BROUWER SOD CUTTER
MARK 2

OWNER'S & OPERATOR'S MANUAL & ILLUSTRATED PARTS LIST

Kesmac Inc.
23324 Woodbine Avenue, Keswick Ontario Canada L4P 0N1
Tel (905) 476-6222 Fax (905) 476-6744
Website www.brouwerkesmac.com Email info@kesmac.com

KM99172
September 2016

KESMAC INC.
DBA BROUWER KESMAC
23324 Woodbine Ave.
Keswick, ON L4P 0N1
Phone: (905) 476-6222
Fax: (905) 476-6744
Website: www.brouwerkesmac.com

STATEMENT OF LIMITED WARRANTY

Brouwer Kesmac warrants its full line of equipment to be free from defects in material and factory workmanship for a period of 12 months. This warranty begins on the date of sale or use of the equipment to the original purchaser. This statement does not extend or limit engine, tractor or component warranties in which the engine, tractor or component manufacturers may carry extended time periods up to 24 months. Engine, tractor or component warranty claims will be subject to the engine, tractor or components manufacturer's approval.

Replacement Parts carry a 90 day replacement warranty and are reimbursed to the dealer. All electrical and hydraulic parts are limited by this policy and will only be covered upon approval by the service department after inspection of the part. The installation and removal of a part will automatically place that part under the replacement parts warranty.

This warranty is limited exclusively to equipment or accessories manufactured or supplied by ***Brouwer Kesmac*** and are subject to the inspection and analysis by the company to conclusively identify the nature and cause of failure.

PRODUCT REGISTRATION FORM must be completely filled out, signed by the customer at the original date of installation, and returned to ***Brouwer Kesmac*** before any claims will be considered.

Brouwer Kesmac reserves the right to incorporate improvements in material and design of its products without notice and is not obligated to make the same improvements to equipment previously manufactured.

Brouwer Kesmac is not obliged under any warranty policy different from the Kesmac Brouwer Turf warranty policy as published above.

BROUWER KESMAC RESPONSIBILITIES

Brouwer Kesmac's obligation under the terms of this warranty is limited to the repair, replacement or credit, at its option, of the equipment, parts or supply items that conform to its warranty.

DEALER'S RESPONSIBILITIES

1. Only factory-trained service or approved personnel will be permitted to perform warranty service on ***Brouwer Kesmac*** equipment.

2. All major warranty claims exceeding $650.00 (in total including parts and labour) must be authorized by ***Brouwer Kesmac*** before work is performed.

3. All replacement parts used in warranty situations must be furnished by ***Brouwer Kesmac*** or approved by ***Brouwer Kesmac*** personnel. The use of non-recommended oil could nullify warranty.

OWNERS RESPONSIBILITIES

The owner is obligated to operate and maintain the equipment in accordance with the recommendations published by ***Brouwer Kesmac*** in the owners/operators manual for the unit. The owner is responsible for the costs associated with such maintenance and operating adjustments that may be required on a regularly scheduled basis. Where applicable the owner is responsible for transportation to and from the dealership or service calls made by the dealer.

CONDITIONS THAT VOID WARRANTY

This warranty shall not apply to equipment which:

- 1. Has had repairs or modifications not authorized by ***Brouwer Kesmac***
- 2. Has been subject to abuse, improper maintenance, or improper application.
- 3. Has been modified from original equipment specifications.

WARRANTY EXCEPTIONS

This warranty does not apply to the following items:

- 1. Wear items including blades, cutting edges, cutting arms, spark plugs, belts, filters, bearings, sprockets, chains, tires, light bulbs, lubricants and fluids etc. Cost of normal maintenance including replacement of service items.
- 2. Damages to engine/drive systems caused by lack of/or improper lubricants and/or fluids.
- 3. Damages arising from accident, misuse or neglect.
- 4. Damages to engine/drive systems caused by improper operation and/or maintenance.
- 5. ***Brouwer Kesmac*** will not be liable for any incidental or consequential damage or injuries, including but not limited to loss of profits, loss of crops, rental of substitute equipment, or other commercial loss or for damage to the equipment in which the Company Product is installed.

FREIGHT CARRIER DAMAGE

Claims for equipment damaged in transit should be referred to the freight carrier. Visible damage should be reported immediately and concealed damage as soon as possible, in accordance with freight carrier regulations.

Kesmac Inc.
23324 Woodbine Avenue, Keswick Ontario Canada L4P 3E9
Tel (905) 476-6222 Fax (905) 476-6744
Web Site www.brouwerturf.com Email info@kesmac.com

Date of Purchase: Month_____Day_____Year_____

Dealer Name_____Phone_____

Serial Number_____

Model Number_____

ALWAYS GIVE THE SERIAL NUMBER, MODEL NUMBER AND PART COLOR WHEN ORDERING SERVICE PARTS.

TABLE OF CONTENTS

INTRODUCTION SECTION 1 page

Specifications 1-1
Description 1-1

SAFETY SECTION 2

General Safety 2-1
Operator Safety 2-1

PRE-START INSTRUCTIONS SECTION 3

Specifications for Fuels and Oils 3-1
Setup Instructions....3-2

OPERATION SECTION 4

Operating Precautions....4-1
Starting Engine....4-1
Operating Instructions 4-2

SERVICE SECTION 5

Lubrication Schedule....5-1
Service and Adjustments....5-3
Storage and Transporting....5-7

PARTS SECTION 6

Frame Parts and Engine Mounting....6-1
General Assembly....6-3
Cutting Blade Assembly....6-5
Gearbox Assembly....6-7
Controls 6-9
Crankshaft Parts....6-11
Shields 6-13
Decals....6-15

WARRANTY ....last page

INTRODUCTION section 1

Description

Brouwer Sod Cutter Mark 2... The perfect tool for landscapers, contractors, rental outlets, golf courses, utilities, lawn renovators ... in fact, anywhere, anytime that turf requires removing, repairing, renovating or lifting to lay pipes or cables below ground.

Specifications

Engine	5 HP Honda GX140 Before Serial #2900 5-1/2 HP Honda GX160 After Serial #2900
Width of Cut	13" (330 mm) standard blade
Roller Diameter	8" (203mm)
Depth of Cut	3./8" to 1-1/2" (9.50 mm to 38 mm)
Weight	175 lbs. (79.5 kg)
Drives	V-belts, spur gear reduction and chain

Specifications are subject to change without notice.

ATTENTION: This symbol identifies potential health and safety hazards. It marks safety precautions.

ATTENTION: Your safety and the safety of others is involved.

BE ALERT!

SIGNAL WORD DEFINITIONS

DANGER **Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme cases.**

WARNING **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

CAUTION **Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and/or property damage. It may also be used to alert against unsafe practices.**

GENERAL SAFETY

- Read and understand the owner's manual, before attempting to operate this machine.
- **Operate all controls from the operator's seat, (if so equipped). NO RIDERS.**
- Keep all shields in place and safety switches adjusted properly.
- Do not leave equipment unattended. STOP the engine and remove the key (if so equipped).
- Do not allow minors or the inexperienced to operate this machine.
- Keep people and pets a safe distance away from machines using power driven attachments. Injury could result from flying debris.

OPERATING SAFETY

CAUTION

- Place all controls in disengage position prior to starting engine.
- Check that the throttle control operates smoothly. Failure to do so may result in the machine becoming out of control.
- Do not place hands or feet beneath machine at any time.
- Do not operate equipment without shields/guards in place. Do not make any adjustments or perform any maintenance while the engine is running.
- Never start or run the engine indoors where exhaust fumes can collect. Carbon monoxide which is present in the exhaust fumes is an odorless deadly gas. Maintain adequate ventilation and fresh air to prevent carbon monoxide build up.
- Always stop the engine and allow it to cool off when refueling.
- If a malfunction occurs, cease operation and stop the engine.

⚠ CAUTION

NEVER USE ETHER AS A STARTING AID, OR SEVERE DAMAGE TO ENGINE MAY OCCUR.

⚠ DANGER

NEVER FILL FUEL TANK WITH ENGINE RUNNING!

SPECIFICATIONS FOR FUELS AND OILS

ENGINE OIL

Fill the crankcase with oil that meets API service designation SF, SF/CC, or SF/CD. Do not mix brands or grades of oil. Recommended weight for general all temperature use is:

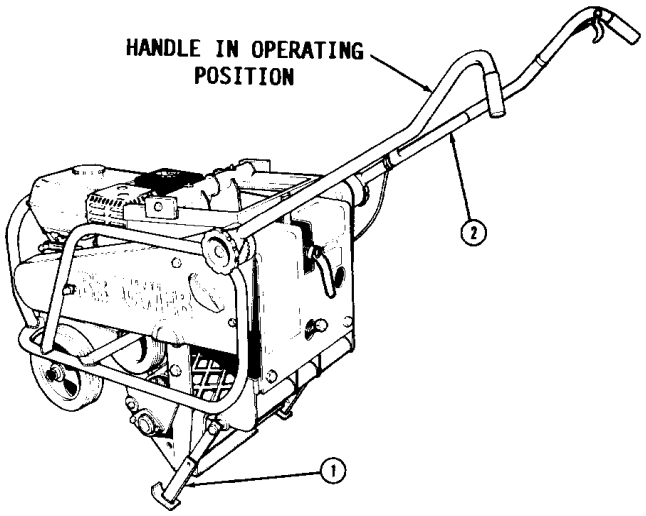
SAE 10W-30

FUEL

Use clean, fresh, regular or unleaded fuel. Use of unleaded fuel results in less maintenance.

GEARBOX OIL

Fill the gearbox with gear oil. Recommended weight for general all temperature use is SAE 90 EP



Drawing 1

Decrating and Set-up

- Remove the Sod Cutter from the crate.

⚠ CAUTION

To prevent possible personal injury, do not lift the unit single handed. Use an adequate lifting device. (i.e. hoist or fork lift)

BEFORE STARTING:

- READ SAFETY DECALS.
- Check engine and gearbox oil levels.
- Prior to starting and operating, place the machine on it's kickstand (1). (Refer to Drawing 1)

  (1). Fold handle (2) back into suitable operating position (Refer to Drawing 1).

  (2). Visually check all moving parts and fasteners. If any parts or fasteners are broken or loose, replace or tighten.

  (3). Before attempting to start engine read Section 4 of this manual and follow the instructions in the engine manufacturers owner's manual.

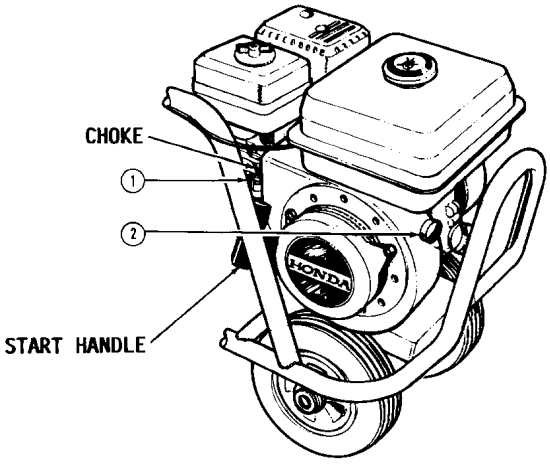
  (4). Fill the fuel tank with recommended fuel.

Operating Precautions

⚠ CAUTION

To prevent possible bodily injury;

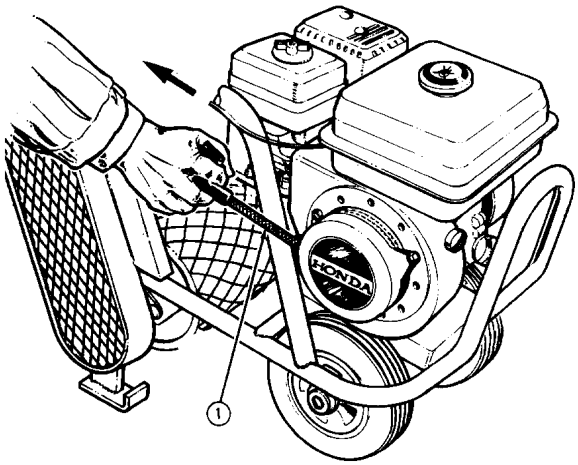
- Place all controls in disengage position prior to starting engine.
- Check that the throttle control operates smoothly. Failure to do so may result in the machine becoming out of control.
- Do not place hands or feet beneath machine at any time.
- Do not operate equipment without shields/guards in place. Do not make any adjustments or perform any maintenance while the engine is running.
- Never start or run the engine indoors where exhaust fumes can collect. Carbon monoxide which is present in the exhaust fumes is an odorless deadly gas. Maintain adequate ventilation and fresh air to prevent carbon monoxide build up.
- Always stop the engine and allow it to cool off when refueling.
- Any warning decal that becomes illegible should be replaced immediately.
- If a malfunction occurs, cease operation and stop the engine. Do not operate the machine until the faulty condition is corrected.



Drawing 2

Starting Engine

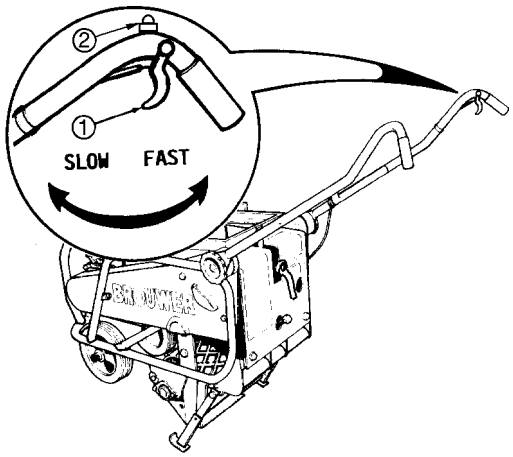
See Drawing 2. Refer to engine manufacturer owner's manual. Check gas flow valve (1) is in “ON” position. Turn ignition start switch (2) to “ON” position.



Drawing 3

Starting Engine

See Drawing 3. Position unit on kickstand and pull smoothly and firmly on starting cord (1). Allow the engine to warm up before operating machine. If engine fails to start refer to the engine manufacturer owner's manual.

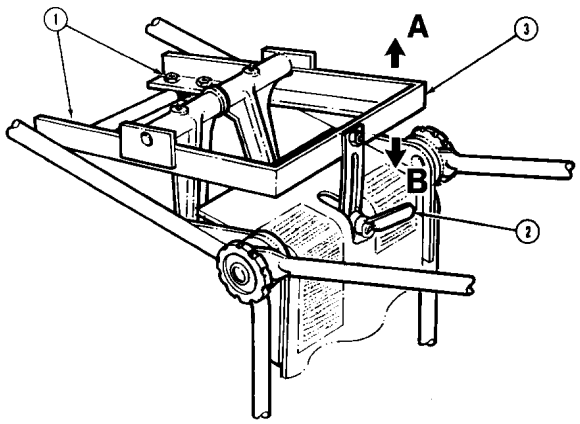


Drawing 4

Operating Machine

See Drawing 4. With the engine at “idle” speed, ease the unit forward off the kickstand. To increase the engine speed and engage the centrifugal clutch, the throttle lever (1), positioned on the RH control handle, is pulled toward the operator. At approximately 1200 RPM, the clutch will engage, putting the machine in motion and operating the oscillating cutting blades.

An emergency kill switch (2) is located on the RH control handle to stop the engine.

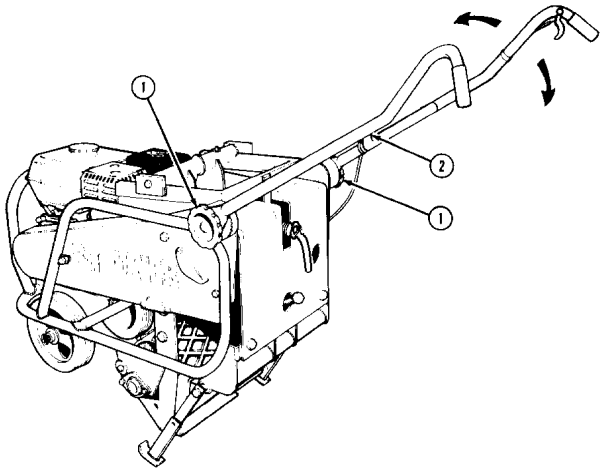


Drawing 5

Adjusting Depth of Cut

Serial Number (1000 -- 4049) See Drawing 5. To adjust the depth of cut: Position unit on kickstand, loosen the two “U” bolts slightly (1) and the adjustment handle (2). To decrease the depth of cut, raise the frame (3) in the direction of arrow “A”. To increase the depth of cut, lower the frame in the direction of arrow “B”. Re--tighten the adjustment handle (2) and “U” bolts (1).

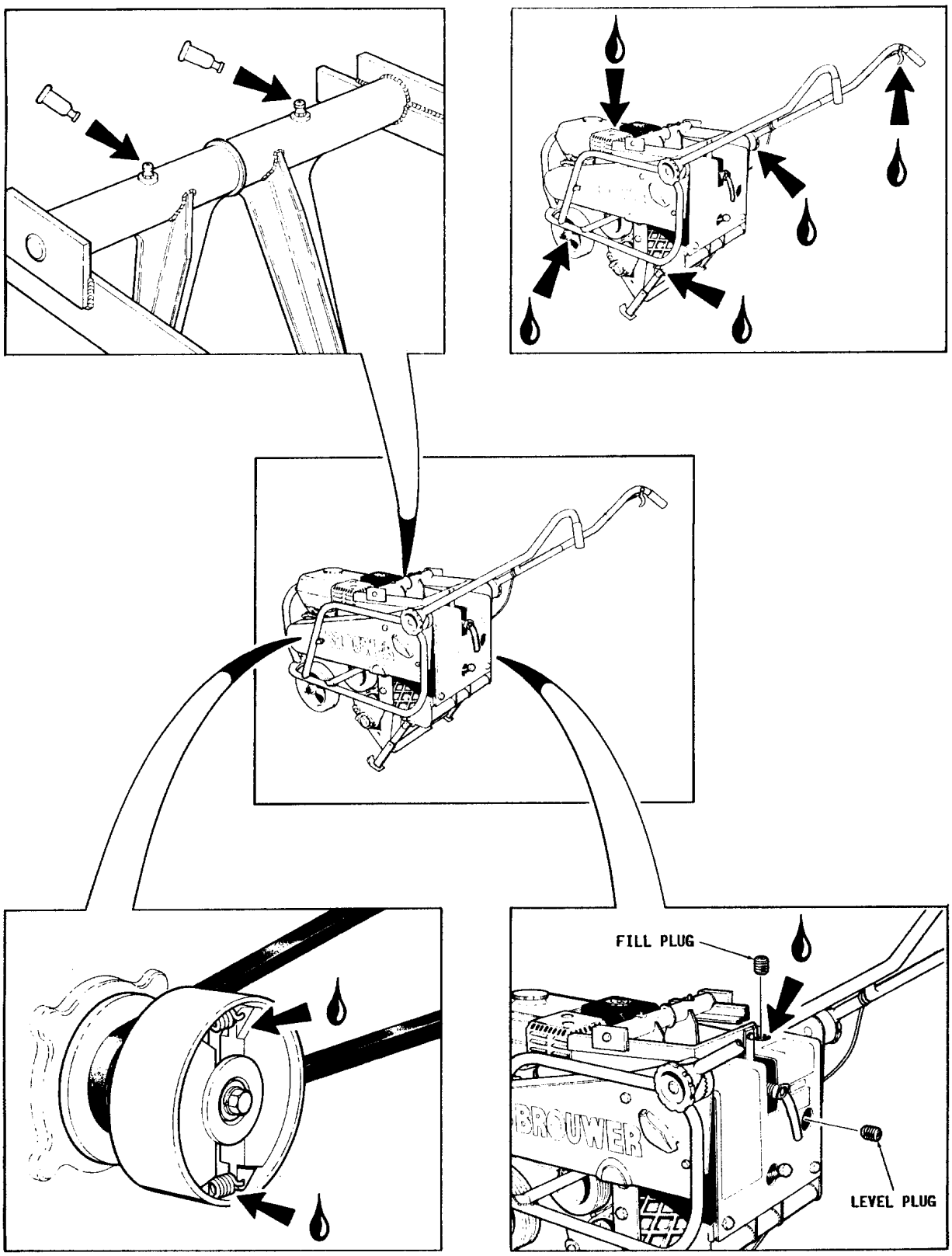
Serial Number (4050 --) See Drawing 5. To adjust the depth of cut: Position unit on kickstand, loosen the adjustment handle (2). To decrease the depth of cut, raise the frame (3) in the direction of arrow “A”. To increase the depth of cut, lower the frame in the direction of arrow “B”. Re--tighten the adjustment handle (2).



Drawing 6

Adjusting Control Handles

See Drawing 6. To adjust the height of the control handles to suit the operator, loosen the hand knobs (1) on each side of the machine sufficiently enough to allow the handle (2) to be raised or lowered as required. Re--tighten hand knobs.



Drawing 18 - Lubrication Chart

LUBRICATION

For engine service/maintenance procedure, refer to the engine manufacturer owner's manual.

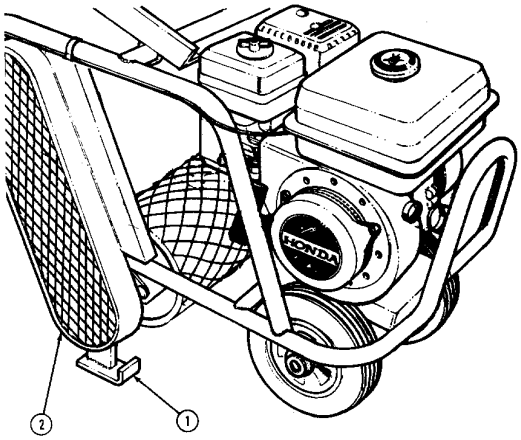
NOTE:

- Following the recommended lubrication/maintenance program will help maintain a trouble free service life for this machine. All of the bearings on the Sod Cutter are of the sealed type and under normal circumstances do not require lubrication.
- The following lubrication instructions, with reference to Drawing 18, are recommended:

1. Grease gun to the blade arms	**Weekly**
2. Light oil to: Throttle cable & linkage	**Monthly**
3. Wheel hubs	**Monthly**
4. Jack stand	**Monthly**
5. Control handles	**Monthly**
6. Light oil to Centrifugal clutch	**Six months**
7. Check SAE 90 oil level in Gearbox	**Six months**

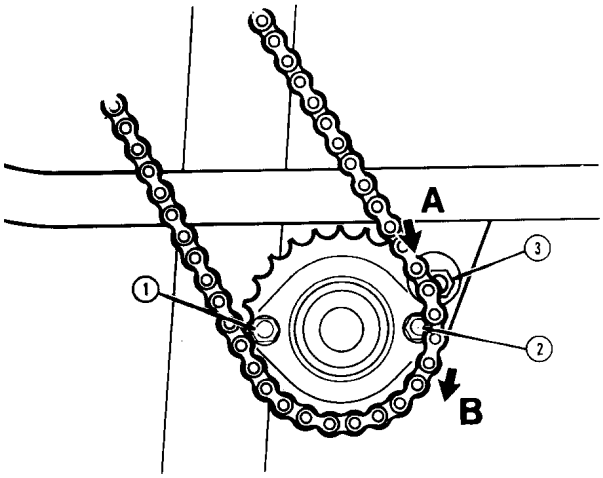
Drive Chain Adjustment/Replacement

See Drawing 7. Place machine on it's kickstand (1). Remove the chain guard (2).



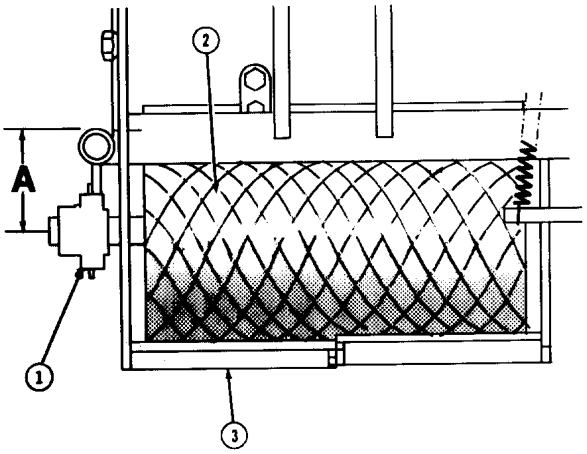
Drawing 7

See Drawing 8. Slacken off the roller support bearing housing bolts (1) & (2) and the eccentric washer retaining bolts (3), on both sides of the machine. Tap the bearing flange at point “A” to pivot the bearing in the direction of arrow “B” and so tightening the chain. Adjust the chain until there is 1/4 inch deflection between sprocket centers. Re-tighten the bolts (1) & (2). Turn the eccentric washers until they are hard against the bearing flange and tighten the bolt (3).

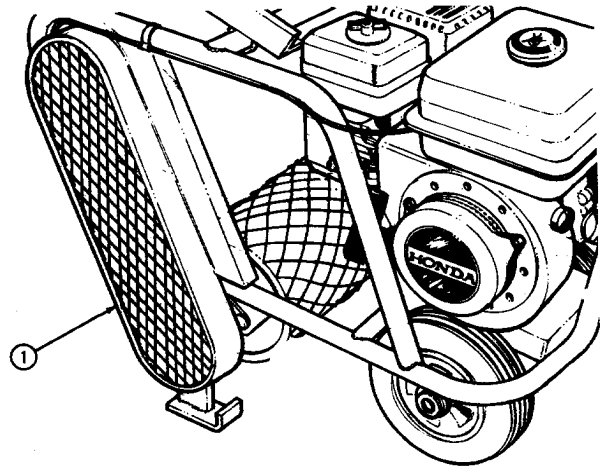


Drawing 8

See Drawing 9. **NOTE:** When adjusting the roller bearings (1), it is important that the roller (2) remains parallel to the cutting blades (3). check that dimension “A” is equal on both sides of the machine. Failure to do so may result in uneven thickness of cut and premature chain wear or breakage.



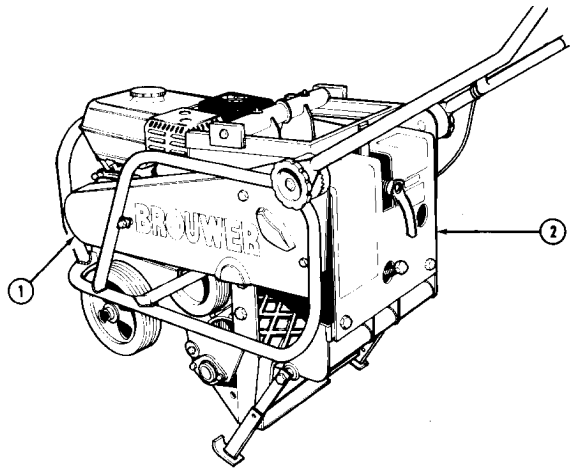
Drawing 9



Drawing 10

Drive Chain Adjustment/Replacement (continued)

See Drawing 10. Replace chain guard (1) before operating machine.

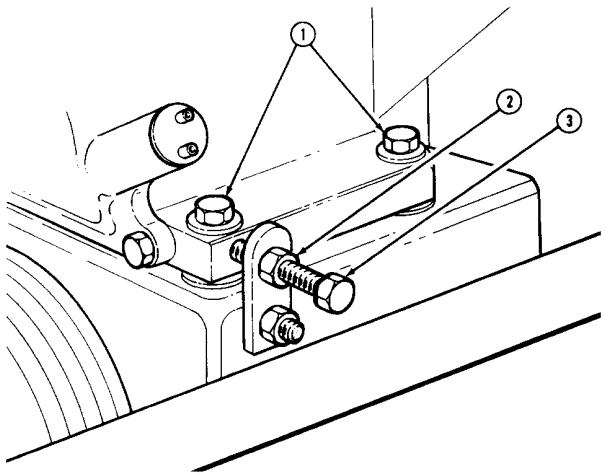


Drawing 11

Removing Drive Belt Covers

See Drawing 11 and remove covers (1) and (2). After the first 10 to 12 hours of use, re-adjust the drive belts. Thereafter check the drive belts tension after each 20 hours of operation.

NOTE: If the belts show signs of excessive wear or any damage, or can no longer be correctly adjusted they must be replaced. See Drawing 12.



Drawing 12

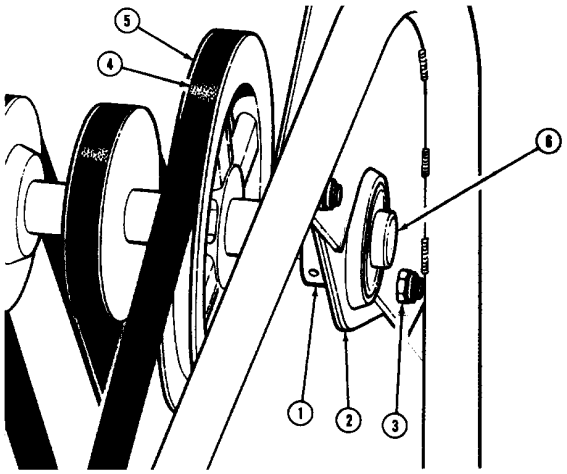
Adjusting Main Drive Belt

See Drawing 12. To adjust the main drive belt, slacken off the four engine mounting bolts (1). Release locknut (2) and turn the adjusting bolt (3) clockwise* to tighten the belt and counter clockwise to slacken the belt. When correctly adjusted, there should be 5/8 inch deflection between pulley centers. Re-tighten bolts (1) and locknut (2).

* Viewed from the operating position.

Replacing the Main Drive Belt

See Drawing 13. Remove side cover (1) as shown in Drawing 11. Slacken belt as shown in Drawing 12 and remove from clutch pulley at engine. Release lock collar (1) from bearing (2). Remove bolts and nuts (3). Slide bearing along shaft toward pulley (5), this will allow belt (4) to be removed past the end of shaft (6).

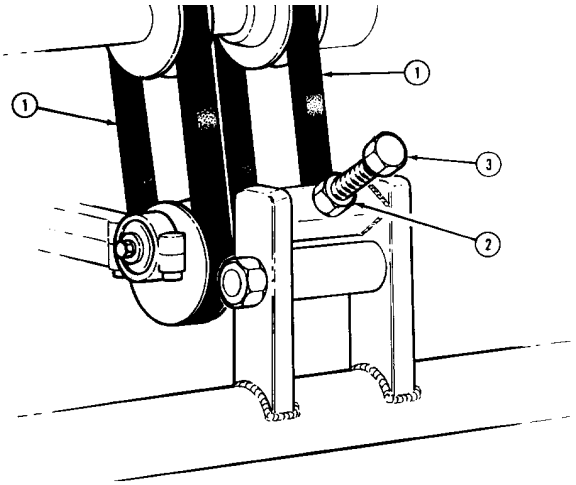


Drawing 13

Adjusting Crankshaft Belts

See Drawing 14. The crankshaft belts (1) are adjusted by releasing the locknut (2) and turning the adjusting bolt (3) clockwise* to tighten the belts. When correctly adjusted there should be 1/4 inch deflection between pulley centers. Re-tighten locknut (3).

"Viewed from the operating position.



Drawing 14

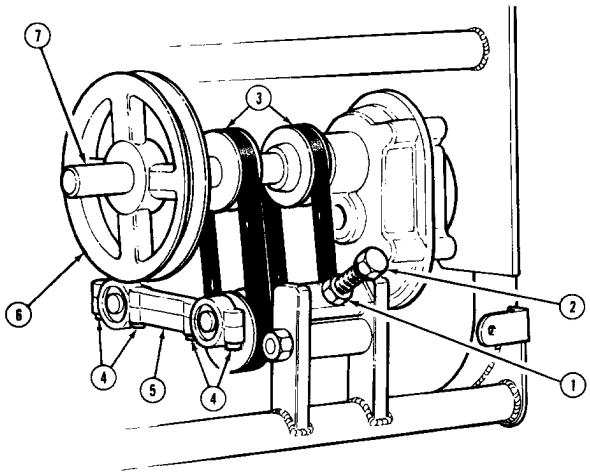
Replacing Crankshaft Drive Belts

See Drawing 15. Remove the main drive belt as shown in Drawing 13. Release locknut (1) and turn adjusting bolt (2) counter clockwise to slacken off belts (3). Remove clamp bolts (4) at both ends of connecting rod (5). Remove the crankshaft belts (3). Remove belts by lifting over pulley (6) and past the end of shaft (7). Reassemble in reverse order.

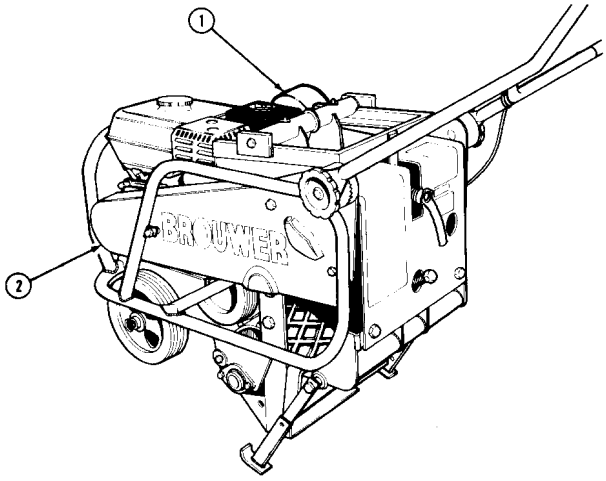
NOTE:

1. Crankshaft drive belts must be replaced in pairs.

2. Keep connecting rod halves paired as they were originally installed.



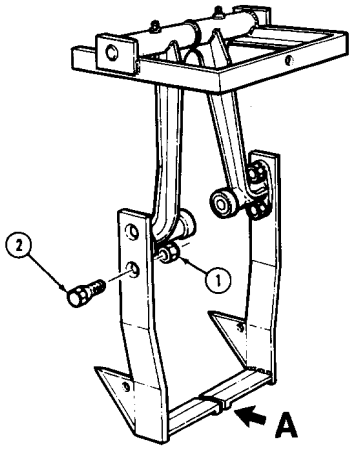
Drawing 15



Drawing 16

Removing/Replacing Cutting Blades

See Drawing 16. Place unit on kickstand. Remove the chain guard (1) and main drive belt guard (2).



Drawing 17

See Drawing 17. Remove the self locking nuts (1) and special bolts (2) from both sides. Remove blades. Replace sharpened, or new, blades in reverse procedure.

NOTE: On reassembly, the bolts (2) must be tightened to the correct torque of 105 ft.lbs. Check that there is no contact between the blades at point "A".

STORAGE INSTRUCTIONS

Daily Storage

- Check engine oil level and air filter element in accordance with engine manufacturer owner's manual.
- Close off fuel flow valve.
- Clean cutting blades of grass, dirt, etc.

Extended Storage

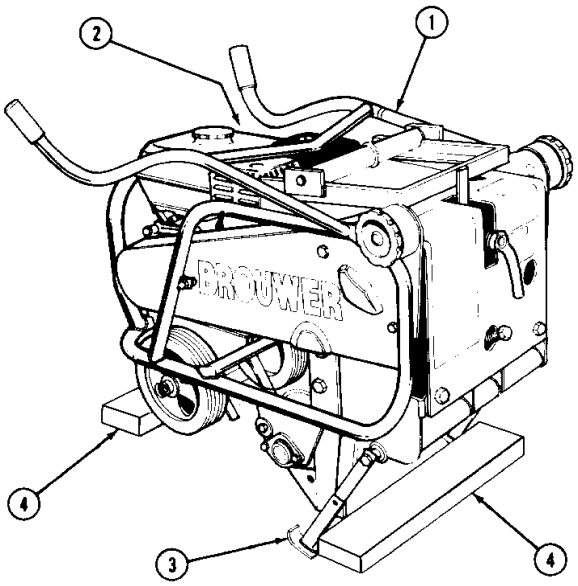
- Before storing the unit for a period exceeding 30 days, the following precautions should be taken:
- Drain all fuel from the fuel tank and lines. Using a hose or fuel line attached to the fuel shut off valve, drain fuel into a suitable container.
- Start the engine and run until all fuel remaining in the float bowl is used up.
- Prepare the engine in accordance with the engine manufacturer's recommendation in the owner's manual.
- Clean the unit of any dirt, grass, etc. and lubricate according to lubrications instructions.
- Clean and oil cutting blades to prevent rust.

Returning To Service

- Fill fuel tank.
- Check engine crankcase oil level, refer to engine manufacturer owner's manual.
- Check for fuel leaks.
- Start engine and check for fuel or oil leaks.

Transporting Unit

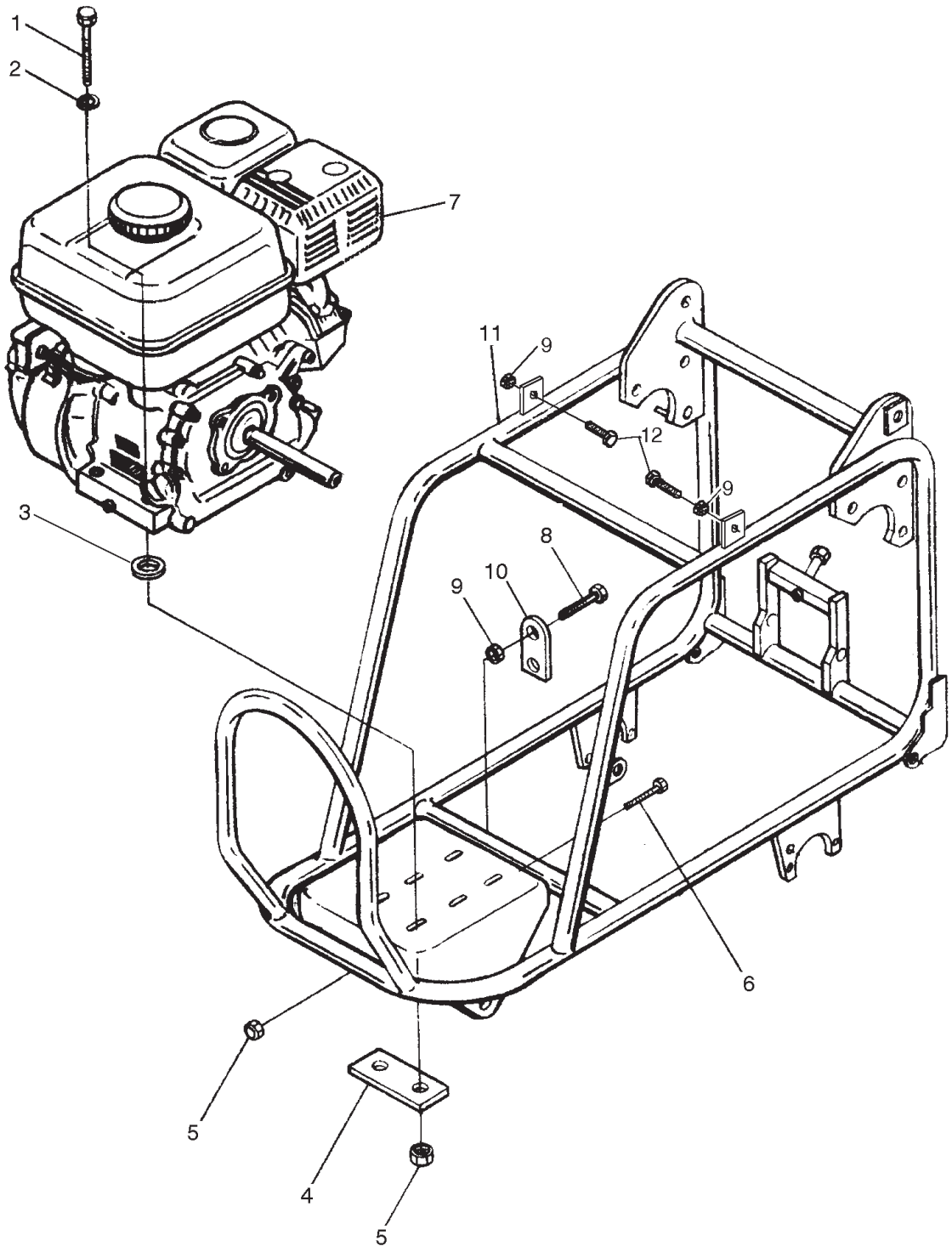
- When transporting unit by truck or trailer, place the control handles (1) in stowed position. Shut off fuel flow valve (2). Place unit on kickstand (3) and block the wheels (4) to prevent movement. See Drawing 19.



Drawing 19

Service Notes

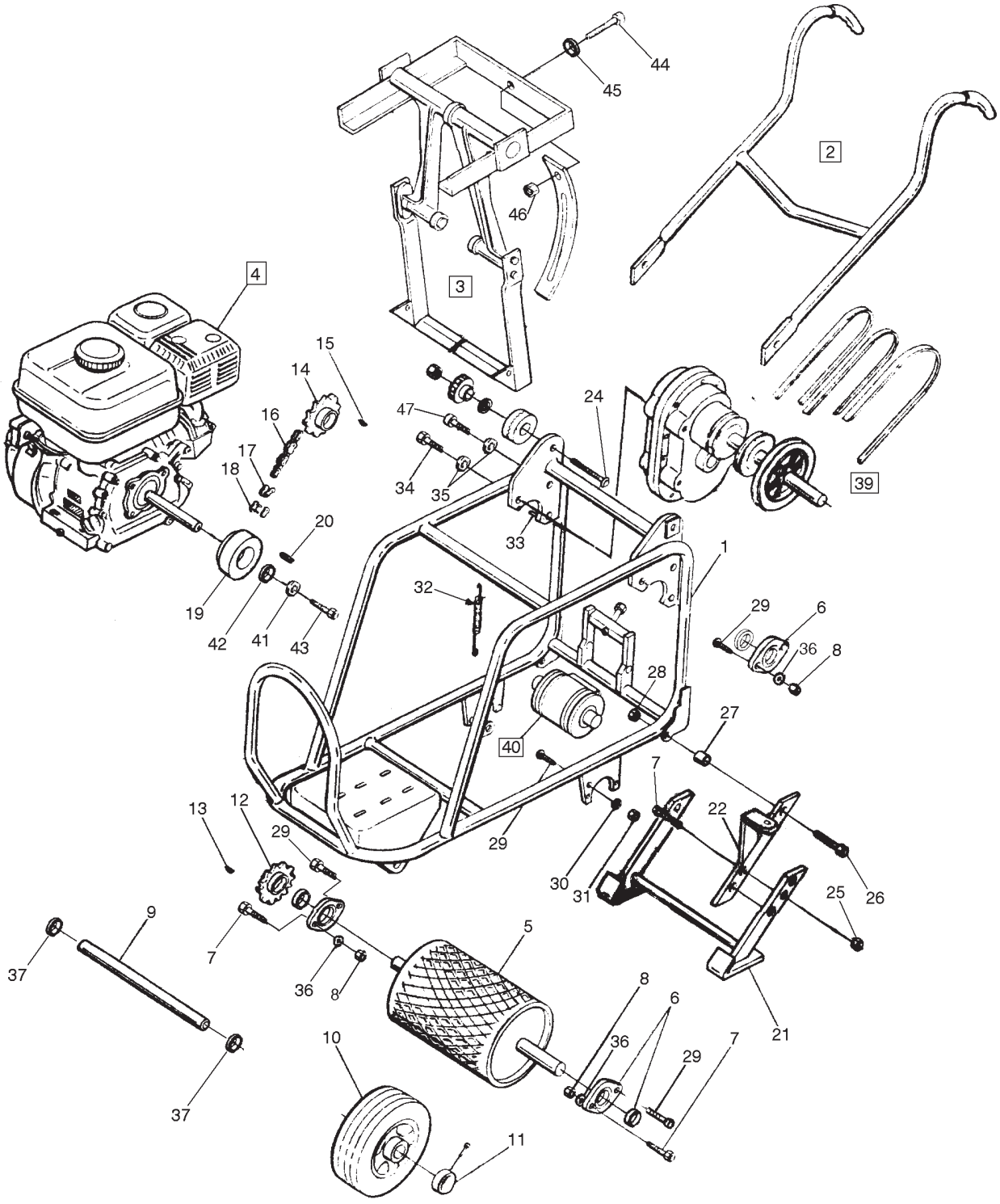
Frame Parts and Engine Mounting
Figure 1



Parts List for Figure 1

Ref	Part no.	Description	Quantity
1	90-0514	BOLT, 5/16 X 1-3/4	4
2	F2056	WASHER, FLAT 5/16 ID X 7/8 OD X .125 THICK	4
3	64-799	WASHER, 13/32 ID X 1-9/32 0D (Ser. No. 1000 - 4049)	4
	401326	PLATE, ENGINE MOUNTING (Serial No.4050 -)	1
4	TR10170	NUT BAR	2
5	99-E12	FLANGE NUT, 5/16	5
6	99-K19	FLANGE BOLT, 5/16 X 3/4	1
7	M5110	ENGINE, HONDA 5 HP GX140 (Serial No.1000 - 2899)	1
	M5268	ENGINE, HONDA 5.5 HP GX160 (Serial No. 2900 -)	1
8	99-K33	BOLT, 3/8 X 2 HEX TAP GR 2 (ALL THREAD)	1
9	99-E21	JAM NUT, 3/8	3
10	401202	LUG, JACKING SCREW	1
11	401181	FRAME, MAIN	1
12	90-0608	BOLT, 3/8 X 1	2

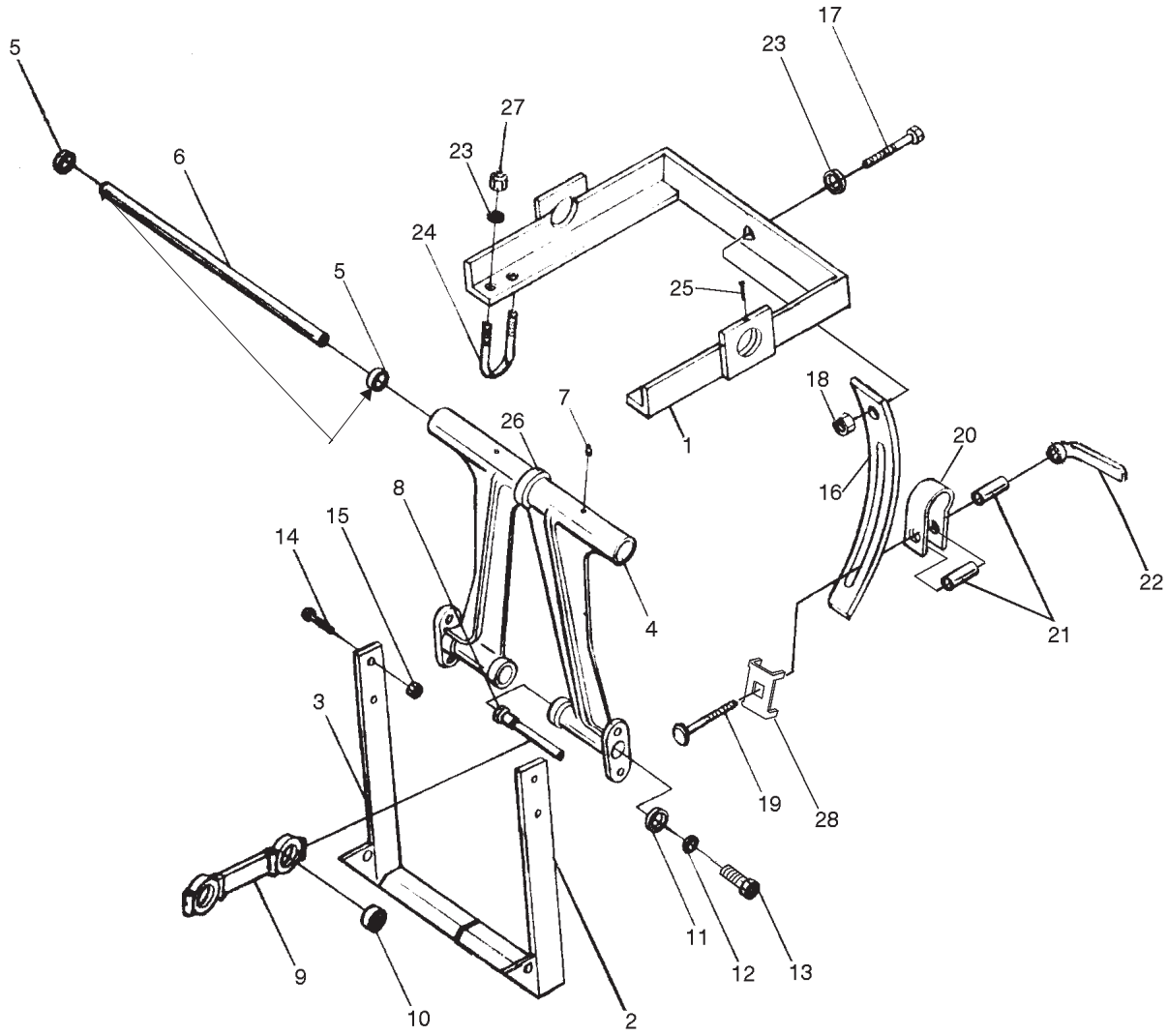
General Assembly Figure 2



Parts List for Figure 2

Ref	Part no.	Description	Quantity
1	401181	FRAME, MAIN	1
2	401185	HANDLE WELDMENT	1
3		(See Figure 3)	
4		(See Figure 1)	
5	401270	ROLLER, 12"	1
6	B8008	FLANGE, PRESSED STEEL	6
	B8006	BEARING, CARTRIDGE	3
7	97-0508	CARRIAGE BOLT, 5/16 X 1	6
8	99-E38	LOCKNUT, NYLON 5/16	6
9	401121	AXLE, FRONT WHEEL	1
10	R1032	WHEEL, 8" X 3/4 BORE	2
11	85-SC12	SET COLLAR, 3/4"	2
12	D1129	SPROCKET	1
13	85-W0306	KEY, WOODRUFF 3/16 X 3/4	1
14	D1134	SPROCKET	1
15	85-W0306	KEY, WOODRUFF 3/16 X 3/4	1
16	114041	CHAIN, #40 ROLLER 34-3/4" W/O HALF LINK	1
17	81-076	HALFLINK, #40	1
18	81-056	CONNECTOR LINK, #40	1
19	D8036	CENTRIFUGAL CLUTCH	1
20	85-K0310	KEY, 3/16 X 3/16 X 1-1/4	1
21	401197	KICKSTAND, LOWER	1
22	5401194	KICKSTAND, RH UPPER	1
	5401196	KICKSTAND, LH UPPER	1
24	97-0622 (REF)	CARRIAGE BOLT, 3/8 X 2-3/4 (SEE FIG. 5, REF. 12)	
25	99-E38	LOCKNUT, NYLON 5/16	4
26	90-0814	BOLT, 1/2 X 1-3/4	2
27	401090	SPACER, KICKSTAND	2
28	99-E41	LOCKNUT, NYLON 1/2	2
29	97-0506	CARRIAGE BOLT, 5/16 X 3/4	6
30	401259	WASHER, ECCENTRIC	2
31	99-E38	LOCKNUT, NYLON 5/16	2
32	S2001	SPRING, EXTENSION	1
33	401214	BRACKET, UPPER MOUNTING	1
34	90-0610	BOLT, 3/8 X 1-1/4	2
35	96-06	LOCKWASHER, 3/8	3
36	95-05	FLAT WASHER, 5/16 SAE	4
37	95-12	FLAT WASHER, 3/4 SAE	2
39		(See Figure 4 or 4A)	1
40		(See Figure 6)	1
41	96-05	LOCKWASHER, 5/16	1
42	94-05	FLAT WASHER, 5/16 USS	1
43	91-0506	BOLT, 5/16 X 3/4 NF	1
44	90-05010 (REF)	BOLT, 5/16-18 X 1-1/4 (SEE FIG. 3, REF. 17)	
45	95-05 (REF)	FLAT WASHER, 5/16 SAE (SEE FIG. 3, REF. 23)	
46	99-E12 (REF)	FLANGE NUT, 5/16 (SEE FIG. 3, REF. 18)	
47	99-11	BOLT, 3/8 X 1 SHCS	1

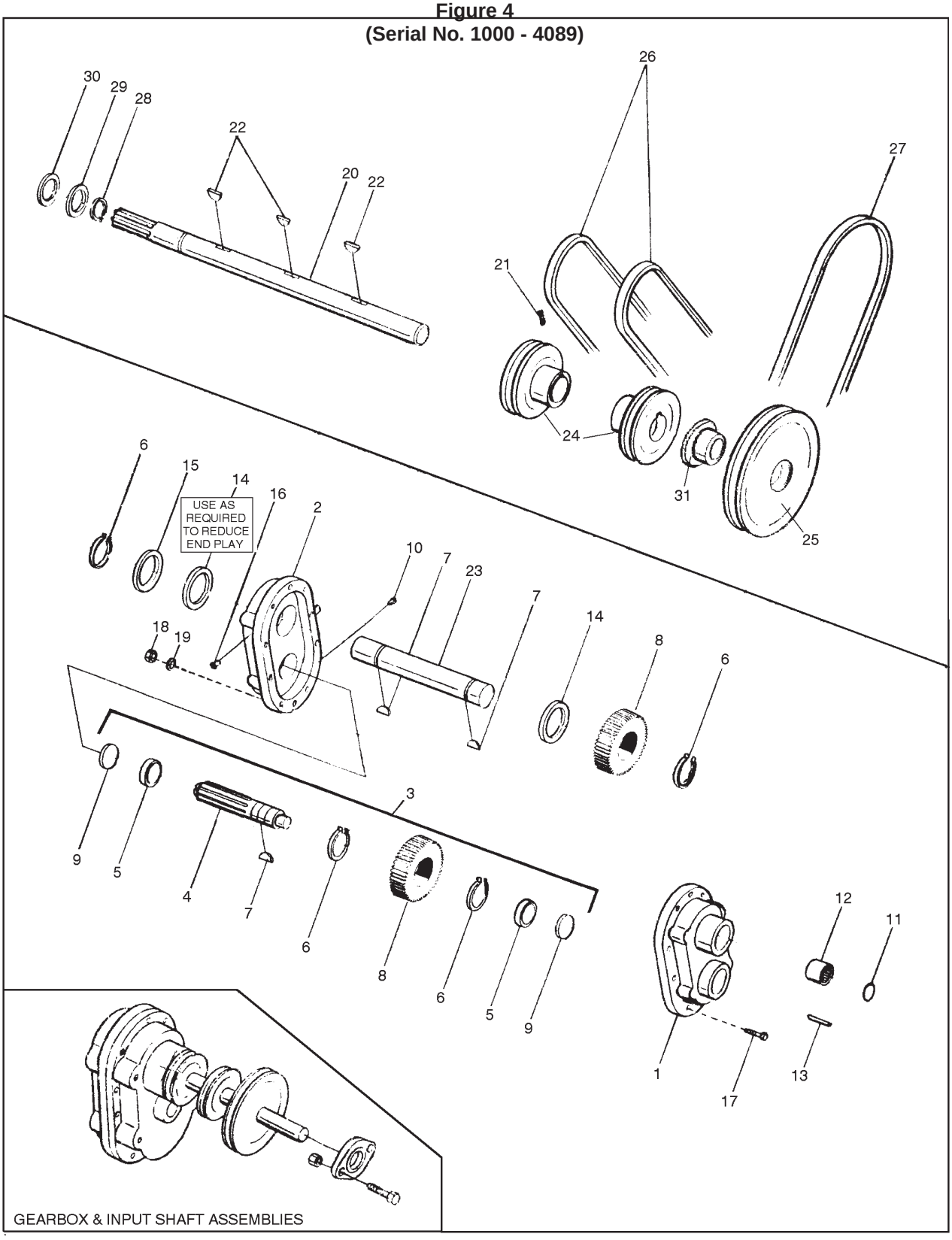
Cutting Blade Assembly Figure 3



Parts List for Figure 3

Ref	Part no.	Description	Quantity
1	401150	FRAME, DEPTH ADJUSTMENT	1
2	401053	BLADE, LH (13" WIDE)	1
3	401054	BLADE, RH (13" WIDE)	1
4	A41041	KIT, KNIFE ARM W/BUSHINGS (Includes Ref. 5)	2
5	L5011	BUSHING, 7/8"ID X 1"OD X 1"	2
6	401120	SHAFT, BLADE ARM PIVOT	1
7	29-010	GREASE FITTING, 1/4-28 SHORT	2
8	401149	SHAFT, CONNECTING ROD	2
9	A41003	ROD, CONNECTING	2
10	B2011	BEARING, BALL (17MM)	2
11	F2056	FLAT WASHER, 5/16"ID X 7/8 OD X .125 THICK	2
12	F1076	WASHER, DISC LOCK (pair)	2
13	90-0406	BOLT, 1/4 X 3/4	2
14	F5714	BOLT, WHEEL 1/2 UNF X 1-1/4	4
15	F5011	NUT, NYLON LOCK 1/2 THIN NF	4
16	5401189	SLIDE, CUTTING DEPTH ADJUSTMENT	1
17	90-0510	BOLT, 5/16 X 1-1/4	1
18	99-E12	FLANGE NUT, 5/16	1
19	F020840	BOLT, CARRIAGE. 1/2 X 4	1
20	5401188	CLAMP, CUTTING DEPTH ADJUSTMENT	1
21	5401209	SPACER	2
22	5401323	HANDLE	1
23	95-05	FLAT WASHER, 5/16 SAE (Serial No. 4050 -)	5
24	F9023	KIT, U-BOLT (Includes Ref. 27)	2
25	85-SS09	SET SCREW, 5/16 X 3/8 SKTHD	2
26	L5001	WASHER, THRUST 7/8"ID X 1-3/4"OD	1
27	93-05	NUT, 5/16 NF (Serial No. 1000 - 4049)	4
	99-A05NF	LOCKNUT, 5/16 STOVER NF (Serial No. 4050 -)	4
28	401333	CLIP, RETAINER (Serial No. 4336 -)	1

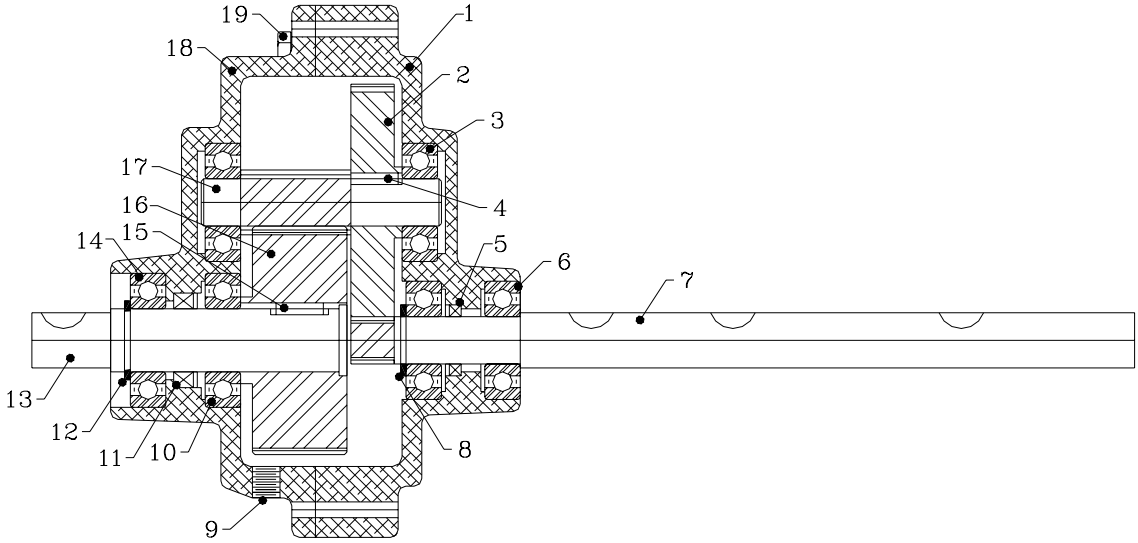
Gearbox Assembly
Figure 4
(Serial No. 1000 - 4089)

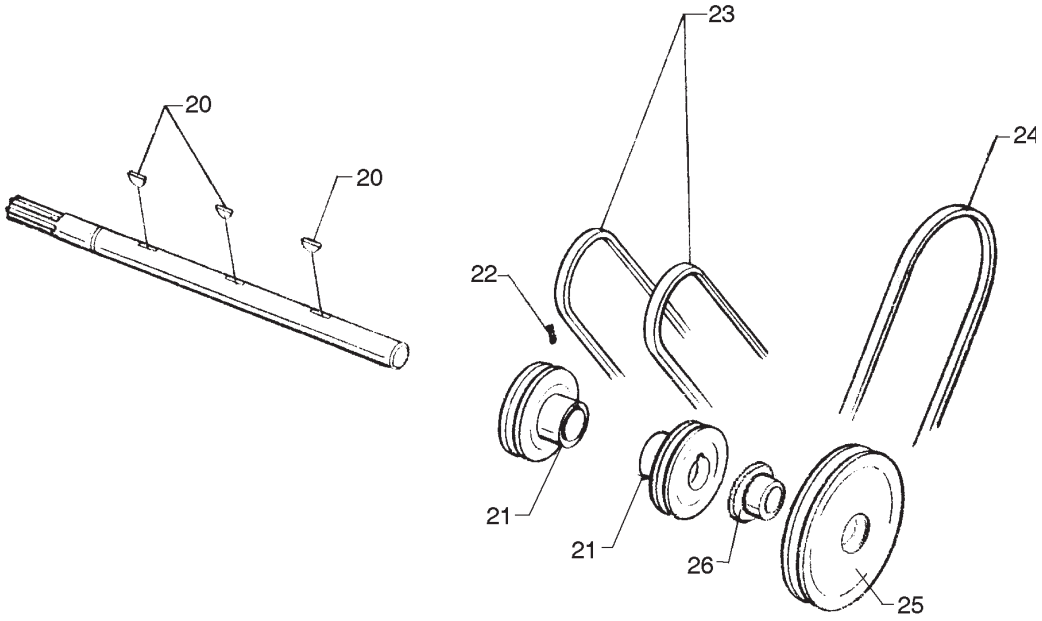


Parts List for Figure 4 (Serial No. 1000 - 4089)

Ref	Part no.	Description	Quantity
	401328	GEARBOX ASSEMBLY	1
1	5401028	CASE, GEAR LEFT SIDE	1
2	401235	CASE, GEAR RIGHT SIDE	1
3	A41005	GEAR, INTERMEDIATE	1
4	5401037	SHAFT, PINION	1
5	B2017	BEARING, BALL (12MM)	2
6	G1504	RETAINING RING, EXT. 7/8" DIA	4
7	G8033	KEY, WOODRUFF #606	3
8	5401030	GEAR, SPUR	2
9	401032	PLUG, FROST	2
10	H8026	PLUG, SOCKETHEAD 1/4"	2
11	E1030	SEAL, OIL 7/8 SHAFT X 1-3/8	2
12	L5012	BUSHING, 7/8ID X 1-1/8OD X 1	1
13	G8041	PIN, DOWEL: 1/4"OD X 1/2"LG	2
14	L5001	WASHER, THRUST 7/8"ID X 1-3/4"OD	2
15	95-14	FLAT WASHER, 7/8 SAE	1
16	H8064	PLUG, HEX HEAD VENT:-1/8NPT	1
17	90-0407	BOLT, 1/4 X 7/8	8
18	92-04	NUT, 1/4	8
19	F1076	WASHER, DISC LOCK	8
20	401096	SHAFT, INPUT GEAR	1
21	F2603	SET SCREW, 5/16 X 3/8	2
22	85-W0306	KEY, WOODRUFF 3/16 X 3/4	3
23	401031	SHAFT, OUTPUT GEAR	1
24	401155	SHEAVE, CRANKSHAFT DRIVE	2
25	D2320	SHEAVE, TAPER LOCK 7"	1
26	D2104	BELT, A20	2
27	81-A053	BELT, A53	1
28	G1504	RETAINING RING, EXT 7/8" DIA	1
29	L5001	WASHER, THRUST 7/8"ID X 1-3/4"OD	1
30	95-14	FLAT WASHER, 7/8 SAE	1
31	D3032	BUSHING, TAPER LOCK	1

Gearbox Assembly
Figure 4A
(Serial No. 4090 -)

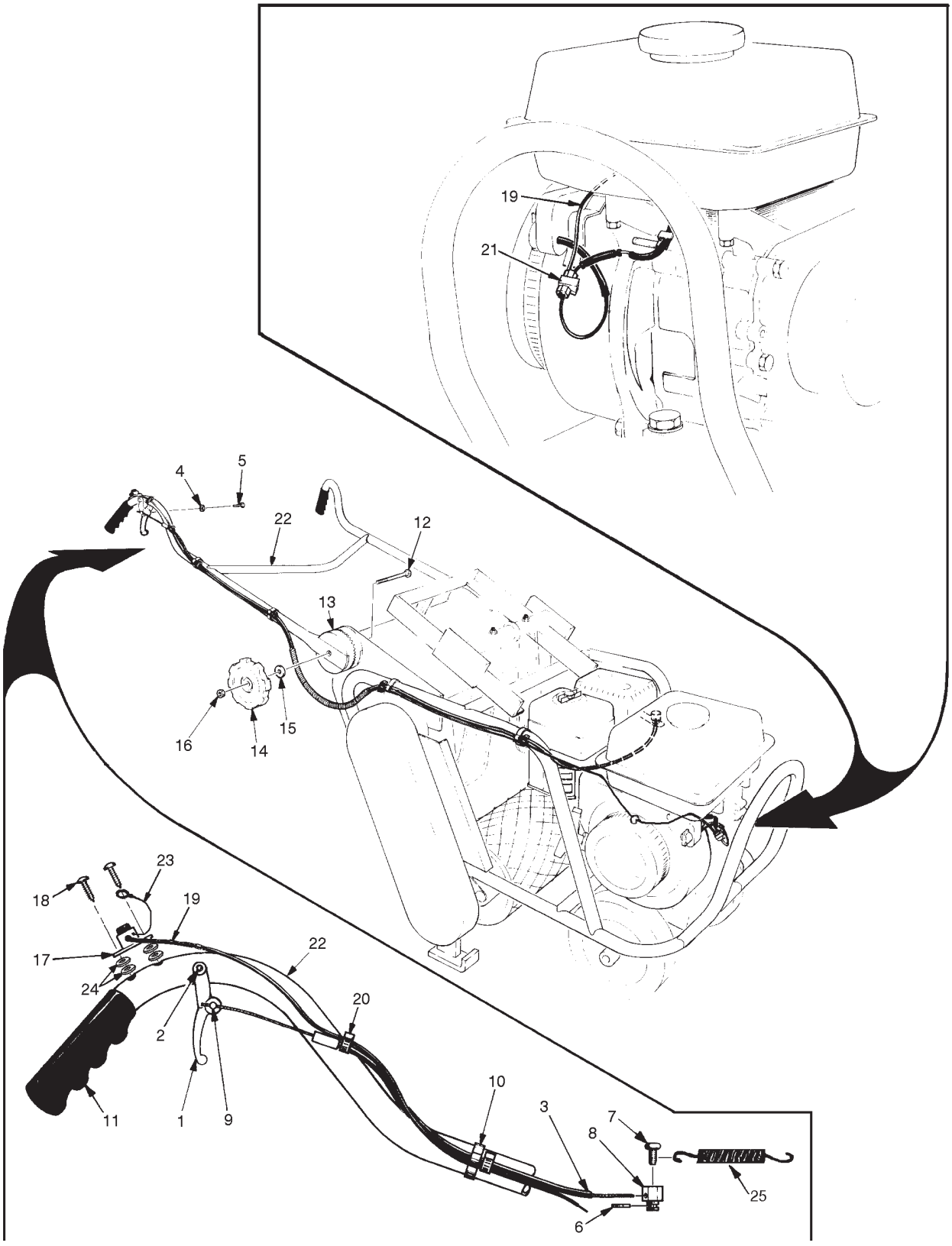




Parts List for Figure 4A (Serial No. 4090 -)

Ref	Part no.	Description	Quantity
	401328	GEARBOX ASSEMBLY (INCLUDES REF. 1-19)	1
1	87-003160	RIGHT HOUSING HALF	1
2	87-106781	GEAR	1
3	87-153411	BALL BEARING	3
4	87-600668	KEY	1
5	87-301432	SEAL	1
6	87-151282	BALL BEARING	1
7	87-106799	INTEGRAL SHAFT	1
8	87-620054	RETAINING RING	1
9	87-410019	PIPE PLUG (VENTED)	1
10	87-153437	BALL BEARING	1
11	87-301374	SEAL	1
12	87-620013	RETAINING RING	1
13	87-223173	SHAFT	1
14	87-153429	BALL BEARING	1
15	87-600056	KEY	1
16	87-106807	GEAR	1
17	87-106773	INTEGRAL SHAFT	1
18	87-003178	LEFT HOUSING HALF	1
19	87-410076	CAP SCREW	8
20	85-W0306	KEY, WOODRUFF 3/16 X 3/4	3
21	401155	SHEAVE, CRANKSHAFT DRIVE	2
22	85-SS09	SET SCREW, 5/16 X 3/8 SKTHD	2
23	D2104	BELT, A20	2
24	81-A052	BELT, A52 (SERIAL NO. 4090 - 4757)	1
	81-A053	BELT, A53 (SERIAL NO. 4758 -)	1
25	D2320	SHEAVE, TAPER LOCK 7"	1
26	D3032	BUSHING, TAPER LOCK	1

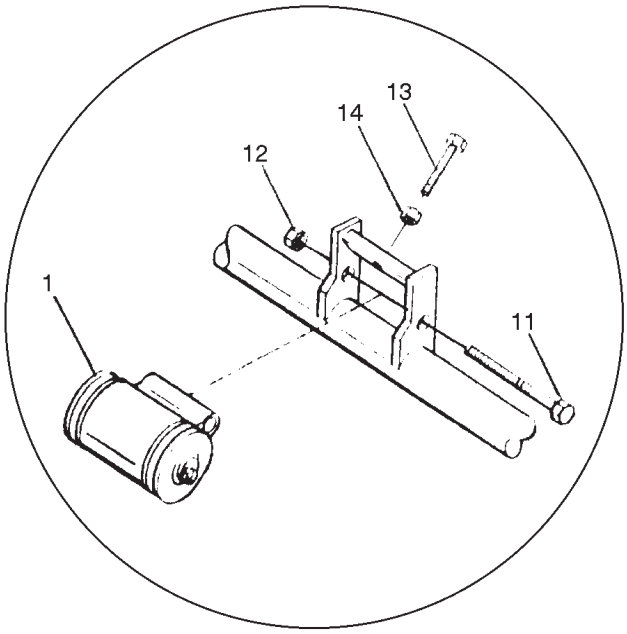
Controls
Figure 5

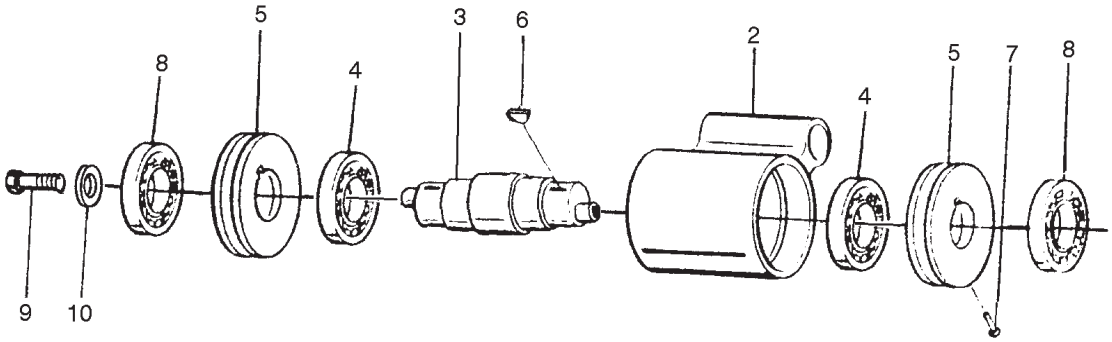


Parts List for Figure 5

Ref	Part no.	Description	Quantity
1	401245	LEVER, THROTTLE	1
2	G2323	PIN, SPRING TENSION-1/4 X 1-5/8	1
3	401244	CABLE, THROTTLE	1
4	F0061	WASHER, FLAT 147 ID X 5/16 OD	1
5	F0027	SCREW, ROUND HD #6-32 X 3/4	1
6	G1519	RING, EXTERNAL RETAINING 5MM	1
7	07-0407010	METRIC BOLT, M4-0.70 X 10 (HEX HEAD)	1
8	Z9004	CABLE CLAMP	1
9	401250	PIN, THROTTLE	1
10	30-037	WIRE TIE, T 50R 3/16 X 7-3/4	7
11	M5115	HANDLE GRIP	2
12	97-0622	CARRIAGE BOLT, 3/8-16 X 2-3/4	2
13	5401182	HANDLE, RACHET	4
14	KM99069	KNOB, HAND	2
15	94-06	FLAT WASHER, 3/8	2
16	99-A06	LOCKNUT, STOVER 3/8	2
17	J0039	SWITCH, KILL (PRIOR TO SN 4480)(No longer available)	1
	31-058	SWITCH, KILL (SN 4480 & UP)	1
18	F0331	SCREW, #10 X 1/2	2
19	A41018	WIRE, KILL SWITCH (16 GA. BLACK X 64-3/4" LONG)	1
20	30-025	WIRE TIE, 3/16 X 5-1/2	5
21	30-095	CONNECTOR, QUICK SPLICE	1
22	401185	HANDLE WELDMENT	1
23	REF	GROUND WIRE, 1-3/4” LONG (SN 4480 & UP)	1
	30-004A5	WIRE, 16 GA. BLACK	1
	30-323	TERMINAL, #6 EYELET	2
	30-324	TERMINAL, #8 EYELET	1
24	01-009	FLAT WASHER, #8 SAE (SN 4480 & UP)	4
25	S2019	SPRING, EXTENSION	1
26	KM31006	RUBBER END CAP (Not Illustrated)	2

Crankshaft
Parts
Figure 6

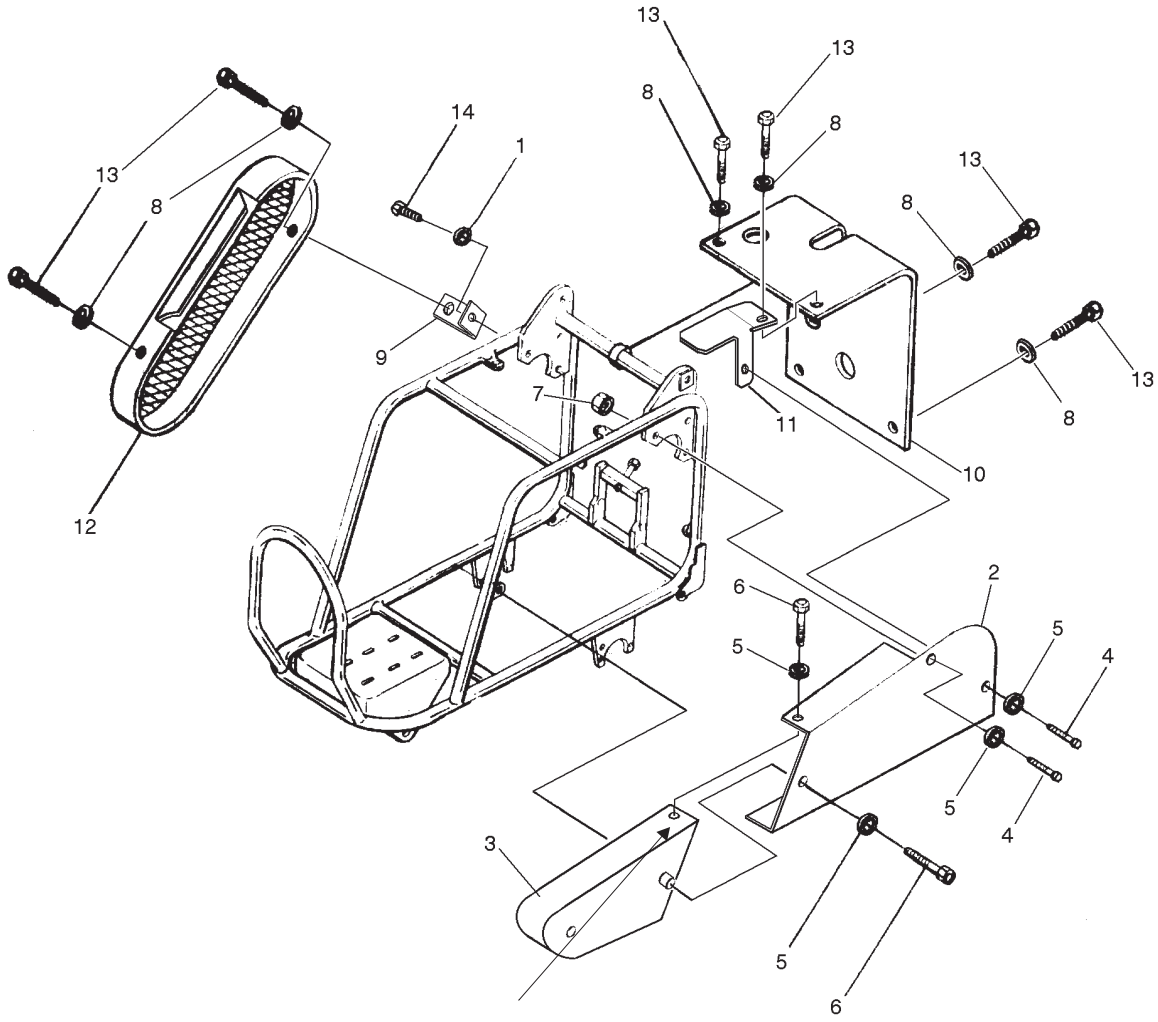




Parts List for Figure 6

Ref	Part no.	Description	Quantity
1	A41002	CRANKSHAFT ASSEMBLY (Includes Ref 2 - 14)	1
2	401021	HOUSING, CRANKSHAFT	1
3	401022	CRANKSHAFT	1
4	B2012	BEARING, BALL (35MM)	2
5	401023	SHEAVE, CRANKSHAFT	2
6	85-W0306	KEY, WOODRUFF 3/16 X 3/4	2
7	F1604	SCREW, HEX SOC SET 1/4 X 1/4	2
8	B2011	BEARING, BALL (17MM)	2
9	F1200	BOLT, 1/4 X 3/8 GR. 5	2
10	94-04	FLAT WASHER, 1/4 USS	2
11	90-1036	BOLT, 5/8 X 4-1/2	1
12	99-E42	LOCKNUT, NYLON 5/8	1
13	5401324	BOLT, ADJUSTMENT	1
14	99-E11	JAM NUT, 5/8 NF	1

Shields
Figure 7



Parts List for Figure 7

Ref	Part no.	Description	Quantity
1	96-06 (REF)	LOCKWASHER, 3/8 (SEE FIG. 2, REF. 35)	
2	401319	GUARD, REAR	1
3	401314	GUARD, FRONT	1
4	90-0512	BOLT, 5/16 X 1-1/2	2
5	94-05	FLAT WASHER, 5/16 USS	4
6	99-K19	BOLT, FLANGE 5/16 X 3/4	2
7	99-E12	FLANGE NUT, 5/16	1
8	95-05	FLAT WASHER, 5/16 SAE	6
9	5401214	BRACKET, UPPER MOUNTING	1
10	401236	GUARD, REAR	1
11	401331	SHIELD, BELT (SERIAL NO. 4336 -)	1
12	401211	GUARD, CHAIN	1
13	99-K28	BOLT, FLANGE 5/16 X 1/2	6
14	90-0610 (REF)	BOLT, 3/8 X 1-1/4 (SEE FIG. 2, REF. 34)	

Decals
Figure 8

1

SOD CUTTER MARK 2

WARNING

SAFETY INSTRUCTIONS

FAILURE TO OBSERVE SAFETY INSTRUCTIONS AND REASONABLE SAFETY PRACTICES CAN CAUSE PROPERTY DAMAGE, SERIOUS INJURY AND/OR DEATH.

1. SET MACHINE ON KICKSTAND.
2. TURN FUEL VALVE & SWITCH TO "ON".
3. CHOKE ENGINE WHILE STARTING.
4. LIFT UP KICKSTAND BY PUSHING UNIT FORWARD WITH ENGINE AT IDLE SPEED.
5. OPEN THROTTLE & PUSH DOWN SLIGHTLY ON HANDLES TO GET KNIFE BLADES INTO GROUND.
6. IF CUTTER SCALPS SOD, SET BLADES DEEPER.
7. IF MACHINE HAS TO BE PUSHED, SET BLADES SHALLOWER.
8. FOR BEST PERFORMANCE SET SPACE BETWEEN DRIVE ROLLER AND BLADE 3/4" TO 1".
9. ADJUST HANDLES FOR EASY OPERATION.
10. KEEP HANDS AND FEET AWAY FROM THE BLADES WHEN THE UNIT IS RUNNING.
11. TURN ENGINE OFF WHEN THE UNIT IS SITTING IDLE WITHOUT AN OPERATOR.
12. DO NOT OPERATE THE UNIT WITHOUT ALL GUARDS IN PLACE.
13. DO NOT WEAR LOOSE OR BAGGY CLOTHING THAT COULD GET CAUGHT IN ROTATING PARTS.
14. WEAR A HAT IF YOU HAVE LONG HAIR, TO PREVENT HAIR FROM GETTING CAUGHT IN ROTATING PARTS.
15. KEEP BYSTANDERS CLEAR OF THE WORKING AREA.
16. EXHAUST IS HOT AFTER ENGINE IS SHUT OFF. AVOID CONTACT.

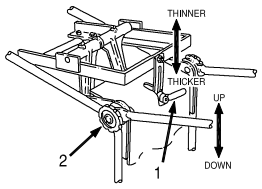
LUBRICATION

1. GREASE KNIFE ARMS ONCE EVERY 40 HRS.
2. CHECK ENGINE OIL LEVEL. FILL WITH 10W30 - 10W40 OIL.
3. CHECK GEARBOX OIL LEVEL. FILL WITH SAE 90 GEAR OIL.

5401325

2

TO ADJUST FOR CUTTING THICKNESS OF SOD:
POSITION UNIT ON KICKSTAND.
LOOSEN THE ADJUSTMENT HANDLE (1).
SET FOR REQUIRED THICKNESS.
RE-TIGHTEN ADJUSTMENT HANDLE (1).



TO ADJUST SOD CUTTER HANDLES:
LOOSEN HANDKNOB (2) ON BOTH SIDES.
SET HANDLES TO CORRECT HEIGHT FOR OPERATOR AND RE-TIGHTEN KNOBS.

401330

3

BROUWER

D001-171

Parts List for Figure 8

Ref	Part no.	Description	Quantity
1	5401325	DECAL, WARNING SAFETY INSTRUCTIONS	1
2	401305	DECAL, ADJUSTMENT INSTRUCTIONS (SN 1000 - 4049)	1
	401330	DECAL, ADJUSTMENT INSTRUCTIONS (SN 4050 -)	1
3	401257	DECAL, “BROUWER” 2-1/2 X 12-3/4	1

Kesmac Inc.
23324 Woodbine Avenue, Keswick Ontario Canada L4P 0N1
Tel (905) 476-6222 Fax (905) 476-6744
Web Site www.brouwerkesmac.com Email info@kesmac.com