

SCOT

**U.S. COAST GUARD
DEWATERING PUMP
MODEL CG-P1A 3 HP**

TECHNICAL MANUAL 61.000.262

TCN CG7610-01-GE9-4901

OPERATIONS – PARTS LIST – MAINTENANCE



**U.S. COAST GUARD
Pump System, Dewatering,
Air Droppable, Floatable**

SCOT MODEL CG-P1A
SPEC. NO. 3216K30

STOCK NO. CG4320-01-150-8901
USCG SPEC G-OSR-LSS-1,-REV A
DATED 9 NOV., 83
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DESCRIPTION OF EQUIPMENT



ILLUSTRATION 1

- Discharge Check Valve for Positive Priming
- 25 ft. Suction Lift Capability
- Lightweight Pump 62 lbs.
- 13" × 17" × 26"
- 3 H. P. Briggs & Stratton Engine
- Removable Fuel Tank with Quick Disconnect.
- 2" Suction Hose with Strainer
- 3" Discharge Hose with Check Valve
- 120 Gallons per Minute with a 5 ft. Suction Lift.

SCOT MANUAL PRIMED ENGINE DRIVEN SALT WATER PUMP SET

INCLUDES:

- Manual Prime Pump
- Portable Engine Driven Pump, Aluminum Construction
- 15 Ft. Suction Hose with Coupling and Strainer
- 20 Ft. Discharge Hose with Check Valve
- Remote 1 Gallon Fuel Tank
- Flashlight
- Instruction Card

COMPLETE INSTRUCTIONS FURNISHED

SAFETY INSTRUCTIONS

- **REFUEL ONLY IN WELL VENTILATED AREAS.**
- If gasoline is spilled, move pump away from spill.
- **DO NOT REFUEL GASOLINE TANK WHILE ENGINE IS RUNNING**
- **DO NOT RUN ENGINE IN AN ENCLOSED AREA.** Exhaust gases contain carbon monoxide, an odorless, colorless poison.
- **TO PREVENT ACCIDENTAL STARTING** always remove the spark plug from engine before working on engine or equipment.
- **DO NOT TAMPER WITH EXHAUST SYSTEM**
- **DO NOT** operate engine if air cleaner is removed (except for adjustment).
- **ALWAYS KEEP HANDS AND FEET CLEAR OF ROTATING PARTS.**
- **DO NOT** disconnect either suction or discharge hose during pumping operation.
- **DO NOT** check oil or fuel level while engine is running.
- **USE CAUTION** handling pump during and after running until engine has cooled.

OPERATION

BEFORE STARTING PUMP

- Fill engine crankcase with 1¼ pints of oil – see illustration and more complete instructions under “Engine Operation”. Generally use SAE 30 in summer (above 40°F) and use SAE 5W-20 or 5W-30 in winter (below 40°F).
- Fill fuel tank with fresh, clean lead-free gasoline. Leaded gasoline may be used if lead-free is not available. A minimum of 77 octane is recommended. The use of lead-free gasoline results in fewer combustion deposits and longer valve life.
- Put strainer end of suction inlet hose into water being pumped and connect coupling to pump. Tighten securely. Be sure strainer and end of hose are submersed. If air gets into inlet hose or strainer, pump will not pump. If strainer is not used, large solids may plug or damage pump.
- Outlet (discharge) hose should be laid out with minimum kinks or sags and placed overboard.
- Prime the pump with water by actuating hand pump until water discharges from plastic outlet of the hand pump.
- Place choke lever on engine to “choke”. (See illustration 3.)

OPERATING PUMP

- Check oil in crankcase. Keep oil level full.
- Open vent on fuel tank cap.
- Wrap starter rope on pulley and pull. (See illustration 4.)
- After 2nd pull (if engine hasn't started), set choke half way and crank again. Then set choke at ¼ to prevent flooding engine.
- After starting, adjust choke for best operation.
- After pump and engine are started, actuate hand priming pump until pump is pumping water.
- Be sure inlet hose and strainer are kept under water.
- Stop engine before adding gasoline.

- Stop engine before adding or checking oil.
- Keep pump and engine as nearly level as possible. (Within 15° level.)

TO STOP ENGINE AND PUMP

- Push kill switch on spark plug for instantaneous shut off, **OR**
- Disconnect fuel line. Engine will continue pumping for approximately one minute and then stop. (See illustration 5.)
- Close vent on fuel tank cap.
- When finished pumping, drain and flush the pump and hoses with fresh water.

EXTENDED ENGINE STORAGE INSTRUCTIONS

Engines to be stored over 30 days should have the spark plug removed and about an ounce of oil (2 or 3 tablespoons) put into the cylinder and the engine turned over several times to distribute the oil. Replace spark plug. (Putting a teaspoon of oil through the spark plug opening may also make an engine easier to start by increasing the seal around the piston and hence the compression).

COMPRESSION TEST CLOSE VALVES

Spin the flywheel counterclockwise (flywheel side) against the compression stroke, a sharp rebound indicates satisfactory compression. Slight or no rebound indicates poor compression. Leave flywheel in this position and both valves will be closed.

READINESS CHECK RUN

Pump must be run after each use, as well as monthly, for a check of kit components. Operate pump, hose and strainer under pressure for 15 minutes. Correct any problems before replacing kit. Visually inspect all kit components and make corrections such as paint touchup, inoperative flashlight, etc. Be sure engine oil is clean, in good condition and that oil is at full level. Flush interior of pump with fresh water. Clean exterior with fresh water. Dry thoroughly.

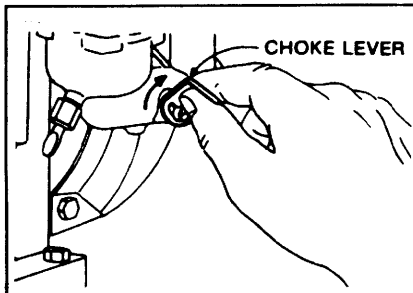


ILLUSTRATION 3

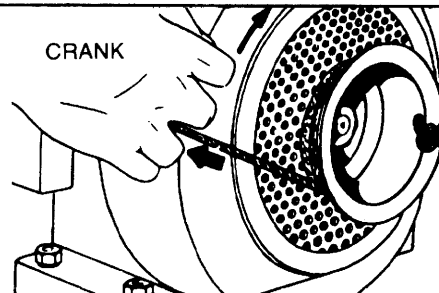


ILLUSTRATION 4

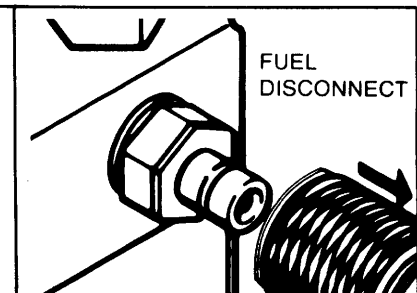


ILLUSTRATION 5

CAUTION: Never attempt to rotate engine except in direction of rotation, which is clockwise looking at the cranking end of the engine. If done, this could result in an unscrewing action on some of the pump parts and perhaps split open the engine crankcase, an expensive part.

ENGINE MAINTENANCE INFORMATION

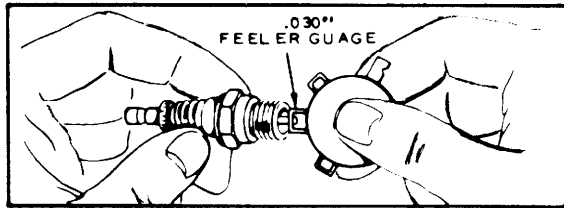


ILLUSTRATION 6

SPARK PLUG – Clean and reset gap at .030" every 100 hours of operation.

CAUTION: Blast cleaning of spark plugs in machines using abrasive grit is not recommended. Spark plugs should be cleaned by scraping or wire brushing and washing with a commercial solvent or gasoline.

TUNE-UP SPECIFICATIONS

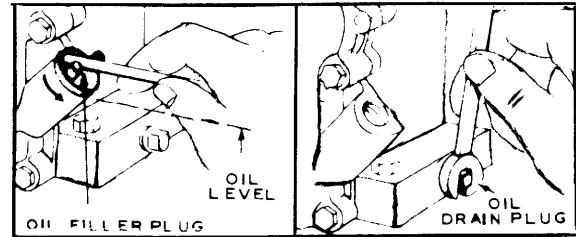
	Champion	Autolite	Robert Bosch
Short Plug	CJ-8	235	WS9E
Spark Plug Gap	.030" (.76 mm)		
Intake Valve Clearance	.050"-.007" (.13-.18 mm)		
Exhaust Valve Clearance	.009"-.011" (.23-.28 mm)		

CARBURETOR ADJUSTMENTS Minor adjustments may be required to compensate for differences in fuel, temperature, altitude and load. (see illustration 8)

NOTE: Engine RPM set at factory for optimum operation at 3300 ± 100 RPM.

Initial adjustment: Close needle valve (turn clockwise). Do not turn hard enough to damage needle and seat. Open valve 1½ turns (counterclockwise). This initial adjustment will permit the engine to be started and warmed up before making final adjustment.

Final adjustment: With engine running at normal operating speed, close the needle valve (clockwise) until engine starts to lose speed (caused by lean mixture). Then slowly open needle valve past the point of smoothest operation, until engine just begins to run unevenly. This mixture should be rich enough for best performance under load. Test the engine under full load. If engine tends to stall or die out, the indication usually is that the mixture is slightly lean, and it may be necessary to open the needle valve slightly to provide a richer mixture.



Check Oil Level

Change Oil

ILLUSTRATION 7

CHECK OIL LEVEL REGULARLY – at least after each 5 hours of operation.

CHANGE OIL every 25 hours of operation. Remove plug and drain oil while engine is warm. Replace drain plug. Place engine level. Use screw driver or bar to remove oil filler plug. Clean dirt from around filler plug. Fill crankcase SLOWLY to point of overflowing. (Capacity: 1¼ pints). Replace filler plug. Use a high quality detergent oil classified "For Service SC, SD, SE or MS". See page 4, "BEFORE STARTING PUMP", for viscosities of oil recommended by manufacturer.

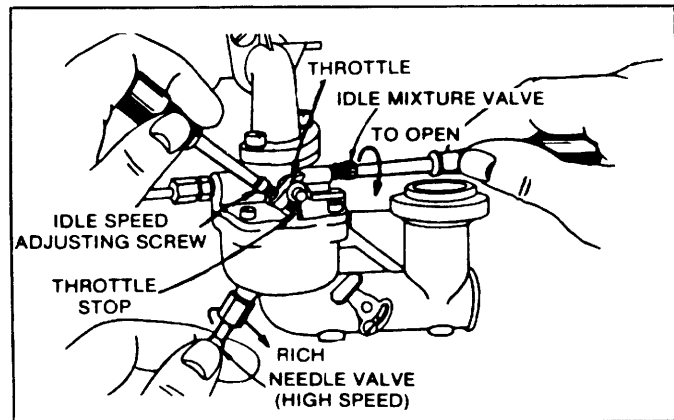


ILLUSTRATION 8

REMOVE COMBUSTION DEPOSITS every 100-300 hours of operation. Remove cylinder head and cylinder head shield. Scrape and wire brush the combustion deposits from cylinder, cylinder head, top of piston around valves. Use a soft brush to remove deposits. Reassemble gasket, cylinder head and cylinder head shield. Turn screws down finger tight with the three longer screws around the exhaust valve. Torque cylinder head screws in a staggered sequence to 140 inch pounds (15.82 N-m).

PUMP MAINTENANCE AND REPAIR

- Keep the suction hose connection air tight. Check the suction hose for leaks. If gasket is worn - replace.
- No lubrication or maintenance is required on the prime pump. Avoid damaging the rubber diaphragm. Check the diaphragm frequently for damage.
- No lubrication is required on the centrifugal pump. The shaft seal is self-lubricating and will handle clean or dirty liquids.
- To disassemble the centrifugal pump it is first necessary to remove the prime pump assembly. Remove the primer inlet hose from the inlet elbow. Disconnect the fuel line from the prime pump bracket. Remove the two hex screws holding the bracket and pump case to the engine adapter. Remove the prime pump and bracket as an assembly. Remove the remaining two hex screws holding the case to the engine adapter and remove the case. It is necessary to remove the impeller to service the seal. To remove the impeller, place a piece of wood against the outer end of the one of the impeller vanes. Hit the wood with a hammer so as to turn the impeller in the same direction as the rotation of the engine, that is, counterclockwise, until the impeller is loosened and can be screwed off the engine crankshaft.
- The rotating seal parts can be pulled out with the fingers. To remove the stationary seal ring, it is best to remove the engine adapter from the engine and push the seal ring out from the back. When replacing seal, sleeve and seal surfaces must be clean and smooth. Use clean, light oil on the sleeve, seal seat and sealing faces when reassembling. Do not damage seal parts when handling. For detailed instructions see page 7.

PERIODIC MAINTENANCE SCHEDULE AFTER EACH USE

- Visually inspect all components
 - flashlight - for operation
 - fittings for damage, lost or defective gaskets
 - suction hose and strainer for obstructions and other damage
 - all hose clamps
- Clean interior and exterior with fresh water and dry thoroughly
- Check engine oil level and be sure oil is clean
- Check compression
- Check fuel filter for evidence of dirt or lint build up, replace if clogged

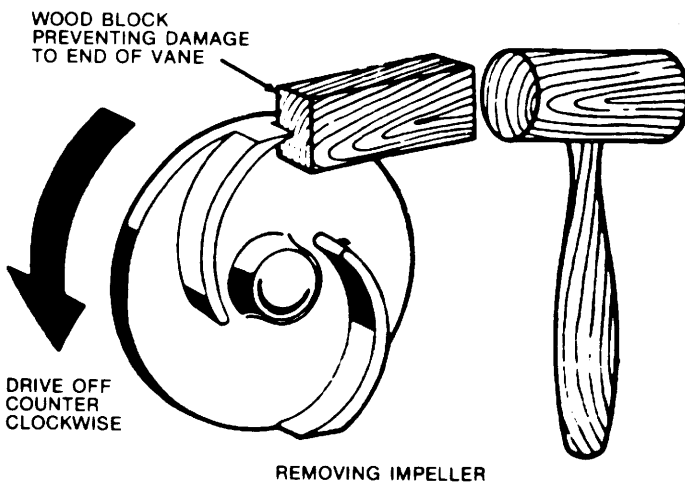


ILLUSTRATION 9

- If the impeller is badly worn, it should be replaced to regain the best performance. When replacing, insert impeller shim between sleeve and impeller to obtain approximately 1/64" clearance between the impeller and pump case faces.

EVERY 25 HOURS

- Change oil
- Replace fuel filter

EVERY 100 HOURS

- Clean or replace spark plug as required
- Remove carbon deposits
 - clean combustion chamber
 - clean top of piston
 - clean around both valves

HOW TO INSTALL SHAFT SEAL

CAUTION: This seal is a precision product and should be handled accordingly. Be especially careful of the lapped sealing surfaces of the rotary washer and stationary seat.

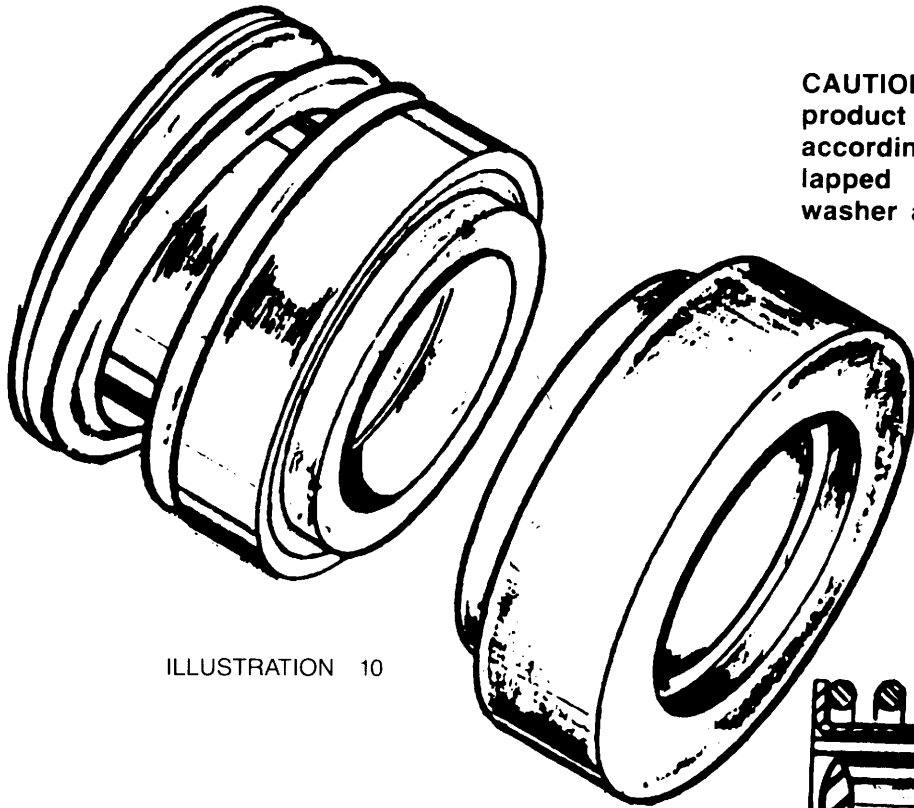


ILLUSTRATION 10

LAPPED RUNNING FACES — The lapped running surfaces of the rotary seal head and stationary seat must be treated with care. **KEEP CLEAN. DO NOT SCRATCH.** Use a clean, soft cloth during installation. Protect the faces. Install both the seat and rotary, square to shaft. Check stationary seat installation from behind seal cavity for squareness.

INSTALLATION — STATIONARY SEAT (Item 1, Illustration 11) Clean seal cavity in pump.

*Lubricate cup with light oil and press seat firmly and squarely into seal cavity with lapped face up.

Be carefull not to scratch lapped face. Use a clean, soft cloth to protect seal face.

INSTALLATION — ROTARY SEAL HEAD (Item 2, Illustration 11) Clean, polish, and lubricate* shaft (or shaft sleeve). Check lapped faces on stationary seat and rotary seal head. Be certain no dirt is on either face. Lubricate* lightly.

Slide rotary seal head on shaft pressing on drive band. Seat firmly.

Install impeller which will compress the spring to proper length assuring correct pressure on the lapped running faces.

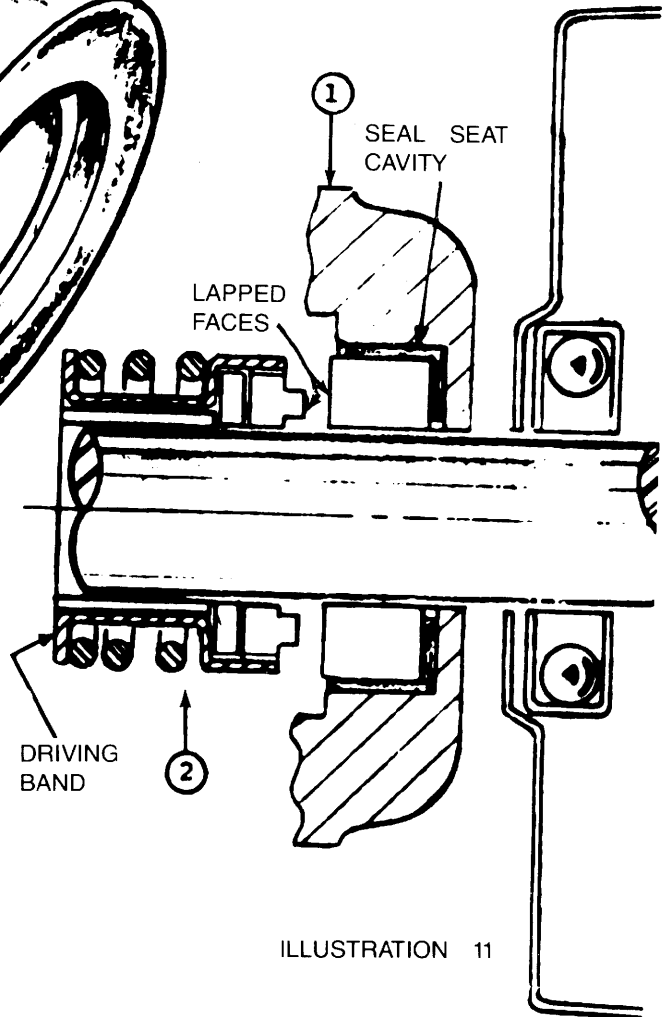
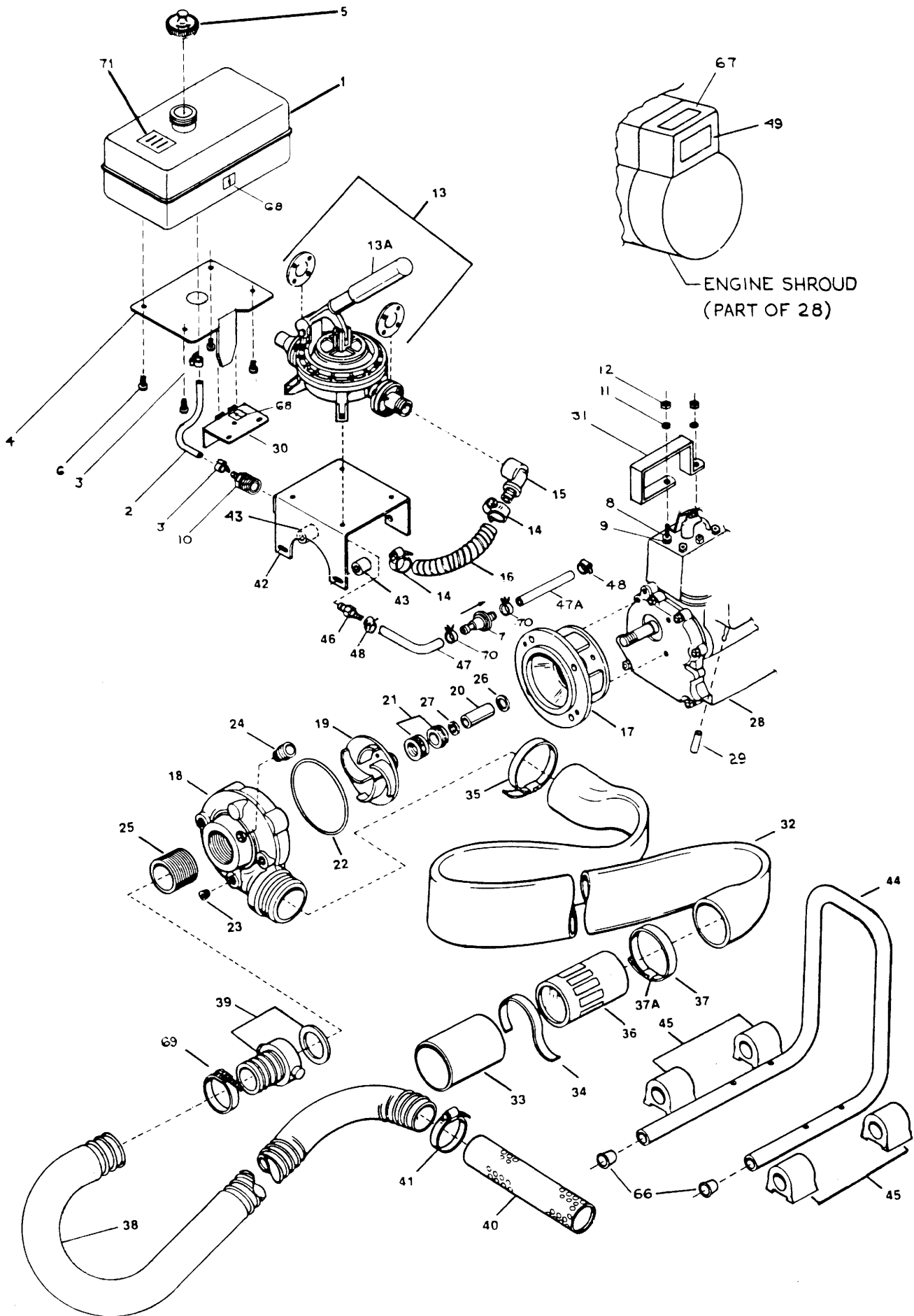


ILLUSTRATION 11

CAUTION: Never operate the lapped running faces dry. The liquid being handled insures proper lubrication.

***LUBRICATION:**
BUNA RUBBERS — Use light oil or soap solution.

ILLUSTRATED PARTS BREAKDOWN (ENGINE)



PUMP PARTS LIST

KEY PART NAME	QTY	SCOT PART NO.
FUEL TANK ASSEMBLY Items 1 thru 6,10,68,71	1	118.000.426
1 Fuel tank, black	1	119.000.389
2 Fuel line, clear 1/4"IDx13"L	1	108.000.354A
3 Clamp, fuel line	2	106.000.325
4 Bracket, fuel tank	1	119.000.440
5 Cap, fuel tank	1	105.000.548
5A Gasket, cap	1	116.000.311
6 Screw, tank mounting	4	105.000.547
10 Fitting, quick connect	1	102.000.247A
68 Label, gas	1	117.000.488
71 Label, vent	1	117.000.543
* Instruction tag	1	061.000.202
* Tie, Instruction tag	1	199.000.401
PRIME PUMP ASSEMBLY Items 13 thru 16	1	118.000.290
13 Pump, prime	1	118.000.299
13A Grip	1	102.000.263
14 Clamp	2	106.000.370
15 Elbow	1	108.000.267
16 Hose, inlet 1/2"ID x 7"L	1	108.000.268A
* SERVICE KITS		
Diaphragm & flapper valves	1	102.000.219-1
Fitting, inlet - 1" hose	1	102.000.219-2
Fitting, outlet - 3/4" NPT	1	102.000.219-3
PUMP ASSEMBLY W/O ENGINE Items 17 thru 27	1	118.000.287
17 Adapter	1	132.000.264
18 Case	1	130.000.254
19 Impeller	1	131.000.640
20 Sleeve	1	110.000.137
21 Seal	1	101.000.102
22 O-Ring, Buna	1	116.000.141
* Screw, hex hd. cap 15/16-24 x 3/4", stn stl	4	105.000.203
* Lockwasher, 5/16" med stn stl	4	104.000.148
* Screw, hex hd. cap., 3/8-16 x 1", stn stl	4	105.000.161
* Lockwasher, 3/8" med stn stl	4	104.000.130
23 Plug, drain	1	108.000.126
24 Barb, primer	1	108.000.259
25 Nipple, hose connector	1	108.000.221
26 Flinger	1	104.000.179
27 Shim (If required)	1	104.000.142
ENGINE ASSEMBLY Items below	1	118.000.291A
7 Filter, fuel	1	102.000.323
8 Stud, cylinder head	2	105.000.549
9 Washer, handle	2	104.000.277
11 Lockwasher, handle	2	104.000.148
12 Nut, hex	2	105.000.116
28 Engine	1	112.000.175
* Starter rope	2	102.000.254
* Shroud	1	119.000.285
29 Cover, carb. screw	1	108.000.235
30 Bracket, fuel tank	1	119.000.441
31 Handle	1	119.000.123
46 Fitting, male	1	102.000.247
47 Hose, fuel, 1/4"ID x 9"L	1	108.000.232B
47A Hose, fuel, 1/4"ID x 3"L	1	108.000.232C
48 Clamp, hose	2	106.000.325
49 Caution plate	1	117.000.471
67 Nameplate	1	117.000.544
68 Label, gas w/mylar cover	1	117.000.488
70 Clamp, hose	2	106.000.408
* Fuel filter assembly Includes items 7 & 70	1	118.000.437

* NOT SHOWN

Replacement parts available from either of the stocking locations listed on the back cover.

KEY PART NAME	QTY	SCOT PART NO.
DISCHARGE HOSE ASSEMBLY Items 32 thru 37A	1	118.000.289
32 Hose, discharge, 3"ID x 20'L	1	108.000.227A
33 Check Valve, sleeve	1	108.000.228
34 Tape 3/4" x 12"L	1	121.000.137A
35 Clamp, pump	1	106.000.137B
36 Check Valve, body	1	119.000.276
37 Check Valve, band	1	108.000.233A
37A Check Valve, buckle	1	108.000.234
* Check Valve, assembly Includes items 33, 34, 36	1	118.000.286
SUCTION HOSE ASSEMBLY Items 38 thru 41,69	1	118.000.288A
38 Hose, suction, 2"ID x 15'L	1	108.000.276B
39 Coupling	1	108.000.197
39A Gasket only	1	116.000.249
40 Strainer, suction	1	119.000.227
41 Clamp	1	106.000.399
69 Clamp	1	106.000.413
FIRE HOSE ASSEMBLY Items below	1	118.000.399
* Nipple, PVC, 1-1/2"	1	108.000.178
* Coupling-female swivel 1-1/2"	1	108.000.177
* Clamp, hose, stn, 1-1/2"	2	106.000.136
* Hose discharge, 1-1/2" x 50'L	1	108.000.141
* Coupling-male, 1-1/2"	1	108.000.200
* Fire nozzle, adjustable 1-1/2"	1	108.000.348
MISCELLANEOUS		
42 Bracket, prime pump mount	1	119.000.277
* Screw, hex hd. cap. 1/4-20 x 1/2", stn stl	4	105.000.209
* Lockwasher, 1/4 med. stn stl	6	104.000.134
* Nut, 1/4-20, stn stl	4	105.000.118
* Screw, hex hd. cap. 1/4-20 x 1-3/8", stn stl	2	105.000.381
43 Spacers, prime pump	2	110.000.297
44 Cradle, engine	1	119.000.273B
45 Bumper	4	119.000.456
* Carriage bolt, stn stl 5/16-18 x 2-1/2"	4	105.000.372
* Nut, hex hd., 5/16-18 stn stl	4	105.000.116
* Lockwasher, 5/16 med. stn stl	4	104.000.148
* Instruction card	1	061.000.261
* Technical Manual	1	061.000.262
* Flashlight	1	120.000.239
* Plug cradle	2	199.000.400
* Poly bag, 6 mil, 38" x 60"	1	199.000.276

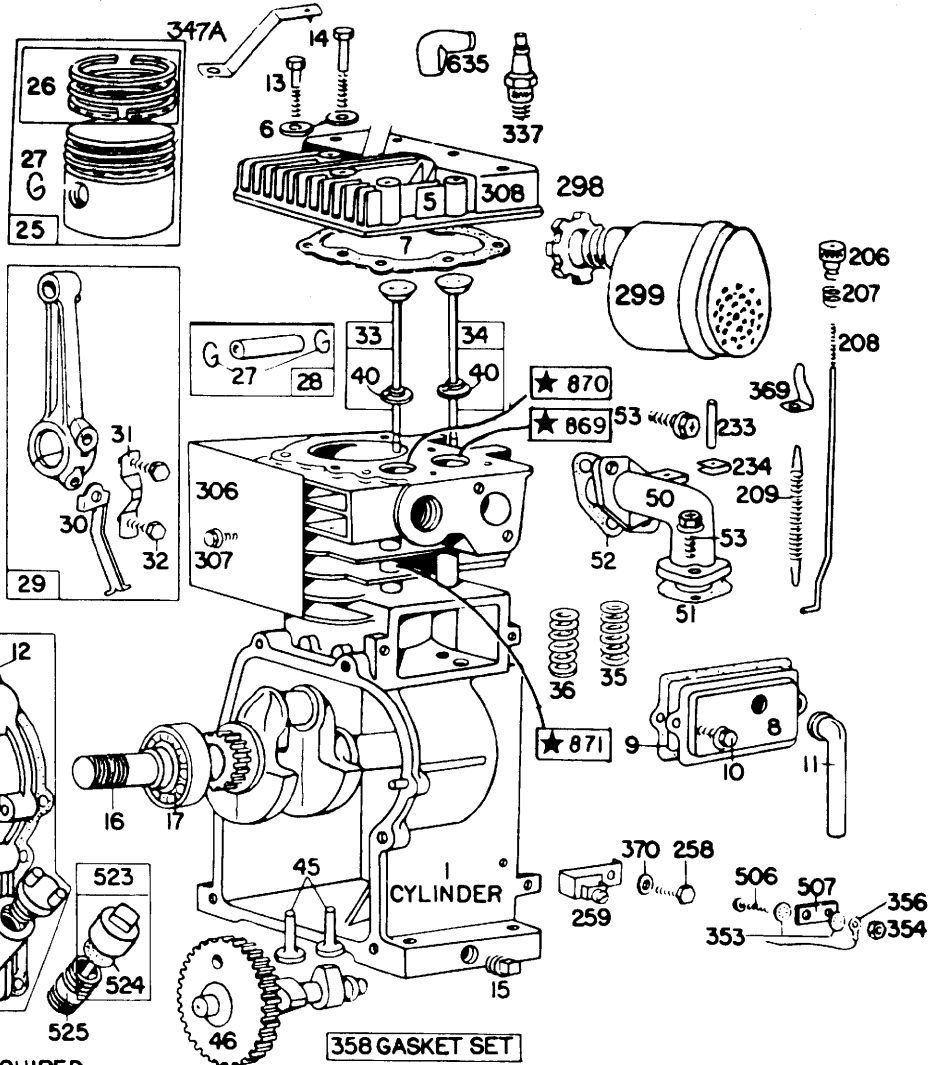
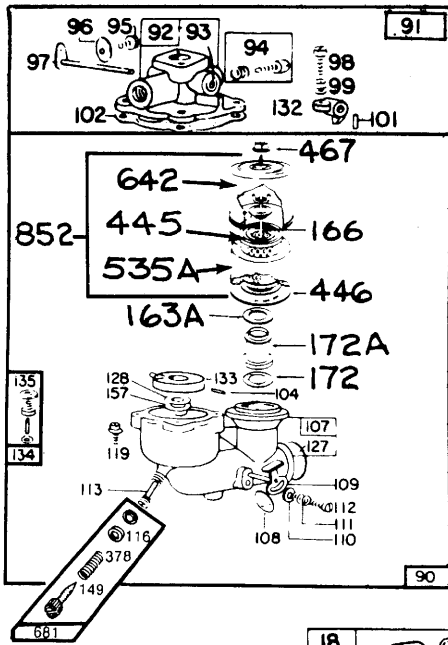
OTHER ACCESSORIES

PART NAME	PART NO.
Aluminum container 18-1/2" high	119.000.332
Aluminum container 23" high	119.000.223
Locking Ring for Aluminum container	119.000.223A
Gasket for Aluminum container	116.000.255
Plastic container	119.000.335

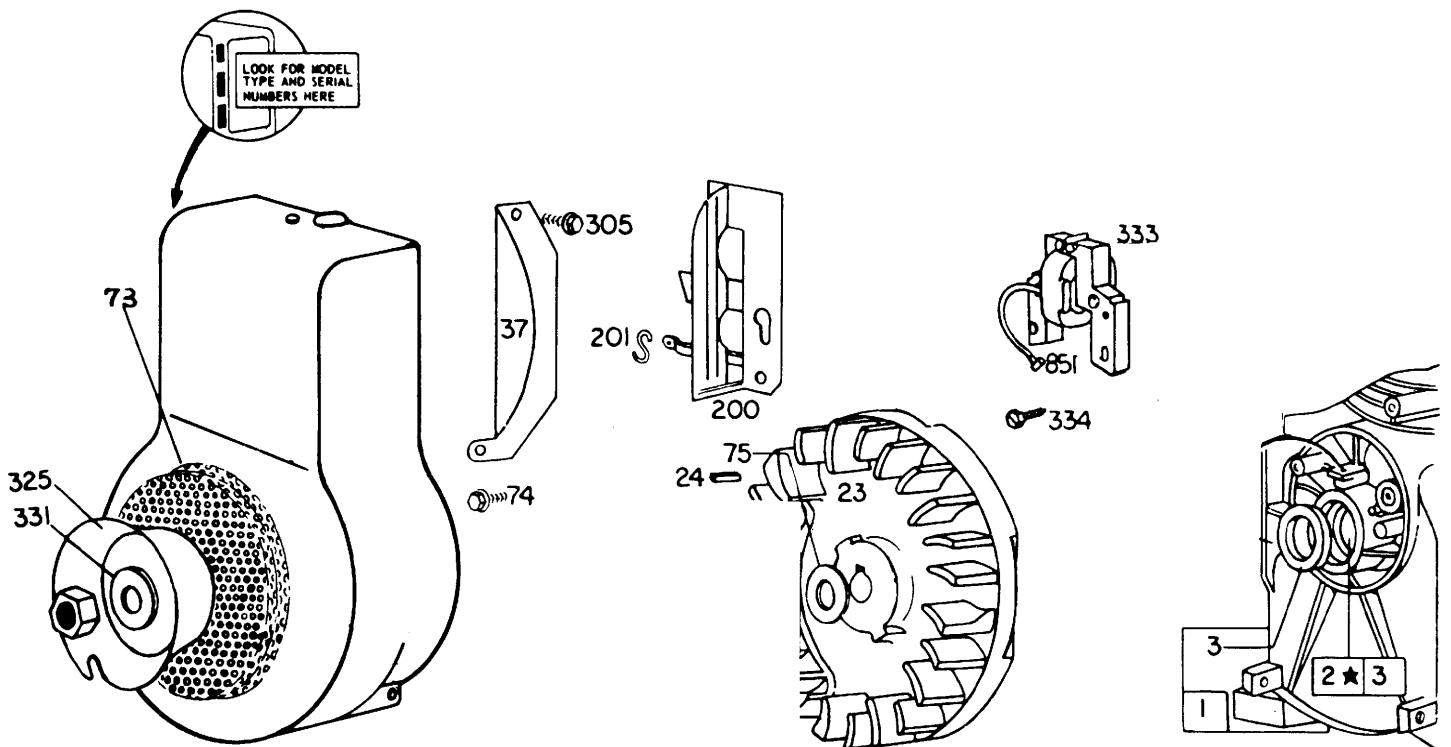
LIST OF FEDERAL STOCK NUMBERS

PART NAME	SCOT PART NO.	FEDERAL STK. NO.
Fuel Tank Assembly	118.000.426	CG
Prime Pump Assembly	118.000.290	CG 4320-01-GGO-0767
Starter Rope	102.000.254	CG 8305-00-367-3116
Discharge Hose Assembly	118.000.289	CG 4320-01-GGO-0761
Suction Hose Assembly	118.000.288A	CG
Suction Strainer	119.000.227	CG 4320-01-GGO-0764
Check Valve Assembly	118.000.288	CG 4320-01-GGO-0762
Instruction Card	061.000.261	CG
Technical Manual	061.000.262	CG
Instruction Tag	061.000.202	CG 7610-01-GE9-2504

ILLUSTRATED PARTS BREAKDOWN (ENGINE)



*** SPECIAL TOOLS REQUIRED
TO INSTALL. SEE REPAIR INSTRUCTION
MANUAL**



ENGINE PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	395879	Cylinder Assembly
2	293708	Bushing - Cylinder
		NOTE: Req. Spec. Tool for Installation
3	299819	Seal - Oil
5	210812	Head - Cylinder
6	22963	Washer - Plain
7	*27670	Gasket - Cylinder Head
8	294178	Breather - Valve Chamber
9	*27549	Gasket - Crankcase
10	93394	Screw - Breather Mounting Sem
11	271489	Tube - Breather
12	*270833	Gasket-Crankcase-.015" Thick Std.
	*270895	Gasket-Crankcase-.005" Thick
	*270896	Gasket-Crankcase-.009" Thick
13	91386	Screw - Cylinder Head (2" L)
14	93113	Screw - Cylinder Head (2-7/16" L)
15	91249	Plug - Pipe, 1/4" Std., Square Hd.
16	397253	Crankshaft
17	99158	Bearing - Ball
18	395259	Cover Assembly - Crankcase
19	293708	Bushing Assembly Crankcase Cover (Includes #220538 Bushing)
		NOTE: Req. Spec. Tool for Installation
20	299819	Seal - Oil
21	66768	Plug - Oil Filter
22	93032	Screw - Crankcase Cover Mtg. Sem
23	296884	Flywheel - Magneto
24	222698	Key - Flywheel
25	295587	Piston Assembly - Std.
26	294232	Ring Set - Std. Piston
	294224	Ring Set - .010" O.S. Piston
	294225	Ring Set - .020" O.S. Piston
	294226	Ring Set - .030" O.S. Piston
27	26026	Lock - Piston Pin
28	298909	Pin Assembly - Piston - Std.
	298908	Pin Assembly - Piston - .005" O.S.
29	294367	Rod Assembly - Connecting
30	220670	Dipper - Connecting Rod
31	222282	Washer
32	92296	Screw - Connecting Rod
33	296676	Valve - Exhaust
34	296677	Valve - Intake
35	260552	Spring - Intake Valve
36	260552	Spring - Exhaust Valve
37	220971	Guard - Flywheel
40	93312	Retainer - Valve Spring
45	230173	Tappet - Valve
46	394800	Gear - Cam
50	210810	Elbow - Intake
51	*68987	Gasket - Carburetor Mounting
52	*27355	Gasket - Intake Elbow Mounting
53	93357	Screw - Carburetor Mounting
73	221661	Screen - Rotating
74	93490	Screw - Rotating Screen Mtg. Sem
75	220865	Washer - Spring (Used to Lock Rewind and Wind-up Starter Clutch)
90	295607	Carburetor Assembly
91	295608	Housing Assembly - Throttle
92	99634	Body - Upper Carburetor
93	23230	Bushing - Throttle Shaft
94	292681	Valve Assembly - Carburetor Idle
95	93499	Screw - Throttle Valve Mtg Sem
96	22036	Valve - Throttle
97	295436	Shaft and Lever - Throttle
98	91920	Screw - Machine, Fill, Hd-8-32x5/8"
99	26157	Spring - Throttle Adjustment
101	93043	Pin-Throttle Stop/Governor Shaft
102	27917	Gasket - Carburetor Body
104	23114	Pin - Float Hinge
107	397870	Body Assembly - Carburetor
108	220897	Valve - Choke
109	294874	Shaft and Lever Assembly - Choke
110	220899	Washer - Choke Lever
111	26229	Spring - Choke Lever
112	23270	Screw - Choke Lever
113	231359	Nozzle - Carburetor
116	280203	O-Ring Seal

REF. NO.	PART NO.	DESCRIPTION
119	93347	Screw - Throttle Housing and Fuel Pump Body Mounting Sem
127	220352	Plug - Welch
128	210811	Carburetor - Venturi
132	212904	Stop - Throttle Lever
133	293477	Float - Carburetor
134	293478	Valve and Seat - Fuel Inlet
135	68877	Gasket - Fuel Inlet Valve and Seat
149	261357	Needle Valve Spring
157	27840	Gasket - Venturi
163A	271139	Gasket (Top of Spacer)
166	231314	Stud
172	271077	Gasket (Bottom of Spacer)
172A	280213	Spacer
200	490528	Blade - Governor
201	26235	Link - Governor
206	230149	Nut - Control Rod
207	26855	Spring - Control Rod
208	230194	Rod - Control
209	26925	Spring - Governor
233	230253	Stop - Control Rod
234	220730	Clip - Control Rod
258	93062	Screw - Sem
259	294502	Bracket - Control Wiring Casing
298	220859	Locknut - Exhaust Elbow
299	392811	Muffler - Exhaust
305	93158	Screw - Blower Housing and Flywheel Guard Mounting
306	220478	Shield - Cylinder
307	93490	Screw - Cylinder Shield Mtg. Sem
308	223390	Cover - Cylinder Head
325	298731	Pulley with Screen - Rope Starter
331	220865	Washer - Flywheel 5/8
332	92284	Nut - Flywheel 5/8 - 18
333	398593	Armature - Magneto
334	93381	Screw - Armature Mounting Sem
337	298809	Plug - Spark (with Gasket) (1-1/2" High - 37-42 M.M.)
347A	298926	Switch Stop
353	92791	Washer - Lock - Shakeproof
354	90576	Nut - Hex - 8 - 32
356	398808	Wire Ground
358	397144	Gasket Set for Entire Engine
369	220705	Spring - Control Friction
370	66432	Washer - Plain
378	22032	Washer - Needle Valve Packing
445	396424	Filter Cartridge
446	222844	Base
467	212705	Knob
506	90200	Screw - Machine, Fil. Hd 8-32x1/2"
507	66895	Insulator - Terminal
523	69345	Cap - Oil Filler
524	65304	Gasket - Oil Filler Cap
525	91258	Nipple - Oil Filler
535A	271466	Element, Air Cleaner
635	66538	Elbow - Spark Plug
642	223306	Cover
681	399619	Needle Valve Assembly
851	221798	Terminal - Ignition Cable
852	396397	Air Cleaner Assy Incl:445,535A,642
869	210879	Seat - Intake Valve
870	211291	Seat - Exhaust Valve
871	63709	Guide - Intake Valve
871	231348	Guide - Exhaust Valve
897	394970	Solid State Ignition Module
--	270962	Engine Repair Manual

O.S. = Over Size

Std. = Standard Size

= "Number"

" = Inches (All dimensions in inches)

* Requires a special reamer and installation kit #19158 \$181.65



A SEM IS SCREW OR BOLT WITH CAPTIVE LOCKWASHER

TROUBLESHOOTING GUIDE

<u>SYMPTOM</u>	<u>POSSIBLE CAUSES</u>	<u>CORRECTIVE ACTION</u>
Prime Pump will not prime.	<ol style="list-style-type: none">1. Leaking discharge check valve2. Hole in diaphragm3. Air leak in suction hose or connections4. Air leak in prime pump hose or connections	Repair discharge check valve or replace discharge hose assembly Replace prime pump Repair leak or replace suction hose assembly Repair leak or replace hose
Loss of Suction	Air leak in suction line	Repair or replace suction line assembly
Little or no Discharge	<ol style="list-style-type: none">1. Casing not filled with water2. Impeller plugged3. Hole or leak in suction line4. Impeller worn or damaged.5. Strainer or suction line not submerged deep enough in water6. Discharge hose kinked	Actuate hand primer Disassemble pump and clean impeller Repair or replace suction line Replace impeller Submerge lower in water Straighten out

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