

**JACOBSEN**<sup>®</sup>

A Textron Company

4179561-Rev C-GB



# Parts & Maintenance Manual

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## AR-522

68082 – AR-522, Kubota V2003, 4WD, with ROPS



### **WARNING**

If incorrectly used, this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust, or service the machine.

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***When Performance Matters.™***

**GB**

English

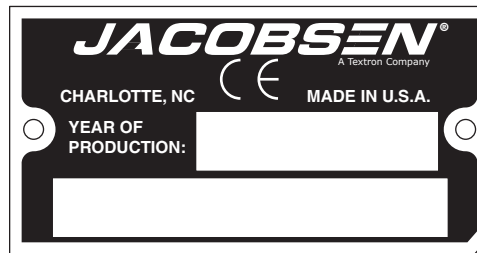
## FOREWORD

This manual contains adjustment, maintenance, troubleshooting instructions and a parts list for your new Jacobsen machine. This manual should be stored with the equipment for reference during operation.

Before you operate your machine, you and each operator you employ should read the manual carefully in its entirety. By following the safety, operating and maintenance instructions, you will prolong the life of your equipment and maintain its maximum efficiency.

If additional information is needed, contact your Jacobsen Dealer.

The serial plate is located on the right rear frame rail. Jacobsen recommends you record these numbers below for easy reference.



## Suggested Stocking Guide

To keep your equipment fully operational and productive, Jacobsen suggests you maintain a stock of the more commonly used maintenance items. We have included part numbers for additional support materials and training aids.

To order any of the following material:

1. Write your full name and complete address on your order form.

2. Explain where and how to make shipment:

- UPS  Regular Mail  
 Overnight  2nd Day

3. Order by the quantity desired, the part number, and the description of the part.

4. Send or bring the order to your authorized Jacobsen Dealer.

## Service Parts

Qty.	Part No.	Description	Qty.	Part No.	Description
	4113986	Engine Oil Filter		4131618	Ignition Key
	557619	Engine Fuel Filter Element		4123183	Headlight Bulb
	4133820	Primary Air Cleaner Filter		4163105	Blade, Combination
	4133821	Safety Air Cleaner Filter		4137186	Blade, High Lift
	555771	Hydraulic Filter Element		4124087	Blade, Low Lift
	4134323	Engine Fan Belt			

## Service Support Material

Qty.	Part No.	Description
	4179562	Safety & Operation Manual
	4179561	Parts & Maintenance Manual
	4179566	DVD, Operator Training
	4179563	Diesel Engine Parts Manual

Qty.	Part No.	Description
	4192020	Service Manual

### Proposition 65 Warning

This product contains or emits chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

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# 1 SAFETY

## 1.1 OPERATING SAFETY



### WARNING

#### EQUIPMENT OPERATED IMPROPERLY OR BY UNTRAINED PERSONNEL CAN BE DANGEROUS.

Familiarize yourself with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine.

1. Safety is dependent upon the awareness, concern and prudence of those who operate or service the equipment. Never allow minors to operate any equipment.
2. It is your responsibility to read this manual and all publications associated with this equipment (Safety & Operation Manual, Engine Manual, and attachments/accessories instruction sheets). If the operator cannot read English it is the owner's responsibility to explain the material contained in this manual to them.
3. Learn the proper use of the machine, the location and purpose of all the controls and gauges before you operate the equipment. Working with unfamiliar equipment can lead to accidents.
4. Never allow anyone to operate or service the machine or its attachments without proper training and instructions, or while under the influence of alcohol or drugs.
5. Wear all the necessary protective clothing and personal safety devices to protect your head, eyes, ears, hands, and feet. Operate the machine only in daylight or in good artificial light.
6. Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by Jacobsen.
7. Stay alert for holes in the terrain and other hidden hazards.
8. Inspect the area where the equipment will be used. Pick up all the debris you can find before operating. Beware of overhead obstructions (low tree limbs, electrical wires, etc.) and also underground obstacles (sprinklers, pipes, tree roots, etc.). Enter a new area cautiously. Stay alert for hidden hazards.
9. Never direct discharge of material toward bystanders, nor allow anyone near the machine while in operation. The owner/operator can prevent and is responsible for injuries inflicted to themselves, to bystanders, and damage to property.
10. Do not carry passengers. Keep bystanders and pets a safe distance away.
11. Never operate equipment that is not in perfect working order or is without decals, guards, shields, discharge deflectors or other protective devices securely fastened in place.
12. Never disconnect or bypass any switch.
13. Do not change the engine governor setting or overspeed the engine.
14. Carbon monoxide in the exhaust fumes can be fatal when inhaled. Never operate the engine without proper ventilation or in an enclosed area.
15. Fuel is highly flammable, handle with care.
16. Keep the engine clean. Allow the engine to cool before storing and always remove the ignition key.
17. Disengage all drives and engage parking brake before starting the engine (motor). Start the engine only when sitting in operator's seat, never while standing beside the unit.
18. Equipment must comply with the latest federal, state, and local requirements when driven or transported on public roads. Watch out for traffic when crossing or operating on or near roads.
19. Local regulations may restrict the age of the operator.
20. Operate the machine up and down the face of slopes (vertically), not across the face (horizontally).
21. To prevent tipping or loss of control, do not start or stop suddenly on slopes. Reduce speed when making sharp turns. Use caution when changing directions.
22. Always use the seat belt when operating mowers equipped with a Roll Over Protective Structure (ROPS).  
*Never use a seat belt when operating mowers without a ROPS.*  
Accessory operator protective structures will continue to be offered for all equipment currently covered. This allows for the outfitting of any machines without previous ROPS installations or replacement of damaged structures.
23. Keep legs, arms, and body inside the seating compartment while the vehicle is in motion.
24. Disconnect battery and controller electrical connectors before performing any welding on this mower.

***This machine is to be operated and maintained as specified in this manual and is intended for the professional maintenance of specialized turf grasses. It is not intended for use on rough terrain or long grasses.***

## 1.2 IMPORTANT SAFETY NOTES



This safety alert symbol is used to alert you to potential hazards.

**DANGER** - Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

**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 and property damage. It may also be used to alert against unsafe practices.

**NOTICE** - Indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage. It may also be used to alert against unsafe practices.

*For pictorial clarity, some illustrations in this manual may show shields, guards, or plates, open or removed. Under no circumstances should this equipment be operated without these devices securely fastened in place.*



### WARNING

The Interlock System on this mower prevents the mower from starting unless the brake lever is engaged, mower switch is OFF and traction pedal is in Neutral. The system will stop the engine if the operator leaves the seat without engaging the parking brake or setting the mower switch OFF.

NEVER operate mower unless the Interlock System is working.



### WARNING

1. Before leaving the operator's position for any reason:
  - a. Return traction pedal to Neutral.
  - b. Disengage all drives.
  - c. Lower all implements to the ground.
  - d. Engage parking brake.
  - e. Stop engine and remove the ignition key.
2. Keep hands, feet, and clothing away from moving parts. Wait for all movement to stop before you clean, adjust, or service the machine.
3. Keep the area of operation clear of all bystanders and pets.
4. Never carry passengers, unless a seat is provided for them.
5. Never operate mowing equipment without the discharge deflector securely fastened in place.

By following all instructions in this manual, you will prolong the life of your machine and maintain its maximum efficiency. Adjustments and maintenance should always be performed by a qualified technician.

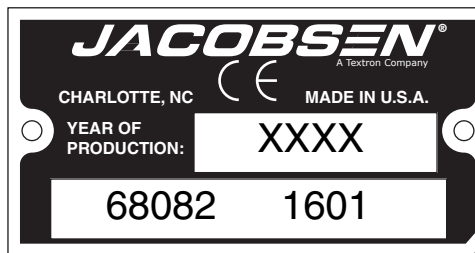
If additional information or service is needed, contact your Authorized Jacobsen Dealer who is kept informed of the latest methods to service this equipment and can provide prompt and efficient service. **Use of other than original or authorized Jacobsen parts and accessories will void the warranty.**

## 2 SPECIFICATIONS

### 2.1 PRODUCT IDENTIFICATION

68082 ..... AR-522, 5 Gang 4WD with ROPS  
 Serial Number ..... An identification plate, like the one shown, listing the serial number, is attached to the frame of the mower and is located on the operator's right just over the rear axle.

Always provide the serial number of the unit when ordering replacement parts or requesting service information.



Product	EEC Sound Power	Sound Pressure Level Operator Ear	Vibration M/S <sup>2</sup>	
			Arms	Body
68082	105 dba	84.5 dba	3.57	0.10

### 2.2 V2003-M-T ENGINE

Make ..... Kubota  
 Model ..... V2003-M-T Diesel, 4 cycle, liquid cooled  
 Horsepower..... 59 Hp (44 kW) @ 2800 rpm  
 Displacement ..... 112 in<sup>3</sup> (1835 cm<sup>3</sup>)  
 Torque..... 115 ft. lbs. (155 Nm) @ 2500 rpm  
 Fuel:  
   Type ..... No. 2 Diesel  
   Rating ..... Min. cetane rating 45  
   Capacity ..... 17 U.S. gal. (65 liters)

Governor Setting:  
   High Idle ..... 2850 rpm  
   Low Idle ..... 1050 rpm  
 Lubrication:  
   Capacity..... 10 U.S. qts.(9.5 liter)  
   Type ..... SAE 10W30  
   API Classification ..... CD/CE  
 Air Filter ..... Donaldson, dry type with evacuator valve and service indicator.  
 Alternator..... 40 Amp

### 2.3 MOWER

Tires:  
   Front ..... 26.5 x 14 - 12: (6 ply)  
   Rear ..... 22.5 x 10 - 8  
 Tire Pressure:  
   Front..... 16 psi (111 kPa)  
   Rear ..... 12 psi (83 kPa)  
 Battery:  
   Type ..... 12V, 600 Cold Cranking Amps  
   Group ..... BCI 24  
 Brakes:  
   Service ..... Dynamic braking through traction circuit.

Parking ..... 9.25 in. (235 mm) front disc  
 Speed:  
   Mow ..... 0 - 7 mph (0 - 11 kph)  
   Transport ..... 0 - 12 mph (0 -19.3 kph)  
   Reverse ..... 0 - 5 mph (0 - 8.1 kph)  
 Production ..... 6.8 acres/hr. @ 7 mph  
**Hydraulic System:**  
   Capacity..... 14 U.S. gal. (37.85 liter)  
   Fluid Type ..... 10W30 or Greens Care 68  
   Cooling ..... Oil Cooler  
   Return Line Filter..... 10 micron  
   Steering ..... Hydrostatic power steering

### 2.4 WEIGHTS AND DIMENSIONS

Dimensions:	Inches	(mm)
Length.....	130	(3302)
Height - Top of ROPS .....	83	(2108)
Width - Mow.....	98	(2486)
Width - Transport.....	98	(2489)

Weight:	Lbs.	(kg)
Overall (less operator) .....	3805	(1726)

## 2.5 CUTTING UNITS

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Overall cutting Width .....90 in. (2.54 m)	Height of Cut .....3/4 to 5-1/4 in. (19 to 133 mm) in
Number of cutting units: ..Five - three front, two rear.	1/4 in. (6 mm) increments

## 2.6 ACCESSORIES

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Refer to the Parts Catalog and contact your Jacobsen Dealer for a complete listing of accessories and attachments.



### CAUTION

Use of other than Jacobsen authorized parts and accessories may cause personal injury or damage to the equipment and will void the warranty

Air Blow Gun .....JAC5098	Cruise Control ..... 67846
Orange Touch-up Paint (12 oz. spray).....554598	Wheel Kit..... 68090
2-Post ROPS with Seat Belt.....67844	High Lift Blade..... 4137186
Canopy / Sunshade.....68095	
Hood Locking Latch..... 1004049	

## 2.7 SUPPORT LITERATURE

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Contact your Jacobsen Dealer for a complete listing of literature.

Safety & Operation Manual .....4179562
Parts & Maintenance Manual .....4179561
Engine Parts Catalog .....4179563
Service & Repair Manual .....4192020

## 3 ADJUSTMENTS

### 3.1 GENERAL

#### **WARNING**

To prevent injury, lower implements to the ground, disengage all drives, engage parking brake, stop engine and remove key from ignition switch before making any adjustments or performing maintenance.

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

If only the front or rear of the mower is raised, place chocks in front of and behind the wheels that are not raised.

1. Adjustments and maintenance should always be performed by a qualified technician. If proper

adjustment cannot be made, contact an authorized Jacobsen Dealer.

2. Replace, do not adjust, worn or damaged components.
3. Do not wear jewelry or loose fitting clothing when making adjustments or repairs.

#### **CAUTION**

Be careful to prevent entrapment of the hands and fingers between moving and fixed components of the machine.

4. Do not change governor settings or overspeed the engine.

### 3.2 MOW SPEED

Cutting quality is better at speeds well below the transport speed of the mower. An initial mow speed of five to six mph is set at the factory and should be satisfactory for most cutting conditions. Local turf conditions, however, may respond better to a different speed.

To set mow speed, loosen jam nut **(A)** and adjust stop screw up to reduce speed, down to increase speed. Tighten nut to hold adjustment in place.

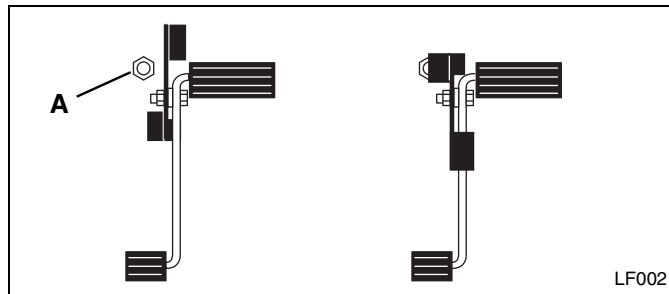


Figure 3A

### 3.3 BELT

Inspect and adjust new belt after first ten hours of operation. Adjust every 100 hours thereafter.

Adjust alternator pulley so belt deflects 1/4 to 5/16 in. (6 -8 mm) with a 20 lb. push at midpoint between pulleys. See engine manual.

If tension is incorrect, loosen alternator mounting bolts **(B)** and adjust alternator until proper belt tension is achieved.

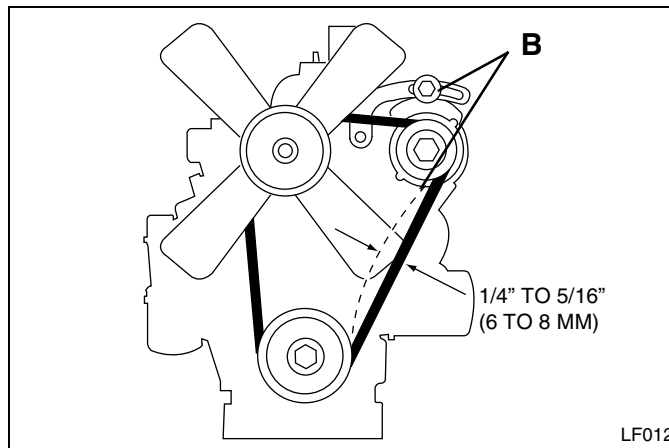


Figure 3B



### 3.4 BRAKES

Adjust brakes after replacing or servicing brake assembly, or if pedal travel becomes excessive.

1. When installing new brake pads, burnish pads by driving mower at mowing speed while applying a slight pressure on brake pedal for about 5 seconds. Release and repeat five times before making the final adjustment.
2. Fully loosen adjusting nut (E).
3. Disconnect brake return spring (See Item 14, Illustration 8.1) at caliper.
4. By hand, pull cable behind adjusting nut (C) away from pedal until brake pads just contact brake disk. Thread adjusting nut (C) up until it contacts the mounting plate. Tighten nut (E) to lock adjustment in place. Torque nut (E) to 20 ft. lb. (27 Nm). Do not over torque or turn cable.
5. Connect brake return spring. Repeat for second cable.
6. If brakes wear beyond point where they can be adjusted by the cable, move brake bracket into second set of holes provided (D) and complete adjustment procedure.

7. Start mower and check operation of brakes. Park mower on an incline (approx. 16.7° slope) and engage parking brake. Brake must prevent mower from rolling. Adjust nut (C) as required.

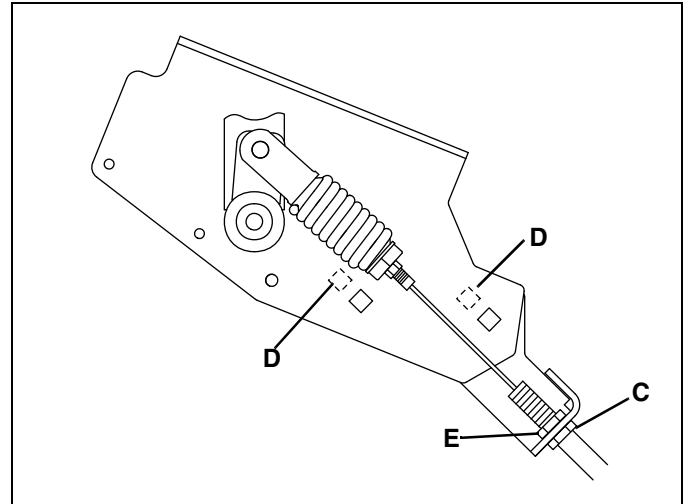


Figure 3C

### 3.5 NEUTRAL ADJUSTMENT

Neutral adjustment can only be made at the drive pump.

The Neutral adjustment is preset at the factory on all new mowers and replacement pumps. Further adjustment is not required unless the pump has been disassembled for repair or service.

#### To adjust Neutral:

1. Disconnect traction pedal linkage from pump.
2. Place mower securely on jack stands so **All** wheels are raised off ground.
3. Check that tow valve (H) is closed
4. Engage parking brake and set mow switch to Neutral. Make sure Neutral switch at traction pedal is closed. (Figure 3E - M). Distance between the sensing portion of switch and metal pointer (M) must be between 1/16 and 1/8 in. (1.5 and 3 mm).
5. Loosen screws (G) holding pump lever bracket just enough so it can be moved. Start engine and observe wheels. Adjust bracket (F) in slotted holes until wheels do not turn. Turn off engine and tighten bracket in place.
6. Connect traction linkage. When connecting linkage at traction pedal make sure pointer on traction pedal bracket is centered over Neutral switch (M - Figure 3E).

7. Start engine and check operation of traction pedal. Wheels must not turn when pedal returns to Neutral and lamp 5 on controller should light, see Section 5.2.

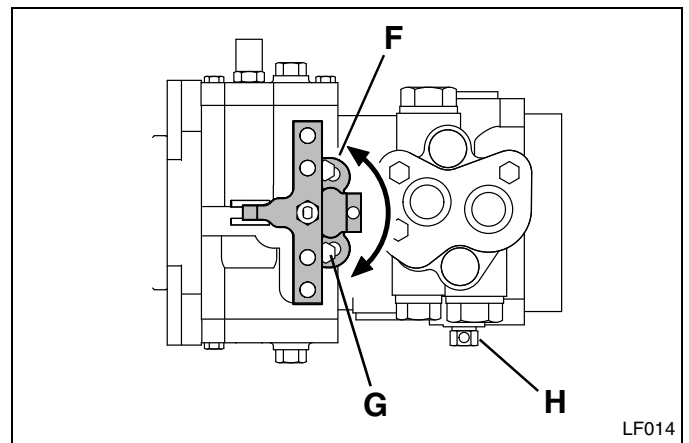


Figure 3D

## 3 ADJUSTMENTS

### 3.6 FORWARD / REVERSE SPEED

Forward and reverse speeds are adjusted at the traction pedal. Set forward speed before adjusting reverse.

#### To adjust forward speed:

1. Make sure drive pump has been set to Neutral and engine throttle is adjusted correctly.
2. Start engine and check forward travel speed with engine at full throttle and mower in two wheel drive (2WD). Forward transport speed should measure 10 mph (16 kph).
3. Stop engine. To adjust forward speed, disconnect eye bolt (**K**) from pedal and loosen jam nut. Turn eye bolt in to reduce speed, out to increase speed. Tighten jam nut to hold adjustment in place and connect eye bolt.
4. With traction pedal in Neutral, check position of Neutral switch (**J**). Adjust switch up or down so pointer (**M**) on traction pedal bracket is centered over it. When adjusted correctly lamp 5 on controller will light when ignition switch is turned to on.
5. Start engine and check forward speed. Repeat procedure until 10 mph (16 kph) forward transport speed is attained.

#### To adjust reverse speed:

1. Set forward speed.

2. Start engine and check reverse travel speed with engine at full throttle. Reverse speed should measure 3.5 mph (5.6 kph).
3. Stop engine. To adjust reverse speed, loosen nut on reverse travel stop bolt (**L**). Slide bolt forward in slotted hole to increase speed, back to reduce speed. Tighten nut to hold adjustment in place.
4. Start engine and check speed. Repeat procedure until 3.5 mph (5.6 kph) reverse speed is attained.

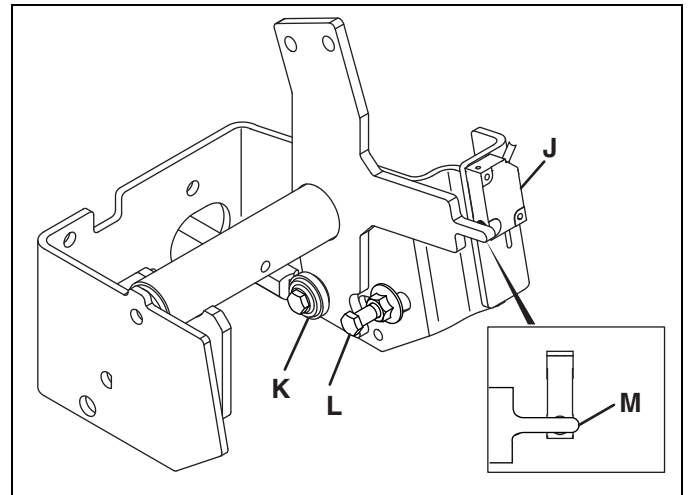


Figure 3E

### 3.7 STEERING TOE-IN

1. Turn wheels to straight ahead position.
2. Loosen jam nuts (**N**) on both sides of tie rod (**M**).
3. Turn tie rod (**S**) to provide proper toe-in. Toe-in must not exceed  $+1/16$  in. ( $+1.5$  mm) (**P**). Retighten jam nuts.
4. After adjusting tie rod, adjust steering cylinder by threading the rod (**T**) in or out of ball joint so spindle arm (**R**) clears the stop on the axle by  $3/4 \pm 1/16$  in. ( $19 \pm 1.5$  mm) (**U**) when cylinder is fully extended.

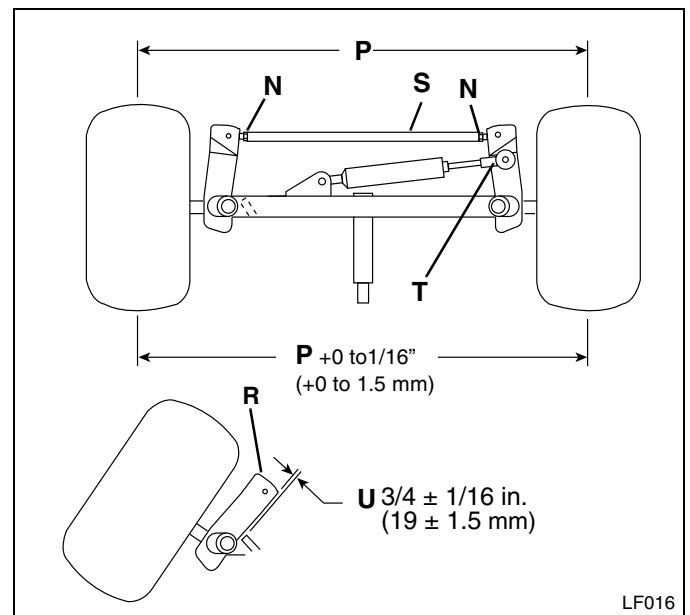


Figure 3F

### 3.8 CUTTING HEIGHT

Cutting height for decks can be adjusted from 3/4 to 5-1/4 in. (19-133 mm) in 1/4 in. (6 mm) increments. Actual cutting height may vary somewhat from the heights given depending on turf conditions and other factors.

#### NOTICE

When cutting undulating areas, lower cutting heights may cause scalping. Adjust height accordingly to prevent turf damage.

1. Park the mower on a flat, level surface. Fully lower cutting units. Stop engine and remove key from ignition.

#### WARNING

To prevent serious injury, lower deck until it is resting completely on the front casters and rear roller. This will prevent it from accidentally lowering while making adjustments. Disengage all drives, engage parking brake, stop engine, and remove ignition key.

2. Refer to the chart provided for desired cutting height.

#### CAUTION

Use proper lifting techniques when lifting or lowering deck housings. The deck housing assemblies weigh approximately 50 lbs (23 kg).

3. **To lower height of cut**, remove all three snap lock pins (A). Lift outer spindle shaft (B) slightly and remove 1/2 in. (13 mm) spacers (D) and/or 1/4 in (6 mm) spacer (E) from bottom one at a time until desired height is obtained. Carefully remove blocks and lower deck housings (C). Place remaining spacers on top of spindle and insert snap lock pins. Washer (F) is always on top, under snap lock pin.
4. **To raise height of cut**, remove all three snap lock pins (A). Carefully lift deck housing (C) above desired cutting height and support with blocks. Add 1/2 in. (13 mm) spacers (D) and/or 1/4 in. (6 mm) spacer (E) as required until desired height is obtained. Lower deck housing. Place remaining spacers on top of spindle and insert snap lock pins. Washer (F) is always on top, under snap lock pin.

#### NOTICE

For best quality of cut, always place the same number of spacers under deck housing on all three spindles. Adjust all decks to same cutting height.

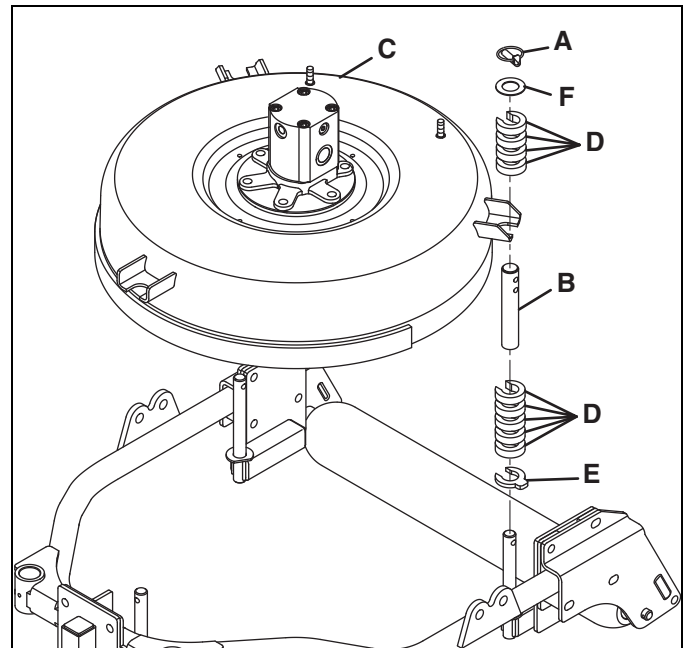


Figure 3G

Height of Cut	1/2" Spacers Below Mower Housing	1/2" Spacers Above Mower Housing	1/4" Spacer Location
3/4	0	9	Above Housing
1	0	9	Below Housing
1-1/4	1	8	Above Housing
1-1/2	1	8	Below Housing
1-3/4	2	7	Above Housing
2	2	7	Below Housing
2-1/4	3	6	Above Housing
2-1/2	3	6	Below Housing
2-3/4	4	5	Above Housing
3	4	5	Below Housing
3-1/4	5	4	Above Housing
3-1/2	5	4	Below Housing
3-3/4	6	3	Above Housing
4	6	3	Below Housing
4-1/4	7	2	Above Housing
4-1/2	7	2	Below Housing
4-3/4	8	1	Above Housing
5	8	1	Below Housing
5-1/4	9	0	Above Housing

## 3 ADJUSTMENTS

### 3.9 TRACTION CONTROL SYSTEM CALIBRATION

The Traction Control System (TCS) will need to be calibrated when a system component has been replaced or the system is not working correctly. System components include controller, lift valve, lift cylinders, or hoses.

1. Allow hydraulic system to become properly warmed up. An operator must be in the seat during the calibration procedure.



#### WARNING

Never operate the engine without proper ventilation; exhaust fumes can be fatal when inhaled.

While warming up the hydraulic system for the calibration procedure, the cutting unit blades will be turning. Make certain that the area under and around the cutting units is clean and any debris that can be thrown from the machine is cleared away. Keep bystanders away from unit.

- a. Start engine and move throttle to full position.
  - b. Release the parking brake.
  - c. Turn PTO switch ON.
  - d. Fully lower cutting units to the ground.
  - e. Engage traction control system.
  - f. Allow unit to run for 5 minutes with these settings.
2. System must be calibrated with the engine running, operator in seat, PTO switch in OFF position, parking brake engaged and traction pedal in Neutral.
  3. Fully lower cutting units. Verify all five decks are all the way down.
  4. Press and hold TCS switch for 5 seconds. Horn will beep when controller enters calibration mode.

#### NOTICE

Do not release switch until horn stops for both starting and finishing the calibration procedure.

5. Tap the lift lever to raise position and wait for 3 to 5 seconds. Repeat if required until cutting units just begin to raise.
6. Tap the lift lever to lower position and wait until decks stop moving. Repeat, tapping joystick if required until front decks are on the ground.

#### NOTICE

Do not rush through steps 5 and 6. System will not be properly calibrated if decks do not start to raise in step 5 and are not fully lowered during step 6.

7. Press and hold TCS switch until horn beeps. System is now calibrated.

#### NOTICE





To cancel calibration mode, turn keyswitch to the OFF position.

3.10 TORQUE SPECIFICATION





**NOTICE**

All torque values included in these charts are approximate and are for reference only. Use of these torque values is at your sole risk. Jacobsen is not responsible for any loss, claim, or damage arising from the use of these charts. **Extreme caution should always be used when using any torque value.**

Jacobsen uses Grade 5 Plated bolts as standard, unless otherwise noted. For tightening plated bolts, use the value given for lubricated.

AMERICAN NATIONAL STANDARD FASTENERS											
SIZE	UNITS					SIZE	UNITS				
		Lubricated	Dry	Lubricated	Dry			Lubri-cated	Dry	Lubri-cated	Dry
#6-32	in-lb (Nm)	–	20 (2.3)	–	–	7/16-14	ft-lb (Nm)	37 (50.1)	50 (67.8)	53 (71.8)	70 (94.9)
#8-32	in-lb (Nm)	–	24 (2.7)	–	30 (3.4)	7/16-20	ft-lb (Nm)	42 (56.9)	55 (74.6)	59 (80.0)	78 (105)
#10-24	in-lb (Nm)	–	35 (4.0)	–	45 (5.1)	1/2-13	ft-lb (Nm)	57 (77.2)	75 (101)	80 (108)	107 (145)
#10-32	in-lb (Nm)	–	40 (4.5)	–	50 (5.7)	1/2-20	ft-lb (Nm)	64 (86.7)	85 (115)	90 (122)	120 (162)
#12-24	in-lb (Nm)	–	50 (5.7)	–	65 (7.3)	9/16-12	ft-lb (Nm)	82 (111)	109 (148)	115 (156)	154 (209)
1/4-20	in-lb (Nm)	75 (8.4)	100 (11.3)	107 (12.1)	143 (16.1)	9/16-18	ft-lb (Nm)	92 (124)	122 (165)	129 (174)	172 (233)
1/4-28	in-lb (Nm)	85 (9.6)	115 (13.0)	120 (13.5)	163 (18.4)	5/8-11	ft-lb (Nm)	113 (153)	151 (204)	159 (215)	211 (286)
5/16-18	in-lb (Nm)	157 (17.7)	210 (23.7)	220 (24.8)	305 (34.4)	5/8-18	ft-lb (Nm)	128 (173)	170 (230)	180 (244)	240 (325)
5/16-24	in-lb (Nm)	173 (19.5)	230 (26.0)	245 (27.6)	325 (36.7)	3/4-10	ft-lb (Nm)	200 (271)	266 (360)	282 (382)	376 (509)
3/8-16	ft-lb (Nm)	23 (31.1)	31 (42.0)	32 (43.3)	44 (59.6)	3/4-16	ft-lb (Nm)	223 (302)	298 404	315 (427)	420 (569)
3/8-24	ft-lb (Nm)	26 (35.2)	35 (47.4)	37 (50.1)	50 (67.8)	7/8-14	ft-lb (Nm)	355 (481)	473 (641)	500 (678)	668 (905)

METRIC FASTENERS										
SIZE	UNITS									Non Critical Fasteners into Aluminum
		Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry	
M4	Nm (in-lb)	–	–	–	–	–	–	3.83 (34)	5.11 (45)	2.0 (18)
M5	Nm (in-lb)	1.80 (16)	2.40 (21)	4.63 (41)	6.18 (54)	6.63 (59)	8.84 (78)	7.75 (68)	10.3 (910)	4.0 (35)
M6	Nm (in-lb)	3.05 (27)	4.07 (36)	7.87 (69)	10.5 (93)	11.3 (102)	15.0 (133)	13.2 (117)	17.6 (156)	6.8 (60)
M8	Nm (in-lb)	7.41 (65)	9.98 (88)	19.1 (69)	25.5 (226)	27.3 (241)	36.5 (323)	32.0 (283)	42.6 (377)	17.0 (150)
M10	Nm (ft-lb)	14.7 (11)	19.6 (14)	37.8 (29)	50.5 (37)	54.1 (40)	72.2 (53)	63.3 (46)	84.4 (62)	33.9 (25)
M12	Nm (ft-lb)	25.6 (19)	34.1 (25)	66.0 (48)	88.0 (65)	94.5 (70)	125 (92)	110 (81)	147 (108)	61.0 (45)
M14	Nm (ft-lb)	40.8 (30)	54.3 (40)	105 (77)	140 (103)	150 (110)	200 (147)	175 (129)	234 (172)	94.9 (70)

## 4 MAINTENANCE

### 4.1 GENERAL



#### WARNING

Before you clean, adjust, or repair this equipment, disengage all drives, lower implements to the ground, engage parking brake, stop engine, and remove key from ignition switch to prevent injuries

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

1. Adjustment and maintenance should always be performed by a qualified technician. If proper adjustments cannot be made, contact an Authorized Jacobsen Dealer.
2. Inspect the equipment on a regular basis, establish a maintenance schedule and keep detailed records.
  - a. Keep the equipment clean.

- b. Keep all moving parts properly adjusted and lubricated.
- c. Replace worn or damaged parts before operating the machine.
- d. Keep all fluids at their proper levels.
- e. Keep shields in place and all hardware securely fastened.
- f. Keep tires properly inflated.

3. Do not wear jewelry or loose fitting clothing when making adjustments or repairs.
4. Use the illustrations in the Parts Catalog as reference for the disassembly and reassembly of components.
5. Recycle or dispose of all hazardous materials (batteries, fuel, lubricants, anti-freeze, etc.) according to local, state, or federal regulations.

### 4.2 ENGINE

**IMPORTANT: A separate Engine Manual, prepared by the engine manufacturer, is supplied with this mower. Read the Engine Manual carefully until you are familiar with the operation and maintenance of the engine. Proper attention to the engine manufacturer's directions will assure maximum service life of the engine. To order replacement engine manuals contact the engine manufacturer.**

The proper break-in of a new engine can make a considerable difference to the performance and life of the engine.

During the break-in period, Jacobsen recommends the following:

1. During the first 50 hours of operation, a new engine should be allowed to reach an operating temperature of at least 140°F (60°C) prior to operation at full load.

2. Check the engine oil level twice daily during the first 50 hours of operation. Higher than normal oil consumption is not uncommon during the initial break-in period.
3. Change engine oil and oil filter element after first 50 hours of operation.
4. Check and adjust fan and alternator belts.
5. Refer to **Section 6.2** and Engine Manual for specific maintenance intervals.

If the injection pump, injectors or the fuel system require service, contact an authorized Jacobsen Dealer.

#### NOTICE

The mower is designed to operate and cut most efficiently at the preset governor setting. Do not change the engine governor settings or overspeed the engine.

### 4.3 ENGINE OIL

Check the engine oil at the start of each day, before starting the engine. If the oil level is low, remove oil filler cap, and add oil as required.

Perform initial oil change after first 50 hours of operation and every 100 hours thereafter. See Engine Manual.

Use only engine oils with API classification CD/CE.

Above 77°F (25°C)	SAE 30W or SAE10W30/10W40
32 to 77°F (0 to 25°C)	SAE 20W or SAE 10W30/10W40
Below 32°F (0°C)	SAE10W or SAE 10W30/10W40

### 4.4 AIR FILTER

Check the service indicator daily. If red band appears in the window **(B)** replace the element.

**Do not remove the element for inspection or cleaning.** Unnecessary removal of the filter increases the risk of injecting dust and other impurities into the engine.

When service is required, first clean the outside of the filter housing, then remove the old element as gently as possible and discard.

1. Carefully clean the inside of the filter housing without allowing dust into the air intake.
2. Inspect the new element. Do not use a damaged element and never use an incorrect element.
3. Assemble the new element and make sure it seats properly. Reset the indicator by depressing button **(A)**.

4. Reassemble cap making sure it seals completely around the filter housing. Dust evacuator must be facing down.
5. Check all hoses and air ducts. Tighten hose clamps.

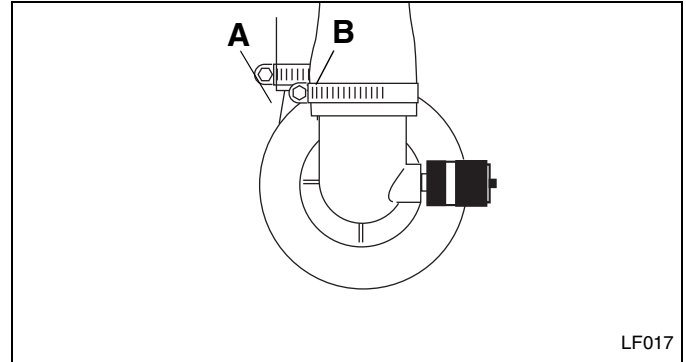



Figure 4A

### 4.5 FUEL

**Handle fuel with care - it is highly flammable.** Only use an approved container. The spout must fit inside the fuel filler neck. Avoid using cans and funnels to transfer fuel.

 <b>WARNING</b>
<p>Never remove the fuel cap from the fuel tank, or add fuel, when the engine is running or while the engine is hot.</p> <p>Do not smoke when handling fuel. Never fill or drain the fuel tank indoors.</p> <p>Clean spilled fuel immediately.</p> <p>Never handle or store fuel containers near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.</p> <p>Be sure to reinstall and tighten fuel cap securely.</p>

- Fill the fuel tank to within 1 in. (25 mm) below the filler neck.
- Use clean, fresh, #2 Diesel fuel, minimum Cetane Rating 45. Refer to Engine Manual for additional information.
- Check fuel lines and clamps every 50 hours. Replace fuel lines and clamps at the first sign of damage.
- Store fuel according to local, state or federal ordinances and recommendations from your fuel supplier.
- Never overfill or allow the tank to become empty.

### 4.6 FUEL SYSTEM

Refer to **Section 6.2** for specific maintenance intervals.

Before replacing any filter, thoroughly clean the filter housing and the area around the filter. Dirt must not be allowed to enter into fuel system.

Bleed the fuel system after the fuel filter and lines have been removed, or the fuel tank has become empty. See Engine Manual.

**To change fuel filter:**

1. Close fuel valve on tank, then remove and discard the existing filter.
2. Apply a light coat of oil to the gasket and hand tighten new filter.
3. Fill fuel tank. Open fuel valve on tank and bleed the filter. See Engine Manual.

## 4 MAINTENANCE

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### 4.7 BATTERY

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Make absolutely certain the ignition switch is OFF position and the key has been removed before servicing the battery.

#### CAUTION

Always use insulated tools, wear protective glasses or goggles and protective clothing when working with batteries. You must read and obey all the battery manufacturer's instructions.

Tighten cables securely to battery terminals and apply a light coat of silicone dielectric grease to terminals and cable ends to prevent corrosion. Keep vent caps and terminal covers in place.

Check the electrolyte level every 100 hours. Keep the cable ends, battery and battery posts clean.

Always disconnect battery cables from battery and controller connectors before performing and welding operation on the mower.

Verify battery polarity before connecting or disconnecting the battery cables.

1. When installing the battery, always assemble the RED, positive (+) battery cable first and the ground, BLACK, negative (-) cable last.
2. When removing the battery, always remove the ground, BLACK, negative (-) cable first and the RED, positive (+) cable last.
3. Make sure battery is properly installed and secured to the battery tray.

#### WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and other reproductive harm. **Wash your hands after handling.**

### 4.8 JUMP STARTING

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Before attempting to "jump start" the mower, check the condition of the discharged battery. **Section 4.7.**

#### WARNING

Batteries generate explosive hydrogen gas. To reduce the chance of an explosion, avoid creating sparks near battery. Always connect the negative jumper cable to the frame of the mower with the discharged battery, away from the battery.

**When connecting jumper cables:**

1. Stop the engine on vehicle with good battery.
2. Connect RED jumper cable to the positive (+) terminal on the good battery and to the positive (+) terminal on the "discharged" battery.
3. Connect the BLACK jumper cable from the negative (-) terminal on the good battery to the **frame** of mower with discharged battery.

After cables have been connected, start the engine on the vehicle with the good battery then start the mower.

### 4.9 CHARGING BATTERY

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#### WARNING

Charge battery in a well ventilated area. Batteries generate explosive gases. To prevent an explosion, keep any device that may create sparks or flames away from the battery.

To prevent injury, stand away from battery when the charger is turned on. A damaged battery could explode.

2. Whenever possible, remove the battery from the mower before charging. If battery is not sealed, check that the electrolyte liquid covers the plates in all the cells.
3. Make sure the charger is OFF, then connect the charger to the battery terminals as specified in the charger's manual.
4. Always turn the charger OFF before disconnecting charger from the battery terminals.

1. Refer to **Section 4.7.** Read the Battery and Charger's manual for specific instructions.



## 4.10 MUFFLER AND EXHAUST

### WARNING

Exhaust fumes contain carbon monoxide that is toxic and can be fatal when inhaled.

**NEVER** operate an engine without proper ventilation.

To protect from carbon monoxide poisoning, inspect the complete exhaust system regularly and always replace a defective muffler.

If you notice a change in the color or sound of the exhaust, stop the engine immediately. Identify the problem and have the system repaired.

Torque all exhaust manifold hardware evenly. Tighten or replace exhaust clamps.

## 4.11 HYDRAULIC HOSES

### WARNING

To prevent serious injury from hot, high pressure oil, never use your hands to check for oil leaks. Use paper or cardboard.

Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

1. Always lower implements to ground, disengage all drives, engage parking brake, stop engine and remove key before inspecting or disconnecting hydraulic lines or hoses.
2. Check visible hoses and tubes daily. Look for wet hoses or oil spots. Replace worn or damaged hoses and tubes before operating the machine.
3. The replacement tube or hoses must be routed in the same path as the existing hose. Do not move clamps, brackets and ties to a new location.
4. Thoroughly inspect all tubes, hoses and connections every 250 hours.

**IMPORTANT:** The hydraulic system can be permanently damaged if the oil becomes contaminated. Before disconnecting any hydraulic component, clean the area around the fittings and the hose ends to keep impurities out of the system.

- a. Before disconnecting any hydraulic component, tag or mark the location of each hose then clean the area around the fittings.
- b. As you disconnect the component, be prepared to assemble plugs or caps to the hose ends and open ports. This will keep impurities out of the hydraulic system and also prevent oil spills.
- c. Make sure "O" rings are clean and hose fittings are properly seated before tightening.
- d. Keep the hose from twisting. Twisted hoses can cause couplers to loosen as the hose flexes during operation, resulting in oil leaks.
- e. Kinked or twisted hoses can restrict the oil flow, causing the system to malfunction and the oil to overheat and also lead to hose failure.

## 4.12 HYDRAULIC OIL

Refer to **Section 6.2** for specific maintenance intervals.

Drain and replace the hydraulic oil after a major component failure, or if you notice the presence of water or foam in the oil, or a rancid odor (indicating excessive heat).

Always replace both hydraulic filters when oil filter light stays on or when changing oil.

### To change hydraulic oil:

1. Clean the area around the oil cap to prevent impurities from entering and contaminating the system.
2. Remove drain plug from bottom of tank.
3. After oil has drained, install drain plug and fill with hydraulic oil.
4. Purge air from system.
  - a. To prevent reels from overheating, disconnect motors from reels.
  - b. Operate all mower functions for about 5 minutes to purge air out of the system and stabilize the oil level. During this time, the oil level alarm may sound.
  - c. Once the level has stabilized and the air is purged, fill the tank to the full mark on dipstick. Start engine and check that oil alarm remains off.

## 4 MAINTENANCE

### 4.13 HYDRAULIC FILTER

The hydraulic system is protected by a 10 micron return line filter. Flow through the filters is monitored during operation. When pressure drop across the filters is too high the hydraulic oil filter warning light will come on. To ensure continued protection to the hydraulic system, replace filter as soon as possible after light comes on.

#### NOTICE

During cold weather the warning light may come on until oil has warmed up to operating temperature. Wait until oil has warmed up and light goes out before operating mower.

#### To replace hydraulic filter:

1. Remove the old filter.
2. Install new filter. Hand tighten only.
3. Operate engine at idle speed with hydraulic system in Neutral for five minutes. The oil level alarm may sound during this time.
4. Check hydraulic oil level in reservoir and fill to full mark on dipstick.

### 4.14 ELECTRICAL SYSTEM

#### CAUTION

Always turn the ignition switch OFF and remove the negative battery cable (BLACK) before inspecting or working on the electrical system.

General precautions that can be taken to reduce electrical problems are listed below.

1. Make certain all terminals and connections are clean and properly secured.
2. Check the interlock system, fuses and circuit breakers regularly.  
If the interlock does not function properly and the problem cannot be corrected, contact an authorized Jacobsen Dealer.
3. Keep the wire harness and all individual wires away from moving parts to prevent damage.
4. Make sure the seat switch harness is connected to the main wire harness.
5. Check the battery and battery charging circuit.
6. Do not wash or pressure spray around electrical connections and components.

The electrical system is monitored and controlled by the electronic controller (**C**) located behind the operator's area. The controller is equipped with two banks of LED's which can be used when troubleshooting the electrical system. See Section 5.2.

#### NOTICE

For factory assistance with troubleshooting controller problems, please note the controller hardware revision and software version located on the lower right corner of the controller. Controllers with equal or greater revision levels will be backward compatible.

Circuits are protected by a circuit breaker, fuses and relays mounted on or near the controller.

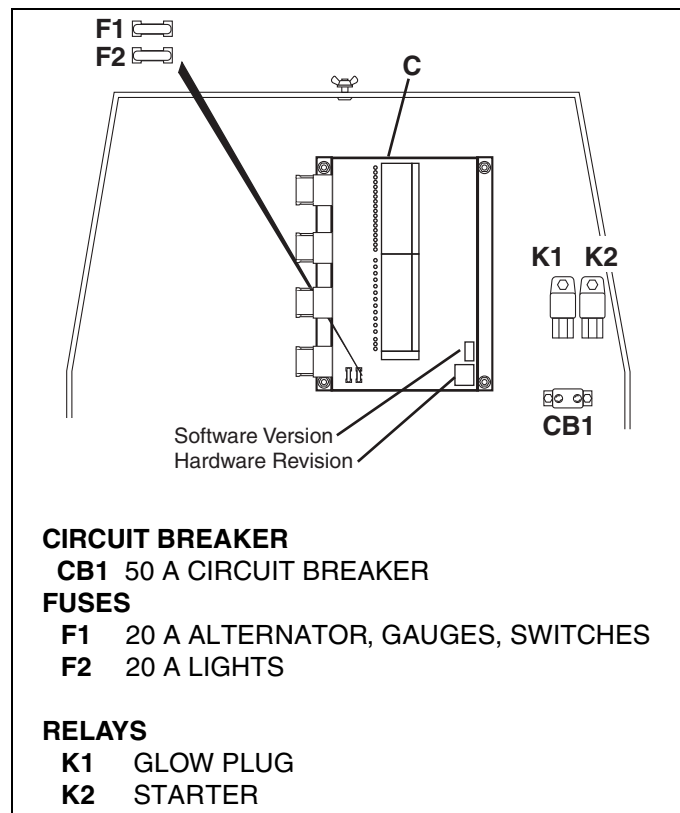



Figure 4B

### 4.15 RADIATOR

 **WARNING**

To prevent serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Stop the engine and wait until it is cool. Even then, use extreme care when removing the cap.

 **CAUTION**


Do not pour cold water into a hot radiator. Do not operate engine without a proper coolant mixture. Install cap and tighten securely.

Check coolant level daily. Radiator should be full and recovery bottle should be up to the **cold** mark.

Drain and refill annually. Remove the radiator cap, open the engine block drain and the radiator drain. Empty and clean the recovery bottle.

### 4.16 ROLL OVER PROTECTIVE STRUCTURE (ROPS)

A Roll Over Protective Structure (ROPS), designed for this mower, is available as an optional accessory. If your mower is equipped with this device, inspect it periodically and follow operating procedures described in the **Safety & Operation Manual**.

 **CAUTION**

Do not loosen or remove bolts, do not weld, drill, modify, bend, or straighten a damaged structure.

### 4.17 TIRES

1. Keep tires properly inflated to prolong tire life. Check inflation pressure while the tires are cool. Inspect tread wear.
2. Check pressure every 50 hours or once a month. Use an accurate, low pressure tire gauge.
3. Keep tires inflated to:
  - Front - 16 psi (111 kPa)
  - Rear - 12 psi (86 kPa)

Mix clean water with ethylene glycol based anti-freeze for the coldest ambient temperature. Read and follow the instructions on the anti-freeze container and Engine Manual.

Keep radiator and hydraulic oil cooler air passages clean. Use compressed air (30 psi maximum) to clean the fins.

**To clean radiator:**


1. Use a blow gun to clean the radiator and oil cooler fins.

**NOTICE**

A sliding panel located under the frame can be loosened and pulled back to allow dirt and debris to fall through frame.

2. Check and tighten the fan belt. Replace clamps and hoses every two years.
3. If you have to add coolant more than once a month, or add more than one quart at a time, have a Jacobsen Dealer check the cooling system.

1. The seat, the seat belt, mounting hardware, and any accessories within the ROPS, should be inspected regularly and all damaged parts replaced immediately.
2. Once the ROPS has been subjected to any form of impact it should be replaced.
3. Check and retorque all hardware. All replacement components used for the ROPS must be as specified in the Parts Catalog.

 **CAUTION**

Unless you have the proper training, tools and experience, **DO NOT** attempt to mount a tire on a rim. Improper mounting can produce an explosion which may result in serious injury.

## 4 MAINTENANCE

### 4.18 WHEEL MOUNTING PROCEDURE

#### **WARNING**

Make sure the mower is parked on a solid and level surface. Never work on a mower that is supported only by the jack. Always use jack stands.

If only the front or rear of the mower is raised, place chocks in front of and behind the wheels that are not raised.

1. Remove dirt, grease and oil from stud thread. Do not lubricate threads.
2. Position wheel on hub and inspect to insure full contact between mounting surface of wheel and hub or brake drum.
3. Finger tighten all hardware, then torque hardware in criss-cross order; always tighten nuts in the top position.
4. Check and retorque daily until torque is maintained at 85-95 ft.lbs. (115-128 Nm).

### 4.19 INSPECTING BLADES

1. Every 50 hours of operation or whenever mower is removed from mower, carefully examine the blades to make sure they are in good operating condition. Blades showing any bends (**G**), grooves (**H**) or cracks (**J**) must be replaced.

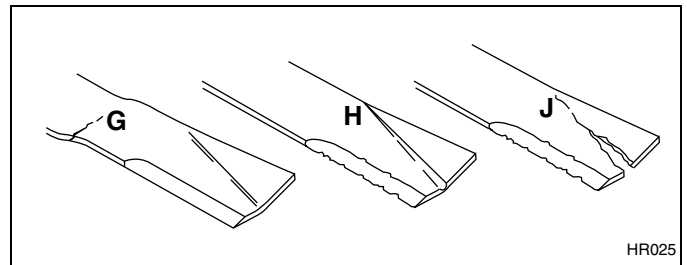
#### **CAUTION**

Use care when checking blades to avoid pinching hands and fingers between blade ends.

#### **WARNING**

Never attempt to straighten, weld, or repair a damaged blade. Always replace a damaged blade.

2. Any of the above conditions can cause a piece of the blade to break away and be hurled from the mower, causing very serious injury to bystanders or property damage.
3. A bent blade could have a microscopic crack (**G**) that can grow and allow a piece of the blade to break. Bent blades will also create vibration and other stress on the machinery.
4. Dust or sand particles can wear a dangerous groove in the blade (**H**) between the air vanes and the flat portion of the blade that will rapidly grow and produce a crack (**J**), permitting a piece of the vane to break off.



**Figure 4C**

**4.20 SHARPENING BLADES**


1. Place a wooden block between the blade and mower housing to stop the blade from moving.

 **WARNING**

The mower blades can develop sharp edges. Use caution whenever servicing and handling.

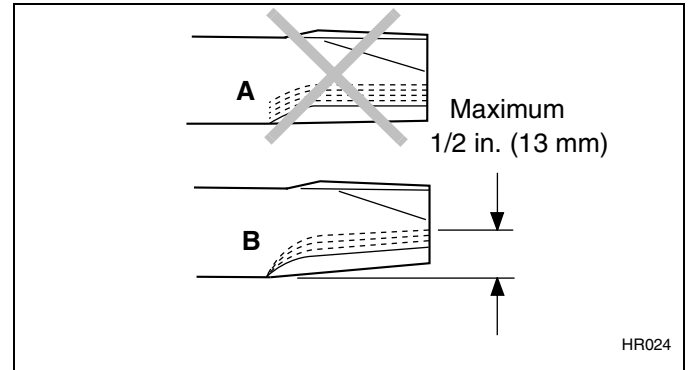
2. When dressing or sharpening the blade, do not follow the original pattern of grind as shown in (A). Grind new cutting edges at an angle as shown in (B).

If the maximum total loss of the blade reaches 1/2 in., (13 mm.), do not sharpen further. Replace blade.

 **WARNING**

Re-sharpening the blade beyond the allowable 1/2 in. (13 mm) may allow the blade tip to break off and be thrown from the mower. Such an incident can cause very serious injury to bystanders and/or property damage.

3. Make sure an equal amount of material is removed from both sides of blade to prevent having an unbalanced blade. An unbalanced blade will cause excessive vibration and may damage the mower.
4. Use a blade balancer to check the blade after sharpening.
5. Torque center mounting screw holding blade to 75 to 90 ft. lb. (100 to 120 Nm).



**Figure 4D**

**4.21 CARE AND CLEANING**

Wash the mower and implements after each use. Keep the equipment clean.

**NOTICE**

Do not wash any portion of the equipment while it is hot. Do not use high pressure spray or steam. Use cold water and automotive cleaners.

1. Use compressed air to clean engine and radiator fins. A special blow gun is available through your Jacobsen Dealer.
2. Use only fresh water for cleaning your equipment.


**NOTICE**

Use of salt water or effluent water has been known to encourage rust and corrosion of metal parts, resulting in premature deterioration or failure. Damage of this nature is not covered by the factory warranty.

3. Do not spray water directly at the instrument panel, ignition switch, controller or any other electrical components, or at bearing housings and seals.

4. Clean all plastic or rubber trim with a mild soap solution or use commercially available vinyl/rubber cleaners.
5. To maintain the original high luster of the fiberglass, periodically wax with a good grade of One-Step cleaner wax.

Repair damaged metal surfaces and use Jacobsen touch-up paint. Wax the equipment for maximum paint protection.

 **CAUTION**

Clean grass and debris from cutting units, drives, muffler and engine to prevent fires.

 **WARNING**

**NEVER** use your hands to clean cutting units. Use a brush to remove grass clippings from blades. Blades are extremely sharp and can cause serious injuries.

## 4 MAINTENANCE

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### 4.22 STORAGE

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#### General

1. Wash the mower thoroughly and lubricate. Repair and paint damaged or exposed metal.
2. Inspect the mower, tighten all hardware, replace worn or damaged components.
3. Drain and refill radiator.
4. Clean the tires thoroughly and store the mower so the load is off the tires. If mower is not on jack stands, check tires at regular intervals and reinflate as necessary.
5. Keep the machine and all its accessories clean, dry and protected from the elements during storage. Never store equipment near an open flame or spark which could ignite fuel or fuel vapors.

#### Battery

1. Remove, clean and store battery in upright position on a non-conductive surface (wood) in a cool, dry place. To prevent accelerated discharge, do not store battery on concrete or steel surface.
2. Check and recharge battery every 60 to 90 days while in storage.
3. Store batteries in a cool, dry place. To reduce the self discharge rate, room temperature should not be above 80°F (27°C) or fall below 20°F (-7°C) to prevent electrolyte from freezing.

#### Engine

1. While the engine is warm, remove drain plug, drain the oil from the crankcase, and change oil filter. Install drain plug and refill with fresh oil. Torque drain plug to 22 ft. lb. (30 Nm).
2. Clean exterior of engine. Paint exposed metal or apply a light coat of rust preventative oil.
3. Add a fuel conditioner or biocide to prevent gelling or bacterial growth in fuel. See your local fuel supplier.

#### Cutting Units

1. Wash the cutting units thoroughly, then repair and paint any damaged or exposed metal.
2. Lubricate all fittings and friction points.
3. Apply a light coat of rust preventative oil to the sharpened edges of the blades.

#### After Storage

1. Check and reinstall battery
2. Check or service fuel filter and air cleaner.
3. Check the radiator coolant level.
4. Check oil level in the engine crankcase and hydraulic system.
5. Fill the fuel tank with fresh fuel. Bleed the fuel system.
6. Make certain that the tires are properly inflated.
7. Remove all oil from the blades. Adjust cutting height.
8. Start and operate the engine at 1/2 throttle. Allow enough time for the engine to become properly warmed and lubricated.



### WARNING

Never operate the engine without proper ventilation, exhaust fumes can be fatal when inhaled.



### CAUTION

To prevent personal injury and damage to the cutting edges, handle the blades with extreme care.

## 5.1 GENERAL

The troubleshooting chart below lists basic problems that may occur during start-up and operation. For more detailed information regarding the hydraulic and electrical systems contact your area Jacobsen Dealer.

Symptoms	Possible Causes	Action
Engine will not start.	<ol style="list-style-type: none"> <li>1. Parking brake disengaged, traction pedal not in Neutral, or mow switch ON.</li> <li>2. Glow plug has not timed out.</li> <li>3. Battery low on charge or defective.</li> <li>4. Fuel tank empty or dirty.</li> <li>5. Fuse blown.</li> <li>6. Relay defective.</li> <li>7. Neutral switch on traction pedal out of adjustment or defective.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check interlock system and start-up procedure.</li> <li>2. Reset ignition switch and allow glow plug to time out before cranking engine.</li> <li>3. Inspect condition of battery and battery connections.</li> <li>4. Fill with fresh fuel. Change fuel filter. Bleed fuel lines.</li> <li>5. Replace fuse.</li> <li>6. Test and replace relay.</li> <li>7. Adjust or replace switch.</li> </ol>
Engine hard to start or runs poorly.	<ol style="list-style-type: none"> <li>1. Fuel level low, fuel or fuel filter dirty.</li> <li>2. Air cleaner dirty.</li> <li>3. Injectors, fuel pump.</li> <li>4. Engine problem.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill with fresh fuel. Change fuel filter. Bleed fuel lines.</li> <li>2. Inspect and replace air filter.</li> <li>3. Consult Engine Manual.</li> <li>4. Consult Engine Manual.</li> </ol>
Engine stops.	<ol style="list-style-type: none"> <li>1. Fuel tank empty.</li> <li>2. Interlocks not set before leaving operator's seat.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill with fresh fuel and bleed fuel lines.</li> <li>2. Engage parking brake and set mow switch to OFF.</li> </ol>
Engine overheating.	<ol style="list-style-type: none"> <li>1. Coolant level low.</li> <li>2. Air intake restricted.</li> <li>3. Water pump belt broken or loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect and add coolant.</li> <li>2. Clean air intake at radiator.</li> <li>3. Tighten or replace belt.</li> </ol>
Battery not holding charge. Battery light on.	<ol style="list-style-type: none"> <li>1. Loose or corroded battery terminals.</li> <li>2. Low electrolyte.</li> <li>3. Alternator belt loose or broken.</li> <li>4. Charging system defective.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect and clean terminals.</li> <li>2. Refill to correct level.</li> <li>3. Tighten or replace belt.</li> <li>4. See Engine Manual.</li> </ol>
Decks cut unevenly.	<ol style="list-style-type: none"> <li>1. Height of Cut not adjusted correctly.</li> <li>2. Engine speed too low.</li> <li>3. Mow speed not adjusted for turf conditions.</li> </ol>	<p>Inspect height of cut adjustment. Same number of spacers below deck housing on all spindles.</p> <p>Check engine speed. Run engine at full throttle.</p> <p>Adjust mow speed for best cut.</p>

# 5 TROUBLESHOOTING

## 5.2 CONTROLLER LAMPS

The controller is a solid state device that monitors and controls electrical functions. The controller receives input signals from various switches and sensors throughout the machine and transmits output signals to operate relays, solenoids and warning lights. It controls and resets timers and contains built in logic to control certain machine functions.

Each input and output signal is displayed through lamps located on top of the controller. A closed input switch indicates an active circuit and will turn an input lamp on. An open switch an inactive circuit and will turn a lamp off. Outputs are active when their lights are on.

It is important to note that in some cases a lamp or group of lamps must be on or off for a condition to be true. For example, to start the mower the Mow Switch must be OFF (lamp 8 off) while the Neutral Start Switch (lamp 12), Brake Switch (lamp 6) and Fuel Valve Hold Coil (lamp 27) must be on.

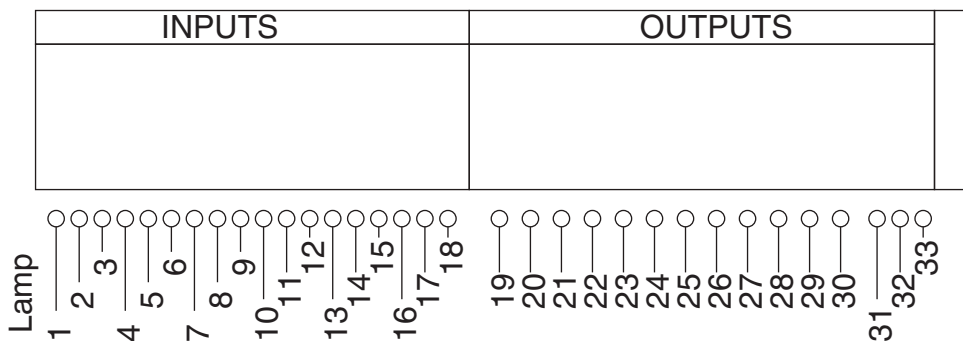
### NOTICE

For factory assistance with troubleshooting controller problems, please note the controller hardware revision and software version located on the lower right corner of the controller. [SEE 4.14] Controllers with equal or greater revision levels will be backward compatible.

### Controller Functions by Lamp Number

Lamp On - Circuit is active  
Lamp Off - Circuit is inactive

INPUTS		OUTPUTS	
Lamp	Circuit	Lamp	Circuit
1,2,3,4	Program Select (1, 3 and 4 are not used)	19	Hydraulic Filter Light
5	Brake Switch	20	Hydraulic Oil Level Light
6	Seat Switch	21	Not Used
7	Traction Control Switch	22	Glowplug Light
8	Mow Switch	23	Lower Solenoid
9	Joystick - Lower	24	Raise Solenoid
10	Joystick - Raise	25	Glowplug Relay
11	Hydraulic Oil Level Switch	26	Start Relay
12	Neutral Switch	27	Fuel Solenoid - Hold
13	Not Used	28	Not Used
14	Keyswitch - Glowplug	29	Audible Alarm
15	Keyswitch - Start	30	Mow Solenoid
16	Joystick Active	31	Fuel Solenoid - Pull
17	Hydraulic Filter Switch	32	Power-Ignition
18	Engine Oil Pressure Switch	33	Power-Lights





### 5.3 ELECTRICAL CIRCUITS

---

When troubleshooting the machine using the controller always check that Program Active lamps (2) is on. This indicates that the controller has power and the program is active.

#### NOTICE

The controller requires a minimum of six volts to operate.

Individual circuits can be tested by operating an input switch, checking for the required input signal and looking for a corresponding output. Keep in mind that not all switches are located on the instrument panel. The traction pedal, reel lift limit and brakes are controlled by small proximity switches mounted on the frame of the mower.

If an input lamp does not light, an inactive condition is indicated. This could be caused by a fuse, faulty switch or poor connection.

The electrical connections to the solenoids on the hydraulic valves are also equipped with small indicator lamps. When lit, these lamps indicate that the output signal has reached the connection. If lamps do not come on, check wires to and from connector.

## 6 MAINTENANCE & LUBRICATION CHARTS

### 6.1 GENERAL



#### WARNING

Before you clean, adjust, or repair this equipment, disengage all drives, lower implements to the ground, engage parking brake, stop engine and remove key from ignition switch to prevent injuries.

1. Always clean grease fittings before and after lubrication.
2. Lubricate with grease that meets or exceeds NLGI Grade 2 LB specifications. Apply grease with a manual grease gun and fill slowly until grease begins to seep out. Do not use compressed air.
3. For smooth operation of pivot points and other friction points, apply several drops of SAE 30 oil every 50 hours or as required.
4. Remove wheels and repack bearings once a year.

### 6.2 MAINTENANCE CHART

Recommended Service and Lubrication Intervals

	Every 8-10 Hours	Every 50 Hours	Every 100 Hours	Every 250 Hours	Every 400 Hours	Every 500 Hours	Every 1000 Hours	Yearly	See Section	Lubricant Type
Air Cleaner			AR					R	4.4	
Battery Charge			I****						4.9	
Belt	I-A*		I-A			R			3.3	
Brake		I-A*		A					3.4	
Cooling System	I-C-A							R	4.15	
Engine Oil	I	R*	R						4.2	III
Engine Oil Filter		R*	R						4.3	
Fuel Lines and Clamps		I								
Fuel Filter					R				4.6	
Grease Fittings - F1		L							6.3	II
Grease Fittings - F2			L						6.3	II
Hydraulic Hoses and Tubes	I***			I					4.11	
Hydraulic Oil		I-A				R**			4.12	IV
Hydraulic Oil Filters		R*				R-AR			4.13	
Muffler and Exhaust				I					4.10	
Radiator Screens	I-C/AR								4.15	
Tires		I-A							4.17	
Steering System		I*		I-A						
Wheel Bearings								L		I
Wiring		I*		I					4.14	

**A - Add or Adjust    C - Clean    I - Inspect    L - Lubricate    R - Replace    AR - As Required**

\* Indicates initial service for new machines.

\*\* Or yearly, whichever comes first.

\*\*\* Inspect visible hoses and tubes for leaks or oil marks.

\*\*\*\* Inspect electrolyte level. See 4.7

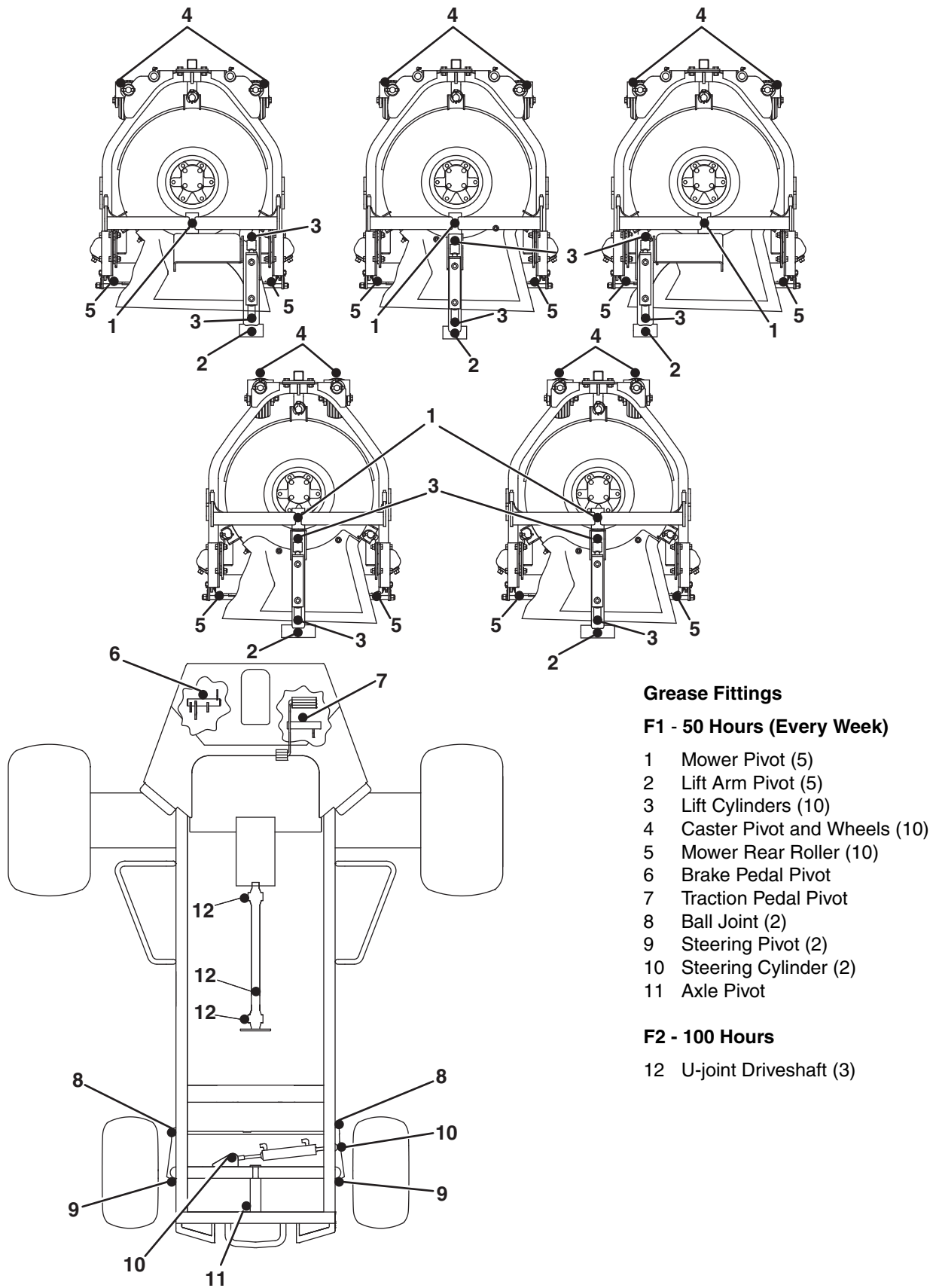
I Pack bearings with NLGI Grade 2 (Service Class GB)

II Manual grease gun with NLGI Grade 2 (Service Class LB).

III Engine Oil - See Section 4.3

IV Jacobsen Hydraulic Oil - SAE 10W30 or Greens Care 68

6.3 LUBRICATION CHART



# 7 PARTS CATALOG

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## 7.1 HOW TO USE THE PARTS CATALOG

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### Abbreviations

**N/S** - Not serviced separately, can only be obtained by ordering main component or kit.

**AR** -Variable quantity or measurement is required to obtain correct adjustment.

**Symbols** such as ●, next to the item number, indicate that a note exists which contains additional information important in ordering that part.

### Indented Items

Indented items indicate component parts that are included as part of an assembly or another component. These parts can be ordered separately or as part of the main component.

Item	Part No.	Qty	Description	Serial Numbers/Notes
● 1	123456	1	Mount, Valve	<i>Indicates a piece part</i>
2	789012	1	Valve, Lift	<i>Includes Items 3 and 4</i>
3	345678	1	• Handle	<i>Serviced part included with Item 2</i>
4	N/S	1	• Seal Kit	<i>Non serviced part included with Item 2</i>
5	901234	1	Screw, 1/4-20 x 2" Hex Head	

## 7.2 TO ORDER PARTS

---

1. Write your **full** name and **complete** address on the order.
2. Explain where and how to make shipment.
3. Give product number, name and serial number that is stamped on the name plate or serial plate of your product.
4. Order by the quantity desired, the part number, and description of the part as given in the parts list.
5. Send or bring the order to an authorized Jacobsen Distributor.
6. Inspect all shipments on receipt. If any parts are damaged or missing, file a claim with the carrier before accepting.
7. Do not return material without a letter of explanation, listing the parts being returned. Transportation charges must be prepaid.

**Use of other than Jacobsen authorized parts will void the warranty.**

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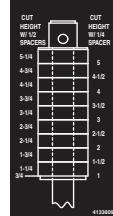
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OPERATION	
READ MANUAL BEFORE OPERATING. REPLACEMENT MANUAL AVAILABLE FROM: JACOBSEN TEXTRON - CHARLOTTE, NC	
To Start	To Stop/Park
1. Parking Brake.....On	1. Traction Pedal.....Neutral
2. Mower Switch.....Off	2. Mower Switch.....Off
3. Throttle.....Fast	3. Throttle.....Slow
4. Ignition.....On	4. Ignition.....Off
5. Glow Plug Light.....On	5. Remove Key
6. Start	
To Drive/Transport	To Mow
1. Follow "To Start" instructions.	1. Follow "To Start" instructions.
2. Mower Switch.....Off	2. Throttle.....Fast
3. Cutting Units.....Raise	3. Mower Switch.....Mow
4. Parking Brake.....Off	4. Parking Brake.....Off
5. Throttle.....Fast	5. Throttle.....Lower
6. Slowly depress traction pedal.	6. Slowly depress traction pedal.

**WARNING**

1. Read operators manual. Do not allow untrained operators to use machine.
2. Keep shields in place and hardware securely fastened.
3. Before you clean, adjust or repair this equipment, disengage all drives, engage parking brake and stop engine.
4. Keep hands, feet and clothing away from moving parts.
5. Never carry passengers.
6. Keep bystanders away.
7. Inspect hoses and fabric covers daily. If worn or damaged, replace with original quality parts.
8. Do not use on slopes greater than 20°.



**WARNING**

TO PREVENT POSSIBLE INJURY TO YOU OR OTHERS, DO NOT OPERATE THIS UNIT WITH GUARD REMOVED.

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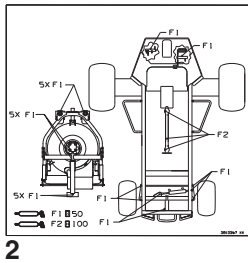
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21

TRIMTEK™  
27



2

**WARNING**

To prevent serious injury never disconnect or tamper with the seat switch. Read the manual for more information.

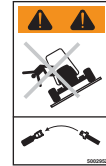
23

068000, 068002, 068003

1726 Kg

41.8 kW

26



24

**WARNING**

This structure's protective capability may be impaired by structural damage, overture, or alteration. If any of these conditions occur, the structure must be replaced.

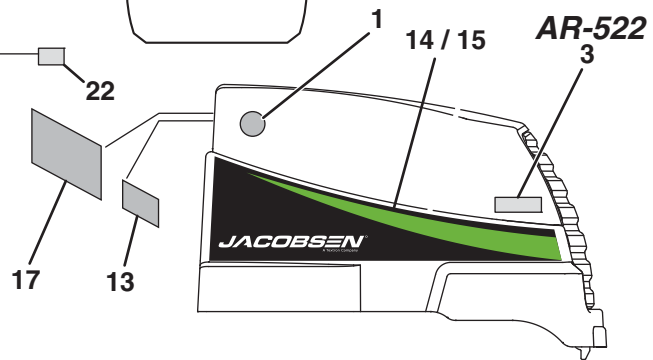
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**IMPORTANT**

This machine uses GreensCare 68, a biodegradable hydraulic fluid. (Order 5063103 for 5 gal. pail)

Use of 10W30 is an approved alternate fluid. Use will compromise all biodegradable properties of GreensCare 68 hydraulic fluid.

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AR-522

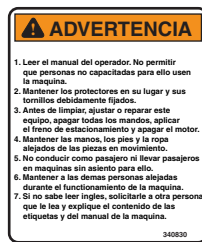
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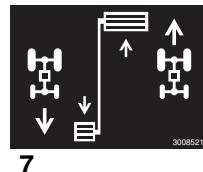
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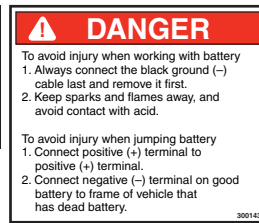
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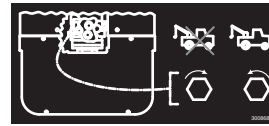
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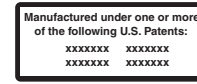
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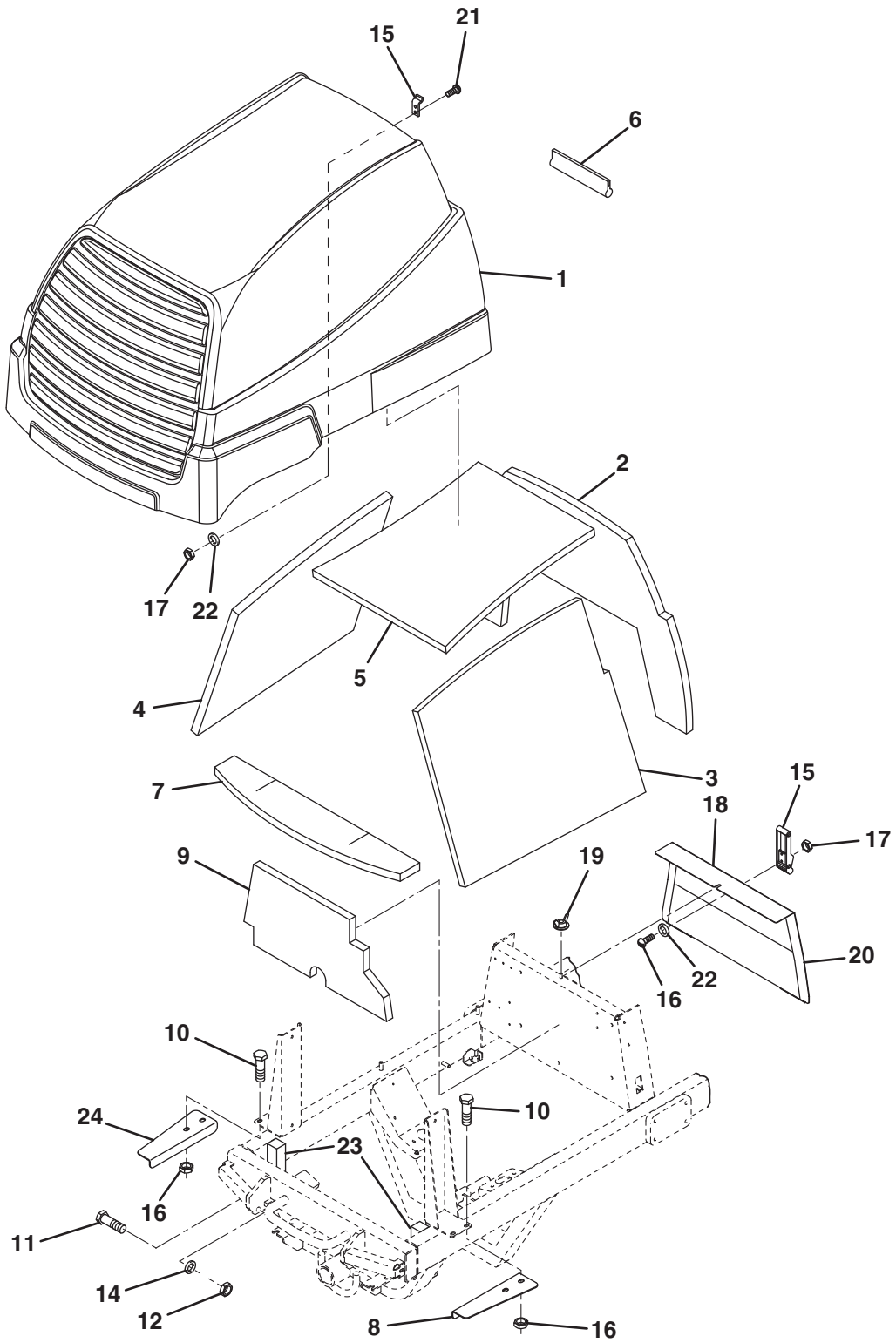


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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4111408	2	Decal, Bio Fluid	
2	4134631	1	Decal, Service	
3	4177682	2	Decal, AR-522	
4	365956	1	Decal, Radiator Warning	
5	4124759	1	Decal, Jacobsen Emblem	
6	340830	1	Decal, Spanish Caution	
7	3008521	1	Decal, Traction Pedal	
8	3008522	1	Decal, Brake	
9	3001435	1	Decal, Battery Danger	
10	3008682	1	Decal, Tow Valve	
11	4131828	1	Decal, Warning	
12	4134633	1	Decal, Patent	
13	4108880	1	Decal, Hydraulic Fluid	Included with hood
14	4156720	1	Decal, Left Side Stripe	Included with hood
15	4156721	1	Decal, Right Side Stripe	Included with hood
16	4131772	1	Decal, Blank	
17	4124445	1	Decal, Operating Instructions	Included with hood
18	4117468	1	Decal, Noise 105 dB	
19	835892	10	Decal, Danger	2 on each cutting unit
20	4133609	10	Decal, Height of Cut	2 on each cutting unit
21	521720	5	Decal, Guard Warning	
22	4134870	1	Decal, TC-O/I	
23	365339	1	Decal, Warning	
24	5002952	1	Decal, ROPS Seat Belt Warning	Located on ROPS, See 7.1
25	557844	1	Decal, ROPS Structure Warning	Located on ROPS, See 7.1
26	4179360	1	Decal, Weight and Power	
27	4179022	5	Decal, Trimtek™	

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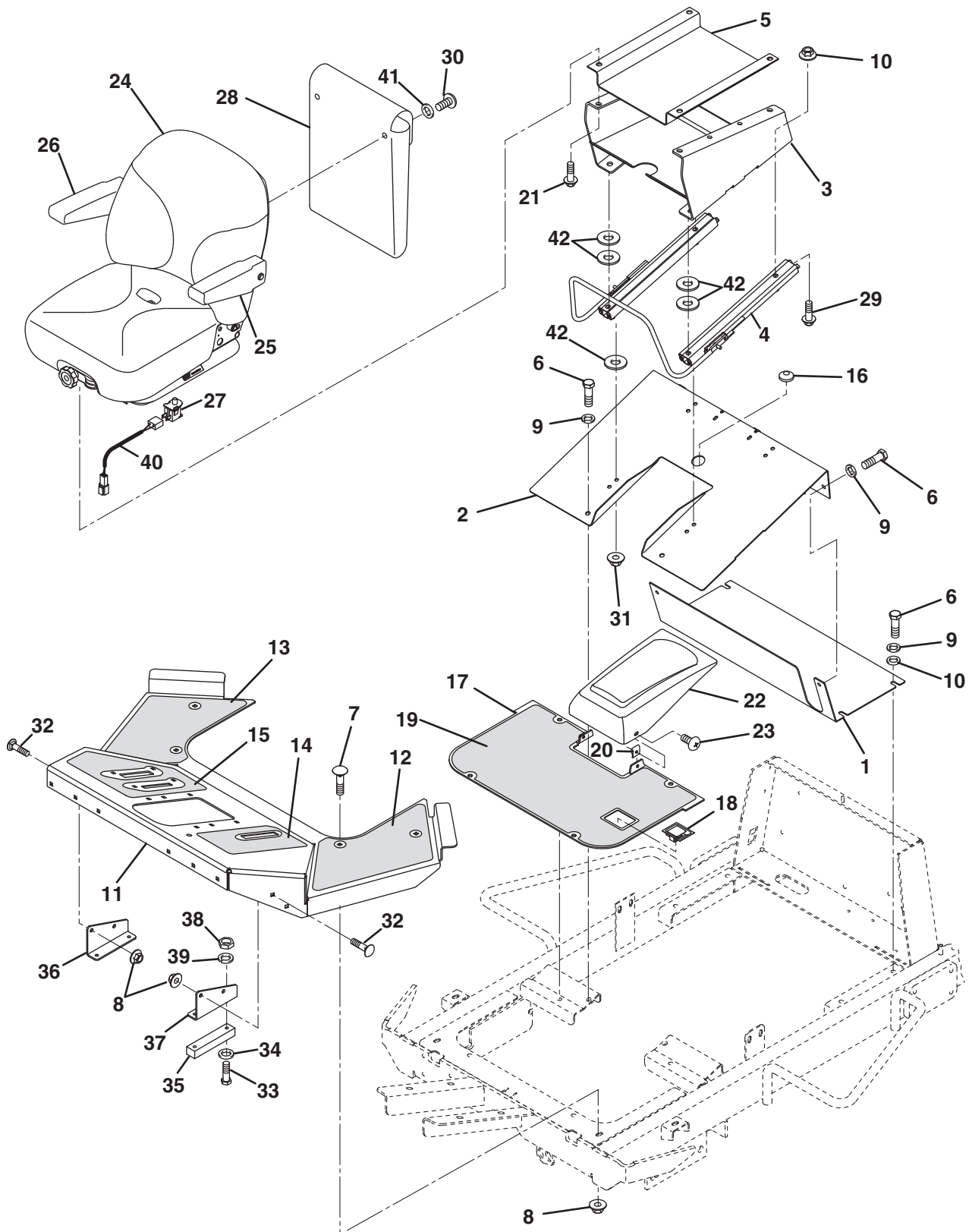
## 2.1 Hood





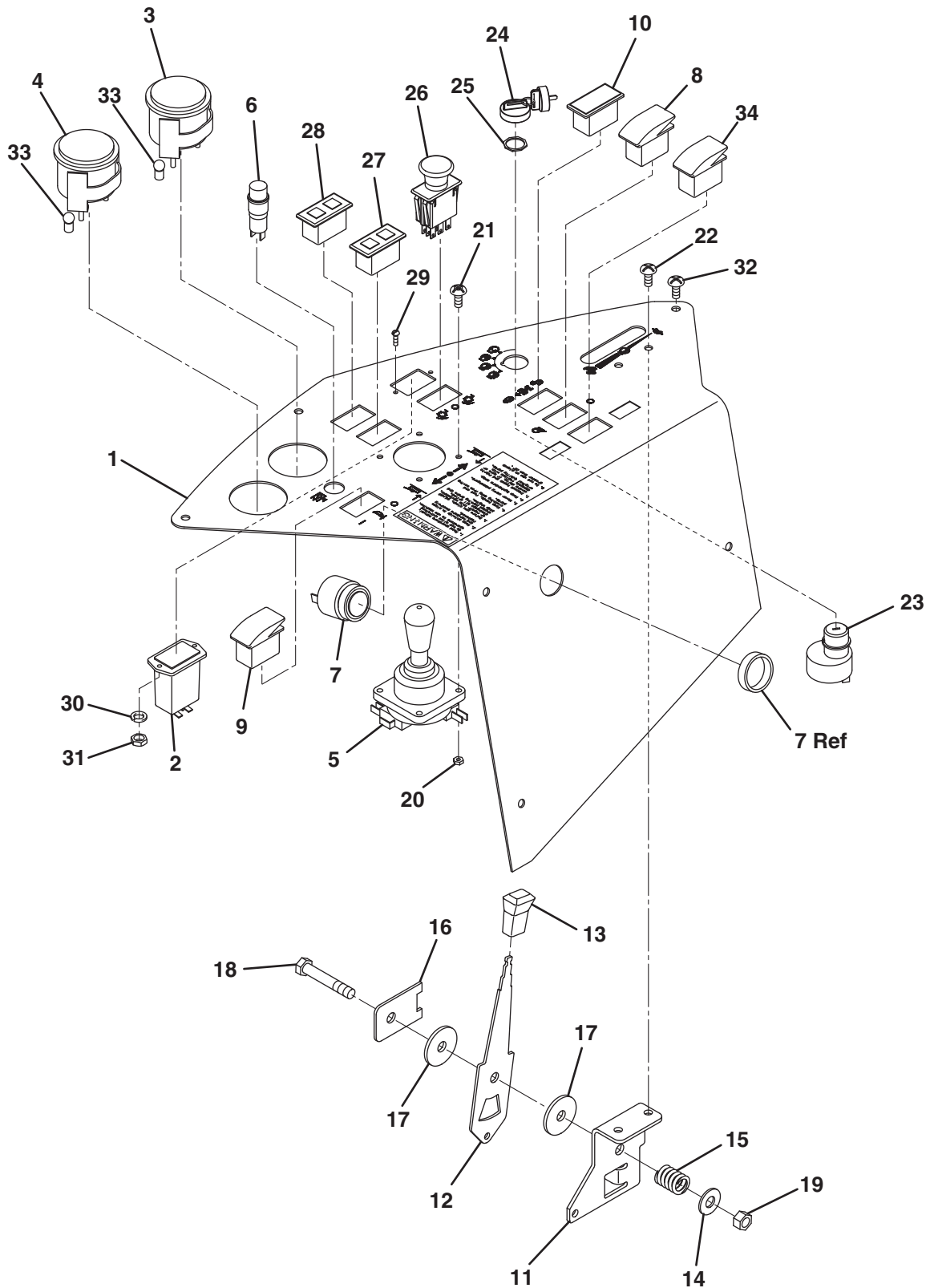
Item	Part No.	Qty.	Description	Serial Numbers/Notes	
1	4139087	1	Hood	Includes Decals	
2	4124443	1	• Foam, Front		
3	4124437	1	• Foam, Right Side		
4	4124436	1	• Foam, Left Side		
5	4124442	1	• Foam, Top		
6	557620	4	• Molding		
7	4138441	1	• Foam, Hood Mount		
8	4129680	1	Seal, Right Side Air		
9	3007548	1	Foam, Control Module		
10	800794	4	Screw, 5/16-18 x 3/4 Hex Flange		
11	400408	2	Screw, 1/2-13 x 1-1/2" Hex Head		
12	444758	2	Locknut, 1/2-13 Center		
13	800907	4	Nut, 5/16-18 Hex Flange		
14	453017	2	Flat Washer, 1/2		
15	366883	1	Over Center Latch		
16	402056	2	Screw, #8-32 x 3/8" Slotted Head		
17	444306	4	Nut, #8-32 Hex		
18	3006873	1	Cover, Front Mount		
19	3008195	1	Wing Nut, 1/4-20 Steel		
20	3009210	1	Foam (Cut To Length)		
21	403741	2	Screw, #8-32 x 5/8" Hex Head		
22	446110	4	Lockwasher, #8		
23	4138359	AR	Foam, Sealing		Cut two 5-1/2" pieces
24	4129679	1	Seal, Left Side Air		

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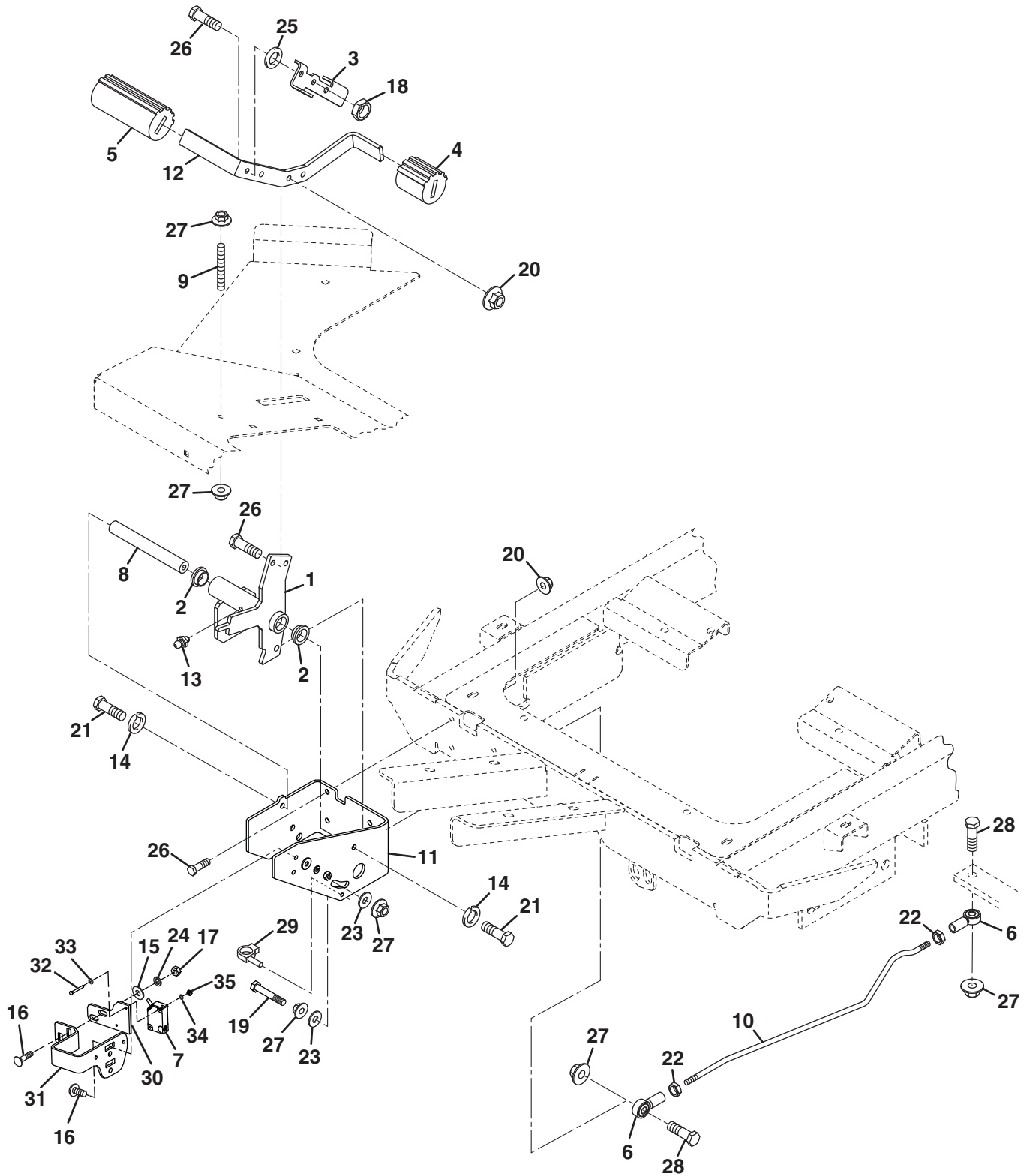
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	1004279	1	Floor Pan	
2	3009292	1	Seat Pan	
3	4139241	1	Support, Seat	
4	4131137	1	Adjuster, Double Latching	
5	4139237	1	Base, Seat	
6	400258	9	Screw, 3/8-16 x 3/4" Hex Head	
7	441602	4	Carriage Bolt, 5/16-18 x 3/4"	
8	445795	17	Nut, 5/16-18 Spirallock Flange	
9	446142	9	Lockwasher, 3/8 Heavy	
10	452008	4	Flat Washer, 3/8	
11	5003162	1	Platform	
12	3007609	1	• Pad, Left Floorboard	
13	3007610	1	• Pad, Right Floorboard	
14	3007611	1	• Pad, Left Foot	
15	3007612	1	• Pad, Right Foot	
16	315387	1	Grommet	
17	4133119	1	Floorboard	
18	4123723	1	• Latch, Panel	
19	4123725	1	• Pad, Center Floorboard	
20	445245	2	• Tinnerman Nut	
21	409812	4	Screw, 5/16-18 x 3/4" Thread Cutting	
22	3008218	1	Cover, Hydro	
23	404016	2	Screw, 1/4-20 x 5/8" Truss Head	
24	4139433	1	Suspension Seat Assembly	
	4139436	1	• Arm Rest Kit	
25	4139434	1	• • Arm Rest, L.H.	
26	4139435	1	• • Arm Rest, R.H.	
	64123-68	4	• • Bolt, 5/16-18 Hex	
27	4139450	1	• Switch, Seat	<b>REFERENCE SW-10, See 42.1</b>
28	3003928	1	Pouch, Literature	
29	403751	4	Screw, 5/16-18 X 3/4" Serr Washer	
30	800943	2	TScrew, #10-16 x 3/4" Plastic	
31	64246-02	4	Nut, M8-1.25 Whizlock Flange	
32	440078	4	Carriage Bolt, 5/16-18 x 1/2"	
33	400112	4	Screw, 1/4-20 x 1" Hex Head	
34	453023	4	Flat Washer, 1/4	
35	4133121	2	Stop, Deck	
36	4132917	1	Bracket, Right Side Deck Stop	
37	4132913	1	Bracket, Left Side Deck Stop	
38	444708	4	Locknut, 1/4-20 Center	
39	446128	4	Lockwasher, 1/4	
40	5003769	1	Seat Switch Harness	
41	452004	2	Flat Washer, 1/4	
42	831053	8	Spacer, Seat	

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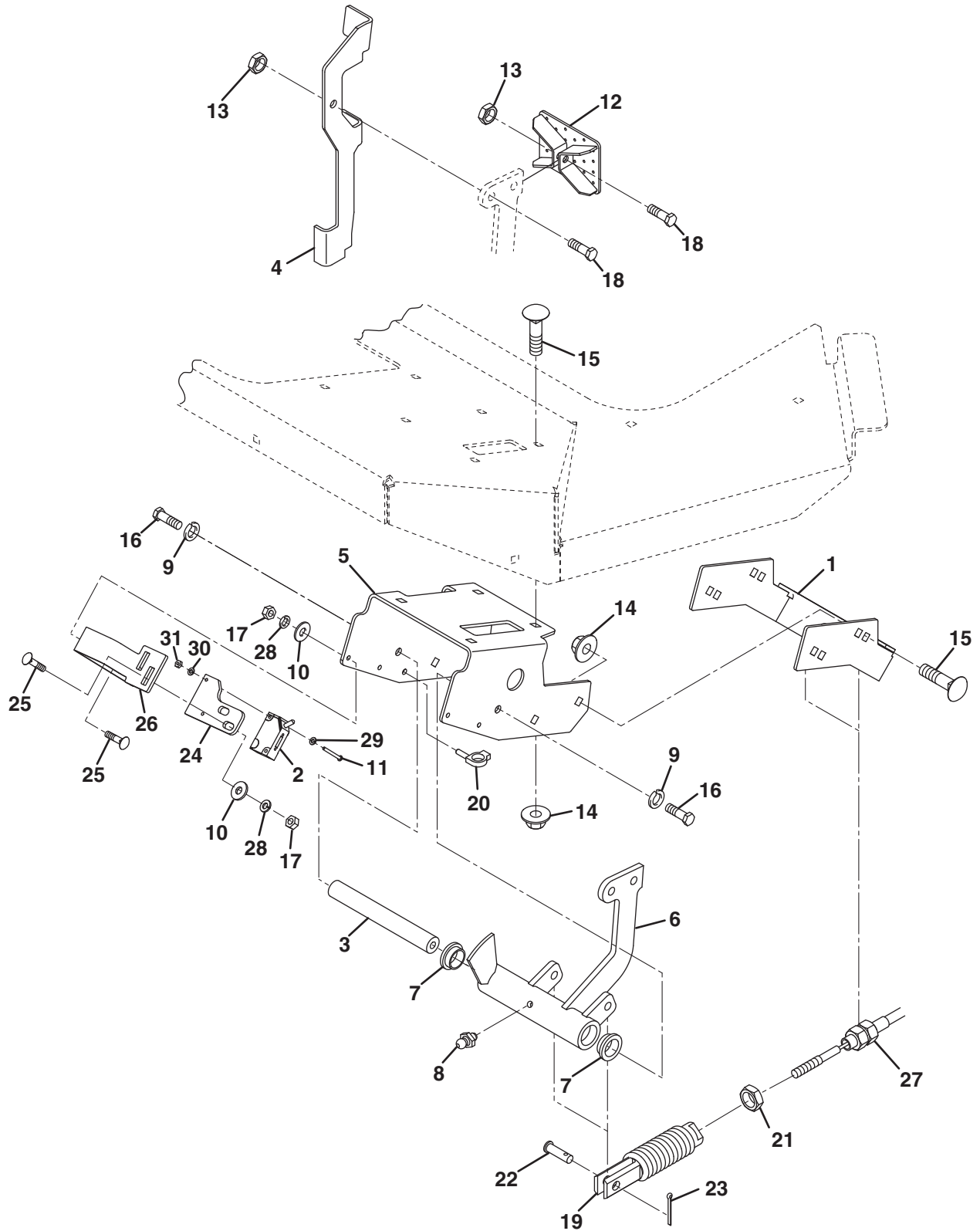
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4130114	1	Instrument Panel	Includes silk screen decals
2	4129683	1	Hour Meter, Quartz	<b>REFERENCE U-3, See 42.1</b>
3	365943	1	Fuel Gauge	<b>REFERENCE U-2, See 42.1</b>
4	3005121	1	Water Temperature Gauge	<b>REFERENCE U-1, See 42.1</b>
5	1004290	1	Joystick, 1 Axis	<b>REFERENCE SW-12, See 42.1</b>
6	366751	1	Indicator Light, Yellow	<b>REFERENCE L-7, See 42.1</b>
7	366670	1	Horn	<b>REFERENCE U-4, See 42.1</b>
8	4130132	1	Switch, Light	<b>REFERENCE SW-3, See 42.1</b>
> 9	4130133	1	Switch, Horn	<b>REFERENCE SW-5</b>
10	4130134	1	Hole Plug	
11	1002810	1	Bracket, Throttle	
12	4135758	1	Lever, Throttle	
13	366768	1	Knob	
14	452008	1	Flat Washer, 3/8"	
15	351956	1	Spring, Compression	
16	3006035	1	Plate, Friction	
17	360885	2	Washer, Friction	
18	400272	1	Screw, 3/8-16 x 2-1/4" Hex Head	
19	444762	1	Locknut, 3/8-16 Center	
20	444310	4	Nut, #10-24 Hex	
21	403912	4	Screw, #10-24 x 5/8" Truss Head	
22	404016	2	Screw, 1/4-20 x 5/8" Truss Head	
23	4128888	1	Switch Assembly, Key	<b>REFERENCE SW-2, See 42.1</b>
24	4131618	1	• Key	
25	N/S	1	• Nut	
26	4174684	1	Switch, PTO	<b>REFERENCE SW-11, See 42.1</b>
27	4130148	1	Light, Indicator Fluids	<b>REFERENCE L3 &amp; L4, See 42.1</b>
28	4130149	1	Light, Indicator Electric	<b>REFERENCE L5 &amp; L6, See 42.1</b>
29	402006	2	Screw, #6-32 x 1/2 SL RD HD	
30	446106	2	Lockwasher, #6 Heavy	
31	444304	2	Nut, #6-32 Hex	
32	403908	6	Screw, #10-24 x 3/8" Truss Head	
33	3001376	2	Bulb, Lamp	
34	4137524	1	Switch, Traction Control	<b>REFERENCE SW-5</b>

&gt; Change from previous revision



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	1003288.7	1	Treadle Pivot	<b>REFERENCE SW-7, See 42.1</b>
2	352726	2	• Bushing	
3	3007230	1	Stop, Mow Speed	
4	3003474	1	Grip, Pedal	
5	3003475	1	Grip, Pedal	
6	366974	2	Rod End	
7	4125831	1	Switch, Proximity	
8	3006327	1	Shaft, Turn Assist	
9	333542	1	Tie Stud	
10	3006998	1	Rod, Hydro	
11	4176562	1	Bracket, Hydro Mount	
12	4132912	1	Pedal, Hydro	
13	471214	1	Fitting, Grease	
14	446136	2	Lockwasher, 5/16 Heavy	
15	452004	4	Flat Washer, 1/4	
16	440042	4	Bolt, Carriage 1/4 - 20 UNC x 3/4	
17	443102	4	Nut, 1/4 - 20 Hex Head	
18	444718	1	Locknut, 5/16-18 Center	
19	400272	1	Screw, 3/8-16 x 2-1/4" Hex Head	
20	445795	6	Nut, 5/16-18 Spirallock Flange	
21	400182	2	Screw, 5/16-18 x 5/8" Hex Head	
22	443112	2	Nut, 3/8-24 Hex	
23	452008	2	Flat Washer, 3/8	
24	446128	4	Lockwasher, 1/4	
25	3002695	1	Washer	
26	400188	7	Screw, 5/16-18 x 1" Hex Head	
27	445796	6	Nut, 3/8-16 Spirallock Flange	
28	400264	2	Screw, 3/8-16 x 1-1/4" Hex Head	
29	3008383	1	Clip, Wire Harness	
30	4176580	1	Plate, Proximity Switch Mount	
31	4182392	1	Bracket, Neutral Switch	
32	800440	2	Screw, #4-40 x 1	
33	308404	2	Flat Washer, .12 .25 .02 YS	
34	446102	2	Washer, Lock #4 Reg.	
35	444302	1	Nut, #4 - 40 Hex	

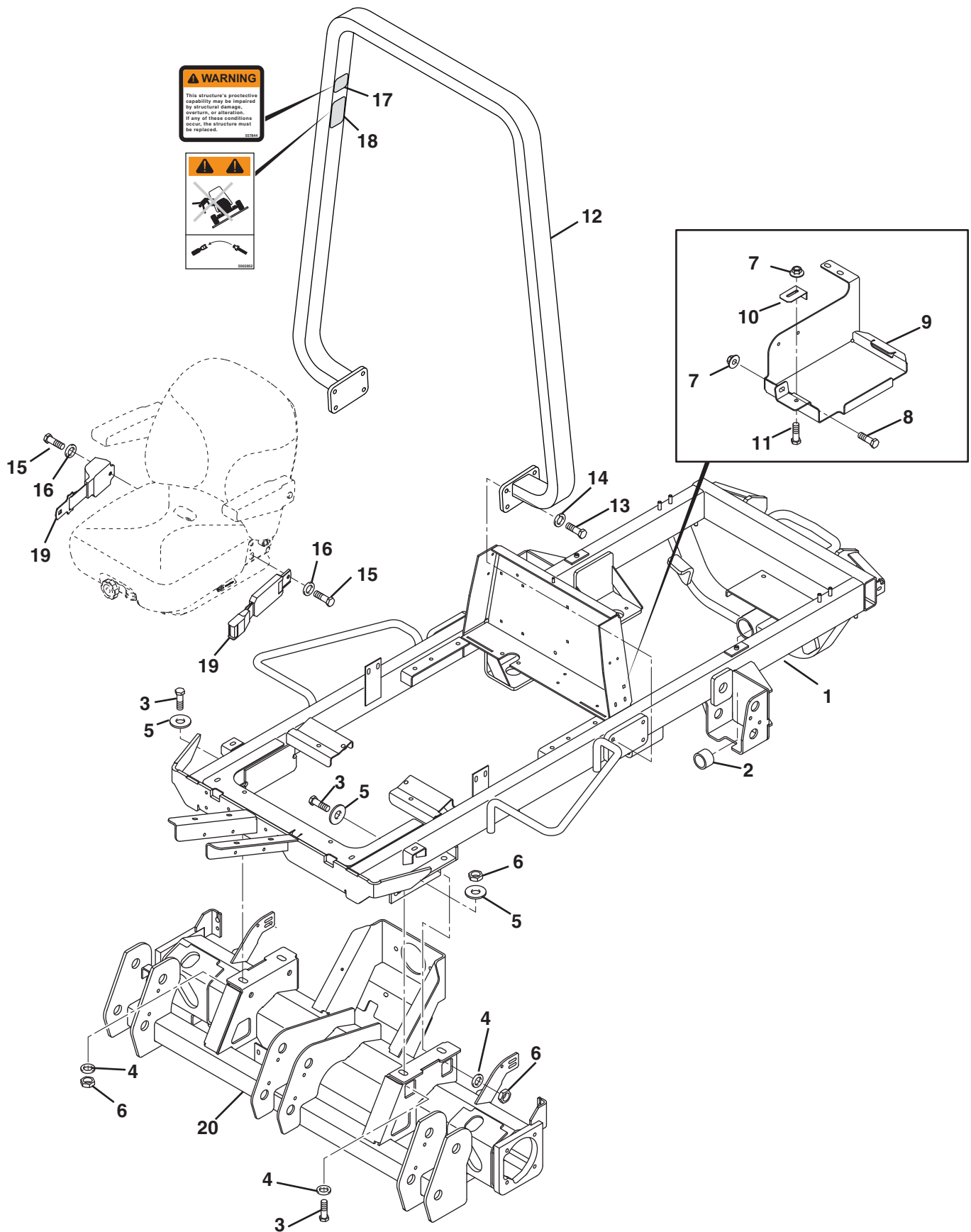
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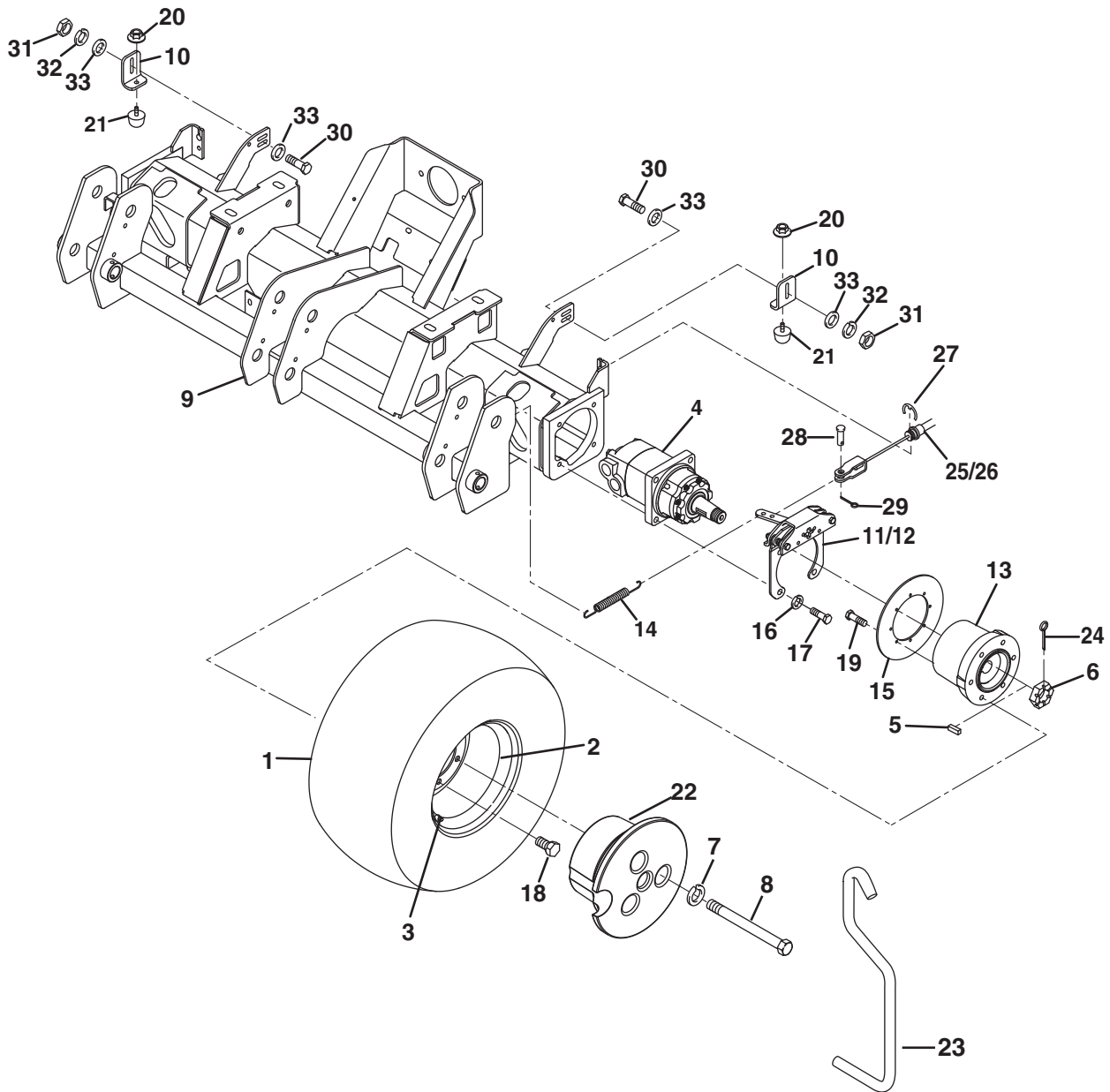
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4142455	1	Bracket, Brake	REFERENCE SW-8, See 42.1
2	4125831	1	Switch, Proximity	
3	3006327	1	Shaft, Turn Assist	
4	3007606	1	Lever, Parking Brake	
5	3006997	1	Mount, Brake	
6	1003616	1	Brake Arm	
7	352726	2	• Bushing	
8	471214	1	Grease Fitting	
9	446136	2	Lockwasher, 5/16 Heavy	
10	452004	4	Flat Washer, 1/4	
11	800440	2	Screw, #4 - 40 x 1"	
12	1003872	1	Pedal	
13	444718	2	Locknut, 5/16-18 Center	
14	445795	8	Nut, 5/16-18 Spirallock Flange	
15	441602	8	Carriage Bolt, 5/16-18 x 3/4"	
16	400182	2	Screw, 5/16-18 x 5/8" Hex Head	
17	443102	4	Nut, 1/4-20 Hex	
18	400188	2	Screw, 5/16-18 x 1" Hex Head	
19	4108161	2	Brake Spring Assembly	
20	3008383	1	Clip, Wire Harness	
21	443812	2	Nut, 3/8-24 Hex Jam	
22	461451	2	Clevis Pin, 5/16 x 15/16"	
23	460014	2	Cotter Pin, 3/32 x 3/4"	
24	4176580	1	Plate, Proximity Switch Mount	
25	440042	4	Bolt, Carriage 1/4-20 x 3/4"	
26	4182391	1	Bracket, Brake Switch	
27	REF		Brake Cable	See 8.1
28	446128	4	Lockwasher 1/4 Regular	
29	308404	2	Flat Washer, .12 .25 .02	
30	446102	2	Lockwasher #4	
31	444302	2	Nut, #4-40 Hex	

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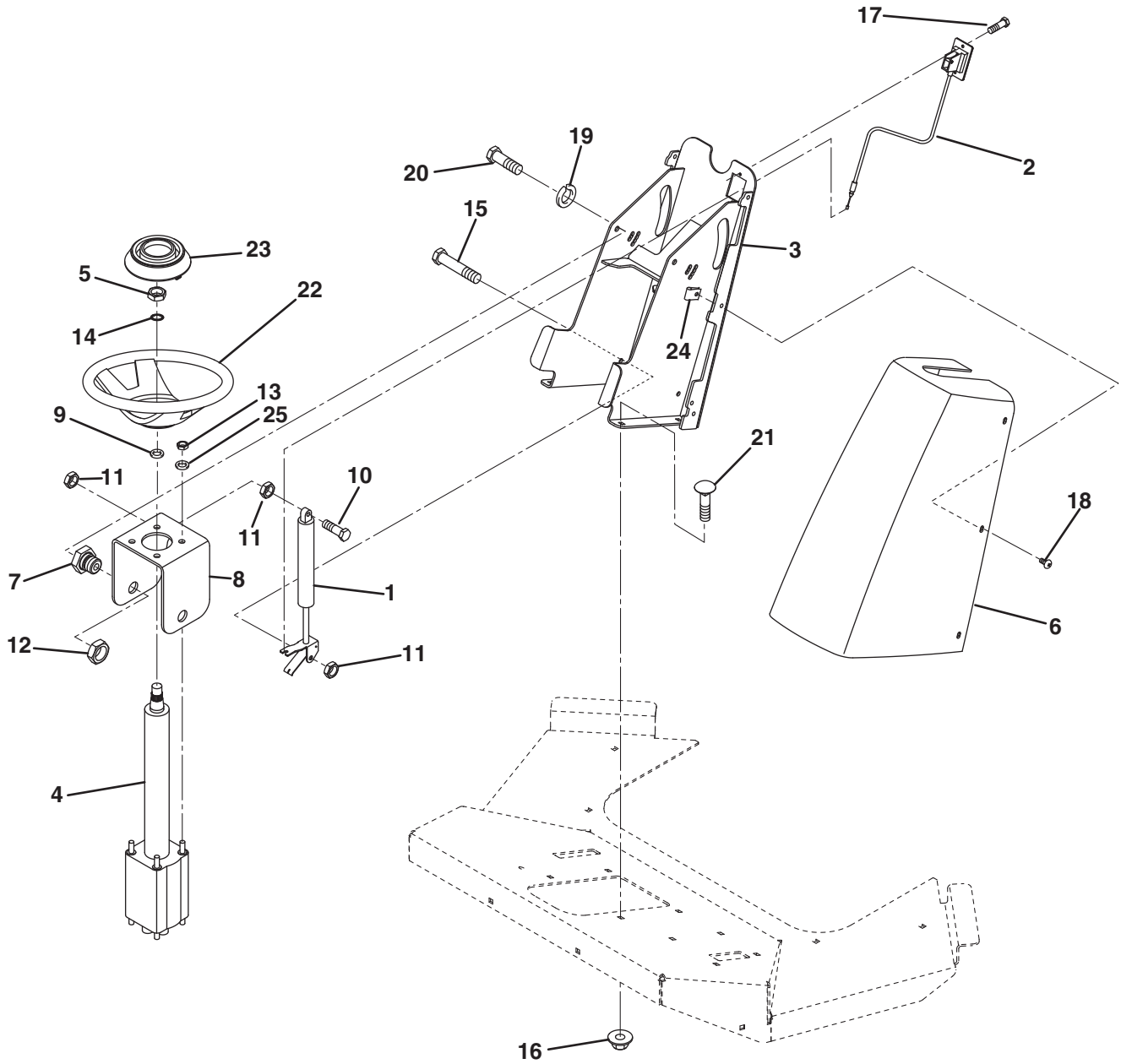
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4118092	1	Frame	
2	366871	2	• Bushing	
3	4113047	6	Screw, 5/8-18 x 1-1/2" Hex Head	Grade 8 Bolt
4	4140094	6	Flat Washer, 5/8	
5	452016	6	Flat Washer, 5/8	
6	443128	6	Nut, 5/8-18 Hex	
7	445795	2	Nut, 5/16-18 Spiralock Flange	
8	441602	1	Bolt, 5/16-18 x 3/4" Carriage	
9	4120961	1	Battery Tray	
10	2810553	1	Clamp, Battery	
11	400188	1	Screw, 5/16-18 x 1" Hex Head	
12	67844	1	ROPS Assembly	
13	5000465	8	• Screw, 1/2-13 x 1-1/4" Hex GR 8	
14	446154	8	• Lockwasher, 1/2 Heavy	
15	400370	2	• Screw, 7/16-20 x 1" Hex Head	Grade 8
16	446148	2	• Lockwasher	
17	557844	1	• Decal, ROPS Structure Warning	
18	5002952	1	• Decal, ROPS Seat Belt Warning	
19	4139437	1	• Seat Belt Kit	
20	REF	1	Front Axle	See 8.1

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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4133033	2	Tire	
2	5002574	2	Rim	
3	360111	2	Valve, Inflation	
4	4118254	2	Wheel Motor	See 35.1
5	557623	2	• Key	
6	557624	2	• Nut, Hex	
7	446152	6	Lockwasher, 1/2	
8	400456	6	Screw, 1/2-20 x 4" Hex Head	
9	4181102	1	Front Axle	
10	4133054	2	Bracket, Angle Upstop	
11	–	1	Brake Assembly	See 33.1
12	–	1	Brake Assembly	See 33.1
13	2000141	2	Hub, Wheel	
14	3007862	2	Spring, Extension	
15	340486	2	Disk Brake	
16	446154	8	Lockwasher, 1/2 Heavy	
17	400410	8	Screw, 1/2-13 x 1-3/4" Hex Head	
18	353914	6	Wheel Bolt	
19	400108	16	Screw, 1/4-20 x 3/4" Hex Head	
20	445781	2	Nut, 5/16-18 Whizlock Flange	
21	523126	2	Bumper, Rubber	
22	4149137	2	Wheel Weight, 100 lb	
23	4159290	1	Wheel Weight Lift Hook	Used to remove and install weight
24	460093	2	Cotter Pin, 1/8 x 2-1/2"	
25	1003047	1	Cable, Right Brake	
26	1003048	1	Cable, Left Brake	
27	557771	2	• Clip, Brake Cable	
28	461493	2	Clevis Pin, 5/16 x 3/4"	
29	460014	2	Cotter Pin, 3/32 x 3/4"	
30	400114	4	Screw, 1/4-20 x 1-1/4" Hex Head	
31	443102	4	Nut, 1/4-20 Hex	
32	446128	4	Lockwasher, 1/4	
33	453023	8	Flat Washer, 1/4	

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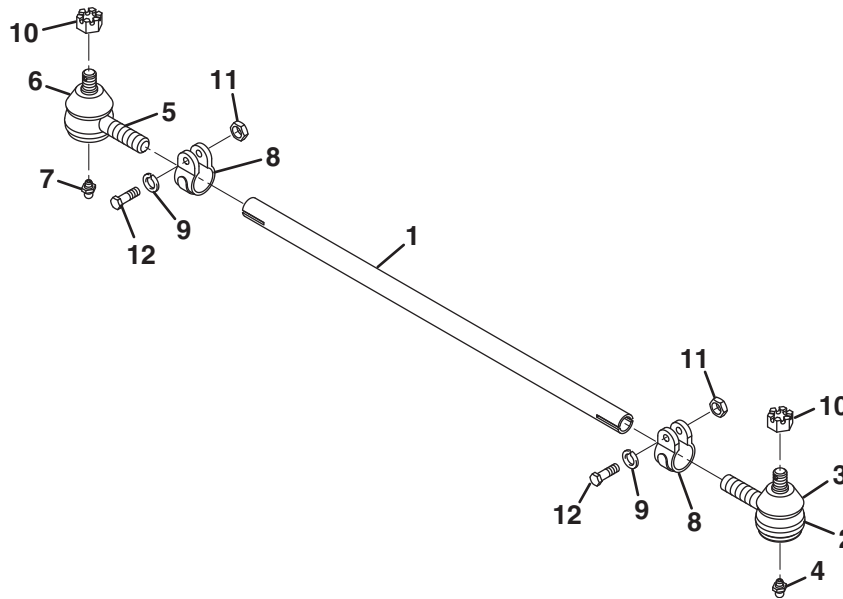


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	5002918	1	Actuator, Gas Spring	See 39.1
2	5002919	1	Cable, Actuator	
3	2811346	1	Tower, Steering	
4	4146776	1	Valve, Steering	
	339979	3	• Adapter, Straight	
	339974	2	• Adapter, Straight	
5	443828	1	• Nut, 5/8-18 Hex Jam	
6	3010651	1	Cover, Steering Tower	
7	3005934	2	Bolt, Shoulder	
8	3005981	1	Bracket, Steering Pump	
9	2811547	1	Washer	
10	400192	1	Screw, 5/16-18 x 1-1/2" Hex Head	
11	444718	3	Locknut, 5/16-18 Center	
12	444849	2	Locknut, 3/4-10 Center Jam	
13	444754	4	Locknut, 5/16-24 Center	
14	447224	1	Lockwasher, 5/8 Internal	
15	400216	1	Screw, 5/16-18 x 2-3/4" Hex Head	
16	445795	4	Nut, 5/16-18 Spirallock Flange	
17	416911	2	Screw, #10-24 x 1/2" Thread Cutting	
18	404016	6	Screw, 1/4-20 x 5/8" Truss Head	
19	446142	2	Lockwasher, 3/8 Heavy	
20	400258	2	Screw, 3/8-16 x 3/4" Hex Head	
21	441614	4	Carriage Bolt, 5/16-18 x 1"	
22	2811364	1	Steering Wheel	
23	2811365	1	• Cap, Steering Wheel	
24	445245	6	Tinnerman Nut	
25	453009	4	Washer, Flat	

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## 10.1 Tie Rod

Part Number 4132688

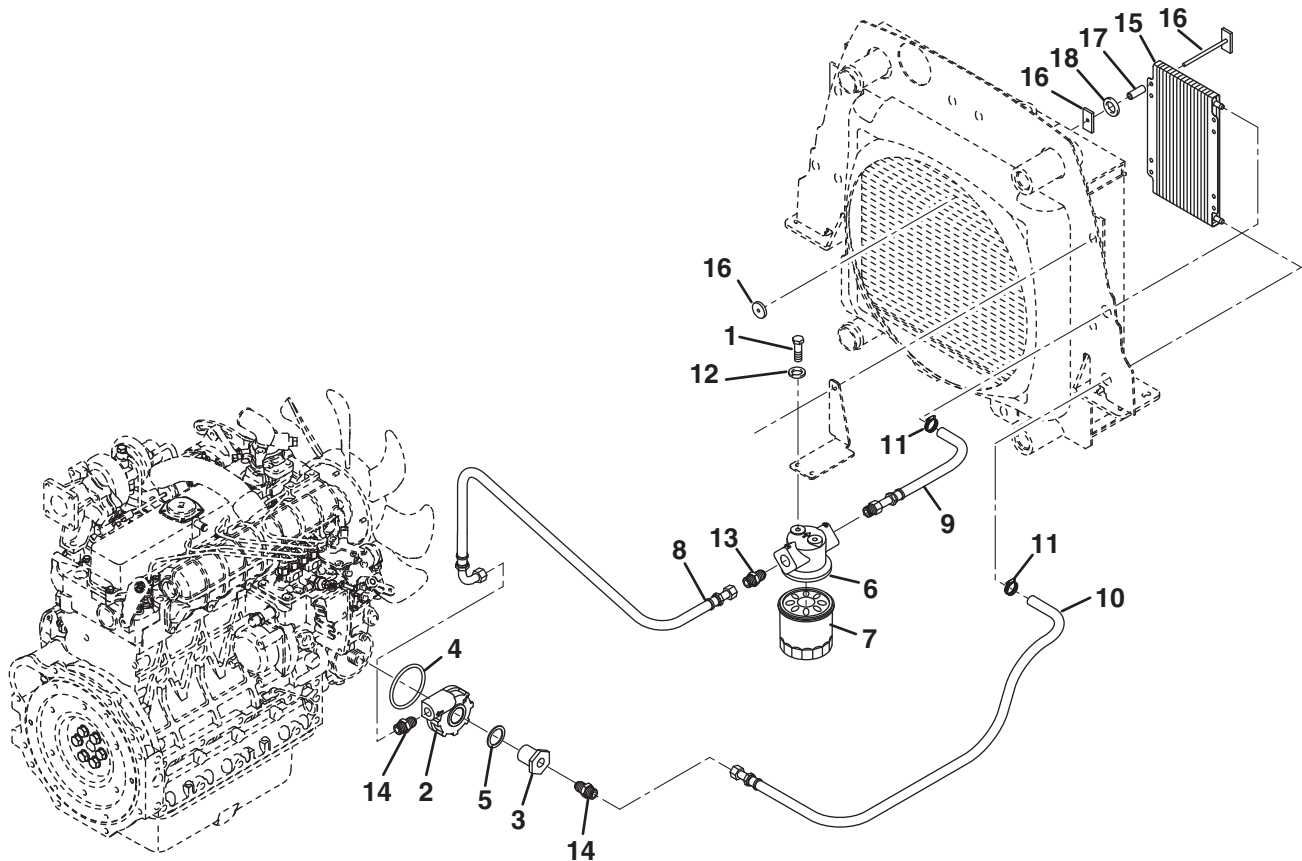


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4118210	1	Tie Rod	
2	4121828	1	Ball Joint, Left Hand Thread	
3	4121986	1	• Dust Cover	
4	471214	1	• Straight Grease Fitting, 1/4-28	
5	4121829	1	Ball Joint, Right Hand Thread	
6	4121986	1	• Dust Cover	
7	471214	1	• Straight Grease Fitting, 1/4-28	
8	322847	2	Clamp, Tie Rod	
9	446136	2	Lockwasher, 5/16 Heavy	
10	4124204	2	Nut, 9/16-18 Slotted Hex	
11	443106	2	Nut, 5/16-18 Hex	
12	400194	2	Screw, 5/16-18 x 1-1/4" Hex Head	

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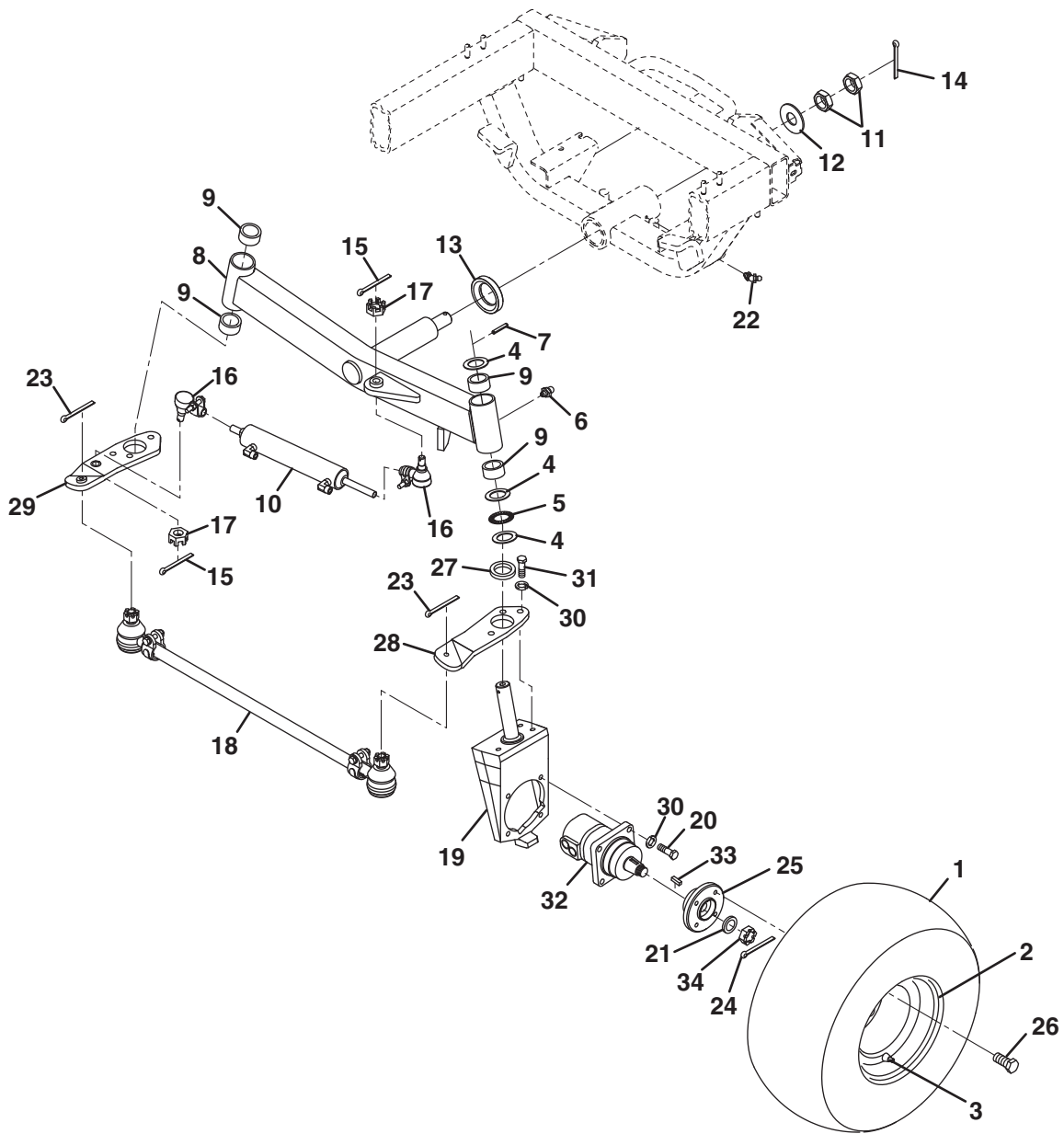


## 11.1 Remote Engine Oil Cooler



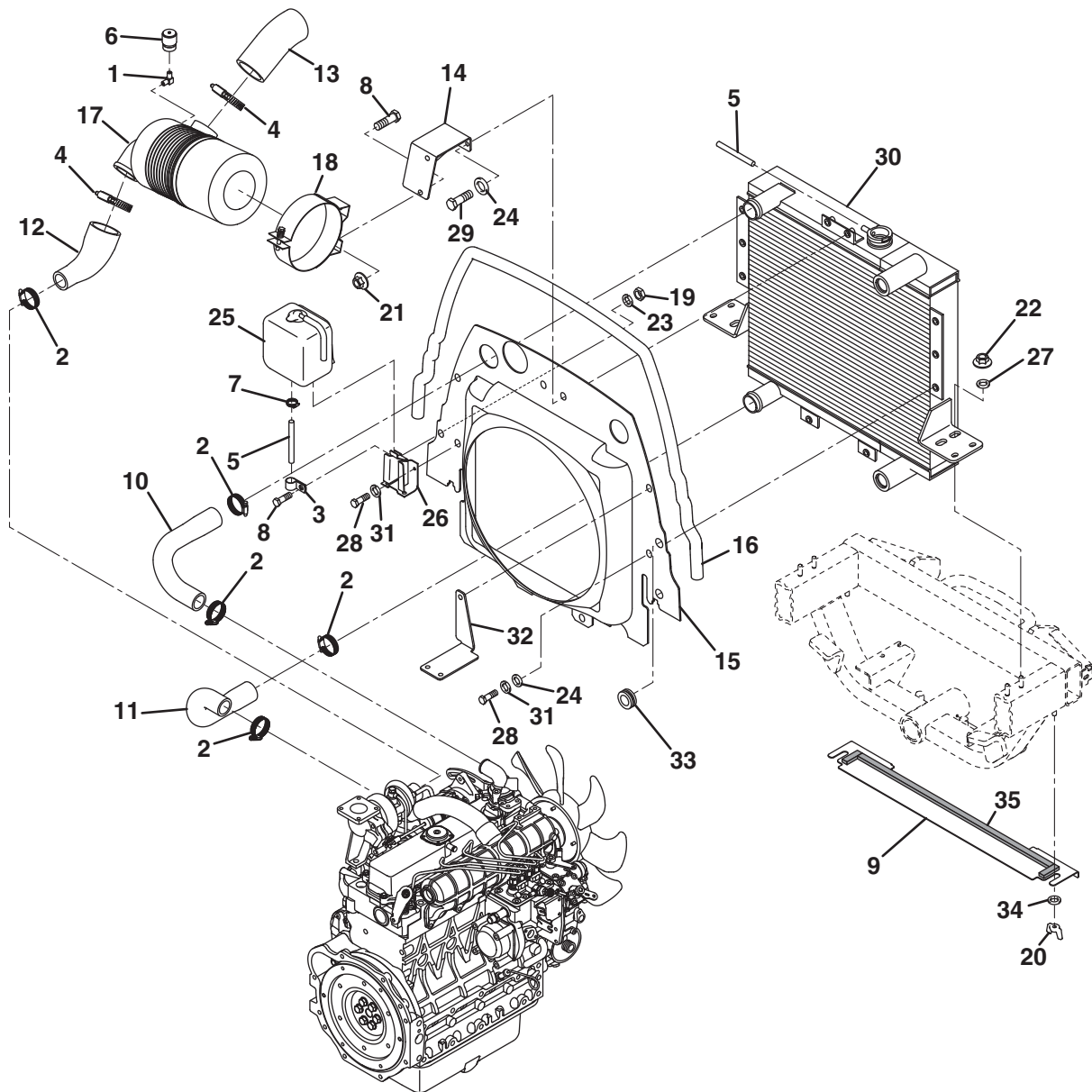
Item	Part No.	Qty.	Description	Serial Numbers/Notes	
1	450190	2	Screw, M8-1.25 x 16 mm Hex Head	Included with Engine	
	4133238	1	Kit, Remote Oil Filter		
2	4133239	1	• Adapter, Engine Oil Filter		
3	4133240	1	• Plug, Engine Oil Filter		
4	4133241	1	• O-Ring		
5	4133242	1	• Washer		
6	4133243	1	• Head, Engine Oil Filter		
7	4113986	1	Engine Oil Filter		Included with Engine
8	4133305	1	Hose, Engine to Filter		
9	4133306	1	Hose, Filter to Engine Oil Cooler		
10	4133307	1	Hose, Engine Oil Cooler to Engine		
11	366526	2	Clamp, 1/4" to 5/8" Dia Hose		
12	446136	2	Lockwasher, 5/16 Heavy		
13	4134468	1	Adapter, Straight		
14	4133808	2	Adapter, Straight		
15	4133296	1	Engine Oil Cooler		
16	4133252	4	Tie, 3 Piece Cooler Mounting		
17	361831	4	Tube, Spacer		
18	452004	4	Flat Washer, 1/4		

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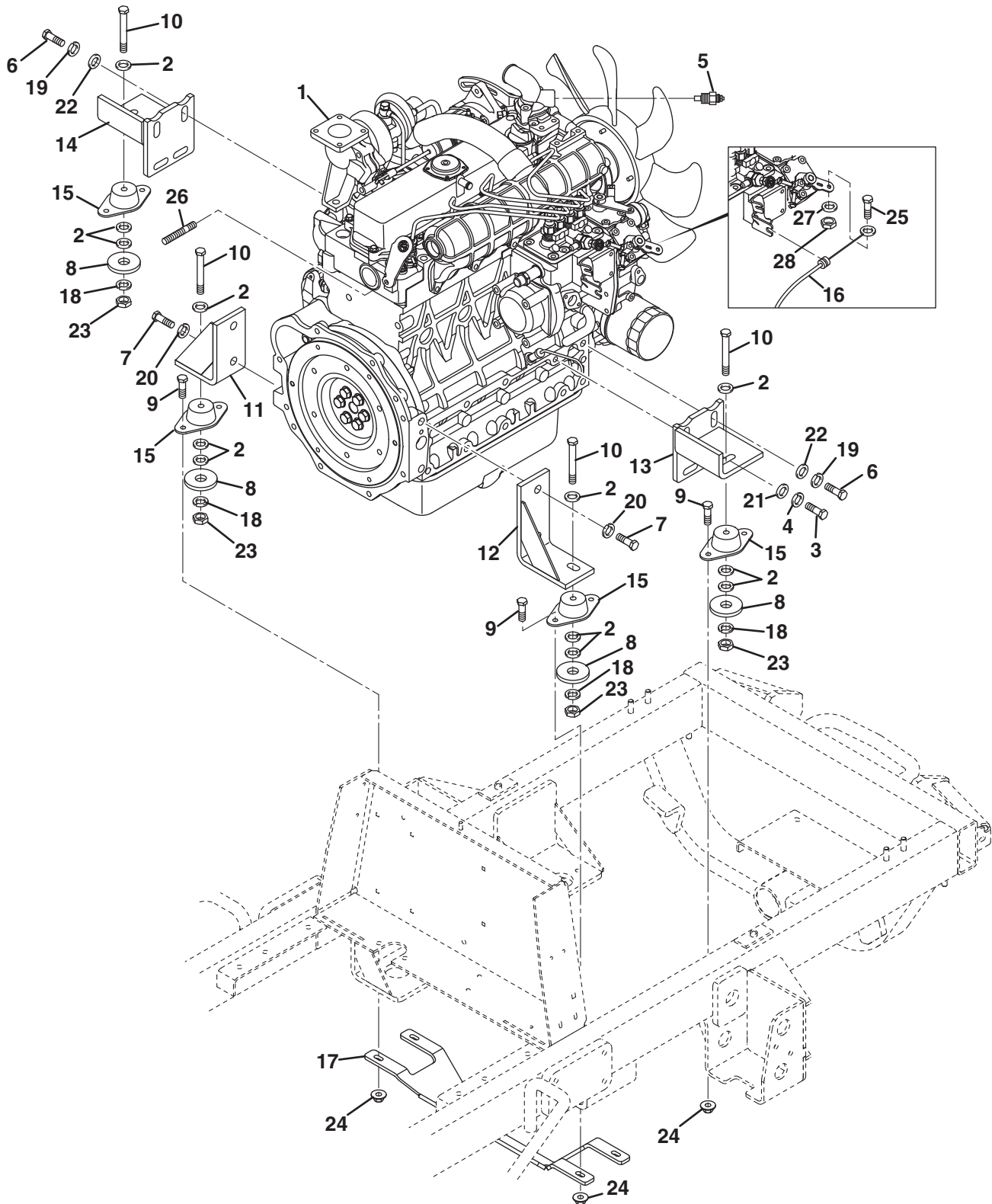
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4149337	2	Tire, 22.5 x 10-8 4 Ply	
2	1003638	2	Rim	
3	360111	2	Inflation Valve	
4	361648	6	Washer, Thrust	
5	361647	2	Bearing, Thrust	
6	471214	2	Fitting, Grease	
7	461393	2	Pin, Spring 1/4 x 2"	
8	4151058	1	Steering Axle	
9	3010489	4	• Bushing	
10	4137137	1	Cylinder, Steering	
	4137139	1	• Seal Kit	
11	443840	2	Nut, 1-12 Hex Jam	
12	452022	1	Flat Washer, 1	
13	366789	1	Spacer, Axle	
14	460064	1	Cotter Pin, 1/4 x 1-1/2"	
15	460026	2	Cotter Pin, 1/8 x 3/4"	
16	4141925	2	Ball Joint	
	400194	2	• Screw, 5/16-18 x 1-3/4"	
	444718	2	• Locknut, 5/16-18 Hex	
17	445666	2	• Nut, 1/2-20 Slotted Hex	
18	4132688	1	Tie Rod	See 10.1
19	4149118	2	Motor Mount	
20	400410	8	Screw, 1/2-13 x 1-3/4" Hex Head	
21	361451	2	Washer, Thrust	
22	471227	1	45° Grease Fitting	
23	460028	2	Cotter Pin, 1/8 x 1"	
24	460032	2	Cotter Pin, 1/8 x 1-1/2"	
25	2000012	2	Hub, Wheel	
26	353914	8	Wheel Bolt	
27	367350	2	Washer, Thrust	
28	4132699	1	Arm, Left Steering	
29	4141934	1	Arm, Right Steering	
30	446154	14	Lockwasher, 1/2 Heavy	
31	400406	6	Screw, 1/2-13 x 1-1/4" Hex Head	
32	4118255	2	Wheel Motor, Disk Valve	See 36.1
33	554780	2	• Key	
34	554779	2	• Nut	

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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	3002195	1	Elbow, 1/8 NPF 90°	Cut to 33"
2	326112	5	Clamp, 1-5/16 to 2-1/4" Dia Hose	
3	345666	1	Clamp, 1/2" P Hose	
4	337229	2	Clamp, Hose	
5	5003447	AR	Tube, Neoprene	
6	365398	1	Indicator, Air Cleaner	
7	366526	2	Clamp, 1/4" to 5/8" Dia Hose	
8	400188	3	Screw, 5/16-18 x 1" Hex Head	
9	4138381	1	Shroud, Rear Frame	
10	4120925	1	Hose, Radiator Inlet	
11	4120932	1	Hose, Radiator Outlet	
12	4120976	1	Hose, Air Cleaner to Engine	
13	4120977	1	Hose, Shroud to Air Cleaner	
14	4121020	1	Bracket, Air Cleaner	
15	4134775	1	Shroud, Fan	
16	4128079	1	Seal, Trim	
17	4128083	1	Air Cleaner	
	4133818	1	• Cover, Air Cleaner	
	4133820	1	• Filter, Primary Air Cleaner	
	4133821	1	• Filter, Safety Air Cleaner	
	5003373	1	• Vactuator Valve	
18	4128084	1	Bracket, Air Cleaner Mount	
19	444718	1	Locknut, 5/16-18 Center	
20	445640	2	Nut, 3/8-16 Steel Wing	
21	445795	2	Nut, 5/16-18 Spirallock Flange	
22	445796	4	Nut, 3/8-16 Spirallock Flange	
23	452006	1	Flat Washer, 5/16	
24	452008	7	Flat Washer, 3/8	
25	557367	1	Reserve Tank	
26	557374	1	Stay, Tank	
27	358794	4	Flat Washer, 3/8	
28	400264	6	Screw, 3/8-16 x 1-1/4" Hex Head	
29	400262	2	Screw, 3/8-16 x 1" Hex Head	
30	4136164	1	Radiator / Hydraulic Oil Cooler	
	550863	1	• Radiator Cap	
31	446140	8	Lockwasher, 3/8	
32	4133244	1	Bracket, Remote Oil Filter	
33	366618	2	Grommet	
34	452010	2	Flat Washer, 1/4	
35	4138380	AR	Seal, Bulk	Cut two 2-1/4" and one 25"

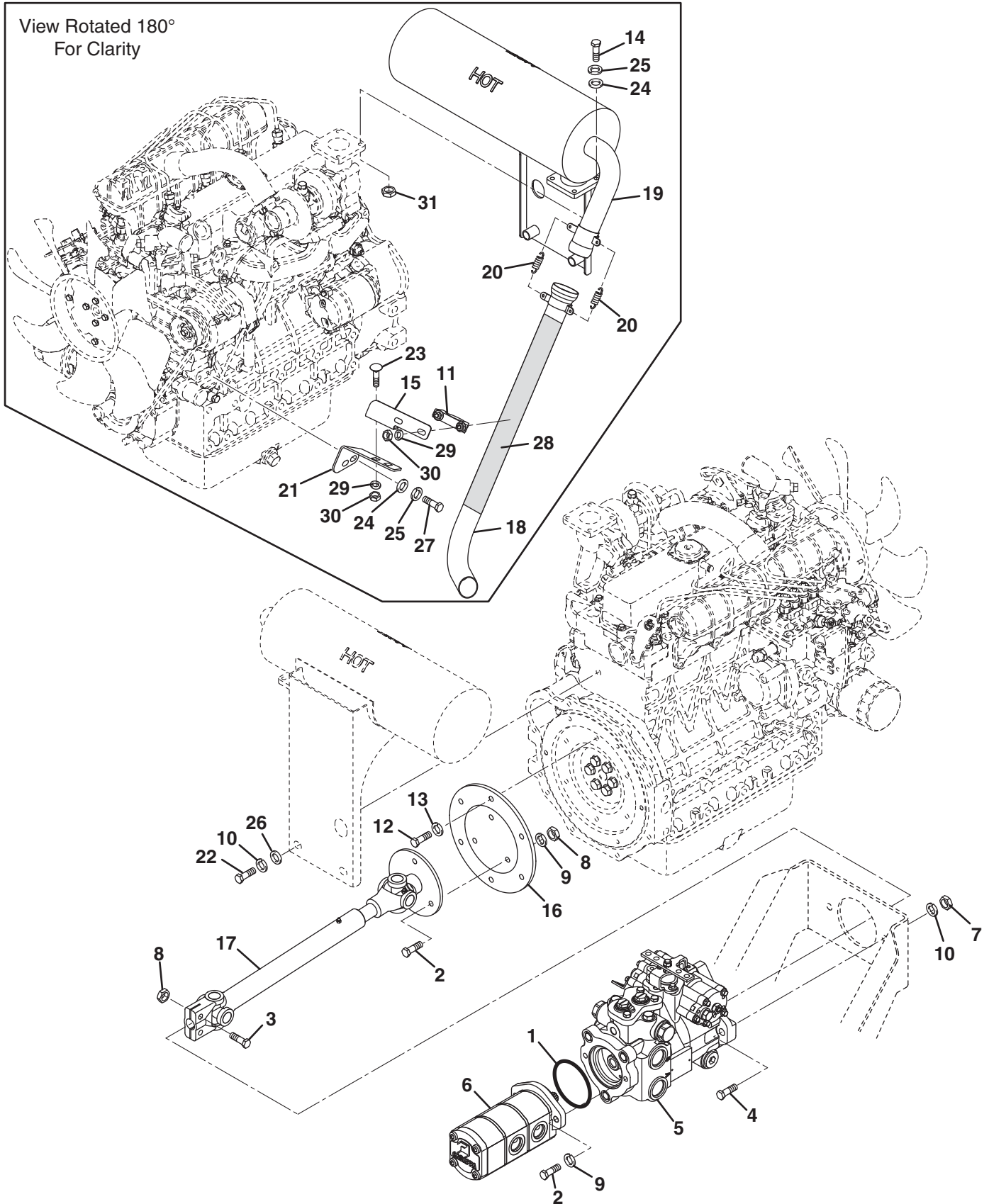
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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4118253	1	Engine, V2003 MT	See 11.1
	4113986	1	• Filter, Engine Oil	
2	310711	12	Washer, Isolator	
3	362263	1	Screw, M10-1.25 x 25mm Hex Head	
4	363485	1	Lockwasher, M10 Heavy	
5	364501	1	Temperature Sender	
6	365979	7	Screw, M12-1.25 x 25mm Hex Head	
7	365981	4	Screw, M14-1.5 x 25mm Hex Head	
8	367031	4	Washer, Isolator	
9	400190	8	Screw, 5/16-18 x 1-1/4" Hex Head	
10	400276	4	Screw, 3/8-16 x 3" Hex Head	
11	4120309	1	Engine Mount, Right Side Front	
12	4120311	1	Engine Mount, Left Side Front	
13	4120313	1	Engine Mount, Left Side Rear	
14	4120315	1	Engine Mount, Right Side Rear	
15	4133840	4	Isolator, Engine	
16	4174240	1	Cable, Throttle	
17	4173042	1	Bracket, Oil Pan Protection	
18	446142	4	Lockwasher, 3/8 Heavy	
19	446154	7	Lockwasher, 1/2 Heavy	
20	446160	4	Lockwasher, 9/16 Heavy	
21	453013	1	Flatwasher, 7/16	
22	453017	7	Flatwasher, 1/2	
23	443110	4	Nut, 3/8-16 Hex	
24	445795	8	Nut, 5/16-18 Spirallock Flange	
25	400108	1	Screw, 1/4-20 x 3/4" Hex Head	
26	4135765	1	Stud, M8-1.25	
27	453023	2	Flat Washer, 1/4	
28	444708	1	Locknut, 1/4-20 Center	

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## 15.1 Pump Mounting and Engine Exhaust

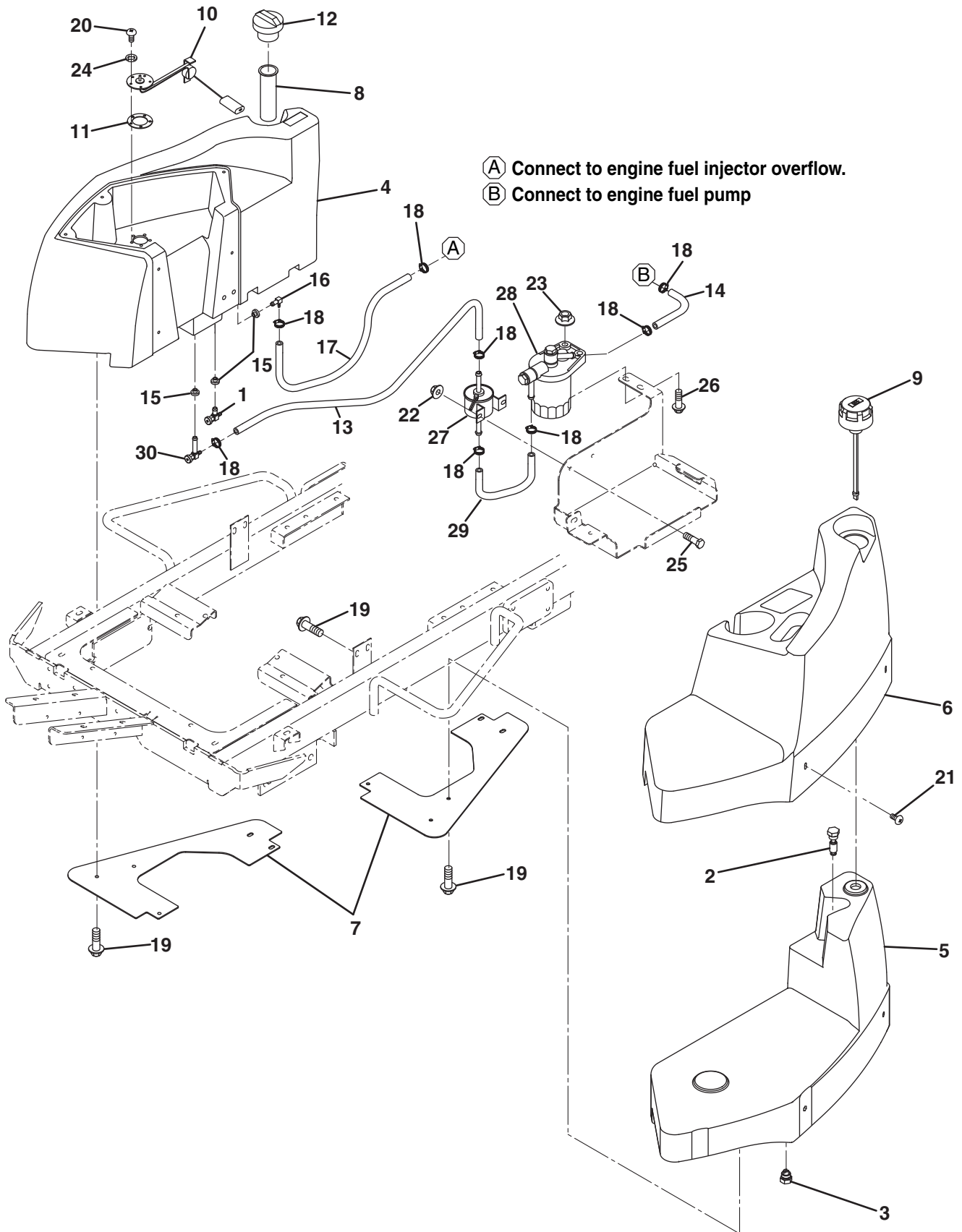




Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	362743	1	O-Ring Seal	See 40.1 and 41.1  Discard hardware included with clamp, use Items 29 and 30  Traction Pump Side Engine Side Engine Side Traction Pump Side
2	400264	5	Screw, 3/8-16 x 1-1/4" Hex Head	
3	400286	2	Screw, 3/8-16 x 2-3/4" Hex Head	
4	400410	2	Screw, 1/2-13 x 1-3/4" Hex Head	
5	4118252	1	Pump, Traction	
6	4174880	1	Pump, 3 Section Gear	
	4174881	1	• Seal Kit	
7	443118	2	Nut, 1/2-13 Hex	
8	444762	5	Locknut, 3/8-16 Center	
9	446142	5	Lockwasher, 3/8-16 Heavy	
10	446154	4	Lockwasher, 1/2 Heavy	
11	348856	1	Clamp, Exhaust	
12	362263	6	Screw, M10-1.25 x 25mm Hex Head	
13	363485	6	Lockwasher, M10 Heavy	
14	363586	4	Screw, M8-1.25 x 20 mm Hex Head	
15	4133447	1	Bracket, Upper Tail Pipe	
16	4136522	1	Flange, Pump Drive	
17	4119888	1	Driveshaft	
	4134587	2	• Cross and Bearing	
	4134583	1	• Joint and Tube Half	
	4134584	1	• Joint and Shaft Half	
	4134585	1	• Plate and Yoke	
	4134586	1	• Clamp and Yoke	
18	4152559	1	Tail Pipe	
19	4143148	1	Muffler	
20	4129251	2	Spring, Tail Pipe	
21	4129250	1	Bracket, Lower Tail Pipe	
22	4134484	2	Screw, M12-1.25 x 50 mm Hex Head	
23	441614	2	Carriage Bolt, 5/16-18 x 1"	
24	450390	6	Washer, M8	
25	450411	6	Lockwasher, M8	
26	452010	2	Flat Washer, 1/2	
27	A1103051	2	Screw, M8-1.25 x 25mm Hex Head	
28	3007889	1	Sleeve, Insulating	
29	452006	4	Flat Washer, 5/16	
30	444718	4	Locknut, 5/16-18 Center	
31	362539	4	Nut, M8-1.25 Hex	

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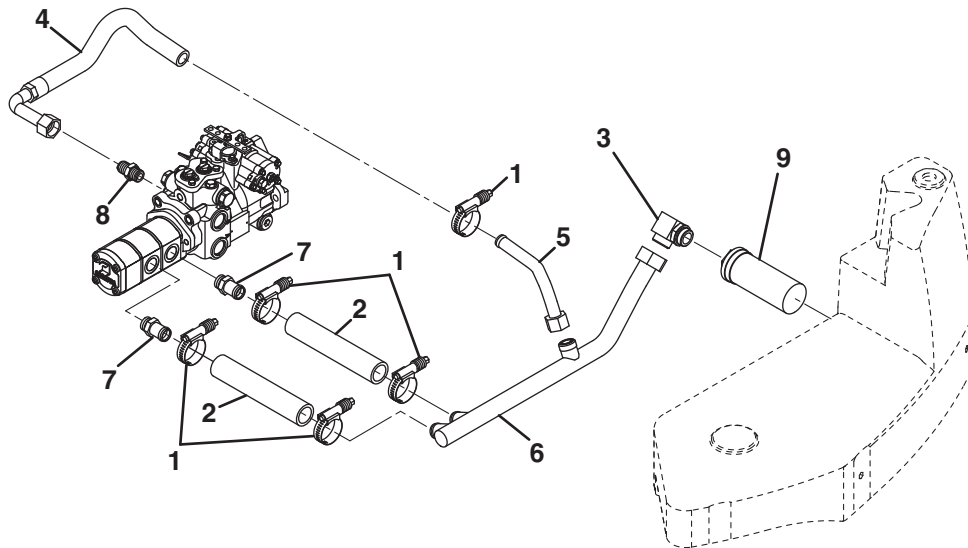
## 16.1 Fuel and Hydraulic Tanks



Item	Part No.	Qty.	Description	Serial Numbers/Notes	
1	132647	1	Valve, Shut Off	<b>REFERENCE SW-9, See 42.1</b>	
2	3001279	1	Switch, Float		
3	3002397	1	Plug, Magnetic		
	339899	1	• O-Ring		
4	3009204	1	Fuel Tank		
5	3005871	1	Hydraulic Tank		
6	3005872	1	Shell, Tank Cover		
7	3006243	2	Plate, Tank Mounting		
8	3009347	1	Strainer, Fuel Filler		
9	3006332	1	Breather Filter		
10	3006337	1	Fuel Sender	<b>REFERENCE R-1, See 42.1</b>	
11	5003374	1	• Gasket		
12	2721806	1	Cap, Fuel Tank		
13	554748	1	Fuel Line, 5/16" I.D. Cut to 72 Inches		Tank to Fuel Pump
14	554748	1	Fuel Line, 5/16" I.D. Cut to 8 Inches		Fuel Filter to Engine
15	361117	3	Bushing, Fuel Tank		
16	361748	1	Valve, Overflow		
17	554752	1	Fuel Line, 3/16 I.D. Cut to 70 Inches		Engine to Tank
18	366526	6	Clamp, Hose		
19	403769	14	Screw, 1/4-20 x 1/2" Hex Flange		
20	403910	5	Screw, #10-24 x 1/2" Truss Head		
21	404016	5	Screw, 1/4-20 x 5/8" Truss Head		
22	445794	2	Nut, 1/4-20 Spiralock Flange		
23	445796	3	Nut, 3/8-16 Spiralock Flange		
24	446118	5	Lockwasher, #10 Heavy		
25	400108	2	Screw, 1/4-20 x 3/4" Hex Head		
26	800709	2	Screw, 3/8-16 x 1" Hex Flange		
27	4132489	1	Fuel Pump	<b>REFERENCE M-2, See 42.1</b>	
28	503626	1	Engine Fuel Filter		Included with Engine
	557619	1	• Element, Fuel Filter		
29	554748	1	Fuel Line, 5/16" I.D. Cut to 12 Inches	Fuel Pump to Fuel Filter	
30	2810702	1	Valve, Inlet		

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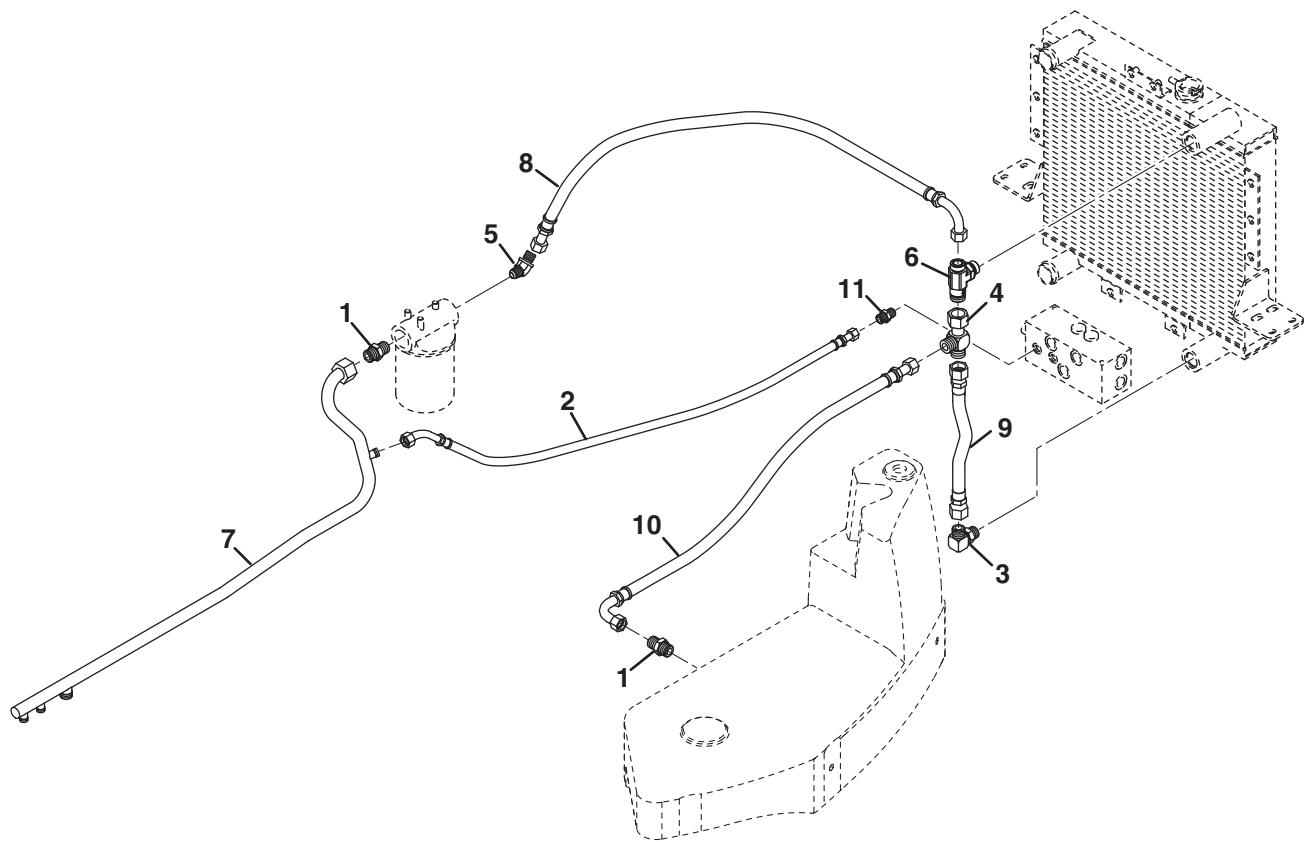
## 17.1 Pump Suction Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	3008673	5	Clamp, Constant Torque Hose	
2	4148857	2	Hose, Gear Pump Suction	
3	340090	1	Fitting, 24-24 90°	
4	4122538	1	Hose, Charge Pump Suction	
5	4123066	1	Tube, Charge Pump Suction	
6	4130823	1	Tube, Pump Suction	
	339913	1	• O-Ring -16	
7	3001296	2	Adapter, Straight Beaded	
8	339999	1	Fitting, 16-16 Straight	
9	365959	1	Strainer, Tank Mounted	

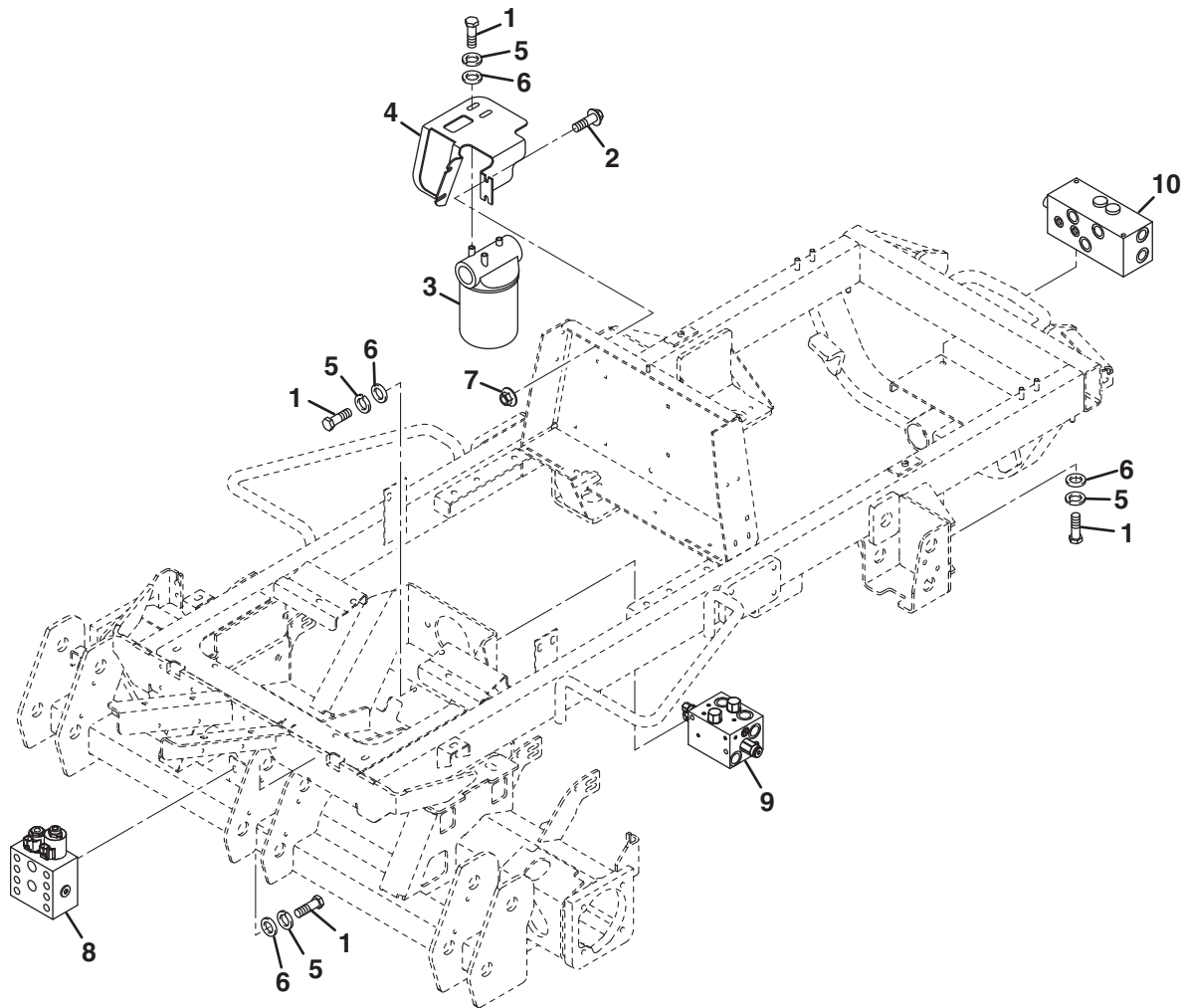
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## 18.1 Oil Cooler Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	339999	2	Fitting, 16-16 Straight	
2	4129037	1	Hose, 4WD Return	
3	340077	1	Fitting, 16-16 90°	
4	340123	1	Fitting, 16-16-16 Swivel Run Tee	
5	340039	1	Fitting, 16-16 45°	
6	4123166	1	Fitting, Check Valve Tee	
7	4128322	1	Tube, Return Hoses to Oil Filter	
	339909	3	• O-Ring -6	
	339911	1	• O-Ring -10	
8	4129042	1	Hose, Filter to Oil Cooler	
9	4129043	1	Hose, Oil Cooler to Tee	
10	4129044	1	Hose, Oil Cooler to Tank	
11	339979	1	Fitting, 6-6 Straight	

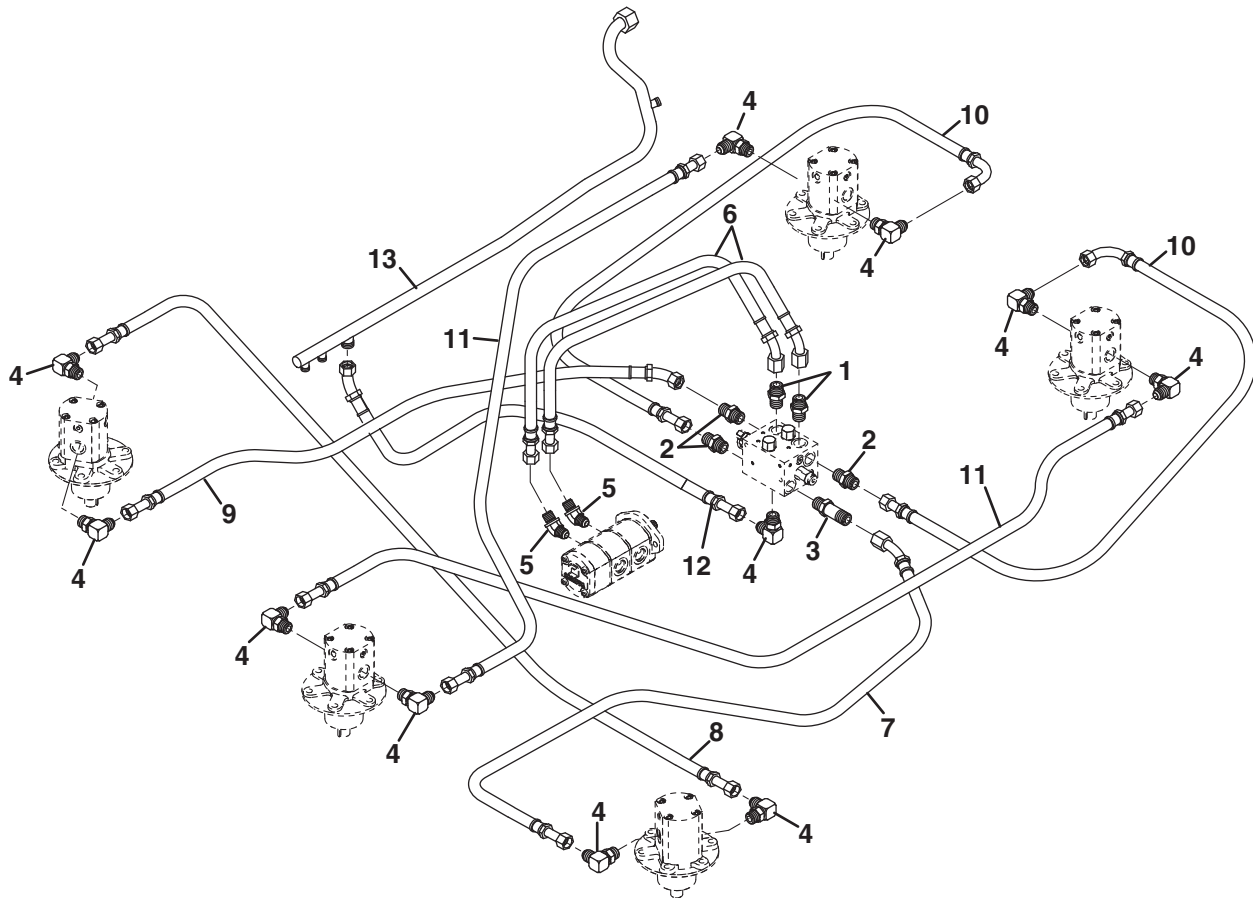
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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	400258	8	Screw, 3/8-16 x 3/4" Hex Head	<b>REFERENCE SW-1, See 42.1</b>
2	409811	4	Screw, 5/16-18 x 5/8" Thread Cutting	
3	4121554	1	Hydraulic Filter Assembly	
	4121552	1	• Filter Head	
	555771	1	• Filter Element	
	556419	1	• Oil Switch	
	4124755	1	• Visual Indicator	
4	4121852	1	Filter Bracket	
5	446140	8	Lockwasher, 3/8	
6	453011	8	Flat Washer, 3/8	
7	445795	4	Nut, 5/16-18 Spirallock Flange	
8	4129069	1	Lift Valve	See 37.1
9	4175022	1	Deck Valve	See 34.1
10	4129071	1	4WD Valve	See 38.1

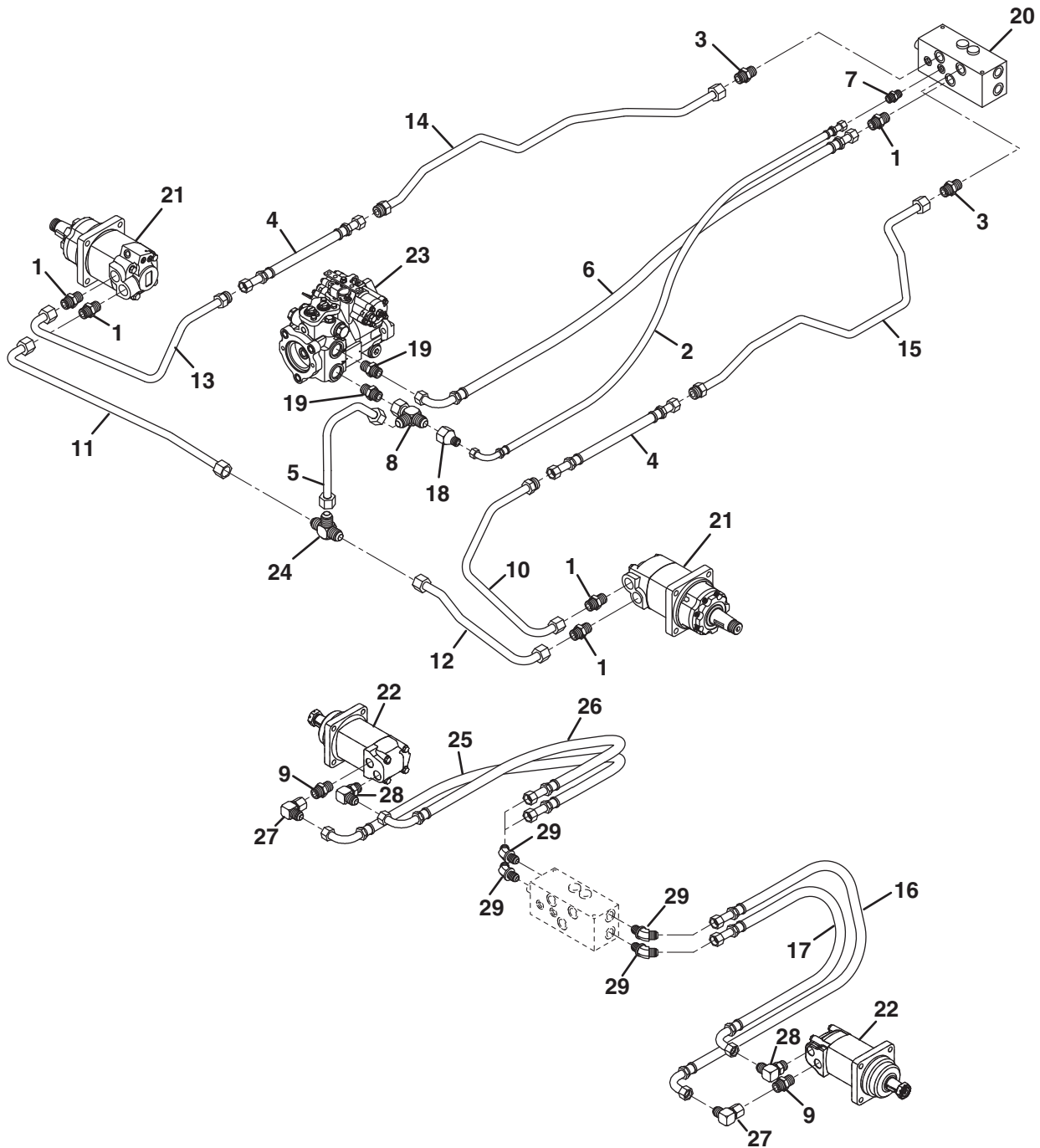
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## 20.1 Deck Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	339985	2	Fitting, 8-10 Straight	
2	339989	3	Fitting, 10-10 Straight	
3	340009	1	Fitting, 10-10 Straight	
4	340070	11	Fitting, 10-10 90°	
5	340030	2	Fitting, 8-10 45°	
6	4129015	2	Hose, Gear Pump to Deck Valve	
7	4137588	1	Hose, LH Front Motor to Deck Valve	
8	4137382	1	Hose, Front Motor to Front Motor	
9	4137589	1	Hose, RH Front Motor to Deck Valve	
10	4129595	2	Hose, Rear Motor to Deck Valve	
11	4137383	2	Hose, Center Motor to Rear Motor	
12	4129597	1	Hose, Deck Valve to Return Tube	
13	REF	1	Return Tube	See 18.1

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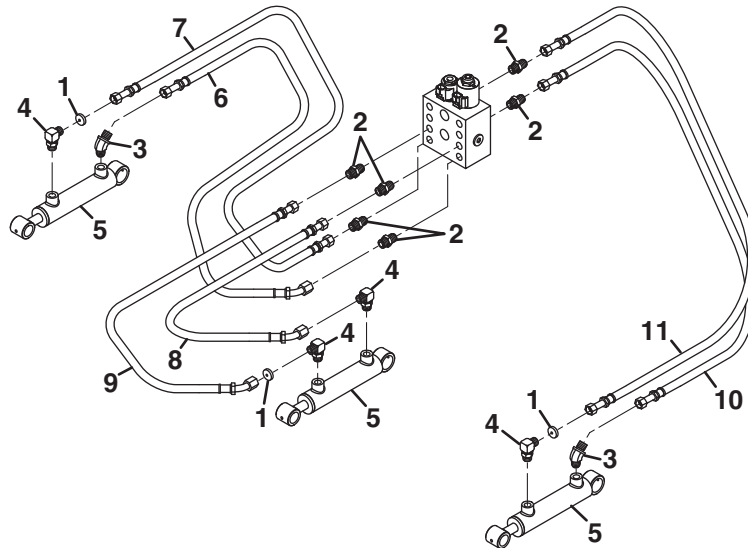




Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	339994	5	Adapter, 12-12 Straight Fitting	
2	4129035	1	Hose, 4WD Valve to Traction Pump	4WD Valve Port I
3	339993	2	Adapter, 12-10 Straight Fitting	
4	4128977	2	Hose, Front Tube to Rear Tube	
5	4134921	1	Tube, Drive Return	
6	4129036	1	Hose, 4WD Valve to Traction Pump	4WD Valve Port G
7	339979	1	Adapter, 6-6 Straight Fitting	
8	340122	1	Adapter, 12-12-12 Swivel Run Tee	
9	339989	2	Adapter, 10-10 Straight Fitting	
10	4128320	1	Tube, Upper LH Front Wheel Motor	
11	4128318	1	Tube, Lower RH Front Wheel Motor	
12	4128317	1	Tube, Lower LH Front Wheel Motor	
13	4128319	1	Tube, Upper RH Front Wheel Motor	
14	4128324	1	Tube, Rear RH 4WD Tube	4WD Valve Port A
15	4128325	1	Tube, Rear LH 4WD Tube	4WD Valve Port C
	4137625	1	Hose Bundle, Left Rear Motor	Includes drain hose, See 24.1
16	4137607	1	• Hose, 4WD Valve to Wheel Motor	4WD Valve Port D, Motor Port B
17	4137608	1	• Hose, 4WD Valve to Wheel Motor	4WD Valve Port E, Motor Port A
18	4128967	1	Adapter, 12-6 Reducer	
19	339996	2	Adapter, 12-16 Straight Fitting	
20	REF	1	4WD Valve	See 19.1
21	REF	2	Front Wheel Motor	See 8.1
22	REF	2	Rear Wheel Motor	See 12.1
23	REF	1	Pump, Traction	See 15.1
24	340338	1	Adapter, 12-12-12 Union Tee	
	4137623	1	Hose Bundle, Right Rear Motor	Includes drain hose, See 24.1
25	4137607	1	• Hose, 4WD Valve to Wheel Motor	4WD Valve Port F, Motor Port B
26	4137608	1	• Hose, 4WD Valve to Wheel Motor	4WD Valve Port B, Motor Port A
27	340377	2	Adapter, 10-10 90° Swivel Fitting	
28	340070	2	Adapter, 10-10 90° Fitting	
29	340033	4	Adapter, 10-10 45° Fitting	

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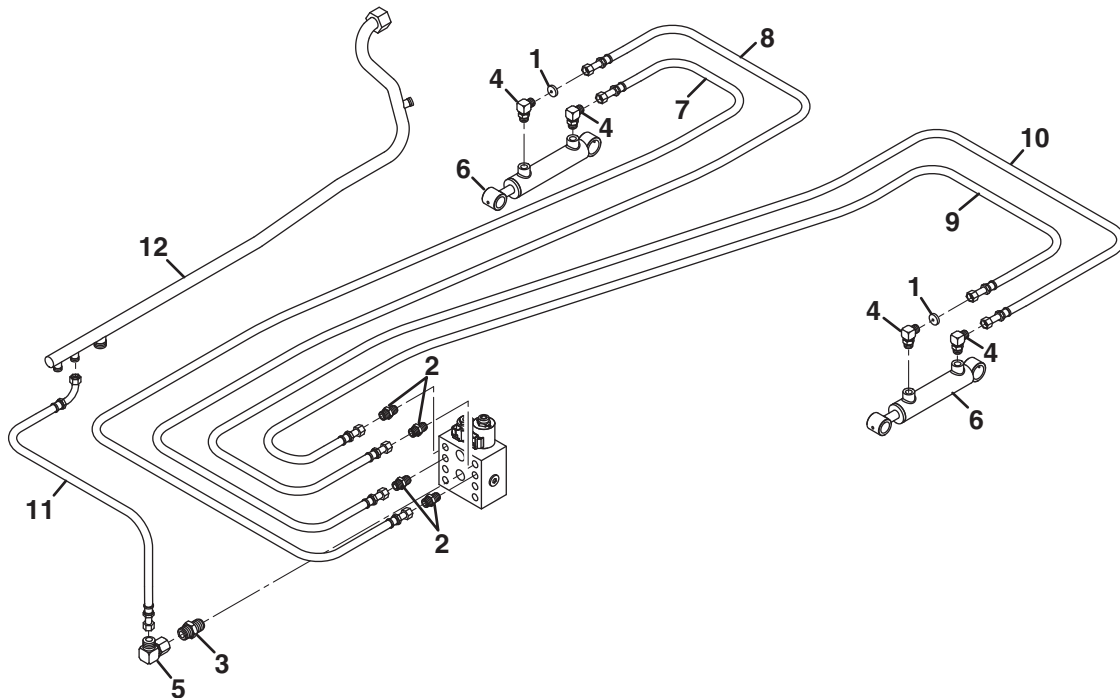
## 22.1 Front Lift Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	3000953	3	Disk, Orifice	
2	339979	6	Fitting, 6-6 Straight	
3	340026	2	Fitting, 6-6 45°	
4	340061	4	Fitting, 6-6 90°	
5	REF	3	Lift Cylinder	See 29.1
6	4137562	1	Hose, Lift Valve to RH Front Cylinder	Lift Valve Port #10, Base Port
7	4129018	1	Hose, Lift Valve to RH Front Cylinder	Lift Valve Port #4, Rod Port
8	4129019	1	Hose, Lift Valve to Center Cylinder	Lift Valve Port #9, Base Port
9	4129020	1	Hose, Lift Valve to Center Cylinder	Lift Valve Port #3, Rod Port
10	4129021	1	Hose, Lift Valve to LH Front Cylinder	Lift Valve Port #6, Base Port
11	4129022	1	Hose, Lift Valve to LH Front Cylinder	Lift Valve Port #5, Rod Port

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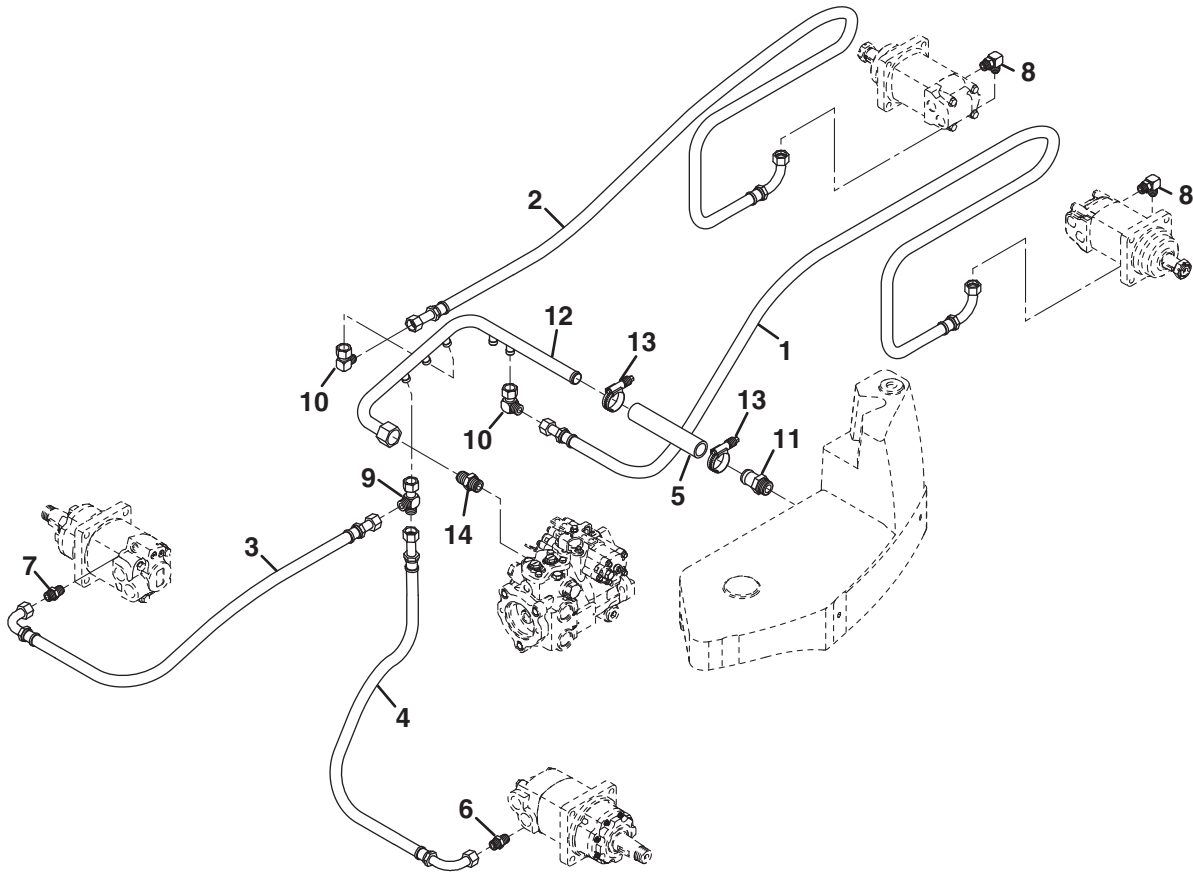
## 23.1 Rear Lift Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	3000953	2	Disk, Orifice	
2	339979	4	Fitting, 6-6 Straight	
3	339985	1	Fitting, 8-10 Straight	
4	340061	4	Fitting, 6-6 90°	
5	340376	1	Fitting, 8-8 90° Swivel	
6	REF	2	Lift Cylinder	See 30.1
7	4129023	1	Hose, Lift Valve to RH Rear Cylinder	Lift Valve Port #8, Base Port
8	4129024	1	Hose, Lift Valve to RH Rear Cylinder	Lift Valve Port #2, Rod Port
9	4129026	1	Hose, Lift Valve to LH Rear Cylinder	Lift Valve Port #1, Rod Port
10	4129026	1	Hose, Lift Valve to LH Rear Cylinder	Lift Valve Port #7, Base Port
11	4129027	1	Hose, Lift Valve to Return Tube	Lift Valve Port T
12	REF	1	Return Tube	See 18.1

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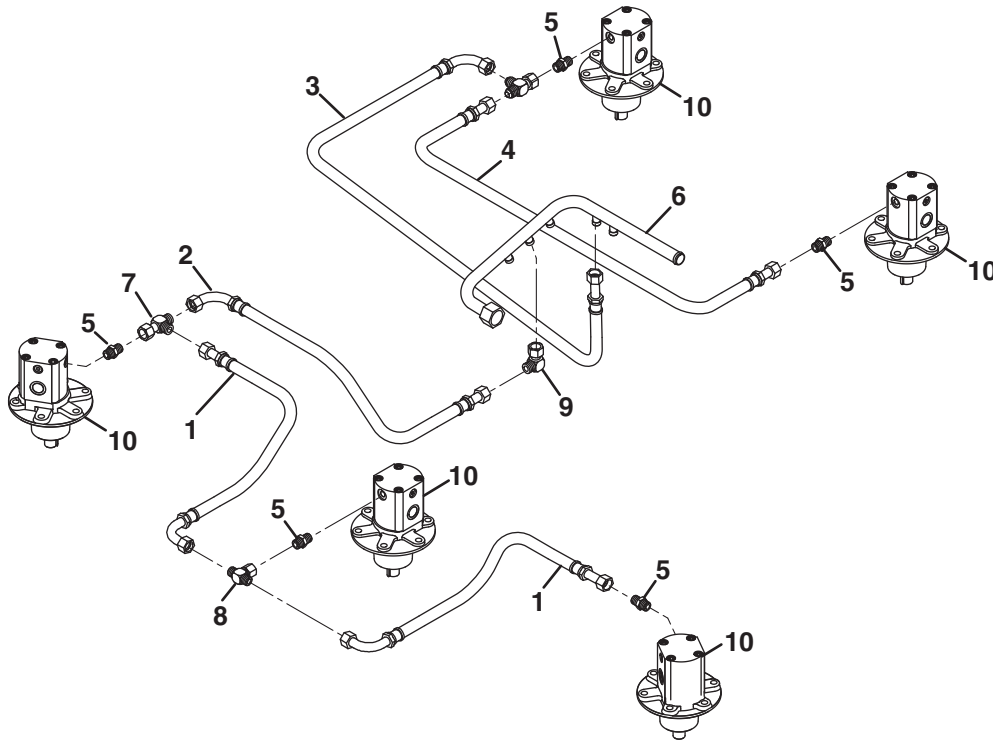
## 24.1 Wheel Motor Case Drains



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4137634	1	Hose, LH Rear Motor to Drain Tube	Included in hose bundle 4137625
2	4137624	1	Hose, RH Rear Motor to Drain Tube	Included in hose bundle 4137623
3	4129040	1	Hose, RH Front Motor to Drain Tube	
4	4129041	1	Hose, LH Front Motor to Drain Tube	
5	4148857	1	Hose, Drain Tube	
6	339972	1	Fitting, 4-4 Straight	
7	340007	1	Fitting, 6-4 Straight	
8	340059	2	Fitting, 6-4 90°	
9	340119	1	Fitting, 6-6-6 Swivel Run Tee	
10	340375	2	Fitting, 6-6 90° Swivel	
11	361689	1	Fitting, Straight Barb	
12	4113601	1	Tube, Drain	
	339909	5	• O-Ring -6	
13	3008673	2	Clamp, Constant Torque Hose	
14	339998	1	Fitting, 16-12 Straight	

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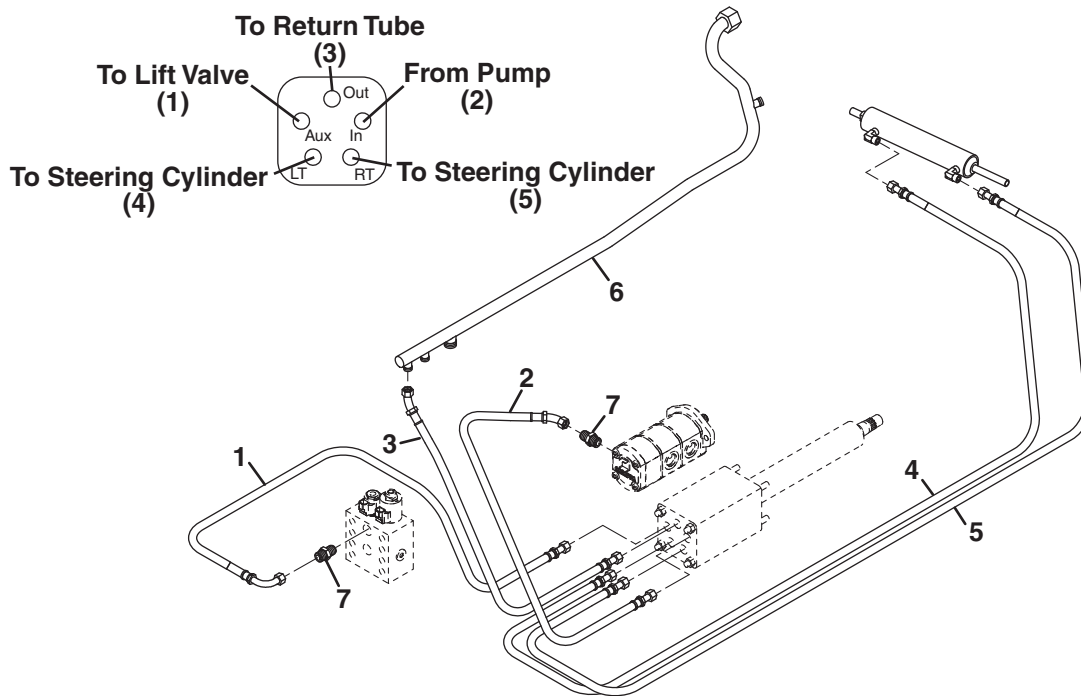
## 25.1 Deck Motor Case Drain



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4137561	2	Hose, Front Motor to Front Motor	
2	4137562	1	Hose, Front Motors to Drain Tube	
3	4129600	1	Hose, Rear Motors to Drain Tube	
4	4129603	1	Hose, Rear Motor to Rear Motor	
5	339977	5	Fitting, 6-4 Staight	
6	REF	1	Tube, Drain	See 24.1
7	340119	2	Fitting, 6-6-6 Swivel Run Tee	
8	340143	1	Fitting, 6-6-6 Swivel Branch Tee	
9	340375	1	Fitting, 6-6 90° Swivel	
10	REF	5	Deck Motor	See 31.1

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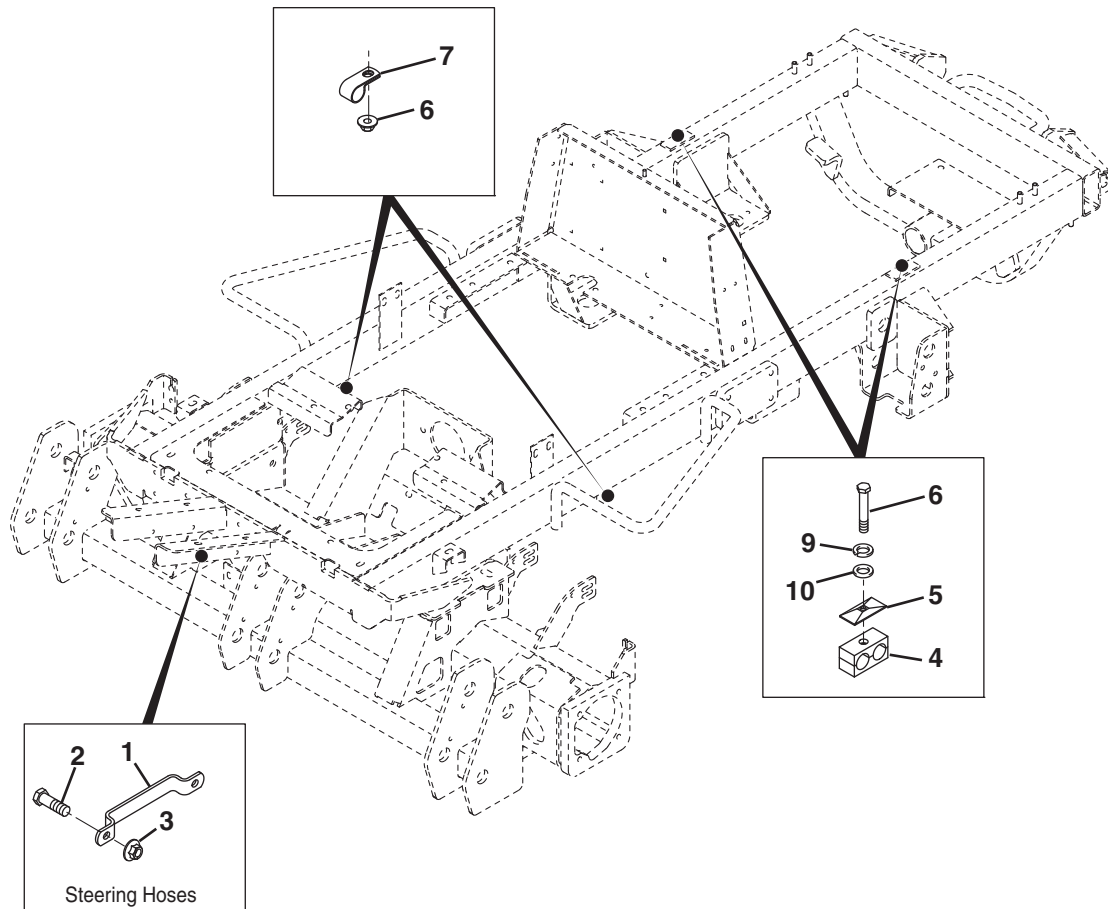
## 26.1 Steering Hydraulics



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4129028	1	Hose, Lift Valve to Steering Valve	Lift Valve Port T, Steering Valve Aux
2	4129029	1	Hose, Gear Pump to Steering Valve	Steering Valve IN
3	4129030	1	Hose, Steering Valve to Return Tube	Steering Valve Out
4	4129031	1	Hose, Steering Valve to Cylinder	Steering Valve LH, Base Port
5	4129032	1	Hose, Steering Valve to Cylinder	Steering Valve RH, Rod Port
6	REF	1	Return Tube	
7	339985	2	Fitting, 8-10 Straight	

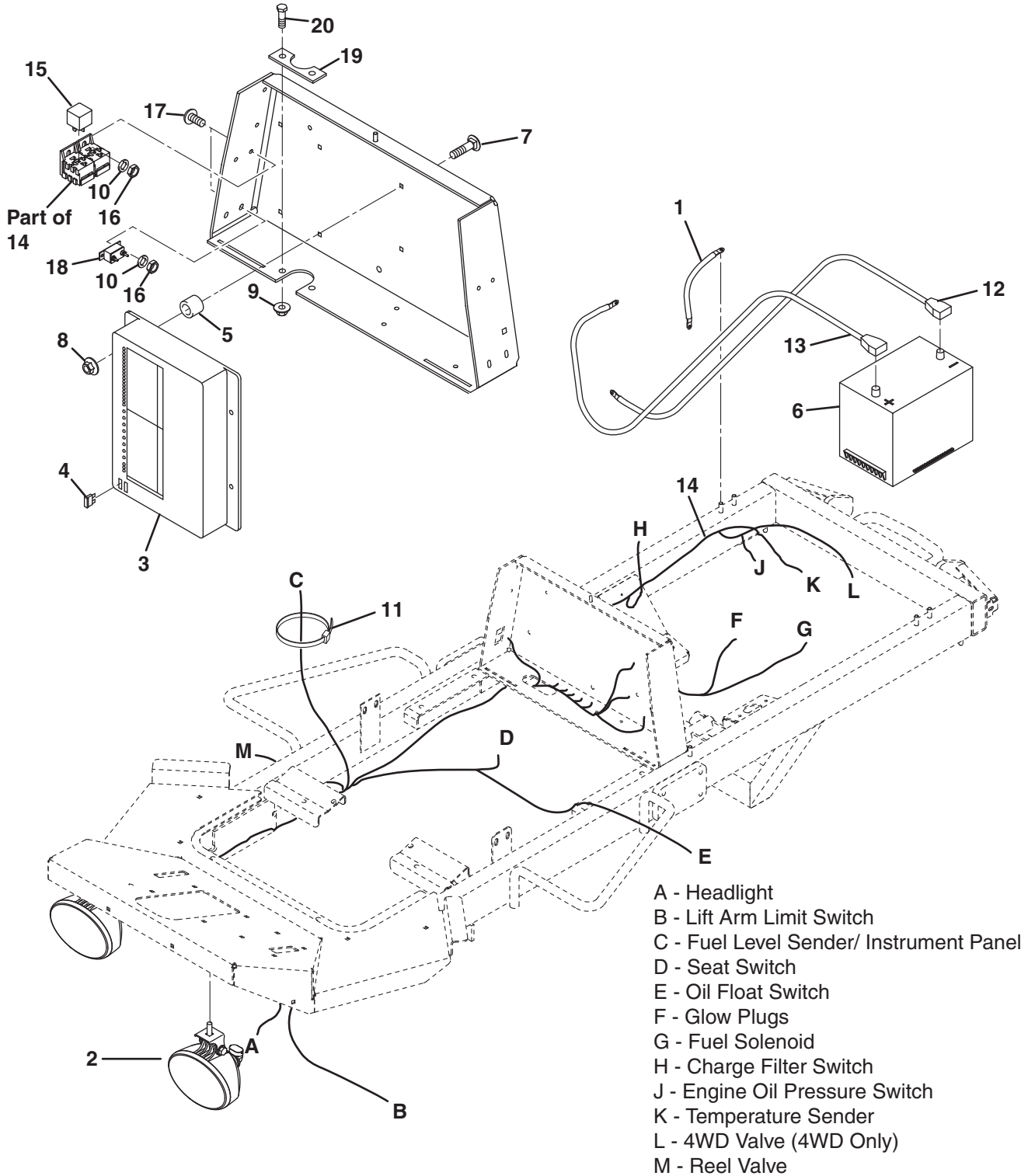
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## 27.1 Hydraulic Clamps



Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	1004541	1	Bracket, Hose Retaining	
2	403770	2	Screw, 5/16-18 x 3/4" Flange Head	
3	445795	2	Nut, 5/16-18 Spirallock Flange	
4	4131862	2	Clamp, Two Hose	
5	4131864	2	Plate, Clamp	
6	400196	2	Screw, 5/16-18 x 2" Hex Head	
7	364016	2	Clamp, 1-1/4" Dia. Hose	
8	445796	2	Nut, 3/8-16 Spirallock Flange	
9	446136	2	Lockwasher, 5/16 Heavy	
10	452006	2	Flat Washer, 5/16	

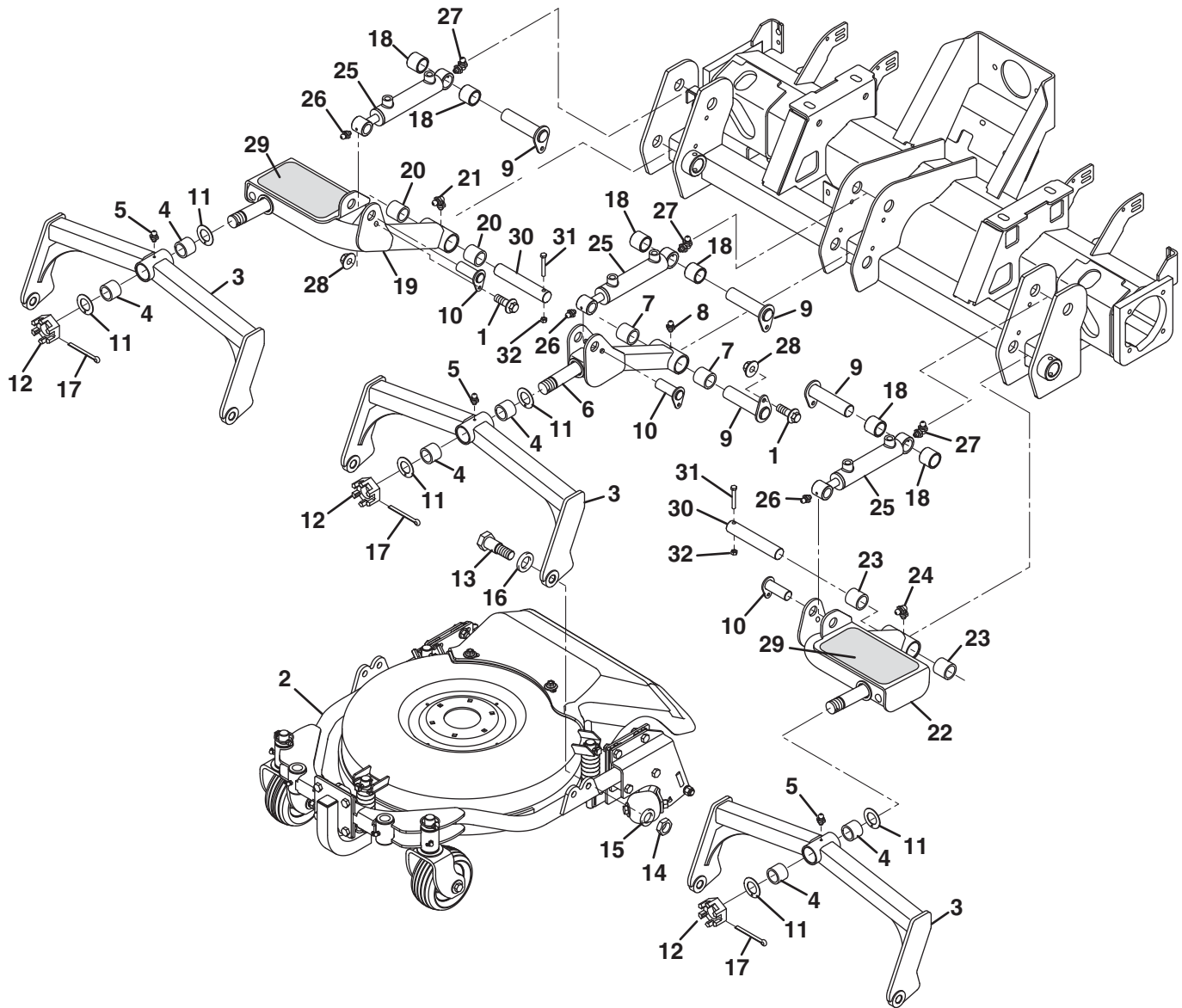
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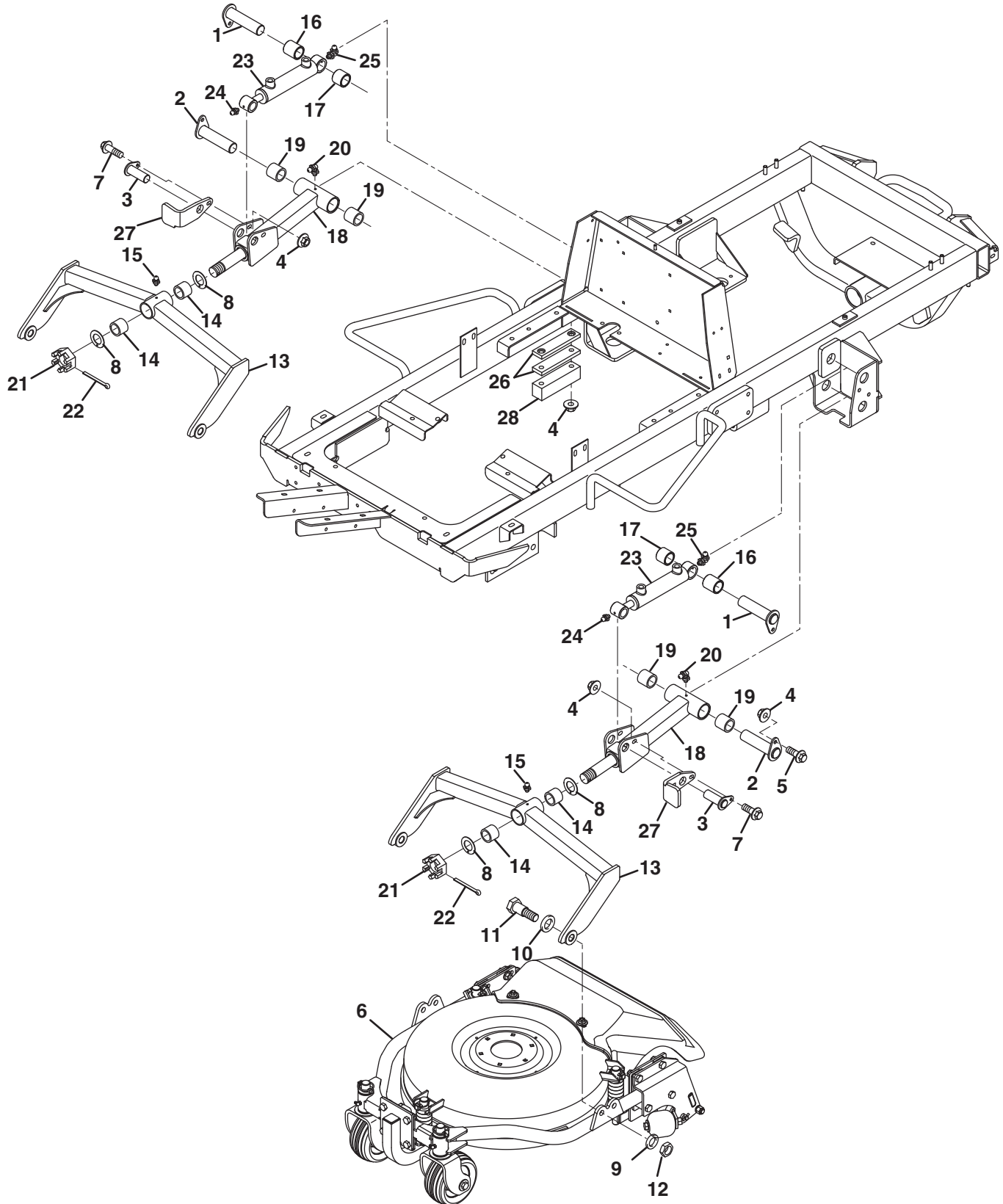
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	2810424	1	Cable, Engine Ground	Engine Mount to Frame
2	4122840	2	Headlight	<b>REFERENCE L-1 &amp; L-2, See 42.1</b>
	4123183	1	• Bulb	
3	4122841	1	Controller	<b>REFERENCE U-6, See 42.1</b>
4	5003282	2	• Fuse, 20 Amp	<b>REFERENCE F-1 &amp; F-2, See 42.1</b>
5	367631	4	Spacer	
6	366931	1	Battery	<b>REFERENCE B-1, See 42.1</b>
7	441668	4	Carriage Bolt, 1/4-20 x 1-1/4"	
8	444708	4	Locknut, 1/4-20 Center	
9	445796	2	Nut, 3/8-16 Spirallock Flange	
10	444310	4	Nut, #10-24 Hex	
11	473142	1	Cable Tie	
12	2810213	1	Cable, Negative Battery	Battery to Muffler Bracket
13	3007777	1	Cable, Positive Battery	Battery to Starter
14	4128262	1	Body Wire Harness	
15	4126082	2	• Relay-SPDT With Diode	<b>REFERENCE K-1 &amp; K-2, See 42.1</b>
16	446118	4	Lockwasher, #10	
17	403910	4	Screw, #10-24 x 1/2" Truss Head	
18	361439	1	Circuit Breaker, 12V 50A	<b>REFERENCE CB-1, See 42.1</b>
19	3009251	1	Tab, Harness	
20	400258	2	Screw, 3/8-16 x 3/4" Hex Head	

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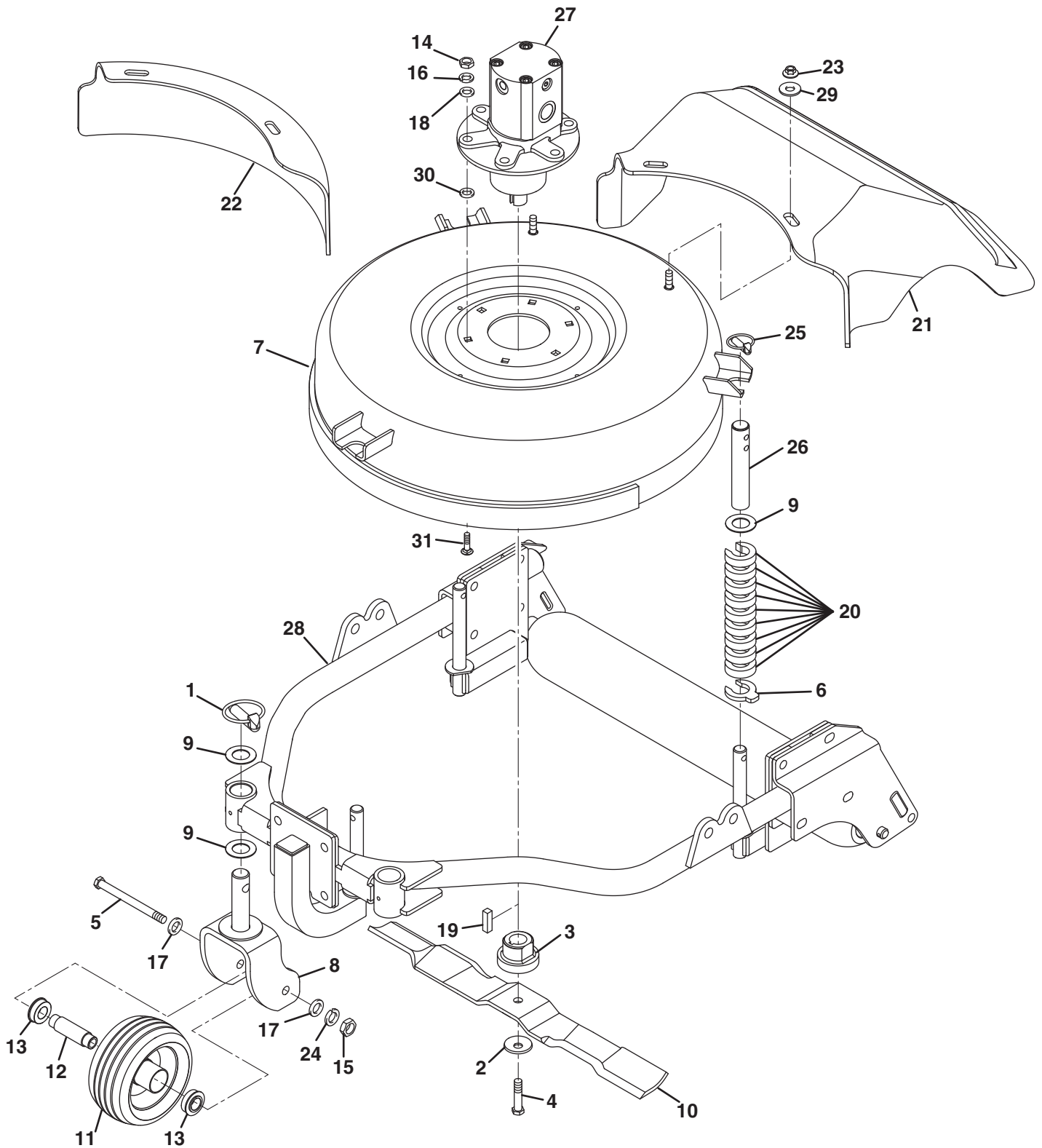
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	548905	9	Screw, 3/8-16 x 1" Serrated Flange	See 31.1
2	REF	3	Deck Assembly	
3	4125547	3	Front Deck Pivot	
4	4127480	2	• Bushing	
5	471214	1	• Straight Grease Fitting	
6	4125919	1	Center Lift Arm	
7	3010489	2	• Bushing	
8	471214	1	• Straight Grease Fitting	
9	4126447	6	Pin, Arm	
10	4126450	3	Pin, Cylinder	
11	4127192	6	Plastic Washer	
12	4127556	3	Nut, 1-1/4-7 Slotted Hex	
13	4131849	6	Shoulder Bolt, 3/4 x 5/8-11 x 2-1/8"	
14	444752	6	Locknut, 5/8-11 Center	
15	452016	6	Flat Washer, 5/8	
16	310452	6	Flat Washer	
17	460068	3	Cotter Pin, 1/4 x 2"	
18	4131963	6	Spacer, Cylinder	
19	4171884	1	Right Front Lift Arm	
20	3010489	2	• Bushing	
21	471221	1	• 90° Grease Fitting	
22	4171883	1	Left Front Lift Arm	
23	3010489	2	• Bushing	
24	471221	1	• 90° Grease Fitting	
25	4137128	3	Cylinder, Lift	
	4137138	1	• Seal Kit	
26	471214	3	Straight Grease Fitting	
27	471221	3	90° Grease Fitting	
28	445783	9	Nut, 3/8-16 Whizlock Flange	
29	4134575	2	Pad, Step	
30	4181006	2	Pin, Arm	
31	400198	2	Screw, 5/16-18 x 2-1/4"	
32	444718	2	Locknut, 5/16-18 Center	

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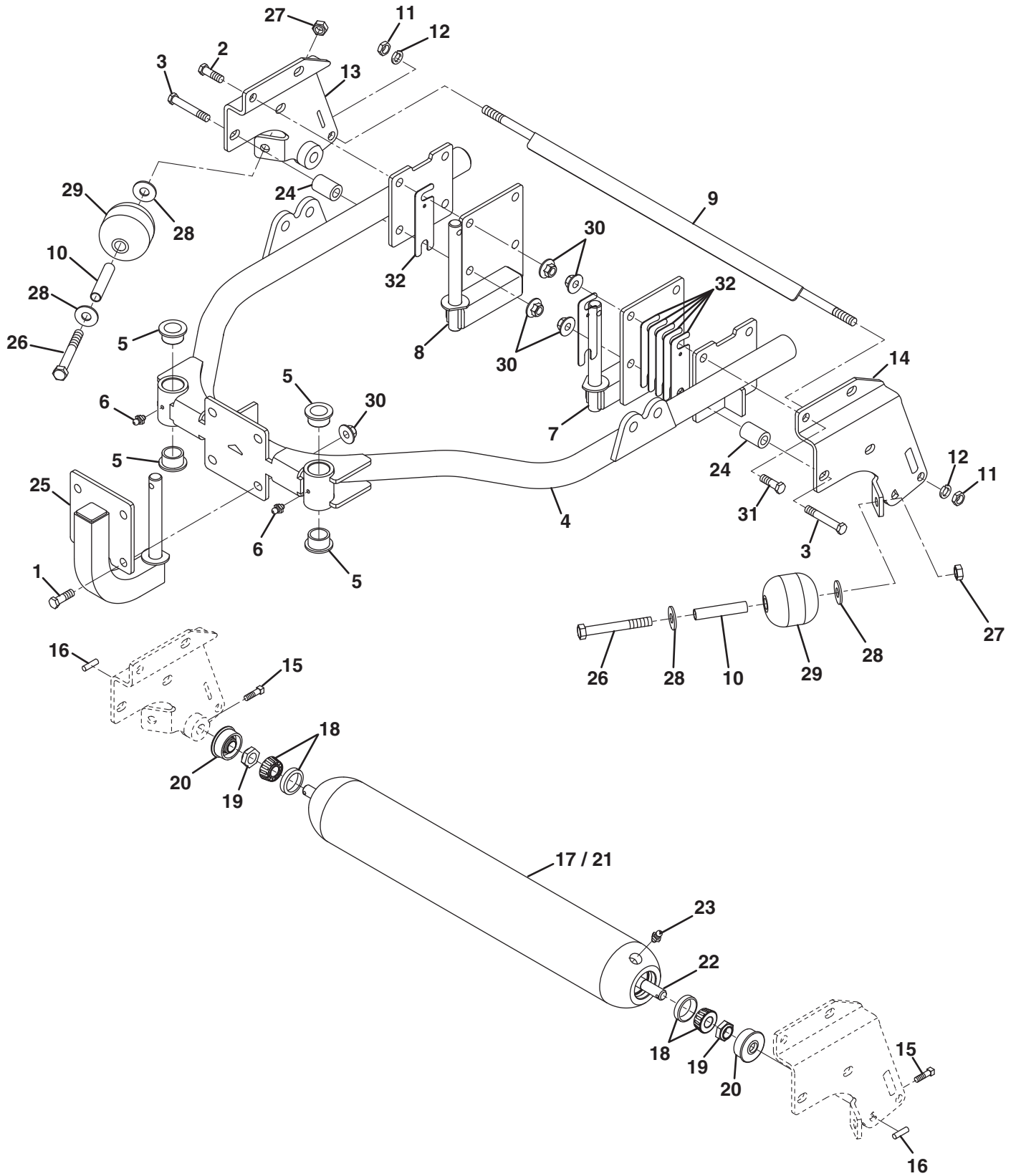
Item	Part No.	Qty.	Description	Serial Numbers/Notes	
1	4131422	2	Pin, Rear Cylinder	See 31.1	
2	4131420	2	Pin, Rear Lift Arm		
3	4126450	2	Pin, Cylinder		
4	445783	10	Nut, 3/8-16 Whizlock Flange		
5	548905	4	Screw, 3/8-16 x 1" Serrated Flange		
6	REF	2	Deck Assembly		
7	548907	2	Screw, 3/8-16 x 1/1/4" Ser Flange		
8	4127192	4	Washer, Plastic		
9	452016	4	Flat Washer, 5/8"		
10	310452	4	Flat Washer, 3/4"		
11	4131849	4	Shoulder Bolt, 3/4 x 5/8-11 x 2-1/8		
12	444752	4	Locknut, 5/8-11 Center		
13	4125180	2	Rear Deck Pivot		
14	4127480	2	• Bushing		
15	471214	1	• Straight Grease Fitting		
16	4131965	2	Spacer, Cylinder		
17	4131964	2	Spacer, Cylinder		
18	4132846	2	Rear Lift Arm		
19	3010489	2	• Bushing		
20	471221	1	• 90° Grease Fitting		
21	4127556	2	Nut, 1-1/4-7 Slotted Hex		
22	460076	2	Cotter Pin, 1/4 x 3"		
23	4137128	2	Cylinder, Lift		
	4137138	1	• Seal Kit		
24	471214	2	Straight Grease Fitting		
25	471221	2	90° Grease Fitting		
26	4134626	AR	Pad, Deck Stop		Add pads as required to prevent deck contacting engine oil pan.
27	4136022	2	Deck Stop		Add as required to prevent deck contacting engine oil pan.
28	4137716	AR	Deck Stop		

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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	3004894	2	Pin, 7/16 x 1-3/4" Snap Ring	
2	3007764	1	Washer, Blade	
3	3008388	1	Adapter, Blade	
4	400410	1	Screw, 1/2-13 x 1-3/4" Hex Head	
5	400426	2	Screw, 1/2-13 x 5" Hex Head	
6	4117807	3	Spacer	
7	4163107	1	Deck Housing	
8	4124066	2	Caster Wheel Yoke	
9	4124076	4	Flat Washer, 1"	
10	4163105	1	Blade, 22-3/8" Combination	Standard Blade
10	4137186	1	Blade, 22-3/8" High Lift	Optional High Lift Blade
10	4124087	1	Blade, 22-3/8" Low Lift	Optional Low Lift Blade
11	4173922	2	Caster Wheel, 6-1/4 x 3	
12	4174960	1	• Spacer, Wheel	
13	4173923	2	• Ball Bearing, Flange	
14	443110	6	Nut, 3/8-16 Hex	
15	443118	2	Nut, 1/2-13 Hex	
16	446142	6	Lockwasher, 3/8 Heavy	
17	452012	4	Flat Washer, 1/2	
18	453011	6	Flat Washer, 3/8	
19	557523	1	Key, 1/4 Square x 1"	
20	PJH1054	27	Spacer, Cutting Height	
21	4163124	1	Chute, Rear Discharge	
22	4163125	1	Cover, Mulching	
23	445783	3	Nut, 3/8-16 Whizlock Flange	
24	446154	2	Lockwasher, 1/2 Heavy	
25	365948	3	Pin, 1/4 x 1-3/4" Snap Ring	
26	4133007	3	Sleeve, Cutting Height	
27	4175100	1	Motor, Deck	
	4136829	1	• Seal Kit	
	4177360	1	• Check Valve	
28	REF	1	Deck Frame	See 32.1
29	452010	3	Washer, 7/16 x 1-1/4"	
30	4139787	6	Nut, Push On	
31	440124	6	Carriage Bolt, 3/8-16 x 1-3/4"	

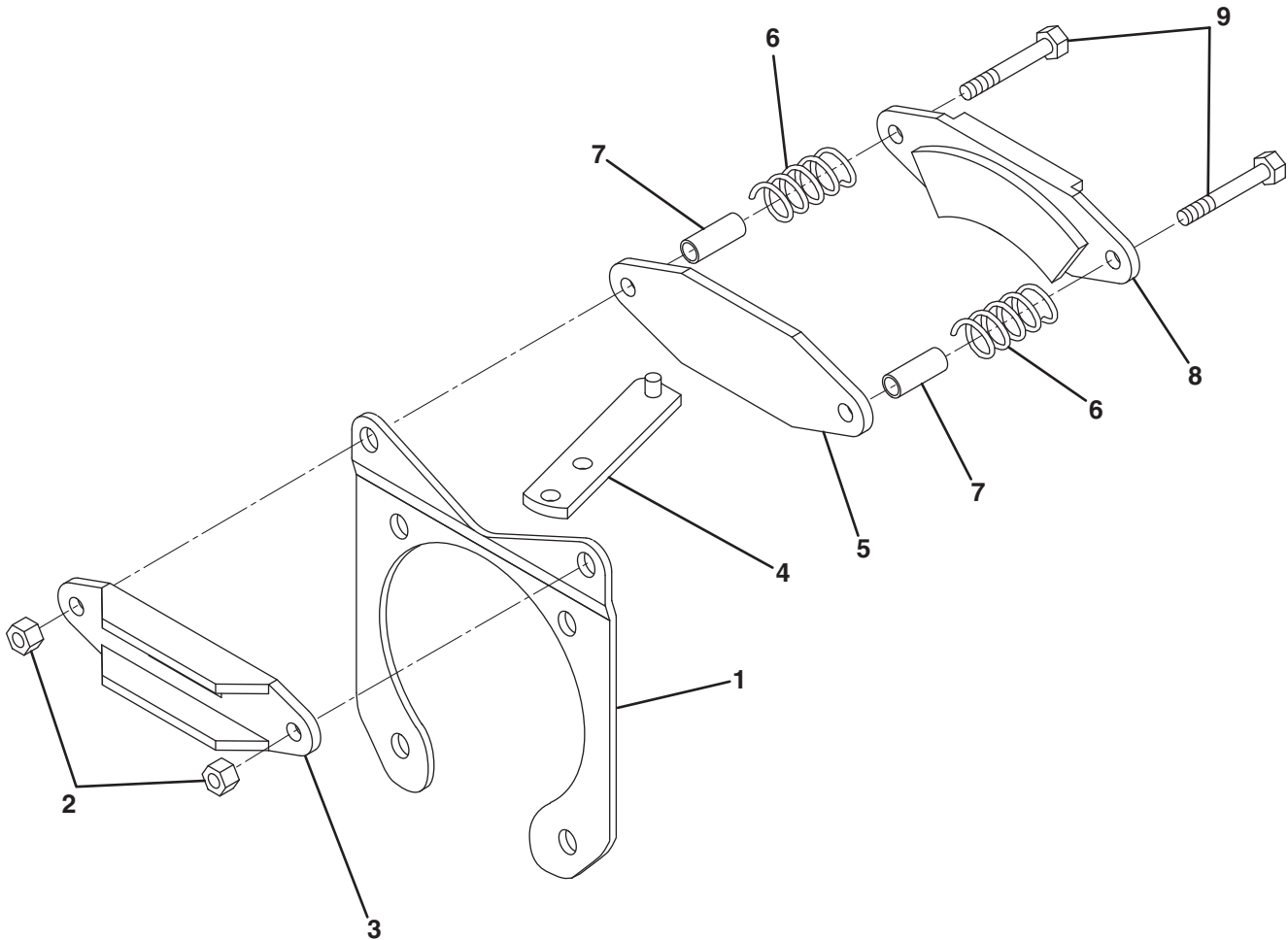
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Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	400404	4	Screw, 1/2-13 x 1" Hex Head	
2	400408	2	Screw, 1/2-13 x 1-1/2" Hex Head	
3	400418	4	Screw, 1/2-13 x 3" Hex Head	
4	4137665	1	Deck Frame	Front Decks
4	4137674	1	Deck Frame	Rear Decks
5	4127478	4	• Flanged Bushing	
6	471214	2	• Straight Grease Fitting	
7	4124423	1	LH Rear Cutting Height Bracket	
8	4124425	1	RH Rear Cutting Height Bracket	
9	4130647	1	Scraper, Roller	
10	4137534	2	Sleeve, Roller	
11	445771	2	Nut, 1/2-13 Hex Nylon Insert	
12	446152	2	Lockwasher, 1/2	
13	4163089	1	RH Roller Bracket	
14	4163087	1	LH Roller Bracket	
15	412017	2	Screw, 5/16-18 x 3/4" Square Head	
16	316938	2	Roll Pin, 3/16 x 1"	
17	4163121	1	Roller	
18	503378	2	• Bearing Cup and Cone	
19	367029	1	• Locknut, 3/4-16 Hex Jam	
20	3010210	2	• Seal	
21	4163122	1	• Tube, Roller	
22	4124015	1	• Shaft, Roller	
23	471214	2	Grease Fitting	
24	4124129	2	Spacer	
25	4124395	1	Front Cutting Height Bracket	
26	400422	2	Screw, 1/2-13 x 4" Hex Head	
27	444758	2	Locknut, 1/2-13 Center	
28	452012	2	Flat Washer, 1/2	
29	2198153	2	Roller, 3"	
30	800379	12	Nut, 1/2-13 Spirallock Flange	
31	400408	2	Screw, 1/2-13 x 1-1/2" Hex Head	
32	4161960	12	Spacer, Deck HOC Bracket	

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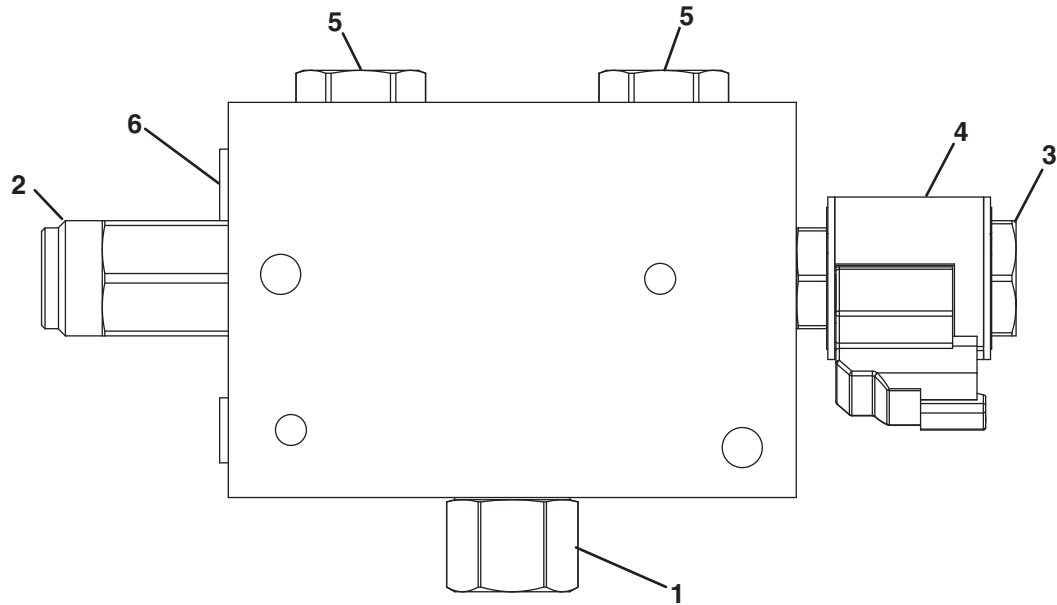


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	340603	2	Bracket, Brake Mounting	
	503308	1	Disk Brake, R.H.	
	2500722	1	Disk Brake, L.H.	
2	590259	4	• Nut, 3/8-24	
3	549441	2	• V-Plate	
4	502517	1	• Cam Lever	
5	503296	2	• Stud Plate with Lining	
6	549443	4	• Spring	
7	554579	4	• Spacer, Brake	
8	503295	2	• Rib Plate with Lining	
9	590260	4	• Screw, 3/8-24 x 2-1/4"	

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34.1 Deck Valve

Part Number 4175022

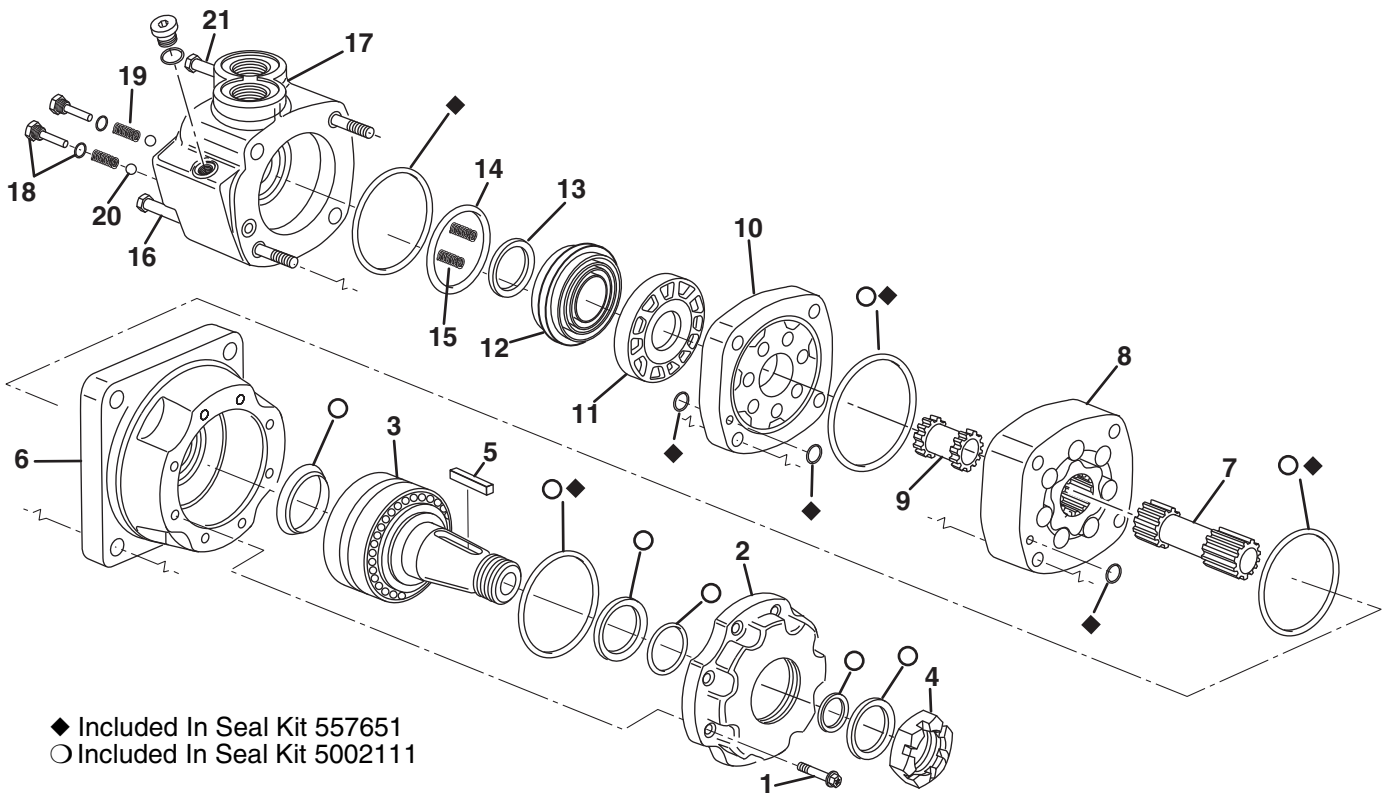


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4175181	2	Vented Logic Element Valve	<b>Reference K-7, See 42.1</b>
	5003579	1	• Seal Kit	
2	4175183	1	Relief Valve	
	5003578	1	• Seal Kit	
3	4175184	1	Solenoid Valve	
	5003578	1	• Seal Kit	
4	4134532	2	Coil	
5	4175180	2	Check Valve	
	5003579	1	• Seal Kit	
6	4175182	1	Load Shuttle Valve	
	4134543	1	Seal Kit	

> Change from previous revision

## 35.1 Front Wheel Motor

Part Number 4118254



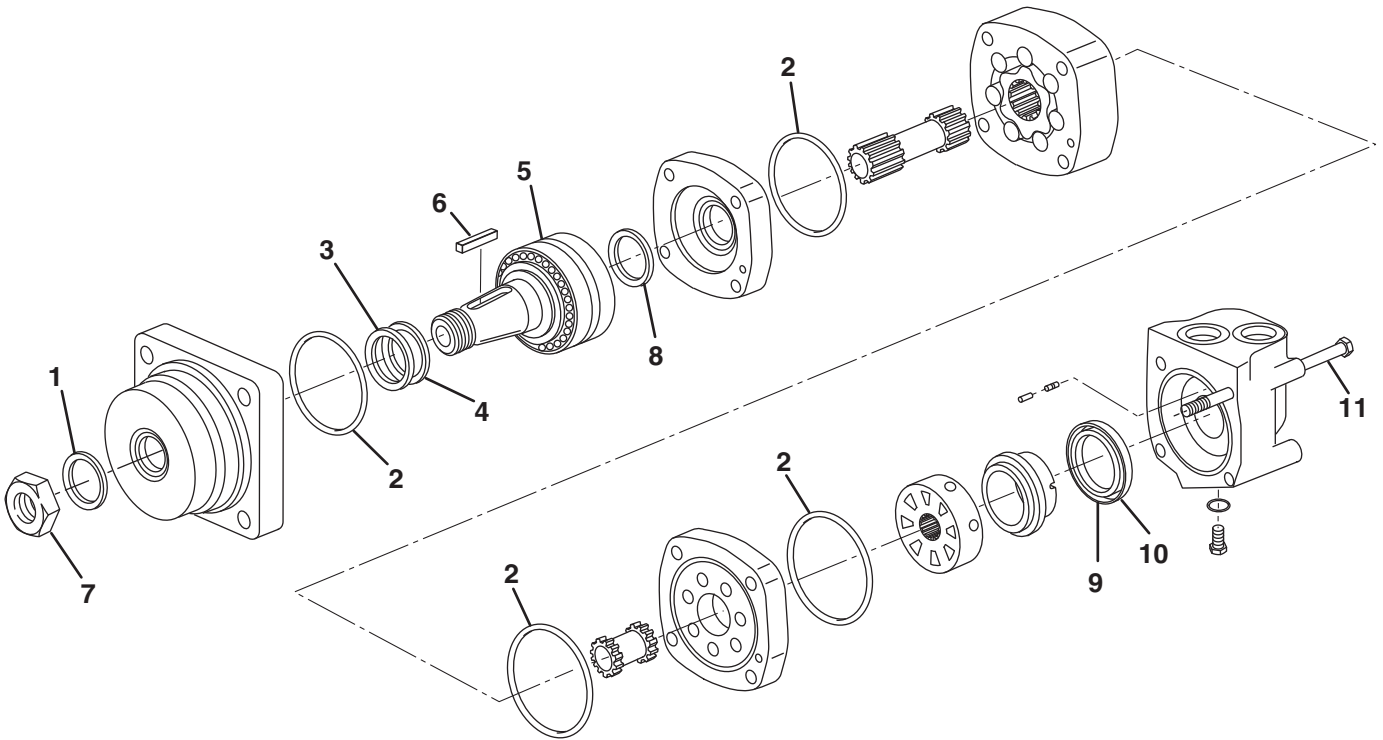
◆ Included In Seal Kit 557651  
 ○ Included In Seal Kit 5002111

Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	558066	8	Screw, Torx	
2	5002110	1	Front Retainer	
3	558063	1	Shaft and Bearing Kit	
4	557624	1	Nut, Hex	
5	557623	1	Key	
6	558064	1	Bearing Housing	
7	4134516	1	Drive	
8	4134517	1	Geroler	
9	557632	1	Drive, Valve	
10	557631	1	Plate, Valve	
11	557633	1	Valve	
12	557637	1	Balance Ring and Pins	
◆ 13	557634	1	Seal, Inner Face	
◆ 14	557635	1	Seal, Outer Face	
15	557636	2	Spring	
16	557650	3	Bolt, 5-3/4"	
17	4134522	1	Housing, Valve	
18	557639	2	• Check Plug Assembly	
19	557642	2	• Spring	
20	557640	2	• Ball, Steel	
21	5000318	1	Bolt	

> Change from previous revision

36.1 Rear Wheel Motor

Part Number 4118255

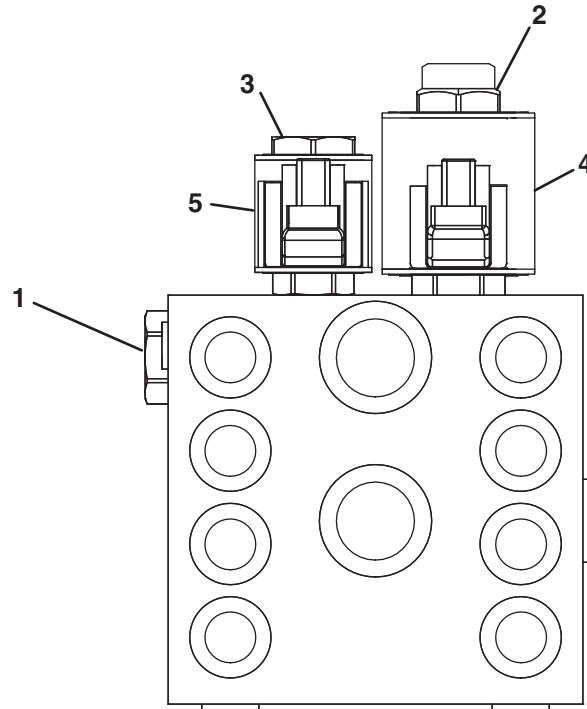


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	A	1	Seal Exclusion	
2	A	4	Seal, 3" I.D.	
3	A	1	Back Up Ring	
4	A	1	Shaft Seal	
5	4134525	1	Shaft and Bearing Kit	
6	554780	1	Key	
7	554779	1	Hex Nut	
8	A	1	Shaft Face Seal	
9	A	1	Inner Face Seal	
10	A	1	Outer Face Seal	
11	4134526	4	Bolt	
	4134527	1	Seal Kit	Includes Items Marked A

> Change from previous revision

## 37.1 Lift Valve

Part Number 4129069

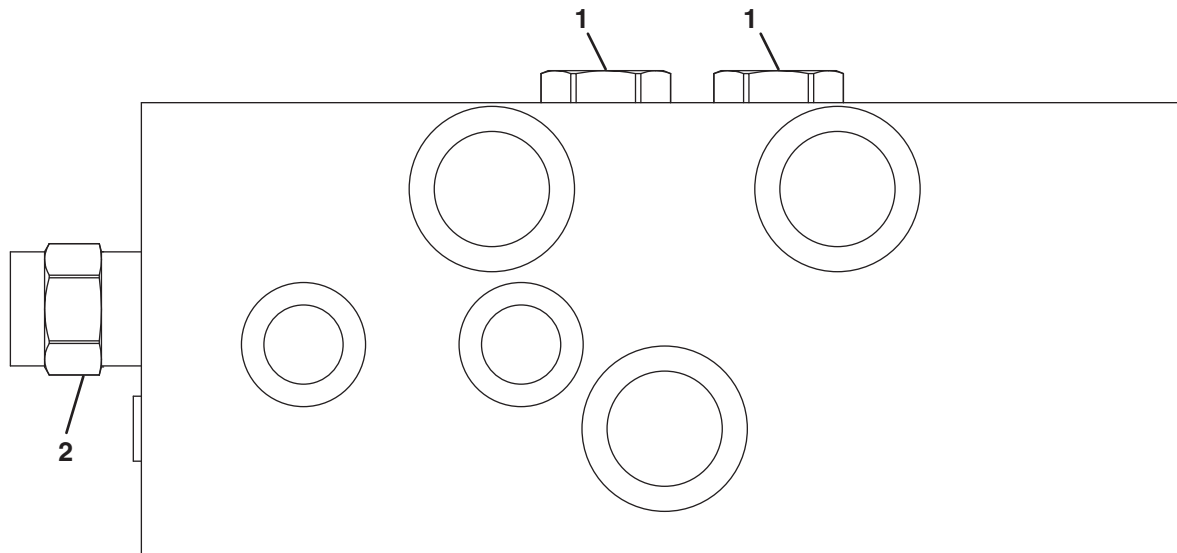


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4134528	1	Check Valve	<b>REFERENCE K-5, See 42.1</b> <b>REFERENCE K-6, See 42.1</b>
	5003579	1	• Seal Kit	
2	4134529	1	Solenoid Valve	
	5003579	1	• Seal Kit	
3	4136067	1	Solenoid Valve	
	5003578	4	• Seal Kit	
4	4134530	1	Coil	
5	4142009	1	Coil	

> Change from previous revision

**38.1 4WD Valve**

Part Number 4129071

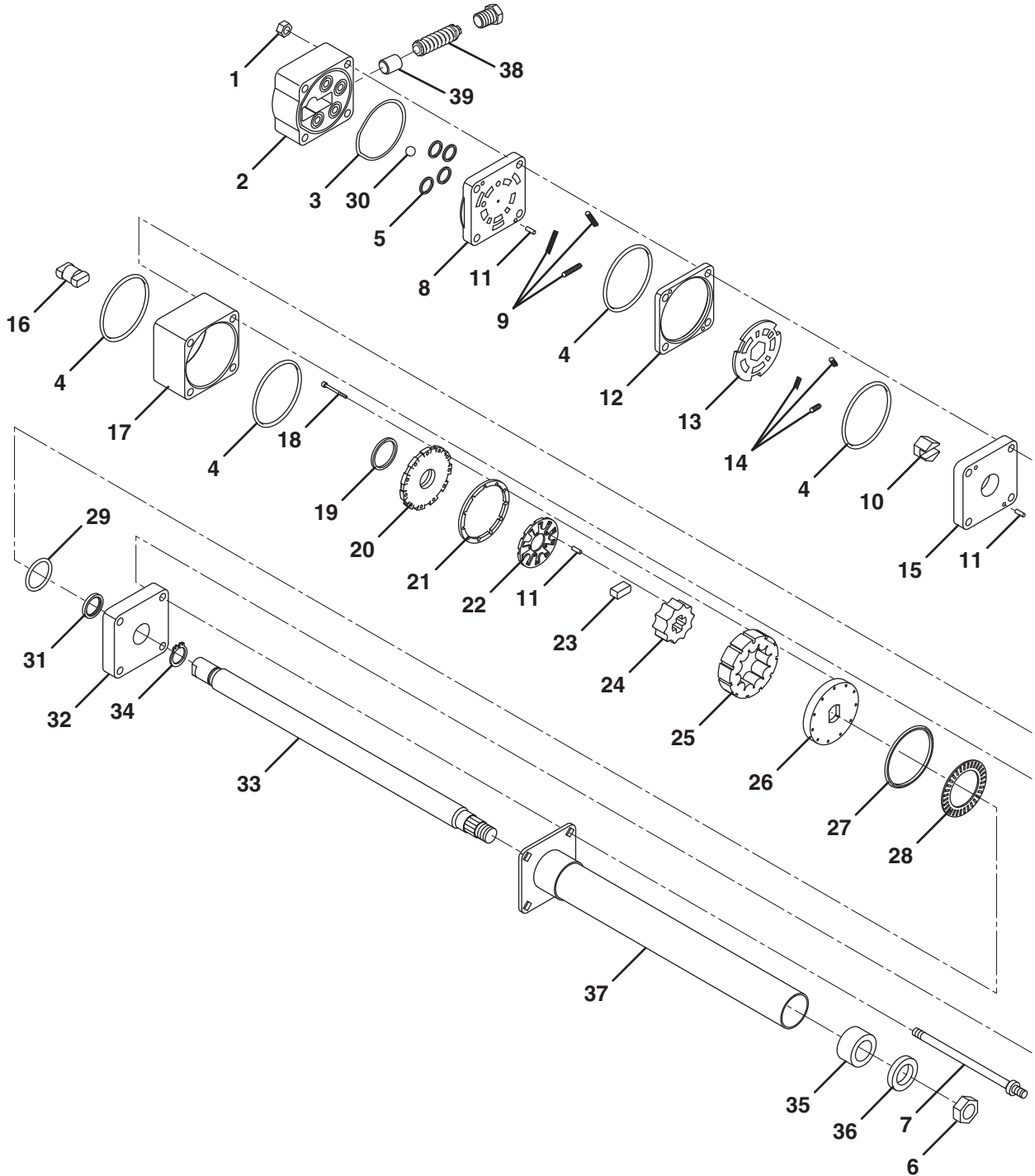


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4134541	2	Check Valve	
	5003579	1	• Seal Kit	
2	4134535	1	Pilot Operated Internal Vent Valve	
	5003579	1	• Seal Kit	

> Change from previous revision

## 39.1 Steering Valve

Part Number 4138567





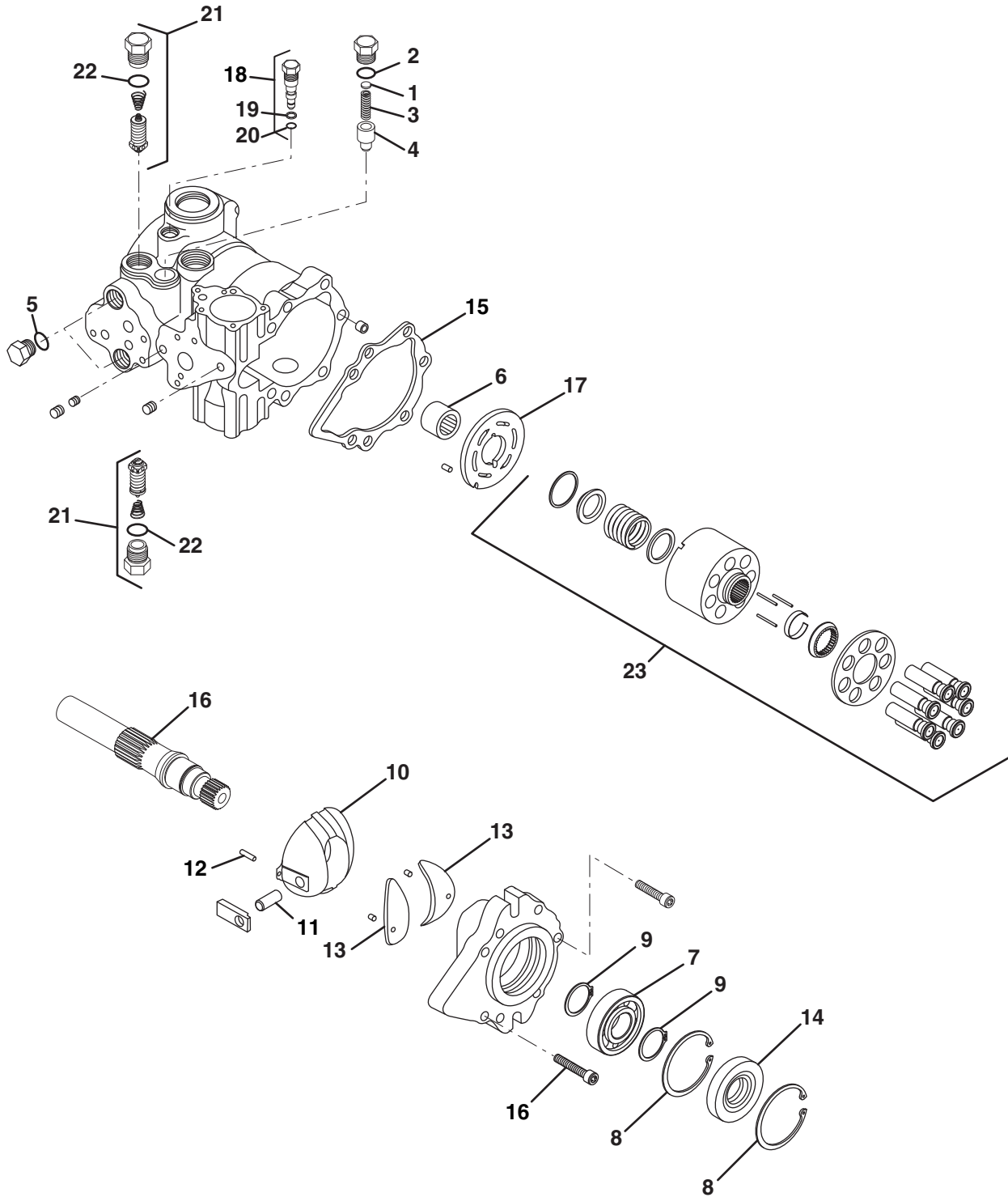
Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	443108	4	Locknut, 5/16-18 Center	
2	N/S	1	Port Cover	
3	C	1	Seal, O-Ring	
4	C	4	Seal, O-Ring	
5	C	4	Seal, O-Ring	
6	443828	1	Nut, 5/8-18 Hex Jam	
7	N/S	4	Special Bolt	
8	N/S	1	Port Manifold	
9	B	3	Spring, Port Side	
10	N/S	1	Hex Drive	
11	A and E	9	Needle Roller	
12	503398	1	Valve Ring	
13	503398	1	Valve Plate	
14	B	3	Spring, Shaft Side	
15	N/S	1	Isolation Manifold	
16	N/S	1	Drive Link	
17	N/S	1	Metering Ring	
18	A	11	Screw, Socket Head	
19	C	1	Seal, Commutator	
20	A	1	Commutator Cover	
21	A	1	Commutator Ring	
22	A	1	Commutator	
23	A	1	Spacer	
24	A	1	Rotor	
25	A	1	Stator	
26	A	1	Drive Plate	
27	554855	1	Spacer	
28	554856	1	Thrust Bearing	
29	C	1	Face Seal	
30	N/S	1	Ball, 9/32"	
31	554857	1	Seal, Spacer	
32	N/S	1	Upper Cover Plate	
33	D	1	Shaft	
34	D	1	Retaining Ring	
35	D	1	Bushing	
36	D	1	Seal	
37	D	1	Jacket	
38	4139094	1	Relief Valve Cartridge	
39	557734	1	Dampening Cap	
<b>Service Kits</b>				
A	5003220	1	Metering Assembly Kit	
B	502924	1	Spring Kit	
C	557738	1	Seal Kit	
D	5003219	1	Jacket Tube Kit	
E	502925	1	Needle Roller Kit	

&gt; Change from previous revision

## 40.1 Traction Pump (Front Half)

Part Number 4118252

Serial No. All



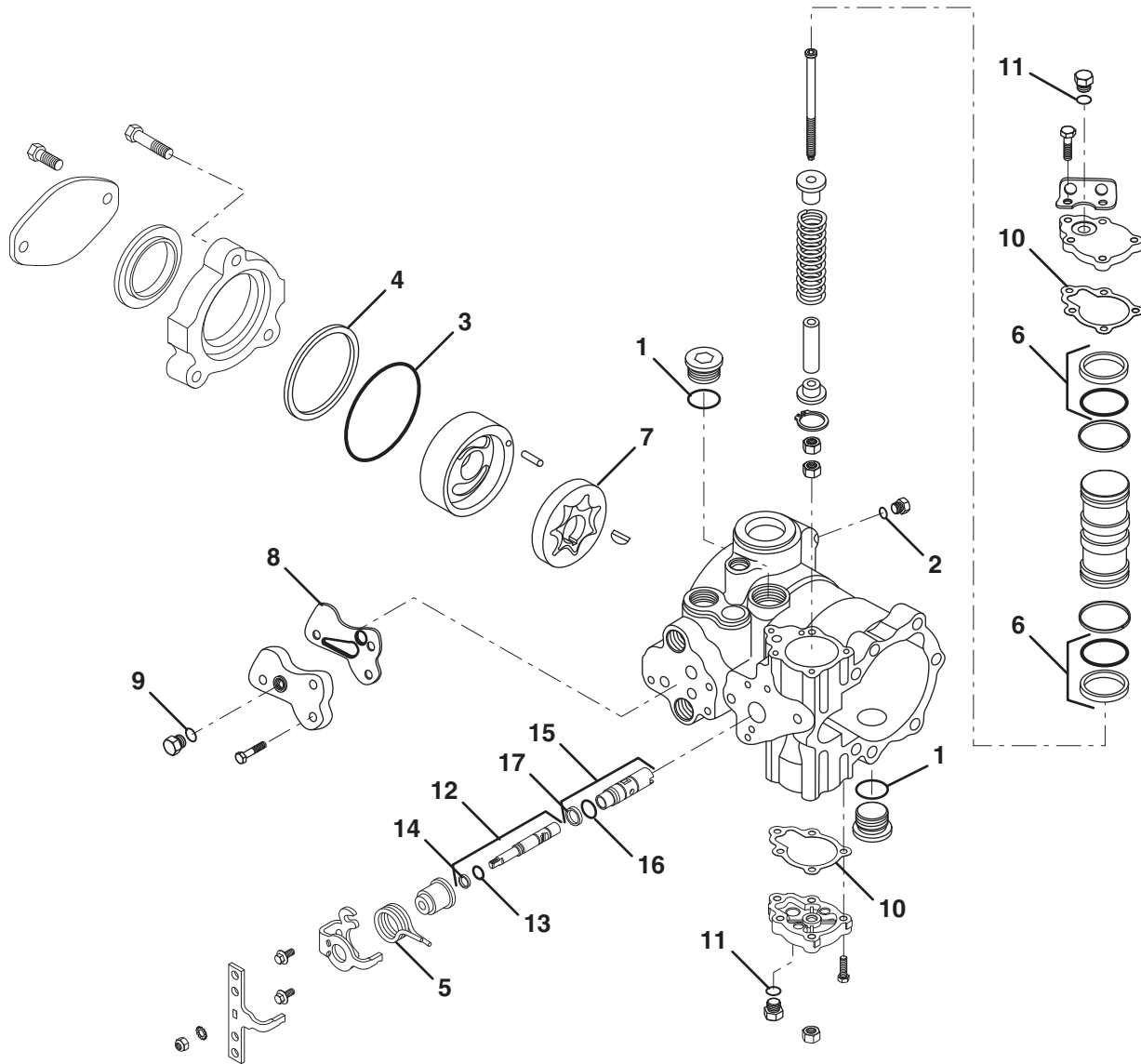
Item	Part No.	Qty.	Description	Serial Numbers/Notes	
	1	4134588	1	Shim Kit	
●	2	N/S	1	O-Ring	
	3	4134589	1	Charge Relief Spring	
	4	4134590	1	Charge Relief Valve	
	5	4134591	2	O-Ring	
	6	4134592	1	Needle Bearing	
	7	4134594	1	Roller Bearing	
	8	4134595	2	Retaining Ring	
	9	4134596	2	Ring	
	10	4134597	1	Variable Swashplate	
	11	4134606	1	• Pin	
	12	4134607	1	• Pin	
	13	4134608	2	Journal Bearing	
●	14	5003433	1	Shaft Seal	
●	15	NS	1	Front Cover Gasket	
	16	4134609	1	Pump Shaft	
	17	4134610	1	Valve Plate	
	18	4134612	1	Bypass Valve	
●	19	N/S	1	• Backup Ring	
●	20	N/S	1	• O-Ring	
	21	5003434	2	Relief Valve	
	22	4134613	1	• O-Ring	
	23	4134614	1	Cylinder Block Kit	
●		5003034	1	Seal Kit	Includes all Items marked ●

> Change from previous revision

**41.1 Traction Pump (Rear Half)**

Part Number 4118252 (Cont)

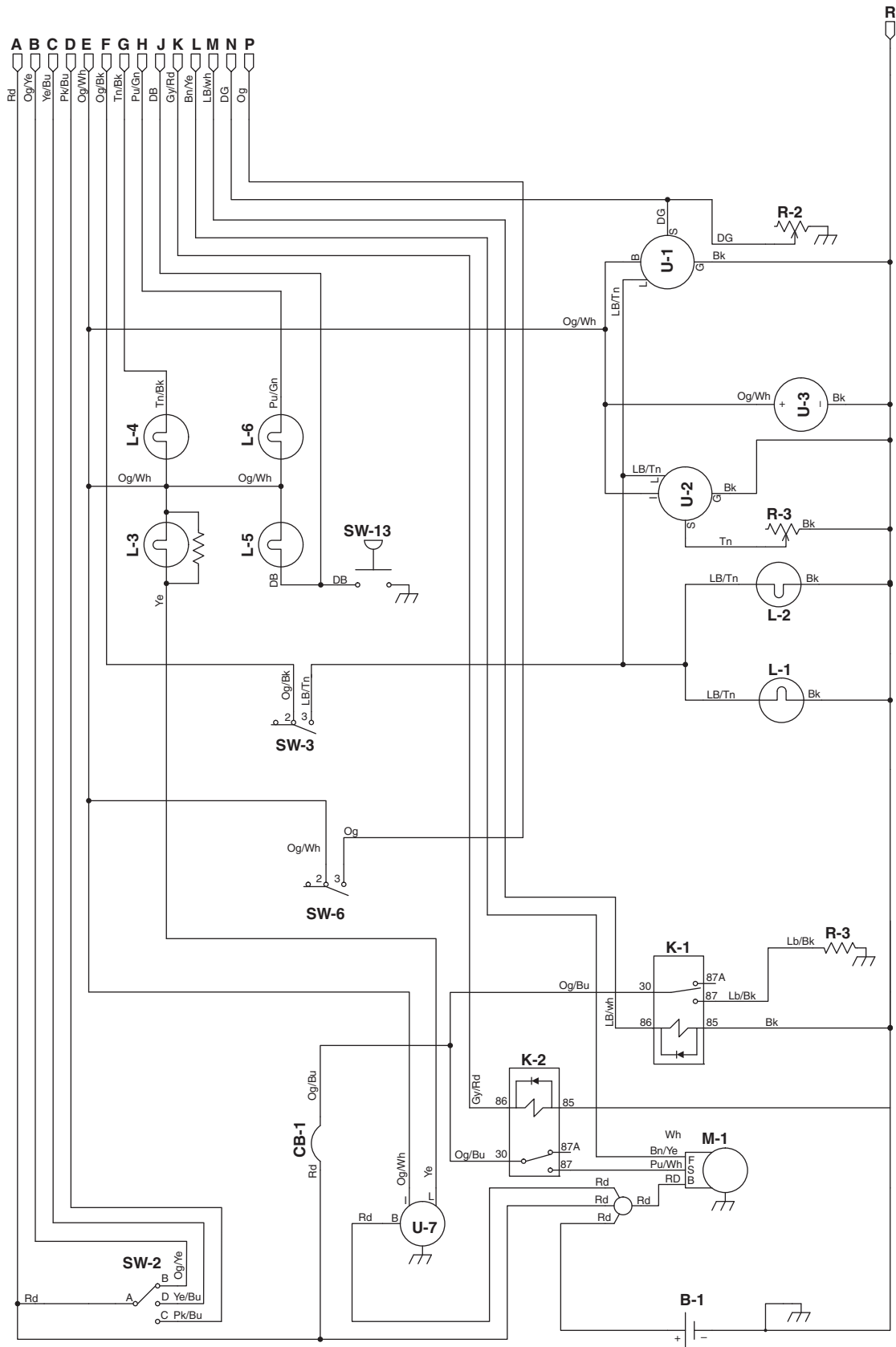
Serial No. All

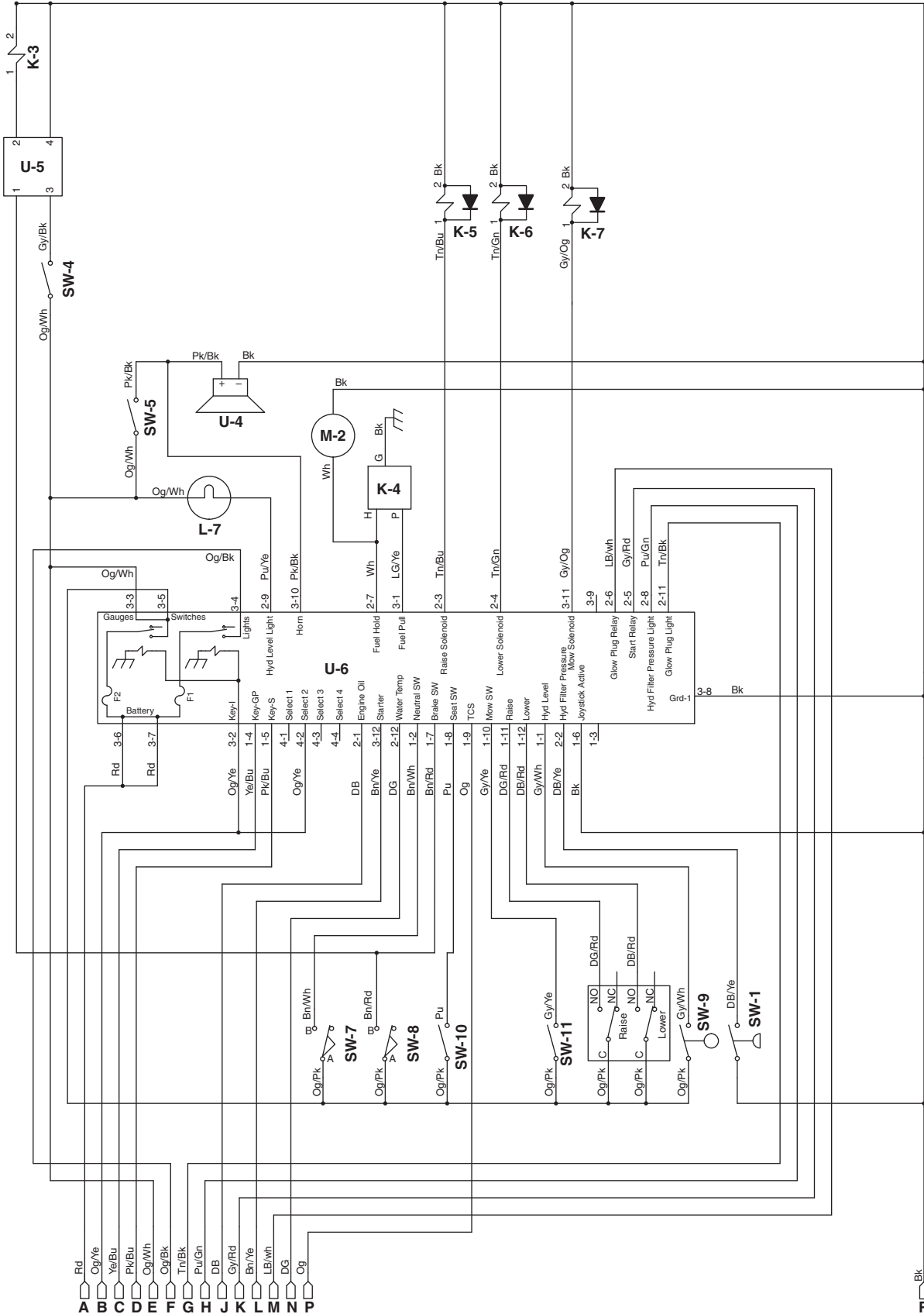


Item	Part No.	Qty.	Description	Serial Numbers/Notes
1	4134615	1	O-Ring	
2	4134616	1	O-Ring	
● 3	NS	1	O-Ring	
● 4	NS	1	Temper Load Ring	
5	4134617	1	Neutral Return Spring	
● 6	4134618	1	Piston Ring Kit	
7	4134619	1	Gerotor	
● 8	NS	1	Suction Filter Adapter Seal	
9	4134620	1	O-Ring	
● 10	NS	2	Servo Cover Gasket	
11	4134621	2	O-Ring	
12	4134622	1	Spool Assembly	
● 13	NS	1	• O-Ring	
● 14	NS	1	• Backup Ring	
15	4134623	1	Sleeve Assembly	
● 16	NS	1	• O-Ring	
● 17	NS	1	• Backup Ring	
●	5003034	1	Seal Kit	Includes all Items marked ●

> Change from previous revision

42.1 Electrical Schematic



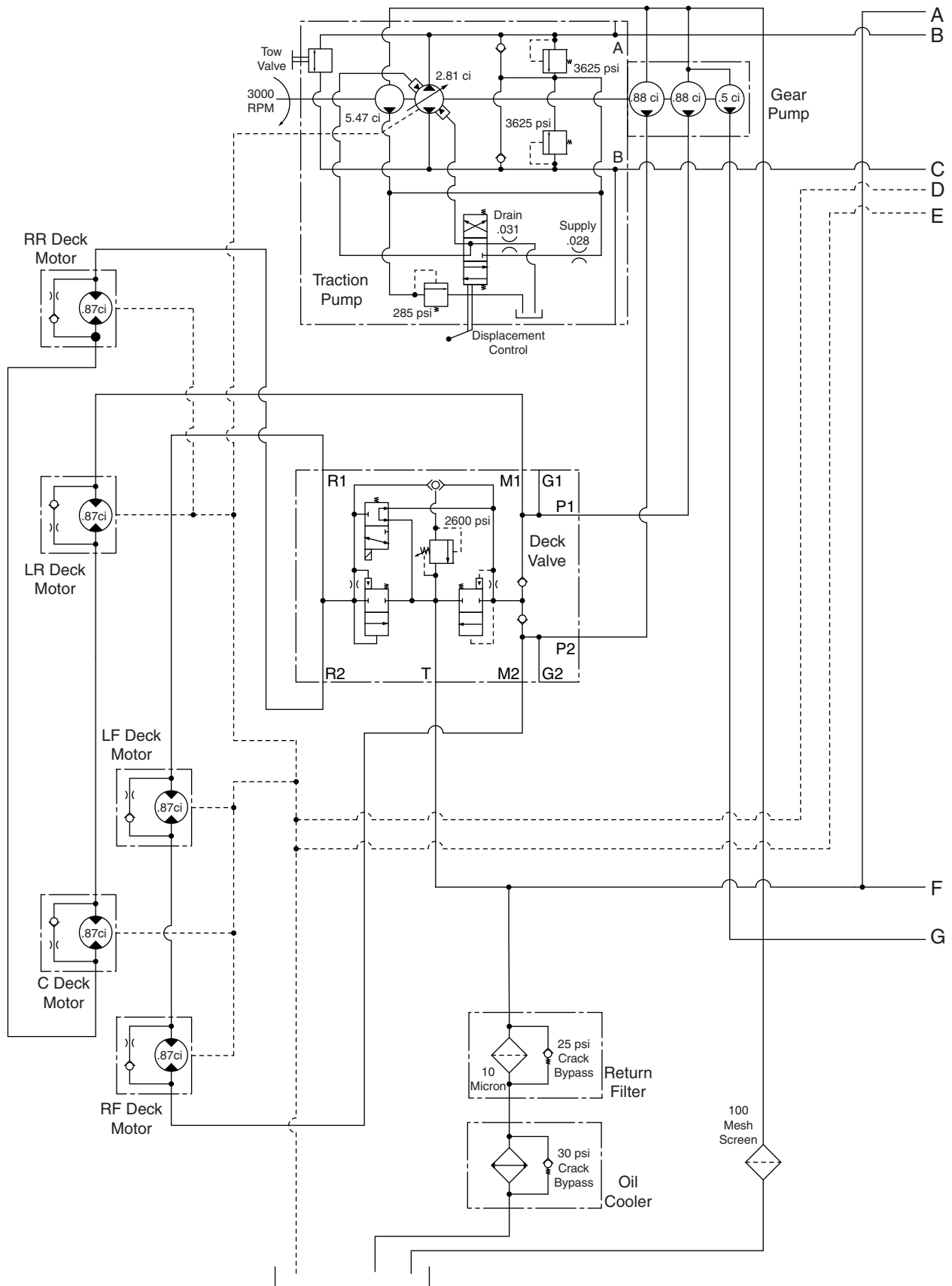


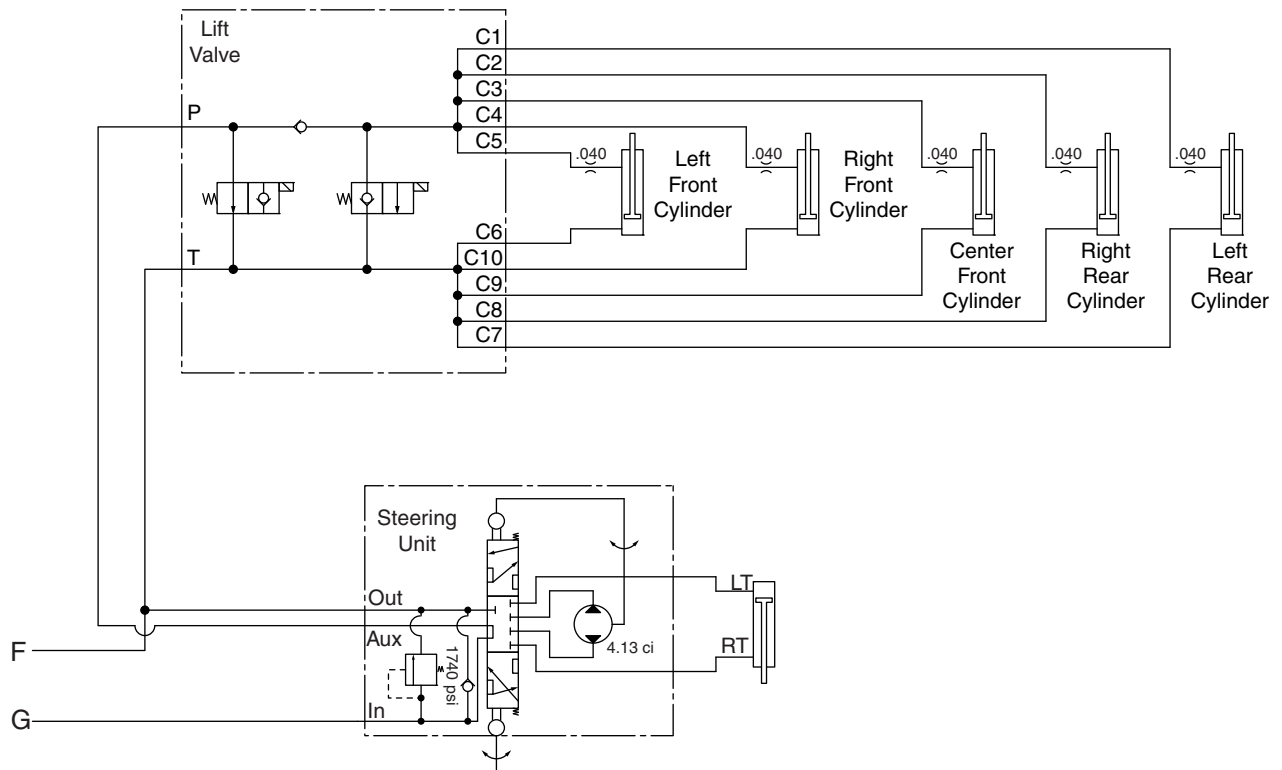
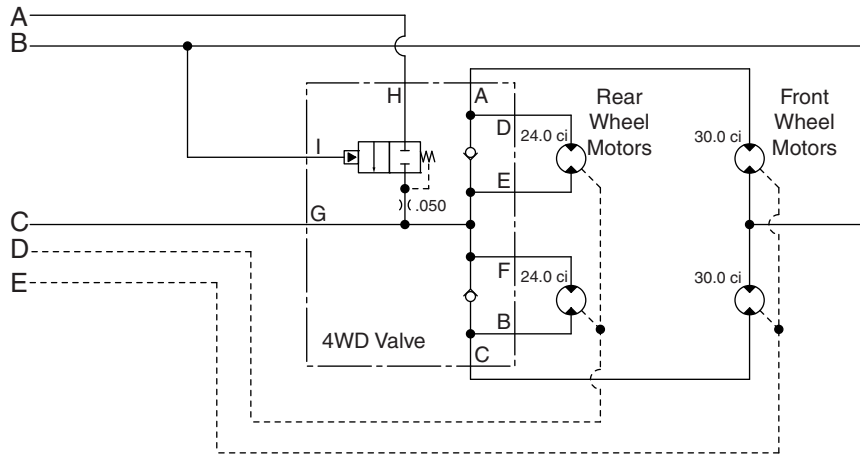
Item	Reference Illustration	Part Number	Description	Serial Numbers/Notes
B-1	See 28.1	366931	Battery	
CB-1	See 28.1	361439	50 Amp Circuit Breaker (Alternator)	
F-1	See 28.1	5003282	20 Amp Fuse (Ignition Circuit)	Included in Controller
F-2	See 28.1	5003282	20 Amp Fuse (Lights)	Included in Controller
K-1	See 28.1	4126082	Glow Plug Relay	
K-2	See 28.1	4126082	Starter Relay	
K-3	Not Shown		Cruise Control Magnet (Option)	
K-4	Not Shown	4134270	Fuel Solenoid	Included with Engine
K-5	See 37.1	4134530	Raise Solenoid Coil	
K-6	See 37.1	4142009	Lower Solenoid Coil	
K-7	See 34.1	4134532	Mow Coil	
L-1	See 28.1	4123183	Left Headlight Bulb	
L-2	See 28.1	4123183	Right Headlight Bulb	
L-3	See 4.1	N/S	Alternator Light	Included in 4130148
L-4	See 4.1	N/S	Glow Plug Light	Included in 4130148
L-5	See 4.1	N/S	Engine Oil Pressure Light	Included in 4130149
L-6	See 4.1	N/S	Hydraulic Filter Pressure Light	Included in 4130149
L-7	See 4.1	366751	Hydraulic Level Light	
M1	Not Shown	556988	Starter Motor	Included in Engine
M2	See 16.1	4132489	Fuel Pump	
R-1	See 16.1	3006337	Fuel Sender	
R-2	See 14.1	364501	Temperature Sender	
R-3	Not Shown	556996	Glow Plugs	Included in Engine
SW-1	See 19.1	556419	Hydraulic Filter Pressure Switch	
SW-2	See 4.1	4128888	Ignition Switch	OFF-None Run - A+B GP - A+B+D Start - A+B+C+D
SW-3	See 4.1	4130132	Light Switch	
SW-4	Not Shown		Cruise Control Switch (Option)	
SW-5	See 4.1	4130133	Horn Switch	
SW-6	See 4.1	4137524	Traction Control System Switch	
SW-7	See 5.1	4125831	Neutral Proximity Switch	
SW-8	See 6.1	4125831	Parking Brake Proximity Switch	
SW-9	See 16.1	3001279	Hydraulic Oil Level Switch	
SW-10	See 3.1	554390	Seat Switch	68080 - 1601 ~ 2156
SW-10	See 3.1	4139450	Seat Switch	68080 - 2157 and Up
SW-11	See 4.1	2721505	Mow Switch	
SW-12	See 4.1	1004290	Joystick	
SW-13	Not Shown	554018	Engine Oil Pressure Switch	Included in Engine



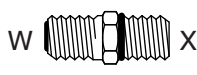
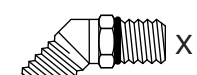
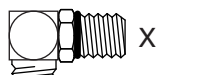
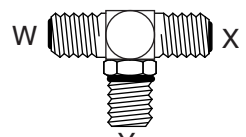
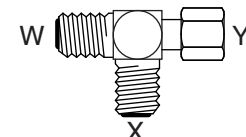
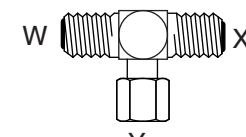
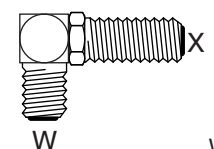
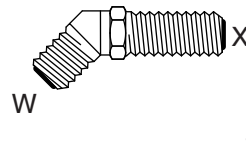
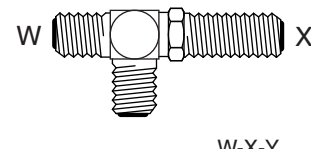
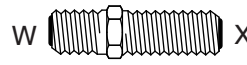
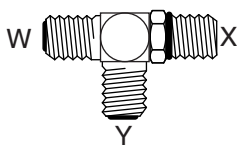

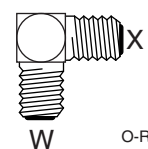
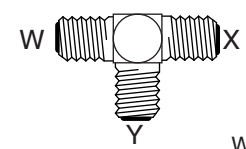
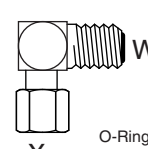
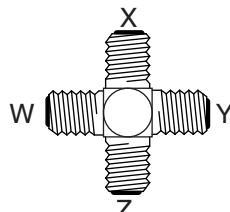

Item	Reference Illustration	Part Number	Description	Serial Numbers/Notes
U-1	See 4.1	3005121	Temperature Gauge	
U-2	See 4.1	365943	Fuel Gauge	
U-3	See 4.1	4129683	Hour Meter	
U-4	See 4.1	366670	Horn	
U-5	Not Shown		Cruise Control Module (Option)	
U-6	See 28.1	4122841	Controller	
U-7	Not Shown	5000938	Alternator	Included in Engine

## 43.1 Hydraulic Schematic





44.1 O-Ring Chart



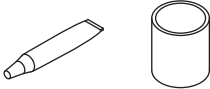
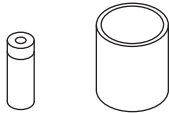



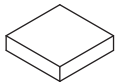
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Boss Dash Size</p> <p><b>Straight Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Boss Dash Size</p> <p><b>45° Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Boss Dash Size</p> <p><b>90° Adapter</b></p>
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Boss Dash Size</p> <p><b>Straight Thread Branch Tee</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{X}</math> O-Ring Not Needed</p> <p><b>Swivel Run Tee</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Not Needed</p> <p><b>Swivel Branch Tee</b></p>
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Face Seal Size</p> <p><b>90° Bulkhead Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Face Seal Size</p> <p><b>45° Bulkhead Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Face Seal Size</p> <p><b>Bulkhead Run Tee</b></p>
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Face Seal Size</p> <p><b>Union Bulkhead Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Boss Dash Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Face Seal Size</p> <p><b>Straight Thread Run Tee</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Face Seal Size</p> <p><b>Union Adapter</b></p>
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Face Seal Size</p> <p><b>90° Union Adapter</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Face Seal Size</p> <p><b>Union Tee</b></p>	 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X}</math> O-Ring Not Needed</p> <p><b>90° Swivel Adapter</b></p>
 <p>O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{W-X-Y-Z}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{X}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Y}</math> O-Ring Face Seal Size <math>\overbrace{\quad\quad}^{Z}</math></p> <p><b>Cross Adapter</b></p>		 <p><b>Plug</b></p>

Adapter Part Number.	Dash Size	Adapter Type	(W) O-Ring	(X) O-Ring	(Y) O-Ring	(Z) O-Ring
339974	4-6	Straight Adapter	339908	339897		
339977	6-4	Straight Adapter	339909	339896		
339979	6-6	Straight Adapter	339909	339897		
339985	8-10	Straight Adapter	339910	339899		
339989	10-10	Straight Adapter	339911	339899		
339993	12-10	Straight Adapter	339912	339899		
339994	12-12	Straight Adapter	339912	339900		
339996	12-16	Straight Adapter	339912	339901		
339998	16-12	Straight Adapter	339913	339900		
339999	16-16	Straight Adapter	339913	339901		
340002	16-20	Straight Adapter	339913	339902		
340007	6-4	Straight Adapter	339906	339896		
340009	10-10	Straight Adapter	339911	339899		
340026	6-6	45° Adapter	339909	339897		
340030	8-10	45° Adapter	339910	339899		
340059	6-4	90° Adapter	339909	339896		
340061	6-6	90° Adapter	339909	339897		
340070	10-10	90° Adapter	339911	339899		
340077	16-16	90° Adapter	339913	339901		
340090	24-24	90° Adapter	339915	339903		
340119	6-6-6	Swivel Run Tee	339909	339909		
340122	12-12-12	Swivel Run Tee	339912	339912		
340123	16-16-16	Swivel Run Tee	339913	339913		
340143	6-6-6	Swivel Branch Tee	339909	339909		
340375	6-6	90° Swivel Adapter	339909			
340376	8-8	90° Swivel Adapter	339910			
340377	16-16	90° Swivel Adapter	339913			

SAE Boss O-Rings			ORS Face Seal O-Rings		
Dash Size	Thread Size	O-Ring	Tube Size	Thread Size	O-Ring
2	5/16-24	459290	4	9/16-18	339908
3	3/8-24	459291	6	11/16-16	339909
4	7/16-20	339896	8	13/16-16	339910
5	1/2-20	459293	10	1-14	339911
6	9/16-18	339897	12	1 3/16-12	339912
8	3/4-16	339898	16	1 7/16-12	339913
10	7/8-14	339899	20	1 11/16-12	339914
12	1 1/16-12	339900	24	2-12	339915
14	1 3/16-12	459296			
16	1 5/16-12	339901			
20	1 5/8-12	339902			
24	1 7/8-12	339903			
32	2 1/2-12	339904			

&gt; Change from previous revision

# Fluids And Compounds

<b>Hydraulic Fluid*</b>		
5001405	Two 2-1/2 Gallon Container of ISO VG68 Oil	
5001404	One 5 Gallon Pail of ISO VG68 Oil	
2500548	Two 2-1/2 Gallon Container of 10W30 Oil	
2500546	One 5 Gallon Pail of 10W30 Oil	
503409	Two 2-1/2 Gallon Container of ATF Fluid	
503407	One 5 Gallon Pail of ATF Fluid	
<b>2-Cycle Oil</b>		
554600	Twenty Four 16 Ounce Plastic Container	
554599	Twenty Four 8 Ounce Plastic Container	
<b>Grease</b>		
5000067	One 5 Gallon Pail OO-Grease	
5000068	Twenty Four 8 Ounce Tube OO-Grease	
<b>Paint</b>		
5003469	16 Ounce Gray Aerosol	
554598	Six 12 Ounce Orange Aerosol	
2500789	Twelve 1 Quart Can Orange	
546409	Two 1 Gallon Can Orange	
<b>Lapping Compound</b>		
5002488	One 10 Pound Pail of 80 Grit	
5002490	One 25 Pound Pail of 80 Grit	
5002489	One 10 Pound Pail of 120 Grit	
5002491	One 25 Pound Pail of 120 Grit	
<b>Specialty Compound</b>		
365422	5.3 Ounce Tube of Electrical Insulating Gel	
5001581	14 Ounce Can of Lubriplate Multi Lube A	
<b>Biodegradable Hydraulic Fluid*</b>		
5003102	One 55 Gallon Drum Jacobsen GreensCare 68	
5003103	One 5 Gallon Pail Jacobsen GreensCare 68	
5003105	One 55 Gallon Drum Jacobsen GreensCare 46	
5003104	One 5 Gallon Pail Jacobsen GreensCare 46	
4115976	One 55 Gallon Drum Jacobsen GreensCare 32	
4115977	One 5 Gallon Pail Jacobsen Greens Care 32	
5003106	Twenty Four 14 Ounce Tube Greens Care Grease	
<b>O-Ring Kit</b>		
5002452	SAE O-Ring Boss (3/32 ~ 2" Tube O.D.)	
5002453	Common O-Ring Kit	
5002454	O-Ring Face Seal ORFS (-4 ~ -24 ORS Tube Size)	
<b>Right Start Kit for New Machines</b>		
See your local Jacobsen Dealer		
<b>On-Time Maintenance Kit</b>		
See your local Jacobsen Dealer		

\* Refer to the Parts & Maintenance Manual for the correct hydraulic oil requirements for your machine.

Jacobsen offers a High Usage Parts Catalog illustrating commonly used Parts through easy to read line Drawings. See your local Jacobsen Dealer for a copy.

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