

*MAXLE*

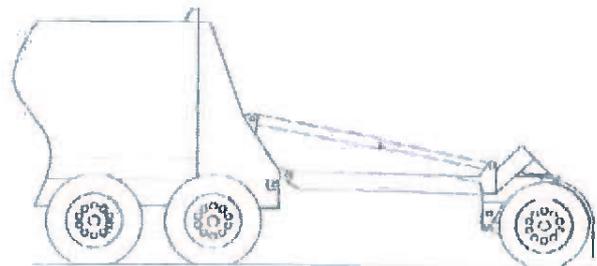
*OPERATIONS*

*SECTION 2*

## INTRODUCTION

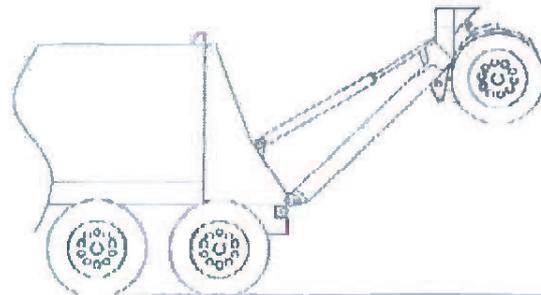
The main purpose of the Maxle is to increase the allowable payload of a dump truck. The illustrations here show the basic operation of the Maxle. For a more detailed description of the unit and its components, read the PARTS portion of this manual.

The normal operating position, with a loaded body, is with the cylinders extended and the axle loaded.



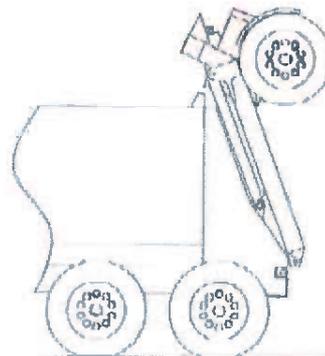
NORMAL LOADED OPERATING POSITION

As the hydraulic cylinders retract, the Maxle is lifted toward the stowed position. The axle folds toward the underside of the Maxle as it lifts.



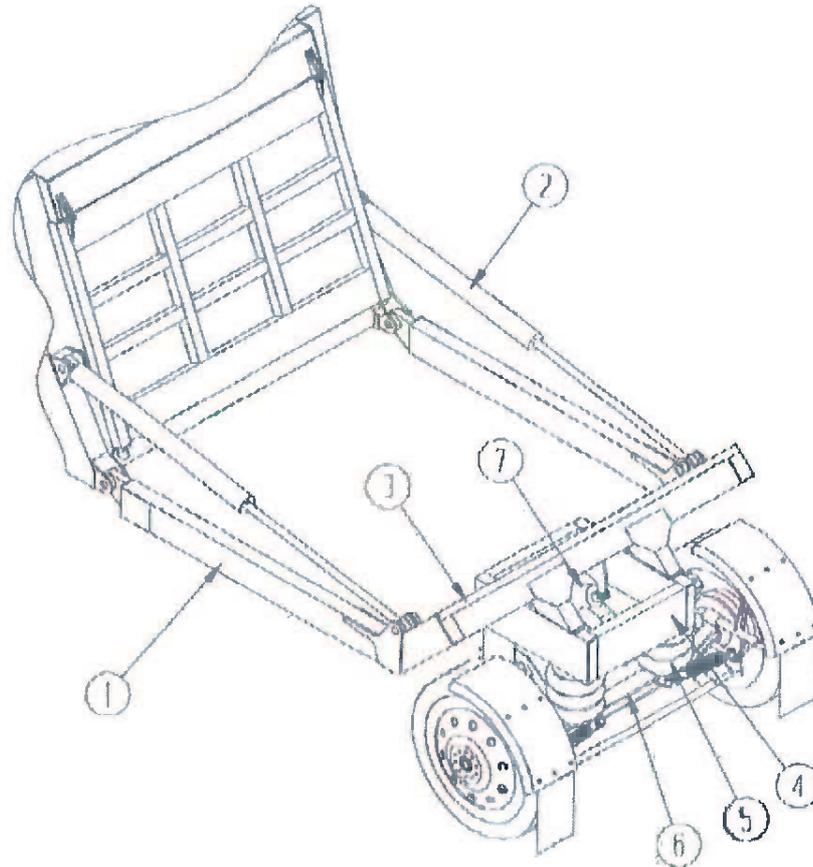
MID-CYCLE RAISING OR LOWERING

With the hydraulic cylinders completely retracted, the Maxle is held in the stowed position. This is the normal operating position for an empty body. The air cylinder holds the axle in its folded position as the truck travels. During the lowering cycle the air cylinder extends to unfold the axle for normal operation.



STOWED POSITION

## DEFINITION OF COMPONENTS



1. Arm (technically it is part of the frame, but this part of the frame is called the arm)
2. Hydraulic Cylinder
3. Frame
4. Swivel Frame
5. Air Suspension System
6. Axle
7. Air Cylinder

Hydraulic and electrical systems are not shown here since a majority of their components are mounted in or on the truck. Some of those systems are discussed in this manual as part of the operating information.

## OPERATION OF THE MAXLE

### Moving the Maxle to the Stowed Position

1. When the truck is first turned on, no lights will show on the Maxle console.
2. Before starting to go down the road the Maxle should be pressured up to the stowed position to assure that it is all of the way up.
3. The Maxle switch is pushed to 'UP'. Since the Maxle switch is a momentary contact switch, it is important that it be held in the up cycle until the cylinders are completely retracted and the Maxle is in the stowed position. In the end portion of the 'UP' cycle, the cylinders are cushioned and will slow down significantly; this cushion does not mean the cylinders are fully retracted. The cylinders will continue to retract after the cushion is reached, and the operator should visually check the Maxle in his mirrors to insure that the cylinders are in fact completely retracted before the 'UP' cycle is terminated.
4. The truck is now ready to go if it is empty.

### Moving the Maxle to the Operating Position

1. When the truck is first turned on, no lights will show on the Maxle console.
2. Assure yourself that the area under the Maxle is clear of personnel or any other object that may damage or be damaged by the Maxle. To initiate the down cycle the Maxle switch is pushed to 'DOWN'. The switch is a momentary contact switch and must be held throughout the cycle. The Maxle switch is momentary contact so that the motion of the Maxle can be stopped in an emergency by simply releasing the switch. A buzzer will sound in the cab during the down cycle to alert the operator and others outside that the Maxle is lowering. If so equipped, the backup alarm will also sound alerting others that the Maxle is lowering.

Moving the Maxle switch towards 'DOWN' energizes the hydraulic valve and the hydraulic cylinders extend.

The air valve solenoid is de-energized in the down cycle by means of a pressure switch, which is attached to the CIAG port on the hydraulic manifold, so that the air cylinder will retract and unfold the swivel frame to its operating position as the Maxle arms are lowered.

When the axle has reached the ground, the cylinders will continue to pressurize to a pressure of 2400 psi. The load is carried by the load air bags. The air pressure in the load bags determines the load carried. When the Maxle has fully pressured down, the green light will shine indicating that the axle is ready and operating. As the green light turns on, the warning buzzers will shut off and the operator can release the switch.

### Other Controls

- L. Other switches on the switch box relate to truck functions such as raising and lowering the flaps and tailgate. Operation of these functions should be covered in the dump body operation manual.

### Other Operational Information

1. !!Caution!! Do not pressure the Maxle down with an empty body, doing so may cause the truck to loose traction on the drive axles.
2. !!Caution!! The Maxle must remain in the down mode when the Maxle is on the ground. Running the Maxle down and in any other mode could possibly cause the axle to toggle under, causing damage to the Maxle or other safety hazards.
3. The Maxle is self-steering going forward, therefore when it is necessary to go in reverse the Maxle must be lifted off of the ground a minimum of 5 feet.
4. Although the Maxle is designed to handle large bumps, Silent Drive suggests raising the axle while going over rough terrain. This will prolong the life of the Maxle and eliminate the need to re-pressure the axle down.
5. The Maxle takes a percentage of the load off of the drivers and distributes it on the front axle and the Maxle. In slippery situations, raising the Maxle and pushers (if so equipped) will increase traction. Please note that in doing so, you may be responsible for an overweight situation.

The suspension system for the Maxle is a three (3) tier suspension which includes:

1. Air spring suspension
2. Accumulator linked to the hydraulic cylinders
3. Relief valve linked to the hydraulic cylinders (separate from overall system relief)

Normally, the air spring suspension will handle the suspension needs for the axle. This provides a smooth, exceptionally stable ride compared to other hydraulic only trailing axle suspensions. If the limitations of the air suspension is exceeded, the accumulator allows the cylinders to retract and absorb excess deflection of the axle without having to re-pressurize the Maxle down. For very large bumps or shock loads, a relief valve in the Maxle valve block will open and release fluid from the Maxle circuit. The relief valve prevents excessively high pressures on the Maxle structure when large deflections occur.

If oil has been released from the Maxle system because of large Maxle deflections, or normal leakage over a long period of time, the pressure may drop too much to provide adequate carrying capacity on the Maxle. In this instance, the green light on the Maxle console will go off and the buzzer in the cab will sound indicating that the Maxle needs to be pressured down. The cylinders can be pressured down by XXXXXXXXXX pushing the Maxle switch to 'DOWN' until the green light turns back on and the buzzer turns off.

For long hauls it may become necessary to re-pressure the system. There is an anticipated leak rate associated with the valves, cylinder seals, etc. and the pressure will drop slightly over time. The Maxle can maintain pressure for days in static situations, therefore, it should not be necessary to re-pressure the system very often. If the Maxle does not consistently stay pressured down in normal operation it should be serviced. Check the section on trouble shooting for possible causes of pressure leaks.

The combination of the three (3) tier suspension system and the full width axle provide unequaled stability and smooth travel. If these systems are adjusted properly and kept in working order, the Maxle will continue to provide superior performance.

## SAFETY MESSAGES



**Safety must always be given the first consideration**



### WARNING

IF INCORRECTLY USED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY. THOSE WHO USE AND MAINTAIN THE EQUIPMENT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ THE ENTIRE MANUAL BEFORE ATTEMPTING TO SET UP, OPERATE, OR SERVICE THE EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

### IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe and reliable operation of the Maxie tag axle. Service and maintenance procedures are outlined in the Parts & Service Manual. It is important to note warnings and precautions associated with the various procedures. Not heeding the warnings and precautions could result in damage to the equipment or personal injury. It is also important to understand that the warnings are not exhaustive. It is not possible to know and evaluate and advise the service trade of all conceivable ways in which service might be performed or of the possibly hazardous consequences of every service method. Consequently, such broad evaluations have not been undertaken. Anyone who uses tools or procedures which are not recommended should first satisfy himself that neither his safety or the product safety will be jeopardized by the methods he selects.



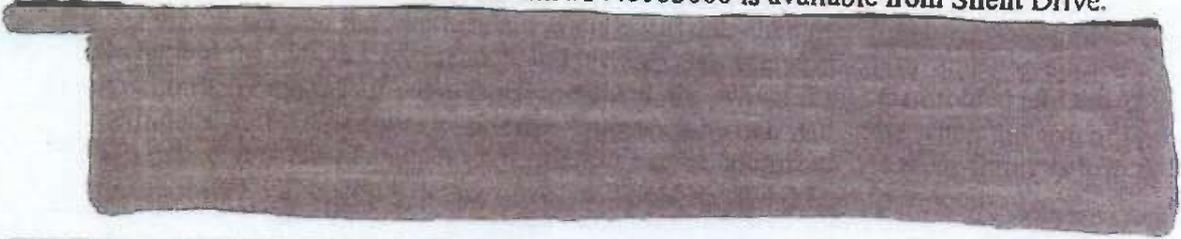
### MAINTENANCE



**Do not attempt to repair or service this machine until you have read and understood the Parts & Service Manual.**

## **SAFETY PRECAUTIONS**

### **Hydraulics/Pneumatics**

1. Hydraulic fluid operates under high temperatures. Avoid contact with piping, hoses, or cylinders to prevent burns.
  2. Never use hands to check for leaks. Hydraulic fluid escaping under pressure may cause injury.
  3. In case of injury seek proper medical treatment immediately.
  4. Securely block all Maxle components before working on the Maxle.
  5. This product utilizes an accumulator which stores hydraulic fluid and gas under pressure. With an accumulator, the system can be pressurized even though the pump is not functioning. **!!!Warning!!!** Before working on the hydraulic system, bleed off the accumulator pressure by opening the needle valve on the Maxle valve block. This valve block is stamped #4 next to this valve. Never weld, braze or perform any type of mechanical work on the accumulator shell. If it is necessary to service the accumulator follow the procedures set forth by the accumulator manufacturer. Only qualified technicians familiar with accumulators should attempt to perform repairs on the accumulator. An accumulator test kit #1445953000 is available from Silent Drive.
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### **Fire Protection**

1. Keep a fire extinguisher accessible at all times, as recommended by the Bureau of Motor Carrier Safety.
2. Never use lighted smoking materials, open flame or sparks when working with flammable materials.
3. Never use an open flame as a light source.

### **During Operation**

1. Never begin the 'down cycle' with anyone under or near Maxle.
  2. For safety reasons, the Maxle control circuit has been designed such that simply releasing the switch will stop movement of the Maxle at any point in the up or down cycles.
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4. Do not use the Maxle if it is not working as described in this manual. Investigate any potential malfunction.

### **Service and Repair**

Anyone servicing or repairing the Maxle should have read and be familiar with the MAXLE MANUAL

**DANGER, WARNING, AND CAUTION DECALS**



The word **DANGER** precedes information pertaining to specific immediate hazards which if disregarded, **WILL** result in severe personal injury or death of the user or others.

The word **WARNING** precedes information pertaining to hazards or unsafe practices which **COULD** result in personal injury or death.

The word **CAUTION** precedes information pertaining to potential hazards or unsafe practices which if disregarded, may result in minor personal injury or damage to equipment.

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For the safety of all involved:

1. Safety decals must be obeyed at all times.
2. Safety decals must be in place at all times. Report any missing or damaged decals to the proper authority.
3. If any safety decals are damaged or missing, free replacements can be ordered from your distributor.

The accompanying illustrations show the safety decals and the location of the safety decals and other labels on the Maxle.

## LOCKOUT PROCEDURE

During repairs to the tag axle or hydraulic system, a lockout procedure should be followed. The power should be shut off and the key removed from the ignition and a sign should be placed warning against starting the truck.

### DANGER

Do not repair or work on the hydraulic pump, PTO, or other driven parts while the engine is running.

### DANGER

Stand clear while the Maxle is being raised or is in motion.

### WARNING

Make sure all individuals are clear of the path of the Maxle before actuating the controls. Be prepared to stop or reverse the function.

### CAUTION

Safety equipment should be worn while working under conditions that require it.

### CAUTION

When work must be done under a partially raised Maxle, it must be blocked securely so that it cannot fall.

### CAUTION

Never attempt to disconnect any hydraulic line unless the pressure is released in the circuit and the machine elements to which the hydraulic actuator is attached are supported or blocked from movement.

### CAUTION

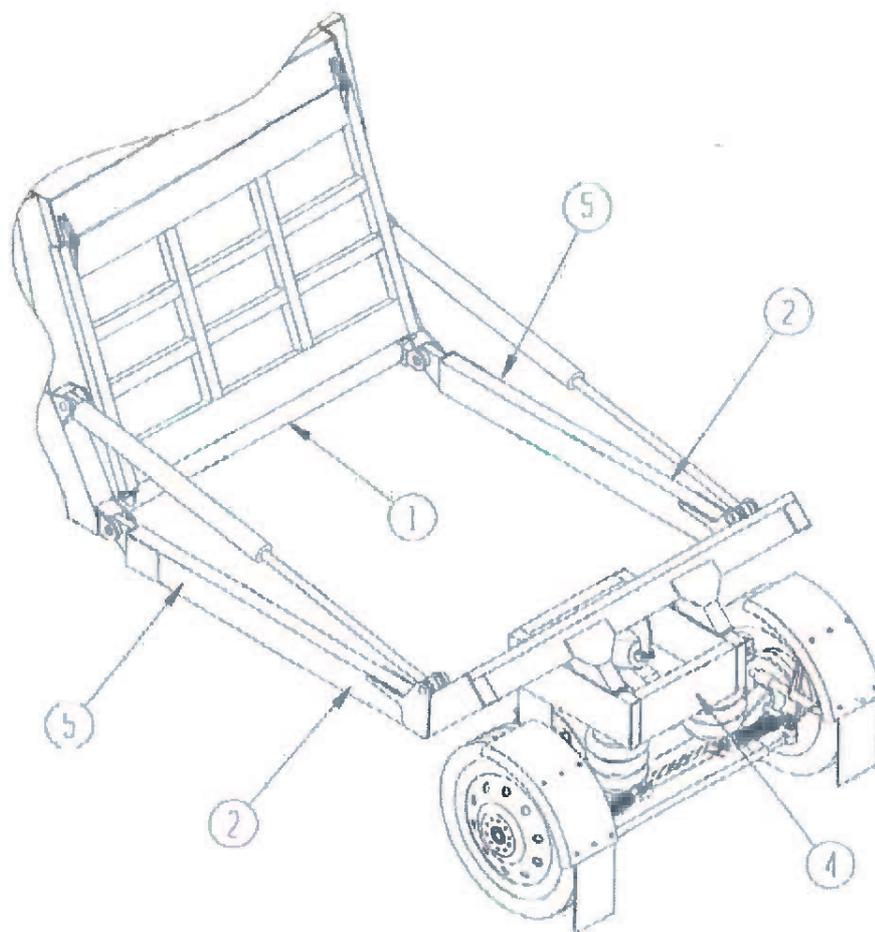
Instructions and warning decals are as important as the equipment. Keep decals clean and whole. If they become illegible, replace them with new decals available through your Silent Drive distributor.

### CAUTION

Unauthorized pressure settings could damage the equipment and might produce a hazard.



## DECAL Decal Package



REF	PART NUMBER	DESCRIPTION	QTY/UNIT
1	45497	DECAL, Danger Stand Back 15 ft	1
2	44657	DECAL, Danger not to be used as a jack	2
3	44656	DECAL, Warning Do Not Lower or Raise (In Cab)	1
4	46322	DECAL, Maxle	2
5	44655	DECAL, Warning Stand Clear	2
6	658	DECAL, Maxle Operation (In Cab)	1
7	91168	DECAL, Valve Block Information (In Cab)	1

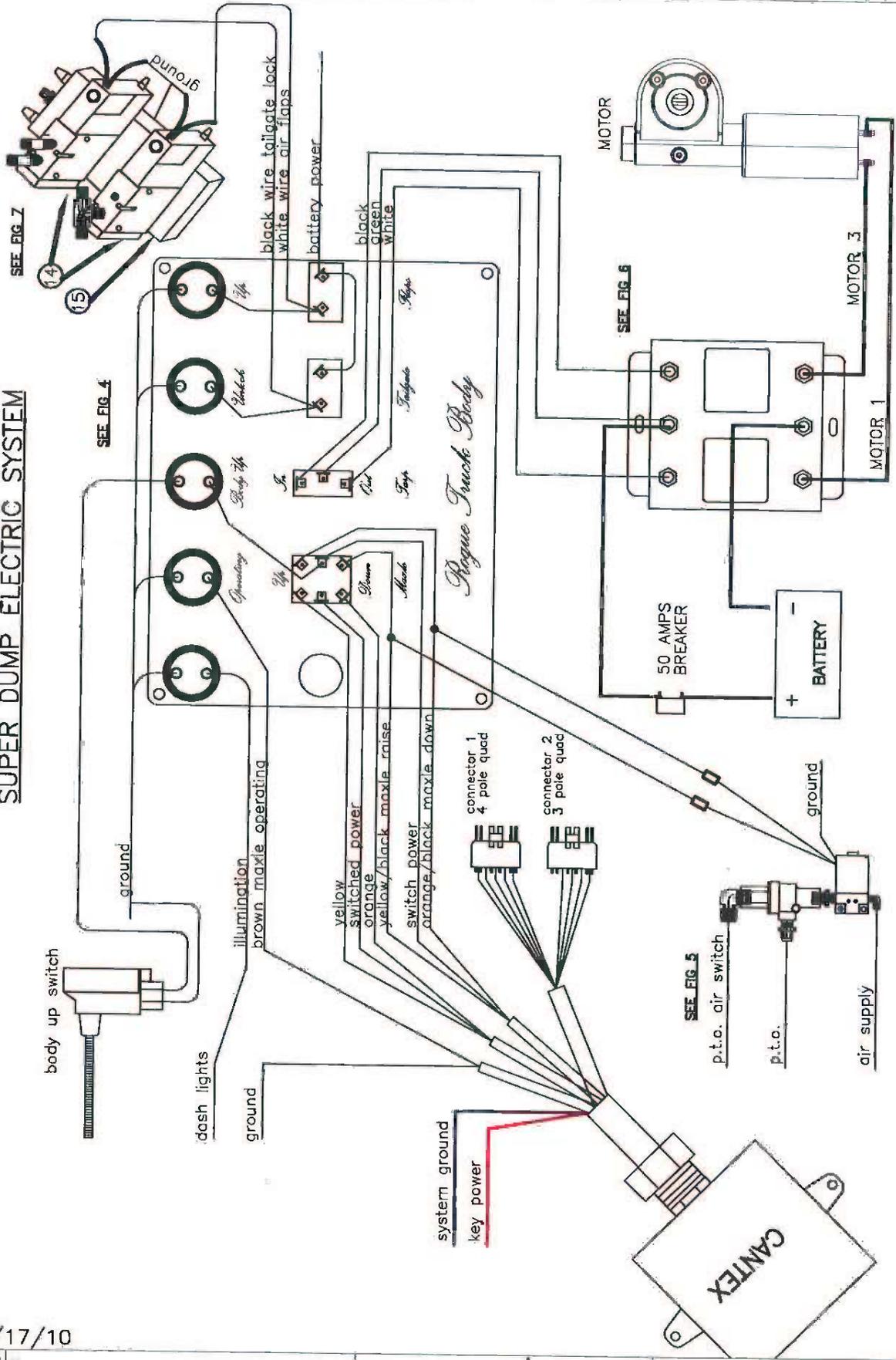
All decals should be in place on the Maxle as part of a complete installation.

For the safety of all involved:

1. Safety decals must be obeyed at all times.
2. Safety decals must be in place at all times. Report any missing or damaged decals to the proper authority.
3. If any safety decals are damaged or missing, free replacements can be ordered from your distributor.

The illustration above shows the locations of the safety decals and the labels on the Maxle. Decal numbering is defined on the previous page.

# SUPER DUMP ELECTRIC SYSTEM



DATE 05/17/10

PART NUMBER	x		
PART NAME	x		
MATERIAL	x		
REVISION #		DATE:	BY:
REVISION #		DATE:	BY:
REVISION #		DATE:	BY:

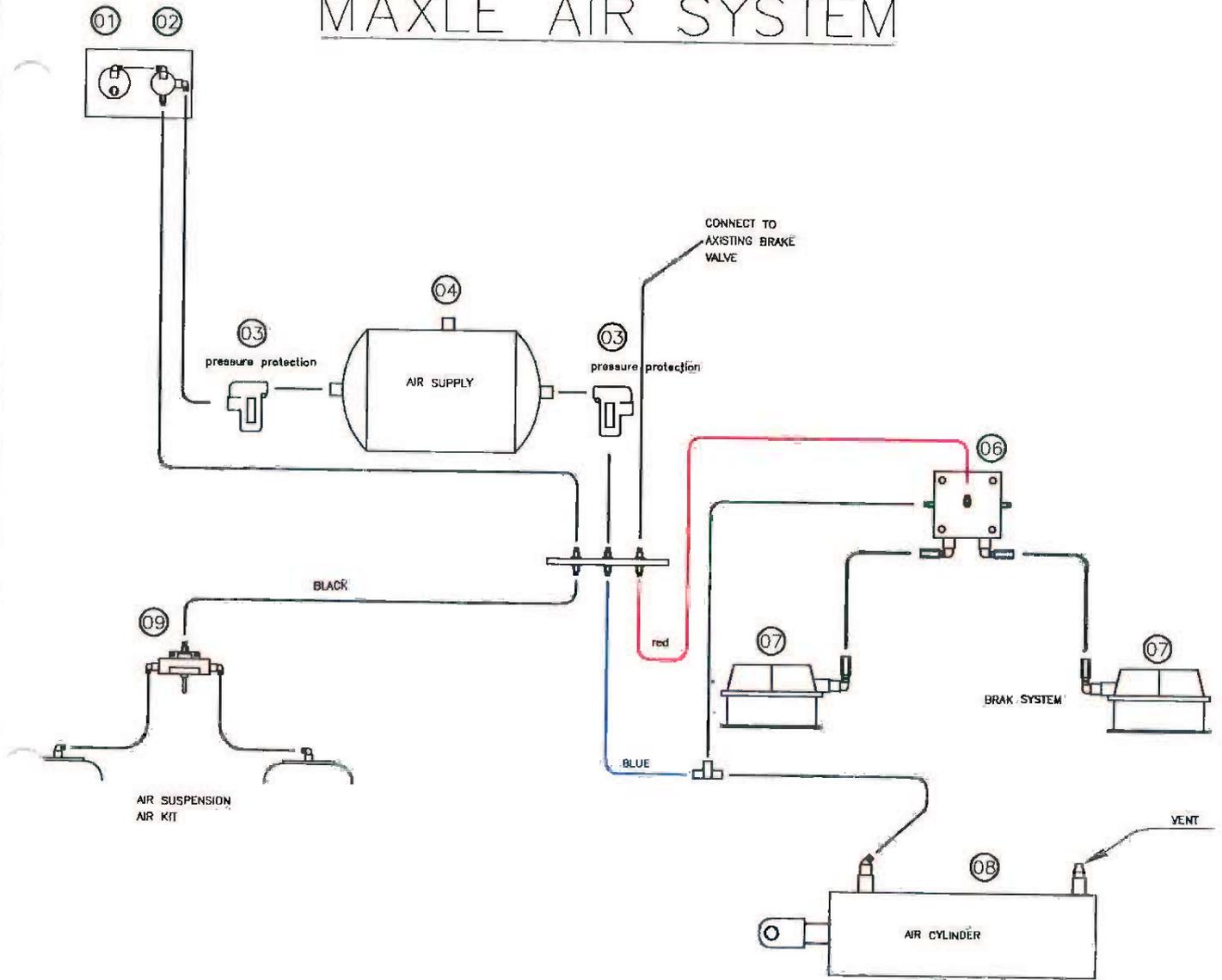


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SUPERDUMP ELECTRICAL SYSTEM - PARTS			
P/N	DESC	VDR	VDR P/N
RTP-36807	SWITCH, BODY UP	POTTER WEBSTER	SW-15
RTP-35109	DASH PLATE, SUPERDUMP	BRILL	DP-2
RTP-35741	DASH ILLUMINATION LIGHT FOR SUPERDUMP	WES-GARDE	2935-1-10-44330
RTP-35702	LED, PANEL MOUNT LIGHT GREEN	NORVAC	11-2571
RTP-35703	LED, PANEL MOUNT LIGHT RED	NORVAC	11-2570
RTP-36705	SWITCH, PUSH PULL, BLADE TERMINAL	COLE HERSEE	CH 50070
RTP-36503	SWITCH, SPDT TOGGLE 3 BLADE	COLE HERSEE	CH 55033-01
RTP-36501	SWITCH, DPDT TOGGLE 6 BLADE STD	COLE HERSEE	CH 55065-03
RTP-50052	SOLENOID, 12V, REVERSING POLARITY	PULL TARPS	514-9967
RTP-51912	TARP, SD MOTOR, STD. 1.1 HP	MOUNTAIN TARPS	K0170S
RTP-50053	BREAKER, 50A, TYPE II	PULL TARPS	514-0408
RTA-19009	DIODE ASSY. (RTP-35134 X 2)	ROGUE TRUCK BODY	RTA-19009
RTP-21007	VALVE, DOUBLE CHECK DC4 BENDIX	SEALCO	320100
RTP-21012	VALVE, MAC	BUCHANON	111B-550BAAA

# MAXLE AIR SYSTEM



05/17/10

PART NUMBER	x		
PART NAME	x		
MATERIAL	x		
REVISION #		DATE:	BY:
REVISION #		DATE:	BY:
REVISION #		DATE:	BY:



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**SUPERDUMP MAXLE AIR SYSTEM LIST PARTS LIST**

REF:	ROGUE PART NO.	PART NAME	QUAN	VENDOR	VENDOR PART NO.
1	RTP-52073	AIR GAUGE	1	SILENT DRIVE	159-400
2	RTP-52072	REGULATOR	1	SILENT DRIVE	159-200
3	RTP-52069	BRAKE PROTECTION/ CHECK VALVE	2	SILENT DRIVE	2813-000
4	RTP-52075	AIR TANK	1	SILENT DRIVE	AT-100
5	RTP-52049	AIR SPRINGS, MAXLE	2	SILENT DRIVE	AS-8027
6	RTP-52071	BRAKE RELAY VALVE	1	SILENT DRIVE	104161
7	RTP-52125	TYPE 20 SERVICE CHMABER	2	SILENT DRIVE	MD-MA36200
8	RTP-52067	AIR CYLINDER	1	SILENT DRIVE	AC-6X1X8
9	RTP-52070	QUICK RELEASE VALVE	1	SILENT DRIVE	1814-000B