

Parts & Service



**Sweep Star 48H**  
**48-500-A**  
**SN: GH5243**

**January 2016**

***Product Support:***

***Hwy 55 & Poplar Ave; Cameron WI 54822***

***1-800-891-9435    productsupport@smithco.com***

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Thank you for purchasing a **Smithco** product.

Read this manual and all other manuals pertaining to the Sweep Star 48H carefully as they have safety, operating, assembly and maintenance instructions. Failure to do so could result in personal injury or equipment damage.

Keep manuals in a safe place after operator and maintenance personnel have read them. Right and left sides are from the operator's seat, facing forward.

 <p><b>WARNING:</b></p> <p>Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. For more information visit <a href="http://www.PWarning.ca.gov">www.PWarning.ca.gov</a></p>	<p><b>WARNING</b></p> <p><i>Failure to follow cautious operating practices can result in serious injury to the operator or other persons. The owner must understand these instructions, and must allow only trained persons who understand these instructions to operate this vehicle.</i></p>
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All **Smithco** machines have a Serial Number and Model Number. Both numbers are needed when ordering parts. Refer to engine manual for placement of engine serial number.

For product and accessory information, help finding a dealer, or to register your product please contact us at [www.Smithco.com](http://www.Smithco.com).

Information needed when ordering replacement parts:

1. Model Number of machine
2. Serial Number of machine
3. Name and Part Number of part
4. Quantity of parts

For easy access record your Serial and Model numbers here.

 WAYNE, PENNSYLVANIA 19087 USA 610-688-4009 Fax 610-688-6069			
SERIAL NO.	kW/hp	DATE OF MFG.	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
MODEL NO.	lb/kg Empty	lb/kg Full	
<input type="text"/>	<input type="text"/>	<input type="text"/>	

**SMITHCO CUSTOMER SERVICE 1-800-891-9435**

## SAFE PRACTICES

1. It is your responsibility to read this manual and all publications associated with this machine (engine, accessories and attachments).
2. Never allow anyone to operate or service the machine or its attachments without proper training and instructions. Never allow minors to operate any equipment.
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. 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.
5. Inspect the area where the equipment will be used. Beware of overhead obstructions and underground obstacles. Stay alert for hidden hazards.
6. Never operate equipment that is not in perfect working order or without decals, guards, shields, or other protective devices in place.
7. Never disconnect or bypass any switch.
8. Carbon monoxide in the exhaust fumes can be fatal when inhaled, never operate a machine without proper ventilation.
9. Fuel is highly flammable, handle with care.
10. Keep engine clean. Allow the engine to cool before storing and always remove the ignition key.
11. After engine has started, machine must not move. If movement is evident, the neutral mechanism is not adjusted correctly. Shut engine off and readjust so the machine does not move when in neutral position.
13. Never use your hands to search for oil leaks. Hydraulic fluid under pressure can penetrate the skin and cause serious injury.
14. This machine demands your attention. To prevent loss of control or tipping of the vehicle:
  - A. Use extra caution in backing up the vehicle. Ensure area is clear.
  - B. Do not stop or start suddenly on any slope.
  - C. Reduce speed on slopes and in sharp turns. Use caution when changing directions on slopes.
  - D. Stay alert for holes in the terrain and other hidden hazards.
15. Before leaving operator's position for any reason:
  - A. Disengage all drives.
  - B. Lower all attachments to the ground.
  - C. Set park brake.
  - D. Shut engine off and remove the ignition key.
16. Keep hands, feet and clothing away from moving parts. Wait for all movement to stop before you clean, adjust or service the machine.
17. Keep the area of operation clear of all bystanders.
18. Never carry passengers.
19. Stop engine before making repairs/adjustments or checking/adding oil to the crankcase.
20. Use parts and materials supplied by **Smithco** only. Do not modify any function or part.

***These machines are intended for professional maintenance on golf courses, sports turf, and any other area maintained turf and related trails, paths and lots. No guaranty as to the suitability for any task is expressed or implied.***

# SPECIFICATIONS FOR SWEEP STAR 48H

## WEIGHTS AND DIMENSIONS

Length	121" (307 cm)
Width	60" (153 cm)
Height with Hopper Down	63" (160 cm)
Height with Hopper Up	126" (320 cm)
Wheel Base	70" (179 cm)
Weight	1900 lb (862 kg)

## HIGH LIFT

## SOUND LEVEL

At ear level	90 dB
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## ENGINE

Make	Briggs & Stratton
Model#	356447
Type / Spec#	0263G1
Horsepower	18 Hp (13kW)
Fuel	Unleaded 87 Octane Gasoline Minimum
Cooling System	Air Cooled
Lubrication System	Full Pressure
Alternator	16 Amp

## WHEELS & TIRE

Front:	One 18 x 9.50 x 8 Multi-rib (20 psi (1.4 bar))
Rear:	Two 22 x 11.00 - 10 4-ply (20 psi (1.4 bar))
Castor:	9 x 3.50 - 4 (20 psi (1.4 bar))

## SPEED

Forward Speed	0 to 10 m.p.h. (0-16 kph)
Reverse Speed	0 to 4 m.p.h. (0-6 kph)

## BATTERY

	Automotive IBS type 45-12 volt
BCI Group	Size 45
Cold Cranking Amps	480 minimum
Ground Terminal Polarity	Negative (-)
Maximum Length	9" (23 cm)
Maximum Width	5.38" (14 cm)
Maximum Height	9" (23 cm)

## FLUID CAPACITY

Crankcase Oil	See Engine Manual
Fuel	6 gallon (22,7 liters)
Hydraulic Fluid	5 gallon (19 liters)
Grade of Hydraulic Fluid	SAE 10W-40 API Service SJ or higher Motor Oil

# OPTIONAL EQUIPMENT

- 48-502 48" Brush Reel Kit (includes pillow blocks and pulley drive)
- 48-503 48" Finger Reel Kit (includes pillow blocks and pulley drive)
- 48-501 Hopper Dust Shield

# MAINTENANCE

## ⚠ CAUTION

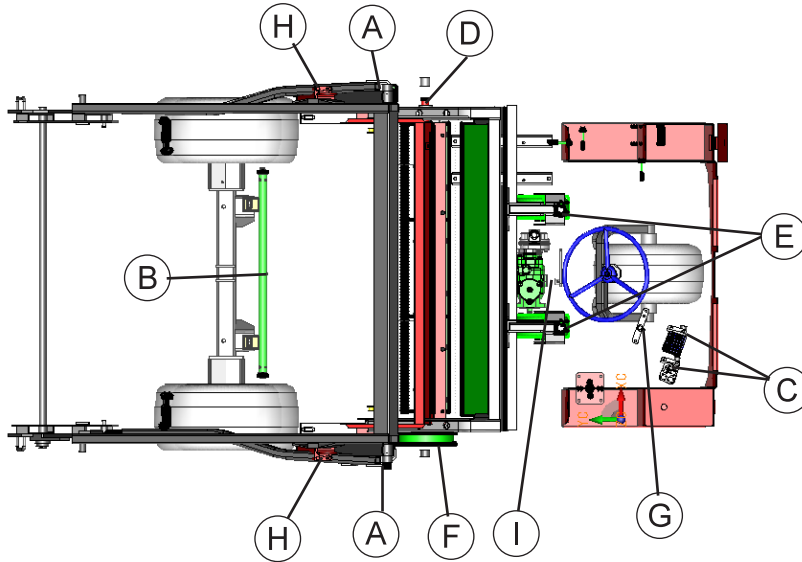
Before servicing or making adjustments to the machine, stop engine, set park break, block wheels and remove key from ignition.

## ⚠ IMPORTANT

Follow all procedures and **ONLY** use parts prescribed by the manufacturer. Read the engine manual before maintenance.

### LUBRICATION

Use No. 2 General Purpose Lithium Base Grease and lubricate every 100 hours. The Sweep Star 48H has fifteen grease fittings.



- A. One on the top of each tower.
- B. One on the center of park brake relay on rear axle.
- C. One on each pedal under the floorboard.
- D. One on the pillow block bearing on each end of finger/brush reel.
- E. One on caster wheel mount bracket.
- F. One on reel clutch relay. One on reel clutch belt tightener.
- G. One on pedal pivot arm.
- H. One on rod end of the tailgate cylinder.
- I. Pump idler Arm.

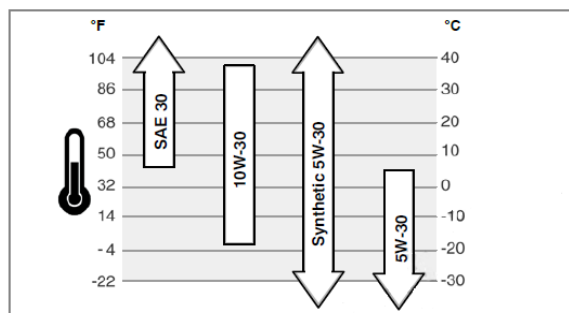
## HYDRAULIC OIL

1. Use SAE 10W-40 API Service SG motor oil.
2. For proper warranty, change oil every 500 hours or annually, which ever is first and change the filter after the first 50 hours, then every 250 hours thereafter.
3. The oil level should be 2" to 2½" (5 - 6.4 cm) from top of fill neck when fluid is cold. Do not overfill.
4. After changing oil and/or filter, run the machine for a few minutes. Check oil level and for leaks.
5. Always use caution when filling hydraulic oil tank or checking level to keep system free of contaminants. Check and service more frequently when operating in extremely cold, hot or dusty conditions.
6. If natural color of fluid is now black or smells burnt, it is possible that an overheating problem exists.
7. If fluid becomes milky, water contamination may be a problem.
8. If either of the above conditions happen, change oil and filter immediately after fluid is cool and find cause. Take fluid level readings when system is cold.
9. In extreme temperatures you can use straight weight oil. We recommend SAE 30W API Service SG when hot (above 90°F (33°C)) and SAE 10W API Service SG when cold (below 32°F (0°C)) ambient temperature. Use either motor oil or hydraulic oil, but do not mix.
10. Oil being added to the system must be the same as what is already in the tank. Mark tank fill area as to which type you put in.

## ENGINE OIL

Change and add oil according to chart below. Do not overfill. Engine oil capacity is 2 quarts. We recommend high-quality detergent oils classified for service SF, SG, SH, SJ or higher. Do not use special additives. Outdoor temperatures determine the proper oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected.

### SAE Viscosity Grades



Use of multi-viscosity oils (10W-30, etc.) above 80° F (27° C) will result in high oil consumption and possible engine damage. Check oil level more frequently if using these types of oils.

SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

# MAINTENANCE

## TIRE PRESSURE

Caution must be used when inflating a low tire to recommended pressure. Over inflating can cause tires to explode. Front and rear tires and caster wheel should be 20 psi (1.4bar) maximum. Improper inflation will reduce tire life considerably.

## WHEEL MOUNTING PROCEDURE

### REAR WHEELS

1. Set park brake. Turn machine off and remove key.
2. Block one of the other wheels.
3. Loosen nuts slightly on wheel to be removed.
4. Jack up machine being careful not to damage underside of machine.
5. Remove nuts, remove wheel.
5. Place new wheel on hub lining up bolt holes.
6. Torque nuts to 64-74 ft/lb (87-100Nm) using a cross pattern. Re-torque after first 8 hours and every 250 hours thereafter.
7. Lower machine to ground and remove blocks and jack.

### FRONT WHEEL

1. Set park brake. Turn machine off and remove key.
2. Block one of the other wheels.
3. Remove cotter pins from each end of the axle.
4. Remove axle nuts, machine bushings and axle locks.
5. Jack up front of machine being careful not to damage underside of machine.
6. Wheel and axle will come out of slots in the u-bracket, pull wheel forward.
7. Place new wheel on hub lining up bolt holes.
8. Torque nuts to 64-74 ft/lb (87-100Nm) using a cross pattern. Re-torque after first 8 hours and every 250 hours thereafter.
9. Place wheel back on front fork. Tighten all bolts.
10. Lower machine to ground and remove blocks and jack.



## BATTERY

Batteries normally produce explosive gases which can cause personal injury. Do not allow flames, sparks or any ignited object to come near the battery. When charging or working near battery, always shield your eyes and always provide proper ventilation.

Battery cable should be disconnected before using "Fast Charge".

Charge battery at 15 amps for 10 minutes or 7 amps for 30 minutes. Do not exceed the recommended charging rate. If electrolyte starts boiling over, decrease charging.

Always remove grounded (-) battery clamp first and replace it last. Avoid hazards by:

1. Filling batteries in well-ventilated areas.
2. Wear eye protection and rubber gloves.
3. Avoid breathing fumes when electrolyte is added.
4. Avoid spilling or dripping electrolyte.

### ⚠ WARNING

**Battery Electrolyte is an acidic solution and should be handled with care. If electrolyte is splashed on any part of your body, flush all contact areas immediately with liberal amounts of water. Get medical attention immediately.**

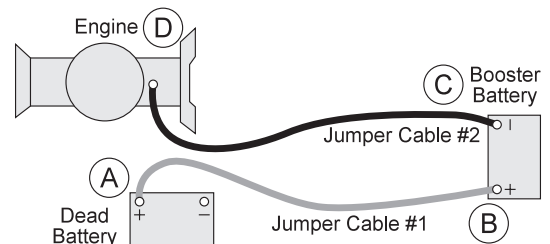
## JUMP STARTING

### ⚠ WARNING

**Use of booster battery and jumper cables. Particular care should be used when connecting a booster battery. Use proper polarity in order to prevent sparks.**

To jump start (negative grounded battery):

1. Shield eyes.
2. Connect ends of one cable to positive (+) terminals of each battery, first (A) then (B).
3. Connect one end of other cable to negative (-) terminal of "good" battery (C).
4. Connect other end of cable (D) to engine block on unit being started (NOT to negative (-) terminal of battery)



To prevent damage to other electrical components on unit being started, make certain that engine is at idle speed before disconnecting jumper cables.

## TOWING

When it is necessary to move the Sweep Star 48H without engine running, the bypass valve built into hydrostatic pump must be "open" by turning it  $\frac{1}{4}$  turn. An "open" valve allows fluid to pass through the wheels freely. When normal, driven, operation is desired, valve should be closed by turning it  $\frac{1}{4}$  turn. Failure to "close" the valve with engine running means no power to wheels. Tow slowly. 2 m.p.h. or less.

The bypass valve is a  $\frac{3}{8}$  diameter shaft with two flat spots on the sides so you can turn it. On the high lift it is on the top of the hydrostatic.

## FILTER PACK

Filters can be removed and cleaned by shaking or use a low pressure water hose. Filter will disintegrate if cleaned under high pressure.



## SERVICE CHART

### ⚠ CAUTION

Before servicing or making adjustments to the machine, stop engine, set park break, block wheels and remove key from ignition.

### ⚠ IMPORTANT

Follow all procedures and **ONLY** use parts prescribed by the manufacturer. Read the engine manual before maintenance.

The suggested maintenance checklist is not offered as a replacement for the manufacturer's engine manual but as a supplement. You must adhere to the guidelines established by the manufacturer for warranty coverage. In adverse conditions such as dirt, mud or extreme temperatures, maintenance should be more frequent.

Maintenance Service Interval	Maintenance Procedure
After the first 8 operating hours	Torque the wheel lug nuts. (64-74 ft/lb (87-100 Nm))
	Change the engine oil filter.
Before each use daily	Check the engine oil level.
	Clean area around muffler and controls.
	Check the hydraulic fluid level.
	Check the tire pressure.
	Check and clean Debris Filter Pack1
	Check condition of hydraulic hoses and fittings.
	Inspect and clean the machine.
After the first 50 hours	Change Hydraulic Oil Filter.
Every 100 hours	Clean or change air filter.1
	Clean pre-cleaner.1
	Change engine oil and filter.
	Replace spark plug .
	Lubricate machine.
	Clean or change remote air cleaner.
	Check the battery fluid level and cable connections..
	Check muffler and spark arrestor.
Every 250 hours	Check belt tension .
	Check engine valve clearance and adjust if necessary.
	Check idle speed.
	Clean battery terminals.
	Change hydraulic oil filter.
Every 500 hours or yearly	Torque the wheel lug nuts. (64-74 ft/lb (87-100 Nm))
	Change fuel filter.
	Change hydraulic oil and filter.
	Clean oil cooler fins.1
	Clean air cooling system.1
	Check safety filter in remote air cleaner.
1 In dusty conditions or when airborne debris is present, clean more often.	

**MAINTENANCE CHART**

***Duplicate this page for routine use.***

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Service

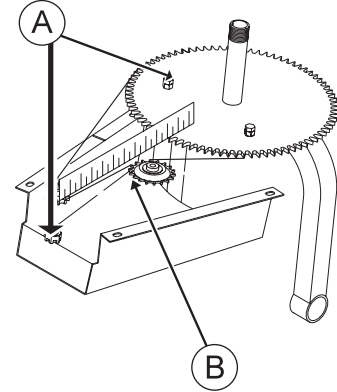
## ADJUSTMENTS

### PARK BRAKE ADJUSTMENT

By turning knob on end of park brake lever you can tighten or loosen brake a small amount. To tighten turn the knob clockwise. To loosen turn counter clockwise. If this is not enough turn clevis on the rear of the brake cable to adjust length of cable. Do not adjust the clevis on the front of the machine.

### STEERING CHAIN ADJUSTMENT

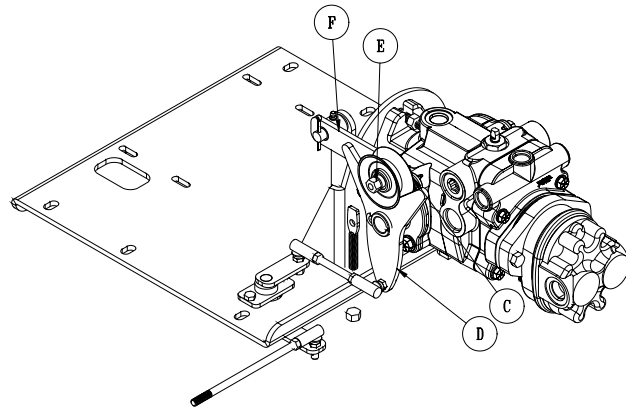
Steering Sprockets (A) should be level with each other. Check with straight edge. Make any adjustments. Slide Idler Pulley (B) so that it is snug onto the chain. Tighten all nuts and bolts in place.



### WHEEL 'CREEP' ADJUSTMENT

'Creep' is when engine is running and hydrostatic transmission is in neutral, but due to inadequate alignment, wheels still move. Do the following procedures to stop this motion.

1. Lift up and support machine so rear wheels are off the ground and can turn freely.
2. Below the seat is the engine compartment. The shift arm (D) is on the side of the pump. The idler arm (F) is attached to the pump mount bracket and has a idler pulley (C) that runs in the "y" of the shift arm. Loosen bolt (E).
3. With engine running, move idler pulley (C) so it centers on the shift arm (D) and 'wheel creep' stops.
4. Tighten all fasteners and test by using foot pedal linkage to see that 'creep' is removed.
5. Turn engine off and lower machine.



### RUBBER FINGERS AND NYLON BRUSHES

In normal use, rubber fingers and nylon brushes wear out and require replacement. They will break, dislodge, and wear prematurely if used in less than ideal conditions.

## STORAGE

When storing, remove the key from the key switch to avoid unauthorized persons from operating machine.

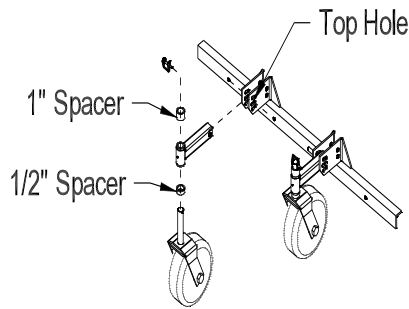
1. Before storing clean machine thoroughly.
2. Check bolts and nuts, tighten as necessary.
3. Make all repairs that are needed and remove any debris.
4. Remove the battery, adjust the electrolyte level and recharge it. Store the battery in a dry, dark place.
5. Store in a clean and dry area, but NOT near a stove, furnace or water heater which uses a pilot light or any device that can create a spark.
6. Engines stored over 30 days need to be protected or drained of fuel to prevent gum from forming in a fuel system or on essential carburetor parts. Check the engine manual and follow the instructions for the storage of the engine.

## REEL HEIGHT ADJUSTMENT

Below are the various ways that the Sweep Star 48H caster wheels can be adjusted to accommodate for the finger/brush reel height. By changing the two spacers around on the caster wheel fork you can experience a range of ground clearances on the finger/brush reel. Keep both caster wheels at the same height.

### CAUTION

These clearances change as the brush and finger reels wear.



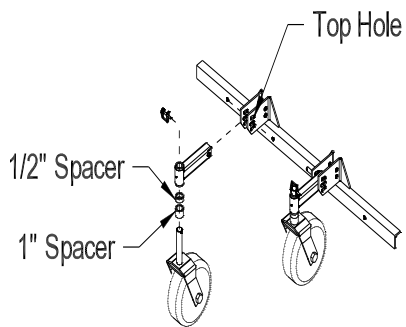
$\frac{1}{2}$ " Spacer

Top Hole

#### Ground Clearance

Brush Reel  $\frac{3}{4}$ "

Finger Reel  $1\frac{1}{8}$ "



1" Spacer

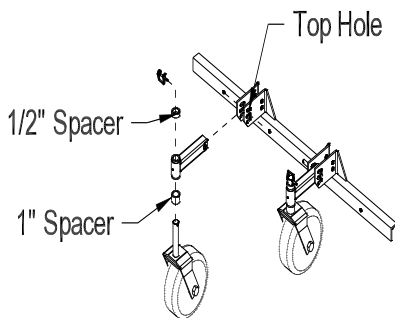
$\frac{1}{2}$ " Spacer

Top Hole

#### Ground Clearance

Brush Reel  $1\frac{1}{8}$ "

Finger Reel  $1\frac{7}{16}$ "



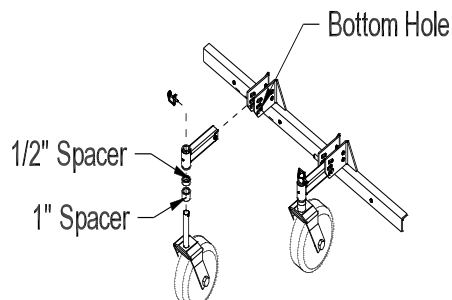
1" Spacer

Top Hole

#### Ground Clearance

Brush Reel  $\frac{5}{8}$ "

Finger Reel  $1\frac{1}{4}$ "



1" Spacer(2 per)

$\frac{1}{2}$ " Spacer(1 per)

Bottom Hole

#### Ground Clearance

Brush Reel  $1\frac{1}{2}$ "

Finger Reel  $1\frac{7}{8}$ "

## WIRING DIAGRAM

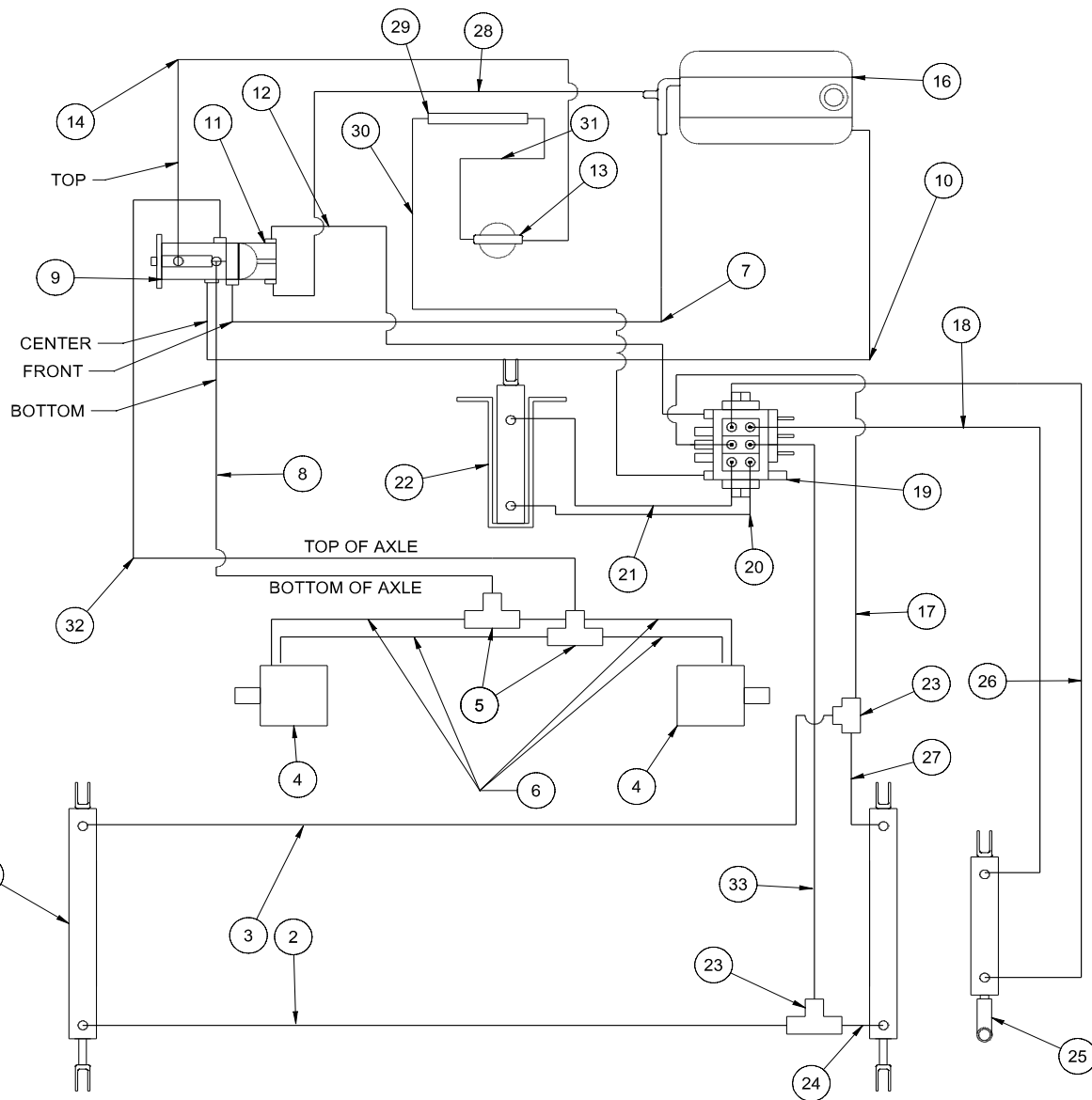
Color Code Chart	
Bl	Blue
Br	Brown
Y	Yellow
Grn	Green
O	Orange
R	Red
B	Black
P	Purple



## WIRING DIAGRAM PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	76-337	Electric Clutch	1
2	15-725	Mount Panel End	1
	15-726	Lighted Switch, On-None-Off	1
	15-732	Rocker Switch, Green	1
3	12-017	Hour Meter	1
4	13-488	Key Switch with Hardware	1
5	50-359	Warning Indicator Light	1
6	17-271	Pigtail	1
7	8975	Circuit Breaker 30 amp	1
	8977	Circuit Breaker Boot	1
8	48-268	Black Battery Cable	1
9	22-073	Battery	1
	48-166	Battery Hold-down	1
10	22-065	Black Starter Cable	1
11	13-750	Solenoid with Connector	1
12	48-157	Red Battery Cable	1
13	14-292	Seat Switch	1
	48-511	Wire Harness	1
	8874	Line Connector Blue (Voltage Regulator)	1
	8875	Bullet Terminal (Ignition Module)	1
	8963	Heat Shrink	2

# HYDRAULIC DIAGRAM



## 48-267 Hydrostatic Pump

Displacement	Variable to 1.44 in <sup>3</sup> /R (23.6 cm <sup>3</sup> /R)
	22.44 gpm (84.94 lpm) at 3600 rpm
Max Operating Speed	3600 rpm
Rated Pressure	3000 psi (206.8 bar)
Max Pressure	5000 psi (344.7 bar)
Max Inlet Vacuum	6 in Hg (.203 bar)
Max Inlet Temperature	225°F (107°C)
Max Allowable Case Pressure	25 psi (1.72 bar)

## 48-266 Gear Pump

Displacement	.40 in <sup>3</sup> /R (6.6 cm <sup>3</sup> /R) 6.23 gpm (25.39 lpm)
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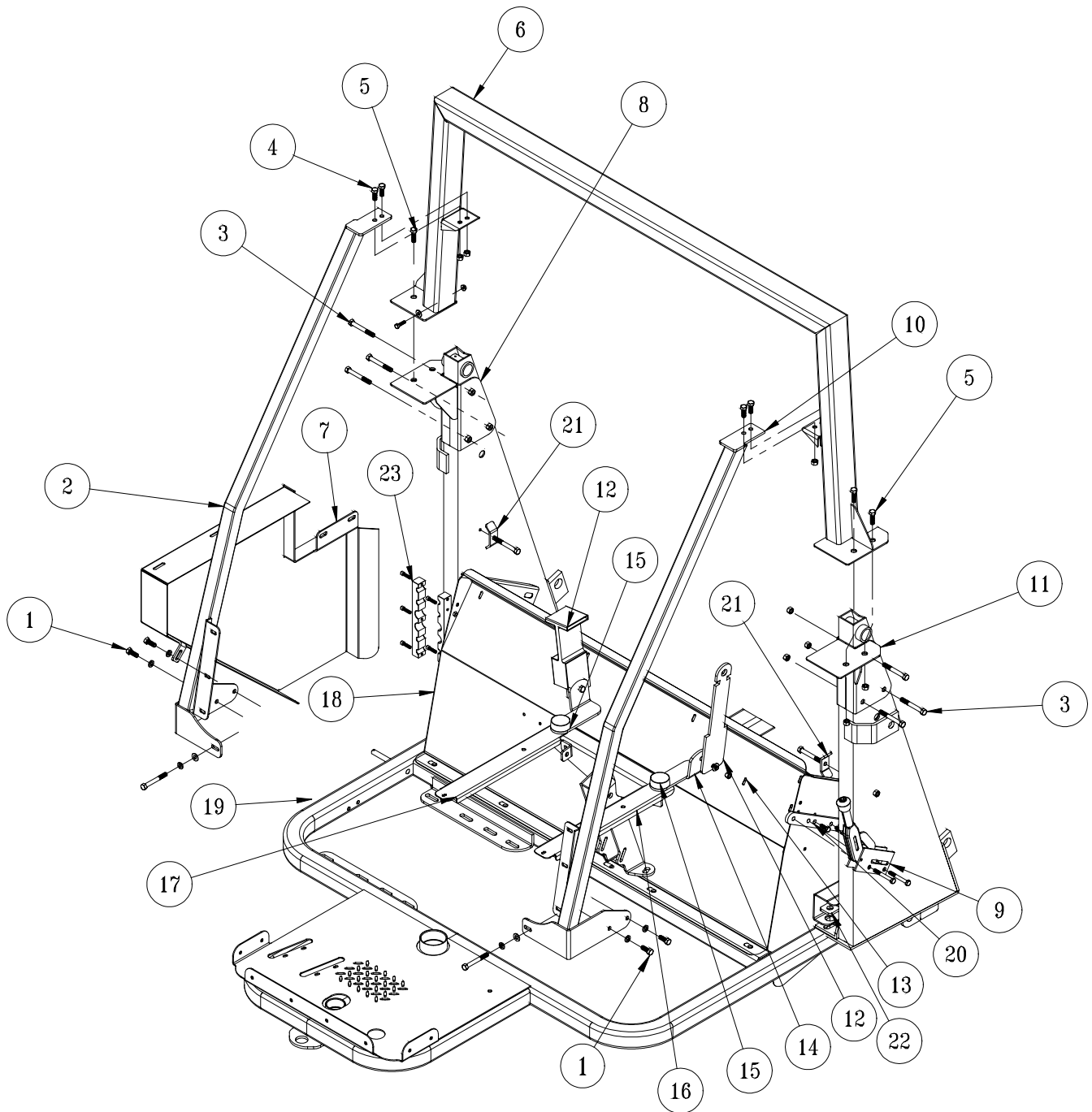


## HYDRAULIC DIAGRAM PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	76-242	Hydraulic Cylinder	2
	76-242-01	Seal Kit	
2	48-012	Hydraulic Hose - 80"	1
3	48-013	Hydraulic Hose- 60"	1
4	76-238	Wheel Motor	2
5	34-057	Tee	2
6	48-244	Hydraulic Tube	4
7	8832-12.5	Suction Hose $\frac{3}{4}$ ID x 12.5"	1
	18-040	Hose Clamp	2
8	48-257	Hydraulic Hose - 77"	2
9	48-267	Hydrostatic Pump	1
10	8832-42.5	Suction Hose $\frac{3}{4}$ ID x 42.5"	1
	18-040	Hose Clamp	2
11	48-266	Gear Pump (replacement; no repair)	1
12	48-253	Hydraulic Hose- 56"	1
13	20-576	Oil Filter	1
	20-576-01	Filter Element (replacement only)	1
14	8832-15	Suction Hose $\frac{3}{4}$ ID x 15"	1
	18-040	Hose Clamp	2
16	60-473	Oil Tank	1
17	48-249	Hydraulic Hose - 65"	1
18	48-252	Hydraulic Hose- 150"	1
19	48-258	3-Bank Hydraulic Valve	1
20	48-255	Hydraulic Hose - 44"	1
21	48-256	Hydraulic Hose - 41"	1
22	76-478	Hydraulic Cylinder	1
	14-531	Seal Kit	
23	18-173	Tee $\frac{3}{8}$ Junction Union	2
24	27-065	Hydraulic Hose- 26"	1
25	10-554	Hydraulic Cylinder	1
	14-529	Seal Kit	
26	48-248	Hydraulic Hose - 147"	1
27	48-014	Hydraulic Hose - 10.5"	1
28	8832-20	Suction Hose $\frac{3}{4}$ ID x 20"	1
	18-040	Hose Clamp	2
29	34-105	Oil Cooler	1
30	48-251	Hydraulic Hose- 38"	1
31	48-250	Hydraulic Hose- 44"	1
32	48-247	Hydraulic Hose - 92"	1
33	48-254	Hydraulic Hose - 63"	1

# SMITHCO ENGINEERED ROLL OVER DRAWING

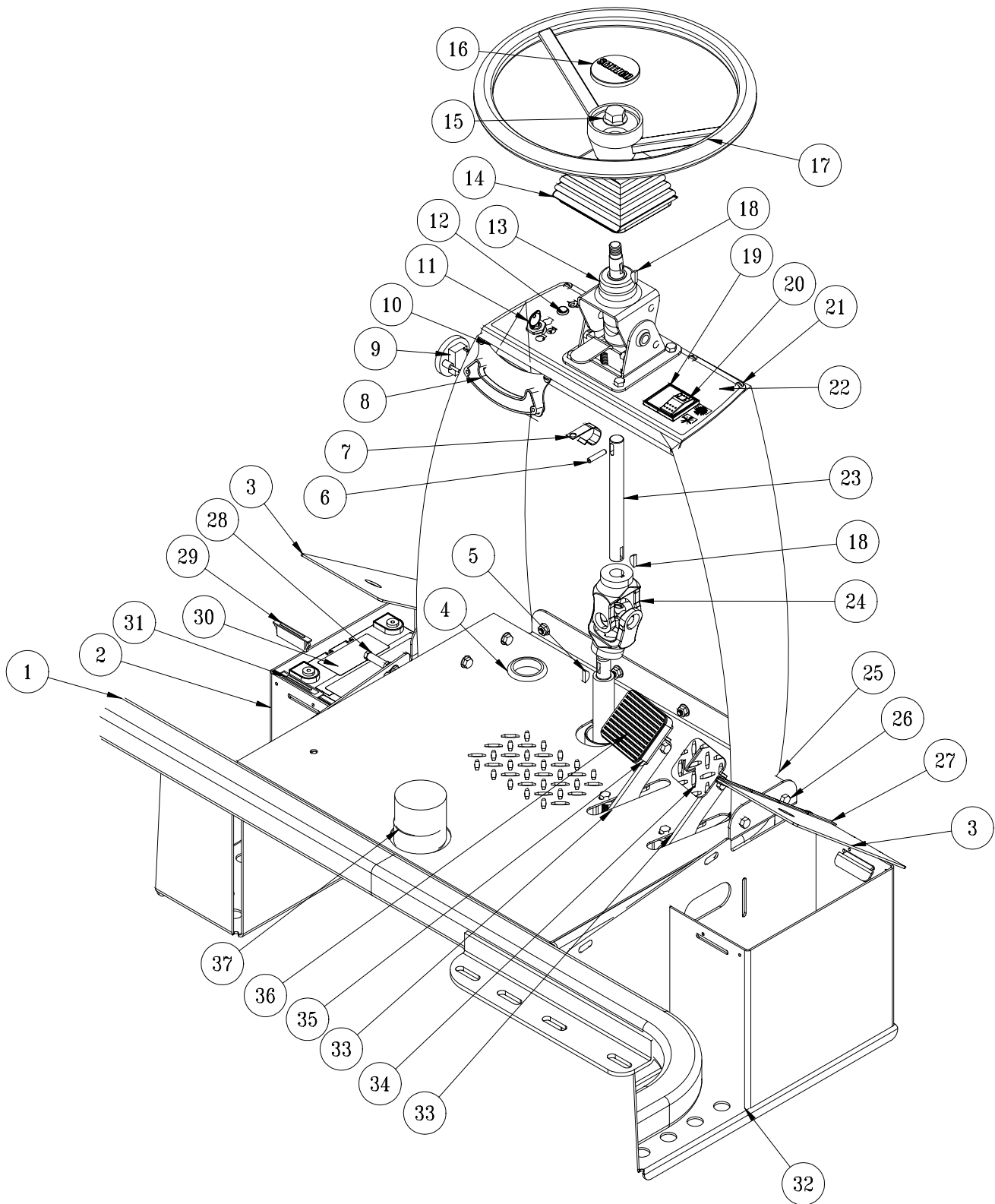
Diagrams



## SMITHCO ENGINEERED ROLL OVER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-38-16-100	Bolt, $\frac{3}{8}$ - 16 x 1	4
	HWL-38	Lock Washer, $\frac{3}{8}$ - 16	4
2	48-295	Left Support Bar	1
3	HB-12-13-300	Bolt, $\frac{1}{2}$ -13 x 3	6
	HNTL-12-13	Lock Nut, $\frac{1}{2}$ -13	6
4	HB-38-16-100	Bolt, $\frac{3}{8}$ - 16 x 1	4
	HNTL-38-16	Lock Nut, $\frac{3}{8}$ -16	4
5	HB-12-13-125	Bolt, $\frac{1}{2}$ -13 x $1\frac{1}{4}$	4
	HNTL-12-13	Lock Nut, $\frac{1}{2}$ - 13	4
6	48-208	Roll Bar	1
7	48-313	Belt Guard	1
8	48-207	Left Hand Mount	1
	25-286	Decal, Pinch Point	3
9	60-106	Brake Lever	1
10	48-294	Right Support Bar	1
11	48-206	Right Hand Mount	1
12	76-198-03	Seat Belt	1
13	HBCL-38-16-100	Carriage Bolt, $\frac{3}{8}$ - 16 x 1	2
	HNTL-38-16	Lock Nut, $\frac{3}{8}$ - 16	2
	HW-38	Flat Washer, $\frac{3}{8}$	2
14	48-287	Left Seat Belt Bracket	1
15	50-081	Rubber Bumper	2
16	48-284	Left Seat Brace	1
17	48-285	Right Seat Brace	1
18	48-307	Grass Chute	1
	8803-47	Black Trim	1
19	48-300	Main Frame	1
20	48-324	Park Brake Handle Mount	1
	HB-516-18-225	Bolt, $\frac{5}{16}$ -18 x $2\frac{1}{4}$	2
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ -18	2
21	13-099	Hose Clamp	1
	HB-516-18-125	Bolt $\frac{5}{16}$ -18 x $1\frac{1}{4}$	1
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ -18	1
22	76-151	Washer	4
23	76-336	Hose Clamp w/ Hardware	1

# NOSE CONE DRAWING

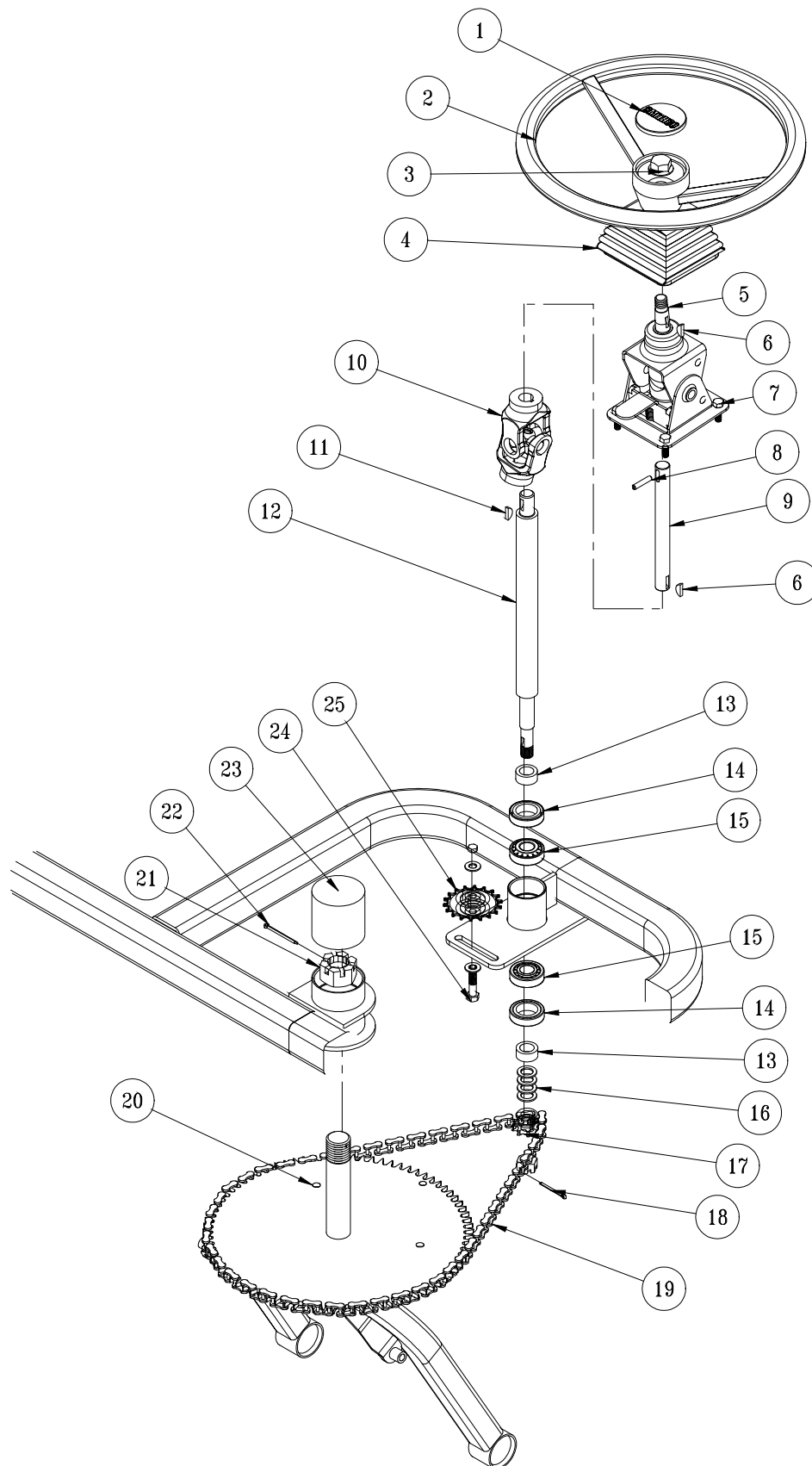


Parts

# NOSE CONE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	48-300	Main Frame	1
2	48-293	Left Step	1
	HB-38-16-300	Bolt 3/8 -16 x 3	3
	HW-38	Washer 3/8	3
	HNTL-38-16	Lock Nut 3/8 -16	3
3	48-159	Battery Box Cover	2
4	50-400	Rubber Grommet	1
5	HWK-316-063	Woodruff Key, 3/16 x 5/8	1
6	HRP-14-150	Roll Pin 1/4 x 1-1/2	1
7	HLC-A-58	Loom Clamp	1
8	76-372	Inclinometer	1
	HSM-8-32-100	Machine Screw 8 -32 x 1	2
	HNFL-8-32	Flange Lock Nut 8 - 32	2
9	12-017	Hour Meter	1
10	76-373	Inclinometer Bracket	1
11	13-488	Ignition Switch	1
12	50-359	Warning Indicator Light	1
13	76-362	Mini Tilt Steering	1
14	76-364	Tilt Steering Boot	1
15	HNJ-58-18	Jam Nut 5/8 - 18	1
16	13-726	Center Cap	1
	27-077	Decal, Smithco	1
17	13-718	15" Steering Wheel	1
18	HWK-316-075	Woodruff Key 3/16 x 3/4	2
19	15-725	Mount Panel End	1
	15-730	Mount Panel Plug	1
20	15-725	Mount Panel End	1
	15-726	Lighted Switch, On-None-Off	1
	15-732	Rocker, Green	1
21	HSM-10-32-075	Machine Screw 10 - 32 x 3/4	7
	HNFL-10-32	Flange Nut 10 -32	7
22	48-274	Dashboard Panel	1
	48-245	Decal, Dash Panel	1
23	42-760	Top Steering Shaft	1
24	75-833	Universal Joint	1
	HSSHS-516-18-038	Socket Head Set Screw 5/16 - 18 x 3/8	4
25	48-263	Nose Cone	1
26	HSTP-516-18-100	Truss Head Screw 5/16 - 18 x 1	8
	HNFL-516-18	Flange Lock Nut 5/16 -18	8
27	8803-10	Black Trim	2
28	48-166	Battery Hold-down	1
29	48-164	Magnet	2
30	22-073	Battery	1
31	48-165	Magnet Bracket	2
	HRS-18-050	Rivet 1/4 x 1/2	4
	HW-6	Washer #6	4
32	48-292	Right Step	1
	HB-38-16-300	Bolt 3/8 -16 x 3	3
	HW-38	Washer 3/8	3
	HNTL-38-16	Lock Nut 3/8 -16	3
33	48-311	Foot Pedal	2
34	48-312	Reverse Pedal Pad	1
35	16-062	Pedal Pad Plate	1
36	15-015	Pedal Pad	1
37	76-301	Rubber Cap	1

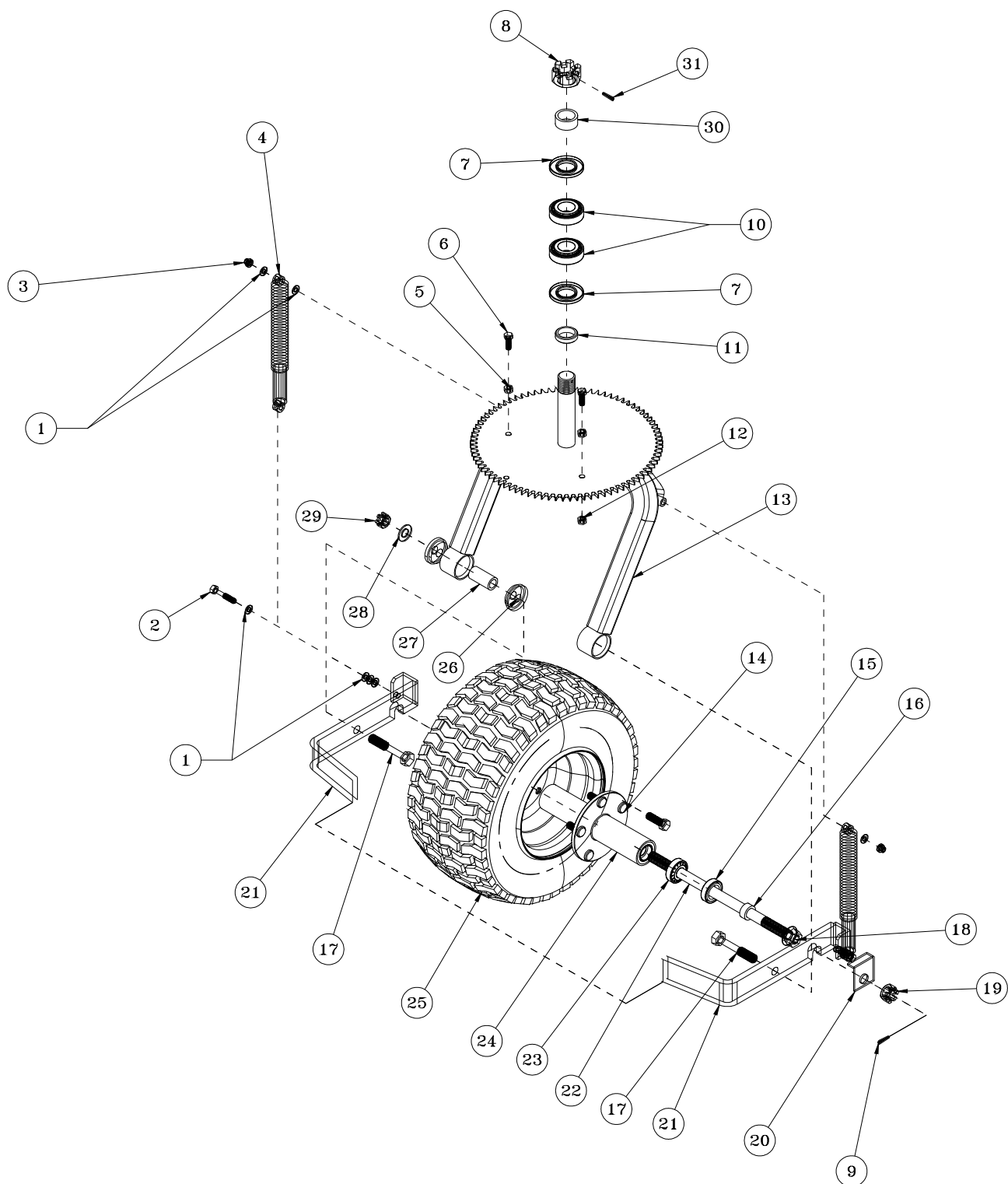
# STEERING DRAWING



# STEERING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	13-726	Steering Wheel Cap	1
2	13-718	Steering Wheel	1
3	HNJ-58-18	Jam Nut $\frac{5}{8}$ - 18	1
4	76-364	Tilt Steering Boot (comes with 76-362)	1
5	76-362	Tilt Steering Mechanism	1
6	HWK-316-075	Woodruff Key $\frac{3}{16}$ x $\frac{3}{4}$	2
7	HB-516-18-100	Bolt $\frac{5}{16}$ - 18 x 1	4
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ - 18	4
8	HRP-14-150	Roll Pin 1/4 x 1-1/2	1
9	42-760	Top Steering Shaft	1
10	75-833	Universal Joint	1
	HSSHS-516-18-038	Socket Head Set Screw $\frac{5}{16}$ - 18 x $\frac{3}{8}$	4
11	HWK-316-063	Woodruff Key $\frac{3}{16}$ - $\frac{5}{8}$	1
12	48-260	Bottom Steering Shaft	1
13	11-040	Spacer $\frac{3}{4}$	2
14	11-039	Seal	2
15	11-038	Bearing Cup and Cone	2
16	HMB-58-14	Machine Bushing $\frac{5}{8}$ - 14	as Req'd
17	76-153	Sprocket	1
18	HNA-58-18	Axle Nut $\frac{5}{8}$ - 18	1
	HP-18-100	Cotter Pin $\frac{1}{8}$ x 1	1
19	8827-55	Roller Chain	1
	18-032	Master Link #40	1
20	76-155	Front Fork	1
21	HNA-114-12	Axle Nut $1\frac{1}{4}$ - 12	1
22	HP-18-200	Cotter Pin $\frac{1}{8}$ x 2	1
23	76-301	Rubber Cap	1
24	HB-38-16-175	Bolt $\frac{3}{8}$ - 16 x $1\frac{3}{4}$	1
	HW-38	Washer $\frac{3}{8}$	1
	HWL-38	Lock washer $\frac{3}{8}$	1
	HN-38-16	Nut $\frac{3}{8}$ - 16	1
25	76-156	Idler Sprocket	1

# FRONT FORK DRAWING



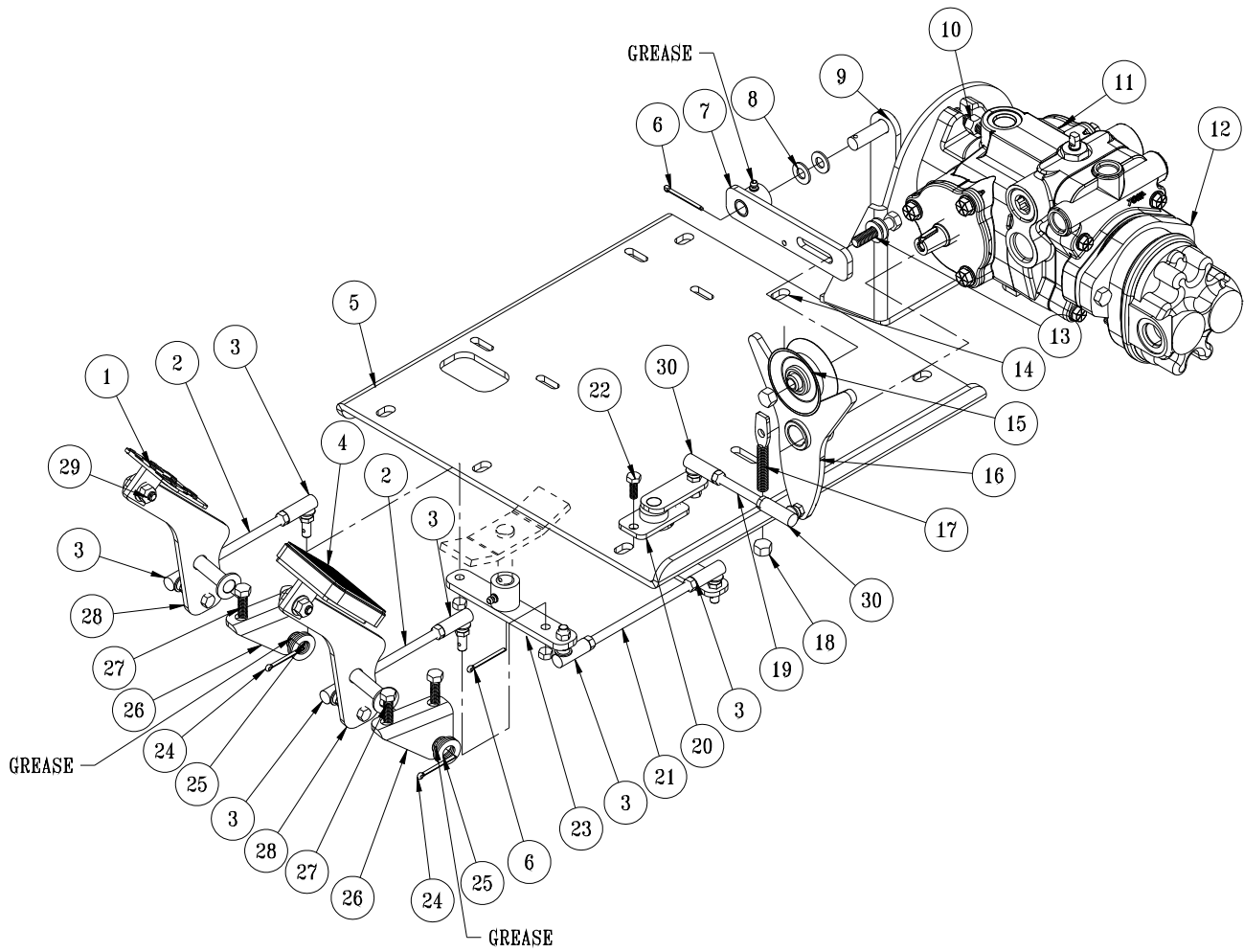
Parts



# FRONT FORK PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HW-38	Washer $\frac{3}{8}$ (as Req'd)	14
2	HB-38-16-200	Bolt $\frac{3}{8}$ - 16 x 2	2
	HNTL-38-16	Locknut $\frac{3}{8}$ - 16	2
3	HB-38-16-250	Bolt $\frac{3}{8}$ - 16 x $2\frac{1}{2}$	2
	HNTL-38-16	Locknut $\frac{3}{8}$ - 16	2
4	75-715	Shock Absorber	2
	75-864	Bushing (comes with shock)	2 per shock
5	HN-38-16	Nut $\frac{3}{8}$ - 16	2
6	HB-38-16-100	Bolt $\frac{3}{8}$ - 16 x 1	2
7	20-142	Grease Seal $1\frac{1}{4}$	2
8	HNA-114-12	Axle Nut $1\frac{1}{4}$ - 12	1
9	HP-18-100	Cotter Pin $\frac{1}{8}$ x 1	2
10	20-143	Bearing Cup and Cone $1\frac{1}{4}$ ID	2
11	20-141	Spacer $1\frac{5}{8}$ OD x $1\frac{1}{4}$ ID x $\frac{7}{16}$	1
12	HNCL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
13	76-155	Front Fork	1
14	27-022-02	Bolt Stud $\frac{1}{2}$ - 20 x $1\frac{1}{2}$	5
	HNL-12-20	Lug Nut $\frac{1}{2}$ - 20	5
15	11-039	Grease Seal $1\frac{1}{8}$ ID	2
16	11-040	Spacer $1\frac{1}{8}$ OD x $\frac{3}{4}$ ID x $\frac{17}{32}$	2
17	HB-58-18-350	Bolt $\frac{5}{8}$ - 18 x $3\frac{1}{2}$	2
18	HNJ-34-16	Jam Nut $\frac{3}{4}$ - 16	2
19	HNA-34-16	Axle Nut $\frac{3}{4}$ - 16	2
	HMB-34-10	Machine Bushing $\frac{3}{4}$ x 10GA	2
20	60-511	Axle Lock	2
21	60-510	U-Bracket	1
22	60-407	Front Axle	1
23	11-038	Bearing Cup and Cone $\frac{3}{4}$ ID	2
24	11-010	Wheel Hub (comes with 11-038 and 11-039)	1
25	60-130	Wheel and Tire	1
	60-130-01	Tire 18 x 9.5 - 8 6 Ply	1
	60-130-02	Wheel	1
	8839	Windshield Washer Fluid	28 pints
26	60-128	Rubber Bushing	4
27	60-406	Spacer 1 OD x $\frac{5}{8}$ ID x 2	2
28	HW-58	Washer $\frac{5}{8}$	2
29	HNTL-58-18	Lock Nut $\frac{5}{8}$ - 18	2
30	76-158	Spacer Seal	1
31	HP-18-200	Cotter Pin $\frac{1}{8}$ x 2	1

# LINKAGE DRAWING

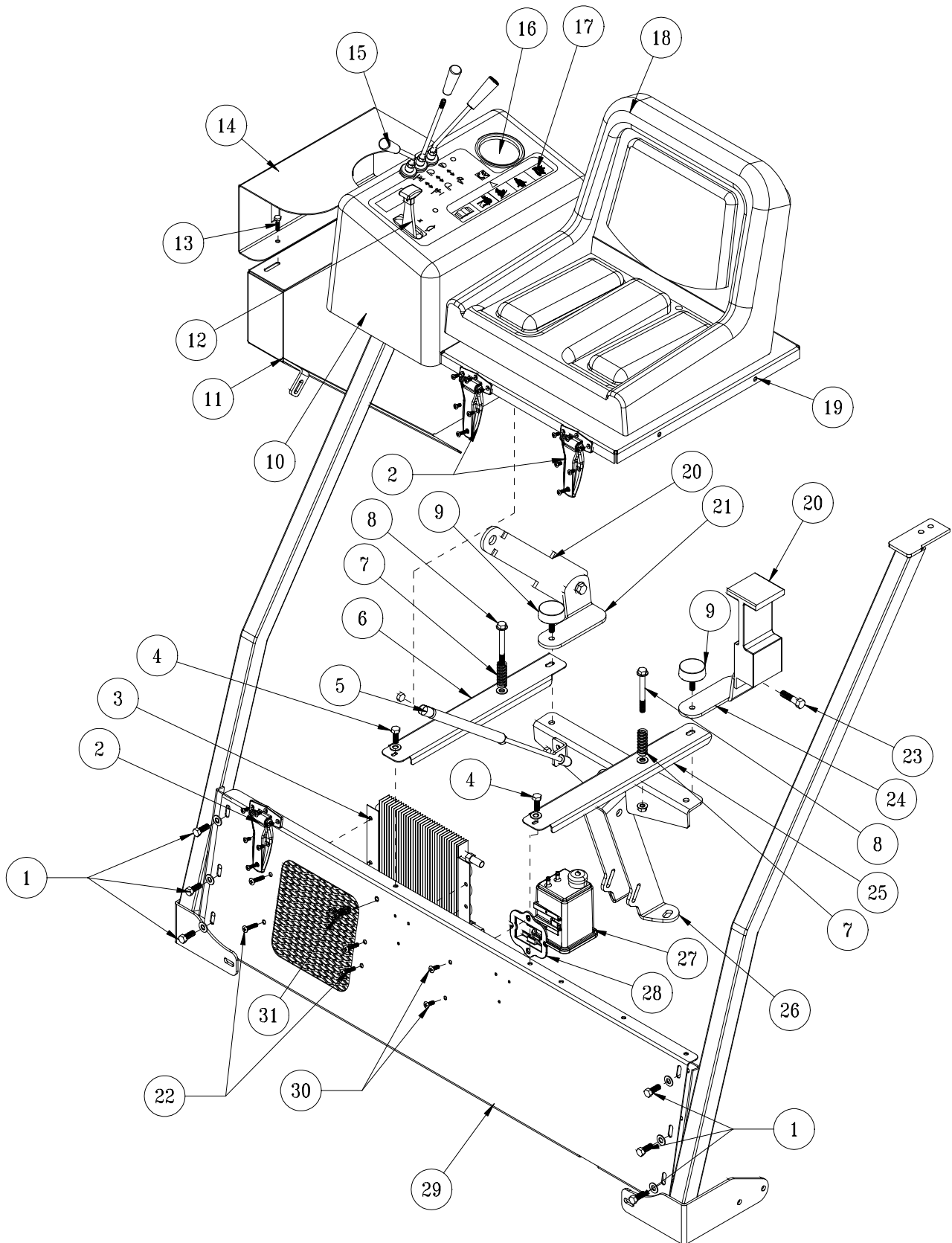


Parts

# LINKAGE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	48-312	Reverse Pedal Pad	1
2	48-315	Foot Pedal Rod	2
	HN-516-24	Nut $\frac{5}{16}$ - 24	4
3	21-462	Ball Joint $\frac{5}{16}$ - 24	6
	HWL-516	Lock Washer $\frac{5}{16}$	6
	HN-516-24	Nut $\frac{5}{16}$ - 24	6
4	16-062	Pedal Pad Plate	1
	15-015	Pedal Pad	1
5	48-275	Engine Plate	1
6	HP-18-200	Cotter Pin $\frac{1}{8}$ x 1	2
7	48-283	Idler Arm	1
	18-036	Bushing	1
	HG-14-28-180	Grease Fitting $\frac{1}{4}$ - 28 x 180°	1
8	HMB-12-14	Machine Bushings $\frac{1}{2}$ x 14GA	4
9	48-278	Pump Mount	1
10	HB-38-16-150	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{2}$	2
	HW-516	Washer $\frac{5}{16}$	2
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
11	48-267	Hydro pump	1
12	48-268	Gear Pump	1
13	HB-38-24-150	Bolt $\frac{3}{8}$ - 24 x $1\frac{1}{2}$	1
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-24	Lock Nut $\frac{3}{8}$ - 24	1
14	21-212	Spring	1
15	13-060	Idler Pulley	1
16	48-282	Shift Arm	1
	HSSHS-14-20-025	Socket Set Screw $\frac{1}{4}$ - 20 x $\frac{1}{4}$	1
17	42-537	Spade Bolt	1
18	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	1
19	48-277	Linkage Rod	1
	HN-38-24	Nut $\frac{3}{8}$ - 24	2
20	48-276	Pedal Relay	1
21	48-314	Linkage Rod	1
	HN-516-24	Nut $\frac{5}{16}$ - 24	2
22	HB-14-20-100	Bolt $\frac{1}{4}$ -20 x 1	2
	HNTL-14-20	Lock Nut $\frac{1}{4}$ -20	2
23	48-272	Pedal Pivot Arm	1
	HG-14-28-180	Grease Fitting $\frac{1}{4}$ - 28 x 180°	1
24	HP-18-100	Cotter Pin $\frac{1}{8}$ x 1	2
25	HMB-12-14	Machine Bushings $\frac{1}{2}$ x 14GA	6
26	76-296	Pedal Mount	2
	18-234	Bushing	2
	HG-14-28-180	Grease Fitting $\frac{1}{4}$ - 28 x 180°	2
27	HSTP-516-18-075	Truss Head Screw $\frac{5}{16}$ - 18 x $\frac{3}{4}$	4
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ -18	4
28	48-311	Foot Pedal	2
29	HB-38-16-100	Bolt $\frac{3}{8}$ - 16 x 1	2
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
30	21-173	Ball Joint $\frac{3}{8}$ - 24	2
	HWL-38	Lock Washer $\frac{3}{8}$	2
	HN-38-24	Nut $\frac{3}{8}$ - 24	2

# SEAT AND CONSOLE DRAWING

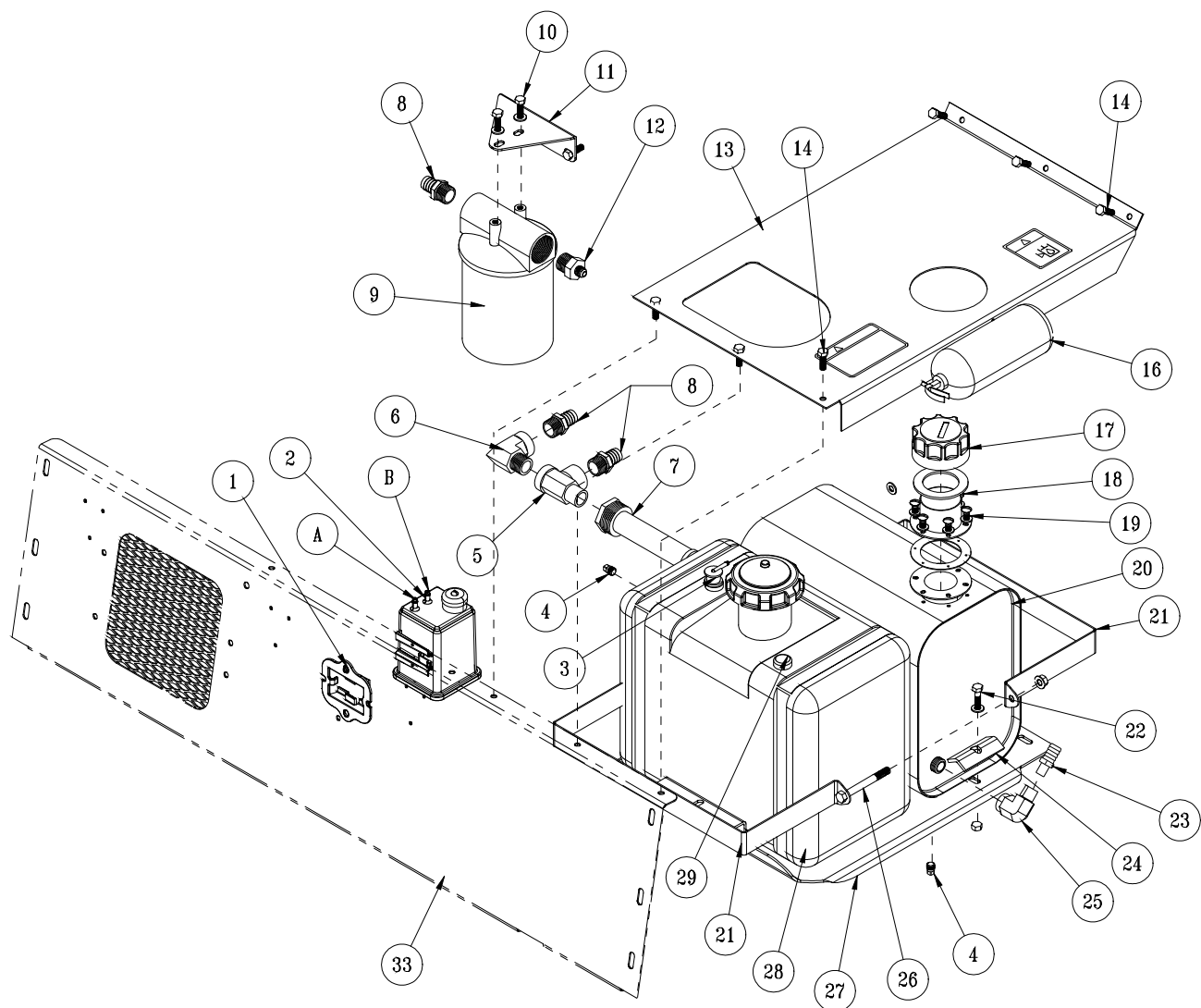


Parts

## SEAT AND CONSOLE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-38-16-100	Bolt $\frac{3}{8}$ - 16 x 1	6
	HW-38	Washer $\frac{3}{8}$	12
	HNFL-38-16	Flange Lock Nut $\frac{3}{8}$ - 16	6
2	27-055	Flush Hinge	3
	HSMFCS-10-32-050	Machine Screw #10 - 32 x $\frac{1}{2}$	15
	HSMFCS-10-32-100	Machine Screw #10 - 32 x $\frac{1}{2}$	3
	HNFL-10-32	Flange Lock Nut #10 -32	18
3	34-105	Oil Cooler	1
4	HB-38-16-125	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	2
	HW-38	Washer $\frac{3}{8}$	2
	HNFL-38-16	Flange Lock Nut $\frac{3}{8}$ - 16	2
5	8-563	Gas Spring	1
	26-034	Ball Stud	2
	HNFL-38-16	Flange Lock Nut $\frac{3}{8}$ - 16	2
6	48-285	Right Seat Brace	1
7	11-055	Spring	2
8	HB-38-16-350	Bolt $\frac{3}{8}$ - 16 x $3\frac{1}{2}$	2
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
9	50-081	Rubber Insulator	2
	HNFL-38-16	Flange Lock Nut $\frac{3}{8}$ - 16	2
10	48-262	Engine Cover	1
11	48-313	Belt Guard	1
12	48-271	Throttle Cable Assembly	1
	8-624	Knob	1
13	HB-516-18-100	Bolt $\frac{5}{16}$ -18 x 1	2
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ - 18	2
14	48-308	Heat Shield	1
15	78-417	Valve Handles	3
16	15-781	Drink Cup Holder	1
17	48-261	Decal, Control Panel	1
18	14-294	Seat Kit	1
	14-292	Seat Switch	1
	14-800	Seat Rail	2
	HSP-1260-340-250	Spacer	4
	HB-516-18-100	Bolt $\frac{5}{16}$ -18 x 1	4
19	48-290	Seat Panel	1
	HLC-A-58	Loom Clamp	1
20	76-198-03	Seat Belt	1
21	48-286	RH Seat Belt Bracket	1
22	HSTP-14-20-075	Truss Head Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$	4
	HNFL-14-20	Flange Lock Nut $\frac{1}{4}$ -20	4
23	HB-716-14-125	Bolt $\frac{7}{16}$ -14 x $1\frac{1}{4}$	2
	HW-716	Washer $\frac{7}{16}$	2
	HNTL-716-14	Lock Nut $\frac{7}{16}$ -14	2
24	48-287	LH Seat Belt Bracket	1
25	48-284	Left Seat Brace	1
26	48-288	Seat Support	1
27	8-738	Carbon Canister	1
	8800-50	Fuel Line (purge line to engine)	1
	8800-26	Fuel Line (to gas tank)	1
	18-186	Hose Clamp	4
28	8-688	Mount Bracket	1
29	48-291	Front Panel	1
30	HSTP-14-20-075	Truss Head Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$	2
	HNFL-14-20	Flange Lock Nut $\frac{1}{4}$ -20	2
31	80-020	Choke Cable	1

# FUEL AND OIL TANK DRAWING



Parts

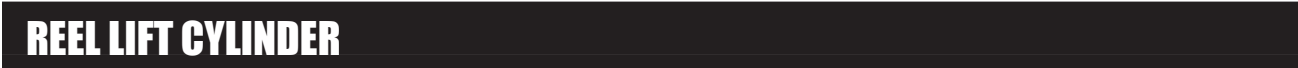
Not Illustrated

A	8800-26	1/4" Fuel Line	1
	18-186	Hose Clamp	2
B	9025-32	3/16" Fuel Line	1
	18-186	Hose Clamp	2

## FUEL AND OIL TANK PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	8-688	Mount Bracket	1
2	8-738	Carbon Canister	1
3	*	Top Draw	1
	8800-50	1/4" Fuel Hose (tank to engine)	1
	8983-44	Fire Sleeve	1
	50-403	In-line Fuel Filter (replacement parts)	1
	18-116	Hose Clamp	2
4	18-118	Pipe Plug 1/8 (part of tank)	2
5	18-093	Street Tee	1
6	18-140	Elbow	1
7	60-213	Strainer	1
8	18-249	Barb Fitting	3
9	20-576	Oil Filter	1
	20-576-01	Replacement Filter Only	1
10	HB-516-18-100	Bolt 5/16 - 18 x 1	2
	HW-516	Washer 5/16	2
	HWL-516	Lock Washer 5/16	2
11	13-217	Filter Bracket	1
12	23-183	Male Connector	1
13	48-316	Side Cover	1
	25-307	Decal, Refuel w/ Gasoline	1
	27-093	Decal, Hydraulic Oil	1
	25-362	Decal, Danger Fire	1
	8803-24	Black Trim	1
	8803-16	Black Trim	1
14	HB-516-18-100	Bolt 5/16 - 18 -100	6
	HNFL-516-18	Flange Lock Nut 5/16 - 18	6
16	76-354	Fire Extinguisher	1
	HSM-8-32-100	Machine Screw #8 - 32 x 1	3
	HNFL-8-32	Flange Lock Nut #8 - 32	3
17	13-747	Filler Breather	1
	13-586-01	Cap Gasket	1
18	13-586-03	Neck	1
	13-586-02	Bottom Gasket	1
19	HSM-10-32-063	Machine Screw #10 - 32 x 5/8	6
	HWL-10	Lock Washer #10	6
20	60-473	Oil Tank	1
21	48-281	Tank Strap	2
22	HB-516-18-150	Bolt 5/16 - 18 x 1 1/2	2
	HW-516	Washer 5/16	2
	HNTL-516-18	Lock Nut 5/16 - 18	2
23	18-133	Hose Barb	1
24	75-792	Tank Hold-down	2
25	18-009	90° Street Elbow	1
26	HB-516-18-300	Bolt 5/16 - 18 - x 3	2
	HNTL-516-18	Lock Nut 5/16 - 18	2
27	48-280	Tank Plate	1
28	15-838	CARB Gas Tank (includes all * items)	1
	*73-050	Cap	
29	*	Dial Fuel Level Gauge	1

## HOPPER LIFT CYLINDER



## REEL LIFT CYLINDER



## TAILGATE CYLINDER



## HOPPER LIFT CYLINDER

REF#	PART#	DESCRIPTION	QUANTITY
1	48-129	Spacer (inside of clevis to outside of machine)	4
2	HMB-100-10	Machine Bushing 1 x 10GA (inside clevis; inside machine)	8
3	HCP-100-325	Clevis Pin 1 x 3 1/4	4
	HHP-.177	Bridge Pin	4
4	76-242	Hydraulic Cylinder	2
	76-242-01	Seal Kit	1 per
5	23-167	Elbow	4

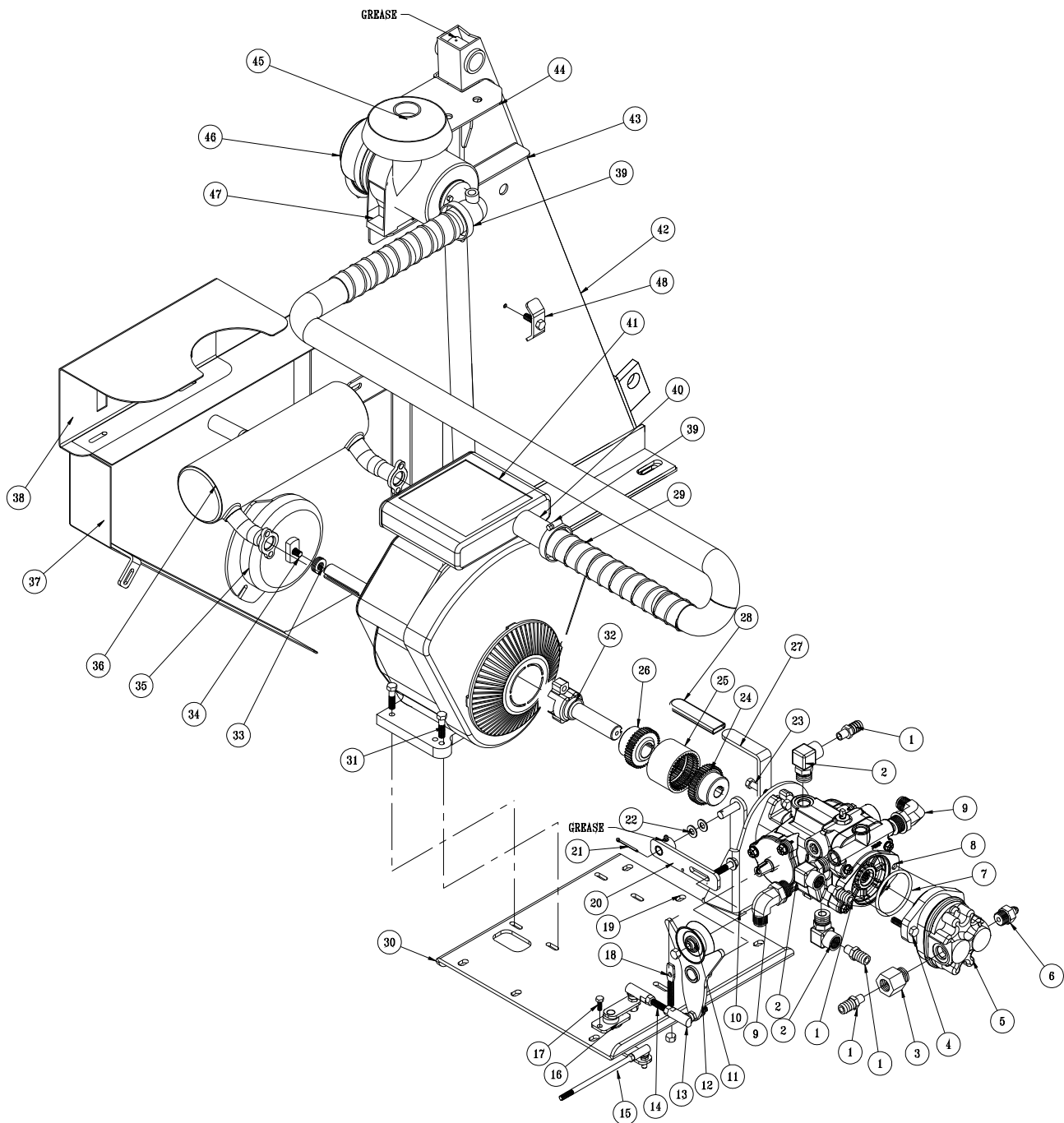
## REEL LIFT CYLINDER

REF#	PART#	DESCRIPTION	QUANTITY
1	18-168	Elbow	2
2	HP-18-100	Cotter Pin 1/8 x 1	1
3	HCP-12-350	Clevis Pin 1/2 x 3 1/2	1
4	76-478	Hydraulic Cylinder	1
	14-531	Seal Kit	1

## TAILGATE CYLINDER

REF#	PART#	DESCRIPTION	QUANTITY
1	HHP-.177	Bridge Pin	1
2	18-168	Elbow	2
3	10-554	Hydraulic Cylinder	1
	14-531	Seal Kit	1
4	HNJ-58-18	Jam Nut 5/8 - 18	1
5	HNCL -58-11	Center Lock Nut 5/8 - 11	1
6	18-154	Rod End	1
	HG-14-28-180	Grease Fitting 1/4 - 28 x 180°	1
7	HMB-58-14	Machine Bushing 5/8 - 14GA	3
8	HB-58-11-200	Bolt 5/8 - 11 x 2	1
9	HCP-58-150	Clevis Pin 5/8 x 1 1/2	1
10	48-328	Cylinder Stop	1

# ENGINE AND EXHAUST DRAWING

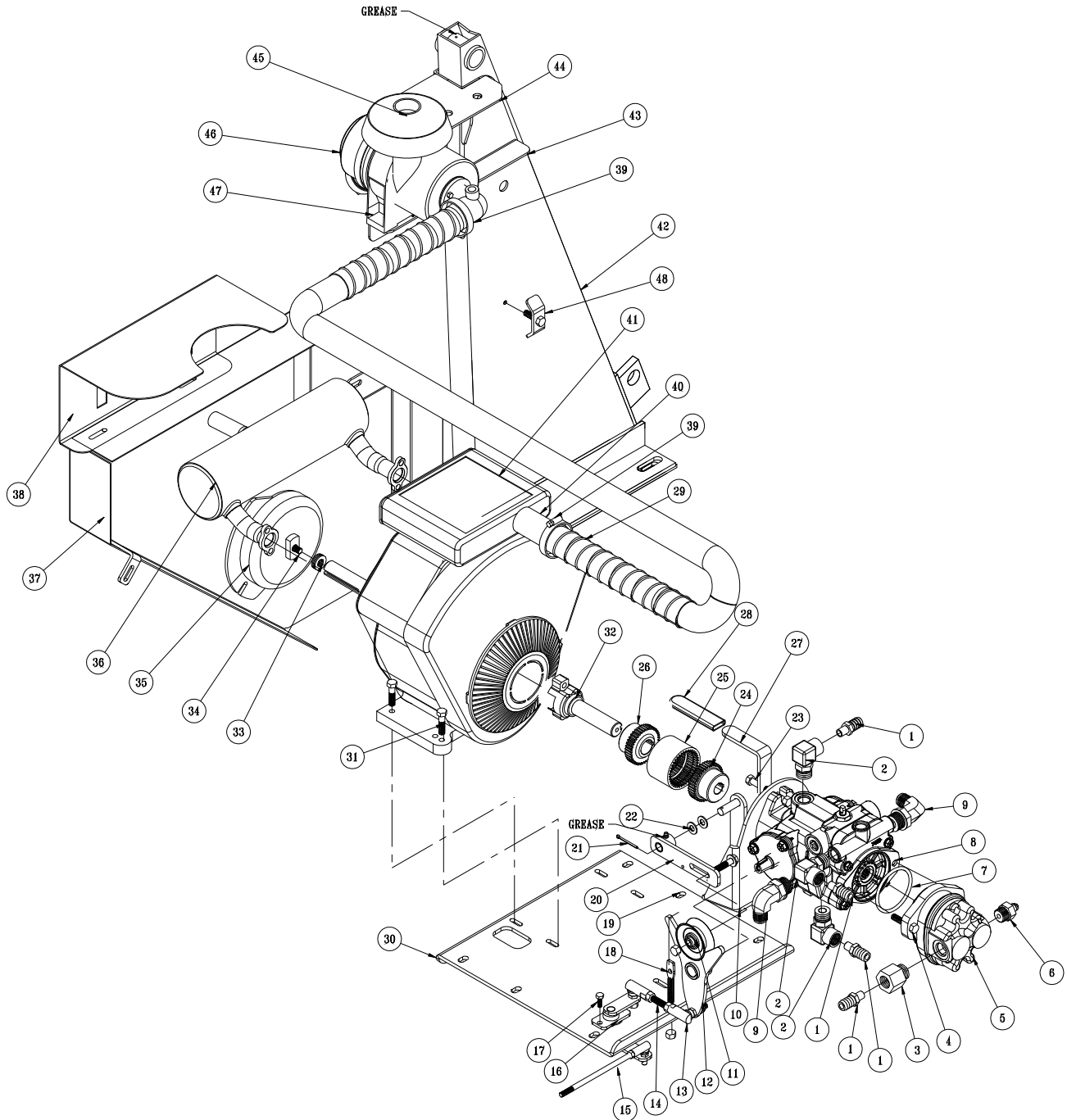


# ENGINE AND EXHAUST PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	18-133	Hose Barb	4
2	23-130	90° Straight Elbow	3
3	23-136	Female Adapter	1
4	HB-38-16-125	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	2
	HNFL-38-16	Flange Lock Nut $\frac{3}{8}$ - 16	2
5	48-266	Gear Pump	1
6	18-331	Straight Thread Connector	1
7	23-145	O-ring	1
8	48-267	Hydro Pump	1
9	18-204	Straight Thread Elbow	2
10	48-278	Pump Mount	1
	HB-38-16-150	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{2}$	2
	HW-38	Washer $\frac{3}{8}$	2
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
11	13-060	Idler Pulley	1
	HB-38-24-150	Bolt $\frac{3}{8}$ - 24 x $1\frac{1}{2}$	1
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-24	Lock Nut $\frac{3}{8}$ - 24	1
14	21-212	Spring	1
15	13-060	Idler Pulley	1
12	48-282	Shift Arm	1
	HSSHS-14-20-025	Socket Set Screw $\frac{1}{4}$ - 20 x $\frac{1}{4}$	1
13	21-173	Ball Joint $\frac{3}{8}$ - 24	2
	HWL-38	Lock Washer $\frac{3}{8}$	2
	HN-38-24	Nut $\frac{3}{8}$ - 24	2
14	48-277	$\frac{3}{8}$ " Linkage Rod	1
	HN-38-24	Nut $\frac{3}{8}$ - 24	2
15	48-314	$\frac{5}{16}$ " Linkage Rod	1
	HN-516-24	Nut $\frac{5}{16}$ - 24	4
	21-462	Ball Joint $\frac{5}{16}$ - 24	2
	HWL-516	Lock Washer $\frac{5}{16}$	2
16	48-276	Pedal Relay	1
17	HB-14-20-100	Bolt $\frac{1}{4}$ - 20 x 1	2
	HNTL-14-20	Lock Nut $\frac{1}{4}$ - 20	2
18	42-537	Spade Bolt	1
19	21-212	Spring	1
20	48-283	Idler Arm	1
	18-036	Bushing	1
	HG-14-28-180	Grease Fitting $\frac{1}{4}$ - 28 x 180°	1
21	HP-18-200	Cotter Pin $\frac{1}{8}$ x 1	1
22	HMB-12-14	Machine Bushings $\frac{1}{2}$ x 14GA	4
23	HB-38-16-150	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{2}$	1
	HB-38-16-175	Bolt $\frac{3}{8}$ - 16 x $1\frac{3}{4}$	1
	HW-516	Washer $\frac{5}{16}$	2
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
24	48-269	Coupler Half, $\frac{7}{8}$ " Bore	1
	HSSHS-516-18-038	Socket Head Set Screw $\frac{5}{16}$ - 18 x $\frac{3}{8}$	1
25	43-098	Steel Coupler Insert #4	1
26	43-099	Splined Steel Coupler Half #4, 1" Bore	1
	HSSHS-516-18-038	Socket Head Set Screw $\frac{5}{16}$ - 18 x $\frac{3}{8}$	1

(Continued on next page)

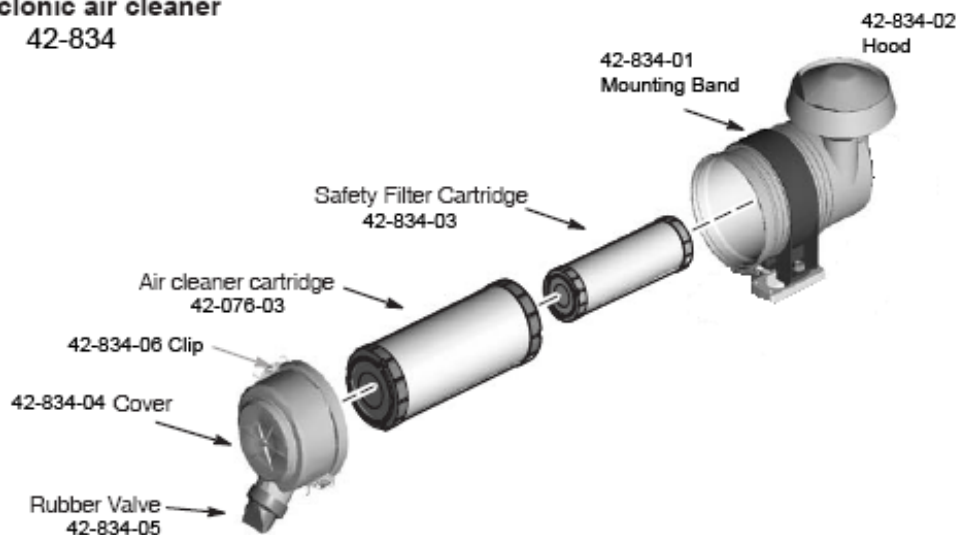
# ENGINE AND EXHAUST DRAWING



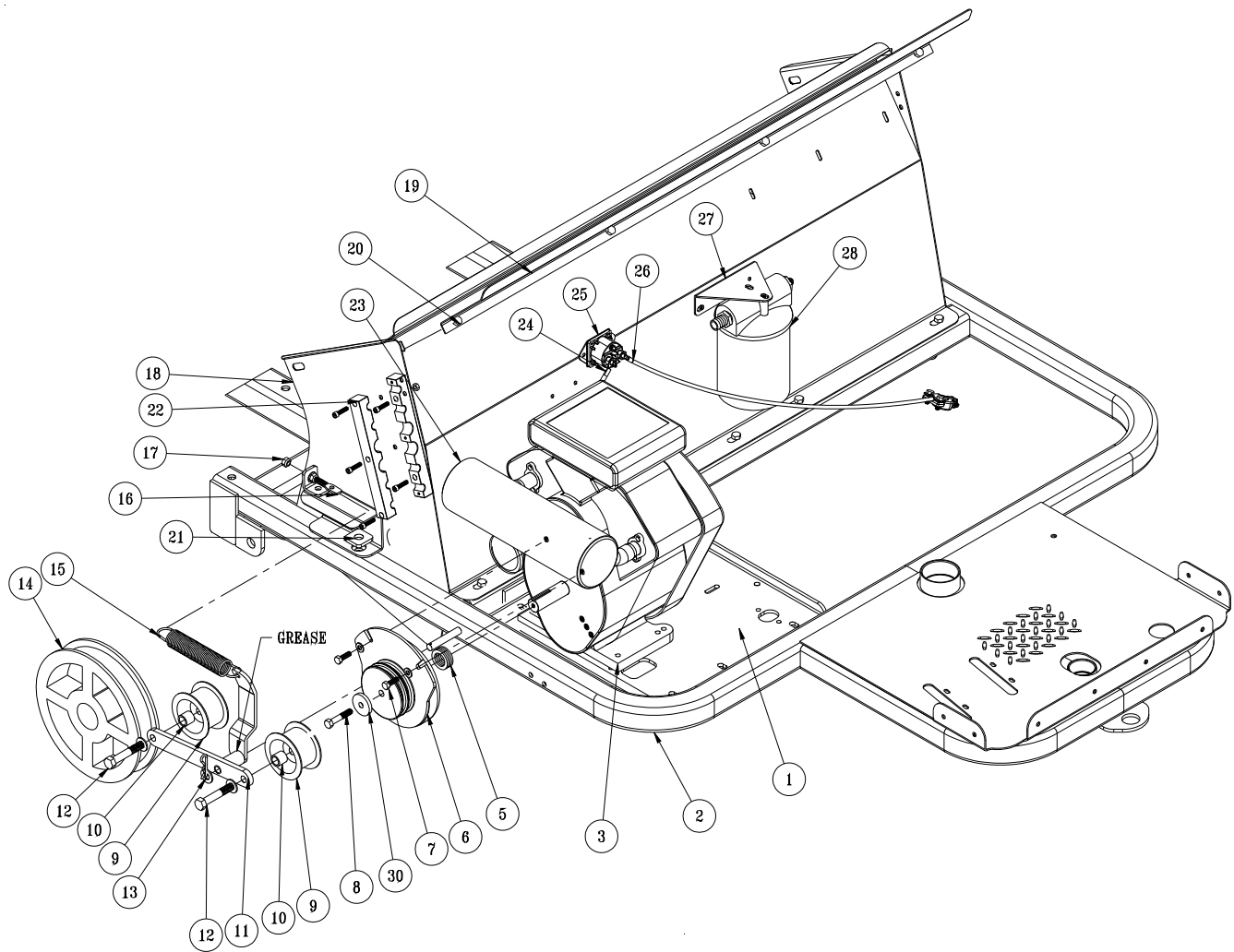
## ENGINE AND EXHAUST PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
27	48-279	Guard Strap	1
28	15-020	Hand Grip	1
29	8959-28	Flex Hose 28"	1
30	48-275	Engine Plate	1
31	HB-516-18-175	Bolt $\frac{5}{16}$ - 18 x $1\frac{3}{4}$	4
	HNTL-516-18	Lock Nut $\frac{5}{16}$ - 18	4
32	48-270	Stub Shaft	1
33	HMB-100-10	Machine Bushing 1 x 10GA	4
34	HB-38-16-200	Bolt $\frac{3}{8}$ - 16 x 2	1
35	76-337	Electric Clutch	1
	17-271	Lead Wire for Clutch	1
36	45-158	Muffler	1
37	48-313	Belt Guard	1
38	48-308	Heat Shield	1
39	18-116	Hose Clamp	2
40	42-776	Air Cleaner Hose Sleeve	1
41	43-024	Engine, Briggs & Stratton 18HP	1
42	48-008	Right Tower	1
43	48-318	Air Cleaner Mount	1
	8803-5	Black Trim	1
44	48-206	Right Hand Mount	1
45	42-834-02	Hood	1
46	42-834	Air Cleaner	1
	42-076-03	Replacement Filter	
	13-603	Air Cleaner Base (comes with engine)	1
47	42-834-01	Band	1
48	13-099	Hose Clamp	1
	HB-516-18-125	Bolt $\frac{5}{16}$ -18 x $1\frac{1}{4}$	1
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ -18	1

**Cyclonic air cleaner  
42-834**

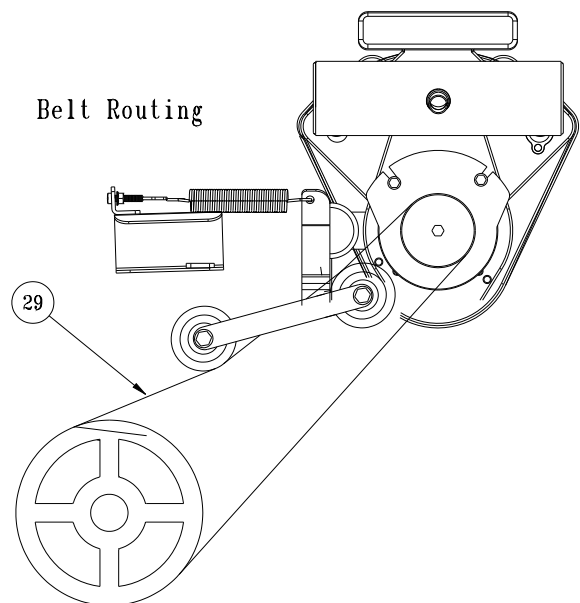


# ELECTRIC CLUTCH DRIVEN BELT DRIVE & MUFFLER DRAWING



Parts

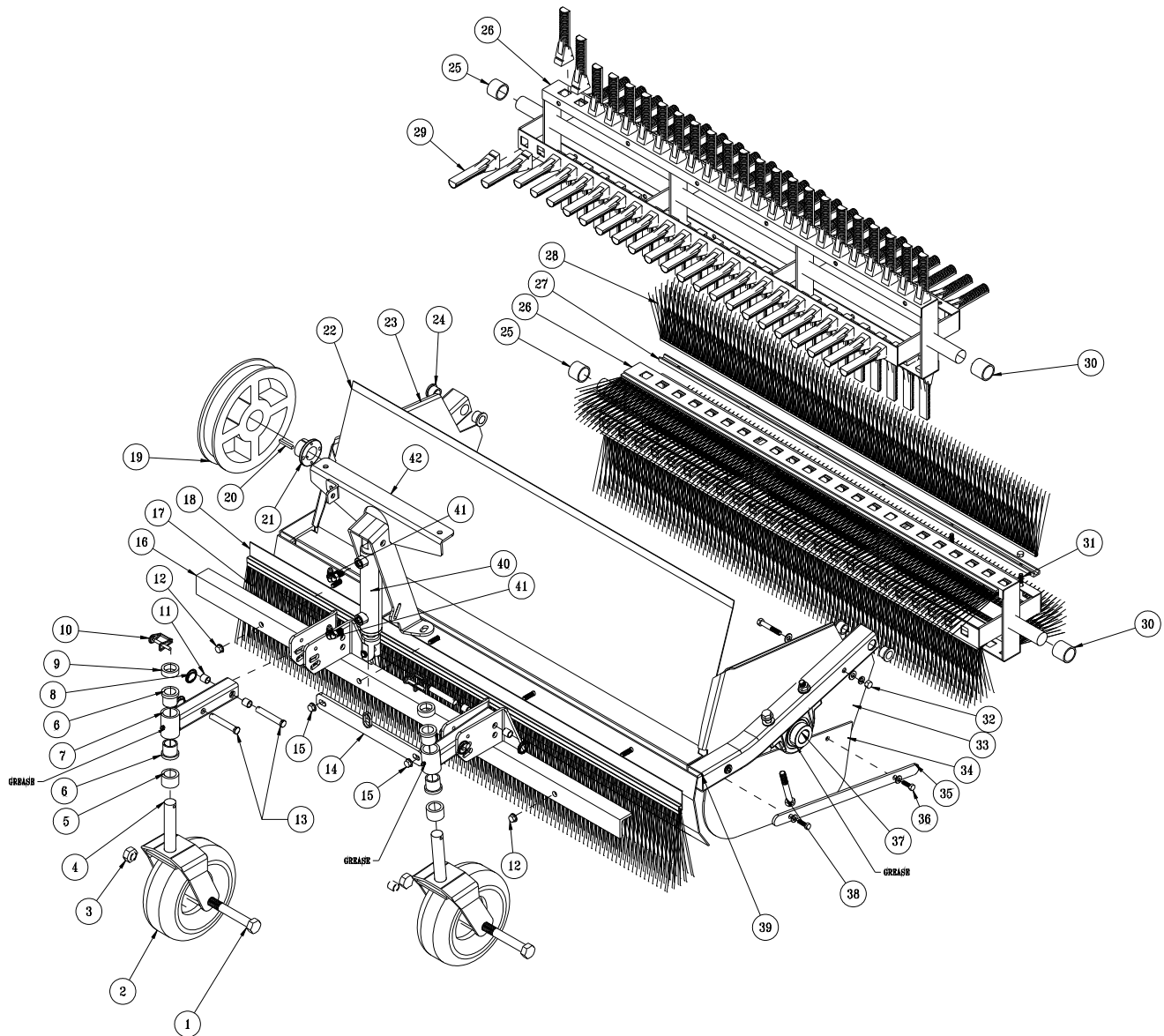
Belt Routing



## ELECTRIC CLUTCH DRIVEN BELT DRIVE & MUFFLER PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	48-275	Engine Plate	1
2	48-300	Main Frame	1
3	43-024	Engine, Briggs & Stratton 18HP	1
5	HMB-100-10	Machine Bushing 1 x 10GA	4
6	76-337	Electric Clutch	1
	17-271	Lead Wire for Clutch	1
7	HB-38-16-125	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	2
	HWL-38	Lock Washer $\frac{3}{8}$	2
8	HB-38-24-150	Bolt $\frac{3}{8}$ - 24 x $1\frac{1}{2}$	1
9	16-013	Idler Pulley	2
10	76-298	Spacer	2
11	48-273	Belt Tensioner	1
12	HB-12-13-350	Bolt $\frac{1}{2}$ - 13 x $3\frac{1}{2}$	2
	HNTL-12-13	Lock Nut $\frac{1}{2}$ - 13	2
13	HMB-12-14	Machine Bushing $\frac{1}{2}$ x 14GA	5
	HP-18-150	Cotter Pin $\frac{1}{8}$ x $1\frac{1}{2}$	1
14	76-102	Pulley	1
	76-102-01	Hub $1\frac{1}{4}$ ID	1
	HKSQ-14-150	Machine Key $\frac{1}{4}$ x $\frac{1}{4}$ x $1\frac{1}{2}$	1
15	21-445	Spring	1
16	42-537	Spade Bolt	1
17	HNFL-38-16	Flange Lock Nut 3/8 -16	2
18	48-307	Grass Chute	1
	8803-47	Black Trim	1
	8947-48	Trim Seal	1
	8828-14	Foam Tape	2
19	48-289	Rear Debris Guard	1
20	HB-516-18-100	Bolt $\frac{5}{16}$ - 18 x 1	4
	HW-516	Washer $\frac{5}{16}$	4
	HNTL-516-18	Lock Nut $\frac{5}{16}$ - 18	4
21	76-151	Washer	4
22	76-336	Hose Clamp w/ Hardware	1
23	42-600	Muffler	1
24	22-065	Starter Cable - Black	1
25	13-750	Solenoid w/ Connector	1
26	78-325	Battery Cable - red	1
27	13-217	Oil Filter Mount	1
28	20-576	Oil Filter	1
	20-576-01	Replacement Filter	
29	48-259	Belt	1
30	78-370	Spacer	1

# FINGER / BRUSH REEL DRAWING



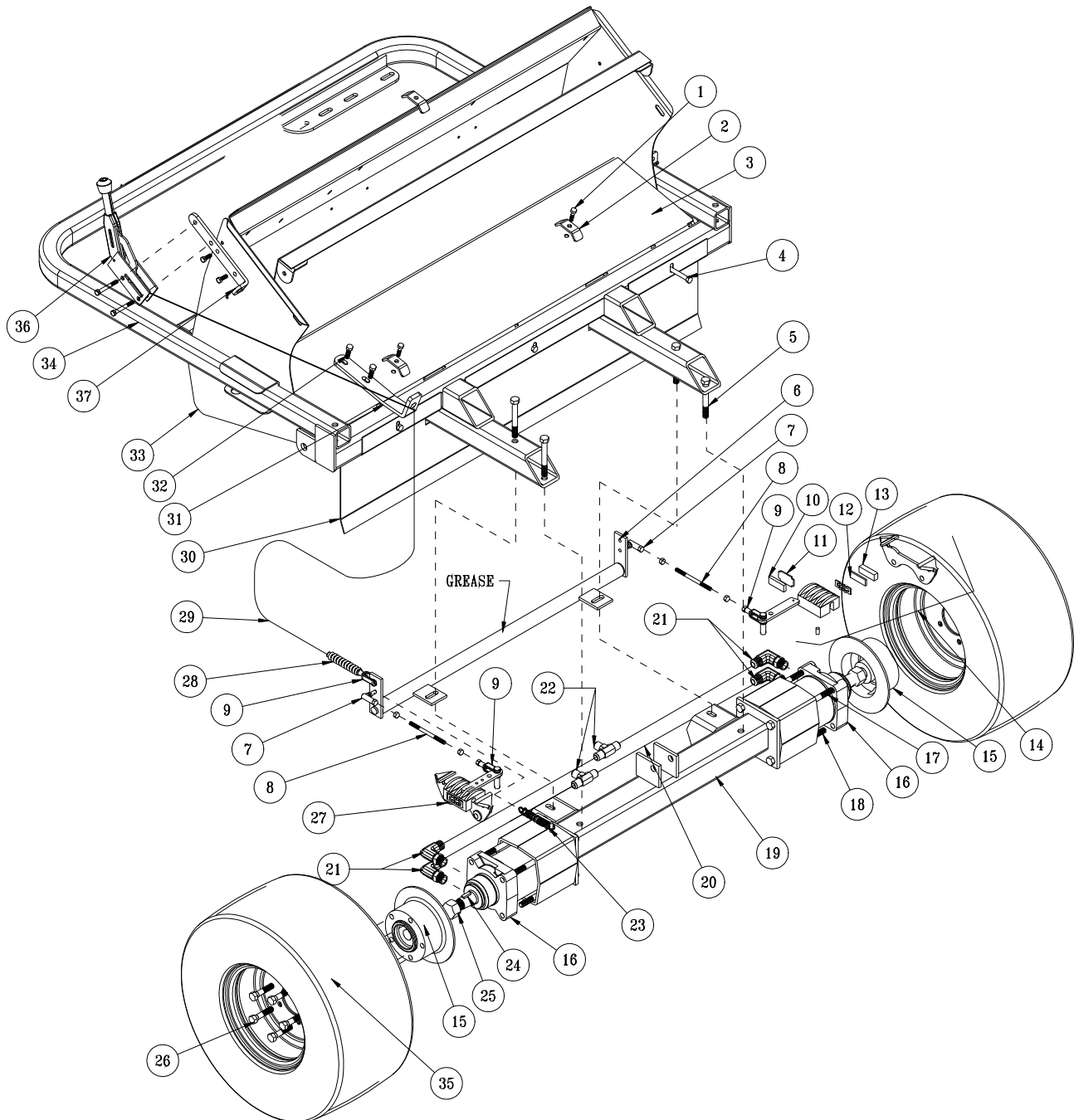
Parts



# FINGER / BRUSH REEL PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-34-10-550	Bolt $\frac{3}{4}$ - 10 x $5\frac{1}{2}$	2
2	33-435	Tire and Wheel	2
3	HNTL-34-10	Nut $\frac{3}{4}$ - 10	2
4	48-046	Castor Fork	2
5	29-585	Spacer Height Adjustment 1"	2
6	18-223	Bushing (part of 77-171)	4
7	77-171	Arm	2
	HG-14-28-180	Grease Fitting $\frac{1}{4}$ - 28 x 180°	1
8	76-483	Kickout Ring	4
9	29-584	Spacer Adjustment $\frac{1}{2}$ "	2
10	29-541	Lock Pin	2
11	20-019	Bushing (part of 77-171)	4
12	HB-38-16-350	Bolt $\frac{3}{8}$ - 16 x $3\frac{1}{2}$	2
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
13	HCP-12-225	Clevis Pin $\frac{1}{2}$ - $2\frac{1}{4}$	4
14	48-048	Beater Chain Bracket	1
15	HB-38-16-400	Bolt $\frac{3}{8}$ - 16 x 4	2
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
16	48-045	Castor Frame	1
17	48-221	Brush	1
18	48-222	Brush Channel	1
19	76-102	Pulley with Hub	1
20	HKSQ-14-150	Square Key $\frac{1}{4}$ x $1\frac{1}{2}$	1
21	76-102-01	Hub $1\frac{1}{4}$ ID	1
22	48-028	Front Baffle	1
23	75-799	Right Side Plate	1
24	18-221	Flange Bushing (part of 48-030)	4
25	75-834	Spacer (right)	1
26	48-323	Reel	1
27	48-105	Clamp	4
28	48-086	Brush	4
29	75-506	Sweeper Finger	96
30	75-686	Spacer (left)	1
31	HB-516-18-125	Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{4}$	24
	HNTL-516-18	Lock Nut $\frac{5}{16}$ - 18	24
32	HB-38-16-275	Bolt $\frac{3}{8}$ - 16 x $2\frac{3}{4}$	4
	HN-38-16	Nut $\frac{3}{8}$ - 16	4
	HWL-38	Lock Washer $\frac{3}{8}$	4
	HW-38	Washer $\frac{3}{8}$	8
33	75-800	Left Side Plate	1
34	76-210	Matting	2
35	76-213	Reel Guard Strap	2
36	HB-516-18-100	Bolt $\frac{5}{16}$ - 18 x 1	4
	HW-516	Washer $\frac{5}{16}$	4
	HWL-516	Lock Washer $\frac{5}{16}$	4
	HN-516-18	Nut $\frac{5}{16}$ - 18	4
37	75-511	Pillow Block	2
38	HB-12-13-350	Bolt $\frac{1}{2}$ - 13 x $3\frac{1}{2}$	4
	HW-716	Washer $\frac{7}{16}$	4
	HNTL -12-13	Lock Nut $\frac{1}{2}$ - 13	4
39	48-030	Beater Frame	1
40	76-478	Hydraulic Cylinder	1
	14-531	Seal Kit	1
	HP-18-100	Cotter Pin $\frac{1}{8}$ x 1	1
	HCP-12-350	Clevis Pin $\frac{1}{2}$ x $3\frac{1}{2}$	1
41	18-168	Elbow	2
42	48-288	Seat Support	1

# REAR AXLE DRAWING



Parts

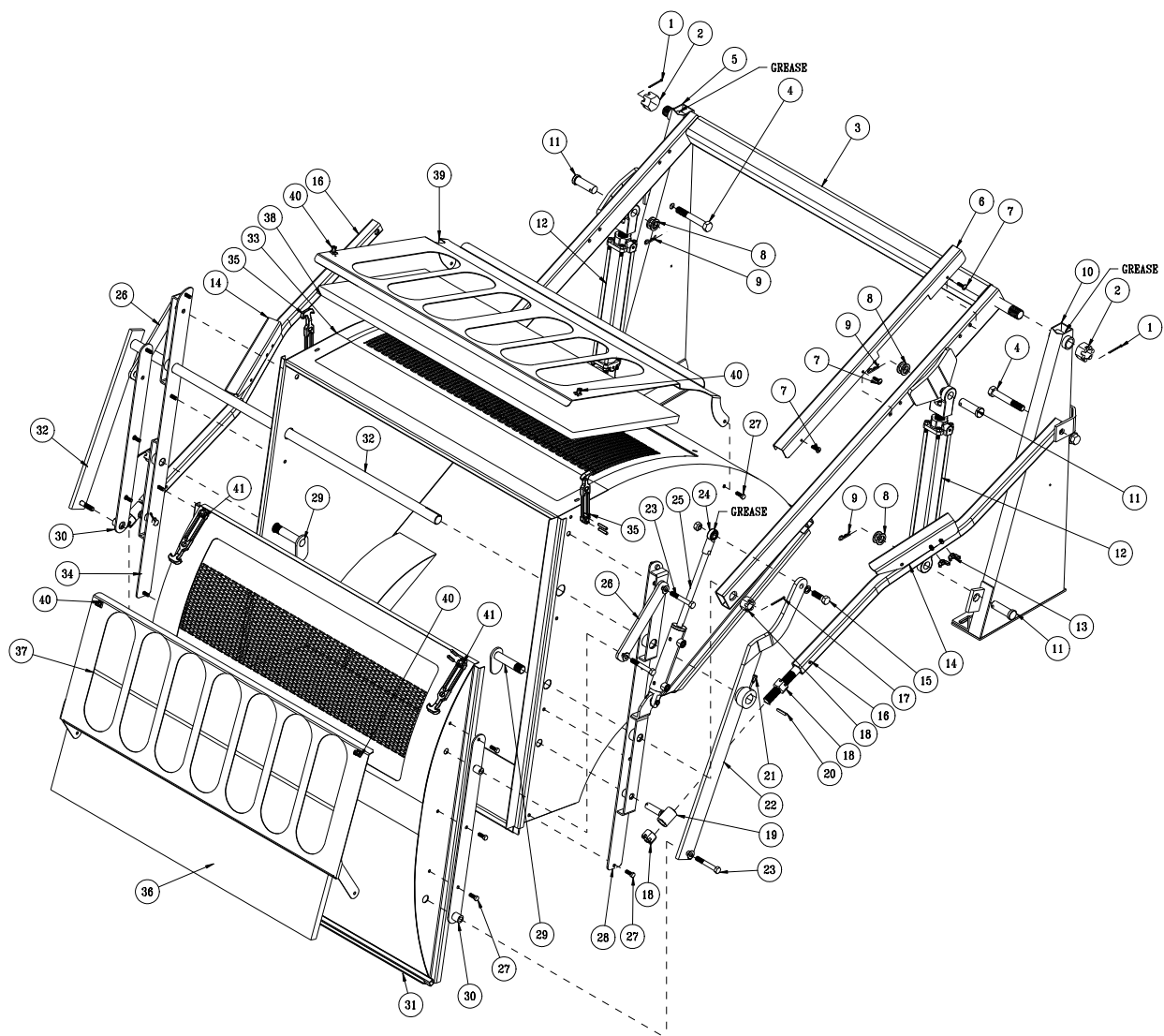
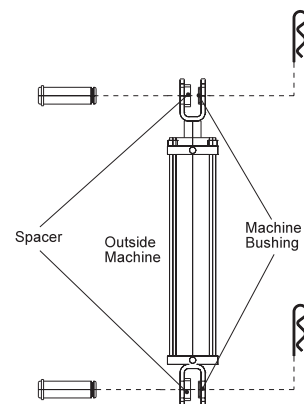
# REAR AXLE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HB-516-18-125	Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{4}$	2
	HWL-516	Lock Washer $\frac{5}{16}$	2
2	13-099	Clamp	2
3	48-305	Rear Baffle	1
4	HB-38-16-350	Bolt $\frac{3}{8}$ - 16 x $3\frac{1}{2}$	5
	HW-38	Washer $\frac{3}{8}$	5
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	5
5	HB-12-13-400	Bolt $\frac{1}{2}$ - 13 x 4	4
	HW-716	Washer $\frac{7}{16}$	2
	HNTL-12-13	Lock Nut $\frac{1}{2}$ - 13	4
6	48-055	Brake Relay	1
7	21-462	Ball Joint $\frac{5}{16}$ - 24	2
8	76-300	Brake Rod	2
	HN-516-24	Nut $\frac{5}{16}$ - 24	4
9	11-100	Linkage Yoke $\frac{5}{16}$	3
	HCP-516-100	Clevis Pin $\frac{5}{16}$ x 1	3
	HP-18-075	Cotter Pin $\frac{1}{8}$ x $\frac{3}{4}$	3
10*		Carrier Side Pad	1
11*		Carrier Side Pad Support	1
12*		Cam Side Pad support	1
13*		Cam Side Pad	1
14	76-241	Right Caliper	1
15	76-239	Brake Disc	2
16	76-238	Wheel Motor	2
17	HB-12-13-800	Bolt $\frac{1}{2}$ - 13 x 8	4
	HNTL-12-13	Lock Nut $\frac{1}{2}$ - 13	4
	HMB-12-14	Machine Bushing $\frac{1}{2}$ x 14GA	4
18	HB-12-13-750	Bolt $\frac{1}{2}$ - 13 x $7\frac{1}{2}$	4
	HNTL-12-13	Lock Nut $\frac{1}{2}$ - 13	4
19	48-031	Rear Axle	1
20	48-244	Hydraulic Tube	4
21	34-122	Short Elbow	4
22	34-057	Tee	2
23	29-118	Zinc Plate Spring	1
24	HWK-516-100	Woodruff Key $\frac{5}{16}$ x 1 (comes with wheel motor)	2
25	14-265	Nut 1 - 20 (comes with wheel motor)	2
26	60-268	Lug Bolt $\frac{1}{2}$ - 20 x $1\frac{5}{16}$	10
27	76-240	Left Caliper	1
28	60-536	Bellows	1
29	34-029	Brake Cable	1
30	48-006	Rear Beater Panel	1
31	48-134	Brake Cable Bracket	1
32	HB-38-16-125	Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	2
	HW-38	Washer $\frac{3}{8}$	4
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	2
33	48-307	Grass Chute	1
	8947-48	Trim Seal	2
34	48-300	Main Frame	1
35	48-265	Tire and Wheel	2
	43-123-01	Tire 22 x 11 x 10 Turf Master	2
	16-857-02	Wheel	2
36	60-106	Brake Lever	1
37	48-324	Park Brake Handle Mount	1
	HB-516-18-225	Bolt, $\frac{5}{16}$ -18 x $2\frac{1}{4}$	2
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ -18	2

\* 34-101-02 Pad Kit with 2 Pads and Steel Support Plates 2 Kits per Axle

# HOPPER AND TAILGATE DRAWING

48-501 Hopper Dust Shield  
 48-326 Hopper Filter 20" x 45"  
 48-325 Tailgate Filter 17" x 46"

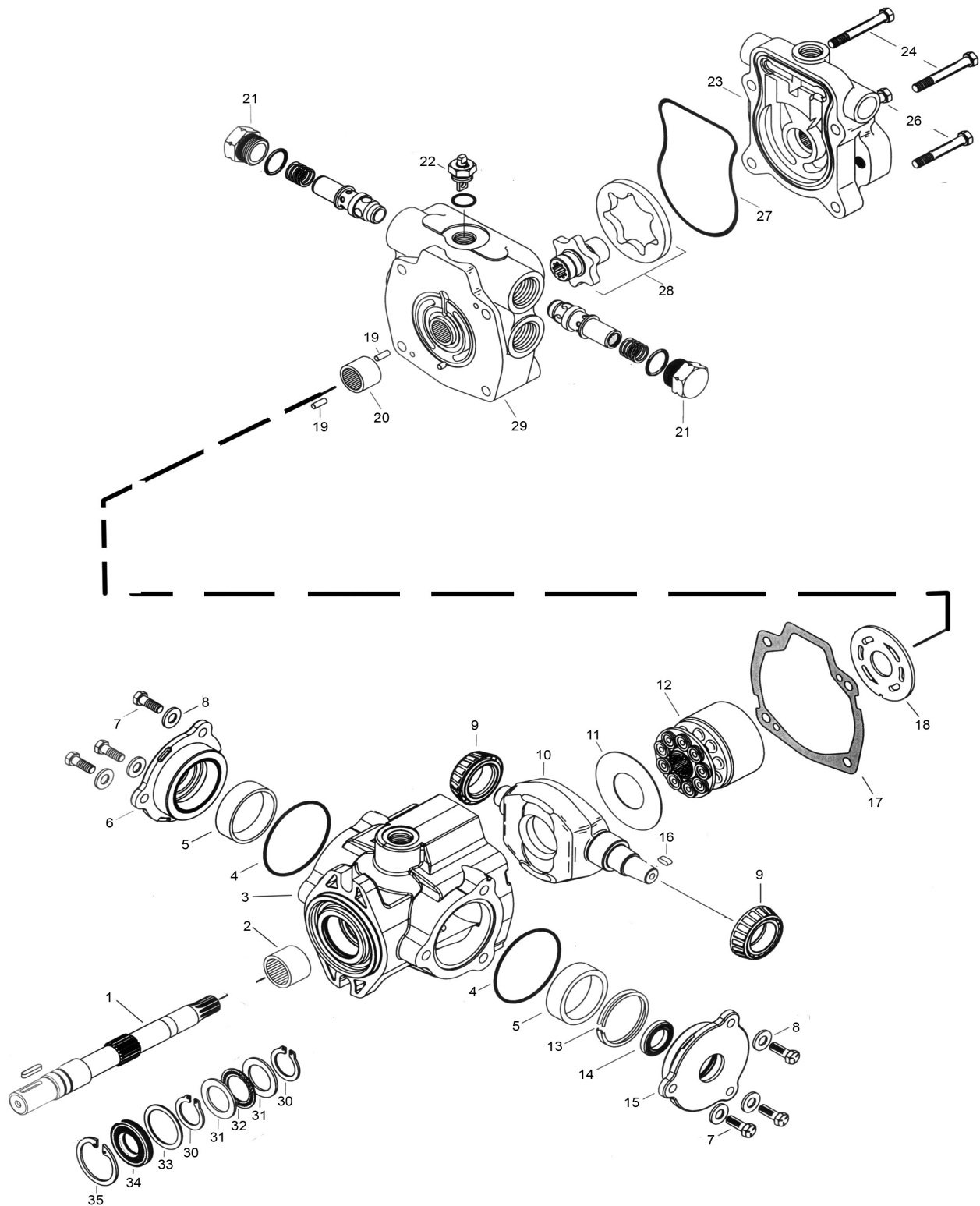


Parts

# HOPPER AND TAILGATE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HP-18-200	Cotter Pin $\frac{1}{8}$ x 2	2
2	HNA-114-12	Axle Nut $1\frac{1}{4}$ - 12	2
3	48-297	Pivot Arm	1
4	HB-34-10-500	Bolt $\frac{3}{4}$ - 10 x 5	2
	HNTL-34-10	Lock Nut $\frac{3}{4}$ - 10	2
5	48-009	LH Tower	1
6	48-296	Hose Guard	1
7	HSSHS -516-18-075	Socket Head Set Screws $\frac{5}{16}$ - 18 x $\frac{3}{4}$	3
	HNFL-516-18	Flange Lock Nut $\frac{5}{16}$ - 18	3
8	HMB-100-10	Machine Bushing 1 x 10GA (inside clevis; inside machine)	8
9	HHP-.177	Bridge Pin	4
10	48-008	RH Tower	1
11	HCP-100-325	Clevis Pin 1 x $\frac{3}{4}$	4
	48-129	Spacer (inside of clevis to outside of machine)	4
12	76-242	Hydraulic Cylinder	2
	76-242-01	Seal Kit	
13	HB-38-16-225	Bolt $\frac{3}{8}$ - 16 x $2\frac{1}{4}$	4
	HNW-38-16	Wing Nut $\frac{3}{8}$ - 16	4
14	75-653	Hopper Safety Lift	2
	75-651	Decal, Hopper Lift Safety Bar	2
15	HB-58-11-250	Bolt $\frac{5}{8}$ - 11 x $2\frac{1}{2}$	2
	HMB-58-14	Machine Bushing $\frac{5}{8}$ x 14GA	2
	HNTL-58-11	Lock Nut $\frac{5}{8}$ - 11	2
16	48-299	Dump Arm	2
17	HP-18-150	Cotter Pin $\frac{1}{8}$ x $1\frac{1}{2}$	2
18	HNA-100-14	Castle Nut 1 - 14	4
19	75-632	Adjustment Sleeve	2
	HP-18-100	Cotter Pin $\frac{1}{8}$ x 1	2
20	HKSQ-14-150	Machine Key $\frac{1}{4}$ x $\frac{1}{4}$ x $1\frac{1}{2}$	1
21	HSSHS-516-18-038	Socket Set Screw $\frac{5}{16}$ - 18 x $\frac{3}{8}$	1
22	48-302	RH Dump Arm	1
23	HB-12-13-300	Bolt $\frac{1}{2}$ - 13 x 3	6
	HNTL-12-13	Lock Nut $\frac{1}{2}$ - 13	6
24	18-154	Rod End	1
25	10-554	Hydraulic Cylinder	1
	14-529	Seal Kit	
	HCP-58-150	Clevis Pin $\frac{5}{8}$ x $1\frac{1}{2}$	1
	HHP-.177	Bridge Pin	1
26	48-298	Hinge Strap	2
27	HB-38-16-100	Bolt $\frac{3}{8}$ - 16 x 1	12
	HNTL-38-16	Lock Nut $\frac{3}{8}$ - 16	12
28	48-304	RH Hopper Hinge Strap	1
29	75-569	Swivel Bottom	2
30	48-303	Tailgate Hinge Strap	2
31	48-310	Tailgate	1
32	48-301	LH Dump Arm	1
33	48-309	Hopper	1
34	48-306	LH Hopper Hinge Strap	1
35	15-437	Latch and Keeper Complete	2
	15-437-02	Latch and Bracket only	2
	HRS-316-1125	Rivet	4
	HRW-316	Rivet Washer	6
36	48-325	Tailgate Filter	1
37	48-321	Dust Cover	1
38	48-326	Hopper Filter	1
39	48-322	Top Filter Cover	1
40	15-437-01	Keeper only	4
41	78-384	Latch	2
	HRS-316-1125	Rivet	4
	HRW-316	Rivet Washer $\frac{5}{16}$	4
	HW-316	Washer $\frac{5}{16}$	2

# 48-267 HYDROSTATIC PUMP DRAWING



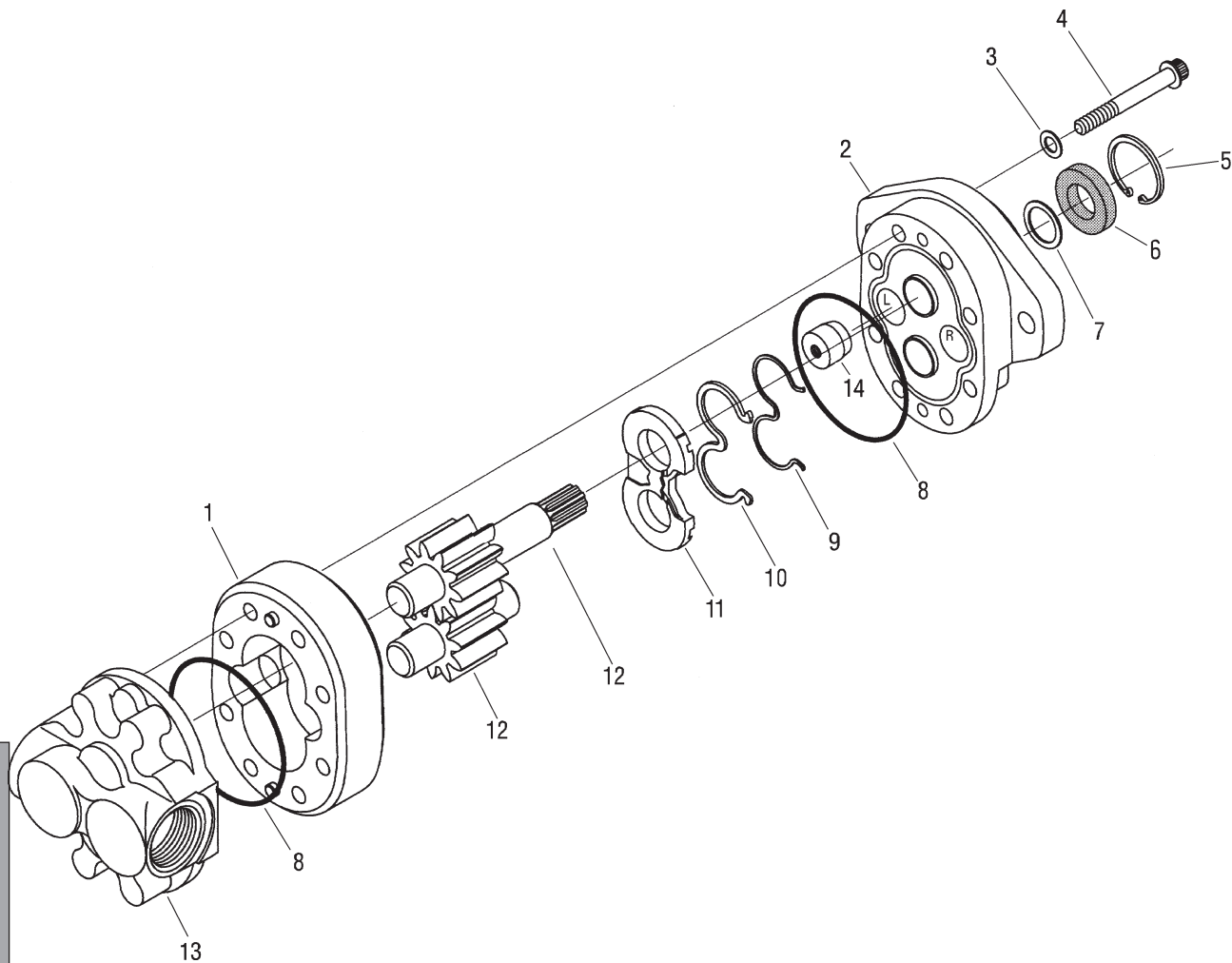
Parts

## 48-267 HYDROSTATIC PUMP PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	76-398-01	Drive Shaft (splined)	1
2	60-343-08	Needle Bearing (with housing)	1
3	77-239-01	Housing	1
4	77-239-02	O-Ring	1
5	77-239-03	Thrust Bearing	2
6	77-239-04	Trunnion Cover	1
7	77-239-05	Pan Head Screw	2
8	77-239-06	Washer	6
9	77-239-07	Cone Bearing	2
10	77-239-08	Cam Plate	1
11	77-239-09	Swash Plate Insert	1
12	60-343-21	Rotating Kit	1
13	77-239-10	Crush Ring	1
14*	60-343-12	Shaft Seal	1
15	77-239-11	Seal Cover	1
16	77-239-12	Key	1
17*	77-239-13	Gasket	1
18		Back Plate	1
19	33-058-27	Dowel Pin	2
20	60-343-23	Bearing	1
21	77-239-15	Relief Valve	2
22	77-239-16	Tow Valve Assembly	1
23		Charge Pump Adapter	1
24	77-239-17	Cap Screw	2
26	77-239-18	Cap Screw	2
27*	77-239-19	O-Ring	1
28		Gerotor and Coupler	1
29	77-239-20	End cover Assembly	1
30*	77-239-21	Retaining Ring	2
31	60-343-05	Bearing Race	1
32	60-343-06	Thrust Bearing	1
33	60-343-03	Washer	2
34*	60-343-02	Shaft Seal	1
35*	60-343-01	Retaining Ring	1

\* 77-239-23 Seal Repair Kit

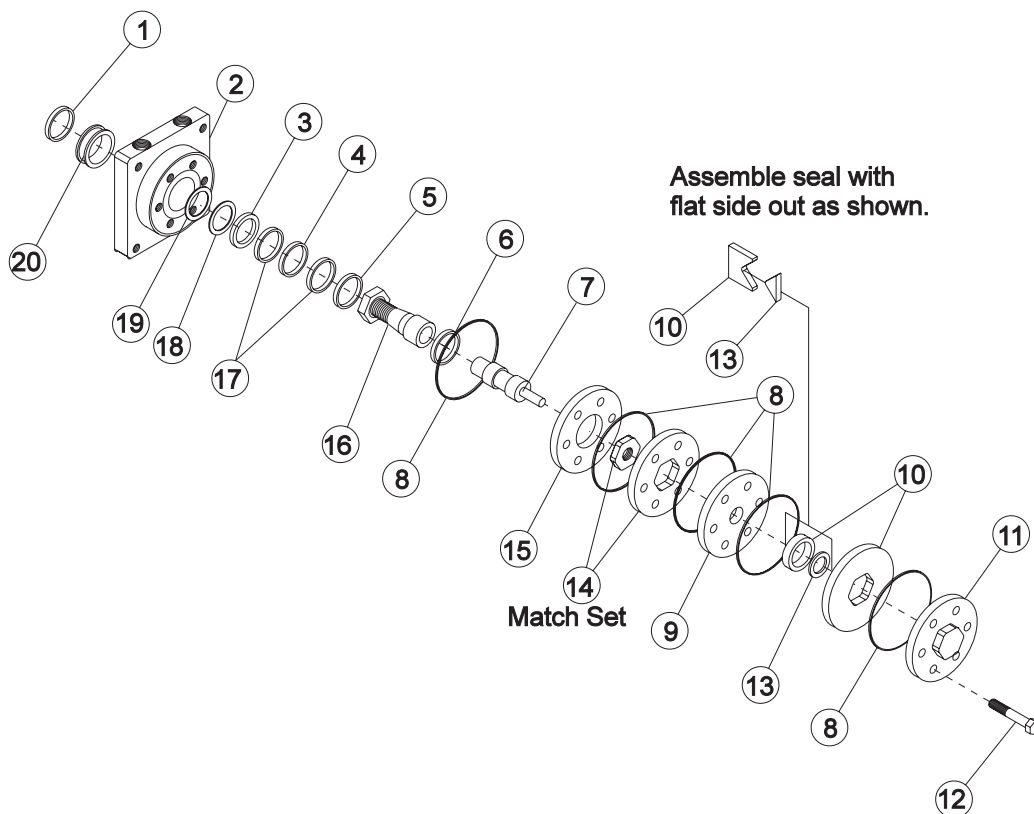
# 48-266 GEAR PUMP



REF#	PART#	DESCRIPTION	QUANTITY
1		Body	1
2	76-197-01	Front Plate	1
3*		Washer	4
4	76-197-06	Cap Screw	8
5	76-197-07	Retaining Ring	1
6*		Shaft Seal	1
7	33-061-15	Washer	1
8*		O-Ring	2
9*		Backup Gasket	1
10*		Seal	1
11*		Wear Plate	1
12	76-197-04	Shaft (comes with Idler Gear)	1
13	76-197-02	Back Plate	1
14*		Plug	1
*	76-197-08	Seal Kit	

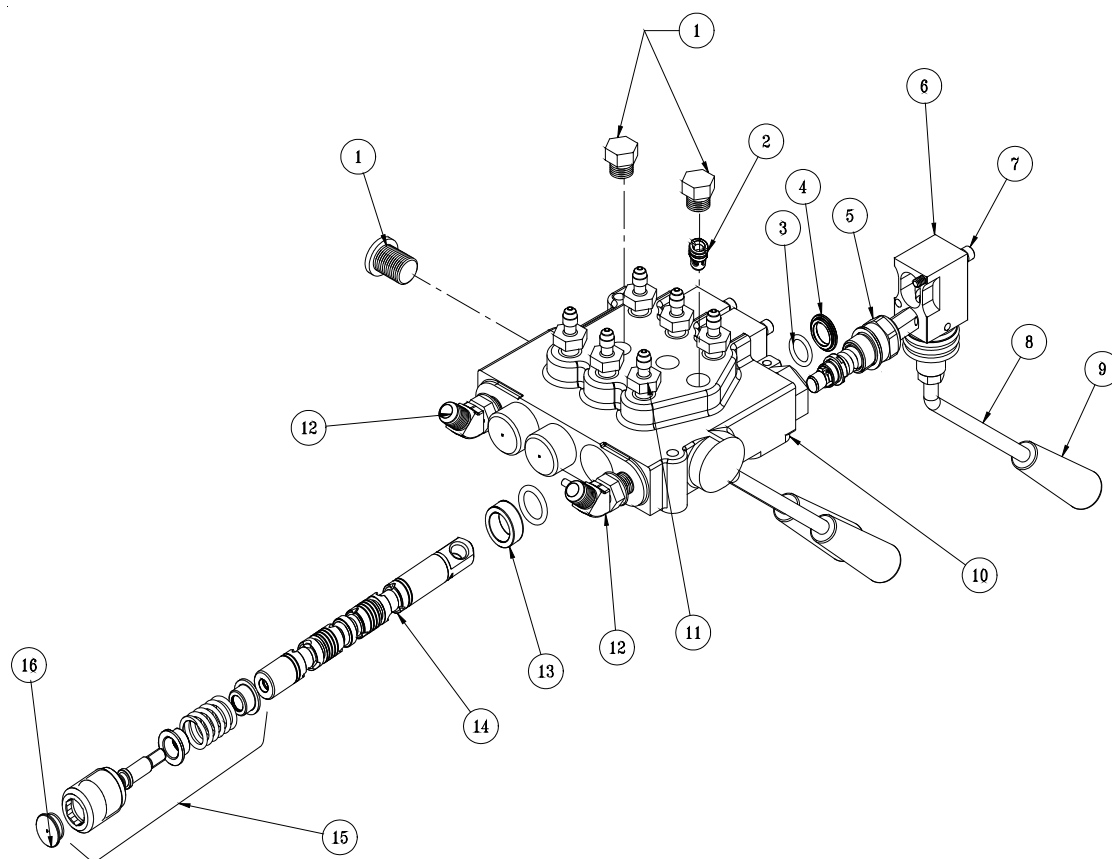


## 76-238 REAR WHEEL MOTOR (14.5 CI)



REF#	PART#	DESCRIPTION	QUANTITY
1*		Water & Dirt Seal	1
2†	13-615-05	Service Housing Assembly	1
3*		Inner Seal	1
4†	13-032-27	Thrust Bearing	1
5†	13-032-28	Inner Bearing	1
6	13-032-29	Thrust Bearing	1
7	76-238-03	Drive Link	1
8*		Ring Seal	5
9	13-032-31	Manifold	1
10	13-032-32	Commutator Assembly (matched set)	1
11	13-032-33	End Cover	1
12	76-238-01	Bolt	7
13*		Commutator Seal (matches with #10)	1
14	76-238-02	Rotor Set (matched set)	1
15	13-032-35	Plate Wear	1
16	13-615-04	Coupling Shaft	1
	HWK-516-100	Woodruff Key $\frac{5}{16} \times 1$	1
	14-265	Nut 1 - 20	1
17†	13-032-37	Thrust Washer	2
18*		Backup Washer	1
19*		Backup Washer	1
20†	13-032-38	Outer Bearing	1
*	14-080	Seal Kit	1
†	Included in 13-615-05 Service Housing Assembly		

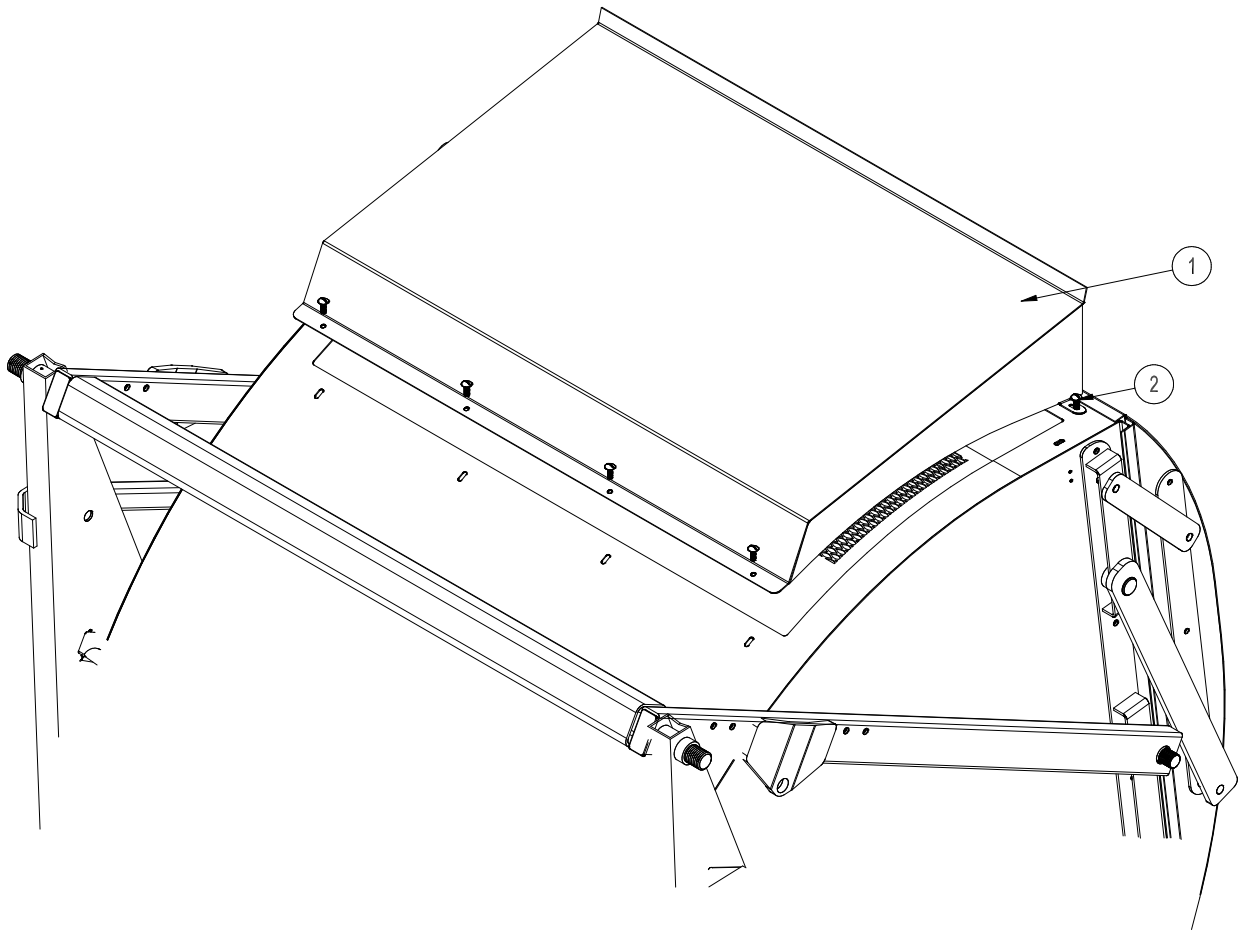
## 48-258 3-BANK HYDRAULIC VALVE



REF#	PART#	DESCRIPTION	QUANTITY
1*	78-415-13	$\frac{3}{4}$ - 16 SAE 8 Screw Plug	3
2*	78-415-12	Check Valve Assembly HDM12	1
3*	78-415-03	O-Ring Seal	6
4*	78-415-04	Flanged Washer HDM10	3
5*	78-415-02	Spool HDM10	1
6*	78-415-09	Lever Group HDS11	3
7*	78-415-10	Metric Socket Screw M5 x .8 x 45	6
8	78-418	Bent Handle	3
9		Tapered Knob	3
10*	48-258-01	Body (complete with spacer and check valve)	1
11	18-169	Straight Thread Connectors	6
12	18-188	Straight Thread 45° Elbow	2
13*	78-415-05	Spacer	3
14*	78-415-06	A Type Spool HDS11	3
15*	78-415-11	Positioner HDM10	3
16*	78-415-08	Plug	3

\* 48-258 3 – Bank Hydraulic Valve (includes all \* items)

## 48-501 HOPPER DUST SHIELD



REF#	PART#	DESCRIPTION	QUANTITY
1	48-320	Hopper Dust Cover	1
2	HSTP-516-18-075	Phillips Machine Screw, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	6
	HNFL-516-18	Flange lock Nut , $\frac{5}{16}$ - 18	6

Accessory

## DECAL LIST

This is a list of decals on the Sweep Star 48. Part number, description, and location will help in reordering decals.

16-088 Decal, Moving Parts/Hot	Belt Guard
25-286 Decal, Pinch Point	Front Hopper R & L Sides
25-307 Decal, Gasoline	Tank Cover Panel
25-320 Decal, Max Weight	Front Hopper
25-358 Decal, Smithco 12"	Tailgate
25-362 Decal, Danger Fire	Tank Cover Panel
25-372 Decal, Smithco Star 4"	Belt Guard
27-077 Decal, Smithco Round	Steering Cap
27-093 Decal, Hydraulic Oil	Tank Cover Panel
34-147 Decal, Smithco Star	Nose Cone
48-145 Decal, Sweep Star 48 H	Hopper Sides
48-245 Decal, Dash Panel	Dashboard
48-261 Decal, Control Panel	Control Panel
76-307 Decal, Tower Warning	Tower Sides
75-651 Decal, Hopper Lift Safety Bar	Lift Bars on Hopper Sides
25-277 Decal, Battery	Inside Battery Cover
25-356 Decal, Tire Pressure (20 psi)	All Wheels
25-375 Decal, 94 dBA	Engine Cover

## QUICK REFERENCE REPLACEMENT PARTS

### REPLACEMENT FILTERS

20-576-01	Hydraulic Oil Filter	
13-531	Engine Oil Filter	
15-165-01	Air Filter Element with Pre-Cleaner	
42-076-03	Remote Air Filter Element	
42-834-03	Remote Safety Filter	
50-403	Fuel Filter	
18-462	Oil Drain Valve	Briggs & Stratton 25 755 14-S

### REPLACEMENT BELTS

48-259	Finger Reel Belt
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### SEAL KITS

42-258	3-Bank Hydraulic Valve
14-096	O-Ring Seal Kit
48-267	Hydrostatic Pump
77-239-23	Seal Kit
48-266	Gear Pump
76-197-08	Seal Kit
76-238	Wheel Motor
14-080	Seal Kit
76-242	Hydraulic Cylinder
76-242-01	Seal Kit
10-554	Hydraulic Cylinder
14-529	Seal Kit
76-478	Hydraulic Cylinder
14-531	Seal Kit

### FLUIDS

Engine Oil	SJ or Higher 10W-30
Hydraulic Fluid	SJ or Higher 10W-40

### OTHER PARTS

13-488	Key Switch	
	Spark Plugs	Champion® type RC 12YC or Equivalent Gap 0.030 (.76 mm) Torque 18/22 ft. lbs (24/30 Nm)
76-354	2 <sup>1</sup> / <sub>2</sub> # ABC Dry Chemical Fire Extinguisher	

### DUST AND FILTRATION FILTERS

48-326	Hopper Filter
48-325	Tailgate Filter

# The Smithco Commercial Products Two-Year Limited Warranty

## The Smithco Commercial Products Two-Year Limited Warranty

Smithco, Inc. (Smithco) warrants your 2016 or newer Smithco Commercial Product ("Product") purchased after October 1, 2016 to be free from defects in materials or workmanship for the period of time listed below. Where a warrantable condition exists, Smithco will repair the Product at no cost to you including diagnosis, labor (at the Smithco standard labor rate, subject to the Smithco flat rate schedule), and parts.

### Warranty Duration is:

- (1) Two years, 1500 operational hours\* from the date of delivery to the original purchaser or Five years from the date of original manufacturer of the product, whichever occurs first. (\*Products equipped with hour meter).
- (2) Products used in rental situations are covered for 90 days from date of delivery to original user/renter.

### Owner Responsibilities:

As the Product owner, you are responsible for required maintenance and adjustments stated in your Owner's Manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim. **You are particularly responsible to train all present and future operators of this product on the safe operation of this product at your location.**

### Instructions for Obtaining Warranty Service:

You are responsible for notifying the Authorized Smithco Products Distributor from whom you purchased the Product as soon as you believe a warrantable condition exists and not later than 30 days from discovery of the condition.

If you need help locating an Authorized Smithco Distributor, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Smithco Product Support Department  
200 West Poplar Ave.  
Cameron, Wisconsin 54822  
Telephone: 800-891-9435 E-Mail: [ProductSupport@Smithco.com](mailto:ProductSupport@Smithco.com)

### Maintenance Parts:

Parts scheduled for replacement as required maintenance ("Maintenance Parts"), are warranted for the period of time up to the scheduled replacement time for that part.

### Items/Conditions Not Covered:



Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. The items/conditions listed below are not covered by this warranty:



Product failures which result from the use of non-Smithco replacement parts, or from installation and use of add-on, modified, or unapproved accessories are not covered.



Product failures which result from failure to perform required maintenance and/or adjustments are not covered.



Product failures that result from operating the Product in an abusive, negligent or reckless manner are not covered.



This warranty does not apply to parts subject to consumption through use, unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to: blades, tines, teeth, scarifiers, rakes, plates, wear plates, castor wheels, tires, batteries, filters, belts, nozzles, etc.



This warranty does not apply to failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.



This warranty does not apply to normal "wear and tear" items. Normal "Wear and Tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.



Smithco may require the return of failed parts or components in order to determine the validity of any warranty claim.



Smithco will not be obligated to replace components of other manufacturers if inspection by the original component manufacturer indicates that failure was due to normal wear and tear, expected consumption through use or improper care or service.

#### **Other Legal Disclaimers:**

The above remedy for product defects through repair or replacement by an authorized Smithco distributor or dealer is the purchaser's sole remedy for any defect. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**THERE ARE NO OTHER EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH ABOVE. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE LIMITED WARRANTIES CONTAINED HEREIN.**

Some states may not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

**THE SMITHCO COMPANY IS NOT LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THE PRODUCT, INCLUDING ANY COST OR EXPENSE OF PROVIDING A SUBSTITUTE PRODUCT OR SERVICE DURING PERIODS OF MALFUNCTION OR NON-USE.**

Some states may not allow the exclusion of indirect, incidental or consequential damages, so the above exclusion may not apply to you.

