

SCAG®

GEAR DRIVE COMMERCIAL MOWERS TECHNICAL MANUAL



MODELS

STG-18KH
SM-61

PATENT NO. 4,885,903

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SCAG POWER EQUIPMENT
DIVISION OF METALCRAFT OF MAYVILLE, INC.

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Your mower was built to the highest standards in the industry. However, your mower is only as safe as the operator. Carelessness or error on the part of the operator may result in serious bodily injury. 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 equipment.

SAFETY INSTRUCTIONS

1. Know the controls and how to stop quickly. **READ THIS TECHNICAL MANUAL** and instructions furnished with attachments. A replacement manual is available by sending complete model and serial number to:
Scag Power Equipment
1000 Metalcraft Drive
Mayville, WI 53050
2. Do not allow children to operate the machine. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. Do not mow when children and others are around.
4. Clear the work area of objects (wires, rocks, etc.) that might be picked up and thrown.
5. Disengage power to all attachments and shift into neutral before attempting to start the engine.
6. Disengage power to attachments, stop the engine and remove key before leaving the operator's position.
7. Disengage power to attachments, stop the engine and remove key before making any repairs or adjustments.
8. Disengage power to attachments when transporting or not in use.
9. Take all possible precautions when leaving the machine unattended, such as disengaging power to attachments, lowering the attachments, setting the parking brake, stopping the engine, and removing the key.
10. Do not operate 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.
11. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
12. Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.
13. Stay alert for holes, rocks, and roots in the terrain and other hidden hazards. Keep away from drop-offs.
14. Use care when pulling loads or using heavy equipment.
 - a. Use only approved drawbar hitch points.
 - b. Limit loads to those you can safely control.
 - c. Do not turn sharply. Use care when backing.
 - d. Use counterweights or wheel weights when suggested in this technical manual.
15. Watch out for traffic when crossing or near roadways.
16. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.
17. Handle gasoline with care - it is highly flammable.
 - a. Use approved gasoline container.
 - b. Never remove the fuel cap of, or add gasoline to, a running or hot engine or an engine that has not been allowed to cool for several minutes after running. Never fill the tank indoors and always clean up spilled gasoline.
 - c. Open doors if the engine is run in the garage. Exhaust fumes are dangerous. Do not run the engine indoors without proper ventilation.
18. Keep the machine and attachments in good operating condition, and keep safety devices and shields in place and in working condition.
19. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
20. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
21. To reduce fire hazard, keep the engine free of grass, leaves or excessive lubricants.

SAFETY INSTRUCTIONS, CONT'D

22. The machine and attachments should be stopped and inspected for damage after striking a foreign object. The damage should be repaired before restarting and operating the equipment.
23. Do not change the engine governor settings or overspeed the engine.
24. When using the machine with mower, proceed as follows:
 - a. Mow only in daylight or in good artificial light.
 - b. Never make a cutting height adjustment while engine is running if the operator must dismount to do so.
 - c. Shut the engine off and remove key when removing the grass catcher or unclogging chute.
 - d. Check the blade mounting bolts for proper tightness at frequent intervals.
25. Under normal usage, the grass catcher bag material is subject to deterioration and wear. Check bag frequently for deterioration and wear and replace worn bags. Check that replacement bags comply with the original manufacturer's recommendations or specifications.
26. 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.
27. The discharge chute must be installed and in the down position on the side discharge cutting unit except when optional grass catcher is completely installed. If the cutting unit discharge ever plugs, shut engine off and wait for all movement to stop before removing obstruction.
28. Perform only those maintenance instructions described in this manual. If major repairs are needed or assistance is desired, contact an Authorized Scag Servicing Dealer. To ensure optimum performance and safety, always purchase genuine SCAG replacement parts and accessories. NEVER USE "WILL FIT" replacement parts or accessories made by another manufacturer. Use of unapproved replacement parts may void the warranty.

! WARNING

DO NOT operate on steep slopes. To check a slope, attempt to back up (with cutter deck down). If unit can back up the slope without the wheels slipping, then slope should be manageable with careful operating procedures.

ASSEMBLY INSTRUCTIONS

1. Remove all crating and packing materials.
2. Lay out loose bolts and nuts according to "Where Used" as listed in the loose parts packing list.
3. Block the cutter deck up, about two inches off the floor.
4. Remove belt cover. Remove mower engage control rod.
5. Move tractor assembly to cutter deck so that mounting brackets clear engine deck.
6. Unwind winch lift cable and tilt engine deck to horizontal position. Align the lower set of holes in the mower deck brackets and insert drift pins on each side to temporarily locate holes.

! IMPORTANT

7. Use lower set of holes in deck mounting brackets for mowing in the range of 2-3/4" through 4-1/4". Use the upper set of holes in the deck mounting brackets for mowing in the range of 1-3/4" through 3". (See figure 1) Insert (6) 1/2-13 x 1-1/2 bolts; (2) 1/2-13 x 1" bolts, flat washers, lock washers and hex nuts. Tighten all eight bolts very securely. Then go back and retorque each one to 90 ft. lbs.

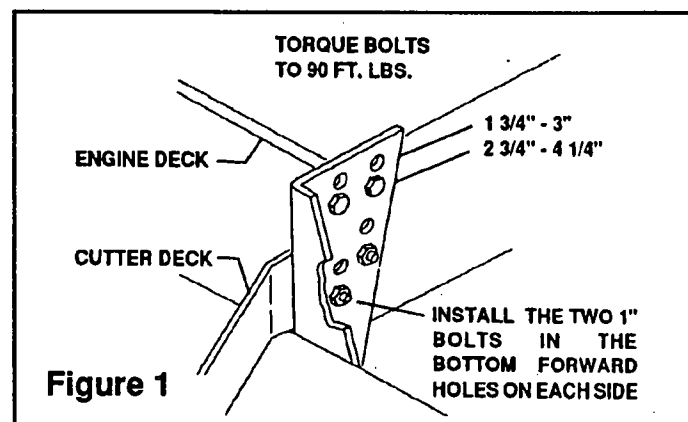


Figure 1

ASSEMBLY INSTRUCTIONS, CONT'D

8. Raise cutter deck using lift winch and assemble front caster wheels using eight (8) 5/16-18 x 3/4" bolts, lock washers and nuts.
9. Install the mower engagement control rod. Secure with hair pin cotter at both ends.
10. Route blade drive belt over engine pulley. Be sure belt clears the belt guide saddle at center spindle and is positioned between the pulley and its belt guide at the center pulley support bracket.
11. Push mower engagement lever forward until it snaps to rest. Adjust belt tension as specified in adjustment sections. DO NOT adjust too tight.
12. Install grass discharge deflector chute using two (2) 5/16-18 x 1" bolts and elastic stop lock nuts.
13. Place seat assembly on the seat support spring using two (2) 3/8-16 x 3/4" bolts and lock washers. Seat can be positioned forward or backward for operator comfort.
14. Insert steering handle on shaft and secure with one (1) 5/16-18 x 1-3/4" bolt, two (2) washers and a locknut. Tighten securely.
15. Reduce tire pressure to values below.

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

NOTE: Tires are over inflated for shipping purposes.

WARNING

Severe chemical burns may result from improper handling of battery electrolyte. Use proper eye, skin and clothing protection.

External contact: Flush with water.

Internal contact: Do not give fluids that would induce vomiting. Drink large quantities of water, followed with milk of magnesia, beaten egg or vegetable oil. Contact a physician immediately!

Eye contact: Flush with water for at least 15 minutes and get medical attention immediately!

WARNING

Explosive gases are vented from a battery when being charged or discharged which could explode if exposed to a flame or spark.

17. Fill each battery cell with electrolyte solution to level indicator. Charge at 3 to 5 amps for about 2 hours. Check fluid level and add electrolyte until level is up to the bottom of the split ring.

NOTE: Future need to adjust fluid level requires distilled water.

Wash and dry off battery. Coat terminals with grease to minimize corrosion.

Sparking can be minimized by connecting the positive cable first, covering the connection with the rubber boot, then connecting the negative cable.

18. Reinstall battery.
19. All oil is removed from engine before shipment. Add oil to the level specified in the engine manual.
20. Fill fuel tank.
21. Open shut-off valve under tank.
22. After initial run and inspection of cutter belt, replace belt cover.

ADJUSTMENT INSTRUCTIONS

Cam Link Over-Center

The over-center adjustment must be checked and adjusted before setting the belt tension.

Engage the blade clutch lever and check for proper over-centering. There should be about 3/8" between rod and straight edge. (See figure 2) Bend the stop tab to adjust the clearance.

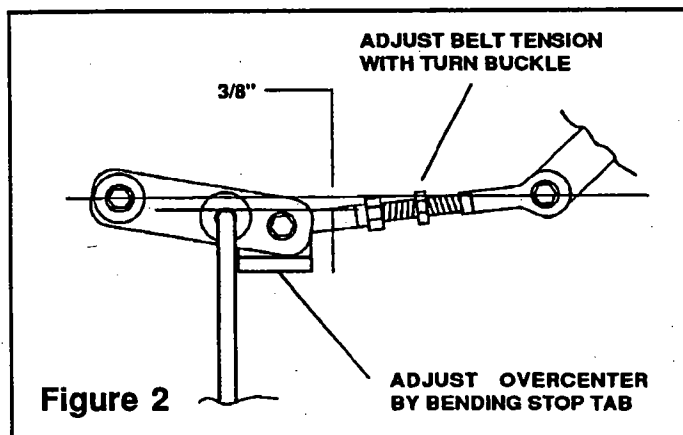


Figure 2

Belt Alignment

Align belt horizontally between the center spindle pulley and engine pulley. Remove or install the spacer located under the stationary idler bracket to get belt and pulley alignment.

Belt Guides

Check that all belts clear their belt guides by about 1/8 to 3/16 inch. Adjust guides if necessary.

Drive Belts

Cutter Deck Drive Belt:

Belt tension should not be adjusted until over-center spacing is checked. Adjust blade drive belt so that the belt moves 1/2" with 10 pounds of pressure. (See figure 2)

Blade Drive Belt:

Adjust cutter deck belt by turning lock nut on "J" pull rod where applicable. About 10 lbs. pull sideways deflects belt 1/2 inch. Test belt at short section between center spindle and left hand spindle (See figure 3)

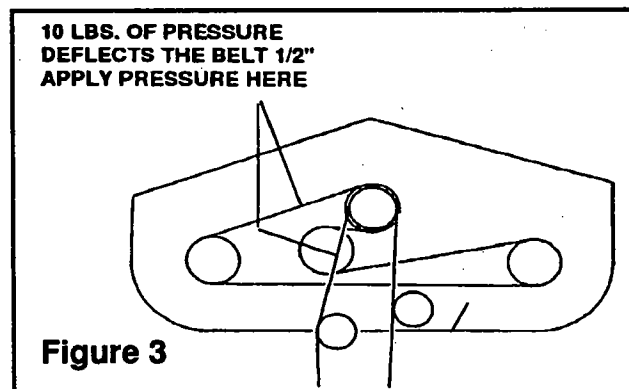


Figure 3

IMPORTANT: Readjust new belt tensions after 4 hours of operation and again after about 24 hours to take up initial stretch and wear.

Cutter Deck

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

PITCH is the angle of the blades (comparing front to rear). A positive pitch is when the front (leading) edge of the cutting plane is lower than the rear (trailing) edge. Level pitch is when both front and rear are basically level. A negative pitch is when the leading edge is higher than the rear edge.

ADJUSTMENT INSTRUCTIONS

HEIGHT is the nominal distance the blade is off of the ground (this measurement is made with the blades pointed side to side with distance measured between cutting tip and ground). Adjusting the blade height can be done by moving any number of the five spacers on the blade mounting bolts to the top of the spindle shaft or below the spindle shaft (all blades should be positioned equally). Unit is shipped with one spacer on top and four underneath. (See figure 5) This adjustment does not affect blade pitch.

For best results, keep the cutter deck high in relationship to the engine deck and the blades low in the cutter deck; i.e. 3,4,5 spacers below the spindle shaft.

Additional range to the cutting height can be achieved by repositioning the cutter deck in relationship to the engine deck. (This adjustment also affects the pitch of the deck). There are two positions. (See figure 1, page 3) Suggested mounting is in the bottom hole. For cutting lower, mount the cutter deck in the upper hole to drop the deck down. Check the cutter deck belt alignment after repositioning the deck.

Caster spacers also can be repositioned to change cutting heights and to change the pitch of the deck. (See figure 4)

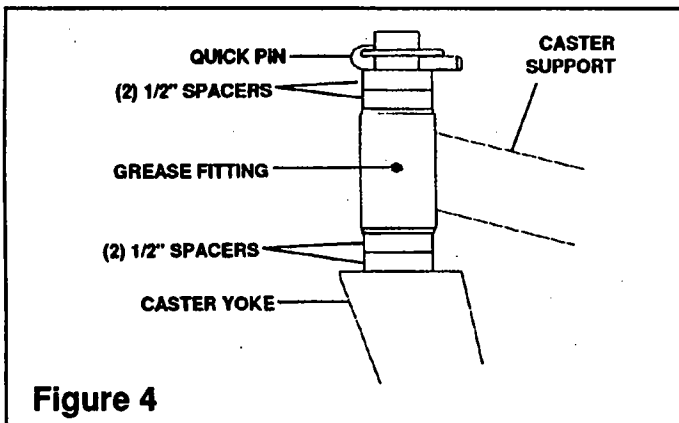


Figure 4

Tapered Bearing Spindle Assembly

Adjusting the blade height can be done by moving any number of the four smaller 1/4" spacers on the blade mounting bolts to the top of the spindle shaft or below the spindle shaft. (All blades should be positioned equally.) The tapered bearing spindle has a large 1/4" spacer that is installed directly below the spindle housing and is secured to the spindle with two roll pins. The blade can be adjusted all the way up to the spindle assembly if all the smaller 1/4" spacers are removed and installed above the pulley. The larger 1/4" spacer can then be removed along with the roll pins. (Do not install the larger 1/4" spacer above the pulley, store it in a convenient location away from the machine.) When any 1/4" spacers are installed above the blades, the larger 1/4" spacer must be installed directly below the spindle housing. If a smaller 1/4" spacer is installed directly below the spindle housing and contacts the retaining ring, a non-warrantable failure will occur. For best cut and discharge, a minimum of three spacers should be between the blade and spindle. (See figure 5)

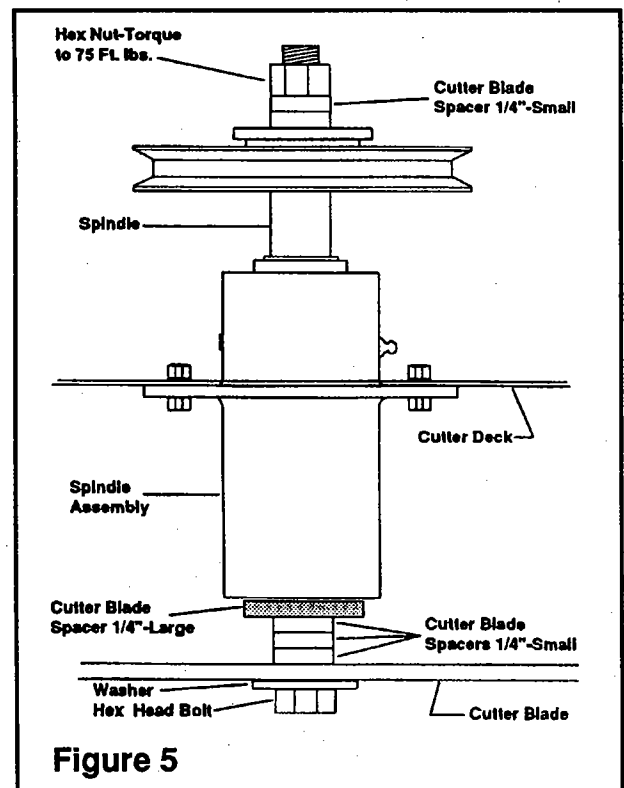


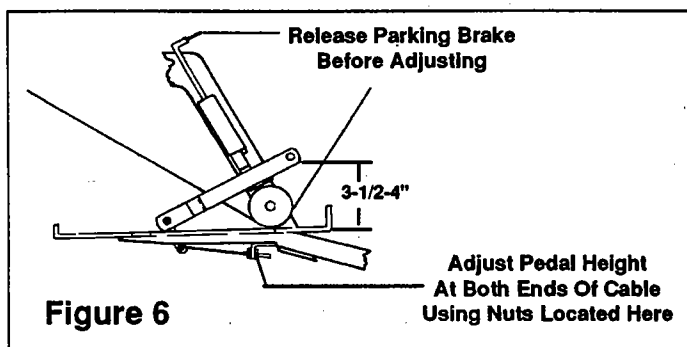
Figure 5

ADJUSTMENTS CONT'D

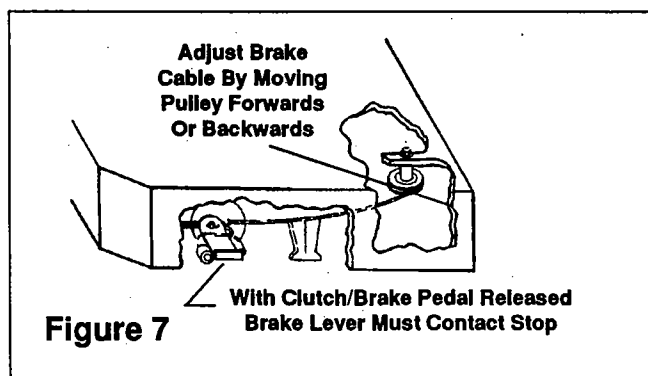
Clutch/Brake Control

Three adjustments must be made together and in proper sequence or improper operation and possible damage to the clutch cable, brake cable, pulley, and or brake system may result.

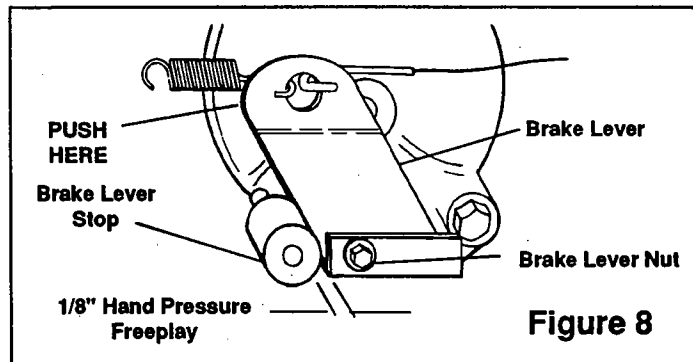
1. With parking brake released adjust foot pedal so that it is 3-1/2" - 4" above foot rest (see figure 6). HINT: Use a 2x4 board on edge between pedal and foot rest for approximate positioning. Adjust foot pedal position by adjusting the two cable mounting nuts located on each end of the cable housing.



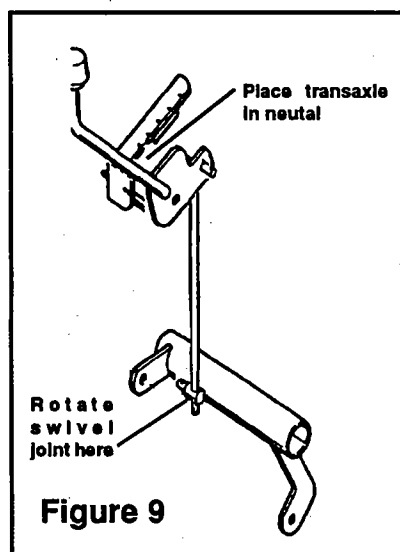
2. To adjust the brake, release the clutch/brake pedal (foot pedal is in the up position, with tension on the transaxle belt). Move brake cable pulley (See figure 7) forward or backward in its slot to permit transaxle brake lever to rest against its stop (See figure 8)



3. Then adjust brake lever nut to permit free movement of lever about 1/8" from stop by pushing lever with hand pressure. (Pads must not "drag" on brake disc when adjusted.) If brake lever is too tight, shifting may be impossible and brake wear will be excessive.



OPERATION AND INITIAL RUN-IN



Transaxle shifter neutral may require adjustment so that starter engages at neutral stop. With transaxle in neutral, rotate swivel joint to lengthen or shorten shift rod so shift quadrant reads neutral. (See figure 9)

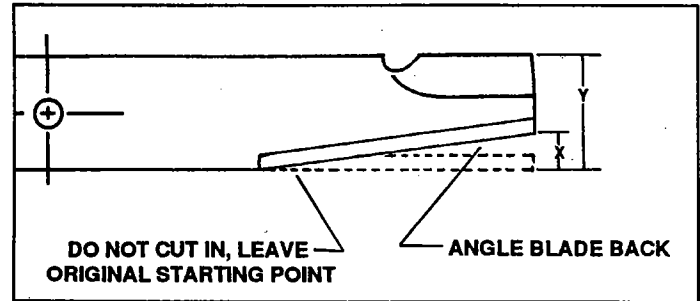
1. Set parking brake before starting engine. Please Remember: To start engine, three interlock switches must be activated:
 - a. The shift lever must be in neutral.
 - b. The mower engage lever must be pulled all the way back (and held there).
 - c. The foot interlock switch pedal on the left side must be depressed.
2. Run new engine at half speed about 5 minutes before applying any load.
3. Adjust carburetor fuel-air mixture valves according to specifications in engine manual.
4. To release parking brake, depress right hand foot pedal, lift brake lever and rotate 90 degrees and release foot pedal.
5. Readjust shift lever for proper neutral, if necessary. **Note: Do not shift on the go. You must declutch before shifting.**

OPERATION AND INITIAL RUN-IN

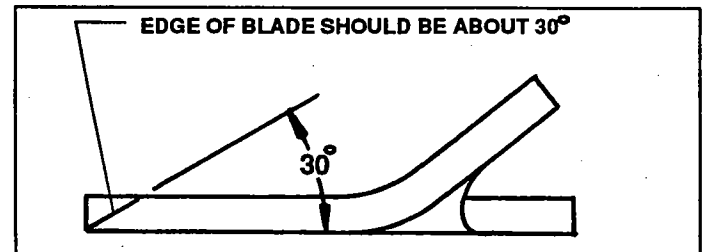
1. Check for correct routing of belts and for correct clearance of belt guides.
2. Check for correct alignment and initial tension of cutter blade drive belts.
3. Check that all fasteners are correctly tightened.
4. Check engine oil level.
5. Fill fuel tank with clean fresh lead free gasoline.
6. To start engine: Pull mower engagement lever to off position. Depress the left foot (operator presence) pedal. Shift transaxle into neutral. Put parking brake in engaged position. Adjust throttle and choke as required. Turn ignition key to start.
7. To engage blades release the parking brake. Push mower engagement lever forward until over-center snaps into the engaged position. Allow belts to run-in for 5 minutes initially.
8. To operate the unit forward and backward, hold clutch pedal down while releasing brake lock. Shift into desired gear. Release clutch pedal slowly. Check that all systems function correctly. To change gears, always declutch before shifting.
9. To coast to a stop, depress clutch pedal partially. To fully brake, depress clutch pedal completely. Always engage parking brake before leaving the machine.
10. Shut off engine and recheck cutter deck drive belts for proper tension, and any signs of rubbing. Correct and adjust as necessary.

MAINTENANCE

Cutter Blades



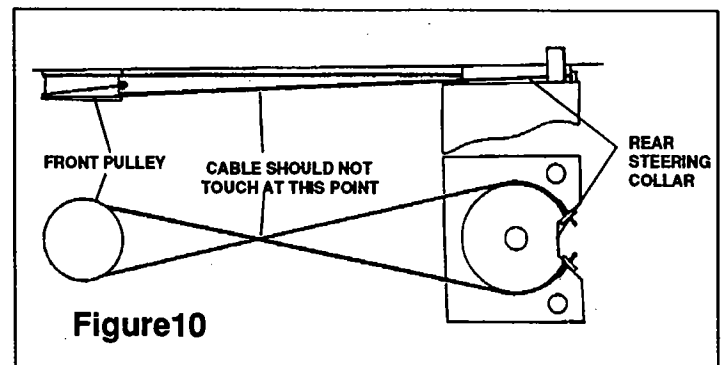
Do not sharpen (X) beyond 1/3 of the width (Y) of the blade.



Suggestion: Dress the blade with a file. Using a wheel grinder may burn the blade.

Steering Cable Routing

When the steering cable is routed between the front pulley and the rear steering collar, it is very important that the cable does not rub where it crosses. The top of the cable end from the front pulley must go over the top of the lower cable end. (See figure 10) Cable should be tightened until the slackness has been removed. Cable should not be under tension.



LUBRICATION & MAINTENANCE

		8 Hours (Daily)	40 Hours (Weekly)	100 Hours (Biweekly)	200 Hours (Monthly)	PROCEDURE	COMMENTS
X	X	X	X	X	X	Check engine oil Clean blower screen Clean debris under belt cover Sharpen cutter blades Grease spindle bearings	Do not over fill MORE OFTEN IF NECESSARY + US Lithium MP White Grease 2125
X	X	X	X	X	X	Change engine oil Check battery acid level Clean air filter Check tire pressure	See engine mfg. information Distilled water only Adjust as required
X	X	X	X	X	X	Grease caster wheel bearings Grease caster wheel pivots Grease idler pulley pivots Remove hubs from axle & grease	Chassis grease Chassis grease Chassis grease Anti-sieze compound
X	X	X	X	X	X	Clean and adjust spark plugs Adjust brake lever freeplay Grease rider frame pivot Grease control bellcrank Grease left axle bearing Grease steering handle Grease foot pedal Grease rear wheel pivot vertical Grease rear wheel bearing Lubricate idler pulley cam links	See engine manufacturer information See Adjustments Clutch/Brake (page 7) Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease Chassis grease + US Lithium MP White Grease 2125 LPS type lubricant

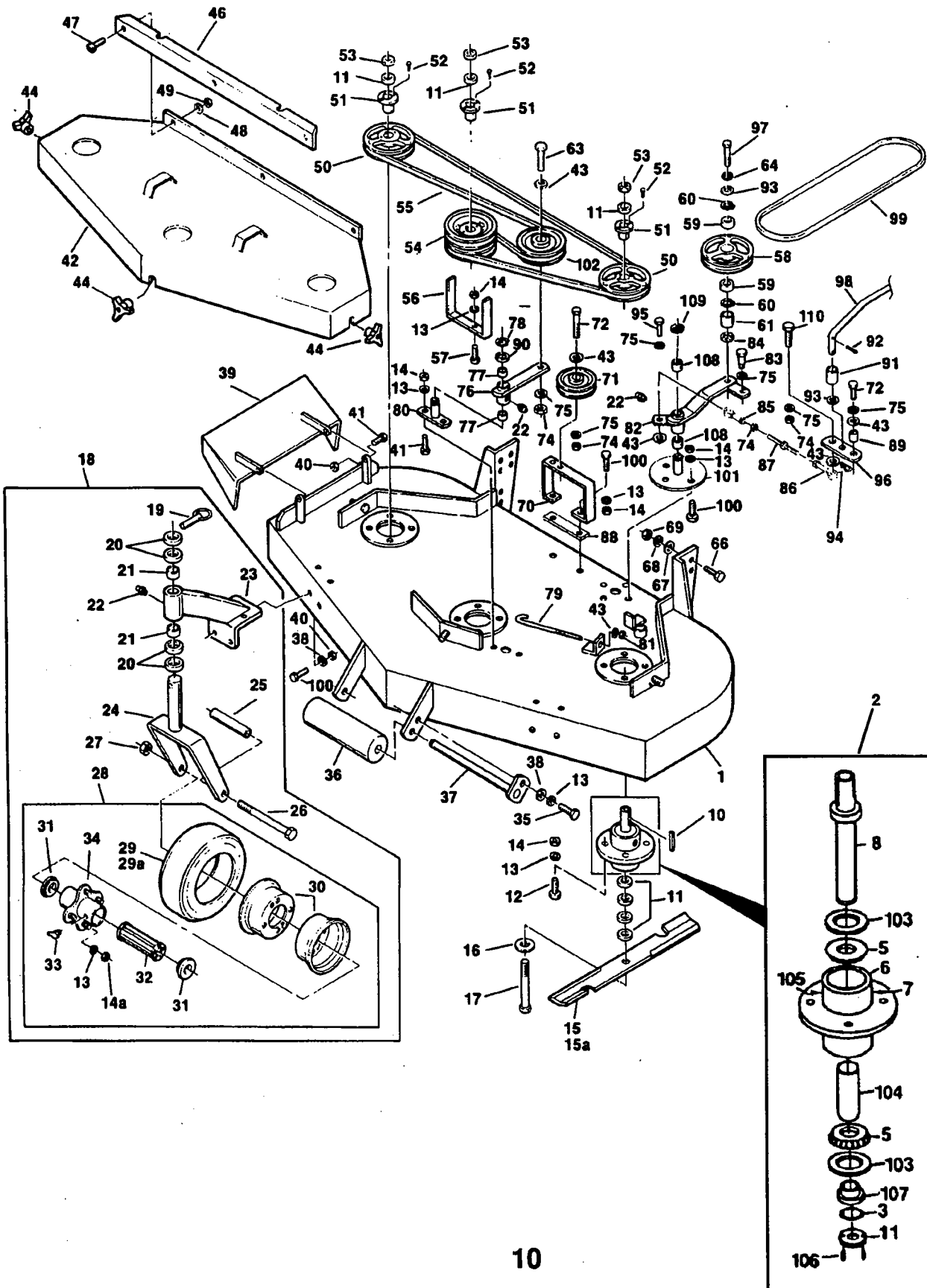
* Depending on climate and environment, lubrication may be required every 8 to 40 hours. Do not over grease as this may damage seal.

+ Compatible Greases:

- Lidok EP #2 found at Industrial Shops
- Ronex MP found at Exxon Service Stations
- Shell Alvania #2 found at Shell Service Stations
- Mobilux #2 found at Mobil Service Stations
- Super Lube M EP #2 and Super Stay-M #2 found at Conoco Service Stations

Note: Transaxle does not require lubrication, however users have found that a few tablespoons of STP Oil Treatment added to the transaxle extends its life. We suggest this procedure once per season.

SM-61 CUTTER DECK

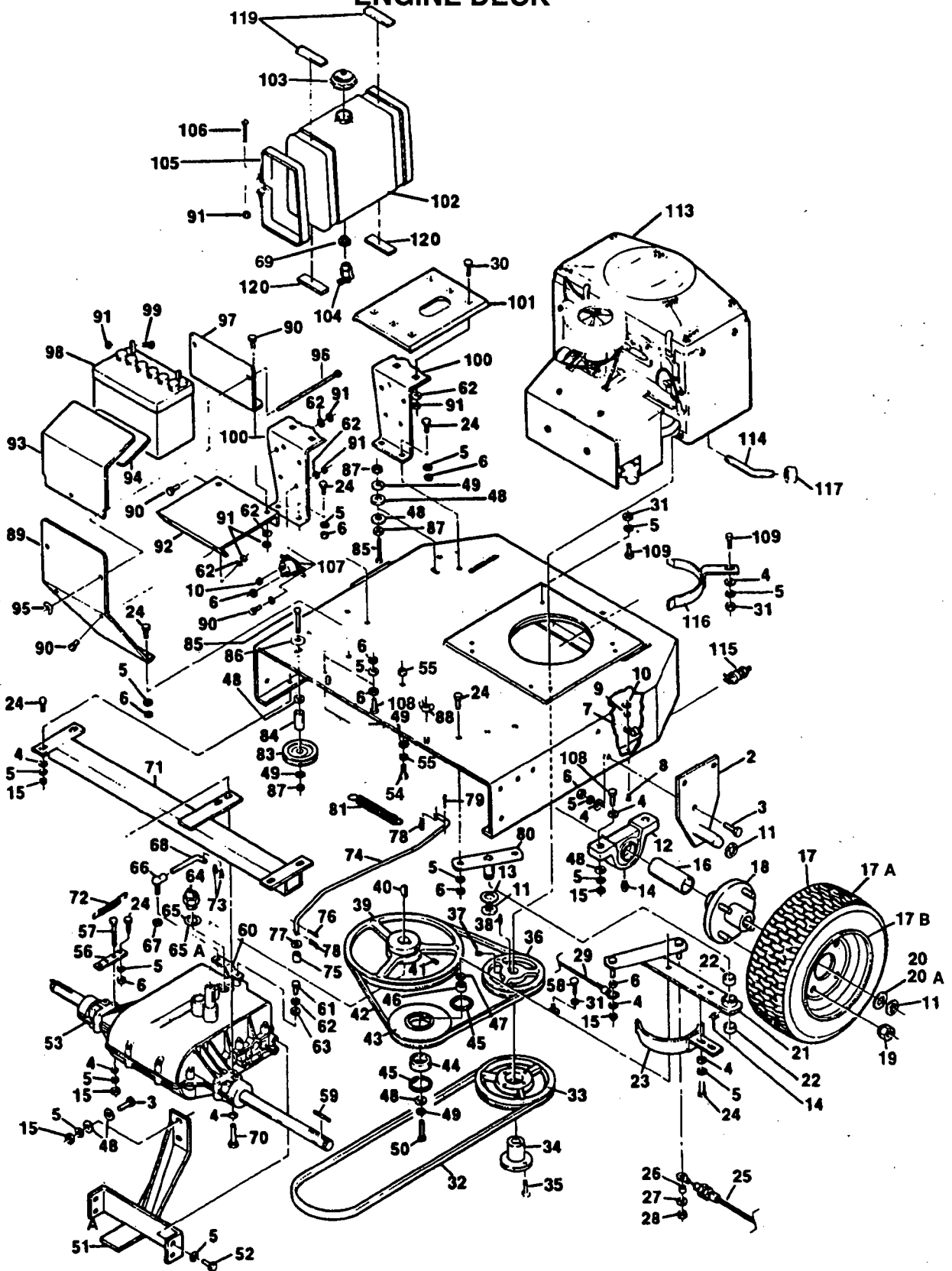


SM-61 CUTTER DECK

Ref. Part No. No.	Description	Ref. Part No. No.	Description
1	46245 Cutter Deck (incl. Decal)	54	48128 Pulley, Double (includes 51-52)
2	46400 Spindle Assembly, Tapered Bearing	55	48607 Belt, Blade Drive
3	04050-04 Retaining Ring, 1" Ext.-Inverted	56	42063 Belt Guide
4	04050-07 Retaining Ring, 2-7/16" Int.-Basic	57	" Bolt, Hex Hd., 5/16-18 x 1-1/2"
5	48868 Tapered Bearing	58	48062 Pulley Idler
6	41007 Spindle Housing, Tapered Bearing	59	48102 Bearing
7	48114-02 Grease Fitting, Str. 5/16 Serrated	60	04050-06 Retaining Ring, 1-9/16" Int. Basic
8	45391 Spindle Shaft, Tapered Bearing	61	43045 Sleeve, Idler Bearing
9	04041-02 Washer, 1-5/16 x 2-7/16 x 16 ga.	62	43040 Spacer, Idler Bearing
10	04063-08 Key, 1/4 x 1/4 x 2"	63	" Bolt, Hex Hd., 3/8-16 x 2-3/4"
11	43201 Spacer, Cutter Blade	64	" Lockwasher, Spring 1/2"
12	" Bolt, Hex Hd., 5/16-18 x 1-1/4"	66	" Bolt, Hex Hd., 1/2-13 x 1-1/4"
13	" Lockwasher, Spring, 5/16"	66	" Bolt, Hex Hd., 1/2-13 x 1-1/2"
14	" Hex Nut, 5/16-18	67	" Flat Washer, 1/2"
14A	" Hex Nut, 5/16-24	68	" Lockwasher, 1/2"
15	48111 Cutter Blade, 21" Standard Lift	69	" Hex Nut, 1/2-13, Elastic Stop
15A	48304 Cutter Blade, 21" High Lift	70	42536 Idler Pulley Support
16	04040-10 Flat Washer, 5/8W	71	48413 Pulley, Belt Guide
17	04001-41 Bolt, Hex Hd., 5/8-11 x 9-1/2"	72	" Bolt, Hex Hd., 3/8-16 x 2"
18	46079 Caster Assy, Comp. (incl. 19-28)	74	" Hex Nut, 3/8-16
19	04066-01 Quick Pin	75	" Lockwasher, Spring, 3/8"
20	43037-01 Spacer, Caster Yoke, 1/2" Long	76	46081 Idler Arm Assy. (incl. 22 & 77)
21	48100-01 Bronze Bearing	77	48100-05 Bronze Bearing
22	48114-04 Grease Fitting, Str. 1/4-28	78	04050-02 Retaining Ring, 3/4" Ext. "E"
23	46082 Support Assy. (incl. 21-22)	79	43028 Rod, Idler Pull, J
24	45006 Caster Yoke	80	45037 Idler Pivot
25	43022 Sleeve, Caster Wheel Bearing	81	" Hex Nut, 3/8-16 Elastic Stop
26	04001-37 Bolt, Hex Hd., 1/2-13 x 5-1/2"	82	46383 Idler Arm Assy. (incl. 22 & 77)
27	" Hex Locknut, 1/2-13	83	43054 Shoulder Bolt
28	48307-01 Wheel Assy. (incl. 13-14, 14a, 29-34)	84	43041 Spacer, Idler
29	48307-02 Tire Only, Caster Wheel	85	48544 Rod End, LH (gold colored)
29A	48006-03 Inner Tube Only, Caster Wheel	85	48464 Rod End, RH (silver colored)
30	48307-04 Rim Pair, Caster Wheel	87	48590 Link, Turnbuckle
31	48006-07 Retainer, Bearing, Caster Wheel	88	42917 Spacer Bar
32	48006-06 Roller Bearing, Caster Wheel	89	43042 Sleeve, Cam Clutch
33	48114-03 Grease Fitting, 45° 1/4-28	90	04041-08 Washer 3/4 (49/64 x 1-1/4 x 16 ga.)
34	48006-05 Hub Assy. w/Bolts	91	43043 Sleeve, Clutch Rod
35	" Bolt, Hex Hd., 5/16-18 x 3/4"	92	" Cotter Pin, 3/32 x 1"
36	48038 Guide Roller	93	" Washer, 33/64 x 1 x 16 ga.
37	45046 Roller Shaft	94	04062-01 Hair Pin, Large
38	" Washer, 3/8 x 7/8 x 13 ga.	95	" Bolt, Hex Hd., 3/8-16 x 1"
39	45029 Discharge Chute	96	421107 Cam Link
40	" Hex Nut, 5/16-18 Elastic Stop	97	" Bolt, Hex Hd., 1/2-20 x 2"
41	" Bolt, Hex Hd., 5/16-18 x 1"	98	44017 Rod, Blade Engage (approximately 27" long)
42	448151 Belt Cover (incl. Decals)	99	48083 Belt, Cutter Drive
43	" Washer, 25/64 x 15/16 x 12 ga.	100	" Bolt, Hex Head, 5/16-18 x 1"
44	04029-03 Wing Nut, 3/8-16	101	45329 Idler Pivot
45	43123 Spacer	102	48531 Pulley, Idler
46	42045 Belt Cover Skirt	103	48681 Seal, Tapered Bearing Spindle
47	" Machine Screw, 1/4-20 x 1/2 Truss Head	104	43218 Sleeve, Tapered Bearing Spindle
48	" Lockwasher, Spring, 1/4"	105	43677 Relief Fitting, Tapered Bearing Spindle
49	" Hex Nut, 1/4-20	106	" Roll Pin, 1/8 x 1/2"
50	48127 Pulley (incl. 51-52)	107	43217 Bushing, Tapered Bearing Spindle
51	48141 Taper Hub	108	48100-02 Bronze Bearing
52	" Bolt, Hex Hd., 1/4-20 x 3/4"	109	04050-05 Retaining Ring - Est. "E" - 1-1/8"
53	" Hex Nut, 5/8-11	110	" Hex Hd. Bolt, 3/8-16 x 1-1/2"

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

ENGINE DECK

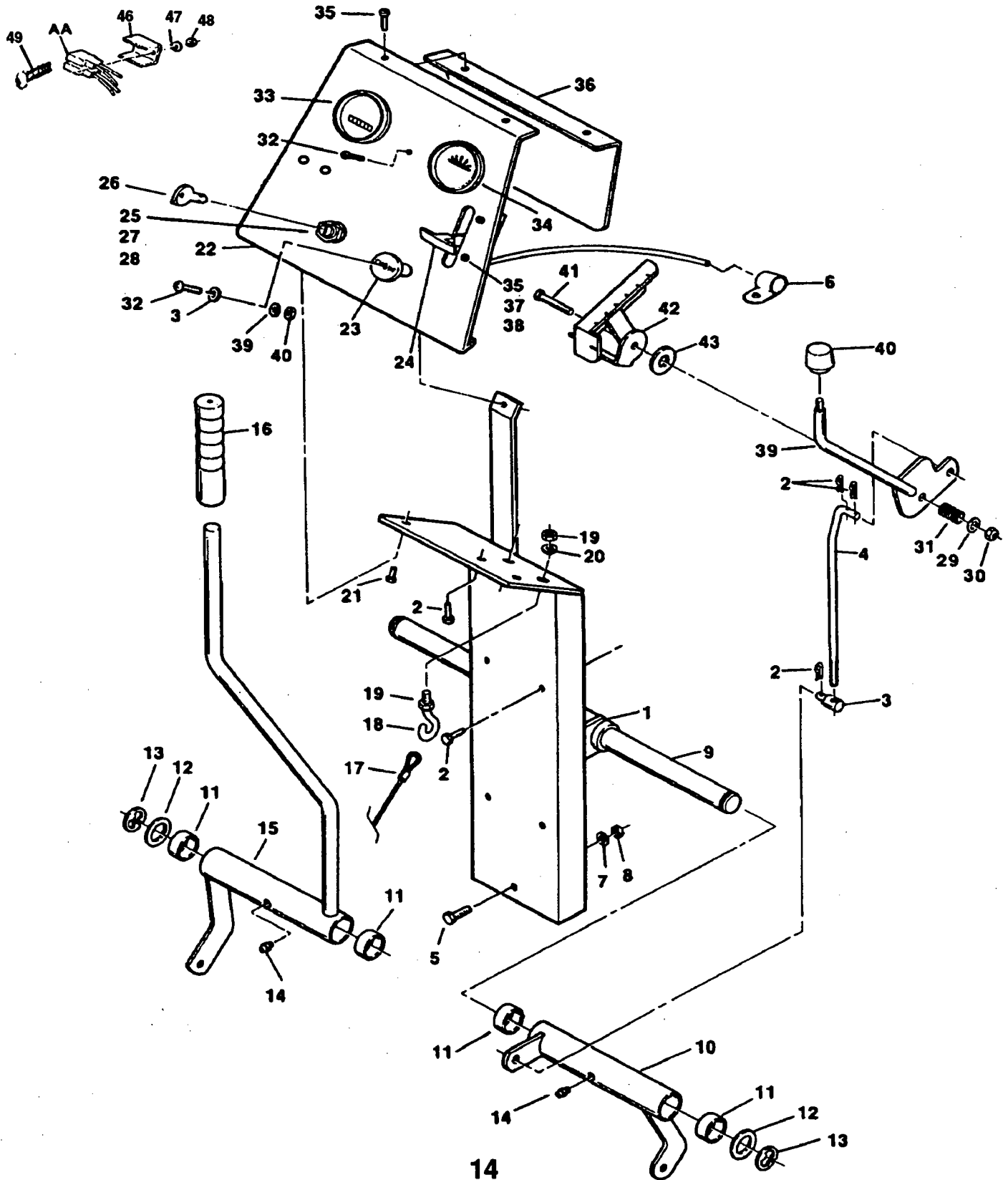


ENGINE DECK

Ref. Part No. Number	Description	Ref. Part No. Number	Description		
1	45146	Engine Deck	60	42368	Shift Lever
2	45149	Hitch Bracket	61	04001-55	Hex Hd. Bolt, 1/4-28x3/4 Grd.8
3	"	Hex Head Bolt, 5/16-18 x 1"	62	"	Lockwasher, Spring, 1/4"
4	"	Washer, 11/32 x 11/16 x 16 ga.	63	04043-01	Washer, 17/64x7/8x1/8 H.T.
5	"	Lockwasher, Spring, 5/16"	64	48021	Neutral Safety Switch
6	"	Hex Nut, 5/16-18	65	48122-01	Fiber Washer, .010
7	48030-01	Clamp	65A	48122-02	Fiber Washer, .020
8	"	Phips Wshr Hd Screw #10-32 x 1/2"	66	48118	Ball Joint
9	"	Lockwasher, #10 Ext Tooth	67	04021-06	Hex Lock Nut, 3/8-24
10	"	Hex Nut, #10-32	68	44016	Shift Connector Rod
11	04050-08	Retaining Ring, 1 Ext. "E"	69	48309	Bushing, Fuel Tank Valve
12	48104-02	Bearing, Pillow Block 1"	70	"	Hex Head Bolt, 5/16-18 x 3"
13	04041-08	Washer 49/64 x 1 1/4 x 16 ga.	71	45147	Transaxle Support.
14	48114-01	Grease Fitting, Str., 1/4-28	72	48052	Spring, Brake Return
15	"	Hex Lock Nut, 5/16-18	73	04062-02	Hair Pin, Small
16	43107	Spacer - LH Axle	74	44017	Blade Clutch Rod
17	48321	Drive Wheel Assembly	75	43043	Sleeve
17A	48321-02	Tire, 18 x 8.50-8, 4 ply	76	"	Cotter Pin, 3/32 x 1"
17B	48321-04	Rim	77	"	Washer, 33/64 x 1 x 16 ga.
18	48321-05	Hub & Flange (Includes Bolts)	78	04062-01	Hair Pin, Large
19	48321-06	Bolt and Nut	79	"	Cotter Pin, 3/32 x 3/4"
20	04042-05	Washer, 1-1/16 x 1-3/4 x 12 ga.	80	45037	Pivot Base Wid.
20A	04041-14	Washer, 1-1/16 x 1-3/4 x 18 ga.	81	48051	Spring, Belt Clutch
21	46144	Idler Arm (Includes 14 & 22)	82	42060	Bracket, Spring Mounting
22	48100-05	Bronze Bearing	83	48066	Pulley, Brake Cable
23	45014	Belt Guide	84	43024	Spacer, Pulley
24	"	Hex Head Bolt, 5/16-18 x 3/4"	85	"	Hex Head Bolt, 3/8-16 x 3"
25	48241	Foot Cable Assembly	86	"	Washer, 13/32 x 1-1/2 x 7 ga.
26	43049	Sleeve, Foot Cable	87	"	Hex Nut, 3/8-16
27	"	Washer, 9/32 x 5/8 x 16 ga.	88	04029-03	Wing Nut, 3/8-16
28	"	Hex Lock Nut, 1/4-20	89	42187	Battery Mounting Bracket
29	48046	Brake Cable	90	"	Hex Head Bolt, 1/4-20 x 3/4"
30	"	Carriage Head Bolt, 1/4-20 x 3/4"	91	"	Hex Nut, 1/4-20
31	"	Hex Nut, 5/16-18, Elastic Stop	92	42188	Battery Shelf
32	48083	Belt, Blade Drive SM61	93	42024	Battery Cover
33	48168	Pulley, Mower Drive (incl. 34 & 35)	94	48099	Battery Cover Pad
34	48168-03	Taper Hub	95	04029-01	Wing Nut, 1/4-20
35	"	Hex Head Bolt, 1/4-20 x 1-3/8"	96	04003-01	Carriage Bolt, 1/4-20 x 6"
36	48063	Pulley	97	42055	Battery Clamp
37	"	Setscrew, Hex Skt, 5/16-18 x 1-1/4"	98	48015	Battery
38	04063-03	Key, 1/4 x 1/4 x 2-1/2"	99	"	Hex Head Bolt, 1/4-20 x 1/2"
39	48322	Pulley, Transaxle	100	42370	Tank Mtg. Bracket (Vertical)
40	04063-09	Key, Hi Pro #9	101	42377	Support, Fuel Tank (Horizontal)
41	"	Setscrew, Hex Skt, 5/16-18 x 3/8"	102	46174	Fuel Tank (Incl. 103, 104, & 132)
42	48085	Belt, Transaxle Drive	103	48311	Fuel Tank Cap
43	48065	Pulley, Idler	104	48308	Fuel Shut-off Valve
44	48102	Bearing, Idler Pulley	105	42369	Fuel Tank Strap
45	04050-06	Retaining Ring, 1-9/16" Int. Basic	106	"	Screw, Slotted Rd Hd Mach 1/4-20 x 2"
46	43044	Sleeve, Transmission Idler Bearing	107	48016	Solenoid
47	43039	Spacer, Transmission Idler	108	"	Hex Head Bolt, 5/16-18 x 1-1/2"
48	"	Washer, 25/64 x 15/16 x 12 ga.	109	"	Hex Head Bolt, 5/16-18 x 1-3/4"
49	"	Lockwasher, Spring, 3/8"	110	"	Hex Head Bolt, 5/16-18 x 2"
50	"	Hex Head Bolt, 3/8-16 x 1-1/2"	111	48059-01	Fuel Hose Clamp
51	45148	Transaxle Protector	112	48058-07	Fuel Hose
52	"	Hex Head Bolt, Taptite, 5/16-18 x 3/4"	113	48258	Engine, 18 HP Kohler
53	48310	Transaxle	114	48115	Oil Drain Extension
54	"	Hex Head Bolt, 3/8-16 x 5"	115	48019	Safety Switch, Blade Clutch
55	"	Hex Jam Nut, 3/8-16	116	45222	Belt Guide Weldment
56	42367	Spacer, Transaxle	117	"	Pipe Cap, 3/8 NPT
57	"	Hex Head Bolt, 5/16-18 x 3"	118	48255	Pipe Nipple w/Special Threads
58	"	Carriage Head Bolt, 5/16-18 x 1"	119	48292	Pad, Strap Cushion
59	04063-11	Key, 1/4 x 1/4 x 2-1/2" Plated	120	48205	Pad, Tank Support

AA - Fuse Holders
Part of Wiring Harness
See Page 20.

INSTRUMENT PANEL

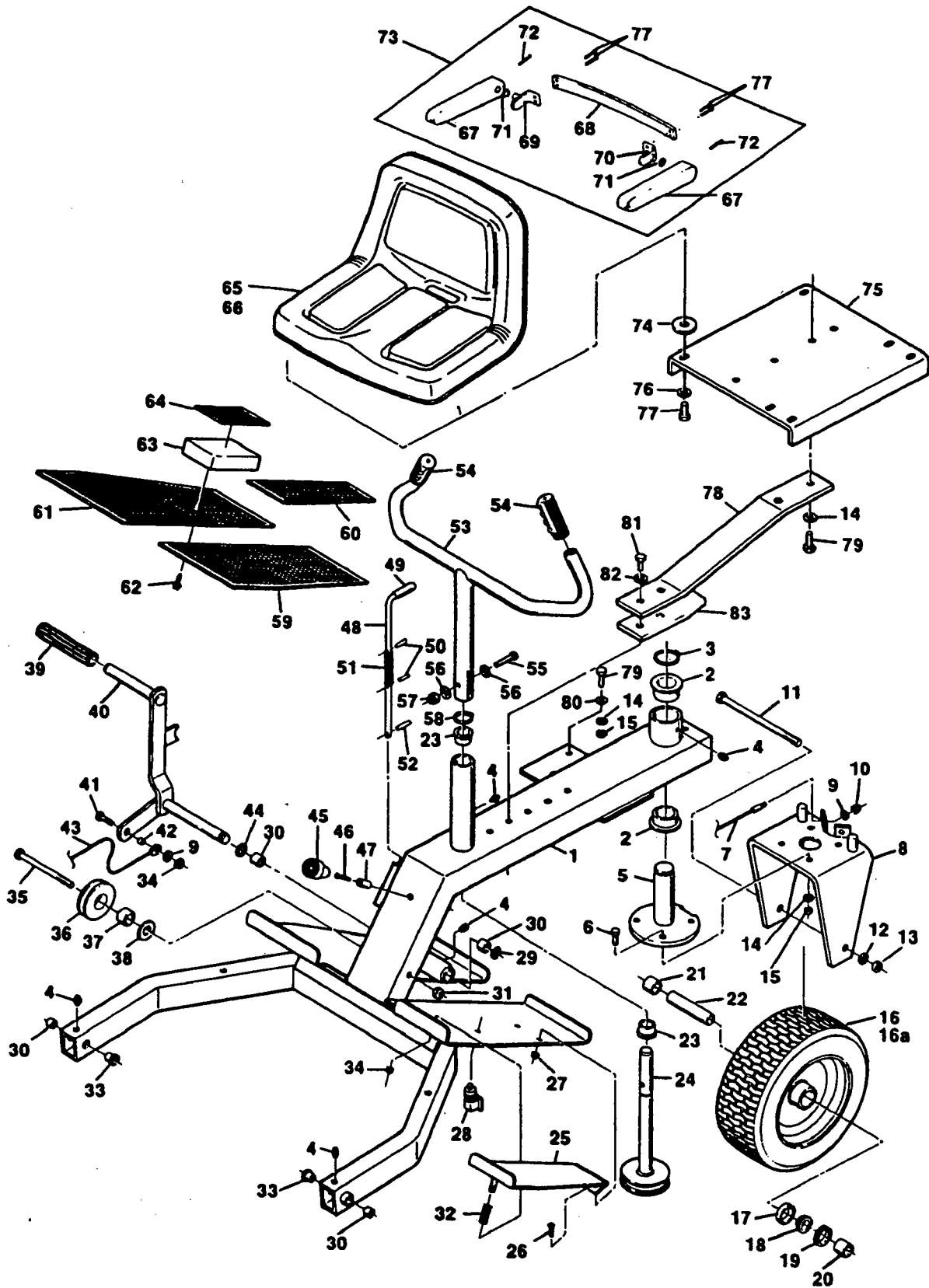


INSTRUMENT PANEL

Ref. No.	Part Number	Description
1	45025	Console Support
2	04062-01	Hair Pin Cotter, Large
3	43032	Swivel Joint
4	43030	Shift Connector Rod
5	*	Hex Head Bolt, 5/16-18 x 2-1/4"
6	48030-01	Clamp, Cable
7	*	Lockwasher, 5/16 Spring
8	*	Hex Lock Nut, 5/16-18
9	43017	Bellcrank Shaft
10	46142	Shifter Assembly (Includes 11 & 14)
11	48100-06	Bronze Bearing
12	04041-08	Washer, 49/64 x 1-1/4 x 16 ga.
13	04050-02	Retaining Ring, 3/4 Ext. "E"
14	48114-04	Grease Fitting, 1/4-28 Str.
15	46143	Mower Engage (Includes 11,14,16)
16	48093	Grp, Mower Lever
17	48045	Winch Cable Assembly
18	04070-03	Eyebolt, 3/8-16 x 2"
19	*	Hex Nut, 3/8-16
20	*	Lockwasher, 3/8 Spring
21	*	Hex Head Bolt, 1/4-20 x 3/4"
22	42049	Instrument Panel
23	48091	Choke Control
24	48090	Throttle Control
25	48017	Starter Switch (Includes 26-28)
26	48017-02	Key, Ignition
27	48017-03	Lockwasher, Internal Tooth 5/8"
28	48017-04	Hex Nut, 5/8-11
29	*	Washer, 13/32 x 13/16 x 16 ga.
30	*	Hex Nut, 3/8-16 Elastic Stop
31	48050	Spring
32	*	Truss Head Screw, 1/4-20 x 3/4"
33	48023	Hour Meter
34	48022	Ammeter
35	*	Screw, Phillips Washer Hd, #10-32 x 1/2"
36	45122	Panel Cover Weldment
37	*	Lockwasher, Ext. Tooth #10
38	*	Hex Nut, #10-32
39	45023	Shifter Handle
40	48092	Shifter Knob
41	*	Hex Head Bolt, 3/8-16 x 2"
42	45024	Shift Quadrant Weldment
43	04041-10	Washer, 3/8 x 2 x 16 ga.
44	45023	Shifter Handle
45	48092	Shifter Knob
46	42413	Bracket, Fuse Holder
47	04031-01	Lockwasher, #10 External Tooth
48	04021-01	Hex Nut, Elastic Stop Lock #10-32
49	*	Screw, Phillips Head, #10-32 x 1-1/2"

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

RIDER FRAME ASSEMBLY

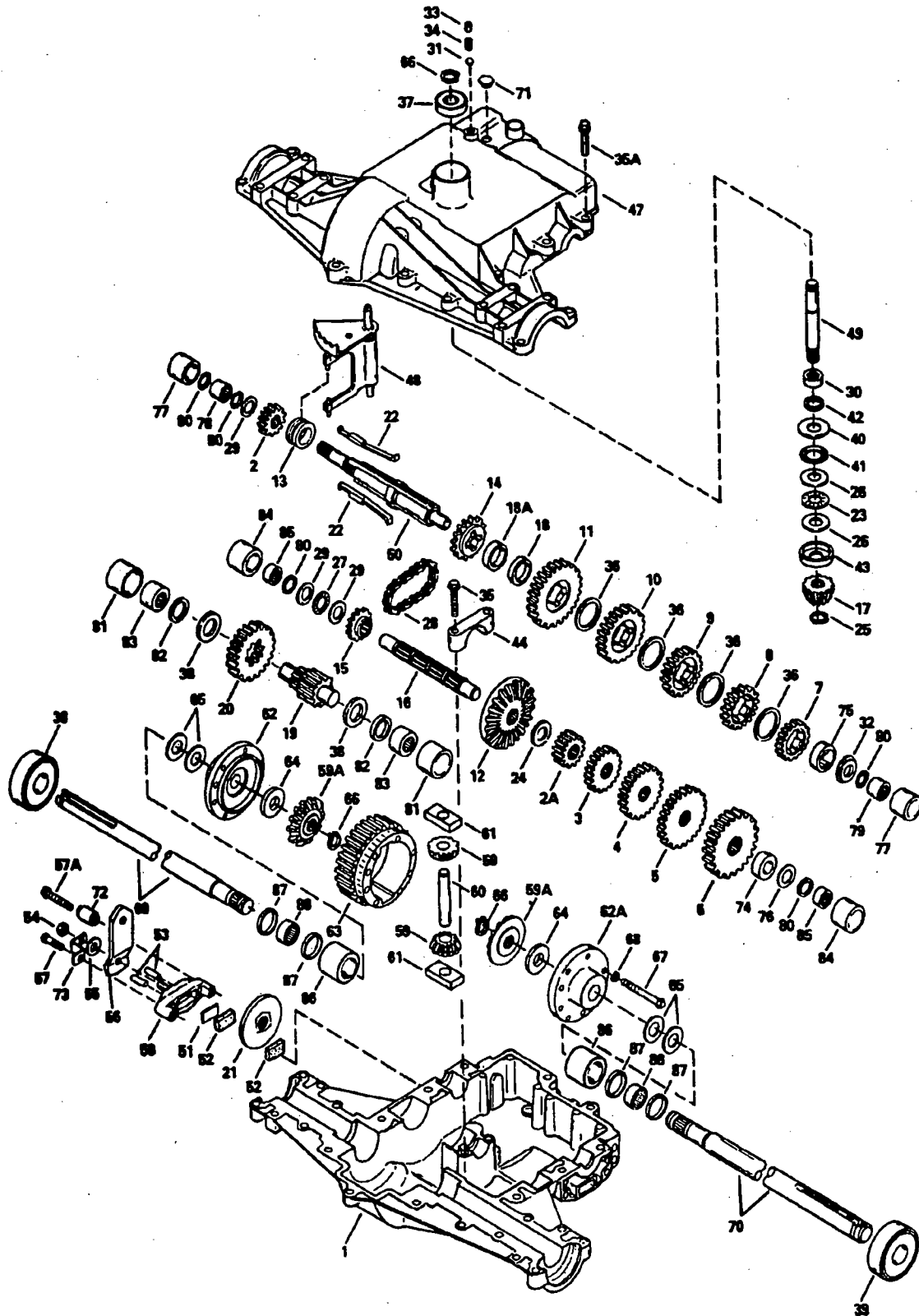


RIDER FRAME ASSEMBLY

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	46057	Steering Frame	42	43049	Sleeve
2	48100-02	Bronze Bearing	43	48241	Foot Cable Assembly
3	04050-02	Retaining Ring, 1-1/8 Ext. Basic	44	*	Washer, 49/64 x 1-1/4 x 16 ga.
4	48114-01	Grease Fitting, 1/4-28 Str.	45	48097	Bumper Stop Cover
5	45008	Rear Wheel Pivot	46	*	Screw, Phillips Flat Head, 1/4-20 x 1-1/2"
6	*	Hex Head Bolt, 3/8-16 x 1-3/8"	47	43046	Bumper Stop
7	48828	Steering Cable	48	46141	Parking Brake Lever (Includes 49)
8	45035	Rear Wheel Yoke	49	48095	Grip
9	*	Lockwasher, 3/8 Int. Tooth	50	*	Rolling Pin, 5/32 x 3/4"
10	*	Hex Jam Nut, 3/8-24 UNF	51	48053	Spring
11	04001-40	Hex Head Bolt, 5/8-11 x 9"	52	*	Drive Lock Pin, 3/16 x 1-1/4"
12	*	Lockwasher, Spring, 5/8"	53	46029	Steering Handle (Includes 54)
13	*	Hex Nut, 5/8-11	54	48159	Grip
14	*	Lockwasher, Spring, 3/8"	55	*	Hex Head Bolt, 5/16-18 x 1-3/4"
15	*	Hex Nut, 3/8-16	56	*	Washer, 11/32 x 11/16 x 16 ga.
16	48005-01	Wheel Assy (Includes 16A-19)	57	*	Hex Elastic Stop Nut, 5/16-18
16A	48005-03	Rim Only	58	04050-03	Retaining Ring, 7/8 Ext. Basic
17	48005-04	Bearing Cup	59	48040	Pad - LH
18	48005-05	Bearing Cone	60	48041	Pad, Safety Pedal
19	48005-06	Grease Seal	61	48039	Pad - RH
20	43020-01	Spacer, Short	62	*	Hex Head Wood Screw #14 x 1"
21	43020-02	Spacer, Long	63	48036	Heel Rest
22	43021	Rear Wheel Sleeve	64	48037	Pad, Heel
23	48100-01	Bronze Bearing	65	48592	Seat Assembly (Includes 66-72,77)
24	45009	Steering Shaft	66	48592-01	Seat Only
25	45033	Safety Pedal	67	48014-03	Arm Rest
26	*	Flat Head Screw, #10-32 x 3/4 Slotted	68	48014-07	Back Strap
27	*	Hex Nut, #10-32 Elastic Stop	69	48014-04	Mounting Bracket - RH
28	48026	Foot Safety Switch	70	48014-05	Mounting Bracket - LH
29	04050-02	Retaining Ring, 3/4 Ext. "E"	71	48014-06	Wave Washer
30	48100-06	Bronze Bearing	72	*	Set Screw 3/8-16x3/4 Flat Point
31	*	Hex Nut, 1/2-13, Elastic Stop	73	48014-02	Arm Rest Kit (Includes 67-72,78)
32	48049	Spring, Foot Safety Switch	74	04041-11	Washer, 13/32 x 1-1/2 x 7 ga.
33	48100-03	Bronze Bearing	75	45210	Seat Plate
34	*	Hex Lock Nut, 1/4-20	76	*	Lockwasher, 5/16 Spring
35	04001-37	Hex Head Bolt, 1/2-13 x 5-1/2"	77	*	Hex Head Bolt, 5/16-18 x 3/4"
36	46140	Winch Cable Pulley (Includes 37)	78	42026	Seat Support Spring
37	48100-04	Bronze Bearing	79	*	Hex Head Bolt, 3/8-16 x 1"
38	*	Washer, 1/2" (.531 x 1.062 x .095)	80	*	Washer, 13/32 x 13/16 x 16 ga.
39	48096	Sleeve, Foot Pedal	81	*	Hex Head Bolt, 7/16-14 x 1-1/2"
40	45115	Foot Pedal Weldment	82	*	Lockwasher, 7/16" Spring
41	*	Hex Head Bolt, 1/4-20 x 1"	83	42366	Reinforcement, Seat Spring

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

TRANSAXLE ASSEMBLY PEERLESS 820-003B / SCAG 48310

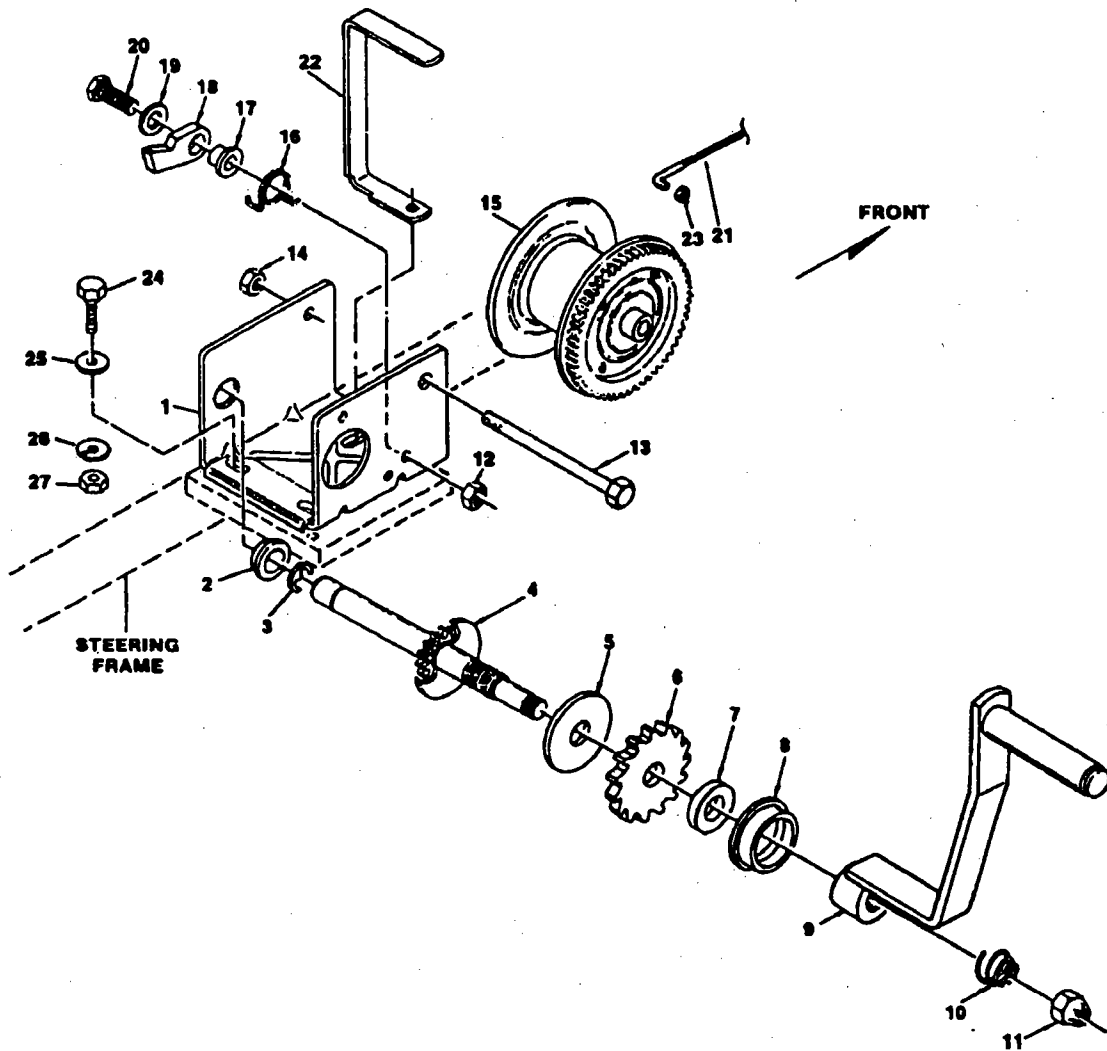


TRANSAXLE ASSEMBLY

PEERLESS 820-003B / SCAG 48310

Ref. Part No. Number Description	Ref. Part No. Number Description
1 770088 Case, Transaxle	48 784342 Rod & Fork Assembly, Shift
2 778253 Gear, Spur (15 Teeth)	49 776274 Shaft, Input
3 778199 Gear, Spur (15 Teeth)	50 776277 Shaft Brake
4 778200 Gear, Spur (20 Teeth)	51 790007 Plate, Brake Pad
5 778201 Gear, Spur (25 Teeth)	52 790006 Pad, Brake
6 778202 Gear, Spur (28 Teeth)	53 786026 Pin, Dowel
7 778203 Gear, Spur (22 Teeth)	54 792075 Locknut, 5/16-24
8 778204 Gear, Spur (25 Teeth)	55 792076 Washer, Flat
9 778205 Gear, Spur (30 Teeth)	56 790016 Lever, Brake
10 778206 Gear, Spur (35 Teeth)	57 792073 Screw, Hex Head, Thrd. Frm. 1/4-20 x 1-1/4"
12 778246 Gear, Bevel (33 Teeth)	57A 792085 Screw, Hex Head, Thrd. Frm. 1/4-20 x 2-1/4"
13 784216 Collar, Shift	58 790025 Holder, Brake Pad
14 786123 Sprocket (18 Teeth)	59 778197 Pinion, Differential Bevel
15 786082 Sprocket (9 Teeth)	59A 778198 Gear, Bevel
16 776276 Shaft, Counter	60 786019 Pin, Drive
17 778245 Bevel Pinion, Input	61 776027 Block, Drive
18 786121 Spacer, Neutral	62 774833 Carrier, Differential (Threaded Holes)
18A 786122 Spacer, Neutral	62A 774834 Carrier, Differential
19 776275 Shaft, Output (9 Teeth)	63 778248 Gear, Ring (31 Teeth)
20 778247 Gear, Output (35 Teeth)	64 780107 Washer
21 790043 Disc, Brake	65 780042 Washer, Thrust
22 792123A Key	66 792018 Ring, Snap
23 780084 Bearing, Thrust	67 792020 Screw, Hex Hd., 1/4-20 x 2-1/4"
24 780051 Washer, Thrust	68 792006 Lockwasher, 1/4"
25 788040 Ring, Retaining	69 774796 Axle (12-1/4" Long)
26 780051 Washer, Thrust	70 774823 Axle (24-1/4" Long)
27 780071 Bearing, Thrust	71 792074 Plug, Hex Hd., 9/16-18
28 786081 Chain, Roter (No. 41 Chain, 24 Links)	72 786092 Spacer
29 780072 Washer, Thrust	73 786085 Bracket, Brake Lever
30 780155 Bearing, Needle	74 786071 Spacer
31 792077 Ball, Steel	75 786072 Spacer
32 780139 Washer, Thrust	76 780153 Washer
33 792078 Screw, Set, 3/8-16 x 3/8"	77 786144 Sleeve (Stepped)
34 792079 Spring	78 780150 Bearing, Needle
35 792073 Screw, Hex Head, Thrd. Frm. 1/4-20 x 1-1/4"	79 780152 Bearing, Needle (Capped)
35A 792129 Screw, Hex Head, Thrd. Frm. 5/16-18 x 1-1/4"	80 792001 "O" Ring
36 780108 Washer, Thrust	81 786142 Sleeve (Stepped)
37 780119 Bearing, Ball	82 786071 Ring, Square Cut
38 780128 Washer, Thrust	83 780168 Bearing, Needle (Capped)
39 780050 Bearing, Ball	84 786143 Sleeve (Stepped)
40 780165 Washer, Flat	85 780151 Bearing, Needle (Capped)
41 788077 "O" Ring	86 786145 Sleeve (Stepped)
42 788042 Seal, Oil	87 788070 Ring, Square Cut
43 780166 Washer, Cupped	88 780031 Bearing, Needle
44 786131 Cap, Bearing	788067 Gear Grease, Bentonite
47 772097A Cover, Transaxle	

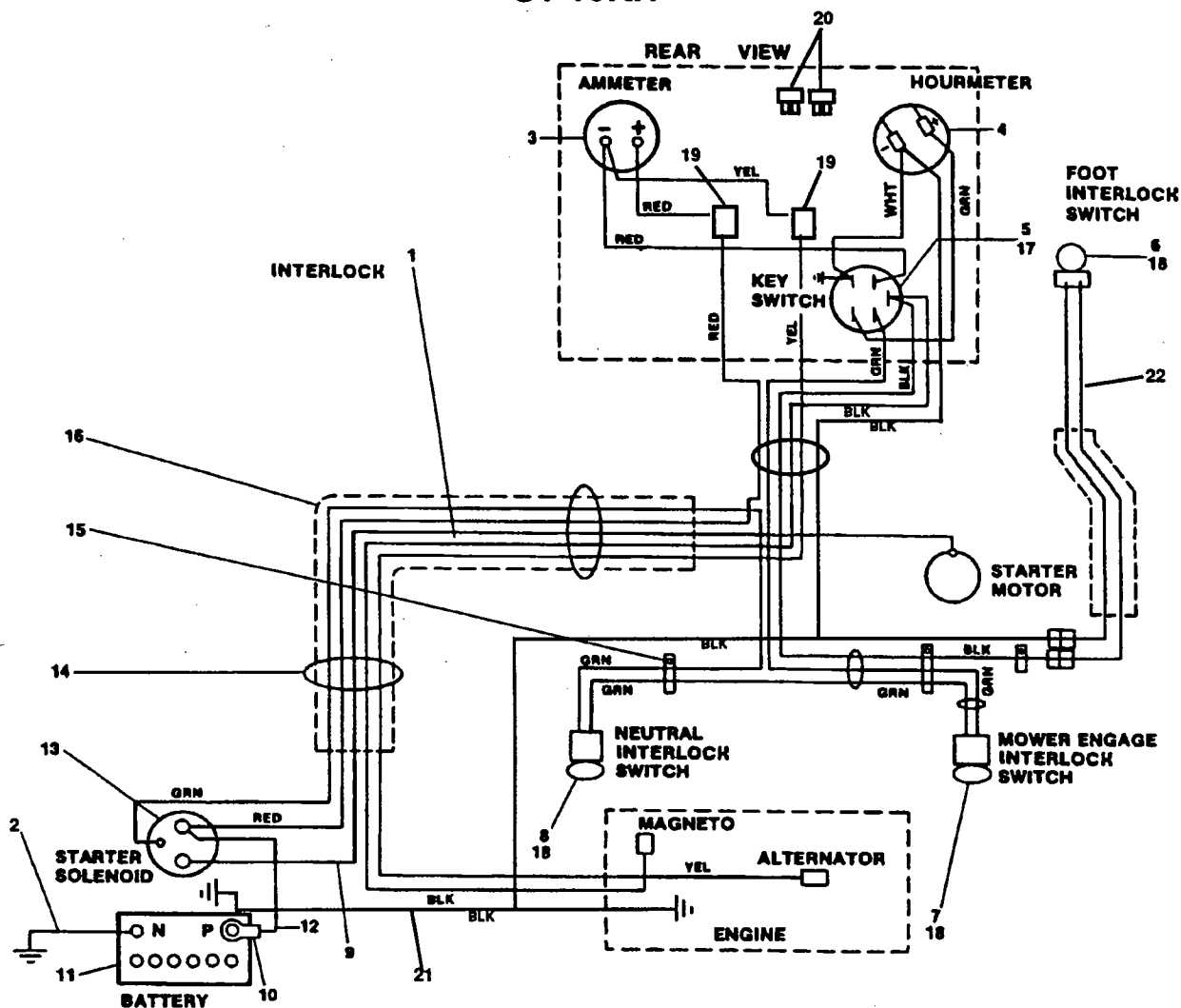
WINCH LIFT SYSTEM



WINCH LIFT SYSTEM

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48043	Winch Assembly (incl.1-8,10-20)	13	205008	Reel Shaft
2	204009	Shaft Bushing	14	205155	Lock Nut, 7/16-14
3	205116	E-Ring	15	304227	Winch Reel
4	304228	Drive Shaft	16	204363	Ratchet Spring
5	204362	Pressure Plate	17	404166	Ratchet Spacer
6	404164	Ratchet Wheel	18	404409	Ratchet Pawl
7	404163	Pressure Washer	19	205024	Flat Washer
8	204359	Shaft Bushing	20	205167	Ratchet Bolt
9	48044	Winch Handle	21	48045	Winch Cable Assembly
10	204364	Handle Spring	22	42127	Cable Guide
11	205015	Handle Nut	23	04021-03	Hex Lock Nut, 1/4-28
12	205011	Hex Locknut, 3/8-16			

ELECTRICAL SYSTEM ST-18KH



Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	48259	Wiring Harness, Complete	12	48029-03	Battery Cable, 13-3/4" Red
2	48029-10	Battery Cable, 20" Black	13	48016	Starter Solenoid
3	48022	Ammeter	14	48028	Cable Tie
4	48023	Hour Meter	15	48030	Cable Clamp
5	48017	Key Switch	16	48033	Plastic Conduit
6	48026	Foot Interlock Switch	17	48018	Connector, Starter Switch
7	48019	Mower Engagement Interlock Switch	18	48020	Connector, Interlock Switch
8	48021	Neutral Interlock Switch	19	48002	Wire Assembly w/Fuse
9	48029-02	Battery Cable, 31-1/2" Red	20	48298	Fuses, 20 Amp Blade Type
10	48126	Rubber Boot	21	48868	Wire Assembly Ground
11	48015	Battery	22	48616	Wire, Foot Switch

REPLACEMENT DECALS



48072
Decal - Heavy Duty Commercial



48314
Decal - Scag Logo

CAUTION
YOU MUST USE CLUTCH
WHEN SHIFTING TO AVOID
GEAR DAMAGE

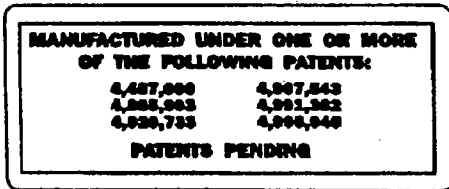
48147
Decal - Declutch



48320
Decal - 61



48825
Decal - Scag Logo



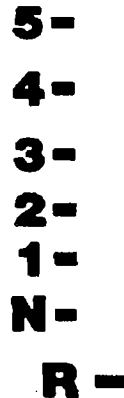
48182
Decal - Patent



48071
Decal - OPEI Safety



48079
Decal - Key Switch



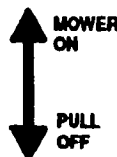
48074
Decal - Shifter Index



48712
Decal - Install Belt Cover



48073
Decal - Danger Rotating Blades



48078
Decal - Mower Engage

IMPORTANT

- ALWAYS TRANSPORT WITH CUTTER DECK DOWN AND LIFT CABLE SLACK
- MOW WITH WINCH CABLE SLACK TWO FULL TURNS
- FOR SMOOTH TURNS DEPRESS FOOT CLUTCH PEDAL SLIGHTLY

48048
Decal - Transport Down



48404
Decal - Made in USA

⚠ 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 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:

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

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 Technical 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 Technical 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.

PLEASE BE CAREFUL

1. Keep all shields in place, especially grass discharge.
2. Stop machine and remove spark plug wire to adjust or service.
3. When mechanism becomes clogged, stop engine before cleaning.
4. Keep hands, feet and clothing away from power-drive parts.
5. Keep off implement unless seat or platform is provided.
6. Keep others off.

**FAILURE TO FOLLOW CAUTIOUS OPERATING PRACTICES MAY RESULT
IN SERIOUS BODILY INJURY. WE WANT YOU TO CONTINUE TO ENJOY
AND PROFIT BY USING OUR PRODUCTS.**

OWNER REFERENCE

MODEL NUMBER _____

SERIAL NUMBER _____

ENGINE MODEL _____

SERIAL NUMBER _____