IMPORTANT
ALWAYS USE
GOOD, CLEAN OIL
S. A. E. No. 20
For Temperatures Below 32° F.
Use S. A. E. No. 10W
ADD OIL FREQUENTLY
CHANGE OIL REGULARLY

Operating Instructions

Adjustment and Repair Information • Parts List

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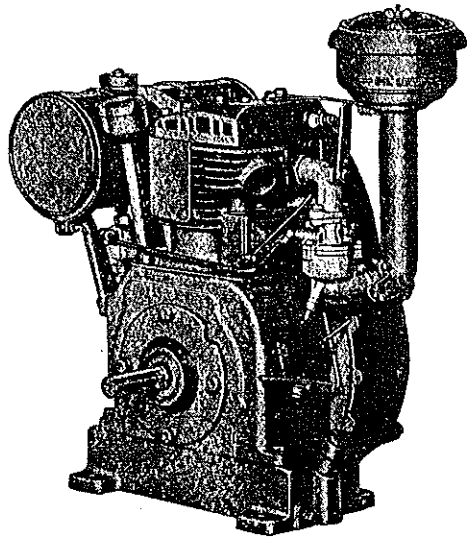
MODELS

"ZZ"—"ZZL"—"ZZLP"—"ZZP"—"ZZR"

TYPE NUMBERS FROM 304550 TO 304705



INDEX

Read these instructions carefully before operating this Motor for the first time.

Guessing how to run it may cause you unnecessary inconvenience, aggravation or failure to receive the fine service that is built into it.

There is a right way to operate this Motor. This book tells you how.

Each Motor is carefully tested and adjusted at the factory before packing for shipment, and if correctly operated will perform beyond your expectations.

DO NOT START THIS MOTOR UNTIL YOU HAVE READ CAREFULLY THE "STARTING AND OPERATING INSTRUCTIONS" ON PAGE 3

4 CYCLE
BRIGGS & STRATTON
GASOLINE MOTOR

IMPORTANT SAFETY INFORMATION AND INSTRUCTIONS FOR

ENGINE SELECTION
ENGINE INSTALLATION
ENGINE OPERATION

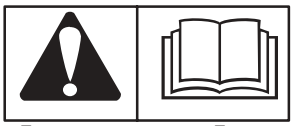
Keep these instructions for future reference.

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.

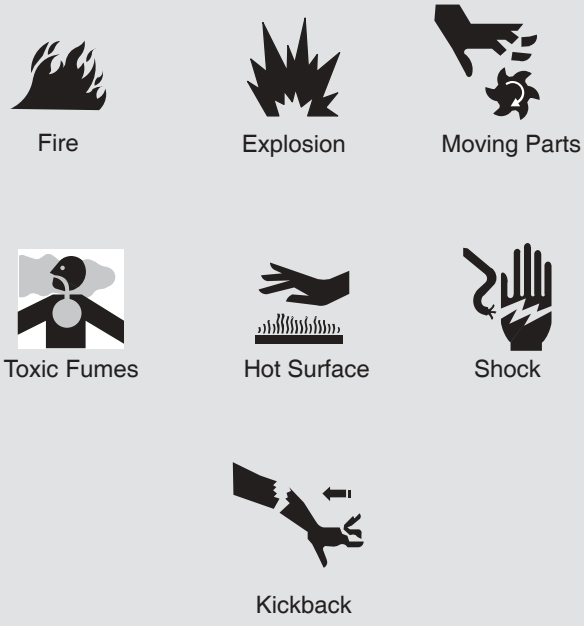
⚠ **DANGER** indicates a hazard which, if not avoided, **will result in death or serious injury.**

⚠ **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

WARNING

Failure to select the correct engine could result in fire or explosion.

- 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] **WARNING**

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] **WARNING**

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

[6] **WARNING**

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] **WARNING**

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] **WARNING**

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] **WARNING**

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

[11] **WARNING**

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

ENGINE OPERATION

WARNING

When adding fuel:

Turn engine off and let engine cool at least 2 minutes before removing gas cap.

Fill fuel tank outdoors or in well-ventilated area. Fill tank to about 1 inch below lowest portion of neck to allow for fuel expansion.

Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.

WARNING

When starting engine:

Remove all external equipment/engine loads.

Wait until spilled fuel is evaporated. Start engine outdoors.

Pull cord slowly until resistance is felt, then pull rapidly.

If engine floods, set choke to OPEN/RUN, place throttle in FAST and crank until engine starts.

WARNING

When operating equipment:

Do not tip engine or equipment at angle which causes gasoline to spill.

Run engine outdoors. Do not run in enclosed area, even if doors or windows are open.

Do not choke carburetor to stop engine.


4
CYCLE
BRIGGS & STRATTON
GASOLINE
MOTOR

Starting and Operating Instructions

1. **BEFORE STARTING THE MOTOR.** Fill the crankcase with Mobiloil Arctic or any other high grade oil not heavier than **S. A. E. No. 20** for operating motor in temperatures of 32° F. or above. For temperatures below 32° use Mobiloil No. 10W or other high grade oil not heavier than **S. A. E. No. 10W.**

The oil filler plug is painted blue and is located on top of motor base. With the motor level remove filler plug and pour oil in opening until it rises to the level of the filler plug opening. Crankcase holds 4½ pints. Fill air cleaner with oil of the same viscosity as used in the crankcase to the indicated oil level. See paragraph 62. Fill the gas tank with a good clean regular gasoline. Tank holds five quarts. Do not mix oil and gasoline. See paragraphs 11 to 19.

2. **HOW TO START.** Open gasoline shut-off valve in gas filter or gasoline tank. Completely close carburetor choke valve by moving choke lever in a clockwise direction.

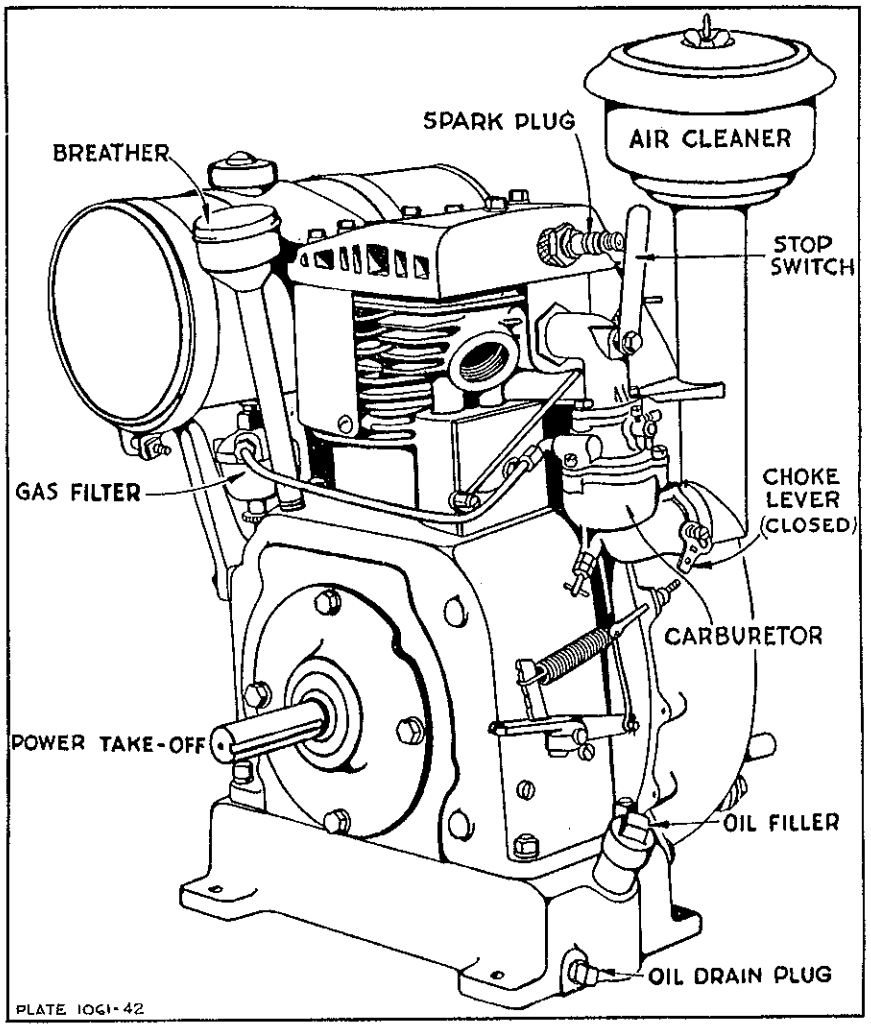
A. HAND CRANK STARTER TYPE. Pull out the compression release rod as far as it will come. Press the starter shaft in, to mesh gear with pinion on crankshaft. Crank rapidly and as soon as enough momentum is gained let go of the compression release rod. After motor starts gradually open the choke valve by moving choke lever in a **counter** clockwise direction until motor runs smoothly with choke valve wide open. (A warm motor does not require as much choking as a cold motor.)

B. ROPE STARTER TYPE. Slip the knotted end of the starter rope into the notch of the starter pulley and wind the rope around it. Pull the rope with a quick steady pull to spin and start the motor. Operate choke as explained under 2 A.

3. **FAILURE OF MOTOR TO START.** If motor fails to start after a reasonable number of trials do not make any adjustments until you have studied the instructions referred to in the **Servicing Reference Chart,** on page 4.

4. **HOW TO STOP.** Press the stop switch mounted on the intake elbow against the end of the spark plug. Hold it until motor stops firing. This will ground the spark.

Plate No. 1



Servicing Reference Chart

MOTOR FAILS TO START

	Paragraph
Out of Gasoline	1-16
Out of Oil	1-13-59-60
Dirt or Gum in Fuel System	16 to 19
Incorrect Use of Choke	20
Carburetor Out of Adjustment	22 to 26
Spark Plug Dirty	32-33
Ignition Cable Grounded	34
Magneto	35 to 46
Poor Compression	47 to 56
Air Cleaner Clogged	62

MOTOR STOPS

Out of Gasoline	1-16
Out of Oil	1-13-59-60
Dirt or Gum in Fuel System	16 to 19
Motor Overheated	13-59-60-61-62-63-64
Air Cleaner Clogged	62
Motor Overloaded	64

MOTOR OVERHEATS

	Paragraph
Out of Oil	1-13-59-60
Oil Needs Changing	14-15
Oil Too Heavy	14-15
Carburetor Out of Adjustment	22 to 26
Poor Spark	31 to 46
Carbon	61
Muffler Clogged	63
Overloaded	64

MOTOR LACKS POWER

Lack of Oil	1-13-59-60
Add or Change Oil	13 to 15
Carburetor Out of Adjustment	22 to 26
Motor Not Up to Speed	22 to 30
Poor Spark	31 to 46
Poor Compression	47 to 56
Carbon	61
Air Cleaner Clogged	62
Muffler Clogged	63
Overloaded	64

Instructions for Adjustment and Repair

5. GENERAL DATA. You will find your Briggs & Stratton motor 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.

6. Your motor will give you better service if you do not tinker with it. This does not mean, however, that it does not require a certain amount of attention. Give it the right kind of fuel, oil and care. Keep it clean both inside and out. You will be well repaid in trouble-free, satisfactory service.

7. If you should experience any difficulty, follow the instructions referred to in the **Servicing Reference Chart** above. If you cannot easily remedy it, consult your dealer, or a nearby Briggs & Stratton Authorized Central Service Distributor. See page 22.

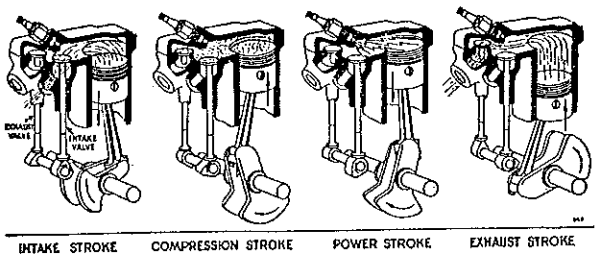
8. OPERATING REQUIREMENTS. A gasoline motor to operate properly must have all parts in correct adjustment to provide good ignition, carburetion, compression and cooling. And of equal importance, the oil and gasoline used must be clean and of recommended grades. The following instructions fully explain the simple adjustments and offer operating recommendations that will assure you of complete satisfaction. We urge you to carefully observe them.

9. The reliability, economy and ease of starting which characterize this motor are due in part to the fact that it is of the 4-stroke

cycle design commonly called "4-cycle," the same design used in all automotive motors. As the name indicates, there are four strokes to one complete power cycle.

10. HOW A 4-CYCLE MOTOR OPERATES. On the **intake stroke** the piston goes down, producing a vacuum in the cylinder, thereby drawing fuel up through the carburetor so that the space above the piston becomes filled with combustible gas. During this stroke the intake valve is open. Next the piston comes up on the **compression stroke** with both valves closed. At the top of the compression stroke a spark occurs at the spark plug, firing the highly compressed gas. This produces an explosion above the piston which forces it down on the **power stroke.** Both valves are closed. On the next upstroke of the piston, called the **exhaust stroke,** the exhaust valve is open, and the burned gases driven out. See plate No. 2.

The 4-Stroke Cycle
Plate No. 2



11. KEEP THE MOTOR CLEAN. It will pay you to keep your motor clean both inside and outside. See that no dirt or water enters motor when filling with oil or gasoline. As a precautionary measure always wipe off the gasoline cap and oil filler plug, as well as around them before refilling. Dirt in the motor or gasoline tank will cause trouble and even serious damage. Also be sure to remove any dirt or grass that may accumulate in the flywheel housing or between cylinder fins.

12. **USE THE RIGHT KIND OF OIL.** Correct lubrication is important. We recommend the use of Mobiloil "Arctic" **S. A. E. No. 20** for operating this motor in temperatures of 32° F. or above. For temperatures below 32° F. use Mobiloil No. 10W or other high grade oil not heavier than **S. A. E. No. 10.**

A heavier oil which might be satisfactory in a tractor or for lubricating farm machinery must NOT be used. Do not mix oil with the gasoline. This 4-cycle motor is provided with an independent efficient pump lubrication system which forces a stream of oil to all moving parts of the motor. There are no external parts which require separate oiling.

13. ADD OIL REGULARLY. A motor which is run without oil will be ruined within a few minutes. To avoid the possibility of such an occurrence and the resulting expense, always fill the oil reservoir at the blue plug to the top of the filler plug opening after each five hours of motor operation. Capacity of oil reservoir is 4½ pints.

14. CHANGE OIL FREQUENTLY. After every twenty-five hours of motor operation, the oil should be completely drained from the crankcase. Do not remove motor from its mounting base. Remove the yellow oil drain plug, located at either end of motor base, and let the oil flow into a pan or other receptacle you use. We do not recommend flushing out with kerosene. Replace the drain plug, refill with fresh oil and replace the blue filler plug.

15. In the normal running of any motor, small particles of metal from the cylinder walls, pistons and bearings will gradually work into the oil. Dust particles from the air also get into the oil. If the oil is not changed regularly these foreign particles cause increased friction and a grinding action which shortens the life of the motor. Sludge, a gummy mass, forms which clogs up the oil passages. Fresh oil also assists in cooling, for old oil gradually becomes thick and loses its cooling as well as its lubricating qualities.

16. USE CLEAN GASOLINE. A good grade of **clean, fresh** gasoline is recommended. Too high test gasoline may form vapor-lock in gas line when motor gets hot. This interrupts the flow of gasoline and causes motor to stop. Be sure that the small vent hole in the gasoline tank cap is not clogged up, for air must enter the tank to allow the gasoline to flow to the carburetor. Test by blowing through top of cap. See paragraph 18.

17. **AVOID GUMMY GASOLINE.** If you experience trouble with a gummy, sticky substance with a peculiar sharp obnoxious smell, change to another grade of gasoline. This gum comes from the gasoline and clogs carburetor, gas line, gasoline tank, etc. You can check your gasoline by evaporating a half pint in an open dish. If a quantity of gum remains, try another kind that is clean and fresh.

18. YOU CAN AVOID MOST TROUBLE FROM GUM IF YOU WILL KEEP THE TANK FULL WHEN YOU ARE NOT USING THE MOTOR. If you use it only occasionally, drain tank completely and refill when motor is used again. The reason for this is that evaporation of stale gasoline causes most gum deposits.

19. TO CLEAN THE FUEL LINES. Disconnect the gasoline line at the carburetor and also at the gas filter. Blow through the gas line to clear it. To clean the gas filter, first close the shut-off valve and loosen thumb screw. Remove and clean glass bowl, gasket and screen. Open shut-off valve to see if gasoline flows freely from the tank. IMPORTANT: If you find a gummy varnish-like substance, alcohol or acetone will dissolve it. See paragraphs 17 and 18.

20. CORRECT USE OF THE CHOKE. The correct carburetor setting (see paragraph 23) gives the motor the best mixture to run on when it is hot. For starting, it is necessary to choke the carburetor to get a rich mixture, because cold gasoline does not vaporize readily. A warm or hot motor requires very little choking. Until you become familiar with your motor, however, you may make the mistake of not choking the carburetor enough or you may choke it too much. If motor fails to start after cranking three or four times with the choke closed, try cranking two or three times with the choke partly closed and then all the way open. Use motor choke the same as you use an automobile choke.

21. TO PRIME THE MOTOR. The motor may fail to start for the reason that either the carburetor is incorrectly adjusted or dirty, or the fuel line is dirty or clogged, or you are out of gasoline. To determine the cause, prime the motor by removing the spark plug and pour a half teaspoonful of gasoline into the spark plug opening. Replace the spark plug and crank the motor. If it fires for three or four revolutions and stops, the difficulty is definitely in the fuel system. See paragraphs 19, 22 to 26. If motor will not fire at all, check the ignition system, see paragraphs 31 to 46, also compression, paragraphs 47 to 56.

22. TO ADJUST THE CARBURETOR. The carburetor on this motor is of the gravity type. The gasoline supply is regulated by a needle valve. The throttle is automatically controlled by the governor, see paragraphs 27 to 30.

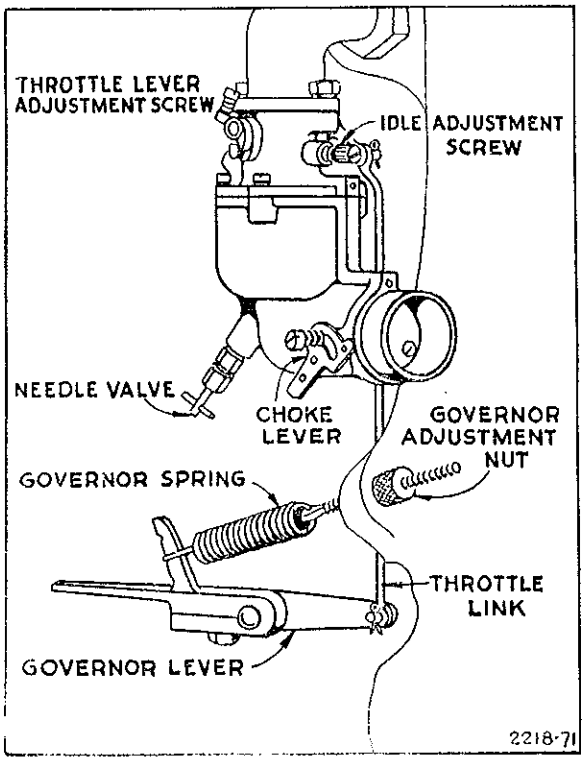
23. To adjust the carburetor, completely close needle valve by turning to right or clockwise as far as possible. Do not screw up too tight or use force when closing needle valve, or needle valve may be damaged. From closed position, open needle valve one

to one and one-quarter turns. After the motor has been started and warmed up make final adjustment with the choke wide open by turning the needle valve to the point at which motor operates most smoothly with full load. This setting will also take care of starting with use of the choke. When starting cold motor, if it is necessary to keep choke partially closed several minutes before motor runs smoothly, carburetor setting is too lean and needle valve should be opened a notch or two — turn to left. For governor adjustments see paragraphs 27 to 30. The idle adjustment screw setting is about a half to three-quarters of a turn open. Do not force screw against seat or you will damage both.

24. The throttle lever adjustment screw is set at the factory to permit an idling speed of about 1200 R. P. M. We do not recommend adjusting the throttle to bring the speed lower. If you want to idle the motor at a higher speed than 1200 R. P. M. turn the throttle lever adjusting screw to the right or in a clockwise direction.

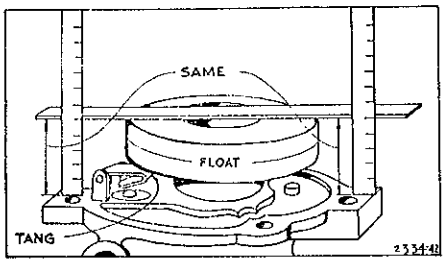
25. TO REMOVE AND REPLACE CARBURETOR. Disconnect gasoline line from carburetor and gasoline shut-off valve. Remove two cap screws and lockwashers from the intake elbow. Then remove the cotter pin from the throttle shaft lever and slip the throttle link off. To replace, reverse the operations as performed above. Use a new cotter pin if necessary.

Carburetor and Governor Hook-Up
Plate No. 3



26. TO CLEAN CARBURETOR. Remove it from the motor as explained in the previous paragraph. Remove gas line connector elbow. To disassemble carburetor, FIRST remove needle valve, stuffing box nut, packing nut gland and nozzle. Then remove screws and lockwashers from the upper carburetor body. CAUTION: The upper and lower bodies are interlocked by the nozzle and failure to disassemble in above order will result in damaged parts. To check inlet valve and seat, pull out brass pin holding carburetor float. A worn or dirty inlet valve and seat or incorrect float level will cause carburetor to leak. In reassembling, float should be in a horizontal position when it closes inlet valve and seat. To check float, invert upper carburetor body and place a scale or a flat, straight piece of steel across carburetor float and see that distance from top of float to carburetor body flange is equal at both sides of float. See plate No. 3A. The float hinge tang can be bent to attain proper position of float. If any parts are gummy, clean them in alcohol or acetone. Blow through all passages and openings. Do not use wire to clean out small holes. Replace worn or damaged parts.

Carburetor Float Position
Plate No. 3A



27. GOVERNOR—CORRECT MOTOR SPEED. The speed of your motor is automatically maintained under varying loads by a centrifugal governor. It is operated from the cam gear.

28. The governor was carefully adjusted at the factory to maintain normal speed under load. Do not re-adjust unless absolutely necessary. It can be changed by reducing or increasing the tension of the governor spring. Turn governor adjustment nut to the right or clockwise to increase motor speed. To left or anti-clockwise to reduce motor speed. Recommended motor speed: 2200 to 3200 R.P.M.

29. RESETTING GOVERNOR LEVER. If the governor lever has been loosened or removed from the governor shaft, it is easily reset. With the carburetor attached to motor and hooked up to governor lever with throttle link, loosen screw holding governor lever on the shaft. Push the governor lever toward the left as far as it will go. Hold it in this position and turn the governor shaft to the right with pliers until it strikes a stop in the crankcase. Tighten screw that holds governor lever to shaft until the lever is snug. Push governor lever to the right as far as it will go and tighten screw securely.

30. Some motors are equipped with manual or remote carburetor controls as shown in plate Nos. 4, 5, 6, and 7. In plate Nos. 4 and 5 are shown remote idling devices. To idle motors with these devices, move control lever away from boss on control lever base. To operate motor at governed speed, return lever to boss on the control lever base. Device in plate No. 6 is a remote governor control. To increase motor speed, move control lever away from boss on the control lever base. This adds tension to the throttle spring, allowing carburetor throttle to open wider. To reduce motor speed, return the control lever toward boss on the control lever base. Some models have a hand idling device as shown in plate No. 7. This eliminates changing governor hook-up on motors not equipped with a remote control. To idle motor, lower the idling adjustment lever. Raise the lever to bring motor back to normal running speed.

31. 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. This is a simple self-contained system which is very reliable. It also does away with batteries. The ignition current is sent into the motor 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.

32. TO CHECK FOR SPARK. To prove that a satisfactory spark is being delivered by the magneto, remove the ignition cable from

Manual and Remote Carburetor Controls

Plate No. 4

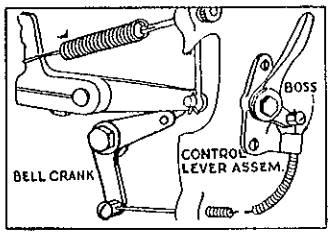


Plate No. 5

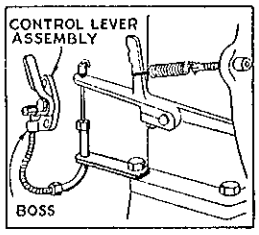


Plate No. 6

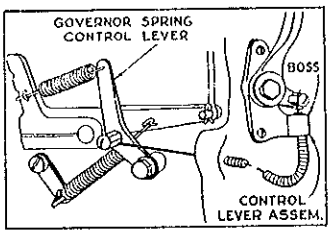
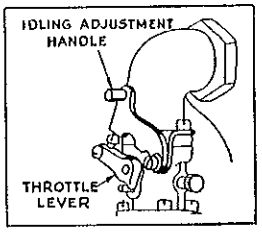
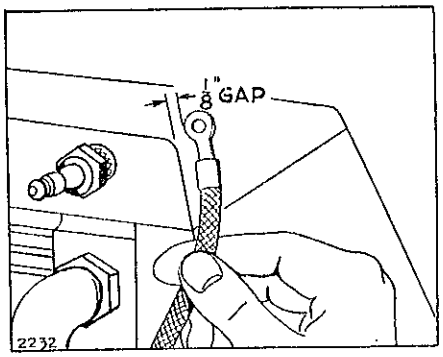


Plate No. 7

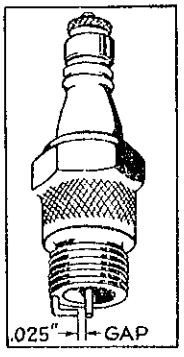


the plug. Hold ignition cable terminal about ⅛" from any metal part of the cylinder head (keep hand on insulated part of the cable to avoid a shock). Turn motor with starter, and if the spark jumps this gap the entire ignition system, with the exception of the spark plug, is O. K. See plate No. 8. (To check spark plug see paragraph 33.) If no spark, check cable, see paragraph 34, and refer to magneto adjustments paragraphs 35 to 46.

Checking Spark
Plate No. 8



Spark Plug
Plate No. 9



33. SPARK PLUG ADJUSTMENT. Spark plugs should be cleaned and points reset to .025" after each 100 hours of operation. See plate No. 9. Points burn away in service. The porcelain is to prevent the spark from jumping anywhere except at the gap, and if cracked or broken it will prevent the plug firing. Water on the outside of the spark plug may permit the high voltage current to leak over the surface of the porcelain. Dirt or carbon on it will do the same thing. The spark plug can be cleaned by washing off the carbon with gasoline or kitchen scouring powder. Points should be scraped or sand-papered. See plate No. 9. Always keep a new plug on hand. We recommend the use of Champion No. 8 Commercial (18mm) spark plug or its exact equivalent. For heavy continuous service, use Champion No. 5 Commercial or exact equivalent. When inserting plug place a little graphite grease on the threads.

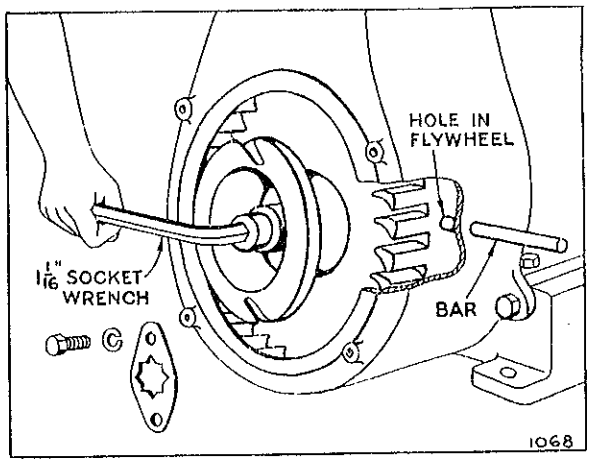
34. IGNITION CABLE. Insulation must not be broken, or soaked with oil or water, or grounded in any way where it touches the motor, or it will interfere with good ignition. Spark plug cable should be fastened to the secondary terminal (small brass plate coming out of the coil). Avoid touching coil with hot soldering iron. See plate No. 14.

35. TO REMOVE AND REPLACE FLYWHEEL. The flywheel is securely mounted to the crankshaft by means of a taper fit, a soft key, right hand threaded nut, and a nut lock on rope starter motors, or a pinion gear and lock on crank starter motors. See paragraph 38.

A. ROPE STARTER MOTORS. Remove the two cap screws that hold the nut lock and starter pulley in place. Place a rod or punch into the ⅜" hole which is in the blower housing at the gas tank side. Then turn the flywheel slowly until the rod or punch enters the corresponding hole in the flywheel. This will hold the flywheel rigid and prevent its turning as you loosen nut. Use a 1 1/16" socket wrench with a "T" or "L" handle. To start nut, tap end of wrench handle with hammer. Remove nut and blower housing, loosen flywheel with the flywheel puller No. 29020 furnished with the motor.

B. CRANK STARTER MOTORS. Remove compression release rod, starter gear and bracket, starter pinion lock, and starter pinion. All other operations are the same as in paragraph 35-A.

Removing Flywheel
Plate No. 10



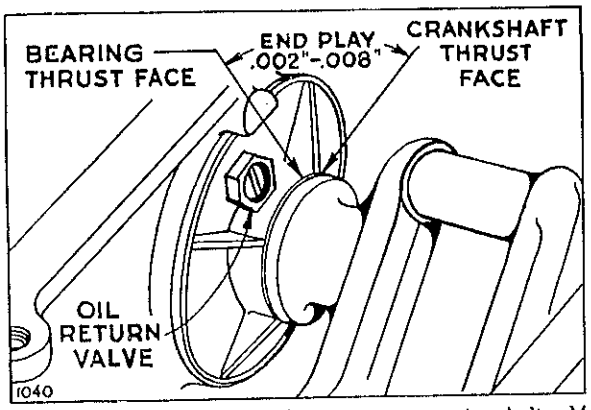
36. TO REASSEMBLE THE FLYWHEEL reverse the operations in preceding paragraphs, put a very thin coat of cup grease on the crankshaft taper and see that flywheel key is in place. Apply grease to starter gears.

37. TO REMOVE AND REPLACE MAGNETO ASSEMBLY. After removing flywheel as explained in paragraph 35, detach the ignition cable from the spark plug and remove the back plate, flywheel key, contact point dust cover and the four magneto mounting screws. Turn the crankshaft so that the contact plunger holds the contact points open and then remove magneto assembly. To replace, reverse the operations and use the old gasket between the plate and crankcase, or, if damaged, a new gasket. See part 66457, 66527, or 66537 for proper thickness to get correct end play of .002" to .008" between magneto bearing and crankshaft thrust faces, as shown in plate No. 11. Use lockwashers under mounting screws.

38. MAGNETO TIMING. The magneto assembly is always correctly timed with the motor when the flywheel is assembled to the tapered crankshaft with a key and securely held in place with right hand threaded nut. Do not attempt to change the timing by relocating any parts or filing crankshaft timing flat. Always use soft key part No. 66403. If steel key is used and flywheel becomes loose it will damage the keyway in the crankshaft.

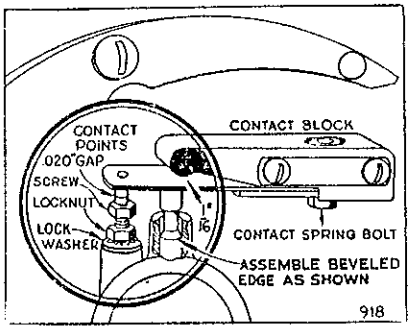
39. TO ADJUST AND CLEAN CONTACT POINTS. While magneto plate is on motor crankcase, turn crankshaft by hand to see if contact points open and close properly. Points must be clean and line up squarely to make good electrical contact. Do not use a steel file on contact points — use a carborundum contact point file.

Correct End Play
Plate No. 11



40. To line up contact points loosen contact spring bolt. Move contact spring assembly to line up with contact screw point. Tighten contact spring bolt. To adjust contact spring tension, turn crankshaft until points are in open position, then place 1/8" gauge between contact spring and round end of contact block, and tighten contact block screws. Turn contact screw to secure .020" gap and tighten locknut against lockwasher. See plate No. 12. If either or both points become badly pitted or burned, replace both points, part Nos. 63238 and 69754.

Magneto Contact Points
Plate No. 12



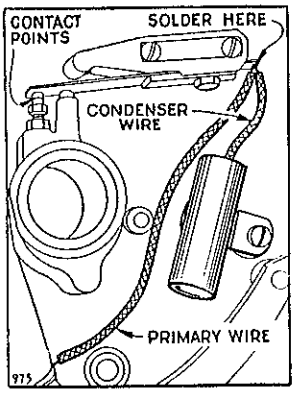
41. TO REPLACE CONDENSER. A leaky or weak condenser may cause the motor to start hard, to sputter, or misfire under load. If motor misfires after checking gasoline line, carburetor, spark plug, cable and contact points, install a new condenser. Slip the short insulator sleeve over the condenser wire. Solder the end of condenser wire and primary wire to contact spring. (See plate No. 13.)

42. If after new condenser has been installed the ignition system still does not deliver a satisfactory spark, we recommend sending the complete magneto unit including the flywheel to the nearest Briggs & Stratton Central Service Distributor listed on page 22 for proper adjustment.

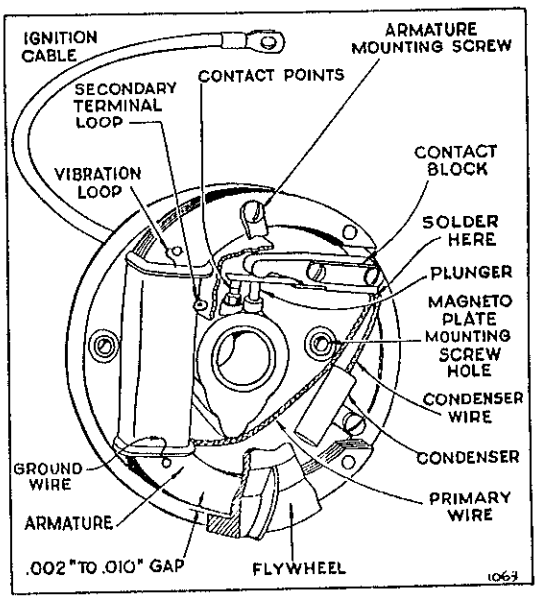
43. TO REPLACE ARMATURE. Remove armature lead wire from contact spring, and high tension ignition cable from secondary terminal loop in the armature. Both wires are soldered. Save as much of the hydrolene as possible so that you can insulate high tension terminal when you assemble new armature. Do not use battery compound or tar as it will melt and run over the entire magneto assembly. Unscrew two armature mounting screws and pry armature loose with screw driver.

44. To install armature, place dust cover clip under upper mounting screw, tighten lower mounting screw. Then solder ignition cable to the terminal and fill pocket, formed with flap, with hydrolene. Solder armature lead wire to contact spring. Replace dust cover and the clip holding cover in place, tighten upper armature mounting screw. See plate No. 14.

Condenser Installation
Plate No. 13



Complete Magneto Assembly
Plate No. 14



45. Air gap of .002" to .010" must be maintained between armature shoes and flywheel poles. Gap must only be sufficient to prevent rubbing but not over .010" or poor ignition will result.

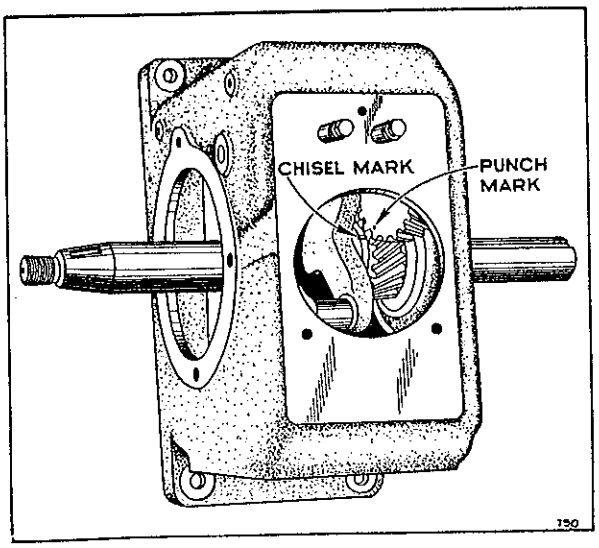
46. To check armature shoes for rub, chalk edges and mount flywheel in place. Remove spark plug to release compression. Turn flywheel several revolutions by hand. Remove flywheel and examine edges of armature shoes. High spots will have the chalk rubbed off. File high spots carefully with a fine file until flywheel no longer rubs, but do not remove too much metal.

47. CYLINDER HEAD. The cylinder head is held on with seven cap screws. When the cylinder head has been removed for the purpose of cleaning carbon or grinding valves, care should be used in replacing it. Use a new gasket if possible. Otherwise, clean the old one and coat both sides with cup grease. We do not recommend the use of shellac on cylinder head gaskets. Tighten each cap screw a little at a time so that the cylinder head is pulled down evenly. Screws need be only moderately tight.

48. COMPRESSION. Proper compression is obtained when valves seat properly, gaskets do not leak, and piston and rings are properly fitted. When tuning up a motor, it is always well to check compression. This is done by turning the motor over quickly by hand. If turned slowly sticky valves may not be detected. If

a point of resistance is offered every other revolution, compression should be satisfactory. If motor turns over without compression resistance for a full cycle, it is possible that a worn piston or piston rings, leaky valves or leaky gaskets are present. See that spark plug has a gasket under it and is drawn up tight. Also check cylinder head gasket and tighten cylinder head bolts.

Valve Timing — Plate No. 15



49. VALVE ADJUSTMENT. To check valve clearance, remove carburetor, paragraph 25, and valve cover plate on cylinder back of carburetor. The correct clearance on the exhaust valve is .020" and on the intake valve .020" when motor is cold. Tappet clearance is adjusted by loosening tappet locknut and turning tappet screw to desired position. Securely tighten the tappet locknut after adjusting valve clearance.

50. To remove valves, remove cylinder head, and if not dismantled, drain oil from crankcase. Invert cylinder. Compress the spring with valve spring compressor No. 69189-T3, and with the end of a screw driver push out the split collars, and release spring compressor. Tilt cylinder back far enough to allow valve to drop, permitting its stem to clear the spring. Pry spring out with end of screw driver.

51. To replace valves and valve springs, compress spring in valve spring compressor. Turn tool to inverted position with collar retainer washer on top. Drop each part of the split collar in place in retainer washer one at a time. When first half of split collar is placed in retainer washer, push it around to the back of valve stem to allow easy placing of second half. Special valve spring compressor tool part No. 69189-T3 is available at $1.25 net.

52. To reseat valves, grind in the same manner as automobile valves. If valves stick they may be coated with gum or carbon. To remove gum use alcohol or acetone. Clean valve stems thoroughly with wire brush or emery cloth. Also scrape all carbon from valve ports.

53. The timing of the valves is taken care of by the meshing of the cam shaft gear with the gear on the crankshaft. These gears are properly meshed when the mark on the cam shaft gear is in line with the mark on the crankshaft collar. See plate No. 15.

54. PISTON. The piston in this motor is made of a special aluminum alloy which is very light in weight. The standard clearance between the piston skirt and cylinder wall is .007" to .0085". The clearance is to compensate for the considerable expansion of aluminum when hot. The top and second lands of the piston are smaller than the skirt to allow for greater expansion at the piston head. When piston is removed be sure to thoroughly clean carbon from head of piston and ring grooves. If piston is out of round or scored it should be replaced.

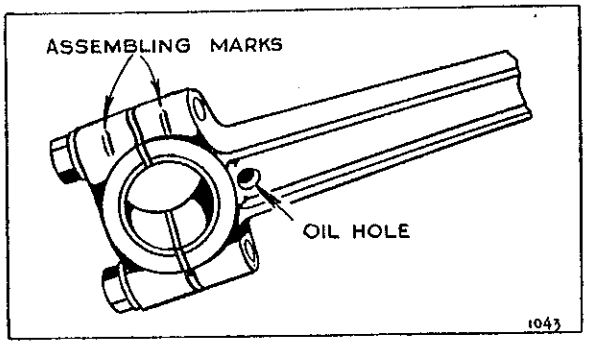
55. If an oversize piston is necessary, we recommend that reboring of cylinder be done by an Authorized Central Service Distributor or the factory. See page 22.

56. PISTON RINGS. The piston rings when fitted in the cylinder should have a gap of .007" to .015". The ring 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.

57. PISTON PIN. The piston pin is a free fit in one side of the piston and a tight fit in the other. To remove this pin without special equipment, it is advisable to heat the piston in boiling water which causes the aluminum alloy to expand. Cut a wooden pin a little smaller than the size of the piston pin and use this and a hammer to drive the pin out. Drive the pin out through the free fit hole. This hole is toward the magneto side and is indicated with an "X" on the pin hole boss. You should, of course, drive the pin out while the piston is still hot. To easily replace the pin the piston should be heated. On later model motors the piston pin is a slip fit in the piston. To remove it from the piston, first remove lock rings, then slip pin out of piston.

58. CONNECTING ROD. The connecting rod is also made of a special aluminum alloy which combines strength with light weight. When assembling connecting rod to crankshaft, the oil hole in the lower bearing must be toward the magneto side: See plate No. 16. The assembly marks on cap and rod must be on the same side.

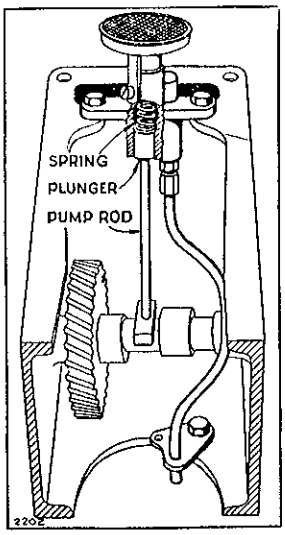
Connecting Rod — Plate No. 16



59. OIL PUMP. The oil pump is assembled to the crankcase with two bolts and lockwashers and is operated from an eccentric on the cam gear. An inoperative pump will result in insufficient lubrication which may score cylinder and piston assembly. To check oil pump, remove base and the two bolts that hold pump in place. Place the pump in a pan of oil about ½" deep. Work plunger up and down. A stream of oil will be forced out of the hole in the oil tube or pump plunger if the pump is in good operating condition. If clogged, remove plunger and plunger-spring and submerge the parts in gasoline or kerosene for three or four hours to loosen accumulated sludge or gum. If the pump is still inoperative, it should be replaced. In assembling, be sure that spring and plunger are in place as shown in plate No. 17.

60. OIL LEAKS. If oil leaks from either end of crankshaft bearings, remove base from motor. Oil return valves are screwed into crankcase and magneto back plate below the main bearings. Remove oil return valve and clean or flush with gasoline and blow out any dirt lodged under the small disc. Replace if necessary. See plate No. 11.

Oil Pump — Plate No. 17



61. CARBON. Excessive carbon is caused by improper grade of oil — too much oil usually the result of piston rings not seating properly or sticking — carburetor set too rich — or long service. An unusual amount of carbon is noticeable by motor knocking or loss of power. Occasionally remove carbon from valves, valve ports, piston head, piston rings and piston grooves, cylinder head and top of cylinder bore.

62. AIR CLEANER. The air cleaner is to protect the motor from dust and dirt. No motor can stand up under the grinding action that takes place when dust and dirt particles are drawn into the motor through the carburetor. Air cleaners should be cleaned occasionally as follows:

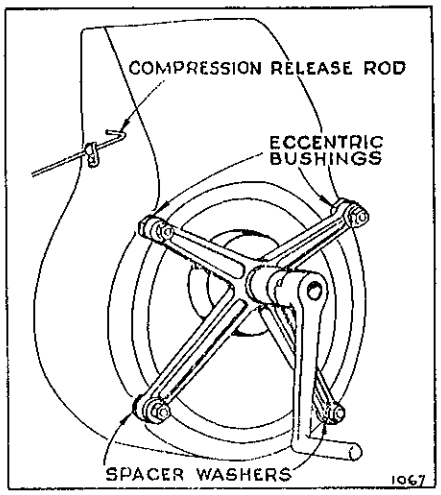
Wash the outside of the filter element with a rag or brush dipped in gasoline or kerosene. **Do not submerge.** Then clean bowl by submerging in gasoline or kerosene. Fill cleaner with oil of the same viscosity as used in crankcase up to the level marked on cleaner bowl. See Instructions on air cleaner label.

63. MUFFLER. After long periods of service it is possible that the muffler will become clogged to the point where it will affect the motor's power. To check the muffler unscrew it from the motor and run water into the open end of the muffler. If full streams of water come out of the small holes at the end of the muffler, you will know that it is not clogged up. If the water runs through very slowly, however, the muffler is probably clogged and should be replaced.

64. OVERLOAD. Always be sure that the machine the motor is operating is well lubricated and running freely. If it is not, it may cause the motor to become overloaded, resulting in it overheating, losing power, or even stopping entirely.

65. CRANK STARTER ASSEMBLY. The crank starter assembly shown in plate No. 18 is mounted on the blower housing on four studs and held in place by plain washers, lockwashers, and nuts. To mount starter assembly place two eccentric bushings on upper studs, and two plain washers on lower studs. Then place starter bracket gear and shaft assembly and four plain washers, lockwashers and nuts on studs. Press starter shaft toward motor and turn the two eccentric bushings until gears mesh with as little back lash as possible and without binding. Tighten nuts securely. Oil the crankgear shaft, through the oil cup, and grease the pinion gear teeth occasionally to reduce wear.

Plate No. 18



66. PARTS. All parts should be ordered from your dealer or the nearest Briggs & Stratton Service Distributor. See page 22.

Repair Parts

67. To assure continued satisfactory performance, do not attempt to use substitute repair parts when overhauling or repairing the Briggs & Stratton Motor. Insist that all repair parts be original Briggs & Stratton parts.

68. ALWAYS GIVE TYPE, MODEL, AND SERIAL NUMBERS. Briggs & Stratton motors are identified by a type number, model letter, and a serial number. This information is stamped on a metal plate attached to the blower housing.

69. When writing to the factory or to a Central Service Distributor for service information, or when ordering new parts, be sure to specify the type number, the model, and the serial number of the motor to be serviced. This will assure prompt and efficient service without unnecessary correspondence.

70. HOW TO MAKE OUT PARTS ORDERS. Print your name and address plainly and correctly. Do not abbreviate name of town or state. Specify on the order how shipment to you is to be made. This will assist in giving prompt and efficient service.

71. Give part number and name of parts wanted. (Do not use number cast on parts.) You will find the part numbers, names and prices on pages 11 to 17, and parts illustrations on pages 18 and 19.

72. After you have made out order, check back to see that you have followed all instructions and have accurately listed what you want.

73. Shipments will be made C. O. D. or send remittance with order to cover parts and add what you think will be sufficient for postage. Send postal or express money order, bank draft or certified check for this amount. Do not send currency in a letter, it is not safe.

TO FIND THE CORRECT NUMBER OF THE PART YOU NEED

1. Make a note of your motor TYPE NUMBER (Not the Serial Number) that appears on the metal nameplate attached to motor blower housing.
2. Refer to pages illustrating parts and locate the Master Part Number by comparing your old part with the illustrations. Assemblies include all part numbers bracketed in illustrations. All parts shown in assembly brackets on which part numbers are given can be purchased separately.
3. After the Master Part Number has been identified, refer to the following Parts Lists where these Master Part Numbers are listed in numerical order.

   The Master Part is used on all types of motors except those types listed under "Note."

4. If a "Note" appears below the Master Part Number, this means that this part is made different from the Master Part for certain types and if your type is listed under "Note," order the part referred to.
5. If two or more parts are bracketed ( ) under "Note," they are used to replace the master part on the type numbers shown.
6. If your Motor Type Number does not appear after any part number listed under "Note," order the Master Part Number.
7. When ordering parts — or writing for service information — always specify the MODEL LETTER — TYPE NUMBER — and SERIAL NUMBER of your motor.

Parts List

MODELS "ZZ"—"ZZL"—"ZZLP"—"ZZP"—"ZZR"

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
19015	Cone—Roller Bearing		6
21002	Ring—Piston, Compression, Top—.010" O.S.		1
21003	Ring—Piston, Compression, Center—.010" O.S.		1
21005	Ring—Piston, Compression, Top—.020" O.S.		1
21006	Ring—Piston, Compression, Center—.020" O.S.		1
21008	Ring—Piston, Compression, Top—.030" O.S.		1
21009	Ring—Piston, Compression, Center—.030" O.S.		1
21113	Gear—Cam	3	
	Note: **No. 21381** Gear—Cam	3	
	Used on type Nos. 304585, 304601, 304630, 304631, 304634, 304641, 304676.		
21152	Lever—Throttle		2
22134	Wrench—Starter Pinion	1	
22149	Plate—Carburetor Baffle		6
22246	Shim—Connecting Rod		1
	Note: Used on earlier models. Do not order unless your present rod requires same.		
22304	Clamp—Cable		1
	Used on engines with shielded ignition.		
22343	Adapter—Fuel Tank Bracket	1	8
22368	Washer—Control Lever		1
22372	Clamp—Control Wire Casing		1
22547	Screen—Fuel Filter (Rectangular Hole)		1
	Note: For Screen with round hole order No. 62876.		
	No. 62477 Screen—Fuel Filter		1
	Used on earlier model engines equipped with Tillotson Fuel Filter.		
22622	Strap—Air Cleaner Pipe		1
22623	Clamp—Air Cleaner Pipe		2
22714	Link—Throttle		1
22723	Shim—.003" thick		1
	Note: **No. 62309** Shim—.003" thick		1
	Used on engines before Serial No. 188865.		
22724	Shim—.010" thick		1
	Note: **No. 22010** Shim—.015" thick		1
	Used on engines before Serial No. 188865.		
22725	Washer—Control Lever		1
22781	Retainer—Oil Tube		1
22832	Strap—Air Cleaner Pipe		2
	Used on engines after Serial No. 51279.		
	Note: **No. 22623** Clamp—Pipe		2
	No. 92467 Screw—Clamp		1
	No. 92425 Nut—Sq.—¼-20		1
	Used on engines before Serial No. 51280.		
	No. 22486 Strap—Air Cleaner Pipe		2
	Used on type Nos. 304585, 304631, 304634, 304676.		

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
22834	Washer—Spacer		1
22947	Lock—Connecting Rod Screw		2
	Note: **No. 22073** Lock—Connecting Rod Screw		1
	No. 90366 Lockwasher—$\frac{5}{16}$x⅛x$\frac{1}{16}$"		1
	Used on aluminum connecting rods before Serial No. 237115.		
	No. 90366 Lockwasher—$\frac{5}{16}$x⅛x$\frac{1}{16}$"		1
	Used on steel connecting rods.		
22976	Washer—Stop Switch		1
23050	Sleeve—Bearing		2
23051	Locknut—Bearing Sleeve		2
23108	Bushing—Throttle Shaft		1
23114	Pin—Float Hinge		1
23117	Retainer—Needle Valve		1
23118	Nut—Needle Valve Packing		1
23123	Screw—Choke Lever		1
23125	Pin—Throttle Lever		1
23132	Plunger—Oil Pump		6
23136	Stud—Cylinder Mounting		1
23228	Valve—Carburetor Idle		1
23402	Locknut—Contact Screw		1
23571	Swivel—Control Lever		1
23580	Bushing—Control Lever		1
23581	Clamp—Ignition Cable		1
	Note: **No. 90081** Screw—Machine, Rd. Hd.—10-32x½"		1
	No. 90355 Nut—Hex.—10-32		1
	No. 92290 Lockwasher—No. 10x$\frac{1}{16}$x$\frac{3}{64}$"		1
	Used to mount No. 23581 Cable Clamp to Back Plate on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304688.		
23590	Bushing—Connecting Rod		3
23631	Valve—Exhaust		6
	Note: **No. 26533** Valve		6
	Used on type No. 304702.		
23632	Rod—Stop Switch Push		1
23699	Nut—Shut-off Lever Retainer		1
	Used with ⅜" dia. Shut-off Lever.		
	Note: **No. 23346** Nut—Shut-off Lever Retainer.		1
	Used with $\frac{3}{16}$" dia. Shut-off Lever.		
23736	Stud—Air Cleaner—14$\frac{3}{16}$" long		4
	No. 23550 Stud — Air Cleaner — 12¾" long		4
	No. 23636 Stud — Air Cleaner — 13½" long		4
	No. 23644 Stud — Air Cleaner — 11$\frac{15}{16}$" long		4
23779	Pin—Throttle Link		1
23791	Connector—Oil Tube		1

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
26155	Spring—Choke Lever		1
26157	Spring—Idle and Throttle Valve		1
26278	Crankshaft	10	
	Note: **No. 26063** Crankshaft. Used on type Nos. 304611, 304624.	10	
	No. 26124 Crankshaft. Used on type Nos. 304632, 304674.	10	
	No. 26145 Crankshaft. Used on type Nos. 304601, 304630.	10	
	No. 26151 Crankshaft. Used on type Nos. 304619, 304638, 304685.	10	
	No. 26202 Crankshaft. Used on type Nos. 304584, 304602, 304651.	10	
	No. 26284 Crankshaft. Used on type Nos. 304554, 304555, 304564, 304565, 304692.	10	
	No. 26285 Crankshaft. Used on type Nos. 304556, 304699.	10	
	No. 26315 Crankshaft. Used on type No. 304559.	10	
	No. 26320 Crankshaft. Used on type Nos. 304560, 304561, 304567, 304571, 304579, 304582, 304596, 304597, 304603, 304640, 304657, 304666, 304667.	10	
	No. 26347 Crankshaft. Used on type Nos. 304573, 304588.	10	
	No. 26369 Crankshaft. Used on type Nos. 304585, 304631, 304634, 304672, 304676.	10	
	No. 26376 Crankshaft. Used on type Nos. 304593, 304600, 304641, 304658, 304687.	10	
	No. 26488 Crankshaft. Used on type Nos. 304627, 304633, 304635, 304639, 304675, 304688.	10	
	No. 26507 Crankshaft. Used on type No. 304690.	10	
	No. 26555 Crankshaft. Used on type No. 304693.	10	
	No. 99644 Crankshaft. Used on type Nos. 304562, 304615.	10	
26279	Tappet—Valve		3
26413	Spring—Oil Pump		2
26483	Spring—Stop Switch Push Rod		1
27034	Gasket—Carburetor Body		1
27090	Gasket—Spark Plug		1
27145	Packing—Shut-off Lever. Used with 3/8" dia. Shut-off Lever.		1
	Note: **No. 27019** Packing—Shut-off Lever. Used with $\frac{7}{16}$" dia. Shut-off Lever.		1
29020	Puller—Flywheel	1	
29036	Clutch Assembly—Pulley	7	
29089	Crankstarter Assembly	10	
	Note: **No. 99240** Crankstarter Assembly. Used on type Nos. 304571, 304587, 304605, 304618, 304664.	10	
	No. 99631 Crankstarter Assembly. Used on type Nos. 304556, 304559, 304602, 304632, 304674.	10	
29092	Stud—Drive Clutch		1
29103	Pin—Piston—.005" O.S.		3
29131	Shield—Spark Plug		6
	Note: **No. 89720** Shield—Spark Plug. Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304685, 304688.		6
29154	Pulley with Bushing—Clutch	4	
29222	Cup—Oil (Starter Shaft)		1
29372	Switch—Stop		3
29403	Plate—Pulley Clutch	3	
29429	Lever—Governor		4
	Note: **No. 99296** Lever—Governor. Used on type Nos. 304571, 304579, 304597, 304666, 304671.		4
	No. 99448 Lever—Governor. Used on type Nos. 304585, 304631, 304634, 304676.		4
29440	Tube—Control Wire Casing		2
	Note: **No. 29207** Tube—Control Wire Casing. Used on type Nos. 304569, 304583, 304592.		2
29604	Pulley—Drive (V-Belt)	1	
29656	Armature Assembly	3	
29666	Cleaner Assembly—Air	3	
	Note: **No. 29447** Cleaner Assembly—Air. Used on engines before Serial No. 31432.	3	
	Includes: **No. 63733** Stud		2
	Includes: **No. 91674** Nut—Wing		1
29679	Cover—Air Cleaner		8
29680	Filter—Air Cleaner	1	
29681	Bowl—Air Cleaner		8
29861	Condenser		2
29897	Shaft Assembly—Drive	3	
29918	Bearing—Ball		4
46133	Spring—Spark Plug Shield		1
46277	Rivet—Tubular—$\frac{1}{8}$x$\frac{5}{16}$"		1
53029	Connector—Fuel Filler		1
61265	Ring—Pulley Clutch	1	
61292	Ring—Piston, Oil—Standard		1
61335	Ring—Piston, Oil—.010" O.S.		1
61336	Ring—Piston, Oil—.020" O.S.		1
61337	Ring—Piston, Oil—.030" O.S.		1
61371	Elbow—Air Cleaner		8
61380	Bracket—Fuel Tank	2	8
	Note: **No. 21054** Bracket—Fuel Tank. Used on type No. 304632.	2	8
	No. 61486 Bracket—Fuel Tank. Used on type Nos. 304612, 304622.	2	8
	No. 290417 Bracket—Fuel Tank. Used on type Nos. 304585, 304631, 304634.	1	10
	Includes: **No. 22659** Spacer — Tank Bracket		1
61405	Head—Cylinder	7	4
61963	Ring—Piston, Compression, Center—Standard		1
61964	Ring—Piston, Compression, Top—Standard		1
61975	Pipe—Air Cleaner (Aluminum) Replaced by No. 290175.		
61976	Elbow—Carburetor Intake		10
	Note: **No. 21199** Elbow—Carburetor Intake. Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304685, 304688.		10
62100	Stop—Contact Spring		1
62167	Lock—Flywheel Nut		2
	Note: **No. 22236** Lock—Flywheel Nut. Used on type Nos. 304585, 304631, 304634, 304676, before Serial No. 40296. After Serial No. 40296 use:		2
	No. 22450 Lock—Flywheel Nut		2
62177	Strap—Blower Housing Mounting		1
62178	Plate—Contact Block		1
62196	Switch—Stop		1
62199	Washer—Bell Crank		1
62201	Plate—Back	2	
	Note: **No. 22449** Plate—Back	2	
	No. 89712 Plate Assembly—Back. Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304688.	2	
62222	Cup—Valve Spring		1
62252	Washer—Valve Tappet		1
62254	Cup—Starter Spring		2
62309	Shim—.003" thick		1

Before ordering parts, read instructions top page 11.

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
62342	Cover—Pulley Clutch		6
62363	Lock—Starter Pinion		2
62465	Bowl—Air Cleaner		6
62466	Clamp—Air Cleaner Bowl		1
62872	Valve—Choke (Off-Center)		1
	Note: Carburetors with choke shaft in center of choke valve use:		
	No. 62932 Valve—Choke		1
62886	Washer—Bearing Retainer		1
62899	Washer—Choke Lever		1
62938	Strap—Air Cleaner Mounting		1
	Note: **No. 22306** Brace—Air Cleaner		1
	Note: **No. 90773** Screw—Cap, Hex. Hd.—¼-20x¾"		1
	Used with No. 89787 Air Cleaner Pipe on type Nos. 304585, 304631, 304634, 304676.		
62939	Strap—Air Cleaner Mounting		1
	Note: **No. 22306** Brace—Air Cleaner		1
	Note: **No. 90773** Screw—Cap, Hex. Hd.—¼-20x¾"		1
	Used with No. 89787 Air Cleaner Pipe on type Nos. 304585, 304631, 304634, 304676.		
62940	Valve—Throttle		1
63055	Key—¼" Sq. x 2⅜"		1
	Note: **No. 91540** Key—¼" Sq. Used on type No. 304563.		1
63199	Pin—Starter Shaft		1
63217	Nut—Oil Tube Connector		1
63238	Screw—Contact Point		1
63269	Washer—Pulley Clutch		1
63294	Pin—Clutch Lining		1
63334	Rod—Governor Spring		1
63335	Plunger—Governor		4
63336	Spacer—Cylinder Head		1
63337	Spacer—Cylinder Head		1
63341	Bushing—Governor Crank		2
63343	Shaft—Governor Gear		1
63355	Bushing—Bell Crank		1
63377	Connector—Fuel Pipe		1
63382	Cup—Roller Bearing		6
63383	Cup—Roller Bearing		6
63426	Locknut—Control Wire Casing		1
63445	Locknut—Intake Elbow		2
63456	Stud—Starter Bracket		1
63457	Pinion—Starter		4
63458	Bushing—Starter Bracket Mounting		1
63460	Spacer—Starter Bracket		1
63520	Nut—Governor Spring Rod		1
63523	Bushing—Pulley Clutch		1
63524	Screw—Clutch Adjusting		1
63605	Bushing—Starter Shaft		2
63609	Rod—Compression Release		2
63654	Key—Pulley Clutch		1
63657	Collar—Control Wire		1
63864	Spacer—Bearing		1
63865	Pin—Bearing		1
63899	Cup—Roller Bearing		6
64589	Tank—Fuel	4	
	Note: **No. 29119** Tank—Fuel (Two Gallon)	4	
	Used on type Nos. 304585, 304631, 304634, 304642, 304676, 304682.		
	No. 29579 Tank—Fuel (Two Gallon)	4	
	Used on type Nos. 304562, 304568, 304575, 304582, 304591, 304606, 304609, 304615, 304620, 304630, 304646, 304648, 304652, 304656, 304666, 304671, 304674, 304677, 304692.		
	No. 64479 Tank—Fuel (Two Gallon)	4	
	Used on type Nos. 304587, 304618.		
	No. 69912 Tank—Combination Fuel	4	
	Used on type Nos. 304574, 304595, 304610.		
	No. 89560 Tank—Fuel (Oval)	6	
	Used on type Nos. 304612, 304622.		
	No. 89704 Tank—Fuel	4	8
	Used on type Nos. 304627, 304633, 304635, 304675, 304688.		
	No. 99419 Tank—Fuel (Oval)	6	
	Used on type No. 304632.		
	The following parts are used to mount No. 99419 Tank to cylinder head:		
	No. 23535 Spacer (2)		2
	No. 91325 Washer (2)		1
	No. 91386 Screw—Cap, Hex. Hd.—$\frac{5}{16}$-18x2" (2)		1
65078	Block—Contact		1
65084	Washer—Valve Cover and Air Cleaner		1
65098	Lining—Pulley Clutch		4
65198	Cover—Magneto Point		1
65237	Gasket—Valve Cover		1
65247	Gasket—Engine Base		1
65414	Plunger—Magneto Point		1
65434	Gasket—Oil Filler Cap		1
	Note: **No. 65938** Gasket—Oil Filler Cap		1
	Used on type Nos. 304627, 304633, 304635, 304675.		
65616	Casing—Control Wire—72" long		8
	Note: If longer casing is needed, specify length in inches; if shorter casing is needed, order No. 65616 and cut to required length.		
65647	Gasket—Carburetor Mounting		1
65725	Insulator—Armature Lead		1
65776	Lock—Piston Pin		1
65906	Spring—Valve		2
65932	Plug—Cam Shaft		1
65942	Cover—Valve		6
66164	Washer—Stop Switch		1
66203	Shaft—Cam		5
66324	Washer—Stop Switch		1
66403	Key—Flywheel		1
66457	Gasket—Magneto Plate—.015"		1
66477	Gasket—Cylinder		1
66527	Gasket—Magneto Plate—.005"		1
66537	Gasket—Magneto Plate—.009"		1
66637	Gasket—Gear Case Cover		1
66717	Gasket—Crankcase Cover		1
66727	Gasket—Gear Case		1
66739	Rod—Oil Pump		4
67216	Spring—Clutch		1
67247	Gasket—Air Cleaner Mounting		1
67266	Wire—Control—79" long		2
	Note: If longer wire is needed, specify length in inches; if shorter wire is needed, order No. 67266 and cut to required length.		
67316	Spring—Governor		1
67632	Washer—Stop Switch		1
67666	Spring—Compression Release		1
67897	Gasket—Air Cleaner Cover		1
68156	Spring—Crankstarter		1
68247	Gasket—Gear Case Cover		1
68283	Collar—Valve Spring		1
68293	Retainer—Valve Spring Collar		1
68477	Gasket—Fuel Filter Bowl		2
68487	Bowl—Fuel Filter		6
68563	Valve—Intake		6
	Note: **No. 26533** Valve		
	Used on type No. 304702.		
68652	Wrench—Spark Plug and Filler Cap		5
	Note: **No. 89721** Wrench—Spark Plug		8
	Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675.		
68667	Washer—Fuel Inlet Valve Seat and Nozzle		1
68677	Packing—Needle Valve		1
68876	Clip—Magneto Point Cover		1

Before ordering parts, read instructions top page 11.

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
69134	Muffler	3	8
	Note: **No. 89033** Muffler. Used on type No. 304633.	6	
	No. 89954 Muffler. Used on type Nos. 304627, 304633, 304635, 304639, 304657, 304675.	6	
69298	Strap—Fuel Tank		6
	Note: **No. 89813** Strap—Fuel Tank. Used on type Nos. 304585, 304631, 304634, 304676, 304682.		6
	No. 99499 Strap—Fuel Tank. Used on type Nos. 304612, 304622, 304632.		6
69642	Rod Assembly—Connecting	1	
69689	Cap—Oil Filler		4
	Note: **No. 89910** Cap—Oil Filler. Used on type Nos. 304627, 304633, 304635, 304675, 304688.		6
	Includes: **No. 92542** Plug—Drain		2
	No. 290188 Cap Assembly—Oil Filler. Used on type No. 304699.		6
	Includes: **No. 92542** Plug—Drain		2
69691	Clutch Assembly—Pulley	7	
69696	Pulley with Bearing—Clutch	4	
69698	Plate and Ring Assembly—Clutch	4	
69737	Gasket—Cylinder Head		2
69739	Bearing—Ball	1	
69740	Seal—Oil		3
69754	Spring and Point—Contact		1
69780	Block Assembly—Contact		2
69798	Crank Assembly—Bell		2
69801	Plate—Pulley Clutch	3	
69808	Flywheel Assembly	28	
69836	Valve—Fuel Shut-off		3
69839	Gear—Governor	1	
69854	Cable—Ignition		2
	Note: **No. 69980** Cable—Ignition. Used on type Nos. 304582, 304584, 304585, 304594, 304596, 304602, 304619, 304620, 304631, 304634, 304638, 304652, 304659, 304676.		2
	No. 89727 Cable—Ignition. Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304685, 304688.		2
69858	Seal—Oil		4
69859	Cover Assembly—Gear Case	4	
69866	Cone—Roller Bearing		6
69867	Cone—Roller Bearing		6
69876	Plate Assembly—Magneto	2	
69925	Pin—Piston—Standard		3
69928	Crank—Governor		2
69932	Rope—Starter		6
69942	Case Assembly—Gear	26	
69947	Cleaner Assembly—Air	2	
69948	Body—Air Cleaner	1	8
69949	Shaft and Gear—Starter	3	
69950	Release Assembly—Compression		8
69951	Cover Assembly—Valve		6
69952	Shaft, Lever and Swivel Assembly		1
69953	Bracket—Starter Crank	3	
69961	Cap—Fuel Tank		2
	Note: **No. 29136** Cap—Fuel Tank. Used on type Nos. 304585, 304631, 304634, 304642, 304676.		2
89080	Pipe—Fuel—12½" long		4
	Note: **No. 29476** Pipe—Fuel—13⅝" long. Used on type Nos. 304612, 304622.		4
	No. 99396 Pipe—Fuel—13" long. Used on type Nos. 304585, 304631, 304632, 304634, 304642, 304676.		4
	The following fuel pipes and connections used with No. 69912 Combination Fuel Tank:		
	No. 29201 Pipe—Fuel—17" long		4
	No. 63416 Nut—Check		1
	No. 65604 Plug—Check Valve		1
	No. 69836 Valve—Fuel Shut-off (2)		1
	No. 69914 Pipe—Fuel—1⅛" long		1
	No. 69915 Tee (2)		1
	No. 99008 Pipe—Fuel—3⅞" long		1
89307	Valve—Oil Return		1
89326	Control—Governor		6
89531	Shaft and Lever—Choke (Off-Center)		1
	Note: **No. 99347** Shaft and Lever—Choke (Center Choke)		1
89609	Shield—Cylinder		6
89915	Body Assembly—Lower Carburetor	1	
89920	Carburetor Assembly (Off-Center Choke)	2	8
	Note: Carburetors on earlier model engines were equipped with choke shaft mounted in center of choke valve.		
	No. 89917 Carburetor Assembly. Used on type No. 304620.	2	8
90010	Screw—Machine, Rd. Hd.—10-32x$\frac{5}{16}$"		1
90029	Screw—Machine, Rd. Hd.—4-36x¼"		1
90074	Screw—Machine, Rd. Hd.—8-32x¾"		1
90318	Nut—Hex.—10-24		1
90337	Nut—Hex.—Brass—8-32		1
90364	Lockwasher—No. 8x$\frac{3}{64}$x$\frac{1}{32}$"		1
90366	Lockwasher—$\frac{5}{16}$x⅛x$\frac{1}{16}$"		1
90367	Lockwasher—No. 8x$\frac{5}{64}$x$\frac{1}{32}$"		1
90369	Lockwasher—⅛x$\frac{3}{64}$x$\frac{1}{32}$"		1
90576	Nut—Hex.—8-32		1
90597	Screw—Machine, Rd. Hd.—10-32x½"		1
	Note: **No. 90081** Screw—Machine, Rd. Hd.—10-32x½"		1
	No. 90355 Nut—Hex.—10-32		1
	No. 92290 Lockwasher—No. 10x$\frac{1}{16}$x$\frac{3}{64}$"		1
	Used to mount cable clamp to Back Plate on type Nos. 304627, 304633, 304688.		
	No. 91714 Screw—Machine, Rd. Hd.—10-24x½"		1
	No. 92290 Lockwasher—No. 10x$\frac{1}{16}$x$\frac{3}{64}$"		1
	Used to mount No. 22372 Casing Clamp on type No. 304573.		
90683	Lockwasher—½x$\frac{11}{64}$x⅛"		1
90689	Screw—Cap, Hex. Hd.—⅜-24x1¾"		1
90700	Screw—Cap, Hex. Hd.—¼-20x¾"		1
90746	Screw—Machine, Fill. Hd.—10-32x⅝"		1
90832	Lockwasher—¼x$\frac{3}{32}$x$\frac{5}{64}$"		1
90847	Nut—Hex.—¼-28		1
90887	Screw—Cap, Hex. Hd.—⅜-16x1¼"		1
	Note: **No. 23136** Stud		1
	No. 92292 Nut—Hex.—⅜-24. Used on engines equipped with aluminum bases.		1
90890	Screw—Valve Tappet		1
90891	Screw—Cap, Hex. Hd.—¼-20x½"		1
	Note: **No. 91195** Screw—Machine, Rd. Hd.—¼-20x⅜"		1
	Used to plug stop switch mounting hole in intake elbow on type Nos. 304562, 304568, 304575, 304609, 304612, 304613, 304615, 304622, 304623, 304666, 304696.		
90916	Screw—Machine, Rd. Hd.—¼-20x½"		1
90950	Screw—Cap, Hex. Hd.—$\frac{5}{16}$-24x¾"		1
	Note: **No. 92272** Screw—Cap, Hex. Hd.—$\frac{5}{16}$-18x¾"		1
	Used to mount oil pump to crankcase on type No. 304585.		
91028	Screw—Cap, Hex. Hd.—⅜-24x¾"		1
	Note: **No. 90686** Screw—Cap, Hex. Hd.—⅜-24x1"		1
	Used to mount cast iron starter pulley.		
	No. 90772 Screw—Cap, Hex. Hd.—⅜-16x¾"		1
	Used to mount crankcase cover on type No. 304585.		
91059	Lockwasher—No. 12x$\frac{1}{16}$x$\frac{1}{16}$"		1
91062	Screw—Cap, Hex. Hd.—¼-20x1¼"		1

Before ordering parts, read instructions top page 11.

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
91084	Plug—Pipe—⅜"		2
	Note: **No. 92542** Plug—Oil Drain		1
	Used on type Nos. 304627, 304633, 304635, 304675, 304688.		
	{**No. 92346** Elbow—90° **No. 92347** Nipple		
	Used with No. 92542 Drain Plug on type Nos. 304627, 304675, 304688.		
91122	Lockwasher—Shakeproof No. 1206		1
91162	Screw—Cylinder Head and Connecting Rod		1
	Note: **No. 90386** Screw—Connecting Rod		1
	Used on steel connecting rods.		
	{**No. 91325** Washer—$\frac{5}{16}$" **No. 91386** Screw—Cap, Hex. Hd.—$\frac{5}{16}$-18x2"		1
	Used to mount fuel tank to cylinder head on type No. 304632.		
91195	Screw—Machine, Rd. Hd.—¼-20x⅜"		1
91208	Nut—Hex.—$\frac{5}{16}$-24		1
91229	Screw—Cap, Hex. Hd.—½-20x1¼"		1
	Note: **No. 91319** Screw—Cap, Hex. Hd.—½-20x1"		1
	Used to mount Tank Bracket on type Nos. 304585, 304631, 304634.		
91237	Lockwasher—¼x$\frac{3}{32}$x$\frac{3}{64}$"		1
91248	Nut—Hex.—½-20		1
91256	Screw—Machine, Fill. Hd.—¼-20x1"		1
91270	Screw—Machine, Rd. Hd.—¼-20x1"		1
91296	Elbow—Exhaust		2
91310	Locknut—Exhaust Nipple		1
91324	Washer—¼" Std.		1
	Note: **No. 23535** Spacer		2
	Used on type No. 304632.		
91366	Screw—Machine, Rd. Hd.—10-32x⅞"		1
91385	Screw—Magneto Mounting		1
	Note: **No. 92245** Screw—Magneto Mounting		1
	Used to mount magneto on type No. 304585.		
91386	Screw—Cylinder Head and Valve Cover		1
91387	Screw—Cylinder Head		1
91388	Lockwasher—$\frac{5}{16}$x$\frac{3}{32}$x$\frac{5}{64}$"		1
91398	Screw—Cap, Hex. Hd.—¼-28x½"		1
	Note: **No. 92412** Screw—Cap, Hex. Hd.—¼-20x¾"		1
	Used on cast iron governor levers.		
91400	Nut—Flywheel		1
	Note: **No. 23454** Nut—Flywheel and Starter		1
	Used before Serial No. 40296 on type Nos. 304585, 304631, 304634, 304676.		
	No. 23645 Nut—Flywheel and Starter		1
	Used after Serial No. 40296 on type Nos. 304585, 304631, 304634, 304676.		
91416	Nipple—Exhaust		1
91442	Screw—Valve Cover		1
91458	Screw—No. 7x½" Parker Kalon		1
91466	Lockwasher—⅜x$\frac{5}{32}$x$\frac{1}{16}$"		1
91468	Screw—Cap, Hex. Hd.—¼-20x⅜"		1
91478	Key—Pulley Clutch		1
91635	Connector—Fuel Filter		1
91648	Screw—Cap, Hex. Hd.—$\frac{5}{16}$-24x½"		1
91674	Nut—Wing		1
91698	Screw—Machine, Rd. Hd.—¼-20x⅝"		1
91714	Screw—Machine, Rd. Hd.—10-24x½"		1
91787	Screw—Cap, Hex. Hd.—¼-28x2"		1
91865	Lockwasher—$\frac{5}{16}$x$\frac{5}{16}$x$\frac{1}{16}$"		1
91920	Screw—Machine, Fill. Hd.—8-32x⅝"		1
91921	Screw—Machine, Fill. Hd.—12-24x$\frac{5}{16}$"		1
91984	Pin—Cotter—$\frac{1}{16}$x½" long		1
92129	Nut—Hex.—¼-28		1
92260	Screw—Set—Sq. Hd.—$\frac{5}{16}$-18x⅜"		1
92268	Lockwasher—⅜x⅛x$\frac{3}{32}$"		1
92272	Screw—Cap, Hex. Hd.—$\frac{5}{16}$-18x¾"		1
92279	Screw—Cap, Hex. Hd.—$\frac{5}{16}$-24x1½"		1
92285	Pin—Cotter—No. 18x¼"		1
92287	Screw—Machine, Rd. Hd.—10-32x¼"		1
92288	Pin—Cotter—$\frac{1}{16}$x½"		1

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
92290	Lockwasher—No. 10x$\frac{1}{16}$x$\frac{3}{64}$"		1
92292	Nut—Hex.—⅜-24		1
92305	Washer—Control Lever ($\frac{1}{16}$" thick)		1
92306	Screw—Cap, Hex. Hd.—¼-28x⅜"		1
92308	Screw—Machine, Fill. Hd.—10-32x¼"		1
92322	Screw—Set (Pulley Clutch)		1
92412	Screw—Cap, Hex. Hd.—¼-20x¾"		1
92413	Pin—Cotter—$\frac{1}{16}$x⅜" long		1
92424	Screw—Machine, Fill. Hd.—¼-20x1½"		1
92425	Nut—Sq.—¼-20		1
92469	Nipple—Oil Filler		4
	Note: **No. 89116** Nipple—Oil Filler		4
	Used on type Nos. 304627, 304633, 304635, 304675, 304688.		
92507	Lockwasher—Shakeproof No. 1214		1
99024	Crank—Starter	2	
99225	Seal—Oil		3
99333	Float—Carburetor		2
99345	Nozzle—Carburetor		2
99346	Valve—Needle		2
99360	Pump Assembly—Oil	1	
99361	Screen—Oil Pump		3
99375	Body—Upper Carburetor	1	
99376	Body Assembly—Upper Carburetor	1	
99397	Cylinder	13	
	Note: **No. 290194** Cylinder	13	
	Used on type No. 304702.		
99458	Idling Device		3
99524	Shaft Assembly—Throttle		1
99665	Yoke—Fuel Filter		2
99780	Valve and Seat—Fuel Inlet		1
99909	Cover—Fuel Filter		3
99910	Filter Assembly—Fuel		10
99936	Cover—Crankcase (Cast Iron)	5	
	Note: For Cover for Double Thrust or Marine Application see No. 291214 Crankcase Cover.		
	No. 99940 Cover—Crankcase (Cast Iron) Used on type Nos. 304585, 304631, 304634, 304641, 304676, 304685.	5	
	No. 99944 Cover—Crankcase (Cast Iron) Used on type Nos. 304556, 304573, 304693, 304699.	5	
	No. 99953 Cover—Crankcase (Cast Iron) Used on type Nos. 304554, 304555, 304559, 304564, 304565, 304566, 304578, 304584, 304591, 304602, 304619, 304632, 304637, 304638, 304651, 304672, 304674, 304692.	5	
99947	Piston Assembly—Standard	1	
99948	Piston Assembly—.010" O.S.	1	
99949	Piston Assembly—.020" O.S.	1	
99950	Piston Assembly—.030" O.S.	1	
99974	Housing—Blower	14	
	Note: **No. 89594** Housing—Blower Used on type No. 304605.	14	
	No. 89950 Housing—Blower Used on type Nos. 304641, 304670.	14	
99975	Housing—Blower	14	
	Note: **No. 89781** Housing—Blower Used on type Nos. 304637, 304669, 304672, 304675.	14	
	No. 89783 Housing—Blower Used on type Nos. 304627, 304633, 304639, 304688.	14	
	No. 89789 Housing—Blower Used on type Nos. 304585, 304631, 304634, 304676.	14	
	No. 99973 Housing—Blower Used on type Nos. 304550, 304586, 304626, 304648.	14	
290013	Seal—Oil		1
	Note: **No. 62235** Ring—Oil Retainer Used on engines before Serial No. 206918.		1

Before ordering parts, read instructions top page 11.

MASTER PART NUMBER	NAME	SHIPPING WEIGHT Lbs.	Oz.
290059	Lever—Fuel Shut-off—⅜" dia., "T" shaped...		1
	Note: **No. 23347** Lever — Fuel Shut-off — $\frac{3}{16}$" dia., "L" shaped.....		1
	No. 29536 Lever—Fuel Shut-off..... Used on earlier model engines with Tillotson Fuel Filter.		1
290175	Pipe Assembly—Air Cleaner.....	1	8
	Note: **No. 89787** Pipe Assembly—Air Cleaner. Used on type Nos. 304585, 304631, 304634, 304676.	1	8
	The following parts are used to mount No. 89787 Air Cleaner Pipe before Serial No. 51279:		
	No. 22623 Clamp—Air Cleaner Pipe..		2
	No. 92425 Nut—Sq.—¼-20.....		1
	No. 92467 Screw—Clamp.....		1
290326	Breather Assembly		5
	Note: **No. 69314** Breather Assembly..... Used on engines before Serial No. 206918.		8
290332	Bushing—Magneto Plate		4
	Note: **No. 69911** Bushing—Magneto Plate..... Used on engines before Serial No. 206918.		4
290357	Tube—Oil Pump		2
	Note: **No. 99362** Tube—Oil Pump..... Used on engines before Serial No. 206918.		2
290568	Lever Assembly—Control		4
290571	Drive Shaft and Gear Case Cover Assembly..	7	
	Note: **No. 290637** Drive Shaft and Gear Case Cover Assembly ..... Used on type No. 304666.	7	
290573	Case Assembly—Gear	6	
290574	Cover Assembly—Gear Case.....	4	
290584	Base—Control Lever		2
290597	Pulley Assembly—Rope Starter (Steel).....	2	
290642	Lever—Control		2
290654	Screw and Nut Assembly—Contact Block.....		1
290692	Crankcase (Cast Iron).....21		
	Note: **No. 290676** Crankcase (Cast Iron).....21 Used on type Nos. 304556, 304573.		
	No. 290680 Crankcase (Cast Iron)..... 21 Used on type Nos. 304560, 304561, 304567, 304582, 304596, 304603.		
	No. 290681 Crankcase (Cast Iron).....21 Used on type Nos. 304571, 304579, 304597, 304666, 304671.		
	No. 290684 Crankcase Assembly (Cast Iron) .....21 Used on type Nos. 304601, 304630. Includes: {**No. 23136** Stud (3) {**No. 23527** Stud (4)		
	No. 290685 Crankcase Assembly.....21 Used on type Nos. 304631, 304634, 304676. Includes: **No. 23642** Studs.		
	No. 290686 Crankcase (Cast Iron).....21 Used on type No. 304640.		
	No. 290687 Crankcase (Cast Iron).....21 Used on type Nos. 304641, 304685, 304693, 304699.		
	No. 290691 Crankcase (Cast Iron).....21 Used on type No. 304653.		
	No. 291095 Crankcase (Cast Iron).....21 Used on type No. 304585.		
	Includes: **No. 91028** Screw—Cap, Hex. Hd.—⅜-24x¾" (4) (Cover Mtg.)		1
	No. 90950 Screw—Cap, Hex. Hd.—$\frac{5}{16}$-24x¾" (2) (Pump Mtg.)		1
	No. 91385 Screw — Magneto Mtg. (4)		1
	No. 23642 Stud (4) (For Mounting Equipment)		1
	On aluminum crankcases, use the following parts for mounting equipment:		
	No. 23510 Stud (4).....		1
	No. 22299 Lock—Nut.....		1
	No. 90326 Nut — Hex., Jam — ⅜-16		1
290756	Magneto Assembly	6	
	Note: **No. 290754** Magneto Assembly..... Used on type Nos. 304566, 304576, 304578, 304591, 304607, 304610, 304626, 304642, 304644, 304645, 304646, 304647, 304648, 304689, 304702.	6	
	Includes: **No. 66165** Wire—Ground....		2
	No. 290755 Magneto Assembly (With Shielded Ignition) ..... Used on type Nos. 304582, 304584, 304596, 304602, 304619, 304620, 304638, 304651, 304652.	6	
	Includes: **No. 66165** Wire—Ground....		2
	No. 290757 Magneto Assembly (With Shielded Ignition) ..... Used on type Nos. 304585, 304594, 304631, 304634, 304659, 304676.	6	
	No. 290758 Magneto Assembly (With Shielded Ignition) ..... Used on type Nos. 304627, 304633, 304637, 304639, 304641, 304669, 304670, 304672, 304675, 304688.	6	
	Includes: **No. 89726** Wire—Ground....		2
	No. 290759 Magneto Assembly..... Used on type No. 304685.	6	
	Includes: **No. 290372** Wire—Ground...		2
290861	Screen Assembly — Blower Housing (Crank-starter)		6
290863	Screen Assembly — Blower Housing (Rope Starter)		6
	Note: **No. 290862** Screen Assembly — Blower Housing ..... Used on type Nos. 304550, 304586, 304626, 304648, 304681, 304704.		6
290918	Lever Assembly—Control		3
290984	Plug—Spark (with gasket).....		8
291055	Base Assembly—Engine 14		
	Note: **No. 290645** Base Assembly—Engine...14 Used on type Nos. 304562, 304568, 304575, 304609, 304612, 304613, 304615, 304622, 304623, 304656, 304666, 304696.		
291214	Cover—Crankcase	5	
	Note: **No. 291212** Cover—Crankcase..... Used on type Nos. 304601, 304630.	5	

Before ordering parts, read instructions top page 11.

THE GUARANTEE — For Ninety Days from purchase date, Briggs & Stratton Corporation will replace for the original purchaser, FREE OF CHARGE, any part or parts found, upon examination at our factory at Milwaukee, Wisconsin, or at any Authorized Central Service Distributor's place of business, 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 guarantee must be borne by purchaser.

WHAT THIS GUARANTEE DOES NOT INCLUDE — This guarantee 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 motor has been the subject of misuse, negligence, or accident, nor if it has been repaired or altered outside of our Milwaukee Factory or any Authorized Central Service Distributor in any way which, in our judgment, affects its condition or operation.

Plate No. 19

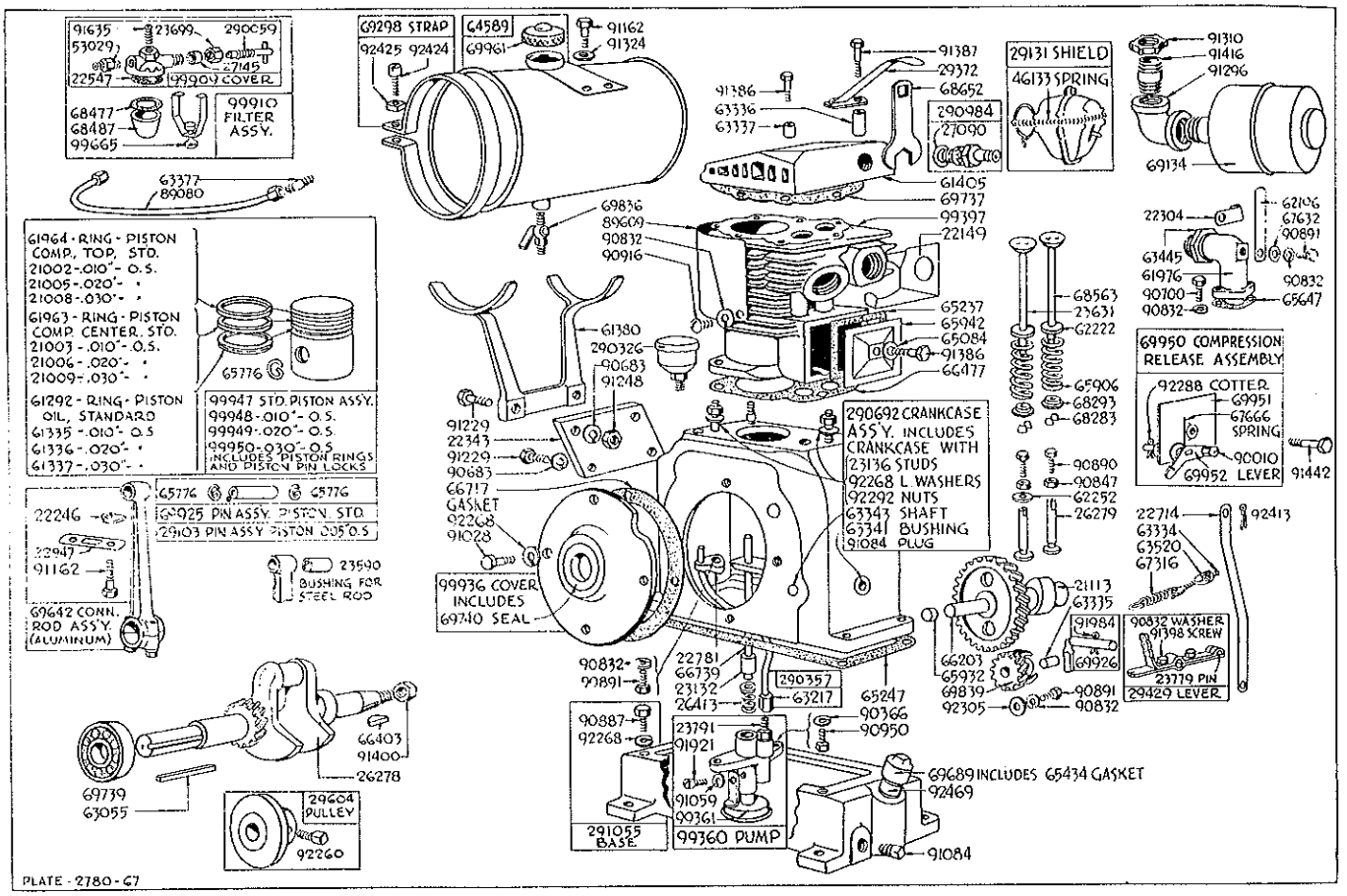


PLATE - 2780 - G7

Plate No. 20

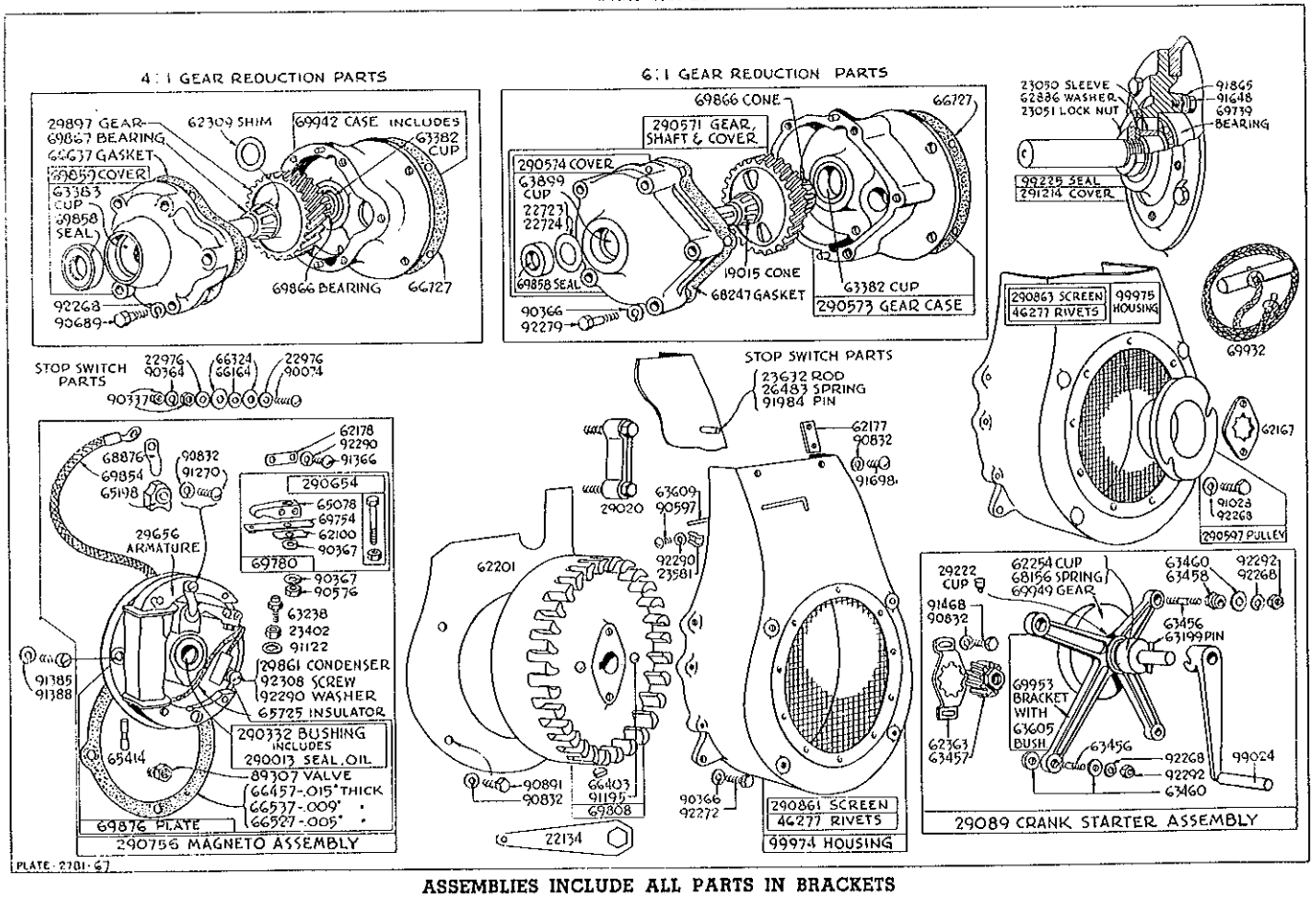
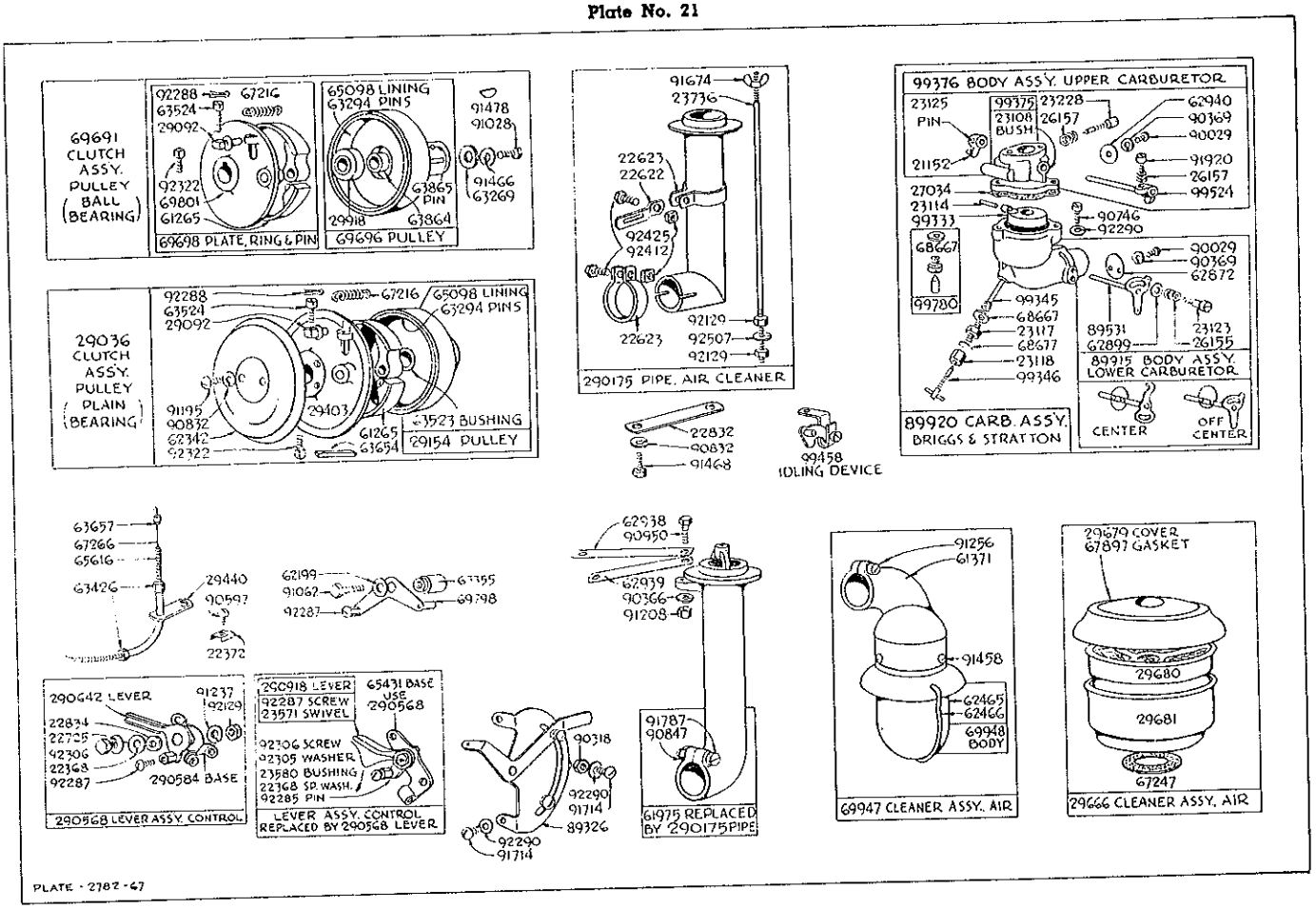


PLATE - 2781 - G7

ASSEMBLIES INCLUDE ALL PARTS IN BRACKETS

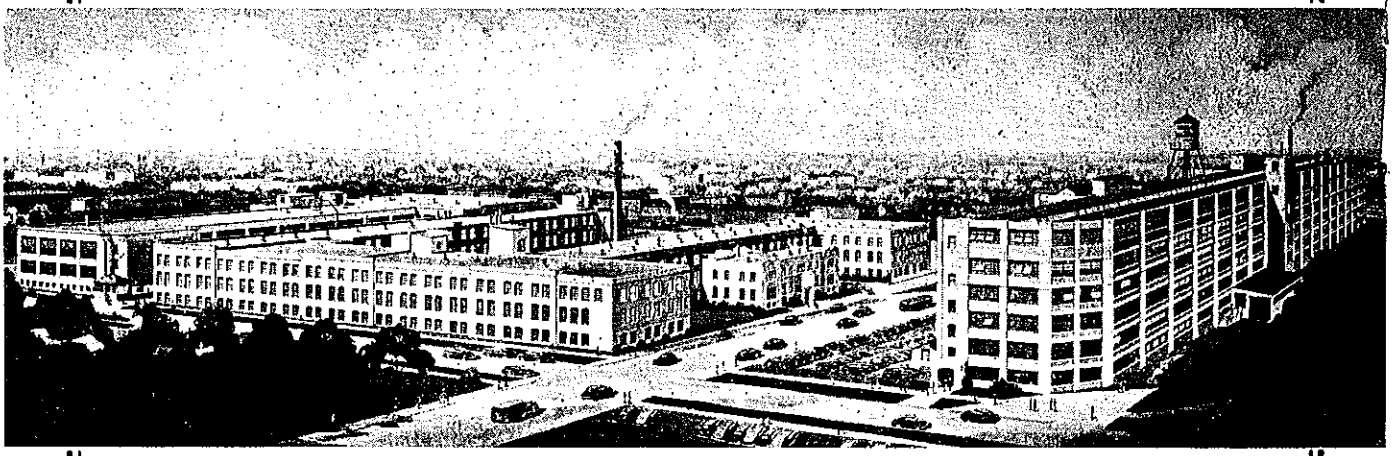
Plate No. 21



ASSEMBLIES INCLUDE ALL PARTS IN BRACKETS

Briggs & Stratton Gasoline Motors are precision built and require **original** Briggs & Stratton replacement parts in order to obtain satisfactory results. Service that is not reliable or continuous becomes expensive at any price.

Users will find that the prices paid for **original** repair parts are well worth the investment when the service delivered is compared with that afforded by substitute parts. **Original** Briggs & Stratton repair parts can be obtained through all Authorized Central Service Distributors listed on page 22.



WHERE BRIGGS AND STRATTON MOTORS ARE MADE

THESE large and modern factory buildings, located in Milwaukee, Wisconsin, are complete with all modern equipment and machinery for precision construction, economical production, rigid inspection and thorough testing of Briggs & Stratton 4-cycle gasoline motors.

Briggs & Stratton Corp. produces more small 4-cycle air-cooled gasoline motors than any other manufacturer in the world.

●

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