

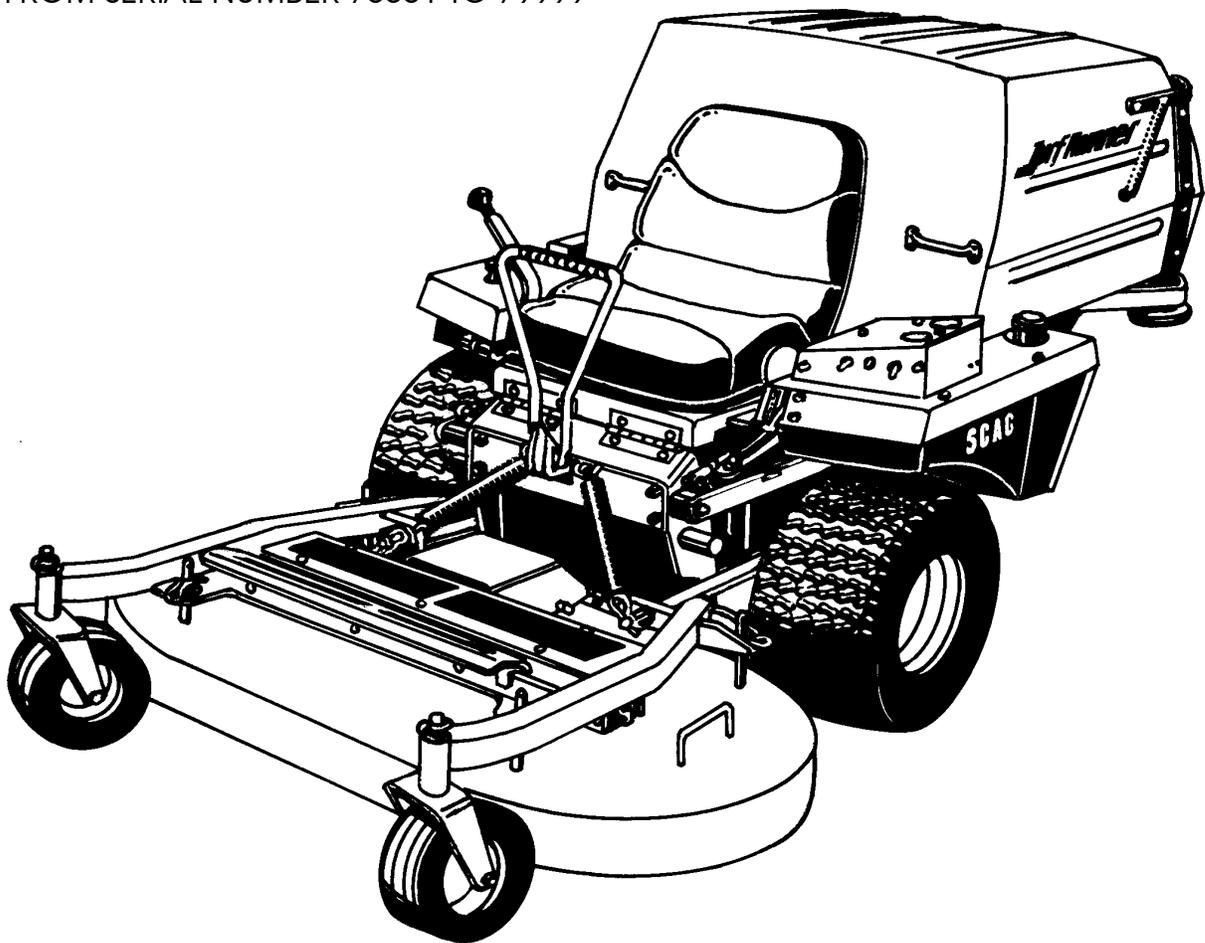
SCAG[®]

POWER EQUIPMENT

OPERATOR'S MANUAL

TURF RUNNER MODEL STR

FROM SERIAL NUMBER 70001 TO 79999



PART 03035

 **WARNING****FAILURE TO FOLLOW SAFE OPERATING PRACTICES
MAY RESULT IN SERIOUS INJURY.**

- * Keep all shields in place, especially the grass discharge chute.
- * Before performing any maintenance or service, stop the machine and remove the spark plug wire and ignition key.
- * If a mechanism becomes clogged, stop the engine before cleaning.
- * Keep hands, feet and clothing away from power-driven parts.
- * Read this manual completely as well as other manuals that came with your mower.
- * Keep others off the tractor (only one person at a time).

REMEMBER - YOUR MOWER IS ONLY AS SAFE AS THE OPERATOR!

Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment.

This manual covers the operating instructions
and illustrated parts list for:

STR-20CH with a serial number of 27070001-27079999

STR-22CH with a serial number of 27170001-27179999

Always use the entire serial number listed on the serial number
tag when referring to this product.

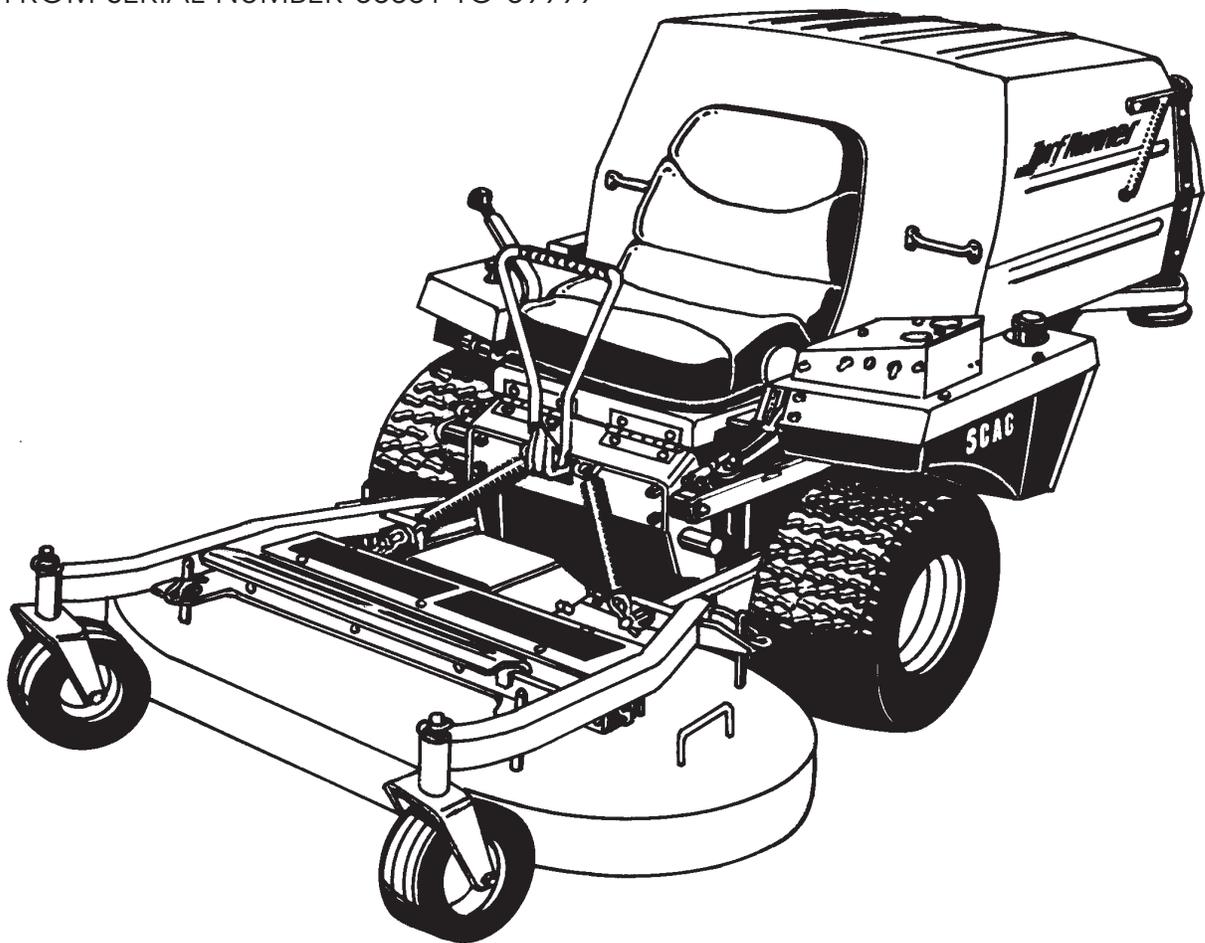
SCAG[®]

POWER EQUIPMENT

OPERATOR'S MANUAL

TURF RUNNER MODEL STR

FROM SERIAL NUMBER 60001 TO 69999



PART 03028

 **WARNING****FAILURE TO FOLLOW SAFE OPERATING PRACTICES
MAY RESULT IN SERIOUS INJURY.**

- * Keep all shields in place, especially the grass discharge chute.
- * Before performing any maintenance or service, stop the machine and remove the spark plug wire and ignition key.
- * If a mechanism becomes clogged, stop the engine before cleaning.
- * Keep hands, feet and clothing away from power-driven parts.
- * Read this manual completely as well as other manuals that came with your mower.
- * Keep others off the tractor (only one person at a time).

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This manual covers the operating instructions
and illustrated parts list for:

STR-20CH with a serial number of 21660001-21669999

STR-22CH with a serial number of 21760001-21769999

Always use the entire serial number listed on the serial number
tag when referring to this product.



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GENERAL INFORMATION

1.1 INTRODUCTION

Your mower was built to the highest standards in the industry. However, the prolonged life and maximum efficiency of your mower depends on you following the operating, maintenance and adjustment instructions in this manual.

If additional information or service is needed, contact your Scag Power Equipment Dealer.

We encourage you to contact your dealer for repairs. All Scag dealers are informed of the latest methods to service this equipment and provide prompt and efficient service in the field or at their service shop. They carry a full line of Scag service parts.

USE OF OTHER THAN ORIGINAL SCAG REPLACEMENT PARTS WILL VOID THE WARRANTY.

When ordering parts, always give the model and serial number of your tractor and cutting deck. The serial plates are located where shown in Figures 1-1 and 1-2.

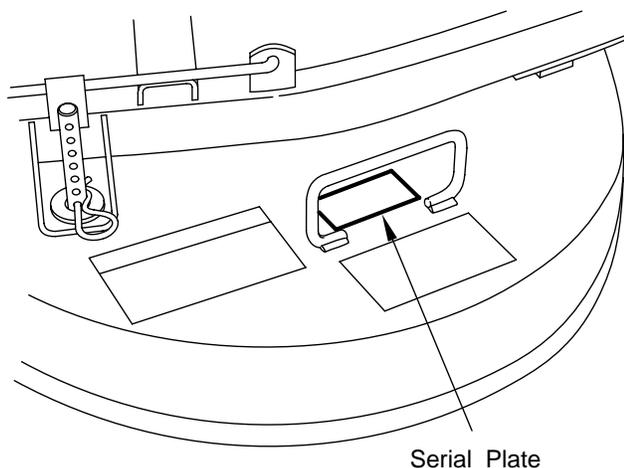


Figure 1-1 Mower Deck Serial Plate Location

For pictorial clarity, some illustrations and figures in this manual may show shields, guards or plates open or removed. Under no circumstances should your mower be operated without these devices in place.

All information is based upon product information available at time of approval for printing. Scag Power Equipment reserves the right to make changes at any time without notice and without incurring any obligation.

1.2 DIRECTION REFERENCE

The “Right” and “Left”, “Front” and “Rear” of the machine are referenced from the operator’s right and left when seated in the normal operating position and facing the forward travel direction.

1.3 SERVICING THE ENGINE AND DRIVE TRAIN COMPONENTS

The detail servicing and repair of the engine, hydraulic pumps and gearboxes are not covered in this manual; only routine maintenance and general service instructions are provided. For service of these components during the limited warranty period, it is important to contact your Scag dealer or find a local authorized servicing agent of the component manufacturer. Any unauthorized work done on these components during the warranty period may void your warranty.

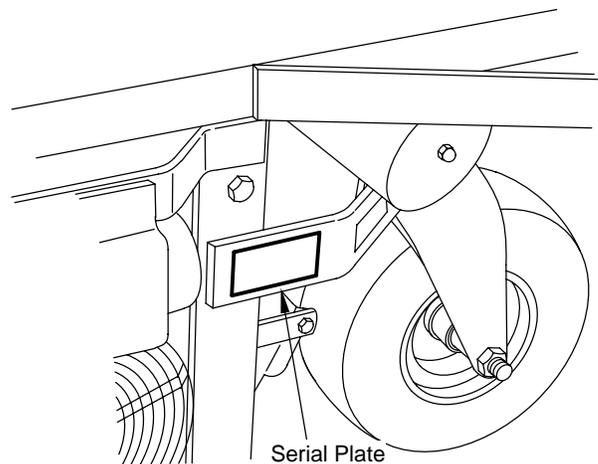


Figure 1-2 Tractor Serial Plate Location

SAFETY INFORMATION

2.1 INTRODUCTION

Your mower is only as safe as the operator. Carelessness or operator error may result in serious bodily injury or death. Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of the personnel involved in the operation, transport, maintenance and storage of the equipment. Make sure every operator is properly trained and thoroughly familiar with all of the controls before operating the mower.

READ THIS OPERATOR'S MANUAL BEFORE ATTEMPTING TO START YOUR MOWER.

A replacement manual is available from your authorized Scag Service Dealer or by Contacting Scag Power Equipment, Service Department at P.O. Box 152, Mayville, WI 53050. There is a nominal charge of \$2.00 for each manual. Please indicate the complete model and serial number of your Scag product.

2.2 SIGNAL WORDS



This symbol means **“Attention! Become Alert! Your Safety is Involved!”** The symbol is used with the following signal words to attract your attention to safety messages found on the decals and throughout this manual. The message that follows the symbol contains important information about safety. To avoid injury and possible death, carefully read the message! Be sure to fully understand the causes of possible injury or death.

Signal Word:

It is a distinctive word on safety decals and throughout this manual that alerts the viewer to the existence and relative degree of the hazard.

DANGER:

The signal word “DANGER” denotes that an extremely hazardous situation exists on or near the machine that could result in high probability of death or irreparable injury if proper precautions are not taken.

WARNING:

The signal word “WARNING” denotes a hazard exists on or near the machine that can result in injury or death if proper precautions are not taken.

CAUTION:

The signal word “CAUTION” is a reminder of safety practices on or near the machine that could result in personal injury if proper precautions are not taken.

Your safety and the safety of others depends significantly upon your knowledge and understanding of all correct operating practices and procedures of this machine.

2.3 BEFORE OPERATION CONSIDERATIONS

1. **NEVER** allow children to operate this riding mower. Do not allow adults to operate this machine without proper instructions.
2. **DO NOT** mow when children and/or others are present.
3. Clear the area to be mowed of objects that could be picked up and thrown by the cutter blades.
4. **DO NOT** carry passengers.
5. **DO NOT** wear loose fitting clothing that could get tangled in moving parts. Do not operate the machine wearing shorts; always wear adequate protective clothing including long pants. Wearing safety glasses, safety shoes and a helmet is advisable and is required by some local ordinances and insurance regulations.

Section 2

6. Operator hearing protection is recommended, particularly for continuous operation of the mower. Wear suitable hearing protection. Prolonged exposure to loud noise can cause hearing impairment or loss.
7. Keep the machine and attachments in good operating condition. Keep all shields and safety devices in place. If a shield, safety device or decal is defective or damaged, repair or replace it before operating the machine.
13. **DO NOT** operate without a chute deflector installed; keep the deflector in lowest possible position.
14. Check the blade mounting bolts at frequent intervals for proper tightness.
15. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before starting the machine.

WARNING:

This machine is equipped with an interlock system intended to protect the operator and others from injury. This is accomplished by preventing the engine from starting unless the operator is seated in the seat, the deck drive is disengaged, and the speed control is placed in the neutral position. The system also shuts off the engine if the operator leaves the seat with the mower running and the speed control is not in the neutral position. It will also shut off the engine if the hopper is raised with the cutter deck drive engaged. Never operate equipment with the interlock system disconnected or malfunctioning.

8. Be sure interlock switches are functioning correctly.
9. Fuel is flammable; handle with care. Fill fuel tank outdoors. Never fill indoors. Use a funnel or spout to inhibit spillage. Clean up any spillage before starting the engine.
10. **DO NOT** add fuel to a running or hot engine. An explosion could occur. Allow engine to cool for several minutes before adding fuel.
11. Keep flammable objects (cigarettes, matches, etc.), open flames and sparks away from the fuel tank and fuel container.
12. Equipment must comply with the latest requirements per ANSI J137 and/or ANSI S279 when driven on public roads.

2.4 OPERATION CONSIDERATIONS

1. Know the function of all controls and how to stop quickly.
2. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing directions on slopes.

WARNING:

DO NOT operate on steep slopes. To check a slope, attempt to drive up it (with cutter deck down). If machine can drive up the slope without the wheels slipping, reduce speed and use extreme caution. **ALWAYS FOLLOW OSHA APPROVED OPERATION.**

3. Do not stop or start suddenly. **WHEN GOING UP HILL OR DOWN HILL, MOW UP AND DOWN THE FACE OF SLOPES, NEVER ACROSS THE FACE.**
4. When using any attachment, never direct the discharge of material toward bystanders or allow anyone near the machine while in operation.
5. Before attempting to start the engine, disengage power to the cutter deck and engage the parking brake.
6. If the mower discharge ever plugs, shut off the engine, remove the ignition key, and wait for all movement to stop before removing the obstruction. Do not use your hand to dislodge the clogged discharge chute. Use a stick or other device to remove clogged material.

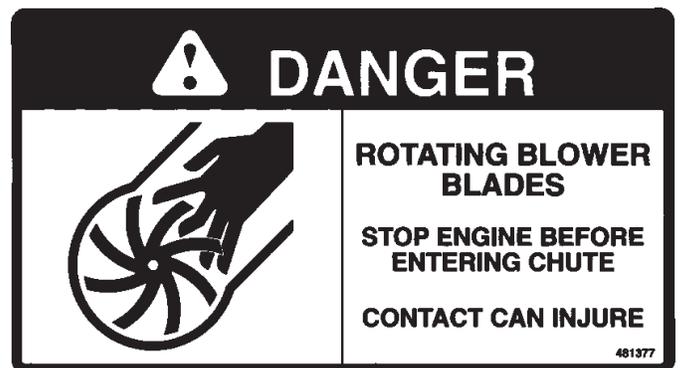
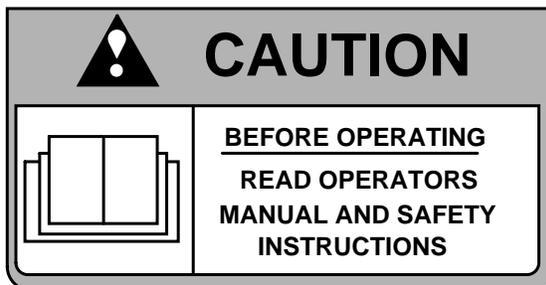
7. Be alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from any dropoff. Beware of overhead obstructions (low limbs, etc.), underground obstacles (sprinklers, pipes, tree roots, etc.). Cautiously enter a new area. Be alert for hidden hazards.
8. Disengage power to mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.
9. **DO NOT** turn sharply. Use care when backing up.
10. Watch for traffic when crossing roads or operating near roadways.
11. Mow only in daylight or good artificial light.
12. Take all possible precautions when leaving the machine unattended, such as disengaging the mower, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
13. Disengage power to the attachments when transporting or when not in use.
14. The machine and attachments should be stopped and inspected for damage after striking a foreign object, and damage should be repaired before restarting and operating the machine.
15. **DO NOT** touch the engine or the muffler while the engine is running or immediately after stopping. These areas may be hot enough to cause a burn.
16. **DO NOT** run engine inside a building or confined area without proper ventilation. Exhaust fumes are hazardous and could cause death.

2.5 MAINTENANCE CONSIDERATIONS

1. Never make adjustments to the machine with the engine running unless specifically instructed to do so. If the engine is running, keep hands, feet, and clothing away from moving parts.
2. Remove the key from the ignition switch to prevent accidental starting of the engine when servicing or adjusting the machine.
3. Keep all nuts, bolts and screws tight to ensure the machine is in safe working condition. Check blade mounting bolts frequently to be sure they are tight.
4. Do not change the engine governor settings or overspeed the engine.
5. To reduce fire hazard, keep the engine free of grass, leaves, excessive grease and dirt.
6. **Hydraulic fluid is under high pressure.** Keep body and hands away from pinholes or nozzles that eject hydraulic fluid under high pressure. Use only cardboard or paper to search for leaks.
7. Hydraulic fluid under high pressure may have sufficient force to penetrate skin and cause serious injury. If hydraulic fluid is injected into the skin, it must be surgically removed within a few hours by a doctor or gangrene may result.

Section 2

2.6 SAFETY AND INSTRUCTIONAL DECALS



SPECIFICATIONS

3.1 ENGINE

General Type	Heavy Duty Industrial/Commercial Gasoline
Brand	Kohler
Model	Command
Horsepower	20 HP at 3600 RPM (Scag Model STR48-20CH) 22 HP at 3600 RPM (Scag Model STR48-22CH)
Type	4 Cycle Gasoline, Twin Cylinder, Horizontal Shaft
Displacement	624 cc.
Cylinders	2 with Cast Iron Sleeves
Governor	Mechanical Type with Variable Speed Control Set At 3600 RPM
Idle Speed	1400 RPM
Fuel Pump Group	Mechanical Fuel Pump with In-Line Fuel Filter, Fixed Jet Carburetor with Smart-Choke™ and Fuel Shutdown Solenoid
Fuel	Non-Leaded Gasoline with a Minimum Octane Rating of 97
Oil Pump Group:	Positive Displacement Gerotor™ Oil Pump with Remote Oil Filter
Starter	Electric Starting with Cell Starter
Belts:	
Engine Belt	Scag Part Number - 481235
Blower Drive Belt	Scag Part Number - 481234
Left Pump Drive Belt	Scag Part Number - 481236
Right Hand Drive Belt	Scag Part Number - 481237

3.2 ELECTRICAL

Battery	12 Volt
Charging System	Alternator
Charging Output	12 Volt, 30 Amp
System Polarity	Negative Ground
Starter	12 Volt Electric Ring Gear Type, Key and Solenoid Operated
Interlock Switches	Seat, Neutral Control, Mower Engagement (BBC), and Hopper
Instrument Panel	Ammeter, Hourmeter, Key Switch, Throttle Lever, Manual Choke, BBC Switch, and Fuses
Fuses	Two (2) 30 Amp

3.3 TRACTOR

Drive System	Hydraulic Drive with Two Hydrostatic Transmissions For Independent Control of Each Drive Wheel
Hydrostatic Transmissions	Two Hydro-Gear™ Transmissions with Integral Pump/Motor with Axle
Steering/Travel Control	Twin Lever Fingertip Steering Control with Individual Control to Each Wheel
Parking Brake	Lever Actuated Linkage to Brakes on Both Drive Wheel Axles
Wheels:	
(2) Front Caster	9 x 3.5 Smooth Tires
(2) Drive	20 x 10.8 Four-Ply Pneumatic Tubeless, Radius Edge
(1) Rear	
Fuel Tank	5-Gallon Seamless Polyethylene Tank with Fuel Gauge Fill Cap
Tire Pressure:	
Front Caster	25 PSI
Drive	15 PSI
Rear	15 PSI
Seat	Padded

Section 3

3.3 TRACTOR (CONT'D)

Travel Speed:	
Forward	0 - 7.5 MPH
Reverse	0 - 3.5 MPH

3.4 CUTTER DECK

No. of Blades	2
Width of Cut	48"
Cutter Blades	Two (2) 24-3/4" Blades, 1/4" thick, milled edge, 5150 Alloy Steel
Deck Drive	Belt Driven Electric Clutch Connected to a Drive Shaft to a Gearbox Arrangement on the Cutter Deck
Electric Clutch Type	Warner "Mag Stop" Electric Clutch
Cutting Height Adjustment	Four Corner Pin Adjustment, 1" to 4-1/2" in 1/2" increments
Deck Tilt	Manually by Lifting Deck and Engaging Two Prop Rods
Drive Shaft	Quick-Disconnect Shaft With Two High Speed U-Joints

3.5 GRASS CATCHING SYSTEM

Type	Out-Front Rear Deck Discharge into Blower which Discharges the Grass Clippings Either into a Hopper or is Side-Discharged out to the Lawn
Hopper	6-Gallon Molded Plastic with Isolating Discharge Chute
Discharge Blower	12" Diameter
Side Discharge	Integral with System. Lever Switches Blower Output to Either Side Discharge or Hopper Discharge

3.6 HYDRAULIC SYSTEM

Hydraulic Oil Filter	10 Micron Spin-on Element Type
Hydraulic Reservoir	High Density Polyethylene; _____ Capacity

3.7 WEIGHTS AND DIMENSIONS

Length	95.0"
Tracking Width	42.0"
Overall Width	48.0"
Overall Height	44.0"
Operating Weight	1160 lbs.

OPERATING INSTRUCTIONS

CAUTION:

Do not attempt to operate this mower unless you have read this manual. Learn the location and purpose of all controls and instruments before you operate this mower.

4.1 CONTROLS AND INSTRUMENT IDENTIFICATION

Before operating the mower, familiarize yourself with all mower and engine controls. Knowing the location, function and operation of these controls is important for safe and efficient operation of the mower.

1. **Ignition Switch (Figure 4-1).** The ignition switch is used to start the engine and has three positions; OFF, ON, and START.
2. **Mower Deck Switch (Figure 4-1).** Used to engage and disengage the mower drive system. Pulling the switch lever up and then pushing the switch lever forward will engage the deck drive. Pulling the switch lever back will disengage the deck drive.
3. **Engine Choke Control (Figure 4-1).** Used to start a cold engine.
4. **Engine Throttle Control (Figure 4-1).** Used to control the engine speed. Pushing the lever forward increases engine speed. Pulling the lever back decreases engine speed. Full back position is the IDLE position. Full forward is the cutting position.

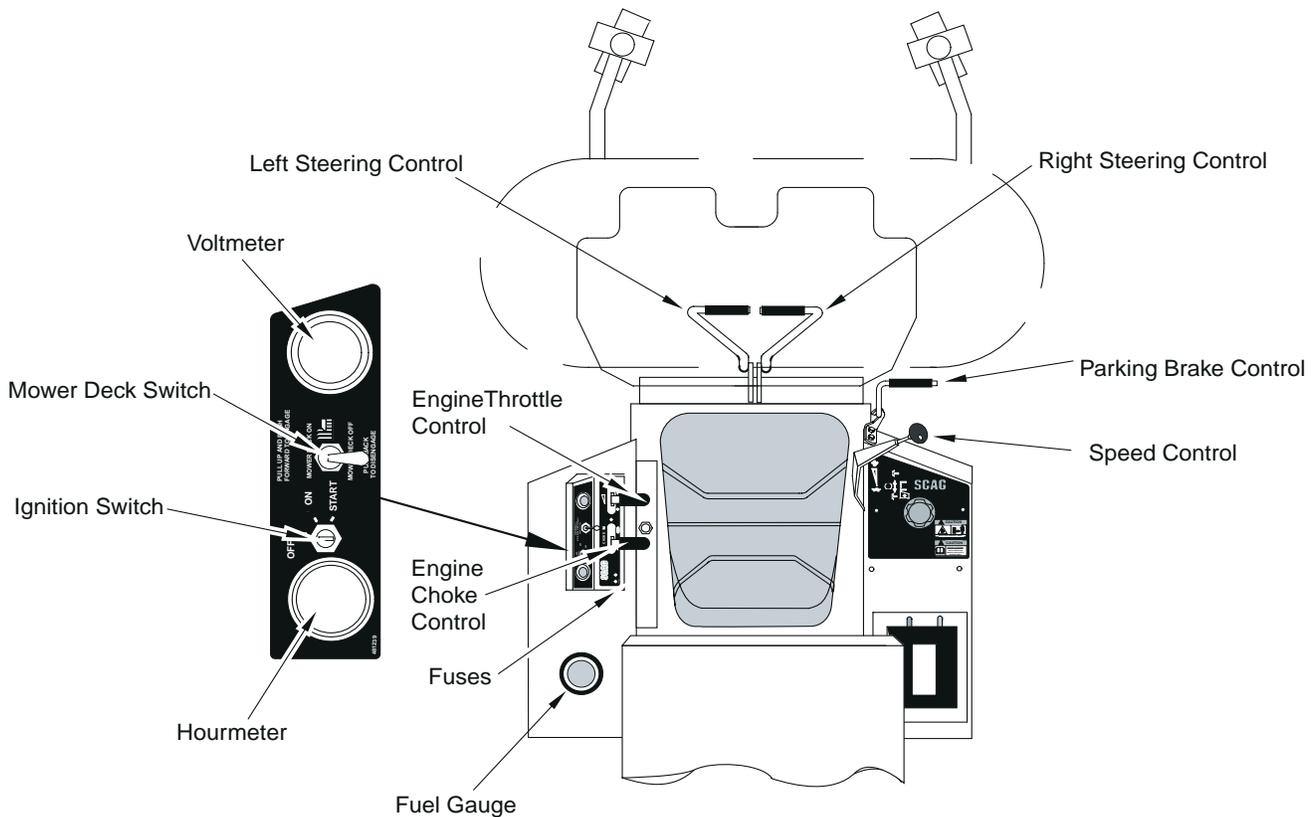


Figure 4-1 Controls and Instruments

Section 4

5. **Ammeter (Figure 4-1).** Indicates the condition of the charging system. When the engine is running the needle should be at the positive end of the meter. If the needle is on the negative end of the meter, this indicates a discharge condition and the machine should be taken in for service.

6. **Hourmeter (Figure 4-1).** Indicates the number of hours the engine has been operated. It operates whenever the ignition switch key is in the ON position. It can be used to keep track of maintenance intervals and the amount of time required to perform various tasks.

7. **Fuse Holders (Figure 4-1).** Two 20-amp fuses protect the mower's electrical system. To replace fuses, pull fuse out of the socket and install a new fuse.

8. **Left Steering Control (Figure 4-1).** Used to control the mower's left wheel when traveling forward or reverse.

9. **Right Steering Control (Figure 4-1).** Used to control the mower's right wheel when traveling forward or reverse.

10. **Parking Brake Control (Figure 4-1).** Used to engage and disengage the parking brakes. Pull the lever back and lock in place to engage the parking brakes. Pull the lever back and move to the left to disengage the parking brakes.

11. **Fuel Tank Gauge (Figure 4-1 & 4-4).** Indicates the amount of fuel in the fuel tank.

12. **Dump Valve Control (Figure 4-2).** Located under the seat, is used to "free-wheel" the mower. Pulling the lever back and locking in place allows the unit to move under hydraulic power. The lever must be in this position during operation of the mower. Pushing the lever forward and locking in place allows the mower to be moved by hand (free-wheeling).

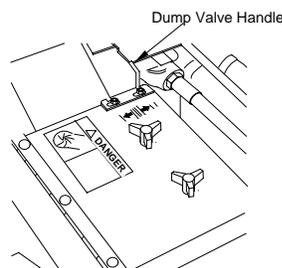


Figure 4-2 Dump Valve Control

13. **Hopper/Side Discharge Control (Figure 4-3).** This lever is used to select either discharge of grass into the hopper or through the side discharge chute.

The release lever is used to aid the control lever when switching the gate between side discharge and hopper discharge.

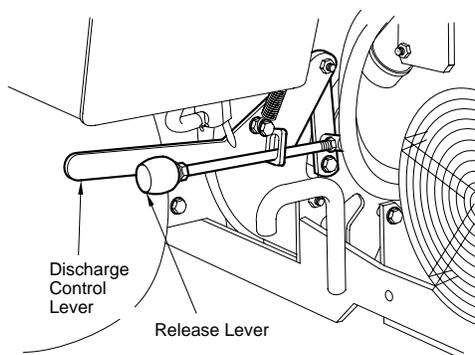


Figure 4-3 Hopper/Side Discharge Control

14. **Seat Lock Lever (Figure 4-4).** Used to lock the seat in the down position.

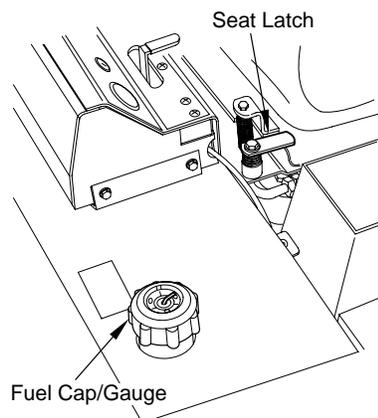


Figure 4-4 Seat Lock Lever

4.2 SAFETY INTERLOCK SYSTEM

The mower is equipped with a safety interlock system that prevents the engine from starting unless the deck drive is disengaged and the speed control is in neutral. The interlock system shuts off the engine if the operator leaves the seat with the speed control not in the neutral position and/or the cutter blades are engaged. It will also shut the engine off if the cutter deck drive is engaged and the hopper is raised.

WARNING:

Never operate the mower with the interlock system disconnected or malfunctioning. Do not disengage or bypass any switch; injury to yourself and others or property damage could result.

4.3 INITIAL RUN-IN PROCEDURES (First Day of Use or Approximately 10 Hours)

1. Check all belts for proper tension at 2, 4 and 8 hours.
2. Change the engine oil and oil filter after the first 5 hours of operation. (See Section 7.4.)
3. Check hydraulic oil level in reservoir. (See Section 7.3.)
4. Check for loose hardware. Tighten as needed.
5. Check interlock system for proper operation. (See Section 4.2.)
6. Check tire pressure. Inflate tires if necessary.

4.4 STARTING THE ENGINE

CAUTION:

DO NOT USE STARTING FLUIDS. Use of starting fluids in the air intake system may be potentially explosive or cause a “runaway” engine condition that could result in engine damage and/or personal injury.

1. Be sure the fuel shutoff valve, located under the fuel tank, is completely open. (See section 7-4.)
2. Sit in the operator’s seat and place the speed control in the neutral position.
3. Engage the parking brake.
4. If the engine is cold, adjust the engine choke as needed.
5. Adjust engine throttle control to about half engine speed.
6. Turn the ignition key to the START position and release the key as soon as the engine starts. Do not hold the key in the START position for more than 15 seconds at a time. Allow at least 60 seconds between each cranking attempt to prevent overheating of the starter motor. Prolonged cranking can damage the starter motor and shorten battery life.
7. Allow engine to warm before operating the mower.

4.5 GROUND TRAVEL AND STEERING

-IMPORTANT-

If you are not familiar with the operation of a machine with lever steering and/or hydrostatic transmissions, the steering and ground speed operations should be learned and practiced in an open area, away from buildings, fences, or obstructions. Practice until you are comfortable with the handling of the machine before attempting to mow. Learn the operation on flat ground before operating on slopes.

-IMPORTANT-

Start practice with a slow engine speed and slow forward travel.

Do not push the steering control levers forward when traveling forward. They are only used to steer the mower and to travel in reverse by pulling back on the levers.

Learn to operate the mower with the left hand on the steering levers and the right hand on speed control as shown in Figure 4-5. Using both hands on the steering levers often causes overcontrol.

Learn to feather the steering controls to obtain a smooth operating action. Jerky movements tend to place extreme force on the drive pumps and axles, as well as damage the lawns.

Practice operating the mower until you can make it go exactly where you are aiming.

In case of an emergency, such as loss of control, stop the mower's movement by quickly pulling the speed control lever to the neutral position.

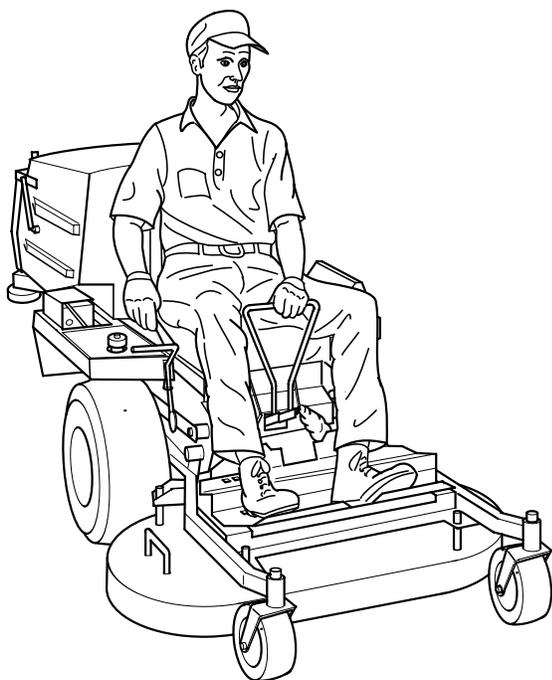


Figure 4-5 Hands On Controls

Forward Travel**-NOTE-**

Use one hand on both steering levers as shown in Figure 4-5 to minimize overcontrol.

To travel forward with the mower, move the speed control lever forward. Do not push the steering control levers forward as they are used only for steering the mower left or right. When the speed control is moved forward, the mower will travel forward at the speed the control lever is set at. To increase the speed, push the control lever forward and to decrease the speed, pull the control lever back. It is not necessary to hold the speed control in position, since a friction system holds the lever in position.

To stop the forward travel, pull the speed control lever back to the neutral position.

To steer the mower left while traveling forward, pull the left steering lever back. The further the lever is pulled back, the further the mower will turn left.

To steer the mower right while traveling forward, pull the right steering control lever back. The further the lever is pulled back, the further the mower will turn right.

-NOTE-

Smooth operation of the steering levers will produce a smooth mower operation. While learning the operation of the steering controls, keep the travel speed low.

-IMPORTANT-

Do not travel forward over a curb. The mower will hang up on the curb. Tilt the deck and travel backwards over the curb at a 45 degree angle. (see section 4.15 for cutter deck tilting instructions)

Reverse Travel

CAUTION:

Before backing up, observe the rear for persons and obstructions. Clear the area before backing up. Possible injury or property damage could occur.

CAUTION:

Disengage power to the mower before backing up. Do not mow in reverse unless absolutely necessary and then only after observation of the entire area behind the mower.

To travel in reverse, pull both handles all the way back. Keep the travel speed low while traveling in reverse.

-NOTE-

The mower will not travel straight in reverse. Slight adjustments must be made using the steering controls.

To steer left while traveling in reverse, allow the left steering control lever to move forward. The further the control is allowed to move forward, the further the mower will turn left.

To steer right while traveling in reverse, allow the right steering control lever to move forward. The further the control is allowed to move forward, the further the mower will turn right.

To stop the reverse travel, place the speed control lever in the neutral position and allow the steering control levers to return to the neutral position. If the mower is to be parked, engage the parking brake.

4.6 ENGAGING THE DECK DRIVE (CUTTER BLADES)

1. Set the throttle at about 3/4 speed. Do not attempt to engage the deck drive at high speed as this shortens the electric clutch life — use only moderate engine speed when engaging the deck drive.
2. Engage the deck drive by pulling out on the switch lever (Figure 4-6) then pushing the switch lever forward to the engage position.

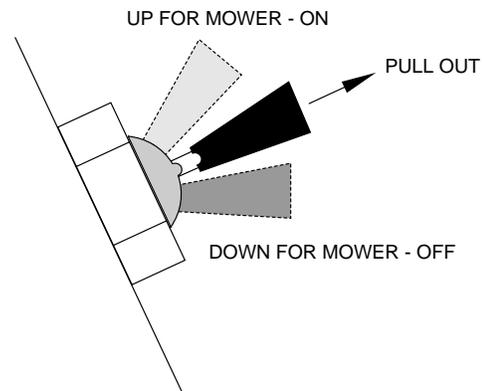


Figure 4-6 Cutter Engage Switch

-NOTE-

If a squealing noise is heard when engaging or disengaging the deck drive, it is caused by the electric clutch plates meshing as the mower comes up to speed.

3. To disengage the deck drive, pull the switch lever down to the disengage position.
4. Always operate the engine at full throttle to properly maintain cutting speed. If the engine starts to lug down, reduce the forward speed and allow the engine to operate at maximum RPM.

4.7 HILLSIDE OPERATION

! WARNING:

To minimize the possibility of overturning, the least dangerous method of operating on hills and terraces is to travel vertically up and down the slope, not horizontally along the slope. Avoid any unnecessary turns and travel at reduced speed.

1. The mower has been designed for good traction and stability under normal mowing conditions. However, caution must be used when traveling on slopes, especially when the grass is wet. Wet grass reduces traction and steering control.
2. To inhibit tipping or loss of control, do not start or stop suddenly, avoid unnecessary turns and travel at reduced speed.
3. Keep tires properly inflated.
4. Always travel up or down the slope, whenever possible; NEVER across the slope. (See Figures 4-7 and 4-8.)



Figure 4-7 Proper Operation on a Slope



Figure 4-8 Improper Operation on a Slope

4.8 PARKING THE MOWER

1. Place the speed control in the neutral position.
2. Slow the engine to idle speed.
3. Engage the parking brake.
4. Turn the ignition key to the OFF position and remove the key.

4.9 AFTER OPERATION

1. Wash the entire mower after each use. Do not use high pressure spray or direct the spray onto electrical components.

-IMPORTANT-

Do not wash a hot or running engine. Cold water will damage the engine. Use compressed air to clean the engine if it is hot.

2. Keep the entire mower clean to inhibit serious heat damage to the engine or hydraulic oil circuit.
3. Check the drive belts for proper tension, alignment and any signs of rubbing. Correct and adjust if necessary.

4. Fill the fuel tank with fresh, clean fuel at the end of every day of operation.
5. Check the tire pressure. Inflate tires if necessary.

4.10 HOPPER/SIDE DISCHARGE OPERATION

A control lever located on the left side of the tractor selects either hopper discharge or side discharge to the outside. When the lever is placed in the hopper position (Figure 4-9), the side discharge is covered and the hopper discharge is opened. When the lever is placed in the side discharge position (Figure 4-10), the hopper discharge is covered and the side discharge is opened.

-NOTE-

If the control lever sticks, push the release lever to free it.

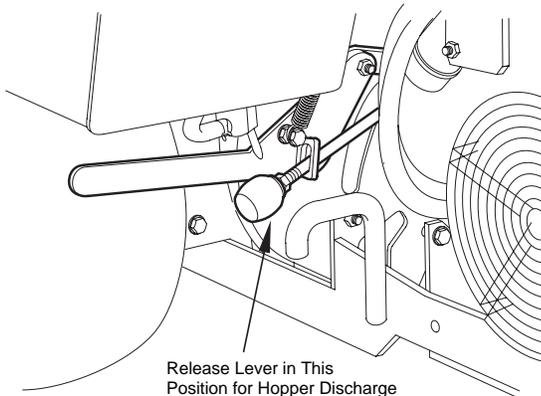


Figure 4-9 Hopper Operation Position

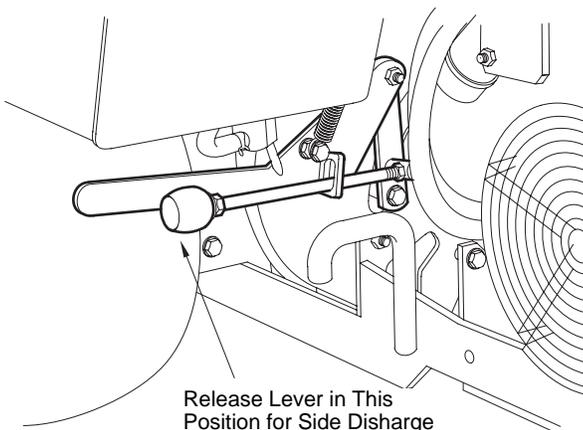


Figure 4-10 Side Discharge Operation Position

Grass Catching Operation

CAUTION:

Never leave grass clippings in the hopper after mowing. Wet or damp clippings will generate heat as they decompose which may cause spontaneous combustion to occur.

1. Place the hopper/side discharge control lever in the hopper discharge position (Figure 4-9).
2. With the hopper lowered, engage the deck drive. When the deck drive is engaged, the grass delivery spout, which is designed to distribute the grass clippings through the inside of the hopper, will begin to oscillate. If the spout does not oscillate, do not use the grass catcher. Use the side discharge and then have the oscillating spout system repaired.

-NOTE-

The mower has an interlock switch that will prevent the mower from starting if the hopper is in the raised position. This interlock switch will also shut the engine off if the hopper is raised while the engine is running and the deck drive is engaged.

3. Proceed to mow the lawn until the hopper is full. If your mower is not equipped with the optional hopper full alarm to tell you when the hopper is full, check the hopper frequently when first using the grass catcher. After operating with the grass catcher for awhile, experience will tell you when the hopper is full.
4. When dumping the hopper into a disposal area:
 - A. Disengage the deck drive.

WARNING:

Never operate the grass catcher with the hopper back door open. Objects can be thrown out the spout of the hopper with a force that can cause injury to bystanders or property damage.

- B. Raise the tailgate until the u-bolt on top of the hopper engages with the latch on the tailgate (Figure 4-11).

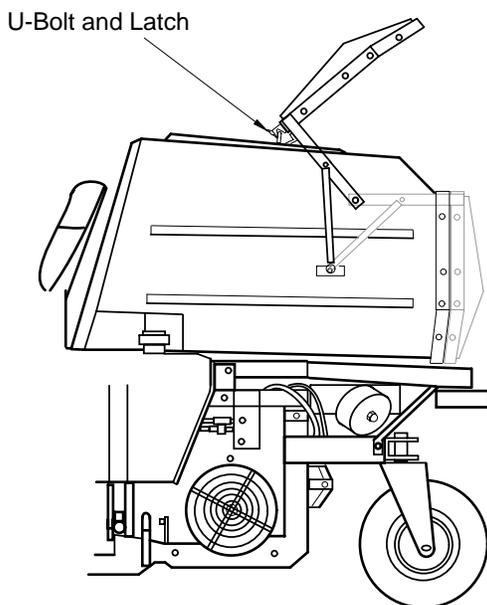


Figure 4-11 Tailgate Operation

- C. Stand off to side of the hopper. Raise the hopper by placing a hand in the hand hole at either bottom front side of the hopper (Figure 4-12) and then carefully lift the hopper until it is in its upright position and the hopper is emptied.

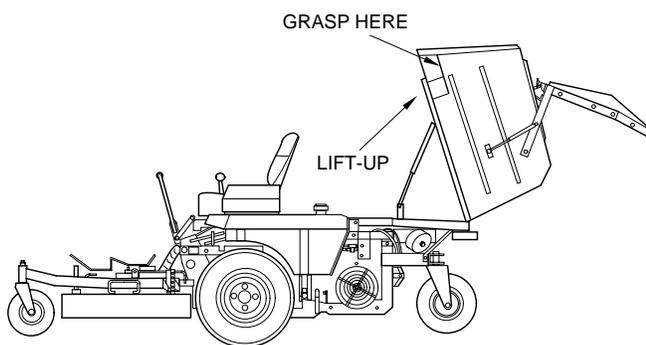


Figure 4-12 Raising The Hopper

- D. Carefully lower the hopper.

- E. Release the latch holding the tailgate and then lower the tailgate. Be careful when lowering the tailgate. It is spring loaded and will close with some force.

Side Discharge Operation

⚠ CAUTION:

The side discharge chute can throw objects with great force. Do not stand in front of discharge chute when the cutter deck is engaged.

When mowing, never discharge toward bystanders or buildings. Do not allow anyone near the machine while in operation.

1. Place the hopper/side discharge control lever in the side discharge position (Figure 4-10).
2. Engage the deck drive.
3. Proceed to mow the lawn.

4.11 REMOVING CLOGGED MATERIAL

⚠ DANGER:

ROTATING BLOWER BLADES

NEVER PUT YOUR HANDS INTO THE BLOWER DISCHARGE CHUTE FOR ANY REASON! Shut off the engine and remove the key and only then use a stick or similar object to remove material if clogging has occurred.

1. If either blower discharge chute becomes clogged, shut off the engine and remove the ignition key. Using a stick or similar item, dislodge the clogged material. Then resume normal mowing.

2. If the blower intake becomes clogged, there could be a distinct change in the sound of the blower and/or the mower deck will begin to leave a trail of grass clippings. The clogging will generally develop in the back of the mower deck in the opening of the blower chute. When clogging occurs at this point, it's usually caused by something restricting the flow throughout the entire system and the system should be checked if a pattern develops.
3. Check the following:
 - A. Check that the blades are properly installed for correct rotation. See Section 7.
 - B. Check that the cutting height is not too low. When cutting thick, tall grass, lower cutting height settings tend to restrict the airflow moving into and under the deck.
 - C. Check that the deck housing and baffling is free of grass and dirt buildup. Some material buildup can be tolerated, but when a buildup occurs that restricts the flow of air and grass clippings, the mower deck must be cleaned.
 - D. Check that the blades have enough flat section at the blade tip. Sharpening of the blades will remove this flat section and if too much is removed, the air lift capability of the blade is greatly reduced. Replace the blades if more than 1/3 of blade is removed at the blade tip. See section 7.10.
 - E. Check the discharge chutes for accumulation of dirt and material that would restrict flow. Clean the discharge chutes as described above.
 - F. Check the elbow inside the hopper for a buildup of material in the radius.
 - G. Check that the screen in the hopper is not plugged with materials. If plugged, remove and clean screen as described in section 7.13.
 - H. Remember, anything that restricts airflow or material flow along the entire path from the mower deck to the hopper can cause clogging.

4.12 MOVING MOWER WITH ENGINE STOPPED

To “free-wheel” or move the mower around without the engine running, place the dump valve handle in the FREE-WHEEL position (Figure 4-2). Disengage the parking brake and move the mower by hand. The lever must be returned to the DRIVE position to drive the mower.

4.13 RECOMMENDATIONS FOR MOWING

1. Do not mow with dull blades. A dull blade will tear grass, resulting in poor lawn appearance and requiring extra power.
2. Direct the side discharge away from sidewalks or streets to minimize cleanup of clippings. When mowing close to obstacles, direct the discharge away from the obstacles to reduce the chance of property damage by thrown objects.
3. Cut grass when it is dry and not too tall. Do not cut grass too short (cut off 1/3 or less of existing grass for best appearance). Mow frequently.
4. Keep mower and discharge system clean.
5. When mowing wet or tall grass, mow the grass twice. Raise the mower to the highest setting for the first pass and then make a second pass to the desired height.
6. Use a slow travel speed for trimming purposes.
7. Operate the engine at or near full throttle for best cutting. Mowing with a lower RPM causes the mower to tear the grass. The engine is designed to be operated at full speed.
8. Use the alternate stripe pattern for best lawn appearance. Vary the direction of the stripe each time the grass is mowed to avoid wear patterns in the grass.

Section 4

4.14 ADJUSTING CUTTING HEIGHT

The mower deck can be adjusted from a height of 1-inch to 4-1/2 inches at 1/2-inch intervals. To adjust the cutting height:

! WARNING:

Do not adjust the cutting height with the mower blades rotating. Shut off the engine and remove the ignition key. Bodily injury could occur from the rotating blades.

1. Shut off the engine and remove the ignition key.
2. Remove the two hairpins from the adjusting pins on one side of the cutter deck (Figure 4-13).
3. Lift or lower the deck to the desired cutting height and install the hairpins. A deck height decal is located on the deck as an aid in adjusting the deck to the desired height.
4. Repeat the above process on the other side of the cutter deck.

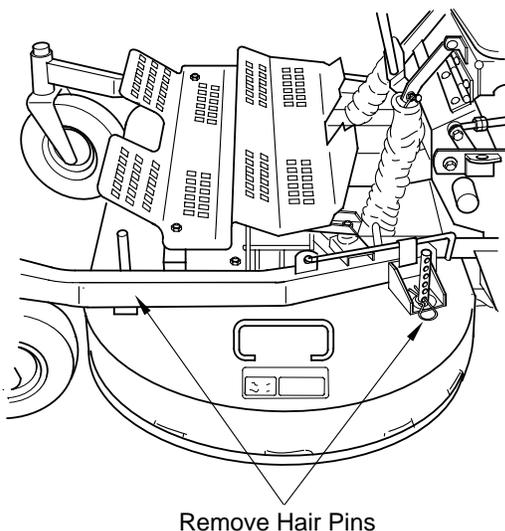


Figure 4-13 Adjusting Cutting Height

4.15 TILTING THE CUTTER DECK

! WARNING:

Do not tilt the mower deck with the mower blades rotating. Shut off the engine and remove the ignition key. Bodily injury could occur from the rotating blades.

The mower deck can be tilted up for road travel, blade replacement, etc. To tilt the deck up:

1. Shut off the engine and remove the ignition key.
2. Unlatch the prop rod from one side of the cutter deck and raise the mower deck as shown in Figure 4-14. Install the prop rod in the bracket on the tractor.
3. Repeat step 2 for the other side of the cutter deck.

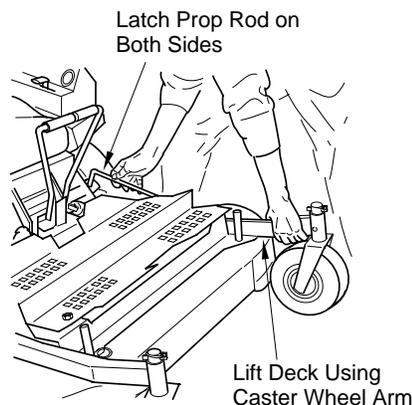


Figure 4-14 Tilting Cutter Deck

4-16 REMOVING THE CUTTER DECK

A. Removal

The cutter deck can be removed for maintenance of the deck; such as cleaning, blade removal, and blade sharpening.

1. Disconnect the drive shaft from the tractor by pulling back on the collar of the drive shaft (Figure 4-15) and sliding the drive shaft forward off the splined shaft of the spindle.

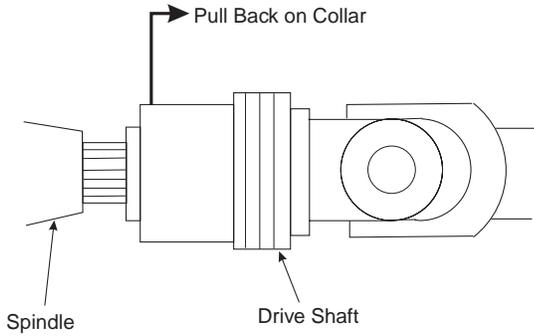


Figure 4-15 Disconnecting the Drive Shaft

2. Tilt the deck and secure in place with the two prop rods (Figure 4-16).

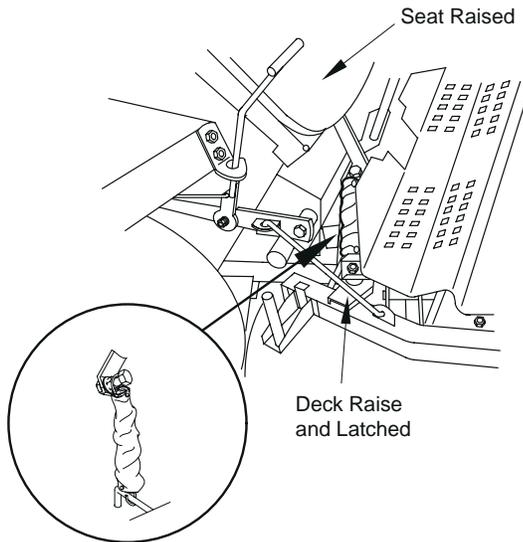


Figure 4-16 Spring Removal

3. Raise the seat to lower the springs. Disconnect the springs from the spring bracket. Lower the seat.
4. Lower the deck to the ground.
5. Remove the two hairpins from the pushrod shafts.

CAUTION:

If necessary, use two persons to remove the cutter deck. It is heavy and could cause personal injury when removing the deck.

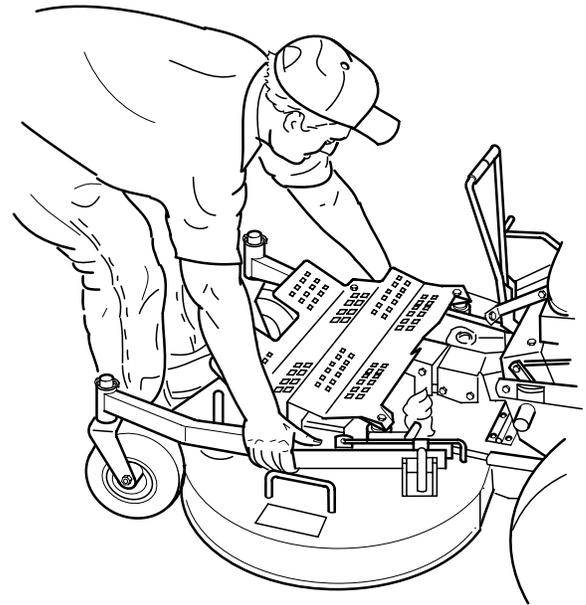


Figure 4-17 Removing The Deck

6. Pull the deck from the tractor as shown in Figure 4-17.

B. Installation

1. Align the shafts of the push arms with the mounting holes on the cutter deck (Figure 4-18). Be sure the cutter deck discharge chute and the drive shaft are arranged as shown in Figure 4-18.

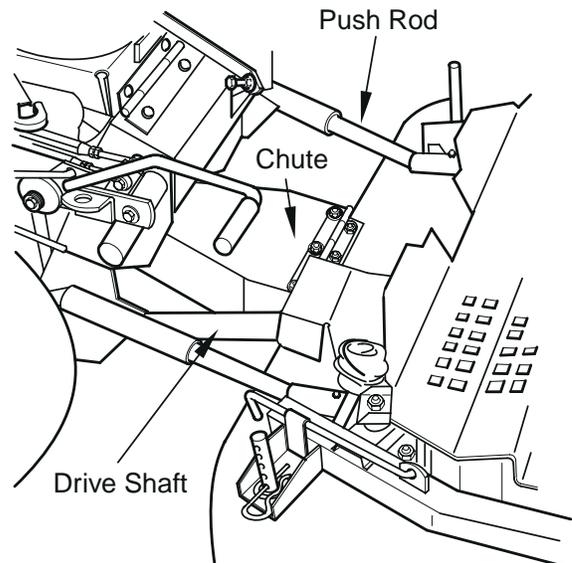


Figure 4-18 Aligning Deck With Push Arms

Section 4

2. Install the cutter deck onto the push arm shafts just far enough to hold the deck in place. Align the cutter deck discharge chute with the blower intake chute (Figure 4-19) and push the cutter deck all the way onto the push arm shafts, inserting the discharge chute into the blower intake chute. Install a hairpin through each push arm shaft to retain the cutter deck.

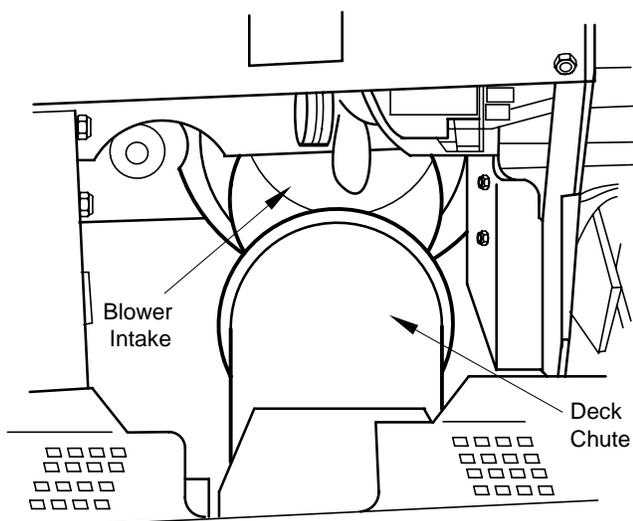


Figure 4-19 Aligning Deck Chute With Blower Intake

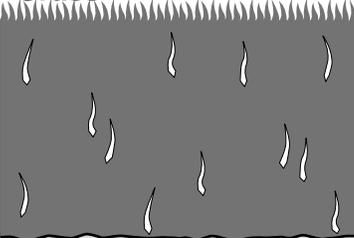
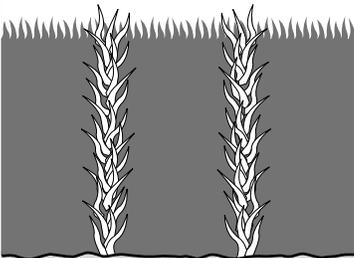
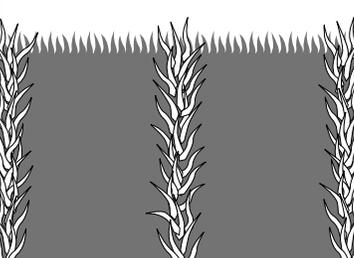
3. Connect the drive shaft to the splined shaft of the spindle on the tractor.
 - A. Move the collar on the drive shaft back and hold it in place (Figure 4-15).

! WARNING:

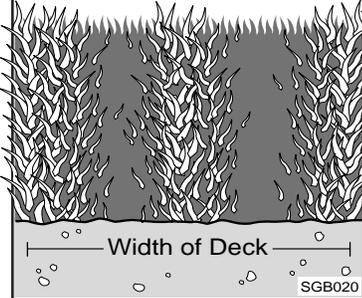
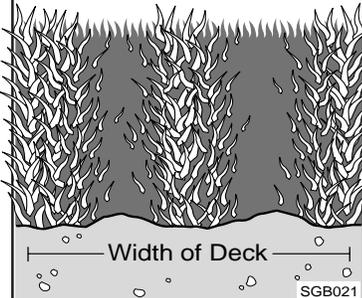
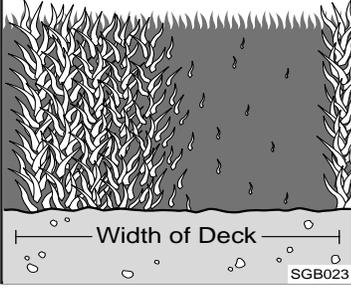
If the driveshaft is not securely fastened to the spindle shaft it will come off the shaft and spin out of control when the cutter blades are engaged. Personal injury is possible as well extensive machine damage.

- B. Align the splines of the drive shaft with the splined shaft of the spindle. Slide the drive shaft onto the spindle shaft and release the collar. A "clicking" sound must be heard after releasing the collar to ensure that the drive shaft is securely locked in place. If no "click" is heard, pull the collar back and reinstall the drive shaft until a click is heard.
4. Install the cutter deck springs.
 - A. Raise the cutter deck and lock in place using the two prop rods (Figure 4-16).
 - B. Raise the seat to lower the spring bracket to the springs.
 - C. Install the end of each spring to the spring mounting bolts on the spring bracket. Be sure each spring is seated properly and will not come off.

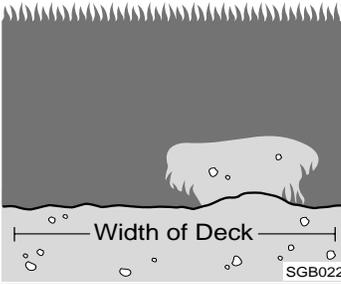
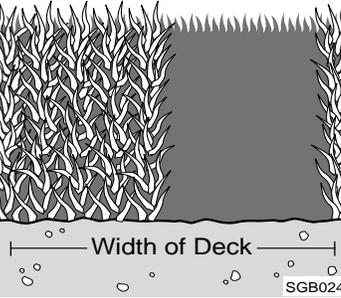
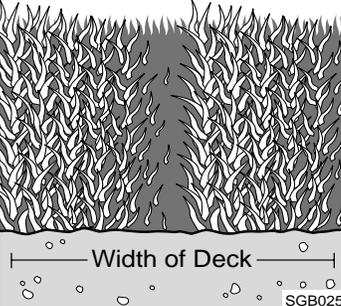
TROUBLESHOOTING CUTTING CONDITIONS

CONDITION	CAUSE	CURE
<p>Stringers - Occasional Blades of Uncut Grass</p>  <p>Width of Deck</p> <p>SGB020</p>	Low engine RPM	Run engine at full RPM
	Ground speed too fast	Slow speed to adjust for conditions
	Wet grass	Cut grass after it has dried out
	Dull blades, incorrect sharpening	Sharpen blades
	Deck plugged, grass accumulation	Clean underside of deck
<p>Streaking - Strips of Uncut Grass in Cutting Path</p>  <p>Width of Deck</p> <p>SGB018</p>	Dull, worn blades	Sharpen blades
	Incorrect blade sharpening	Sharpen blades
	Low engine RPM	Run engine at full RPM
	Belt slipping	Adjust belt tension
	Deck plugged, grass accumulation	Clean underside of deck
	Ground speed too fast	Slow speed to adjust for conditions
	Wet grass	Cut grass after it has dried out
<p>Streaking - Strips of Uncut Grass Between Cutting Paths</p>  <p>Width of Deck Width of Deck</p> <p>SGB019</p>	Not enough overlapping between rows	Increase the overlap of each pass

TROUBLESHOOTING (CONT'D)

CONDITION	CAUSE	CURE
<p data-bbox="183 373 456 579">Uneven Cut on Flat Ground - Wavy High-Low Appearance, Scalloped Cut, or Rough Contour</p>  <p data-bbox="456 930 516 951">SGB020</p>	Lift worn from blade	Replace blade
	Blade upside down	Mount with cutting edge toward ground
	Deck plugged, grass accumulation	Clean underside of deck
	Too much blade angle (deck pitch)	Adjust pitch and level
	Deck mounted improperly	See your authorized SCAG dealer
	Bent spindle area	See your authorized SCAG dealer
	Dull blade	Sharpen blade
<p data-bbox="183 978 505 1146">Uneven Cut on Uneven Ground - Wavy Appearance, High-Low Scalloped Cut, or Rough Contour</p>  <p data-bbox="456 1507 516 1528">SGB021</p>	Uneven ground	May need to reduce ground speed, raise cutting height, and/or change direction of cut
<p data-bbox="183 1556 493 1619">Sloping Ridge Across Width of Cutting Path</p>  <p data-bbox="456 1959 516 1980">SGB023</p>	Tire pressures not equal	Check and adjust tire pressure
	Wheels uneven	Check and adjust tire pressure
	Deck mounted incorrectly	See your authorized SCAG dealer
	Deck not level side-to-side	Check for level and correct

TROUBLESHOOTING (CONT'D)

CONDITION	CAUSE	CURE
<p>Scalping - Blades Hitting Dirt or Cutting Very Close to the Ground</p>  <p>Width of Deck SGB022</p>	Low tire pressures	Check and adjust pressures
	Ground speed too fast	Slow speed to adjust for conditions
	Cutting too low	May need to reduce ground speed, raise cutting height, change direction of cut, and/or change pitch and level
	Rough terrain	May need to reduce ground speed, raise cutting height, and/or change direction of cut
	Ground speed too fast	Slow speed to adjust for conditions
<p>Step Cut - Ridge in Center of Cutting path</p>  <p>Width of Deck SGB024</p>	Blades not mounted evenly	Adjust pitch and level
	Bent blade	Replace blade
	Internal spindle failure	See your authorized SCAG dealer
	Mounting of spindle incorrect	See your authorized SCAG dealer
<p>Slope Cut - Sloping Ridges Across Width of Cutting Path</p>  <p>Width of Deck SGB025</p>	Bent spindle mounting area	See your authorized SCAG dealer
	Internal spindle failure	See your authorized SCAG dealer
	Bent deck housing	See your authorized SCAG dealer

ADJUSTMENTS

6.1 PARKING BRAKE ADJUSTMENT

WARNING:

Do not operate the mower if the parking brake is not operable. Possible severe injury could result.

The parking brake linkage should be adjusted whenever the parking brake lever is placed in the “ENGAGE” position and the parking brake will not prevent the mower from moving. Adjustments can be made to the brake linkage. If the following procedures do not allow you to engage the parking brake properly, contact your Scag dealer for further brake adjustments.

1. Position a floor jack under the lift bracket on the right side of the tractor as shown in Figure 6-1. Raise the tractor and remove the right wheel and tire.

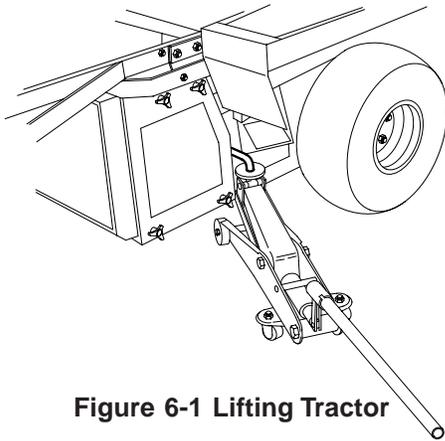


Figure 6-1 Lifting Tractor

2. Release the parking brake lever and rest it against the stop on the frame (Figure 6-2).
3. With the lever resting against the stop, remove the slack from the right brake linkage spring. Proceed as follows:
 - A. Remove the cotter pin securing the swivel joint to the brake linkage arm (Figure 6-2).

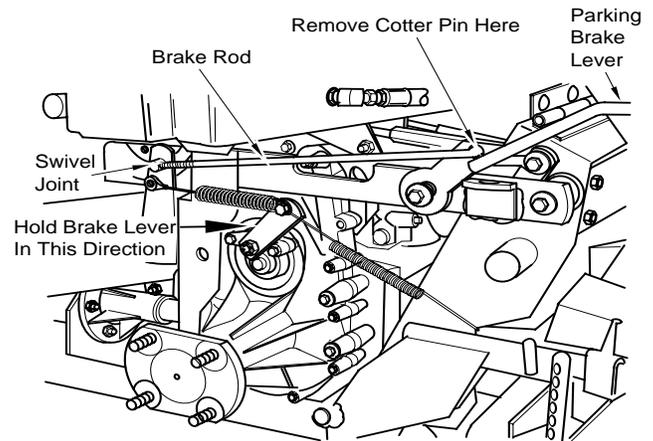


Figure 6-2 Adjusting Right Brake Linkage

- B. Move the swivel joint out toward the end of the rod by rotating the swivel joint on the threads.
- C. While holding the brake lever on the right axle, insert the swivel joint in the brake linkage arm and check the amount of slack. If slack is removed, install the cotter pin in the swivel joint. If there is still slack in the spring, repeat steps B and C until the slack is removed.

-IMPORTANT-

Be careful not to adjust the spring too tight. A tight spring may actuate the brake linkage on the axle and set the brake.

4. Install the right wheel and tire and remove the jack. See wheel and tire removal instructions in Section 7 for the correct wheel nut torque and tightening sequence.
5. Position a floor jack under the lift bracket on the left side of the tractor. Raise the tractor and remove the left wheel and tire.
6. Remove the slack from the left brake spring as follows:
 - A. Remove the cotter pin securing the adjustment arm to the brake spring (Figure 6-3). Loosen the jam nut on the adjusting rod.

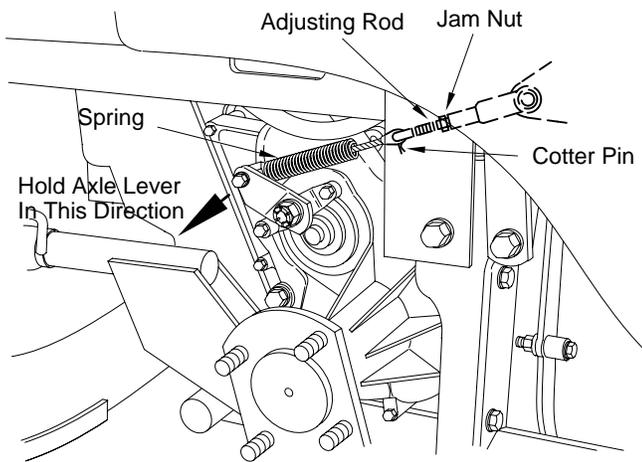


Figure 6-3 Adjusting Left Brake Linkage

- B. Screw the adjusting rod into the clevis enough to remove the slack.
- C. While holding the left axle brake lever, insert the adjusting rod into the spring and install the cotter pin. Check for slack in the spring and linkage. If there is slack, repeat steps B and C until the slack is removed. If there is no slack, proceed with step 7.

-IMPORTANT-

Be careful not to adjust the spring too tight. A tight spring may actuate the brake linkage on the axle and set the brake.

7. Tighten the jam nut against the clevis.
8. Install the left wheel and tire and remove the jack. See wheel and tire removal instructions in Section 7 for the correct wheel nut torque and tightening sequence.

6.2 TRAVEL ADJUSTMENTS

Neutral or tracking adjustments will need to be made if:

- A. The speed control lever is in neutral and the machine creeps forward or backward. (Neutral Adjustment)
- B. The mower pulls to one side or the other when traveling in a forward direction. (Tracking Adjustment).

If the mower creeps forward or backward as indicated in "A" above, the neutral linkages must be adjusted. Start with adjusting the speed control lever and proceed as directed. To correct the tracking of the mower (mower pulls to one side when traveling in a forward direction), adjust the tracking of the mower as described on page 27.

⚠ CAUTION:

Stop the engine and remove the key from the ignition before making any adjustments. Wait for all moving parts to come to a complete stop before beginning work.

⚠ CAUTION:

The engine and drive unit can get hot during operation causing burn injuries. Allow engine and drive components to cool before making any adjustments.

Speed Control Lever Adjustment

-IMPORTANT-

Before proceeding with this adjustment, be sure that the tire pressure in the three tires is correct, that the caster wheels turn freely, and that the two transmission drive belts are adjusted for the correct tension.

1. Place the speed control lever in the neutral position (Figure 6-4).

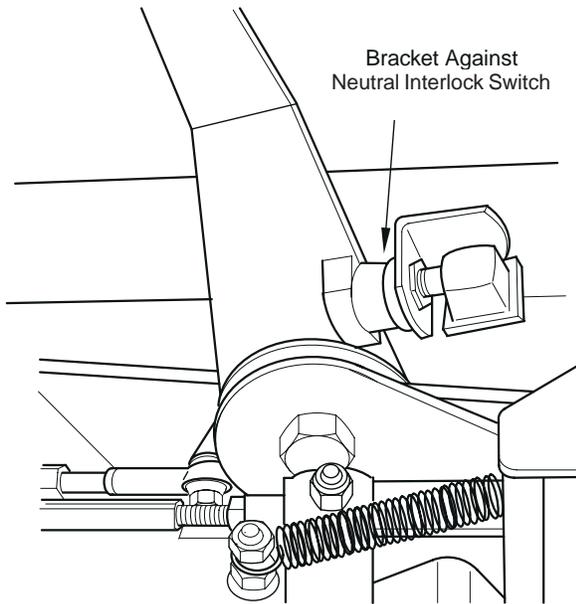


Figure 6-4 Neutral Position

2. Check that the speed control bellcrank (Figure 6-5) is touching the bushing on the frame and that the block on the speed control lever has engaged the neutral switch (Figure 6-4). The switch button should not be fully compressed. If the switch is engaged, but the bellcrank is not touching the bushing, full speed will not be obtainable.

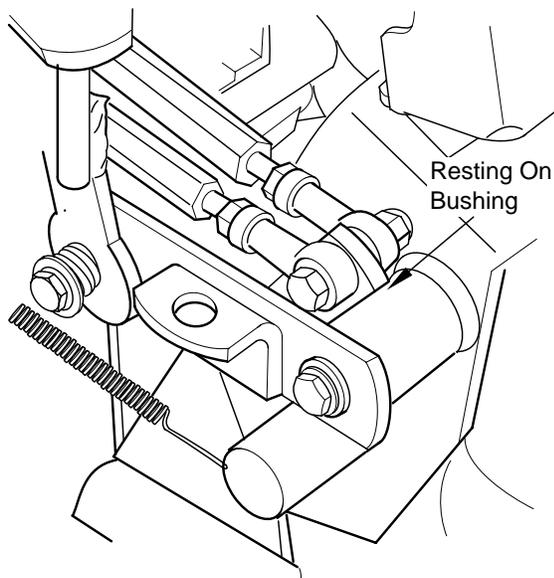


Figure 6-5 Bellcrank Touching Bushing

3. If the adjustments are okay and you need to adjust the neutral linkages, proceed with the Neutral Adjustment procedures. If the speed control requires adjustment, adjust as follows:

- A. Loosen both jam nuts (A & B, Figure 6-6) on the adjusting rod (C).

-NOTE-

All turnbuckles have a left hand threaded nut and a right hand threaded nut. The left hand nut is located next to the ball joint that has a groove etched into its outer surface.

- B. Using a wrench on the hex portion of the adjusting rod, turn the adjusting rod (C) in the required direction to move the bellcrank against the bushing. When the correct adjustment is obtained, tighten the two jam nuts (A & B).

- C. Proceed with the Neutral Adjustment.

Neutral Adjustment

1. Locate the left hand speed control lever. Using a ruler, check the distance between the ball joint and the center of the pivot point of the lever (Figure 6-6). The dimension must be 4-1/2 inches or be in the center of the slot. If correct, proceed to step 2. If incorrect, loosen the lock nut securing the ball joint to the lever and relocate the ball joint to the correct position.
2. Loosen the two jam nuts (D & E, Figure 6-6) on the right side neutral linkage and the two jam nuts (F & G) on left side neutral linkage.
3. With a person seated in the operator's seat, disengage the parking brake and start the mower's engine.
4. SLOWLY rotate the turnbuckle (H, Figure 6-6) on the right side until the mower starts to creep forward. When the mower starts to creep forward, stop the movement and turn the turnbuckle back 1/2 turn or three flats (Figure 6-6).

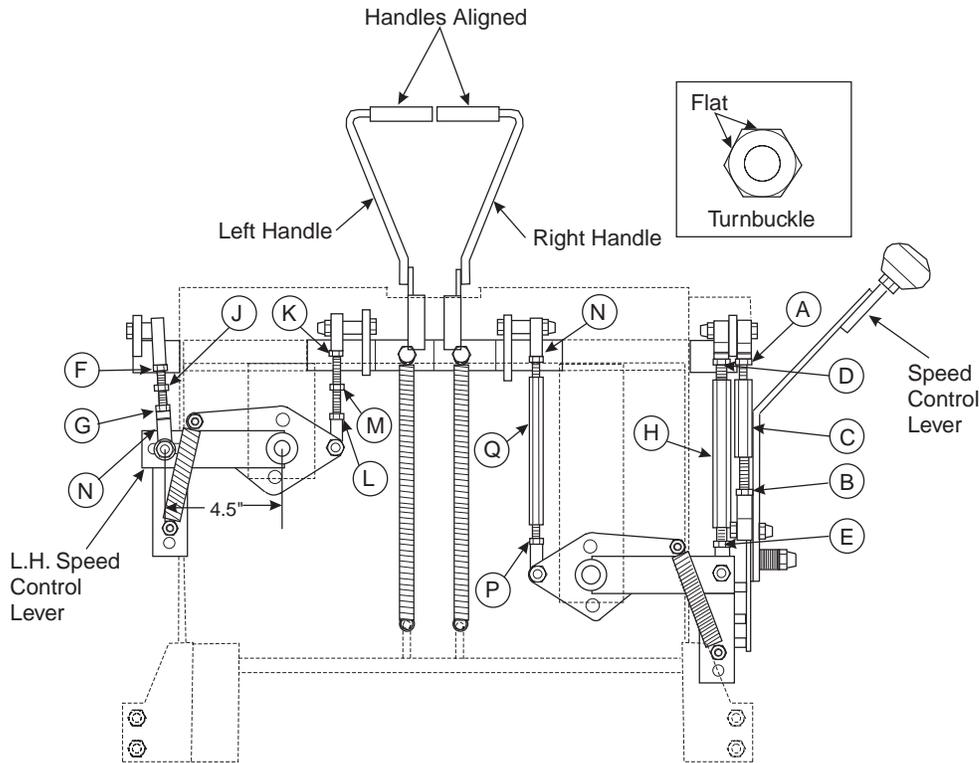


Figure 6-6 Neutral and Tracking Adjustments

5. Tighten the jam nuts (D & E) to hold the setting in place.
6. SLOWLY rotate the turnbuckle (J, Figure 6-6) on the left side until the mower starts to creep forward. When the mower starts to creep forward, stop the movement and turn the turnbuckle back 1/2 turn or three flats (Figure 6-6).
7. Tighten jam nuts (F & G) on the left side and remaining jam nut (D) on the right side.
8. When the speed control lever is actuated, the mower should travel in a straight line. If it travels straight, perform the Tracking Adjustment procedures. If the mower pulls to one side, it is an indication that one of the wheels is coming out of neutral before the other. This condition must be corrected as follows:
 - A. If the mower pulls to the right, it is an indication that the left wheel is coming out of neutral before the right wheel. If the mower pulls to the left, it is an indication that the right wheel is coming out of neutral before the left wheel.
 - B. To get both wheels to come out of neutral at the same time, adjust the left neutral turnbuckle (J, Figure 6-6). Adjust as follows:
 - 1) If the mower pulls to the left, loosen both jam nuts (F & G) and lengthen turnbuckle (J). Tighten the jam nuts and drive the mower forward. Repeat this procedure until both wheels start to turn at the same time.
 - 2) If the mower pulls to the right, loosen both jam nuts (F & G) and shorten turnbuckle (J). Tighten the jam nuts and drive the mower forward. Repeat this procedure until both wheels start to turn at the same time.

-NOTE-

This adjustment affects the tracking of the mower. Turning the turnbuckle (J) one or two flats has an adverse effect throughout the tracking range.

If the mower pulls one way at slow speed and then pulls the other way at fast speed, a tracking adjustment needs to be done.

Section 6

Tracking Adjustment

-IMPORTANT-

Before proceeding with this adjustment, be sure that the tire pressure in the three tires is correct, that the caster wheels turn freely, and that the two transmission drive belts are adjusted for the correct tension.

The mower tracking should be adjusted if during low speed the mower pulls in one direction and then pulls in the opposite direction as you go faster.

1. If at full speed the mower pulls right, it is an indication that the left wheel is turning too fast. To adjust this condition, loosen the lock nut securing the swivel joint (N, Figure 6-6) to the left hand control lever. Move the linkage outward in the slot. This will lengthen the control arm and cause it to stroke the pump less, slowing down the left wheel.
2. If at full speed the mower pulls to the left, it is an indication that the left wheel is turning too slow. To adjust this condition, loosen the locknut securing the swivel joint (N) to the left hand control lever. Move the linkage inward in the slot. This will shorten the control arm and cause it to stroke the pump more, speeding up the left wheel.

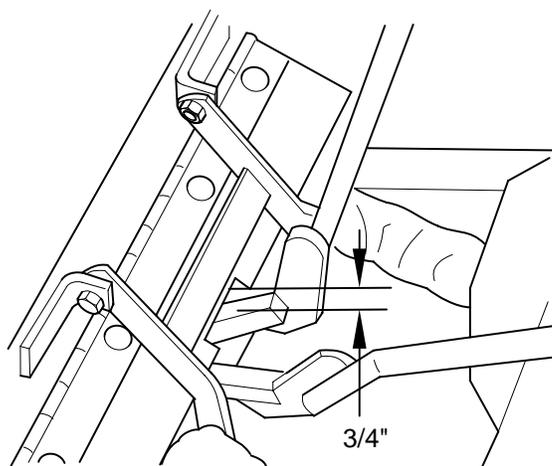


Figure 6-7 Gap Measurement

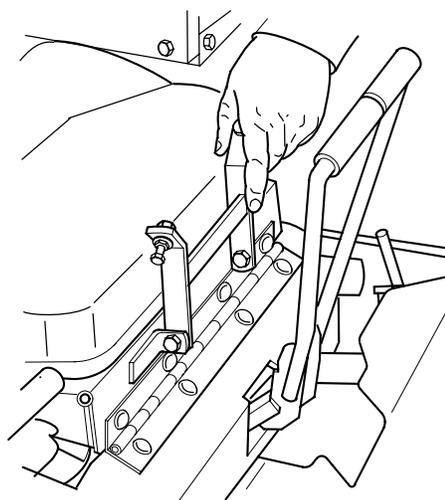


Figure 6-8 Raised Seat Bracket

Steering Handle Adjustment

-NOTE-

Changing the Neutral Adjustment will move the handle locations.

Check for a 3/4 inch gap between the control levers and the frame (Figure 6-7). If this gap is not correct between either handle, adjust the gap as follows:

1. Shut off the mower's engine and engage the parking brake.
2. Tilt the mower deck and lock it in place with the two deck prop rods. Refer to Section 4 for the correct procedure.
3. Remove the two deck springs and swing the deck spring bracket up. If this is not done, the bracket will contact the control levers when the seat is raised.
4. Raise the seat far enough to gain access to the control linkages, but not far enough to contact the control levers with the seat bracket. Support seat bracket in the raised position.
5. Loosen the two jam nuts (K & L, Figure 6-6) on the left control linkage. Turn the turnbuckle (M) until a gap of 3/4 inches is obtained between the handle and the frame. Tighten the two jam nuts (K & L).
6. Loosen the two jam nuts (N & P) on the right control linkage. Turn the turnbuckle (Q) until the right handle is in line with the left handle (Figure 6-6). Tighten the two jam nuts (N & P).

6.3 THROTTLE CONTROL AND CHOKE ADJUSTMENTS

These adjustments must be performed by your Scag dealer to ensure proper and efficient running of the engine. Should either need adjustment, contact your authorized Scag service center.

6.4 ENGINE BELT ADJUSTMENT

WARNING:

Before removing any guards, shut the engine off and remove the ignition key.

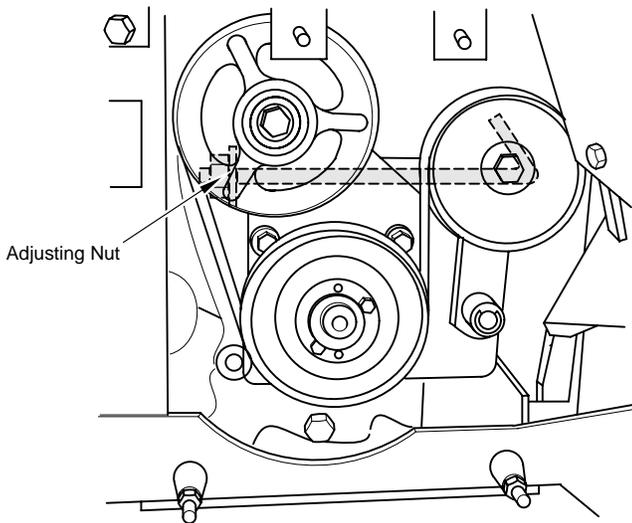


Figure 6-9 Engine Belt Adjustment

1. Remove the guard covering the engine belt.
2. Adjust belt tension by turning the adjusting nut (Figure 6-9) to obtain a 1/2 inch belt deflection with 10 pounds of pressure. See Drive Belts, section 7.8 for checking method.

6.5 BLOWER DRIVE BELT ADJUSTMENT

To adjust the belt tension, turn the adjusting nut (Figure 6-10) to obtain a 1/2 inch deflection with 10 pounds of pressure. See Drive Belts, section 7-8 for checking method.

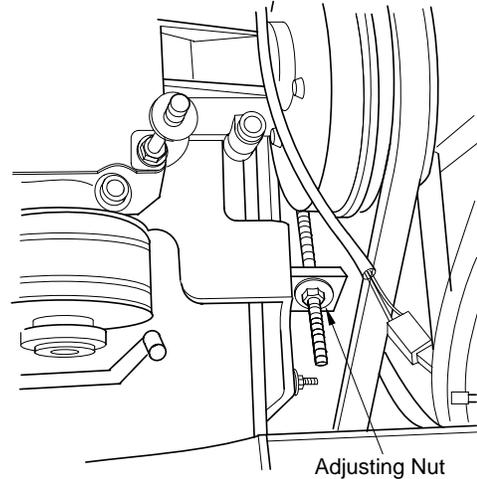


Figure 6-10 Blower Belt Adjustment

6.6 TRANSMISSION DRIVE BELT ADJUSTMENT

To adjust the two transmission drive belts, turn the adjusting nut (Figure 6-11) for the belt needing adjustment to obtain a 1/2 inch belt deflection with 10 pounds of pressure. See Drive Belts, section 7.8 for checking method.

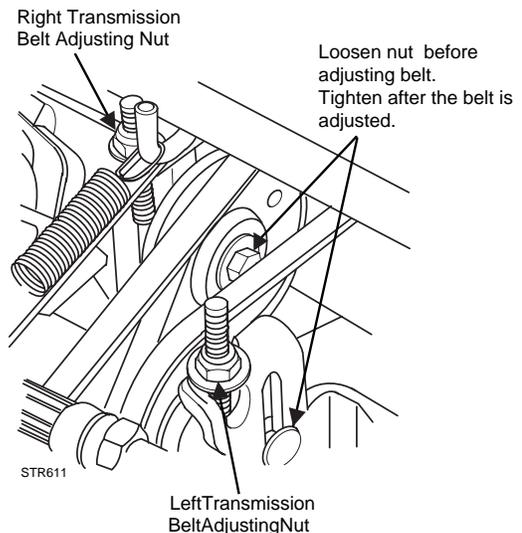


Figure 6-11 Transmission Belt Adjustment

6.7 BELT ALIGNMENT

Belt alignment is important for proper performance of your Scag Mower. If you experience frequent belt wear or breakage, see your authorized Scag service center for belt adjustment.

MAINTENANCE

7.1 MAINTENANCE CHART - RECOMMENDED SERVICE INTERVALS

Break-In (First 10)	HOURS					Procedure	Comments
	8	40	100	200	500		
X						Check all hardware for tightness	
X						Check hydraulic oil level	See paragraph 7.3
X						Check all belts for tightness	See paragraph 7.8
X (First 5)						Change engine oil and filter	See paragraph 7.4
	X					Fill fuel tank before starting	Use unleaded gasoline with a minimum octane rating of 87
	X					Check engine oil level	See paragraph 7.4
	X					*Clean mower	See paragraph 7.14
	X					Check condition of blades	See paragraph 7.9
	X					Apply grease to fittings	See paragraph 7.2
	X					*Remove dust from air cleaner dust cup	See paragraph 7.6
	X					Clean screen in hopper	See paragraph 7.11
	X					*Check/clean air intake	See paragraph 7.6
	X					Check tire pressure	See paragraph 7.10
		X				Check battery electrolyte level, clean battery posts and cables	See paragraph 7.7
		X				Check belt tension	See paragraph 7.8
			X			Apply grease to fittings	See paragraph 7.2
			X			Change engine oil	See paragraph 7.4
			X			*Clean air cleaner element	See paragraph 7.6
			X			Check engine belts for tightness	See paragraph 7.8
			X			Check lubricant in gearboxes	See paragraph 7.13

MAINTENANCE CHART - RECOMMENDED SERVICE INTERVALS (CONT'D)

Break-In (First 10)	HOURS					Procedure	Comments
	8	40	100	200	500		
				X		Apply grease to fittings	See paragraph 7.2
				X		Check hardware for tightness	
				X		Change engine oil filter	See paragraph 7.4
				X		Check hydraulic oil level	See paragraph 7.3
					X	Replace engine fuel filter	See paragraph 7.5
					X	Drain hydraulic system and replace hydraulic oil	See paragraph 7.3 Use SAE 20W50 Motor Oil
					X	Replace hydraulic oil filter	See paragraph 7.3
					X	Replace transmission gearbox lubricant	See paragraph 7.12
					X	Replace lubricant in cutter deck gear boxes	See paragraph 7.13

* Perform these maintenance procedures more frequently under extreme dusty or dirty conditions

7.2 LUBRICATION

GREASE FITTING LUBRICATION CHART (SEE FIGURE 7-1)

LOCATION	LUBRICATION INTERVAL	LUBRICANT	NO. OF PLACES
1. Drive Shaft Mtg. Spindle	40 Hours/Weekly	+Lithium MP White Grease 2125	1
2. Blower Bearings	8 Hours/Daily	+Lithium MP White Grease 2125	1
3. Caster Wheel Pivot	100 Hours/Bi-Weekly	Chassis Grease	2
4. Caster Wheel Bearings	100 Hours/Bi-Weekly	Chassis Grease	2
5. Cutter Deck Push Arms	100 Hours/Bi-Weekly	Chassis Grease	2
6. Rear Wheel Pivot	100 Hours/Bi-Weekly	Chassis Grease	1
7. Rear Wheel Bearings	100 Hours/Bi-Weekly	Chassis Grease	1
8. Hopper Discharge Pivot	100 Hours/Bi-Weekly	Chassis Grease	1
9. Cutter Deck Drive Shaft	100 Hours/Bi-Weekly	Chassis Grease	3
10. Steering Control Levers and Linkage	100 Hours/Bi-Weekly	Chassis Grease	6
11. Speed Control Levers	100 Hours/Bi-Weekly	Chassis Grease	2
12. Engine Belt Idler Arm	200 Hours/Monthly	Chassis Grease	1
13. Blower Belt Idler Arm	200 Hours/Monthly	Chassis Grease	1
14. Blower Gate Lever	200 Hours/Monthly	Chassis Grease	1

- + Compatible Greases: Mobilix #2 found at Mobil Service Stations
- Ronex MP found at Exxon Service Stations
- Super Lube MEP #2 & Super Stay-M #2 found at Conoco Stations
- Shell Alvania #2 found at Shell Service Stations
- Lidok EP #2 found at industrial shops

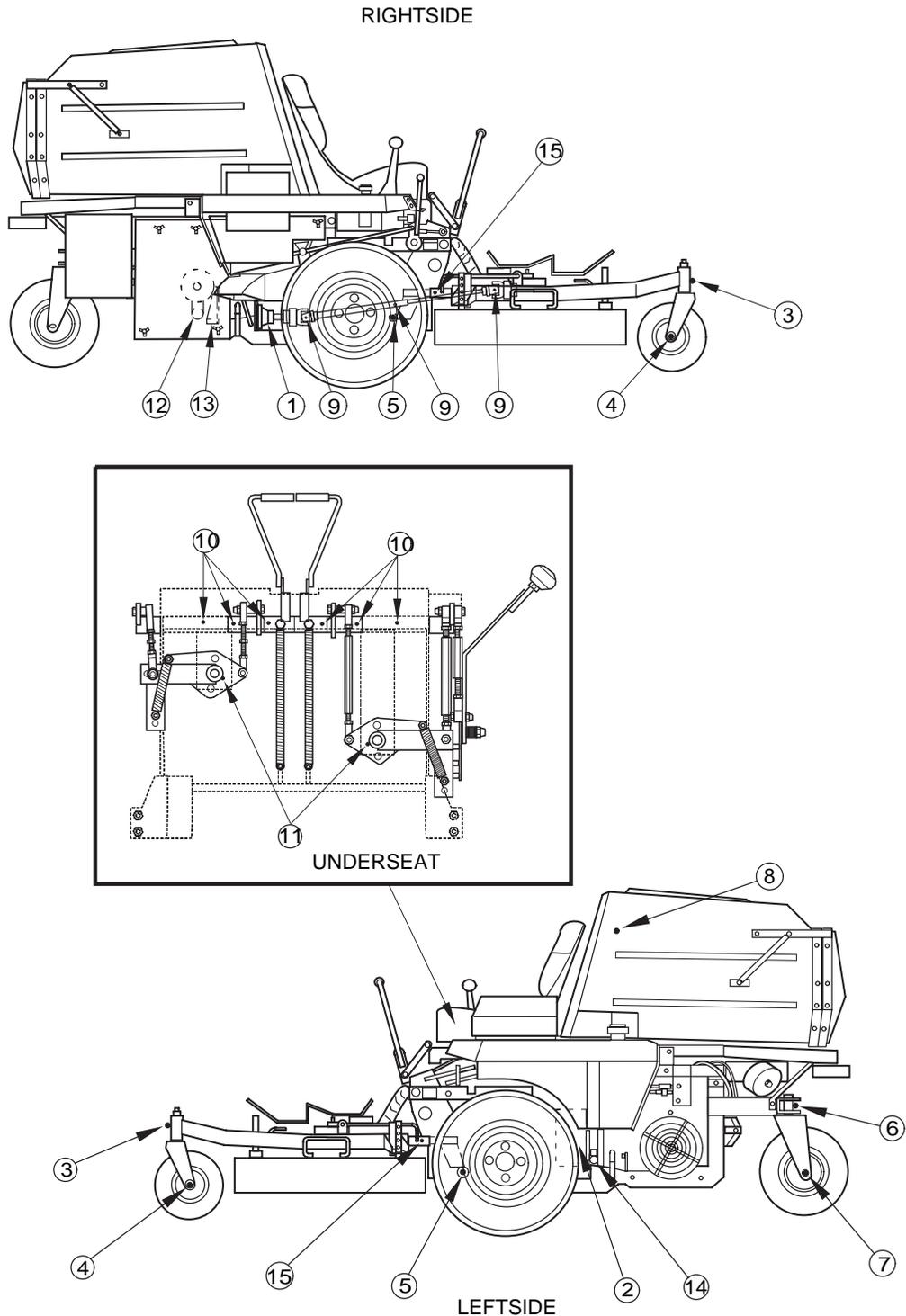


Figure 7.1 Lubrication Fitting Points

7.3 HYDRAULIC SYSTEM

A. Checking Hydraulic Oil Level

The hydraulic oil level should be checked after the first 10 hours of operation. Thereafter, check the oil after every 200 hours of machine operation or monthly, whichever occurs first.

-IMPORTANT-

If the oil level is consistently low, check for leaks and correct immediately.

1. Wipe dirt and contaminants from around the reservoir cap. Remove the cap from the hydraulic oil reservoir.
2. Visually check the level of hydraulic oil. Hydraulic oil must be at least 2-1/4" inches from top of the filler neck. If the level cannot be determined visually, use a clean tape measure to check the level. If the fluid is low, add 20W50 motor oil. DO NOT overfill; (overfilling the oil reservoir may cause oil seepage).
3. Clean the fill cap and install it onto the reservoir.

B. Changing Hydraulic Oil

The hydraulic oil should be changed after every 500 hours or annually, whichever occurs first. The oil should also be changed if the color of the fluid has become black or milky. A black color and/or a rancid odor usually indicates possible overheating of the oil, and a milky color usually indicates water in the hydraulic oil.

-NOTE-

The hydraulic oil should be changed if you notice the presence of water or a rancid odor to the hydraulic oil.

1. Park the mower on a level surface and stop the engine.
2. Place a suitable container under the hydraulic oil reservoir. Remove the cap from the tee installed in the hydraulic oil reservoir. (See Figure 7-2). Allow the fluid to drain into the container and properly discard it.
3. Install the cap onto the tee and be sure it is tight.
4. Remove the fill cap from the reservoir and fill the reservoir to 2-1/4" inches from the top of the filler neck with 20W50 motor oil.
5. Start the engine and drive forward and backward for two minutes. Check the oil level in the reservoir. If necessary, add oil to the reservoir.
6. Replace the reservoir fill cap.

C. Changing Hydraulic Oil Filter Element

The hydraulic oil filter should be changed after every 500 hours of operation or annually, whichever occurs first.

1. Remove the oil filter element (Figure 7-3) and properly discard it. Fill the new filter with clean oil and install the filter. Hand tighten only.

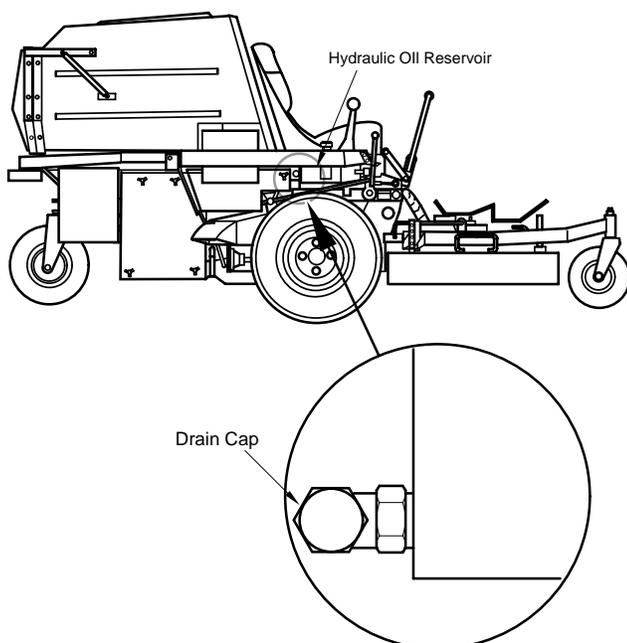


Figure 7-2 Hydraulic Oil Reservoir

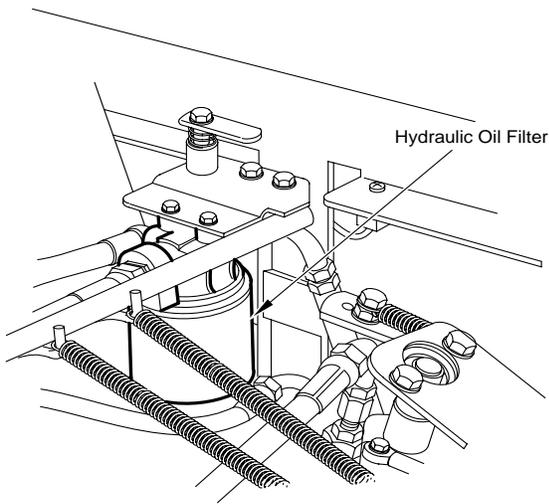


Figure 7-3 Hydraulic Oil Filter

2. Run the engine at idle speed with the speed control lever in neutral for five minutes.
3. Check the oil level in the hydraulic tank. It must be 2-1/4" inches from the top of the filler neck. If necessary, add SAE 20W50 motor oil.

7.4 ENGINE OIL

A. Checking Engine Crankcase Oil Level

The engine oil level should be checked after every 8 hours of operation or daily as instructed in the Engine Operator's Manual furnished with this mower.

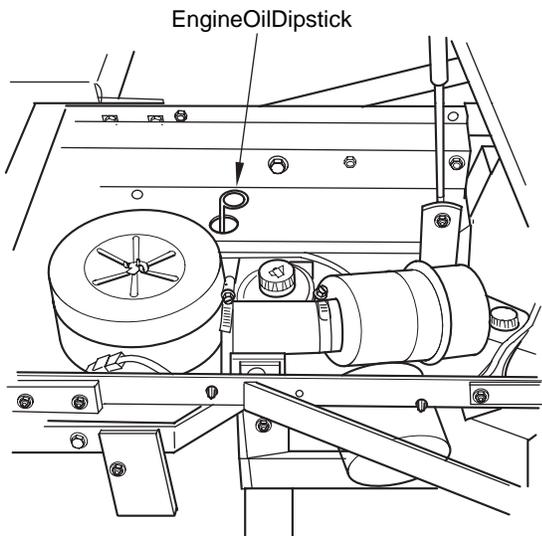


Figure 7-4 Engine Fill Stick

B. Changing Engine Crankcase Oil

After the first 5 hours of operation, change the engine crankcase oil and replace the oil filter. Thereafter, change the engine crankcase oil after every 100 hours of operation or bi-weekly, whichever occurs first. Refer to the Engine Operator's Manual furnished with this mower for instructions.

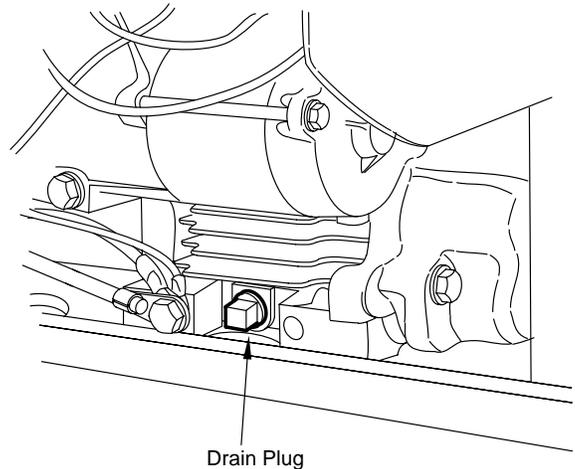


Figure 7-5 Drain Plug Location

C. Changing Engine Oil Filter

After the first 5 hours of operation, replace the engine oil filter. Thereafter, replace the oil filter after every 200 hours of operation or every month, whichever occurs first. Refer to Engine Operator's Manual for instructions.

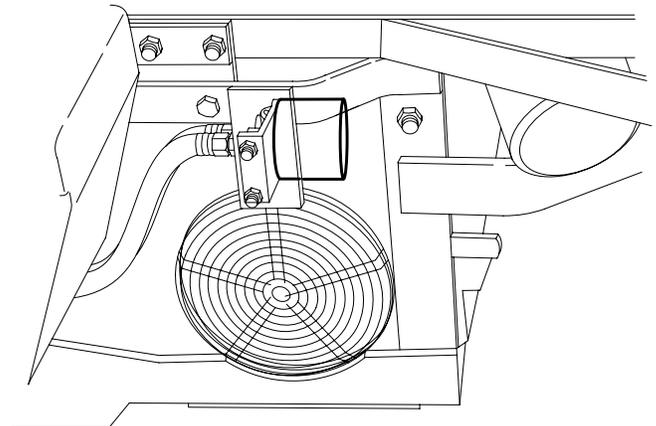


Figure 7-6 Engine Oil Filter Location

7.5 ENGINE FUEL SYSTEM

A. Filling the Fuel Tank

Fill the fuel tank at the end of each operating day to within 1 inch below the filler neck. Do not overfill. Use clean, fresh unleaded gasoline with a minimum octane rating of 87.

B. Replacing In-Line Fuel Filter Element

The in-line fuel filter (Figure 7-7) should be replaced after every 500 hours of operation or annually, whichever occurs first.

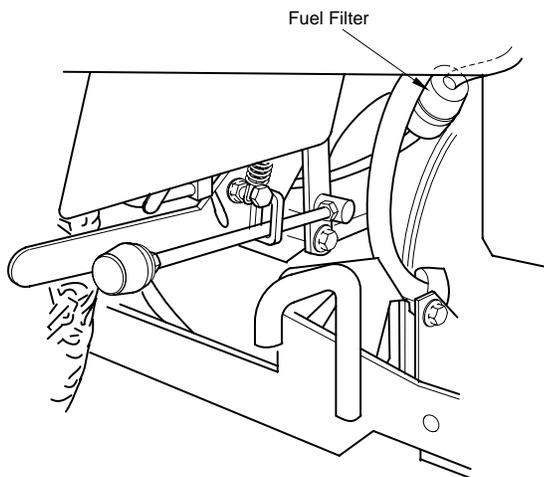


Figure 7-7 Fuel Filter

1. Close the shutoff valve. Remove the two clamps securing the fuel filter to the fuel hose. Remove the fuel filter.
2. Install a new fuel filter. Be sure it is installed in the proper direction. Secure to the fuel hose using the two clamps.

7.6 ENGINE AIR CLEANER

A. Cleaning and/or Replacing Air Cleaner Element

For any air cleaner, the operating environment dictates the air cleaner service periods. Inspect and clean the air cleaner element after every 100 hours of operation or bi-weekly, whichever occurs first and replace the element if required.

-NOTE-

In extremely dusty conditions it may be necessary to check the element once or twice daily to prevent engine damage.

1. Remove the wing nut securing the air cleaner cover to the engine. Remove the air cleaner cover and set aside.
2. Remove the nut securing the clamping plate and the air cleaner to the engine. Remove the clamping plate and set aside. Remove the air cleaner and inspect.
3. Clean or replace the air cleaner and foam pre-cleaner as necessary.
4. Replace the air cleaner after six cleanings or after every 500 hours of operation or annually, whichever occurs first.

7.7 BATTERY

A. Checking Electrolyte Level and Cleaning Battery

After every 40 hours of operation or weekly, whichever occurs first, check the electrolyte level in the battery and clean the battery and connections. Dirt and fluid on the top of the battery can cause the battery to discharge. Corrosion of the battery terminals or loose connections will cause poor battery performance.

WARNING:

Lead-acid batteries produce flammable and explosive gases. To avoid personal injury when checking, testing or charging batteries, **DO NOT** use smoking materials near batteries. Keep arcs, sparks and flames away from batteries. Provide proper ventilation and wear safety glasses.

WARNING:

Electric storage battery fluid contains sulfuric acid which is **POISON** and can cause **SEVERE CHEMICAL BURNS**. Avoid contact of fluid with eyes, skin, or clothing. Use proper protective gear when handling batteries. **DO NOT tip any battery beyond 45° angle in any direction. If fluid contact does occur, follow first aid suggestions below.**

BATTERY ELECTROLYTE FIRST AID

EXTERNAL CONTACT — Flush with water.

EYES — Flush with water for at least 15 minutes and get medical attention immediately.

INTERNAL — Drink large quantities of water. Follow with Milk Of Magnesia, beaten egg, or vegetable oil. Get medical attention immediately. In case of internal contact, DO NOT give fluids that would induce vomiting.

1. Loosen the two plastic wing nuts under fender and then remove the battery cover.
2. Remove the battery cell caps. Visually inspect electrolyte level in the cells. If electrolyte is below the bottom of vent well, fill with clean distilled water to the bottom of vent wells (1/4 to 1/2 inch above the plates). Install the battery cell caps.

-IMPORTANT-

Do not overfill the battery. Electrolyte will overflow through the vent tube onto parts of the machine, resulting in severe corrosion.

3. Clean the cable ends and battery posts with steel wool. Use a solution of baking soda and water to clean the battery. Do not allow the solution to enter the battery cells.
4. Tighten the cable connections securely and apply a light coat of silicone dielectric grease to the terminal connections to prevent corrosion.
5. Install the battery cover.

B. Charging the Battery

Refer to the battery charger's manual for specific instructions.

Under normal conditions the engine's alternator will have no problem keeping a charge on the battery. If the battery has been completely discharged for a long period of time, the alternator may not be able to recharge the battery, and a battery charger will be required.

DO NOT charge a frozen battery. It may explode and cause injury. Let the battery warm before attaching a charger.

Whenever possible, remove the battery from the mower before charging and make sure the electrolyte covers the plates in all cells.



WARNING:

BATTERIES PRODUCE EXPLOSIVE GASES. Charge the battery in a well ventilated space so gases produced while charging can dissipate.

Charging rates between 3 and 50 amperes are satisfactory if excessive gassing or spewing of electrolyte does not occur or the battery does not feel excessively hot (over 125°F). If spewing or gassing occurs or the temperature exceeds 125°F, the charging rate must be reduced or temporarily stopped to permit cooling.

C. Jump Starting

1. The booster battery must be a 12 volt type. If a vehicle is used for jump starting, it must have a negative ground system.
2. When connecting the jumper cables, connect the positive cable to the positive battery post, then connect the negative cable to the negative battery post.

7.8 DRIVE BELTS

After the first 2, 4, 8 and 10 hours of operation, check for proper tension on all drive belts and check for any damage. Thereafter, check the belt tension after every 100 hours of operation or bi-weekly, whichever occurs first.

1. Using a belt tension gauge attached to the belt at the position shown in Figure 7-8, check that the belt deflects 1/2 inch with 10 pounds of pressure applied. Adjust belt tension as necessary, see Adjustment Section 6.
2. Check the belts for cracks, tears, and excessive wear. Replace any damaged belts.

Section 7

7.9 CUTTER BLADES

A. Blade Inspection

1. Remove the ignition key before servicing the blades.
2. Tilt the mower deck and secure in place with the two prop rods.

3. Check the blades for straightness by marking the tip position of the blade on the inside of the deck. Then rotate the opposite tip of the blade to the same position. Compare the difference in the blade tip track. If the track is more than 1/8 inch, the blade is bent and should be replaced.

! WARNING:

Never operate the cutter blades with the deck in the raised position because it is hazardous.

! WARNING:

Do not attempt to straighten a bent blade, and never weld a broken or cracked blade. Always replace it with a new blade to assure safety.

4. If a blade cutting edge is dull or nicked, it should be sharpened. Remove the blades for sharpening. See "Blade Replacement."

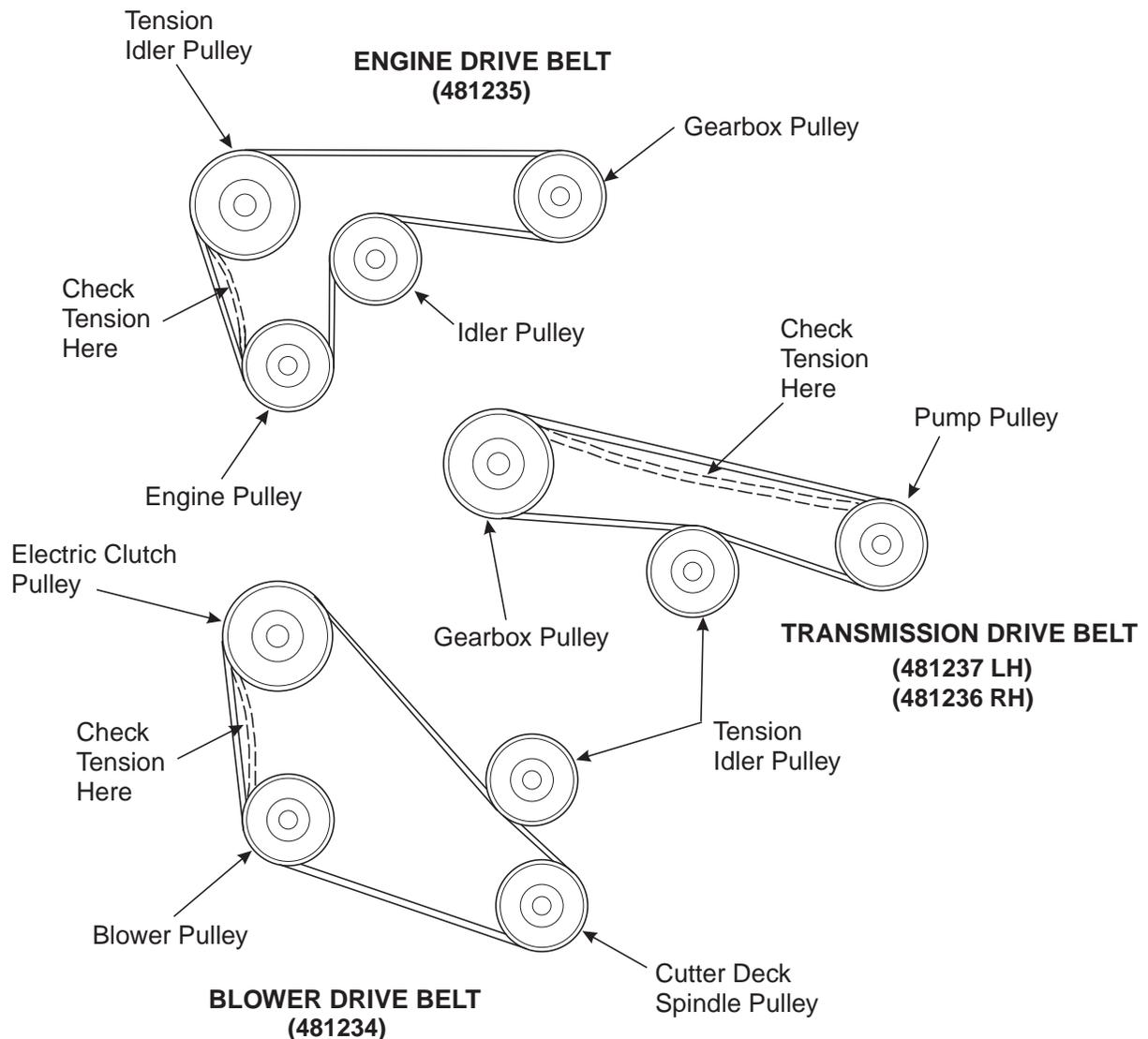


Figure 7-8 Belt Tensioning

B. Blade Sharpening

-NOTE-

If possible, use a file to sharpen the blade. Using a wheel grinder may burn the blade.

-NOTE-

DO NOT sharpen the blades beyond 1/3 of the width of the blade.

1. Sharpen the cutting edge at the same bevel as the original. See Figure 7-9. Sharpen only the top of the cutting edge to maintain sharpness.

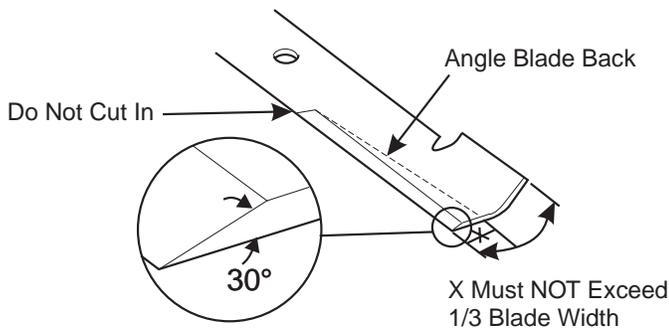


Figure 7-9 Blade Sharpening

2. Check the balance of the blade. If the blades are out of balance, vibration and premature wear can occur. See your authorized Scag dealer for blade balancing or special tools, if you choose to balance your own blades.

C. Blade Replacement

1. Remove the ignition key before replacing the blades.
2. Tilt the mower deck and secure in place using the two prop rods.
3. Using the Blade Buddy accessory, remove the attaching bolt, lockwasher, flatwasher and the spacer. Remove the cutter blade and blade drive adapter from the spindle shaft. (Figure 7-10).
4. Remove the cutter blade from the blade drive adapter by removing the (2) two # 10-32 X 1/2" socket head capscrews, elastic stop nuts and spacers.

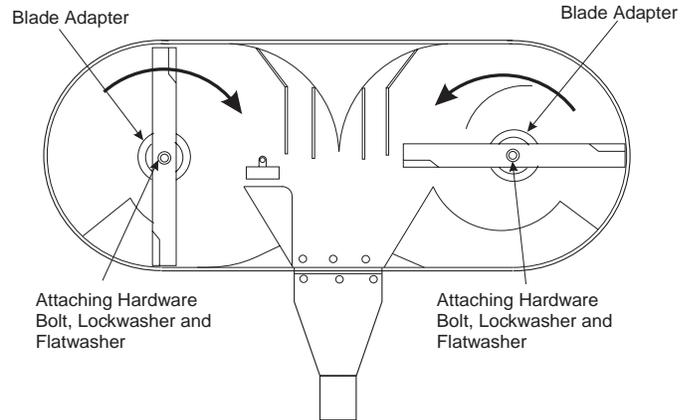


Figure 7-10 Blade Replacement

-IMPORTANT-

Do not interchange the blades. There is a left and a right cutting blade. Be sure to install the blades correctly or the mower will not cut properly.

-IMPORTANT-

The blade must be installed 90° to each other as shown in Figure 7-10. If the blades are not installed as shown, they will contact each other and could cause severe damage to the blades, deck, and blade drive system.

4. To install the cutter blade, position it on the blade drive adapter and secure using the #10-32 X 1/2" socket head capscrews, spacers and elastic stop nuts. Install the cutter blade and blade drive adapter assembly to the spindle shaft using the flatwasher, lockwasher, spacer and bolt. Tighten the bolt to a torque of 150 ft-lb.

7.10 TIRES

Check the tire pressures after every 8 hours of operation or daily.

Caster Wheels	25 PSI
Rear Wheel	25 PSI
Drive Wheels	15 PSI

Section 7

7.11 HOPPER

The hopper screen should be cleaned after every 8 hours of operation or daily, whichever occurs first. It may be necessary to clean the screen more frequently when cutting wet and/or dirty grass.

1. Remove the hopper screen from the hopper.
2. Wash the screen using a water hose until all the screen holes are clean.
3. Install the cleaned screen in the hopper.

-IMPORTANT-

Do not use the hopper with the screen removed. Grass clippings will discharge from the hopper with the screen removed.

7.12 TRANSMISSION DRIVE GEARBOX

A. Checking Fluid Level

The fluid level in the transmission drive gearbox (Figure 7-11) should be checked after every 100 hours of operation or bi-weekly, whichever occurs first.

1. Lift the operator's seat to its full upright position.
2. Remove the two plastic wingnuts holding the gearbox cover in place.
3. Remove the check plug dipstick from the gearbox. Visually check the fluid level on the dipstick. The fluid level must be between the full line and bottom of the dipstick (Figure 7-11). If the fluid level is low, fill the gearbox through the check plug port with Mobil SHC630 lubricant. Install the check plug dipstick and tighten securely. (Figure 7-11)

B. Changing Lubricant

The lubricant in the transmission drive gearbox should be changed after every 500 hours of operation or yearly, whichever occurs first.

1. Underneath the gearbox is a drain plug. This drain plug is accessible through a hole in the gearbox mounting plate and can be reached from the left side of the mower.
2. Place a suitable container under the gearbox drain plug and remove the drain plug.
3. After the fluid is drained, install the drain plug and remove the check plug dipstick.
4. Fill the gearbox with Mobil SHC630 lubricant to correct level as indicated on the dipstick.
5. Install the check plug dipstick and tighten securely.

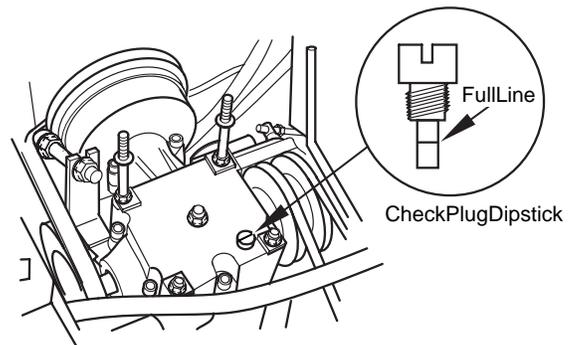


Figure 7-11 Transmission Drive Gearbox

7.13 CUTTER DECK GEARBOXES

A. Checking Lubricant Level

CAUTION:
Cutter deck gearboxes can reach high operating temperatures. Allow cutter deck gearboxes to cool before servicing.

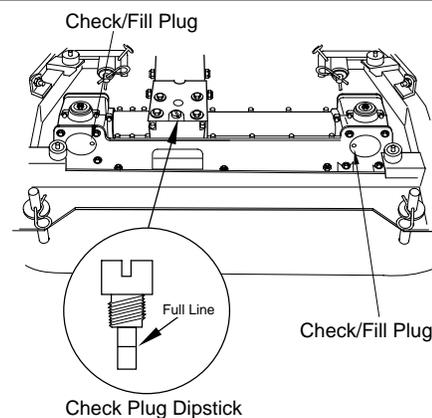


Figure 7-12 Cutter Deck Gearboxes

The fluid level in the cutter deck gearboxes (Figure 7-12) should be checked after every 100 hours of operation or bi-weekly, whichever occurs first.

1. Remove the foot plate from the cutter deck to gain access to the cutter deck gearboxes.
2. Clean and remove the check plug dipstick from the center gearbox (Figure 7-12). Visually check the fluid level on the dipstick. The fluid level must be between the full line and bottom of the dipstick. If the fluid level is low, fill gearbox through the check plug port with Mobil SHC630 lubricant. Install the check plug dipstick and tighten securely.
3. Clean and remove the check plug from the left gearbox (Figure 7-12). Check that the lubricant level is up to the bottom edge of the check plug hole. If lubricant is low, add Mobil SHC630 lubricant through the hole in the top of the gearbox until it is level with the bottom of the check plug hole. Install the check plug and tighten securely.
4. Repeat step 3 on the right gearbox.
5. Install the foot plate to the cutter deck.

B. Changing Lubricant

The lubricant in the three cutter deck gearboxes should be changed after every 500 hours of operation or yearly, whichever occurs first.

1. Remove the foot plate to gain access to the cutter deck gearboxes.

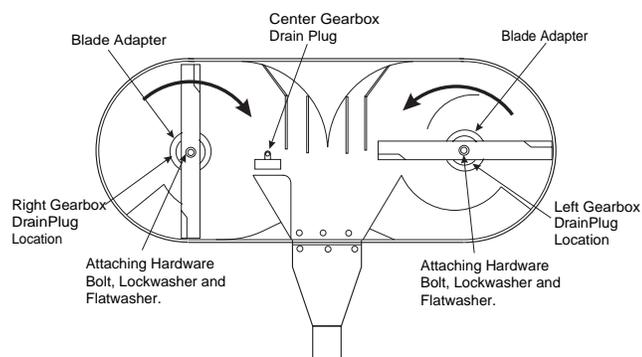


Figure 7-13 Gearbox Drain

2. Raise the cutter deck and secure in place with the two prop rods.
3. Beneath the cutter deck is an access hole to center gearbox drain plug (Figure 7-13). Clean the area thoroughly and then place a suitable container under the drain plug.
4. Remove the drain plug and drain the lubricant into the container and properly discard it.
5. Install the drain plug.
6. Using the Blade Buddy accessory, remove the left cutter blade attaching bolt, lockwasher, flatwasher and the spacer. Remove the cutter blade and blade drive adapter from the spindle shaft.
7. The drain plug for the left gearbox is now accessible. Place a suitable container under the gearbox drain.
8. Clean and remove the drain plug. Drain all lubricant into the container and properly discard it. Install the drain plug.
9. Repeat steps 6 through 8 to change the lubricant in the right gearbox.
10. Install the cutter blade and blade drive adapter assembly to the spindle shaft using the flatwasher, lockwasher, spacer and bolt. Tighten the bolt to a torque of 150 ft-lb.

-IMPORTANT-

The blades must be installed 90° to each other as shown in Figure 7-13. If the blades are not installed as shown, they will contact each other and could cause severe damage to the blades, deck, and blade drive system.

11. Lower the cutter deck.

Section 7

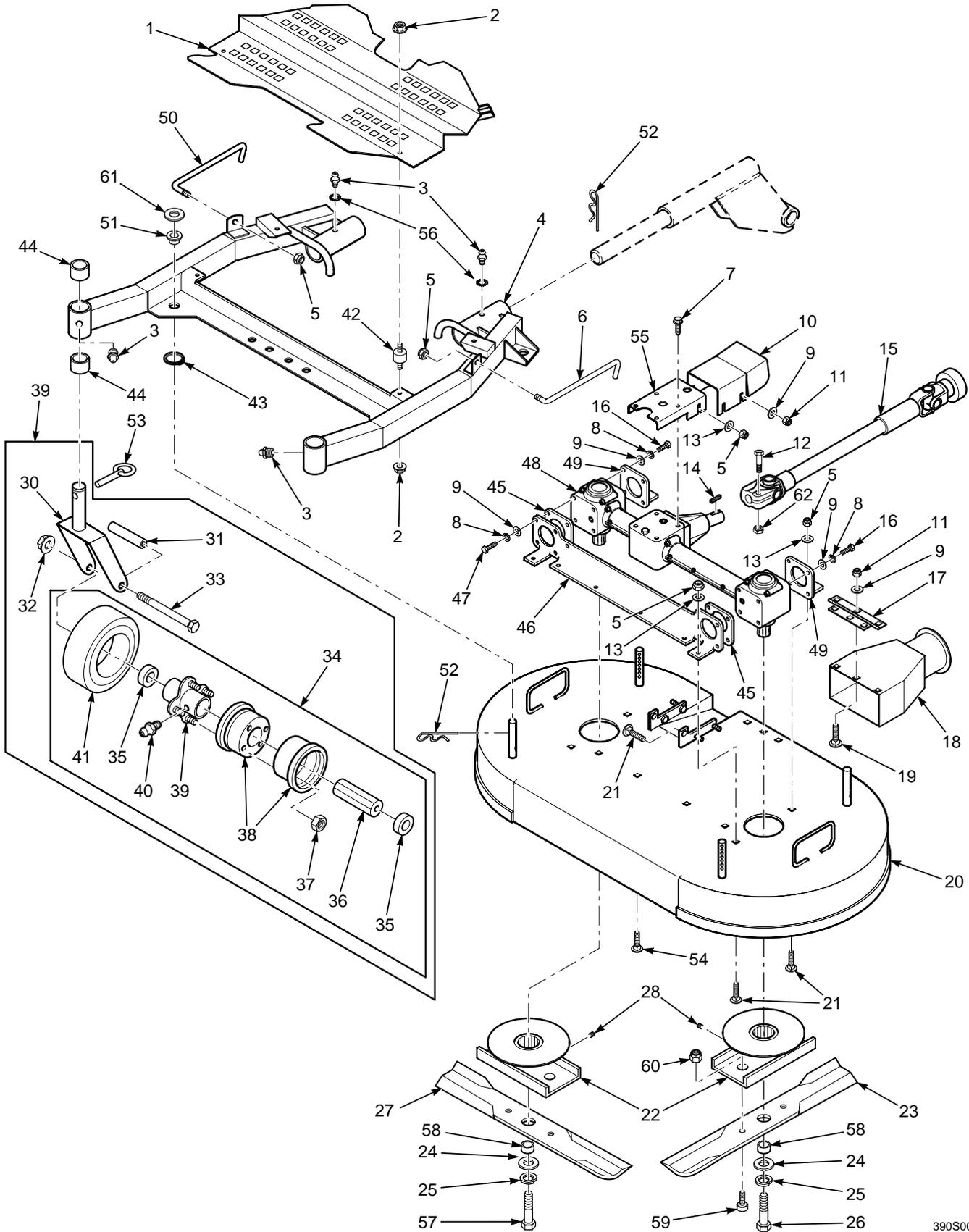
12. Clean and remove the check plug dipstick from the center gearbox and fill the gearbox with Mobil SHC630 lubricant until it is full, as indicated on the dipstick. Install the check plug dipstick and tighten securely, then back the dipstick out so that the slot is parallel with the front of the gearbox.
13. Clean and remove the check plug from the left gearbox. Fill the gearbox with Mobil SHC630 lubricant through the check plug hole until it starts to exit the hole. Install the check plug and tighten securely.
14. Repeat step 13 on the right gearbox.
15. Clean the three breathers with a non-flammable solvent.
16. Install the foot plate to the cutter deck.

7.14 BODY, DECK, HOPPER AND UPHOLSTERY**CAUTION:**

Do not wash any portion of the equipment while it is hot. Do not wash the engine; use compressed air.

1. After each use, wash the mower, deck and hopper. Use cold water and automotive cleaners. Do not use pressure cleaners.
2. Do not spray electrical components.
3. Use a mild soap solution or a vinyl/rubber cleaner to clean the seat.
4. Repair damaged metal surfaces and use Scag touch-up paint available from your authorized Scag dealer. Wax or polish the mower for maximum paint protection.

CUTTER DECK



CUTTER DECK

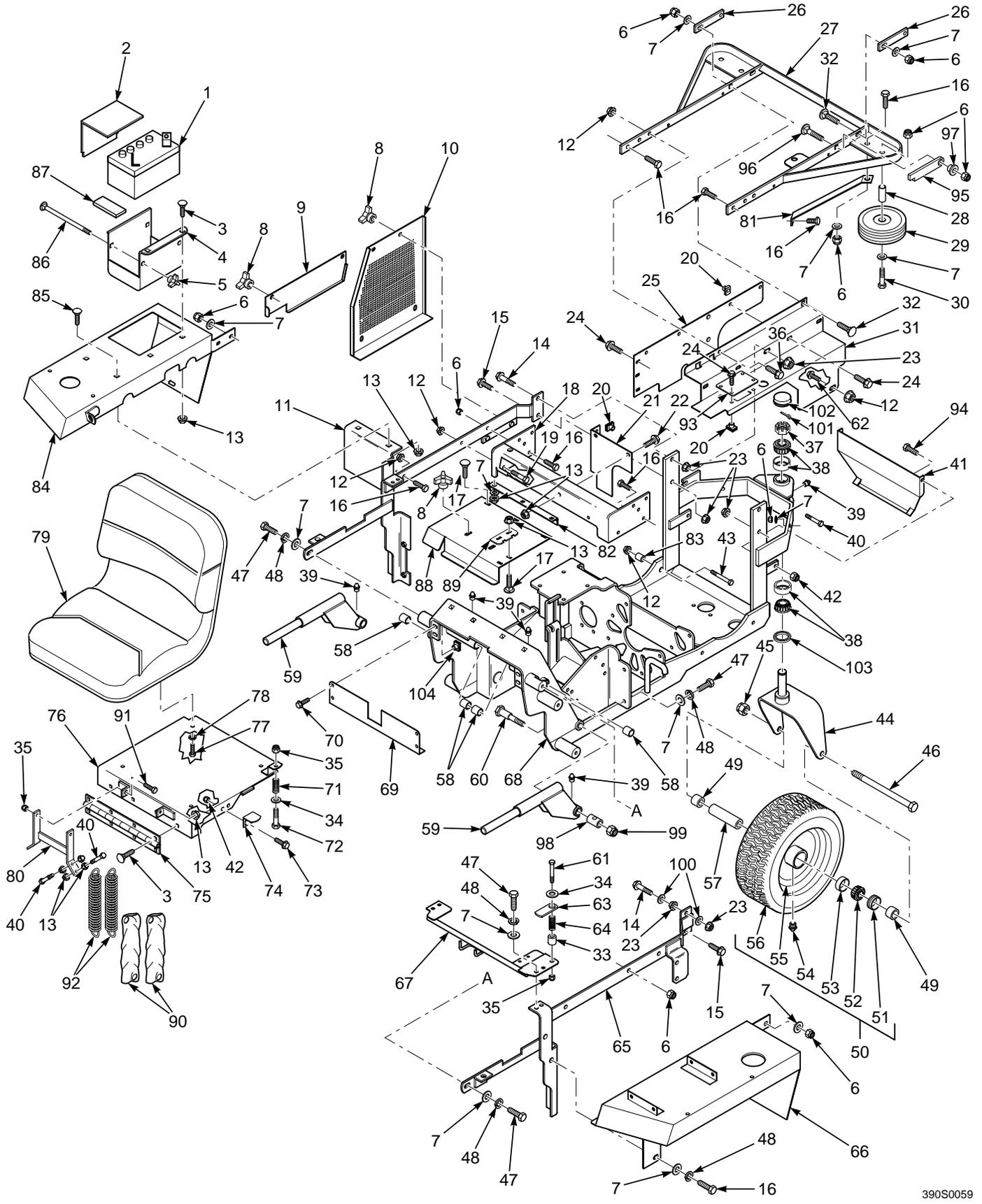
Ref. Part. No. Number	Description	Ref. Part. No. Number	Description
1 45811	Foot Plate	35 48006-07	Retainer, Caster Wheel
2 04019-03	Serr. Fl. Hex Nut, 5/16-18	36 48006-06	Roller Bearing, Caster Wheel
3 48114-04	Grease Fitting	37 48307-08	Tapered Hex Nut, 5/16-24
4 46964	Frame, Cutter Deck Support (incl. 3,44,56)	38 48307-04	Rim Pair, Caster Wheel
5 04021-09	Hex Locknut, Elastic Stop, 3/8-16	39 48006-05	Hub Assembly with Bolts
6 44120	Rod, Deck Prop - L.H.	40 48114-03	Grease Fitting
7 04017-16	Serr. Fl. Hex Head CPSCRW, 5/16-18 x 3/4"	41 48307-02	Tire
8 04030-03	Lockwasher, 5/16"	N/S 48006-03	Inner Tube
9 04040-15	Flatwasher, 5/16 (.375 x .875 x .083)	42 481311	Isolator, Rubber
10 45887	Guard, U-Joint	43 04050-04	Retainer Ring, 1.00"
11 04021-10	Hex Locknut, Elastic Stop, 5/16"	44 48100-01	Bushing, Oilite, .877 ID
12 04001-20	Bolt, Hex Head, 3/8-16 X 1-1/2"	45 422046	Spacer
13 04041-07	Flatwasher, 3/8 (.391 x .938 x .105)	46 421928	Mounting Bracket - Front
14 04063-20	Key, 1/4 x 1/4 x 1.00"	47 04001-10	Bolt, Hex Head, 5/16-18 1-1/4"
15 481505	Drive Shaft	48 481596	Gearbox Assembly (Includes 48A ,48B And 48C)
16 04001-09	Bolt, Hex Head, 5/16-18 x 1.00"	48A 481626	Gearbox, LH
17 481262	Hinge, Discharge Chute	48B 481627	Gearbox, RH
18 45767	Chute, Cutter Deck	48C 481410	Gearbox, Center
19 04003-12	Carriage Bolt, 5/16-18 x 3/4"	49 421929	Mounting Bracket - Rear
20 46965	Cutter Deck With Decals	50 44121	Rod, Deck Prop - R.H.
21 04003-23	Carriage Bolt, 3/8-16 x 1.0"	51 481264	Bushing, Cutter Deck Support
22 45863	Adapter, Blade Drive	52 04062-04	Hairpin, Cotter, .177 x 3.25"
23 481554	Blade, Cutter - L.H.	53 04066-01	Quick Pin
24 04041-18	Flatwasher, 7/16 (.469 x 1.50 x .25)	54 04003-11	Carriage Bolt, 3/8-16 x 1-1/4"
25 04030-05	Lockwasher, 7/16"	55 422109	Bracket, Anti-Rotation
26 04001-102	Bolt, Hex Head, 7/16-20 x 1-3/4"	56 04031-08	Washer, Internal Lock
27 481555	Blade, Cutter - R.H.	57 04001-143	Bolt, Hex Head, 7/16-20 x 1-3/4" LH Thread
28 04012-04	Setscrew, Hex Socket, 5/16-18 x 3/8"	58 43491	Spacer, Cutter Blade
29 49111	Caster Wheel Yoke Assy (Includes 30 thru34)	59 *	Capscrew, #10-32 x 3/4"
30 45768	Yoke, Caster Wheel	60 *	Locknut, #10-32 Elastic Stop
31 43022	Sleeve	61 04040-10	Flatwasher, 5/8" (.688 x 1.750 x .134)
32 04021-07	Hex Locknut, Elastic Stop, 1/2-13	62 04021-05	Locknut, 3/8-16
33 04001-37	Bolt, Hex Head, 1/2-13 x 5-1/2"		
34 48307	Caster Wheel Assembly (Includes 35 thru 41)		

* Purchase part 461035 Shear Bolt Package to replace these parts. (4 of each per package)

-NOTE-

Some of the hardware is common hardware and you may purchase it locally. Be sure that all bolts purchased locally are a grade 5.

SHEET METAL



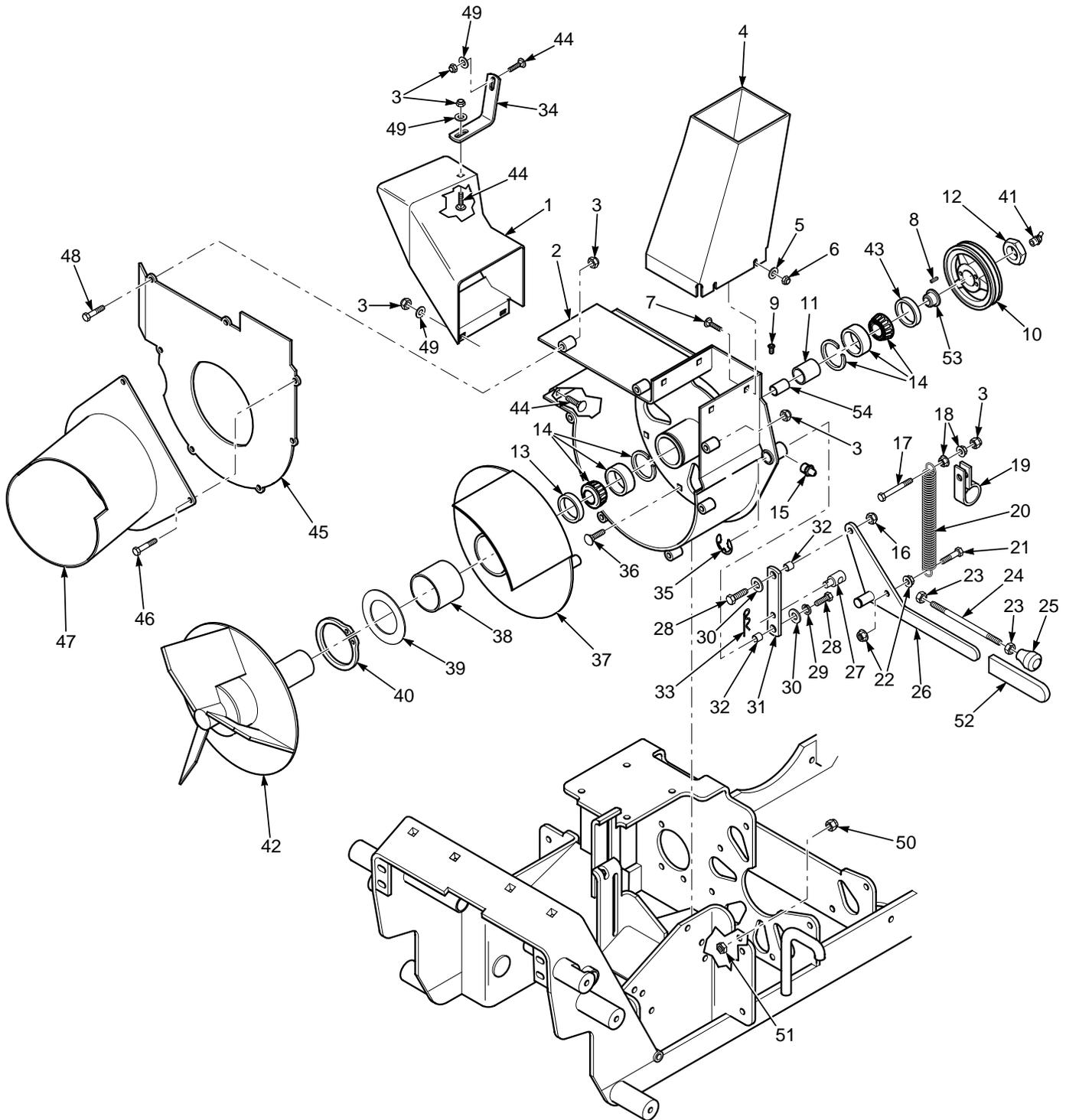
SHEET METAL

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 48015 Battery	53 48005-04 Cup, Bearing
2 42392 Cover, Battery	54 48114-06 Grease Fitting
3 04003-12 Carriage Bolt, 5/16-18 x 3/4	55 481303-03 Rim
4 421197 Box, Battery	56 481303-02 Tire
5 04029-01 Wingnut, Plastic, 1/4-20	57 43405 Sleeve, Rear Tire
6 04021-09 Hex Locknut, Elastic Stop, 3/8-16	58 48100-06 Bushing, Oilite, .753 ID
7 04041-07 Flatwasher, 3/8 (.391 x .938 x .105)	59 46959 Shaft, Push Arm Mounting
8 04029-03 Wingnut, Plastic, 3/8-16"	60 43434 Pivot, Pusharm
9 422088 Belt Cover, Front	61 04001-13 Bolt, Hex Head, 5/16-18 x 2-3/4"
10 422089 Belt Cover, Rear	62 04017-26 Serr. Fl. Hex Head CPSCR, 3/8-16x 3/4"
11 45950 Frame, Right Side	63 422085 Latch, Seat
12 04019-04 Serr. Fl. Hex Nut, 3/8-16"	64 48050 Spring
13 04019-03 Serr. Fl. Hex Nut, 5/16-18"	65 45949 Frame, Left Side
14 04017-39 Serr. Fl. Hex Head CPSCR, 1/2-13 x 2.00"	66 461013 Fender, Left With Decal
15 04017-37 Serr. Fl. Hex Head CPSCR, 1/2-13 x 1-1/4"	67 45824 Crossbrace
16 04001-32 Bolt, Hex Head, 3/8-16 x 1-1/4"	68 461026 Frame, Main
17 04003-14 Carriage Bolt, 5/16-18 x 1/2"	69 422455 Crossmember, Front
18 421894 Cross Brace, Frame	70 04017-16 Serr. Fl. Hex Head CPSCR, 5/16-18 x 3/4"
19 04001-20 Bolt, Hex Head, 3/8-16 x 1-1/2"	71 481389 Spring, Seat
20 04110-01 U-Nut	72 04001-130 Bolt, Special
21 422082 Heat Shield, Front	73 04003-02 Serr. Fl. Hex Head CPSCR, 1/4-20 x 3/4"
22 04017-18 Serr. Fl. Hex Head CPSCR, 5/16-18 x 1-1/4"	74 422090 Actuator, Seat Switch
23 04019-06 Serr. Fl. Hex Nut, 1/2-13	75 481246 Hinge, Seat
24 04017-05 Serr. Fl. Hex Head CPSCR, 1/4-20 x 3/4"	76 45800 Seat Base
25 422311 Heat Shield, Side	77 04001-08 Bolt, Hex Head, 5/16-18 x 3/4"
26 421967 Link	78 04030-03 Lockwasher, 5/16"
27 45757 Frame, Bagger Support	79 481362 Seat
28 481376 Spacer, Wheel	80 45875 Mounting Brkt. Wlmt., Deck Springs
29 481249 Wheel, Bumper	81 421899 Brace, Bucket Support
30 04001-31 Bolt, Hex Head, 3/8-16 x 2-1/2"	82 481388 Hinge, Gearbox Cover
31 422230 Heat Shield, Top	83 43404 Spacer
32 04003-11 Carriage Bolt, 3/8-16 x 1-1/4"	84 46885 Fender, Right With Decal
33 43419 Pivot, Seat Latch	85 04003-12 Carriage Bolt, 5/16-18 x 3/4"
34 04040-15 Flatwasher, 5/16 (.375 x .875 x .083)	86 04003-01 Carriage Bolt, 1/4-20 x 6.00"
35 04021-10 Hex Locknut, Elastic Stop, 5/16-18	87 48661 Pad, Rubber
36 04017-26 Serr. Fl. Hex Head CPSCR, 3/8-16 x 3/4"	88 46966 Cover, Gearbox With Decal
37 04027-04 Castle Nut, 1.00"-14 UNS-2B	89 422087 Bracket, Dump Valve
38 48668 Bearing With Race	90 481374 Spring Cover
39 48114-04 Grease Fitting	91 04001-09 Bolt, 5/16-18 x 1.00"
40 04001-12 Bolt, Hex Head, 5/16-18 x 1-3/4"	92 481250 Spring, Deck
41 421902 Shield, Engine	93 422229 Cover, Access Hole
42 04021-08 Hex Lock Nut, Elastic Stop, 1/4-20	94 04001-01 Bolt, Hex Head 1/4-20 x 3/4"
43 04001-54 Bolt, Hex Head, 3/8-16 x 3.00"	95 422292 Prop Rod, Hopper
44 45940 Yoke, Rear Caster	96 04003-05 Carr. Bolt, 3/8-16 x 1-1/2"
45 04021-13 Hex Locknut, Elastic Stop, 5/8-11	97 43260 Washer, Step
46 04001-40 Bolt, Hex Head, 5/8-11 x 9.00"	98 481501 Bushing, 1.003 ID x 2.10"
47 04001-19 Bolt, Hex Head, 3/8-16 x 1.00"	99 04021-14 Nut, 3/4-16 UNF Elastic Stop
48 04030-04 Lockwasher, 3/8"	100 04030-13 Flatwasher, 1/2 (.562 x 1.375 x .109)
49 43020-07 Spacer	101 04061-04 5/32 x 1 1/2" Ext. Prg. Cotter Pin
50 481303 Tire and Wheel Assembly (includes 51 thru 56)	102 481559 Cap, Grease
51 48005-06 Seal	103 481025 Seal, 2.00" OD x 1.625" Bore
52 48005-05 Cone, Bearing	104 04110-02 U-Nut, 5/16-18

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BLOWER ASSEMBLY



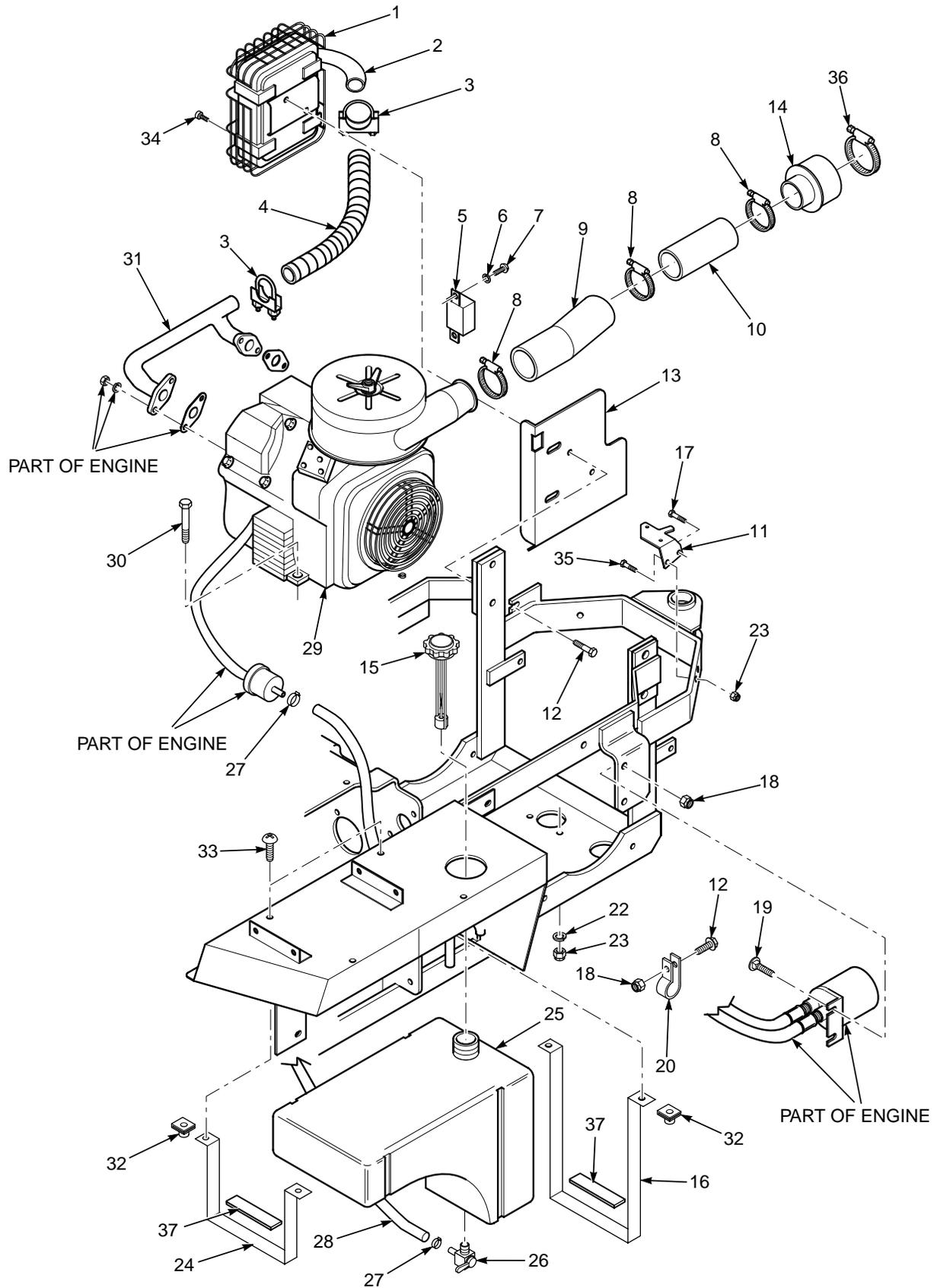
BLOWER ASSEMBLY

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 46971 Chute, Side Discharge	35 04050-01 Retaining Ring, .625 "E"
2 45871 Housing, Blower	36 04003-22 Carriage Bolt, 3/8-16 x 1-1/4"
3 04021-10 Hex Locknut, Elastic Stop, 5/16-18	37 45825 Gate
4 45819 Outlet, Blower	38 48100-12 Bushing, Oilite, 2.505 ID
5 04040-03 Flatwasher, 1/4 (.281 x .625 .065)	39 421665 Washer, Gate Retainer
6 04021-08 Hex Locknut, Elastic Stop, 1/4-20	40 04050-15 Retaining ring, 2.50 Ext
7 04003-02 Carriage Bolt, 1/4-20 x 3/4"	41 48114-09 Grease Fitting, 65°
8 04063-21 Key, 1/4 x .875 Woodruff	42 45886 Fan, Blower
9 48677 Relief Fitting	43 481025 Seal, 2.00 OD x 1.625 Bore
10 481468 Pulley, 5.25 OD	44 04003-12 Carriage Bolt, 5/16-18 x 3/4"
11 43312 Spacer, Outside	45 422287 Front, Blower Housing
12 481106 Nut, 1-1/16-18 L.H.	46 04001-11 Bolt, Hex Head, 5/16-18 x 1-1/2"
13 481024 Seal, 2.00 OD x 1.50 Bore	47 45884 Adapter, Blower Inlet
14 481022 Roller Bearing Assembly	48 04001-11 Bolt, Hex Head, 5/16-18 x 1-1/2"
15 48114-05 Grease Fitting	49 04040-15 Flatwasher, 5/16 (.375 x .875 x .083)
16 04021-05 Hex Locknut, 3/8-16	50 04021-09 Hex Locknut, Elastic Stop, 3/8-16
17 04001-53 Bolt, Hex Head, 5/16-18 x 2-1/2"	51 04020-12 Nut, Jam, 3/8-16
18 04019-03 Serr. Fl. Hex Nut, 5/16-18	52 481428 Grip
19 48030-10 Clamp	53 43297 Spindle Bushing, Bottom
20 481343 Spring	54 43296 Spacer, Inside
21 04001-20 Bolt, Hex Head, 3/8-16 x 1-1/2"	
22 04019-04 Serr. Fl. Hex Nut, 3/8-16	
23 04020-04 Hex Nut, 3/8-16	
24 04004-30 Stud, 3/8-16 x 9.00"	
25 48092 Knob, Shifter	
26 45804 Lever, Blower Gate	
27 43410 Joint, Swivel	
28 04001-19 Bolt, Hex Head, 3/8-16 x 1.0"	
29 04030-04 Lockwasher, 3/8"	
30 04040-05 Flatwasher, 3/8 (.406 x .812 x .065)	
31 422086 Link, Blower Gate	
32 43212 Sleeve	
33 04062-02 Hairpin, Cotter, .080 x 1.19"	
34 422308 Mounting Bracket, Discharge Chute	

-NOTE-

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ENGINE AND ATTACHING PARTS



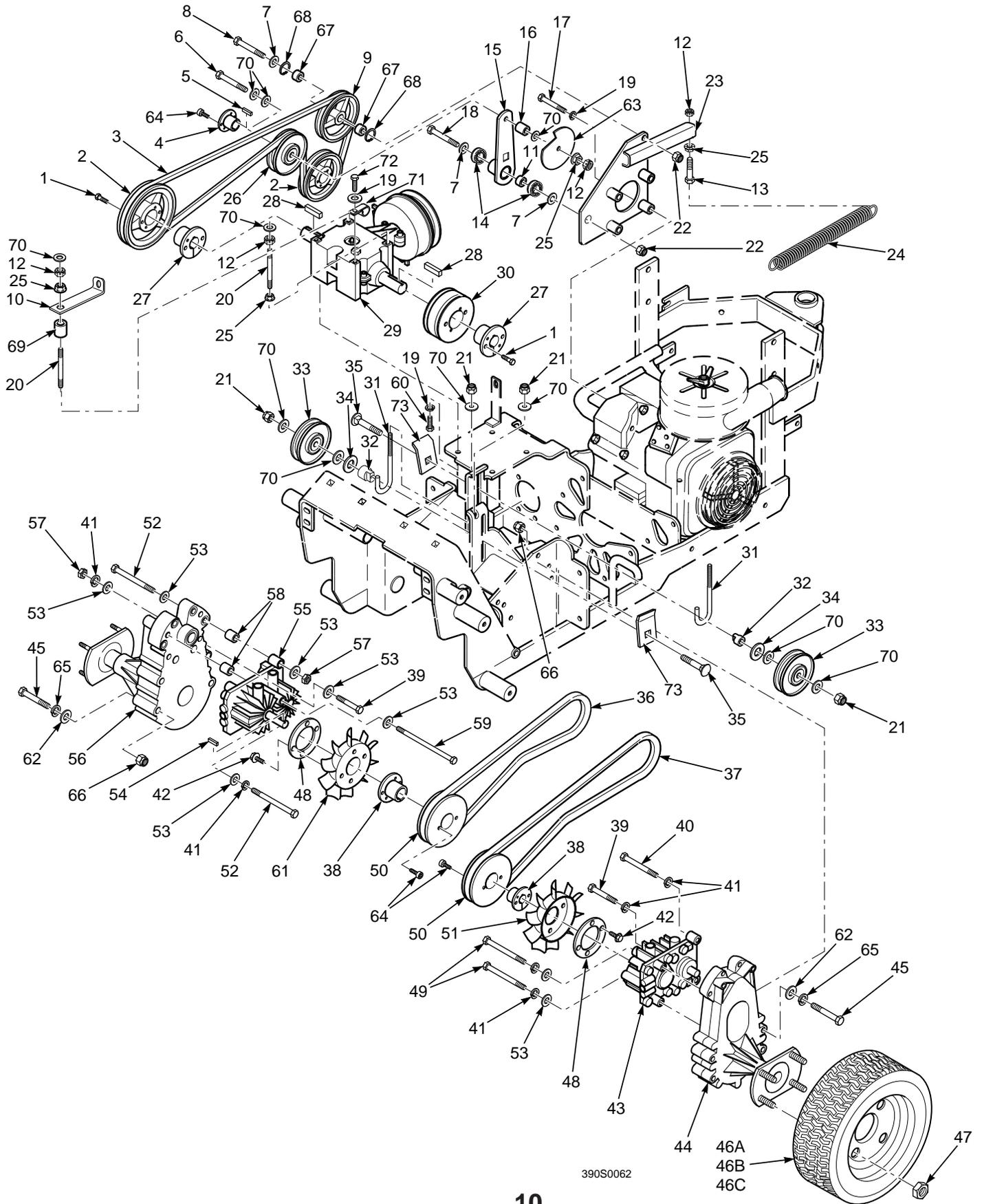
ENGINE AND ATTACHING PARTS

Ref. No.	Part. Number	Description
1	481364	Guard, Muffler
2	481449	Muffler
3	481259	Clamp, Muffler
4	481257	Exhaust Pipe, Flexible
5	481275	Relay
6	04030-02	Lockwasher, 1/4
7	04010-01	Machine Screw, Round Head, 1/4-20 x 1/2"
8	48136-09	Clamp, 2.25 Dia
9	481297	Hose, Air Intake
10	422233	Pipe Ext., Air Cleaner
11	422284	Mounting Brkt., Air Cleaner
12	04017-16	Serr. Flange HexHead, CPSCR, 5/16-18 X 3/4"
13	421916	Guard, Muffler
14	481274	Precleaner, Air Intake
15	481556	Cap, Fuel Tank, with Gauge
16	421939	Strap, Fuel Tank - Rear
17	04001-20	Hex Head Bolt, 3/8-16 x 1.50"
18	04021-10	Hex Locknut, Elastic Stop, 5/16-18
19	04003-04	Carriage Bolt, 5/16-18 x 1.00"
20	48030-11	Clamp
21	04040-04	Flatwasher, 5/16 (.344 x .688 x .065)
22	04030-04	Lockwasher, 3/8"
23	04021-09	Hex Locknut, Elastic Stop, 3/8-16
24	421938	Strap, Fuel Tank - Front
25	48651	Fuel Tank (Includes 26)
26	48308	Valve, Fuel Shut Off
27	48059-01	Clamp, Hose
28	48058	Fuel Hose -20" Long (Order Length)
29	481141	Engine, Kohler - 20 HP (20CH)
29	481150	Engine, Kohler - 22 HP (22CH)
30	04001-21	Bolt, Hex Head, 3/8-16 x 1-3/4
31	481342	Manifold, Exhaust
32	04110-01	U-Nut
33	04010-10	Machine Screw, Round Head, 1/4-20 x 2.00"
34	04015-05	Capscrew, Socket Head, #10-32 x 1/2"
35	04001-32	Hex Head Bolt, 3/8-16 x 1.25"
36	48136-11	Clamp, Hose 5.50"
37	48657	Rubber Pad

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TRACTION DRIVE



390S0062

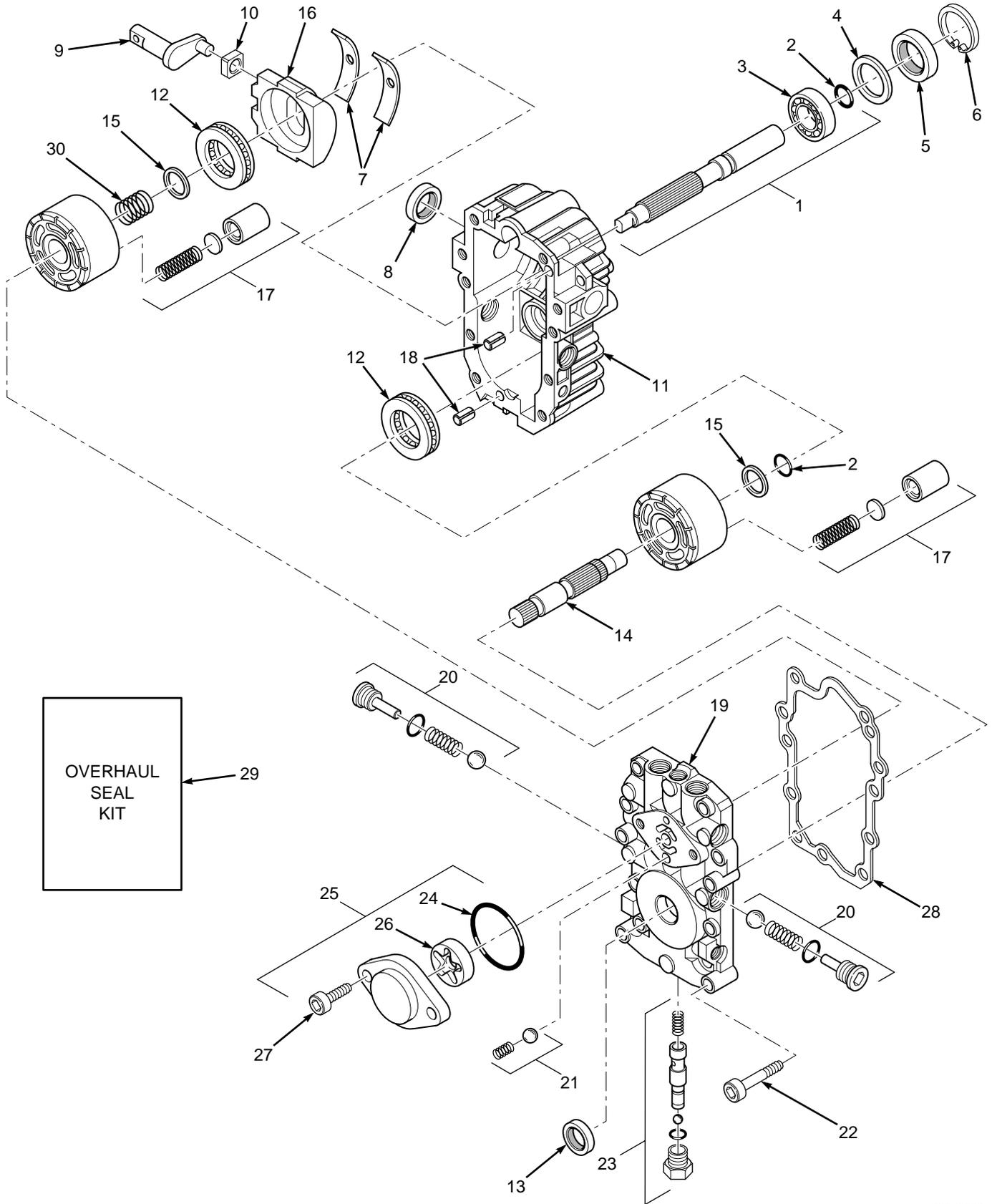
TRACTION DRIVE

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 04001-109 Bolt, Hex Head, 1/4-20 x 1-3/8"	40 04001-53 Bolt, Hex Head, 5/16-18 x 2-1/2"
2 481434 Pulley, 5.55 OD	41 04030-03 Lockwasher, 5/16"
3 481497 Belt, Main Drive	42 04017-04 Serr. Fl. Hex Head CPSCR, 1/4-20 x 1/2"
4 48926 Hub, Tapered	43 481225 Pump, L.H.
5 04063-06 Key, 1/4 x 1/4 x 1-1/2"	44 481576 Axle, L.H
6 04001-138 Bolt, Hex Head, 3/8-16 x 3-3/4" GRD 8	45 04001-132 Bolt, Hex Head, 3/8-24 x4.0 GR 8
7 04041-24 5/8" Flatwasher (.644 x 1.00 x .0747)	46A 48827 Wheel Assembly, Drive
8 04001-141 Bolt, Hex Head, 5/8-11 x 4 3/4"	46B 48827-02 Tire Only
9 48062 Pulley, Idler - 5.75 Dia.	46C 48321-04 Rim Only
10 422307 Brace, Gearbox	47 04028-01 Nut, Wheel
11 43450 Spacer, Bearing	48 421209 Back-up Washer, Fan
12 04021-05 3/8-16 Hex Lock Nut	49 04001-126 Bolt, Hex Head, 5/16-18 x 5-1/2"
13 04001-135 Bolt, Hex Head, 3/8-16 x 1 3/4" GRD 8	50 481231 Pulley, 4.25 OD
14 48224 Bearing	51 48789 Fan, Cooling LH
15 461015 Arm, Idler	52 04001-96 Bolt, Hex Head, 5/16-18 x 4-1/2"
16 43277 Spacer, J-Pull Rod	53 04040-04 Flatwasher, 5/16 (.344 x.688 x .065)
17 04001-22 Bolt, Hex Head, 3/8-16 x 2-3/4"	54 04063-14 Key, 5 mm x 5 mm x 25 mm
18 04001-142 Bolt, Hex Head, 5/8-11 x 2 1/2"	55 481226 Pump, R.H.
19 04030-04 Lockwasher, 3/8"	56 481589 Axle, R.H.
20 04004-32 Stud, 3/8-16 x 4.00"	57 04020-03 Hex Nut, 5/16-18
21 04021-09 Hex Locknut, Elastic Stop, 3/8-16	58 43063 Spacer
22 04021-13 Elastic Stop Nut, 5/8-11	59 04001-94 Bolt, Hex Head, 5/16-18 x 7-1/2"
23 45741 Pivot, Engine Idler	60 04001-32 Bolt, Hex Head, 3/8-16 x 1-1/4"
24 481522 Spring, Main Drive	61 481232 Fan, Cooling RH
25 04019-04 Serr. Fl. Hex Nut, 3/8-16	62 04043-02 Flatwasher, 5/16 USS GR8
26 48198 Pulley, Idler	63 421863 Washer, Heat Deflector
27 48141 Hub, Tapered, 1.00 Bore	64 04015-14 Socket Head Capscrew, 1/4-20 x 1-3/8"
28 04063-01 Key, 1/4 x 1/4 x 1-1/4"	65 04030-09 Lockwasher, 3/8 Spring, Hardened
29 481227 Gearbox, T-Drive	66 04021-18 Lock Nut 3/8-24 Elastic Stop GR 8
30 481229 Pulley, 4.25 OD Double Groove	67 48102 Bearing Idler Pulley
31 44075 Rod, J-Pull	68 04050-06 1.575" TruarcRing
32 43488 Spacer, Idler Adjust	69 43449 Spacer
33 481048 Pulley	70 04041-07 Flatwasher, 3/8 (.391x.938x.105)
34 04041-12 Flatwasher, 3/8 (.375 x 1.50 x .06)	71 48030-13 Clamp, .75 ID
35 04003-25 Carrige Bolt, 3/8-16 x 2-3/4"	72 04001-18 Hex Head Bolt, 3/8-16 x 3/4"
36 481499 Belt, R.H. Transmission Drive	73 422458 Bracket, Idler Adjust
37 481498 Belt, L.H. Transmission Drive	
38 48791 Hub, Tapered, 15 mm	
39 04001-12 Bolt, Hex Head, 5/16-18 x 1-3/4"	

-NOTE-

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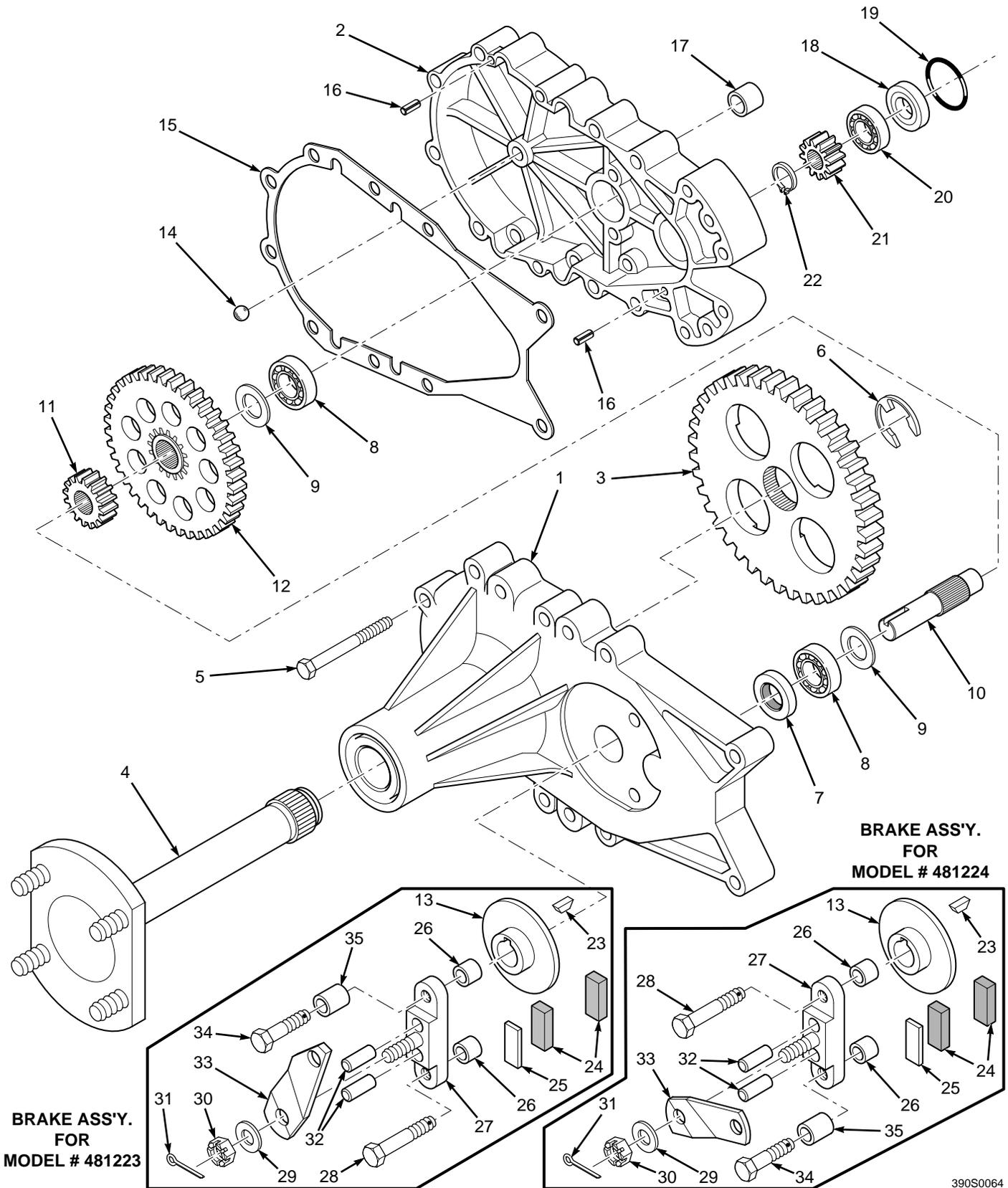
HYDRAULIC PUMP



HYDRAULIC PUMP

Ref. Part. No. Number	Description	Ref. Part. No. Number	Description
- 481225	Pump, L.H. (Includes items 1 thru 30)	16 HG2003087	Variable Swash Plate
- 481226	Pump, R.H. (Includes items 1 thru 30)	17 HG70079	BDT-10L Block Assembly
1 HG2513038	Pump Shaft Kit	18 HG9004800-2506	Pin ST Holder
2 HG2003016	Wire Retaining Ring	19 HG2513006	Center Section Kit
3 HG2003043	Ball Bearing	20 HG2510027	Check Valve Kit
4 HG2003018	Spacer	21 HG2510011	Charge Relief Kit
5 HG9008000-0128	Lip Seal (16 x 35 x 7)	22 HG9007314-0808	Socket Head Capscrew
6 HG2003052	Retaining Ring	23 HG2513011	Bypass Valve Kit
7 HG2003023	Cradle Bearing	24 HG9004101-1340	O-Ring
8 HG9008000-0126	Lip Seal (12 x 35 x 7)	25 HG2513027	Charge Pump Cover
9 HG2003005	Trunnion Arm	26 HG50273	Gerotor Assembly
10 HG2000015	Slot Guide	27 HG50095	Capscrew (6mm x 20)
11 HG2513020	Transmission Housing Kit (L.H.)	28 HG2003060	Center Section Gasket
11 HG2513003	Transmission Housing Kit (R.H.)	29 HG2513013	Overhaul Seal Kit
12 HG2003044	Thrust Ball Bearing Assembly	30 HG2000025	Spring Block
13 HG9008000-0127	Lip Seal (15 x 24 x 7)		
14 HG2003032	Motor Shaft		
15 HG2003017	Block Thrust Washer		

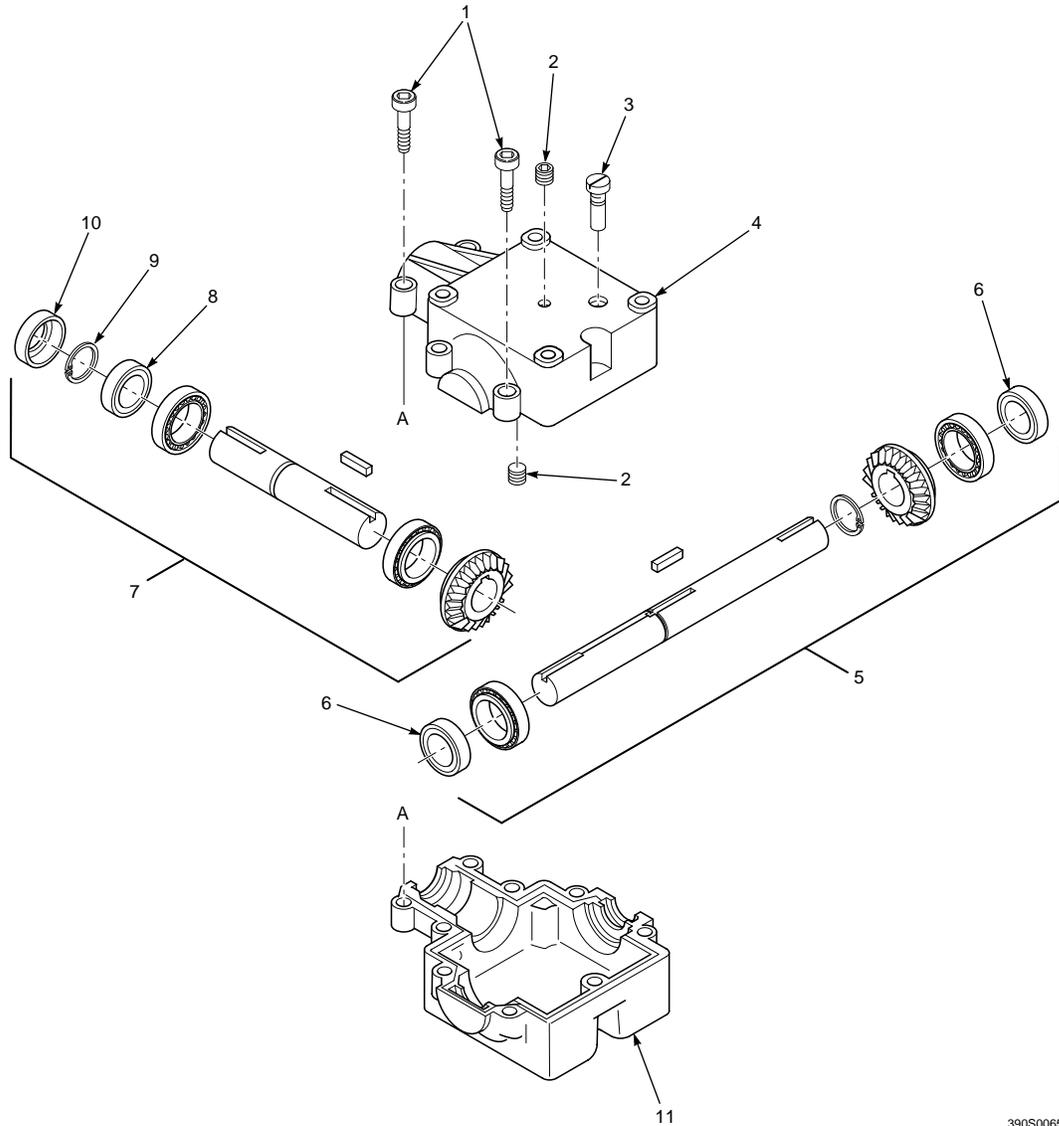
HYDRO-GEAR AXLE ASSEMBLY



HYDRO-GEAR AXLE ASSEMBLY

Ref. Part. No. Number	Description	Ref. Part. No. Number	Description		
-	481223	Axle, L.H. (Includes Items 1 thru 35)	21	HG44353	Input Gear, 11 Tooth
-	481224	Axle, R.H. (Includes Items 1 thru 35)	22	HG44354	Retaining Ring
1	HG62768	Axle Housing Assembly	23	HG44143	Key, HI Pro 3/16 x 5/8"
2	HG44533	Hydro Mount Housing	24	HG44132	Puck, Brake
3	HG44358	Splined Final Gear Drive	25	HG44134	Plate, Puck
4	HG62681	Axle Shaft Assembly	26	HG23770	Brake Spacer
5	HG44366	Bolt, 1/4-20 x 2-1/2 Hex Head	27	HG62589	Brake Yoke Assembly
6	HG44359	E-Ring	28	HG44276	Bolt, 1/4-20 x 1-1/2 Hex Head
7	HG50263	Oil Seal, 1.25 x .625"	29	HG44130	Washer, 7/16 x 7/8 OD x .06 HT
8	HG44147	Ball Bearing, .62 ID x1.38 x .44"	30	HG44142	Nut, Castle, 5/16-24 PL
9	HG44371	Washer, HT. 62ID x 1.0OD x .05 Thick	31	HG44101	Pin, Cotter
10	HG44351	Brake Shaft (Splined)	32	HG44127	Pin, Brake Actuating
11	HG50419	Splined Reduction Gear, 17 Tooth	33	HG44094	Arm, Brake Actuator (L.H. Assembly)
12	HG50420	Splined 60 Tooth Gear	33	HG44613	Arm, Brake Actuator (R.H. Assembly)
13	HG44090	Disc, Brake	34	HG44612	Bolt, 1/4-20 x 2-1/2 Hex Head
14	HG9001214-3700	Ball, 3/8 Diameter	35	HG23711	Spacer
15	HG50223	Gasket, Housing			
16	HG44269	Pin, Spring, 3/16 z 1/2 x 1/2 Long			
17	HG23749	Mounting Spacer			
18	HG44355	Bearing, Spacer			
19	HG50267	O-Ring			
20	HG44232	Ball Bearing, 15mm x 35mm x 11mm			

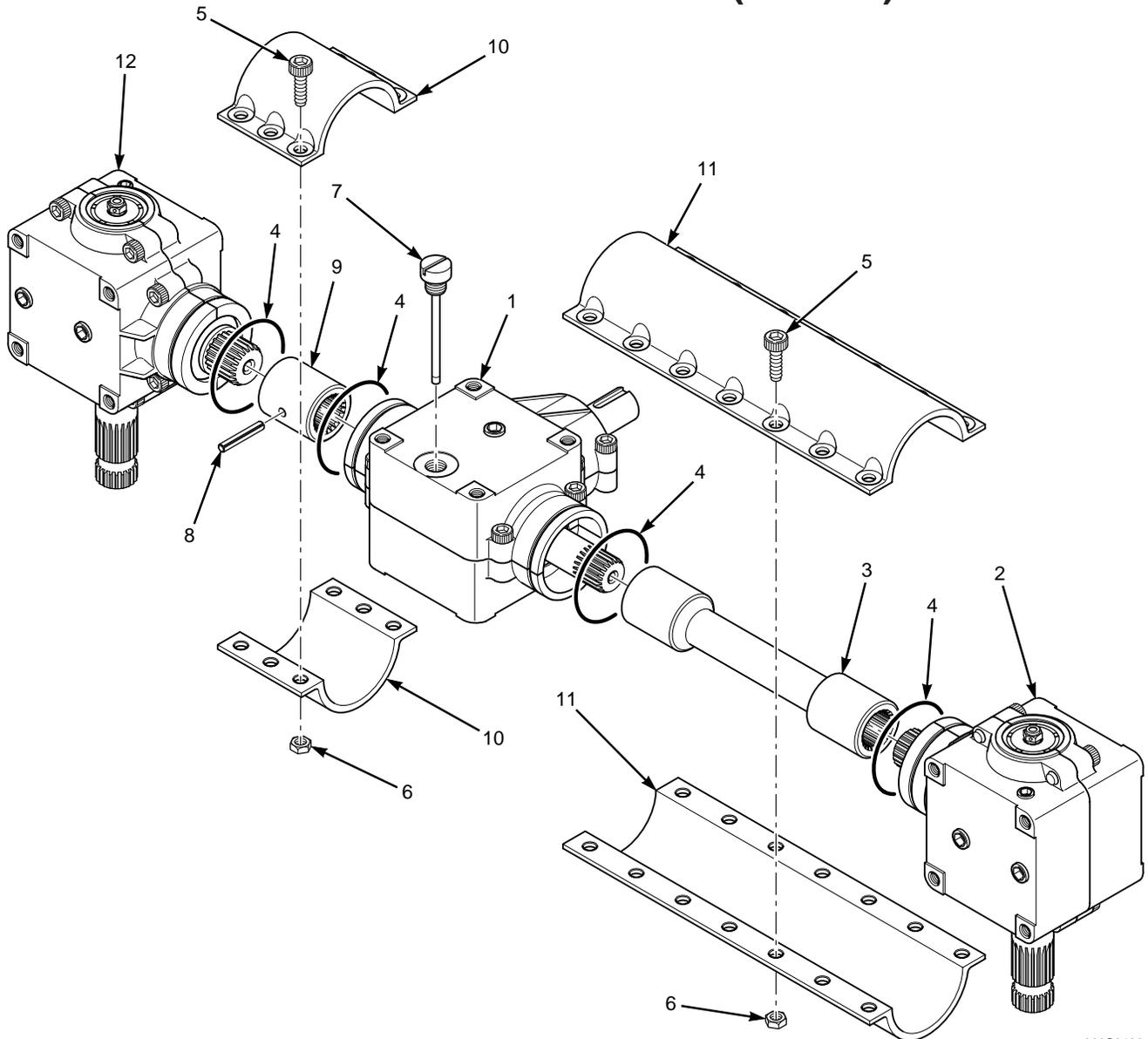
DRIVE GEARBOX



390S0065

Ref. No.	Part. Number	Description
-	481227	Gearbox, Drive
1	SGC203815	Capscrew, Socket Head, 3/8-16 x 1-1/2"
2	SGC200300	Plug, Socket Head
3	481417	Plug, Dipstick
4	SGC210004002563	Casting, Upper
5	SGC200900002617	Shaft Assembly, Cross
6	SGC209843	Seal - 1"
7	SGC00002616	Shaft Assembly, Pinion
8	SGC00002569	Seal, 1-1/8" x 1-1/2" x 3/6"
9	SGC2000003315	Retaining Ring
10	SGC200302002565	Cup, Retaining Ring
11	SGC210003002828	Casting, Lower

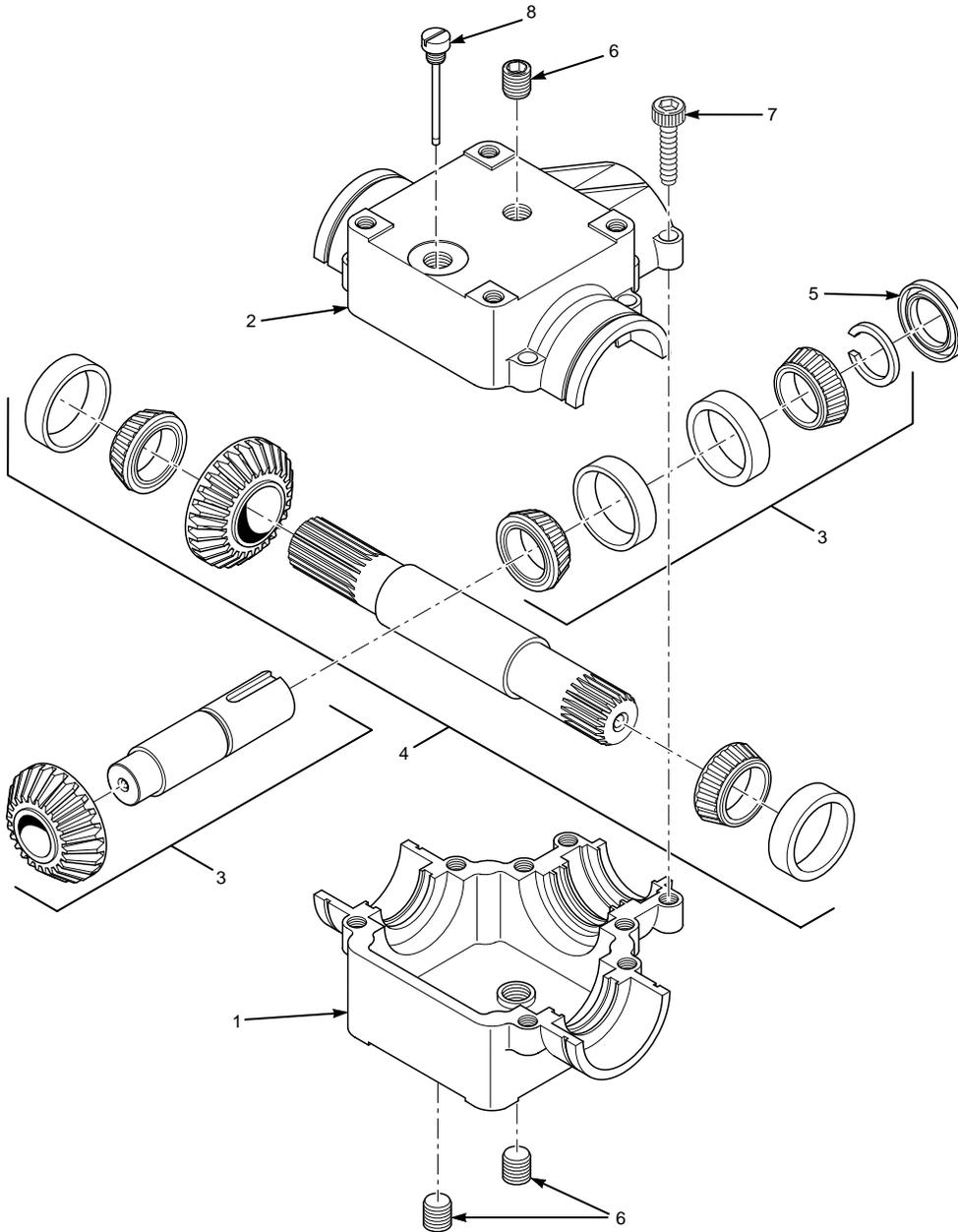
GEARBOX ASSEMBLY (481596)



390S0132

Ref. No.	Part. Number	Description
1	481410	Gearbox, Center
2	481626	Gearbox, LH
3	SGC00002553	Shaft Assembly
4	SGC00002456	O-Ring, 2.246 x .070
5	SGC00002560	Bolt, 5/16-18 x .75" Socket Head Cap Srew
6	SGC00002561	Nut, 5/16-18
7	SGCMD2000003678	Separator, Air/Oil
8	SGC100000002906	Pin, Spring 1/8 x 1.50"
9	SGCMD0000002905	Coupling
10	SGCMD2000003080	Cover, Short
11	SGCMD2000003081	Cover, Long
12	481627	Gearbox, RH

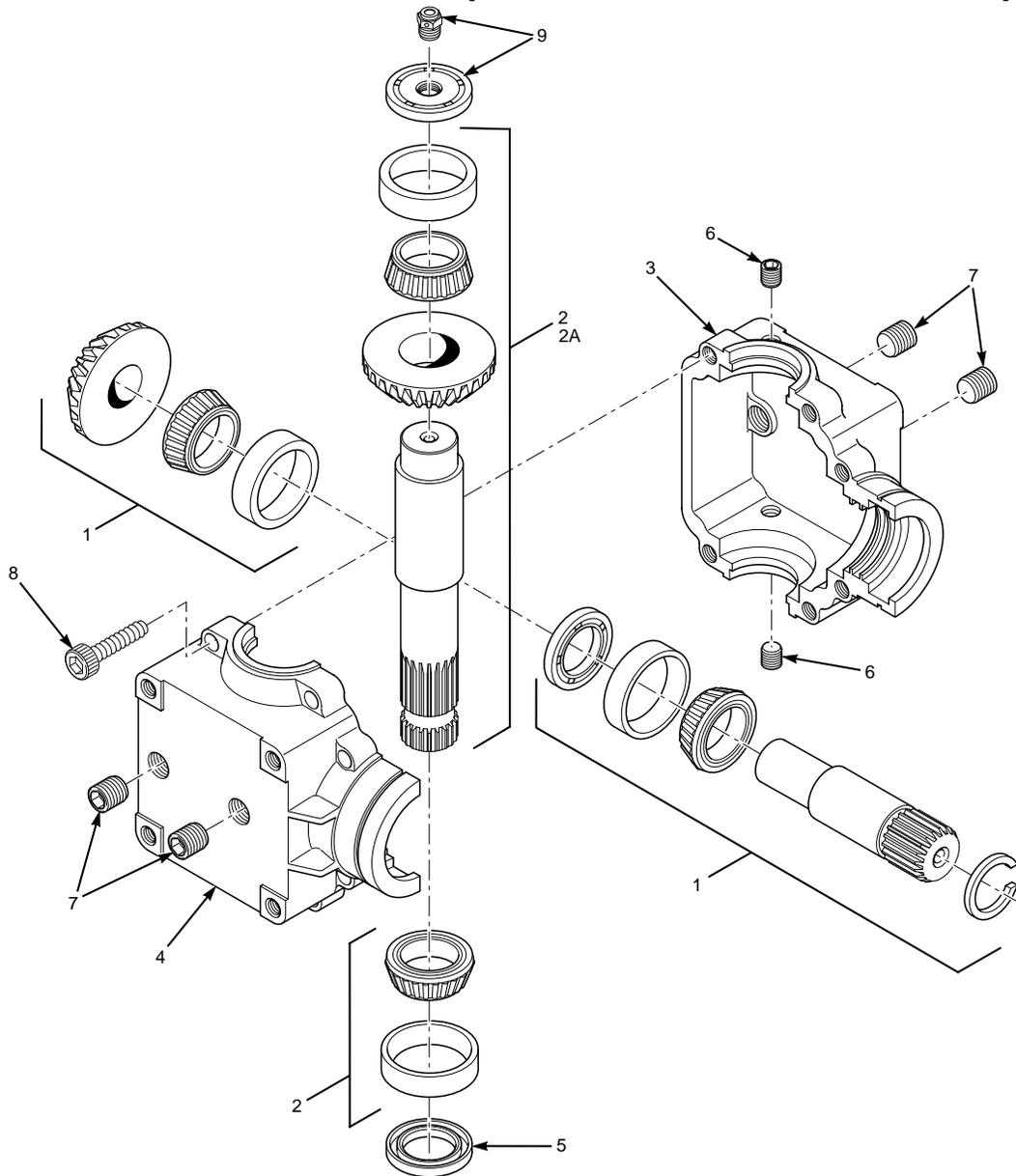
GEARBOX ASSEMBLY (481410)



390S0131

Ref. No.	Part. Number	Description
1	SGC114003002550	Casting, Lower (Threaded Holes)
2	SGC114004002551	Casting, Upper (Non-Threaded Holes)
3	SGC00002614	Shaft / Pinion Assembly
4	SGC00002921	Shaft Assembly-Cross/Gear
5	SGC109843	Seal 1.00 x 1.50 x 3/16"
6	SGC200300	Plug, 1/4 NPT Socket Head
7	SGC103125	Bolt, 5/16-18 x 1.25
8	SGCMD2000003678	Separator, Air/Oil

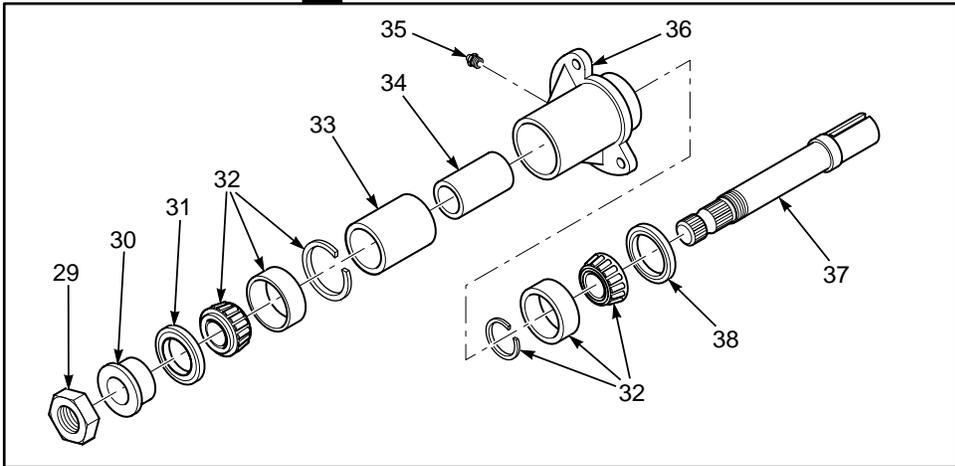
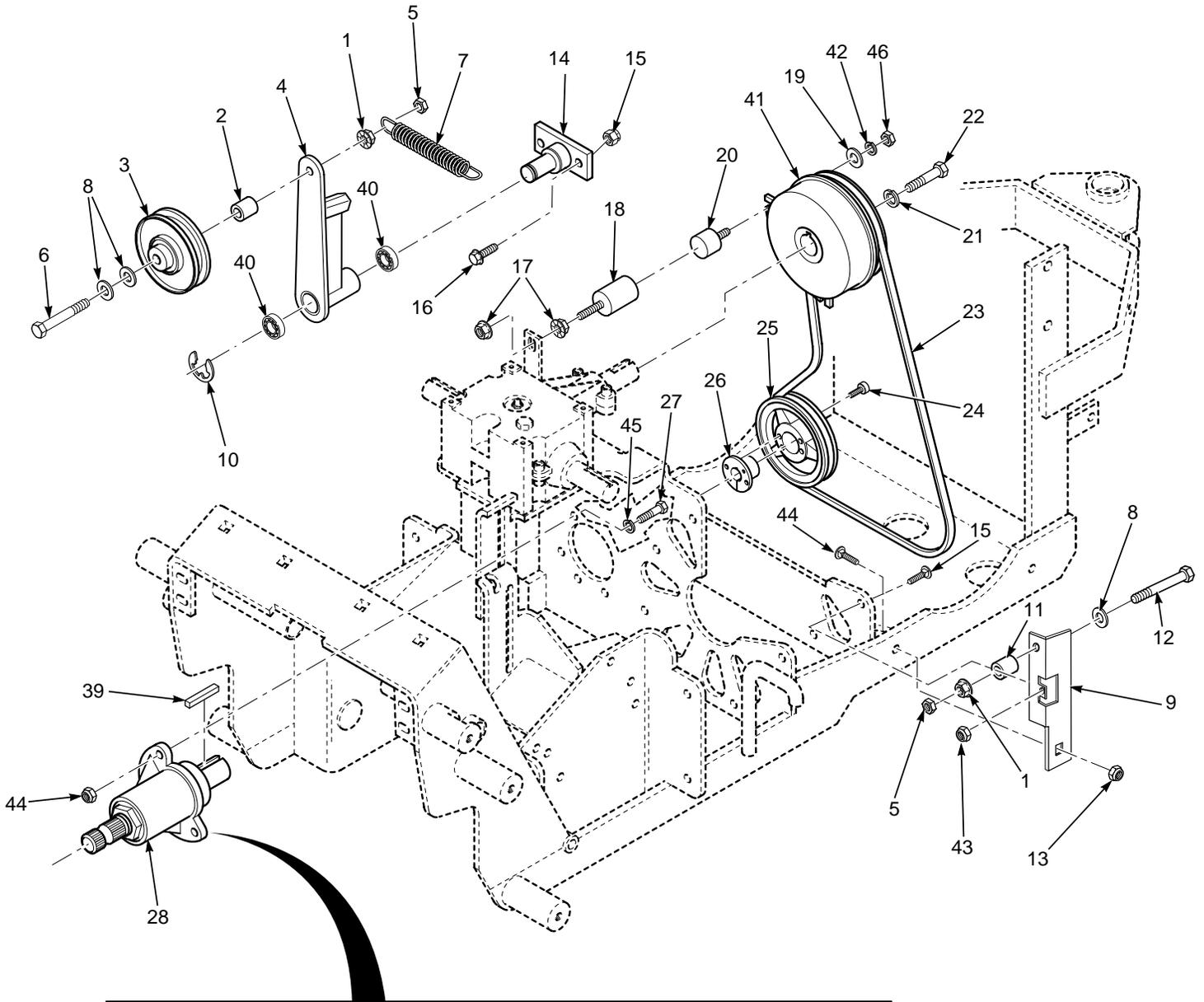
GEARBOX ASSEMBLY (481626-LH & 481627-RH)



390S0130

Ref. Part No.	Part Number	Description
1	SGC00002613	Shaft/Pinion Assembly
2	481628	Assembly, Shaft-Cross-(Used in LH Gearbox)
2A	481629	Assembly, Shaft-Cross-(Used in RH Gearbox)
3	SGC114003002547	Casting, Bottom (Threaded Holes)
4	SGC114004002548	Casting, Top (Non-threaded Holes)
5	SGC109843	Seal 1.00 x 1.50 x 3/16"
6	SGC444687	Plug, 1/8" NPT Socket Head
7	SGC200300	Plug, 1/4" NPT Socket Head
8	SGC103125	Bolt, 5/16-18 x 1.25
9	SGC100305	Assembly, End Plug-5 PSI

DECK DRIVE



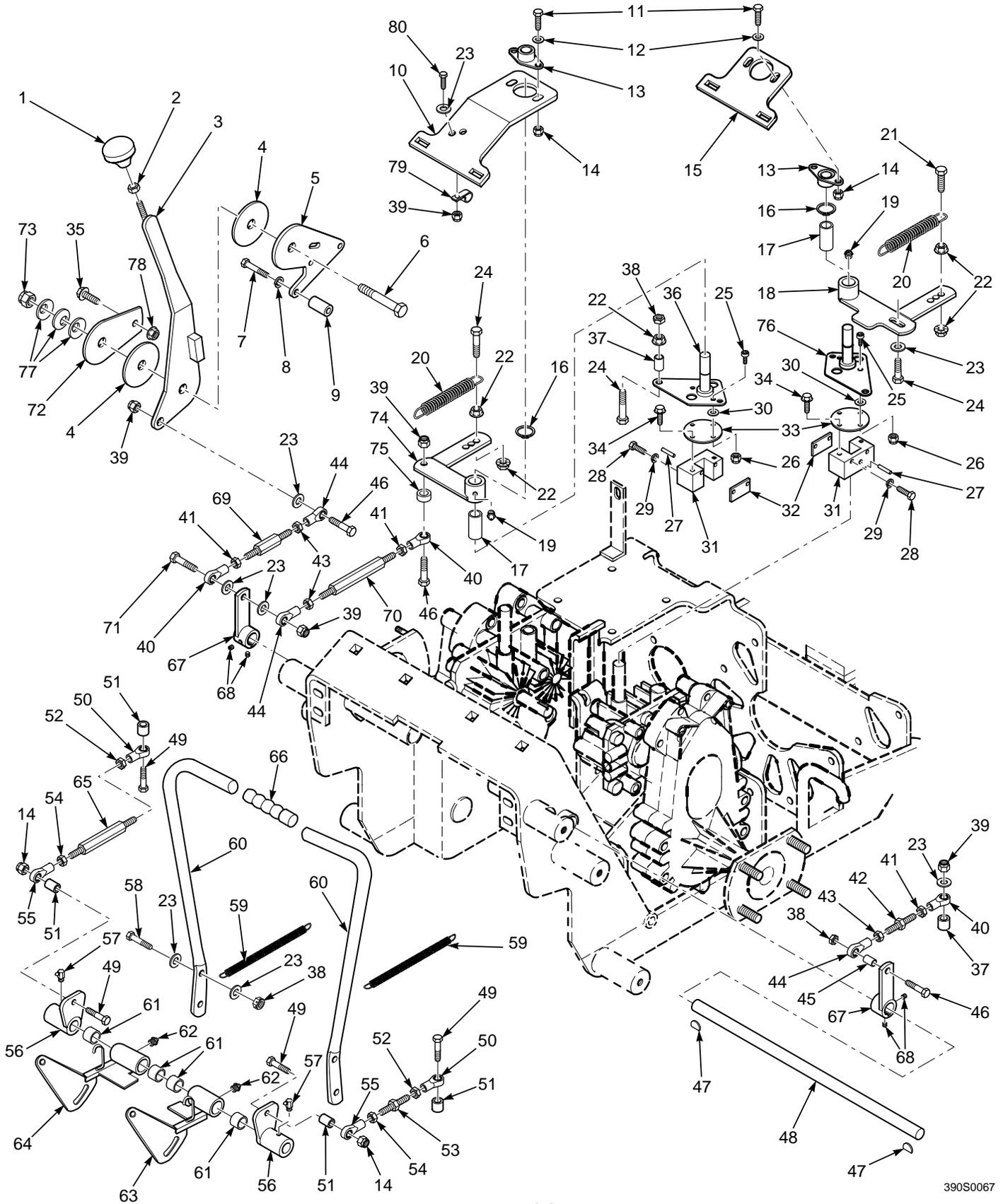
DECK DRIVE

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 04019-04 Serr. Fl. Hex Nut, 3/8-16	25 481435 Pulley, 5.35 OD
2 43077 Spacer J-Pull Rod	26 48926 Hub, Tapered
3 48198 Pulley, Idler	27 04001-20 Bolt, Hex Head, 3/8-16 x 1-1/2"
4 461014 Idler Arm, Auxiliary Drive	28 46828 Spindle Assembly, Drive Shaft (includes 29 thru 38)
5 04021-05 3/8-16, Hex Lock Nut	29 481035 Nut, 1.06-18
6 04001-140 Bolt, Hex Head, 3/8-16 x 3-1/4" GRD 8	30 43297 Spindle Bushing, Bottom
7 481521 Spring, PTO Drive	31 481025 Seal, 2.00 OD x 1.625 Bore
8 04041-07 Flatwasher, 3/8 (.391 x .938 x .105)	32 481022 Roller Bearing Assembly
9 422317 Spring Anchor	33 43312 Spacer, Outside
10 04050-01 Retaining Ring, .625 "E"	34 43296 Spacer, Inside
11 43449 Spacer	35 48114-04 Grease Fitting
12 04001-139 Bolt, Hex Head, 3/8-16 x 2 1/2" GRD 8	36 43368 Spindle Housing
13 04003-11 Carr. Bolt, 3/8-16 x 1 1/4"	37 43316 Shaft, PTO Deck Drive
14 45902 Pivot, Auxiliary Drive Idler	38 481024 Seal, 2.00 OD x 1.50 Bore
15 04021-10 Elastic Stop Nut, 5/16-18	39 04063-01 Key, 1/4 x 1/4 x 1-1/4"
16 04001-09 Bolt, Hex Head, 5/16-18 x 1.00	40 48224 Bearing
17 04019-05 Serr. Fl. Hex Nut, 7/16-14	41 481228 Electric Clutch
18 43428 Base, Clutch Anti-Rotation	42 04030-03 Lockwasher, 5/16"
19 04040-15 Flatwasher, 5/16"	43 04003-04 Carr. Bolt, 5/16-18 x 1.00"
20 481469 Isolator, Rubber	44 04021-09 Elastic Stop Nut, 3/8-16
21 04030-05 Lockwasher, 7/16"	45 04030-04 Lockwasher, 3/8"
22 04001-103 Bolt, Hex Head, 7/16-20 x 2-1/4"	46 04020-03 Nut, 5/16-18
23 481496 Belt, Blower Drive	
24 04015-14 Socket Head Capscrew, 1/4-20 x 1-3/8"	

-NOTE-

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SPEED AND STEERING CONTROLS



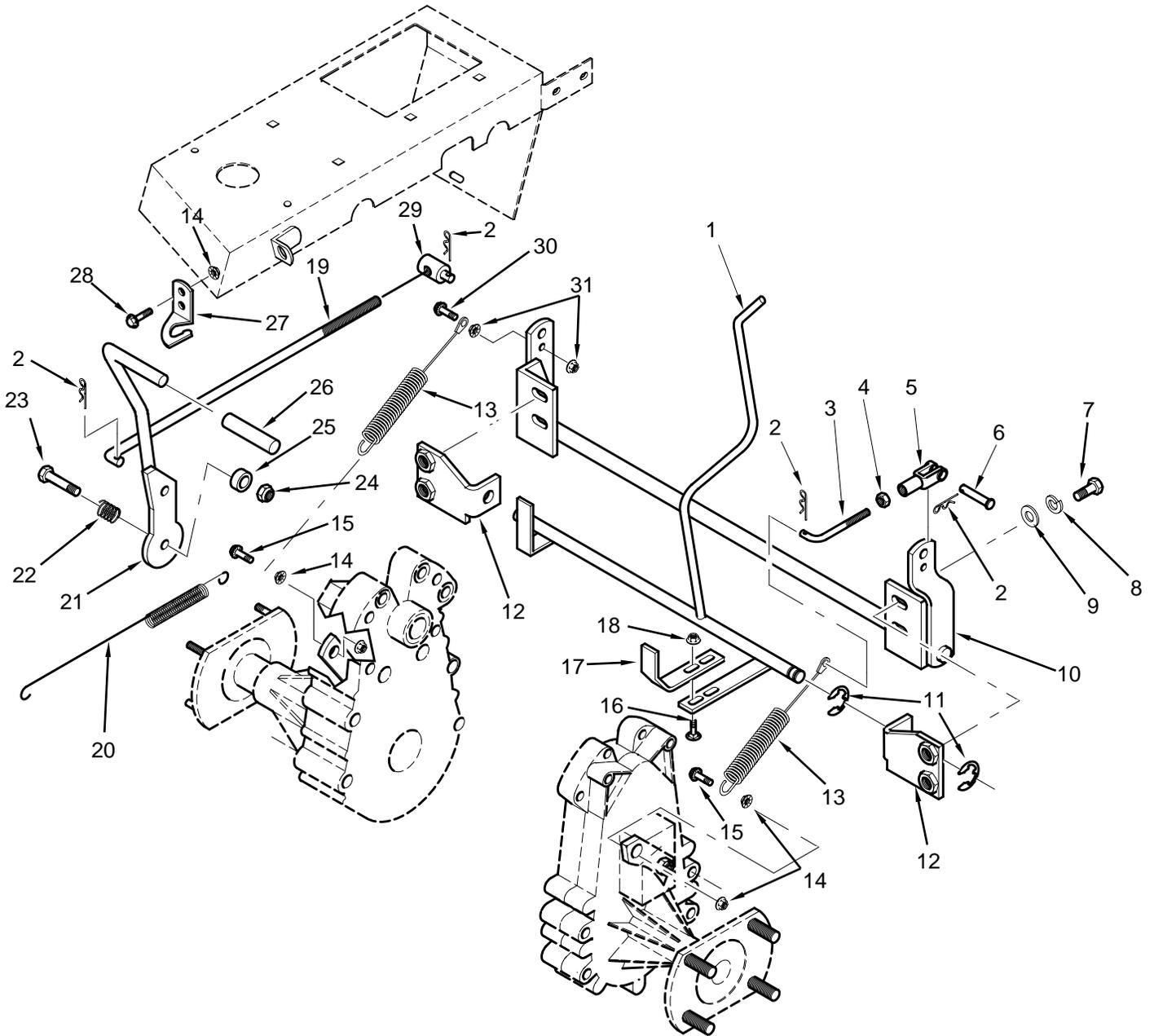
SPEED AND STEERING CONTROLS

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 481245 Knob	44 48544 Rod End, 3/8-24 L.H. Thread
2 04020-04 Hex Nut, 3/8-16	45 43212 Sleeve
3 45753 Lever, Speed Control	46 04001-20 Bolt, Hex Head, 3/8-16 1-1/2"
4 481243 Disc, Friction	47 04063-12 Key, 3/16 x 5/8 Woodruff
5 422197 Mounting, Plate, Speed Selector	48 43371 Shaft Speed Control
6 04001-122 Bolt, Hex Head, 5/8-11 x 2-1/4"	49 04001-11 Bolt, Hex Head, 5/16-18 x 1-1/2"
7 04001-53 Bolt, Hex head, 5/16-18 x 2-1/2"	50 481189 Rod End, 5/16-24 R.H. Thread
8 04030-03 Lockwasher, 5/16"	51 43161 Spacer
9 43380 Spacer, Speed Control	52 04020-13 Hex Nut, 5/16-24 R.H. Thread
10 421880 Mounting Plate, Speed Control	53 43377 Link, Adjust-LH
11 04001-08 Bolt, Hex Head, 5/16-18 x 3/4"	54 04020-23 Hex Nut, 5/16-24 L.H. Thread
12 04040-15 Flatwasher, 5/16 (.375 x .875 x .083)	55 481188 Rod End, 5/16-24 L.H. Thread
13 48796 Bushing, Self-Aligning	56 46886 Control Lever
14 04021-10 Hex Locknut, Elastic Stop, 5/16-18	57 48114-08 Grease Fitting, 90°
15 421879 Mounting Plate, Left Bearing	58 04001-32 Bolt, Hex Head 3/8-16 x 1 1/4"
16 04050-01 Ring, Retaining, .625"	59 481242 Spring, Handle Return
17 481509 Bushing, Oilite, .627" ID	60 422438 Handle, Control
18 46889 Lever, L.H. Speed Control	61 48100-05 Bushing, Oilite, .753 ID
19 48114-04 Grease Fitting	62 48114-05 Grease Fitting
20 48051 Spring	63 461003 Lever, L.H. Control
21 04001-32 Bolt, Hex Head, 3/8-16 x 1-1/4"	64 461004 Lever, R.H. Control
22 04019-04 Serr. Fl. Hex Nut, 3/8-16	65 43378 Link, R.H. Adjustment
23 04041-07 Flatwasher, 3/8 (.391 x .938 x .105)	66 481477 Grip, Hand Control
24 04001-45 Bolt, Hex Head, 3/8-16 x 2.0"	67 45745 Lever, Speed Control
25 04015-10 Capscrew, Socket Head, 1/4-20 x 1/2"	68 04012-02 Setscrew, Socket Head, 1/4-20 x 1/4"
26 04021-08 Hex Locknut, Elastic Stop, 1/4-20	69 43379 Link, Speed Control
27 04060-06 Roll Pin	70 43246 Link
28 04001-59 Bolt, Hex Head, 1/4-20 x 1-1/4"	71 04001-21 Bolt, Hex Head, 3/8-16 x 1-3/4"
29 04030-02 Lockwasher, 1/4"	72 422198 Plate, Speed Selector
30 04040-03 Flatwasher, 1/4 (.281 x .625 x .065)	73 04021-13 Hex Locknut, Elastic Stop 5/8-11
31 48829 Block, Pump Control	74 46890 Lever, R.H. Speed Control
32 421203 Clamp Plate, Pump Control	75 43063 Spacer
33 422273 Plate, Coupler	76 45749 Arm, L.H. Pump Control
34 04017-05 Serr. Fl. Hex Head CPSCRW, 1/4-20 x 3/4"	77 04032-04 Washer, Belleville, 5/8"
35 04017-18 Serr. Fl. Hex Head CPSCRW, 5/16-18 x 1-1/4"	78 04019-03 Serr. Fl. Hex Nut, 5/16-18
36 45750 Arm, R.H. Pump Control	79 48030-13 Clamp, .75 Dia
37 43376 Stop, Pump Arm	80 04001-19 Hex Head Bolt, 3/8-16 x 1.0"
38 04021-05 Hex Locknut, 3/8-16	
39 04021-09 Hex Locknut, Elastic Stop, 3/8-16	
40 48464 Ball Joint, 3/8-24 R.H. Thread	
41 04020-14 Hex Nut, 3/8-24 R.H. Thread	
42 48590 Link	
43 04020-17 Hex Nut, 3/8-24 L.H. Thread	

-NOTE-

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PARKING BRAKE AND DUMP VALVE LINKAGES



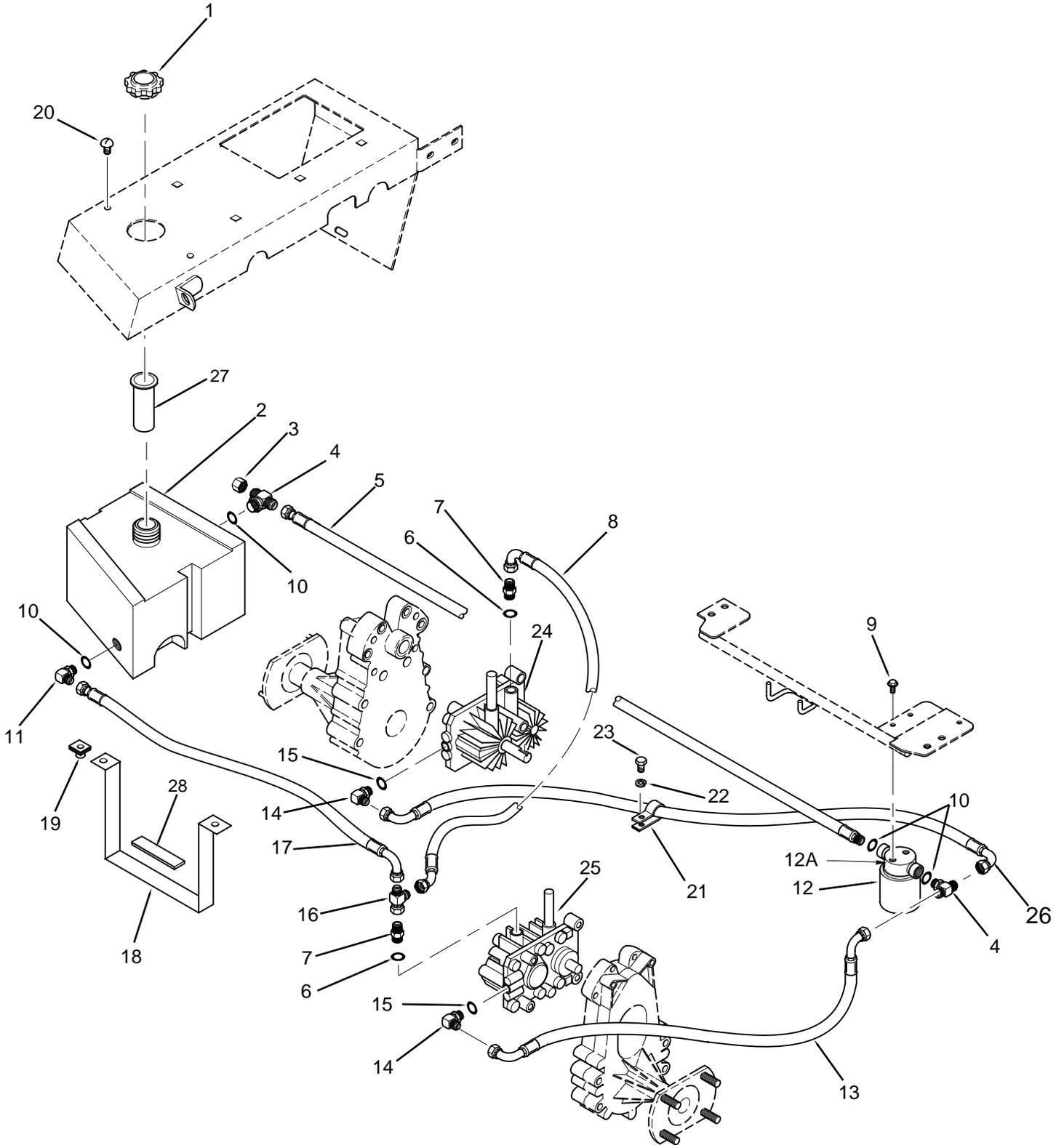
PARKING BRAKE AND DUMP VALVE LINKAGES

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 45808 Lever, Dump Valve	17 422183 Bracket, Dump Valve Lever
2 04062-02 Hairpin	18 04019-02 Serr. Fl. Hex Nut, 1/4-20
3 44116 Rod, Brake - L.H.	19 44117 Rod, Brake - R.H.
4 04020-22 Hex Nut, 1/4-28	20 48950 Spring
5 48343-03 Clevis	21 45806 Lever, Parking Brake
6 04064-12 Pin, Clevis, 1/4 x 3/4"	22 48050 Spring, Control Detent
7 04001-20 Bolt, Hex Head, 3/8-16 x 1-1/2"	23 04001-46 Bolt, Hex Head, 3/8-16 x 2-1/4"
8 04030-04 Lockwasher, 3/8"	24 04021-09 Hex Locknut, Elastic Stop, 3/8-16
9 04041-07 Flatwasher, 3/8 (.391 x .938 x .105)	25 43063 Spacer
10 45805 Actuator, Brake	26 481365 Grip, Parking Brake Lever
11 04050-10 Ring, Retainer	27 422084 Latch, Brake Lever
12 45841 Mounting Bracket, Dump Valve	28 04017-16 Serr. Fl. Hex Head CPSCRW, 5/16-18 x 3/4"
13 48840 Cable Assembly, Parking Brake	29 43032 Swivel Joint
14 04019-03 Serr. Fl. Hex Nut, 5/16-18	30 04001-59 Bolt, Hex Head, 1/4-20 x 1-1/4"
15 04017-17 Serr. Fl. Hex Head CPSCR, 5/16-18 x 1.00"	31 04019-02 Serr. Fl. Hex Nut, 1/4-20
16 04003-02 Carriage Bolt, 1/4-20 x 3/4"	

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HYDRAULIC COMPONENTS AND LINES



HYDRAULIC COMPONENTS AND LINES

Ref. No.	Part. Number	Description
1	48894	Cap, Hydraulic Reservoir Fill
2	481240	Tank, Hydraulic Oil
3	48571-02	Cap, 3-4-16 JIC
4	48810-01	Tee, 3/4-16 JIC x O-Ring
5	481241	Hose Assembly, Filter Inlet
6	48603-04	O-Ring, 3/32 x 3/4 ID
7	48572-02	Union, Tube
8	481358	Hose Assembly, Case Drain
9	04017-04	Serr. Fl. Hex Head CPSCRW, 1/4-30 x 1/2"
10	48603-02	O-Ring, 3/32 x 5/8 ID
11	48350-02	Elbow, 90° JIC to O-Ring
12	48462-01	Element, Filter
12A	48462-02	Head, Filter
13	481359	Hose Assembly, L.H. Charge Pump
14	48350-10	Elbow, 90° 9/16-18 JIC to 7/16-20 O-Ring
15	48603-03	O-Ring, 1/16 x 3/8 ID
16	481384-01	Tee, 3/4-16 Swivel
17	481361	Hose Assembly, Case Drain Return
18	42945	Strap, Hydraulic Tank
19	04110-01	U-Nut
20	04010-10	Machine Screw, Round Head, 1/4-20 x 2.00"
21	48030-13	Clamp, Cable
22	04030-04	Lockwasher, 3/8"
23	04001-18	Bolt, Hex Head, 3/8-16 x 3/4"
24	481226	Pump, R.H.
25	481225	Pump, L.H.
26	481360	Hose Assembly, RH Charge Pump
27	481507	Insert, Filler Neck
28	48657	Rubber Pad

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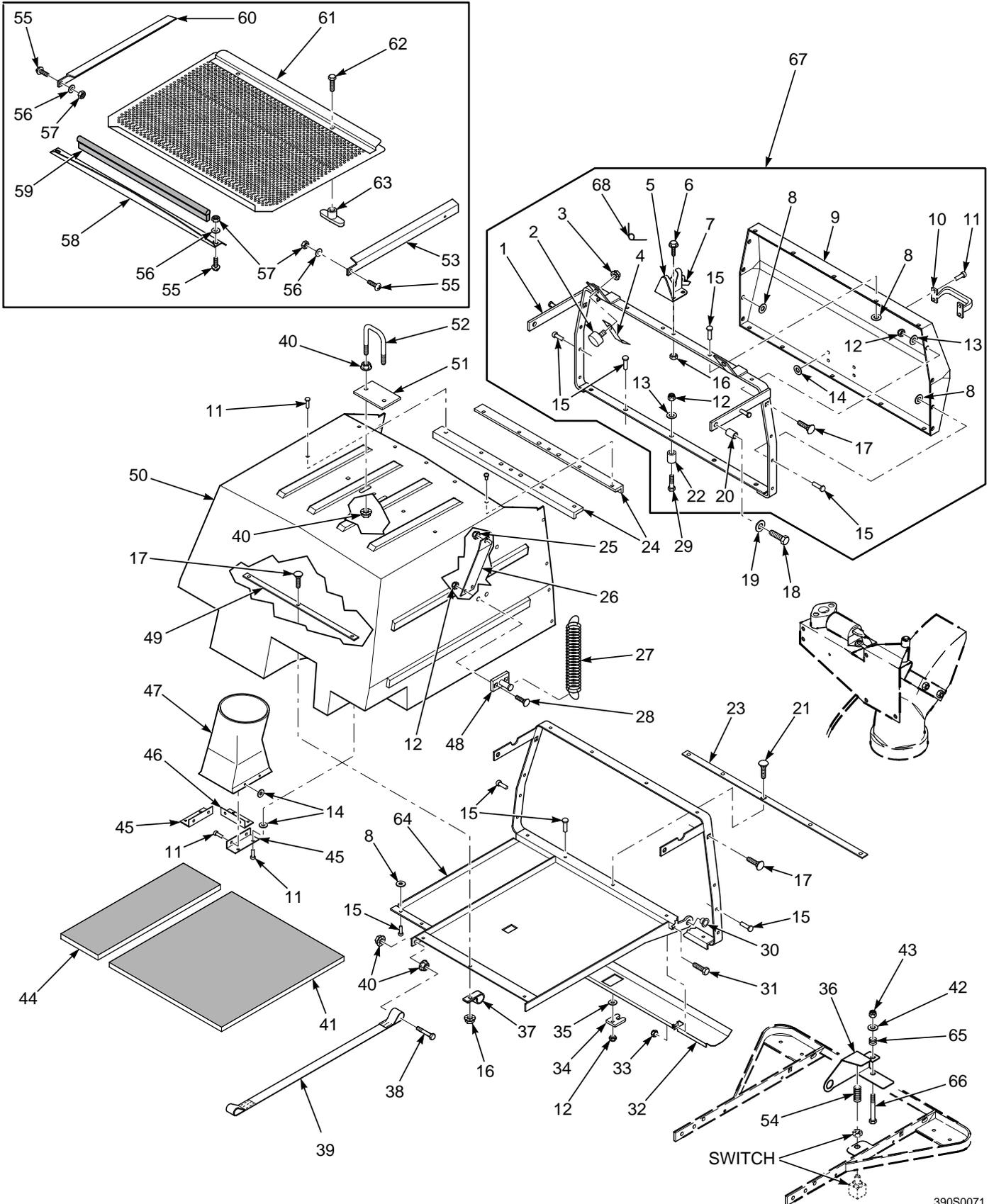
ELECTRICAL SYSTEM

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 481422 Harness, Engine	21 48717 Switch, Interlock - Seat
2 48023 Hourmeter	22 481474 Switch, Interlock - (Neutral and Hopper)
3 48298 Fuse, 20 Amp	23 04001-44 Bolt, Hex Head, 1/4-20 x 1/2"
4 48017-02 Key & Ring Assembly	24 48029-16 Cable, Battery - Red
5 48017-04 Nut, Hex, 5/8-32	25 04020-02 Nut, Hex, 1/4-20
6 48017-03 Lockwasher, 5/8 Internal	26 48029-17 Cable, Battery - Black
7 46883 Instrument Panel, Top With Decal	27 48030-11 Clamp, Double Cable
8 48798 Keyswitch	28 48030-10 Clamp, Cable
9 48787 Switch, Mower Engagement Electric Clutch	29 04021-10 Hex Locknut, Elastic Stop, 5/16-18
10 48788 Relay	30 04021-01 Hex Locknut, Elastic Stop, #10-32
11 04031-01 Lockwasher, #10 External Tooth	31 42413 Bracket, Fuse Holder
12 04021-01 Hex Locknut, Elastic Stop, #10-32	32 04010-11 Screw, Round Head, #10-32 x 1-1/2"
13 48022 Ammeter	33 04031-03 Lockwasher, External Tooth, 5/16
14 45798 Base, Instrument Panel	34 04002-12 Bolt, Hex Head, M8-1.25 x 20
15 04030-02 Lockwasher, 1/4"	35 481275 Relay and Harness (incl. item 40)
16 04001-01 Bolt, Hex Head, 1/4-20 x 3/4"	36 04030-02 Lockwasher, 1/4"
17 04110-01 U-Nut	37 04002-14 Bolt, Hex Head, M6-1.125 x 10
18 481363 Throttle and Choke Controls	38 48033-04 Nylon Sleeve, 24"
19 04010-01 Screw, Washer Round Head, #10-32 x 1/2"	39 481421 Wire Harnes, STR
20 48787-01 Nut, Hex, 1/2-27	40 48788 Relay

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HOPPER



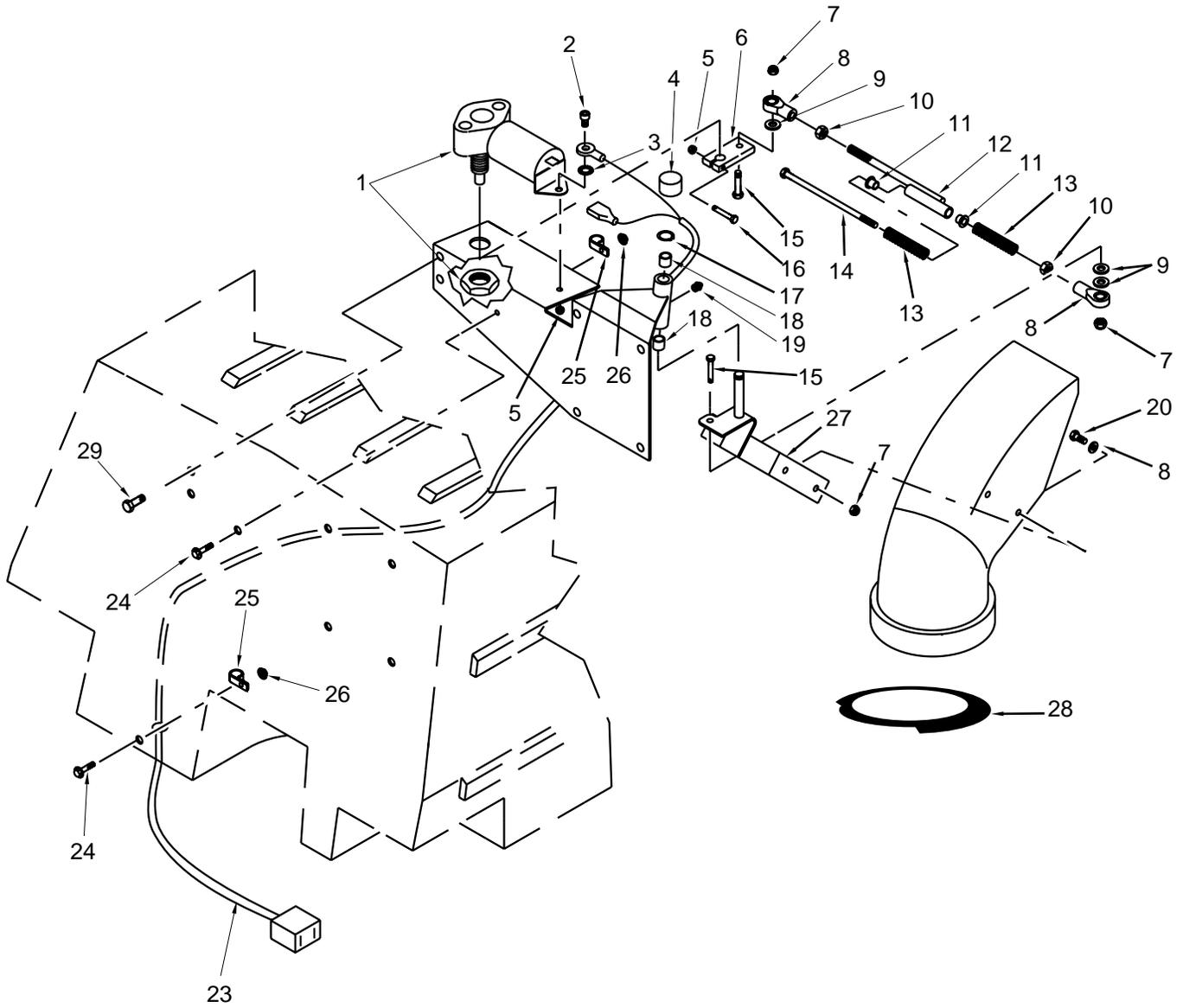
HOPPER

Ref. Part. No. Number Description	Ref. Part. No. Number Description
1 45762 Frame, Hopper Door	39 481451 Strap, Hopper Stop
2 481284 Bumper, Rubber	40 04019-04 Serr. Fl. Hex Nut, 3/8-16
3 04019-03 Serr. Fl. Hex Nut, 5/16-18	41 422241 Insulation, Hopper - Rear
4 422050 Retainer, Screen	42 04040-15 Flatwasher, 5/16 (.375 x .875 x .083)
5 422320 Guard, Latch	43 04021-10 Locknut, 5/16-18 Elastic Stop
6 04017-06 Serr. Fl. Hex Head CPSCR, 1/4-20 x 1.00"	44 422058 Insulation, Hopper - R.H.
7 461010 Latch, Hopper Door	45 422228 Mount, Transition Chute - Side
8 04041-22 Flatwasher, 1/4 (.258 x .500 x .0598)	46 422037 Mount, Transition Chute - Rear
9 481252 Door, Hopper	47 481279 Chute, Transition
10 481282 Handle	48 45779 Anchor, Spring
11 04090-02 Pop Rivet, 3/16 x .652"	49 422052 Bar, Clamp
12 04021-08 Hex Locknut, Elastic Stop, 1/4-20	50 481424 Hopper
13 04040-14 Flatwasher, 1/4 (.312 x .75 x .065)	51 422180 Plate
14 04041-19 Flatwasher, 3/16 (.196 x .469 x .048)	52 44122 U-Bolt, 3/8-16
15 04091-01 Rivet, Lok Bolt, 1/4 x .85"	53 45839 Guide, Screen - Upper L.H.
16 04019-02 Serr. Fl. Hex Nut, 1/4-20	54 481056 Spring, Switch
17 04003-06 Carriage Bolt, 1/4-20 x 1.00	55 04010-01 Screw, Round Head, #10-32 x 1/2"
18 04001-20 Bolt, Hex Head, 3/8-16 x 1-1/2	56 04031-01 Lockwasher, External Tooth, #10
19 04041-07 Flatwasher, 3/8 (.391 x .938 x .105)	57 04020-01 Hex Nut, #10
20 43212 Sleeve	58 45796 Screen Stop
21 04003-09 Carriage Bolt, 1/4-20 x 1-1/4"	59 481353-01 Trim Seal
22 421960 Boss, Centering	60 45840 Guide, Screen - Upper R.H.
23 421964 Support, Door - Inside	61 45797 Screen
24 422179 Support, Hopper - Top	62 04017-16 Bolt, Hex Head 5/16-18 x 3/4"
25 04021-09 Hex Locknut, Elastic Stop, 3/8-16	63 481092-01 Wingnut, Plastic
26 421977 Support, Hinge (L.H. Shown)	64 45865 Frame, Hopper
26 421978 Support, Hinge (R.H. Not Shown)	65 481495 Spring, Switch Lever
27 481343 Spring, Hopper Door	66 04001-76 Hex Head Bolt, 5/16-18 x 4.0"
28 04003-02 Carriage Bolt, 1/4-20 x 3/4"	67 46864 Door Assy, Hopper
29 04001-59 Bolt, Hex Head, 1/4-20 x 1.25"	68 481519 Spring, Torsion
30 43260 Bushing	
31 04001-08 Bolt, Hex Head, 5/16-18 x 3/4"	
32 421973 Shield, Hopper	
33 04021-10 Hex Locknut, Elastic Stop, 5/16-18	
34 421961 Tab, Centering	
35 43308 Spacer	
36 422278 Lever, Hopper Switch	
37 48030-09 Clamp, Cable - .50"	
38 04001-46 Bolt, Hex Head, 3/8-16 x 2-1/4"	

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HOPPER ACTUATOR MECHANISM



HOPPER ACTUATOR MECHANISM

Ref. No.	Part. Number	Description
1	481254	Motor, Actuator
2	04015-05	Capscrew, Sockt Head, #10-32 x 1/2"
3	04031-01	Washer, External
4	481285	Cap, Plastic
5	04021-01	Hex Locknut, Elastic Stop, #10-32
6	481291	Lever, Actuator
7	04021-10	Hex Locknut, Elastic Stop, 5/16-18
8	481189	Rod End, 5/16-18 R.H. Thread
9	04040-15	Flatwasher, 5/16 (.375 x .875 x .083)
10	04020-13	Hex Nut, 5/16-18
11	481354	Bushing, Nylon
12	45799	Connecting Rod
13	481344	Spring, Connecting Rod
14	04001-124	Bolt, Hex Head, 5/16-18 x 7.00"
15	04001-10	Bolt, Hex Head, 5/16-18 x 1-1/4"
16	04015-08	Capscrew, Socket Head, #10-32 x 1-1/2"
17	04050-10	Retainer Ring
18	48100-04	Bushing, Oilite, .502 ID
19	48114-05	Grease Fitting
20	04001-08	Bolt, Hex Head, 5/16-18 x 3/4"
21	481253	Chute
22	45777	Actuator Mount
23	481256	Wire Harness, Hopper
24	04017-05	Serr. Fl. Hex Head CPSCR, 1/4-20 x 3/4"
25	48030-09	Clamp, Cable, 1/2"
26	04019-02	Serr. Fl. Hex Nut, 1/4-20
27	45778	Pivot, Elbow
28	481408	Seal, Hopper Elbow
29	04006-01	Body Bolt, 5/16-18 x .81"

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REPLACEMENT DECALS AND INFORMATION PLATES



1



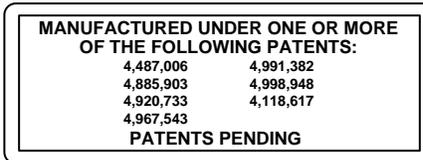
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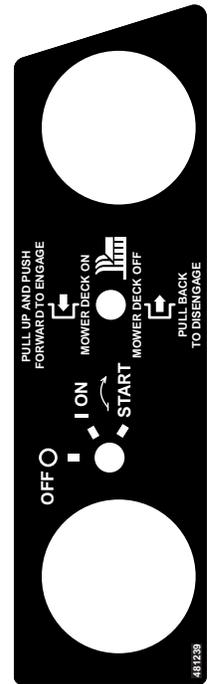
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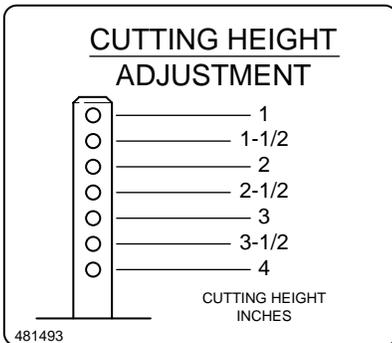
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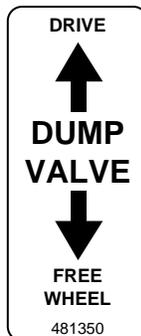
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14



13



15

REPLACEMENT DECALS AND INFORMATION PLATES

Ref. No.	Part Number	Description
1	48071	Decal, Danger - Spinning Blades
2	481040	Decal, Warning - Rotating Blades
3	48072	Decal, Heavy Duty Commercial
4	48404	Decal, Metalcraft - Made in USA
5	48656	Decal, Patent
6	48318	Decal, 48
7	48314	Decal, Scag
8	481377	Decal, Danger - Rotating Blower Blades
9	481272	Decal, Fuel Tank
10	481378	Decal, Caution/Danger - Thrown Objects
11	481239	Decal, Instrument Panel - Upper
12	481493	Decal, Cutting Height
13	481348	Decal, Instrument Panel - Lower
14	481350	Decal, Dump Valve
15	481349	Decal, R.H. Fender
16	481427	Decal, Seat Base
17	481595	Decal, Grease Points

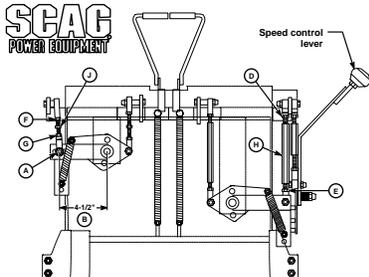
IMPORTANT ADJUSTMENT PROCEDURES

READ OPERATOR'S MANUAL FOR MORE DETAILS

Check tire pressure -
(Drive tires - 15 PSI, All others - 25 PSI)

NEUTRAL ADJUSTMENT

1. Adjust distance (B) from LH ball joint to pivot to 4 - 1/2".



- Loosen jam nuts (D & E). With an operator in the seat, engine running, speed control lever in neutral and the parking brake disengaged-rotate turn buckle (H) until the machine begins to creep forward on RH side. Back of 1/2 turn, tighten jam nuts (D & E). Repeat for LH side, leave jam nuts (F & G) loose for step # 3.
- Move the speed control lever so the machine creeps forward. If the machine pulls to the left, rotate turnbuckle (J) CCW. If the machine pulls to the right, rotate turnbuckle (J) CW. Return to neutral with keyswitch off. Tighten jam nuts (F & G).

TRACKING ADJUSTMENT

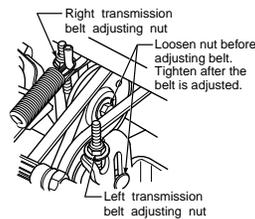
If the machine does not track straight through all speeds, loosen nut (A) on LH pump linkage. If the machine pulls to the right, move outward in slot to slow wheel. If the machine pulls to the left, move inward in slot to speed up left wheel. Re-adjust neutral starting with step # 2.

HYDRAULIC TANK FLUID LEVEL

Check hydraulic fluid level daily while fluid is cool. Fluid level should be 2-1/4" below top of filler neck. Fill with SAE 20W50 motor oil only.

IMPORTANT:
Do not overfill. Room for hot fluid expansion must be allowed or resulting expansion may cause leaks in the system.

ALL gearbox Lubricant:
Mobil SHC630



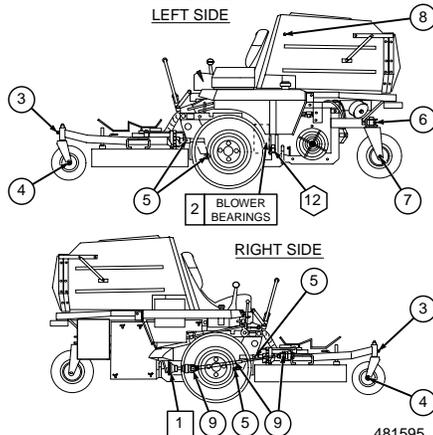
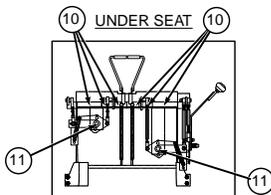
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GREASE FITTING LUBRICATION

LUBRICANT / INTERVAL

- LITHIUM MP WHITE GREASE 2125
40 HOURS / WEEKLY
- CHASSIS GREASE
100 HOURS / BI - MONTHLY
- CHASSIS GREASE
200 HOURS / MONTHLY

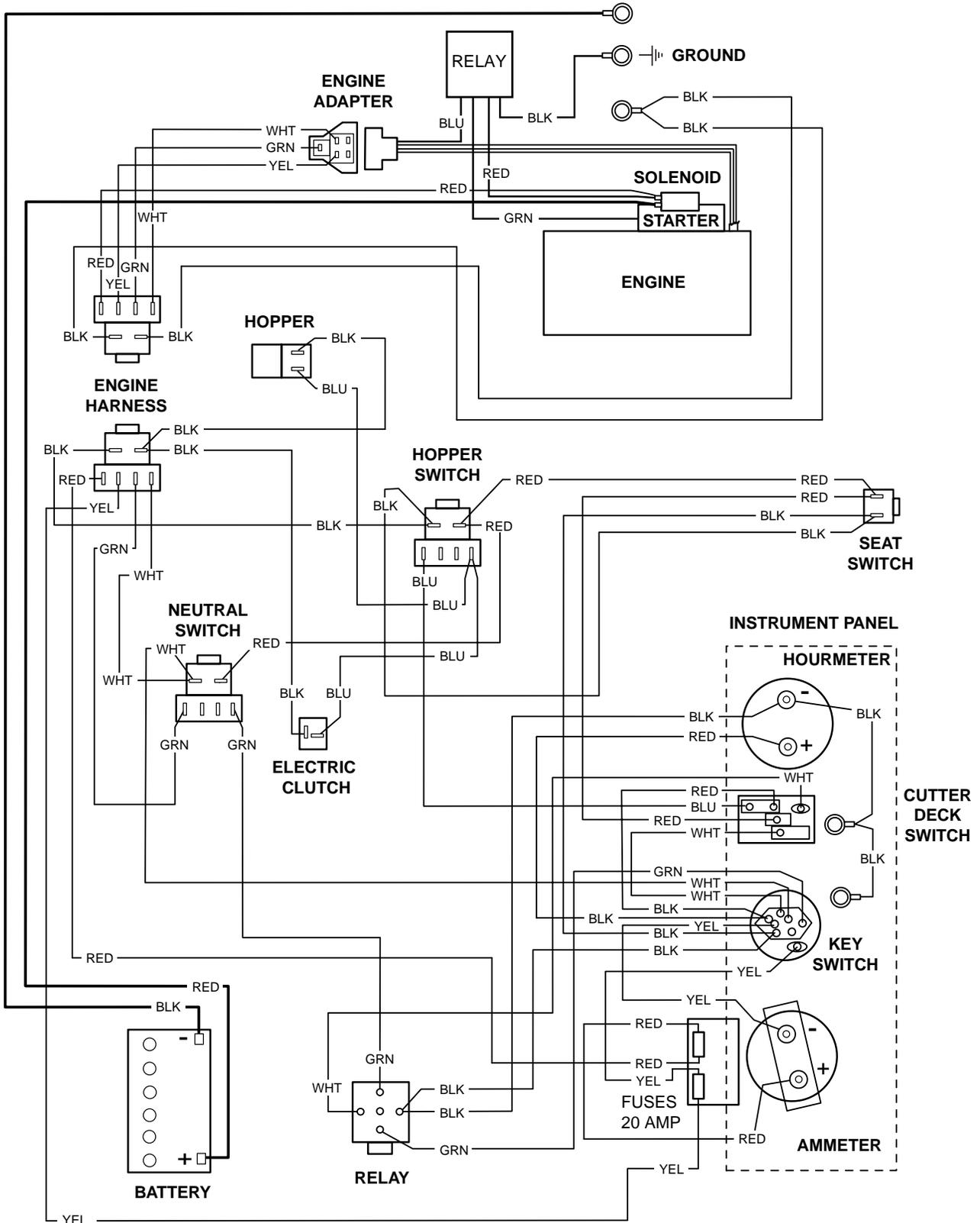
IMPORTANT
GREASE BLOWER BEARINGS WEEKLY
LITHIUM MP WHITE GREASE 2125



481595

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ELECTRICAL SCHEMATIC



FORWARD



WARNING:

If incorrectly used, this machine can cause severe injury. Those who use and maintain the 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.

LIMITED WARRANTY-COMMERCIAL EQUIPMENT

Any part of the Scag commercial mower manufactured by Scag Power Equipment and found, in the reasonable judgment of Scag, to be defective in materials or workmanship, will be repaired or replaced by an Authorized Scag Service Dealer without charge for parts and labor. This warranty is limited to the original purchaser and is not transferable. Proof of purchase will be required by the dealer to substantiate any warranty claims. All warranty work must be performed by an Authorized Scag Service Dealer.

This warranty is limited to the following specified periods from the date of the original retail purchase for defects in materials or workmanship:

- * Wear items including drive belts, blades, hoses and tires are warranted for 90 days.
- * Batteries are covered for 90 days.
- * Frame, deck, and structural components including oil reservoir, fittings, and oil cooler are warranted for 1 year.
- * Engines and electric starters are covered by the manufacturer's warranty period.
- * Drive system components are warranted for 1 year by the component manufacturer, in conjunction with Scag Power Equipment. (Excluding fittings, hoses, cooling system, oil reservoir, drive belts).
- * Electric clutch components are warranted for 1 year.

Any Scag product used for rental purposes is covered by a 90 day warranty.

The Scag mower, including any defective part must be returned to an Authorized Scag Service Dealer within the warranty period. The expense of delivering the mower to the dealer for warranty work and the expense of returning it to the owner after repair will be paid for by the owner. Scag's responsibility is limited to making the required repairs and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Scag mower.

This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Operator's Manual. The warranty does not apply to any damage to the mower that is the result of improper maintenance, or to any mower or parts that have not been assembled or installed as specified in the Operator's Manual and Assembly Manual. The warranty does not cover any mower that has been altered or modified, changing performance or durability. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the reasonable judgment of Scag, are either incompatible with the Scag mower or adversely affect its operation, performance or durability.

Scag Power Equipment reserves the right to change or improve the design of any mower without assuming any obligation to modify any mower previously manufactured.

All other implied warranties are limited in duration to the one (1) year warranty period or ninety (90) days for mowers used for rental purpose. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the appropriate one year or ninety day warranty period. Scag's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective parts and Scag does not assume or authorize anyone to assume for them any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Scag assumes no responsibility for incidental, consequential or other damages including, but not limited to, expense for gasoline, expense of delivering the mower to an Authorized Scag Service Dealer and expense of returning it to the owner, mechanic's travel time, telephone or telegram charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the mower, loss of time or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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DIVISION OF METALCRAFT OF MAYVILLE

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