RADIATOR,PERKINS,LOWER
56	29206	1.00	REWORK,RADIATOR,PERKINS
57	36031	1.00	CABLE,BATTERY,POS,16X0GA
58	5804	1.00	CABLE,BATTERY,2 LUG,0GAX13
59	70437	1.00	BATTERY BOOT,POS(RED)
60	72313	1.00	HOLD DOWN,BATTERY

REF. 29188  
REV. C



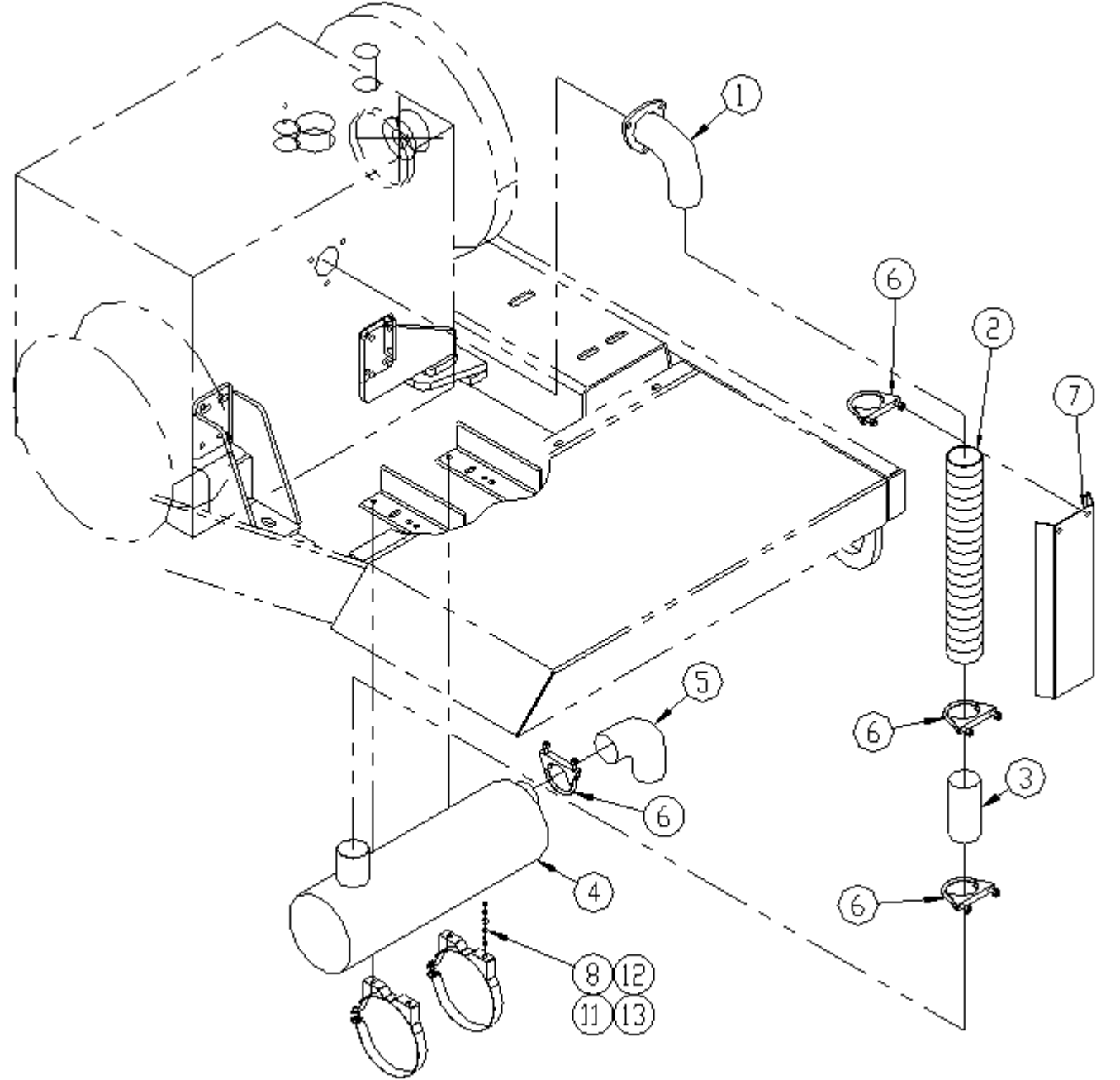


**RB48 BROOM**

**EXHAUST ASSEMBLY - PERKINS**

REF. 25957  
REV. A

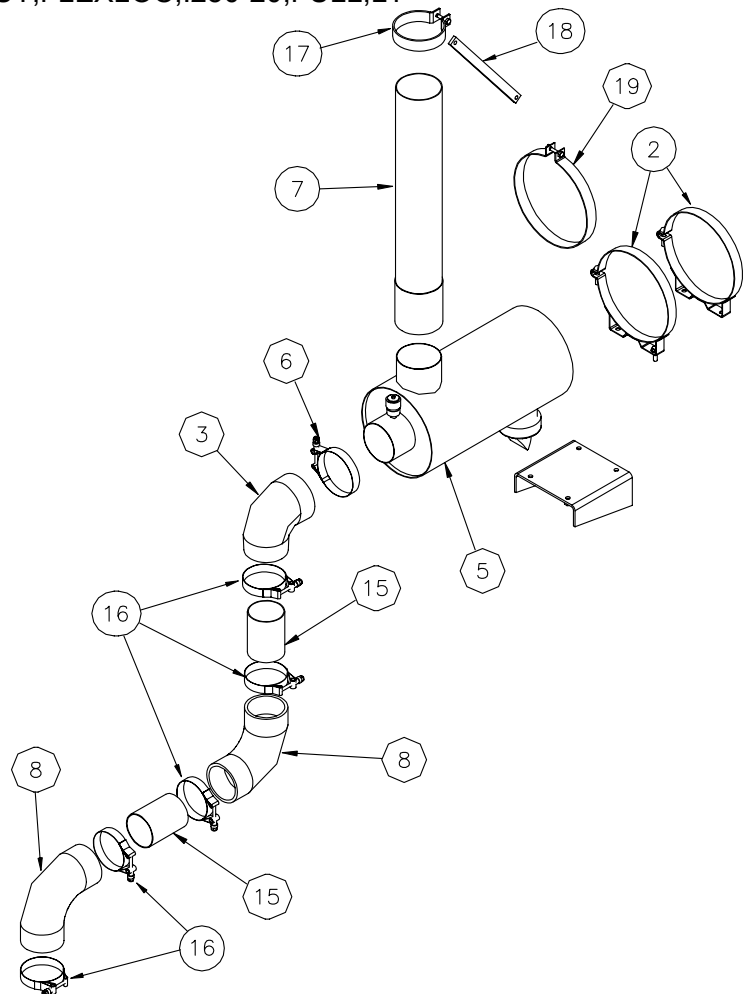
ITEM	PART NO.	QTY	DESCRIPTION
1	25950	1.00	PIPE,EXHAUST MANIFOLD
2	35653	2.00	TUBE,FLEX EXHAUST,2.50 ID
3	15481	1.00	EXHAUST TUBING - CUM ENGINE
4	34074	1.00	MUFFLER,EXH 6.50 OD,2.5 IN/OUT
5	36117	1.00	ELBOW,EXHAUST,SR90,2.50 OD
6	33312	4.00	CLAMP,MUFFLER,2.5
7	19762	1.00	HEAT SHIELD
8	80141	8.00	WASHER,TYPE A PLAIN,.312
10	34033	2.00	MOUNTING BAND,6.50 ID
11	80208	4.00	CSHH,.312-18X1.00,GR5
12	80037	4.00	NUT,HEX,.312-18
13	80161	4.00	WASHER,SPLIT LOCK,.312



REF. 29180

REV. A

ITEM	PART NO.	QTY	DESCRIPTION
2	33235	2.00	MOUNTING BAND,8.00 ID
3	33361	1.00	ADPTR,RUBBER 90,3.50-3.00 ID
5	36643	1.00	AIR CLEANER,STYLE B,245CFM @ 8
N/S	36643-01		PRIMARY ELEMENT
N/S	36643-02		SAFETY ELEMENT
N/S	36643-03		COVER ASSY,END COVER W/WING NUT,8.25" OD
6	36644	1.00	CLAMP,T-BOLT,3.78-4.09
7	28141	1.00	TUBE,AIR INTAKE,MODIFIED
8	34031	2.00	ADPTR,RUBBER 90,3.00 ID
10	80037	4.00	NUT,HEX,.312-18
11	80161	4.00	WASHER,SPLIT LOCK,.312
12	80208	4.00	CSHH,.312-18X1.00,GR5
13	80963	8.00	WASHER,SAE PLAIN,.312
14	853521158	1.00	INDICATOR,AIR CLEANER
15	90062-02	2.00	TUBE,RND,3.00X4.00
16	36019	5.00	CLAMP,T-BOLT,3.50 OD
17	28381	1.00	CLAMP,HOSE,4.00 ID
18	28818	1.00	BAR,SUPPORT
19	28819	1.00	CLAMP,HOSE,8.00 ID
20	80185	2.00	CSHH,.250-20X1.00,GR5
21	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT

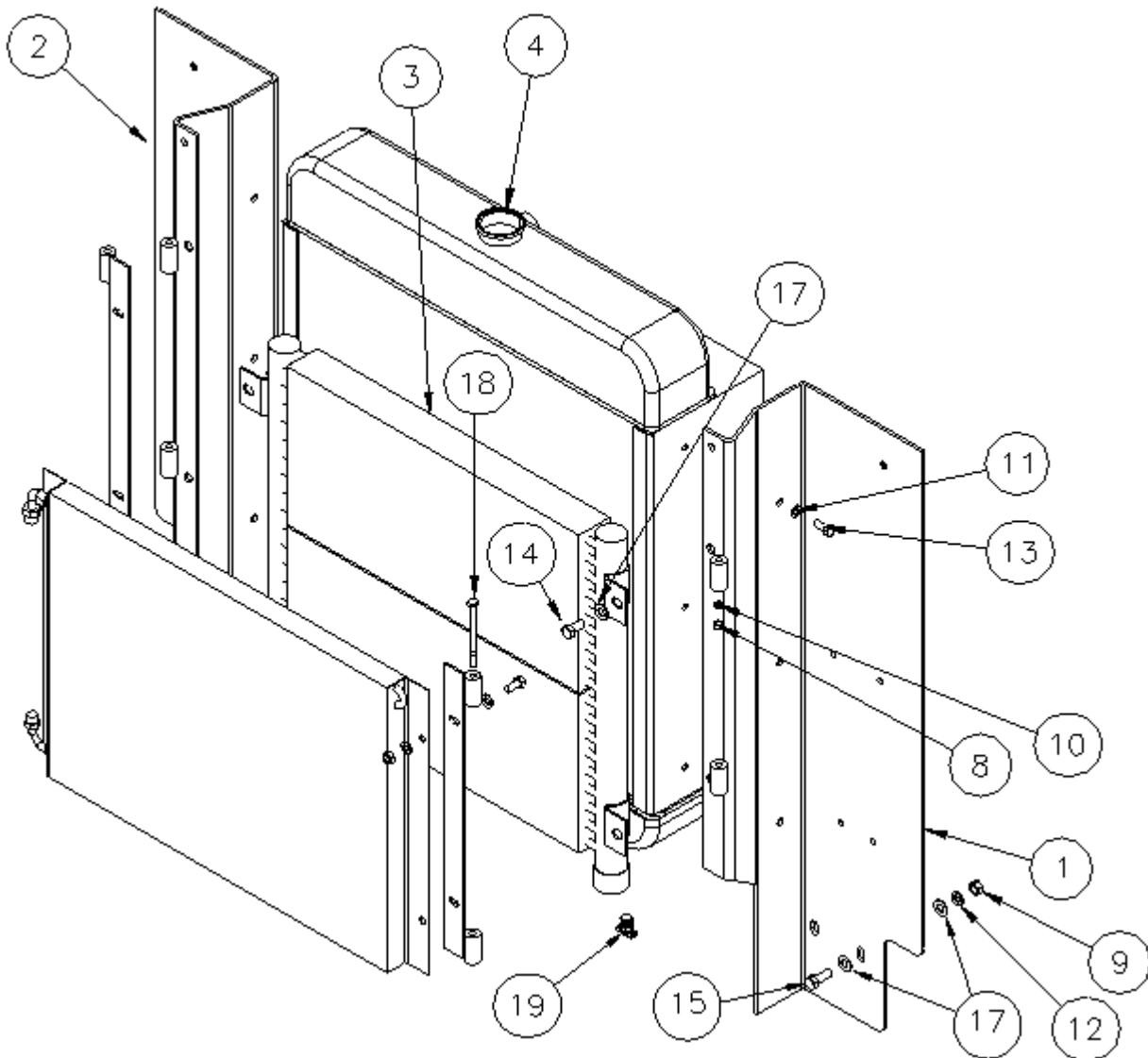


**RB48 BROOM**

**RADIATOR & OIL COOLER GROUP**

REF. 28221  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
1	28175	1.00	MOUNT,RADIATOR,LH,W/M
2	28176	1.00	MOUNT,RADIATOR,RH,W/M
3	35423	1.00	COOLER,OIL
4	38784	1.00	RADIATOR,CUMMINS 3.3 ENGINE
N/S	33770		RADIATOR CAP
8	80036	4.00	NUT,HEX,.250-20
9	80038	6.00	NUT,HEX,.375-16
10	80160	4.00	WASHER,SPLIT LOCK,.250
11	80161	6.00	WASHER,SPLIT LOCK,.312
12	80162	10.00	WASHER,SPLIT LOCK,.375
13	80207	6.00	CSHH,.312-18X.75,GR5
14	80219	4.00	CSHH,.375-16X.75,GR5
15	80221	6.00	CSHH,.375-16X1.00,GR5
16	80963	4.00	WASHER,SAE PLAIN,.312
17	80996	4.00	WASHER,SAE PLAIN,.375
18	81072	4.00	CSHH,.250-20X3.50,GR5
19	5822	1.00	VLV,DRAIN COCK,.25



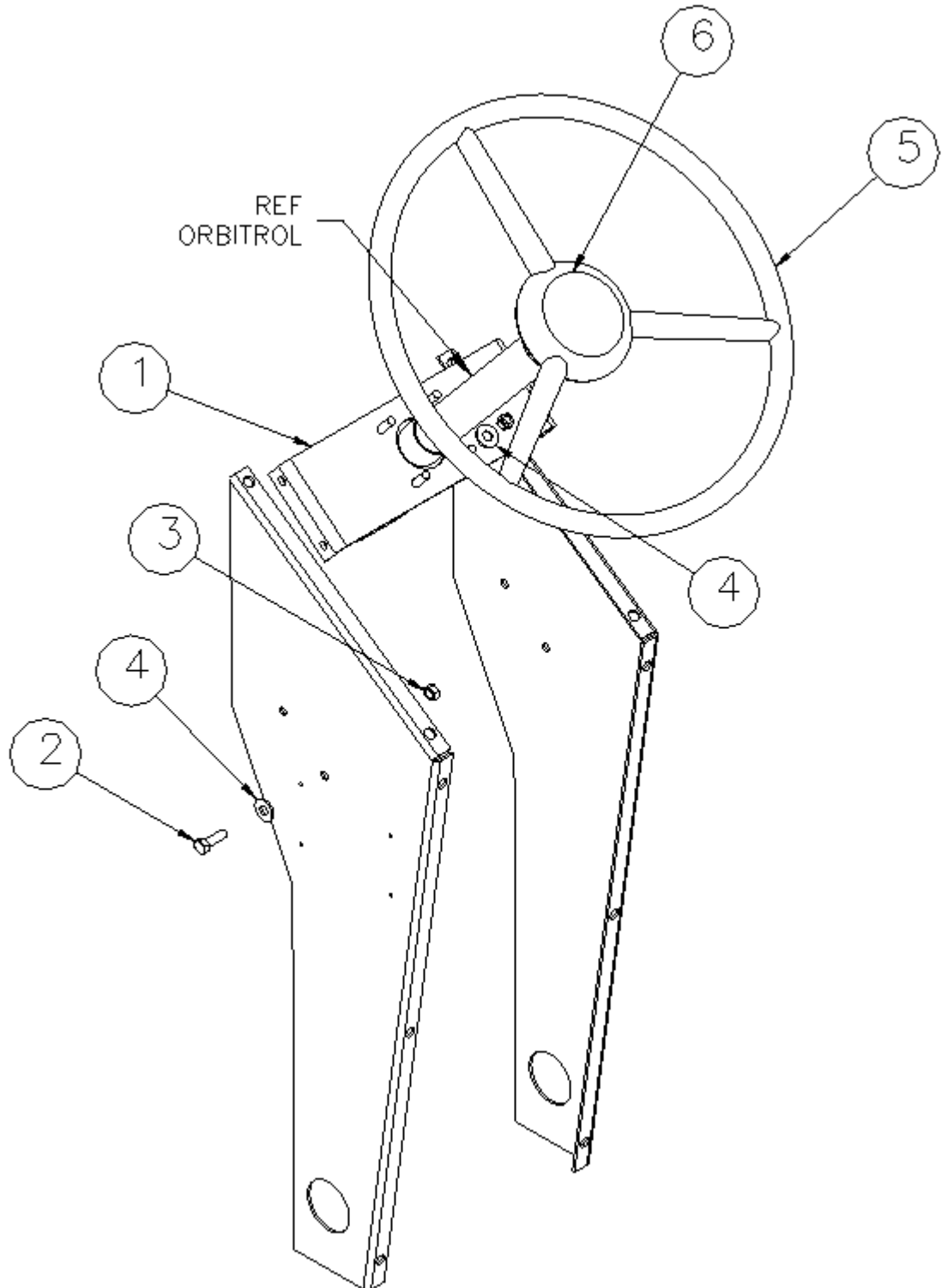
**STEERING ORBITROL MOUNT ASSEMBLY**

**RB48 BROOM**

REF. 27525

REV. A

ITEM	PART NO.	QTY	DESCRIPTION
1	21075	1.00	MOUNT,STEERING ORBITROL
2	80208	4.00	CSHH,.312-18X1.00,GR5
3	80037	4.00	NUT,HEX,.312-18
4	81130	8.00	WASHER,SAE,HARDENED,.312
5	6436	1.00	STEERING WHEEL
6	71077	1.00	CAP,ST WL,REF 6436

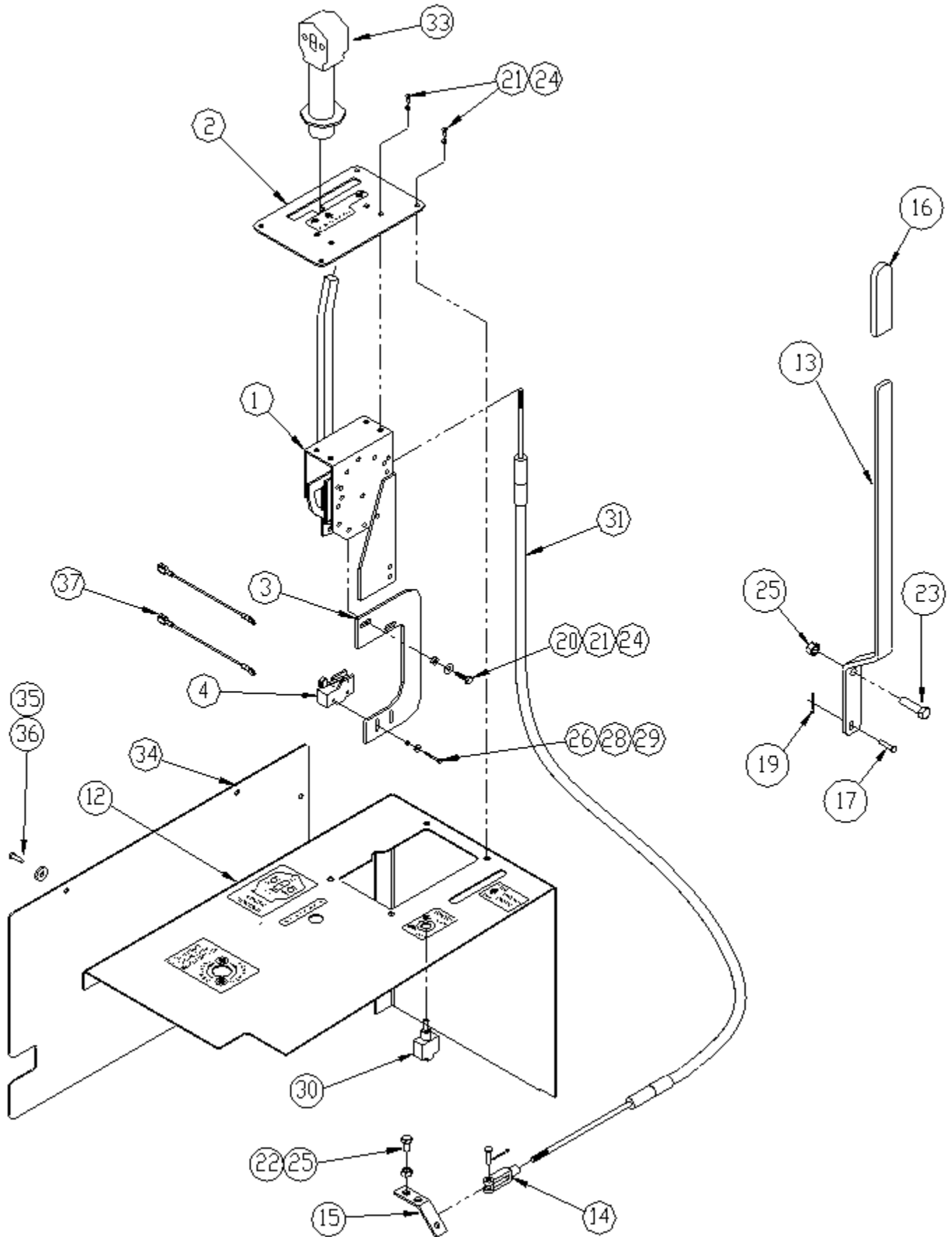




**CONTROL GROUP**

**RB48 BROOM**

REF. 28240  
REV. D

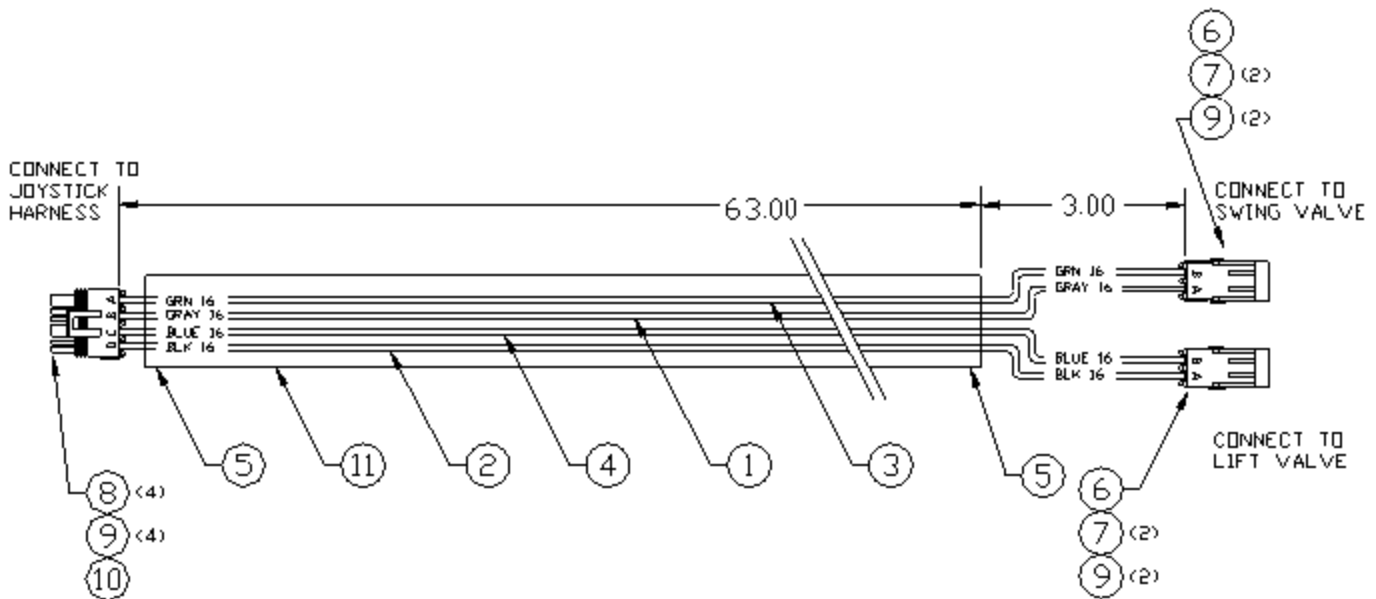


**RB48 BROOM**

**JOYSTICK HARNESS**

REF. 28476  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	33271-0	5.50	WIRE,16 GA,GRAY
2	33271-1	6.00	WIRE,16 GA,BLACK
3	33271-4	5.50	WIRE,16 GA,GREEN
4	33271-11	5.50	WIRE,16 GA,BLUE
5	33596	2.00	TIE WRAP,.188X7.5
6	35138	2.00	CONNECTOR,SEALED,SHROUD,2-PIN
7	36164	4.00	TERM,SEALED CONN,16-14 GA,MALE
8	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
9	36166	8.00	SEAL,CABLE,18-16 GA
10	36352	1.00	CONNECTOR,SEALED,TOWER,4-PIN
11	71060	5.25	LOOM,SPLIT,CONVOLUTED,.250
12	36348	1.00	TERM,PUSH-ON,.25,M,18-14,SLV

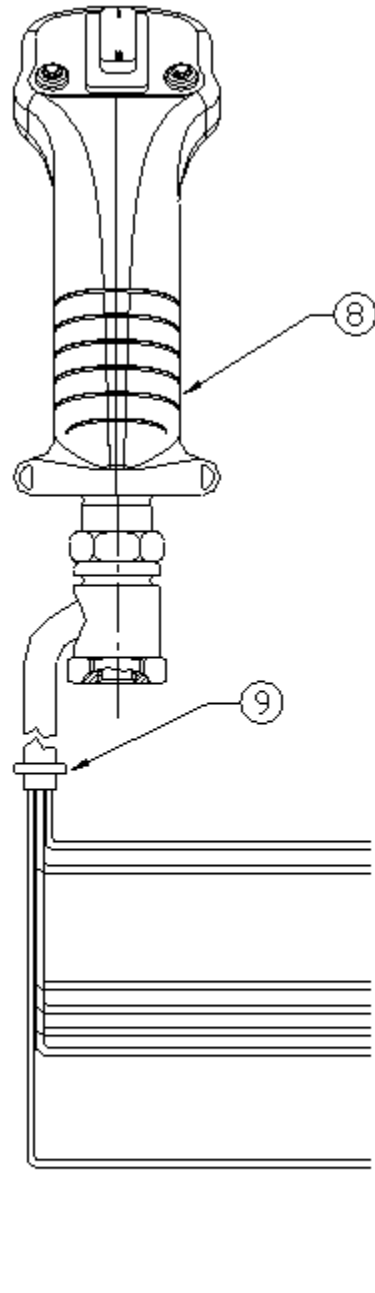


**CONTROL HANDLE**

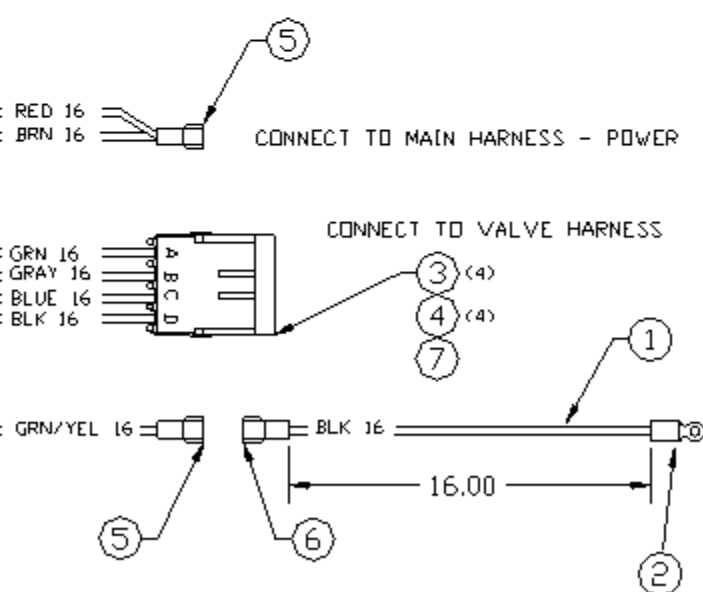
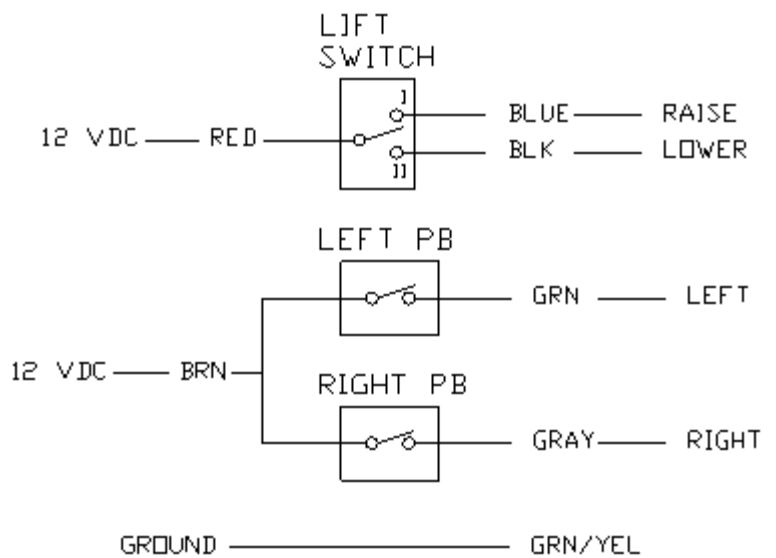
**RB48 BROOM**

REF. 28477  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	33271-1	1.33	WIRE,16 GA,BLACK
2	33607	1.00	TERM,RING,16-14 GA,.250 STUD
3	36164	4.00	TERM,SEALED CONN,16-14 GA,MALE
4	36166	4.00	SEAL,CABLE,18-16 GA
5	36348	2.00	TERM,PUSH-ON,.25,M,18-14,SLV
6	36349	1.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
7	36351	1.00	CONNECTOR,SEALED,SHROUD,4-PIN
8	38820	1.00	CONTROL HANDLE,RB48
9	35465-06	1.00	GROMMET,INSULATION,.375ID



**WIRING DIAGRAM**



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.



**RB48 BROOM****INSTRUMENT PANEL**

REF. 39140

REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	39140-1	1.00	DECAL,RB48,INSTRUMENT PANEL
2	39140-2	1.00	VOLTMETER
3	39140-3	1.00	TACHOMETER
4	39140-4	1.00	GAUGE,FUEL
5	39140-5	1.00	GAUGE,OIL PRESSURE
6	39140-6	1.00	GAUGE,WATER TEMP
7	39140-7	1.00	HOURMETER,DIGITAL
8	39140-8	1.00	SWITCH,KEY,OFF-ON-(ON)
9	39140-9	1.00	OVERLAY
10	39140-10	4.00	LIGHTS,EURO,SMOKED LENS,GREEN/RED FILTER
11	39140-11	1.00	ROCKER,PADDLE,ON-OFF-ON,N.I.,DPDT
12	39140-12	1.00	ROCKER,ON-OFF,RED W.I.,SPST
13	39140-13	1.00	ROCKER,ON-OFF,N.I.,SPST
14	31940-14	4.00	ROCKER,ON-OFF,AMBER W.I.,SPST
15	29403	1.00	WIRING SCHEMATIC,RB48/SWEEPPRO

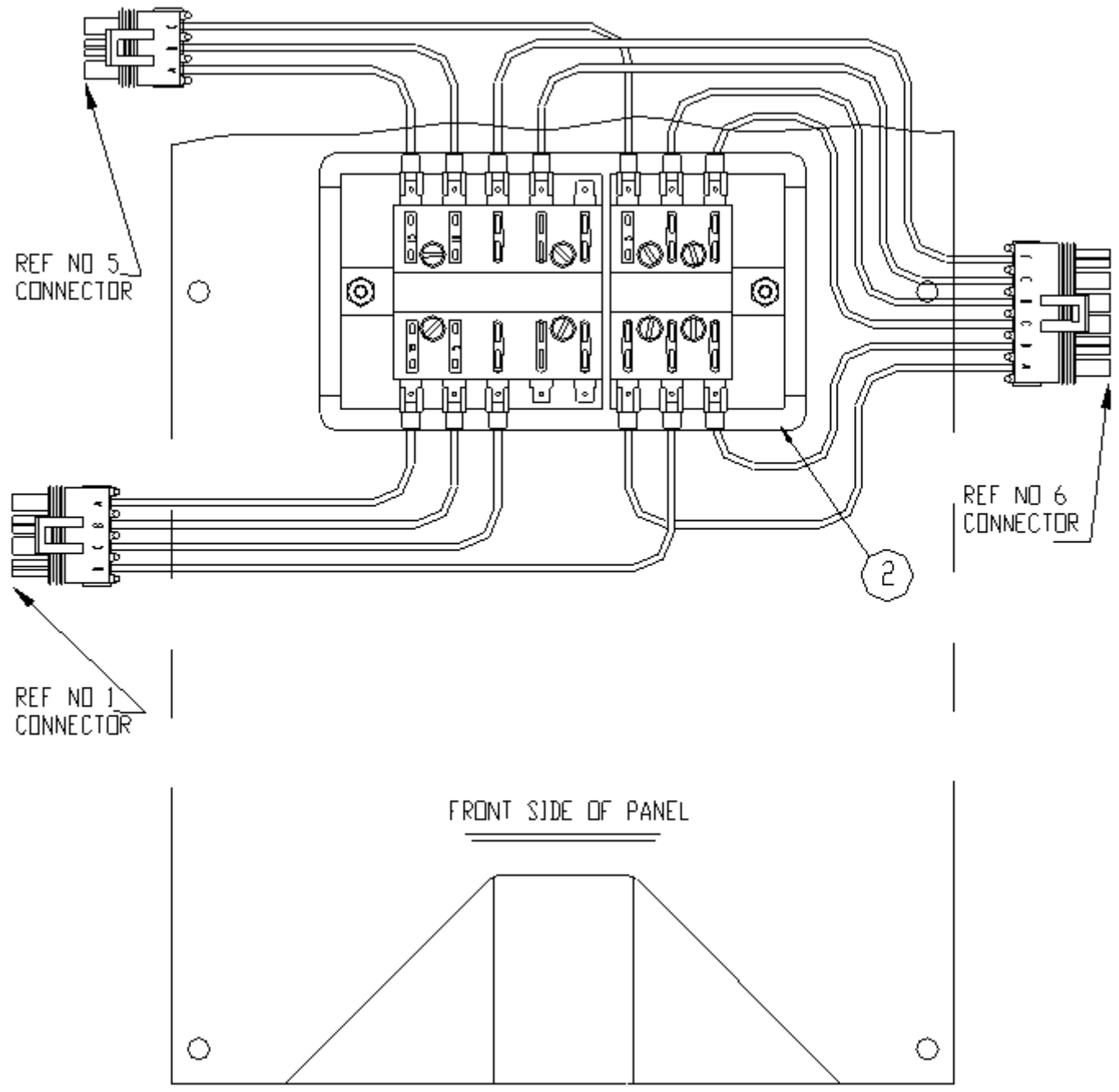


**RB48 BROOM**

**INSTRUMENT, FUSE PANEL**

REF. 28032  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	21078	1.00	INSTRUMENT PANEL W/M,RB48
2	<b>26970</b>	<b>1.00</b>	<b>FUSE PANEL SUB-ASSY (See Detail Following)</b>
3	36696	1.00	DECAL,FUSE PANEL
4	38504	1.00	DECAL,FUSE PANEL
5	81106	6.00	CSBHS,.250-20X.75,SS
6	80160	6.00	WASHER,SPLIT LOCK,.250





**RB48 BROOM**

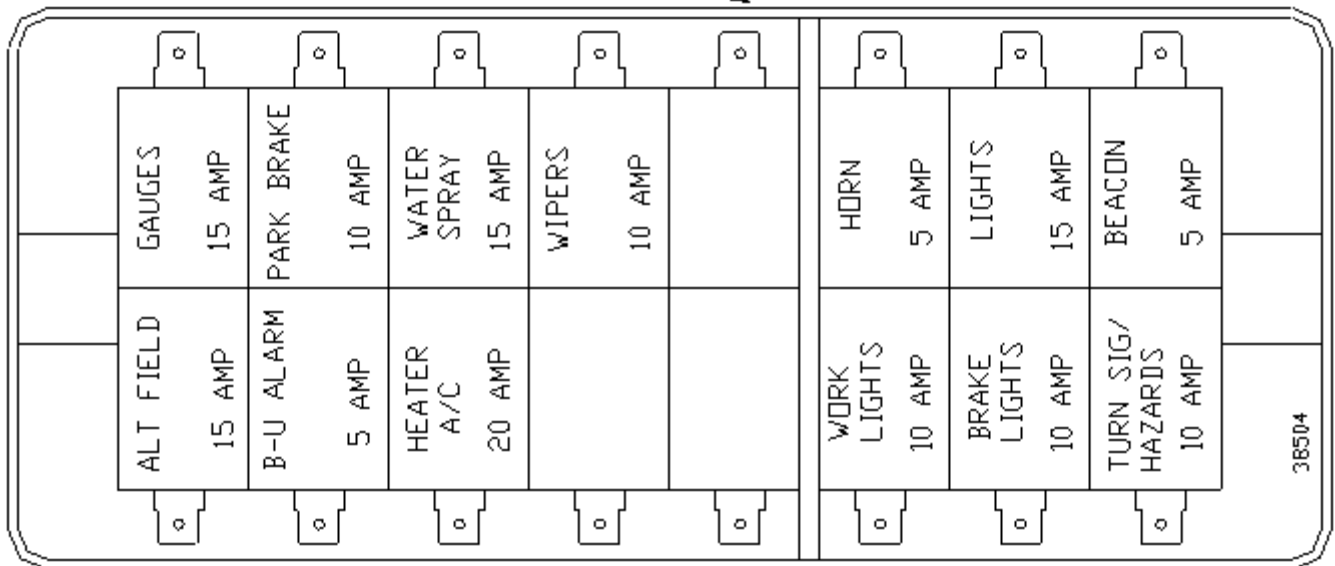
**FUSE PANEL SUB-ASSEMBLY**

REF. 26970

REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	33271-1	1.00	WIRE,16 GA,BLACK
2	33271-12	1.00	WIRE,16 GA,RED/BLACK STRIPE
3	33271-14	1.00	WIRE,16 GA,YELLOW/RED STRIPE
4	33271-15	1.25	WIRE,16 GA,BROWN/YELLOW STRIPE
5	71062	1.25	WIRE,14 GA,BLUE
6	33271-19	1.33	WIRE,16 GA,GREEN/YEL STRIPE
7	33271-5	1.00	WIRE,16 GA,WHITE
8	33271-6	1.00	WIRE,16 GA,ORANGE
9	33271-4	1.25	WIRE,16 GA,GREEN
10	33600	13.00	TERM,PUSH-ON,.25,FEM,16-14 GA
11	36163	1.00	CONNECTOR,SEALED,TOWER,6-PIN
12	36165	13.00	TERM,SEALED CONN,16-14 GA,FEM
13	36166	10.00	SEAL,CABLE,18-16 GA
14	36300	1.00	CONNECTOR,SEALED,TOWER,3-PIN
15	36352	1.00	CONNECTOR,SEALED,TOWER,4-PIN
16	36623	3.00	SEAL,CABLE,14 GA
17	36694	1.00	FUSE BLOCK,BLADE-TYPE,10 POS
18	36695	1.00	FUSE BLOCK,BLADE-TYPE,6 POS
19	35174	1.00	WIRE,14 GA,PURPLE
20	71065	2.00	WIRE,14 GA,RED
21	33271-3	1.25	WIRE,16 GA,BROWN

REF: FUSE PANEL DECAL

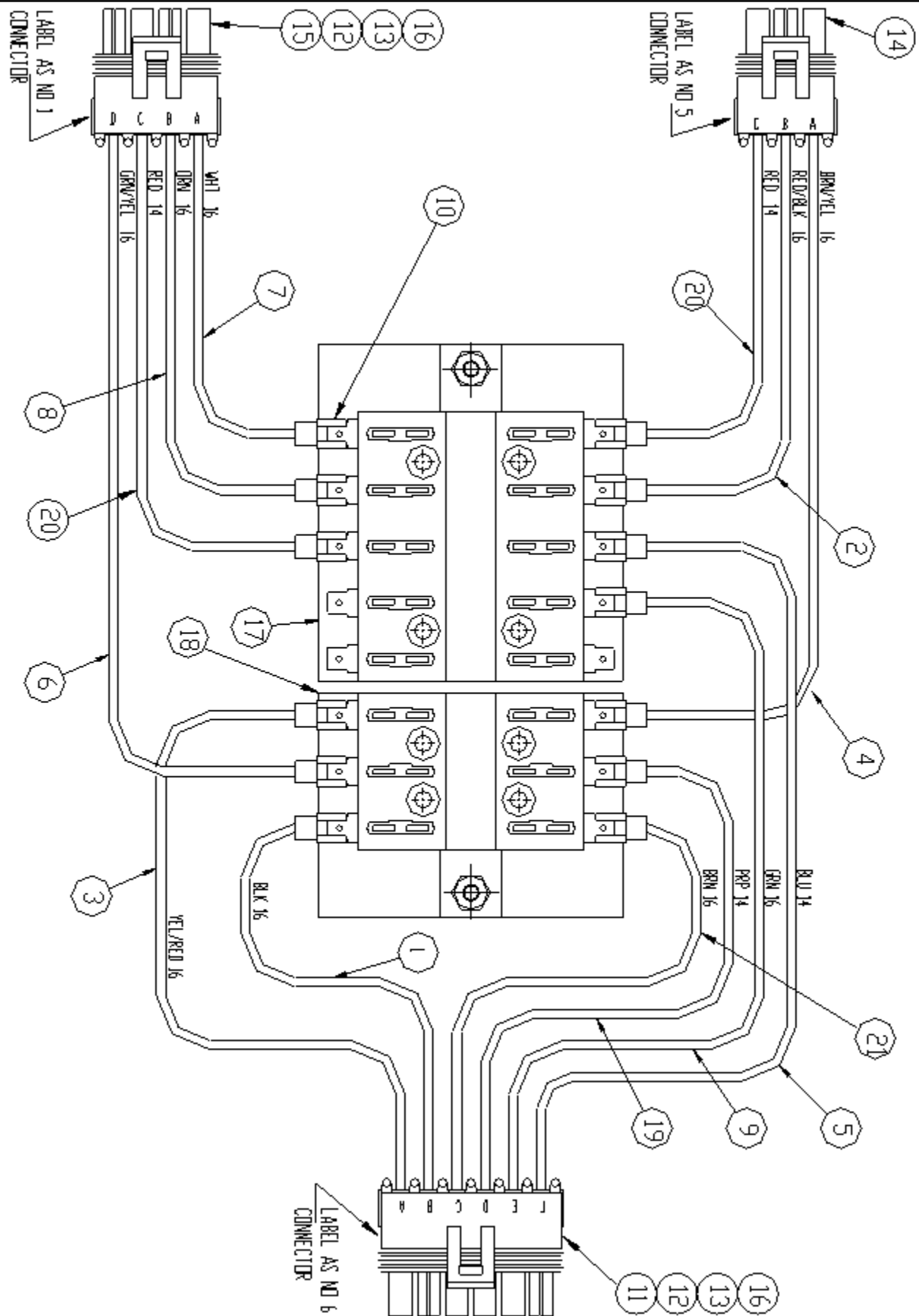


# FUSE PANEL SUB-ASSEMBLY

RB48 BROOM

REF. 26970

REV. 0



**RB48 BROOM****FRAME ASSEMBLY**REF. 29084  
REV. 0

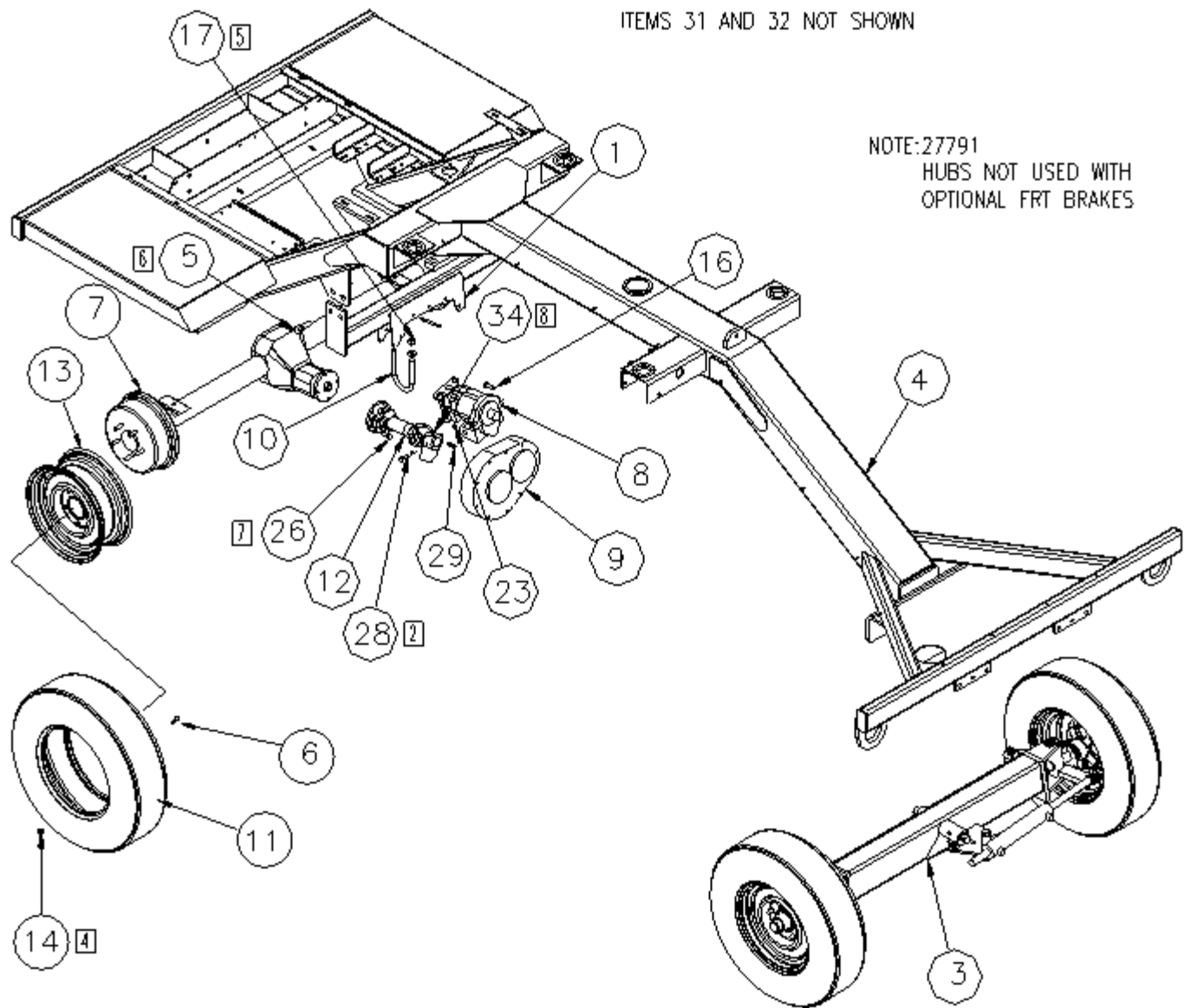
ITEM	PART NO.	QTY	DESCRIPTION
1	29027	1.00	GEARBOX,MOUNT,W/M
<b>3</b>	<b>29043</b>	<b>1.00</b>	<b>FRONT AXLE ASSEMBLY (See Detail Following)</b>
4	29171	1.00	FRAME W/M,RB48B
5	33137	4.00	CSHH,.750-10X2.50,GR5
6	33799	2.00	TIRE VALVE,TUBELESS,.453,1.25
7	39025	1.00	AXLE,REAR,FORD E150
Contact your Ford Dealer or local parts-supply store for replacement parts on this axle (V710F).			
8	35330	1.00	MOTOR,HYD,M46 VAR,2.8 CIR
<b>9</b>	<b>35338</b>	<b>1.00</b>	<b>GEARBOX B PAD 15T 4.533 RATIO (Detail Following)</b>
10	35339	4.00	U-BOLT,AXLE MOUNT
11	35342	2.00	TIRE,RADIAL,ST225/75-R15,C
<b>12</b>	<b>35603</b>	<b>1.00</b>	<b>DRIVESHAFT (See Detail Following)</b>
13	39027	2.00	WHEEL,15X6.5 HOLE,5.5BC,FORD
14	6524	10.00	NUT,WHEEL,50-20
15	71627	1.00	CSHH,.500-13X1.50,GR5
16	71631	1.00	CSHH,.500-20X1.75,GR5 NF HT
17	80356	8.00	NUT,FLEXLOC,.625-11,FULL,LT
18	80043	4.00	NUT,HEX,.750-10
19	80147	4.00	WASHER,TYPE A PLAIN,.750
20	80164	3.00	WASHER,SPLIT LOCK,.500
21	81201	8.00	WASHER,SAE,HARDENED,.625
22	80168	4.00	WASHER,SPLIT LOCK,.750
23	80352	1.00	NUT,FLEXLOC,.375-16,FULL,LT
24	80484	4.00	WASHER,SPLIT LOCK,M12
<b>25</b>	<b>27791</b>	<b>1.00</b>	<b>HUB ASSY,WITH OUT BRAKES (See Detail Following)</b>
26	81009	4.00	CSHH,M12X1.75X30,CL8.8
27	81010	3.00	CSHH,.312-18X4.00,GR8
28	81048	1.00	CSHH,.375-16X3.00,GR8
29	010990739	1.00	KEY,SQ,.375X1.625
32	81141	4.00	WASHER,SAE,HARDENED,.500
33	71634	1.00	CSHH,.500-20X2.00,GR5
34	38620	.80	WIRE,MECHANICS,16.5 GA

# FRAME ASSEMBLY

RB48 BROOM

REF. 29084

REV. 0



NOTE:

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 89 Nm (65 FT LBS)

8 ROUTE WIRE THRU THE SET SCREW, AROUND THE SHAFT AND TIE



**RB48 BROOM****FRONT AXLE ASSEMBLY**

REF. 29043

REV. A

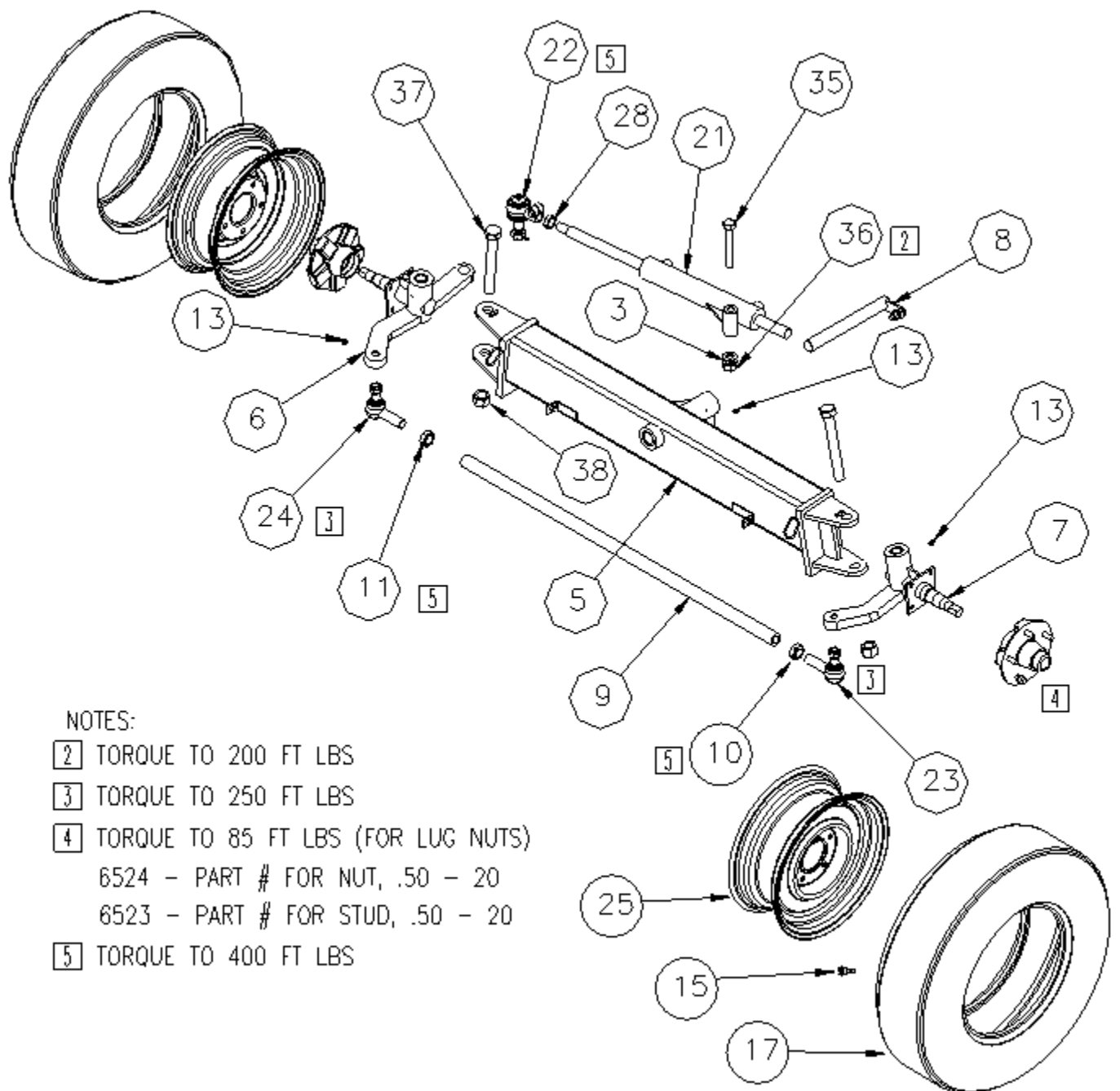
ITEM	PART NO.	QTY	DESCRIPTION
3	16935	1.00	SLEEVE,STEERING CYL MOUNT.
5	28451	1.00	FRONT AXLE W/M,RB48
6	25282	1.00	SPINDLE W/M,LH
7	25283	1.00	SPINDLE W/M,RH
8	20724	1.00	SHAFT W/M,PIVOT,FRONT AXLE
9	20727	1.00	TUBE,TIE ROD
10	21113	1.00	NUT,JAM,1.00-16,RH
11	21114	1.00	NUT,JAM,1.00-16,LH
13	33684	3.00	FITT,LUBE,STR,02MP,SHORT
15	33799	2.00	TIRE VALVE,TUBELESS,.453,1.25
17	35342	2.00	TIRE,RADIAL,ST225/75-R15,C
21	36754	1.00	CYL,HYD,2.00X10.75,STEERING
N/S	33805-01		SEAL KIT,STEERING CYL
22	36755	1.00	STEERING CYLINDER END
23	36756	1.00	TIE ROD END,RH
24	36757	1.00	TIE ROD END,LH
25	39027	2.00	WHEEL,15X6.5 HOLE,5.5BC,FORD
28	80097	1.00	NUT,HEX,JAM,.875-14
30	81154	1.00	WASHER,SAE,HARDENED,.750
32	80248	2.00	CSHH,.500-13X1.00,GR5
33	71627	1.00	CSHH,.500-13X1.50,GR5
34	80040	1.00	NUT,HEX,.500-13
35	80839	1.00	CSHH,.750-10X5.00,GR5
36	80357	1.00	NUT,FLEXLOC,.750-10,FULL,LT
37	81184	2.00	CSHH,1.000-8X8.0,GR5
38	80359	2.00	NUT,FLEXLOC,1.000-8,FULL,LT

# FRONT AXLE ASSEMBLY

RB48 BROOM

REF. 29043

REV. A

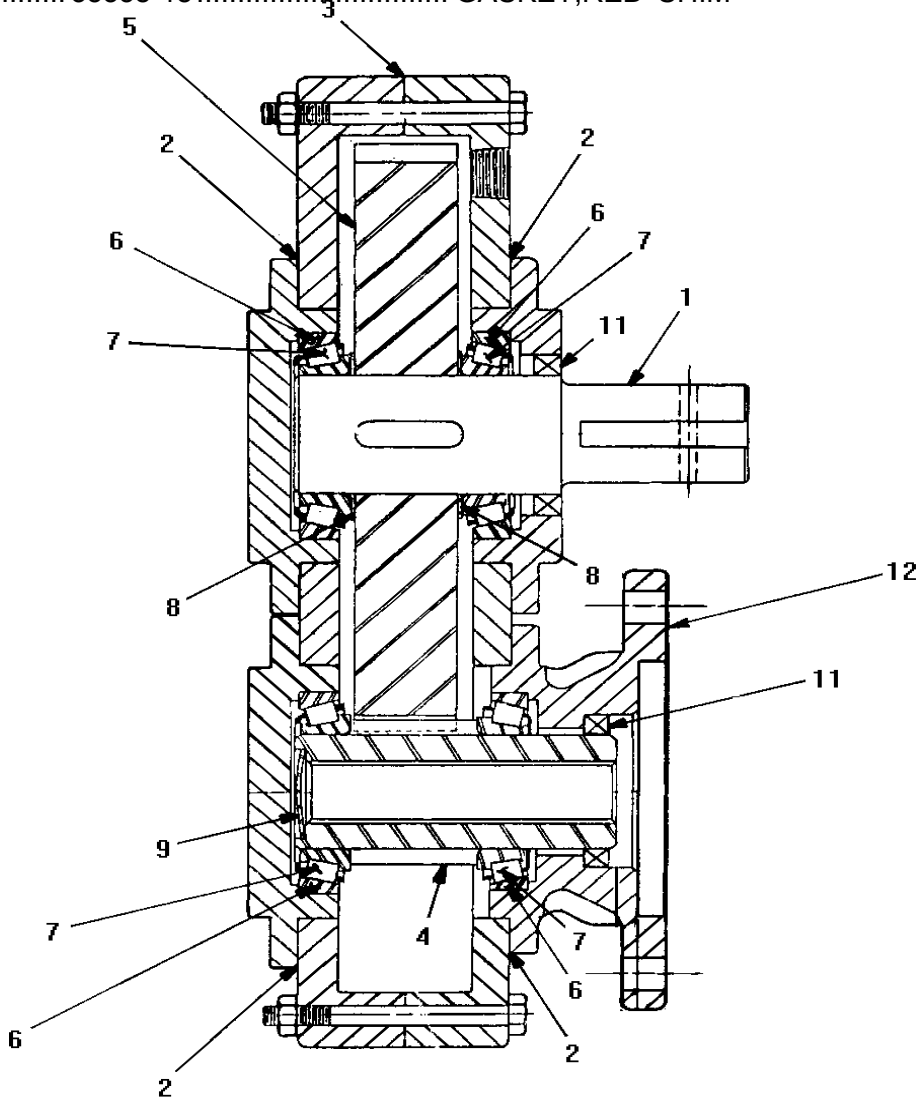


**RB48 BROOM**

**GEARBOX B PAD**

REF. 35338  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
1	35338-01		SHAFT
2	35338-02		GASKET,BLUE SHIM
3	35338-03		GASKET
4	35338-04		GEAR,INT HEL LH 15T
5	35338-05		GEAR,HEL RH 68T
6	35338-06		CUP,BEARING
7	35338-07		CONE,BEARING
8	35338-08		SPACER,BEARING
9	35338-09		PLUG,EXPANSION DISC
10	35338-10		PLUG,VENTED
11	35338-11		SEAL
12	35338-12		FLANGE,SAE B,2-HOLE
13	35338-13		KEY,OUTPUT SHAFT/GEAR
14	35338-14		HOUSING HALF,GEAR BOX,BLIND END
15	35338-15		HOUSING HALF,GEAR BOX,MOTOR END
16	35338-16		CAP,OPEN
17	35338-17		CAP,CLOSED
18	35338-18	3	GASKET,RED SHIM

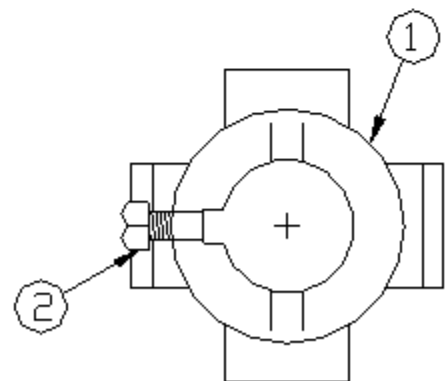
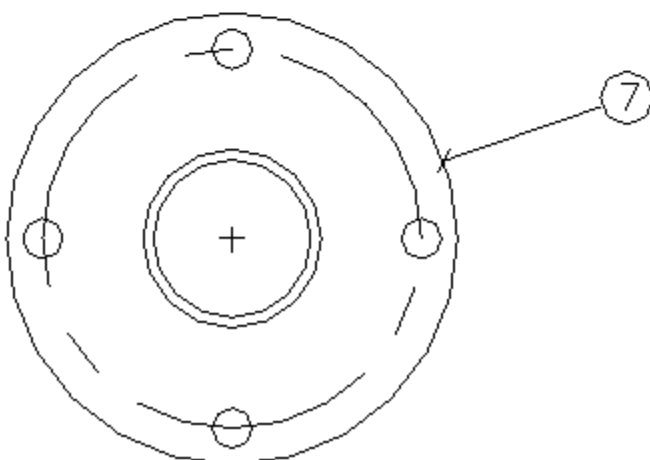
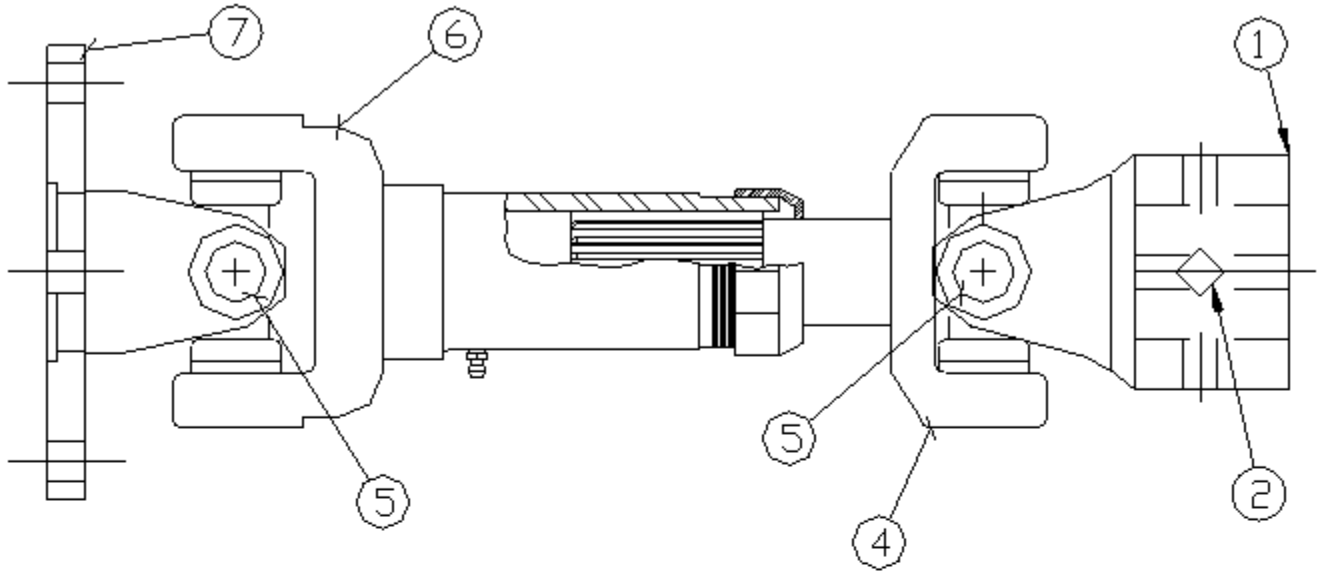


**DRIVESHAFT**

**RB48 BROOM**

REF. 35603  
REV. D

ITEM	PART NO.	QTY	DESCRIPTION
1	35326-1	1.00	YOKE SHAFT
2	35326-6	1.00	WIRE LOCKING SET SCREW
4	35603-02	1.00	END YOKE,DRIVESHAFT
5	38294	2.00	BEARING CROSS KIT
6	35603-03	1.00	SLIP YOKE,DRIVESHAFT
7	35603-04	1.00	FLANGE YOKE,DRIVESHAFT

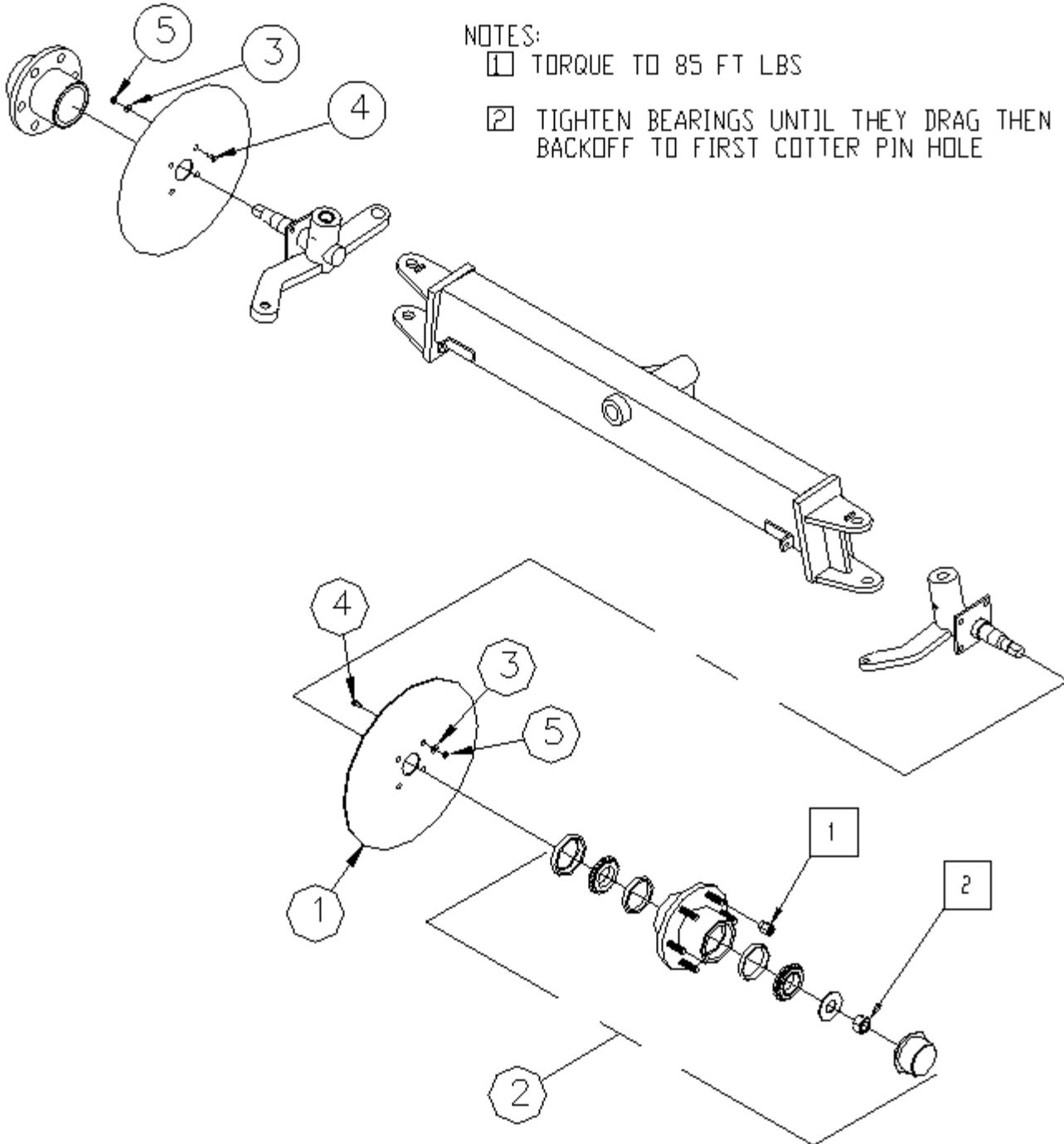


**RB48 BROOM**

REF. 27791  
 REV. A

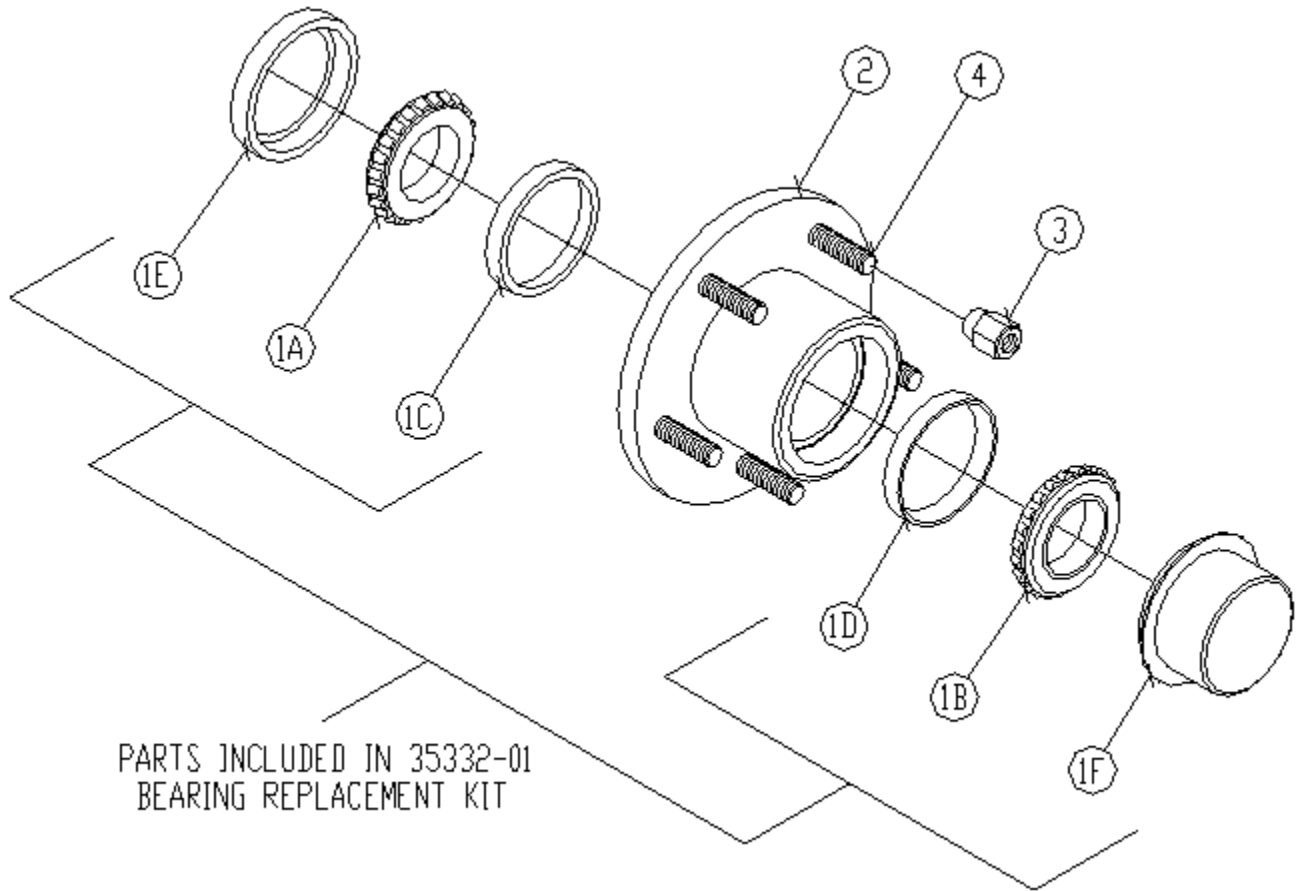
**HUB ASSEMBLY WITHOUT BRAKES**

ITEM	PART NO.	QTY	DESCRIPTION
1	29021	2.00	SHIELD,DUST,W/OUT BRAKES,E150
2	37938	2.00	<b>HUB ASSY,5-BOLT,5.50INBC (See Detail Opposite)</b>
3	80142	8.00	WASHER,TYPE A PLAIN,.375
4	80221	8.00	CSHH,.375-16X1.00,GR5
5	80352	8.00	NUT,FLEXLOC,.375-16,FULL,LT



REF. 37938  
 REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	35332-01	1.00	BEARING REPLACEMENT KIT
1A		1.00	INNER BEARING
1B		1.00	OUTER BEARING
1C		1.00	INNER CUP
1D		1.00	OUTER CUP
1E		1.00	GREASE SEAL
1F		1.00	DUST CAP
2	37938-01	1.00	HUB W/O BRAKES
3	6524	6.00	WHEEL NUT,1/2-20
4	33517-05	6.00	WHEEL STUD,1/2-20



**RB48 BROOM****ENGINE COVER ASSEMBLY**

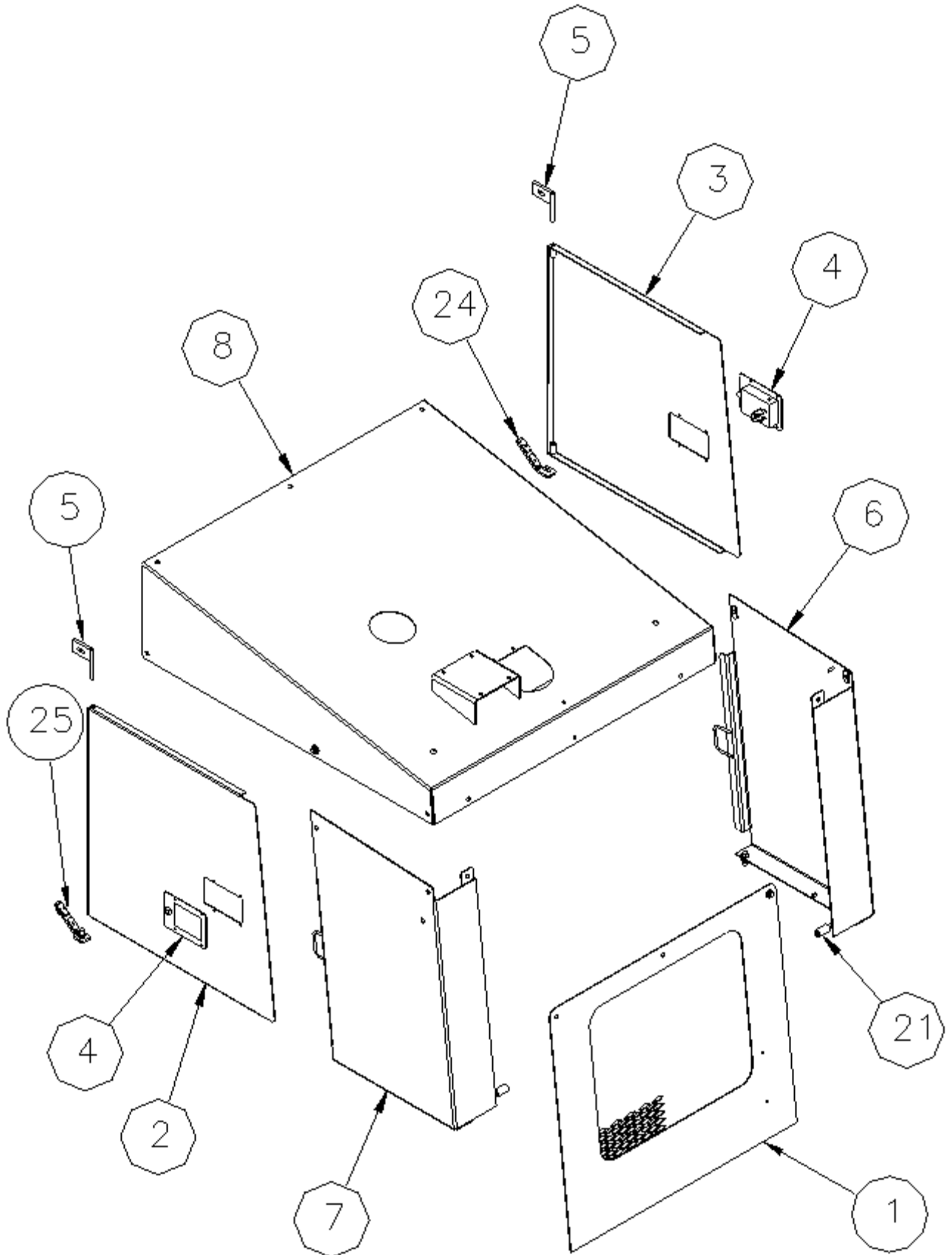
REF. 29048  
 REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	28318	1.00	GRILL W/M,ENGINE COVER
2	28320	1.00	DOOR W/M,LEFT
3	28321	1.00	DOOR W/M,RIGHT
4	38832	2.00	LATCH ASSY,CH751 KEY
5	28495	2.00	TOP HINGE W/M, RB48 ENG DOOR
6	28635	1.00	ENGINE COVER,W/M RIGHT REAR
7	28634	1.00	ENGINE COVER,W/M LEFT REAR
8	29109	1.00	ENGINE COVER,W/M, TOP
9	80207	3.00	CSHH,.312-18X.75,GR5
10	80161	7.00	WASHER,SPLIT LOCK,.312
11	80141	7.00	WASHER,TYPE A PLAIN,.312
12	80224	6.00	CSHH,.375-16X1.25,GR5
13	80996	10.00	WASHER,SAE PLAIN,.375
14	80162	13.00	WASHER,SPLIT LOCK,.375
15	80038	13.00	NUT,HEX,.375-16
16	871052400	8.00	MACH SCR,RH,#10-24X.50
17	80824	8.00	NUT,HEX,#10-24
18	80074	2.00	NUT,HEX,JAM,.375-16
19	80221	9.00	CSHH,.375-16X1.00,GR5
20	80142	18.00	WASHER,TYPE A PLAIN,.375
21	6352	.33	HOSE,08,PUSH-ON,250
22	35244	4.00	STRIP,ADH SPONGE,.75X.062
23	80208	4.00	CSHH,.312-18X1.00,GR5
24	29175	1.00	BRACKET,DOOR,RH,W/M
25	29176	1.00	BRACKET,DOOR,LH,W/M

**ENGINE COVER ASSEMBLY**

**RB48 BROOM**

REF. 29048  
REV. 0





**RB48 BROOM**

**CAB ASSEMBLY, 2 DOOR**

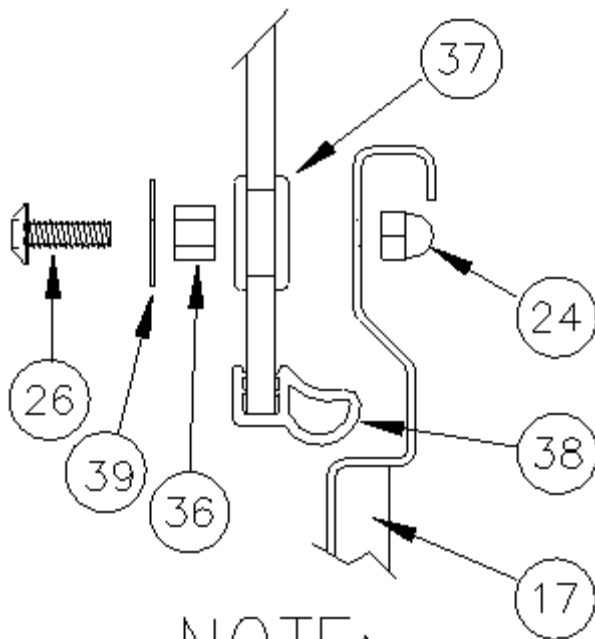
REF. 28235  
REV. G

ITEM	PART NO.	QTY	DESCRIPTION
1	28171	1.00	RB48 CAB,W/M,2 DOOR
4	36688-04	1.00	GLASS,FRONT WINDOW (P)
5	36688-02	2.00	GLASS,SIDE WINDOW (P)
6	36688-05	1.00	GLASS,REAR WINDOW (P)
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 (Detail On Following Pages)
11	36690R	1.00	ASSY,LEFT ENTRANCE DOOR
13	28342	1.00	FLOORMAT,RB48
14	36688-12	1.00	HEADLINER
15	36688-13	1.00	WIRE HARNESS (Schematic at End of Section)
16	36688-14	2.00	FOAM,RIGHT SIDE
17	36688-15	1.00	FOAM,REAR PANEL
18	38462	.17	ADHESIVE,AEROSOL SPRAY,CAN

(P) = Packaged Part

**SECTION AA**

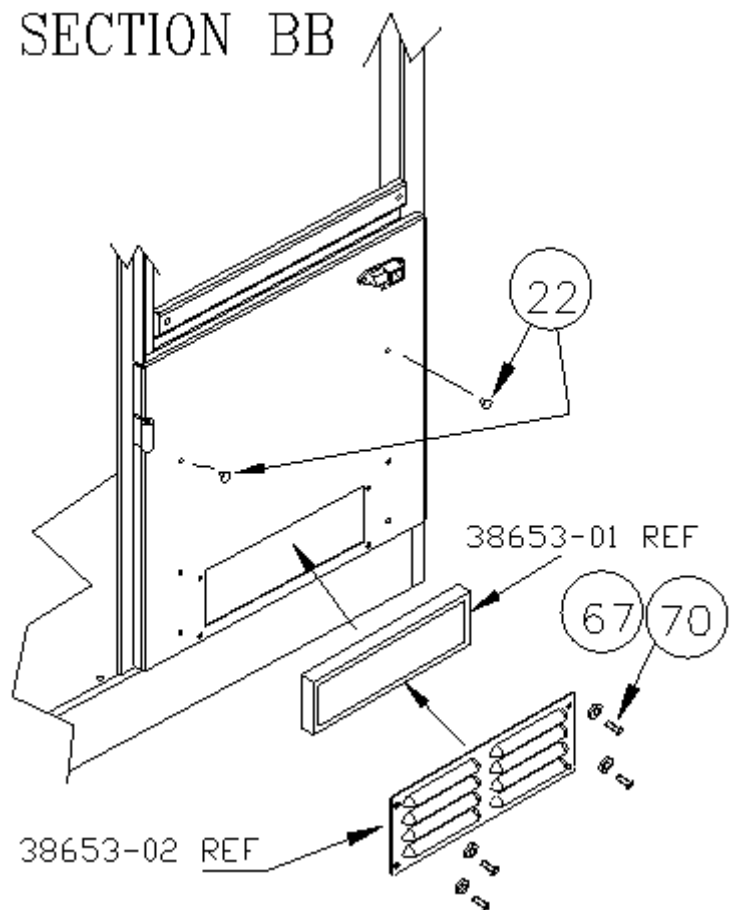
TYPICAL, ALL WINDOWS



**NOTE:**

SPLICE INT ITEM #38 ON BOTTOM OF GLASS, ALL LOCATIONS.

**SECTION BB**

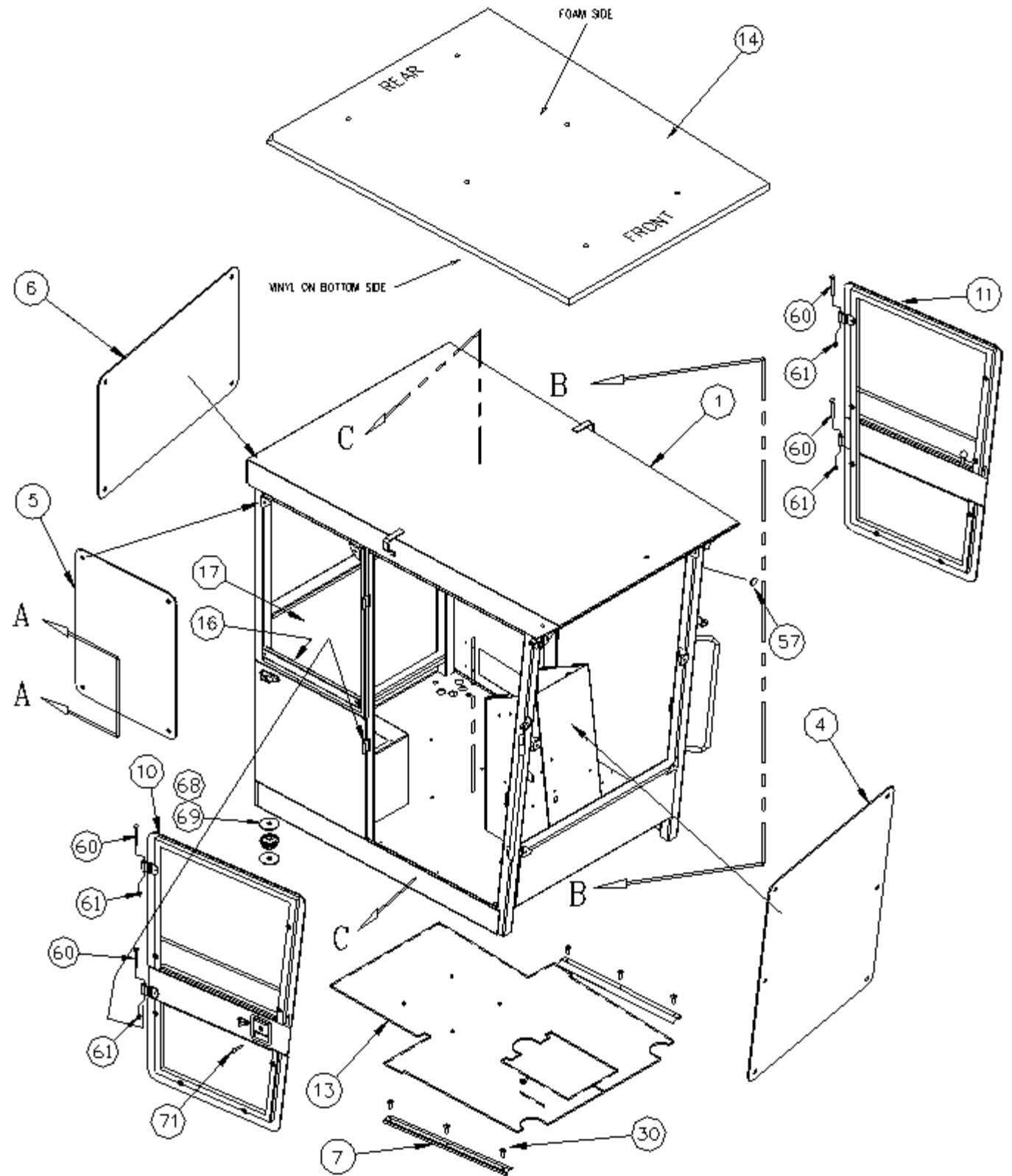


# CAB ASSEMBLY, 2 DOOR

RB48 BROOM

REF. 28235

REV. G



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

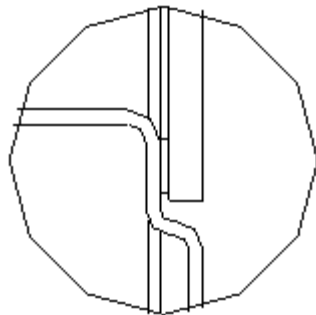
**RB48 BROOM**

**DOOR ASSEMBLY, ENTRANCE, RIGHT SIDE**

REF. 36688-41  
REV. F

ITEM	PART NO.	QTY	DESCRIPTION
1	27481	1.00	BUSHING,.334ID,.500 OD
2	36688-23	1.00	W/M,DOOR RH
3	36688-03	1.00	GLASS,UPPER DOOR (P)
3	36688-63	1.00	GLAZING,UPPER DOOR,LEXAN
4	36688-06	1.00	GLASS,LOWER DOOR (P)
4	36688-64	1.00	GLAZING,LOWER DOOR,LEXAN
5	36688-39	1.00	HINGE,LEFT,PAINTED
6	36688-25	1.00	CAM LATCH,RH
7	36688-27	1.00	LATCH COVER W/M,RH
8	80824	1.00	NUT,HEX,#10-24
9	871052400	1.00	MACH SCR,RH,#10-24X.50
10	80350	10.00	NUT,FLEXLOC,.250-20,FULL,LT
11	81106	4.00	CSBHS,.250-20X.75,SS
12	36688-34	.00	DOOR HOLD
14	81262	1.00	SHLDR SCR,.500X.625X.375-16
15	81279	7.00	CSBHS,.250-20X2.00,SS
16	80322	5.00	SCR,SLFTPG,HH,.250-20X.50
17	36688-31	1.00	PADDLE LATCH
18	36688-16	7.00	BUSHING,NYLON
19	36688-17	8.00	GROMMET,.250
20	36688-18	14.00	SEAL,WINDOW
21	81278	9.00	WASHER,.250,1.00 OD,SS
22	36688-55	1.00	KNOB,INSIDE RELEASE
23	80036	6.00	NUT,HEX,.250-20
24	33707	.00	SEALANT,SILICONE,CLEAR
25	80038	1.00	NUT,HEX,.375-16
26	73064	5.00	RUBBER STRIP,SPONGE,.250X.50
27	81280	1.00	CSBHS,.312-18X2.25,SS
28	80351	1.00	NUT,FLEXLOC,.312-18,FULL,LT
29	80160	6.00	WASHER,SPLIT LOCK,.250

**(P) = Packaged Part**



DETAIL-A

**NOTE:**

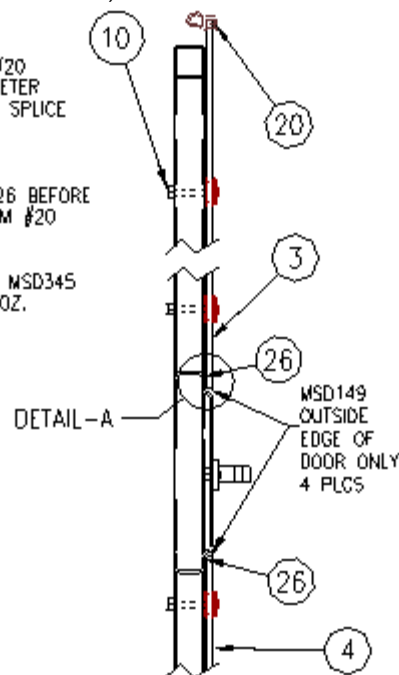
INSTALL ITEM #20 AROUND PERIMETER OF DOOR WITH SPLICE AT BOTTOM.

**NOTE:**

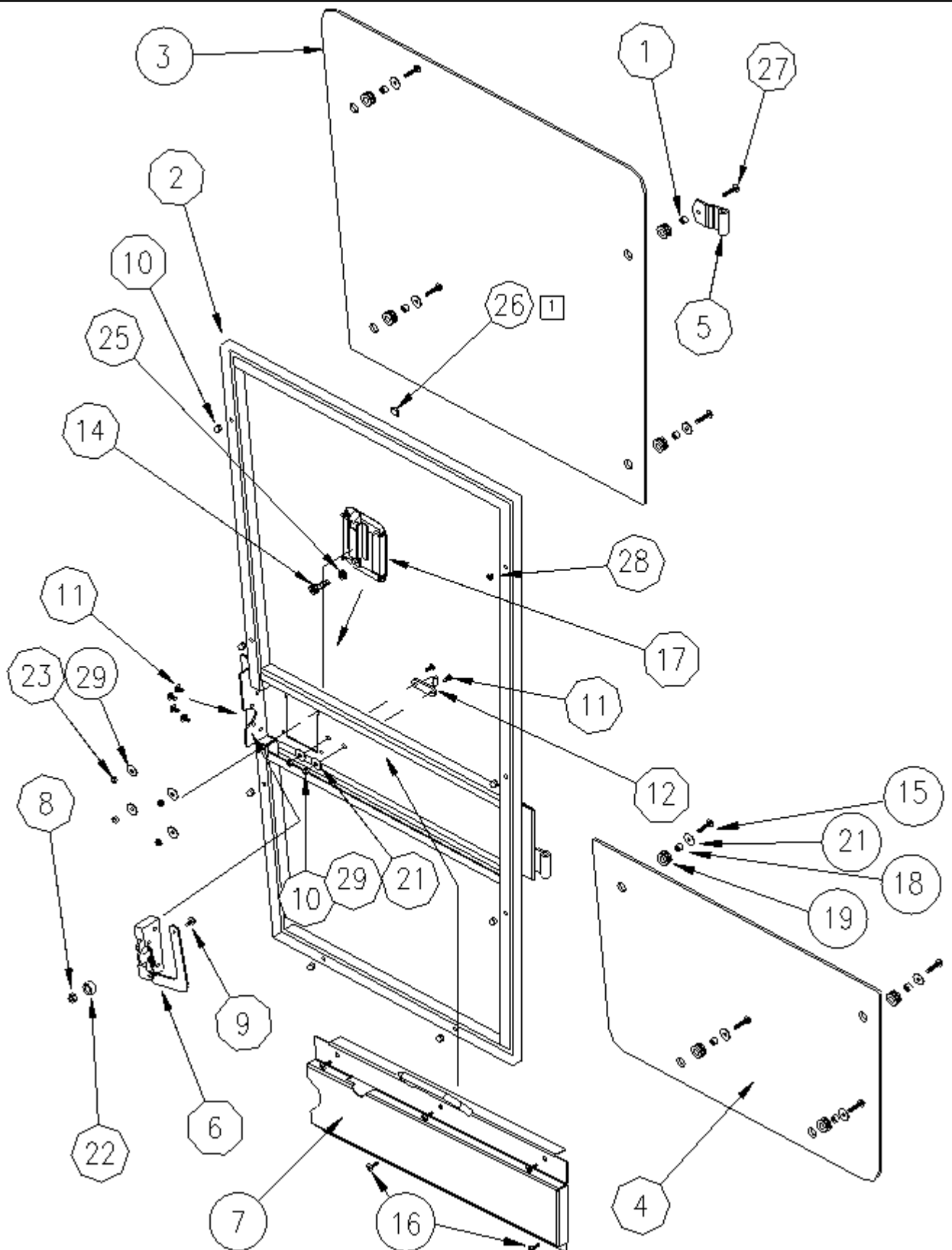
APPLY ITEM #26 BEFORE INSTALLING ITEM #20

**NOTE:**

ITEM #26-USE MSD345 CLEAR. IN 10 OZ. CARTRIDGE



**SECTION VIEW**



1 ADHERE ITEM 26 (1.00") TO CENTER OF TOP HORIZONTAL DOOR TUBE

**RB48 BROOM**

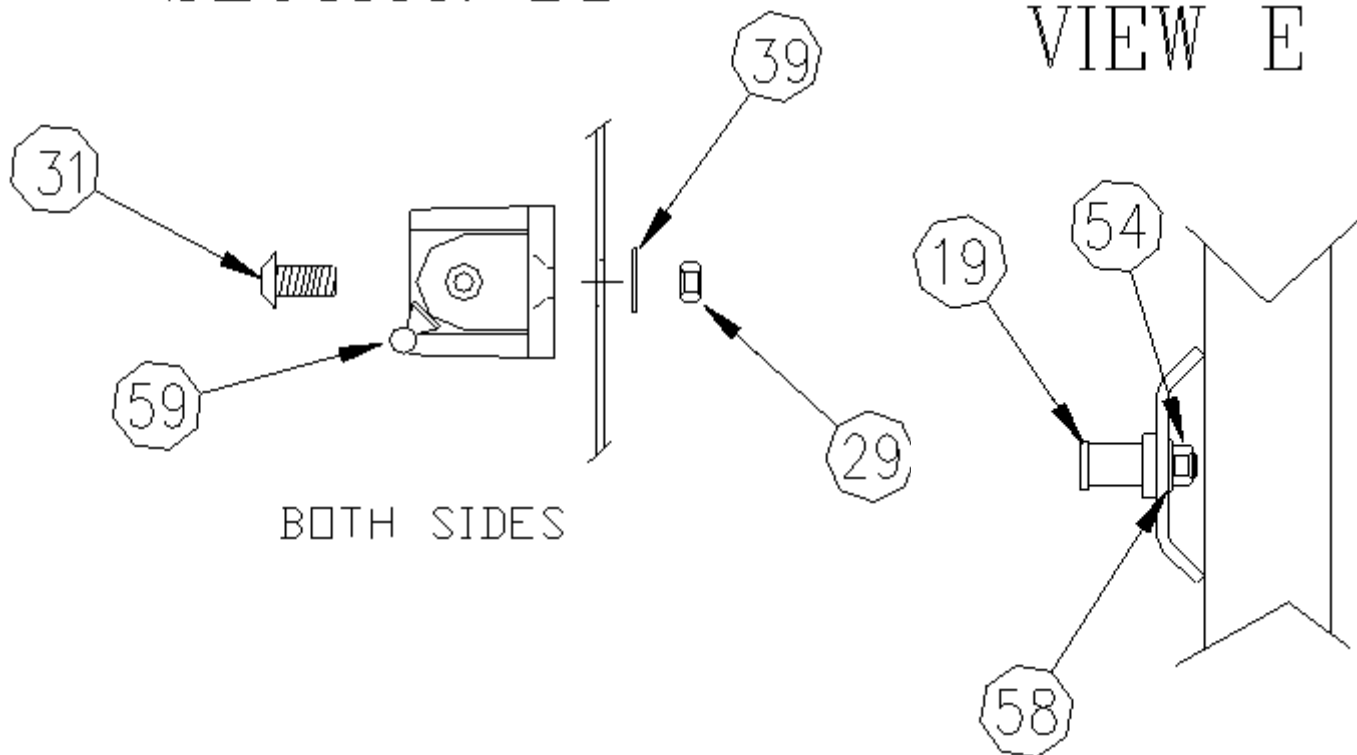
**CAB ASSEMBLY, 2 DOOR**

REF. 28235  
REV. G

ITEM	PART NO.	QTY	DESCRIPTION
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	36742	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	36688-60	1.00	WIPER MOTOR
41	29262	1.00	BRACKET,FUSE BLOCK

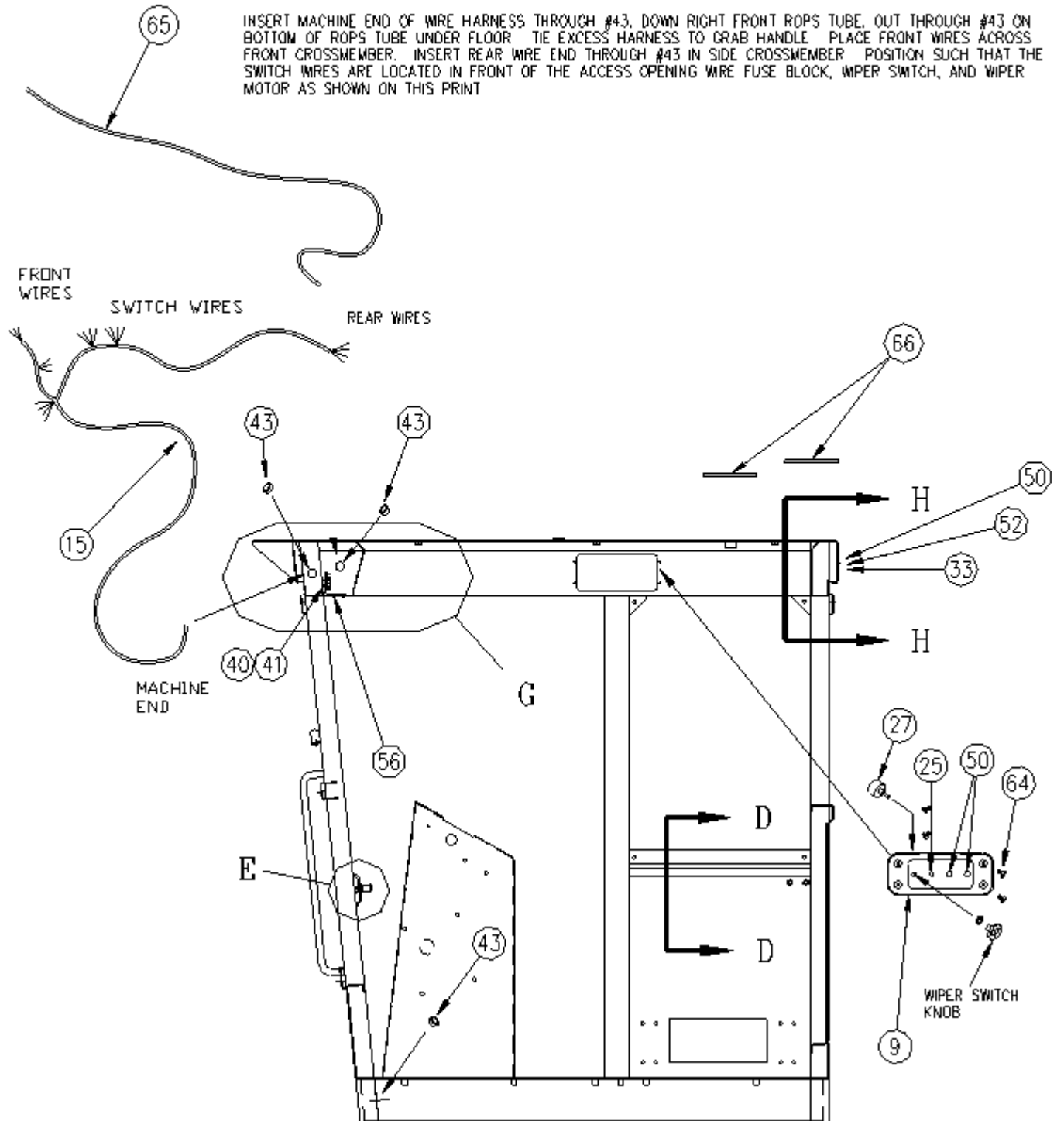
SECTION DD

VIEW E



# SECTION CC

## WIRE HARNESS INSTALLATION



**RB48 BROOM**

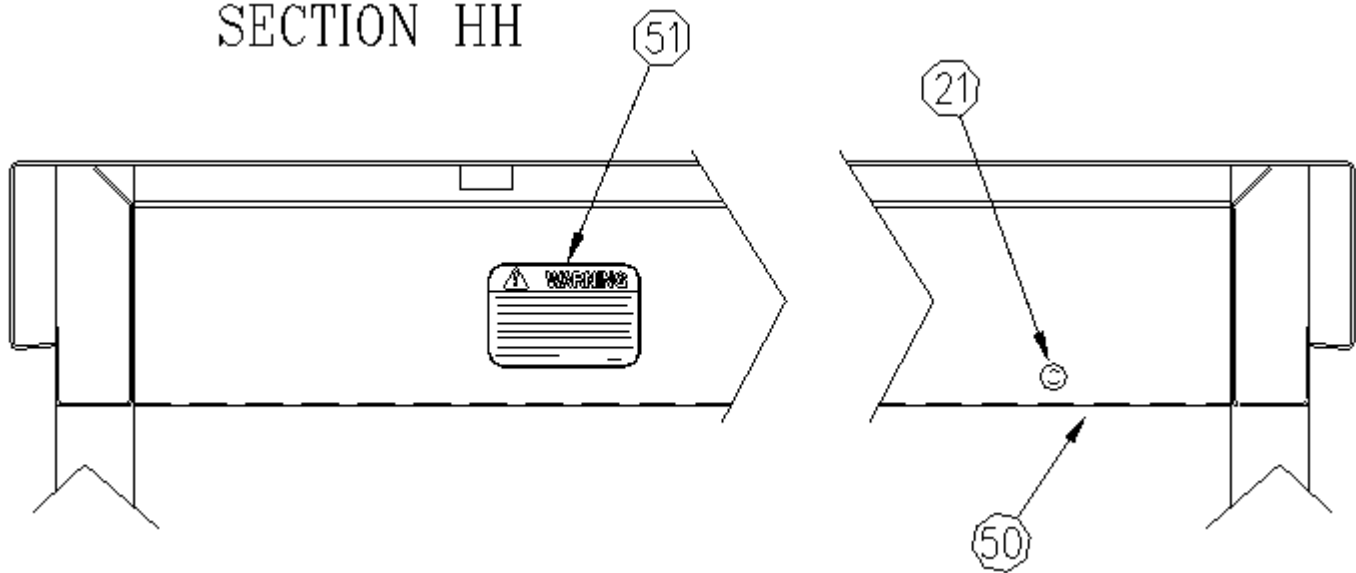
**CAB ASSEMBLY, 2 DOOR**

REF. 28235

REV. G

ITEM	PART NO.	QTY	DESCRIPTION
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	36688-58	1.00	WIPER ARM, BLACK, 16 IN.
48	36688-59	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
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
55	36688-61	1.00	WIPER MOTOR DRIVE ARM
56	35136-20	2.00	PLUG, HOLE, .562, FLUSH MT, PLSTC
57	36688-62	1.00	SHAFT, WINDSHIELD WIPER PIVOT
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, 3.25ODx.80IDx.188T
70	80140	4.00	WASHER, TYPE A PLAIN, .250
71	36688-32	1.00	KEY, PADDLE LATCH

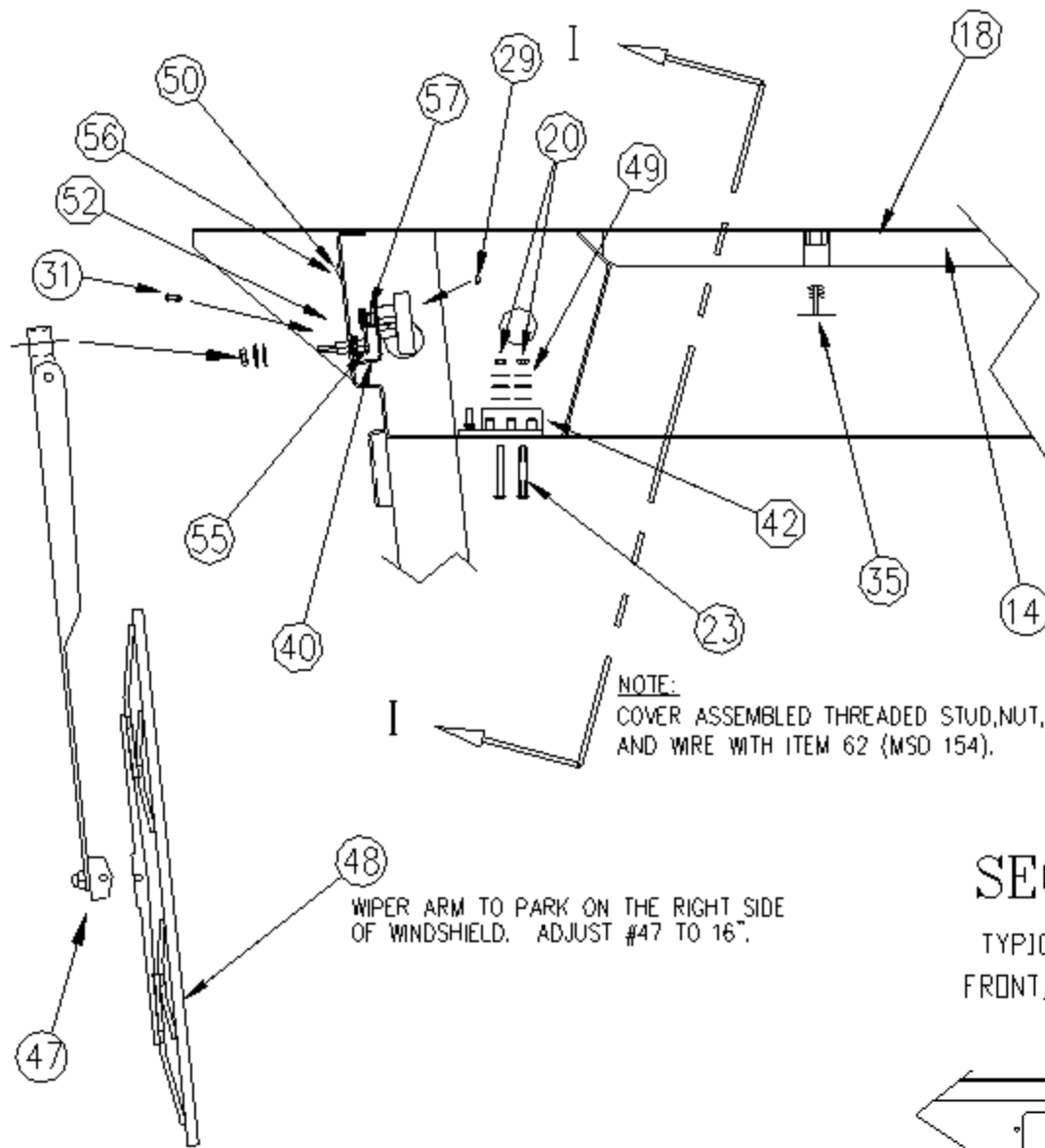
SECTION HH



REF. 28235

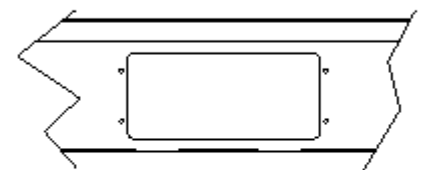
REV. G

**VIEW G** WIRE #40 & #42 AS IN SCHEMATIC BEFORE FASTENING WITH ITEMS #20, 49, 23, 32, 23, AS WELL AS WASHERS AND NUTS INCLUDED WITH ITEM #40



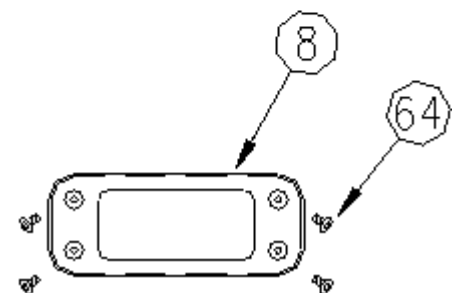
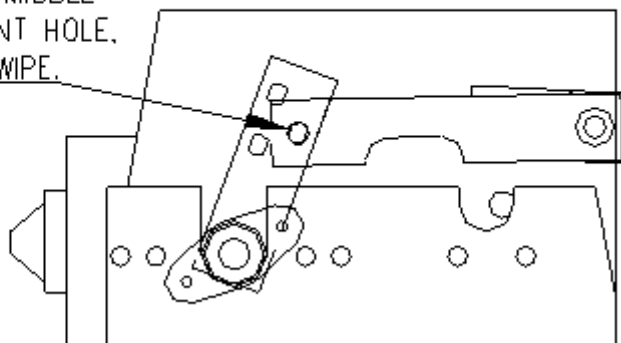
## SECTION II

TYPICAL 2 POSITIONS  
FRONT, 1 POSITION REAR



## WIPER MOTOR DETAIL

NOTE: USE MIDDLE MOUNT HOLE.  
85° WIPE.





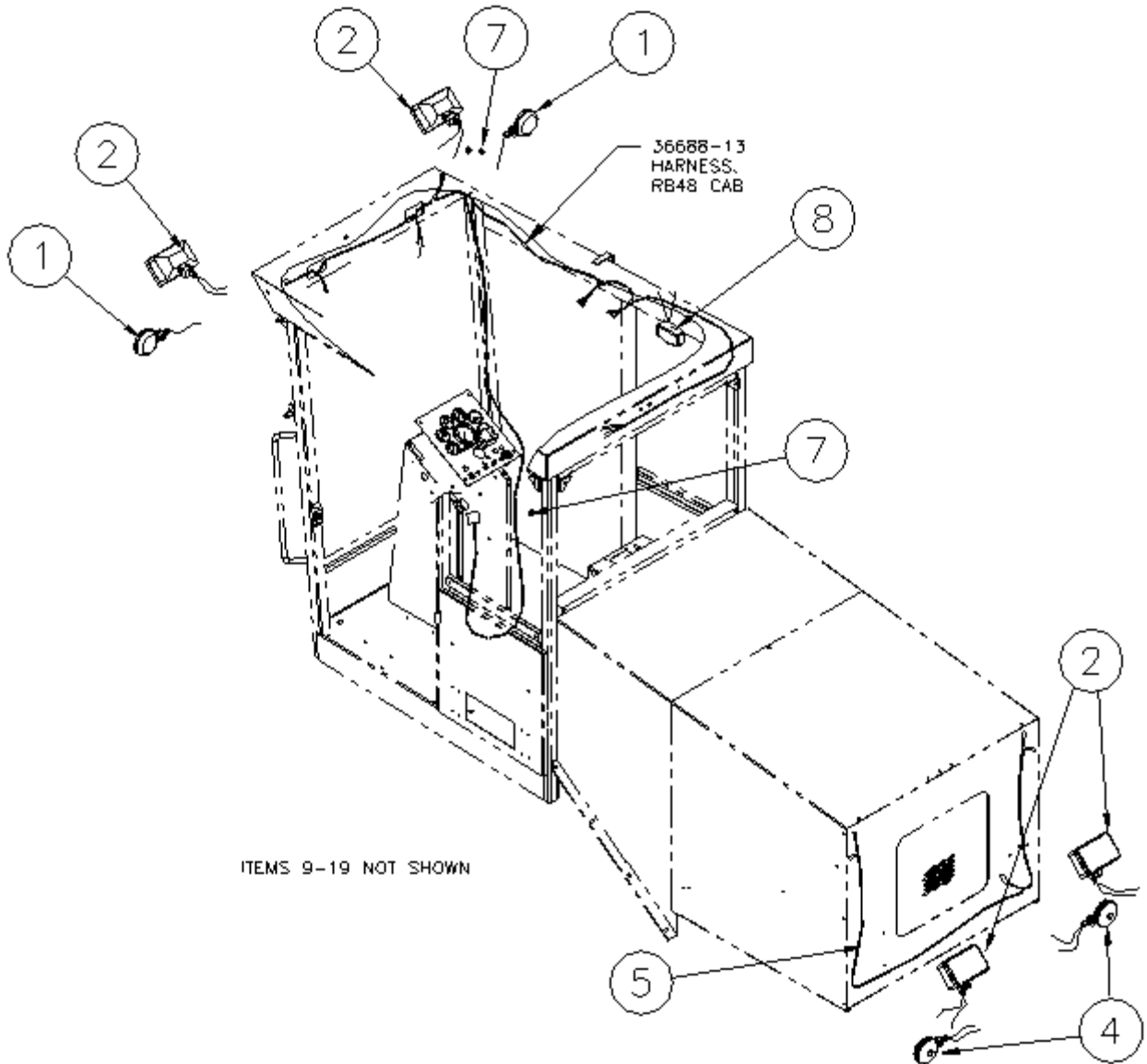


**LIGHT GROUP**

**RB48 BROOM**

REF. 28246  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	6161	2.00	LIGHT,TURN SIGNAL,AMBER
2	72318	4.00	LAMP,HALOGEN,FLOOD,80X30 DEG
4	851342007	2.00	LIGHT,TURN/BRAKE,RED
5	<b>28353</b>	<b>1.00</b>	<b>WIRE HARNESS,REAR/WORK LIGHTS (Schem at End)</b>
7	35465-06	3.00	GROMMET,INSULATION,.375ID
8	38840	1.00	LIGHT,DOME
9	35139	2.00	CONNECTOR,SEALED,TOWER,2-PIN
10	35213	1.00	HOLDER,WIRE TIE,ADHESIVE BACK
11	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
12	36166	4.00	SEAL,CABLE,18-16 GA
13	36340	1.00	FUSE,BLADE,10AMP,ATC-10
14	36349	7.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
15	36746	1.00	FUSE,BLADE,5AMP,ATC-5
16	70953	6.00	CONN,MALE TERMINAL
17	72135	2.00	TERM,RING,12-10 GA,.500 STUD
19	851390204	3.00	TERM,RING,16-14 GA,#10 STUD



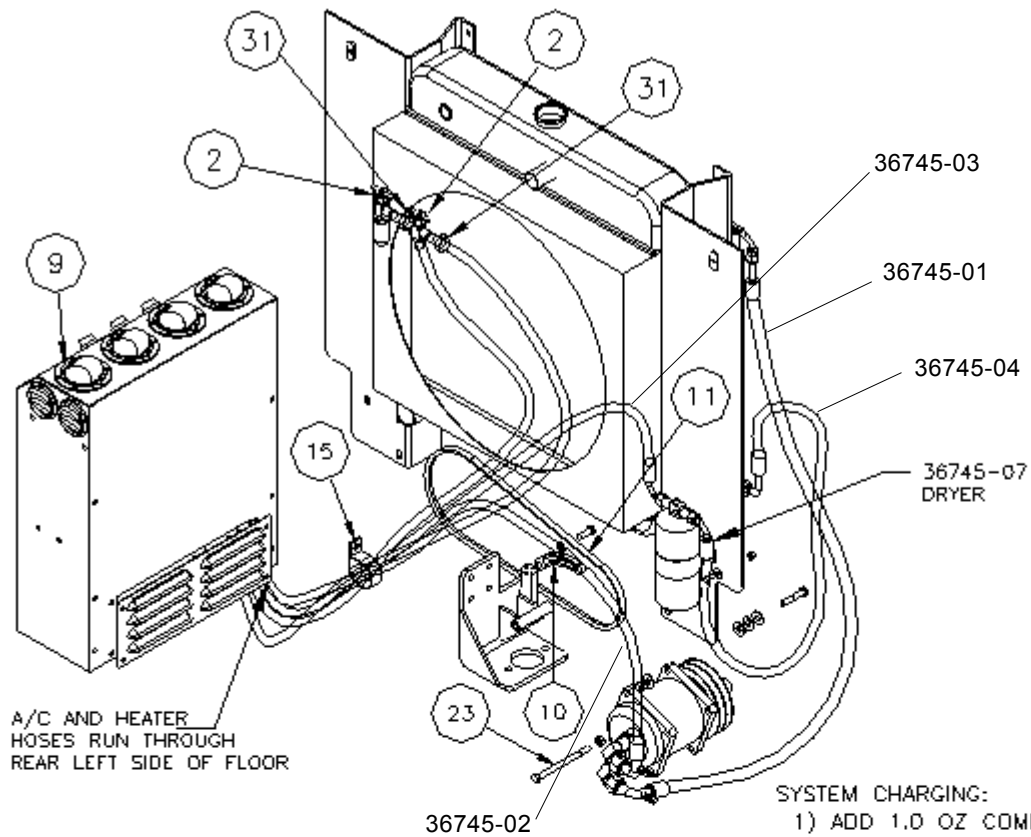
**RB48 BROOM****AIR CONDITIONER/HEAT GROUP - CUMMINS**

REF. 28303

REV. A

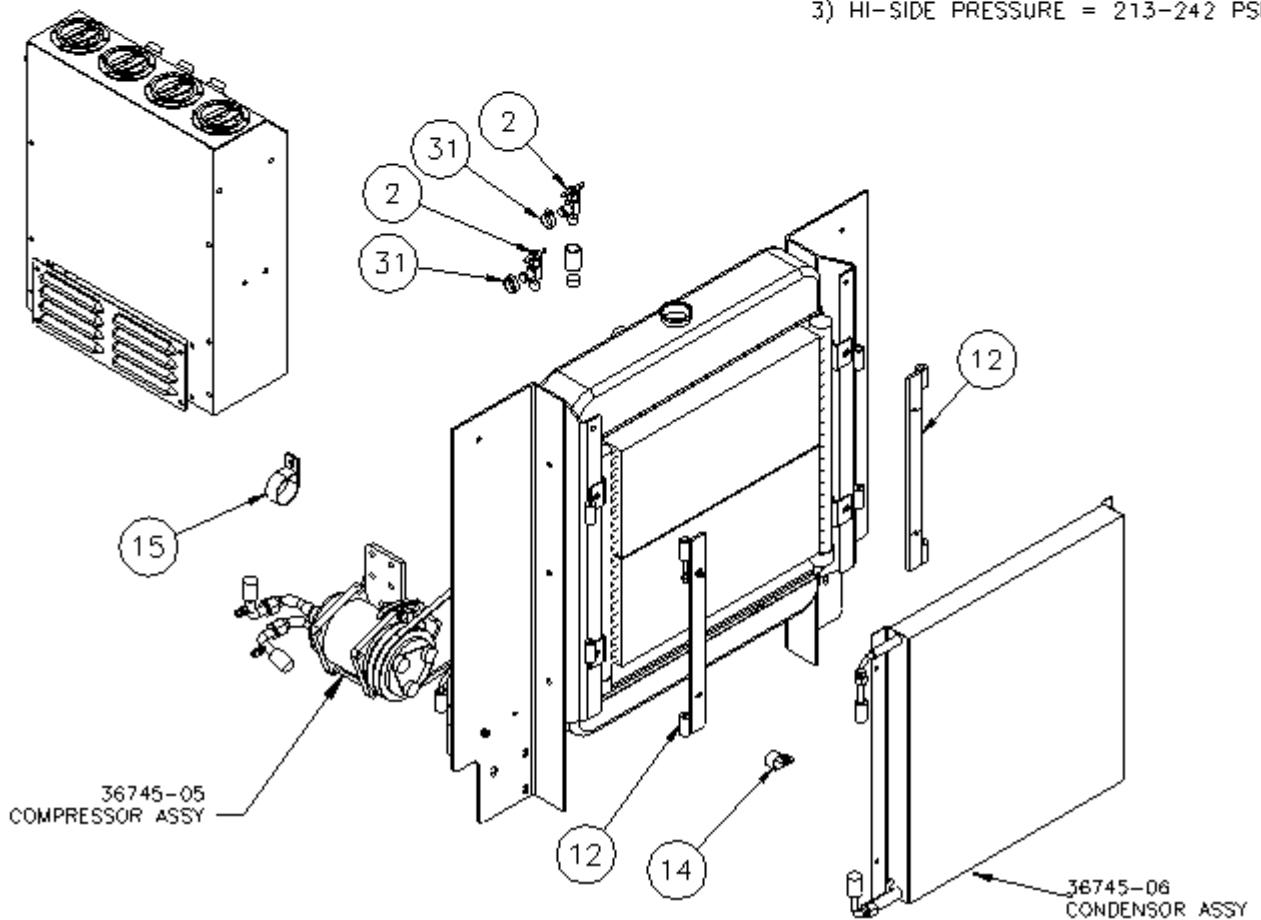
ITEM	PART NO.	QTY	DESCRIPTION
1	35138	1.00	CONNECTOR,SEALED,SHROUD,2-PIN
2	35546	2.00	VLV,HEATER SHUTOFF
3	36164	2.00	TERM,SEALED CONN,16-14 GA,MALE
4	36166	1.00	SEAL,CABLE,18-16 GA
5	36342	1.00	FUSE,BLADE,20AMP,ATC-20
6	36623	1.00	SEAL,CABLE,14 GA
7	36712	12.00	HOSE,HEATER,.625 ID
8	38106	.12	REFRIGERANT,OIL
<b>9</b>	<b>38653</b>	<b>1.00</b>	<b>CAB AIR COND/HEATER KIT (See Detail Following)</b>
10	26778	1.00	BRACKET,A/C COMPRESSOR
11	38842	1.00	V BELT,4L 39.00X.500
12	28224	2.00	CONDENSER HINGE W/M
13	38105	.09	REFRIGERANT,R134A FREON
14	33595	1.00	CLAMP,LOOP,1.00 OD,REM CUSHION
15	36894	1.00	CLAMP,LOOP,2.00 OD,PLSTC COVER
18	80230	1.00	CSHH,.375-16X2.00,GR5
19	80038	1.00	NUT,HEX,.375-16
20	80162	2.00	WASHER,SPLIT LOCK,.375
21	80142	4.00	WASHER,TYPE A PLAIN,.375
22	80221	1.00	CSHH,.375-16X1.00,GR5
23	71617	1.00	CSHH,.375-16X5.00,GR5
24	80352	1.00	NUT,FLEXLOC,.375-16,FULL,LT
25	80192	16.00	CSHH,.250-20X.75,GR5
26	80140	2.00	WASHER,TYPE A PLAIN,.250
27	80160	2.00	WASHER,SPLIT LOCK,.250
28	80350	8.00	NUT,FLEXLOC,.250-20,FULL,LT
29	81072	4.00	CSHH,.250-20X3.50,GR5
30	80036	2.00	NUT,HEX,.250-20
31	33164	4.00	CLAMP,HOSE,.56-1.06,WORM,#10
32	81006	10.00	WASHER,TYPE A PLAIN,.188

REF. 28303  
REV. A



SYSTEM CHARGING:

- 1) ADD 1.0 OZ COMPRESSOR OIL.
- 2) ADD 2.75-3.25 LBS R-134A FREON.
- 3) HI-SIDE PRESSURE = 213-242 PSI.



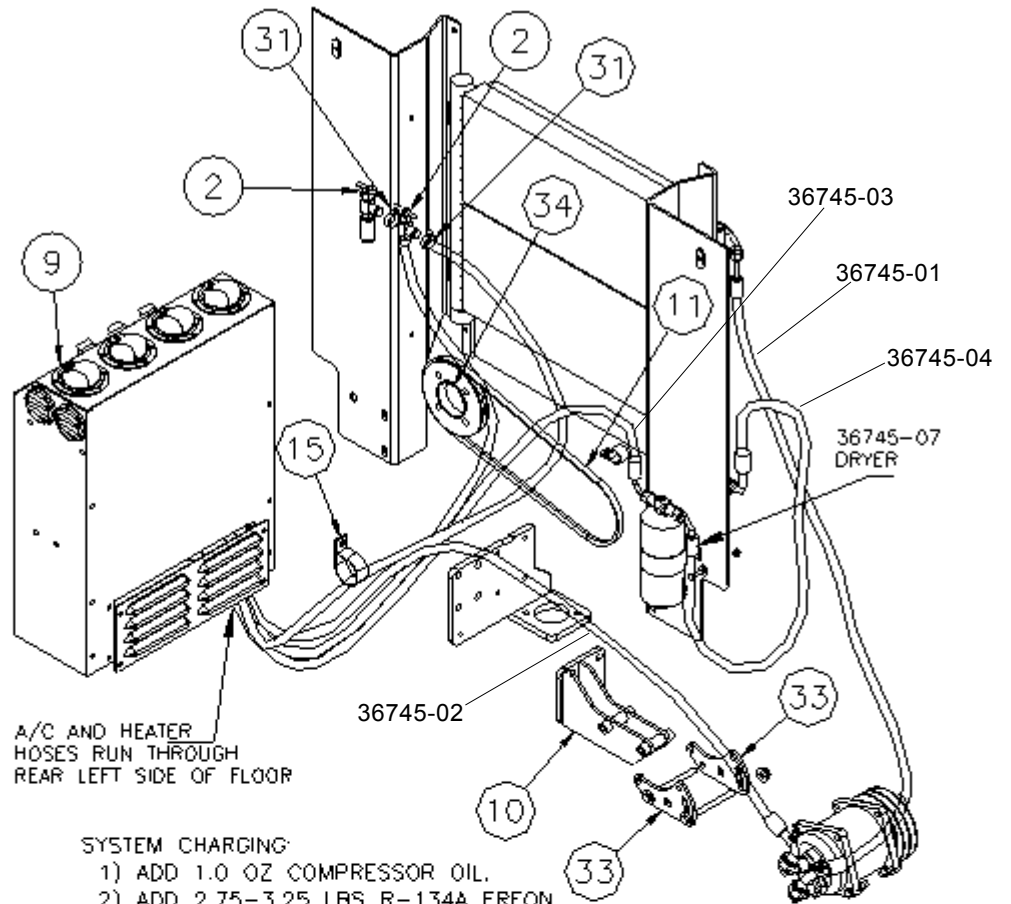
**RB48 BROOM****AIR CONDITIONER/HEAT GROUP - PERKINS**

REF. 29191

REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
1	35138	1.00	CONNECTOR,SEALED,SHROUD,2-PIN
2	35546	2.00	VLV,HEATER SHUTOFF
3	36164	2.00	TERM,SEALED CONN,16-14 GA,MALE
4	36166	1.00	SEAL,CABLE,18-16 GA
5	36342	1.00	FUSE,BLADE,20AMP,ATC-20
6	36623	1.00	SEAL,CABLE,14 GA
7	36712	12.00	HOSE,HEATER,.625 ID
8	38106	.12	REFRIGERANT,OIL
<b>9</b>	<b>38653</b>	<b>1.00</b>	<b>CAB AIR COND/HEATER KIT (See Detail Following)</b>
10	25989	1.00	MOUNT,AC W/M
11	38184	1.00	V BELT,4L 41.000X.50
12	28224	2.00	CONDENSER HINGE W/M
13	38105	.09	REFRIGERANT,R134A FREON
14	33595	1.00	CLAMP,LOOP,1.00 OD,REM CUSHION
15	36894	1.00	CLAMP,LOOP,2.00 OD,PLSTC COVER
18	81020	2.00	CSHH,.375-16X4.50,GR5
19	80038	2.00	NUT,HEX,.375-16
20	80162	2.00	WASHER,SPLIT LOCK,.375
21	80142	4.00	WASHER,TYPE A PLAIN,.375
23	80226	4.00	CSHH,.375-16X1.50,GR5
24	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
25	80192	6.00	CSHH,.250-20X.75,GR5
26	80140	2.00	WASHER,TYPE A PLAIN,.250
27	80160	2.00	WASHER,SPLIT LOCK,.250
28	80350	4.00	NUT,FLEXLOC,.250-20,FULL,LT
29	81072	4.00	CSHH,.250-20X3.50,GR5
30	80036	2.00	NUT,HEX,.250-20
31	33164	4.00	CLAMP,HOSE,.56-1.06,WORM,#10
32	81006	10.00	WASHER,TYPE A PLAIN,.188
33	21448	2.00	BRACKET,PIVOT,COMPRESSOR
34	38144-08	1.00	PULLEY,AUX DRIVE

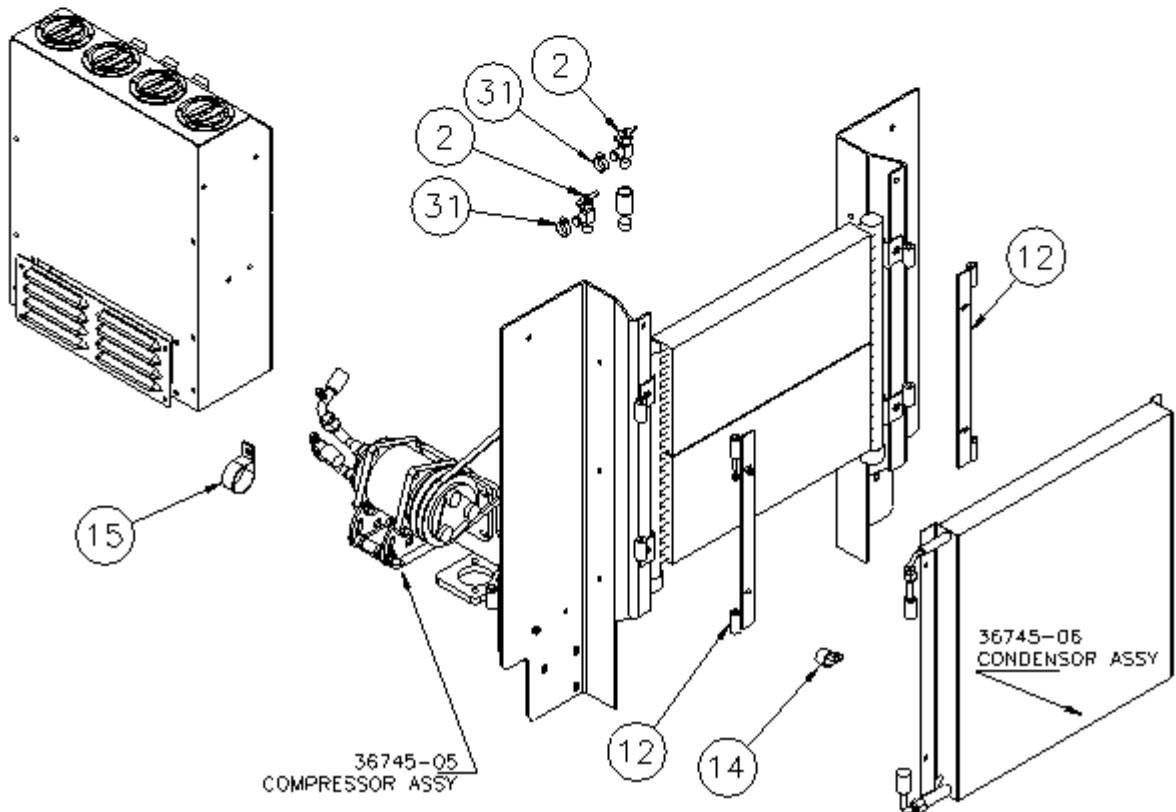
REF. 29191  
REV. 0



A/C AND HEATER  
HOSES RUN THROUGH  
REAR LEFT SIDE OF FLOOR

SYSTEM CHARGING:

- 1) ADD 1.0 OZ COMPRESSOR OIL.
- 2) ADD 2.75-3.25 LBS R-134A FREON.
- 3) HI-SIDE PRESSURE = 213-242 PSI.



**RB48 BROOM**

**CAB AIR COND/HEATER KIT**

REF. 38653

REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
F/N	QTY	DESCRIPTION	PART NUMBER
42	1	RECIRC. FILTER	36745-31
41	1	RECIRC. COVER	36745-29
40	1	RECIRC FILTER HOLDER	36745-30
39	1	BOTTOM COVER	36745-25
38	1	EVAP.COIL ASSEMBLY	38653-05
37	1	HEATER COIL	36749-02
36	1	LT. COIL BRACKET	38653-06
35	1	RT. COIL BRACKET	38653-07
34	1	WATER VALVE	36749-01
31	1	ROTARY CONTROL CABLE	36749-04
30	1	TOP COVER	36745-24
29	1	BLOWER PLATE	36745-26
28	1	BLOWER	36745-13
27	2	GROMMET	38653-08
26	3	GROMMET	38653-09
25	4	LOUVERS	36745-16
24	1	DECAL	36745-22
23	1	COLD CONTROL	36745-19
22	1	FAN SWITCH	36745-18
21	1	ROTARY CONTROL CABLE	36749-03
20	4	CONTROL MOUNTING NUT	38525-22
19	3	KNOBS	36745-21
18	8	#6-3/4 FLAT HEAD SCREW	-
17	4	#10-24-1/2 WHIZLOCK SCREW	-
16	2	KNOBS	36745-20
15	2	1/4- TURN FASTENERS	36745-36
14	8	1/4-20 NUT	-
13	12	1/4-20 LOCK WASHER	-
12	12	1/4-20 FLAT WASHER	-
11	8	1/4-20 BOLT	-
10	2	GROMMET	38525-34
9	1	GROMMET	38606-15
8	1	GROMMET	38606-16
7	26	SCREW 1/4-20 TRUSS HEAD	-
6	22	EXT. TOOTH WASHER	-
5	1	LOUVER DOOR	38653-02
4	1	FILTER	38653-01
2	2	LOUVERS	36745-17
1	1	HOUSING W/A	38653-04

PARTS IN KIT NOT SHOWN

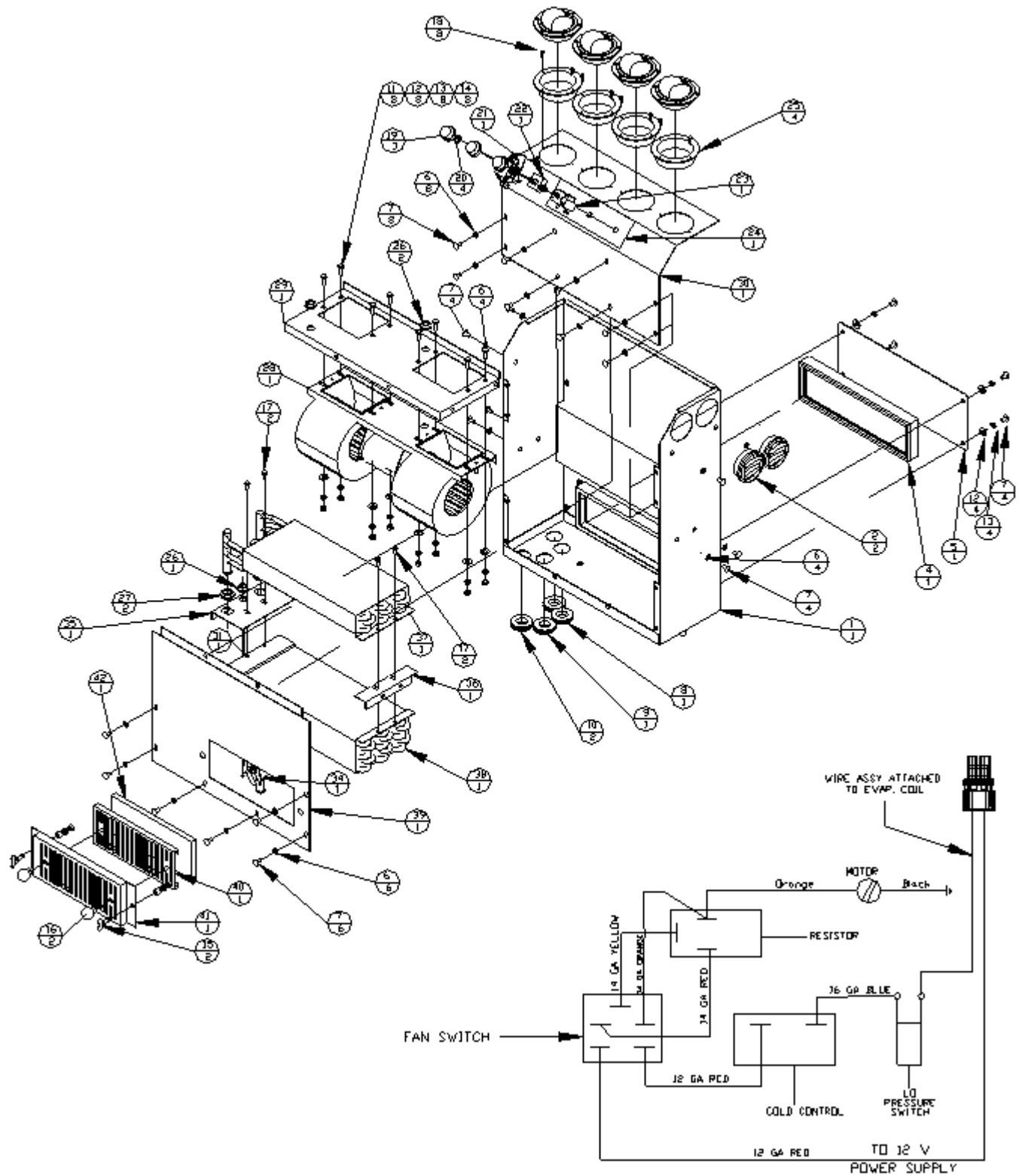
1	13/32 HOSE,COMP-CONDEN	36745-01
1	1/2 HOSE,COMP-EVAPOR	36745-02
1	5/16 HOSE,EVAPOR-DRYER	36745-03
1	5/16 HOSE, DRYER-CONDEN	36745-04
1	COMPRESSOR ASSY	36745-05
1	CONDENSER ASSY	36745-06
1	RECEIVER DRYER	36745-07
1	CLAMP,RECEIVER DRYER	36745-08
1	HIGH PRESSURE SW.	36745-09
2	O-RING, #10	36745-10
2	O-RING, #8	36745-11
4	O-RING, #6	36745-12
1	HEATER EVAPORATOR ASSY	38653-03
1	VALVE,THERMAL EXPANSION	36745-32
1	SWITCH,LOW PRESSURE	36745-34

# CAB AIR COND/HEATER KIT

REF. 38653

REV. 0

RB48 BROOM





**RB48 BROOM**

**BRUSH FRAME GROUP, QWK CHANGE**

REF. 28855

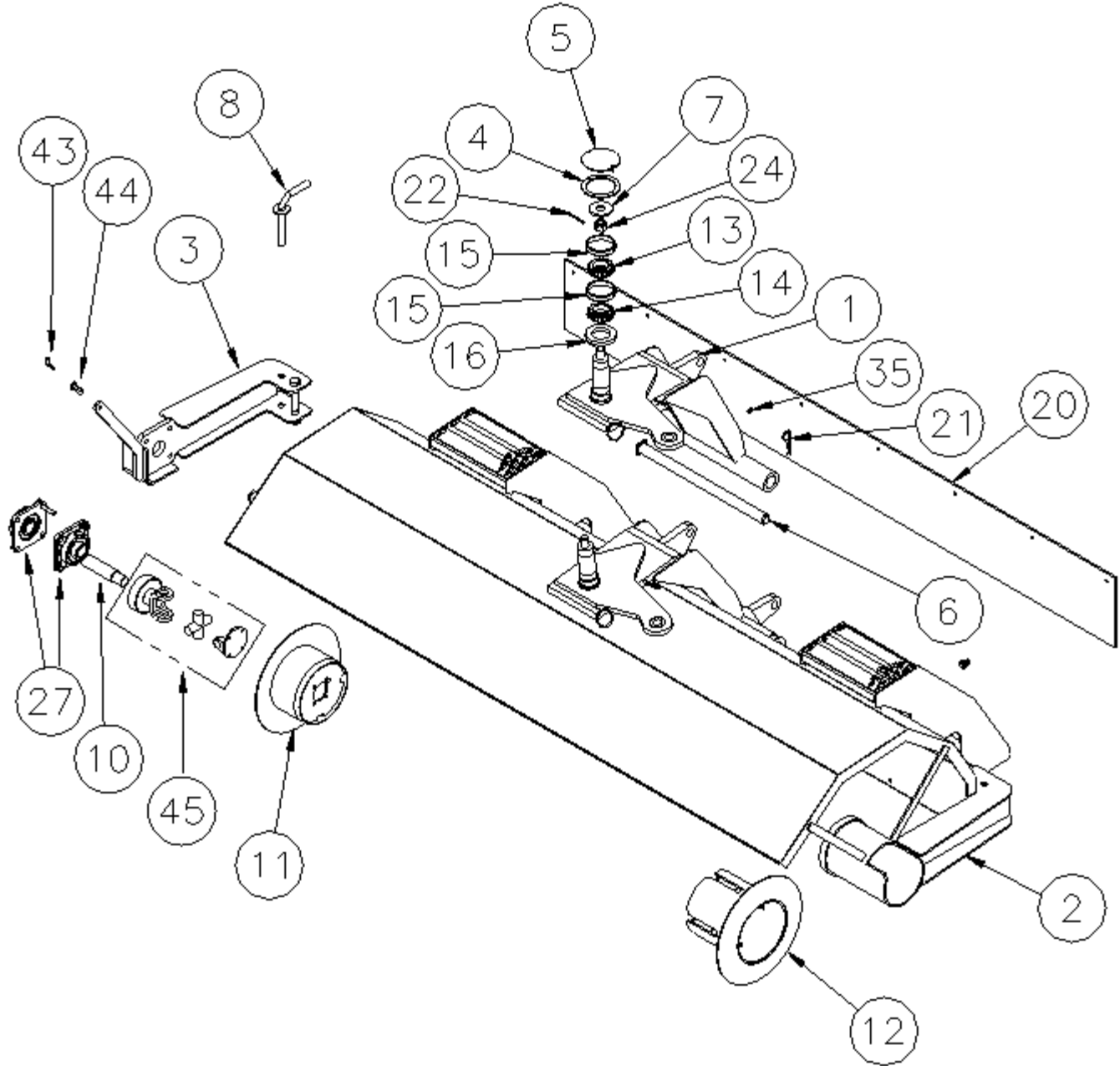
REV. B

ITEM	PART NO.	QTY	DESCRIPTION
1	20728	1.00	FRAME W/M,PIVOT
2	28768	1.00	BRUSH FRAME W/M,RB48,QWK CHG
3	28772	1.00	SWING ARM W/M,RB48,QWK CHG
4	21342	1.00	SPACER,SPINDLE CAP
5	20891	1.00	CAP,SPINDLE
6	20909	1.00	PIN,PIVOT,BRUSH FRAME
7	20663	1.00	WASHER,SPINDLE
8	28878	1.00	PIN,HITCH,W/M
10	28461	1.00	PIN,IDLE SHAFT
11	28828	1.00	IDLE HUB,W/M
12	28570	1.00	DRIVE HUB,W/M
13	36827	1.00	BEARING,TPR RLR,1.875BORE
14	36828	1.00	BEARING,TPR RLR,2.000BORE
15	36829	2.00	BEARING,TPR RLR,CUP3.50ODX.650
16	36830	1.00	SEAL,3.628ODX2.250IDX.468
20	38989	1.00	APRON,RUBBER,RB48
21	36544	1.00	HAIR PIN COTTER,7GA(.177)
22	80338	1.00	COTTER PIN,.188X2.00
23	80969	1.00	WASHER,SAE PLAIN,1.250
24	80132	1.00	NUT,HEX,CASTLE,.875-14
25	871071601	2.00	WASHER,SPLIT LOCK,#10
26	80852	2.00	MACH SCR,RH,#10-24X.75
27	845311009	2.00	BEARING,FLANGE,1.50,4 BOLT
28	80142	9.00	WASHER,TYPE A PLAIN,.375
29	80162	9.00	WASHER,SPLIT LOCK,.375
30	80221	9.00	CSHH,.375-16X1.00,GR5
31	80352	9.00	NUT,FLEXLOC,.375-16,FULL,LT
32	80295	1.00	CSHH,.750-10X5.50,GR5
33	80147	1.00	WASHER,TYPE A PLAIN,.750
34	80357	1.00	NUT,FLEXLOC,.750-10,FULL,LT
35	33684	1.00	FITT,LUBE,STR,02MP,SHORT
36	80224	4.00	CSHH,.375-16X1.25,GR5
37	80038	4.00	NUT,HEX,.375-16
38	80775	4.00	CSHH,.438-14X2.75,GR5
39	80143	4.00	WASHER,TYPE A PLAIN,.438
40	80163	4.00	WASHER,SPLIT LOCK,.438
41	80039	4.00	NUT,HEX,.438-14
42	80311	1.00	SET S,SQ,.312-18X1.00
43	7303	1.00	HAIR PIN,COTTER,#11,.125 DIA
44	28920	1.00	PIN,LOCKING,W/M
45	39138	1.00	IDLE HUB ADAPTER ASSY
	26954		IDLE HUB GUARD
	38285		YOKE,FLANGE
	39125		KIT,BEARING CROSS,SEALED

**BRUSH FRAME GROUP, QWK CHANGE**

**RB48 BROOM**

REF. 28855  
REV. B



**RB48 BROOM****WATER SPRAY GROUP**

REF. 28241

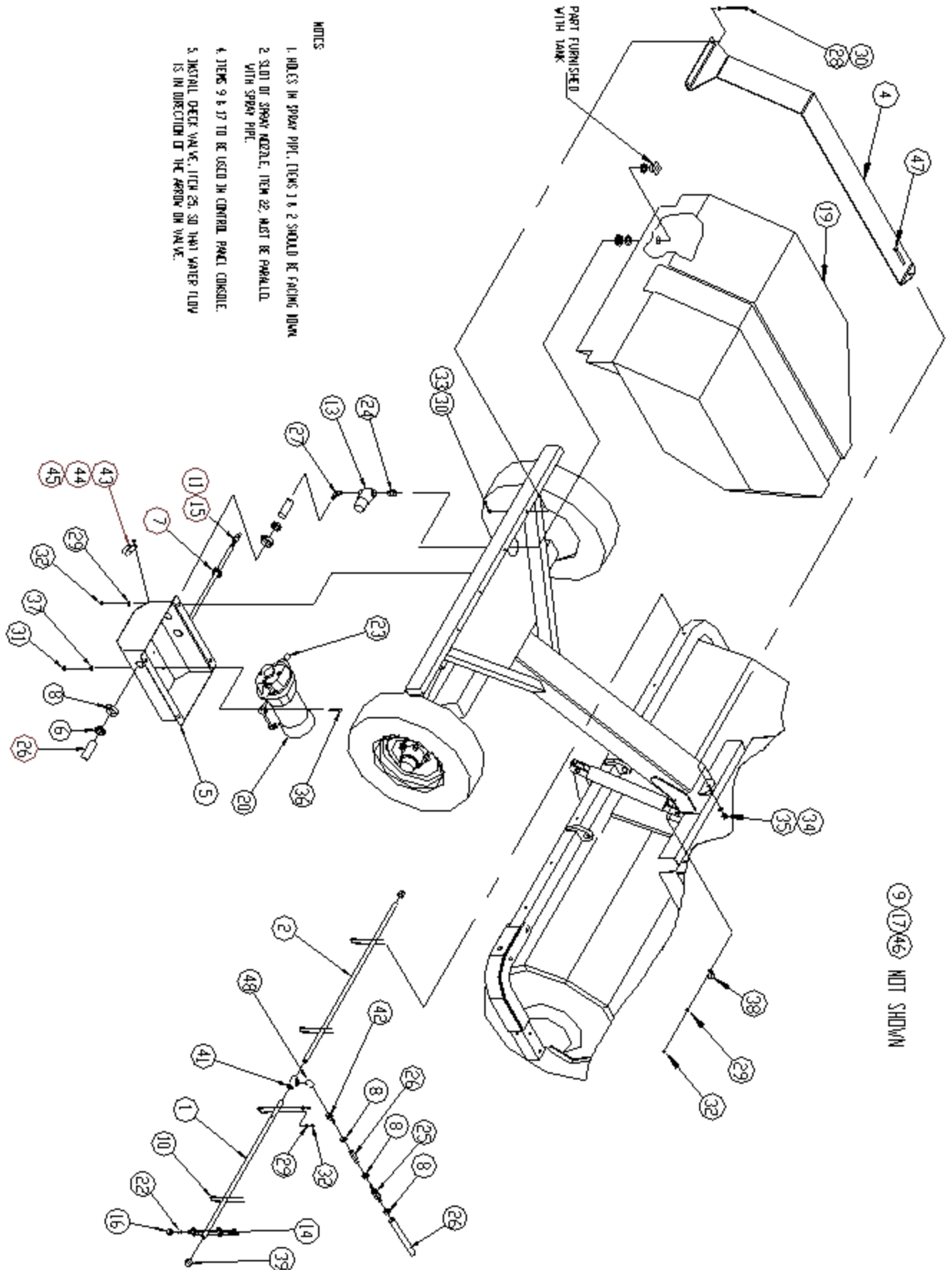
REV. B

ITEM	PART NO.	QTY	DESCRIPTION
1	21143	1.00	SPRAY PIPE,RH
2	21144	1.00	SPRAY PIPE,LH
4	27681	1.00	TANK STRAP
5	25798	1.00	BOX,WATER PUMP
6	35465-07	2.00	GROMMET,INSULATION,.750 ID
7	35465-09	1.00	GROMMET,INS,.375ID X 1.00GRV
8	33163	6.00	CLAMP,HOSE,.50-.91,WORM,#08
9	33607	1.00	TERM,RING,16-14 GA,.250 STUD
10	35077	4.00	U-BOLT,.250-20,1.00IW,1.75IL
11	28369	1.00	WIRE HARNESS,WATER PUMP
13	36926	1.00	STRAINER,LQD,100MESH,NYL,08FP
N/S	36926-01		GASKET,VITON
N/S	36926-02		BOWL,NYLON
N/S	36926-03		TOP,NYLON,08FP
14	38655	8.00	NOZZLE,EYELET,08 PIPE,NYLON
15	33602	2.00	CONN,BUTT,16-14 GA
16	38656	8.00	NOZZLE,CAP,BLACK,NYLON,W/SEAL
17	36341	1.00	FUSE,BLADE,15AMP,ATC-15
19	36727	1.00	WATER TANK,150 GALLON
N/S	36727-01		WATER TANK CAP
N/S	36727-02		FITT,BULKHEAD,08FP,POLY
20	36730	1.00	PUMP,WATER,W/PRESSURE SWITCH
22	38657	8.00	NOZZLE,80 DEG,.094 ORF,NYLON
23	38093	1.00	PORT KIT,.50 STR HOSE BARB
24	36810	1.00	PIPE,NIPPLE,08XCLOSE,POLY
25	36883	1.00	VLV,CHECK,08HB,POLY (5PSI)
26	6352	11.50	HOSE,08,PUSH-ON,250
27	70319	1.00	FITT,90 08MP-08HB,POLY
28	71617	2.00	CSHH,.375-16X5.00,GR5
29	80140	19.00	WASHER,TYPE A PLAIN,.250
30	80142	4.00	WASHER,TYPE A PLAIN,.375
31	81077	4.00	NUT,FLEXLOC,#10-32,FULL,LT
32	80350	19.00	NUT,FLEXLOC,.250-20,FULL,LT
33	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
34	80354	1.00	NUT,FLEXLOC,.500-13,FULL,LT
35	80695	1.00	WASHER,SAE PLAIN,.500
36	80891	4.00	MACH SCR,PH,#10-32X1.00
37	80995	4.00	WASHER,TYPE A PLAIN,#10
38	34797	7.00	CLAMP,LOOP,.938 OD,NPRN COVER
39	91152	2.00	PIPE,CAP,08FP,GALV
41	99845	1.00	PIPE,TEE,08FP,GALV
42	X427	1.00	FITT,STR 08MP-08HB,CRIMPED
43	35786	2.00	CLAMP,DOUBLE TUBE,.75 ID
44	80208	1.00	CSHH,.312-18X1.00,GR5
45	80037	2.00	NUT,HEX,.312-18
46	871111602	5.00	CLAMP,LOOP,.75 OD,PLSTC COVER
47	80722	1.00	CSHH,.500-13X4.00,GR5

# WATER SPRAY GROUP

RB48 BROOM

REF. 28241  
REV. B



**NOTES**

- 1. HOLES IN SPRAY PIPE, ITEMS 1 & 2 SHOULD BE FACING DOWN
- 2. SLOT OF SPRAY NOZZLE, ITEM 22, MUST BE PARALLEL WITH SPRAY PIPE.
- 4. ITEMS 9 & 17 TO BE USED IN CONTROL PANEL CONSOLE.
- 5. INITIAL CHECK VALVE; ITEM 25, SO THAT WATER FLOW IS IN DIRECTION OF THE ARROW ON VALVE.

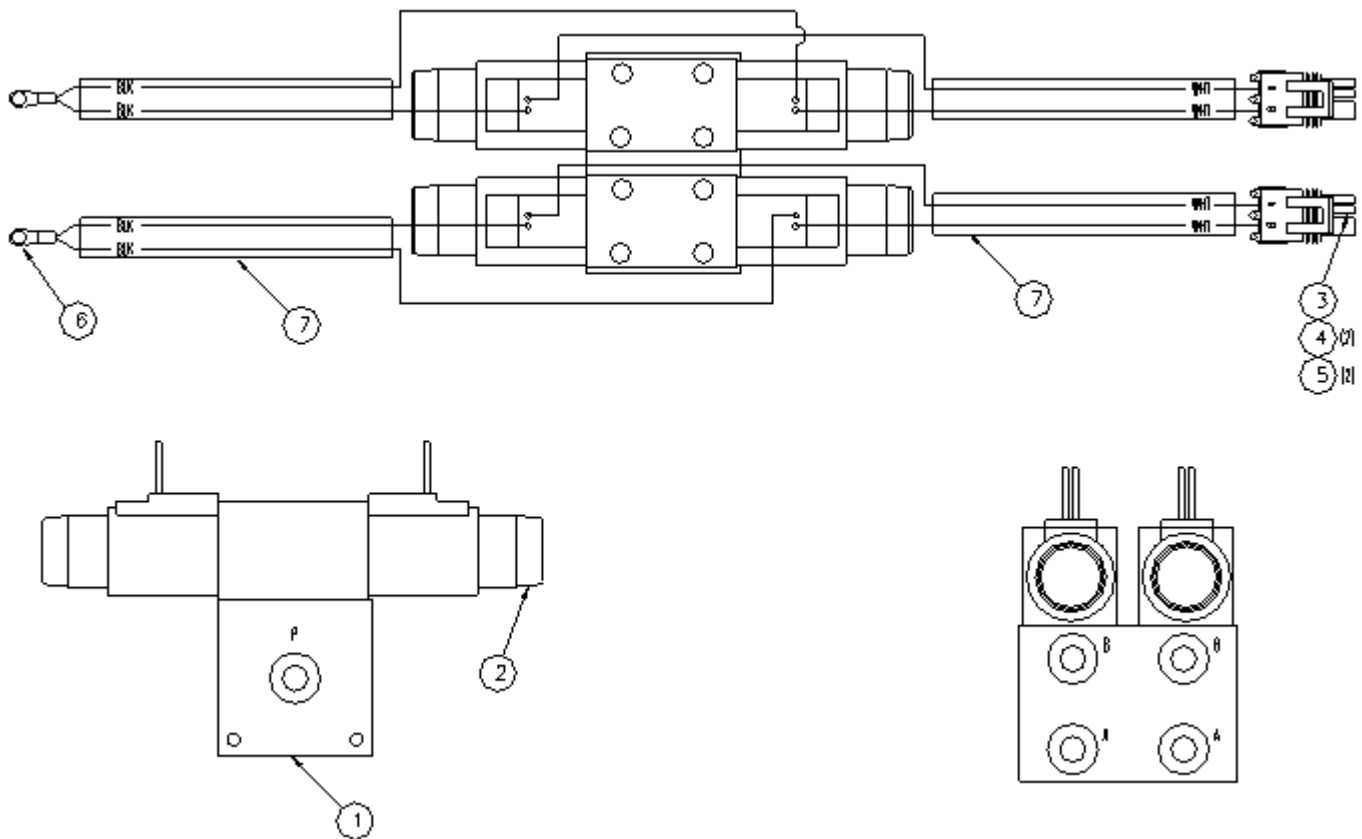
9 17 46 NOT SHOWN

**RB48 BROOM**

**HYDRAULIC GROUP**

REF. 29085  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
0	35465-05	2.00	GROMMET,INSULATION,1.00ID
1	16919	1.00	HARNESS,WIRE,JUMPER
2	17490	1.00	CYLINDER STOP,LIFT CYLINDER
3	34798	2.00	CLAMP,LOOP,1.25 OD,NPRN COVER
4	17670	1.00	CLAMP,NEEDLE VALVE
7	28492	2.00	MOUNT,VALVE BLOCK
9	31884A	1.00	CYL,HYD,2.50X6.00
<b>10</b>	<b>31885A</b>	<b>1.00</b>	<b>CYL,HYD,2.50X16.00 (Detail Facing Page)</b>
12	33148	1.00	STRAINER,SUCT,2NPT,25GPM,100ME
13	34463	1.00	FILTER,RETURN,HP,-12SAE PORTS
N/S	34464		ELEMENT,FILTER,9.00,4 MICRON
<b>16</b>	<b>38814</b>	<b>1.00</b>	<b>MANIFOLD,HYD,2 STA,D03 (Detail Below)</b>

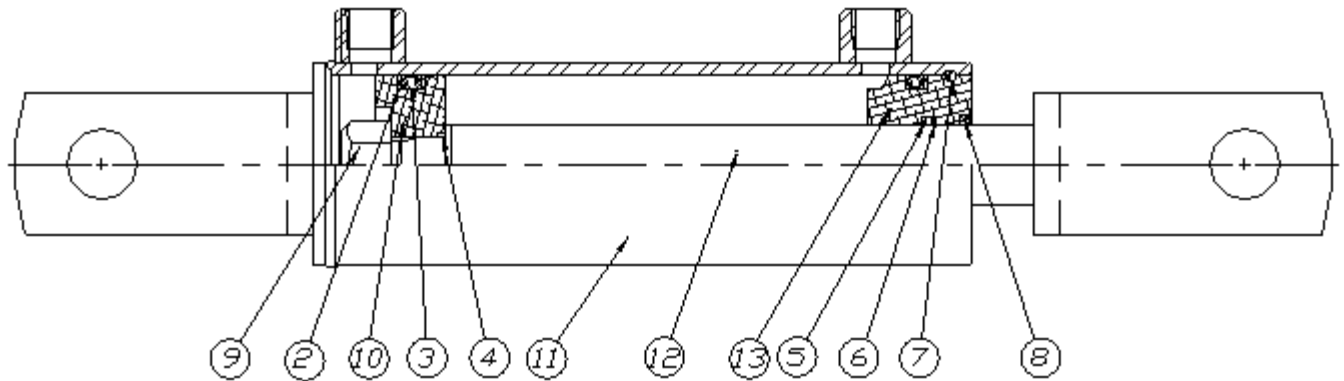


	<b>38814</b>	<b>1.00</b>	<b>MANIFOLD,HYD,2 STA,D03</b>
1	38814-01	1.00	MANIFOLD
2	37488-01	2.00	VALVE
3	35139	2.00	CONNECTOR,SEALED,TOWER,2-PIN
4	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
5	36166	4.00	SEAL,CABLE,18-16 GA
6	851390257	2.00	TERM,RING,12-10 GA,.250 STUD
7	71060	3.00	LOOM,SPLIT,CONVOLUTED,.250
8	851201417	3.00	TIE WRAP,.094X4.00

REF. 31885A

REV. C

ITEM	PART NO.	QTY	DESCRIPTION
	<b>31885A</b>	<b>1.00</b>	<b>CYL, HYD, 2.50X16.00</b>
1	31885A-01	1.00	SEAL KIT
9	72309-03	1.00	LOCKNUT, .750-16 UNF
10	31885A-02	1.00	PISTON
11	31885A-03	1.00	TUBE WELDMENT
12	31885A-04	1.00	ROD WELDMENT
13	31885A-05	1.00	HEAD GLAND
14	6232-9	2.00	CLEVIS PIN, 1.00X2.75
15	31885A-06	4.00	HAIR PIN CLIP



**RB48 BROOM****HYDRAULIC GROUP**

REF. 29085

REV. A

ITEM	PART NO.	QTY	DESCRIPTION
N/S	37647-01		COIL,SOLENOID 12V,BOSCH DO3
N/S	37647-04		SEAL KIT,VALVE,BOSCH DO3
17	35552	1.00	VLV,NEEDLE,HYDRAULIC
18	99493	1.00	PIPE,CPLG,12FP,TAPER,STEEL
21	36648	1.00	VLV,MOTOR
N/S	36648-21		SPACER
22	39077	1.00	HOSE KIT,RB48,2003
23	38882	1.00	MOTOR,HYD,LSHT,17.5 CU IN,KEY
N/S	38882-01		SHAFT,MOTOR
N/S	38644-01		SEAL KIT
N/S	38644-04		DRIVELINK
N/S	38644-05		ROTOR
24	39045	1.00	ORBITROL,STEERING,1740 RELIEF
N/S	36651-01		SEAL KIT,STEERING MOTOR
27	6451	1.00	FILLER,BREATHER,-3 SCREEN
28	72149	1.00	VLV,HYD,SOL,3 WAY,06 ORB PORTS
N/S	72149-01		COIL,SOLENOID VALVE,WATERMAN
N/S	72149-02		SEAL KIT,SOL VALVE,WATERMAN
N/S	72149-04		COIL,SOLENOID VALVE,JEM
N/S	72149-05		SEAL KIT,SOL VALVE,JEM
N/S	72149-06		CARTRIDGE,JEM
29	80055	4.00	NUT,HEX,.312-24
30	80140	4.00	WASHER,TYPE A PLAIN,.250
31	80141	12.00	WASHER,TYPE A PLAIN,.312
32	80142	6.00	WASHER,TYPE A PLAIN,.375
33	80144	4.00	WASHER,TYPE A PLAIN,.500
34	80160	2.00	WASHER,SPLIT LOCK,.250
35	80161	36.00	WASHER,SPLIT LOCK,.312
36	80162	12.00	WASHER,SPLIT LOCK,.375
37	80164	4.00	WASHER,SPLIT LOCK,.500
38	80192	2.00	CSHH,.250-20X.75,GR5
39	80194	2.00	CSHH,.250-20X1.50,GR5
40	80208	32.00	CSHH,.312-18X1.00,GR5
41	80209	3.00	CSHH,.312-18X1.50,GR5
42	80214	2.00	CSHH,.312-18X2.25,GR5
43	80219	8.00	CSHH,.375-16X.75,GR5
44	80221	6.00	CSHH,.375-16X1.00,GR5
45	80253	4.00	CSHH,.500-20X1.50,GR5
46	80350	2.00	NUT,FLEXLOC,.250-20,FULL,LT
47	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
49	99605	1.00	PIPE,NIPPLE,12X8.00
50	35786	6.00	CLAMP,DOUBLE TUBE,.75 ID
51	35543	1.00	WELD PLATE
52	35541	2.00	CLAMP COVER PLATE
53	38280	4.00	CLAMP,HALF,HOSE 1.25
54	RES1001	.00	HYDRAULIC SPECIFICATIONS
55	72372	1.00	FITT,PLUG 02PD,DUST
56	72689	1.00	FITT,TEST 06MB-02PD
83	38641	2.00	VLV,CHECK,06MJ,20 PSI CRACK



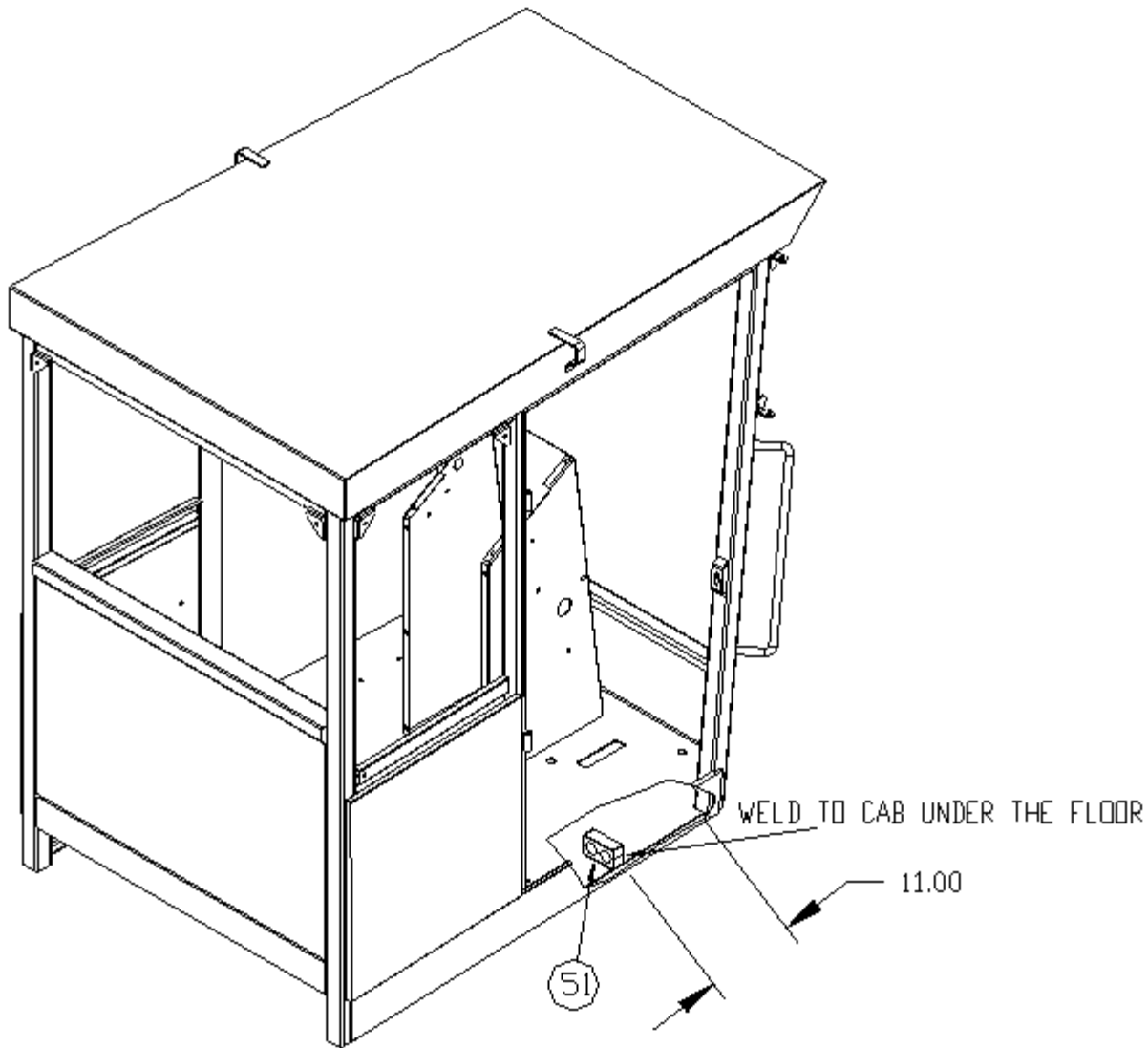


**RB48 BROOM**

**HYDRAULIC GROUP**

REF. 29085  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
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**THE FOLLOWING COMPRISE ITEM #22, PART #39077, HOSE KIT**

71	71822	1.00	FITT,90 04MJ-04MP
72	X387	5.00	FITT,90 06MJ-06FJX
73	36490	3.00	FITT,TEE 06MJ-06FJX-06MJ
74	38203	1.00	FITT,45 12MJ-16MB
75	70754	1.00	FITT,90 08MJ-06MB
76	71771	1.00	FITT,90 12MJ-16MB
77	71775	10.00	FITT,90 12MJ-12MB
78	71882	3.00	FITT,STR 12MJ-10MB
80	X365	2.00	FITT,90 12MJ-12FJX
81	X383	1.00	FITT,90 06MJ-06MP
82	33160	3.00	FITT,TEE 12MJ-12FJX-12MJ
84	33887	2.00	FITT,STR 16MJ-16MB



**RB48 BROOM****HYDRAULIC GROUP**

REF. 29085

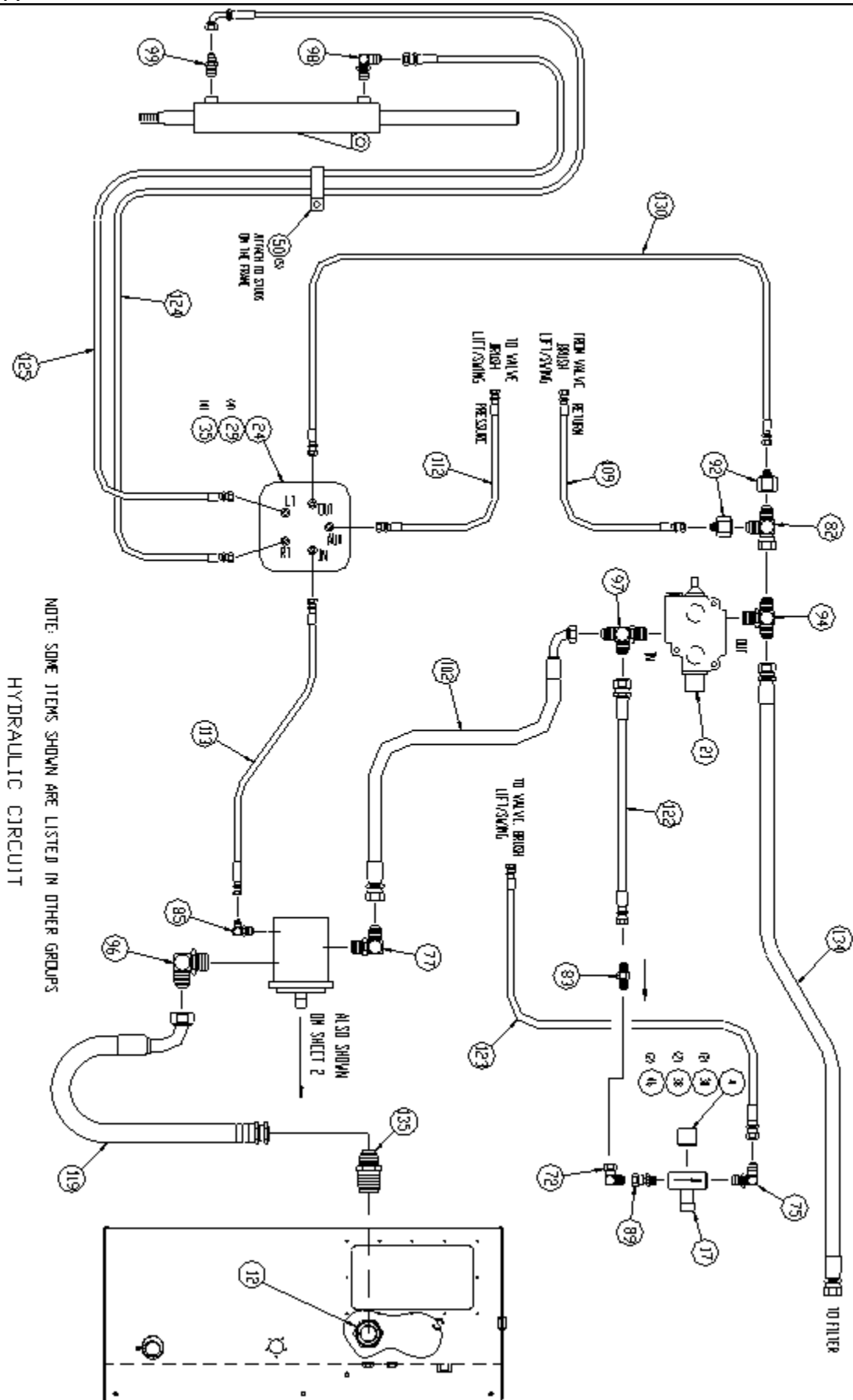
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
85	33892	3.00	FITT,90 06MJ-06MB
87	34083	3.00	FITT,90 12MJ-10MB
88	37297	2.00	FITT,STR 06MJ-06MP,.078 ORF
89	37536	2.00	FITT,STR 06MB-06FJX
90	35562	3.00	FITT,90 04MJ-06MB
92	X326	4.00	FITT,STR 06MJ-12FJ
93	36635	1.00	FITT,45 06MJ-06MP
94	72566	1.00	FITT,TEE 12MJ-12MJ-12MB
95	X217	4.00	FITT,STR 06MJ-06MB
96	X319	4.00	FITT,90 16MJ-16MB
97	X324	1.00	FITT,TEE 12MJ-12MB-12MJ
98	6410	1.00	FITT,90 08MJ-08MB
99	70062	1.00	FITT,STR 08MJ-08MB
101	36801-110	1.00	HOSE,12,12FJX-12RJ90,3000
102	36802	1.00	HOSE,12,12FJX-12RJ90,3000
103	36803	1.00	HOSE,16,16RJ45-16RJ90,6000
104	36804	1.00	HOSE,16,16FJX-16RJ90,6000
105	72415-019	1.00	HOSE,04,04FJX-06FJX,3000
106	72415-047	1.00	HOSE,04,04FJX-06FJX,3000
107	72550-035	1.00	HOSE,06 06FJX-06FJX,3000
108	72549-077	1.00	HOSE,06,06FJX-06RJ90,3000
109	72550-041	1.00	HOSE,06,06FJX-06FJX,3000
110	72550-045	1.00	HOSE,06,06FJX-06FJX,3000
111	72550-068	1.00	HOSE,06,06FJX-06FJX,3000
112	72550-072	1.00	HOSE,06,06FJX-06FJX,3000
113	72550-073	1.00	HOSE,06 06FJX-06FJX,3000
114	72560-040	2.00	HOSE,12,12FJX-12FJX,1250
115	72560-070	1.00	HOSE,12,12FJX-12FJX,1250
119	72569-038	1.00	HOSE,16,16FJX-16RJ90,250
121	36801-114	1.00	HOSE,12,12RJ90-12RJ90 180 OS
122	38817-022	1.00	HOSE,08,06FJX-12FJX,3000
123	72597-059	1.00	HOSE,08,06FJX-08FJX,3000
124	72598-132	1.00	HOSE,06,06FJX-08RJ90,3000
125	72599-121	1.00	HOSE,06FJX-08FJX,3000
129	36524-06	1.00	HOSE ASSY,3000 PSI,-06 X 29.00
130	36524-07	1.00	HOSE ASSY,3000 PSI,-06 X 51.00
131	39014	1.00	FITT,STR 06MJ-06MB,W/.125 ORF.
132	72560-082	1.00	HOSE,12,12FJX-12FJX,1250
133	72560-030	1.00	HOSE,12,12FJX-12FJX,1250
134	72560-058	1.00	HOSE,12,12FJX-12FJX,1250
135	35780	1.00	FITT,STR 16MJ-20MP
136	33327	1.00	FITT,45 12MJ-12MB
137	72416-015	1.00	HOSE,04,04FJ-04FJ,2500

HYDRAULIC GROUP

RB48 BROOM

REF. 29085  
REV. A

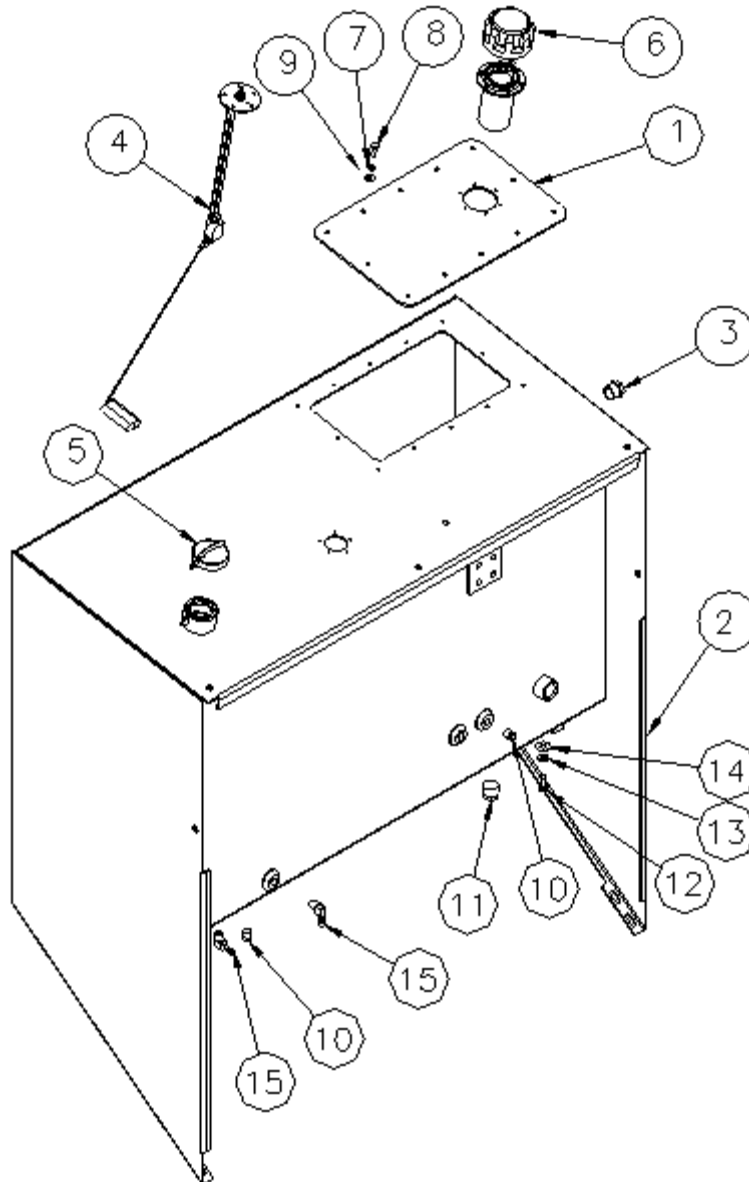


**RB48 BROOM**

REF. 29132  
 REV. A

**FUEL TANK ASSEMBLY**

ITEM	PART NO.	QTY	DESCRIPTION
1	28559	1.00	COVER, HYD TANK CLEANOUT
2	29110	1.00	TANK W/M, FUEL/HYD
3	31886	1.00	GAUGE, SIGHT, 12NPT
4	35370-2	1.00	SENDER, FUEL LEVEL, 24.00 TANK
5	36105	1.00	CAP, FUEL, W/LOCK LUG
6	37680	1.00	FILLER, HYD FLUID, 10 PSI
7	80160	12.00	WASHER, SPLIT LOCK, .250
8	80192	12.00	CSHH, .250-20X.75, GR5
9	81161	12.00	WASHER, WEATHER SEAL, #10
10	99535	2.00	PIPE, PLUG, 04MP, SQ HD, MI
11	99538	1.00	PIPE, PLUG, 12MP, SQ HD, MI
12	80219	4.00	CSHH, .375-16X.75, GR5
13	80162	4.00	WASHER, SPLIT LOCK, .375
14	80142	4.00	WASHER, TYPE A PLAIN, .375
15	33365	2.00	FITT, 90 04MP-06HB, CRIMPED



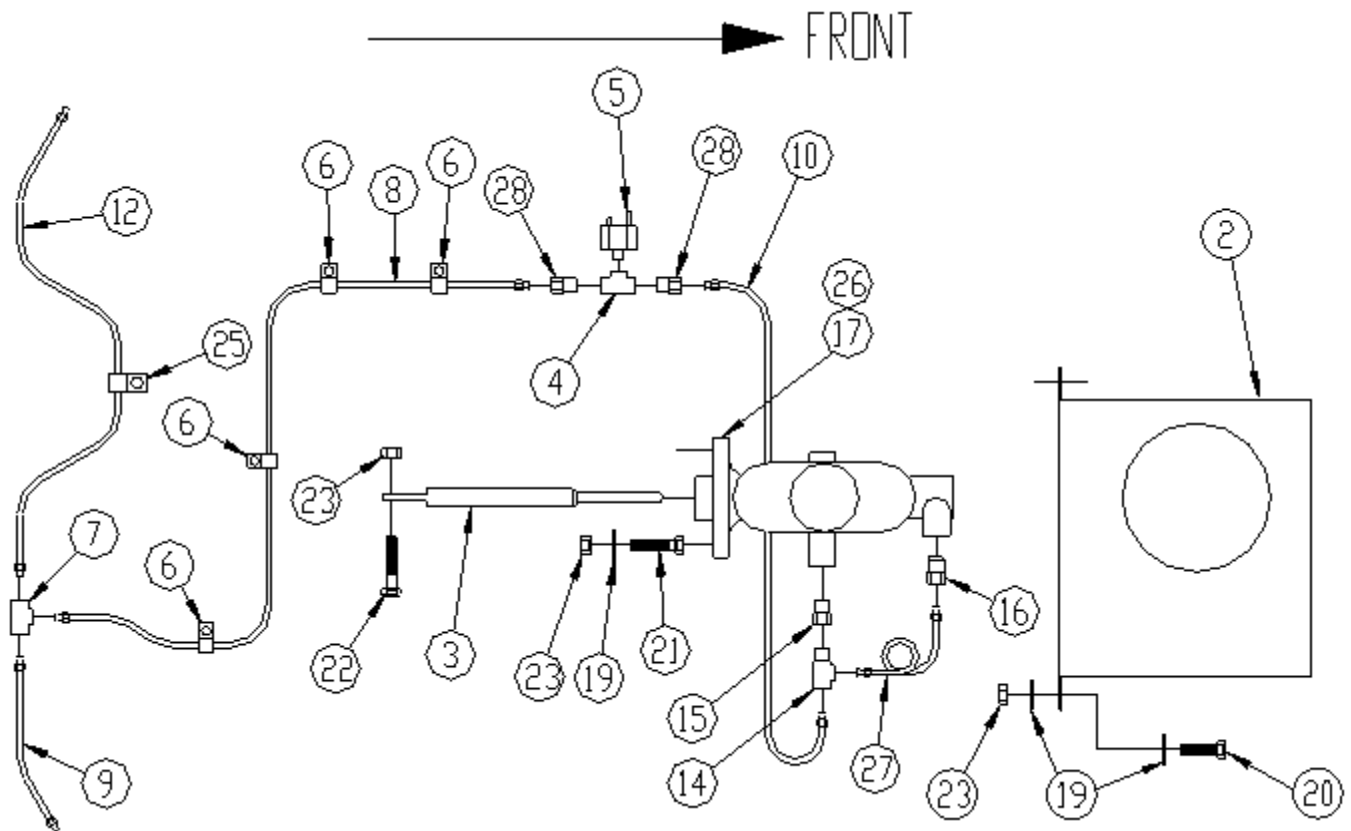
**HYDRAULIC BRAKE GROUP, REAR**

**RB48 BROOM**

REF. 28242

REV. A

ITEM	PART NO.	QTY	DESCRIPTION
2	21091	1.00	COVER,MASTER CYLINDER
3	31081	1.00	PUSHROD,BRAKE
4	33557	1.00	FITT,TEE 02FM,BRASS
5	32131	1.00	SWITCH,STOP LAMP,HYD TYPE,NO
6	33594	9.00	CLAMP,LOOP,.25 OD,REM CUSHION
7	33949	1.00	FITT,TEE 03IFF,BRASS
8	33953-116	1.00	BRAKE LINE,.188X116
9	33953-15	1.00	BRAKE LINE,.188X15
10	33953-20	1.00	BRAKE LINE,.188X20
12	33953-50	1.00	BRAKE LINE,.188X50
14	34067	1.00	FITT,TEE 03MHB-03FHB-03HB,BRS
15	34068	1.00	ADAPTER
16	34956	1.00	FITT,STR 03MHB-03IFF
17	35343	1.00	MASTER CYLINDER,BRAKE,DUAL
N/S	35343-01		KIT,REPAIR,MASTER CYL
19	80142	10.00	WASHER,TYPE A PLAIN,.375
20	80224	4.00	CSHH,.375-16X1.25,GR5
21	80226	2.00	CSHH,.375-16X1.50,GR5
22	80228	1.00	CSHH,.375-16X1.75,GR5
23	80352	7.00	NUT,FLEXLOC,.375-16,FULL,LT
25	871111605	1.00	CLAMP,LOOP,.50 OD PLSTC COVER
26	90707	.12	FLUID,BRAKE
27	33953-10	1.00	BRAKE LINE,.188X10
28	39059	2.00	FITT,STR 02MO-03IFF,BRASS

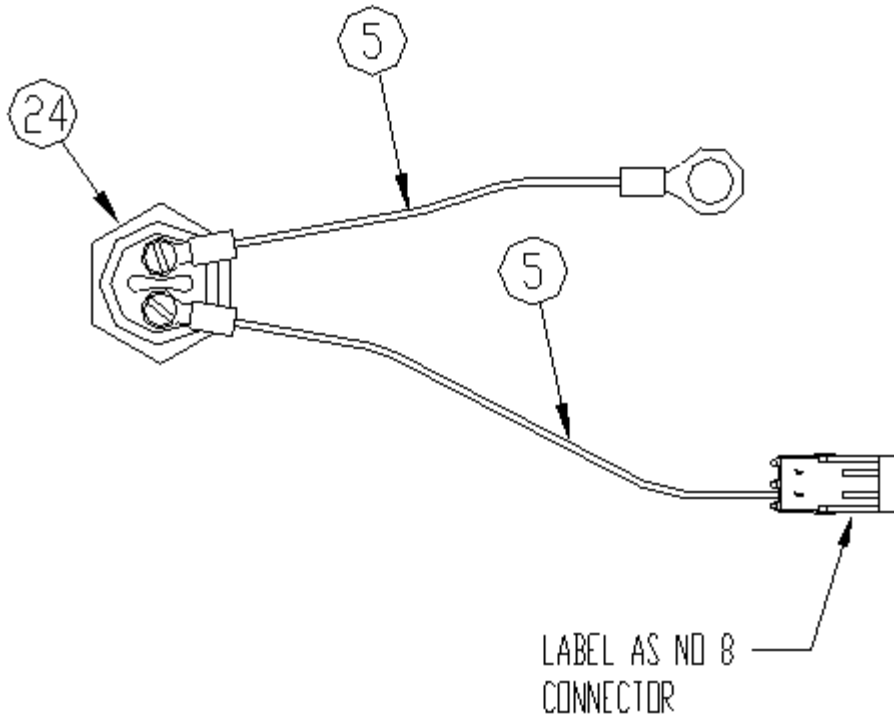


**RB48 BROOM**

**PARK BRAKE GROUP**

REF. 21250  
REV. E

ITEM	PART NO.	QTY	DESCRIPTION
1	16837	1.00	PULLEY,PARK BRAKE CABLE
2	16870	1.00	CABLE,PARK BRAKE PULL
3	21217	1.00	BRACKET,BRAKE LEVER
4	21218	1.00	MOUNT,BRAKE SWITCH
5	33271-1	0.50	WIRE,16 GA,BLACK
6	33271-7	1.00	WIRE,16 GA,RED
7	33609	1.00	TERM,RING,16-14 GA,.375 STUD
8	34299	1.00	LEVER,BRAKE,12 IN HANDLE
9	35138	1.00	CONNECTOR,SEALED,SHROUD,2-PIN
10	35377	2.00	CLIP,WIRE ROPE,.063
11	36164	1.00	TERM,SEALED CONN,16-14 GA,MALE
12	36166	1.00	SEAL,CABLE,18-16 GA
13	36797	1.00	CABLE,BRAKE,
14	6427	2.00	CLEVIS,.313-24 UNF W/PIN
15	72143	2.00	TERM,RING,22-16 GA,#8 STUD
16	80037	1.00	NUT,HEX,.312-18
17	80055	2.00	NUT,HEX,.312-24
18	80141	6.00	WASHER,TYPE A PLAIN,.312
19	80161	7.00	WASHER,SPLIT LOCK,.312
20	80208	4.00	CSHH,.312-18X1.00,GR5
21	80214	2.00	CSHH,.312-18X2.25,GR5
22	871111602	1.00	CLAMP,LOOP,.75 OD,PLSTC COVER
23	871111605	1.00	CLAMP,LOOP,.50 OD PLSTC COVER
24	951091224	1.00	SWITCH,SAFETY START

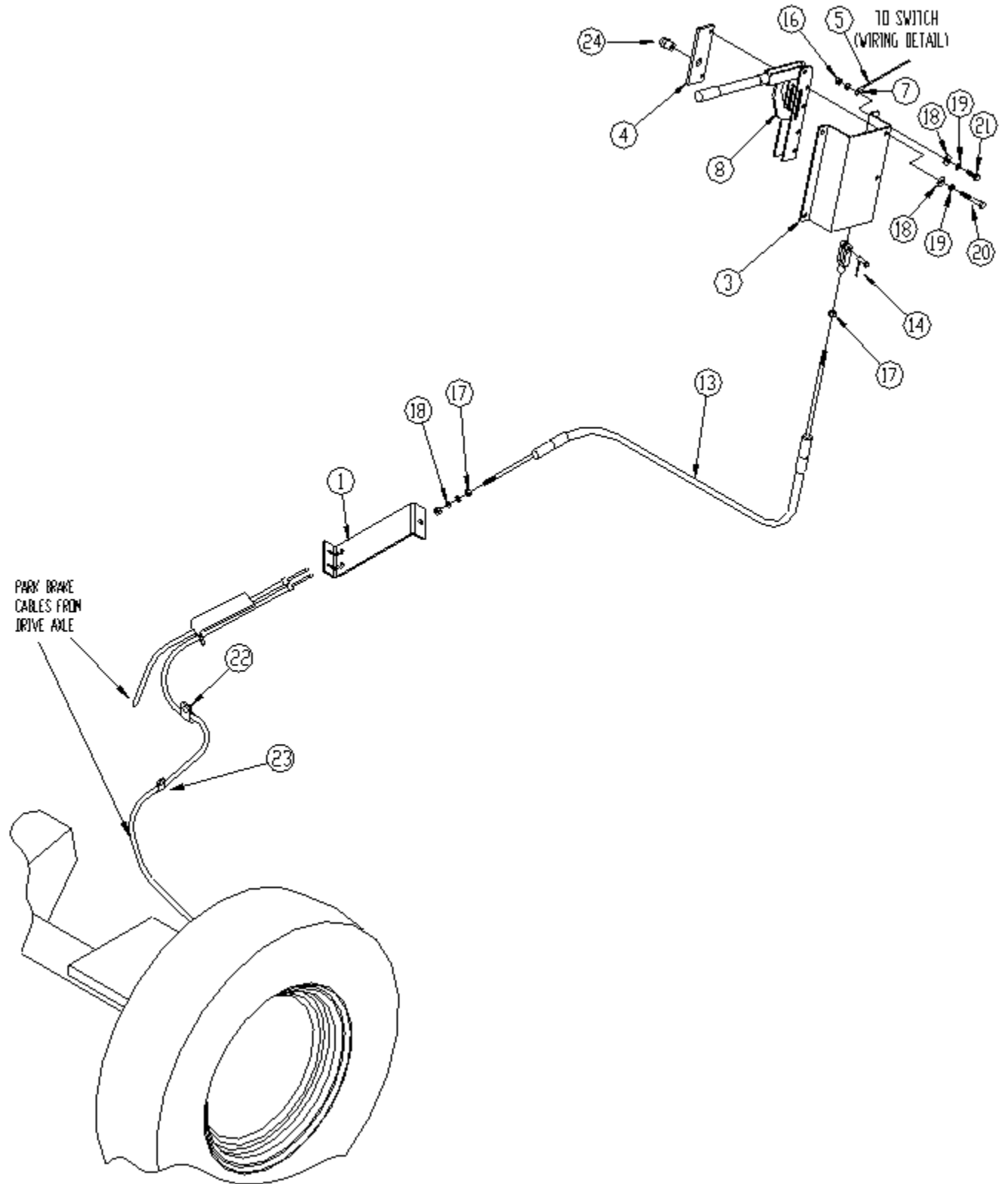


WIRING DETAIL

**PARK BRAKE GROUP**

REF. 21250  
REV. E

**RB48 BROOM**





REF. See List  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
			<b>17898 S M V SIGN GROUP</b>
0	35952	1.00	DECAL,SMV SIGN COVER
0	80140	1.00	WASHER,TYPE A PLAIN,.250
0	80185	1.00	CSHH,.250-20X1.00,GR5
0	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT
0	956011180	1.00	SIGN,SMV,METAL
			<b>21168 DEFROSTER FAN GROUP, SINGLE</b>
0	33271-5	0.50	WIRE,16 GA,WHITE
0	35425	1.00	DEFROSTER FAN ASSY 12 VOLT
0	35426	1.00	SWITCH,DEFROSTER FAN
0	36348	1.00	TERM,PUSH-ON,.25,M,18-14,SLV
0	36739	1.00	CONN,1 WAY,MALE,LOCKING
0	36747	1.00	FUSE,BLADE,4AMP
0	70953	1.00	CONN,MALE TERMINAL
0	851390204	1.00	TERM,RING,16-14 GA,#10 STUD
			<b>21176 MOUNT,WARNING LIGHT GROUP</b>
0	16962	1.00	MOUNT,RISER,STROBE LIGHT
0	35447	1.00	SWITCH,TOGGLE,SPST,LIGHTED
0	35465-06	2.00	GROMMET,INSULATION,.375ID
0	36746	1.00	FUSE,BLADE,5AMP,ATC-5
0	80140	4.00	WASHER,TYPE A PLAIN,.250
0	80141	4.00	WASHER,TYPE A PLAIN,.312
0	80161	4.00	WASHER,SPLIT LOCK,.312
0	80192	4.00	CSHH,.250-20X.75,GR5
0	80202	4.00	CSHH,.312-18X.50,GR5
0	80350	4.00	NUT,FLEXLOC,.250-20,FULL,LT
			<b>25703 MIRROR GROUP, 7X16 WEST COAST</b>
1	38057	1.00	MIRROR,WEST COAST,7X16
2	80219	2.00	CSHH,.375-16X.75,GR5
3	80142	4.00	WASHER,TYPE A PLAIN,.375
4	80352	2.00	NUT,FLEXLOC,.375-16,FULL,LT
			<b>37587 PRECLEANER,4" ID,T-BOLT CLAMP</b>
0	37587-1		INSERT,RUBBER,4.00 TO 3.00
0	37587-2		INSERT,RUBBER,4.00 TO 3.75
0	37587-3		CLAMP,T-BOLT,PRECLEANER
			<b>38687 LIGHT,STROBE,AMBER,8J,80SFPM</b>
1	38687-01	1.00	LIGHT,STROBE,FLASH TUBE
2	38687-02	1.00	LENS,AMBER,3400 SERIES
3	38687-03	1.00	O-RING,STROBE LIGHT,3400SERIES
4	38687-04	1.00	GASKET,STROBE LIGHT,3400SERIES

**NON-ILLUSTRATED ITEMS****RB48 BROOM**

REF. See List

REV.

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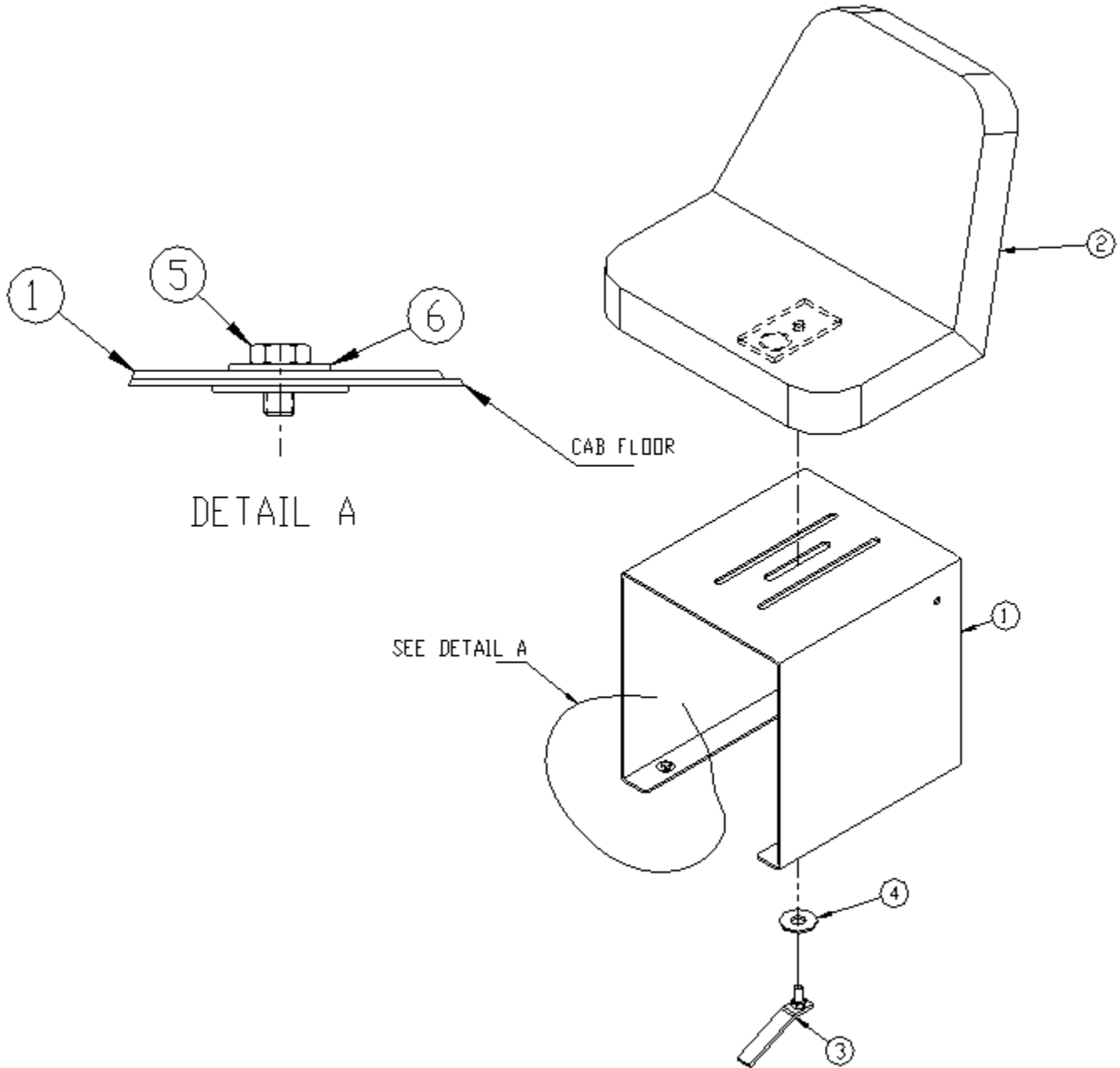
<b>ITEM</b>	<b>PART NO.</b>	<b>QTY</b>	<b>DESCRIPTION</b>
	<b>90384</b>	<b>2.50</b>	<b>OIL,SAE 15W-40,CH-4</b>
	<b>90599</b>	<b>2 GAL</b>	<b>ANTIFREEZE</b>
	<b>90600</b>	<b>1 LB</b>	<b>OIL,GEAR LUB 90W</b>
	<b>91500</b>	<b>25 GAL</b>	<b>OIL,HYDRAULIC,ISO 68</b>

**RB48 BROOM**

**CAB OPTIONS**

REF. 25035  
REV. B

ITEM	PART NO.	QTY	DESCRIPTION
			<b>STANDARD SEAT</b>
1	24511	1.00	PEDESTAL,STD SEAT
2	6576	1.00	SEAT,BLACK W/ROSCO LOGO
3	14039	1.00	SEAT ADJUSTMENT LEVER WELDMENT
4	80144	1.00	WASHER,TYPE A PLAIN,.500
5	80237	4.00	CSHH,.438-14X1.50,GR5
6	80143	4.00	WASHER,TYPE A PLAIN,.438

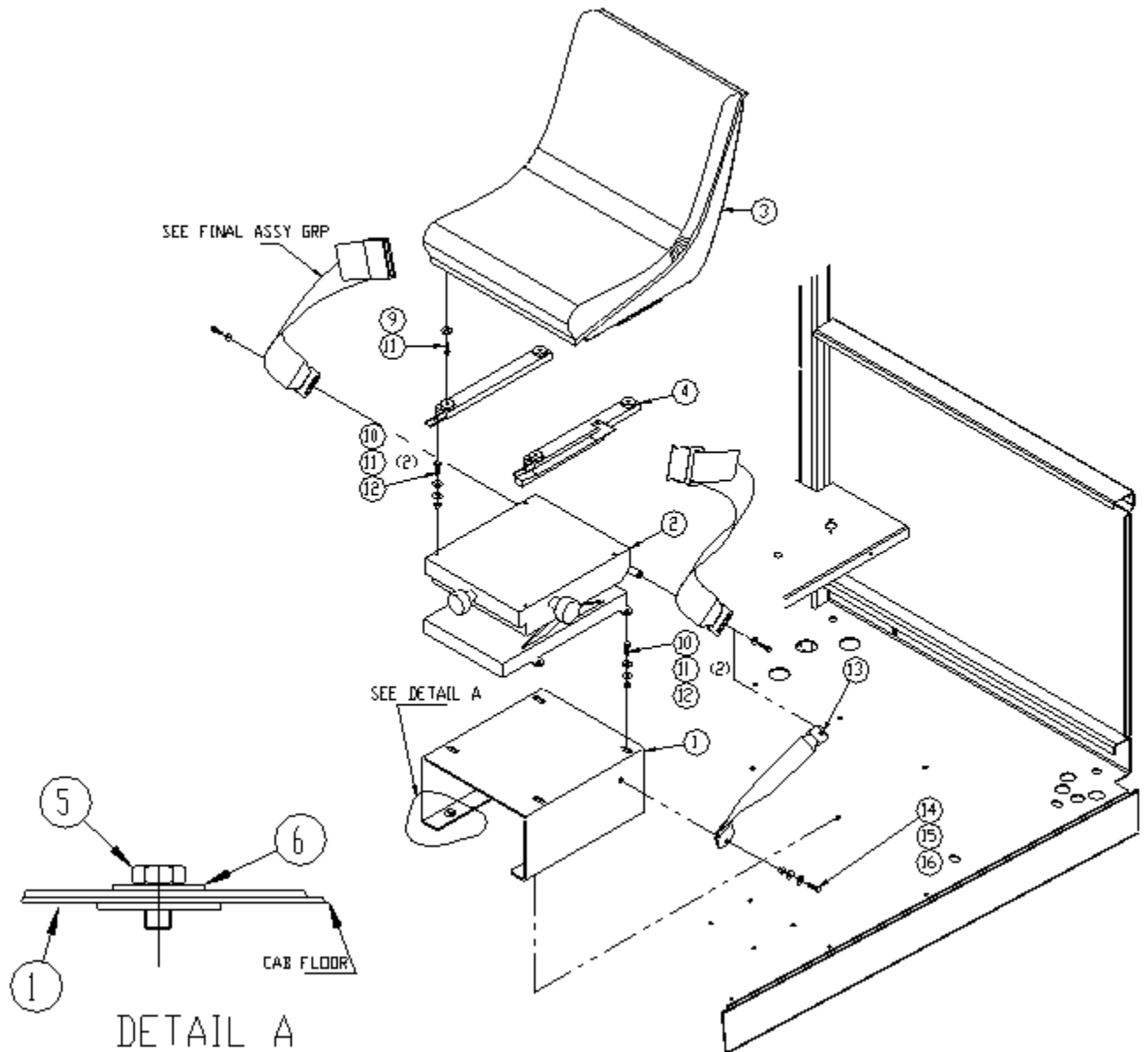


**CAB OPTIONS**

**RB48 BROOM**

REF. 28723  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
			<b>28723 SPRING SEAT</b>
1	25037	1.00	PEDESTAL, SPRING SEAT
2	72048-01	1.00	SUSPENSION, LOW PROFILE
3	72527	1.00	SEAT, MICHIGAN, SERIES V-818
4	72527-01	1.00	SLIDER SET, SEAT BASE
5	80237	4.00	CSHH, .438-14X1.50, GR5
6	80143	4.00	WASHER, TYPE A PLAIN, .438
9	80207	4.00	CSHH, .312-18X.75, GR5
10	80208	8.00	CSHH, .312-18X1.00, GR5
11	80141	20.00	WASHER, TYPE A PLAIN, .312
12	80351	8.00	NUT, FLEXLOC, .312-18, FULL, LT
13	37982	1.00	TETHER KIT, 12.0
14	80233	2.00	CSHH, .438-14X1.00, GR5
15	80143	4.00	WASHER, TYPE A PLAIN, .438
16	80039	2.00	NUT, HEX, .438-14



**RB48 BROOM****CAB OPTIONS**REF. See List  
REV.

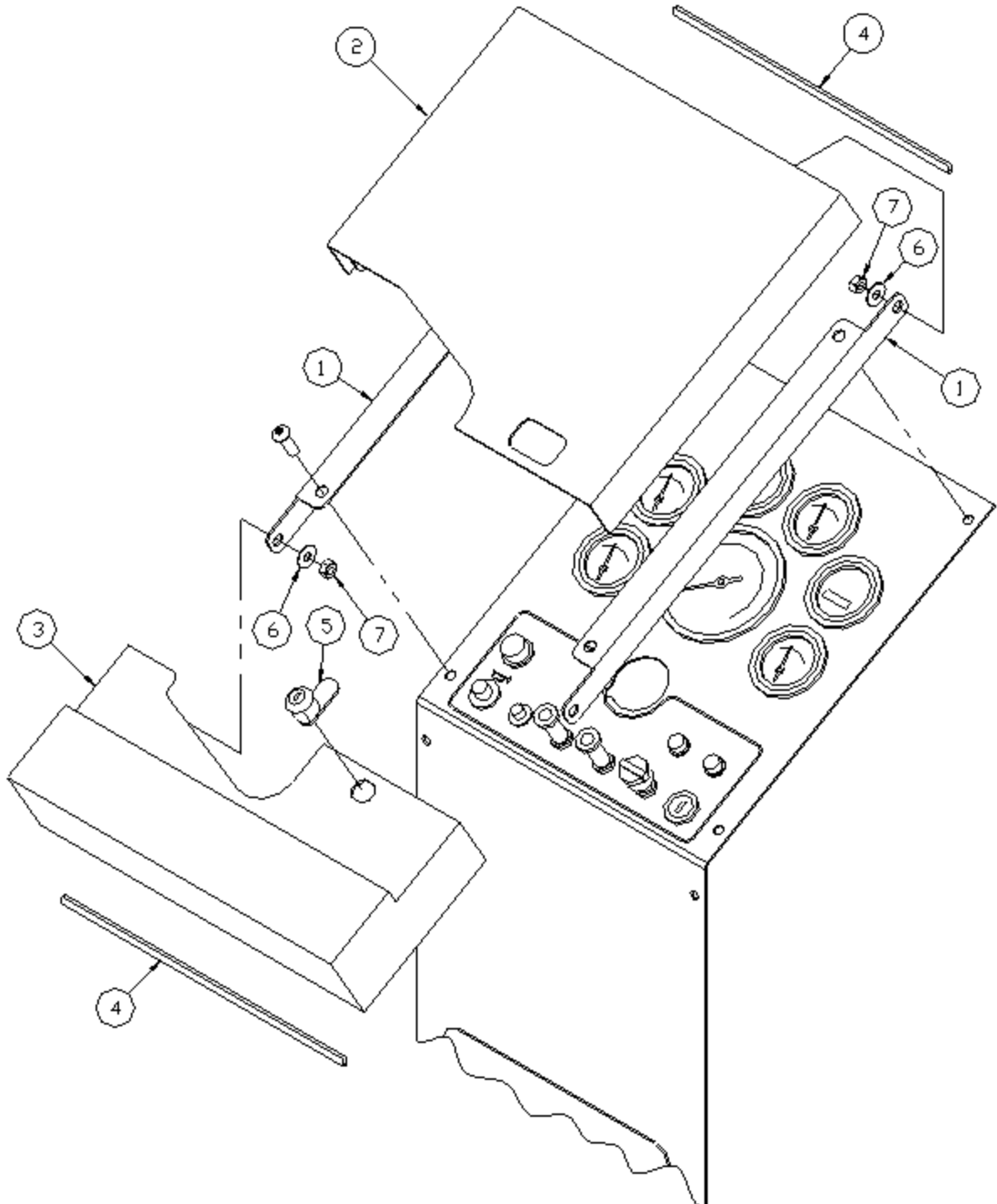
ITEM	PART NO.	QTY	DESCRIPTION
<b>21166</b>			<b>REAR WINDSHIELD WIPER</b>
0	33744	1.00	ARM,WIPER
0	33744-01	1.00	BLADE,WIPER
0	36741	1.00	WIPER MOTOR,2-SPEED
0	36742	1.00	SWITCH,WIPER/WASHER
0	36747	1.00	FUSE,BLADE,4AMP
0	80140	1.00	WASHER,TYPE A PLAIN,.250
0	80192	1.00	CSHH,.250-20X.75,GR5
0	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT
<b>21167</b>			<b>WINDSHIELD WASHER, FRONT OR REAR</b>
0	33745-1	1.00	WASHER,TANK AND PUMP
0	35465-07	1.00	GROMMET,INSULATION,.750 ID
0	36687	4.00	CSBHS,.312-18X.75,BLACK FINISH
0	36753	1.00	WASHER NOZZLE & TEE KIT
0	80037	4.00	NUT,HEX,.312-18
0	80141	4.00	WASHER,TYPE A PLAIN,.312
0	35550	11.00	HOSE,WINDSHIELD WASHER .188ID
<b>21169</b>			<b>DEFROSTER FAN GROUP, DUAL</b>
0	33271-5	1.00	WIRE,16 GA,WHITE
0	35425	2.00	DEFROSTER FAN ASSY 12 VOLT
0	35426	2.00	SWITCH,DEFROSTER FAN
0	35465-06	2.00	GROMMET,INSULATION,.375 ID
0	36340	1.00	FUSE,BLADE,10AM,PATC-10
0	36348	2.00	TERM,PUSH-ON,.25,M,18-14,SLV
0	36739	1.00	CONN,1 WAY,MALE,LOCKING
0	70953	1.00	CONN,MALE TERMINAL
0	851390204	3.00	TERM,RING,16-14 GA,#10 STUD
0	21174		INSIDE REARVIEW MIRROR

**CAB OPTIONS**

**RB48 BROOM**

REF. 21423  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
	<b>21423</b>		<b>VANDALISM PROTECTION,ROPS CAB</b>
1	21450	2.00	MOUNT,DASH COVER
2	21451	1.00	COVER, DASH, TOP, WELDMENT
3	21452	1.00	COVER, DASH, BOTTOM, WELDMENT
4	33630-1	1.83	STRIPPING,.125
5	35412	1.00	LOCK,RADIATOR CAP DOOR
6	80140	4.00	WASHER,TYPE A PLAIN,.250
7	80350	4.00	NUT,FLEXLOC,.250-20,FULL,LT



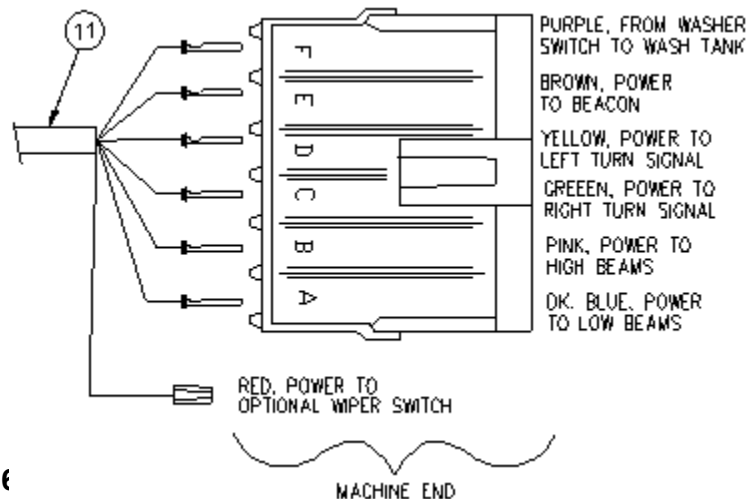
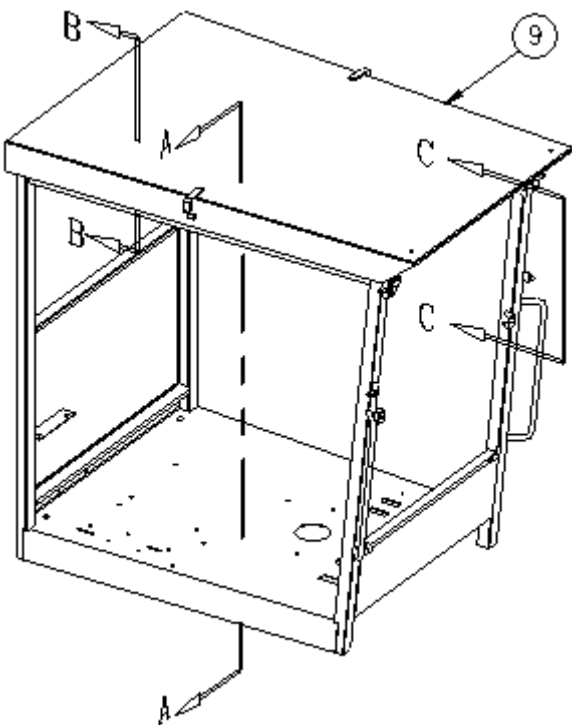
REF. 28305, 21151, 21152  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
<b>28305 ROPS CAB, RB48</b>			
0	33360	1.00	HOOD, AIR INLET, 3.75 METAL
0	29185	1.00	UNIT ASSY, RB48, CUMMINS 3.3
0	<b>21151</b>	<b>1.00</b>	<b>ROPS INSTALLATION GROUP (See Detail Following)</b>
<b>21151 ROPS INSTALLATION</b>			
0	21304	1.00	CONTROL CONSOLE SIDE, OUTER
0	36072	4.00	MOUNT, RUBBER, TUBE FORM
0	36073	12.00	WASHER, 3.25ODx.80IDx.188T
0	<b>36689R</b>	<b>1.00</b>	<b>RB48 ROPS (See Drawings Below &amp; Opposite)</b>
0	80140	3.00	WASHER, TYPE A PLAIN, .250
0	80147	8.00	WASHER, TYPE A PLAIN, .750
0	80160	3.00	WASHER, SPLIT LOCK, .250
0	80192	3.00	CSHH, .250-20X.75, GR5
0	80357	4.00	NUT, FLEXLOC, .750-10, FULL, LT
0	81103	4.00	CSHH, .750-10X4.00, GR8
<b>21152 ROPS WINDSHIELD GROUP</b>			
0	36688-04	1.00	GLASS, FRONT WINDOW
0	81252	6.00	CSTBH, .25-20X.88, BLK
0	36688-19	6.00	WASHER, .250, 1.00 OD, BLACK
0	36688-16	6.00	BUSHING, NYLON
0	36688-17	6.00	GROMMET, .250
0	36688-21	6.00	NUT, ACORN, .250-20, BLACK
0	36688-18	14.00	SEAL, WINDOW

**WIRE HARNESS INSTRUCTIONS:**

INSERT MACHINE END OF WIRE HARNESS THRU ITEM #3, DOWN ROPS TUBE. EXIT THRU ITEM #3 IN ROPS TUBE, UNDER FLOOR. TIE EXCESS HARNESS TO GRAB HANDLE.

INSERT SWITCH END OF WIRE HARNESS THRU ITEM #3 IN UPPER RIGHT CROSSMEMBER. WIRE ENDS TO BE LOCATED IN ACCESS PANEL AREA. INSTALL TERMINALS INTO HOUSING AFTER ROUTING WIRE THRU CAB.



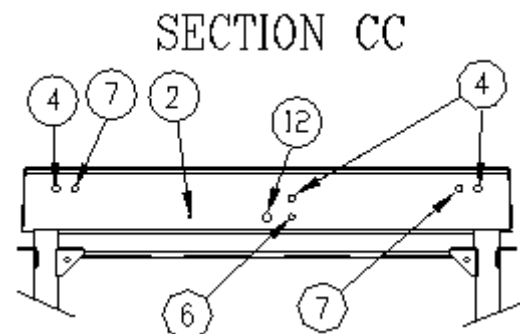
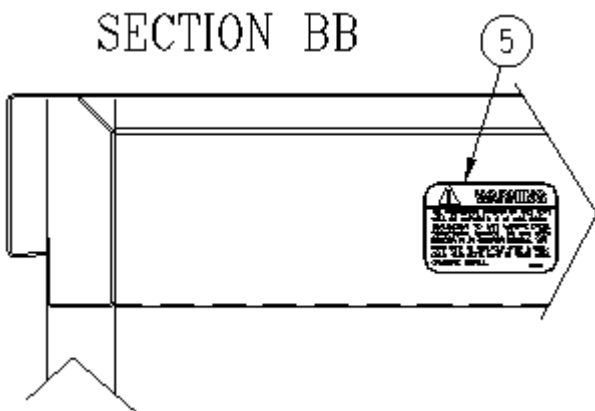
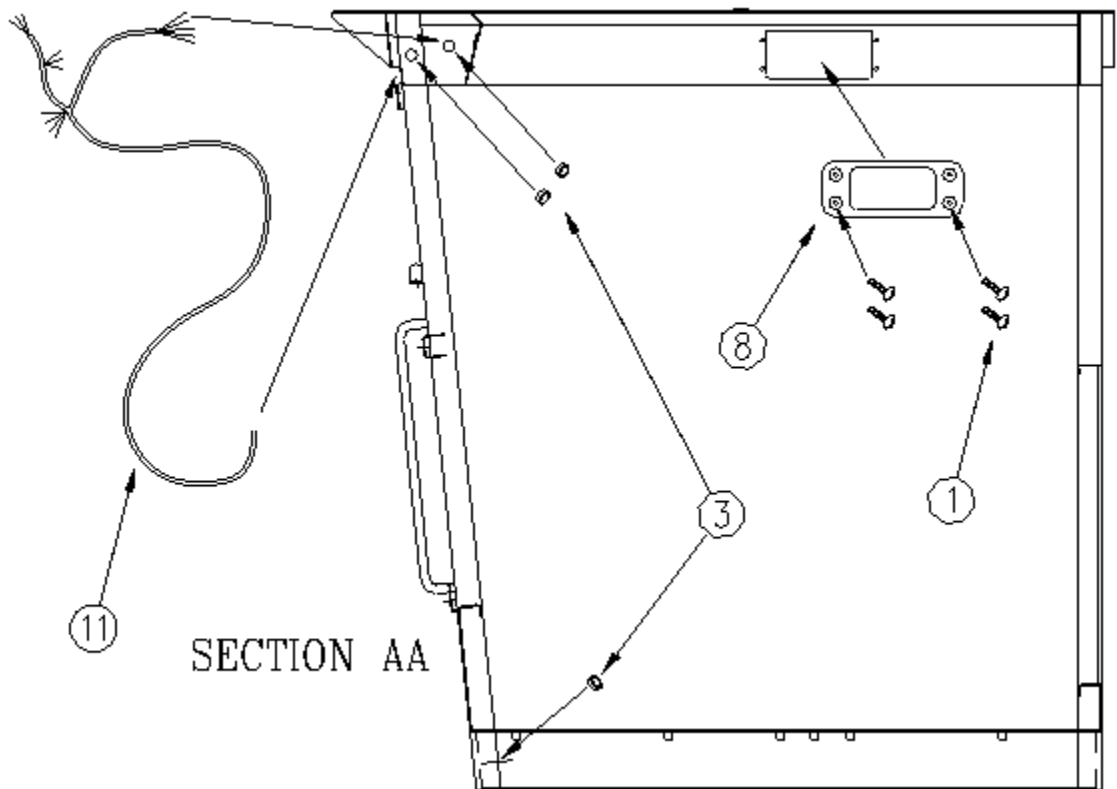
**Drawing for part #36**

**CAB OPTIONS**

**RB48 BROOM**

REF. 36689R  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>36689R</b>		<b>ROPS CAB</b>
1	80322	12.00	SCR,SLFTPG,HH,.250-20X.50
2	35136-1	1.00	PLUG,HOLE,.250,FLUSH MT,PLSTC
3	36688-54	3.00	GROMMET,.94ID,1.12HOLE,SNAP IN
4	35136-5	3.00	PLUG,HOLE,.625,FLUSH MT,PLSTC
5	38593	1.00	DECAL,WARNING,ROPS
6	35136-4	1.00	PLUG,HOLE,.500,FLUSH MT,PLSTC
7	35136-20	2.00	PLUG,HOLE,.562,FLUSH MT,PLSTC
8	36688-08	3.00	COVER,PLASTIC
9	78002-01	1.00	W/M,OPEN ROPS
11	36688-66	1.00	WIRE HARNESS,RB48 ROPS
12	35136-6	1.00	PLUG,HOLE,.750,FLUSH MT,PLSTC





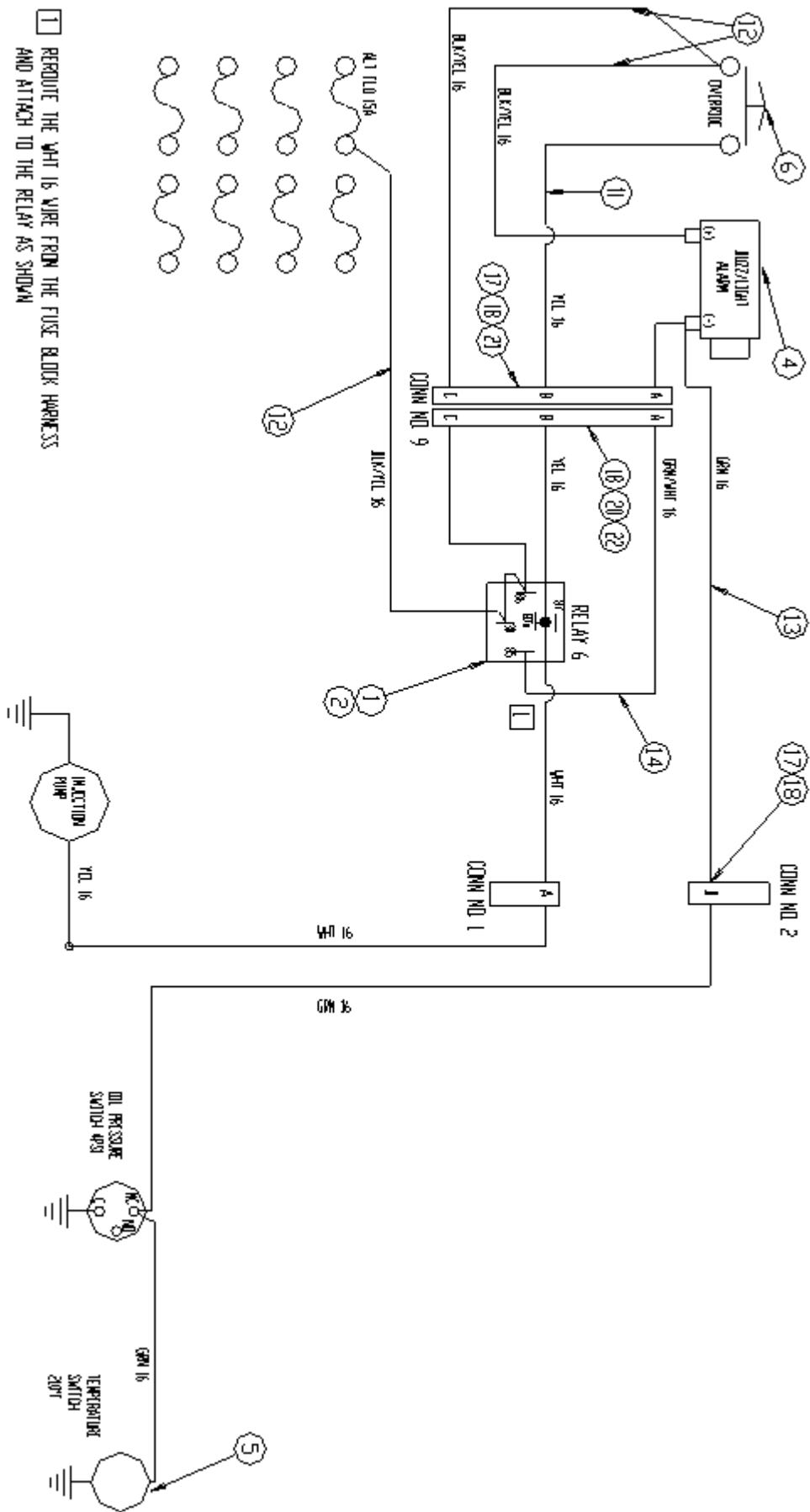
**RB48 BROOM****OTHER OPTIONAL EQUIPMENT - ENGINE SHUTDOWN**

REF. 26067

REV. C

ITEM	PART NO.	QTY	DESCRIPTION
	<b>26067</b>		<b>ENGINE SHUTDOWN</b>
1	36085	1.00	RELAY,SPDT,40AMP,12VDC
2	36086	1.00	BRACKET,RELAY MOUNT
3	36118-2	4.00	TERM,CRIMP,16-14 GA
4	36150	1.00	ALARM,BUZZ/LIGHT,RED
5	36343	1.00	SWITCH,TEMP,210 DEG F,08 MP
6	36393	1.00	SWITCH,PUSH BTN,OFF-MOM ON
7	36394	1.00	SWITCH,PRESSURE,4 PSI,SPDT
8	90768	1.00	PIPE,CPLG,02FP,300#
9	99610	1.00	PIPE,NIPPLE,02XCLOSE
10	851390204	8.00	TERM,RING,16-14 GA,#10 STUD
11	33271-2	2.00	WIRE,16 GA,YELLOW
12	33271-13	3.00	WIRE,16 GA,BLACK/YELLOW STRIPE
13	33271-4	4.00	WIRE,16 GA,GREEN
14	33271-12	2.00	WIRE,16 GA,RED/BLACK STRIPE
15	37426	1.00	TERM,PUSH-ON,JUMPER,.25,16-14G
16	35926	1.00	TERM,PUSH-ON,.25,FEM,22-18 GA
17	36165	1.00	TERM,SEALED CONN,16-14 GA,FEM
18	36166	2.00	SEAL,CABLE,18-16 GA
19	36201	1.00	DECAL SET,OPTIONAL EQUIPMENT
20	36164	3.00	TERM,SEALED CONN,16-14 GA,MALE
21	36300	1.00	CONNECTOR,SEALED,TOWER,3-PIN
22	36350	1.00	CONNECTOR,SEALED,SHROUD,3-PIN

REF. 26067  
REV. C

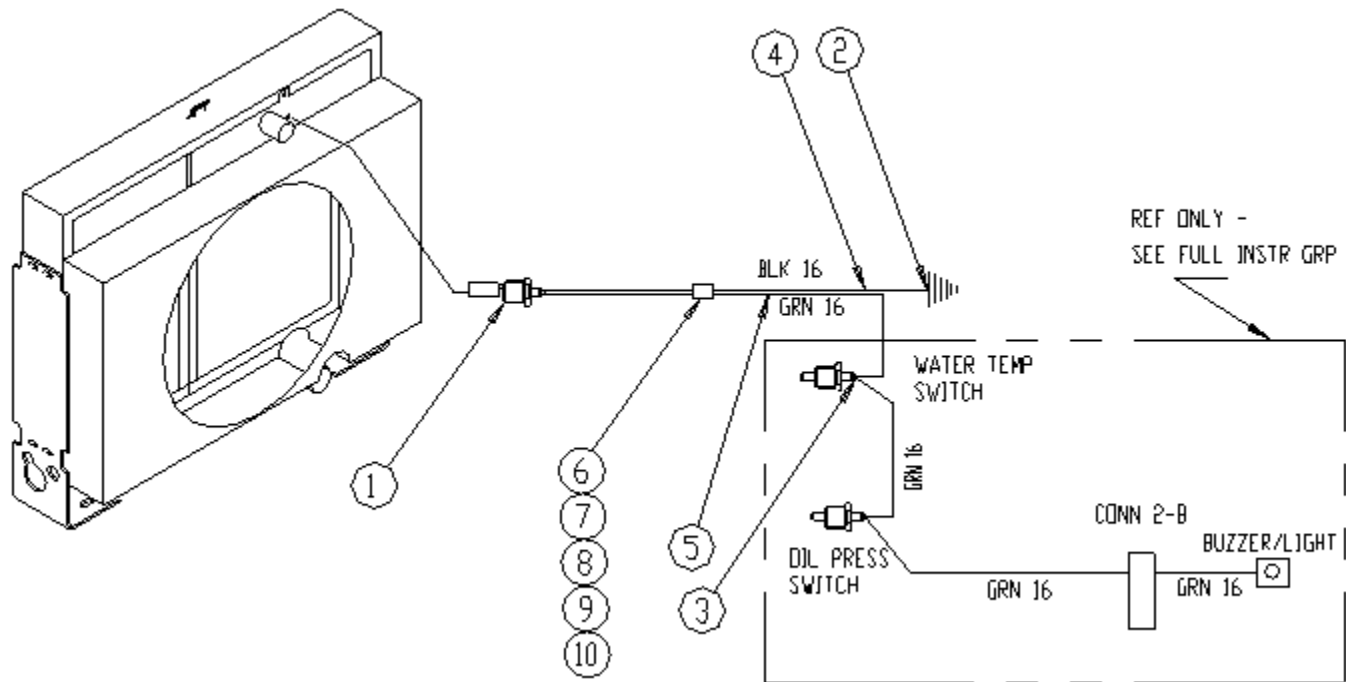


**RB48 BROOM**

**OTHER OPTIONAL EQUIPMENT - LOW ENGINE COOLANT GRP**

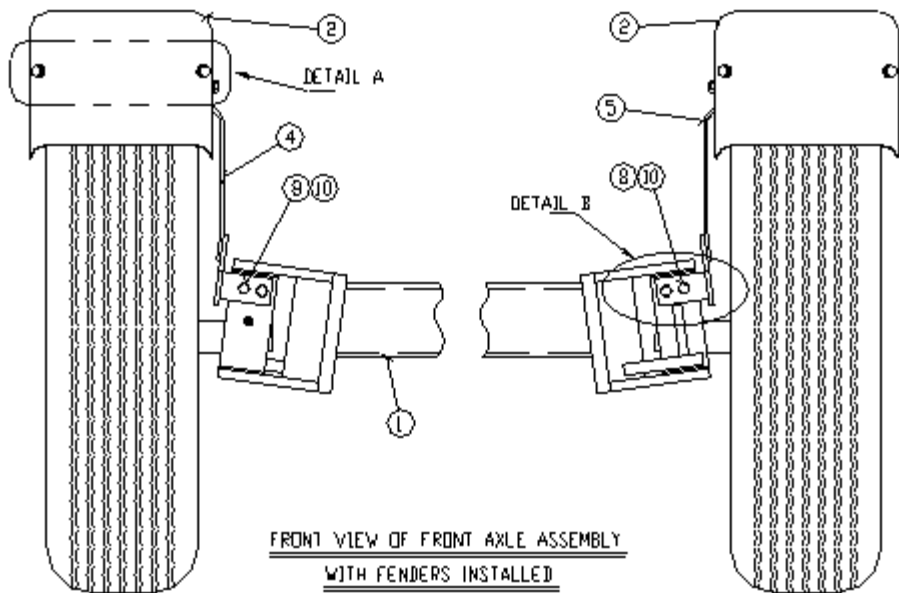
REF. 26090  
REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
	<b>26090</b>		<b>LOW ENGINE COOLANT</b>
1	38035	1.00	SWITCH,LIQUID LEVEL,NYLON
2	33608	1.00	TERM,RING,16-14 GA,.312 STUD
3	851390204	1.00	TERM,RING,16-14 GA,#10 STUD
4	33271-1	3.00	WIRE,16 GA,BLACK
5	33271-4	3.00	WIRE,16 GA,GREEN
6	35138	1.00	CONNECTOR,SEALED,SHROUD,2-PIN
7	35139	1.00	CONNECTOR,SEALED,TOWER,2-PIN
8	36164	2.00	TERM,SEALED CONN,16-14 GA,MALE
9	36165	2.00	TERM,SEALED CONN,16-14 GA,FEM
10	36166	4.00	SEAL,CABLE,18-16 GA
11	71060	3.00	LOOM,SPLIT,CONVOLUTED,.250



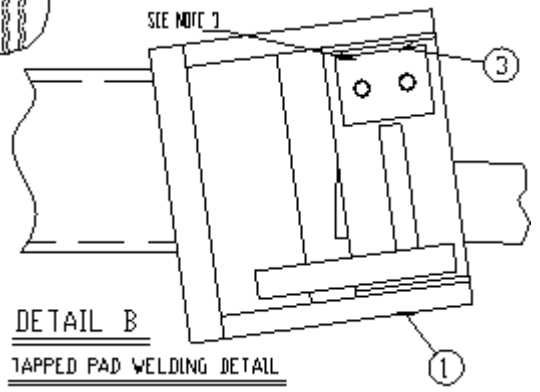
REF. 18058  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>18058</b>		<b>FRONT FENDER GROUP</b>
1	16909	REF	FRONT AXLE ASSY
2	18075	2.00	FENDER,REWORK
3	18076	2.00	TAPPED PAD
4	18080	1.00	SUPPORT W/M,RH FENDER
5	18082	1.00	SUPPORT W/M,LH FENDER
6	20015	4.00	SUPPORT,FENDER
7	80140	24.00	WASHER,TYPE A PLAIN,.250
8	80162	4.00	WASHER,SPLIT LOCK,.375
9	80208	12.00	CSHH,.312-18X1.00,GR5
10	80219	4.00	CSHH,.375-16X.75,GR5
11	80351	12.00	NUT,FLEXLOC,.312-18,FULL,LT

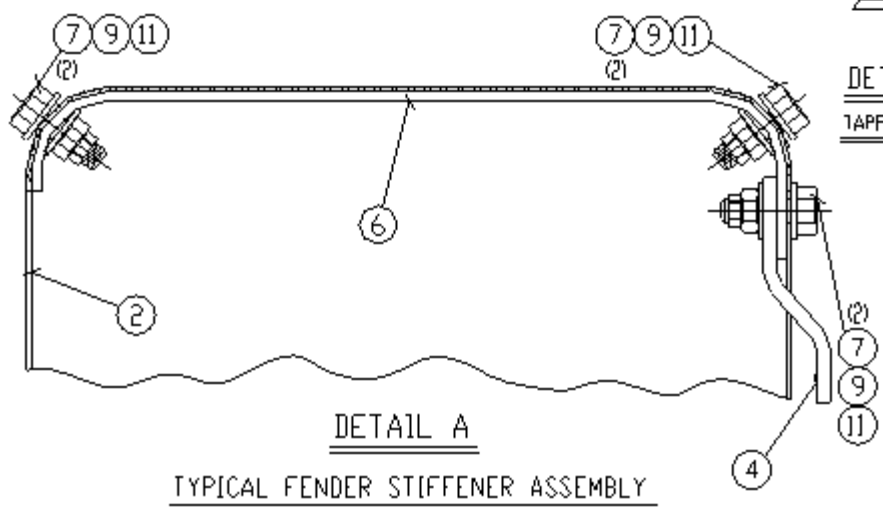


FRONT VIEW OF FRONT AXLE ASSEMBLY  
WITH FENDERS INSTALLED

- NOTES:**
1. REMOVE 1.25" OF GUSSET LOCATED ON THE FRONT OF THE LEFT FRONT WHEEL KING PIN W/ M.
  2. GRIND KING PIN W/M FLUSH BEFORE WELDING ITEM 3.
  3. TAPPED PAD MUST BE WELDED TO FRONT AXLE ASSEMBLY PRIOR TO PAINTING.



DETAIL B  
TAPPED PAD WELDING DETAIL



DETAIL A  
TYPICAL FENDER STIFFENER ASSEMBLY

**RB48 BROOM****OTHER OPTIONAL EQUIPMENT - FRONT BRAKES**

REF. 21089

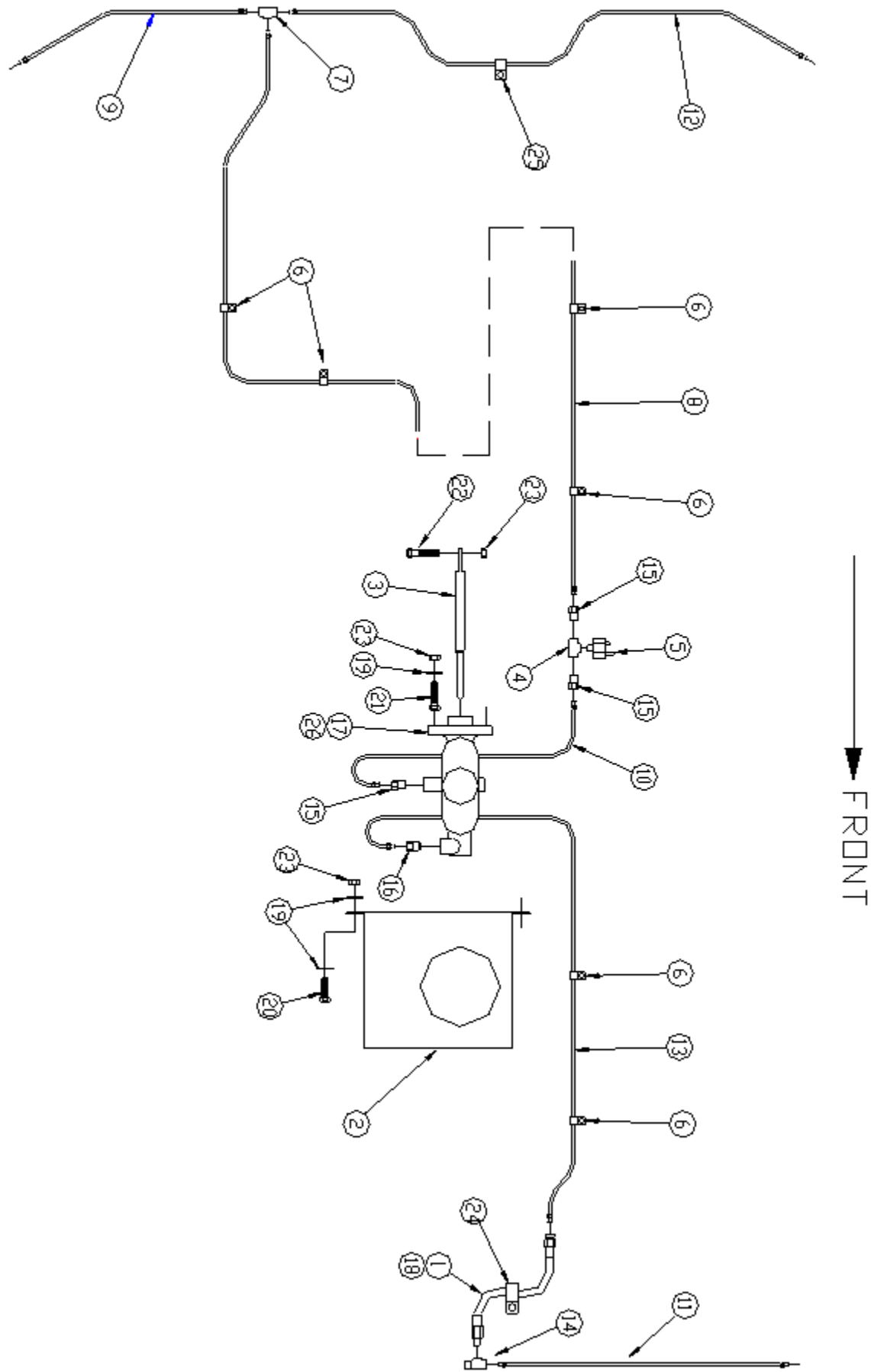
REV. B

ITEM	PART NO.	QTY	DESCRIPTION
	<b>21089</b>		<b>FRONT BRAKES</b>
1	17552	1.00	SLEEVE,BRAKE LINE PROTECTOR
2	21091	1.00	COVER,MASTER CYLINDER
3	31081	1.00	PUSHROD,BRAKE
4	32101	1.00	FITT,TEE 04IFF-04IFF-02FP,BRS
5	32131	1.00	SWITCH,STOP LAMP,HYD TYPE,NO
6	33594	11.00	CLAMP,LOOP,.25 OD,REM CUSHION
7	33949	1.00	FITT,TEE 03IFF,BRASS
8	33953-116	1.00	BRAKE LINE,.188x116
9	33953-15	1.00	BRAKE LINE,.188x15
10	33953-20	1.00	BRAKE LINE,.188x20
11	33953-27	1.00	BRAKE LINE,.188X27.00
12	33953-50	1.00	BRAKE LINE,.188x50
13	33953-60	1.00	BRAKE LINE,.188x60
14	34067	1.00	FITT,TEE 03MHB-03FHB-03HB,BRS
15	34068	3.00	ADAPTER
16	34956	1.00	FITT,STR 03MHB-03IFF
17	35343	1.00	MASTER CYLINDER,BRAKE,DUAL
18	36693	1.00	BRAKE HOSE ASSY,.375-24X14.25
19	80142	10.00	WASHER,TYPE A PLAIN,.375
20	80224	4.00	CSHH,.375-16X1.25,GR5
21	80226	2.00	CSHH,.375-16X1.50,GR5
22	80228	1.00	CSHH,.375-16X1.75,GR5
23	80352	7.00	NUT,FLEXLOC,.375-16,FULL,LT
24	871111602	1.00	CLAMP,LOOP,.75 OD,PLSTC COVER
25	871111605	1.00	CLAMP,LOOP,.50 OD PLSTC COVER
26	90707	0.12	FLUID,BRAKE

OTHER OPTIONAL EQUIPMENT - FRONT BRAKES

RB48 BROOM

REF. 21089  
REV. B



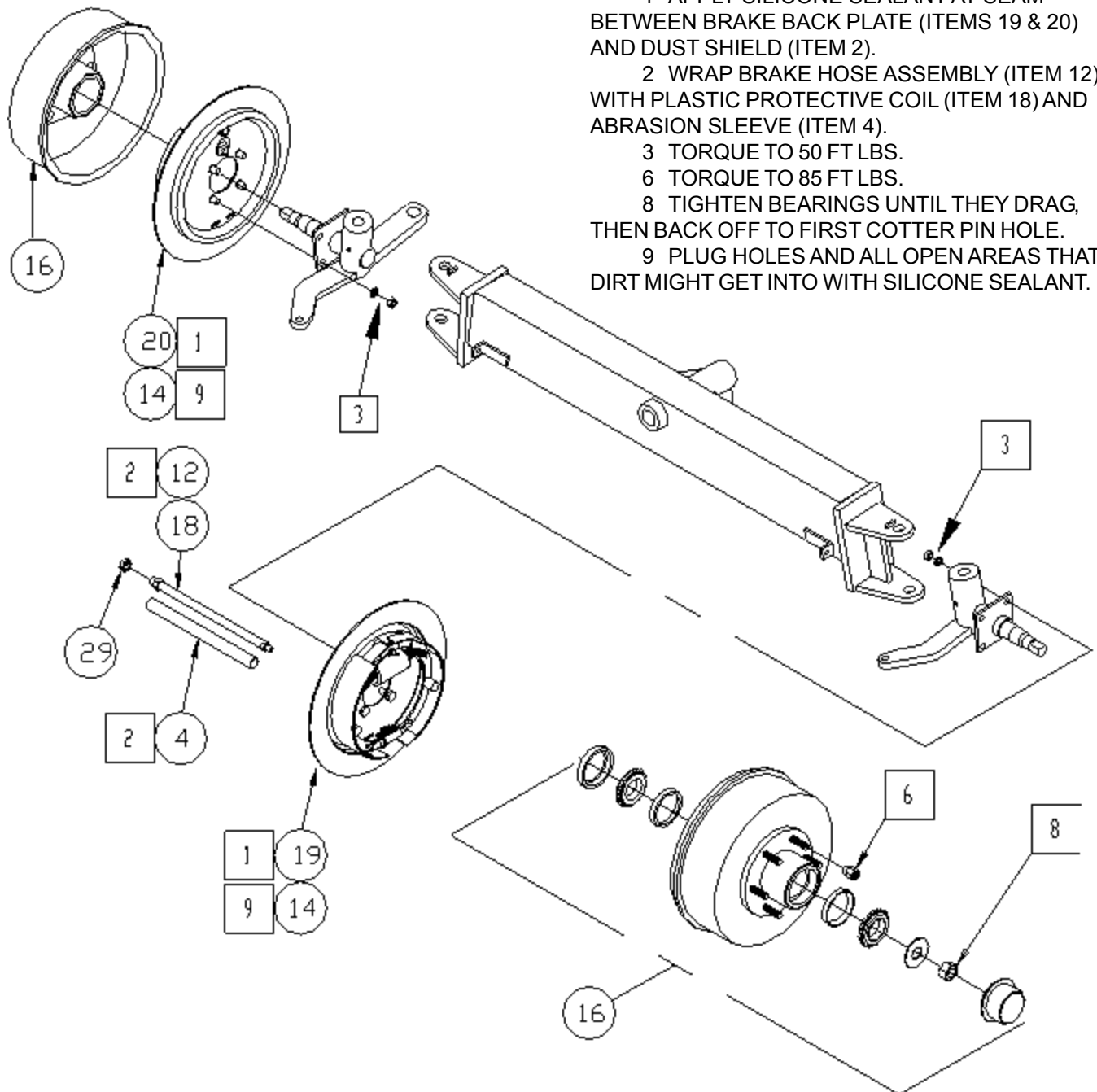
**RB48 BROOM**

**OTHER OPTIONAL EQUIPMENT - HUB ASSEMBLY WITH BRAKES**

REF. 27800  
 REV. B

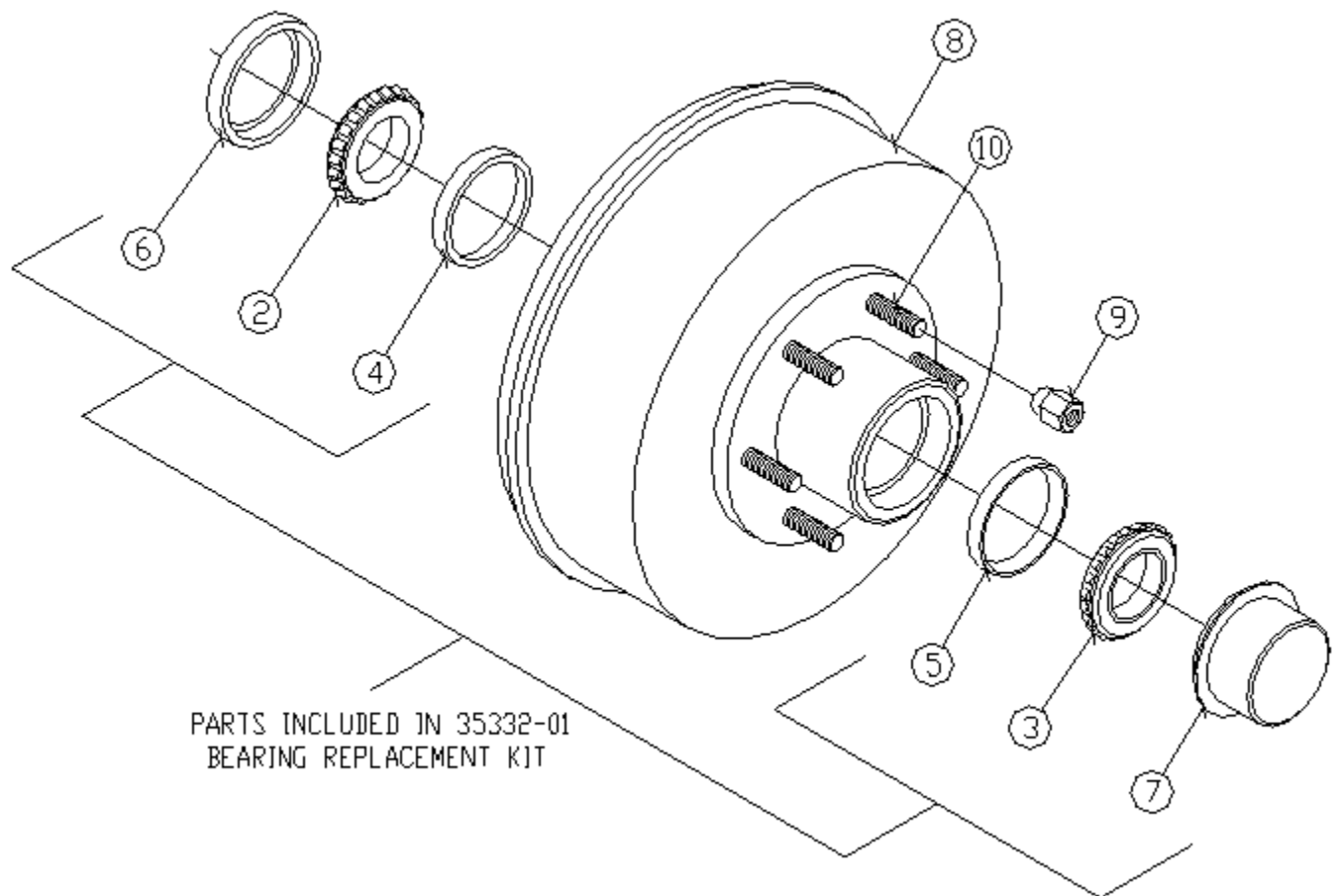
ITEM	PART NO.	QTY	DESCRIPTION
	<b>27800</b>		<b>HUB ASSEMBLY WITH BRAKES</b>
4	17552	2.00	SLEEVE,BRAKE LINE PROTECTOR
12	32953	2.00	BRAKE HOSE ASSY
14	33707	1.00	SEALANT,SILICONE,CLEAR
<b>16</b>	<b>35332</b>	<b>2.00</b>	<b>HUB ASSY,5-BOLT,5.50 IN BC (Detail Opposite Page)</b>
18	35401	4.00	PROTECTIVE COIL,.50,PLASTIC
19	29168	1.00	BRAKE ASSY,RH,W/M
20	29169	1.00	BRAKE ASSY,LH,W/M
29	80095	2.00	NUT,HEX,JAM,.625-18

- 1 APPLY SILICONE SEALANT AT SEAM BETWEEN BRAKE BACK PLATE (ITEMS 19 & 20) AND DUST SHIELD (ITEM 2).
- 2 WRAP BRAKE HOSE ASSEMBLY (ITEM 12) WITH PLASTIC PROTECTIVE COIL (ITEM 18) AND ABRASION SLEEVE (ITEM 4).
- 3 TORQUE TO 50 FT LBS.
- 6 TORQUE TO 85 FT LBS.
- 8 TIGHTEN BEARINGS UNTIL THEY DRAG, THEN BACK OFF TO FIRST COTTER PIN HOLE.
- 9 PLUG HOLES AND ALL OPEN AREAS THAT DIRT MIGHT GET INTO WITH SILICONE SEALANT.



REF. 35332  
 REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>35332</b>		<b>HUB ASSEMBLY</b>
1	35332-01	1.00	BEARING REPLACEMENT KIT
2	Part of Kit	1.00	INNER BEARING
3	Part of Kit	1.00	OUTER BEARING
4	Part of Kit	1.00	INNER CUP
5	Part of Kit	1.00	OUTER CUP
6	Part of Kit	1.00	GREASE SEAL
7	Part of Kit	1.00	DUST CAP
8	35332-02	1.00	HUB AND DRUM ASS'Y
N/S	36454		BRAKE ASSEMBLY, 10x2.25 RH
N/S	36455		BRAKE ASSEMBLY, 10x2.25 LH
9	33517-04	6.00	WHEEL NUT, 1/2-20
10	33517-05	6.00	WHEEL STUD, 1/2-20





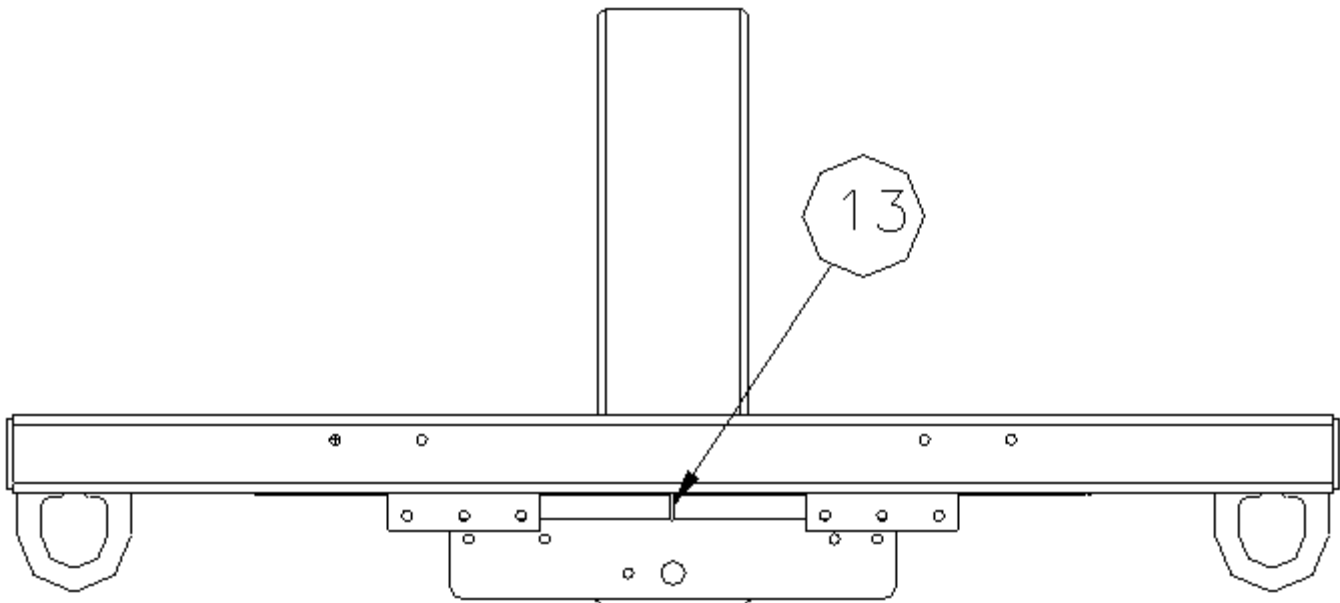
**RB48 BROOM**

**OTHER OPTIONAL EQUIPMENT - TOW PACKAGE**

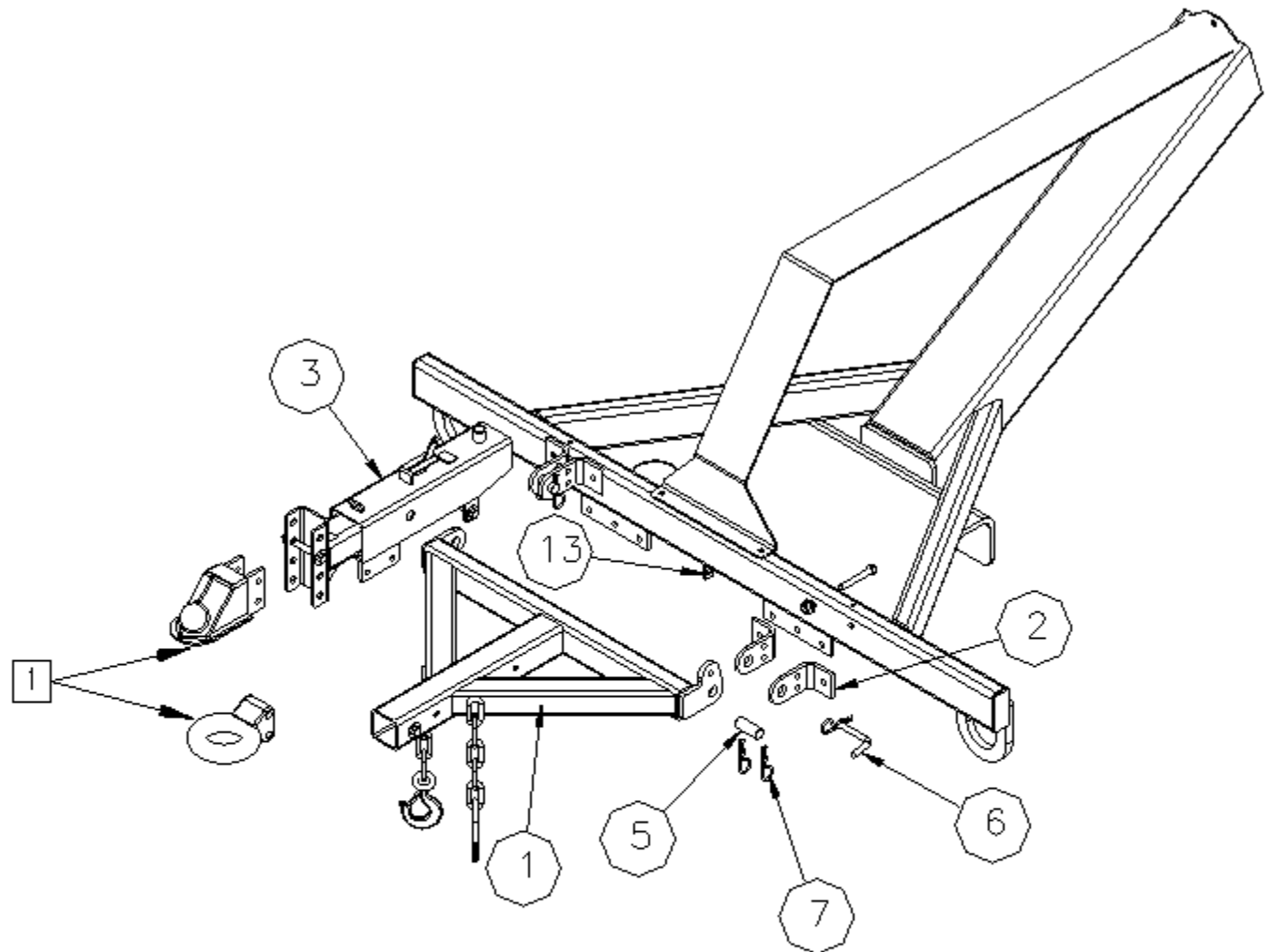
REF. 29125

REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>29125</b>		<b>TOW PACKAGE</b>
1	29049	1.00	TOW BAR,W/M
2	29131	4.00	BRACKET,LOCKING
3	39051	1.00	ACTUATOR,BRAKE,7500#
5	29129	2.00	RND,1.00 X 2.50 PIN W/HOLES
6	72836	1.00	PIN,.50X3.00,W/HAIRPIN COTTER
7	36544	4.00	HAIR PIN COTTER,7GA(.177)
8	80723	5.00	CSHH,.500-13X4.50,GR5
9	80144	10.00	WASHER,TYPE A PLAIN,.500
10	80354	9.00	NUT,FLEXLOC,.500-13,FULL,LT
13	29192	1.00	BRAKE LINE BRACKET
14	80266	4.00	CSHH,.500-13X3.50,GR5
15	80695	8.00	WASHER,SAE PLAIN,.500
16	<b>29122</b>	<b>1.00</b>	<b>KIT,BRAKES/STEERING,TOW GRP (See Detail)</b>
17	35338	1.00	GEARBOX B PAD 15T 4.533 RATIO
18	39021	1.00	GEARBOX B PAD,4.53 R,DISCONNECT
19	<b>29127</b>	<b>1.00</b>	<b>HARNES, WIRE, LIGHTS, TOW (See Detail Following)</b>



REF. 29125  
 REV. A



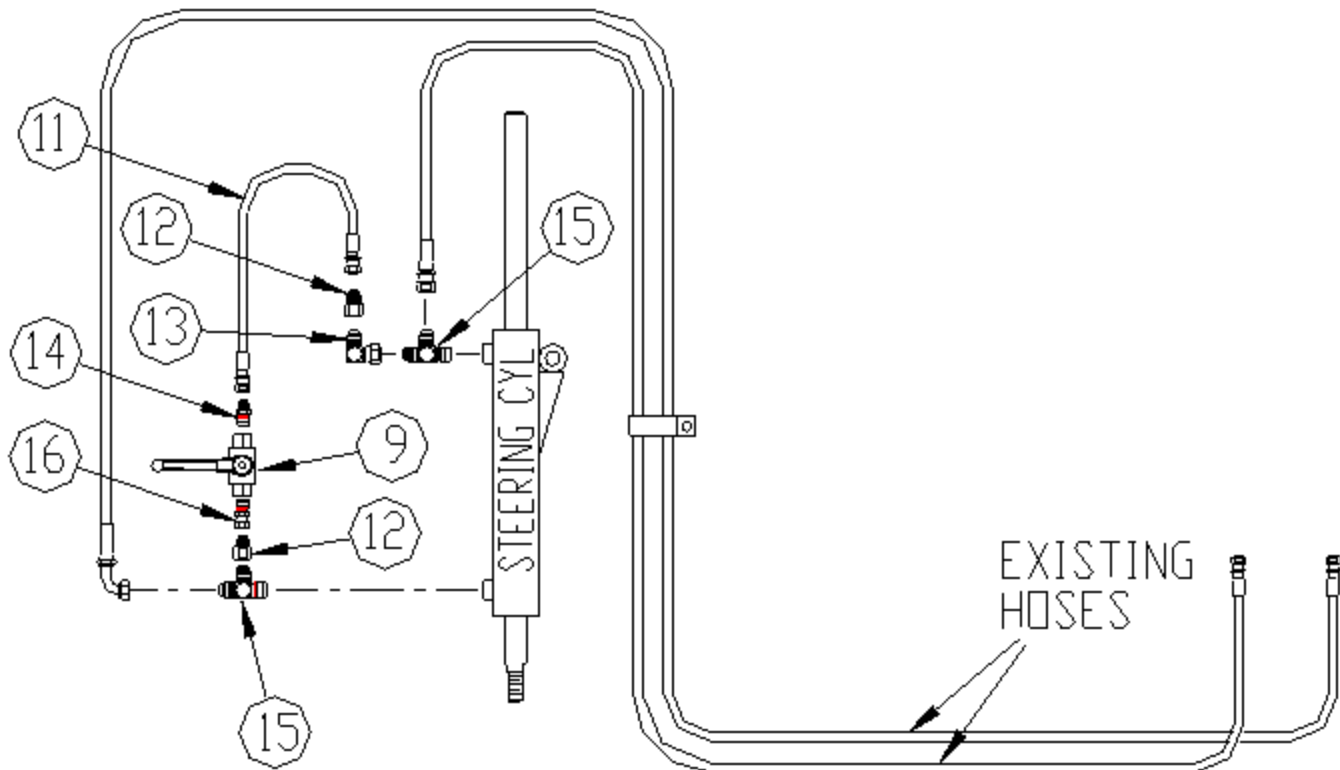
- 1 39052 COUPLER,LEVER LOCK,2.31 OR  
 35848-01 LUNETTE,3 ADJ

**RB48 BROOM**

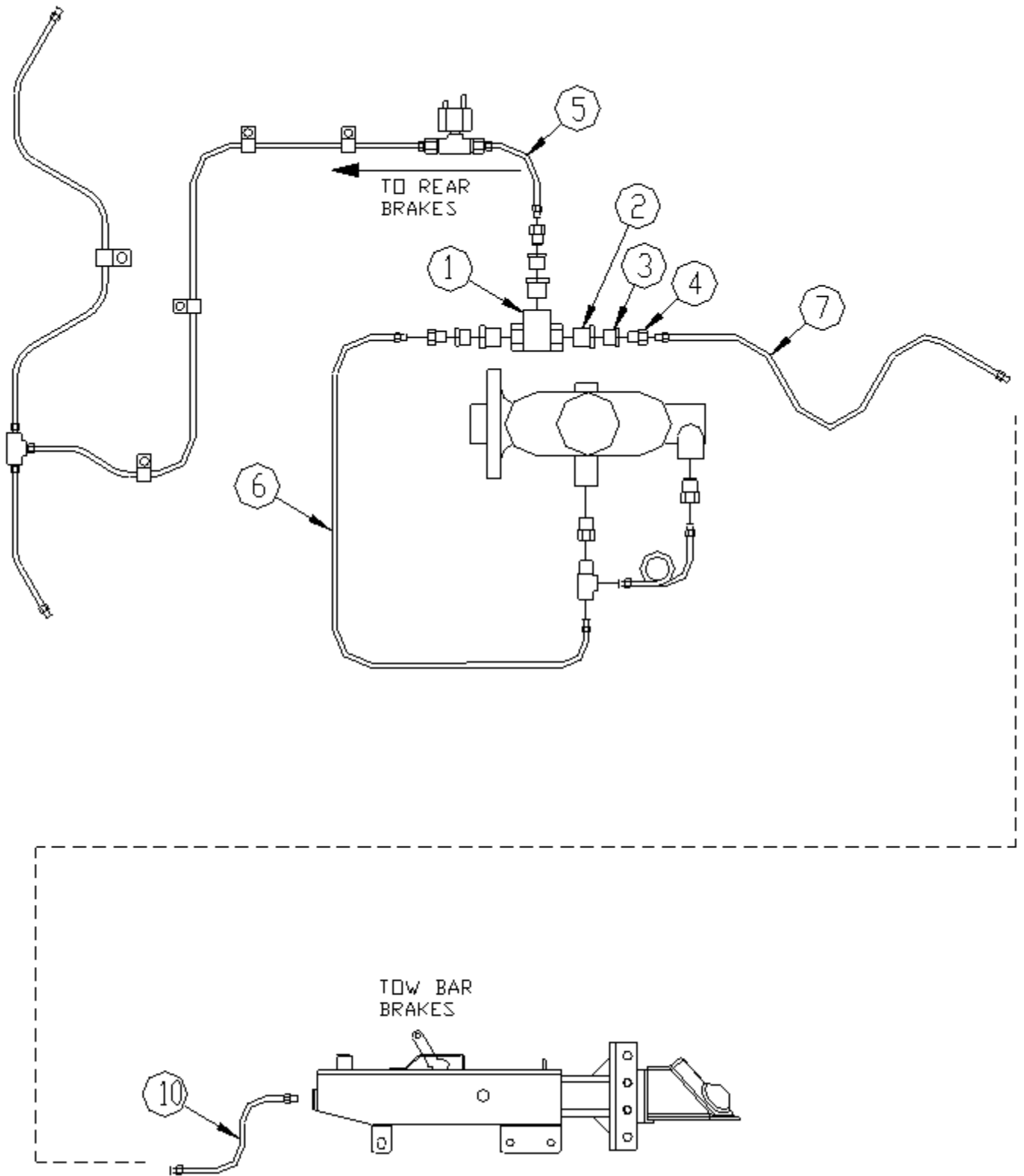
**OTHER OPTIONAL EQUIPMENT - KIT,BRAKES/STEERING,TOW GRP**

REF. 29122  
 REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
	<b>29122</b>		<b>KIT,BRAKES/STEERING,TOW GRP</b>
1	72811	1.00	VLV,SHUTTLE,06 O-RING PORTS
2	39066	3.00	FITT,STR 06MB-04FP
3	32638	3.00	PIPE,BUSH,04MP-02FP,STL
4	39059	3.00	FITT,STR 02MP-03IFF,BRASS
5	33953-10	1.00	BRAKE LINE,.188X10
6	33953-15	1.00	BRAKE LINE,.188X15
7	33953-90	1.00	BRAKE LINE,.188X90
9	39063	1.00	VLV,BALL,06 ORB,3000 PSI
10	32953	1.00	BRAKE HOSE ASSY
11	72550-024	1.00	HOSE,06,06FJX-06FJX,3000
12	37631	2.00	FITT,STR 06MJ-08FJ
13	33900	1.00	FITT,90 08MJ-08FJX
14	X217	1.00	FITT,STR 06MJ-06MB
15	36098	2.00	FITT,TEE 08MJ-08MB-08MJ
16	37536	1.00	FITT,STR 06MB-06FJX



REF. 29122  
REV. 0

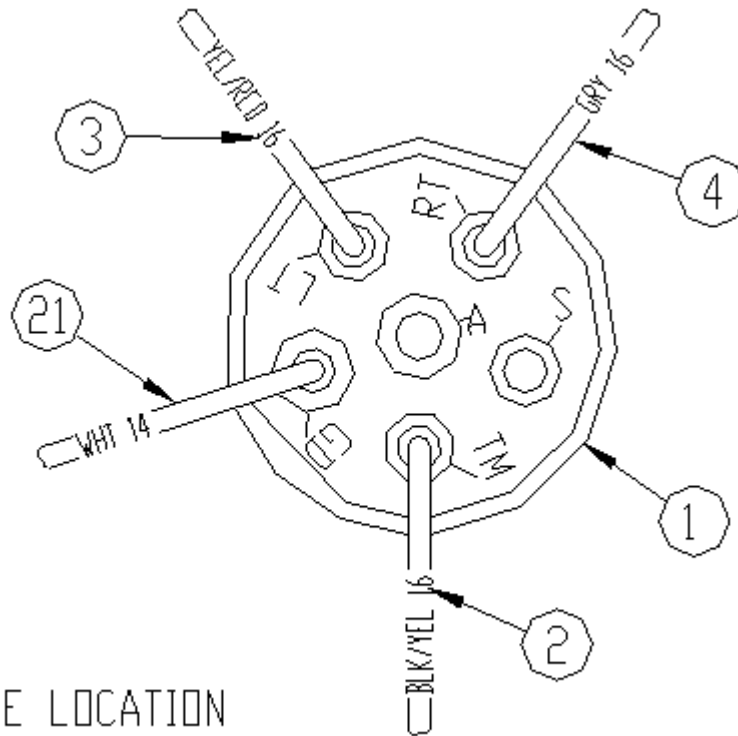


**RB48 BROOM**

**OTHER OPTIONAL EQUIPMENT - WIRE HARNESS,TOW LIGHTS**

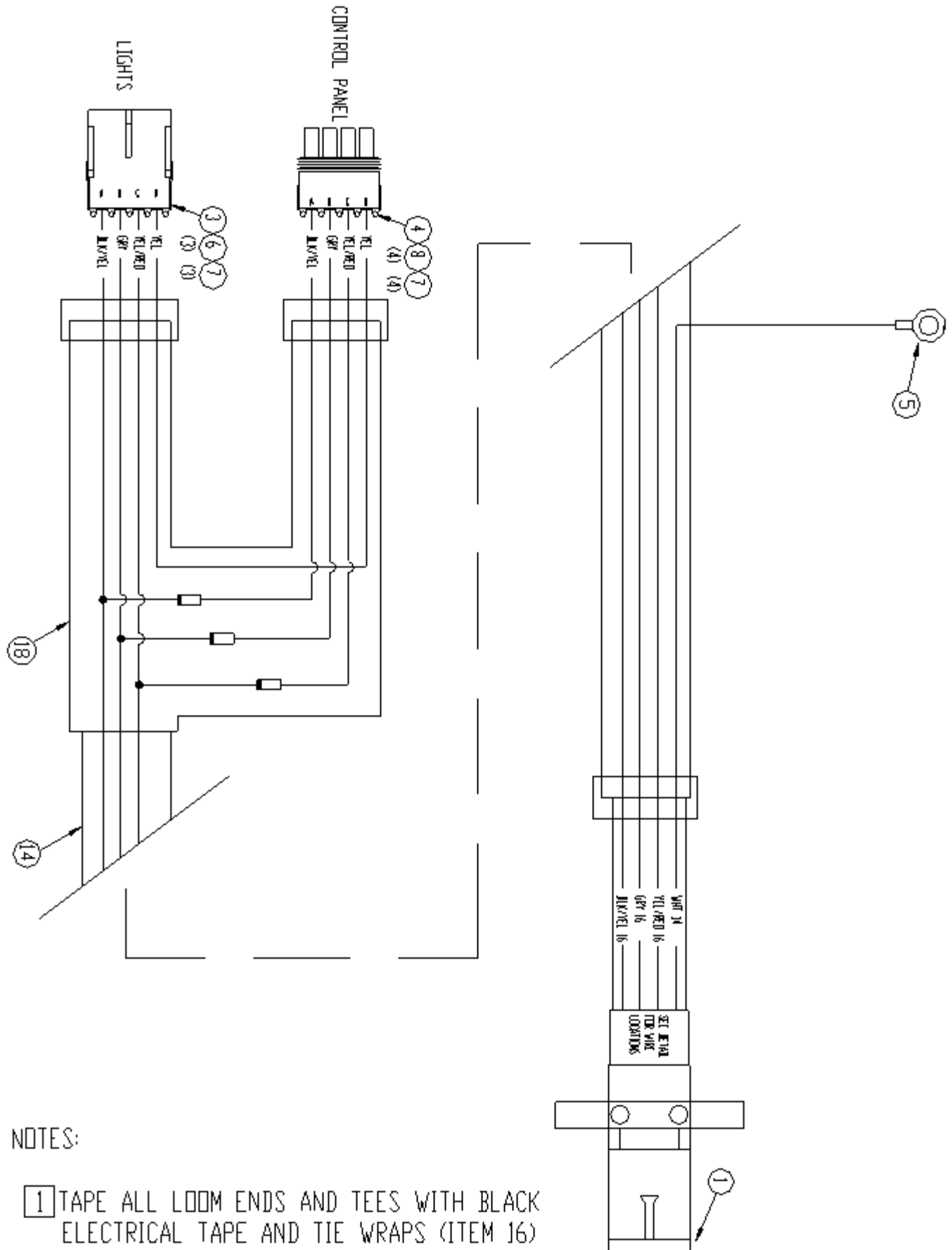
REF. 29127  
 REV. 0

ITEM	PART NO.	QTY	DESCRIPTION
	<b>29127</b>		<b>WIRE HARNESS,TOW LIGHTS</b>
1	32996	1.00	PLUG,ELEC,6 POLE,MALE
2	35044	3.00	DIODE,3 AMP,PLASTIC
3	36351	1.00	CONNECTOR,SEALED,SHROUD,4-PIN
4	36352	1.00	CONNECTOR,SEALED,TOWER,4-PIN
5	33607	1.00	TERM,RING,16-14 GA,.250 STUD
6	36164	4.00	TERM,SEALED CONN,16-14 GA,MALE
7	36166	8.00	SEAL,CABLE,18-16 GA
8	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
9	33271-14	8.00	WIRE,16 GA,YELLOW/RED STRIPE
10	33271-0	24.50	WIRE,16 GA,GRAY
11	33271-13	24.50	WIRE,16 GA,BLACK/YELLOW STRIPE
12	33271-2	24.50	WIRE,16 GA,YELLOW
13	33271-13	24.50	WIRE,16 GA,BLACK/YELLOW STRIPE
14	71060	24.00	LOOM,SPLIT,CONVOLUTED,.250
15	35504	.20	TUBING,HEAT SHRINK,.250
16	33596	10.00	TIE WRAP,.188X7.5
17	71862	8.00	WIRE,14 GA,WHITE
18	71864	1.50	LOOM,SPLIT,CONVOLUTED,.375



WIRE LOCATION  
 6 POLE PLUG

REF. 29127  
REV. 0



NOTES:

- 1 TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 16)

**RB48 BROOM**

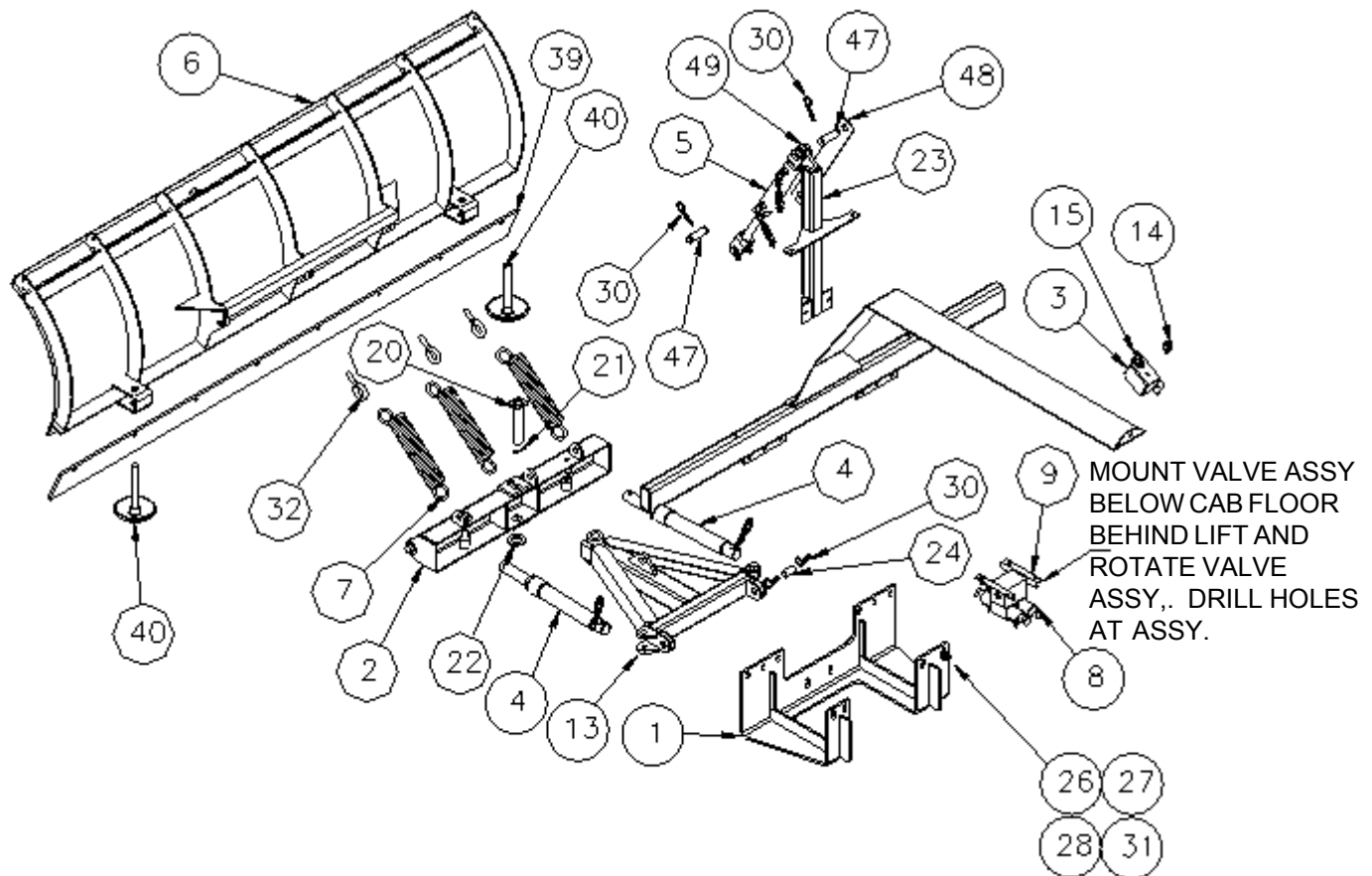
**OTHER OPTIONAL EQUIPMENT - STRIKE-OFF BLADE**

REF. 28753  
REV. D

ITEM	PART NO.	QTY	DESCRIPTION
	<b>28753</b>		<b>STRIKE OFF BLADE</b>
1	28740	1.00	MOUNT,W/M,SNOW PLOW
2	28718	1.00	BRACKET,W/M,FRONT
3	28726	1.00	CONTROL BOX,SNOW PLOW
4	38224-26	2.00	HYDRAULIC CYLINDER
5	38548	1.00	CYL,HYD,2.0X8.0
N/S	38546-01		SEAL KIT,HYD CYL,2BX1.12R
6	38224-01	1.00	BLADE(7'6"STANDARD DUTY)
7	38224-32	3.00	TRIP SPRING
<b>8</b>	<b>38814</b>	<b>1.00</b>	<b>MANIFOLD,HYD,2 STA,D03 (Detail Following)</b>
N/S	37647-01		COIL,SOLENOID 12V,BOSCH DO3
N/S	37647-04		SEAL KIT,VALVE,BOSCH DO3
9	28492	2.00	MOUNT,VALVE BLOCK
<b>10</b>	<b>38983</b>	<b>1.00</b>	<b>HOSE KIT,RB48,BOSS PLOW (Detail Following)</b>
11	38641	1.00	VLV,CHECK,06MJ,20 PSI CRACK
13	28719	1.00	FRAME,W/M,PLOW LIFT
14	38961	1.00	SWITCH,TOG,DPDT,3POS,MOM,DETEN
15	37516	1.00	SWITCH,TOGGLE,SPDT,3-POS,MOM
16	80147	8.00	WASHER,TYPE A PLAIN,.750
17	80357	4.00	NUT,FLEXLOC,.750-10,FULL,LT
18	71680	2.00	CSHH,.625-11X6.00,GR5
19	71683	2.00	CSHH,.625-11X4.00,GR5
20	28758	1.00	PIVOT PIN,W/M
21	80336	1.00	COTTER PIN,.188X1.50
22	80150	1.00	WASHER,TYPE A PLAIN,1.125
23	28717	1.00	LIFT MOUNT,W/M
24	28781	2.00	PIN,1.00X2.00 W/HOLES
25	71645	2.00	CSHH,.750-10X3.50,GR5
26	80144	24.00	WASHER,TYPE A PLAIN,.500
27	80164	12.00	WASHER,SPLIT LOCK,.500
28	80040	12.00	NUT,HEX,.500-13
29	80838	1.00	CSHH,.750-10X4.50,GR5
30	36544	2.00	HAIR PIN COTTER,7GA(.177)
31	80186	12.00	CSHH,.500-13X1.75,GR5
32	38967	3.00	EYE BOLT,.625-11X1.75X1.38ID
33	80356	6.00	NUT,FLEXLOC,.625-11,FULL,LT
34	80146	9.00	WASHER,TYPE A PLAIN,.625
39	38224-03	.00	CUTTING EDGE(7'6" STD DUTY)
40	38224-05	2.00	PLOW SHOE ASSY
41	28755	1.00	WIRE HARNESS,SNOW PLOW
43	80208	4.00	CSHH,.312-18X1.00,GR5
44	80161	4.00	WASHER,SPLIT LOCK,.312
45	80141	8.00	WASHER,TYPE A PLAIN,.312
46	80037	4.00	NUT,HEX,.312-18
47	28949	2.00	CLEVIS PIN,3.50,MODIFIED
48	28948	1.00	LOCK,HYD CYLINDER
49	80706	8.00	WASHER,SAE PLAIN,1.000
50	38959	2.00	DECAL,CONTROL BOX,SNOW PLOW

REF. 28753  
REV. D

ITEM	PART NO.	QTY	DESCRIPTION
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<b>38814</b>				<b>MANIFOLD, HYD, 2 STA, D03</b>
N/S	38814-01	1.00		MANIFOLD
N/S	37488-01	2.00		VALVE
N/S	35139	2.00		CONNECTOR, SEALED, TOWER, 2-PIN
N/S	36165	4.00		TERM, SEALED CONN, 16-14 GA, FEM
N/S	36166	4.00		SEAL, CABLE, 18-16 GA
N/S	851390257	2.00		TERM, RING, 12-10 GA, .250 STUD
N/S	71060	3.00		LOOM, SPLIT, CONVOLUTED, .250
N/S	851201417	3.00		TIE WRAP, .094X4.00

<b>38983</b>				<b>HOSE KIT, RB48, BOSS PLOW</b>
101	35499	4.00		FITT, STR 06MJ-06MP
102	953182310	4.00		FITT, QD 06 FP, SET
103	853211085	4.00		FITT, 90 06MP-06MP
104	72550-134	2.00		HOSE, 06 06FJX-06FJX, 3000
105	72550-152	1.00		HOSE, 06 06FJX-06FJX, 3000
106	72550-160	1.00		HOSE, 06 06FJX-06FJX, 3000
107	36524-06	2.00		HOSE ASSY, 3000 PSI, -06 X 29.00
108	33892	2.00		FITT, 90 06MJ-06MB
109	X217	3.00		FITT, STR 06MJ-06MB
110	36490	2.00		FITT, TEE 06MJ-06FJX-06MJ
111	X387	2.00		FITT, 90 06MJ-06FJX
112	37536	1.00		FITT, STR 06MB-06FJX

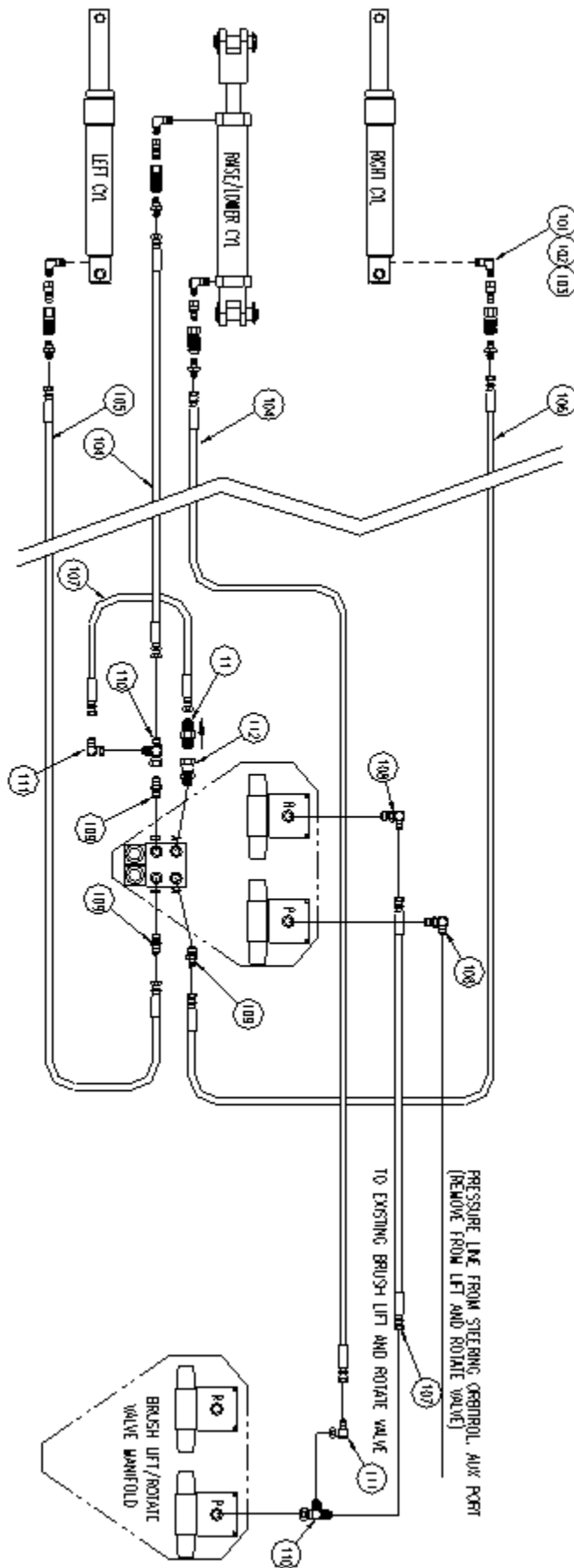


# RB48 BROOM

REF. 28753

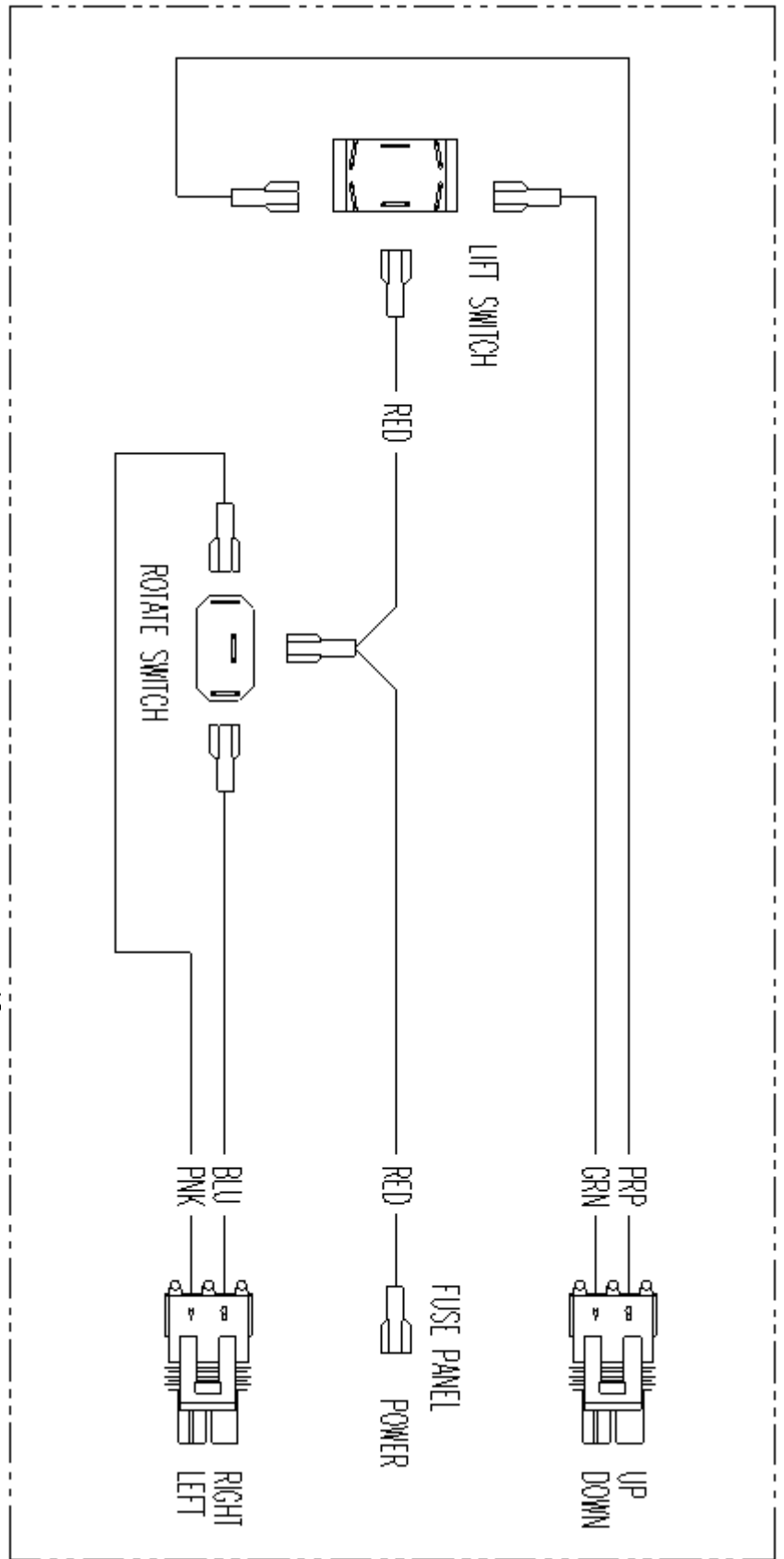
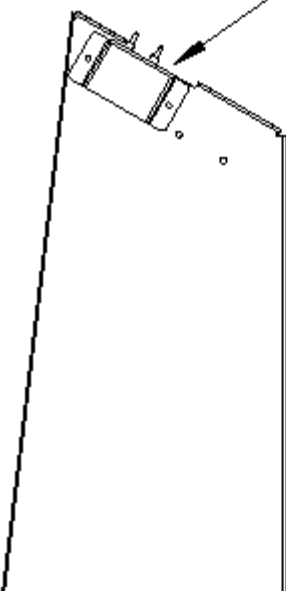
REV. D

## OTHER OPTIONAL EQUIPMENT - STRIKE-OFF BLADE



REF. 28753  
REV. D

MOUNT SWITCH BOX  
TO SIDE OF STEERING  
COLUMN. DRILL MOUNTING  
HOLES AT ASSY.



**RB48 BROOM**

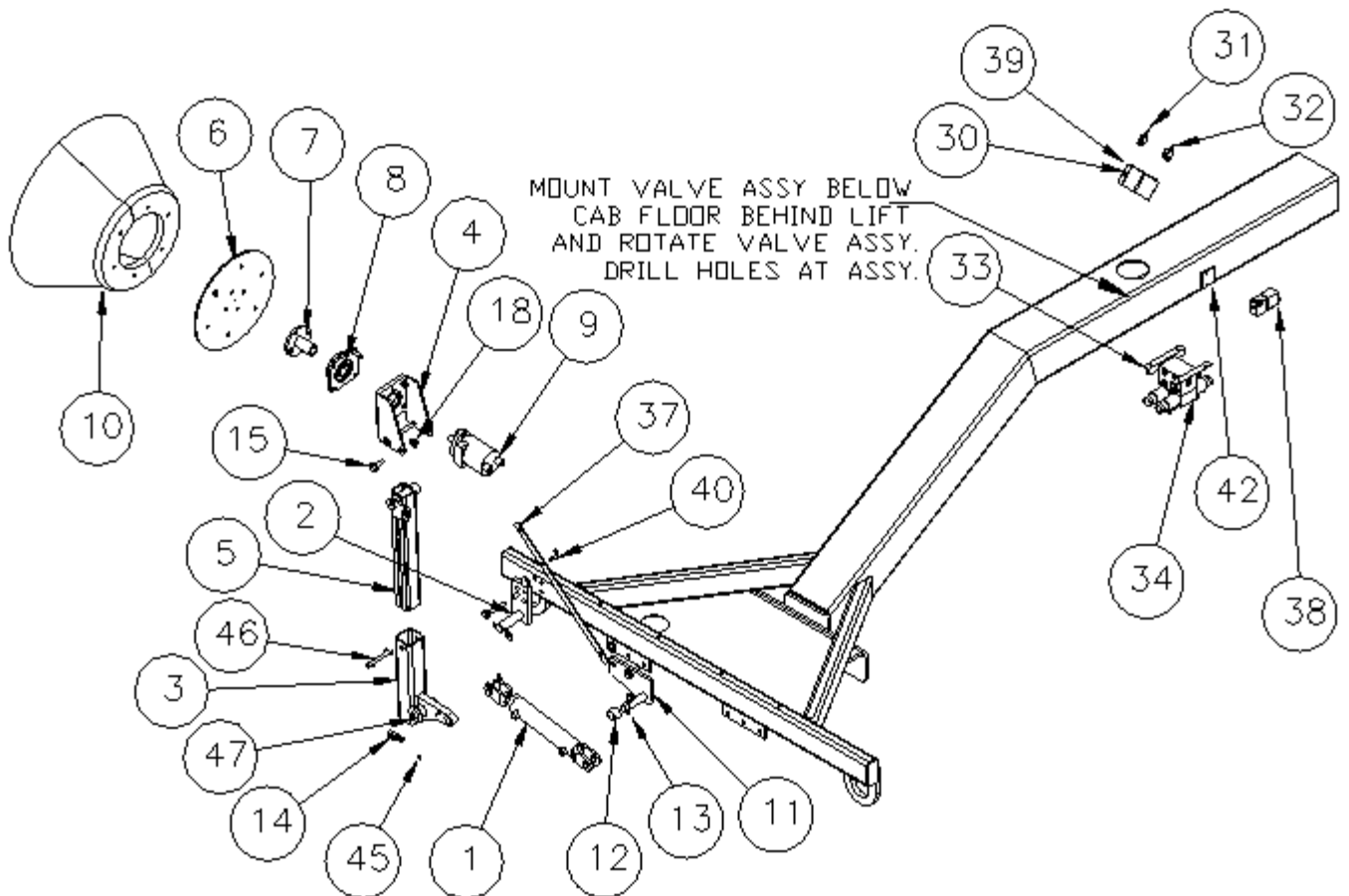
**OTHER OPTIONAL EQUIPMENT - CURB BRUSH**

REF. 29029  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>29029</b>		<b>CURB BRUSH</b>
1	38548	1.00	CYL,HYD,2.0X8.0
N/S	38546-01		SEAL KIT,HYD CYL,2BX1.12R
2	28941	1.00	BUMPER MOUNT,W/M
3	28937	1.00	TUBE,LENGTH ADJ. W/M
4	28931	1.00	MOTOR MOUNT,W/M
5	28943	1.00	ADJ. PLATE,W/M
6	28925	1.00	PLATE,BRUSH MOTOR
7	28928	1.00	BRUSH MOUNT,MOTOR, W/M
8	845311009	1.00	BEARING,FLANGE,1.50,4 BOLT
9	38122	1.00	MOTOR,HYD,LSHT,8.0 DISP
10	39000	1.00	BRUSH,GUTTER,PLASTIC BACK,2 PC
11	28946	1.00	MOUNT,CENTER BUMPER,W/M
12	28932	1.00	TUBE,RND SPACER
13	36544	2.00	HAIR PIN COTTER,7GA(.177)
14	35786	1.00	CLAMP,DOUBLE TUBE,.75 ID
15	80186	3.00	CSHH,.500-13X1.75,GR5
16	80695	10.00	WASHER,SAE PLAIN,.500
17	80164	12.00	WASHER,SPLIT LOCK,.500
18	80040	10.00	NUT,HEX,.500-13
19	80266	3.00	CSHH,.500-13X3.50,GR5
20	80354	2.00	NUT,FLEXLOC,.500-13,FULL,LT
21	80389	4.00	COTTER PIN,.125X1.00
22	71652	1.00	CSHH,.500-13X6.50,GR5
23	80162	4.00	WASHER,SPLIT LOCK,.375
24	80219	4.00	CSHH,.375-16X.75,GR5
25	80163	6.00	WASHER,SPLIT LOCK,.438
26	80771	6.00	CSHH,.438-14X.75,GR5
27	80772	2.00	CSHH,.438-14X1.25,GR5
28	80255	4.00	CSHH,.500-13X2.00,GR5
29	80350	1.00	NUT,FLEXLOC,.250-20,FULL,LT
30	28726	1.00	CONTROL BOX,SNOW PLOW
31	38157	1.00	SWITCH,TOGGLE,DPST,2 POS
32	38961	1.00	SWITCH,TOG,DPDT,3POS,MOM,DETEN
34	38814	1.00	MANIFOLD,HYD,2 STA,D03
<b>35</b>	<b>39062</b>	<b>1.00</b>	<b>HOSE KIT,RB48,CURB BRUSH (Detail Following)</b>
36	29124	1.00	WIRE HARNESS,CURB BRUSH
37	29121	1.00	LOCK,BAR,RAISED
38	38937	1.00	VLV,HYD,2-WAY,SOLENOID,W/BLOCK
39	39064	1.00	DECAL,CONTROL BOX,CURB BRUSH
40	81214	1.00	PIN,CLEVIS,.375X1.25,1.015GRIP
41	37108	2.00	HAIR PIN COTTER,.094,.250-.500
42	28804	1.00	PLATE,FLOAT MOUNT
43	80194	2.00	CSHH,.250-20X1.50,GR5
44	80140	2.00	WASHER,TYPE A PLAIN,.250
45	33684	1.00	FITT,LUBE,STR,02MP,SHORT
46	29130	1.00	PIN,ADJ/LOCKING
47	80151	1.00	WASHER,TYPE A PLAIN,1.250

REF. 29029  
 REV. A

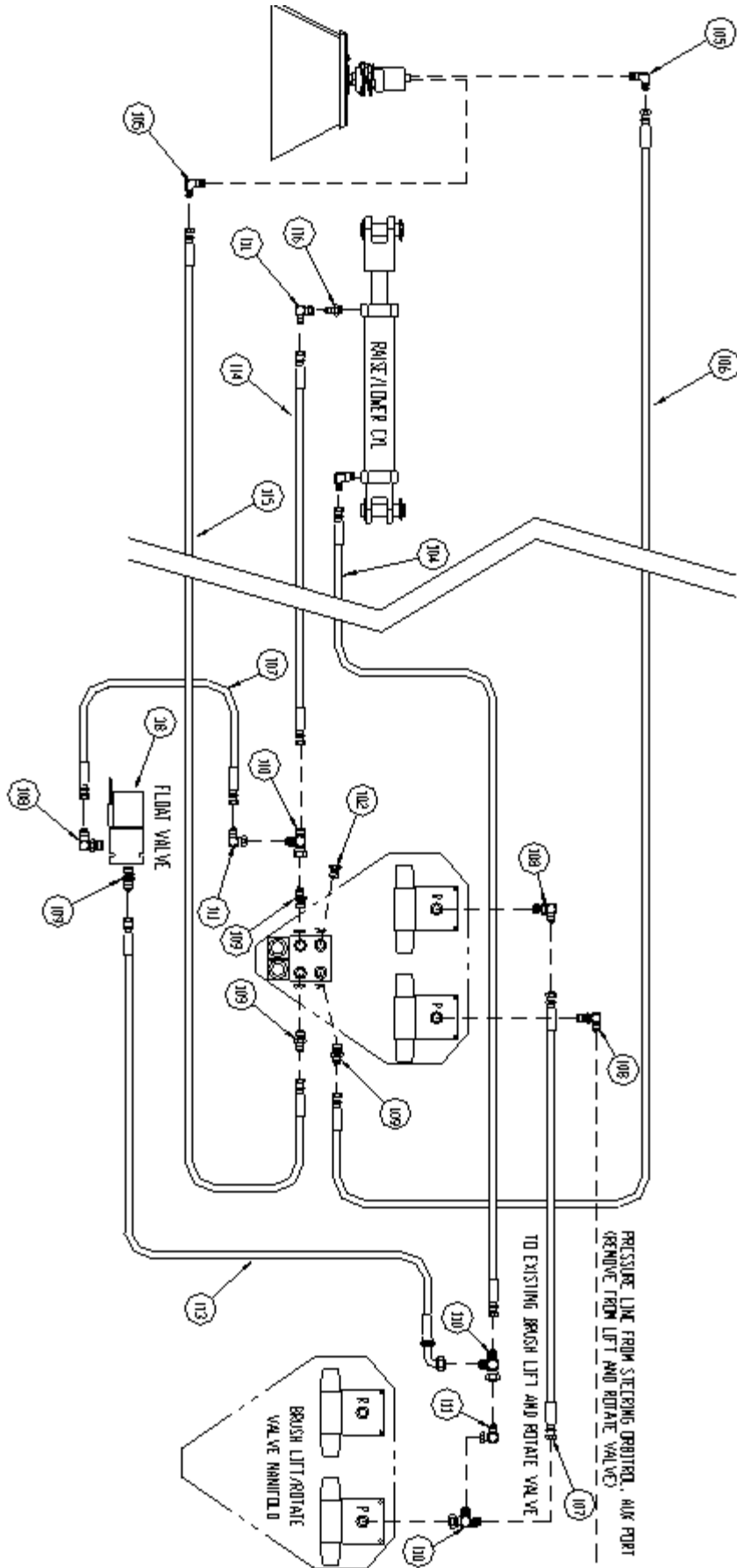
ITEM	PART NO.	QTY	DESCRIPTION
	<b>39062</b>		<b>HOSE KIT,RB48,CURB BRUSH</b>
101	35499	4.00	FITT,STR 06MJ-06MP
102	6408	1.00	FITT,PLUG 06MB,HEX
103	X383	1.00	FITT,90 06MJ-06MP
104	72550-134	1.00	HOSE,06,06FJX-06FJX,3000
105	34535	2.00	FITT,90 06MJ-08MB
106	72550-185	1.00	HOSE,06,06FJX-06FJX,3000
107	36524-06	2.00	HOSE ASSY,3000 PSI,-06 X 29.00
108	33892	3.00	FITT,90 06MJ-06MB
109	X217	4.00	FITT,STR 06MJ-06MB
110	36490	3.00	FITT,TEE 06MJ-06FJX-06MJ
111	X387	3.00	FITT,90 06MJ-06FJX
112	37536	1.00	FITT,STR 06MB-06FJX
113	72549-011	1.00	HOSE,06,06FJX-06RJ90,3000
114	72550-146	1.00	HOSE,06,06FJX-06FJX,3000
115	72550-186	1.00	HOSE,06,06FJX-06FJX,3000
116	37297	1.00	FITT,STR 06MJ-06MP,.078 ORF



**RB48 BROOM**

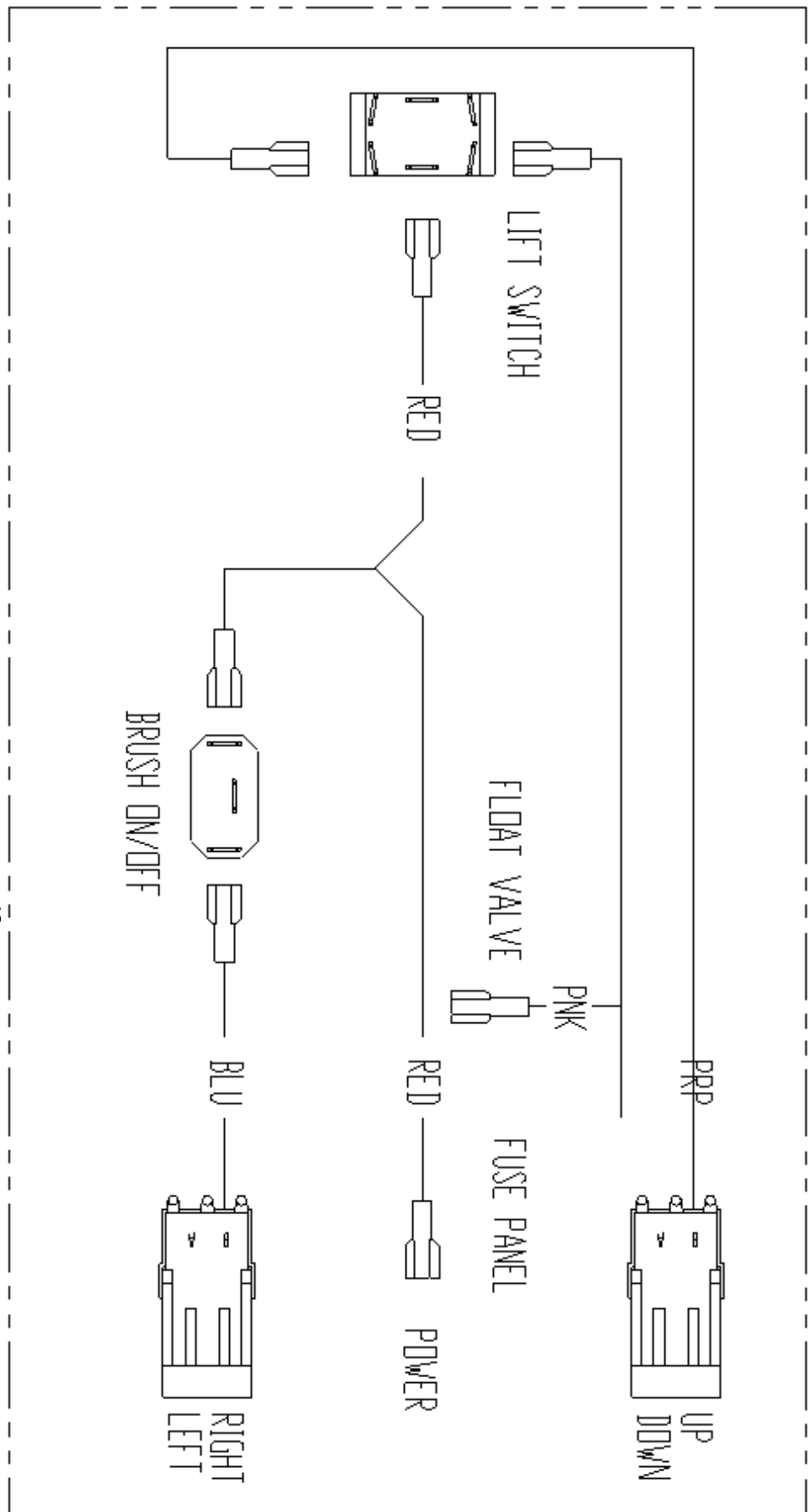
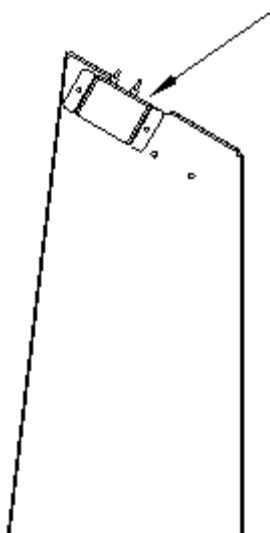
**OTHER OPTIONAL EQUIPMENT - CURB BRUSH**

REF. 29029  
REV. A



REF. 29029  
 REV. A

MOUNT SWITCH BOX TO SIDE OF STEERING COLUMN. DRILL MOUNTING HOLES AT ASSY. TOP SWITCH ON/OFF.

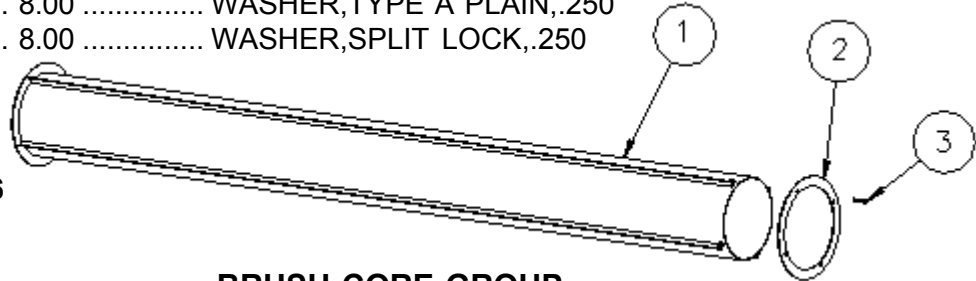


**RB48 BROOM**

**OTHER OPTIONAL EQUIPMENT - BRUSH GROUP**

REF. See List  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
	<b>26062</b>		<b>BRUSH END COVER GRP</b>
1	29044	2.00	COVER,BRUSH END
2	80192	8.00	CSHH,.250-20X.75,GRS
3	80036	8.00	NUT,HEX,.250-20
4	80140	8.00	WASHER,TYPE A PLAIN,.250
5	80160	8.00	WASHER,SPLIT LOCK,.250



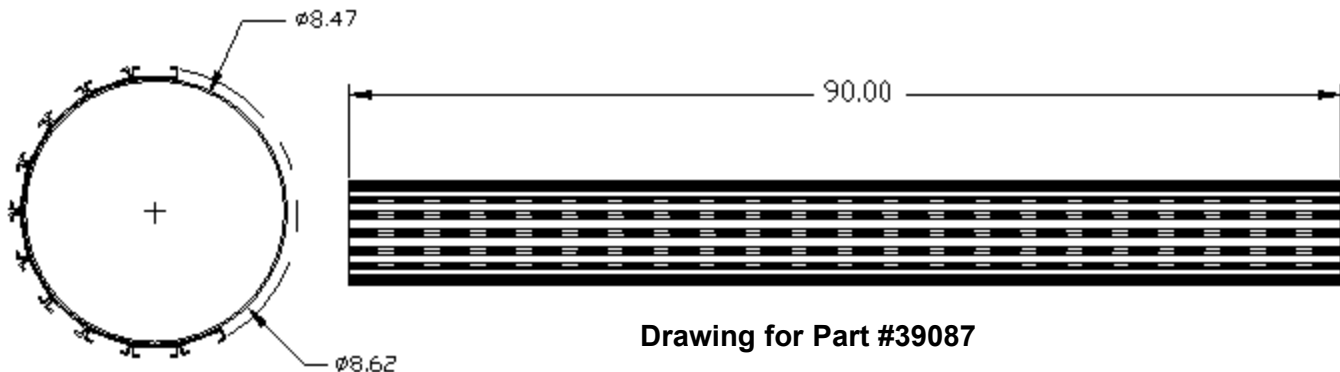
Drawing for Part #28766

	<b>28766</b>		<b>BRUSH CORE GROUP</b>
(Required with all wafer options)			
1	28773	1.00	BRUSH CORE,W/M,QWK CHG
2	28854	1.00	PLATE,BRUSH RING
3	81256	4.00	CSSBH,.312-18X1.0
	<b>6375P</b>	<b>2 boxes</b>	<b>WAFER,POLY,10X32,W/SPACERS (28/box)</b>
	37638		SPACERS,BRUSH
	<b>6375S</b>	<b>2 boxes</b>	<b>WAFER,STL,10X32,W/SPACERS (28/box)</b>
	37638		SPACERS,BRUSH
	<b>34958</b>	<b>2 boxes</b>	<b>WAFER,BRUSH,CONVOLUTED,POLY (24/box)</b>
	<b>34959</b>	<b>2 boxes</b>	<b>WAFER,BRUSH,CONVOLUTED,STEEL (24/box)</b>
	<b>29178</b>		<b>BRUSH ASSY,MILWAUKEE,90" POLY</b>
	39087	1.00	MANDREL,BRISTLE STRIP (Drawing Below)
	39088	2.00	BRISTLE STRIP,POLY (Drawing Opposite)

**(TUBE BRUSHES DO NOT REQUIRE PART #28766 BRUSH CORE GROUP)**

**38806 TUBE BRUSH,POLY**

**38831 TUBE BRUSH,POLY/STEEL**



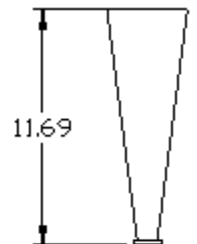
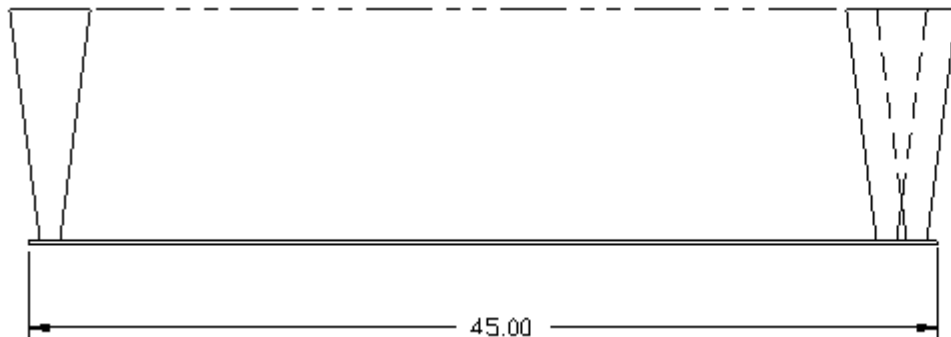
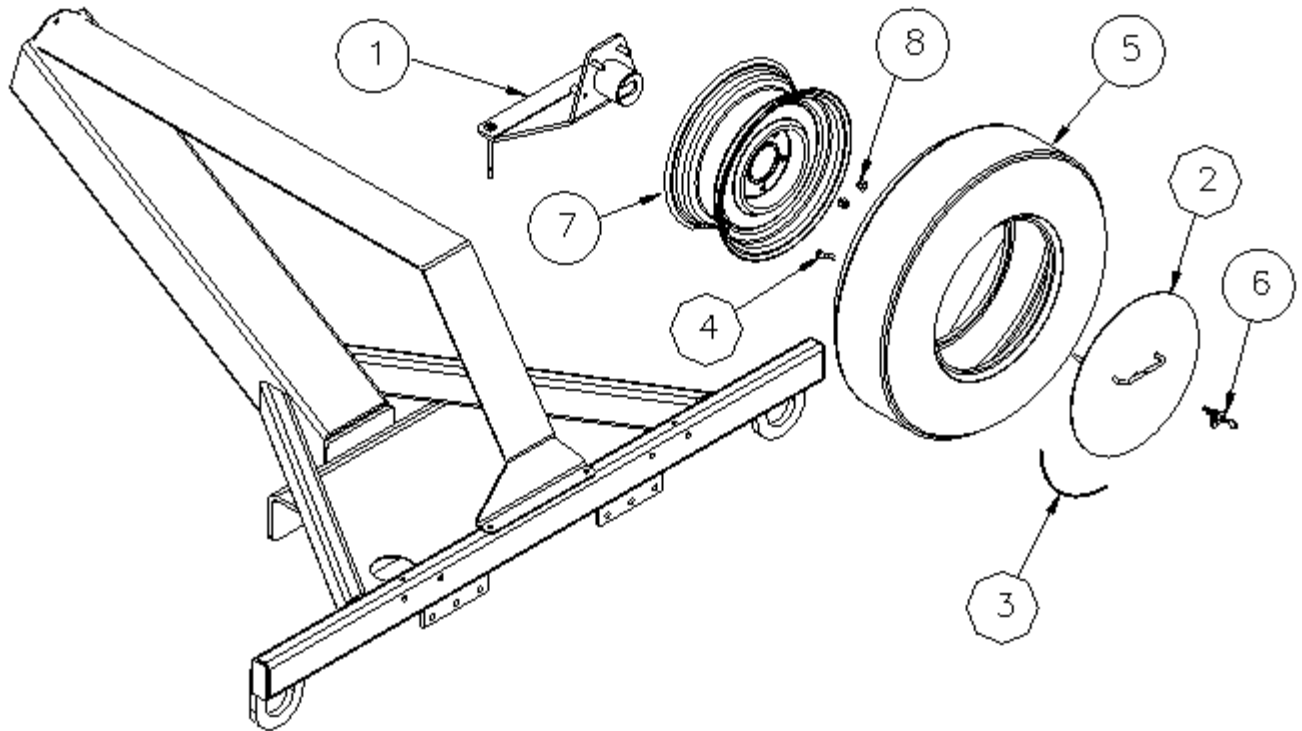
Drawing for Part #39087

**OTHER OPTIONAL EQUIPMENT**

**RB48 BROOM**

REF. 29155  
REV. A

ITEM	PART NO.	QTY	DESCRIPTION
	<b>29155</b>		<b>SPARE TIRE GROUP</b>
1	29154	1.00	MOUNT, SPARE TIRE, FORD, W/M
2	21201	1.00	LOCK CAP W/M
3	33630-1	4.16	STRIPPING, EDGE, .125
4	33799	1.00	TIRE VALVE, TUBELESS, .453, 1.25
5	35342	1.00	TIRE, RADIAL, ST225/75-R15, C
6	39095	1.00	LOCK, W/SHORT OFFSET CAM
7	39027	1.00	WHEEL, 15X6.5 HOLE, 5.5BC, FORD
8	6524	2.00	NUT, WHEEL, .50-20





**RB48 BROOM****OTHER OPTIONAL EQUIPMENT**REF. See List  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
	<b>21175</b>		<b>ETHER START</b>
0	36340	1.00	FUSE, BLADE, 10AMP, ATC-10
0	38997	1.00	KIT, ETHER INJECTION, 3.0 CC
0	80192	4.00	CSHH, .250-20X.75, GR5
0	80350	4.00	NUT, FLEXLOC, .250-20, FULL, LT
0	946096028	1.00	CYLINDER, STARTING FLUID
	<b>28917</b>		<b>GPS GROUP &amp; SEALED LOCKBOX</b>
0	38965	1.00	NUT, LK, ELEC CND, .750-14 NPT
0	38963-02	1.00	MANUAL, GPS SYSTEM
1	28916	1.00	BOX, MODIFY GPS, 14GA, LOCK&HOLES
2	35812	1.00	LOCK, WITH OFFSET CAM
3	34226	1.00	FITT, CABLE ENTR, 12MP, .500-.750
4	38963	1.00	GPS SYSTEM
5	38963-01	1.00	GPS BATTERY, 12V
	<b>33708</b>		<b>TOOL BOX</b>
	<b>33022</b>		<b>LIGHT, ROTATING BEACON</b>
	<b>37682</b>		<b>LIGHT, AMBER STROBE, 16 JOULE</b>
.....	37682-02	1.00	BULB, FLASH TUBE, STROBE
	<b>38705</b>		<b>GUARD, BRANCH, STROBE LIGHT</b>
	<b>35272</b>		<b>FIRE EXTINGUISHER</b>
	<b>35775</b>		<b>MOUNT BRACKET, 20# FIRE EXTINGUISHER</b>

## OTHER OPTIONAL EQUIPMENT

RB48 BROOM

REF. See List  
REV.

ITEM	PART NO.	QTY	DESCRIPTION
	<b>35319</b>		<b>RESTRICTION INDICATOR</b>
	<b>27978</b>		<b>RESTRICTION INDICATOR,REMOTE</b>
0	35415	1.00	RESTRICTION IND.,REMOTE,MOUNT
0	38413	1.00	FITT,90 02MP-03HB,BRASS
0	80996	2.00	WASHER,SAE PLAIN,.375
	<b>38894</b>		<b>ENGINE BLOCK HEATER, 400 WATT,CUMMINS</b>
	<b>36752</b>		<b>PRECLEANER, TURBO II, 3.75 INLET</b>
0	36752-01		HOUSING
0	36752-02		SPINNER ASSY
0	36752-03		VANE ASSY
0	36752-04		DECAL,"TURBO" LABEL
	<b>40623</b>		<b>BATTERY DISCONNECT GROUP</b>
0	40626	1.00	PLATE,SWITCH MOUNTING
0	5804	1.00	CABLE,BATTERY,2 LUG,0GAX13
0	72254	1.00	SWITCH,BATTERY DISCONNECT
0	R443	2.00	CABLE,BATTERY,POS,28,4GA,.406
	<b>72132</b>		<b>ALARM,BACKUP,SMART</b>

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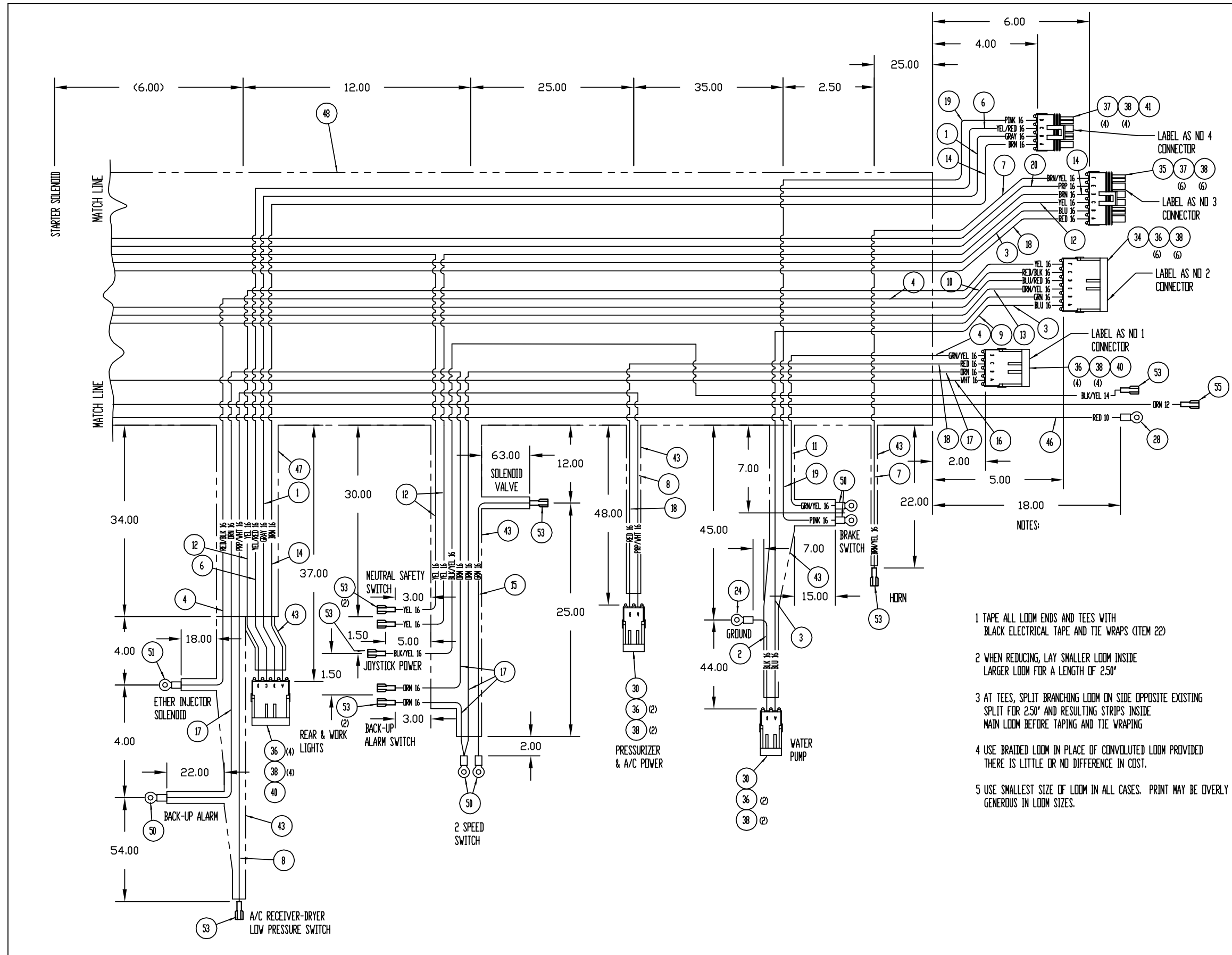
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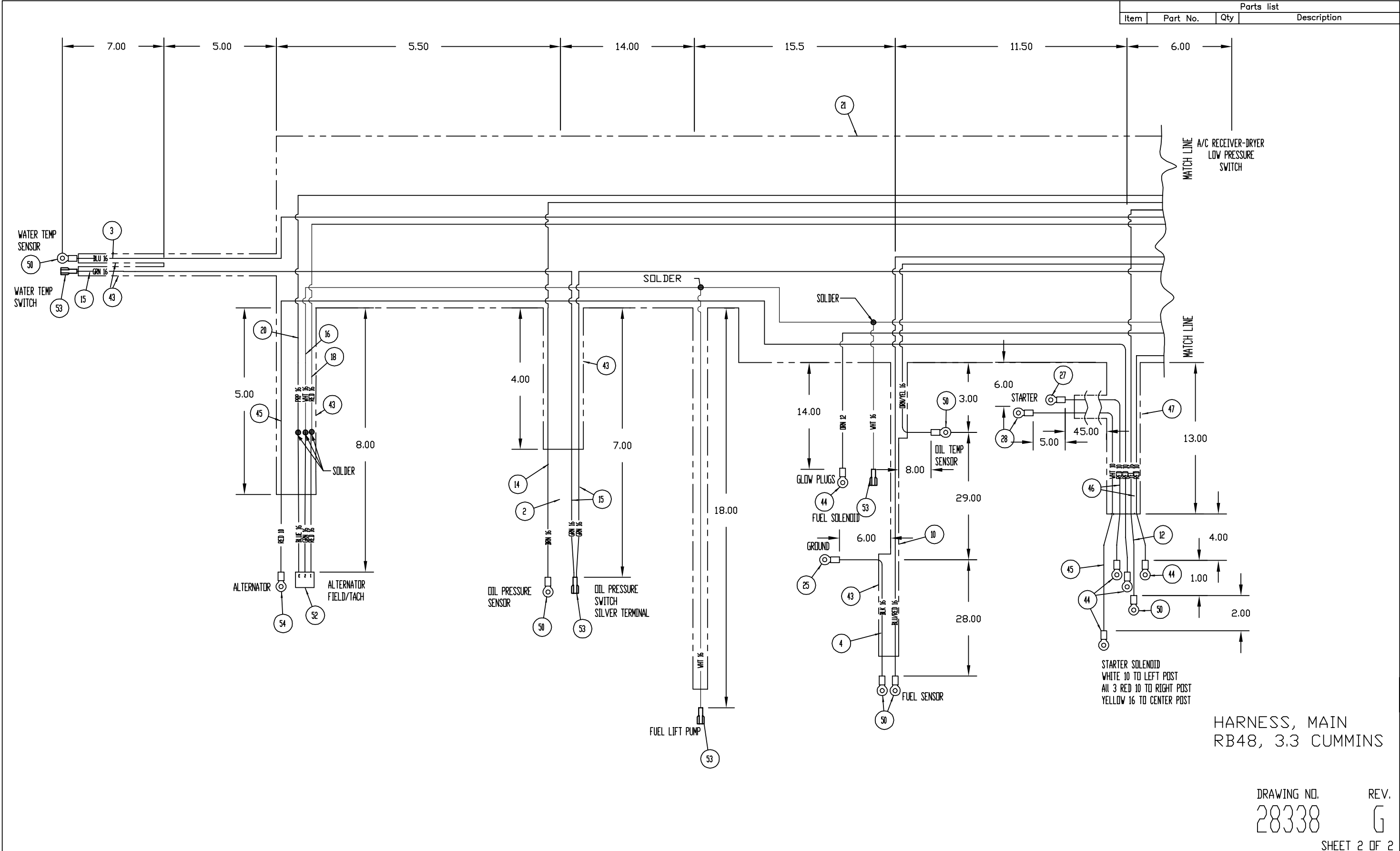


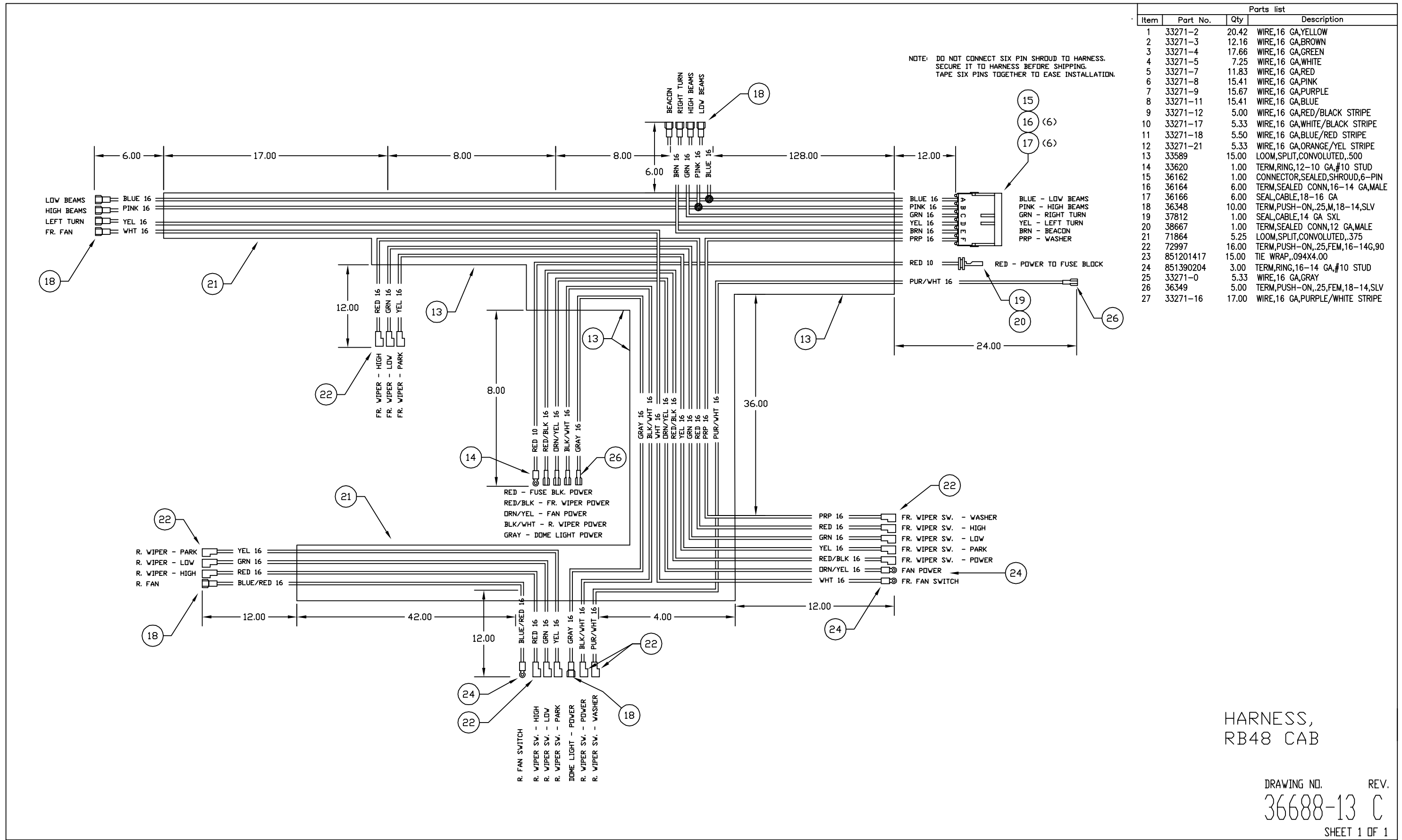
Parts list			
Item	Part No.	Qty	Description
1	33271-0	11.75	WIRE,16 GA,GRAY
2	33271-1	10.00	WIRE,16 GA,BLACK
3	33271-11	23.75	WIRE,16 GA,BLUE
4	33271-12	13.50	WIRE,16 GA,RED/BLACK STRIPE
5	33271-13	12.00	WIRE,16 GA,BLACK/YELLOW STRIPE
6	33271-14	12.00	WIRE,16 GA,YELLOW/RED STRIPE
7	33271-15	4.50	WIRE,16 GA,BROWN/YELLOW STRIPE
8	33271-16	16.75	WIRE,16 GA,PURPLE/WHITE STRIPE
10	33271-18	15.00	WIRE,16 GA,BLUE/RED STRIPE
11	33271-19	4.50	WIRE,16 GA,GREEN/YEL STRIPE
12	33271-2	28.00	WIRE,16 GA,YELLOW
13	33271-21	11.25	WIRE,16 GA,ORANGE/YEL STRIPE
14	33271-3	25.50	WIRE,16 GA,BROWN
15	33271-4	23.00	WIRE,16 GA,GREEN
16	33271-5	15.75	WIRE,16 GA,WHITE
17	33271-6	21.00	WIRE,16 GA,ORANGE
18	33271-7	23.50	WIRE,16 GA,RED
19	33271-8	4.75	WIRE,16 GA,PINK
20	33271-9	13.25	WIRE,16 GA,PURPLE
21	33589	2.25	LOOM,SPLIT,CONVOLUTED,.500
22	33596	43.00	TIE WRAP,.188X7.5
24	33607	1.00	TERM,RING,16-14 GA,.250 STUD
25	33609	1.00	TERM,RING,16-14 GA,.375 STUD
27	33612	1.00	TERM,RING,12-10 GA,.375 STUD
28	33620	2.00	TERM,RING,12-10 GA,#10 STUD
30	35138	2.00	CONNECTOR,SEALED,SHROUD,2-PIN
34	36162	1.00	CONNECTOR,SEALED,SHROUD,6-PIN
35	36163	1.00	CONNECTOR,SEALED,TOWER,6-PIN
36	36164	18.00	TERM,SEALED CONN,16-14 GA,MALE
37	36165	10.00	TERM,SEALED CONN,16-14 GA,FEM
38	36166	28.00	SEAL,CABLE,18-16 GA
40	36351	2.00	CONNECTOR,SEALED,SHROUD,4-PIN
41	36352	1.00	CONNECTOR,SEALED,TOWER,4-PIN
43	71060	53.65	LOOM,SPLIT,CONVOLUTED,.250
44	71070	4.00	TERM,RING,12-10 GA,.312 STUD
45	71861-1	34.00	WIRE,10 GA,WHITE
46	71861-2	16.83	WIRE,10 GA,RED
47	71864	7.00	LOOM,SPLIT,CONVOLUTED,.375
48	71870	12.58	LOOM,SPLIT,CONVOLUTED,.750
50	851390204	11.00	TERM,RING,16-14 GA,#10 STUD
51	35123	1.00	TERM,RING,16-14 GA,#6 STUD
52	38876	1.00	HARNES,ALTERNATOR,3.3CUMMINS
53	36349	12.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
54	851390257	1.00	TERM,RING,12-10 GA,.250 STUD
55	36297	1.00	TERM,PUSH-ON,.25,FEM12-10,SLV

- NOTES:
- 1 TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 22)
  - 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 WRAPING
  - 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.

HARNES, MAIN  
RB48, 3.3 CUMMINS

DRAWING NO. 28338 REV. G

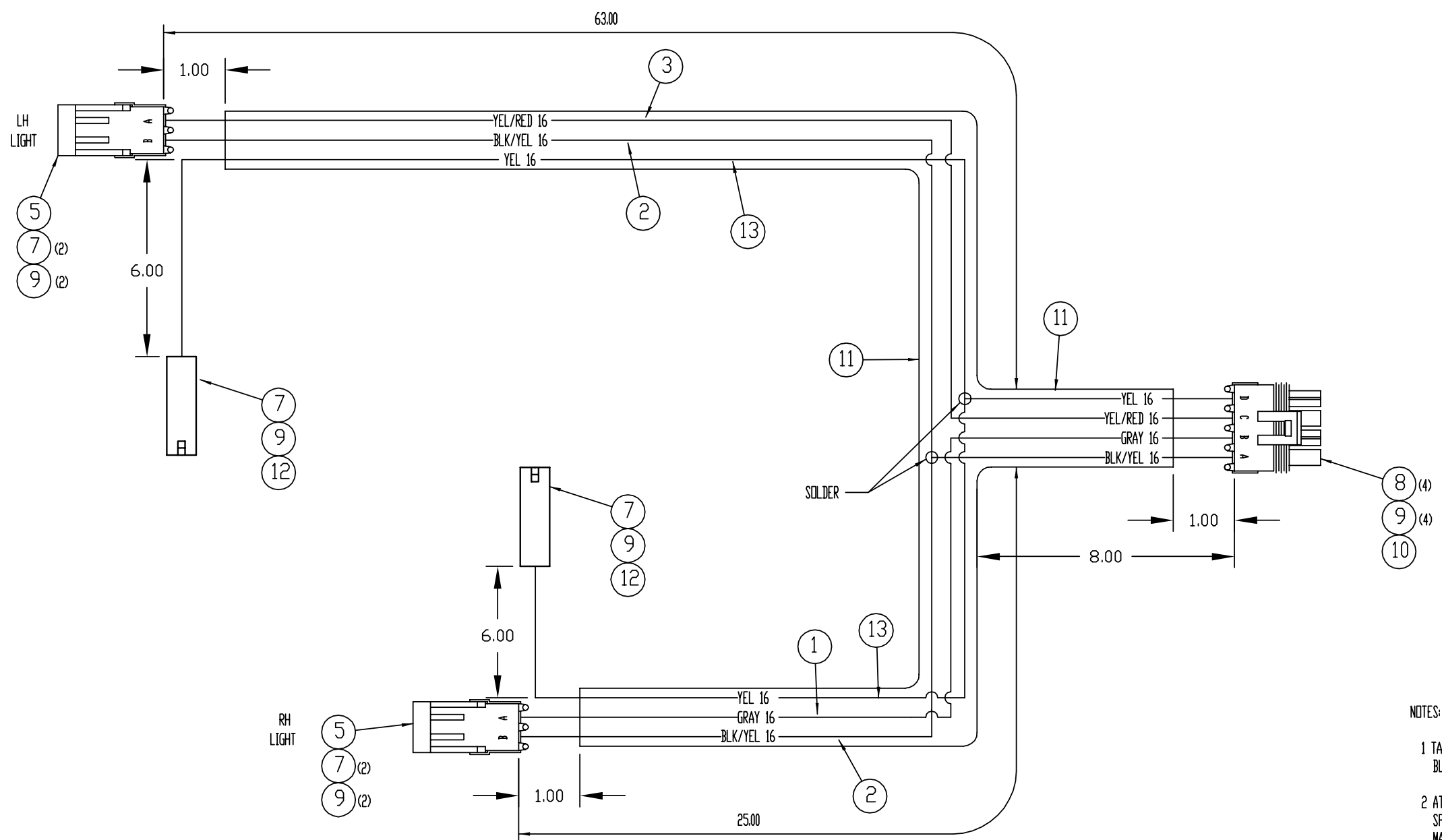




HARNESS,  
RB48 CAB

DRAWING NO. REV.  
36688-13 C  
SHEET 1 OF 1

Parts list			
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



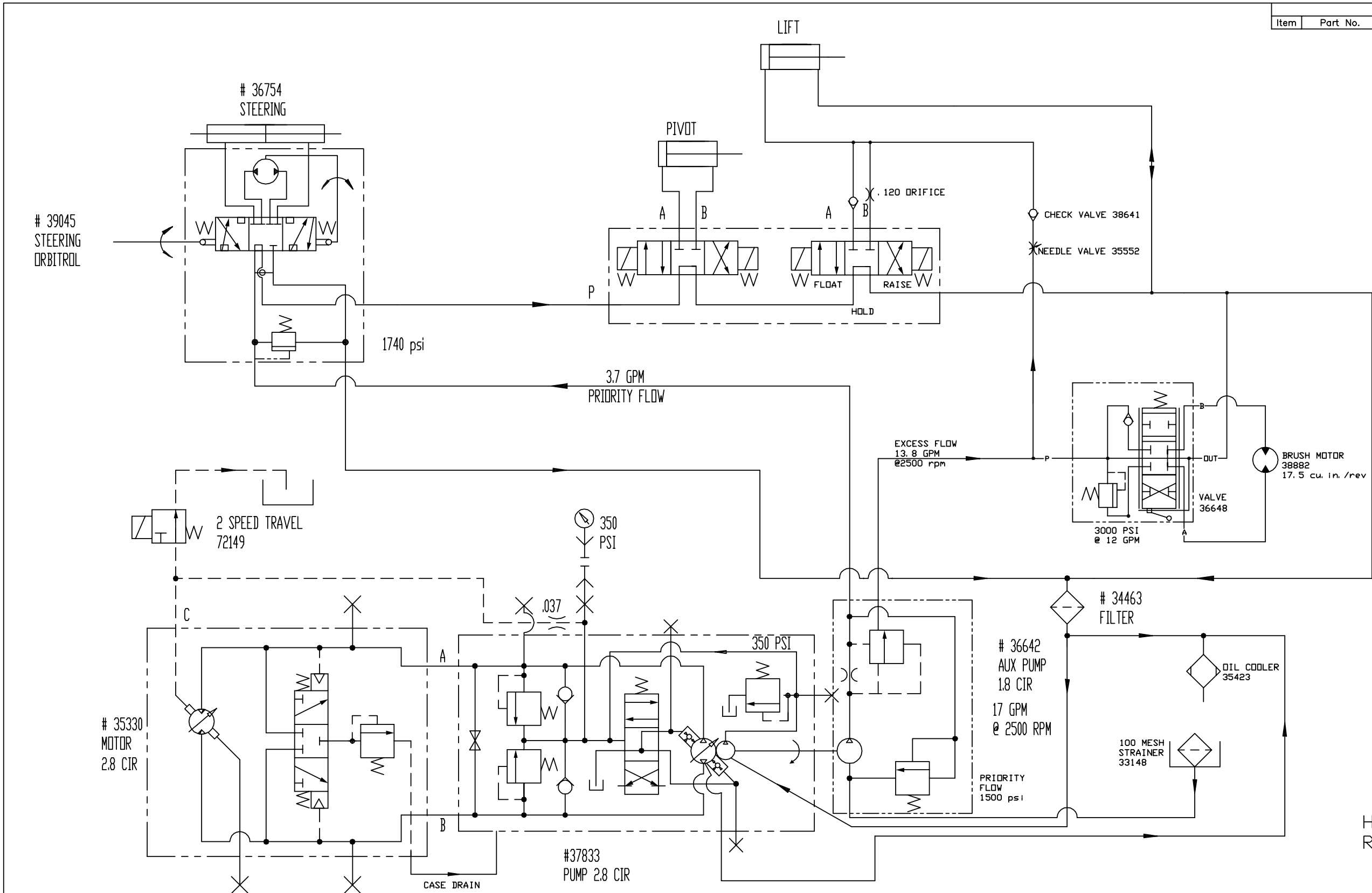
NOTES:  
 1 TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 4)  
 2 AT TEES, SPLIT BRANCHING LOOM ON SIDE OPPOSITE EXISTING SPLIT FOR 2.50" AND RESULTING STRIPS INSIDE MAIN LOOM BEFORE TAPING AND TIE WRAPING

WIRE HARNESS,  
 REAR/WORK  
 LIGHTS

DRAWING NO. 28353  
 REV. Ø  
 SHEET 1 OF 1



Parts list			
Item	Part No.	Qty	Description



HYD SCHEMATIC,  
RB48,2003

DRAWING NO.  
**29391**

REV.  
Ø

SHEET 1 OF 1