Small Engine Parts

K90

1.8 H. P. at 1800 R. P. M.
2.5 H. P. at 2400 R. P. M.
3.2 H. P. at 3000 R. P. M.
3.6 H. P. at 3600 R. P. M.

OPERATING INSTRUCTIONS
PARTS MANUAL
AND
SALES AND SERVICE DIRECTORY

KE 54-3

WARRANTY

We warrant and will replace free of charge for a period of three months from date of delivery of engine to original purchaser, all parts of Kohler Engines returned, prepaid to Kohler Co., Kohler, Wisconsin, which our examination shall disclose to our satisfaction to be defective in manufacture.

This warranty shall not apply to any engine which shall have been repaired, or altered by anyone other than an authorized representative of the manufacturer, or which has been improperly installed or repaired, neglected or operated contrary to our instructions. This warranty is in lieu of all other warranties, obligations and liabilities on our part expressed or implied, and we neither assume nor authorize anyone to assume for us any other liability in connection with the sale of Kohler Engines.

EN-226-10-8-54

OPERATING INSTRUCTIONS

Introduction

To insure satisfactory operation of your K90 engine please follow instructions as your engine has been carefully inspected and adjusted before leaving our factory.

Before Starting

Remove the plug and gauge from the oil-fill hole. Add approximately 1½ pints of clean oil (SAE 30 in summer; SAE 10 in winter) and check oil level gauge. Crankcase oil should not be over the top mark on the gauge. Replace plug.

Remove the wing nut from the oil-bath air cleaner, take off the top, then add oil until the level reaches the arrow marked on the air cleaner (See C, Fig. 2). Replace top and wing nut.

Fill the gas tank with clean, fresh regular, gum-free gasoline of good grade. Do not mix oil with the gasoline. Check the gas tank cap vent hole which must be open.

If engine is equipped with a reduction gear unit, remove both plugs (See C & O, Fig. 1) and add oil (same grade as used in crankcase) to level of hole O. Replace both plugs. The vent in the oil-fill-hole plug of the reduction gear unit must be open.

To Start

Open valve on the sediment bowl (See D, Fig. 2) by turning the handle three full turns counter-clockwise. Move the choke lever so that it points straight up (See B, Fig. 2). Wind the rope around the starter pulley. A quick pull will usually start the engine. If a second pull should be necessary, push the choke lever back to its original position (away from the cylinder block).

More or less choking may be necessary due to engine condition, temperature, grade of fuel, etc. Little or no choking will be needed when the engine is warm. Experience will show you the degree of choking to use. Immediately after engine has started, slowly move the choke lever back to its original position.

To Stop

Press the "stop" button (See J, Fig. 1). When stopping the engine for long periods, we recommend that you shut off the fuel supply at the valve on the sediment bowl (instead of using the stop button) and allow the engine to run until the carburetor is empty. The engine will run approximately one minute (under full load) after the fuel supply has been shut off. Valve must be opened again before attempting to start the engine.

Inspection and Maintenance

EACH DAY: Check the oil level in the crankcase and air cleaner. Add oil only as needed; keep the level within marks on gauge.

EVERY 25 OPERATING HOURS: Change the oil in the crankcase and air cleaner; more often under extremely dusty conditions. Also remove the oil and dirt from the engine.

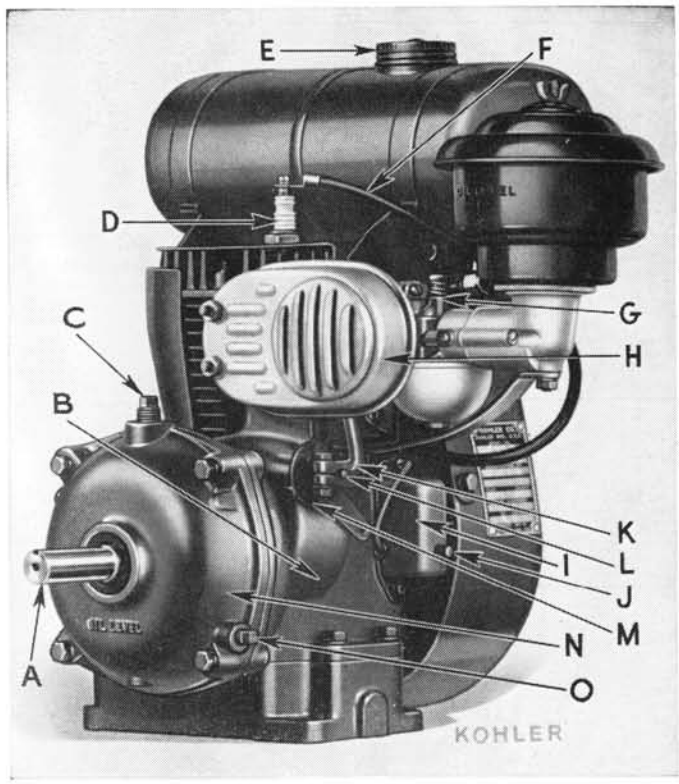

Figure 1

Power-take-off end with gear reduction unit installed.

A	Power-take-off shaft	I	Breaker points cover
B	Crankcase	J	"Stop" button
C	Gear reduction unit oil fill plug & vent	K	Governor arm
D	Spark plug	L	Governor shaft
E	Gasoline tank cap	M	Governor regulator disk
F	Spark plug cable	N	Gear reduction unit
G	Carburetor	O	Gear reduction unit oil-level hole
H	Muffler		

EVERY 50 OPERATING HOURS: In addition to the 25 hour inspection, check the oil level in the reduction gear unit to make sure it is up to the overflow hole. Be sure the vent hole in the filler-hole plug is open. Remove grass screen and clean, also clean air passages. Check and tighten any loose parts.

EVERY 100 OPERATING HOURS: In addition to the 25 and 50 hour inspections, clean the spark plug and reset the gap to .025 inch. Shut off the gas supply at the valve on the sediment bowl. Remove, clean, and replace the bowl. Re-open the valve.

Give engine general inspection.

If Engine Fails to Start

1. Check gasoline supply. Be sure gasoline line to carburetor is open.
2. Check spark plug; clean and adjust gap to .025″.

3. Check engine for spark. Turn engine over with starter pulley and hold spark plug cable about 1/8" from spark plug. Spark should jump this gap as engine is cranked.
4. If spark does not jump this gap remove cover (See I, Fig. 1) and check breaker points. They must be clean, and gap should be .020".
5. Check valves by turning engine with starter pulley. If there is no noticeable back pressure, engine lacks compression, and valves must be reseated. Spark plug must be in engine when making this test.

With the exception of the cleaning and checking outlined on these pages, we suggest that you have only an authorized Kohler dealer remedy any trouble you may experience. His training and experience will assure you of quick, reliable service at a minimum cost.

If it is necessary for you to contact Kohler Co. concerning your engine, be SURE to give the model number, the "Spec" number, and the serial number of the engine. This information can be found on the nameplate.

Precautions

1. Stop the engine before filling the gasoline tank. Do not spill gasoline on hot engine. Use clean gasoline and oil.
2. Warm up engine before applying load.

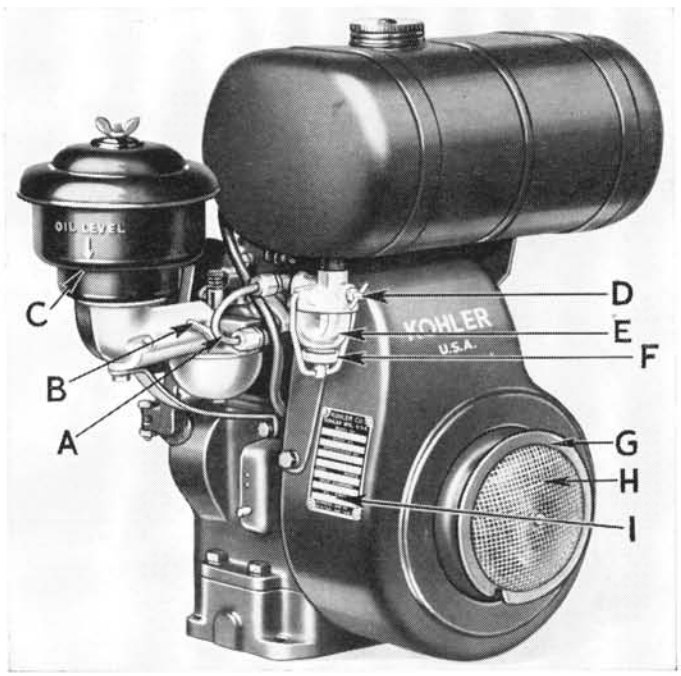

Figure 2

Starter-pulley end

A	Gasoline line	F	Thumb nut
B	Choke lever	G	Starter pulley
C	Air cleaner oil-level mark	H	Cooling air screen
D	Fuel shut-off valve	I	Nameplate
E	Sediment bowl		

3. Engine should not be operated at speeds greater than 3600 R.P.M.
4. On belt applications mount pulley as close to engine as possible
5. Best performance depends on proper cooling. Keep engine and cooling air screen clean.

Instructions for Storing

Any engine that is stored for a considerable time should be cared for according to the following suggestions to prevent trouble when engine is again placed in service.

1. Close valve on sediment bowl.
2. Remove bowl.
3. Open valve, drain fuel from tank.
4. Start the engine and let it run until no fuel remains in the line and carburetor.
5. Replace sediment bowl, leaving valve open.
6. Pour one tablespoon SAE 20 lubricating oil into spark Plug hole and crank engine slowly.
7. Replace spark plug.

Attaching Remote Throttle Control

The following procedure for installing a remote throttle control on your engine is recommended.

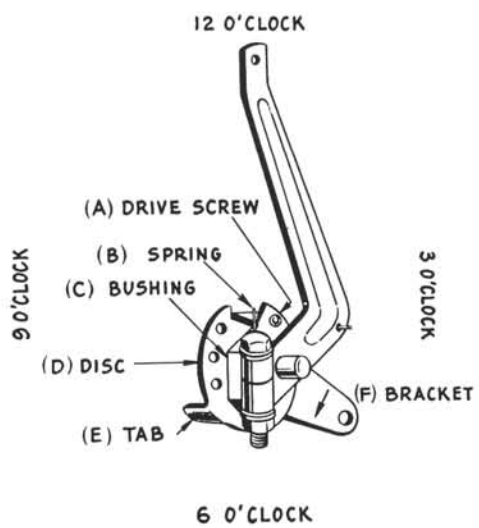

Figure 3

Loosen bushing (c) and point bracket (F) in the direction your throttle cable will be brought to the engine. *Position of the disc and spring should not be changed.*

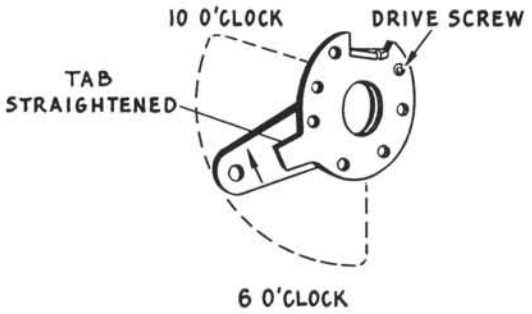

Figure 4

If bracket (F) is pointing between 6 and 10 o'clock, the tab (E) on disc (D) must be straightened as shown in figure 4. Do not remove drive screw.

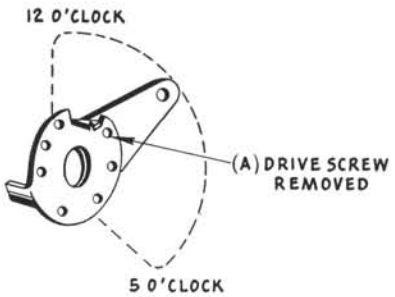

Figure 5

If bracket (F) is pointing between 12 and 5 o'clock, pry out drive screw (A) with a screw driver as shown in figure 5. Do not straighten the tab.

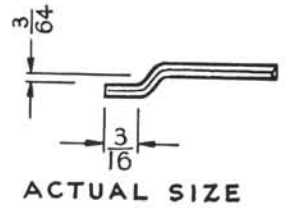

Figure 6

Bend the end of your throttle cable as shown in figure 6, to obtain the best results in rotating the disc.

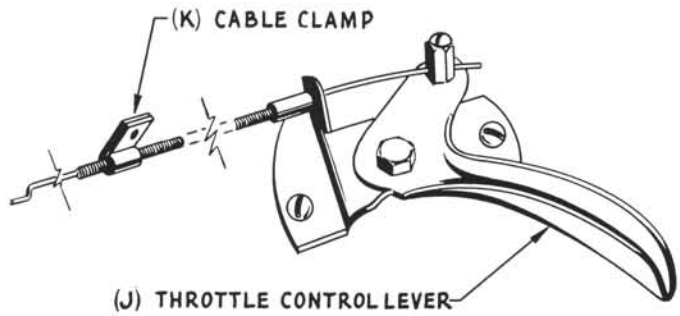

Figure 7

Move throttle control lever (J) to an open position as shown in figure 7. Cable clamp (K) remains loose until the end of cable is inserted in disc (D).

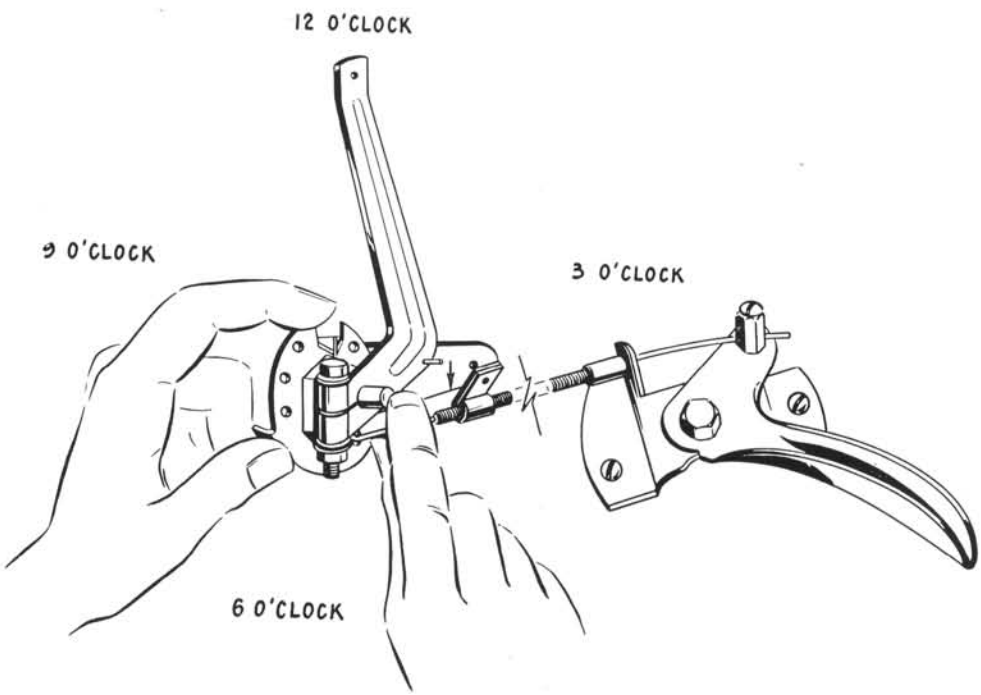

Figure 8

Hold disc (D) with spring (B) in a twelve o'clock position, regardless of the location of the bracket. Bring throttle cable parallel to the bracket on the side indicated by an arrow, and insert the cable in the hole as illustrated. Tighten cable clamp bolt.

Operate control handle from open to closed positions to check that disc (D) rotates spring (B) between twelve and three o'clock position.

RETRACTABLE STARTER

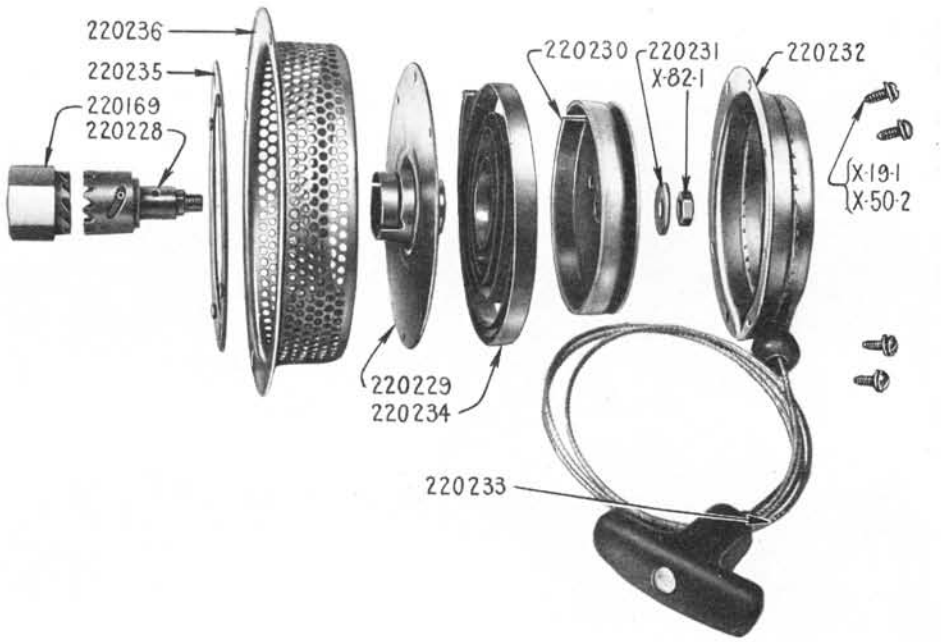

Figure 9 — A-220254 Retractable Starter

Installation of Retractable Starter

The retractable starter can be installed by observing the following instructions:

1. Remove the screen and starter pulley nut.
2. Install nut 220169 on the crankshaft to secure the flywheel.
3. Place the starter assembly on the shroud in an approximate centralized position.
4. Hold the starting cable so drive member teeth line up with teeth in the flywheel nut.
5. While starter is held in this position, spot four holes in the shroud for supporting starter. Check clearance between flywheel nut and drive member. Adjust clearance to .020/.032 using shims No. 220301 under flywheel nut.
6. Remove starter assembly.
7. Remove shroud from engine.
8. Drill 13/64 diameter holes in shroud for starter assembly, and 9/32 diameter holes for shroud reinforcement as shown in Figure 36.
9. Bolt starter assembly to shroud and replace complete assembly on engine.
10. Pull cable to check whether drive and driven members are in line. If not properly aligned loosen starter and shift so members line up perfectly.
11. Add a drop or two of lubricating oil in shaft end periodically.
12. When operating starter, allow cable to return slowly, *do not let it snap back into housing.*

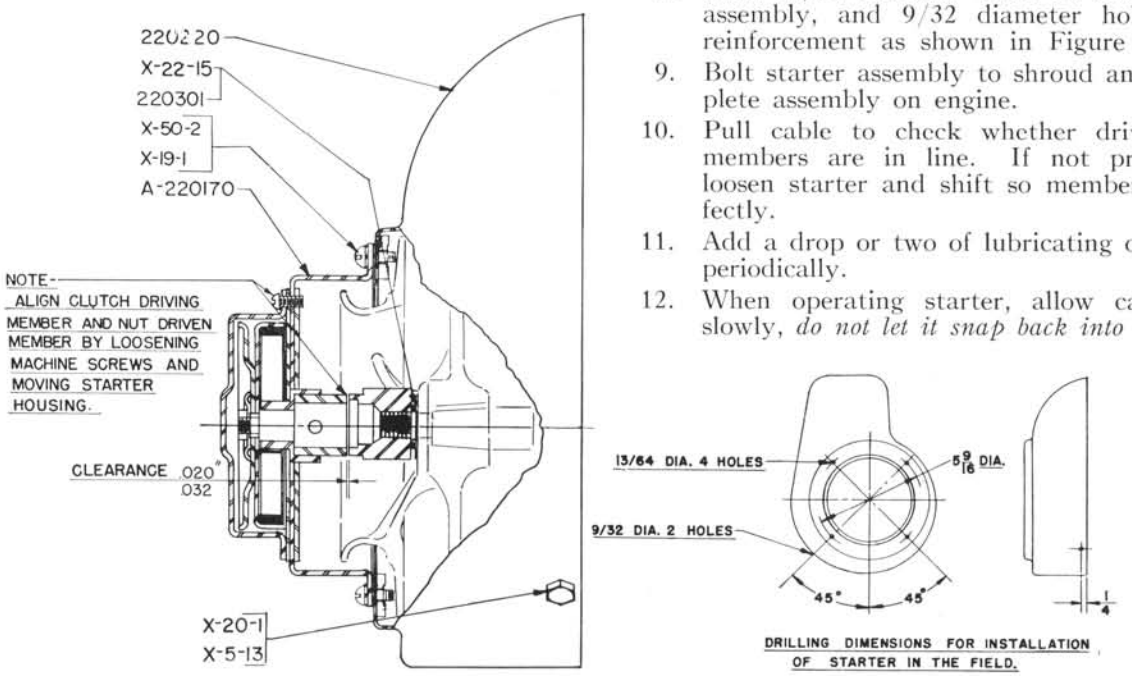

Figure 10 — Installation Diagram—Retractable Starter

K90 ENGINE PARTS LIST

Part No.	Description	Price
X-5-1	Screw, hex. cap 1/4—20 x 5/8	
X-5-4	Screw, hex. cap 1/4—20 x 1 1/4	
X-5-7	Screw, hex. cap 1/4—20 x 1	
X-5-8	Screw, hex. cap 1/4—20 x 3/4	
X-5-13	Screw, hex. cap 1/4—20 x 1/2	
X-5-26	Screw, hex. cap 1/4—20 x 1 1/2	
X-6-2	Screw, hex. cap 1/4—20 x 1 1/2	
X-6-14	Screw, hex. cap 5/16—18 x 7/8	
X-6-23	Screw, hex. cap 5/16—24 x 3/4	
X-6-38	Screw, H.C. 5/16—24 x 1/2	
X-14-6	Screw, F.H.M. 8—32 x 1/4	
X-14-9	Screw, throttle adj.	
X-15-6	Screw, F.H.M. 10—24 x 3/8	
X-15-10	Screw, F.H.M. 10—24 x 5/16	
X-18-2	Washer, lock No. 8	
X-19-1	Washer, lock No. 10	
X-20-1	Washer, lock 1/4	
X-21-1	Washer, lock 5/16	
X-22-15	Washer, lock 7/16 I.E.T.	
X-22-21	Washer, shakeproof E.T. 5/16	
X-23-1	Washer, lock 7/16	
X-25-6	Washer, plain No. 8	
X-25-7	Washer, plain No. 10	
X-25-35	Washer, plain 1/4	
X-25-44	Washer, plain 5/16	
X-43-3	Key, woodruff No. 5	
X-50-13	Screw, R.H.M. 10—32 x 1/4	
X-50-22	Screw, R.H.M. 10—24 x 1 3/4	
X-50-27	Screw, R.H.M. 10—24 x 1 5/8	
X-51-8	Screw, R.H.M. 8—32 x 1/4	
X-51-14	Screw, R.H.M. 8—32 x 5/16	
X-51-35	Screw, F.H.M. 8—32 x 1 5/8	
X-61-36	Rivet, R.H. 1/16 x 3/32	
X-61-41	Rivet, R.H. 1/8 x 3/8	
X-67-5	Screw, drive 2 x 3/16	
X-67-8	Screw, sheet metal No. 6 x 1/4	
X-67-9	Screw, drive No. 4 x 1/4	
X-72-4	Nut, hex. 8—32	
X-75-2	Plug, pipe 1/4	
X-75-7	Plug, pipe	
X-81-1	Nut, hex. 1/4—20	
X-81-3	Nut, hex. 1/4—20 brass	
X-82-1	Nut, hex. 5/16—18	
X-88-2	Nut, hex. 7/16—20	
X-113-1	Screw, Phillip hd. 1/4—20 x 5/8	
X-206-9	Nipple, pipe	
X-212-1	Ball, steel 7/16 dia.	
X-230-11	Plug, extension	
X-269-13	Ring, snap	
D-271	Plug, welch	
X-271-11	Seal, gear cover	
X-271-15	Seal, oil	
X-271-16	Seal, rear oil	
B-893	Nipple, pipe	

Part No.	Description	Price
D-997	Washer, copper	
AC-1782	Nut, wing	
200110	Bearing, ball	
200361	Valve, throttle	
200365	Valve, choke	
200366	Needle, adjusting	
200367	Nozzle	
200368-A	Lever, choke—assembly	
200369	Nut, bowl (with gasket)	
200371	Gasket, needle seat	
200372	Gasket, bowl nut	
200373	Float	
200374	Bowl	
200375	Gasket, bowl	
200376	Pin, float lever	
200377	Valve, needle	
200378	Screw, idle adjusting	
200379	Screw, valve attaching	
200381	Spring, idle adjusting	
200382	Spring, choke shaft	
200383	Spring, adjusting needle	
200385	Ball, choke shaft	
200391	Shaft, throttle	
205013	Plug, pipe 1/4	
210101-A	Bowl, sediment—assembly	
210112	Gasket, body	
210113	Body, lower	
210114	Element, w/cover	
210116-A	Cleaner, air—assembly	
210149	Clip, cable spring	
210223	Gasket, carburetor	
210293	Clamp, coil fastening	
210440	Elbow, air cleaner	
210449	Cleaner, dry mesh	
210467	Bowl, glass	
210468	Gasket, bowl	
210469	Gasket, air cleaner	
210333	Muffler	
214045	Muffler	
220003	Pin, Piston	
220004	Retainer, pin	
220008	Valve, intake (For Service use 220192)	
220009	Valve, exhaust (For Service use 220191)	
220010	Spring, valve	
220011	Retainer, valve spring	
220013	Tappet, valve	
220018	Cap, connecting rod	
220022	Dipper, connecting rod	
220036	Housing, blower	
220040	Plug, spark, J8	
220043	Stud, valve cover	
220044	Button, stop	

Part No.	Description	Price
220045	Spring, stop button	
220046	Seal, breather	
220047	Reed	
220048	Gasket, valve cover	
220049	Baffle, head	
220051	Plate, breather	
220052	Pin, spring lock	
220053	Pin, camshaft	
220054	Baffle, cylinder	
220055	Cover, valve	
A-220066	Breather—assembly	
220068	Cap, gas tank	
220069	Stud, air cleaner	
A-220070	Rod, connecting—assembly	
220071	Gasket, bearing plate	
220072	Rod, breaker push	
220073	Bracket	
220074	Diaphragm, breaker seal	
A-220076	Contact breaker—assembly	
220078	Linkage, carburetor	
220079	Rotor magneto	
220080	Coil, magneto	
220081	Plate, stator	
220082	Condenser	
A-220083	Lead, breaker—assembly	
A-220084	Lead, hi-tension—assembly	
220086	Grommet	
220087	Bracket, air cleaner support	
220088	Flywheel	
A-220089	Magneto—assembly	
A-220090	Rope, starter—assembly	
220091	Lock, conn. rod screw	
A-220092	Plug, oil filler—assembly	
220095	Insert, exhaust valve	
220097	Line, fuel	
220098	Screen, grass	
220099	Spacer, grass screen	
A-220100	Carburetor—assembly	
220103-A	Piston—assembly (Inc. 220003 & 220004)	
A-220105	Piston—assembly—.010 (Incl. 220003 & 220004)	
A-220107	Piston—assem. .020 (Incl. 220003 & 220004)	
A-220109	Piston—assem. .030 (Incl. 220003 & 220004)	
220116	Camshaft—finished	
220117	Rod, connecting	
220119	Spring, governor	
220120	Crankshaft, ¾″ Ex.	
220121	Base, oil pan (single drain)	
220122	Gasket, exhaust manifold	
220124	Gasket, cylinder head	
220125	Retainer, flyball	
220126	Arm, governor	
220127	Disc, governor regulation	
220128	Bushing, governor thrust	
220130	Block, cylinder	
220131	Shaft, governor	
220132	Bushing, governor shaft	
220133	Stud, muffler	
220134	Head, cylinder	
A-220136	Cover, breaker—assembly	
A-220137	Point, breaker—assembly	
220138	Adapter, carburetor	
A-220140	Camshaft—assembly	
220141	Gasket, adapter	
A-220145	Muffler—assembly	
220146	Ell, compression	
220147	Nameplate	
220148	Washer, wave—8.37m	
220150	Pulley, starter	
220151	Gaskets, set of engine	
220152	Screw, H. C. ¼—20 x 1⅛	
220153	Tank, gasoline	
220154	Strap, tank	
220156	Bracket, hand speed control	
220157	Gasket, oil pan	
220158	Bracket, tank—L.H.	
220159	Bracket, tank—R.H.	
220160	Plate, bearing	
220162	Elbow, exhaust	
220164	Tank, gasoline	
220165	Screw, hex. cap ¼—20 x ¾	
220166	Webbing, tank	
220167	Base, oil pan (double drain)	
220169	Member, nut driven	
220174	Gasket, breaker cover	
220175	Cover, breaker	
220176	Ring, compression—std.	
220177	Ring, compression—.010	
220178	Ring, compression—.020	
220179	Ring, compression—.030	
220181	Ring, compression—std.	
220182	Ring, compression—.010	
220183	Ring, compression center .020	
220184	Ring, compression center .030	
220186	Ring, oil control—std.	
220187	Ring, oil control—.010	
220188	Ring, oil .020	
220189	Ring, oil .030	
220190	Block, cylinder	
220191	Valve, exhaust—service only	
220192	Valve, intake—service only	
A-220193	Handle, carrying	
220211	Housing, gear reduction	
220212	Cover, gear reduction	
220213	Gear, drive	

Part No.	Description	Price
220214	Shaft, reduction gear	
220215	Crankshaft	
220216	Bushing, drive shaft	
220218	Gasket, gear cover	
220219	Crankshaft	
220220	Housing, blower	
220228	Axle, w/pin and clutch—assembly	
220339	Plate, mounting and brush —assembly	
220230	Sheave—assembly	
220231	Washer	
220232	Housing, sheave—assembly	
220233	Cable, w/handle—assembly	
220234	Spring, recoil	
220235	Nut, plate	
220236	Housing, starter	
220242	Ring, camshaft retaining	
220247	Crankshaft, 5/8" Ex	
220249	Bracket, exhaust adapter	
230160	Strap, tank	
240316	Sparkplug, J12	
220341	Gasket, spark plug	

ILLUSTRATED PARTS LIST

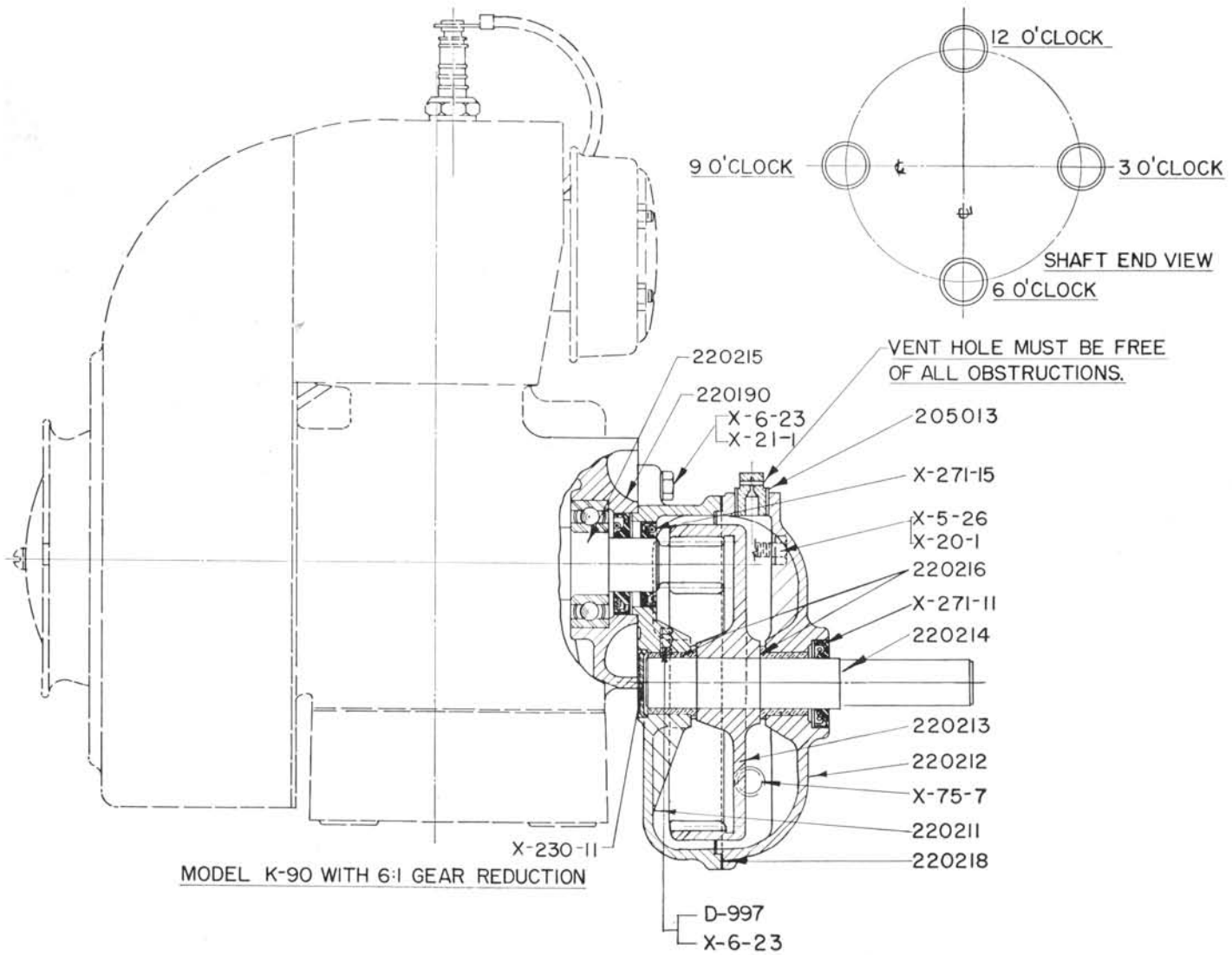

Figure 11
Model K90 with 6:1 Gear Reduction

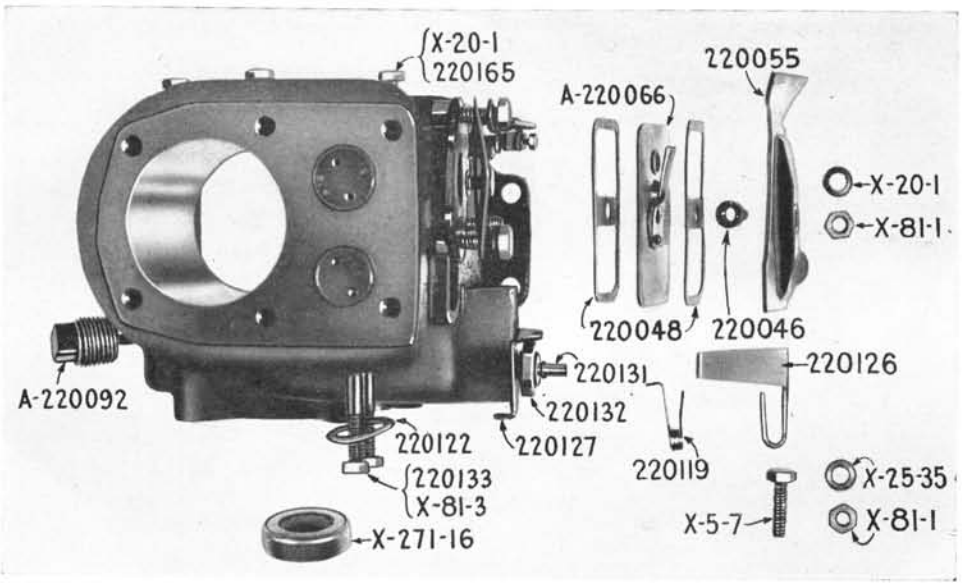

Figure 12
Cylinder and Breather Assembly

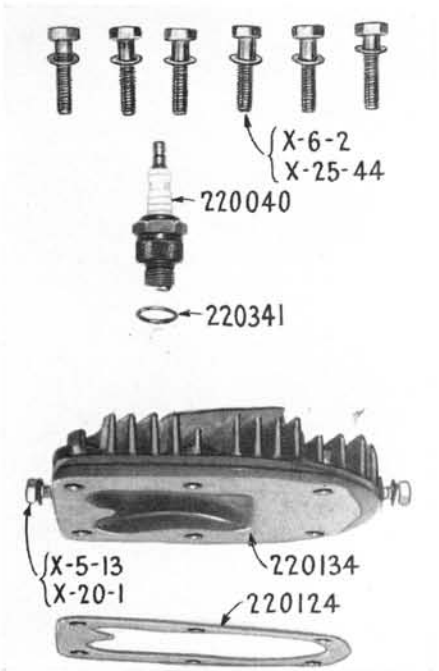

Figure 13
Cylinder Head

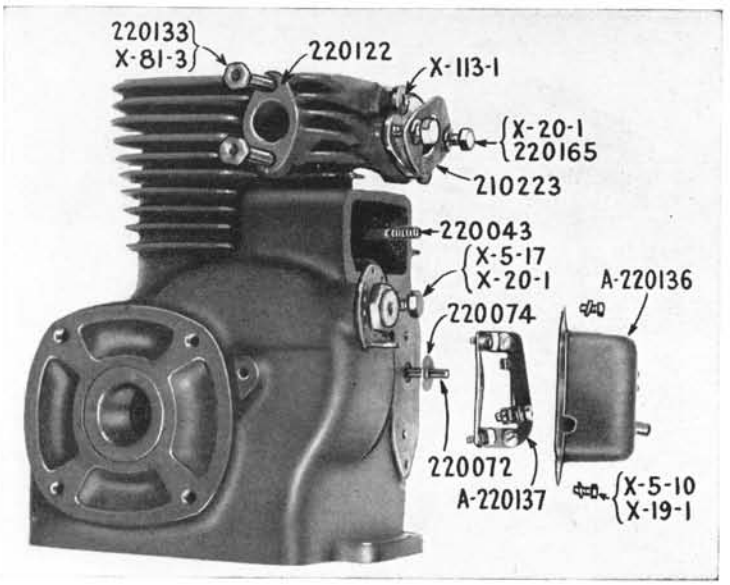

Figure 14
Cylinder Block and Breaker Assembly

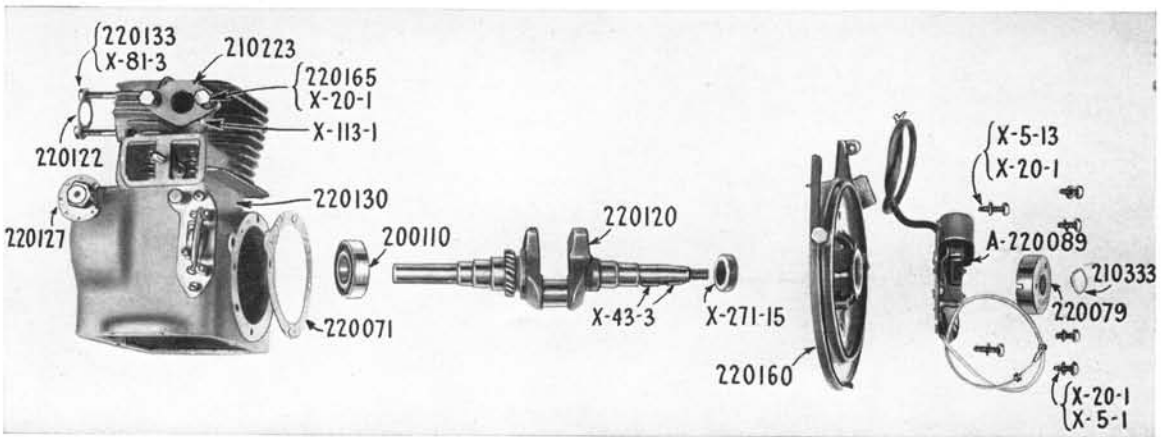

Figure 15 Cylinder, Crankshaft and Magneto

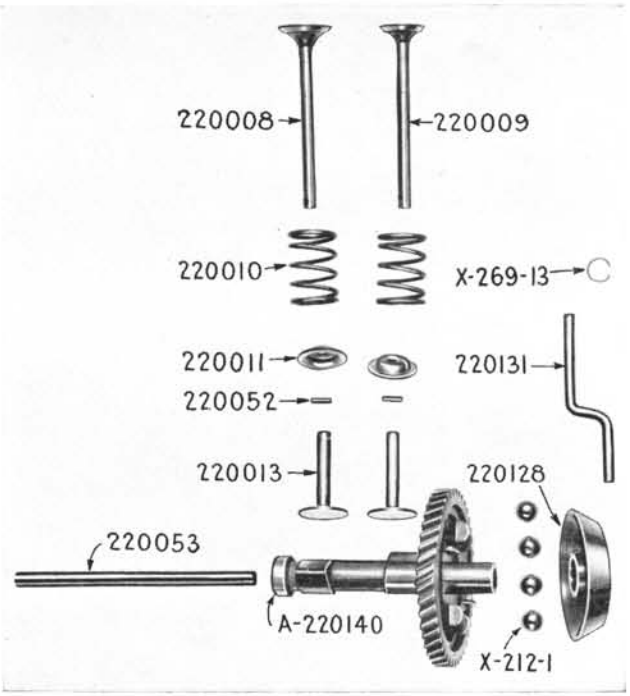

Figure 16
Camshaft and Valve Assembly

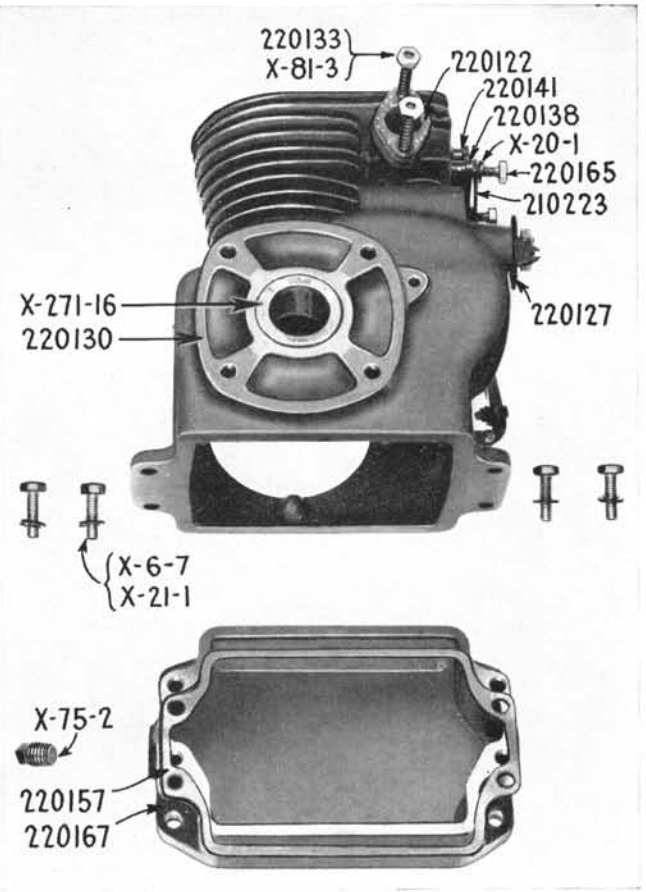

Figure 17
Cylinder and Oil Base

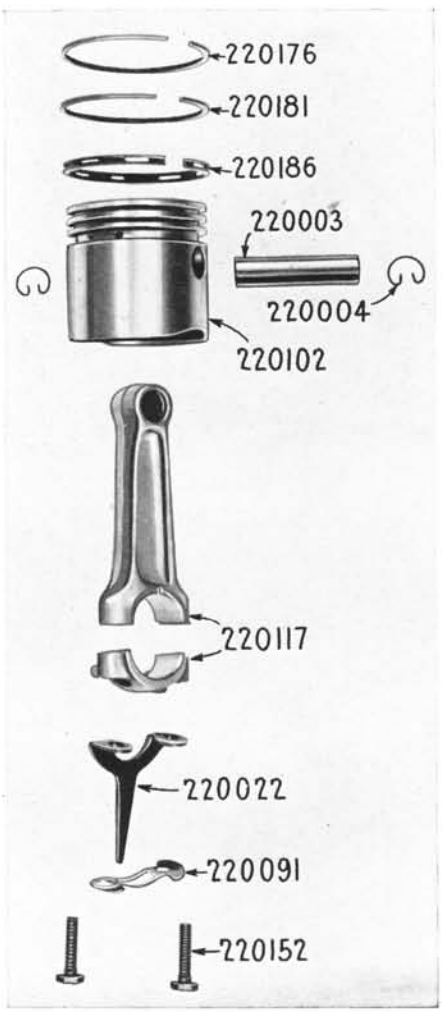

Figure 18
Piston and Connecting Rod Assembly

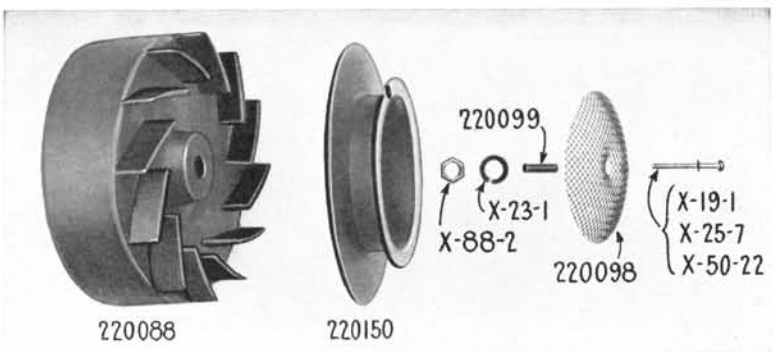

Figure 19
Flywheel Starter Pulley and Screen

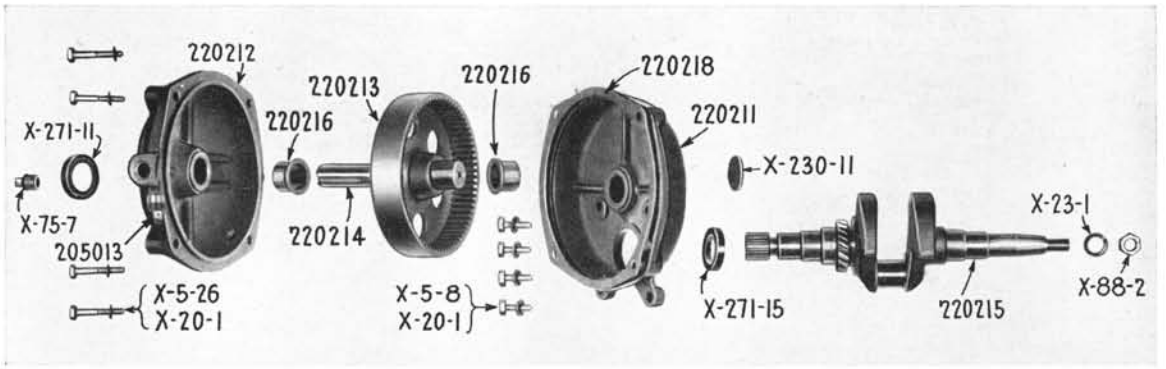

Figure 20 Reduction gear shaft and parts

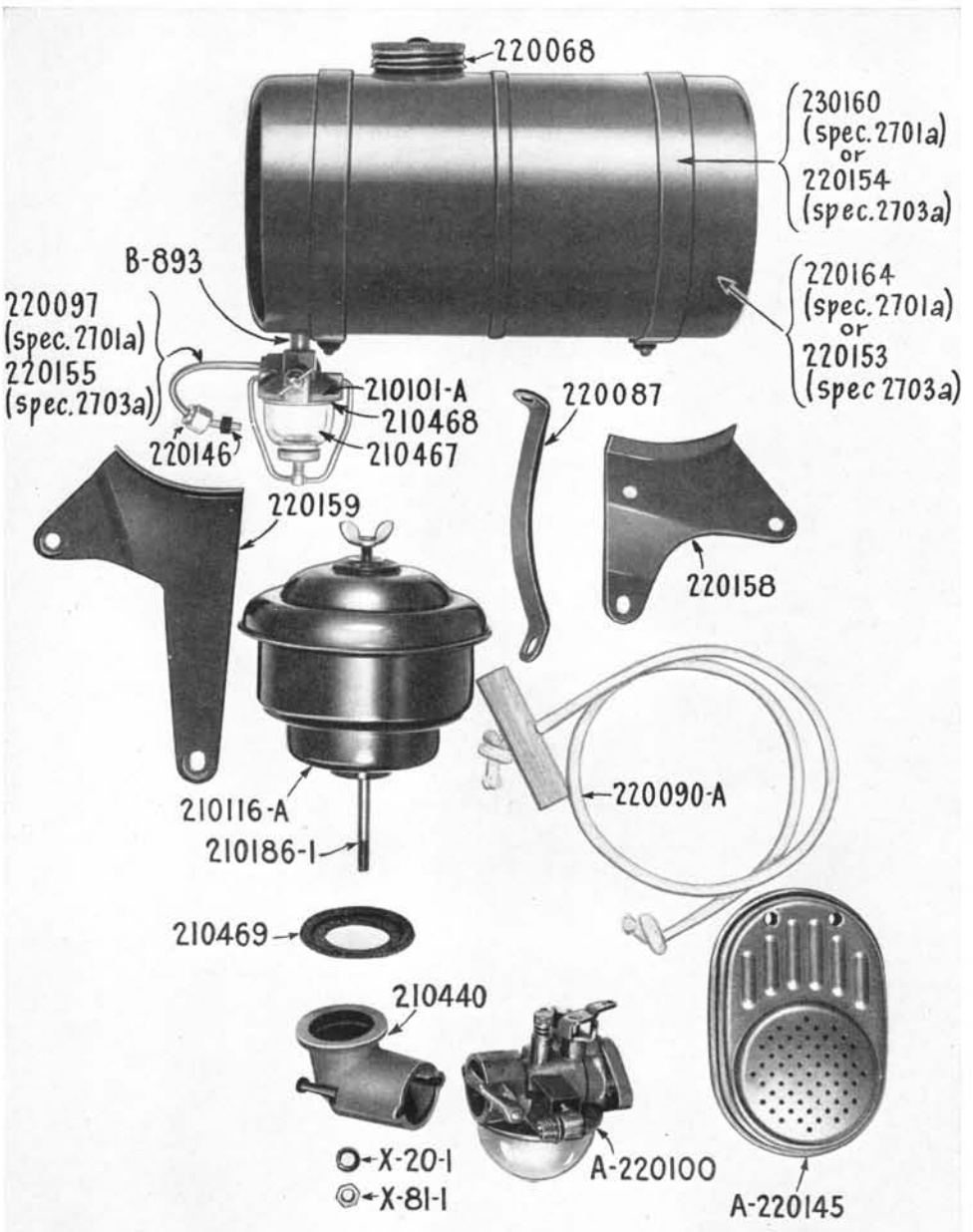

Figure 21

Accessories

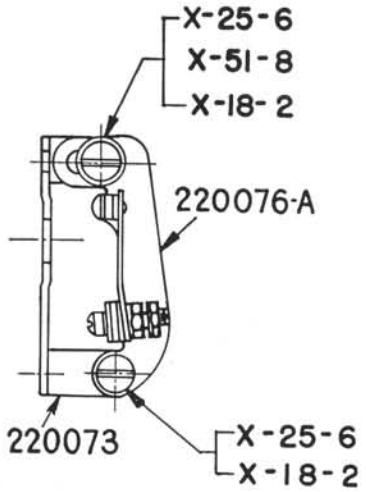

Figure 22

Breaker Assembly

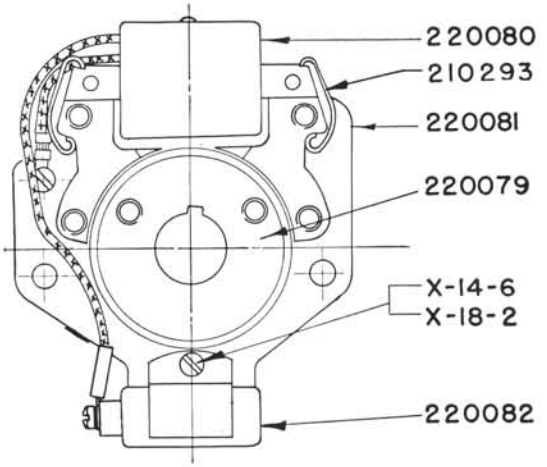

Figure 23

Magneto Assembly

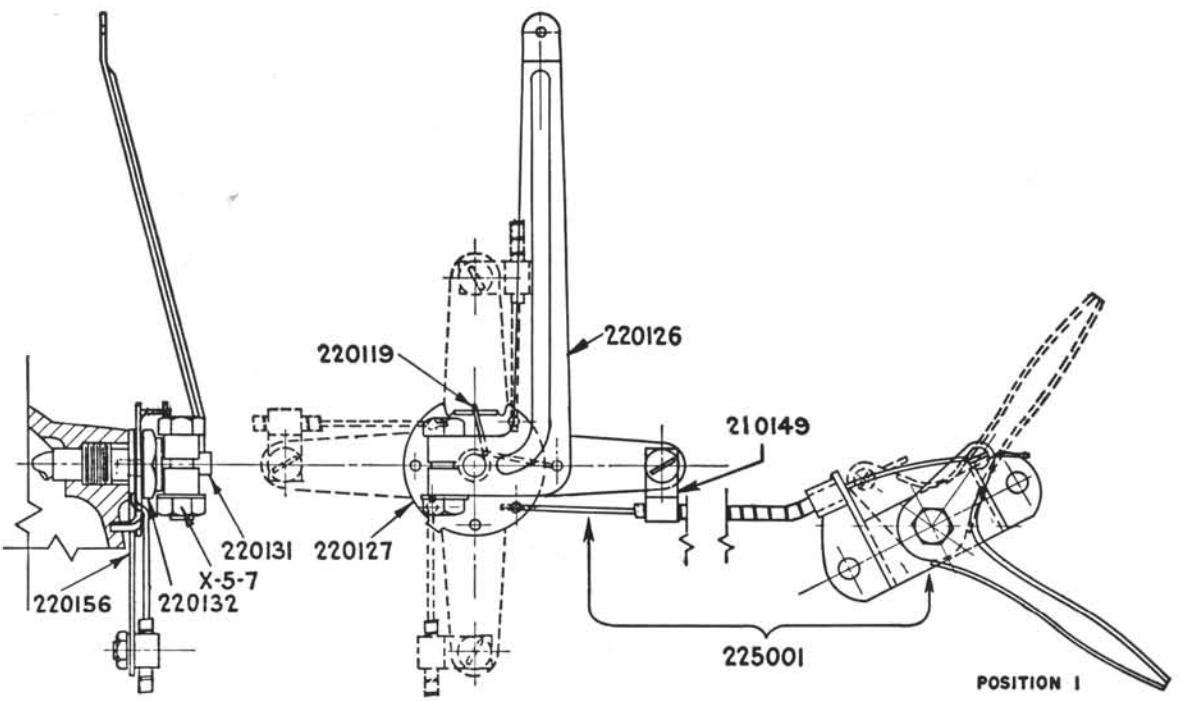

Figure 24 Hand Throttle Control Lever and Cable Kit 225000-A