

MEG 1532ES/1932ES

Service and Parts



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HYDRAULIC SCHEMATIC ELECTRICAL SCHEMATICS



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INTRODUCTION

This manual consists of Service and Parts illustrations sections.

The Service Section of this manual is designed to provide you, the customer, with the instructions needed to properly maintain the MEC self-propelled scissors lift. When used in conjunction with the illustrated parts section and the Operators Manual (provided separately), this manual will assist you in making necessary adjustments, repairs, identifying, and ordering the correct replacement parts.

All parts represented here are manufactured and supplied in accordance with MEC's quality standards.

We recommend that you use Genuine MEC parts to insure proper OPERATION and reliable PERFORMANCE.

To obtain maximum benefits from your MEC scissors lift, always follow the proper operating and maintenance procedures. Only trained authorized personnel should be allowed to operate or service this machine. Service personnel should read and study the Operator's, Service and Parts Manuals in order to gain a thorough understanding of the unit prior to making any repairs.

To help you recognize important safety information, we have identified warnings and instructions that directly impact on safety with the following signals:



"DANGER" INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY. THIS SIGNAL WORD IS LIMITED TO THE MOST EXTREME SITUATIONS.



WARNING" INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



"CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. "Caution" is used for property-damage only accidents.





NOTE: The best method to protect yourself and others from injury or death is to use common sense. If you are unsure of any operation, <u>don't start</u> until you are satisfied that it is safe to proceed and have discussed the situation with your supervisor.

Service personnel and machine operators must understand and comply with all warnings and instructional decals on the body of the machine, at the ground controls, and platform control console.



MODIFICATIONS OF THIS MACHINE FROM THE ORIGINAL DESIGN AND SPECIFICATIONS WITHOUT WRITTEN PERMISSION FROM MEC ARE STRICTLY FORBIDDEN. A MODIFICATION MAY COMPROMISE THE SAFETY OF THE MACHINE, SUBJECTING OPERATOR(S) TO SERIOUS INJURY OR DEATH.

MEC's policies and procedures demonstrate our commitment to Quality and our relentless ongoing efforts towards Continuous Improvement, due to which product specifications are subject to change without notice.

Any procedures not found within this manual must be evaluated by the individual to assure oneself that they are "proper and safe."

Your MEC Scissors Lift has been designed, built, and tested to provide many years of safe, dependable service. Only trained, authorized personnel should be allowed to operate or service the machine.

MEC, As Manufacturer, Has No Direct Control Over Machine Application And Operation. Proper Safety Pratices Are The Responsibility Of The User And All Operating Personnel.

If There Is A Question On Application And/Or Operation Contact:



Aerial Work Platforms
Mayville Engineering Co., Inc.

An Employee Owned Company

210 Corporate Drive - Box 990 • Beaver Dam, WI 53916-0990 USA

Ph: 1-800-387-4575 • 920-887-2518 • Fax: 920-887-2480

E-mail: awp@mayvl.com • Web: www.mayvl.com



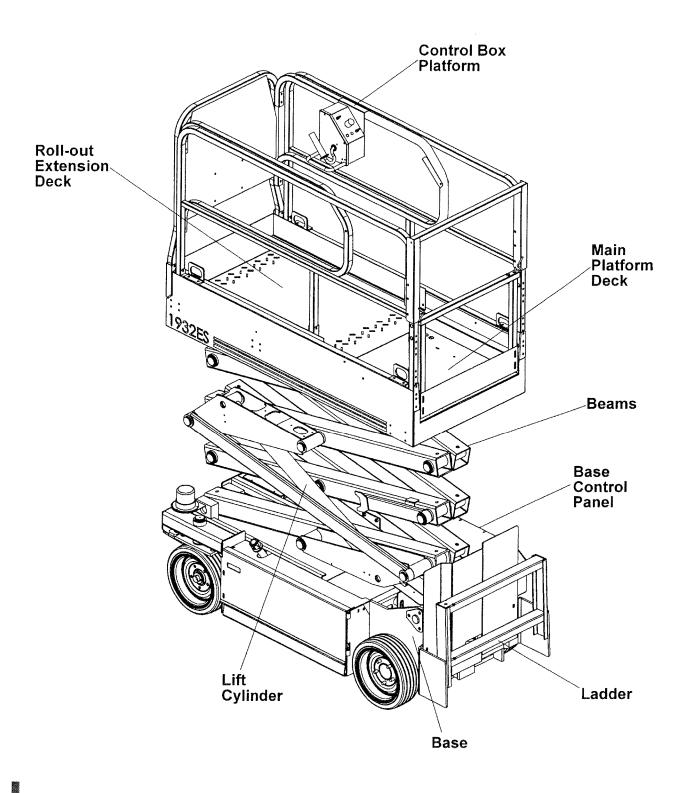
Machine Specifications - 1532ES

Working Height	21 ft	6.40 m		
Platform Height	15 ft	4.57 m		
Stowed Height:	77.5 in	1.97 m		
Folded Down Rails	N/A	N/A		
Lift Capacity (Evenly Distributed):	600 lbs	272 kg		
Roll-out Deck Capacity	250 lbs	113 kg		
Platform Dimensions:				
With Roll-Out Deck	30 x 66 in	0.76 x 1.68 m		
Guard Rail Height	43.5 in	1.10 m		
Toe Board Height	7.5 in	19.05 cm		
Roll-out Deck Length	36 in	0.91 m		
Overall Length	74 in	1.88 m		
Overall Width	32 in	0.81 m		
Wheel Base	50 in	1.27 m		
Wheel Track	27.37 in	0.70 m		
Turning Radius:				
Inside	1.5 in	3.81 cm		
Outside	61 in	1.55 m		
Ground Clearance	2.87 in	72.90 mm		
Machine Weight (Unloaded) (Approx.)	2725 lbs	1236 kg		
Drive System (Proportional):				
Drive Speed (Platform Elevated)	0 - 0.46 mph	0 - 0.74 km/h		
Drive Speed (Platform Lowered)	0 - 2.1 mph	0 - 3.38 km/h		
Lift/Lower Speed (Approx.)	17 sec / 20 sec			
Gradeability	25% / 14 degree	S		
Ground Pressure/Wheel (Maximum)	89 psi	6.13 bar		
Wind Speed (Maximum)	0 mph	0 km/h		
Tire Size-Standard (Solid, non-marking rubber)		355.6 x 114.3 mm		
Tire Pressure (Not Applicable For Solid Tires)	N/A	N/A		
Wheel Lug Nut Torque	75-85 ft lbs	102-115 Nm		
Hydraulic Pressure:				
Main System	2750 psi	190 bar		
Lift System	1900 psi	131 bar		
Steer	850 psi	59 bar		
Hydraulic Fluid Capacity	3 gal	11.36 liters		
Fuel Capacity	N/A	N/A		
Power System – Voltage	24 Volts DC			
Battery Charger Input	230 Volt AC, 50 H	łz (Europe)		
	120 Volt AC, 60 Hz, 5.6 Amp			
Output	24 Volt DC, 15 Amps Tapering,			
- Carpar	Timed Shutoff			
Batteries	Four 6 Volt deep-cycle; 218 Amp			
hours @ 20 hour rating				
Electric Motor				
LICOTIO MOTO	2.0 11.p.(1.43KVV).	0000 I.p.III.		

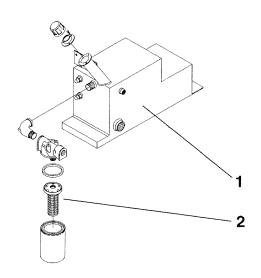
Machine Specifications - 1932ES

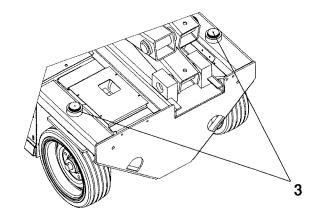
Working Height	25 ft	7.62 m		
Working Height	19 ft	5.79 m		
Platform Height	79.5 in	2.02 m		
Stowed Height: Folded Down Rails	79.5 III N/A	N/A		
	500 lbs	227 kg		
Lift Capacity (Evenly Distributed):	250 lbs	1		
Roll-out Deck Capacity	230 IDS	113 kg		
Platform Dimensions:	30 x 66 in	0.76 x 1.68 m		
With Roll-Out Deck		1.10 m		
Guard Rail Height	43.5 in			
Toe Board Height	7.5 in	19.05 cm		
Roll-out Deck Length	36 in	0.91 m		
Overall Length	74 in	1.88 m		
Overall Width	32 in	0.81 m		
Wheel Base	50 in	1.27 m		
Wheel Track	27.37 in	0.70 m		
Turning Radius:				
Inside	1.5 in	3.81 cm		
Outside	61 in	1.55 m		
Ground Clearance	2.87 in	72.90 mm		
Machine Weight (Unloaded) (Approx.)	3060 lbs	1388 kg		
Drive System (Proportional):		0 0 7 1 1 "		
Drive Speed (Platform Elevated)	0 - 0.46 mph	0 - 0.74 km/h		
Drive Speed (Platform Lowered)	0 - 2.1 mph	0 - 3.38 km/h		
Lift/Lower Speed (Approx.)	17 sec / 20 sec			
Gradeability	25% / 14 degree			
Ground Pressure/Wheel (Maximum)	97.5 psi	6.72 bar		
Wind Speed (Maximum)	0 mph	0 km/h		
Tire Size-Standard (Solid, non-marking rubber)	14 in dia. x 4.5 in	355.6 x 114.3 mm		
Tire Pressure (Not Applicable For Solid Tires)	N/A	N/A		
Wheel Lug Nut Torque	75-85 ft lbs	102-115 Nm		
Hydraulic Pressure:		4001		
Main System	2750 psi	190 bar		
Lift System	2400 psi	165 bar		
Steer	850 psi	59 bar		
Hydraulic Fluid Capacity	3 gal	11.36 liters		
Fuel Capacity	N/A	N/A		
Power System – Voltage	24 Volts DC	/ 1999		
Battery Charger Input	230Volt AC, 50 Hz (Europe)			
	120 Volt AC, 60 Hz, 5.6 Amp			
Output	24 Volt DC, 15 Amps Tapering,			
	Timed Shutoff			
Batteries	Four 6 Volt deep-cycle; 218 Amp			
	hours @ 20 hour rating			
	0.01 // /0.11	N. 0000		
Electric Motor	2.0 h.p. (1.49 kW): 3000 r.p.m.		

Primary Machine Components



Lubrication Diagram

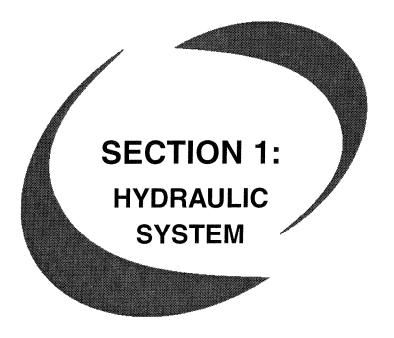




Lubrication Chart

NO.	ITEM	SPECIFICATION	FREQUENCY OF LUBRICATION
	Hydraulic Reservoir	· ·	Check Daily. Analyze Every Six (6) Months Or 500 Hours. Change Yearly Or Every 1,000 Hours, Whichever Occurs First.
2	Hydraulic Filter	Filter Element	Change Every Six Months Or 500 Hours, Whichever Occurs First For Normal Usage. Change Every Three Months Or 300 Hours, Whichever Occurs First For Severe Usage.
3	Wheel Motor Mount	Lithium N.L.G.I. #2 EP Purge Old Grease.	Weekly Or Every 25 Hours, Whichever Occurs First.

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HYDRAULIC FLUID

HANDLING PRECAUTIONS



PERSONS IN REGULAR CONTACT WITH MINERAL-BASED HYDRAULIC FLUID NEED TO BE AWARE OF THE IMPORTANCE OF THOROUGH HYGIENE, AND THE PROPER METHODS FOR HANDLING MINERAL OILS IN ORDER TO AVOID POTENTIAL HAZARDS TO HEALTH.

If mineral- based hydraulic fluid is SPLASHED INTO THE EYES, it must be WASHED OUT THOROUGHLY using abundant quantities of water. If irritation persists, medical advice should be sought.



HYDRAULIC FLUID UNDER PRESSURE CAN PENETRATE AND BURN SKIN, DAMAGE EYES, AND MAY CAUSE SERIOUS INJURY OR BLINDNESS.

FLUID LEAKS UNDER PRESSURE MAY NOT ALWAYS BE VISIBLE.

Fluid Recommendations

MEC recommends the use of ISO Grade 32 hydraulic fluid. A 150SSU EQUIVALENT substitute can be used if absolutely necessary. Mineral-based hydraulic fluids produced by different companies will USUALLY mix with each other satisfactorily, but this IS NOT RECOMMENDED. When in doubt, consult with your supplier.

ISO Grade 32 has proven to be suitable for use in all climates. For continued operation in temperatures below $32^{\circ}F$ (0°C), use of an ATF hydraulic fluid is satisfactory.

The only exception to the above is to drain and fill the system with ATF oil or its equivalent. This will also start up at temperatures down to -20°F (- 29°C). However, use of this oil will give poor performance at temperatures above 120°F (49°C).

Hydraulic Fluid Analysis

Use the following as a guide to determine when analysis of the hydraulic fluid is necessary:

- Anytime the hydraulic pump is replaced.
- If fluid discoloration is noticed in the hydraulic reservoir sight gauge tube.
- If after the first 50 hours of operation, the hydraulic filter element is plugged.
- Anytime the hydraulic filter element shows signs of metal contamination.
- Once every six (6) months, under normal operating conditions.
- Every three (3) months, in extremely dusty or dirty operating conditions.

The hydraulic fluid analysis must be done by a qualified laboratory. Always provide the following information with the test sample.

- Type of hydraulic fluid (see lubrication chart for recommended hydraulic fluid and/or vour records).
- Model and Serial number of machine from which sample was taken.
- Purpose of analysis: pump failure, discoloration, etc.
- Type of analysis: complete to show additive breakdown, acid buildup, viscosity, type and percent of contaminants; also, comparison to new fluid and recommendations.

Following the above guidelines will prevent premature failure of pumps, cylinder seals, drive motors, and unnecessary downtime.

If system flushing and replacement of fluid is recommended, refer to the flushing procedures.

System Flushing Procedure

- 1. With platform fully down, drain hydraulic fluid from hydraulic reservoir into a clean, empty container. Use an oil filter cart so the fluid may be reused if analysis is good.
- 2. When the hydraulic reservoir is empty, remove suction strainer and hoses.
- 3. Remove return line hoses on the hydraulic reservoir.
- 4. Remove the bypass filter and hose.
- 5. Flush the hoses with clean hydraulic fluid.
- 6. Discard old bypass filter element and replace.
- 7. Flush out the tank with hoses removed from the hydraulic reservoir.
- 8. Reinstall all hoses removed in the previous steps.

- 9. Fill hydraulic reservoir with filtered, fresh hydraulic fluid (refer to Lubrication Chart).
- 10. Loosen output hose fittings at pump to flood with hydraulic fluid. Tighten fittings.
- 11. Start up the machine. Briefly operate all functions. Two or three lift cycles may be necessary to purge all air from lift cylinder(s).
- 12. When the above procedures have been completed, fill hydraulic reservoir to full mark on sight gauge.
- 13. Check all leaks and correct as necessary. Machine is now ready to be placed back in operation.

NOTE: AVOID MIXING PETROLEUM AND SYNTHETIC BASE OILS. IT IS NOT ADVISABLE TO MIX OILS OF DIFFERENT BRANDS OR TYPES, EXCEPT AS RECOMMENDED.

HYDRAULIC SYSTEM COMPONENTS

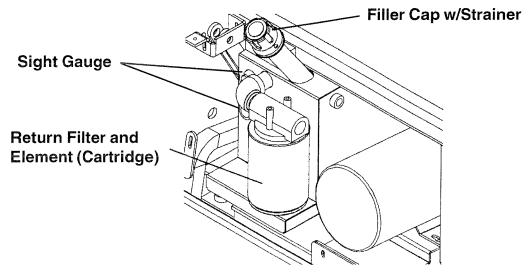
Hydraulic Fluid Reservoir

This consists of the tank, a filler cap with breather, a drain plug, a sight gauge, and a bypass filter with a 10 micron filter element.

Perform the following steps weekly:

- Check tank for signs of leakage.
- Inspect tank securing bolts for tightness.

Hydraulic Filter



Hydraulic Reservoir Assembly

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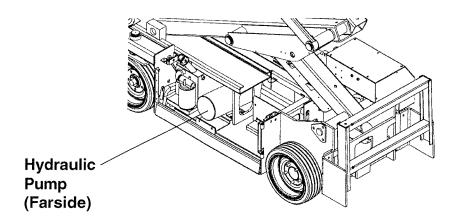
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All machines are produced with a filter. It is a 10 micron spin-on, bypassing filter. When the filter is clogged, hydraulic flow bypasses the filter element. The filter element must be changed every 6 months or 500 hours. Extremely dirty conditions may require that the filter be replaced more often.

Beware of hot oil. Contact with hot oil may cause severe burns.

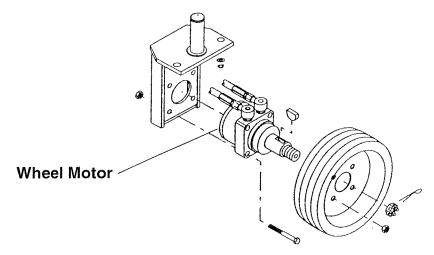
Hydraulic Pump

A 2.0 HP, 24 Volt Electric Motor drives the fixed displacement, gear pump. The pump provides hydraulic fluid flow to operate the machine functions at 3 GPM. There are no adjustments on the pump. The pump provides power for the lift, drive, brake and steering functions.



Wheel Drive Circuit

There are two (2) hydraulic, fixed-displacement gear wheel motors to provide power to two

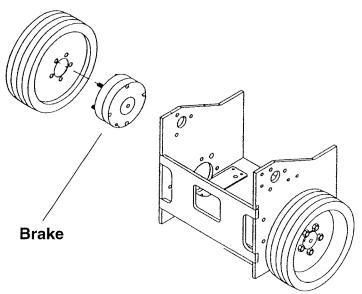


(2) front wheels.

Dynamic Braking Circuit

Rear brakes are released whenever the machine is commanded to drive.

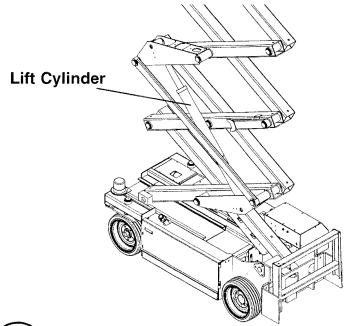
Lift Cylinder



The lift cylinder has an integrated 2 way 2 position holding valve. The holding valve has manual override to lower platform in an emergency situation. The holding valve prevents retraction of the cylinder rod should a hydraulic line rupture or a leak develop between the cylinder and its related valve. Refer to the mechanical section of this manual for cylinder disassembly, or replacement.

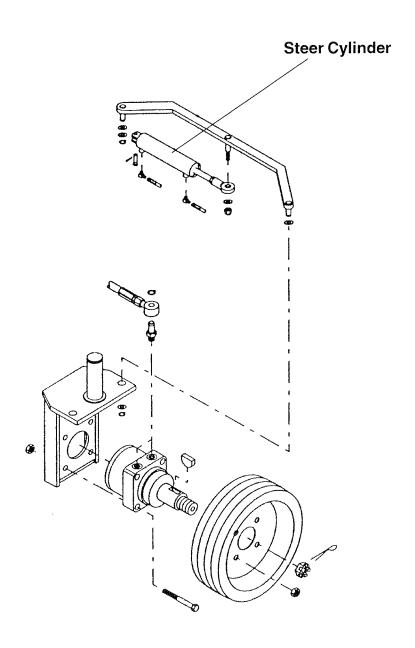
Steer Cylinder

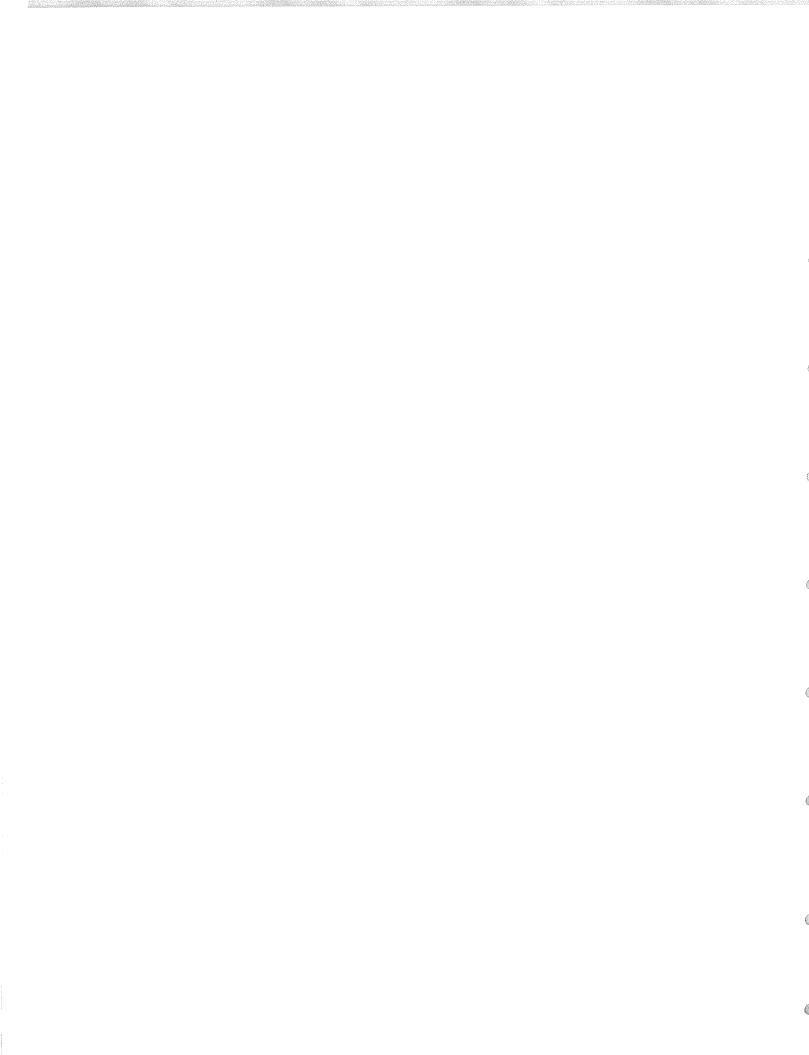
There are one (1) cylinder utilized in the steering system. This cylinder is a double acting type which requires oil flow to operate the cylinder rod in both directions. Directing oil forces the piston to travel towards the rod end of the barrel, extending the cylinder rod.

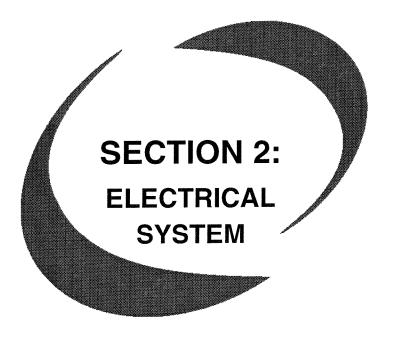


By directing oil to the rod side of the cylinder the piston will be forced in the opposite direction and the cylinder rod will retract.

Refer to the Mechanical Section of this manual for cylinder disassembly, or replacement.







ELECTRICAL SYSTEM- GENERAL

The electrical control system consists of two (2) mutually exclusive control stations namely ground control station and platform station.

The ground station, when enabled via the Base/Platform Selector Switch, disables the platform station and provides control for a fixed speed Lift UP/DOWN functionality.

The platform station consists of a joystick controller with enable switch (trigger), Lift/Drive Mode (Foward/Down, Reverse/UP and accelerator demand), Steer (Right/Left). A torque mode switch causes both hydraulic drive motors to operate in parallel rather than in series for speed mode (normal).

BATTERIES

Four (4), 6 volt batteries supply the 24 volt electrical power required to operate the electrical circuits.

Battery Maintenance (in storage)

Follow these procedures for maintenance of battery on a machine not in use:

- Keep battery clean. Electrolyte of "wet" batteries should be checked regularly and kept at proper level.
- Never stack one battery directly on top of another because post or container damage can result. If batteries are stored individually, place supporting boards between layers. Rotate stock so that the oldest batteries are used first.
- "Wet" batteries should be kept fully charged. A "wet" battery, while in storage, should be recharged to full charge at recommended intervals.

A battery fully (100%) charged at 80° F (26.6°C)

- drops to 65% at 32°F (0°C)
- drops to 40% at 0°F (-32°C)

Recommended Intervals

If Stored At:	Recharge:
Below 40°F (4°C)	None required
Above 60°F (15°C)	Every month
40°-60°F (4°-15°C)	Every 2 months





Battery Maintenance (in use)

Check battery and surrounding area for signs of damage or corrosion.

Check battery terminals for:

- Corrosion: Regularly clean connections and apply a non-metallic grease or protective spray to retard corrosion.
- Loose connections: Be sure all cable connections are tightly secured, and that good contact is made with terminals.
- Broken or Frayed cables: Be sure all connections are good and that no loose or broken wires are exposed. Replace as necessary.

Check battery electrolyte level. Replenish the electrolyte, if necessary. Remove vent caps before filling, and USE ONLY DISTILLED WATER. DO NOT OVERFILL. Fill to level indicator (or ½ inch over the top of separators, if there is no level indicator). Fill after charging to prevent overflow of acid due to expansion. Do not use a hose to add water to batteries.

Allowing the electrolyte level to drop below the top of the separators will lead to shortened battery life.

Excessive water usage can indicate that a battery has been overcharged, has been subjected to excessively high temperatures, or is nearing the end of its service life.

Battery Preventative Maintenance:

Every 15 hours (after battery has been charged), spot-check the specific gravity of two or more cells. A fully charged battery should indicate 1.28 specific gravity. If low readings are noted, check the following:

- Check terminals for corrosion, loose connections and broken or frayed cables.
- Check all cells with a hydrometer for variance in specific gravity. A variation of 0.03 points or more between cells is a cause for concern. Mark the low cells.

Recheck specific gravity of all cells after recharging. Wash the top of the battery, making sure all vents are in place. Do not allow cleaning water or other foreign matter to enter the cells. Use a solution of bicarbonate soda (5 tsp. of baking soda per quart of warm water) and water to wash the battery if there is an accumulation of acid.

Battery Replacement

To remove batteries, follow these procedures.



BEFORE REMOVING THE BATTERIES FROM THE MACHINE, TURN OFF THE SELECTOR/ KEY SWITCH. THERE SHOULD BE NO POWER.

Batteries are located in the side compartment of the machine.

Always disconnect the negative battery cable first.

Remove bolts holding battery. Lift the battery from the compartment. Put the battery to the side and dispose off properly.



Always connect the positive battery cable first.

To install battery, reverse the process by positioning the battery in the compartment securely with hold down bolts. Connect battery cables.

Movement Alarm (OPTIONAL)

This alarm is activated as soon as the platform control console joystick (controller) lever is moved off the center "Neutral" position.



THE MOVEMENT ALARM IS PROVIDED FOR YOUR PROTECTION, AND PROTECTION OF PERSONS WORKING IN THE IMMEDIATE AREA. DISABLING THIS IMPORTANT SAFETY DEVICE MAY RESULT IN SERIOUS INJURY OR DEATH.

Tilt Alarm

A warning indicator light provided at the platform console will give a visual warning when machine is at an unsafe angle; lift function is disabled in this condition.

An audible warning is activated once machine is in the raised position and reaches an unsafe angle; drive function is disabled in this condition.

Tilt Alarm Test

This can be tested by manually tipping the sensor. This "Push-To-Test" feature enables tilt alarm to be tested without losing its adjustment. Individually push down on each of the three fastened corners of the tilt alarm. There should be enough travel to cause the alarm to sound as each corner is pressed. (There is approximately a 1-3 second delay). If the alarm does not sound, the flange nuts have been tightened too far. Loosen the nut on the 90° corners and repeat this test procedure.

Tilt Alarm Sensor Adjustment

- Before attempting to adjust the alarm, park the machine on a firm, flat, lever surface. Use of an inclinometer is recommended to ensure front and rear of chassis is level.
- Open the base control panel to access the sensor. Adjust the three flange nuts until the bubble on top of the sensor is centered.
- Check that the electrical connections are correct and secured tight.
- Close/shut the base control panel.

Limit Switch

There is a limit switch to prevent driving in high speed when the platform is raised above approximately 7 feet (2.13 meters), then machine will be in the slow speed mode.

Relay (Europe)

The relay is located inside the compartment (Refer to the schematic at the end of this manual for relay functions and interconnect).

Emergency Stop Button

There are two red emergency stop buttons: one located on the platform control console and the other on the base control panel.

This stop button, when in the ON (OUT) position, provides power to the desired control station. Also, the stop button, in the event of an emergency can be used to turn off the power by pushing "IN". All functions stop immediately when depressed.

Turn the button clockwise to reset.

NOTE: As a safety feature, selecting and operating the base controls will override the platform controls, except the platform emergency stop button.

The base control emergency stop button will stop all machine operations, even if the selector switch is switched to platform controls.

Selector Switch

Machine can be operated from the base/ground or platform controls. Activation of one or the other is achieved with this switch.

With the platform controls selected, from the base control panel, if the platform up/lower function is operated there should be NO movement. Similarly with the base controls selected, from the platform control console if any machine function is operated, there should be NO movement.

Horn

It is activated at the platform controls and sounds at the ground alerting ground personnel to clear the machine's path to avoid hazards or unsafe conditions.

Master Disconnect Switch

The Switch is used primarily to shut off control circuit. The battery disconnect is provided to facilitate servicing and also to prevent unauthorized use of vehicle by using a padlock (to provide security).

Continuity Checks

Check Toggle Switch:

- Disconnect wires and connect one probe of ohm meter to the connection on toggle switch and other probe on other connection.
- When toggle is open, there should be no reading, and when closed there should be a low reading.

Check Selector Switch

- Disconnect wires and connect one probe to common of switch and the other to normally open terminal.
- With the switch flipped, there should be a low resistance.

Check Emergency Stop Button

- Disconnect wires and connect one probe of other meter to connection on button and other probe on other connection.
- There should be no reading with the button pressed and a low resistance with it reset.

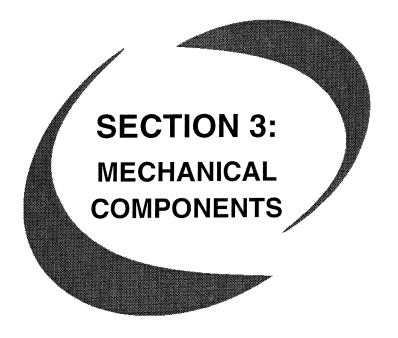
Check Relay Operation (Europe only)

- With (-)ve (negative) connection grounded, apply voltage to (+)ve (positive) connection.
- Check continuity across open contacts and confirm discontinuity across normally closed contacts.

Check Limit Switch Operation

- Disconnect wires.
- With one probe of ohm meter to common and other probe to open contact, move limit switch arm. Low resistance should be seen.
- With one probe of ohm meter to common and other probe to closed contact, low resistance should be seen. Move limit switch arm and no resistance should be seen.

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MECHANICAL COMPONENTS

Following is a description of the major mechanical components of the scissors lift.

Chassis/ Undercarriage



When steam cleaning the base/ undercarriage, cover electrical components to prevent water penetration.

Steam clean the chassis as necessary, and inspect all welds and brackets. Check for cylinder pins that turn in their mounting, which will indicate sheared retaining pins.

Tires

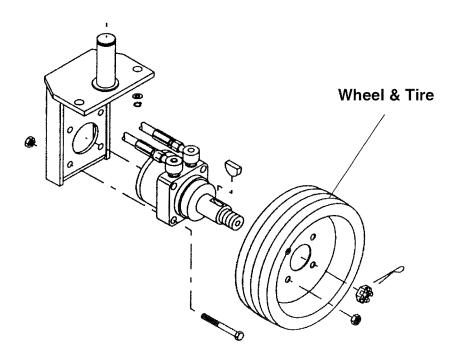
Inspect for cuts, chunking, side-wall damage, or abnormal wear. Any tire faults MUST BE CORRECTED before further machine operation. Refer to Parts Manual Section for replacement tires.



FAILURE TO USE APPROVED PARTS MAY CAUSE DEATH OR SERIOUS PERSONAL INJURY.

NOTE: Replace tires with the correct tires to maintain the rating of this equipment.

Changing Tires



When a tire change is necessary, follow these tips:



ALWAYS BLOCK THE WHEELS BEFORE RAISING THE MACHINE.

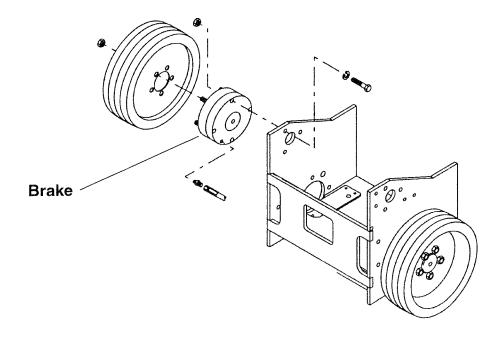
- 1. Chock tires on one end of machine and raise the other end of machine.
- 2. Loosen and remove lug nuts and pull wheel off.
- 3. Install the replacement wheel.
- 4. Fasten lug nuts and tighten to proper torque.
- 5. Lower the machine and remove the chocks.

Brakes

There are two (2) brakes. These can be damaged or leaks may occur; repair or replace as necessary.

To replace drive motor brake:

Remove the wheel and tire assembly to access drive motor.



Steer Cylinder

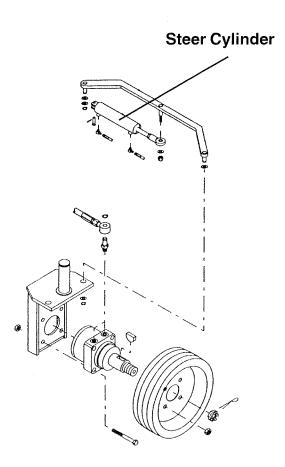
There is one (1) double acting type steer cylinder on this machine. During operation, cylinder should not leak, but a slight damping at the rod seal is acceptable. The pins should be checked for wear.

To replace steer cylinder:



Plug all open hydraulic fittings to prevent contamination by dirt or other foreign objects.

- 1. Disconnect hydraulic hoses and cap them.
- 2. Remove the pins and cotter pin holding the steer cylinder to the motor mounting bracket.
- 3. Remove the pin and cotter pin holding the steer cylinder to the steer axle cross member.
- 4. Carefully lift off the steer cylinder.



- 5. Position the new steer cylinder and install pin and cotter pin to hold cylinder to the steer axle cross member.
- 6. Install pin and cotter pin to hold cylinder to motor mounting bracket.
- 7. Connect hydraulic hoses.

Cylinder Seal Replacement



Take care not to damage rod surface and guard against dirt on other foreign objects entering system.

- 1. Drain all oil from cylinder.
- 2. Clean all dirt and grit from outside of cylinder.
- 3. Insert cylinder into vise.
- 4. Remove cylinder retainer using a spanner wrench inserted in the holes provided in the head: you might have to use sharp pointed object to start retainer removal thru the slotted barrel.
- 5. Remove the shaft assembly from the barrel, pulling in a straight lie, so as not to scar the internal parts.
- 6. Insert shaft into a **soft jawed** vise so that the head and piston can be removed. Be sure the shaft and vise are both clean before using.
- 7. Remove nut at the end of the shaft and pull head and piston off of the rod.
- 8. Remove all seals from the head and piston using a non-sharp seal tool. These tools are available from various seal suppliers.
- 9. Clean all oil and debris off of the head, piston, shaft, collar and barrel using solvent, rags, and an air hose.
- 10. Inspect all parts for any wear or damage, if damage is found replace with new part.
- 11. Reinstall all seals on the head and piston using the non-sharp seal tool.
- 12. Place a small amount of oil on the inside seals of the head and reinstall it on the shaft, by slipping head over the piston end of the shaft being very careful not to damage the inside seals.

Cylinder Seal Replacement (Continued)

- 13. Place a small amount of oil on the inside seals of the piston and reinstall it on the shaft by slowly twisting the piston on over the threads of the shaft being very careful not to damage the inside seals.
- 14. Reinstall the shaft nut; torque 3/4" nut to 160 Ft-lbs.
- 15. Grease the outside seals of the head and piston.
- 16. Reinstall the shaft into the barrel of the cylinder and push in until groove of the head lines up with the slot in the barrel.
- 17. Reinstall the cylinder retainer with the use of the spanner wrench.
- 18. Cycle the cylinder using air to check for proper operation.

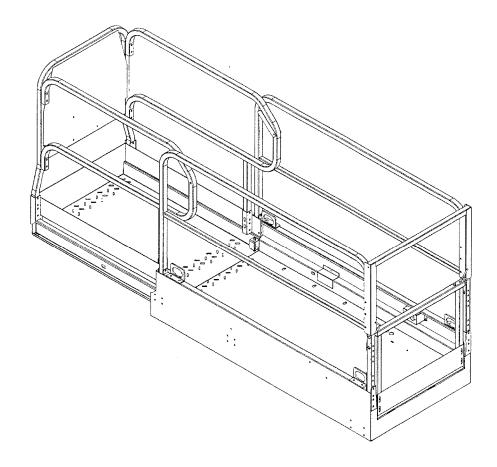
NOTE: It is very important to keep all parts clean when working with hydraulic cylinders, even one small piece of dirt or grit can damage the cylinder.

Hoses and Cables.

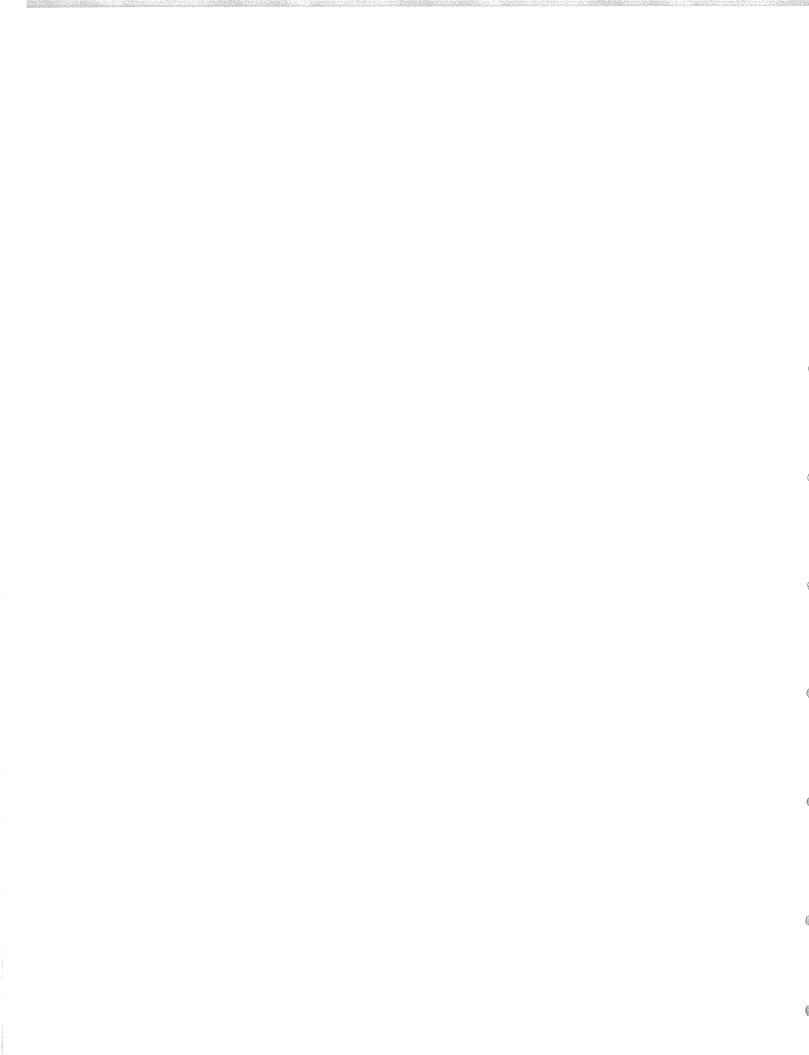
Inspect all hoses and electrical cables for security and damage. Hoses and cables should be examined for rubbing and chafing. Check for leaks at fittings. Replace any damaged hoses or cable. (Refer to the Parts Section.)

Platform Removal

- 1. Raise platform about three (3) feet (1.0 m) and block the arms in the raised position. Also, connect overhead crane by appropriate lifting device to platform.
- 2. Disconnect all platform wires.
- 3. Remove the bolts from each platform bracket at the rear of the machine.
- 4. Slide platform and roll out deck off the machine.



Platform Removal





TROUBLESHOOTING

GENERAL TROUBLESHOOTING TIPS

Before investigating a malfunction, check the following items:

- Check that battery connections are secure and battery if fully charged.
- Check that the emergency stop button is released (UP/OUT position).
- Check that the hydraulic fluid is at the correct level.
- Check that the brake release valve is open.
- Check that the circuit breaker is in the "ON" position.

Common Causes of Hydraulic System Malfunctions:

- Incompatible hydraulic fluids mixed, destroying the additives and causing varnish build up, resulting in the valves sticking.
- Water in the hydraulic fluid due to a damp climate.
- Improper hydraulic fluid used. Viscosity too high in cold climates. Viscosity too low in warm climates.

NOTE: 150SSU (ISO 32) is a multiple viscosity oil that is light enough for cold climates and resists thinning in warm climates.

Following is a step by step basic troubleshooting guide.

NOTES: Contamination always causes failure in any hydraulic system. It is very important to be careful not to introduce any contamination into your hydraulic system during the assembly procedures. Please make sure all ports and cavities of the manifold and cylinders are properly covered while other works are performed during the assembly of the machine.

Troubleshooting of the hydraulic integrated system (Manifold) can be easily accomplished by using a series of cavity plugs designed for the troubleshooting of the manifold. MEC has already established these plugs.



TROUBLESHOOTING GUIDE - HYDRAULIC

Function	Problem	Remedy/Solution
Steering	Will not steer in either or both directions.	Check pressure at test port (3) while trying to steer. When functioning correctly, the pressure should be about 1000 psi at the end of steering stroke.
	Pressure at the test port is significantly lower than 1000 psi	Check the setting on relief valve A. It should be 2750 psi.
	lower and roos per	(Check the setting on relief valve G . It should be 850 psi.
		Check valves E and F for contamination.
		(Check the voltages at valve F . One coil should be energized for each steering direction.
	Pressure at the test port is significantly	Check the voltage at valve H. The coil should not be energized while steering.
	higher than 1000 psi	Check valves B , E , F , and H for contamination.
	Pressure at the test port is about 1000 psi	Check valves B and F for contamination.
Lift	Platform will not raise.	Check pressure at test port (3) while trying to raise. When functioning correctly, the pressure should be about 1800 psi while raising.
	Pressure at the test port is significantly	Check the setting on relief valve A . It should be 2750 psi.
	lower than 1800 psi	Check the setting on relief valve R . It should be 2350 psi.
		Check the voltage at valve B. The coil should be energized while lifting.
		Check valve B for contamination.
	Pressure at the test port is significantly higher than 1800 psi	Check valves B and P for contamination.

TROUBLESHOOTING GUIDE - HYDRAULIC (Continued)

Function	Problem	Remedy/Solution
Lift (continued)	Slow down platform speed.	Check the unidirectional orifice in the base end of the platformcylinder for possible contamination.
		Check valves B and P for contamination.
	Platform doesn't lower manually.	Check manual valve by the hand pump to see if it is working.
		Make sure the manual hand pump is working.
Drive	No drive or reduced speed drive in forward or reverse.	Check pressure at test port (3) while driving. When functioning correctly, the drive pressure should be about 700 psi on level ground.
	Pressure at the test port is significantly lower than 700 psi	Check the voltage at valve H . The coil should be energized while driving.
		Check the setting on relief valve A . It should be 2750 psi.
		Check the voltage at valve \mathbf{K} . The coil should be energized while driving.
		Check valves H and K for contamination.
		Make sure valve L is completely closed (clockwise)
	Pressure at the test port is significantly higher than 700 psi	Check the voltages at valve F. One coil should be energized for each driving direction.
		Check the voltage at valves M and 0 . Both coils must be energized for torque mode on aud deenergized for torque mode off.
		Check valves B , E , F , I , J , M , N , and 0 for contamination.
		Check the pressure at port 5. It should be about the same as the test port.

TROUBLESHOOTING GUIDE - HYDRAULIC (Continued)

Function	Problem	Remedy/Solution
Drive (continued)	Torque mode will not engage.	Check valves M and 0 for contamination. Check the voltage at valves M and 0 . Both coils must be energized for torque mode to engage.
	Machine drives on level ground but will not climb grade.	Check the setting on relief valve A . It should be 2750 psi.
	Machine doesn't stop smoothly.	Check the voltage at valve K . The coil should deenergize when drive is stopped.
		Check the orifice under valve ${f K}$ for contamination.
Brakes	Pressure can't be built manually.	Check manual push valve C to determine if it holds pressure. Once this valve is pushed in the closed position, by pumping oil with the manual hand pump, pressure should be built to disengage the brakes.
		Check valve D for contamination.

RELIEF PRESSURE ADJUSTMENT PROCEDURE

Steering

Connect pressure gauge (0-3500PSI) with a female quick disconnect to main test port. Energize the steering to full left. Hold the switch for 20 seconds to get an accurate reading on the pressure gauge.

If adjustment is required, set pressure to the correct setting. Refer to Machine Specifications or the Hydraulic Schematic.

Remove the tamper proof cap, turn adjustment screw "IN" to increase the pressure and "OUT" to decrease. When correct pressure is obtained replace tamper proof cap with a new one.

Lift

Connect pressure gauge (0-3500PSI) with a female quick disconnect to main test port. Elevate the platform to full extension with **no load on platform**. Hold the switch for 20 seconds to get an accurate reading on the pressure gauge.

If adjustment is required, set pressure to the correct setting. Refer to Machine Specifications or the Hydraulic Schematic.

Remove the tamper proof cap, turn adjustment screw "IN" to increase the pressure and "OUT" to decrease. When correct pressure is obtained replace tamper proof cap with a new one.

Main/System

Connect pressure gauge (0-3500PSI) with a female quick disconnect to main test port. Disconnect forward or reverse coil of drive valve. Energize drive function by moving joystick (lever) in the direction of the already disconnected coil. Hold the switch for 20 seconds to get an accurate reading on the pressure gauge.

If adjustment is required, set pressure to the correct setting. Refer to Machine Specifications or the Hydraulic Schematic.

Remove the tamper proof cap, turn adjustment screw "IN" to increase the pressure and "OUT" to decrease. When correct pressure is obtained replace tamper proof cap with a new one.

TROUBLESHOOTING CHART - ELECTRICAL

Probable Cause	Remedy/Solution
Procedure fault-lift selected while power on	2 flashes of the LED on the motor controller indicates a procedure fault. To clear move the joystick to the neutral position.
Accelerator fault-joystick not in neutral or wire disconnected from joystick when power was turned on	6 flashes of the LED on the motor controller indicates an accelerator fault. To clear, move joystick to neutral and/or repair wiring, then recycle power.
Faulty up valve coil or wiring	Replace coil and/or repair wiring
Faulty up valve	Replace up valve
Faulty down valve	Replace down valve
Faulty or misadjusted relief valve	If relief pressure is below specification replace relief valve See hydraulic schematic for proper setting
Defective diode board/ defective motor controller	Replace board/controller as necessary
Faulty lift switch	Replace lift switch
Faulty base/platform selector switch	Replace base/platform selector switch
Faulty wiring	Inspect and repair wiring
	Procedure fault-lift selected while power on Accelerator fault-joystick not in neutral or wire disconnected from joystick when power was turned on Faulty up valve coil or wiring Faulty up valve Faulty down valve Faulty or misadjusted relief valve Defective diode board/ defective motor controller Faulty lift switch Faulty base/platform selector switch

Problem	Probable Cause	Remedy/Solution
Platform will not raise from platform only	Faulty enable switch and/or wiring	Replace enable switch and/or repair wiring
	Note: If enable switch and/ or wiring is faulty then drive, steering and torque functions will not be operational	
	Faulty mode selector switch	Replace mode selector switch
	Faulty reverse/up switch	Replace reverse/up switch
	Faulty wiring or cable	Inspect and repair wiring and/or cable
Platform raises slow or erratic	Faulty joystick potentio- meter	If voltage across joystick potentio- meter is more than 0.2VDC when in full lift then joystick potentiometer requires adjustment or replacement
	Faulty or misadjusted relief valve	If relief pressure is below specification replace relief valve. See hydraulic schematic for proper setting
	Faulty lift cylinder(s)	Repair or replace lift cylinder(s)
	Faulty up valve	Replace up valve
	Faulty down valve	Replace down valve
	Faulty motor controller	Replace controller

Problem	Probable Cause	Remedy/Solution
Platform will not lower from base or platform	Procedure fault-down selected at power on	2 flashes of the LED on the motor controller indicates a procedure fault. To clear move the joystick to the neutral position.
	Accelerator fault-joystick not in neutral or wire dis- connected from joystick when power was turned on	6 flashes of the LED on the motor controller indicates an accelerator fault. To clear, move joystick to neutral and/or repair wiring, then recycle power.
	Faulty down valve coil or wiring	Replace coil and/or repair wiring
	Faulty down valve	Replace down valve
	Faulty up valve	Replace up valve
Platform will not lower from base only	Faulty lift switch	Replace lift switch
nom base only	Faulty base/platform selector switch	Replace base/platform selector switch
	Faulty wiring	Inspect and repair wiring
Platform will not lower	Faulty mode selector switch	Replace mode selector switch
from platform only	Faulty forward/down switch	Replace forward/down switch
	Faulty wiring or cable	Inspect and repair wiring and/or cable
Platform lowers slow	Faulty lift cylinder(s)	Repair or replace lift cylinder(s)
or erratic	Faulty down valve	Replace down valve
	Faulty up valve	Replace up valve
	Down orifice in down hydraulic line obstructed	Remove orifice and clear obstruction

Problem	Probable Cause	Remedy/Solution
Steering inoperative	Faulty enable switch and/or	Replace enable switch and/or
in both directions	wiring Note: If enable switch and/ or wiring is faulty then drive and lift functions will not be operational	repair wiring
	Faulty steering valve	Replace steering valve
	Faulty up valve	Replace up valve
	Faulty or misadjusted relief valve	If relief pressure is below specification replace relief valve. See hydraulic schematic for proper settings
	Faulty diode board/Faulty motor controller	Replace board/motor as necessary
Steering inoperative in right	Faulty steering valve	Replace steering valve
in right	Faulty right steering coil or wiring	Replace coil and/or repair wiring.
	Faulty steering rocker switch	Replace joystick rocker switch
	Faulty wiring	Inspect and repair wiring
	Faulty diode board	Replace board

Page 4-10

Problem	Probable Cause	Remedy/Solution
Steering inoperative	Faulty steering valve	Replace steering valve
in left	Faulty left steering coil or wiring	Replace coil and/or repair wiring
	Faulty steering rocker switch	Replace joystick rocker switch
	Faulty diode board	Replace board
	Faulty wiring	Inspect and repair wiring
No motion in for- ward and no motion in reverse	Procedure fault-forward/ reverse selected at power on	2 flashes of the LED on the motor controller indicates a procedure fault. To clear move the joystick to the neutral position.
	Accelerator fault-joystick not in neutral or wire dis- connected from joystick when power was turned on	6 flashes of the LED on the motor controller indicates an accelerator fault. To clear, move joystick to neutral and/or repair wiring, then recycle power.
	Faulty enable switch and/or wiring	Replace enable switch and/or repair wiring
	Note: If enable switch and/ or wiring is faulty then lift and steering functions will not be operational	
	Tow valve open	Close tow valve
	Faulty brake valve coil	Replace brake valve coil
	Faulty brake valve	Replace brake valve
	Faulty up valve	Replace up valve
	Faulty mode selector switch	Replace mode selector switch
	Faulty diode board/motor controller	Replace board/controller
	Faulty wiring or cable	Inspect and repair wiring and/or cable

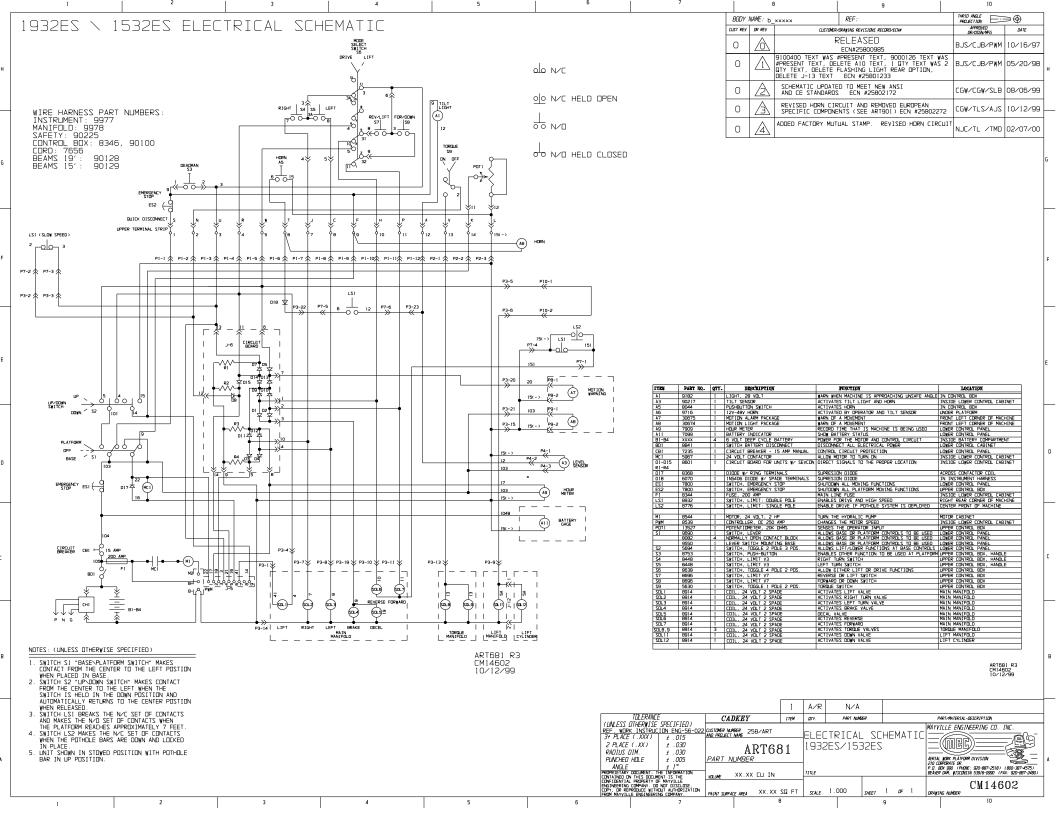
<u> </u>	T	
Problem	Probable Cause	Remedy/Solution
No motion in forward and no motion in reverse when elevated	Faulty pothole system	Inspect and repair pothole system
	Misadjusted pothole limit switch	Readjust pothole limit switch
	Faulty pothole limit switch and/or wiring	Replace pothole limit switch and/or repair wiring
Motion is slow in forward and motion	Partially open tow valve	Close tow valve completely
is slow in reverse	Faulty brake valve	Replace dump valve
	Faulty decel valve or decel valve coil	Replace decel valve or decel valve coil
	Faulty steering valve	Replace steering valve
No motion in forward only	Faulty forward drive valve	Replace forward drive valve
lorward orny	Faulty torque valve	Replace torque valve
	Faulty forward/down switch	Replace forward/down switch
	Faulty diode board	Replace board
	Faulty wiring	Inspect and repair wiring
No motion in reverse only	Faulty reverse drive valve	Replace reverse drive valve
reverse only	Faulty reverse/up switch	Replace reverse/up switch
	Faulty diode board	Replace board
	Faulty wiring	Inspect and repair wiring
Motion is slow in forward only	Faulty joystick potentiometer	If voltage across joystick potentiometer is more than 0.2VDC when in full forward then joystick potentiometer requires adjustment or replacement

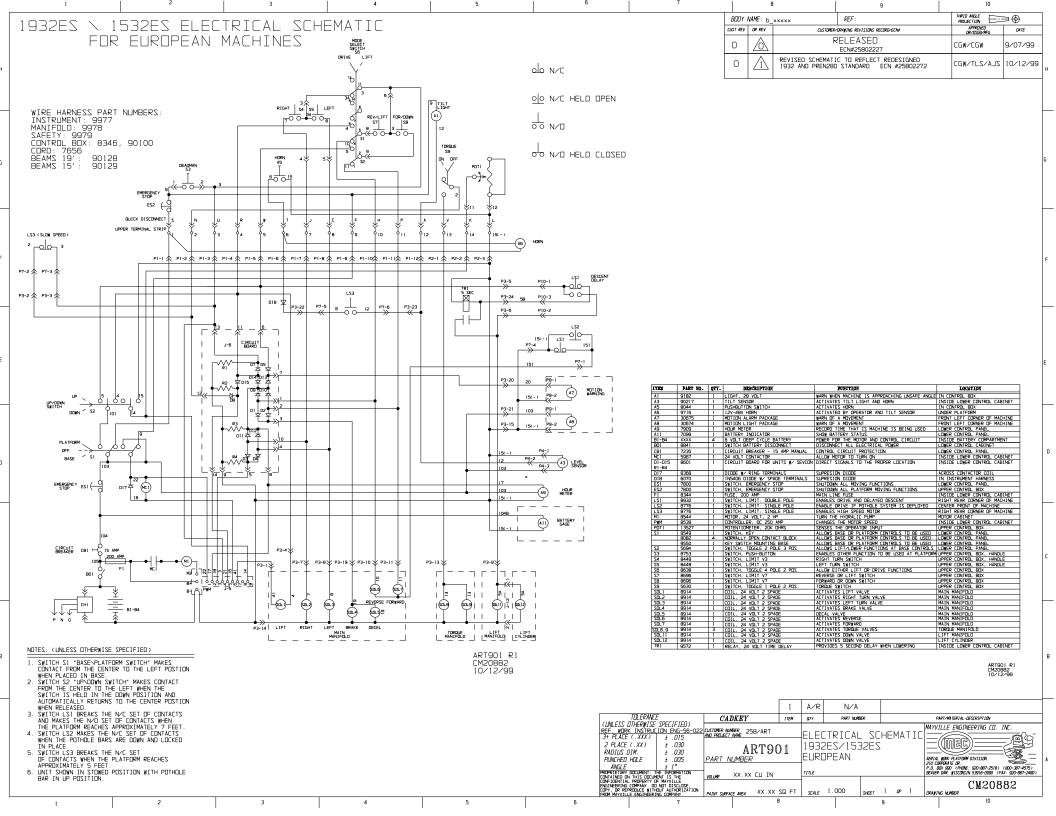
Problem	Probable Cause	Remedy/Solution
Motion is slow in reverse only	Faulty joystick potentiometer	If voltage across joystick potentio- meter is more than 0.2VDC when in full reverse then joystick potentio- meter requires adjustment or replacement
Accelerates while driving on an incline	Faulty counterbalance valve	Replace counterbalance valve
Movement alarm does not operate	Faulty movement alarm or wiring	Replace movement alarm and/or repair wiring
	Faulty diode board	Replace board
Movement warning light does not	Faulty warning light and/or wiring	Replace warning light and/or repair wiring
operate	Faulty diode board	Replace board
Horn does not	Faulty horn or wiring	Replace horn and/or repair wiring
operate	Faulty horn switch	Replace horn switch
Tilt alarm does not operate when elevated	Misadjusted slow speed limit switch	Readjust slow speed limit switch
	Faulty slow speed limit switch and/or wiring	Replace slow speed limit switch and/or repair wiring
Note: Tilt alarm and horn are the same device. Test horn by depressing the horn switch. If the horn is not operational refer to "Horn does not operate". If the horn is operational then proceed.	Note: If the slow speed limit switch is misadjusted, slow speed can be operational but the tilt alarm may not activate.	

Problem	Probable Cause	Remedy/Solution
Torque mode not operational	Faulty torque switch and/or wiring	Replace torque switch and/or repair wiring
	Faulty torque valve coil and/or wiring	Replace torque valve coil and/or repair wiring
	Faulty torque valve(s)	Replace torque valve(s)

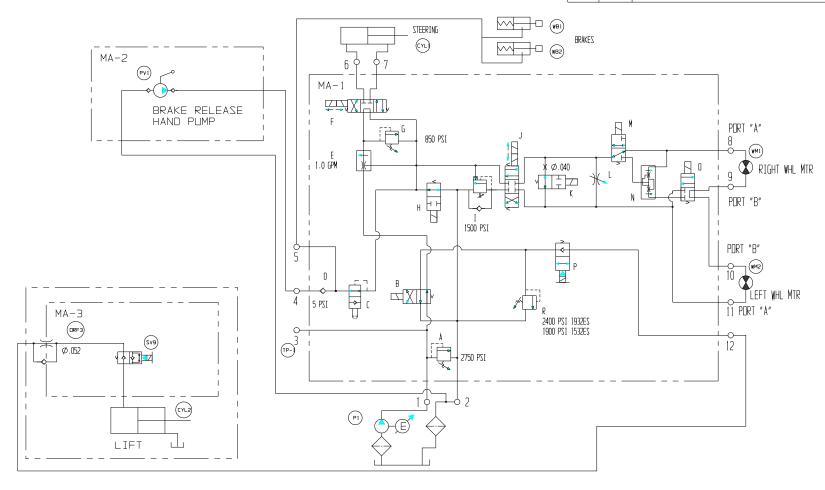
LED Diagnostics Definitions

LED READING	DIAGNOSIS
LED on	Controller is operational
LED off	Internal fault
2 flashes	Procedure fault: A) DIRECTION. ENABLE BAR, STEER or LIFT selected at power on. B) DIRECTION, LIFT or STEER selected without ENABLE BAR. C) ENABLE BAR NEUTRAL 5 second time out. Recycle through NEUTRAL to clear.
3 flashes	Motor shorted internally/externally: This includes MOSFET short circuit. This fault shuts down all modes. Recycle through NEUTRAL to clear after repairing shorted motor or controller.
4 flashes	Motor open circuit: This includes MOTOR line contactor welded. This fault shuts down all modes. Key switch recycle to clear. Replace motor or contactor.
5 flashes	Motor neither shorted or open circuit This includes MOTOR contactor open circuit, MOSFET open circuit and hardware fail-safe trip. This fault shuts down all modes. Key switch recycle to clear. Replace motor, contactor or controller.
6 flashes	Faulty TRACTION accelerator This includes TRACTION accelerator greater than 15% at power on, and wire off. If wire off occurs during active function, motor speed will default to accelerator fault creep.
7 flashes	Battery voltage fault This includes battery voltage below 12 volts or exceeding 45 volts. NEUTRAL recycle to clear.
8 flashes	Thermal cutback This includes MOSFET temperature above 176° F (80° C).
9 flashes	Battery voltage at or below 18 volt fault This will open the LIFT UP contactor. NEUTRAL recycle to clear.





BODY I	VAME: ь_	××××× REF:	THRID ANGLE PROJECTION	∍⊕
CUST REV	DR REV	CUSTOMER/DRAWING REVISIONS RECORD/ECN#	APPROVED DR/DSGN/MFG	DATE
0	\triangle	RELEASED ECN# 25802415	NJC/NJC/TMD	02/07/00

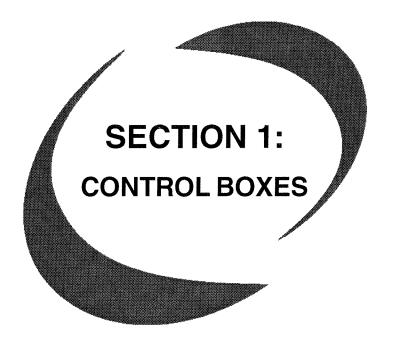


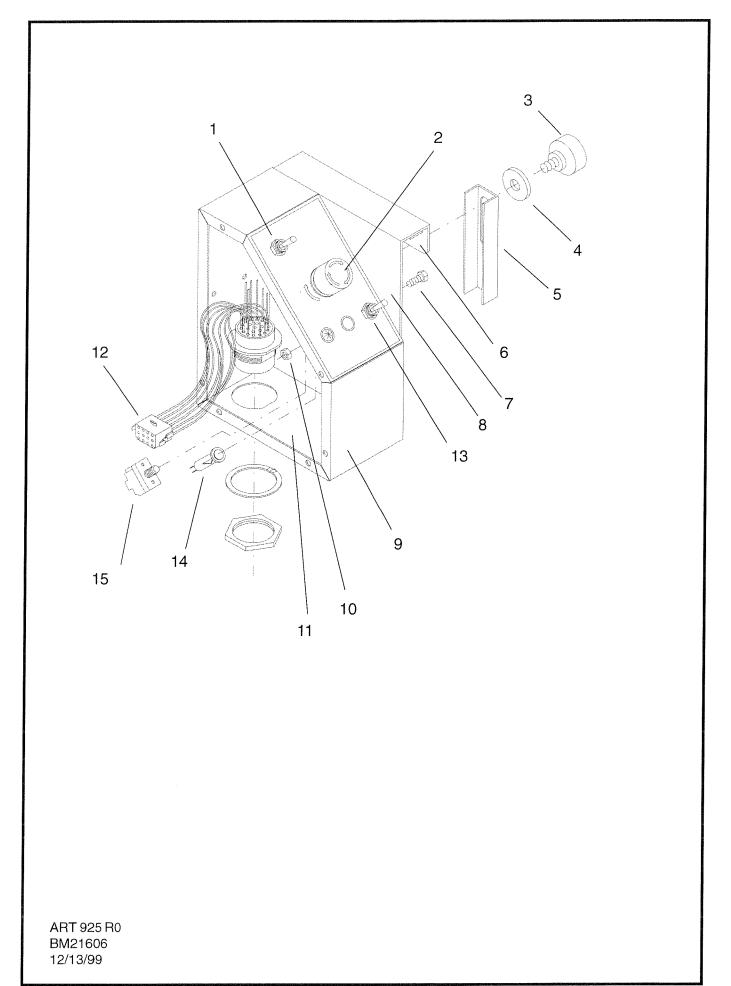
NOTES: (UNLESS OTHERWISE SPECIFIED)

		1	A ./D	NI ZA				
		1	A/R	N∕A				
TOLERANCE	CADKEY	ITEM	ΠΤΥ.	PART NUMB	ER			PART/MATERIAL-DESCRIPTION
(UNLESS OTHERWISE SPECIFIED) REF. WORK INSTRUCTION ENG-56-022 3+ PLACE (.XXX) + .015	CUSTOMER NUMBER 258/ARTWO	SCHEMATIC HYD.			MAYVILLE ENGINEERING CO. INC.			
2 PLACE (.XX)	ARTS							
PUNCHED HOLE ± .005 ANGLE ± 1° PROPRIETARY COCUMENT: THE INFORMATION	PART NUMBER		TITLE					AERIAL WORK PLATFORM DIVISION
CONTAINED ON THIS DOCUMENT IS THE CONFIDENTIAL PROPERTY OF MAYYILLE ENGINEERING COMPANY. DO NOT DISCLOSE. COPY. OR REPRODUCE WITHOUT AUTHORIZATION FROM MAYYILLE ENGINEERING COMPANY.	PAINT SURFACE AREA XX.XX	20 FT	SCALE	N∕A	SHEET	1 ДЕ	2	BM21396

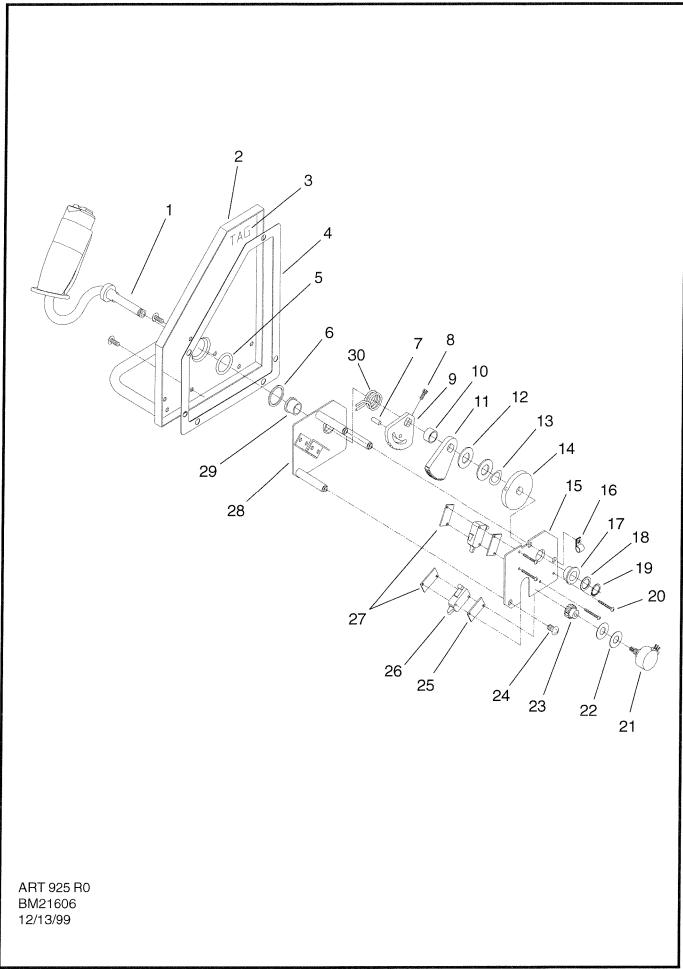
CALLOUT	PART NO.	DESCRIPTION	SETTING
MA-1	9999	MANIFOLD ASSEMBLY	N/A
	9990	VALVE, CHECK	N/A
N	8538	FLOW DIVIDER/COMBINER	N/A
L	90378	VALVE, NEEDLE	N/A
С	9665	VALVE, MANUAL	N/A
A	9992	RELIEF VALVE, POPPET	2750 PSI.
R	9993	RELIEF VALVE 1932ES 2400 PSI/153	2ES 1900 PSI
G	9984	RELIEF VALVE, POPPET	850 PSI.
В	9982	VALVE, SPOOL, 4-WAY 2 POS	N/A
Р	8343	VALVE, POP, 2-WAY, N.C.	N/A
K	9985	VALVE, SPOOL, 2-WAY, N.O.	N/A
K	9998	ORIFICE, PLUG Ø.040	N/A
J	9995	VALVE, SPOOL, 4-WAY 3 POS	N/A
F	9986	VALVE, SPOOL, 4-WAY 3 POS	N/A
	8373	VALVE, SPOOL, 4-WAY 2 POS	N/A
М	6976	VALVE, SPOOL, 3-WAY	N/A
Н	6975	VALVE, SPOOL, 2-WAY, N.O.	N/A
I	9669	VALVE, COUNTERBALANCE	1500 PSI
F,K	9988	COIL, 24VDC	N/A
B, H, M, P, 🗆	9996	COIL, 24VDC	N/A
J	9997	COIL, 24VDC	N/A
N/A	90382	PLUG, #4 SAE ZL	N/A
N/A	90383	PLUG, #6 SAE ZL	N/A
N/A	90251	PLUG, EXPANDER 7mm	N/A
N/A	90309	TAG, MANIFOLD	N/A
1,8,9,11,12	8081	FITTING, #8-#6 90°	N/A
2,10	7389	FITTING, #8-#6	N/A
2,10	90299	FITTING, #6-#6 90° SHORT	N/A
4	90329	FITTING, #6-#4 90°	N/A
6	7601	FITTING, #6-#6 90°	N/A
7	9157	FITTING, #6-#6 90° LONG	N/A
2	90285	FITTING, TEE #6	N/A
3	9980	FITTING, #6-1/4 NPT 90°	N/A
3	90301	UNION, 1/4 NPT 3" LONG	N/A
3	7971	FITTING, QUICK DISCONNECT	N/A
5	90327	FITTING, #6-#6 90° TAP 1/8 NPT	N/A
5	2974	ORIFICE, PLUG Ø.040	N/A
MA-2	90234	PUMP ASSY MNFLD BRAKE RLSE	N/A
PV1	90326	VALVE, HYD HAND PUMP	N/A
N/A	90325	MANIFOLD, BRAKE RELEASE	N/A
N/A	7438	FITTING, #6-#6 STRGHT	N/A
N/A	90329	FITTING, #6-#4 90°	N/A
MA-3	1 355 1	MANIFOLD, LIFT CYLINDER	N/A
2V9	8595	VALVE, 2-WAY N.C. W/MAN LOCK	N/A
N/A	8914	COIL, 24VDC	N/A
N∕A	7438	FITTING, #6-#6 STRGHT	N/A
□RF3	90297	ORIFICE, UNI-DIRECTION ∅.052	N/A
TP-1	N∕A	MAIN PRESSURE TEST POINT #1	N/A
WB1,WB2	9544	BRAKE, WHEEL	N/A
WM1,WM2	90231	MOTOR, WHEEL	N/A
P1	8546	PUMP, 3 GPM. NO LOAD	N/A
CYL1	25085	CYLINDER, STEERING	N/A
CYL2	25237	CYLINDER, LIFT	N/A

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ITEM	PART NO.	QTY	DESCRIPTION
	25525		CONTROL BOX ASSEMBLY
1	8638	1	SWITCH, TOGGLE, 2 POSITION, 4 POLE
2	7800	1	EMERGENCY STOP SWITCH ASSEMBLY
	9345	1	BLOCK-CONTACT N.C.
3	8826	1	THUMBSCREW, 5/16" - 18, FLOWER
4	HDW8294	1	WASHER, FLAT
5	13864	1	LOCK, CONTROL BOX BRACKET
6	6350	.5	TAPE, FOAM
7	HDW5724	1	SCREW, 5/16" - 18, 3/4" LG
8	13865	1	BRACKET, CONTROL BOX HOLDER
9	13867	1	WRAPPER, CONTROL BOX
10	HDW7120	1	NUT, 5/16" - 18
11	8066	1	TAG (INSPECTION)
12	90100	1	WIRE HARNESS, W/CONNECTOR-CONTROL BOX
13	5630	1	SWITCH, TOGGLE, TORQUE
14	9179	1	SOCKET, LIGHT
	9184	1	LENS, YELLOW
	9182	1	LIGHT, BAYONET, 28 VOLT
15	8044	1	SWITCH, (MANUAL HORN)
	7656	1	CABLE, UPPER CONTROL (NOT SHOWN)
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ITEM	PART NO.	QTY	DESCRIPTION
	13868		CONTROL BOX COVER ASSEMBLY
1	13647	1	CONTROL ARM ASSEMBLY
2	3772	1	COVER
3	8066	1	TAG, INSPECTION
4	7875	1	GASKET
5	7882	1	O-RING, 7/8" ID X 1 1/8" OD
6	HDW3768	1	WASHER, FLAT
7	100/8348	1	PIN, HOLD DOWN
8	HDW7887	1	SCREW, #6 - 32, 1/2" LG
9	13502	1	BRACKET, CENTERING
10	3763	1	SPACER, STEP
11	13402	1	GEAR, LARGE
12	HDW8531	2	WASHER, FLAT
13	HDW7881	1 1	WASHER, BEVEL
14	3782	1 1	CAM, DIRECTIONAL
15	13403	1	PLATE, BOTTOM
16	6917	1	CLAMP, CABLE 1/4"
17	7818	1	BEARING, BRONZE, FLANGED
18	HDW3771	1	WASHER, FLAT
19	5736	1	RING, RETAINING, 1/2"
20	HDW8399	4	SCREW, #4 - 40, 5/8" LG
21	8383	1	POTENTIOMETER
22	HDW8567	2	WASHER, FLAT
23	8389	1	GEAR, SPUR
24	HDW7888	12	SCREW, #10 - 32, 1/2" LG
25	3764	2	PLATE, SPACER
26	8696	2	SWITCH, LIMIT, MICRO V7
27	3765	2	PLATE, STRAP
28	3766	1	PLATE, TOP
29	7819	1	BEARING, BRONZE, FLANGED
30	8435	1	SPRING, JOYSTICK, CENTERING
	13527	1	POTENTIOMETER ASSEMBLY
	8383	1	POTENTIOMETER
	8389	1	SPUR GEAR
	HDW8567	2	WASHER, FLAT

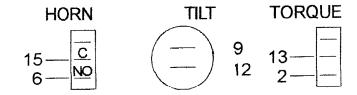
LIFT/DRIVE 11 10 31 3 1 4 7 10 3 32 2 5 8 11 3A 3 6 9 12

EMERGENCY STOP



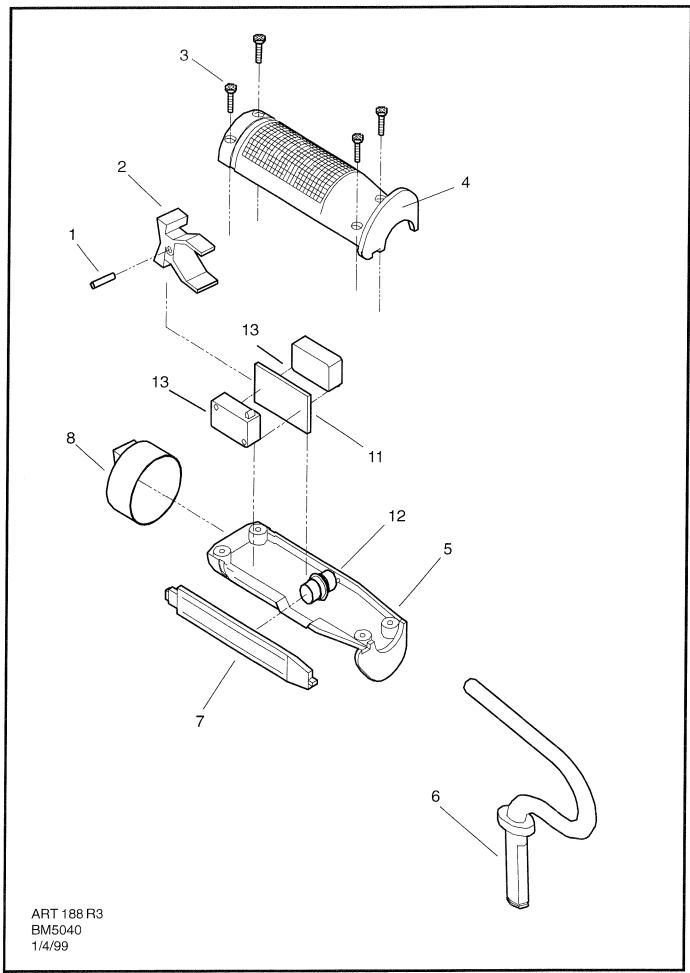
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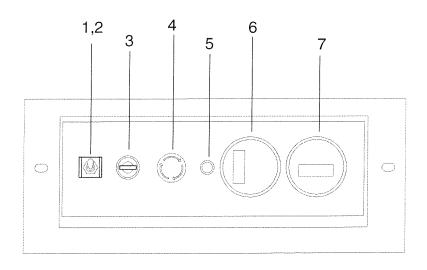


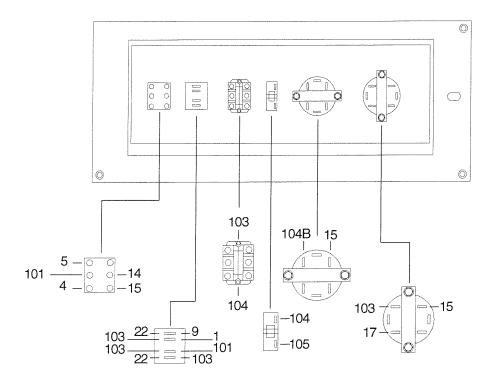
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ITEM	PART NO.	QTY	DESCRIPTION
	13647	_	CONTROL ARM ASSEMBLY, JOYSTICK
1	8750	1	PIN
2	8453	1	SWITCH ACTUATOR (SERVICE ONLY)
3	HDW8455	4	SCREW, 6-1/2" LG (SERVICE ONLY)
4	8752	1	GRIP-TOP HALF (SERVICE ONLY)
5	8751	1	GRIP - BOTTOM HALF (SERVICE ONLY)
6	13638	1	CONTROL ARM WITHOUT WIRE
7	8748	1	TRIGGER (SERVICE ONLY)
8	8456	1	ROCKER BOOT (SERVICE ONLY)
	8089	1 FT.	WIRE, BULK 18 GAUGE, 300 VOLT
	7777	2	TERMINAL, PUSH ON, 3/16"
	8630	1 1	HANDLE, GRIP
	8761	-	SWITCH ASSEMBLY (NOT SHOWN)
11	8447	1	SWITCH SEPARATOR (SERVICE ONLY)
12	8753	1	MOTION SWITCH, ON-OFF (SERVICE ONLY)
13	8448	2	SWITCH (SERVICE ONLY)
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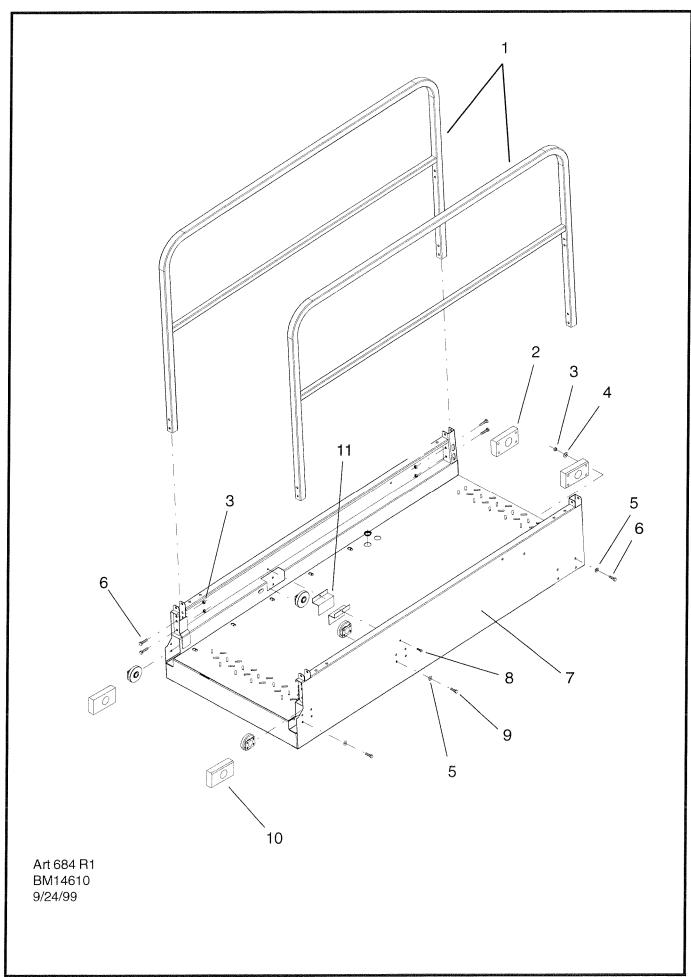


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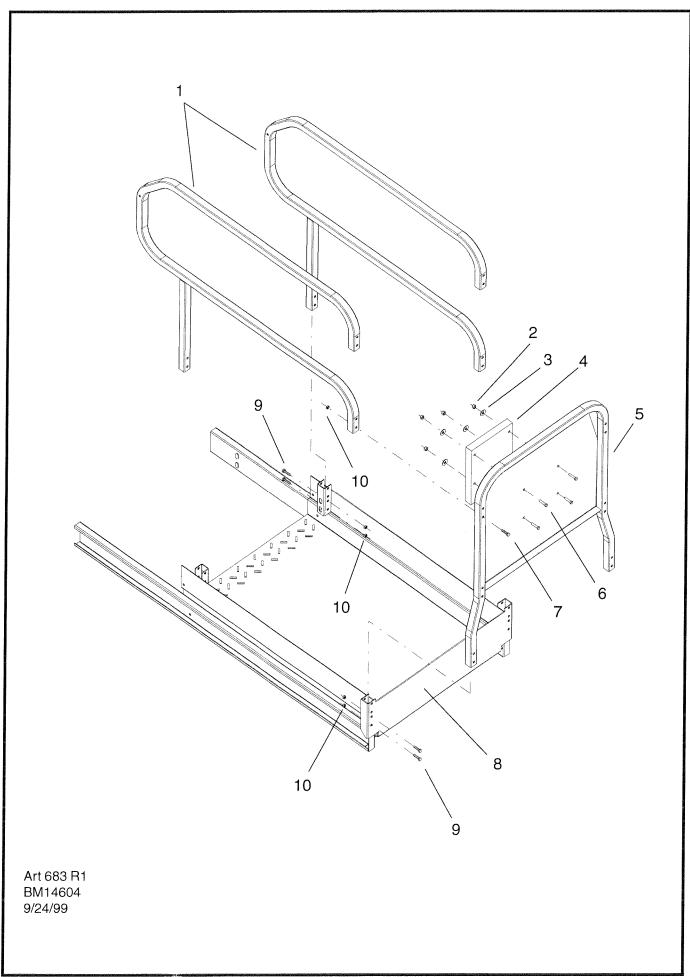
ITEM	PART NO.	QTY	DESCRIPTION
1	1313	1	SWITCH GUARD
2	5694	1	SWITCH, TOGGLE
3	9690	1	TUMBLER, LEVER SWITCH
	9549	1	TUMBLER, KEY SWITCH (EUROPE)
	8082	1	BLOCK, CONTACT, N.O. (EUROPE)
	90159	1	KEY FOR SWITCH 9549 - SERVICE ONLY
4	7800	1	SWITCH, EMERGENCY STOP
	9345	1	BLOCK, CONTACT, N.C. (ABB)
5	7235	1	CIRCUIT BREAKER, 15 AMP
6	7099	1	BATTERY GAUGE, 24 VOLT (OPTIONAL)
	7115	1	PLUG, PRY OUT (IF BATTERY GAUGE IS NOT PRESENT)
7	7909	1	METER, HOUR
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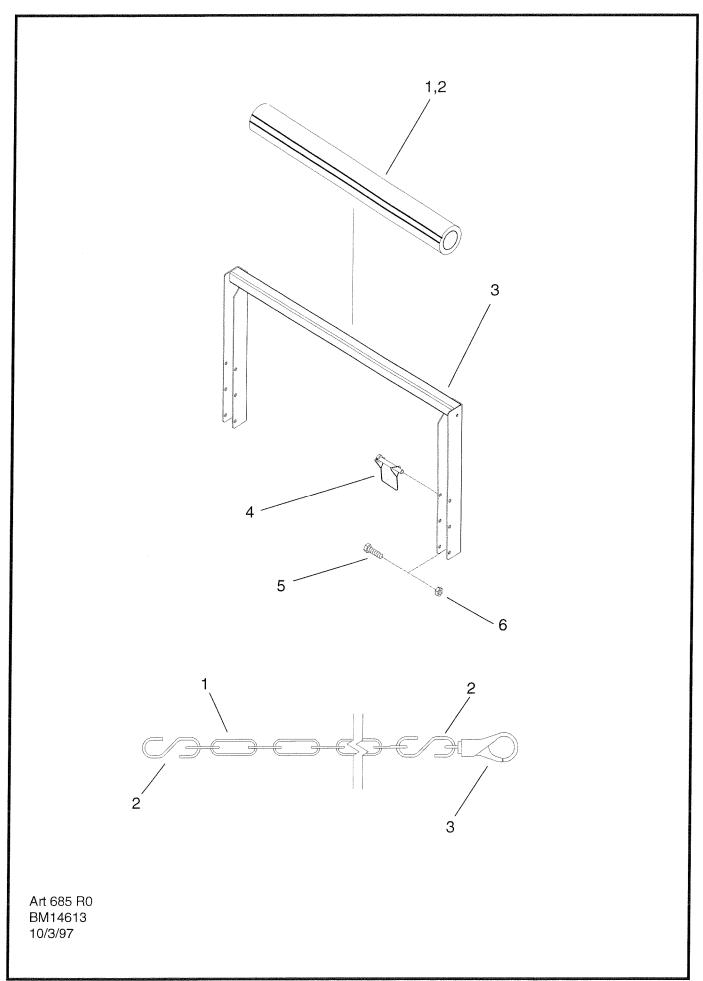


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ITEM	PART NO.	QTY	
1	25400	2	RAIL, MAIN PLATFORM
2	13777	2	PLATFORM FIXED END BLOCK
3	HDW8304	16	NUT, 5/16" - 18
4	HDW8294	8	WASHER, FLAT
5	HDW5217	24	WASHER, FLAT
6	HDW8486	16	SCREW, 5/16" - 18, 1 7/8" LG
7	25502	1	PLATFORM, MAIN
8	HDW6455	2	SCREW, 1/4" - 20, 1/2" LG
9	HDW5724	16	SCREW, 5/16" - 18, 3/4" LG
10	13778	2	BLOCK, SLIDE, PLATFORM
11	13637	2	BRACKET, ROLLER COVER

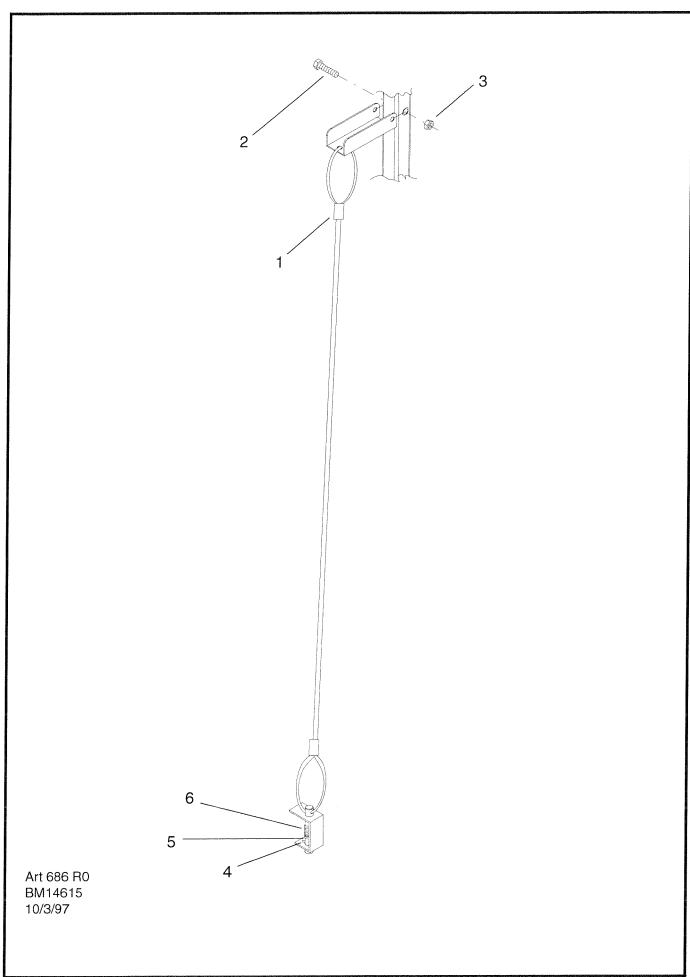


ITEM	PART NO.	QTY	DESCRIPTION
1	25057	2	RAIL, MAIN EXTENSION PLATFORM
2	HDW6461	4	NUT, 1/4" - 20
3	HDW8294	4	WASHER, FLAT
4	8909	1	ENCLOSURE, MANUAL
5	25061	1	RAIL, FRONT, EXTENSION PLATFORM
6	HDW6455	4	SCREW, 1/4" - 20, 1/2" LG
7	HDW7471	8	SCREW, 5/16" - 18, 3" LG
8	25499	1	PLATFORM EXTENSION WELDMENT
9	HDW8486	8	SCREW, 5/16" - 18, 1 7/8" LG
10	HDW8304	16	NUT, 5/16" - 18

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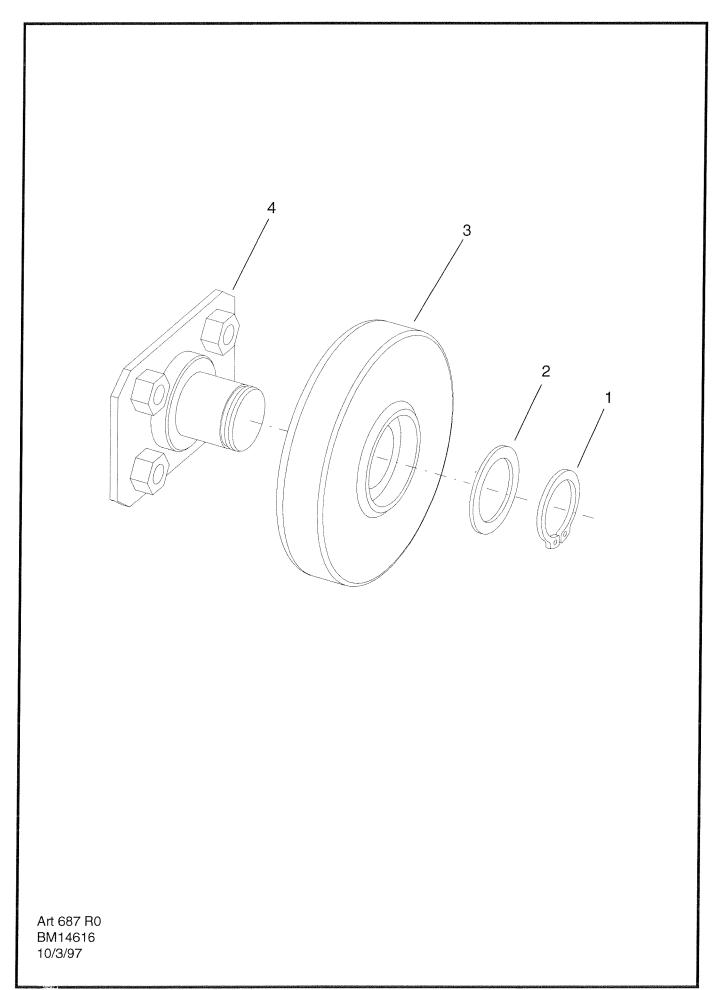


ITEM	PART NO.	QTY	DESCRIPTION
1	7048	1	COVER, RAIL PAD
2	7805	3 FT.	
3	25051	1	GATE, SHEET LOAD
4	HDW7593	1	PIN, LOCK
5	HDW7119	4	SCREW, 3/8" - 16, 2 1/4" LG
6	HDW8304	4	NUT, 3/8" - 16
		•	
	25232		CHAIN CLOSURE - STANDARD
1	1366	1	GUARD CHAIN
2	5239	2	LINK, CONNECTING, S-HOOK
3	8781	1	CHAIN LINK SNAP
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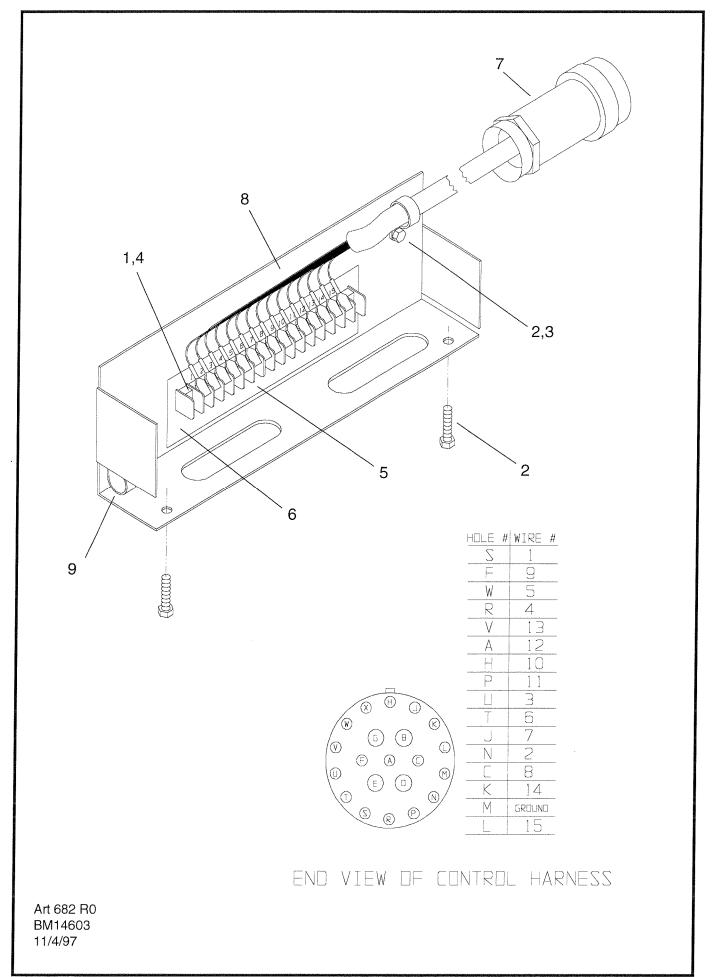
ІТЕМ	PART NO.	QTY	DESCRIPTION
1	25297	1	PLATFORM LOCK PIN ASSEMBLY
	8814	2	SLEEVES, OVAL ALUMINUM
	13814	1	HANDLE - ROLLOUT PLATFORM
	7184	3 5/8ft	WIRE CABLE, COATED & ROLLED (3 3/8 ft - EUROPE)
	13737	1	PIN, EXTENSION LOCK
2	HDW8486	1	SCREW, 5/16" - 18, 1 7/8" LG
3	HDW8304	1	NUT, 5/16" - 18
4	HDW8513	1	SPRING PIN, 1/8" DIA, 3/4" LG
5	HDW7031	1	WASHER, 1/2" ID, 7/8" OD
6	7408	1	SPRING, DECK LOCK
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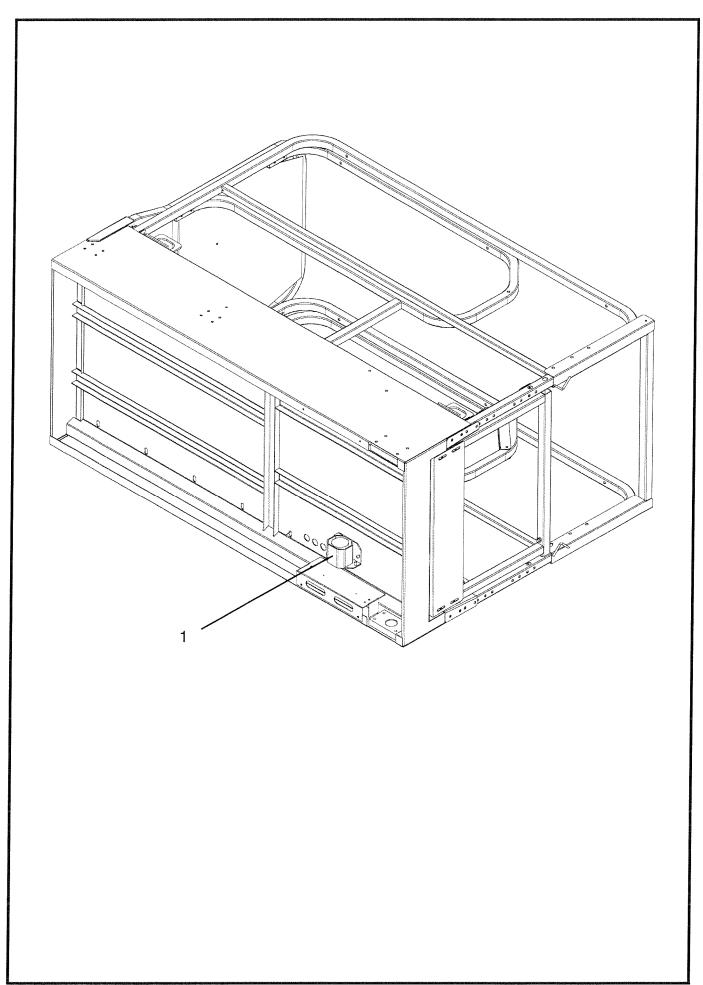


ITEM	PART NO.	QTY	DESCRIPTION
1	5918	1	RING, RETAINING, HEAVY DUTY 1"
2	HDW8370	1	WASHER
3	13230	1	ROLLER
4	13267	1	ROLLER PLATE WELDMENT
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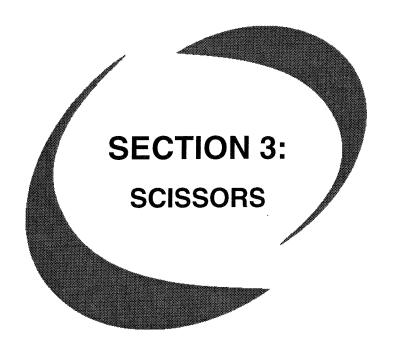


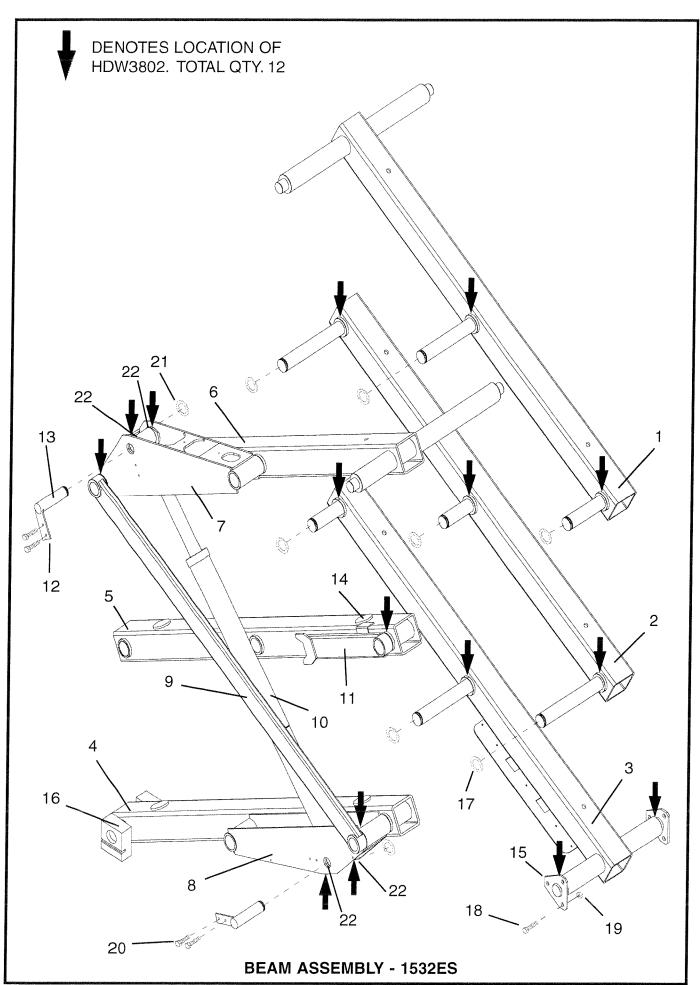
ITEM	PART NO.	QTY	DESCRIPTION
1	HDW5363	2	SCREW, 6-32, 1" LG
2	HDW6455	4	SCREW, 1/4" - 20, 1/2" LG
3	5882	1	CABLE CLAMP
4	HDW5364	2	NUT, 6-32
5	5991	1	TERMINAL BLOCK
6	7817	1	STRIP, BACKING, 15 POSITION
7	7656	1	WIRE HARNESS, UPPER CONTROL BOX
8	25526	1	TERMINAL STRIP COVER
9	6964	1	CABLE CLAMP - 1"
	8066	1	TAG, INSPECTION LINE
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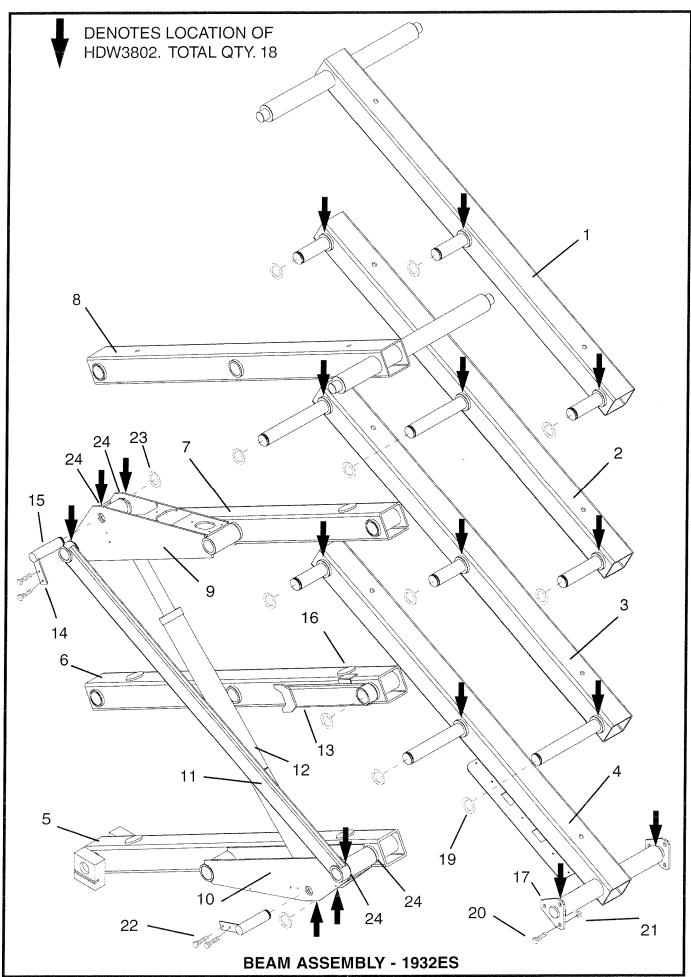
ITEM	PART NO.	QTY	DESCRIPTION
			TILT HORN
1	9716	1	HORN, 12-48 VOLT ELECTRONIC
	HDW5723	2	SCREW, 1/4"- 20, 3/4" LG
	HDW5276	2	NUT, 1/4" - 20
	HDW5217	2	WASHER, FLAT
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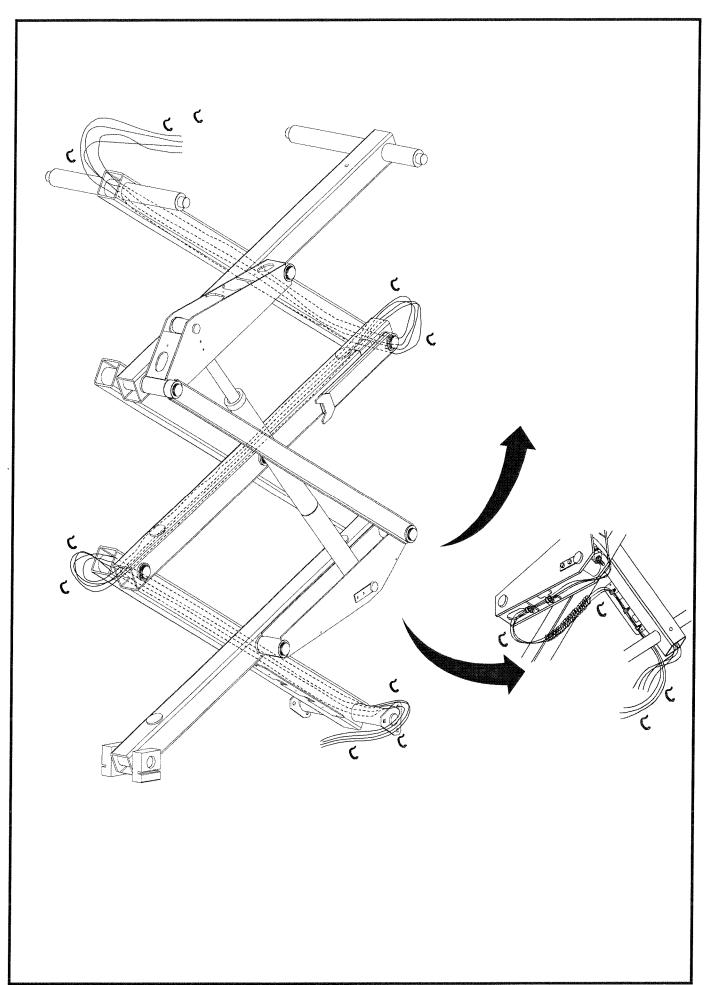




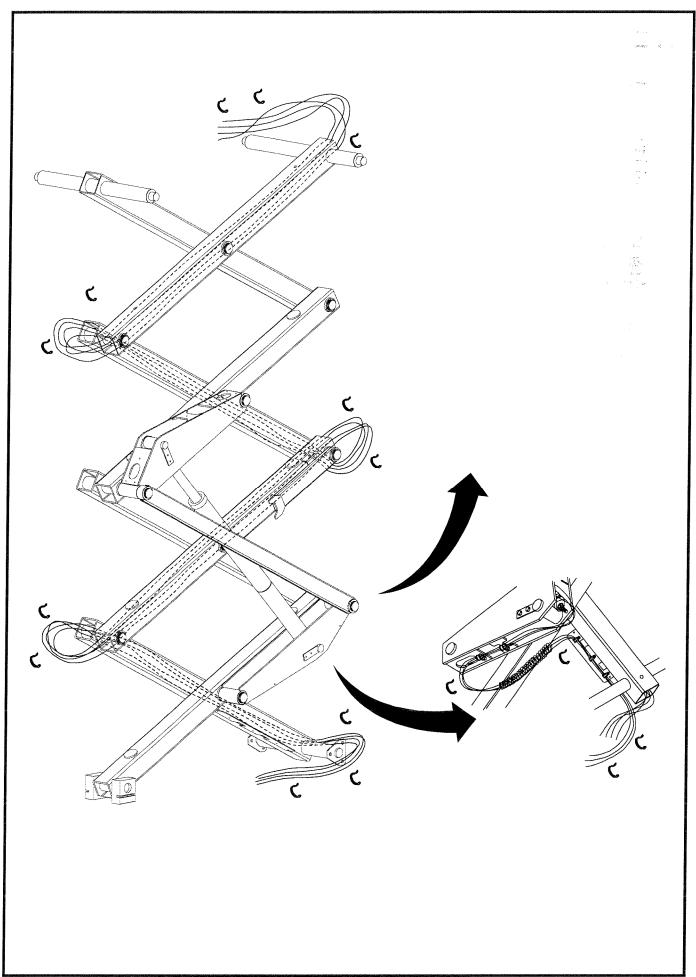
ITEM	PART NO.	QTY	DESCRIPTION
1	25406	1	BEAM, WITH PINS
2	25411	1	BEAM, WITH PINS
3	25558	1	BEAM, WITH PINS
	7160	2	BEARING, 28DU32
4	25413	1	BEAM, WITH BEARINGS
	7160	4	BEARING, 28DU32
5	25409	1	BEAM, WITH BEARINGS
	7160	6	BEARING, 28DU32
6	25405	1	BEAM, WITH BEARINGS
	7160	4	BEARING, 28DU32
7	25121	1	CYLINDER MOUNT
	7160	4	BEARING, 28DU32
8	25119	1	CYLINDER MOUNT
	7160	4	BEARING, 28DU32
9	25095	1	SUPPORT, BEAM, 1 X 3
10	25237	1	LIFT CYLINDER
11	25454	1	MAINTENANCE LOCK
	8907	1	BEARING, MSI 2832-24
12	25219	2	RETAINING PLATE CYL PIN
13	25142	2	PIN, CYLINDER MOUNT
14	25429	4	SPACER BLOCK
15	25173	2	PIN, FIXED MOUNT
16	25427	2	SLIDE BLOCK
17	8919	7	RETAINING, RING
18	HDW8283	6	SCREW, 1/2"-13, 1 1/2", LG
19	HDW8457	6	NUT, 1/2"-13
20	HDW5723	4	SCREW, 1/2"-20, 3/4", LG
21	6875	2	RETAINING, RING
22	HDW13339	4	WASHER, FLAT, NYLON



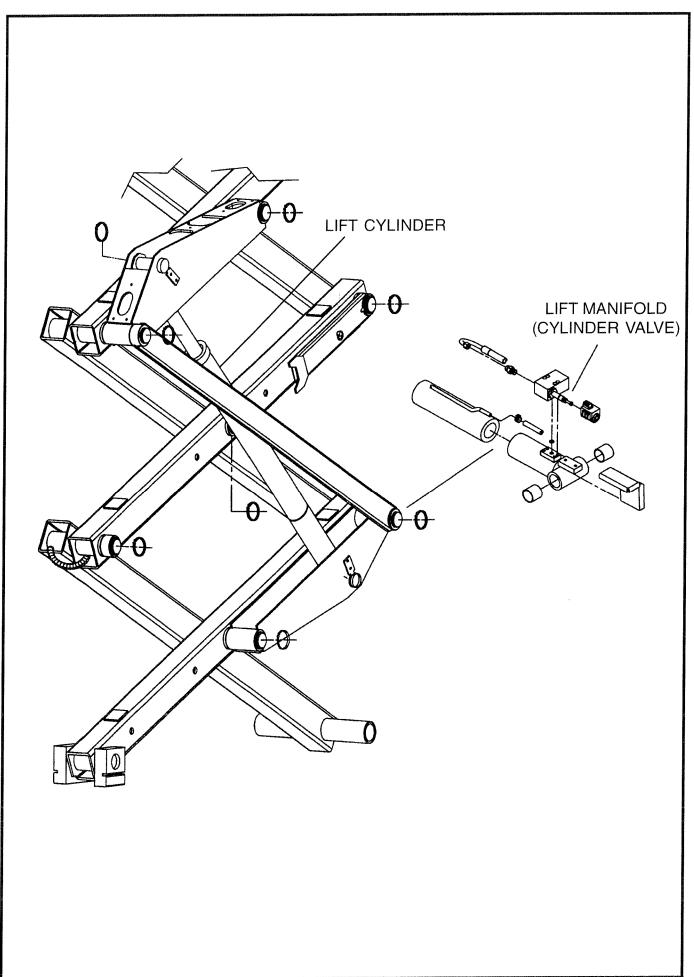
ITEM	PART NO.	QTY	DESCRIPTION
1	25408	1	BEAM, WITH PINS
2	25410	1	BEAM, WITH PINS
3	25411	1	BEAM, WITH PINS
4	25558	1	BEAM, WITH BEARINGS
	7160	2	BEARING, 28DU32
5	25413	1	BEAM, WITH BEARINGS
	7160	4	BEARING, 28DU32
6	25409	1	BEAM, WITH BEARINGS
	7160	6	BEARING, 28DU32
7	25409	1	BEAM, WITH BEARINGS
8	25407	1	BEAM WITH BEARINGS
	7160	6	BEARING, 28DU32
9	25121	1 1	CYLINDER MOUNT
	7160	4	BEARING, 28DU32
10	25119	1 1	CYLINDER MOUNT
	7160	4	BEARING, 28DU32
11	25095	1	SUPPORT, BEAM, 1 X 3
12	25237	1	LIFT CYLINDER
13	25454	1	MAINTENANCE LOCK
	8907	1	BEARING, MSI2832-24
14	25219	2	RETAINING PLATE CYL PIN
15	25142	2	PIN, CYLINDER MOUNT
16	25429	4	SPACER BLOCK
17	25173	2	PIN, FIXED MOUNT
18	25427	2	SLIDE BLOCK
19	8919	10	RETAINING, RING
20	HDW8283	6	SCREW, 1/2"-13, 1 1/2", LG
21	HDW8457	6	NUT, 1/2"-13
22	HDW5723	4	SCREW, 1/2"-20, 3/4", LG
23	6875	2	RETAINING, RING
24	HDW13339	4	WASHER, FLAT, NYLON
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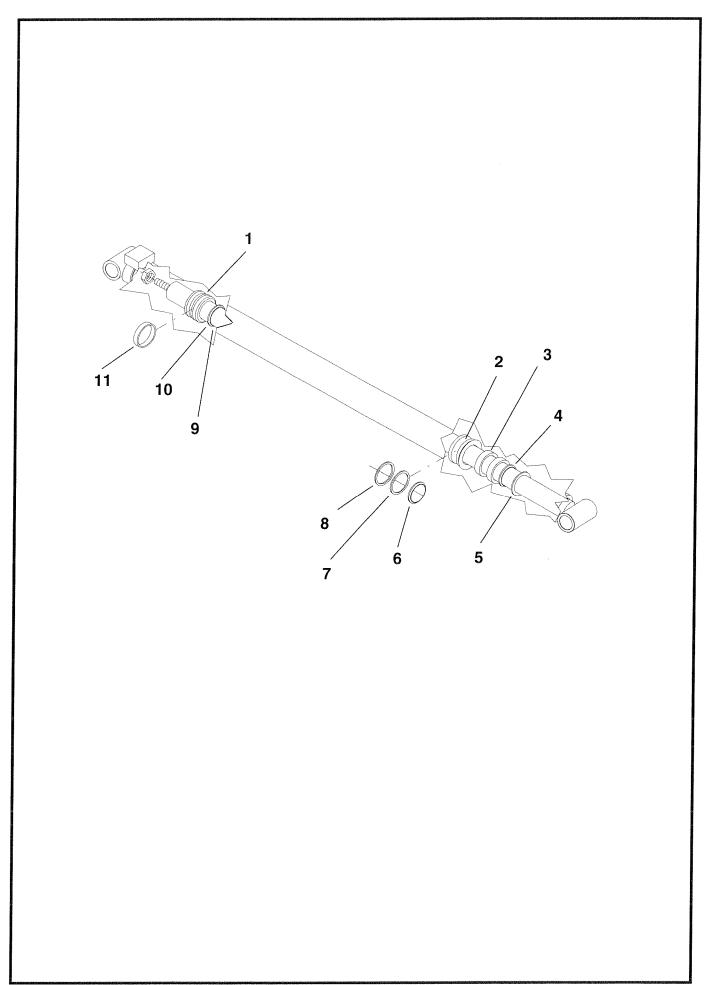
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ITEM	PART NO.	OTV	DESCRIPTION
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			CABLE ROUTING - 1532ES
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ITEM PART NO. QTY DESCRIPTION CABLE ROUTING - 1932ES	
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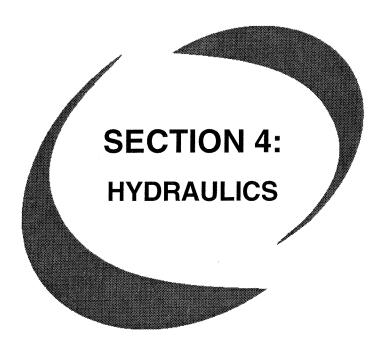


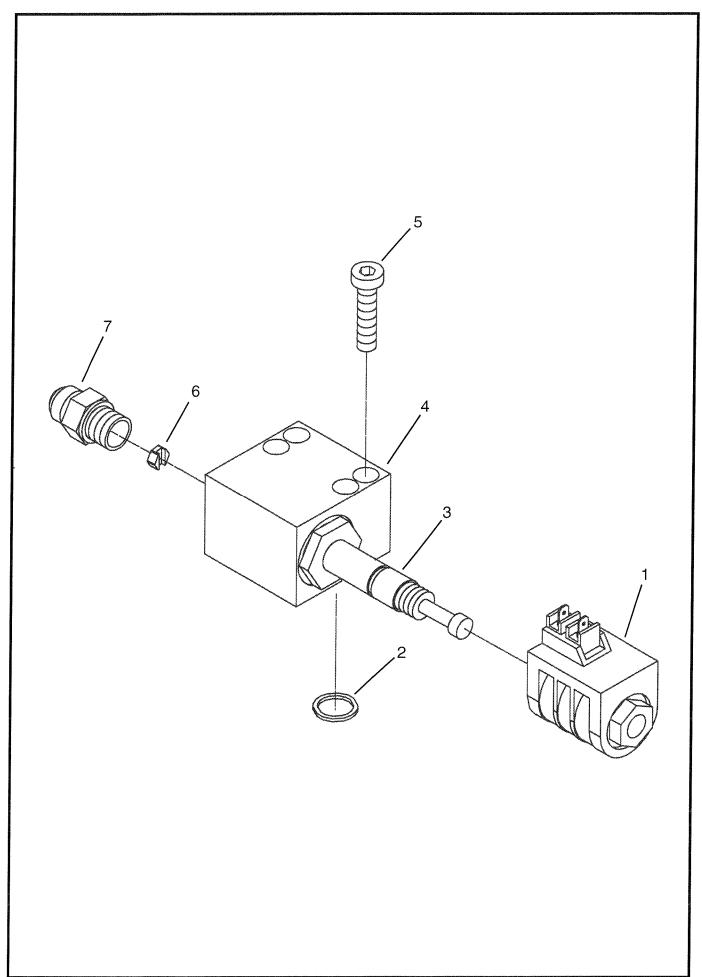
ITEM	PART NO.	QTY	DESCRIPTION
HEIVI	PART NO.	GIT	
			LIFT MANIFOLD
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ITEM	PART NO.	QTY	DESCRIPTION
	9025		LIFT CYLINDER
1			PISTON
2			HEAD
	8639	-	SEAL KIT FOR CYLINDER 9025
3		2	WEAR RING
4		1	SEAL
5		1	WIPER
6		1	O-RING
7		1	BACK-UP O-RING
8		1	O-RING
9		1	O-RING
10		1	SEAL
11		1	WEAR RING
	-		

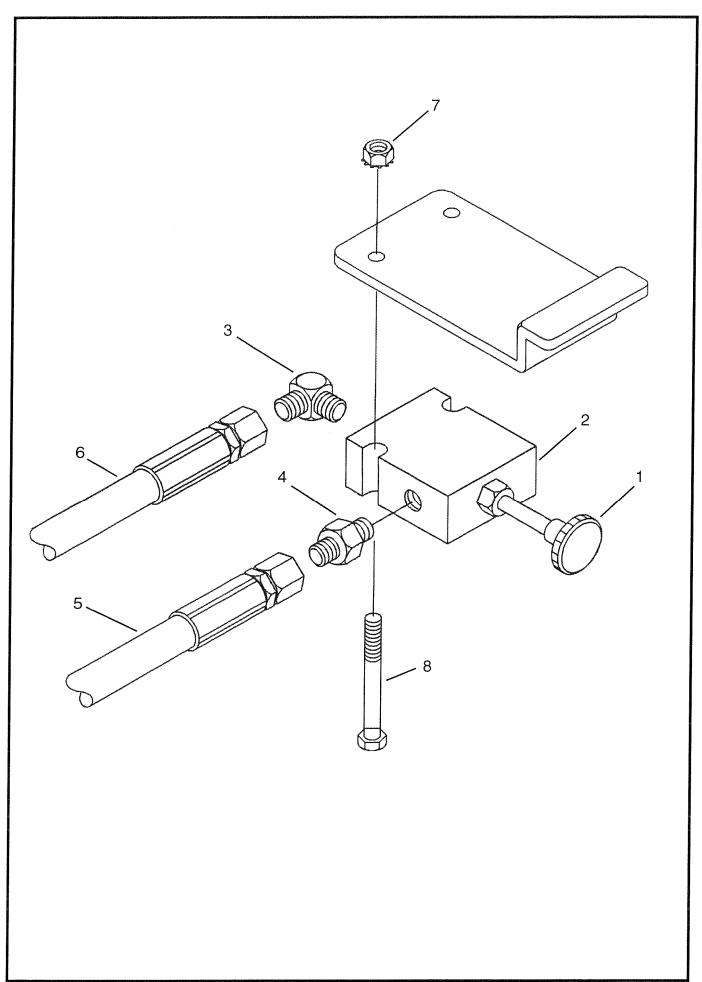
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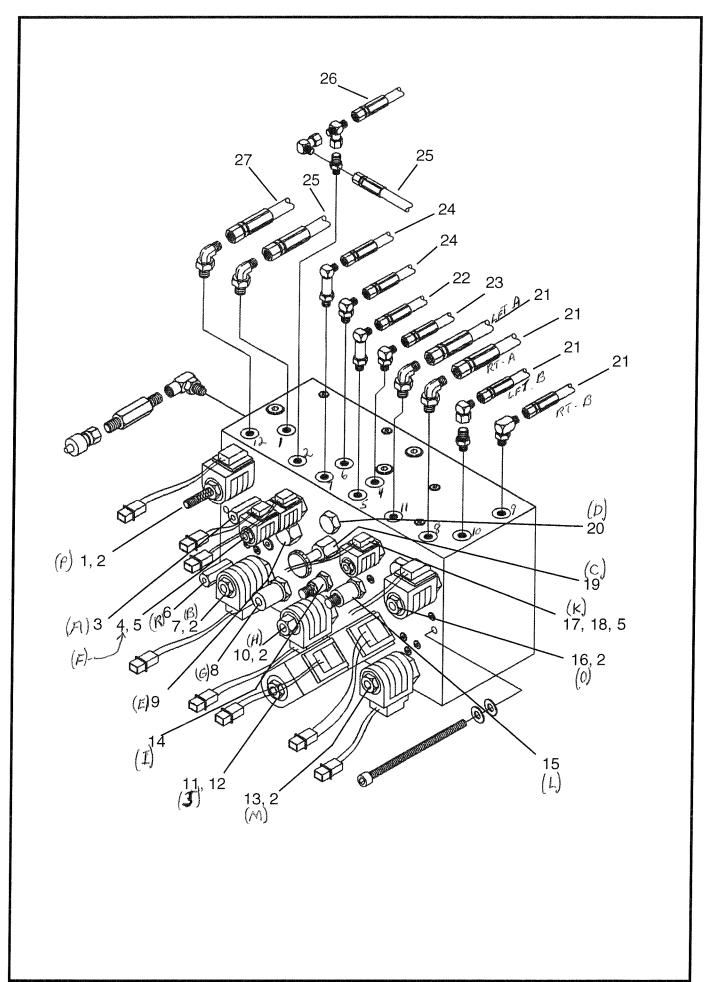
ITEM	PART NO.	QTY	DESCRIPTION
I I E IVI	PANTINO.	GII	LIFT MANIFOLD (1532ES/1932ES)
1	8914	1	COIL, 24 VOLT
2	6426	1	O-RING
3	8595	1	VALVE, CHECK, WITH MANUAL OVERRIDE
4	13551	1	MANIFOLD, LIFT CYLINDER
5	HDW8592	4	SCREW, 1/4"- 20, 1 1/2" LG
6	90297	1	ORIFICE
7	HDW7438	1	ADAPTER, MALE 3/8" O-RING, MALE 3/8"
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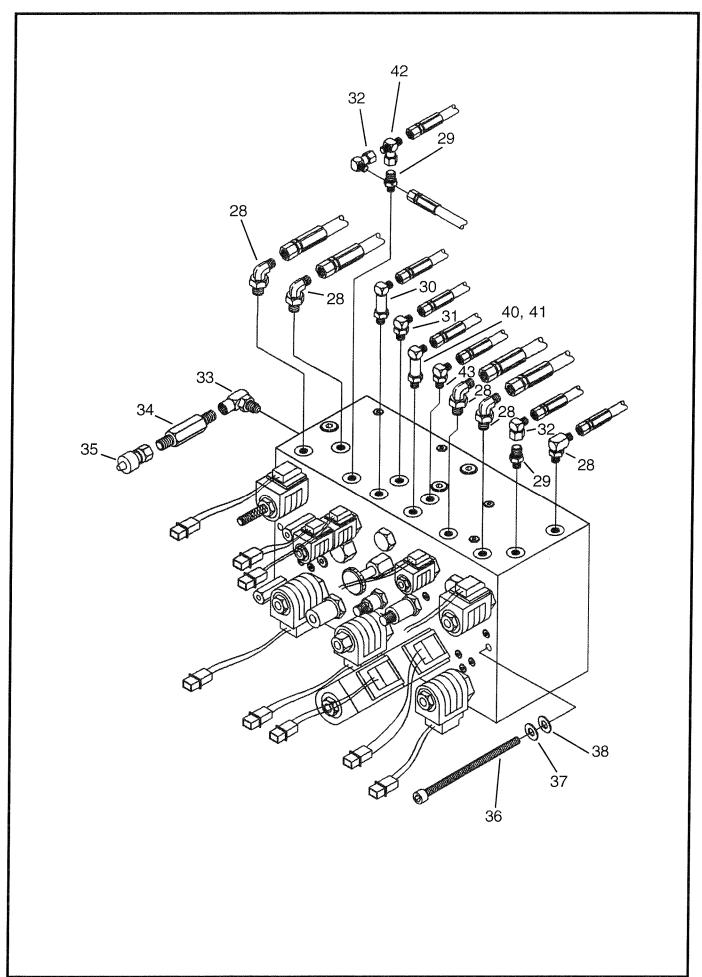


ITEM	PART NO.	QTY	DESCRIPTION
	90234		BRAKE RELEASE MANIFOLD
1	90326	1	VALVE, HYDRAULIC HAND PUMP
2	90325	1	BLOCK MANIFOLD
3	HDW90329	1	FITTING, 90°, MALE 1/4", O-RING MALE 3/8"
4	HDW7438	1	FITTING, ADAPTER, MALE 3/8" O-RING MALE 3/8"
5	7598	1	HOSE ASSY, STRGHT FML, STRGHT FML, 3/8" - 28" LG
6	90274	1	HOSE ASSY, STRGHT FML, STRGHT FML, 1/4"- 31" LG
7	HDW5276	4	NUT, 1/4"- 20
8	HDW6831	2	SCREW, 1/4" - 20, 2" LG
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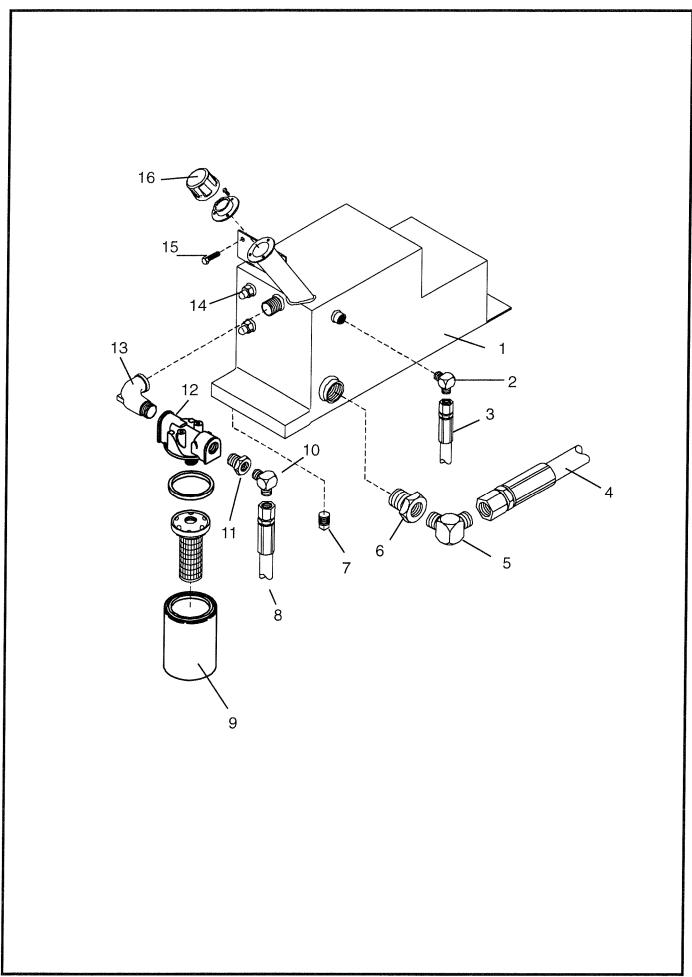
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	ITEM	PART NO.	QTY	DESCRIPTION
	v	9999	_	MAIN MANIFOLD ASSEMBLY
P	1	8343	1	VALVE, SPOOL, POP, 2 WAY, N.C. W/MAN OVERRIDE
	2	9996	5	COIL, 24 VOLT 10 SERIES
A	3	9992	1	VALVE, RELIEF
F	4	9986	1	VALVE, SPOOL, 4 WAY, 3 POSITION (STEERING)
	5	9988	3	COIL, 24 VOLT & SERIES
R	6	9993	1	VALVE, RELIEF
В	7	9982	1	VALVE, SPOOL, 4 WAY
G	8	9984	1	VALVE, RELIEF
E	9	5954	1	VALVE, PRIORITY FLOW CONTROL
Н	10	6975	1	VALVE, SPOOL, N.O.
I	11	9995	1	VALVE, SPOOL, 4 WAY, 3 POSITION (DRIVE)
	12	9997	2	COIL, 24 VOLT
M	13	6976	1	VALVE, SPOOL, 3 WAY
I	14	9669	1	VALVE, COUNTER BALANCE
L	15	90378	1	VALVE NEEDLE (TOW VALVE)
0	16	8373	1	VALVE, SPOOL, 4 WAY
K	17	9985	1	VALVE, SPOOL, N.O.
-	18	9998	1	ORIFICE 0.040 DIA.
С	19	9665	1	VALVE, MANUAL (BRAKE RELEASE)
D	20	9990	1	VALVE, CHECK
	21	90286	4	HOSE ASSY, STRGHT FML, 3/8"- 67" LG
	22	90276	1	HOSE ASSY, STRGHT FML, STRGHT FML, 1/4"- 24" LG
	23	90274	1	HOSE ASSY, STRGHT FML, STRGHT FML, 1/4"- 31" LG
	24	9404	2	HOSE ASSY, STRGHT FML, STRGHT FML, 1/4"- 63" LG
	25	7598	2	HOSE ASSY, STRGHT FML, STRGHT FML, 3/8"- 28" LG
	26	9038	1	HOSE ASSY, STRGHT FML, STRGHT FML, 3/8"- 46" LG
	27	9245	1	HOSE ASSY, STRGHT FML, ELBW FML, 3/8"- 110" LG
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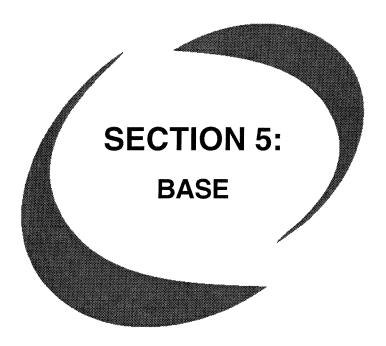


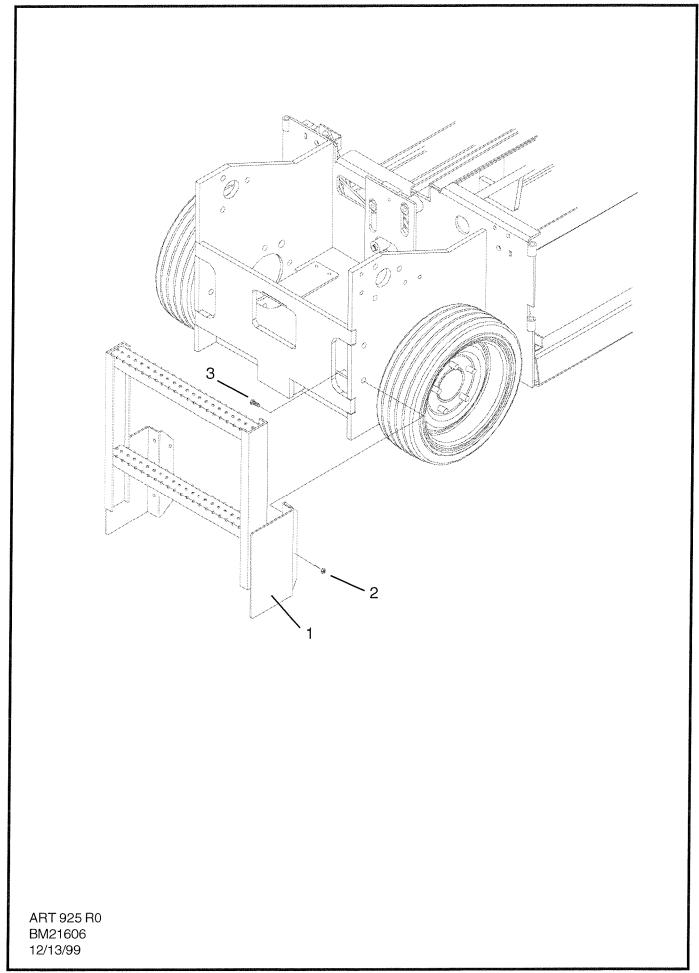
ITEM	PART NO.	QTY	DESCRIPTION
	9999	-	MAIN MANIFOLD ASSY (CONTINUED)
28	HDW8081	5	FITTING, 90° ELBW, MALE 3/8", MALE 1/2" O-RING
29	HDW7389	2	ADAPTER, MALE 3/8", MALE 3/8" O-RING
30	HDW9157	1	FITTING, 90° ELBW, MALE 3/8", MALE 3/8" O-RING
31	HDW7601	1	FITTING, 90° ELBW, MALE 3/8", MALE 3/8" O-RING
32	HDW90299	2	FITTING, 90° ELBW, MALE 3/8", FML 3/8", MALE 3/8"
33	9980	1	FITTING, 90° ELBW, MALE 3/8" O-RING, FML 1/4" NPT
34	HDW90301	1	UNION, MALE 1/4" NPT, MALE 1/4" NPT, 3" LG
35	HDW7971	1	DISCONNECT, MALE 1/4
36	HDW90287	2	SCREW, 1/4" - 20, 4.5" LG
37	HDW5277	2	WASHER, LOCK
38	HDW5217	2	WASHER, FLAT
39	25575	-	HOSE KIT - 1532ES/1932ES
40	HDW90327	1	FITTING, 90° ELBW, MALE 3/8", MALE 3/8" O-RING TAPPED
41	2974	1	PLUG, METERING
42	HDW90285	1	FITTING, MALE 3/8" TEE
43	HDW90329	1	FITTING, 90° ELBW, MALE 1/4", MALE 3/8" O-RING
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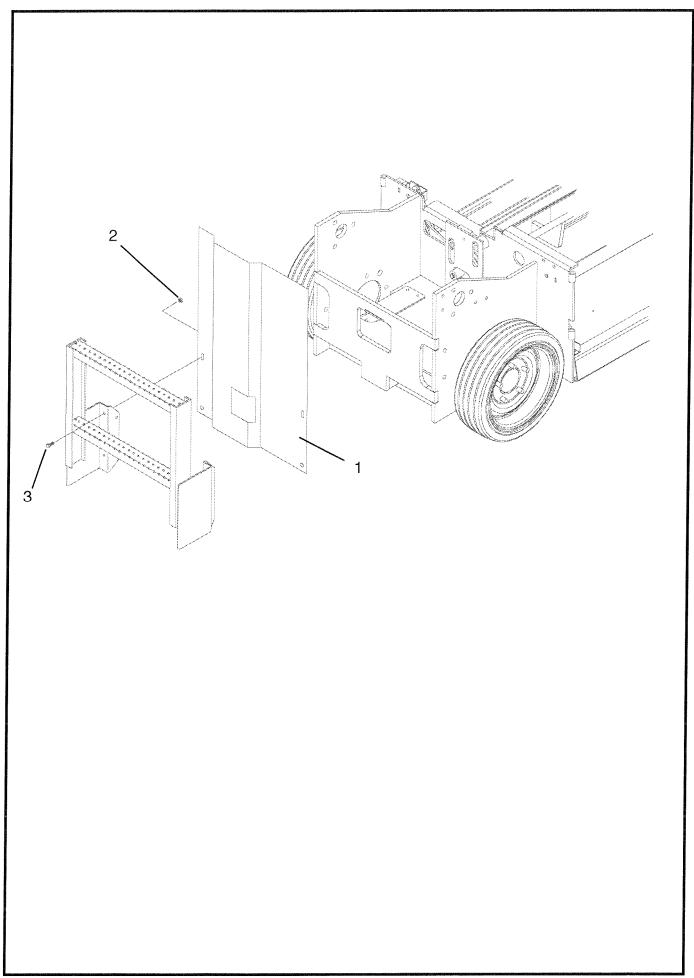
ITEM	PART NO.	QTY	DESCRIPTION
1	25468	1	HYDRAULIC RESERVOIR WELDMENT
2	HDW6727	1	FITTING, ELBOW 90°, MALE 1/4", MALE BARB 1/4"
3	6458	9FT.	HOSE, RETURN LINE
4	9959	1	HOSE ASSY, STRGHT FML, STRGHT FML, 1/2" - 10" LG
5	HDW6510	1	FITTING, ELBOW 90°, MALE 1/2" SAE, MALE 1/2" NPT
6	8412	1	SUCTION STRAINER
7	HDW9200	1	FITTING, MALE 1/4"
8	9038	1	HOSE ASSY, STRGHT FML, STRGHT FML, 3/8" - 46" LG
9	6156	1	FILTER, OIL CARTRIDGE
10	HDW90300	1	FITTING, ELBOW 90°, MALE 3/8", MALE 1/2"
11	HDW6752	1	ADAPTER, MALE 3/4", FML 1/2"
12	6714	1	FILTER, HEAD
13	HDW90215	1	FITTING, ELBOW 90°, FML 3/4", MALE 1/2"
14	HDW5938	2	FITTING, SIGHT GAUGE
15	HDW6455	2	SCREW, 1/4" - 20, 1/2" - 66
16	90127	1	FILLER BREATHER
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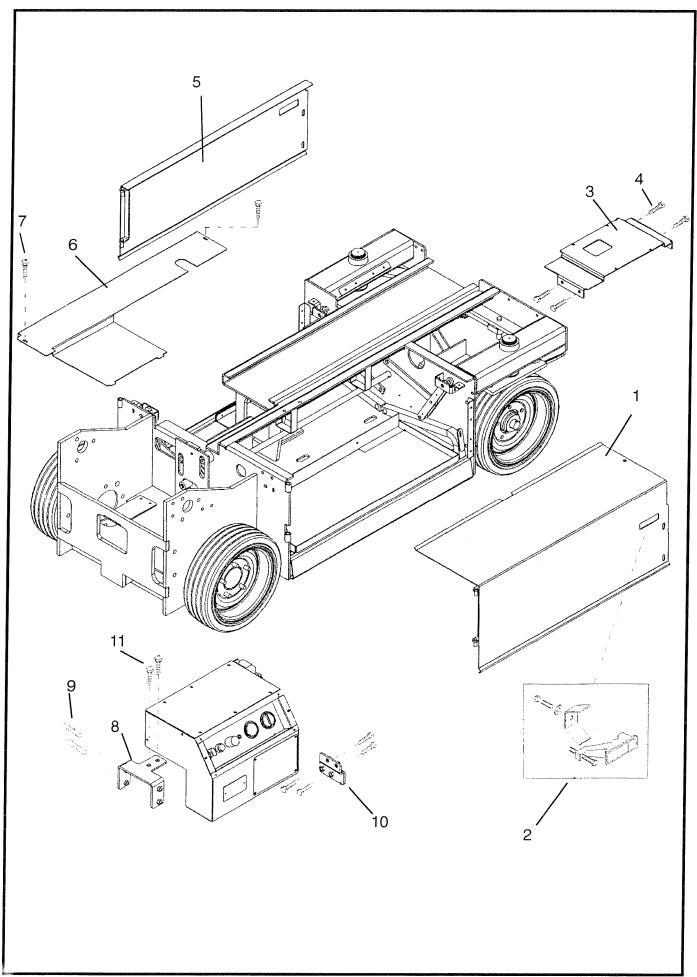


ITEM	PART NO.	QTY	DESCRIPTION
1	25439	1	LADDER (1532ES)
1	25436	1	LADDER (1932ES)
2	HDW8457	4	NUT, 1/2" -13
3	HDW8283	4	SCREW, 1/2"-13, 1 1/2" LG
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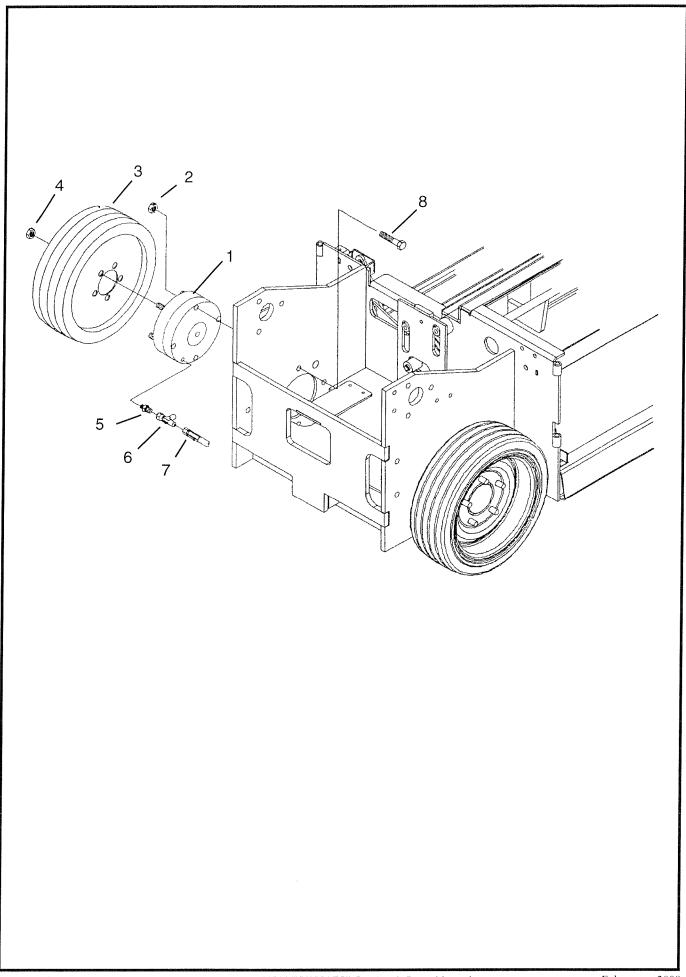


ITEM	PART NO.	QTY	DESCRIPTION
1	25443	1	ACCESS KICK PANEL (1532ES - EUROPE ONLY)
1	25444	1	ACCESS KICK PANEL (1932ES - EUROPE ONLY)
2	HDW6281	4	NUT, 3/8" - 16
3	HDW5004	4	SCREW, 3/8" - 16, 1.00" LG
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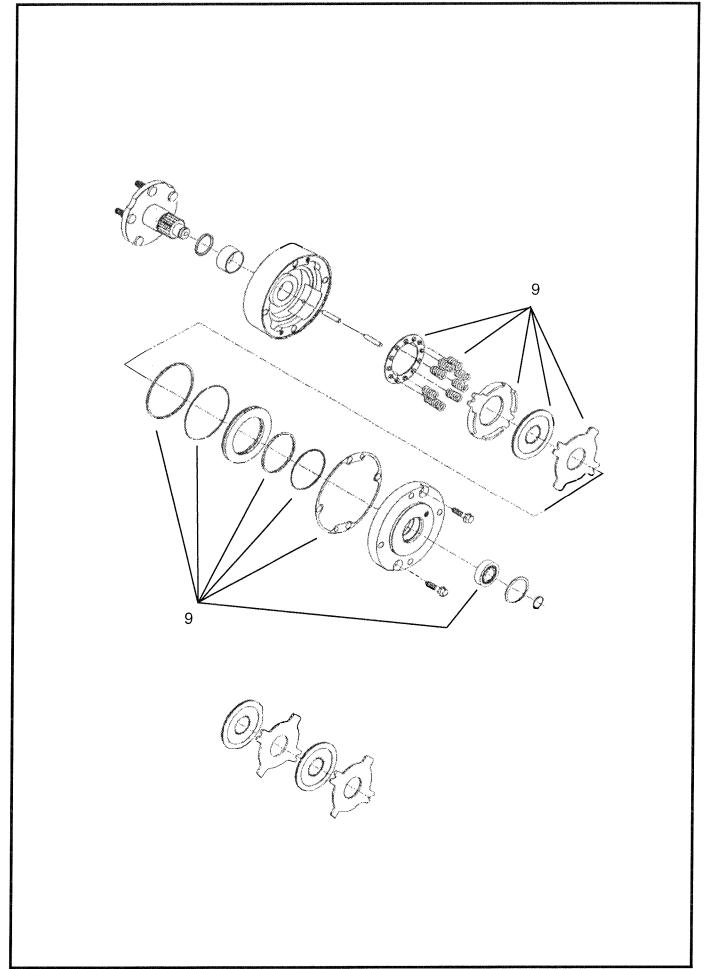
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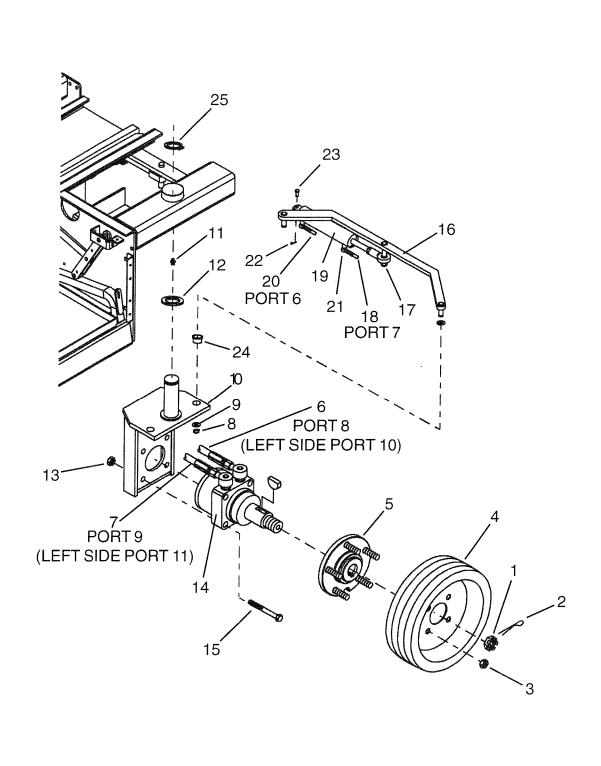
ITEM	PART NO.	QTY	DESCRIPTION
1	25487	1	DOOR, BATTERY
2	8386	2	LATCH
3	25491	1	CHARGER MOUNT BRKT
4	HDW8273	4	SCREW, 1/4" - 20, 1.0" LG
5	25494	1	DOOR, HYDRAULIC
6	25453	1	COVER, HYDRAULIC
7	HDW6455	2	SCREW, 1/4" - 20, 1/2" LG
8	25477	1	BRKT, CONTROL BOX MOUNT
9	HDW5417	8	SCREW 3/8" - 16, 1 1/4" LG
10	25476	1	BRKT, CONTROL BOX MOUNT
11	HDW6432	4	SCREW, 3/8" -16, 3/4" LG
	,		
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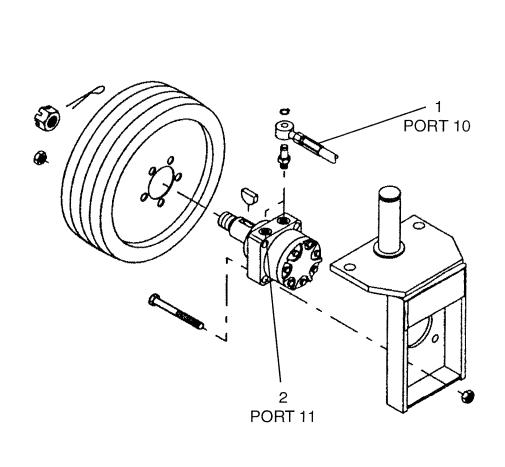
ITEM	PART NO.	QTY	DESCRIPTION
1	9544	2	HYDRAULIC BRAKE ASSY.
2	HDW8457	8	NUT, 1/2" - 13
3	8812	2	WHEEL TIRE, NON-MARKING
4	HDW6677	10	NUT, HEX LUG. 1/2" - 20
5	HDW8881	2	ADPATER, MALE 1/4" O-RING, MALE 1/4"
6	HDW90332	1	FITTING, MALE 1/4", MALE 1/4"
7	90275	1	HOSE ASSY, STRGHT MALE, STRGHT MALE, 1/4" - 17" LG
8	HDW8498	8	SCREW, 1/2" -13, 4" LG
			(CONTINUED NEXT PAGE)
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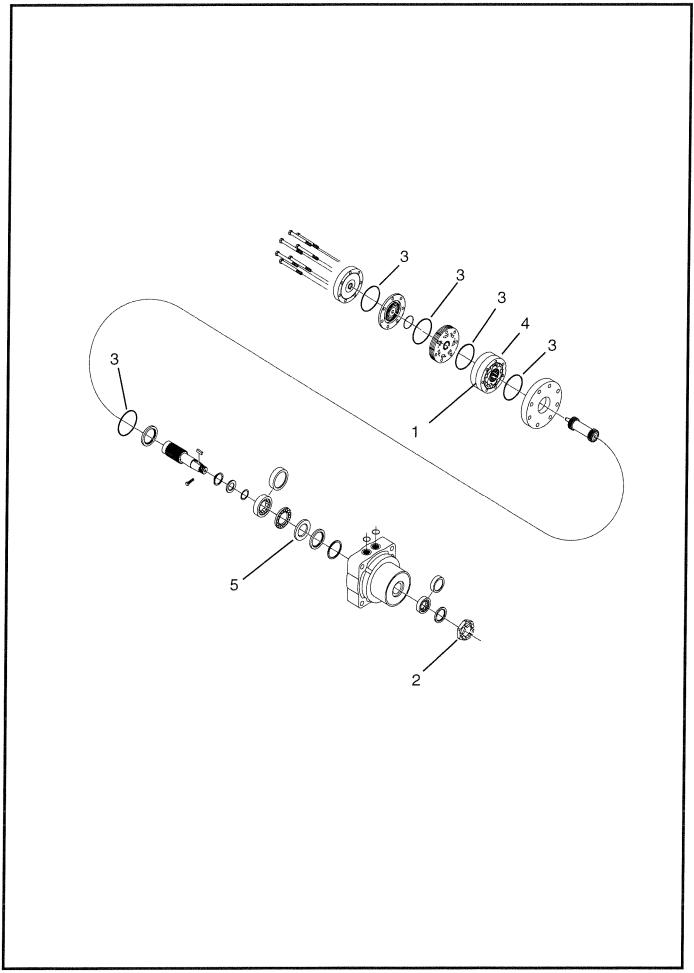
ITEM	PART NO.	QTY	DESCRIPTION
			(CONTINUED)
9	90413	1	BRAKE REPAIR KIT
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	THE PERSON NAMED IN COLUMN NAM		



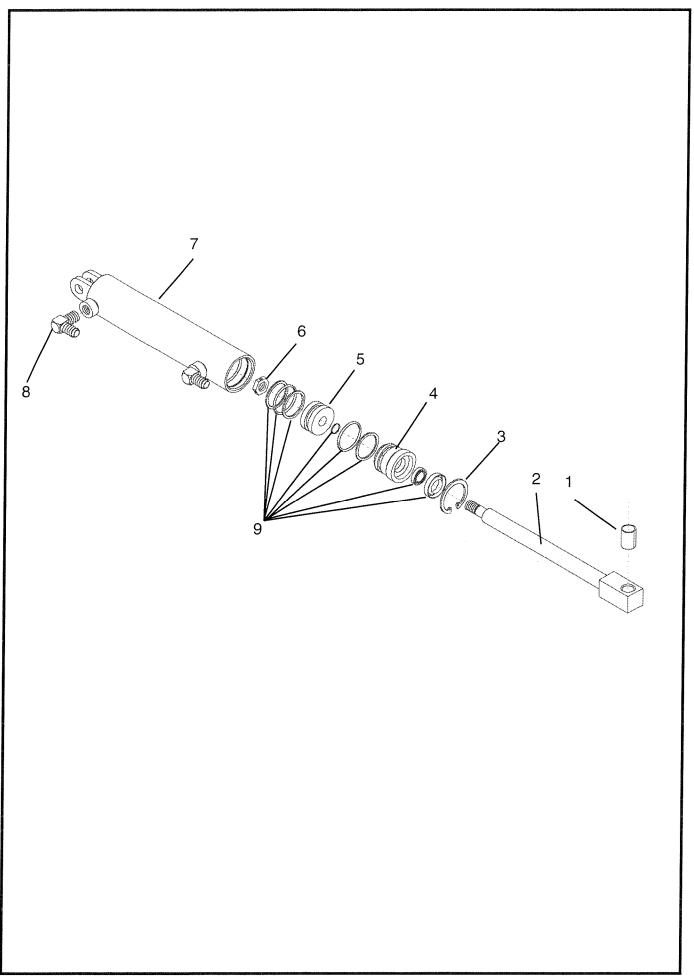
ITEM	PART NO.	QTY	DESCRIPTION
1	HDW8568	2	NUT, SLOTTED, 1 1/8" - 18
2	HDW5290	2	PIN, COTTER
3	HDW6677	10	NUT, LUG, 1/2" - 20
4	8812	2	WHEEL/TIRE NON MARKING
5	25542	2	HUB TAPERED DRIVE
.6	90286	1	HOSE ASSY, STRGHT FML, MALE SWIVL, 3/8" - 67" LG, PORT 8
7	90286	1	HOSE ASSY, STRGHT FML, MALE SWIVL, 3/8" - 67" LG, PORT 9
√8	9066	2	RING, RETAINING 5/8"
·/9	HDW9219	2	WASHER, SPACER
1 0	25548	2	WELDMENT, WHEEL MOTOR MOUNT
Y11	5432	2	FITTING, GREASE INSERT
′ 12	HDW3802	2	WASHER, 2 1/2" NYLON
¹ 13	HDW8457	8	NUT, 1/2" - 13
14	90231	2	MOTOR, HYDRAULIC WHEEL
√15	HDW6435	8	SCREW, 1/2" - 13, 2 1/2" LG
~16	25324	1	WELDMENT, TIE ROD
V17	HDW6633	1	NUT, 5/8" - 11
18	9404	1	HOSE ASSY, STRGHT FML, 1/4" - 63" LG, PORT 7
И9	25085	1	CYLINDER, STEERING
20	9404	1	HOSE ASSY, STRGHT FML, 1/4" - 63" LG, PORT 6
21	HDW7500	2	FITTING, 90° ELBW, 1/4"
√22	HDW5920	1	PIN, COTTER
⊬ 23	HDW5710	1	PIN, CLEVIS
√24	9170	2	BEARING, FLANGED 5/8"
2 5	8919	2	RING, RETAINING



ITEM	PART NO.	QTY	DESCRIPTION
1	90286	1	HOSE ASSY, STRGHT FML, MALE SWIVL, 3/8"-67" LG, PORT 10
2	90286	1	HOSE ASSY, STRGHT FML, MALE SWIVL, 3/8"-67" LG, PORT 11
		 	
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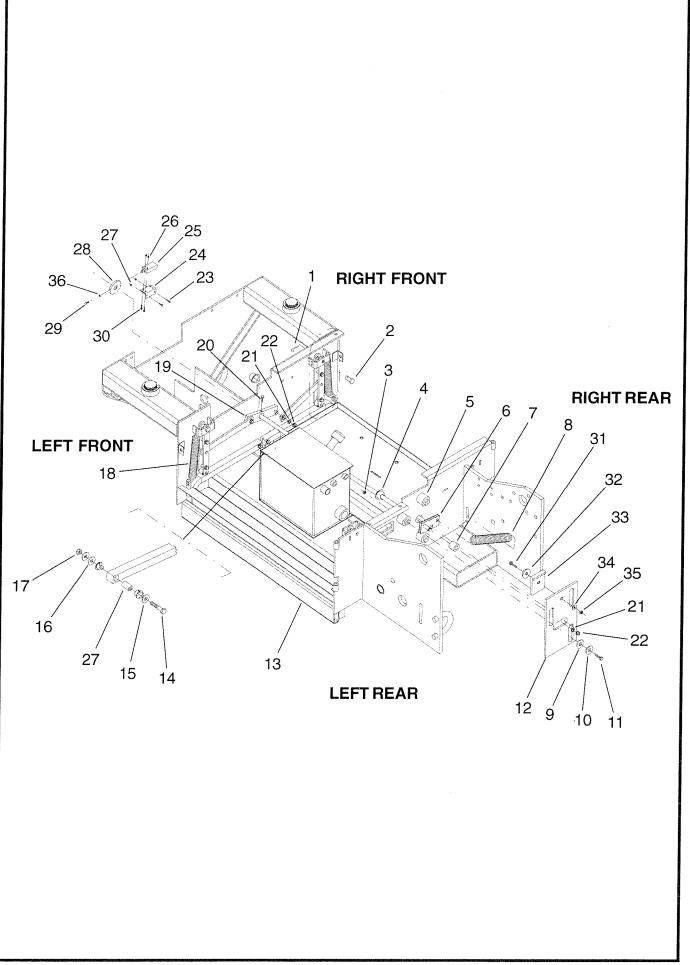


ITEM	PART NO.	QTY	DESCRIPTION
	90231	-	WHEEL MOTOR
1		2	STATER HALVES
2	HDW8568	1	NUT, 1 1/8" - 18
	90419	_	SEAL KIT FOR WHEEL MOTOR 90231
3		5	SEAL RING
4		1	SEAL RING BETWEEN HALVES
5		1	SHAFT SEAL
		10000	



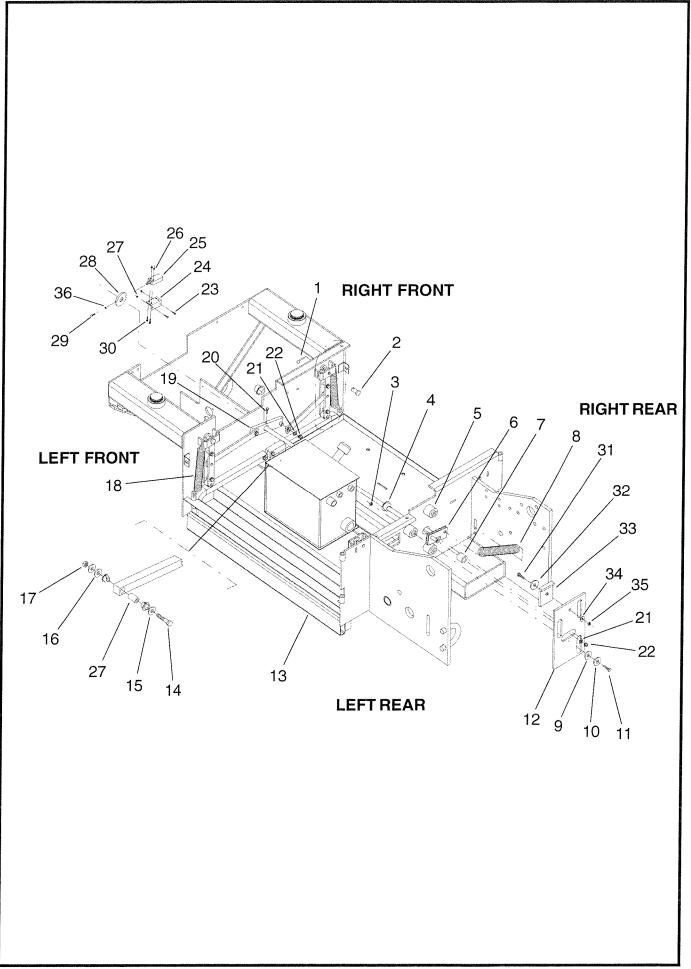
ITEM	PART NO.	QTY	DESCRIPTION
	25085	_	STEER CYLINDER
1	8433	1	BUSHING
2	25139	1	ROD
3	6337	1	RING, RETAINING
4	2493	1	HEAD
5	2494	1	PISTON
6	HDW6338	1	NUT, 1/2" - 20
7	25137	1	WELDMENT, STEER CYL.
8	HDW7500	2	FITTING, 90° ELBW, 1/4"
9	5947	1	SEAL KIT

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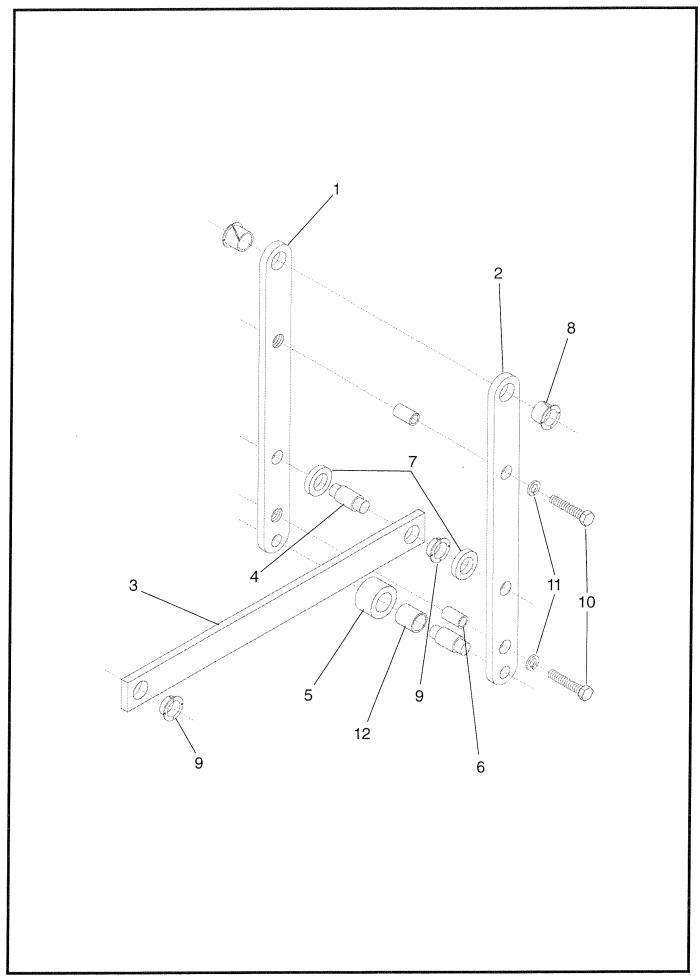
ITEM	PART NO.	QTY	DESCRIPTION
¥1	HDW5920	4	PIN, COTTER, 1/8" X 1"
·⁄2	HDW7229	4	PIN, CLEVIS, 1/2" x 2"
<i>ν</i> 3	HDW8268	3	NUT, 3/8" - 16
~ 4	7260	2	BEARING, OIL IMPREGNATED, 3/4" X 3/4", FLANGED
√ 5	8602	3	SPACER, STEPPED PVC
⊬ 6	25378	1	POTHOLE ACTUATOR ROD WELDMENT
√7	4541	1	ROLLER
√8	25307	1	SPRING, TENSION - DEPLOYMENT
√9	HDW13556	3	WASHER, FLAT, 3/8" ID, 1 1/2" OD, 1/8", THICK-PLASTIC
, 10	HDW13338	36	WASHER, FLAT, 3/8" ID, 1 1/2" OD, 1/8", THICK-STEEL HOW TO 4/2
v11	HDW8279	3	SCREW, 3/8" - 16, 2 1/2" LG, GRADE 5
√12	25246	1	PLATE, POTHOLE ACTUATOR
√13	25151	2	POTHOLE BAR WELDMENT
୍14	HDW8278	4	SCREW, 3/8" - 16, 2.25"LG, GRADE 8
~ 15	7202	8	BEARING, 5/8" ID X 7/16" LG, FLANGED
16	HDW11467	12	WASHER, FLAT
¬17	HDW5039	4	NUT, 3/8" - 16
√18	9027	4	SPRING, TENSION, 1" OD X 5" LG, RETRACTION
√19	11129	2	STABILIZER, PIVOT BAR
~20	HDW5724	2	SCREW, 5/16" - 18, 3/4" LG, GRADE 5
⁷ 21	HDW7031	5	WASHER, FLAT, 1/2" ID, 7/8" OD, 1/16" THICK
[∤] 22	5736	5	RING, RETENTION, 2/2" SHAFT
⊬ 23	HDW5723	2	SCREW, 1/4" - 20, 3/4" LG
'24	13840	1	BRACKET, POTHOLE LIMIT SWITCH MOUNT
			(CONTINUED ON NEXT PAGE)
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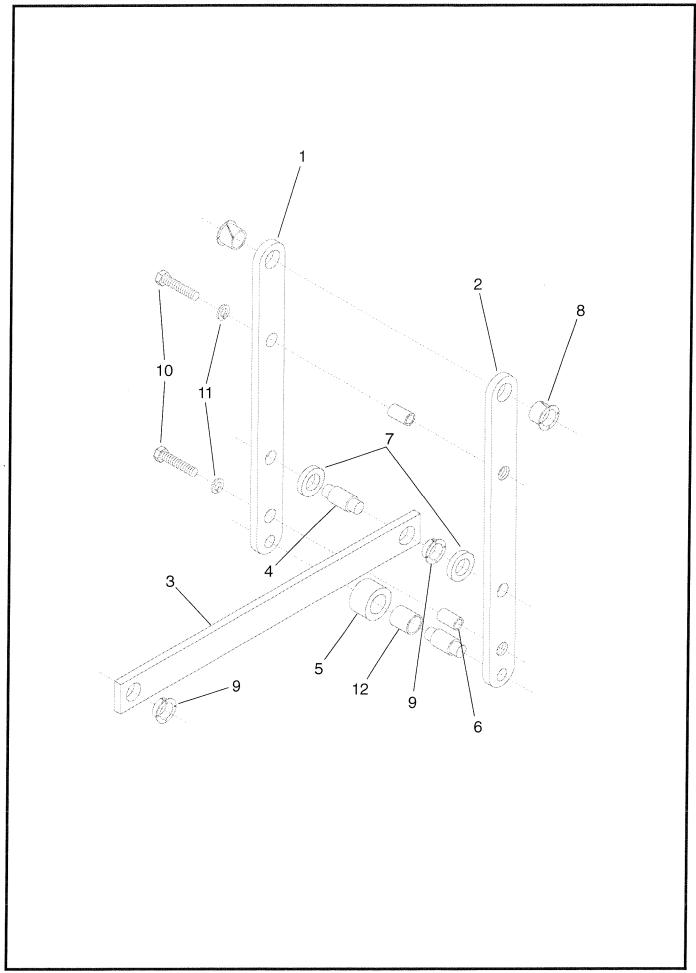
ITEM	PART NO.	QTY	DESCRIPTION
			(CONTINUED)
25	8776	1	LIMIT SWITCH, SINGLE POLE
√26	HDW5251	2	NUT, #8 - 32
√27	11181	4	SPACER
′ 28	25377	1	CAM, POTHOLE LIMIT SWITCH
v⁄29	HDW8486	1	SCREW, 1/4" - 20, 1/2" LG
<i>ب</i> 30	HDW8482	2	SCREW, #8 - 32, 1 1/2" LG
<i>i</i> /31	HDW8273	1	SCREW, 1/4" - 20, 1" LG
۱ 32	HDW5470	1	WASHER, FLAT, 1 1/2" OD, 9/32" ID X 1/8"
√33	25306	1	WEAR BLOCK, POTHOLE ACTUATOR
√34	HDW5217	1	WASHER, FLAT, 11/16" OD, 11/32" ID X 1/16"
√ 35	HDW5276	1 1	NUT, 1/4" - 20
√36	HDW5006	1	WASHER, FLAT
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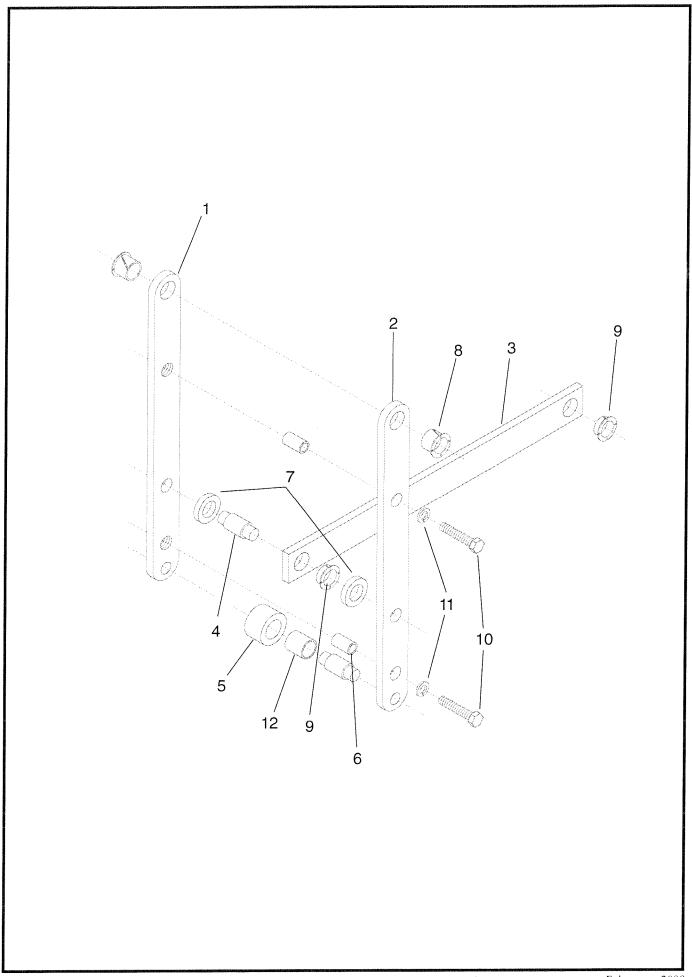


ITEM	PART NO.	QTY	DESCRIPTION
	25161	••	RIGHT FRONT ROLLER ARM ASSY
1	25146	1	BAR, OUTER ROLLER
2	25145	1	BAR, INNER ROLLER
3	25147	1	SWING ARM, SHORT
4	11120	2	PIN, SPACER
5	4542	1	ROLLER
6	11119	2	TUBE, SPACER
7	11176	2	SPACER, STABILIZER BAR
8	7200	2	BEARING, NYLINER, 1/2" ID, 1/2" LG
9	7220	2	BEARING, NYLINER, 1/2" ID, 7/32" LG
10	HDW5988	2	SCREW, 1/4" - 20 X 1 1/4" LG, GRADE 5
11	HDW5277	2	WASHER, SPLIT LOCK, 1/4"
12	6700	1	BEARING, 08DU10, 1/2" X 5/8"

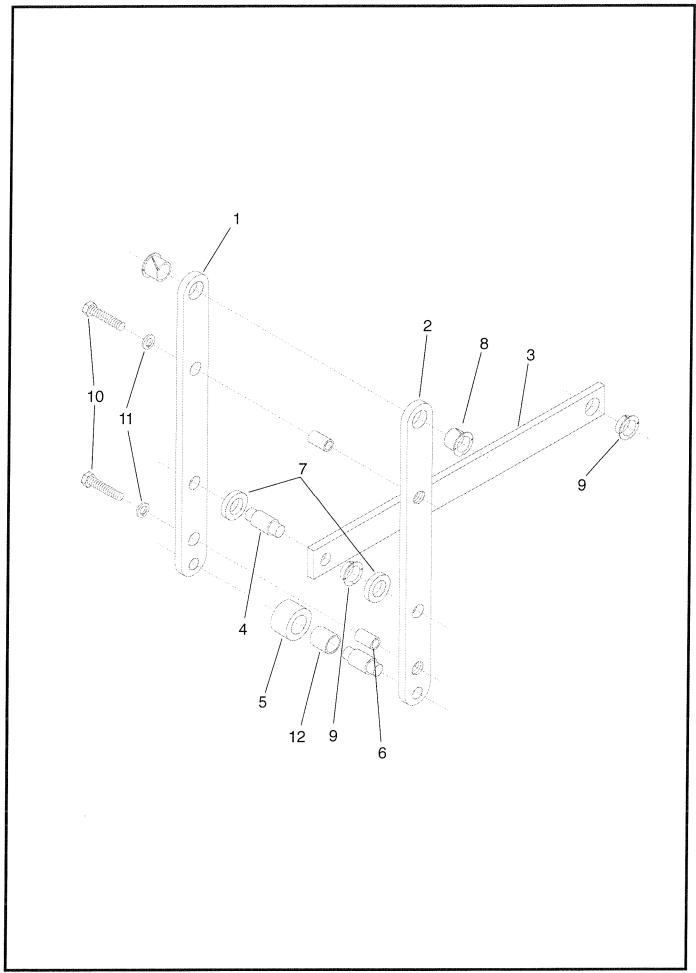
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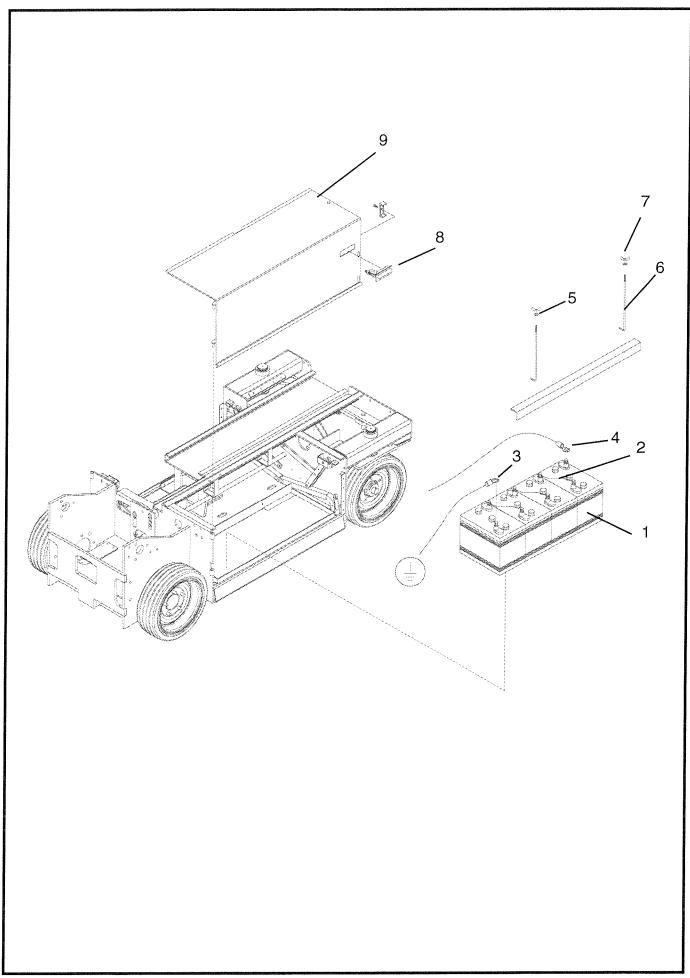
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ITEM	PART NO. 25159	QTY	
		_	RIGHT REAR ROLLER ARM ASSY
1	25145	1	BAR, OUTER ROLLER
2	25146	1	BAR, INNER ROLLER
3	25147	1	SWING ARM, SHORT
4	11120	2	PIN, SPACER
5	4542	1	ROLLER
6	11119	2	TUBE, SPACER
7	11176	2	SPACER, STABILIZER BAR
8	7200	2	BEARING, NYLINER, 1/2" ID, 1/2" LG
9	7220	2	BEARING, NYLINER, 1/2" ID, 7/32" LG
10	HDW5988	2	SCREW, 1/4" - 20 X 1 1/4" LG, GRADE 5
11	HDW5277	2	WASHER, SPLIT LOCK, 1/4"
12	6700	1	BEARING, 08DU10, 1/2" X 5/8"
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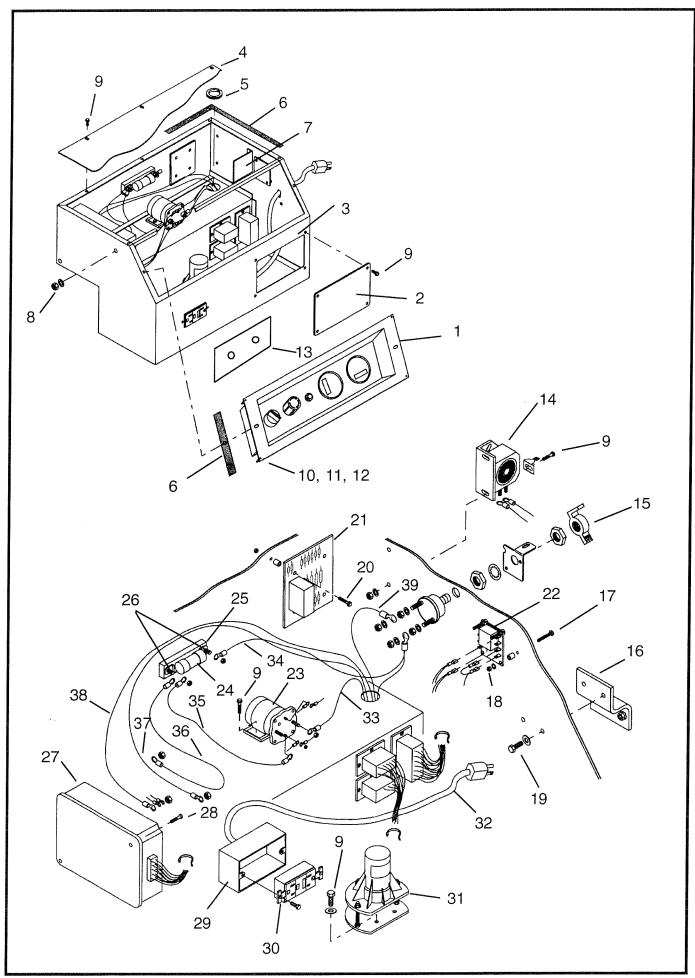
ITEM	PART NO.	QTY	DESCRIPTION
	25160	_	LEFT FRONT ROLLER ARM ASSY
V 1	25146	1	BAR, OUTER ROLLER
√2	25145	1	BAR, INNER ROLLER
V3	25148	1	SWING ARM, LONG
V4	11120	2	PIN, SPACER
v5	4542	1	ROLLER
ν6	11119	2	TUBE, SPACER
v7	11176	2	SPACER, STABILIZER BAR
r 8	7200	2	BEARING, NYLINER, 1/2" ID, 1/2" LG
9	7220	2	BEARING, NYLINER, 1/2" ID, 7/32" LG
Й0	HDW5988	2	SCREW, 1/4" - 20 X 1 1/4" LG, GRADE 5
√11	HDW5277	2	WASHER, SPLIT LOCK, 1/4"
J2	6700	1	BEARING, 08DU10, 1/2" X 5/8"
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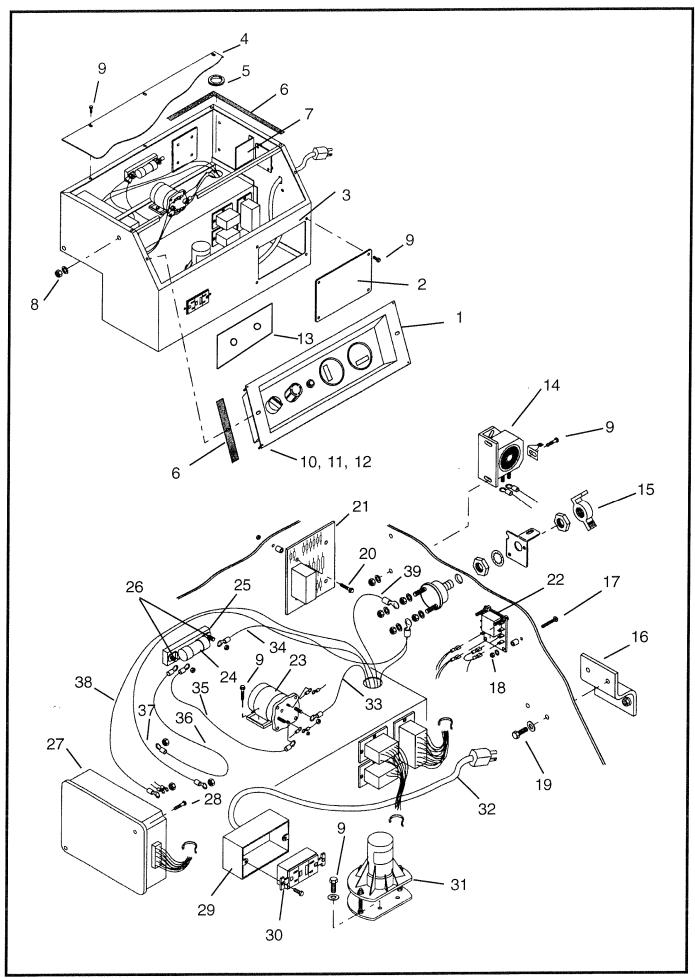
ITEM	PART NO.	QTY	DESCRIPTION
	25158		ROLLER ARM ASSY, LEFT REAR
1	25145	1	BAR, INNER ROLLER
2	25146	1	BAR, OUTER ROLLER
3	25148	1	SWING ARM, LONG
4	11120	2	PIN, SPACER
5	4542	1	ROLLER
6	11119	2	TUBE, SPACER
7	11176	2	SPACER, STABILIZER BAR
8	7200	2	BEARING, NYLINER, 1/2" ID, 1/2" LG
9	7220	2	BEARING, NYLINER, 1/2" ID, 7/32" LG
10	HDW5988	2	SCREW, 1/4" - 20 X 1 1/4" LG, GRADE 5
11	HDW5277	2	WASHER, SPLIT LOCK, 1/4"
12	6700	1	BEARING, 08DU10, 1/2" X 5/8"
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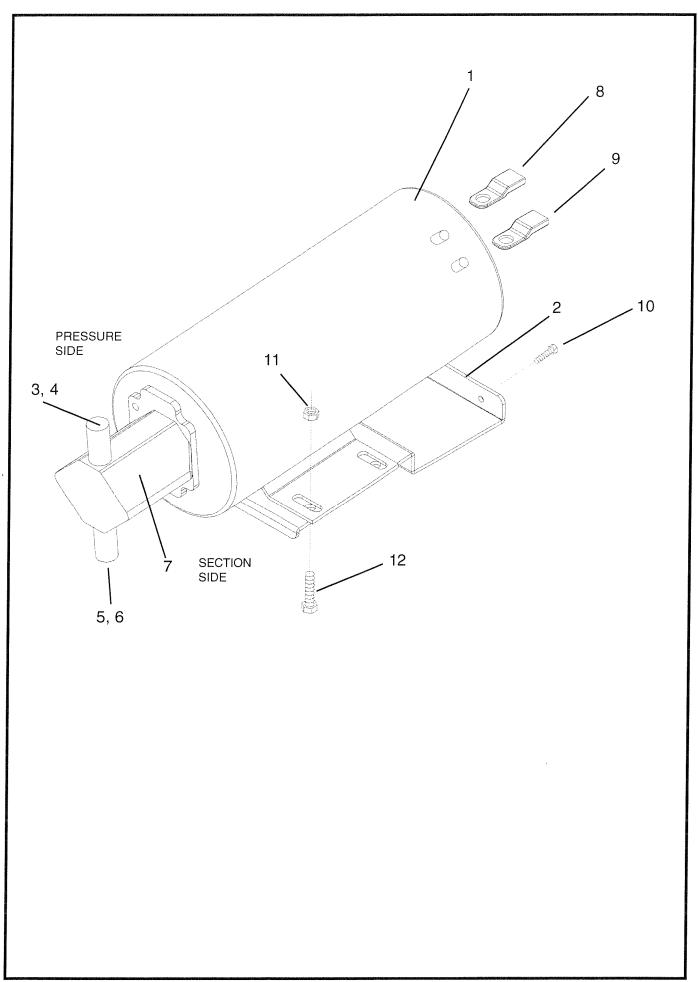
ITEM	PART NO.	QTY	DESCRIPTION
1	5970	4	BATTERY, 6 VOLT
2	6208	3	CABLE, BATTERY, UL 1283 #2, BLACK, 8 1/2" LG
3	9062	1	CABLE, BATTERY, UL 1283 #2, RED, 48" LG
4	9243	1	CABLE, BATTERY, UL 1283 #2, BLACK, 30" LG
5	HDW5217	2	WASHER, FLAT
6	13263	2	ROD, HOLD DOWN
7	HDW6110	2	NUT, WING, 1/4" - 20
8	8386	1	LATCH, DOOR
9	25487	1	DOOR, BATTERY
	7172	4	BOOT TERMINAL INSULATOR, BLACK (NOT SHOWN)
	7173	4	BOOT TERMINAL INSULATOR, RED (NOT SHOWN)
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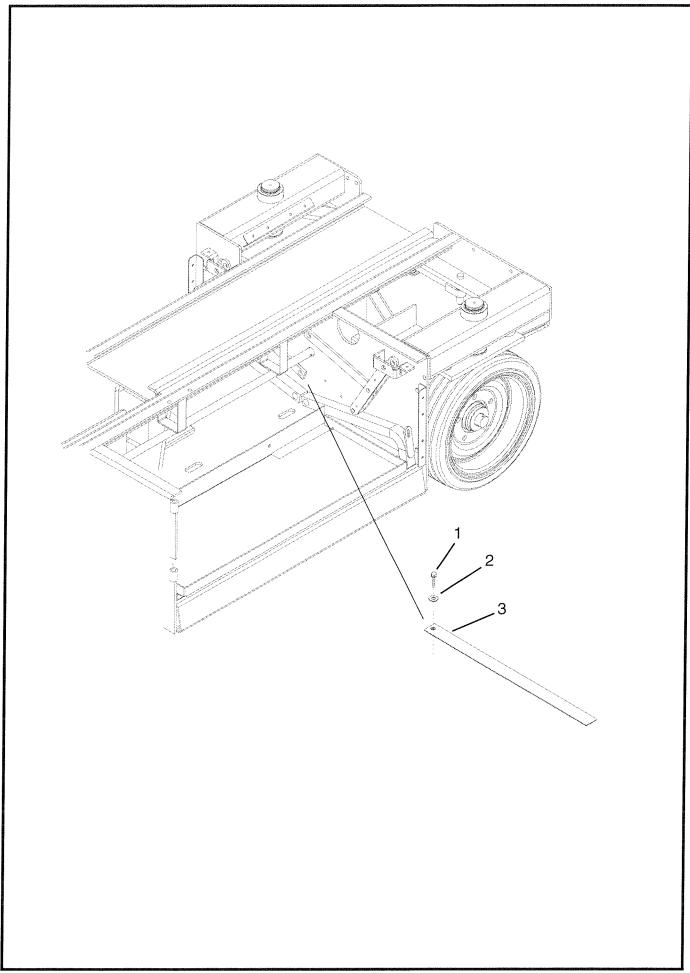
ITEM	PART NO.	QTY	DESCRIPTION
1	25461	1	COVER, BASE CONTROL
2	25478	1	COVER, ACCESS PANEL
3	25459	1	WELDMENT, BASE CONTROL BOX
4	25464	1	COVER, ACCESS PANEL TOP
5	5863	1	GROMMET
6	9454	3FT.	GASKET STRIP
7	25480	1	GUARD, BATTERY DISCONNECT
8	HDW5276	4	NUT, 1/4" - 20
9	HDW6455	16	SCREW, 1/4" - 20, 1/2" LG
10	9774	4	STUD, 1/2" LG
11	9773	4	RECEIVER, BALL STUD
12	400AD42H	8	RIVET
13	25576	1	COVER, 110 OUTLET
14	8698	1	ALARM, MOTION (OPTION ONLY)
15	8841	1	SWITCH, MASTER DISCONNECT
16	25476	1	BRKT, MOUNT
17	HDW8399	4	SCREW, #4, 5/8" LG
18	HDW7886	4	NUT, #4
19	HDW6432	4	SCREW, 3/8" - 16, 3/4" LG
20	HDW5229	4	SCREW, #6, 3/8" LG
21	8601	1	CIRCUIT BOARD
22	90169	1	RELAY, TIME DOWN DELAY (EUROPE ONLY)
23	5967	1	CONTACTOR, 24V
24	8344	1	FUSE, 200A
25	8345	1	FUSE HOLDER
26	HDW7778	2	SCREW, 1/4" - 20, 1 1/4" LG
27	9089	1	MOTOR CONTROLLER
28	HDW90288	2	SCREW, 1/4" - 20, 3" LG
29	90248	1	BOX, 110 OUTLET (OPTION ONLY)
30	7263	1	RECEPTACLE, POPLEX (OPTION ONLY)
31	90217	1	TIP SENSOR, 24V
32	5382	1	PLUG, 110V (OPTION ONLY)
33	9062	1	BATTERY CABLE, UL1283, #2 RED, 48" LG
			(CONTINUED ON NEXT PAGE)



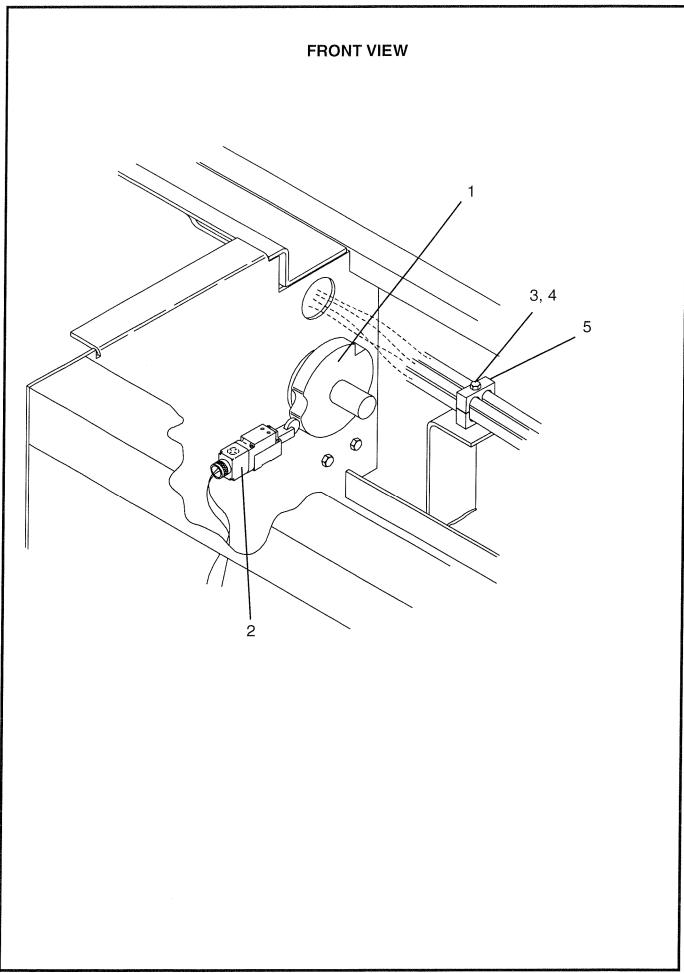
ITEM	PART NO.	QTY	DESCRIPTION
			(CONTINUED)
34	8837	1	BATTERY CABLE, UL1283, #2 RED, 10" LG
35	8426	1	BATTERY CABLE, UL1283, #2 RED, 9" LG
36	6208	1	BATTERY CABLE, UL1283, #2 BLACK, 8 1/2" LG
37	9063	1	BATTERY CABLE, UL1283, #2 BLACK, 52" LG
38	9243	1	BATTERY CABLE, UL1283, #2 BLACK, 30" LG
39	9062	1	BATTERY CABLE, UL1283, #2 RED, 48" LG
		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
-	9054	1	HARNESS, LIFT MANIFOLD
	9061	1	HARNESS, CHARGER
-	9977	1	HARNESS, INSTRUMENT
-	9978	1	HARNESS, MAIN MANIFOLD
-	9979	1 1	HARNESS, SAFETY SWITCH (EUROPE)
-	90225	1	HARNESS, SAFETY SWITCH (DOMESTIC)
-	90129	1 1	HARNESS, COM CABLE BEAMS (1532ES)
_	90128	1	HARNESS, COM CABLE BEAMS (1932ES)
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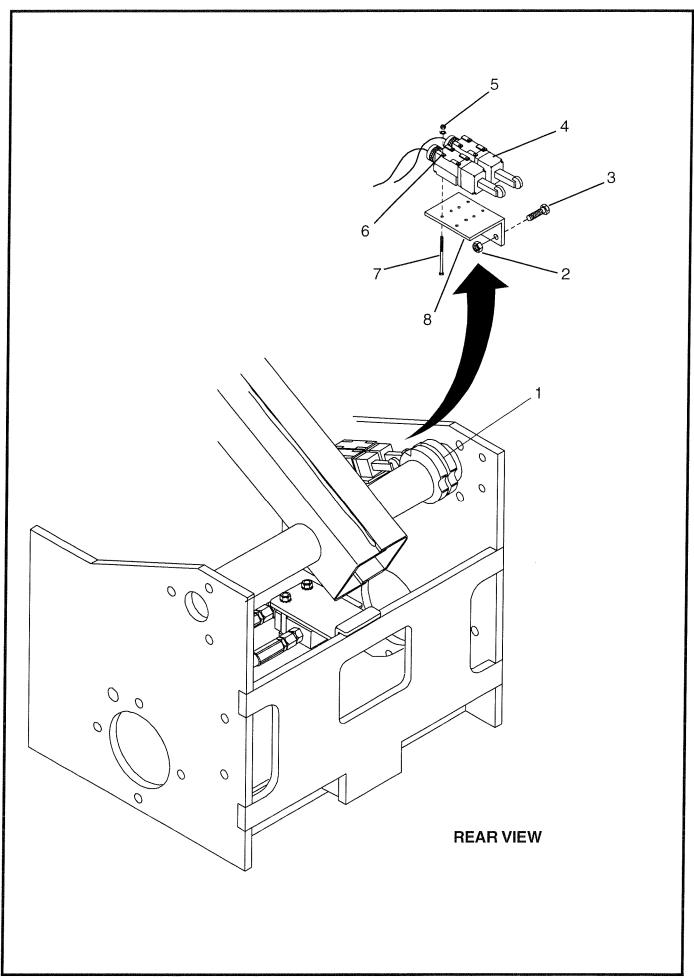
ITEM	PART NO.	QTY	DESCRIPTION
1	8544	1	MOTOR, 24VDC, 2HP
2	25555	1	BRKT, ELEC MOTOR MOUNT
3	HDW8081	1	FITTING, ELBOW 90°, MALE 1/2" O-RING, MALE 3/8"
4	7598	1	HOSE ASSY, STRGHT FML 3/8", STRGHT FML 3/8", 28" LG
5	6724	1	FITTING, ELBOW 90°, MALE 1/2" O-RING, MALE 1/2"
6	9959	1	HOSE ASSY, STRGHT FML 1/2", STRGHT FML 1/2", 10" LG
7	8546	1	PUMP, HYD, #4
8	9062	1	BATTERY CABLE, UL 1283, #2 RED, 48" LG
9	9063	1	BATTERY CABLE, UL1283, #2 BLACK, 52" LG
10	HDW6455	2	SCREW, 1/4" - 20, 1/2" LG
11	HDW5005	4	NUT, 5/16" - 18
12	HDW5204	4	SCREW, 5/16" - 18, 1" LG
-	7172	1	BOOT TERMINAL INSULATOR BLACK (NOT SHOWN)
-	7173	1	BOOT TERMINAL INSULATOR RED (NOT SHOWN)
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ITEM	PART NO.	QTY	DESCRIPTION
1	HDW8685	1	SCREW, 1/4" - 20, 3/4" LG
2	HDW8294	1	WASHER, FLAT
3	7638	1	GROUNDING STRAP
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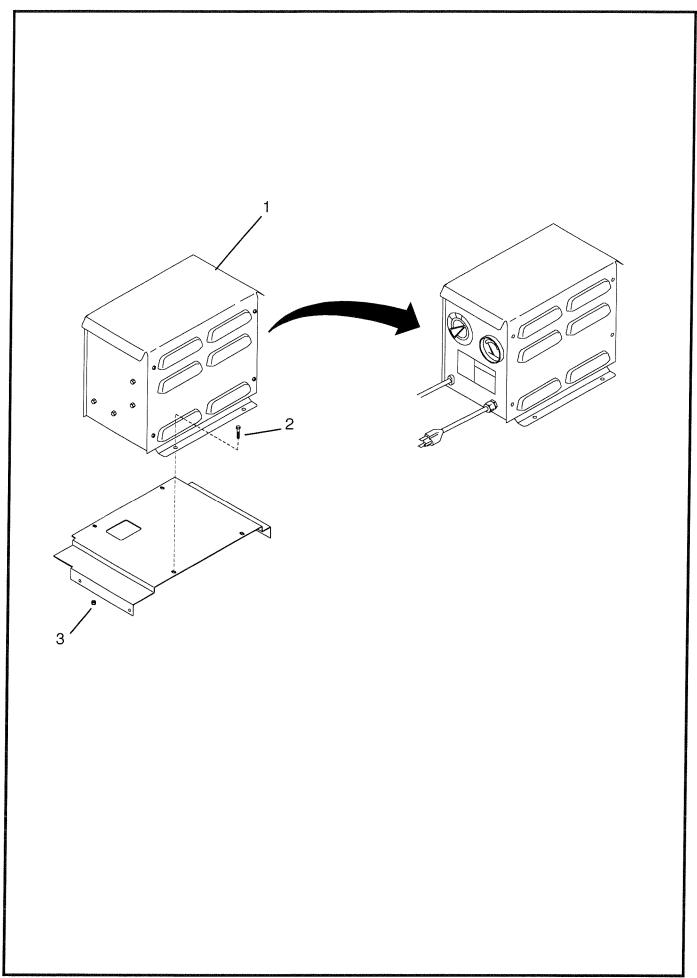


ITEM	PART NO.	QTY	DESCRIPTION
1	25294	1	CAM, DRIVE CUTOUT
2	8776	1	SWITCH, LIMIT
3	HDW5217	2	WASHER
4	HDW6502	1	BOLT, 1/4" - 20, 2 1/2" LG
5	7788	2	CLAMP
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ITEM	PART NO.	QTY	DESCRIPTION
1	25269	1	CAM, LIMIT SPEED
	25269	1	CAM, (EUROPE ONLY - TO BE USED WITH ITEM 6)
2	HDW5276	2	NUT, 1/4" - 20
3	HDW8273	2	SCREW, 1/4" - 20, 1" LG
4	8932	1	SWITCH, LIMIT SPEED
5	HDW5251	4	NUT, #8 - 32
6	8776	1	SWITCH, LIMIT DOWN (EUROPE ONLY)
7	HDW8482	4	SCREW, #8 - 32, 1 1/2" LG
8	13838	1	BRKT, LIMIT SWITCH MOUNT

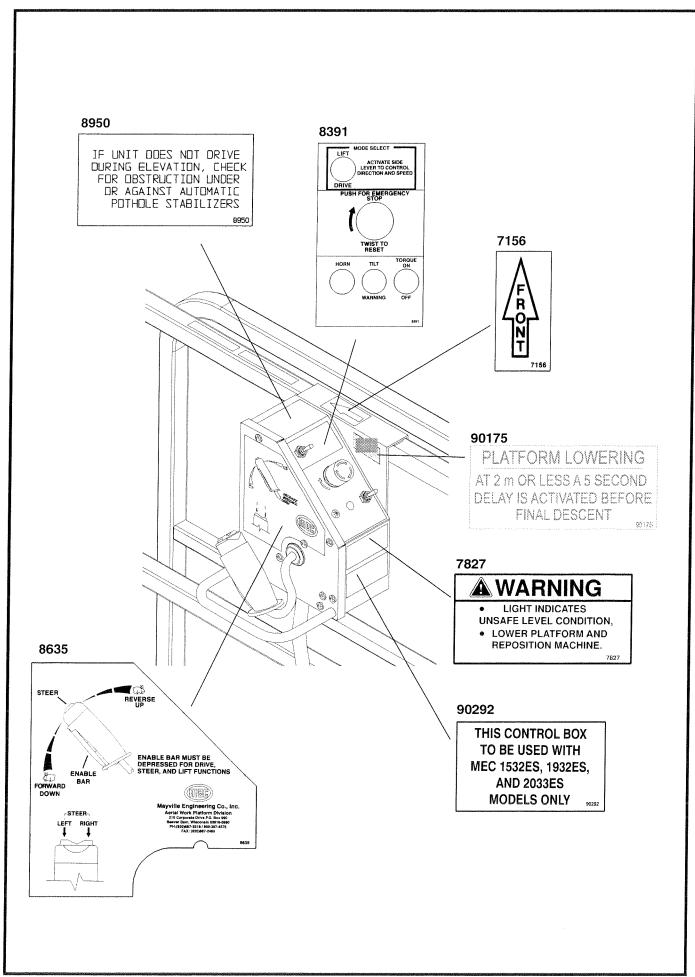
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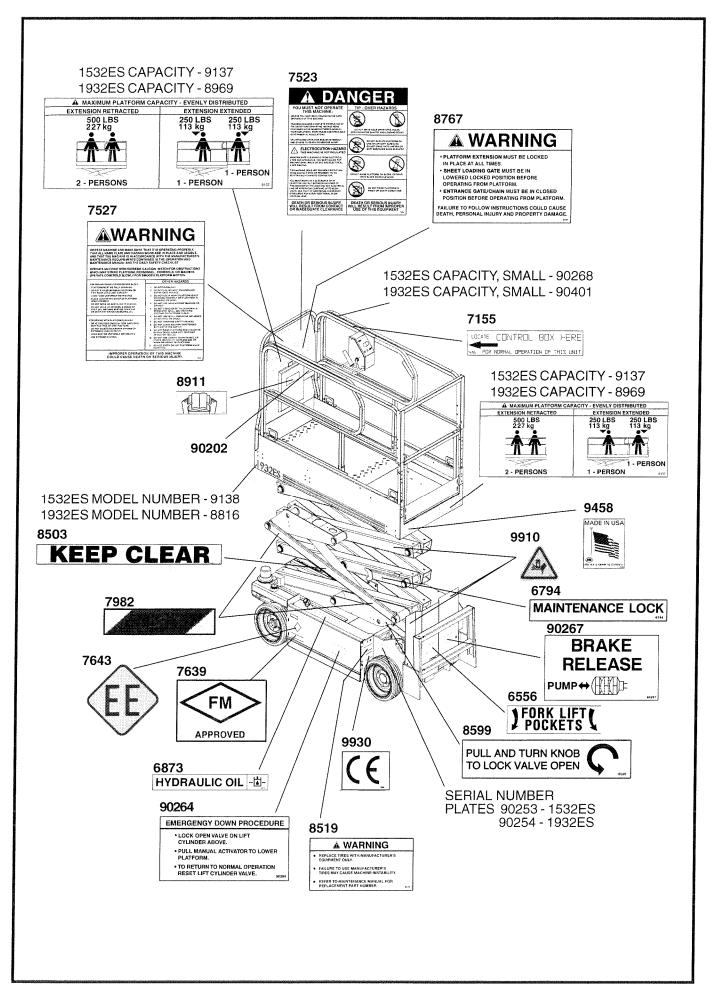
ITEM	PART NO.	QTY	DESCRIPTION
	13978	_	CHARGER, AUTO (STANDARD)
1	8954	1	CHARGER, 24VOLT, 120 V / 60 Hz
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32
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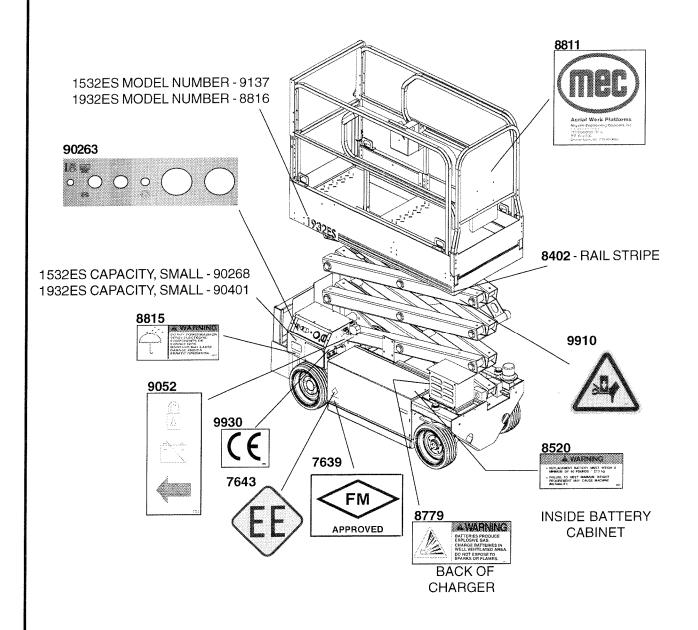


ITEM	PART NO.	QTY	DESCRIPTION
	25457	1	DECAL KIT (1532ES)
	25581	1	DECAL KIT (1932ES)
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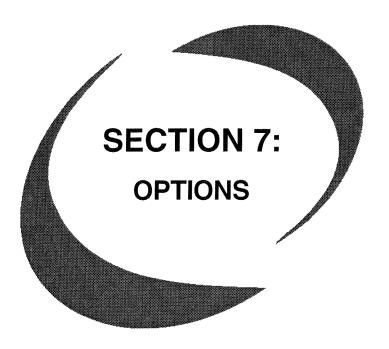
ITEM	PART NO.	QTY	DESCRIPTION
	25457	1	DECAL KIT (1532ES)
	25581	1	DECAL KIT (1932ES)

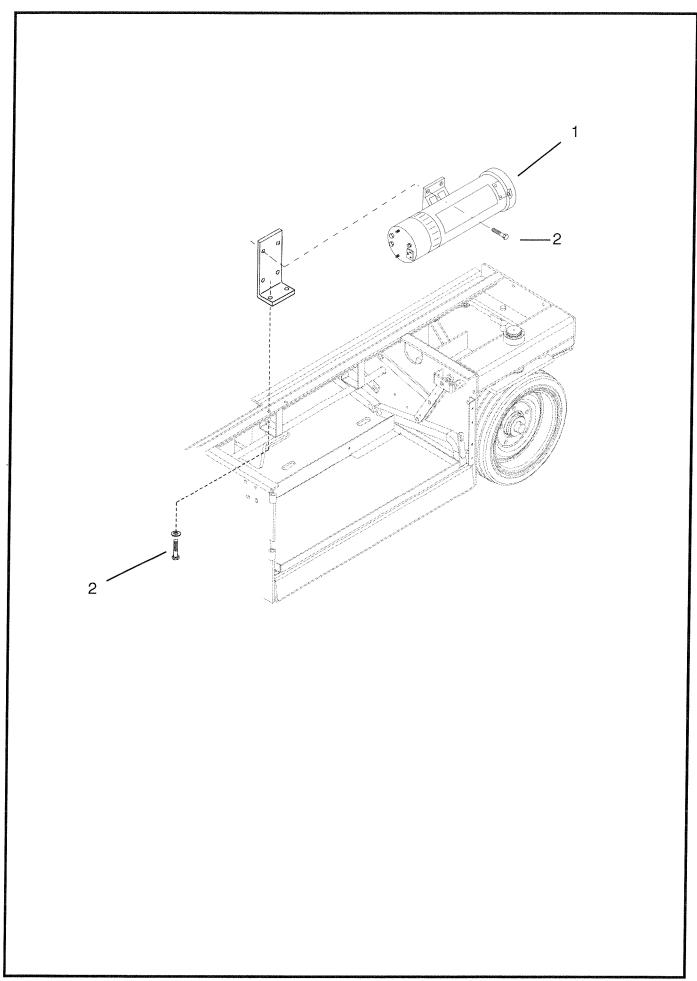
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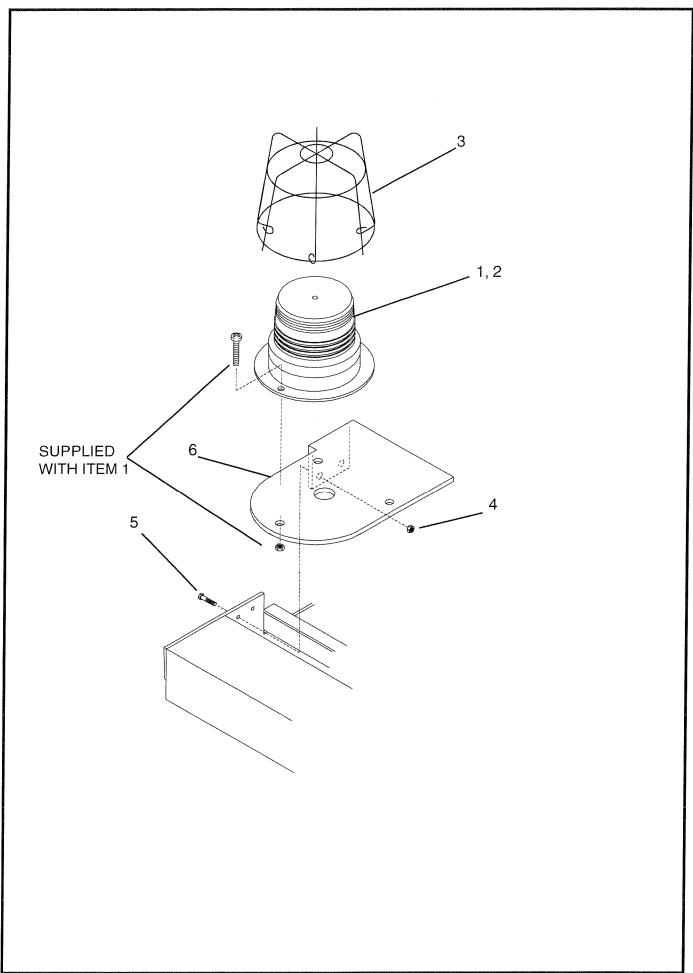
ITEM	PART NO.	QTY	DESCRIPTION
I I L IVI	25457	1	DECAL KIT (1532ES)
	25581	1	DECAL KIT (1932ES)
	20001	l l	DECAL KIT (1932E3)
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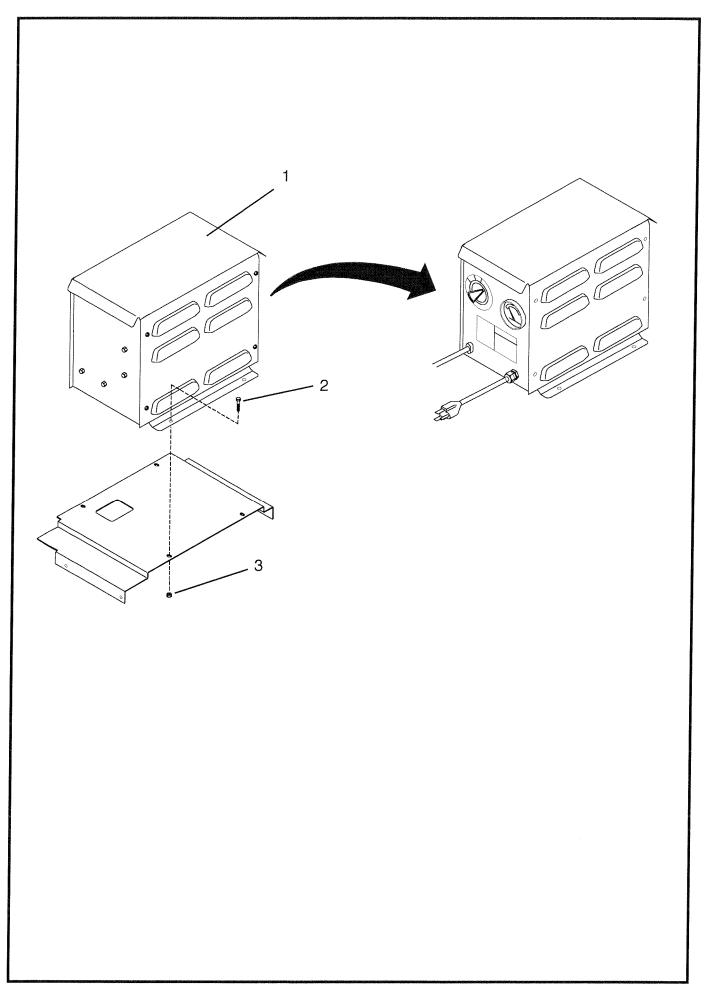




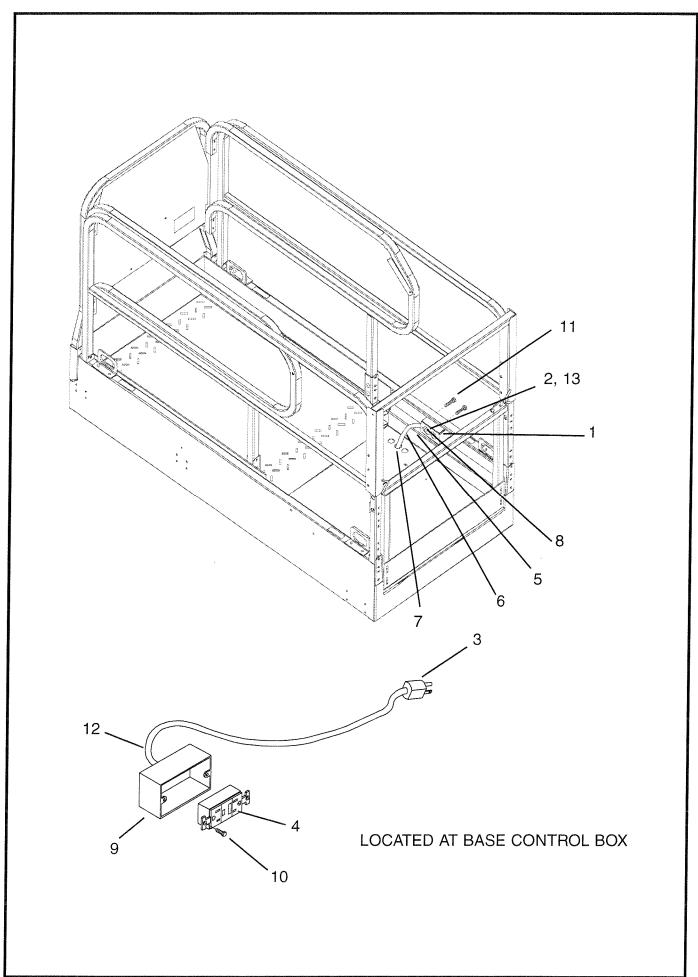
ITEM	PART NO.	QTY	DESCRIPTION
	25268	-	CONVERTER 24V OPTION
1	25527	1	BRKT, CONVERTER MOUNT
2	7103	1	CONVERTER
	7109	1	BOOT INSULATOR, BLACK
	7110	1	BOOT INSULATOR, RED
	7111	1	CABLE, POWER SUPPLY
	7112	1	CABLE, POWER SUPPLY
	7130	1	CAPACITER
3	HDW5204	4	SCREW, 5/16" - 18, 1" LG
-	25273	-	AIRLINE TO PLATFORM - 1932ES OPTION
	5351	1	CABLE TIE
	8543	37FT.	HOSE, 1/4" AIRLINE
	8559	2	CLAMP, HOSE
	HDW5052	2	FITTING, 1/4" MALE, MALE HOSE BARB
-	25312	_	AIRLINE TO PLATFORM - 1932ES OPTION
	5351	1	CABLE TIE
	8543	32FT.	HOSE, 1/4" AIRLINE
	8559	2	CLAMP, HOSE
	HDW5052	2	FITTING, HOSE BARB, 1/4" MALE, MALE
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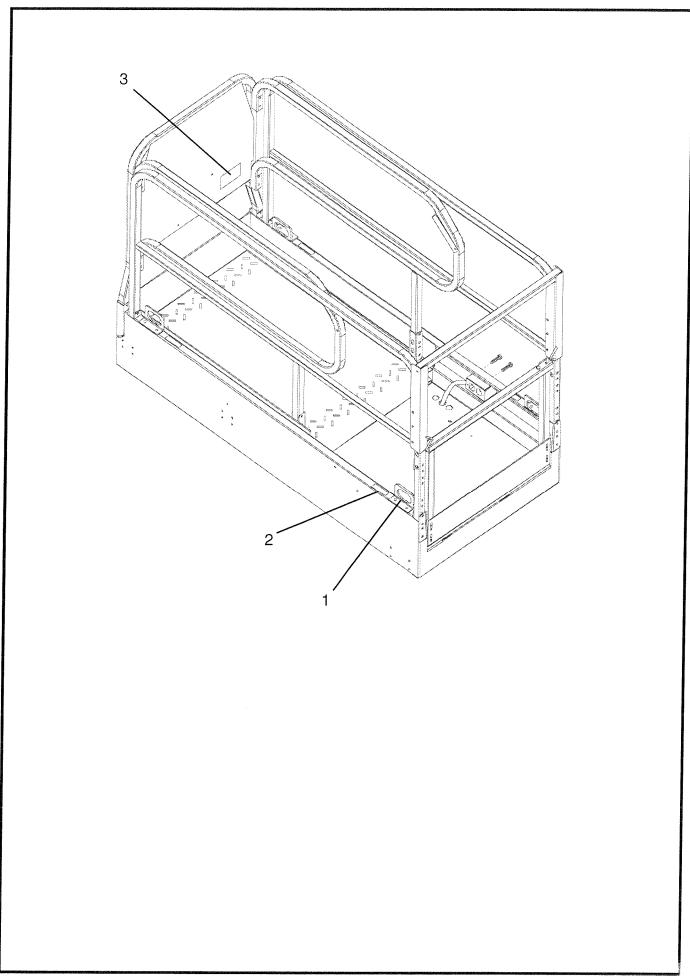
ITEM	PART NO.	QTY	DESCRIPTION
_	25568	-	MOTOR LIGHT OPTION
1	9770	1	LIGHT, STROBE
2	9836	1	TUBE REPLACEMENT
3	90213	1	GUARD, LENS
4	HDW8304	2	NUT, 3/8" - 18,
5	HDW8310	2	SCREW, 3/8" - 18, 1 1/4" LG
6	25492	1	BRKT, LIGHT MOUNT
	7476	2	TERMINAL, AMP CONNECTOR PIN
	7640	1	CONNECTOR, AMP 2 PIN
-	25569	••	MOTION ALARM
	8698	1	ALARM MOTION 12-48 VOLTS
	8709	1	INSULATOR, TERMNAL, RED
	8710	1	INSULATOR, TERMINAL, BLACK
	8782	1	HARNESS, MOTION ALARM
	HDW6455	2	SCREW, 1/4" - 20, 1/2" LG
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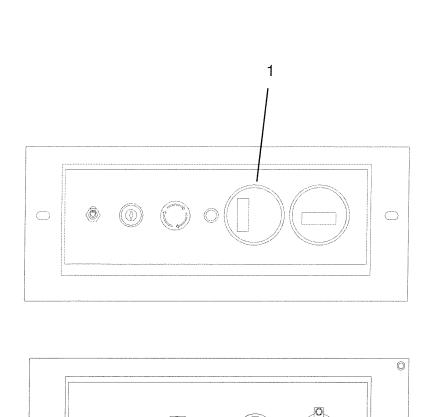
ITEM	PART NO.	QTY	DESCRIPTION
_	13793	-	CHARGER, 230 V / 50 Hz, AUTO OPTION
1	8703	1	CHARGER, 24 VOLTS
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32
_	13794		CHARGER 230 V / 60 Hz, AUTO OPTION
1	8737	1	CHARGER, 24 VOLTS
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32
-	13797	_	CHARGER 120 V / 60 Hz, AUTO OPTION
1	8380	1	CHARGER, 24 VOLTS
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32
-	13799	-	CHARGER 100 V / 50-60 Hz, AUTO OPTION
1	8377	1	CHARGER, 24 VOLTS
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32
-	13350	-	CHARGER 120 V / 60 Hz, MANUAL OPTION
1	8350	1	CHARGER, 24 VOLTS
2	HDW7888	4	SCREW, #10 - 32, 1/2" LG
3	HDW7543	4	NUT, #10 - 32



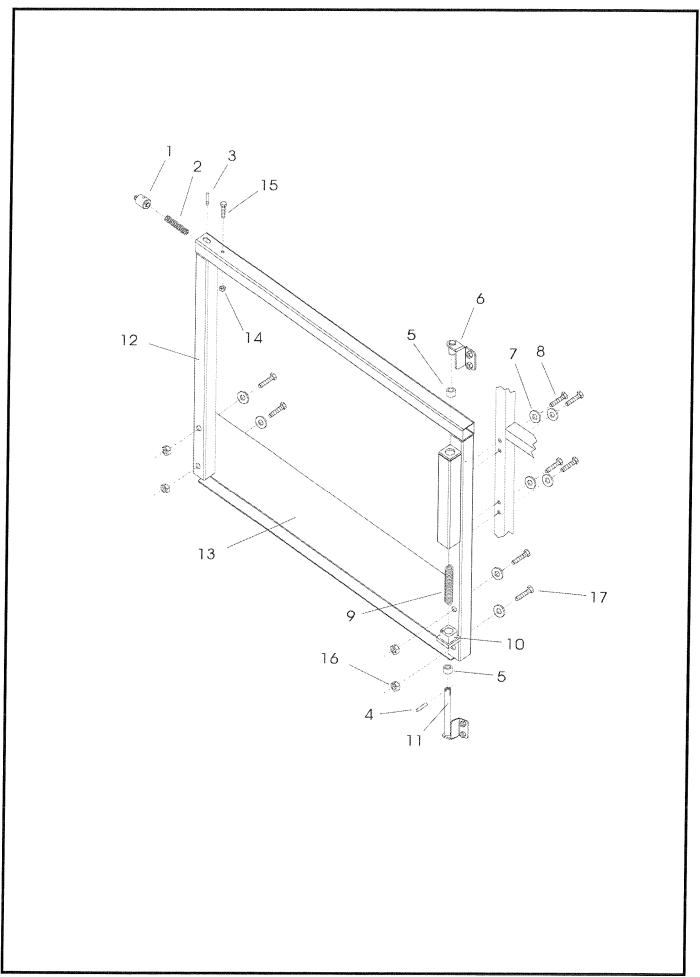
ITEM	PART NO.	QTY	DESCRIPTION
	25589	-	110V OUTLET - 1532ES OPTION
	25567	_	110V OUTLET - 1932ES OPTION
1	13888	1	BOX, DUPLEX RECEPTACLE
2	5381	1	RECEPTACLE, DUPLEX
3	5382	1	PLUG 110V
4	7263	1	RECEPTACLE, DUPLEX GFI
5	8208	1	CONDUIT, 3/8" FLEXIBLE
6	8209	1	FERRULE, 3/8"
7	8479	1	BUSHING, 3/4" ID
8	8833	1	CONNECTOR, OUTLET BOX 3/8" CONDUIT
9	90248	1	BOX, DUPLEX RECEPTACLE
10	HDW5229	2	SCREW, #6-32, 3/8" LG
11	HDW6455	2	SCREW, 1/4" - 20, 1/2" LG
12	HDW8476	1	WIRE NUT
-	5764	1	CORD GRIP, BASE CONTROL (NOT SHOWN)
13	HDW8501	2	CLIP, SELF RETAINING
-	7617	30FT	WIRE 14 GA 1532ES
_	7617	35FT	WIRE 14 GA 1932ES
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	25582	-	NO 110V OUTLET OPTION
	25576	1	COVER, (BASE CONTROL OUTLET HOLE)
	90208	1	CAP, 1" HOLE (PLATFORM FLOOR)
	HDW5229	2	SCREW, #6 - 32, 3/8" LG
	HDW5364	2	NUT, #6 - 32
	25314	-	WIRE ONLY - 1532ES OPTION
	25267	-	WIRE ONLY - 1932ES OPTION
	25576	1	COVER, (BASE CONTROL OUTLET HOLE)
	5764	1	CORD GRIP, (BASE CONTROL BOX)
	HDW5229	2	SCREW, #6 - 32, 3/8" LG
	HDW5364	2	NUT, #6 - 32
	9441	32FT	WIRE 14 GA. AWG-3 - 1532ES
	9441	35FT	WIRE 14 GA. AWG-3 - 1932ES



ITEM	PART NO.	QTY	DESCRIPTION
	25275	-	LANYARD OPTION
1	3923	4	BRKT, ATTACHMENT POINT
2	8605	4	DECAL, LANYARD ATTACHMENT
3	8606	1	DECAL, WARNING RESTRAINT
	HDW6432	8	SCREW, 3/8" - 16, 3/4" LG
	HDW8268	8	NUT, 3/8" - 16
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ITEM	PART NO.	QTY	DESCRIPTION				
	13854	_	BATTERY INDICATOR OPTION				
1	7099	1	BATTERY INDICATOR GAUGE				
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ITEM	PART NO.	QTY	DESCRIPTION						
	25524	-	SWING GATE WITH 6" KICK PANEL OPTION						
1	40003	1	PIN, LATCH						
2	7055	1	SPRING, LATCH						
3	40006	1	ROD, LATCH, LEVER						
4	HDW7455	1	PIN, SLOTTED SPRING, 3/16" DIA X 3/4" LG						
5	8187	2	BEARING, NYLINER, FLANGED						
6	25481	1	MOUNTING BRACKET, UPPER						
7	HDW8294	4	WASHER, FLAT						
8	HDW8303	4	SCREW, 5/16" - 18, 2" LG						
9	8300	1	SPRING, TORSION, 1" OD, 4" LG						
10	13272	1	BLOCK, PIVOT						
11	25484	1	MOUNTING BRACKET, LOWER						
12	25398	1	GATE, REAR WELDMENT						
13	25395	1 1	PANEL, KICK, REAR GATE						
14	HDW6281	1	NUT, 3/8" - 16						
15	HDW8277	1	SCREW, 3/8" - 16, 1 3/4" LG						
16	HDW6461	4	NUT, 1/2" - 20						
17	HDW8302	4	SCREW, 1/2" - 20, 1 3/4" LG						
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Limited Owner Warranty

Mayville Engineering Company, Inc. (MEC) warrants its equipment to the original purchaser against defects in material and/or workmanship under normal use and service for one (1) year from date of registered sale or date the unit left the factory if not registered.

MEC further warrants the structural weldments of the main frame and scissor arms as defined in MEC's current Warranty Policy & Procedures, to be free from defects in material or workmanship for five (5) years from date of registered sale or date unit left the factory if not registered. Excluded from such warranty is the battery(s) which carries a ninety (90) day warranty from described purchase date and prorated thereafter up to one (1) year.

Warranty claims within such warranty period shall be limited to repair or replacement, at MEC's option, of the defective part in question and labor to perform the necessary repair or replacement based on MEC's then current flat rate, provided the defective part in question is shipped prepaid to MEC and is found upon inspection by MEC to be defective in material and/or workmanship.

Mayville Engineering Company, Inc. shall not be liable for any consequential, incidental or contingent damages whatsoever. Use of other than factory authorized parts; misuse, improper maintenance, or modification of the equipment voids this warranty.

The foregoing warranty is exclusive and in lieu of all other warranties, express or implied. All such other warranties, including implied warranties of merchantability and of fitness for a particular purpose, are hereby excluded.

No Dealer, Sales Representative, or other person purporting to act on behalf of MEC is authorized to alter the terms of this warranty, or in any manner assume on behalf of MEC any liability or obligation which exceeds MEC's obligations under this warranty.





Aerial Work Platforms

Mayville Engineering Co., Inc.

An Employee Owned Company

210 Corporate Drive • P.O. Box 990 • Beaver Dam, WI • 53916-0990 USA

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Email: awp@mayvl.com • Web: www.mayvl.com