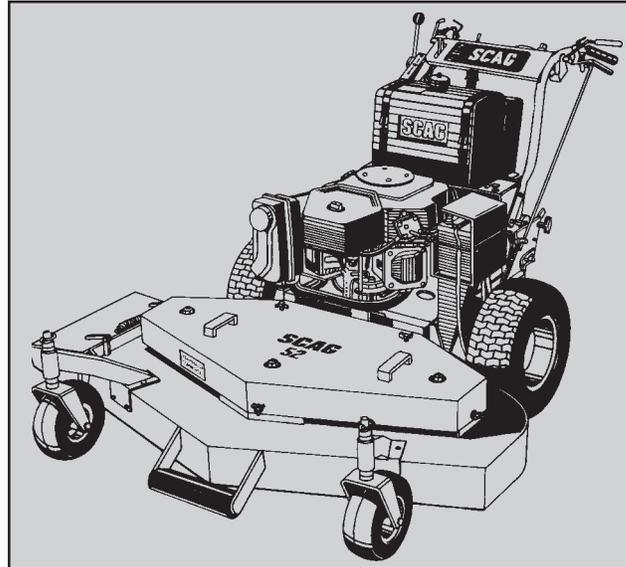


SCAG[®]

POWER EQUIPMENT

MODEL SWZ



THIS MANUAL CONTAINS THE OPERATING INSTRUCTIONS AND SAFETY INFORMATION FOR YOUR SCAG MOWER. READING THIS MANUAL CAN PROVIDE YOU WITH ASSISTANCE IN MAINTENANCE AND ADJUSTMENT PROCEDURES TO KEEP YOUR MOWER PERFORMING TO MAXIMUM EFFICIENCY. THE SPECIFIC MODELS THAT THIS BOOK COVERS ARE CONTAINED ON THE INSIDE COVER. BEFORE OPERATING YOUR MACHINE, PLEASE READ ALL THE INFORMATION ENCLOSED.

OPERATOR'S MANUAL



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:

SWZ36-14KA	with a serial number of 4040001-4049999
SWZ36-15KH	with a serial number of 4050001-4059999
SWZ48-14KA	with a serial number of 4060001-4069999
SWZ48-15KH	with a serial number of 4070001-4079999
SWZ48-17KA	with a serial number of 4080001-4089999
SWZ-17KA	with a serial number of 4100001-4109999
SWM-52E	with a serial number of 4110001-4119999
SWM-61E	with a serial number of 4120001-4129999
SWM-72E	with a serial number of 4130001-4139999

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

SCAG[®]

POWER EQUIPMENT

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MEMBER



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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.

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.

A replacement Operator's Manual is available from your Scag Servicing Dealer or by contacting Scag Power Equipment, Service Department, at P.O. Box 152, Mayville, WI 53050. Please indicate the complete model and serial number of your Scag product.

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

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

GENERAL SAFETY INSTRUCTIONS

READ THIS OPERATOR'S MANUAL and instructions furnished with attachments.

Perform only those maintenance procedures described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Scag Dealer. To ensure optimum performance and safety, always purchase genuine SCAG replacement parts and accessories.

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

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.

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.

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

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.

BEFORE OPERATING

1. Know the controls and how to stop quickly.
2. Do not allow children to operate the machine. Do not allow adults to operate the machine without proper instruction.
3. Remove all debris or other objects that might be picked up and thrown by the cutter blades. Keep all bystanders away from the mowing area.
4. Keep all shields, safety devices, and decals in place. If a shield, safety device or decal is defective or damaged, repair or replace it before operating. Also, check all nuts, bolts and screws for proper tightness, to assure the machine is in safe operating condition.
5. Do not operate the machine while wearing sandals, tennis shoes, sneakers or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses and safety shoes is advisable and required by some local ordinances and insurance regulations.
6. Fill the fuel tank with clean, fresh gasoline, with a minimum octane rating of 87. Avoid spilling gasoline. Gasoline is highly flammable, handle it carefully.
 - A. Use an approved gasoline container.
 - B. Do not fill the tank while the engine is hot or running.
 - C. Do not smoke while handling gasoline.
 - D. Fill the fuel tank outdoors and up to approximately 1" (25 mm) below the bottom of the filler neck.
 - E. Wipe up any spilled gasoline.
7. Before attempting to start the engine, move the speed adjustment lever into the neutral position, move the blade engagement switch to the OFF position, apply the parking brake, and move the neutral latches to neutral.

WHILE OPERATING

1. Start the engine when the neutral latches are in the neutral lock position, the cutter blades are disengaged, the parking brake is on and the speed adjustment lever is in the neutral position.
2. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.
3. Using the machine demands attention. To prevent loss of control:
 - A. Mow only in daylight or when there is good artificial light.
 - B. Watch for holes or other hidden hazards.
 - C. Do not drive close to a drop-off, ditch, creek bank, or other hazard.
 - D. Reduce speed when making sharp turns and when turning on hillsides.
 - E. Always be sure of your footing. Keep a firm hold on the handles and walk---never run.
 - F. Do not operate where conditions are slippery.
4. The discharge chute must always be installed and in the down position on the side discharge cutter deck except when the Scag optional grass catcher or mulching plate are properly installed. If the discharge area should plug, shut the engine off and wait for all movement to stop before removing the obstruction.
5. Disengage the blades and wait for them to stop before crossing gravel drives, walks or roads.
6. Shut the engine off and wait until the blades come to a complete stop before removing the grass catcher container.
7. Never raise the cutter deck while the blades are rotating.
8. Always park the mower and/or start the engine on a level surface. Apply the parking brake to prevent the mower from moving when you are not in the operator's position.

9. If the cutting blades should strike a solid object or the equipment should start to vibrate abnormally, stop the engine, disconnect the spark plug wire, and check immediately for the cause. Vibration is generally a warning of trouble. Check the machine for damaged or defective parts. Repair any damage before starting the engine or operating the cutter deck. Be sure the blades are in good condition and the blade bolts are tight.

10. 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 back up it (with the cutter deck down). If the machine can back up the slope without the wheels slipping, reduce speed and use extreme caution. ALWAYS FOLLOW OSHA APPROVED OPERATION.

11. Do not touch the engine or muffler while the engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.

12. Before leaving the operator's position or leaving the mower unattended, move the speed adjustment lever into the neutral position, place the neutral latches in the neutral lock position, apply the parking brake, and move the blade engagement switch to OFF. Shut the engine OFF and remove the key.

13. Do not pass or stand on the grass discharge side of any mower with the engine running. Stop operation when another person approaches.

14. Use only Scag approved riding attachments.

Scag Approved Riding Attachments:
RS-ZT

Using unapproved attachments, (especially "stand-up" riding attachments) may be hazardous.

MAINTENANCE AND STORAGE

1. Disconnect the spark plug wire from the spark plug to prevent accidental starting of the engine when servicing, adjusting or storing the machine.

2. If the mower must be tipped to perform maintenance or adjustment, remove the battery, drain the gasoline from the fuel tank and the oil from the crankcase.

3. To reduce potential fire hazard, keep the engine free of excessive grease, grass, leaves and accumulations of dirt.

4. Be sure the machine is in safe operating condition by keeping nuts, bolts, and screws tight. Check the blade mounting bolts and nuts frequently to be sure they are tightened.

5. If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing and other parts of the body away from the cutter deck blades and other moving parts.

6. Do not overspeed the engine by changing governor settings. To be sure of safety and accuracy, have an authorized dealer check maximum engine speed with a tachometer.

7. The engine must be shut off before checking the oil or adding oil to the crankcase.

8. Allow the engine to cool before storing the mower in any enclosure such as a garage or storage shed. Make sure the fuel tank is empty if the machine is to be stored in excess of 30 days. Do not store the mower near any open flame or where gasoline fumes may be ignited by a spark.



9. Always store gasoline in a safety-approved, red container.
10. Be careful when servicing the battery as it contains acid, which is corrosive and could cause burns to skin and clothing.
11. Batteries release explosive gases when being charged or discharged. Keep batteries away from any source of sparks and/or flame.
12. Make sure all hydraulic connections are tight and all hydraulic hoses and lines are in good condition before starting the machine.
13. Hydraulic fluid is under high pressure. If you need service on your hydraulic system, please see your authorized Scag dealer.

INITIAL RUN-IN PROCEDURES (FIRST DAY OF USE OR APPROXIMATELY 10 HOURS)

1. Check the belts for proper tension at 2, 4 and 8 hours. Adjust as needed.
2. Check the steering control rods and the speed control for neutral adjustment. (See Adjustments, page 6-8)
3. Check the tires for proper pressure.

Caster Wheels	25 psi.
Drive Wheels	15 psi.
4. Check for loose hardware. Tighten as needed.
5. Check the safety switches for proper adjustment:
 - * The engine should crank and start if the machine is in neutral, the PTO engagement switch is OFF and the parking brake is ON.
6. Apply lubricant to all the grease fittings. Lubricant was applied at the factory. This is just a precautionary check to make sure that all the fittings have been lubricated.

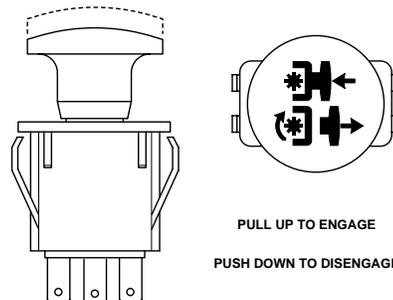
MOWER OPERATION

1. Read and understand the safety instructions before attempting to operate this machine.
2. Before starting the engine:
 - * Check the oil level in the engine and the hydraulic reservoir.
 - * Fill the fuel tank with clean, fresh, lead-free gasoline.
 - * Open the fuel valve on the bottom of the fuel tank.

-NOTE-

Use gasoline with an octane rating no less than 87.

- * The speed adjustment lever must be in NEUTRAL.
 - * The blade clutch switch must be in the OFF position.
 - * The neutral latches must be in the neutral lock position.
 - * The key switch must be on.
 - * The parking brake must be on.
3. Start the engine:
 - * Choke as required. If the engine is cold, pull the choke knob out. When the engine starts, slowly push the choke in. If the engine stalls, repeat the above operation. When the engine is warm, choking may not be necessary.
 4. Engage the cutter blades by pulling the blade clutch switch into the ON position. Push the switch to the OFF position to disengage the cutter blades.



390S0138

-NOTE-

When PTO is engaged or (possibly) disengaged, a squealing sound from the underside of the machine is normal. It is caused by the electric clutch plates meshing as the mower comes up to speed. For best equipment life, engage the clutch with the engine at 1/2 throttle, not under full load.

⚠ WARNING:

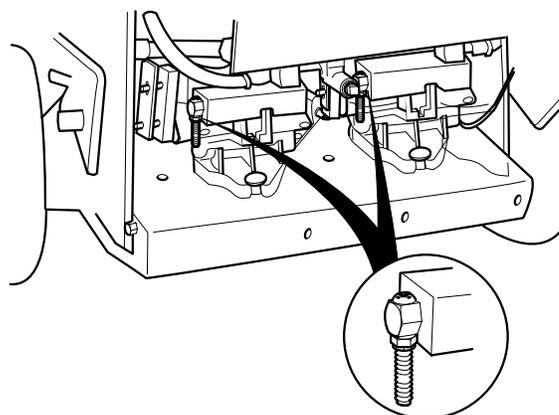
If you are not familiar with the operation of the hydrostatic drive and zero turn feature, practice turning and maneuvering with the hand controls before engaging the blades.

5. Release the parking brake. Move the speed adjustment lever to the desired mowing speed.

-NOTE-

Top speed is suggested only for transport!

6. While squeezing the steering brake levers with both hands, release both neutral latches.
7. When the steering brake levers are released, the machine will travel straight. To make a right turn, squeeze the RH lever. To turn left, squeeze the LH lever.
8. TO STOP, squeeze both levers, lock the neutral latches, and move the speed adjustment lever to neutral.
9. To move the machine in reverse, squeeze up on both steering control levers.
10. To "freewheel" or move the machine around without the engine running, turn the dump valve levers located at the back of the pumps to the "freewheel" positions (see Figure 1). To operate the machine, the dump valve levers must be returned to the closed positions.



Dump Valve Levers
(normal position)

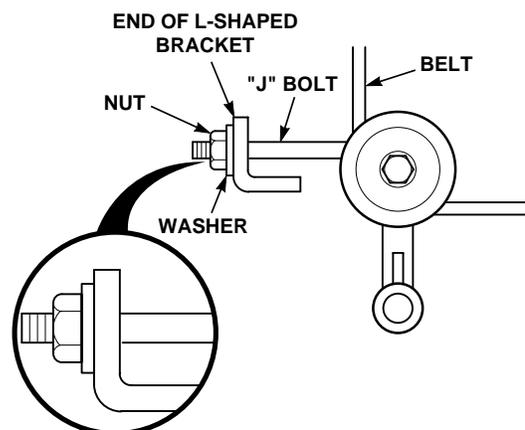
Figure 1. Dump Valves SGB112

CUTTER DECK BELT ADJUSTMENTS

-NOTE-

The hydro drive belt is spring loaded and does not require adjustment.

1. Remove the belt cover.
2. Adjust the cutter deck drive belt using a belt tension gauge. Adjust the belt so that the belt moves 1/2" with 10 pounds of pressure. Adjust the tension by tightening or loosening the J-bolt nut. (See figure 2)



CUTTER DECK DRIVE BELT TENSION
ALIGNMENT IDLER - L.H.

SC400G

Figure 2. Deck Drive Belt Adjustment

-NOTE-

Due to initial belt stretch and to prevent the belt from slipping, check this adjustment after the first 2 hours, 4 hours and 8 hours of operation.

- Adjust the RH blade drive belt using a belt tension gauge. Adjust the belt so that the belt moves 1/2" with 10 pounds of pressure. Adjust the tension by tightening or loosening the J-bolt nut (See figure 3).
- Replace the belt cover.

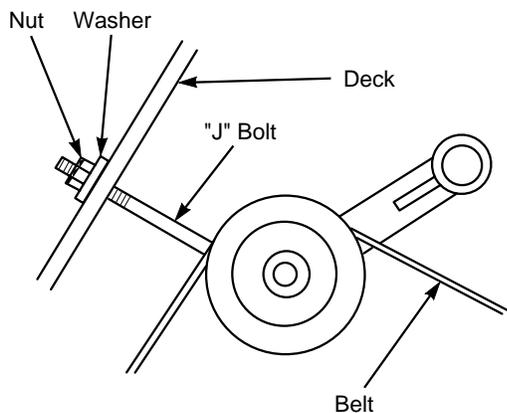


Figure 3. Cutter Deck Belt Adjustment R.H.

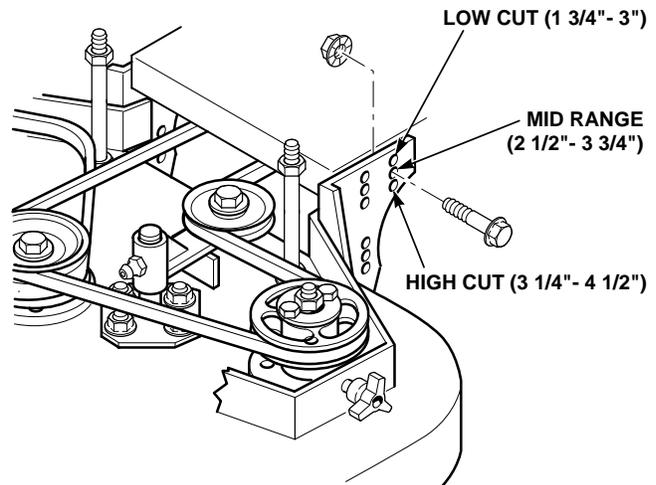
CUTTER DECK ADJUSTMENTS

Due to the many cutting conditions that exist, it is difficult to suggest a cutter deck setting that will work for every lawn. There are two adjustments that can be made on these decks, pitch and height.

PITCH is the angle of the blades (comparing front to rear). A 1/4" downward pitch (front of deck down) is recommended for best cutting performance.

HEIGHT is the nominal distance the blade is off of the ground. This measurement is made with the blades pointed side to side and distance is measured between cutting tip and ground. (Also see Blade Height Adjustment)

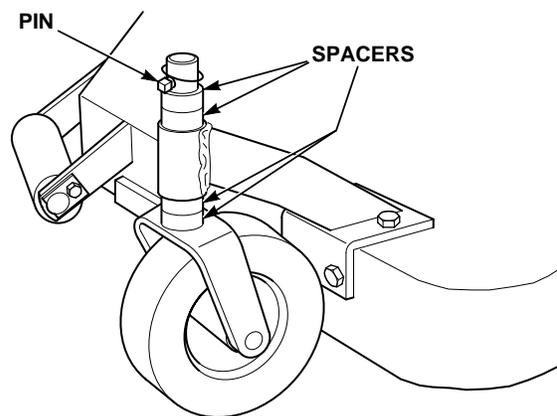
Changes to the cutting height can be achieved by repositioning the cutter deck. (This adjustment will also effect the pitch of the deck). There are three available positions (see figure 4).



CUTTER DECK HEIGHT ADJUSTMENT SC405G

Figure 4. Cutting Height Adjustment

Caster spacers also can be repositioned to change cutting heights and to change the pitch of the deck. (See figure 5)



REPOSITIONING SPACERS SC406G99

Figure 5. Caster Wheel Spacers

BLADE HEIGHT ADJUSTMENT

Adjusting the blade height can be done by moving any number of the five smaller 1/4" spacers on the blade mounting bolts to the top of the spindle shaft or below the spindle shaft.

-NOTE-

All blades should be positioned equally.

For best cut and discharge, a minimum of three spacers should be installed between the blade and the spindle (See figure 6).

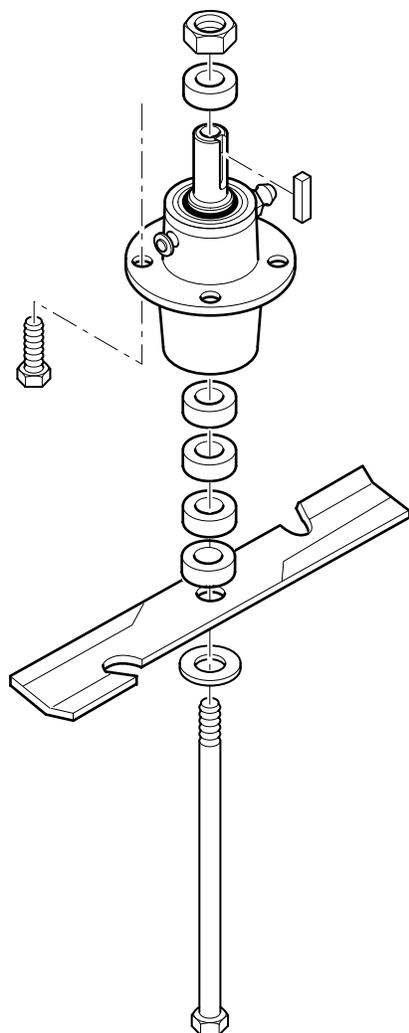


Figure 6. Blade Spacers

SC407G

CUTTER BLADES

Do not sharpen beyond 1/3 of the width of the blade. (See figure 7)

-NOTE-

Dress the blade with a file. Using a wheel grinder may burn the blade. Check the balance of the blade. If blades are out of balance, vibration and premature wear of spindle assembly can occur. See your authorized Scag dealer for blade balancing or special tools, if you choose to balance your own blades.

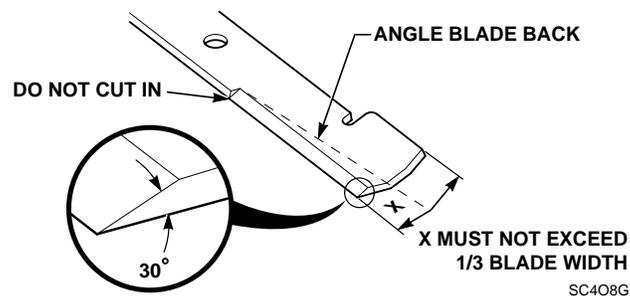


Figure 7. Blade Sharpening

NEUTRAL ADJUSTMENT

1. Raise the drive wheels off the ground and block the caster wheels.
2. Remove the speed control spring and the steering control rod from the machine. (See figure 8)

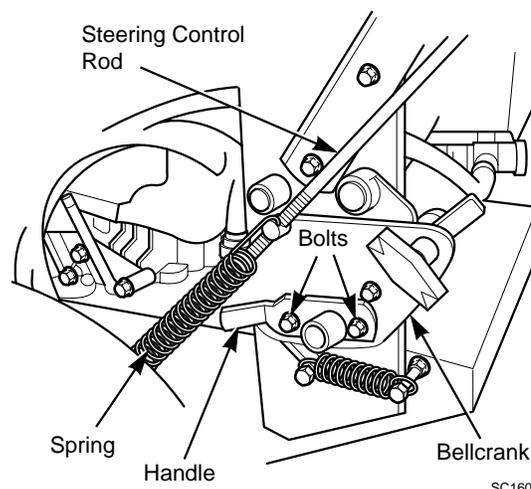


Figure 8. Neutral Adjustment

3. Loosen the wing nut and let the speed adjustment bearing lever fall away from the cam.
4. Start the engine and observe the drive wheels. If the drive wheels are rotating, loosen the bolts on the neutral adjustment handle and move the handle up or down until the wheels are in neutral. (See figure 8)
5. Tighten the bolts on the neutral adjustment handle. When tightening the bolts, hold the bellcrank to prevent it from moving and throwing off the neutral adjustment.
6. Turn the engine off.

STEERING CONTROL ROD ADJUSTMENT

-NOTE-

This adjustment is made to allow the steering control levers to be moved out of the neutral latch without engaging reverse.

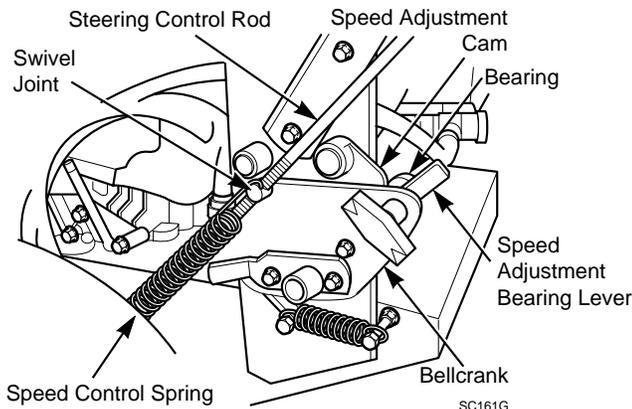
1. Connect the steering control rods into the steering control levers on the handle. Do not install the hair pin at this time.
2. Turn the swivel joint on the steering control rods until the swivel joint is centered in the slot in the bellcrank.
3. Remove the steering control rods from the machine. Install the speed control spring onto the swivel joint. Reinstall the steering control rods onto the machine and secure using the hair pins.

TRACKING ADJUSTMENT

-NOTE-

Before proceeding with this adjustment, be sure that the tire pressures are correct. (see page 4) and that the neutral adjustment and the steering control rod adjustment have been completed.

1. Engage the neutral latch on both steering control levers and move the speed adjustment lever into the neutral position.
2. Position the speed adjustment lever so that the bearing just contacts the speed adjustment cam. (See below)



3. Tighten the bearing securing the speed adjustment bearing lever and repeat on the opposite side.
4. With the machine on a flat level surface, start the engine and place the speed adjustment lever into the speed that will most often be used.
5. Squeeze the steering control levers and release the neutral latch. Slowly release the steering control levers, allowing the machine to move forward.
6. If the machine pulls to one side, put the speed adjustment lever back into the neutral position and turn the engine off.
7. On the side that the machine pulled toward, loosen the wing nut securing the speed adjustment bearing lever and move the bearing 1/16" away from the cam. Start the engine and recheck the tracking. Adjust as needed.
8. If tracking cannot be achieved, contact your Scag servicing dealer.

PARKING BRAKE

1. Adjust the parking brake so that when the brake hand lever is against the stop on the handle bar, the brake levers on the brake shaft weldment are against the stops on the engine deck.

CAUTION:

Adjust the brake only enough to hold the machine. Excessive force may cause damage to the machine or brake components.

2. Adjust the brake actuator rod on either side of the machine to obtain proper brake adjustment.

LUBRICATION & MAINTENANCE

BREAK-IN			
8 HOURS (DAILY)			
40 HOURS (WEEKLY)			
100 HOURS (BIWEEKLY)			
500 HRS OR ANNUALLY			
		PROCEDURE	COMMENTS
X		Check all hardware for proper tightness	
X		Change engine oil and filter at 5 hours	
	X	Check engine oil	Do not over fill
	X	Remove debris from under belt cover	More often if needed
	X	Sharpen cutter blades	More often if needed
	X	Grease spindle bearings	+ US Lithium MP White Grease 2125
	X	Clean air filter	More often if needed
	X	Check belt tension	Adjust as needed
	X	Check tire pressure	Add or adjust as required
	X	Check battery level	Adjust as needed
	X	Replace air filter	More often if needed
	X	Grease caster wheel bearings	Chassis grease
	X	Grease caster wheel pivot shafts	Chassis grease
	X	Grease idler pulley bracket on cutter deck	Chassis grease
	X	Change hydrostatic oil filter	Clean area before removing the filter
	X	Change engine oil and filter	See engine manufacturer information
	X	Grease idler arm pivots	Chassis grease
	X	Grease brake hand lever	Chassis grease
	X	Grease brake actuator levers	Chassis grease
	X	Check all hardware for proper tightness	
	X	Adjust air gap on electric clutch	Contact your Scag dealer for information about making this adjustment.
	X	Drain hydraulic system and replace oil	

+ Grease spindle until grease comes out the relief valve

Compatible Greases:

Lidok EP #2 (found at industrial shops)

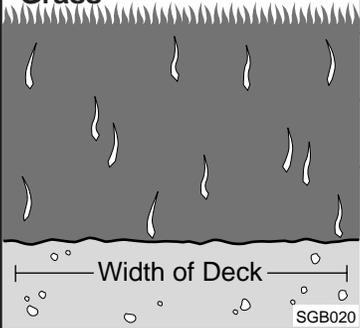
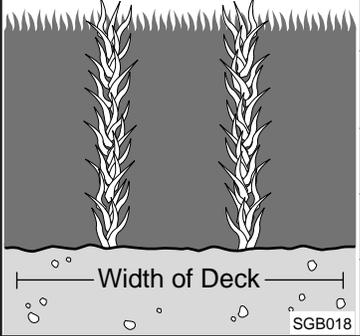
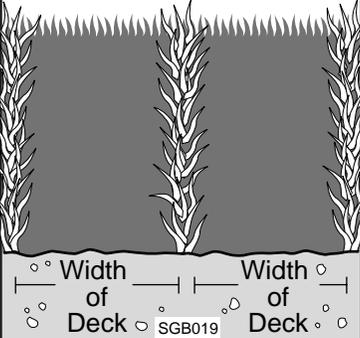
Ronex MP (Exxon service stations)

Shell Alvania (Shell service stations)

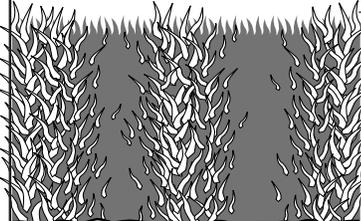
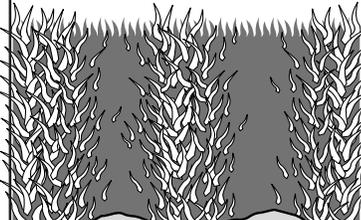
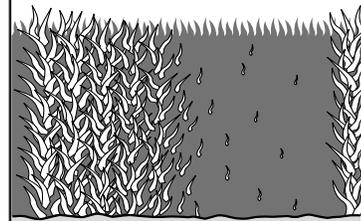
Mobilux #2 (Mobil service stations)

Super Lub M EP #2 (Conoco service stations)

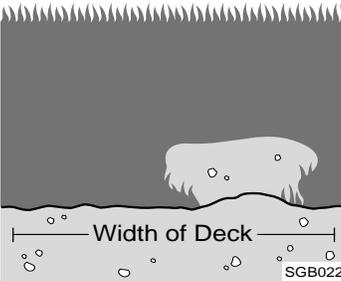
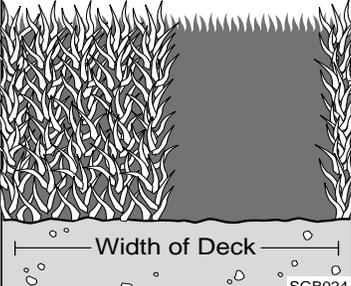
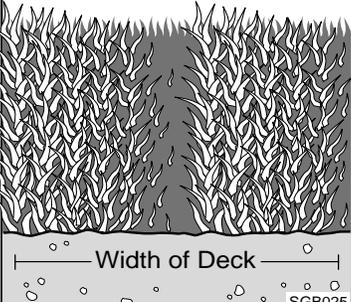
TROUBLESHOOTING CUTTING CONDITIONS

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 3600 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
	Belts slipping	Adjust belt tensions
<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 3600 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
	Bent blades	Replace blades
<p>Streaking - Strips of Uncut Grass Between Cutting Paths</p>  <p>Width of Deck</p> <p>Width of Deck</p> <p>SGB019</p>	Not enough overlapping between rows	Increase the overlap of each pass

TROUBLESHOOTING

CONDITION	CAUSE	CURE
<p>Uneven Cut on Flat Ground - Wavy High-Low Appearance, Scalloped Cut, or Rough Contour</p>  <p>Width of Deck SGB020</p>	Lift worn off of 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>Uneven Cut on Uneven Ground - Wavy Appearance, High-Low Scalloped Cut, or Rough Contour</p>  <p>Width of Deck SGB021</p>	Uneven ground	May need to reduce ground speed, raise cutting height, and/or change direction of cut
<p>Sloping Ridge Across Width of Cutting Path</p>  <p>Width of Deck 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

TROUBLESHOOTING

CONDITION	CAUSE	CURE
<p>Scalping - Blades Hitting Dirt or Cutting Very Close to the Ground</p>  <p>Width of Deck</p> <p><small>SGB022</small></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</p> <p><small>SGB024</small></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</p> <p><small>SGB025</small></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

TECHNICAL SPECIFICATIONS

ENGINES

General Type:	Heavy duty industrial/commercial
Brand:	Kohler, Kawasaki,
Models:	Kohler CV15T, CVE 20;Kaw. FC420V;
Horsepower:	Kohler 15HP& 20HP; Kaw. 14HP; Kaw. 17HP
Type:	4 cycle gas, vertical shaft engines
Displacement:	Kohler: 15HP = 426cc, 20 HP= 624cc Kawasaki: 14HP = 423cc, 17HP = 494cc
Cylinders:	Varied - see manufacturer's specifications
Governor:	Mechanical type governor with variable speed control set at 3600 rpm (± 75 rpm), idle set at 1200 rpm (± 75 rpm)
Exhaust Group:	Single exhaust canister muffler
Fuel Pump Group:	Varied - See manufacturer's specifications
Oil Pump Group:	Varied - See manufacturer's specifications
Valve Group:	Varied - See manufacturer's specifications
Starter/Electrical:	Electronic Ignition with recoil starter or 12 volt battery with alternator, solid state ignition with key start
Charging System:	15 amp

ENGINE DECK

Thickness:	7 gauge steel
Fuel Tank:	5 gallon (19.0 litres) seamless polyethylene
Drive Wheels/Tires:	16x6.50-8 four-ply pneumatic tubeless, radius edge
Brakes:	Dynamic braking through hydro drive system
Axles:	1" tapered
Handle Bars:	1-1/4" diameter

DRIVE SYSTEM

Type:	Hydro drive with two variable displacement pumps and two cast-iron high torque motors
Hydro Pumps:	Two Hydro-Gear Model BDP 10L pumps with dump valves for movement without running the engine
Drive Wheel Motors:	Two 12 cu. inch cast-iron high torque motors
Hydro Fluid Cooling Group:	Heavy-duty cooling radiator, 7 qt. capacity cooling reservoir, uses, SAE 10W30 fluid and 10 micron filter
Steering / Travel Control::	Independent handle controls for each wheel, squeeze to move from forward to neutral to reverse, neutral lock lever, speed range controlled with single lever (patented design), in-field tracking adjustment with no tools necessary
Parking Brakes:	7.5" drum, band brake, one on each wheel
Dump Valves:	Allows for movement without engine running
Axles:	1" tapered motor shafts
Wire Harness:	14 gauge wire
Safety Group:	Handle actuated operator presence system (patented design), blade / clutch and transmission interlock to engine kill
Forward Speed Range:	0 to 7.4 mph
Reverse Speed Range:	0 to 3.0 mph

TECHNICAL SPECIFICATIONS (CON'T)

CUTTER DECKS

Type:	SWM 36, SWM 48, SWM 52, SWM 61, SWM 72 Out-front design with anti-scalp rollers
Construction:	SWM36,48: 7-gauge steel with 7-gauge (3/16") steel skirt SWM52,61,72:10-gauge steel with 7-gauge (3/16") steel skirt
Cutting Width:	35.5" (90.2 cm), 48.0 (122.0 cm), 52.0 " (132.0 cm), 61.0 " (155.0 cm), 71.5" (181.6 cm)
Cutting Height Adjustment:	Adjustable from 1-3/4" to 4-1/4" in 1/4" increments
Cutter Blades:	.204 thick, milled edge, 5150 alloy steel SWM 36: Two (2) 18" SWM 48: Three (3) 16.5" SWM 52: Three (3) 18" SWM 61: Three (3) 21" SM72: Three (3) 24" blades
Blade Engagement:	Electric blade brake clutch with instrument panel switch
Discharge Opening:	Extra wide 11.5", 13.75 " discharge opening with hinged chute
Caster Wheels:	9.4 x 3.5 smooth tread flotation, inner tubes, split rims, roller bearings, with quick pin removal
Spindles:	Cast housing, taper roller bearing, low maintenance with top access grease fitting and grease overfill relief poppet
Spindle Pulleys:	Cast-iron with easily removed taper hubs
Idler Pulley:	5" diameter pulley, welded and riveted construction, 1-3/8" O.D. Bearing
Idler Arm:	Heavy duty idler arm of 1/4" channel steel
Cutter Deck Belts:	B-section with Kevlar cord

ADDITIONAL SPECIFICATIONS

OPTIONAL ITEMS/ATTACHMENTS

Fabric Grass Catcher:	GC-F4 Grass Catcher with 4 cubic ft. capacity
Metal Grass Catcher:	GC-4D Grass Catcher with 4 cubic ft. capacity and rope pull dump or pick-up and dump
Steerable Sulky:	RS-ZT Steerable Sulky with padded seat and full articulation for zero-radius turning
Mulching Plate:	Steel plate fits over discharge opening. No blade change or or removal required. Installs and removes in the field.

APPROXIMATE DIMENSIONS

	SWM36	SWM48	SWM52	SWM61	SWM72
Length:	74.0"	74.0"	74.0"	76.0"	76.0"
Length with Grass Catcher:	74.0"	74.0"	74.0"	76.0"	76.0"
Tracking Width:	37.0"	42.0"	42.0"	42.0"	42.0"
Width:	54.5"	60.0"	60.0"	70.0"	81.0"
Width (with discharge chute up):	37.5"	53.0"	53.0"	63.0"	74.0"
Width with grass catcher:	55.0"	69.0"	69.0"	80.0"	91.0"
Height:	40.5"	40.5"	40.5"	40.5"	40.5"
Height with grass catcher:	40.5"	40.5"	40.5"	40.5"	40.5"
Weight	510 lbs.	550 lbs.	590 lbs.	625 lbs.	695lbs.
Weight with grass catcher:	550 lbs.	590 lbs.	630 lbs.	665lbs.	730 lbs.
Turning Radius:	Zero	Zero	Zero	Zero	Zero

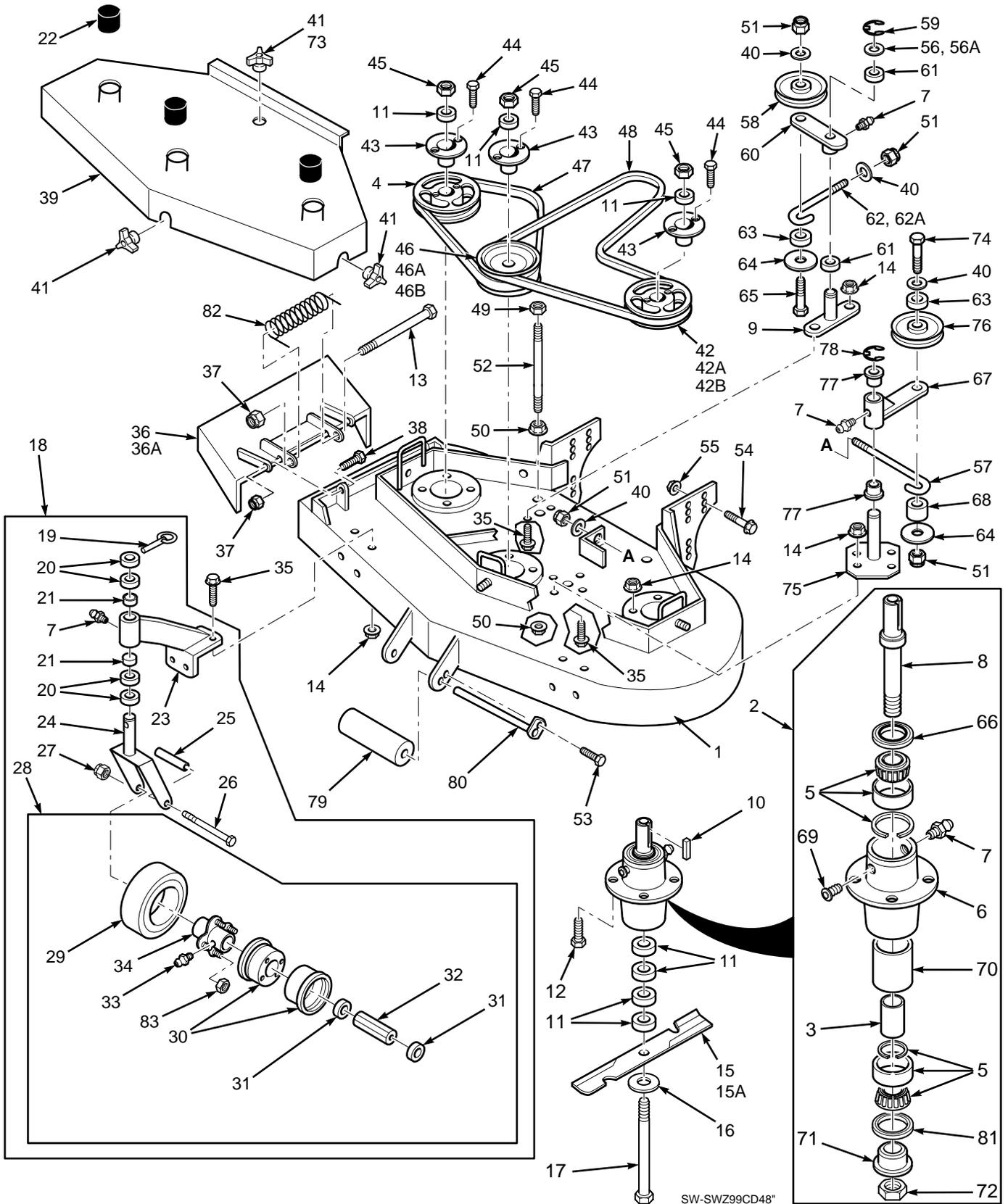
NOTES

36" CUTTER DECKS

Ref. Part No. Number	Description	Ref. Part No. Number	Description		
1	461131	Cutter Deck (Includes Decals)	45	04020-09	Hex Nut, 5/8-11
2	46631	Cutter Spindle Assy.	46	48204	Belt, Blade Drive
3	43312	Spacer, Outside	47	43077	Spacer
4	48307-08	Tapered Nut, 5/16-24	48	04021-05	Hex Nut, 3/8-16 Center Locknut
5	481022	Tapered Bearing (Two)	49	04019-04	Nut, 3/8-16 Serrated Flange
6	43294	Spindle Housing	50	04004-02	Support, Belt Cover
7	04001-108	Bolt, 5/16-18 x 4-1/4" Hex Head	51	04017-42	Cpscrw, 7/16-14 x 1" Ser.Flg. HH
8	43298	Spindle Shaft	52	04019-05	Nut, 7/16-14 Serrated Flange
9	04001-77	Bolt, 3/8-16 x 3-1/2" Hex Head	53	43277	Spacer, J-Hook
10	04063-08	Key, 1/4 x 1/4 x 2"	54	04041-12	Washer, 3/8 x 1-1/2 x 16 GA
11	43278	Spacer, Cutter Blade - Small	55	04021-09	Elastic Stop Nut, 3/8-16
12	04001-10	Bolt, 5/16-18 x 1-1/4" Hex Head	56	45423	Idler Pivot
13	481050	Spring, Chutte Return	57	46748	Idler Arm Assy. (Inc. 22 & 58)
14	04019-03	Nut 5/16-18 Serrated Flange	58	48100-02	Bronze Bearing
15	48108	Cutter Blade, 18"	59	04050-05	Retaining Ring, 1-1/8" Ext. "E"
15A	48185	Cutter Blade, 18 Hi Lift	60	44078	J-Hook
16	04040-10	Flatwasher, 5/8 W	61	48269	Idler Pulley, Belt Clutch
17	04001-41	Hex Hd. Bolt, 5/8-11 x 9-1/2"	62	481024	Seal, Cutter Spindle
18	46079	Caster Assembly (Inc.19-28)	63	43297	Spindle Bushing
19	04066-01	Quick Pin	64	43296	Spacer, Inside
20	43037-01	Spacer, Caster Yoke, 1/2" long	65	481035	Nut,
21	48100-01	Bronze Bearing	66	48677	Relief Fitting, Cutter Spindle
22	48114-04	Grease Fitting	67	481025	Seal, Cutter Spindle
23	46082	Support Assembly (Inc. 21-23)	68	48098	Spindle Shield
24	45006	Caster Yoke	69	04029-04	Wing Nut, 3/8-16 (Small) Top Side
25	43022	Sleeve, Caster Wheel Bearing	69	04029-04	Wing Nut, 3/8-16 (Small) RH Side
26	04001-37	Hex Hd. Bolt, 1/2-13 x 5-1/2"			
27	04021-07	Elastic Stop Nut, 1/2-13			
28	48307	Wheel Assy. (Inc.4, 29-34)			
29	48307-02	Tire only, Caster Wheel			
NS	48006-03	Inner Tube only			
30	48307-04	Rim Pair, Caster Wheel			
31	48006-07	Retainer, Bearing, Caster Wheel			
32	48006-06	Roller Bearing, Caster Wheel			
33	48114-03	Grease Fitting, 45 degree 1/4-28			
34	48006-05	Hub Assembly			
35	04017-16	Cpscrw,5/16-18 x 3/4" Ser.Flg. Hex Head			
36	461054	Discharge Chute			
37	04021-10	Hex Nut, 5/16-18 Elastic Stop			
38	04001-09	Hex Hd Bolt, 5/16-18 x 1"			
39	46797	Belt Cover Assy (Includes Decal)			
40	04041-07	Flat Washer, 3/8" Special			
41	04029-03	Wing Nut, 3/8-16			
42	48924	Pulley			
43	48926	Tapered Hub			
44	04001-01	Hex Hd. Bolt, 1/4-20 x 3/4"			

* Common hardware which should be purchased locally. All bolts are Grade 5 plated, all other fasteners zinc plated.

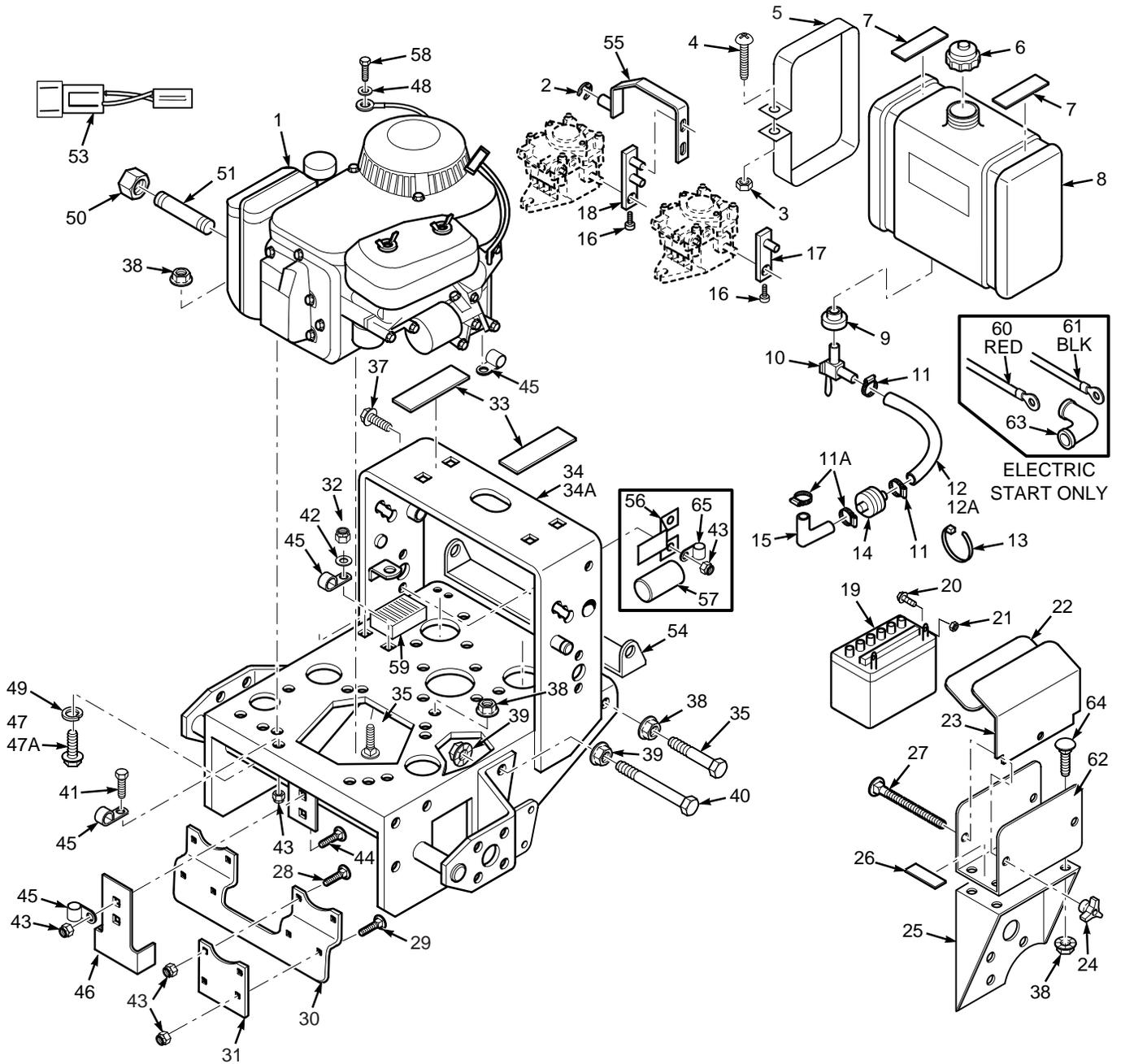
48", 52", 61", & 72" CUTTER DECKS



48, 52, 61, & 72" CUTTER DECKS

Ref. Part No.	Part No.	Description	48	52	61	72	Ref. Part No.	Part No.	Description	48	52	61	72
1	461132	Cutter Deck (Includes decals)	x				44	04001-01	Bolt, 1/4-20 x 3/4" Hex Head	x	x	x	x
1	461134	Cutter Deck (Includes decals)		x			45	04020-09	Nut, 5/8-11 Hex	x	x	x	x
1	461138	Cutter Deck (Includes decals)			x		46	48923	Pulley, Double	x	x		
1	46608	Cutter Deck (Includes decals)				x	46A	48940	Pulley, Double			x	
2	46631	Spindle Assembly	x	x	x	x	46B	48966	Pulley, Double				x
3	43296	Spacer, Inside	x	x	x	x	47	48087	Belt, RH Blade Drive	x			
4	48924	Pulley	x	x	x	x	47	48285	Belt, RH Blade Drive		x		
5	481022	Tapered Bearing (Two)	x	x	x	x	47	48265	Belt, RH Blade Drive			x	
6	43294	Spindle Housing	x	x	x	x	47	48295	Belt, RH Blade Drive				x
7	48114-04	Grease Fitting Str. 5/16	x	x	x	x	48	48089	Belt, Blade Drive	x			
8	43298	Spindle Shaft, Tapered Brng	x	x	x	x	48	48286	Belt, Blade Drive		x		
9	45037	Idler Pivot	x	x	x	x	48	48088	Belt, Blade Drive			x	
10	04063-08	Key, 1/4 x 1/4 x 2"	x	x	x	x	48	48296	Belt, Blade Drive				x
11	43278	Spacer, Cutter Blade - Small	x	x	x	x	49	04021-05	Nut, 3/8-16, Nut Centerlock	x	x	x	x
12	04001-10	Bolt, 5/16-18 x 1-1/4" Hex Head	x	x	x	x	50	04019-04	Nut, 3/8-16, Serrated Flange	x	x	x	x
13	04001-108	Bolt, 5/16-18 x 4-1/4" Hex Head	x	x	x	x	51	04021-09	Nut, 3/8-16 Elastic Stop	x	x	x	x
14	04019-03	Serrated Flange Nut, 5/16-18	x	x	x	x	52	04004-02	Support, Belt Cover	x	x	x	x
15	48110	Cutter Blade 16-1/2"	x				53	04001-08	Bolt, 5/16-18 x 1/2" Hex Head	x	x	x	x
15	48108	Cutter Blade 18"		x			54	04017-42	Cpscrw,7/16-14 x 1"Ser Fling H Hd	x	x	x	x
15	48111	Cutter Blade 21"			x		55	04019-05	Nut, 7/16-14 Serrated Flange	x	x	x	x
15	48112	Cutter Blade 24"				x	56	04041-08	Flat Washer 3/4" Special	x	x	x	x
15A	48184	Cutter Blade 16-1/2 Hi Lift	x				56A	04041-08S	Flat Washer 3/4" Special	x	x	x	x
15A	48185	Cutter Blade 18 Hi Lift		x			57	44078	J-Hook	x	x	x	x
15A	48304	Cutter Blade 21 Hi Lift			x		58	48181	Idler Pulley, "V" Groove	x	x	x	x
16	04040-10	Flatwasher,5/8" (.688 x 1.75 x .134)	x	x	x	x	59	04050-02	Retaining Ring, 3/4" Ext."E"	x	x	x	x
17	04001-41	Hex Head Bolt, 5/8-11 x 9-1/2"	x	x	x	x	60	46081	Idler Arm Assy. (Incl. 7 & 61)	x	x	x	x
18	46079	Caster Assembly, (incl.19-28 & 7)	x	x	x	x	61	48100-05	Bronze Bearing	x	x	x	x
19	04066-01	Quick Pin	x	x	x	x	62	43028	J-Rod, Idler Pulley	x	x		
20	43037-01	Spacer, Caster Yoke, 1/2" thick	x	x	x	x	62A	44078	J-Rod, Idler Pulley				x
21	48100-01	Bronze Bearing	x	x	x	x	63	43077	Spacer, J-Rod	x	x	x	x
22	48098	SpindleShield	x	x	x	x	64	04041-12	Washer, 3/8 x 1-1/2 x 16 ga.	x	x	x	x
23	46082	Support Assembly, (incl. 21-23)	x	x	x	x	65	04001-46	Bolt, 3/8-16 x 2-1/4" Hex Head	x	x	x	x
24	45006	Caster Yoke	x	x	x	x	66	481024	Seal, Cutter Spindle	x	x	x	x
25	43022	Sleeve, Caster Wheel Bearing	x	x	x	x	67	46748	Idler Arm Assy (Includes 22&77)	x	x	x	x
26	04001-37	Hex Hd Bolt, 1/2-13 x 5-1/2"	x	x	x	x	68	43277	Spacer, J-Rod	x	x	x	x
27	04021-07	Elastic Stop Nut, 1/2-13	x	x	x	x	69	48677	Reiief Fitting, Cutter Spindle	x	x	x	x
28	48307	Wheel Assy. (incl. 29-34,81)	x	x	x	x	70	43312	Spacer, Outside, Cutter Spindle	x	x	x	x
29	48307-02	Tire only, Caster Wheel	x	x	x	x	71	43297	Spindle Bushing	x	x	x	x
NS	48006-03	Inner Tube only, Caster Wheel	x	x	x	x	72	481035	Nut, Cutter Spindle	x	x	x	x
30	48307-04	Rim Pair, Caster Wheel	x	x	x	x	73	04029-04	Wing Nut, 3/8-16 (Small) Top Side	x	x	x	x
31	48006-07	Bearing Retainer, Caster Wheel	x	x	x	x	74	04001-77	Bolt, 3/8-16 x 3-1/2" Hex Head	x	x	x	x
32	48006-06	Roller Bearing, Caster Wheel	x	x	x	x	75	45329	Idler Pivot	x	x	x	x
33	48114-03	Grease Fitting 45 deg., 1/4-28	x	x	x	x	76	48269	Idler Pulley, Belt Clutch	x	x	x	x
34	48006-05	Hub Assembly, (incl. bolts)	x	x	x	x	77	48100-02	Bronze Bearing	x	x	x	x
35	04017-16	Capscrew, 5/16-18 x 3/4"	x	x	x	x	78	04050-05	Retaining Ring	x	x	x	x
36	461055	Discharge Chute			x	x	79	48038	Guide Roller	x	x	x	x
36A	461054	Discharge Chute	x	x			80	45944	Roller Shaft	x	x	x	x
37	04021-04	Nut, 5/16-18 Elastic Elastic Stop	x	x	x	x	81	481025	Seal, Cutter Spindle	x	x	x	x
38	04001-09	Bolt, 5/16-18 x 1" Hex Head	x	x	x	x	82	481050	Spring, Chute Return	x	x	x	x
39	46798	Belt Cover (Includes decals)	x				83	48307-08	Nut, 3/8-24 Tapered	x	x	x	x
39	461095	Belt Cover (Includes decals) 17KA	x										
39	46804	Belt Cover (Includes decals)		x									
39	46805	Belt Cover (Includes decals)			x								
39	46848	Belt Cover (Includes decals)				x							
40	04041-07	Flat Washer, 3/8" Special	x	x	x	x							
41	04029-03	Wing Nut, 3/8-16 (Large)	x	x	x	x							
42	48924	Pulley	x	x									
42A	48753	Pulley			x								
42B	48967	Pulley				x							
43	48926	Tapered Hub	x	x	x	x							

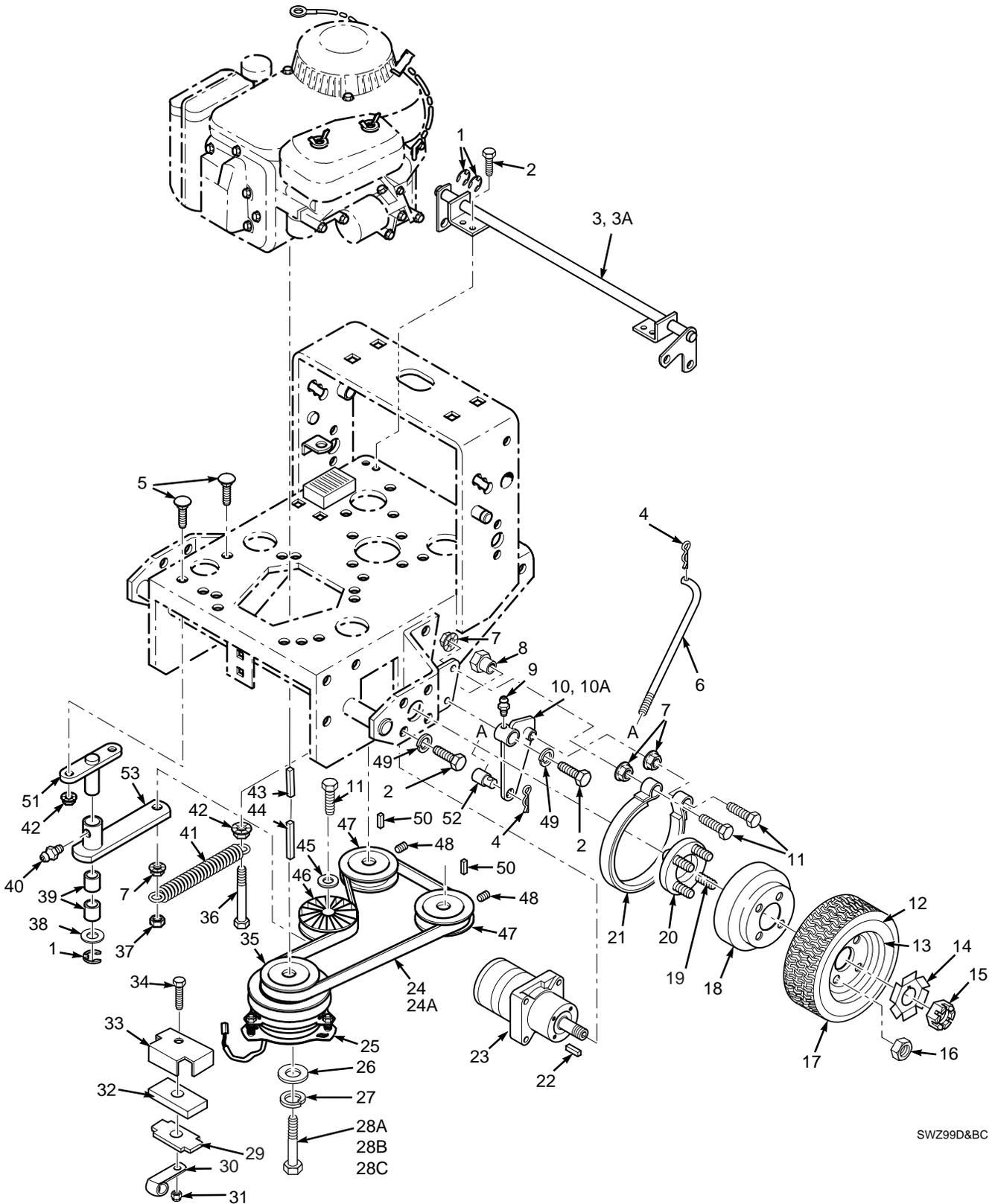
ENGINE DECK



ENGINE DECK

Ref. No.	Part No.	Description					Ref. No.	Part No.	Description				
			14KA	15KH	17KA	20CVE				14KA	15KH	17KA	20CVE
1	48842	Engine 14KA Kawasaki	x				41	04001-08 Hex Head Bolt, 5/16-18 x .75"	x	x	x	x	
1	48844	Engine 15KH Kohler		x			42	04040-14 Flat Washer 1/4"	x	x	x	x	
1	481066	Engine 17KA Kawasaki			x		43	04021-10 Nut, 5/16-18 Elastic Stop	x	x	x	x	
1	48971	Engine 20CVE Kohler Command				x	44	04003-04 Carrage Bolt, 5/16-18 x 1"	x	x	x	x	
2	04050-10	Retaining Ring, 1/2" Ext. "E"	x	x	x	x	45	48030-09 Clamp	x	x	x	x	
3	04020-02	Hex Nut, 1/4-20	x	x	x	x	46	421370 Clutch Bracket	x	x	x	x	
4	04010-10	Screw, 1/4-20 x 2" Rnd. Hd. Phil.	x	x	x	x	47	04017-19 Capscr, 5/16-18 x 1.50" Sr. Flg.				x	
5	421239	Strap, Fuel Tank	x	x	x	x	47A	04002-01 Metric HH Bolt, M8-1.25 x M30	x	x	x		
6	481603	Cap, Fuel Tank	x	x	x	x	48	04031-09 Lock Washer, 5/16 Int. Tooth	x	x	x	x	
7	48292	Pad, Rubber-Fuel Tank - Upper	x	x	x	x	49	04030-03 Lock Washer, 5/16	x	x			
8	46846	Fuel Tank Assy. (incl. 9, 10)	x	x	x	x	50	48257 Pipe Cap				x	
9	48309	Bushing	x	x	x	x	51	48402-04 Pipe, 4.75" Nipple				x	
10	48308	Valve, Fuel Shut-off	x	x	x	x	52	04003-09 Carrage Bolt, 1/4-20 x 1-1/4"	x				
11	48059-01	Clamp, Fuel Hose	x	x	x		53	481717 Wire Hrns. Adapter, 17KA			x		
11A	48059-02	Clamp, Fuel Hose, (KA Only)	x				54	45418 Pulley Guard, 16" Frame	x	x			
12	48058	Fuel Hose, 1/4 ID x 20" KA	x				54	45419 Pulley Guard, 20" Frame			x	x	
12A	48058	Fuel Hose, 1/4 ID x 23"				x	55	45283 Shaft Weldment, RH Pump Cntl.	x	x	x	x	
13	48028-05	Cable Tie	x	x	x	x	56	421390 Bracket, Capacitor	x				
14	48057-02	Fuel Filter	x				57	21013-2064 Condenser (order from Kaw.)	x				
15	48179	Fuel Hose, 7/32 ID x 3-1/2"	x				58	04002-07 Metric H H Bolt, 8-1.25 x 10	x		x		
16	04015-06	Capscrew, #10-32 x 1 Soc. Hd.	x	x	x		59	21066-2071 Regulator, (order from Kaw.)	x				
17	46323	Lever Assy., Pump Control -LH	x	x	x	x	60	48029-02 Battery Cable, 31.5" Red				x	
18	46324	Lever Assy., Pump Control -RH	x	x	x	x	61	48029-14 Battery Cable, 31.5 Black				x	
19	48015	Battery				x	62	421703 Battery Box				x	
20	04001-44	Bolt, 1/4-20 x .50"				x	63	48126 Rubber Boot				x	
21	04020-02	Nut, 1/4-20				x	64	04003-12 Carrage Bolt, 5/16-18 x .75				x	
22	48099	Pad				x	65	48030-10 Cable Clamp, .75 ID	x		x		
23	42392	Battery Cover				x							
24	04029-01	Wing Nut, 1/4-20				x							
25	45685	Battery Support				x							
26	48661	Pad, Rubber				x							
27	04003-01	Bolt, 1/4-20 x 6" Carriage				x							
28	04003-28	Carriage Bolt, 5/16-18 x 2"				x							
29	04003-04	Carriage Bolt, 5/16-18 x 1"				x							
30	422553	Stiffener				x							
31	422552	Plate, Backing				x							
32	04021-08	Nut, 1/4-20 Elastic Stop	x	x	x	x							
33	48205	Pad, Rubber-Fuel Tank, Lower	x	x	x	x							
34	46946	Engine Deck, 16" Wide, W/Decls.	x	x	x								
34A	46947	Engine Deck, 20" Wide, W/Decls.	x			x							
35	04003-09	Bolt, 1/4-20 x 1-1/4" Hex Head	x	x	x	x							
36	04019-02	Nut, 1/4-20 Serrated Flange				x							
37	04017-18	Capscr., 5/16-18 x 1.25 Sr. Flg.	x	x	x	x							
38	04019-03	Nut, 5/16-18 Serr. Flange	x	x	x	x							
39	04019-04	Nut, 3/8-16 Serr. Flange	x	x	x	x							
40	04001-22	Bolt, 3/8-16 x 2-3/4" Hex Head	x	x	x	x							

DRIVE AND BRAKE COMPONENTS

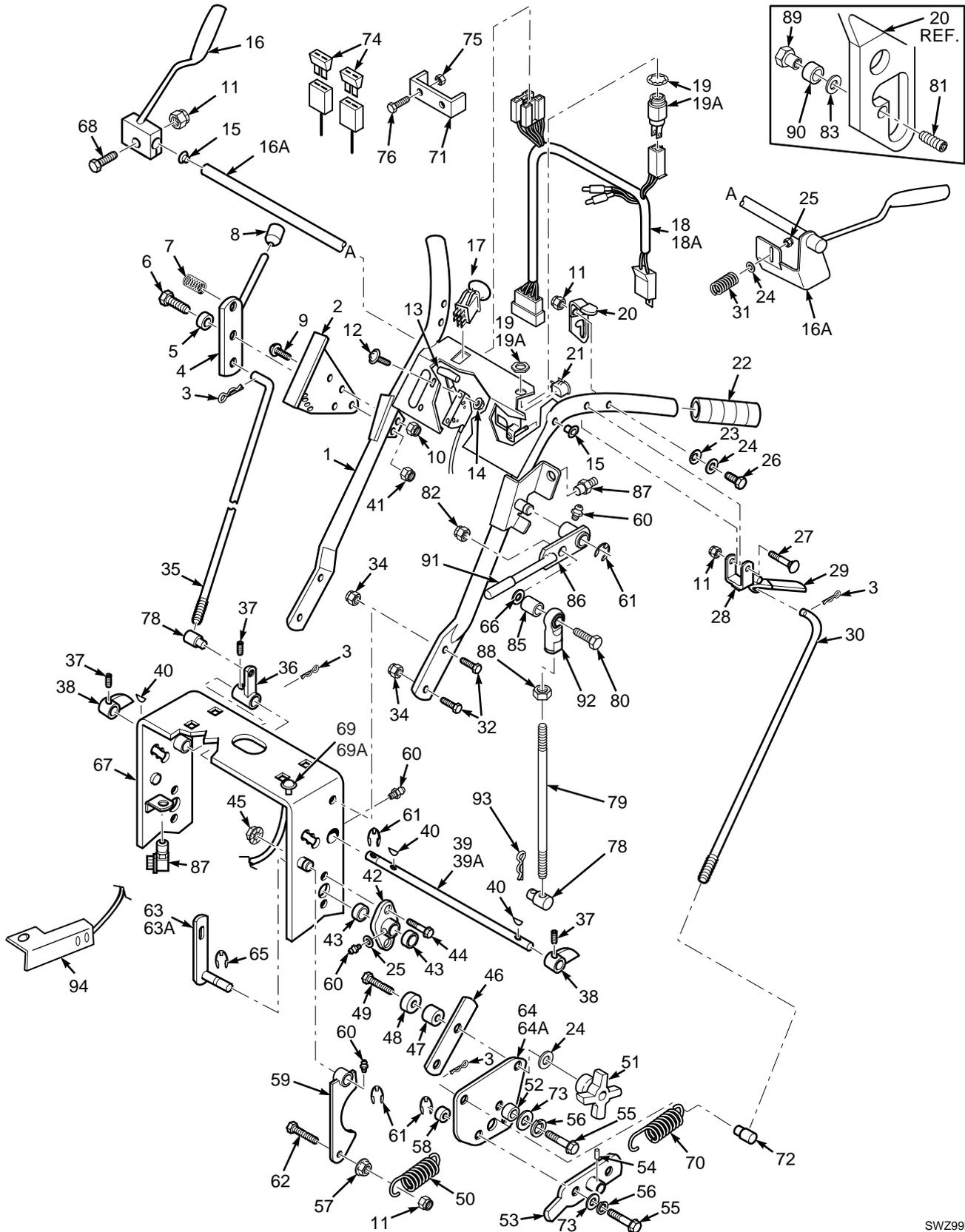


SWZ99D&BC

DRIVE AND BRAKE COMPONENTS

Ref. Part							Ref. Part						
No.	No.	Description	14KA	14KH	17KA	20CVE	No.	No.	Description	14KA	14KH	17KA	20CVE
1	04050-02	Retaining Ring, 3/4 Ext. "E"	x	x	x	x	28A	04002-05	Hex Head Bolt, M10-1.5 x 65	x	x		
2	04001-19	Bolt, 3/8-16 x 1" Hex Head	x	x	x	x	28B	04001-149	Hex Head Bolt, 7/16-20 x 2.00"			x	x
3	45842	Brake Shaft Assy. Wlmt.Small	x	x	x		29	422534	Plate, Backing	x	x	x	x
3A	45854	Brake Shaft Assy. Wlmt.Large			x	x	30	48030-09	Clamp	x	x	x	x
4	04062-01	Hair Pin Cotter, .094 x 1.62	x	x	x	x	31	04021-10	Nut, 5/16-18 Elastic Stop	x	x	x	x
5	04003-12	Carrage Bolt, 5/16-18 x .75"	x	x	x	x	32	481716	Rubber Pad, Clutch Stop	x	x	x	x
6	44126	Rod, Brake Lower	x	x	x	x	33	422533	Retainer, Clutch Stop	x	x	x	x
7	04019-04	Nut, 3/8-16 Serr. Flange	x	x	x	x	34	04001-12	Hex Head Bolt, 5/16-18 x 1.75"	x	x	x	x
8	43415	Bushing, Brake	x	x	x	x	35	481665	Pulley, Pump Drive Engine	x	x	x	x
9	48114-05	Grease Fitting	x	x	x	x	36	04001-13	Hex Head Bolt, 5/16-18 x 2.75"	x	x	x	x
10	45860	Brake Actuator Wlmt., LH	x	x	x	x	37	04021-05	Nut, 3/8-16 Center Lock	x	x	x	x
10A	45861	Brake Actuator Wlmt., RH	x	x	x	x	38	04041-08	Washer, 3/4-.766 x 1.2 x .06	x	x	x	x
11	04001-46	Bolt, 3/8-16 x 2-1/4"	x	x	x	x	38	04041-08S	Washer, 3/4-.766 x 1.2 x .035	x	x	x	x
12	481618	Tire, 16 x 6.50, 4 ply	x	x	x	x	39	48100-05	Bushing, 3/4 Sintered	x	x	x	x
13	48004-04	Rim Assy	x	x	x	x	40	48114-04	Grease Fitting, Str. 1/4-28	x	x	x	x
14	422214	Lock Washer, Wheel Motor	x	x	x	x	41	48051	Spring, Pump Belt Idler	x	x	x	x
15	48679	Hex Castle Nut, 3/4-28 UNEF	x	x	x	x	42	04019-03	Nut, 5/16-18 Serr. Flange	x	x	x	x
16	04028-01	Nut, Lug	x	x	x	x	43	04063-24	Key, 1/4x1/4x2.75" Clutch Mtg.	x	x	x	x
17	481502	Wheel Assy., (incl. 31,32)	x	x	x	x	44	04063-01	Key, 1/4x1/4x1.25" Pulley Mtg.	x	x	x	x
18	422215	Brake Drum	x	x	x	x	45	04041-07	Flat Washer, 3/8	x	x	x	x
19	04008-01	1/2-20 Serrated Bolt	x	x	x	x	46	48473	Pulley, Idler Pump Drive	x	x	x	x
20	46928	Hub, Wheel	x	x	x	x	47	48586	Pulley, Pump Shaft	x	x	x	x
21	481470	Brake Band, 7.5"	x	x	x	x	48	04012-04	Setscrew, 5/16-18 x 3/8"	x	x	x	x
22	04063-07	Key, 3/16 X .75 Woodruff	x	x	x	x	49	04030-04	Lockwasher, 3/8	x	x	x	x
23	481416	Wheel Motor	x	x	x	x	50	04063-14	Key, 5.0 x 5.0 x 25mm	x	x	x	x
24	48553	Belt, Pump Drive (Sm Frame)	x	x			51	45212	Pivot, Idler Arm	x	x	x	x
24A	48587	Belt, Pump Drive (Lg Frame)			x	x	52	43032	Swivel Joint	x	x	x	x
25	461073	Electric Clutch	x	x	x	x	53	46940	Arm, Idler	x	x	x	x
26	04041-28	Flat Washer .469 x 1.75 x .25	x	x	x	x							
27	04030-05	Lock Washer, 7/16	x	x	x	x							

HANDLE ASSEMBLY

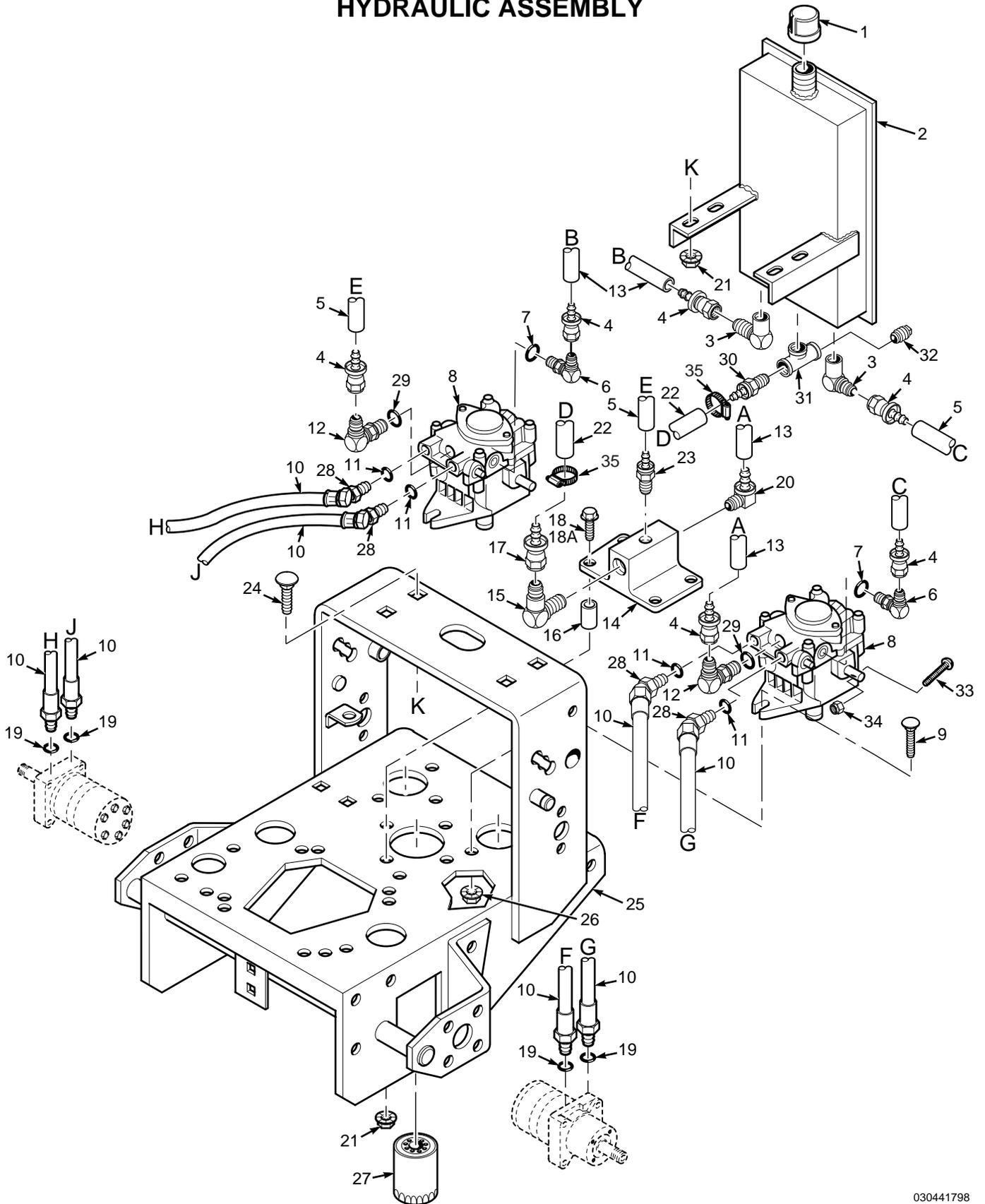


HANDLE ASSEMBLY

Ref. No.	Part No.	Description					Ref. No.	Part No.	Description				
			14KA	15KH	17KA	20CVE				14KA	15KH	17KA	20CVE
1	461128	Upper Handle W/mt. W/Decals	x	x			49	04001-69	Hex Head Bolt, 5/16-18 x 1-3/4"	x	x	x	x
1	461129	Upper Handle W/mt. W/Decals			x	x	50	48494-02	Spring, Return	x	x	x	x
2	42675	Quadrant, Speed Control	x	x	x	x	51	481517-02	Knob, 5/16-18	x	x	x	x
3	04062-02	Hairpin, .094 x 1.19	x	x	x	x	52	43308	Bushing	x	x	x	x
4	45282	Lever, Speed Adjustment	x	x	x	x	53	45292	Handle, Neutral Adj	x	x	x	x
5	43086	Bushing, Speed Adjustment Lever	x	x	x	x	54	04065-05	Drive Pin, 5/32 x 7/8 Type U	x	x	x	x
6	04001-20	Hex Head Bolt, 3/8-16 x 1-1/2"	x	x	x	x	55	04001-08	HH Bolt, 5/16-18 x 3/4"	x	x	x	x
7	48493-01	Ball Plunger	x	x	x	x	56	04030-03	Lock Washer, 5/16	x	x	x	x
8	48092	Knob, Speed Adjustment	x	x	x	x	57	04019-03	Nut, 5/16-18 Serr. Flange	x	x	x	x
9	04014-01	Capscrew, 1/4-20 x 3/4" FHHS	x	x	x	x	58	48224	Bearing, Ball Neutral Return	x	x	x	x
10	04021-08	Nut, 1/4-20 Elastic Stop	x	x	x	x	59	46747	Cam, Neutral (incl. grease ftng.)	x	x	x	x
11	04021-10	Nut, 5/16-18 Elastic Stop	x	x	x	x	60	48114-05	Grease Fitting, 1/4-28 UNF	x	x	x	x
12	04010-01	Screw, #10-32 x 1/2" PW HD	x	x	x	x	61	04050-01	Retaining Ring, 5/8 Ext. "E"	x	x	x	x
13	481071	Throttle Control	x	x			62	04001-09	Hex Head Bolt, 5/16-18 x 1"	x	x	x	x
13A	48946	Throttle Control			x	x	63	45295	Shaft, Pump Control-LH	x	x	x	x
14	04019-01	Nut, #10-32 Serr. Flange	x	x	x	x	63A	45283	Shaft, Pump Control-RH	x	x	x	x
15	48312	Bushing	x	x	x	x	64	45642	Bellcrank, Pump Control-LH	x	x	x	x
16	45572	Handle, Oper. Presence-RH	x	x	x	x	64A	45643	Bellcrank, Pump Control-RH	x	x	x	x
16A	45571	Handle, Oper. Presence-LH (20")	x	x	x	x	65	04050-10	Retaining Ring, 1/2 Ext. "E"	x	x	x	x
16A	45573	Handle, Oper. Presence-LH (16")	x	x			66	04041-07	Flat Washer, 15/16x25/64x12 ga	x	x	x	x
17	481687	Switch, Elec. Clutch Eng. (incl. Nut)	x	x	x	x	67	By Ref.	Deck, Engine	x	x	x	x
18	481680	Wire Harness, Manual Start	x	x	x		68	04001-10	Hex Head Bolt, 5/16-18 x 1-1/4"	x	x	x	x
18A	481681	Wire Harness, Electric Start				x	69	481278	Choke Control				x
19	48609	Key Switch, Manual Srt. (incl. Hdw)	x	x	x		69A	481072	Choke Control			x	
19A	48798	Key Switch, Elec. Start (incl. Hdw.)				x	70	481057	Spring, Return	x	x	x	x
20	46942	Neutral Latch-RH	x	x	x	x	71	42413	Fuse Holder	x	x	x	x
20A	46941	Neutral Latch-LH	x	x	x	x	72	43306	Swivel Joint, Steering Rod	x	x	x	x
21	48717	Switch, Neutral Interlock	x	x	x	x	73	04040-04	Flat Washer (.344 x .688 x .065)	x	x	x	x
22	48159	Grip	x	x	x	x	74	48298	Blade Fuse, 20A	x		x	x
23	04032-01	Washer, Curved Spring	x	x	x	x	75	04021-01	Nut, #10-32 Elastic Stop	x		x	x
24	04040-15	Flat Washer	x	x	x	x	76	04010-03	Screw, #10-32 x 1-1/2" Phillips	x		x	x
25	04031-08	Lock Washer, 1/4" Int. Tooth	x	x	x	x	77	43305	Pin, Neutral Lock	x	x	x	x
26	04001-17	Hex Head Bolt, 5/16-18 x 2"	x	x	x	x	78	43032	Swivel Joint	x	x	x	x
27	04001-53	Hex Hd. Bolt, 5/16-18 x 2-1/2"	x	x	x	x	79	44125	Rod, Brake Lever	x	x	x	x
28	46744	Lever, Steering Control (incl. 29)	x	x	x	x	80	04001-21	Hex Hd. Bolt, 3/8-16 x 1 3/4	x	x	x	x
29	48492	Grip, Steering Control	x	x	x	x	81	04015-13	Soc. Hd. Capscrew, #8-32 x 1/2	x	x	x	x
30	44050	Rod, Steering Control	x	x	x	x	82	04021-09	Nut, 3/8-16 Elastic Stop	x	x	x	x
31	48951	Spring, Handle Return	x	x	x	x	83	04041-23	Washer #8-.170 x .375 x .032	x	x	x	x
32	04017-27	Capscr., 3/8-16 x 1" Ser. Flange	x	x	x	x	84	04050-01	Retaining Ring, 5/8 Ext, "E"	x	x	x	x
33	04030-02	Lock Washer, 1/4"	x	x	x	x	85	43212	Spacer	x	x	x	x
34	04019-04	Nut, 3/8-16 Serr. Flange	x	x	x	x	86	46954	Parking Brake Lever with Grip	x	x	x	x
35	44051	Rod Speed Control	x	x	x	x	87	481476	Switch, Parking Brake	x	x	x	x
36	45279	Bellcrank, Speed Control	x	x	x	x	88	04020-14	Nut, 3/8-24	x	x	x	x
37	04012-02	Setscrew, 1/4-28 x 1/4"	x	x	x	x	89	481411	Bushing, bearing Retainer	x	x	x	x
38	46335	Cam, Speed Control (incl. SS)	x	x	x	x	90	481420	Bearing, Neutral Lock	x	x	x	x
39	43166	Jackshaft, Speed Control	x	x			91	48342	Grip, Parking Brake	x	x	x	x
39A	43155	Jackshaft, Speed Control	x	x	x	x	92	48464	Ball Joint, RH Thread	x	x	x	x
40	04063-13	Key, 1/8 x 1/2" Woodruff	x	x	x	x	93	04062-01	Hairpin, .094 x 1.62	x	x	x	x
41	04021-10	Nut, 3/8-16 Elastic Stop	x	x	x	x	94	481622	Bracket, Choke Mtg. (16" Only)			x	
42	46336	Pivot, Pump Ctrl. (incl. Bshg & Zrk)	x	x	x	x							
43	48100-04	Bushing, 1/2" ID	x	x	x	x							
44	04017-17	Capscrew, 5/16-18 x 1" Serr. Flg.	x	x	x	x							
45	04019-03	Nut, 5/16-18 Serrated Flange	x	x	x	x							
46	42730	Bar, Speed Control	x	x	x	x							
47	43161	Spacer, Speed Ctrl. Bearing	x	x	x	x							
48	48409	Bearing, Speed Ctrl. Bellcrank	x	x	x	x							

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

HYDRAULIC ASSEMBLY

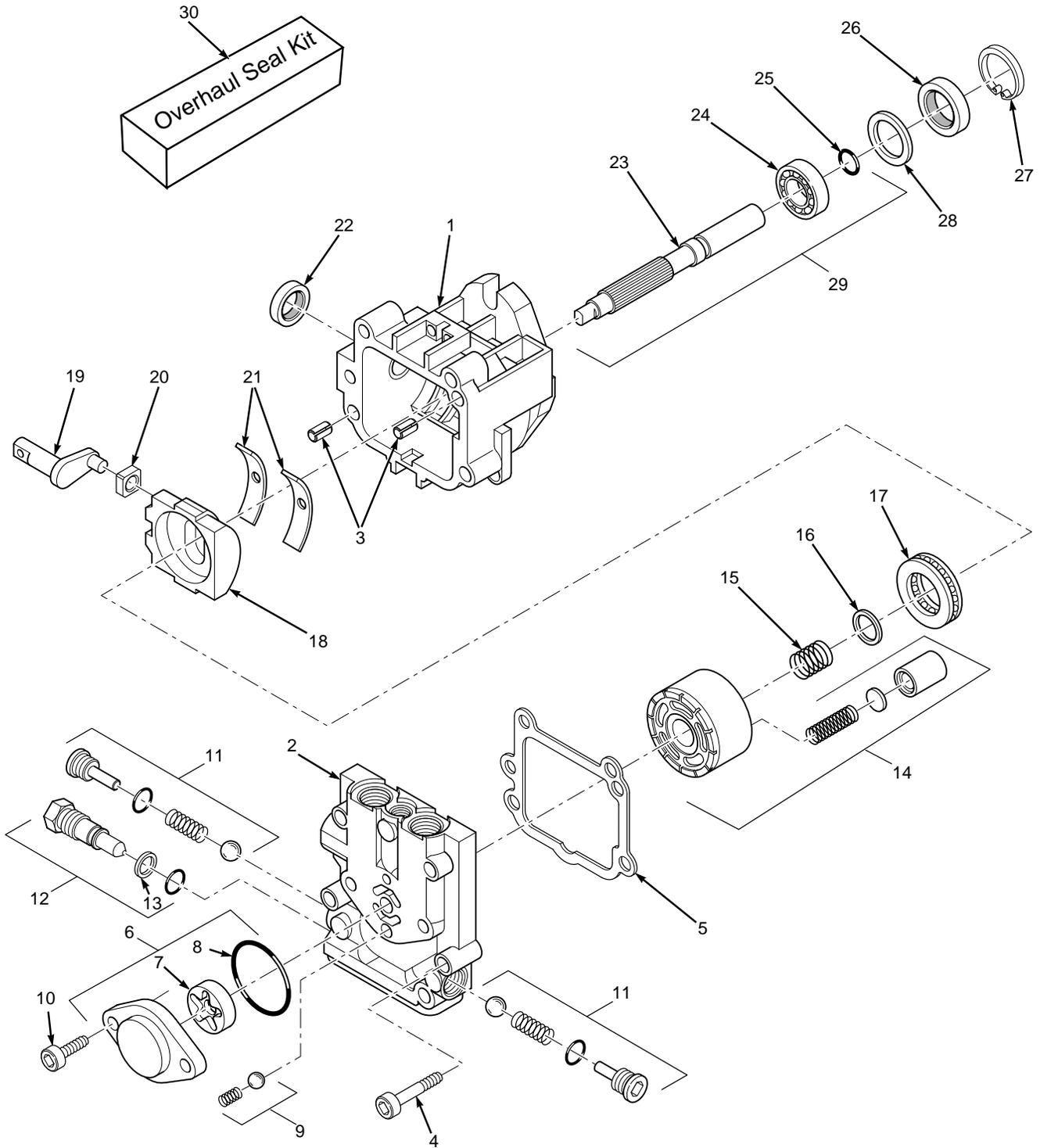


HYDRAULIC ASSEMBLY

Ref. Part No. Number	Description	14KA	15KH	17KA	20CVE	
1	48535	Cap, Oil Reservoir	x	x	x	x
2	46618	Oil Reservoir (small Frame)	x	x	x	
2	46619	Oil Reservoir (Large Frame)			x	x
3	48484-01	Elbow, 90 deg. Female 1/4 NPT to 1/4 JIC Male	x	x	x	x
4	48353-02	Coupling, 7/16-20 SAE Flare Swivel to 1/4" Hose Push On	x	x	x	x
5	48482	Hose, 1/4" ID - 12" Long (Order By The Inch)	x	x	x	x
6	48350-04	Elbow, 90 deg. 7/16-20 JIC to 9/16-18 "O" Ring	x	x	x	x
7	48603-06	O-Ring		x	x	x
8	48551	Pump, Hydro-Gear BDP-10L117	x	x	x	x
9	04003-11	Bolt, Carriage, 3/8-16 x 1-1/4"	x	x	x	x
10	481265	Hose, Pump to Motor	x	x	x	x
11	48603-02	O-Ring	x	x	x	x
12	48350-03	Elbow, 90 deg., 7/16-20 JIC x 7/16-20 O-Ring	x	x	x	x
13	48482	Hose, 1/4" ID - 10" Long (Order By The Inch)	x	x	x	x
14	48471-02	Oil Filter Base	x	x	x	x
15	48489-02	Elbow, 90 deg. Male 3/4-16 JIC to 1/2" Male NPT	x	x	x	x
16	43096	Spacer, Oil Filter Base (20" Frame)			x	x
17	48936-03	Coupling, 3/4-16 SAE to 1/2" Hose Push On	x	x	x	x
18	04017-16	Capscrew, 5/16-18 x .75" (For 16") Serr. Flange	x	x	x	x
18A	04017-22	Capscrew, 5/16-18 x 2.25" (For 20") Serr. Flange	x	x	x	
19	48603-04	O-Ring			x	x
20	48486-01	Elbow, 90 deg. Male 1/4 NPT to 1/4 Hose Push On	x	x	x	x
21	04019-03	Nut, 5/16-18 Serr. Flange	x	x	x	x
22	481562	Hose, Formed 1/2" ID	x	x	x	x
23	48352-02	Coupling, 1/4 straight Male NPT to 1/4 Hose Push On	x	x	x	x
24	04003-12	Bolt, 5/16-18 x 3/4" Carriage	x	x	x	x
25	46946	Engine Deck (16" Wide) W/Decals	x	x	x	x
25	46947	Engine Deck (20" Wide) W/Decals	x	x	x	
26	04019-04	Nut, 3/8-16 Serr Flange			x	x
27	48462-01	Oil Filter	x	x	x	x
28	48485-01	Elbow, 45 Deg.-3/4-16 JIC Male x Male 3/4-16 O-Ring	x	x	x	x
29	48603-03	O-Ring		x	x	x
30	481537-02	Coupling, 3/8 Pipe to 1/2 Push-on	x	x	x	x
31	48491	T-Fitting, 3/8 NPT	x	x	x	x
32	48731-01	Plug, 3/8-18 NPTF Magnetic	x	x	x	x
33	04010-10	Screw, 1/4-20 x 2.0" Round Head Phillips	x	x	x	x
34	04021-08	Nut, 1/4-20 Elastic Stop	x	x	x	x
35	48136-05	Clamp, .87 max dia.	x	x	x	

* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.

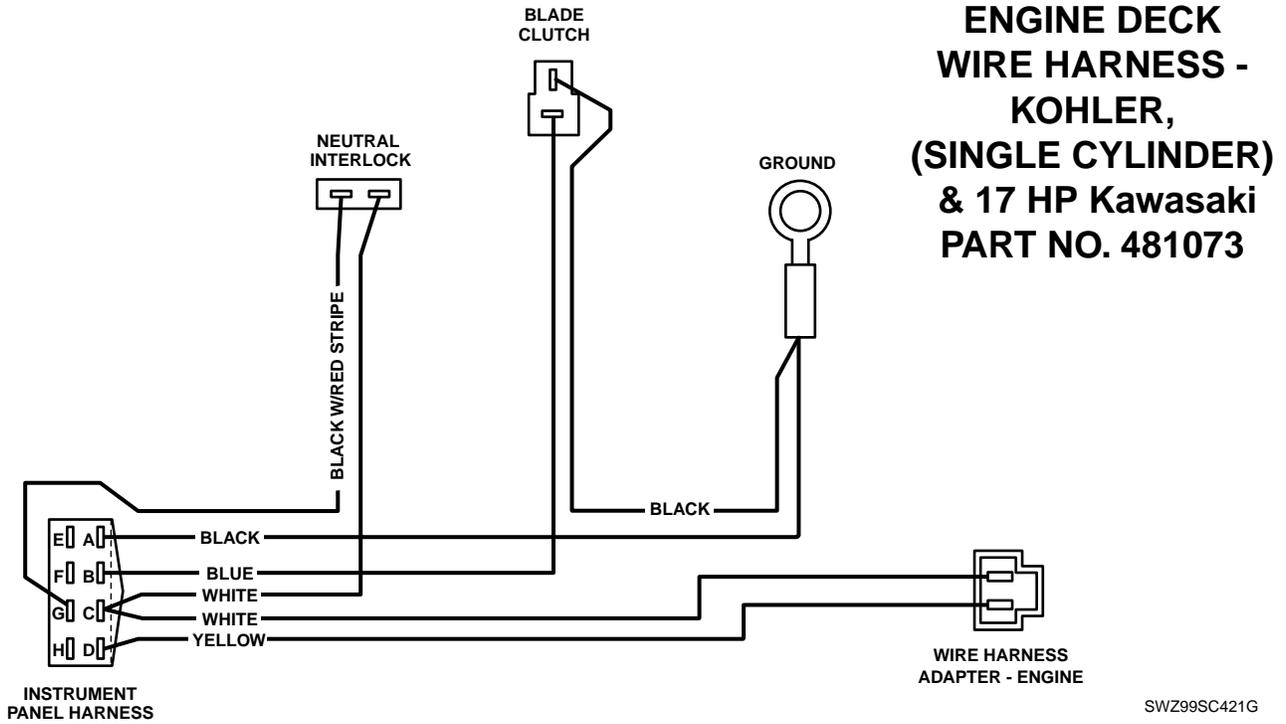
HYDRAULIC PUMP ASSEMBLY



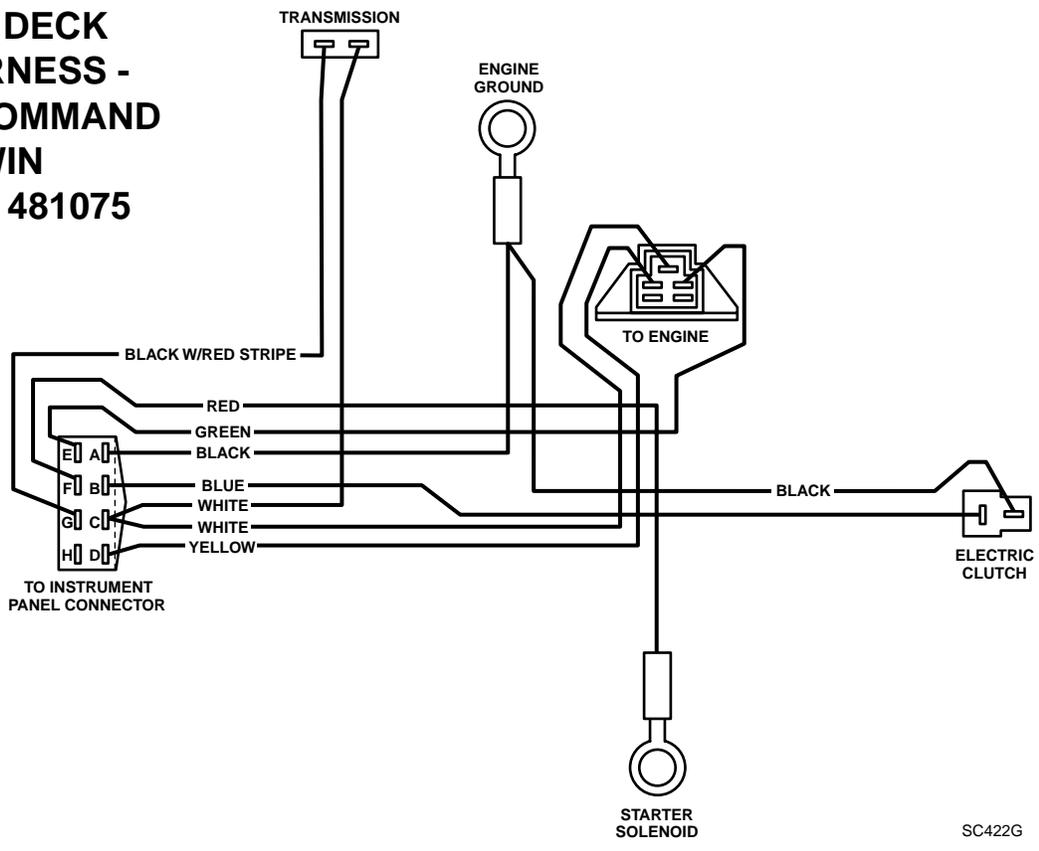
HYDRAULIC PUMP ASSEMBLY

Ref. No.	Part Number	Description
1	HG 2513017	Housing Kit (Incl. Housing, Journal Bearing)
2	HG 2513016	End Cap
3	HG 9004800-2506	Straight Headless Pin
4	HG 9007314-0810	Socket Head Screw
5	HG 2003067	End Cap Gasket
6	HG 2513027	Charge Pump Kit (Incl. Charge Cover, Gerotor Assy., O-Ring)
7	HG 50273	Gerotor Assembly
8	HG 9004101-1340	O-Ring
9	HG 2510064	Charge Relief Valve Kit
10	HG 50095	Socket Head Screw
11	HG 2510027	Check Valve Kit (Incl. Check Plug, Spring, O-Ring, Orifice Check Valve)
12	HG 2513030	Bypass Valve Kit (Incl. Bypass Valve, O-Ring, Back-up Ring)
13	HG 9006110-0120	Backup Ring
14	HG 70079	Cylinder Block Kit
15	HG 2003014	Block Spring
16	HG 2003017	Block Thrust Washer
17	HG 2003044	Roller Thrust Bearing
18	HG 2003087	Swash Plate
19	HG 2003005	Trunnion Arm
20	HG 2000015	Guide Slot
21	HG 2003023	Cradle Bearing
22	HG 9008000-0126	Lip Seal
23	HG 2003020	Pump Shaft
24	HG 2003043	Ball Bearing
25	HG 2003016	Retaining Ring
26	HG 9008000-0128	Lip Seal
27	HG 2003052	Retaining Ring
28	HG 2003018	Spacer
29	HG 2513038	Shaft Kit (Incl. Pump Shaft, Ball Bearing, Retaining Ring)
30	HG 2513018	Overhaul Seal Kit (Incl. Gasket, Trunnion Seal, Input Shaft Seal, Charge Pump O-Ring)

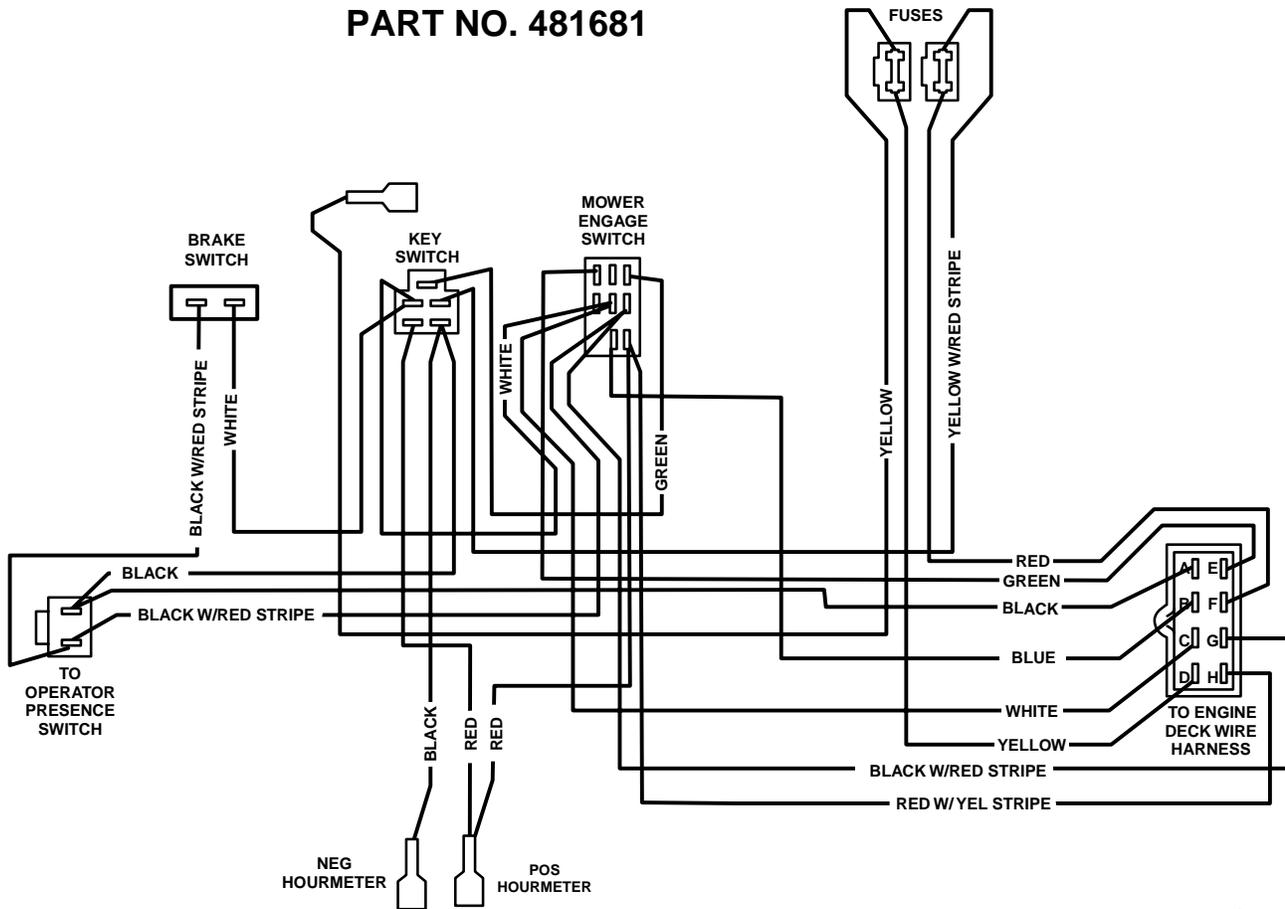
* Common hardware which should be purchased locally. All bolts Grade 5 plated, all other fasteners zinc plated.



ENGINE DECK WIRE HARNESS - KOHLER COMMAND V-TWIN PART NO. 481075

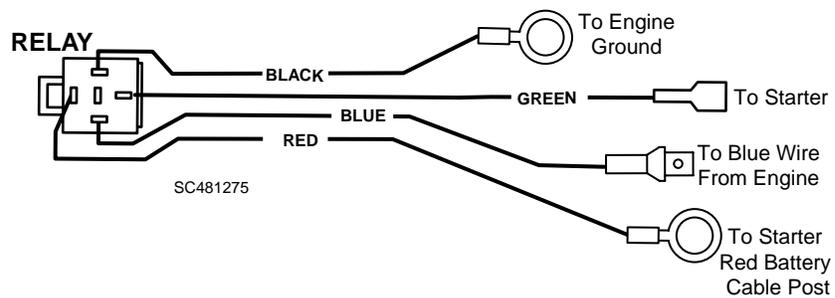


HANDLE WIRE HARNESS - ELECTRIC START PART NO. 481681

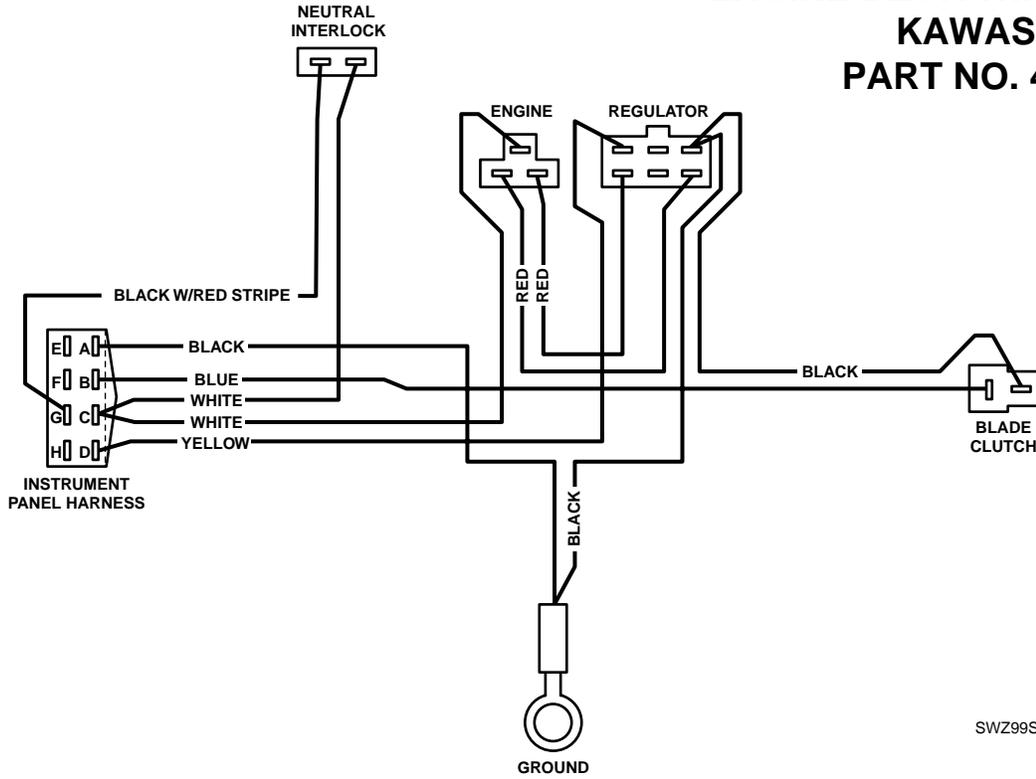


SWZ99-481681

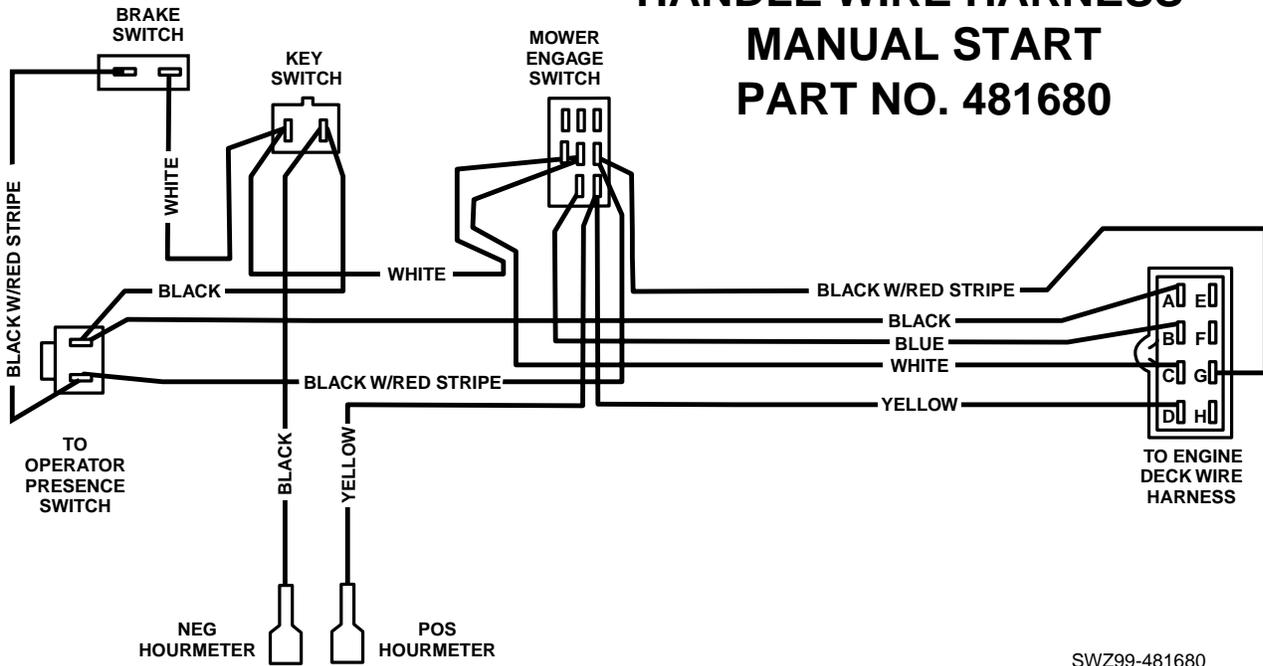
WIRE HARNESS WITH RELAY PART NO. 481275



ENGINE DECK WIRE HARNESS - KAWASAKI PART NO. 481074



HANDLE WIRE HARNESS - MANUAL START PART NO. 481680



REPLACEMENT DECALS & INFORMATION



48072
48072



48314



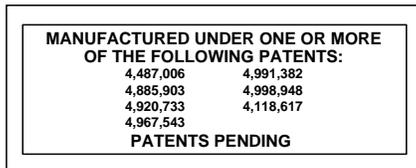
36" - 48316
48" - 48318
52" - 48319
61" - 48320
72" - 48327



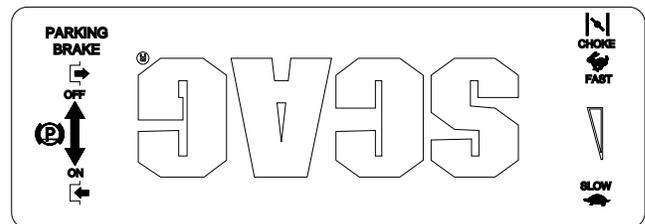
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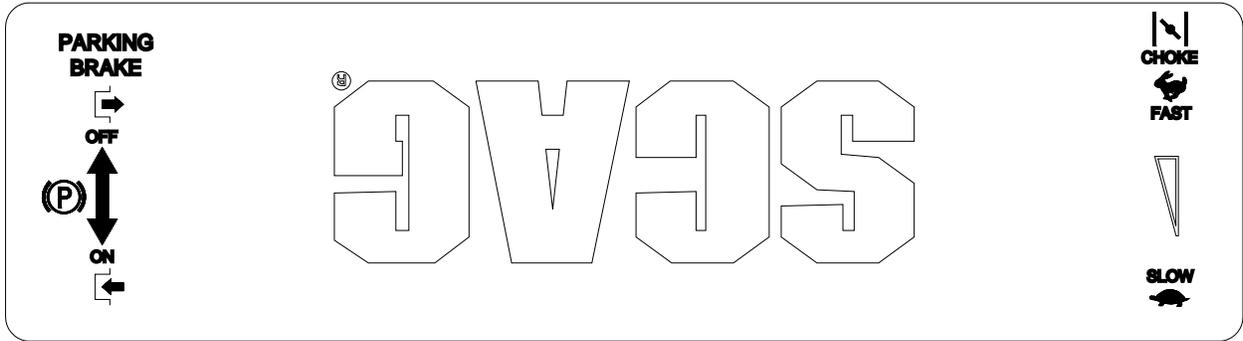


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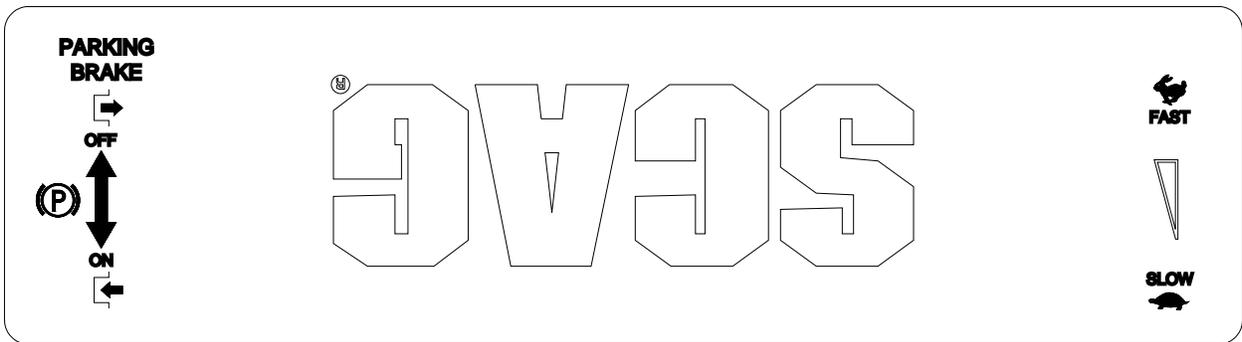


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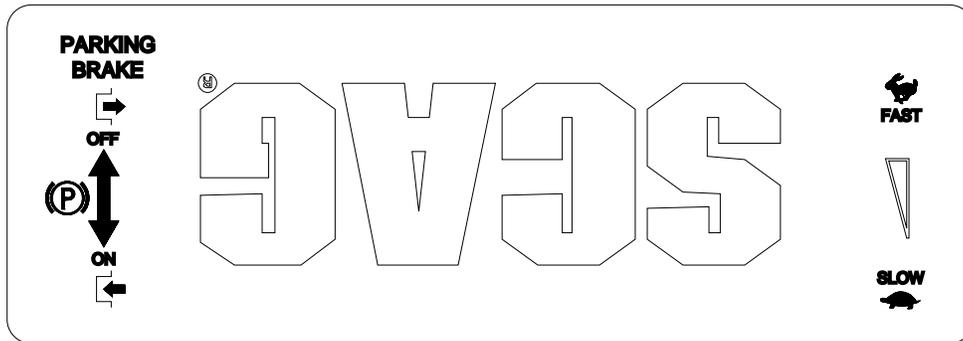
REPLACEMENT DECALS & INFORMATION



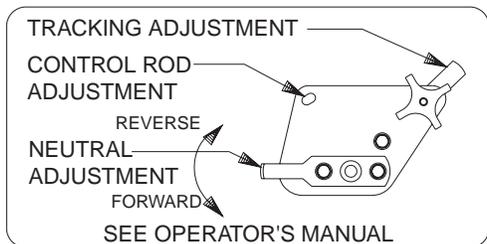
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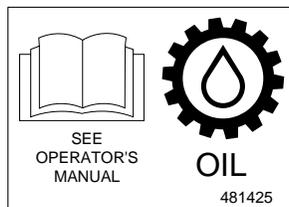
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481438



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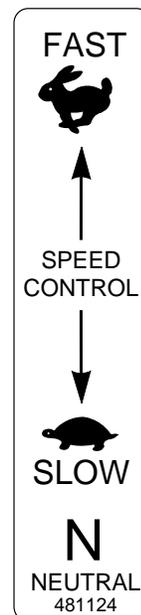


481425



48514 - 20"

48555 - 16"



481124

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 clutches have a Limited Warranty for 2 years. (Parts and labor 1st year; Parts Only 2nd year)
- * Cutter Spindle Assemblies 46631 have a Limited Warranty for three years (Parts and labor 1st year; Parts only 2nd and 3rd 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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PART NO. 03056
PRINTED 1/99
PRINTED IN USA