AUTHORIZED SERVICE ORGANIZATION

There is a member of the Briggs & Stratton Service Organization in your neighborhood who is fully qualified to take care of your service needs. Space does not permit listing here, but if you will write to the nearest central distributor listed below, they will be glad to supply you with name and address.

STATE	CITY	NAME	LOCATION
Alabama	Birmingham 3	Birmingham Electric Battery Co.	Ave. B. at 23rd St.
Arizona	Phoenix	Motor Supply Co.	402-414 N. Central Ave.
California	Los Angeles 15	Electric Equipment Co.	1611 S. Hope St.
California	San Francisco 9	Frank Edwards Co.	382-4 Sixth St.
Colorado	Denver 1	Spitzer Electric Company	43 W. 9th Ave.
Florida	Jacksonville 1	Spencer Electric, Inc.	40 W. Beaver St.
Florida	Miami 42	Electrical Equipment Co.	1415 N.W. 21st Terrace
Florida	Tampa 1	Spencer Auto Electric, Inc.	607-11 E. Cass St.
Georgia	Atlanta 3	Auto Electric & Magneto Co.	477 Spring St., N. W.
Illinois	Chicago 16	Mid-States Auto Electric Co.	1905 S. Michigan Ave.
Indiana	Indianapolis 4	Gulling Auto Electric Inc.	450 N. Capitol Ave.
Iowa	Des Moines 9	Magneto Carburetor & Electric Co., Inc.	1308 Grand Ave.
Kansas	Wichita 2	The E. S. Cowie Electric Co.	230 S. Topeka Ave.
Kentucky	Louisville 2	Kentucky Ignition Co., Incorporated	737 S. 3rd St.
Louisiana	New Orleans 1	A. C. Suhren Co.	4640 So. Carrolton Ave.
Louisiana	Shreveport	Chain Battery & Automotive Supply, Inc.	Spring at Fannin St.
Massachusetts	Boston 64	W. J. Connell Co.	210 Needham St.
Michigan	Detroit 38	Auto Electric & Service Corporation	15550 Woodrow Wilson Ave.
Minnesota	Minneapolis 16	Reinhard Brothers Co., Inc.	4301 HighwayNo. 7
Missouri	Kansas City 8	The E. S. Cowie Electric Co.	1819 Wyandotte St.
Missouri	St. Louis 3	Medart Auto Electric Co., Inc.	3134 Washington Blvd.
Montana	Billings	Original Equipment, Inc.	423 N. Broadway
Nebraska	Omaha 2	Carl A. Anderson, Inc.	16th and Jones St.
New Mexico	Albuquerque	Spitzer Electrical Co. of New Mexico	3rd and Mountain Rd.
New York	Buffalo 14	The Battery & Starter Co., Inc.	2505 Main St.
New York	New York 19	The Durham Co., Inc.	606 W. 49th St.
New York	Syracuse 4	F. A. Crossman, Inc.	943 W. Genesee St.
North Carolina	Charlotte 1	Automotive Electric Associates, Inc.	306-14 N. Graham St.
Ohio	Cincinnati 2	Gardner, Inc.	1847 Reading Rd.
Ohio	Cleveland 15	The Electric Power & Maintenance Co.	Prospect at East 30th
Ohio	Toledo 2	Electric Power & Maintenance Co.	26-30 Seventeenth St.
Oklahoma	Oklahoma City 2	American Electric Ignition Co.	124 N. W. 8th St.
Oregon	Portland 9	Tracey & Co., Inc.	N. W. 10th and Glisan
Pennsylvania	Philadelphia 30	Auto Equipment & Service Co., Inc.	1522-24 Fairmount Ave.
Pennsylvania	Pittsburgh 24	Pitt Auto Electric Company	5135 Baum Blvd.
Tennessee	Knoxville 7	R. T. Clapp Company	2016 Magnolia Ave., N.E.
Tennessee	Memphis 4	Automotive Electric Service Co.	982 Linden Ave.
Texas	Amarillo	Beard & Stone Electric Company, Inc.	700 E. 10th St.
Texas	Dallas 1	Beard & Stone Electric Company, Inc.	3909 Live Oak St.
Texas	El Paso	Motor Supply Co.	308 Chihuahua St.
Texas	Houston 1	Beard & Stone Electric Company, Inc.	Milam at Polk Ave.
Texas	San Antonio 6	S. X. Callahan	425 N. Flores St.
Utah	Salt Lake City 13	Frank Edwards Co.	551 So. State St.
Virginia	Richmond 21	Richmond Battery & Ignition Co.	2912 W. Leigh St.
Washington	Seattle 4	Charles Stewart, Inc.	1741 First Ave. South
Washington	Spokane	Sunset Electric Co.	N. 703 Division St.
Wisconsin	Milwaukee 2	Wisconsin Magneto Co.	918 N. Broadway

DOMINION OF CANADA

British Columbia	Vancouver	Auto Electric Service (Pacific) Ltd.	1025 Howe St.
Manitoba	Winnipeg	Auto Electric Service (Western) Ltd.	176 Fort St.
Ontario	Toronto 5	Auto Electric Service Company, Limited	1009 Bay St.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U.S.A.

Printed in U. S. A. Form No. 27300-76-3

OPERATING AND MAINTENANCE MANUAL

WITH PARTS CATALOG

PRICE 10¢ EACH

For Briggs & Stratton Engine

MODELS

"WI" — "WIPR-6"

TYPE NUMBERS FROM 301100 TO 301825

4 CYCLE BRIGGS&STRATTON GASOLINE ENGINES

MANUFACTURED BY

BRIGGS & STRATTON CORPORATION

MILWAUKEE 1, WISCONSIN, U. S. A.

IMPORTANT SAFETY INFORMATION AND INSTRUCTIONS FOR

ENGINE SELECTION
ENGINE INSTALLATION
ENGINE OPERATION

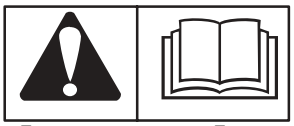
Keep these instructions for future reference.

In the USA and Canada,
our 24 hour hotline is:

18002333723

Briggs & Stratton Corporation
Milwaukee, Wisconsin 53201

www.briggsandstratton.com



Before installing and operating this engine read and observe all warnings, cautions and instructions on both sides of this sheet, on the engine, and in the operating & maintenance instructions.

NOTE: This sheet of instructions and safety information is not meant to cover all possible conditions and situations that may occur. Read entire Operating & Maintenance Instructions for this engine AND the instructions for the equipment this engine powers. Failure to follow instructions and safety information could result in serious injury or death.

The safety alert symbol (⚠) is used to identify safety information about hazards that can result in personal injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

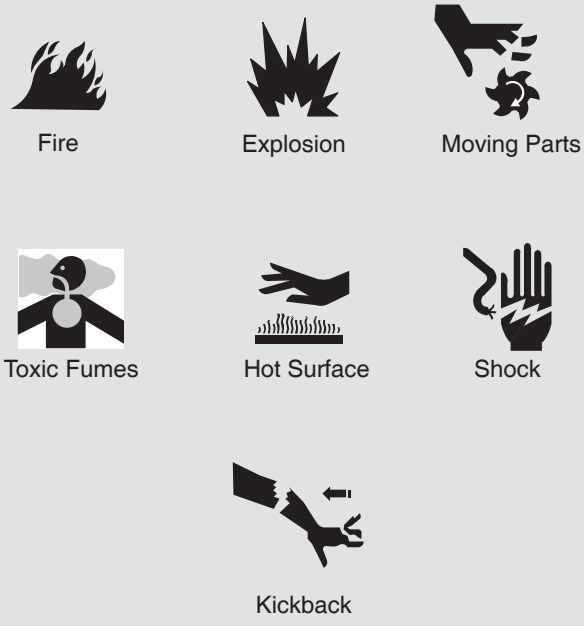
⚠ **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

⚠ **WARNING** indicates a hazard which, if not avoided, **could result in death or serious injury.**

⚠ **CAUTION** indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**

HAZARD SYMBOLS AND MEANINGS



(OVER)

FORM MS-6445-01/03

ENGINE SELECTION

- Some engines are unique and designed for specific applications or types of equipment. If this engine will be used to build new equipment, contact Briggs & Stratton to ensure that the engine is appropriate for the intended use.

  Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Replacement engines should be the same model as the original engine, or be the Briggs & Stratton designated replacement engine. Refer to the Operation & Maintenance Instructions for engine identification information.

  Note: For all Go-karts use only a model 136200 series engine, which offers improved safety and performance.
- Do not use Briggs & Stratton engines on 3-wheel All-Terrain Vehicles (ATVs), motor bikes, air craft products, or vehicles intended for use in competitive events. Briggs & Stratton does not approve of or authorize such uses.

ENGINE INSTALLATION

[1] Do not attempt to install this engine if you do not have the appropriate tools and knowledge of small engine installation procedures. Use only Briggs & Stratton parts. Contact your Authorized Service Dealer for assistance.

[2] Do not modify the engine in any way without Briggs & Stratton factory approval. Any such modification is at the owner's sole risk.

[3] If the exhaust system on the old engine was supplied by the equipment manufacturer, you must transfer the exhaust system and related components (original muffler and related pipes, brackets, clamps, and shields) to the new engine. All components must be in good condition.

[4] 

Install muffler (and muffler deflector if used) so outlet points away from operator, fuel tank, and equipment, and so muffler heat will not damage or deform engine and components.

[5] 

Ensure all fuel lines and fittings are properly assembled and do not leak. Replacement parts must be the same model as the original.

[6] 

Ensure all wiring, including safety switches and engine shut-off components are completely installed and functioning properly.

[7] Set engine speed to equipment manufacturer's specification. Refer to equipment manufacturer's manual. Do not tamper with governor springs, or other parts that will increase engine speed above specification.

[8] 

All engine parts, including fuel cap, spark plug, muffler, air cleaner, and covers and guards for drive components (gears, belts, shafts, couplings, etc.) must be in place before attempting to start engine.

[9] 

If engine is installed on walk behind lawn mower, all mower components, including cutting blade, must be correctly installed before attempting to start engine.

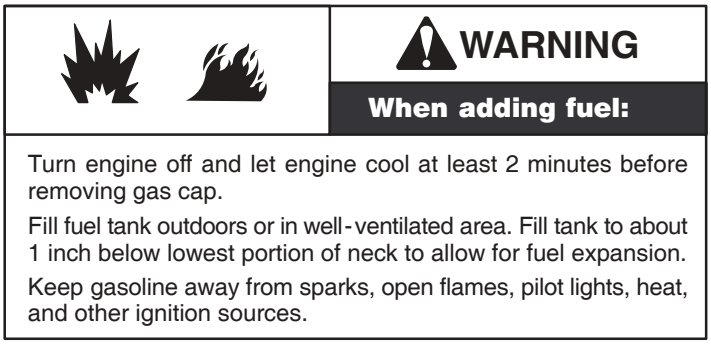
[10] 

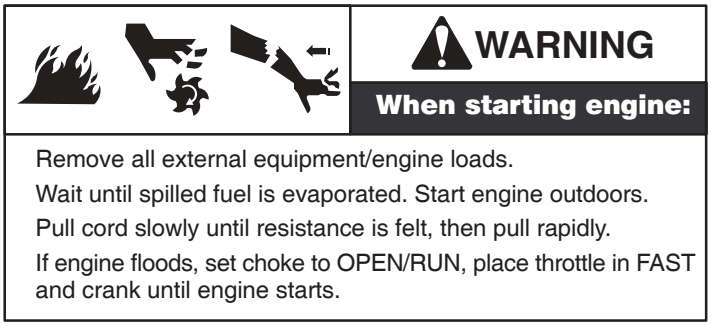
When working on the engine or equipment, remove spark plug wire from spark plug. For electric start, remove negative wire from battery.

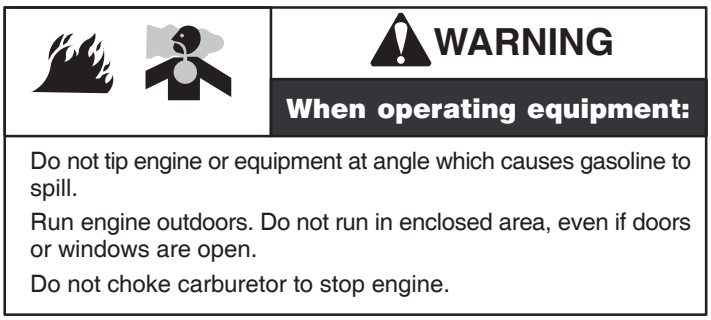
[11] 

Do not check for spark with spark plug removed. Use Briggs & Stratton spark tester #19368.

ENGINE OPERATION







INTRODUCTION

This book has been especially prepared to cover the Engine Models listed on the cover and is published for the information and guidance of all concerned.

THERE IS A RIGHT WAY TO OPERATE THIS ENGINE. THIS BOOK TELLS YOU HOW.

Guessing how to run it may cause failure to receive the maximum in performance and dependable service originally built into this engine. Each engine has been carefully tested and adjusted at the factory before packing for shipment, and if correctly operated will perform efficiently and economically.

This book is divided into four sections, namely:

1. GENERAL, contains information that you should know regarding the principal specifications and design of the engine.
2. OPERATOR'S SECTION, contains instructions necessary for starting and operating the engine.
3. MAINTENANCE SECTION, consists of instructions pertaining to actual repairs such as are conducted in the repair shop.
4. PARTS SECTION, includes exploded views of the various engine assemblies and component parts, parts list, and prices.

• • •

CAUTION!

EXHAUST GASES CONTAIN CARBON MONOXIDE WHICH IS ODORLESS AND A DEADLY POISON. PROPER CARE MUST BE TAKEN TO PROVIDE EFFICIENT VENTILATION.

ALWAYS MAINTAIN PROPER OIL LEVEL IN CRANKCASE.

DON'T FILL THE GASOLINE TANK WHILE THE ENGINE IS RUNNING. AVOID SPILLING GASOLINE ON A HOT ENGINE —THIS MAY CAUSE AN EXPLOSION AND SERIOUS INJURY.

GENERAL INFORMATION

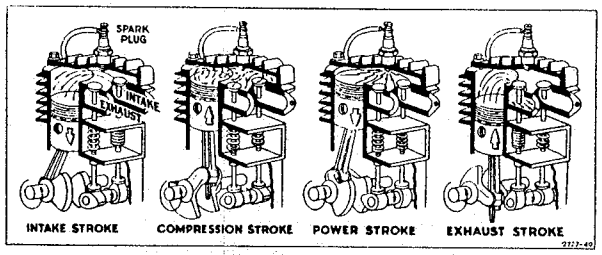
This engine is a single cylinder, L-Head air cooled type; bore 2" and stroke 1½". It is rated at:

.8 H.P. at 2200 R.P.M.
1.0 H.P. at 2700 R.P.M.
1.0 H.P. at 3200 R.P.M.

The horsepower ratings listed above are established by standard I.C.E.I. procedures. For practical operation, the horsepower loading should not exceed 85 per cent of these ratings. Engine power will decrease 3 per cent for each 1,000 feet above sea level, and 1 per cent for each 10 degrees above 60 degrees F.

It is of the same basic 4-cycle design used in automobiles, aircraft, trucks, and tractors. As the name indicates, there are four strokes to one complete power cycle:

THE 4-STROKE CYCLE
Plate No. 1



a. INTAKE STROKE: The piston goes down, creating a vacuum in the cylinder which draws gas through open intake valve into the space above the piston.

b. COMPRESSION STROKE: The piston comes up with both valves closed, highly compressing the gas into the space left between the top of the piston and cylinder head.

c. POWER STROKE: At this point the magneto sends high tension current to the spark plug, firing or exploding the compressed gas and driving the piston down.

d. EXHAUST STROKE: Exhaust valve opens and the upward stroke of the piston forces out all of the burnt gases, thus completing the power cycle.

Ignition is supplied by a high tension magneto built into the flywheel. The spark plug is 14mm.

Lubrication is supplied by a splash system which furnishes positive lubrication to all moving parts. Oil reservoir capacity is 1 pint.

The fuel tank holds one quart. The carburetor is suction type.

The governor is adjustable pneumatic type.

Two valves are employed: one Intake and one Exhaust.

The piston and connecting rod are made of aluminum alloy. Crankshaft is a drop forging, counterweighted to reduce vibration.

This engine has been substantially built. It is made of high grade materials by skilled workmen, in a factory fully equipped with the most modern machinery. Before it was shipped, it received many tests and careful inspections.

MAINTENANCE SECTION

ENGINE TROUBLE CHART

ENGINE DIFFICULT TO START

1. No fuel in tank.
2. Fuel flow obstructed.
3. Loose or defective wiring.
4. Spark plug cracked.
5. Spark plug fouled.
6. Improper choking.
7. Improper fuel mixture.
8. Throttle valve stuck or out of adjustment.
9. Throttle rod loose.
10. Valve seats bad.
11. Valves sticking.
12. Timing improper.
13. Defective magneto.
    a. Breaker points worn or pitted.
    b. Breaker points out of adjustment.
    c. High tension wire shorted.

ENGINE MISSING

1. Spark plug fouled.
2. Spark plug cracked.
3. Spark plug gap wrong.
4. Defective wiring.
5. Ignition breaker points sticking.
6. Valve warped, broken, or sticking.

ENGINE LOSING POWER

1. Carburetor choke valve partly closed.
2. Improper fuel mixture.
3. Piston rings sticking.
4. Improper timing.
5. Muffler clogged.
6. Overload.
7. Cooling air stream obstructed.

ENGINE KNOCKS

1. Carbon in cylinder.
2. Loose main bearings.
3. Loose rod bearings.
4. Worn piston and cylinder.
5. Engine overheated.
6. Tight pistons.
7. Loose flywheel.
8. Lack of oil.

FAULTY CARBURETION

1. Carburetor improperly adjusted.
2. Clogged fuel feed pipe.
3. Sediment or water in fuel tank.

EXCESSIVE SMOKE FROM EXHAUST

1. Carburetor needle valve open too far.
2. Worn piston or piston rings.

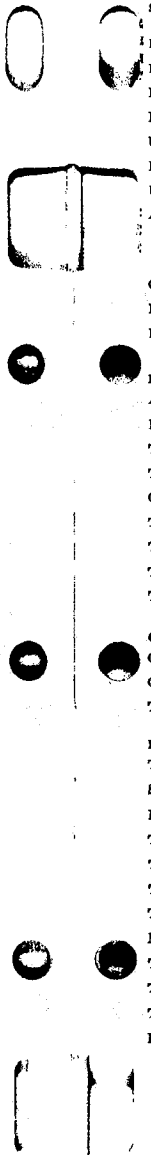
EXPLOSION IN CARBURETOR

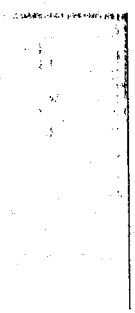
1. Gas mixture too lean.
2. Intake valve sticking.
3. Intake tappets sticking.
4. Intake valve spring weak.
5. Intake valve warped or broken.
6. Intake tappets set too close.

POOR COMPRESSION

1. Valves not seating.
2. Valves sticking.
3. Piston rings worn or weak.
4. Piston rings broken.
5. Piston rings sticking.
6. Loose spark plug.
7. Cylinder head loose.
8. Scored cylinder.
9. Worn piston and cylinder.

SERVICING REFERENCE CHART





smoothly with full load. This setting will also take care of starting with use of the choke.

d. When starting cold engine, if it is necessary to keep choke partially closed several minutes before engine runs smoothly, carburetor setting is too lean and needle valve should be opened a notch or two — turn to left. If carburetor throttle acts sluggish or engine does not govern smoothly, it is usually caused by a dirty or gummy throttle. For governor adjustments see paragraphs 21 and 22.

19. TO REMOVE CARBURETOR.

a. Remove air cleaner.

b. Disconnect fuel pipe from carburetor.

c. Unhook spring at carburetor.

d. Loosen two carburetor mounting screws.

e. Unhook carburetor from the throttle link.

20. TO REPLACE CARBURETOR.

Reverse the operations as performed above. CAUTION: Be sure to replace the carburetor gasket. The throttle link must operate freely in the governor arm blade and carburetor throttle arm.

THE GOVERNOR

21. CORRECT ENGINE SPEED. The speed of this engine is automatically maintained under varying loads by a built-in governor. Recommended operating speed is 2200 to 3200 R.P.M. As different types of equipment require various operating speeds for the greatest efficiency, it is suggested that you follow the recommendations of the manufacturer of the complete unit which the engine powers.

22. GOVERNOR SPEED ADJUSTMENT. The governor was carefully adjusted at the factory to maintain normal speed under load. Do not re-adjust unless absolutely necessary. A thumb nut speed adjuster is located beneath carburetor. (See Plate No. 4.)

a. To increase engine speed, turn nut down.

b. To decrease engine speed, turn nut up.

It is important that the thumb nut be held firmly in the speed adjuster to prevent turning from vibration. For this reason it is sometimes difficult to turn with the fingers. Use a coarse file or rasp. Hold it firmly against the knurled edge of nut so it does not slip. Press inward to turn nut down and outward to turn nut up.

23. TO CHECK AIR VANE GOVERNOR BLADE CLEARANCE. This type of governor has but few parts and seldom do they need replacement because of wear. It is important, however, that the vane has proper clearance so it can operate freely. To check and adjust, proceed as follows:

a. Remove blower case.

b. Turn carburetor throttle lever so the throttle is in wide open position. This will enable you to see if the vane clears the armature core and screws. (See Plate No. 5, Fig. A.)

c. If it does not clear, bend vane bracket or file blade. (See Plate No. 5, Fig. B.)

Do not bend bracket too far or it may rub on flywheel.

Governor Air Vane Adjustment Plate No. 5

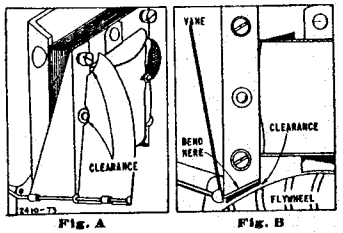


Fig. A Fig. B

THE IGNITION SYSTEM

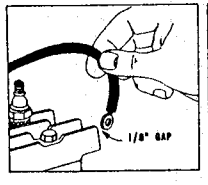
24. THE IGNITION SYSTEM. The spark is produced by a high tension magneto consisting of armature, condenser, contact points, and rotating magnets cast in a flywheel. The ignition current is sent into the engine cylinder through the ignition cable and spark plug. The magneto itself as well as the cable and spark plug must all be in proper condition and adjustment to insure a good hot spark.

25. TO CHECK FOR SPARK.

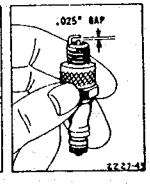
a. Remove the ignition cable from the plug. Remove plug. Hold the ignition cable terminal about ⅛" from any metal part of cylinder head. (See Plate No. 6.)

b. Turn engine and if spark jumps this gap the entire ignition system with the exception of the spark plug is O. K.

Checking Spark Plate No. 6



Spark Plug Plate No. 7



c. If no spark develops, check the cable (see Paragraph 27), and refer to magneto adjustments explained in Paragraphs 28 to 35.

26. SPARK PLUG ADJUSTMENT. The spark plug should be cleaned and the gaps reset to .025" after each 100 hours of operation. (See Plate No. 7.) Always keep a fresh plug on hand. Use Champion J-8 (14mm) spark plug or its exact equivalent. When inserting plug place a little grahite grease on the threads.

27. IGNITION CABLE. Insulation must not be broken or soaked with oil or water, or grounded in any way where it touches the engine as this will interfere with good ignition. To check the cable all the way to the magneto it is necessary to remove blower case. Be sure that the cable is securely fastened to the secondary terminal of the coil. (See Plate No. 11.)

28. TO REMOVE FLYWHEEL. (See Plate No. 8.) The flywheel is securely mounted to the crankshaft by means of a taper fit, a soft key, left hand threaded nut and spring washer. To remove proceed as follows:

ROPE STARTER ENGINES

a. Remove the blower housing.

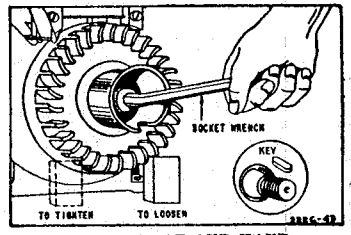
b. Bolt or clamp the engine to a work bench.

c. Place a block of wood under flywheel fin to hold it solid as illustrated in Plate No. 8.

d. Use a large wrench, 10" or longer. Turn pulley to the RIGHT, using a hammer to tap lightly until loosened. Be careful not to break fins as this will throw flywheel out of balance.

e. After the pulley has been removed loosen the flywheel by placing a wood block against the end of crankshaft and strike with a hammer. Pull off flywheel.

Removing Flywheel Rope Starter Engine Plate No. 8



MAGNETO SIDE FOOT AND HAND STARTER ENGINES

a. Remove starter assembly.

b. Loosen set screw in clutch housing.

c. Remove clutch from shaft.

d. Take off blower housing and remove flywheel same as rope starter explained above.

29. TO REASSEMBLE FLYWHEEL.

a. Thoroughly clean flywheel hole and tapered end of crankshaft.

b. Apply a light coat of colloidal graphite (Oil-Dag) mixed with lubricating oil to the tapered end of the crankshaft. DO NOT USE TOO MUCH.

c. Turn crankshaft until keyway is up. Then place flywheel on crankshaft and align keyways.

d. Insert key and push up securely into keyways.

e. Assemble spring washer with the hollow or concave side next to the flywheel.

f. Place a block of wood under the left side of flywheel to hold rigid and draw nut very tight by tapping end of wrench with a hammer.

30. TO REMOVE MAGNETO ASSEMBLY. After the flywheel has been removed as explained in above paragraph, proceed as follows:

a. Remove magneto point dust cover. It is not necessary to remove the carburetor unless you have already done so.

b. Remove four magneto plate mounting screws.

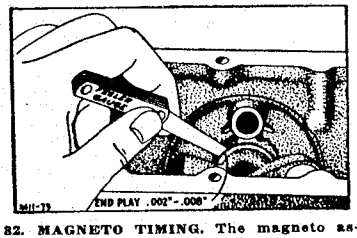
31. TO REPLACE MAGNETO ASSEMBLY. Use same gaskets between plate and crankcase, or if damaged, use one of the following new gaskets for proper end play:

Part No. 67597—.005"
Part No. 67607—.009"
Part No. 67307—.015"

The end play should be .002" to .008" between magneto bearing and crankshaft thrust faces as shown in Plate No. 9.

Use lockwashers under mounting screws.

Correct End Play — Plate No. 9



32. MAGNETO TIMING. The magneto assembly is always correctly timed with the engine when the flywheel is assembled to the tapered crankshaft with a key and

CYLINDER

41. CYLINDER HEAD. The cylinder head is held in place with six cap screws.

42. TO REMOVE AND CLEAN CYLINDER HEAD.

a. Remove spark plug.

b. Remove cylinder head.

c. Accumulated dirt, grease, and oil should be scraped and blown out of the air passages. This is important to allow free circulation of air and prevent overheating.

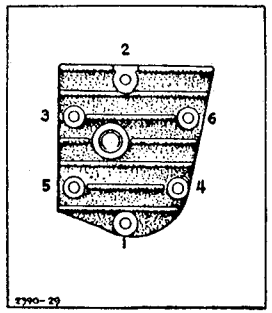
d. Clean carbon deposits with wire brush or scraper and thoroughly blow out. See that spark plug hole is clean and that the threads are not stripped.

43. TO REASSEMBLE CYLINDER HEAD.

a. Use a new gasket, Part No. 291301. If not available, clean the old one and coat both sides with cup grease — shellac is not recommended.

b. Replace cylinder head and turn each screw by hand as far as it will go.

Tightening Cylinder Head — Plate No. 16



c. Use a sprocket wrench with a handle not over 6" long and tighten all screws evenly with a ¼ turn in the rotation, 1 to 6, as shown in plate 16. Do not tighten one screw down completely before the others as this may cause the cylinder head to warp or damage the gasket.

d. Now tighten all screws snugly (which will usually be about ¼ turn) in the same rotation.

CRANKSHAFT

44. TO REMOVE CRANKSHAFT.

a. Drain oil from crankcase.

b. If hand or foot starter, remove starter assembly.

c. Remove blower housing.

d. Remove pulley (turn to right) washer and key to remove flywheel as explained in Paragraph 28.

e. Remove magneto plate. (See Paragraph 30.)

f. Remove engine from base.

g. Turn engine upside down.

h. Disconnect connecting rod and push piston down in cylinder bore so it clears crankshaft. Do not push too far as top ring may become detached.

i. Remove cam shaft. (See Paragraph 47.)

j. Slide crankshaft out toward the magneto side of the engine.

k. Remove cam gear.

45. TO CHECK FOR CORRECT END PLAY. Use a new gasket when reassembling crankshaft and magneto plate. End play should not be less than .002" or more than .008". (See Paragraph 31.)

46. OIL SEALS. If the oil seals are worn or damaged, replace with new ones.

CAM SHAFT AND CAM GEAR

47. TO REMOVE CAM SHAFT AND CAM GEAR.

a. If hand or foot starter, remove starter assembly.

b. Remove blower housing.

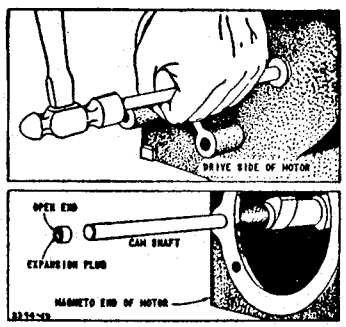
c. Remove flywheel and magneto plate.

d. Use a blunt punch and force cam shaft out from the drive side of the engine as shown in Plate No. 17.

e. Remove crankshaft. (See Paragraph 44.)

f. The cam gear will then be free for removal from crankcase after crankshaft has been removed.

Removing Cam Shaft — Plate No. 17



Be sure not to get burrs on the end of the shaft. After the shaft has been removed, check shaft for wear. If worn more than .001", replace with a new shaft.

48. TO REPLACE.

a. Insert cam shaft through hole on the magneto side of the engine far enough to permit sliding the cam gear into position. Be sure to line up timing marks as explained in Paragraph 40.

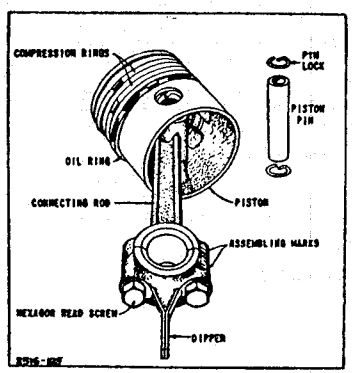
b. Slide cam shaft through cam gear and press in flush with outside of crankcase on the opposite side.

c. Install the expansion plug in the hole on the magneto side with its open end out. Seal with "Permatex" or other liquid gasket material to prevent oil leaks.

PISTON RINGS, PISTON PIN, AND CONNECTING ROD

49. PISTON. (See Plate No. 18.) The piston in this engine is made of a special alloy which is very light in weight. The lands of the piston are smaller than the skirt to allow for greater expansion at the piston head. This clearance is to compensate for the expansion of the aluminum when hot. When piston is removed be sure to clean carbon from head and ring grooves. If piston is out of round or scored it should be replaced with a new one. If an oversize piston is necessary, we recommend that engine be sent to our nearest service organization.

Piston Assembly — Plate No. 18



50. PISTON RINGS. The piston rings when fitted in the cylinder should have a gap of .007" to .017". The rings should be fitted in the cylinder below the piston ring travel. Before assembling new rings to piston be sure that piston ring grooves are thoroughly cleaned and rings move in grooves freely.

51. PISTON PIN. The piston pin is a slip fit in the piston. To remove it from the piston, first remove the pin locks, then slip pin out of piston. If pin or hole is worn, replace with oversize pin No. 290981.

52. CONNECTING ROD. The connecting rod is also made of a special aluminum alloy which combines strength with light weight. The connecting rod is equipped with a dipper. This is held in place with hexagon head cap screws and lock washers. Assemble as shown in Plate No. 18. The assembly marks on the cap and rod should be on the same side.

CRANKCASE BREATHER VALVE

53. The breather valve used on this engine is mounted in the valve chamber (See Plate No. 14) and consists of the following parts:

No. 26330 Retainer Spring.
No. 22216 Cover.
No. 65968 Valve Disk.
No. 210028 Valve Body.
No. 27327 Gasket.

If this becomes clogged it will cause oil leaks. Therefore, it is well that it be checked and cleaned whenever engine is taken apart for service.

54. TO REMOVE AND CLEAN:

a. Remove valve plate cover.

b. Remove oil spray shield.

c. Remove retainer spring. (This holds breather valve in place.)

d. Remove breather valve and wash the parts thoroughly with kerosene or gasoline, blow out and dry.

Replace by reversing the above procedure.

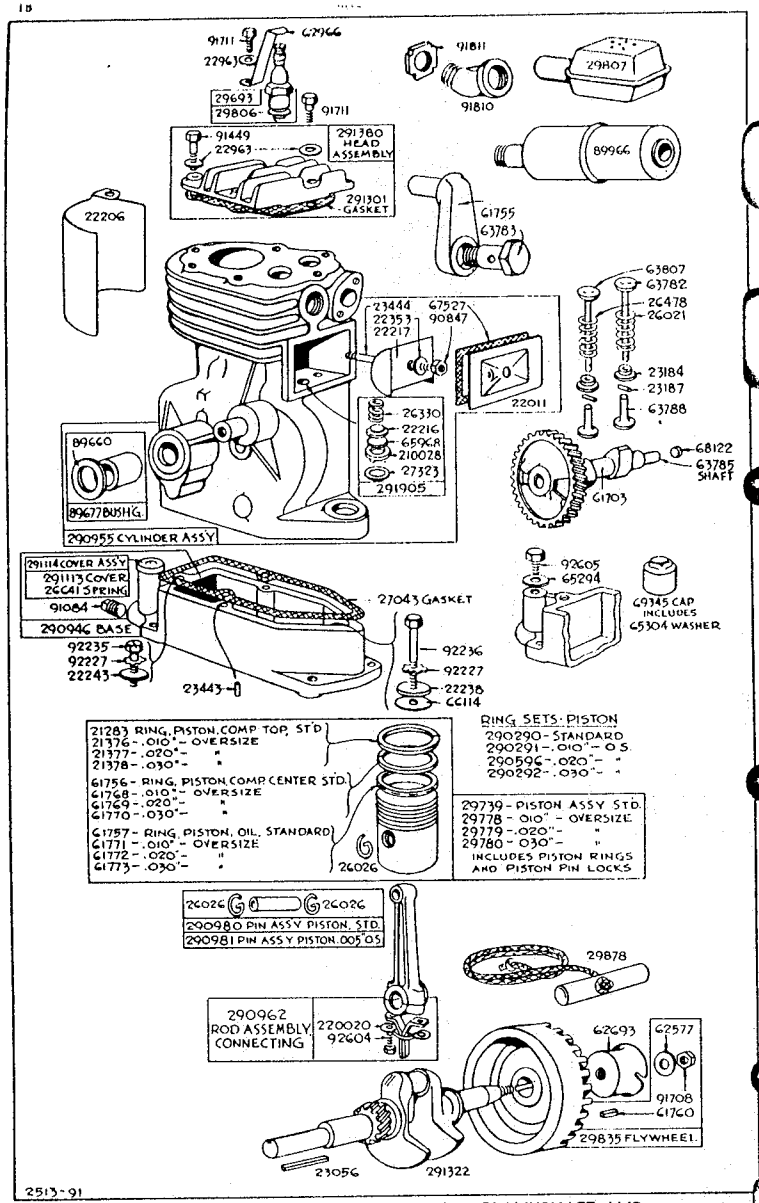
AIR CLEANER

55. TO REMOVE, CLEAN, AND REPLACE. (See Plate No. 19.) The air cleaner is to protect the engine from dirt and grit. It is therefore important that it be cleaned and refilled every 25 hours the engine is in use (daily if operating under dusty conditions) to prevent clogging. Clean as follows:

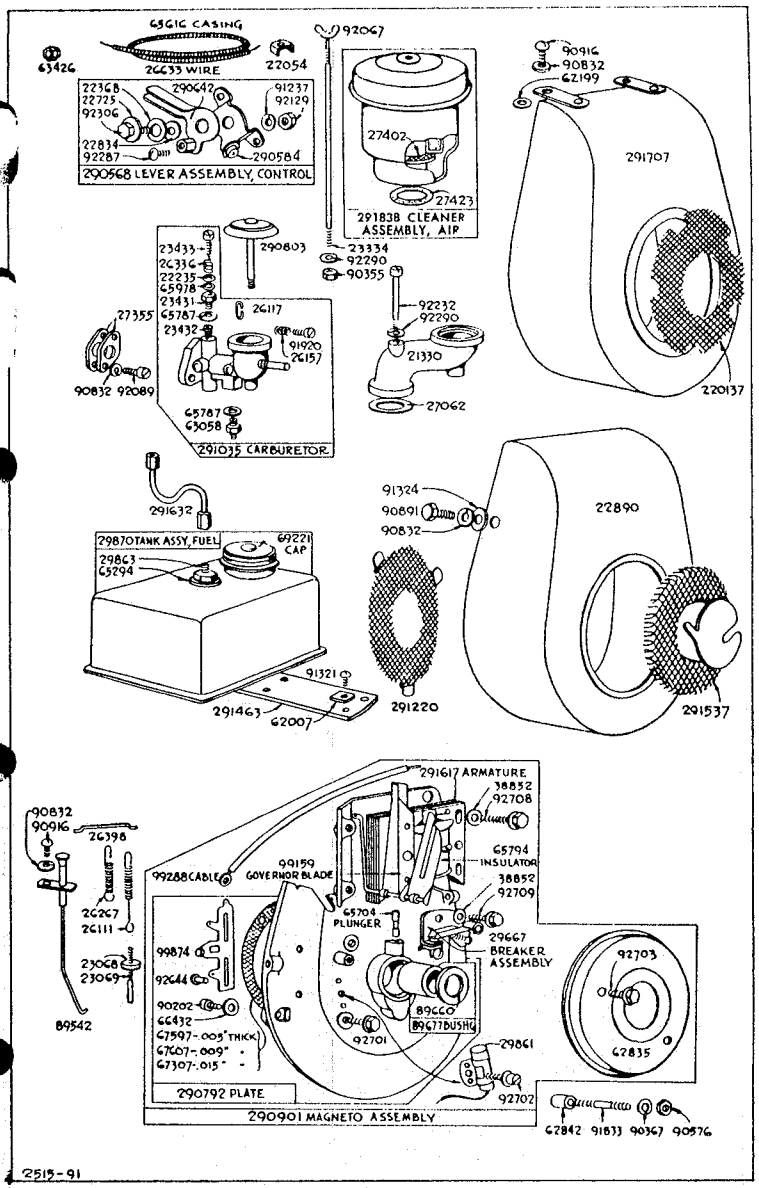
a. Remove thumb nut and slide entire cleaner over rod.

b. Remove cover and filter and pour out oil.

c. Wash the outside of the filter element with a rag or brush dipped in gasoline. **Do not submerge.**



CYLINDER, PISTON, CONNECTING ROD, CRANKSHAFT AND FLYWHEEL PARTS — PLATE No. 22
Assemblies include all parts shown in frames.



FUEL SYSTEM, BLOWER CASE AND IGNITION PARTS — PLATE No. 23
Assemblies include all parts shown in frames.

NUMERICAL PARTS LIST

MASTER PART NO.	NAME	SHIPPING WEIGHT Lbs.	Oz.
19011	Seal—Oil		2
21100	Housing—Starter Clutch		14
21283	Ring—Piston, Compression, Top—Standard		1
21330	Elbow—Air Cleaner		6
21376	Ring—Piston, Compression, Top—.010" O.S.		1
21377	Ring—Piston, Compression, Top—.020" O.S.		1
21378	Ring—Piston, Compression, Top—.030" O.S.		1
22011	Cover—Valve		6
22031	Lock—Clutch Housing		2
22054	Clamp—Control Wire Casing		1
22206	Shield—Cylinder		6
22216	Cover—Breather		1
22217	Shield—Oil Spray		1
22235	Washer—Needle Valve		1
22238	Washer—Cylinder Mounting		1
22243	Washer—Cylinder Mounting		1
*22353	Washer—Valve Cover		1
22368	Washer—Control Lever		1
22725	Washer—Control Lever		1
22834	Washer—Spacer		1
22890	Housing—Blower	1	
22963	Washer—Cylinder Head		1
	Note: **No. 91324** Washer—¼" Standard		1
	Used to mount stop switch to cylinder head on engines before Serial No. 686184.		
23056	Key—¼" Sq.		1
23068	Nut—Speed Adjusting		1
23069	Screw—Speed Adjusting		1
23075	Spacer—Foot Pedal Support		1
23077	Pinion—Starter		4
23104	Spacer—Foot Pedal Support		1
23184	Retainer—Valve Spring		1
23187	Pin—Valve Spring Retainer		1
23334	Stud—Air Cleaner		2
23431	Nut—Needle Valve		1
23432	Seat—Needle Valve		1
23433	Valve—Needle		1
23443	Pin—Dowel		1
23444	Stud—Valve Cover		1
26021	Spring—Intake Valve		1
26025	Spring—Pedal Return		1
26026	Lock—Piston Pin		1
26032	Spring—Clutch Retainer		1
26111	Spring—Governor		1
26117	Link—Governor Spring		1
26152	Spring—Pedal and Lever Return		1
26157	Spring—Throttle Adjusting		1
26267	Spring—Control Wire Return		1
26330	Spring—Breather Retainer		1
26336	Spring—Needle Valve		1
26396	Link—Throttle		1
26478	Spring—Exhaust Valve		1
26633	Wire—Control—78" long		2
	Note: If longer wire is required, specify length in inches; if shorter wire is needed, order No. 26633 and cut to required length.		

*Included in Gasket Set — Part No. 291376.

MASTER PART NO.	NAME	SHIPPING WEIGHT Lbs.	Oz.
26641	Spring—Oil Hole Cover		1
27043	Gasket—Engine Base		1
27062	Gasket—Air Cleaner Elbow		1
27139	Gasket—Gear Case Mounting		1
27313	Gasket—Gear Case Cover		1
27323	Gasket—Breather Body		1
*27355	Gasket—Carburetor Mounting		1
27402	Gasket—Air Cleaner		1
*27423	Gasket—Air Cleaner Mounting		1
	Note: **No. 68957** Gasket—Air Cleaner Mounting. Used on engines before serial No. 1170179.		1
29667	Breaker Assembly—Ignition		2
29693	Plug—Spark—with Gasket		
29739	Piston Assembly—Standard		8
29778	Piston Assembly—.010" O.S.		8
29779	Piston Assembly—.020" O.S.		8
29780	Piston Assembly—.030" O.S.		8
29786	Sector Assembly—Starter		14
29806	Gasket—Spark Plug		1
29807	Muffler		6
29835	Flywheel—Magneto	6	
29861	Condenser		2
29863	Outlet Assembly—Fuel Tank		2
29870	Tank Assembly—Fuel	1	8
29878	Rope—Starter		6
38852	Washer—Armature and Breaker Mounting		1
61703	Gear—Cam	1	8
61755	Elbow—Exhaust		8
61756	Ring—Piston, Compression, Center—Standard		1
61757	Ring—Piston, Oil—Standard		1
61760	Key—Flywheel		1
61768	Ring—Piston, Compression, Center—.010" O.S.		1
61769	Ring—Piston, Compression, Center—.020" O.S.		1
61770	Ring—Piston, Compression, Center—.030" O.S.		1
61771	Ring—Piston, Oil—.010" O.S.		1
61772	Ring—Piston, Oil—.020" O.S.		1
61773	Ring—Piston, Oil—.030" O.S.		1
61947	Housing—Starter Clutch		10
61973	Housing and Pulley—Starter Clutch	1	
	Note: **No. 61781** Housing and Pulley—Starter Clutch Used on type Nos. 301168, 301306.	1	
	No. 61937 Housing and Pulley—Starter Clutch Used on type Nos. 301152, 301318.	1	
62007	Clamp—Fuel Tank		1
62199	Washer—Blower Housing Mounting		1
62536	Cup—Starter Return Spring		1
62538	Washer—Clutch Retainer		1
62552	Bushing—Cylinder		2
62577	Washer—Flywheel		1
	Note: **No. 62903** Washer—Flywheel Used on type Nos. 301400, 301401, 301403, 301404, 301409, 301411, 301412, 301413, 301414, 301415, 301416, 301420, 301800, 301801.		1
62600	Stop—Starter Pedal		6
62093	Pulley—Rope Starter		6
	Note: For Pulley with screen attached order Part No. 291537.		
62835	Cover—Dust		4
62842	Spacer—Dust Cover		1
62966	Switch—Stop		2
63058	Connector—Fuel Pipe		1

*Included in Gasket Set — Part No. 291376.

MASTER PART NO.	NAME	SHIPPING WEIGHT Lbs.	Oz.
92617	Plug—Breather		2
92644	Rivet—Tubular—⅛x⅜"		1
	Note: No. 92324 Rivet—Tubular—⅛x⅜"		1
	No. 62641 Plate—Speed Adjuster Retainer		
	Used on engines before Serial No. 638799.		
92646	Pin—Cotter—⅛x1½"		1
92663	Screw—Starter Mounting		1
92664	Nut—Starter Mounting		1
92701	Screw—Magneto Mounting Sem		1
92702	Screw—Condenser Mounting Sem		1
	Note: No. 90367 Washer—Lock—No. 8x⅜x⅜"		
	Used on earlier model engines.		1
92703	Screw—Dust Cover Mounting Sem		1
	Note: No. 90367 Washer—Lock—No. 8x⅜x⅜"		
	Used on earlier model engines.		1
92708	Screw—Armature Mounting Sem		1
	Note: No. 92317 Washer—Lock—Shakeproof No. 1208		
	Used on earlier model engines.		1
92709	Screw—Breaker Mounting Sem		1
	Note: No. 92317 Washer—Lock—Shakeproof No. 1208		
	Used on earlier model engines.		1
92747	Screw—Gear Case Cover Mounting Sem		1
	Note: No. 90832 Washer—Lock—¼x⅜x⅛"		
	Used on earlier model engines.	1	
99103	Pedal—Foot Starter	1	
	Note: No. 29879 Pedal—Foot Starter		
	Used on type Nos. 301306, 301315.	3	
99104	Pedal Assembly—Foot Starter	3	
	Note: No. 29880 Pedal Assembly—Foot Starter		
	Used on type Nos. 301306, 301315.		6
99159	Blade Assembly—Governor	1	
99272	Clutch Assembly—Starter		2
99288	Cable—Ignition	3	
99307	Pedal Assembly—Foot Starter	3	
99339	Lever Assembly—Hand Starter	1	
99349	Clutch and Pulley Assembly—Starter	1	
	Note: No. 29853 Clutch and Pulley Assembly—Starter		
	Used on type No. 301306.		
	No. 99226 Clutch and Pulley Assembly—Starter	1	
	Used on type No. 301318.	3	
99430	Lever Assembly—Hand Starter	3	
	Note: No. 89443 Lever Assembly—Hand Starter		
	Used on type No. 301305.		1
99433	Tooth Assembly—Spring	1	8
99764	Support Assembly—Foot Pedal		1
99674	Adjuster—Speed		1
210028	Body—Breather		1
	Note: No. 21310 Body—Breather		
	Used on engines before serial No. 1172611.		1
220020	Lock—Connecting Rod Screw		1
220093	Retainer—Spring		2
220137	Screen—Blower Housing		
	Used only on engines with a retrievable starter.		1
220234	Lock—Gear Case Mounting Screw		1
230074	Pin—Starter Grip		3
290280	Ring Set—Standard Piston		3
290291	Ring Set—.010" O.S. Piston		3
290292	Ring Set—.030" O.S. Piston		2
290548	Breather Assembly		4
290568	Lever Assembly—Control		2
290584	Base—Control Lever		

MASTER PART NO.	NAME	WEIGHT Lbs.	Oz.
290596	Ring Set—.020" O.S. Piston		3
290642	Lever—Control		2
290779	Case Assembly—Gear	1	8
290792	Plate—Magneto	2	
	Note: No. 290869 Plate—Magneto	2	
	Used on type Nos. 301108, 301121, 301131, 301147, 301306, 301308, 301313, 301413.		
290802	Gear and Shaft Assembly	3	8
290803	Cover—Carburetor		4
290901	Magneto Assembly	6	
	Note: No. 290902 Magneto Assembly	6	
	Used on type Nos. 301108, 301121, 301131, 301147, 301306, 301308, 301313, 301413.		
	Includes: No. 66155 Wire—Ground		1
290946	Base Assembly—Engine	1	8
	Note: No. 290938 Base Assembly—Engine	1	8
	Used on type Nos. 301161, 301171.		
	No. 290943 Base Assembly—Engine	6	
	Used on type Nos. 301400, 301401, 301403, 301404, 301409, 301411, 301412, 301413, 301414, 301415, 301416, 301420, 301600, 301601, 301800, 301801.		
290955	Cylinder Assembly	13	
	Note: No. 290959 Cylinder Assembly	13	
	Used on type Nos. 301700, 301702, 301703, 301710, 301800, 301801.		
	No. 291110 Cylinder Assembly	13	
	Used on type No. 301124.		
290962	Rod Assembly—Connecting		12
290980	Pin Assembly—Piston—Standard		2
290981	Pin Assembly—Piston—.005" O.S.		2
291035	Carburetor Assembly		10
291113	Cover—Oil Hole		2
291114	Cover Assembly—Oil Hole		2
291220	Screen—Blower Housing		2
*291301	Gasket—Cylinder Head—⅛" thick		1
	**Note:* No. 67537 Gasket—Cylinder Head—⅛" thick		1
	Used on engines before Serial No. 686184.		
291322	Crankshaft	3	
	Note: No. 26395 Crankshaft	3	
	Used on type Nos. 301407, 301408, 301409, 301414.		
	No. 26618 Crankshaft	3	
	Used on type Nos. 301700, 301702, 301703, 301710.		
	No. 26622 Crankshaft	3	
	Used on type Nos. 301800, 301801.		
	No. 26693 Crankshaft	3	
	Used on type No. 301150.		
	No. 26716 Crankshaft	3	
	Used on type No. 301177.	3	
	No. 291326 Crankshaft		
	Used on type Nos. 301101, 301110, 301113, 301114, 301115, 301116, 301117, 301119, 301121, 301126, 301129, 301130, 301131, 301136, 301143, 301144, 301145, 301154, 301155, 301157, 301160, 301164, 301171, 301172, 301175, 301176.	3	
	No. 291330 Crankshaft		
	Used on type Nos. 301400, 301401, 301403, 301404, 301411, 301412, 301413, 301415, 301416, 301420.		4
291376	Gasket Set	1	8
291380	Head Assembly—Cylinder		12
291391	Housing—Starter	1	
291463	Bracket—Fuel Tank	1	
291495	Clutch Assembly—Starter		8
291537	Screen Assembly—Rotating		

MASTER PART NO.	NAME	SHIPPING WEIGHT Lbs.	Oz.
291617	Armature—Magneto	2	
291632	Pipe—Fuel—7⅛" long		4
	Note: **No. 64419** Pipe—Fuel—9" long Used on type No. 301164.		4
	No. 64499 Pipe—Fuel—12" long Used on type Nos. 301114, 301157, 301177.		4
	No. 69324 Pipe—Fuel—6" long Used on type No. 301409.		3
	No. 69339 Pipe—Fuel—14" long Used on type Nos. 301121, 301146, 301152, 301307, 301318.		4
	No. 69451 Pipe—Fuel—7½" long Used on type No. 301704.		4
	No. 291395 Pipe—Fuel—17" Long Used on type No. 301171.		4
	No. 291563 Pipe—Fuel—15" long Used on type Nos. 301129, 301133, 301139, 301167.		4
	No. 291708 Pipe—Fuel—22" long Used on type No. 301161.		6
291707	Housing—Blower	1	4
291730	Cover Assy.—Gear Case	1	4
291838	Cleaner Assembly—Air	1	
291849	Starter Assembly—Retrievable	2	
291905	Breather Assembly		2
	Note: **No. 290548** Breather Assembly Used on engines before serial No. 1172611.		2
292046	Spring—Starter		5
292271	Ratchet—Retrievable Starter		5
292272	Pulley—Retrievable Starter	1	

NATION-WIDE SERVICE ORGANIZATION

To provide prompt and efficient service on Briggs & Stratton engines, Authorized Service Distributors and Engine Service Stations are located in the principal cities of the United States and Canada.

Each Authorized Service Organization carries a stock of original Briggs & Stratton repair parts. Each is equipped with special factory service tools and factory-trained mechanics, assuring expert repair service on all Briggs & Stratton engines.

All Authorized Service Organizations are instructed by the factory to replace free of charge all parts found to be defective in either material or workmanship, according to the conditions of the Briggs & Stratton Warranty.

All gratis work done under the warranty is the responsibility of the Authorized Service Organization until all the material involved and supporting facts are submitted to and approved by the factory.

In a difference of opinion regarding a Service Organization's decision, their terms should be accepted and, either through them or direct, have all materials and supporting facts submitted to the factory for review.

Genuine Briggs & Stratton service will assure continuous engine satisfaction. Our long experience in engine maintenance prompts us to urge that all service work be done by an Authorized Service Organization or at our factory. Mechanics unfamiliar with Briggs & Stratton products, or without proper tools, should not be permitted to make major repairs.

Parts and repair work are F. O. B. Factory or any Authorized Briggs & Stratton Service Distributor, or Engine Service Station. The Service Distributor nearest you (see back cover page) will be glad to give you the name of our Engine Service Station in your locality. Space does not permit listing here.

BRIGGS & STRATTON ENGINE WARRANTY

BE SURE TO FILL IN AND MAIL WARRANTY REGISTRATION CARD WHICH ACCOMPANIED ENGINE AT TIME OF PURCHASE

THE WARRANTY — For Ninety Days from purchase date, Briggs & Stratton Corp. will replace for the original purchaser, FREE OF CHARGE, any part or parts found, upon examination at any Factory Authorized Service Distributor or at our factory at Milwaukee, Wisconsin, to be defective under normal use and service, on account of defects in material or workmanship.

All transportation charges on part or parts submitted for replacement under the warranty must be borne by purchaser.

WHAT THIS WARRANTY DOES NOT INCLUDE — This warranty does not cover the free replacement of parts inoperative because of wear occasioned by use. It does not cover the labor cost of replacing parts, neither is it effective if the engine has been the subject of misuse, negligence, or accident, nor if it has been repaired or altered, outside of our Milwaukee Factory or any factory-approved service station, in any way which, in our judgment, affects its condition or operation.

WARRANTY INSTRUCTIONS

When sending an engine, or engine parts, to a Briggs & Stratton Service Organization for service, at the same time always send by mail the following information:

Model Letter (or Number), Type Number, and Serial Number of the engine. (Take from metal plate on engine.)

Date purchased.

Kind of equipment engine is used on.

Name or trademark of manufacturer.

Name and address of dealer from whom purchased.

Approximate number of hours engine has run since equipment was bought.

Also, give complete report of trouble experienced and special servicing instructions.

The above information is necessary to insure prompt and proper service.