Instruction Book *and* List *of* Parts

Model F
Gasoline Engines

Be Sure to Give *Number* and *Horse-Power* of Engine When Ordering Parts; Also the Letter After the Horse-Power as Shown on Brass Plate on Water Reservoir.

Do not return any parts of your engine to us unless we ask you to do so. Write us first, giving number of part you want, and we will mail part at once. By doing this you will obtain quicker service.

F3779.Rev.11.16.21

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To Get the Engine Ready to Run

First. Remove the plugs from the oil holes in the main and connecting rod bearings. Fill the grease cups with the sample grease we furnish and screw the top of the cups down until the grease starts to come out of the bottom. Then put the cups in place on the engine—the two big cups on the main bearings, the small one on the governor. (The small cup for the 1½ horse-power engine goes on the connecting rod.) Turn the tops down two full turns to force the grease into the bearings.

Second. The large automatic grease cup (Figure 1, not furnished on the 1½ horse-power engine) goes on the connecting rod. To fill and adjust this cup, screw the lever "A" down as far as it will go. Then unscrew the cup at "B". With a screwdriver turn the screw in the shank "C" to the right until the hole through the bottom of the cup is closed.

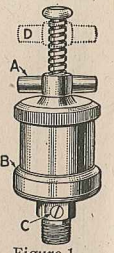

Figure 1.

Fill the top part of the cup with grease. Screw the two parts of the cup together securely and turn the lever "A" to the left until it reaches the position "D". Then take the screwdriver and turn the screw "C" slowly to the left until the grease starts to come out **slowly.** Then screw the cup in position on the connecting rod. This cup should be readjusted for hot or cold weather. One filling should be enough for about eight hours' continuous running.

Third. Pour some cylinder lubricating oil into the pipe that runs down through the water reservoir; at the same time turn the flywheels around two or three times to lubricate the piston and cylinder. Then fill the brass lubricator with oil from the sample can we furnish and screw it into the pipe. Raise the lever on the top of the lubricator straight up and adjust it to feed plenty of oil; for quantity see below.

Fourth. Oil all moving parts, looking engine over carefully to be sure you have found all the oil holes. Turn flywheels until end of piston is out of the cylinder as far as it will come and put oil on the end of the piston and down through the tube to oil the connecting rod bearing inside of the piston.

Fifth. Fill water hopper with clean water and the tank in the base with gasoline. Always strain the gasoline through a chamois skin to prevent dirt or water getting into the tank.

INSTRUCTIONS FOR OILING ENGINE.

When using engine we recommend that the lubricator be set so as to feed the following quantities of oil. **Use the best grade of gas engine oil and grease, like the samples we furnish. If a dark oil is used, there is carbon in it that will collect on the inside of the cylinder and on the igniter points and cause trouble. Never use steam engine oil on a gasoline engine.**

Horse-Power	On Full Load	On Light Load
1½ and 2½	10 drops per minute	5 drops per minute
5 and 7	20 drops per minute	10 drops per minute
9 and 12	30 drops per minute	15 drops per minute

CAPACITY OF GASOLINE TANKS.

The gasoline tank is located in the base and is filled through the filler pipe on the side of the engine base. The 1½ horse-power tank holds 1⅛ gallons; 2½ horse-power, 1¼ gallons; 5 horse-power, 2¾ gallons; 7 horse-power, 5½ gallons; 9 horse-power, 7¾ gallons; 12 horse-power, 11¾ gallons.

TO START 1½, 2½ AND 5 HORSE-POWER ENGINES.

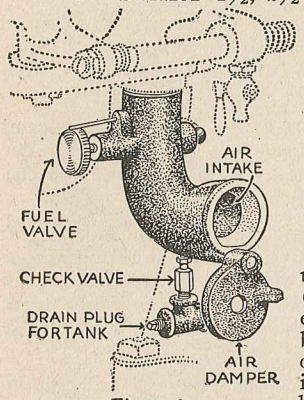

Figure 2.

First. Open the fuel valve on mixer two full turns to the left and turn the air damper up so it closes the opening in the mixer (see Figure 2), turn on the oil by raising the lever on the lubricator and be sure the oil is dropping properly.

Second. Turn the timing lever "C" away from the magneto to the starting position, as shown in Figure 4. This retards the spark and prevents the engine from kicking back when you start it.

Third. Turn the flywheels to the right until the detent blade (Figure 3) on the governor can be pushed in behind the catch block on the cam rod and hold it there with your left hand.

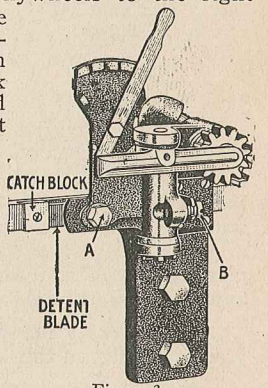

Figure 3.

Fourth. Place the starting crank on the shaft that extends through the flywheel on the governor side of the engine or take hold of a spoke in the wheel and turn the wheels around to the right **rapidly** five or six times; then let go of the detent blade, but continue to turn the flywheels until the engine starts.

Starting cranks furnished only with 1½, 2½, 5 and 7 horse-power engines.

Fifth. As soom as engine starts turn the air damper down to position as shown in Figure 2, push the timing lever "C" (Figure 4) toward the magneto to the running position and close the fuel valve slowly until the point is reached where the engine runs with the least number of explosions and without black smoke appearing at the exhaust or a popping sound at the mixer. A popping sound at the mouth of the mixer is caused by an insufficient supply of fuel, and smoke at the exhaust by too much fuel.

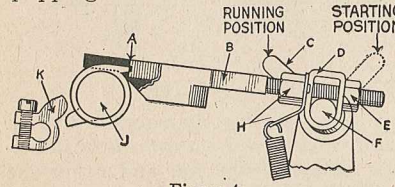

Figure 4.

In cold weather it may be necessary to leave the air damper closed for a short time until the engine gets warmed up.

TO STOP THE ENGINE.

Shut off the gasoline by closing the fuel valve on the mixer. Turn the small lever on top of the lubricator down, which shuts off the oil, and drain the water out of the cylinder in cold weather.

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TO START 5, 7, 9 AND 12 HORSE-POWER ENGINES ON COMPRESSION.

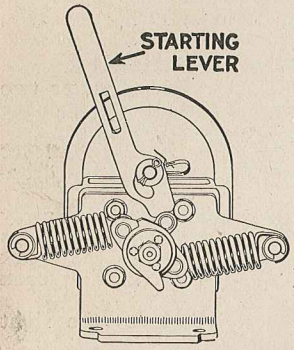

Figure 5.

First. Open the priming cup on the igniter (screw the top to the left two turns) to relieve compression, turn on the oil by raising the small lever on top of the lubricator.

Second. Place the timing lever "C" (Figure 4) in the starting position and turn the flywheels to the right until the igniter trips, then stop.

Third. Prime the cylinder by putting about 2 teaspoonfuls of gasoline into the cylinder through the priming cup. Then close the cup with your fingers by turning to the right.

Fourth. Open fuel valve on the mixer two full turns to the left and turn the air damper up so it closes the opening in the mixer, then turn the flywheels to the right one-half turn, or until the piston is out of the cylinder as far as it will come, as shown in Figure 7.

Fifth. Use tripping lever "A" (Figure 3), which you will find on the magneto, and cock the springs as shown in Figure 5.

Sixth. Take hold of a spoke in the flywheel at the top with your right hand and put your right foot on a spoke at side nearest the magneto, pull with your right hand and push down with your foot, giving the flywheels a quick turn back toward the cylinder, at the same time pulling the tripping lever "A" on the magneto toward you, which makes the spark, and the engine should start.

A little practice may be needed to do this just right, but in a short time you will find you can start the engine on the first trial.

Seventh. As soon as engine starts open the air damper on the mixer, shift the timing lever "C" to the running position and close the fuel valve slowly until the point is reached where the engine runs with the least number of explosions, as explained on page 3.

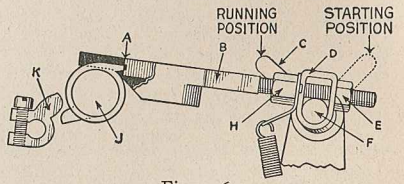

Figure 6.

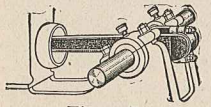
Figure 7.

TO STOP THE ENGINE.

Shut off the gasoline by closing the needle valve on the mixer. Turn the small lever on top of the lubricator down, which shuts off the oil, and drain the water out of the cylinder in cold weather.

THE WATER IN THE HOPPER SHOULD BOIL.

The hotter the water gets the better the engine runs, because the gasoline vaporizes more readily and the engine will use less gasoline. The cylinder is cooled by the water circulating around it and the heat passes off in the form of steam, so if **the water boils you need not be alarmed.** Keep the cylinder properly lubricated and the reservoir full of water and there will be no danger of your engine overheating. **IN COLD WEATHER DRAIN THE RESERVOIR AT NIGHT TO PREVENT FREEZING.**

TO START IN COLD WEATHER.

All gasoline engines are harder to start during cold weather than in warm weather, because gasoline does not vaporize as readily in cold weather. You can overcome this to a certain extent by pouring a couple of gallons of warm water in the water reservoir to warm up the cylinder, causing the gasoline to vaporize more readily. (Be careful if engine is real cold not to use water too hot, as the sudden change may crack the cylinder.) It is also advisable to open the fuel valve farther than you generally do, and be sure to close the air damper when starting and leave it closed for a few minutes until the engine gets warmed up. A teaspoonful of gasoline in the cylinder through the priming cup will help. Work the intake valve in and out before starting, as this will remove any frost that may have collected on the valve stem and allow valve to work easily.

HOW TO ADJUST THE FUEL VALVE.

The mixing valve (Figure 8) is of the suction feed type, gasoline being drawn from the tank in the base by the suction of the piston. The air and gasoline are mixed in this valve to form the explosive gas.

When you start the engine, open the fuel valve two full turns to the left, close the air damper and turn the flywheels to the right; this draws a supply of gasoline from the tank and primes the valve. After the engine is running open the air damper and close the fuel valve slowly until the point is reached where the engine runs with the least number of explosions and without black smoke appearing at the exhaust, or a popping sound at the mixer, the latter being caused by an insufficient supply of fuel, and smoke at the exhaust by too much fuel.

If it is ever necessary to take the mixing valve and feed pipe off the engine, be very careful not to lose the valve out of the check valve, because if this valve is not in place your engine will not get any gasoline. To drain gasoline from tank remove drain plug. (See Figure 8.)

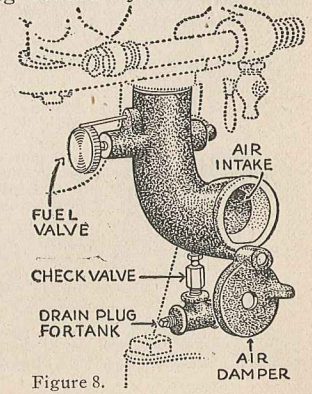

Figure 8.

OUT OF GASOLINE.

If your engine is running all right with the fuel valve set at the right point, and it starts to misfire, runs irregularly and explodes through the air inlet or gasps for breath, the supply of gasoline is low and the tank should be refilled.

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HOW TO TEST THE MAGNETO TO SEE IF IT IS FURNISHING A SPARK.

Put sewing machine or cream separator oil in these four holes and on the four spring rollers every time you run the engine.

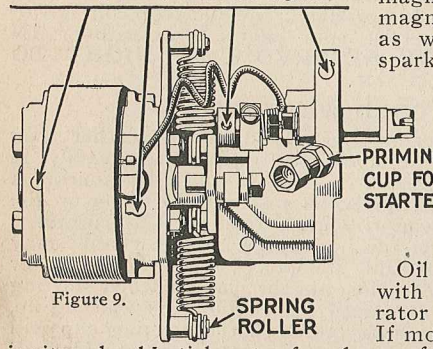

Figure 9.

Remove the magneto and the igniter plug from engine, without taking the magneto off the bracket and trip the magneto with tripping lever the same as when starting the engine. If no spark occurs at igniter points be sure the wire from magneto to igniter is properly attached or it may be the insulation on the stationary electrode is broken and should be replaced. (See list of repairs, page 19, 47F5 and 47F5A.)

CARE OF MAGNETO.

Oil magneto as indicated (Figure 9) with sewing machine or cream separator oil every time you run the engine. If movable electrode that runs through igniter should stick put a few drops of kerosene in the oil hole and work the electrode back and forth, then oil it. Igniter points may be cleaned without removing the igniter by sliding the movable electrode back and forth from the outside.

Never take the magneto apart, as there is nothing inside that can get out of order. If you think magneto needs overhauling write us and we will tell you how and where to ship it.

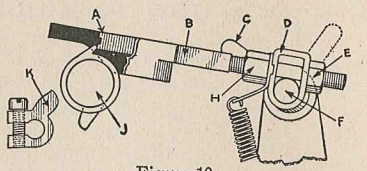

Figure 10.

TO BE SURE MAGNETO FURNISHES SPARK AT THE RIGHT TIME.

Turn the flywheels to the right until the piston is in the cylinder as far as it will go on the compression stroke. Just opposite the cam rod on the flywheel you will find the word "Spark." See Figure 11.

See that the bracket holding the tripping lever for the magneto is securely fastened to the cam rod and that the set screw nearest the magneto is in the little hole which you will find on the bottom of the rod.

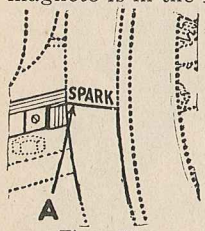

Figure 11.

Push the lever "C," Figure 10, toward the magneto to the running position. Loosen the nuts "H" and "E," and push the rod "B" away from the magneto.

Set the word "Spark" on the flywheel opposite the top of the cam rod, Figure 11. Now tighten the adjusting nut "H" so as to move the push rod toward the magneto until it engages and trips the tripping finger "J." Then lock the rod "B" in position by tightening the lock nut "E."

Now turn flywheels to the right slowly over the compression stroke and stop the instant the magneto trips and see if the word "Spark" on the flywheel is directly opposite the top of the cam rod.

If the push rod "B" does not line up properly with the tripping finger "J," it can be moved in or out on the stud "F" until it does line up.

When magneto is properly adjusted there should be a slight clearance between the end of push rod "B" and the top of the push finger "J" when the push rod is farthest toward the engine crankshaft. See "A," Figure 10.

WHAT TO DO IF THE ENGINE FAILS TO START OR DOES NOT RUN SATISFACTORILY.

A gasoline engine is very easy to handle if you understand how it works. If you have a little trouble at first, do not blame the engine, but remember it is new to you and that it will take a little while to learn how to handle it. Study this book and the engine carefully and it will only be a short time until you know how to take care of the engine as well as our experts at the factory.

FIRST. Be sure the tank is full of gasoline.

SECOND. Open the fuel valve on the mixer three or four turns. Then turn the flywheels to the **left** until the piston starts in on the compression stroke. Close the air damper on the mixer and turn the flywheels to the **right** two full turns. Then open the damper and see if there is any gasoline in the mixer; if not, the fuel line is stopped up.

Dirt sometimes gets into the gasoline, clogging the pipes or stopping the check valve. To clean the check valve, loosen the nuts just above the valve with a wrench, remove and clean with gasoline. After cleaning the pipe and valve, drain tank by removing the drain plug, strain the gasoline through a chamois skin, and flush out the tank.

If engine will not run unless you keep the air damper closed, either the check valve in the fuel line or the intake valve in the cylinder head is leaking.

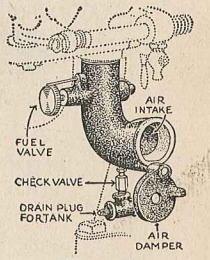

Figure 12.

THIRD. If in starting the engine you hear a hissing sound at the cylinder head, there may be a little particle of dirt under the exhaust or intake valve. Have some one turn the flywheels around to throw the piston against compression. Just as he does this, bump the end of the valve stem with a block of wood to open the valve, and the air pressure in the cylinder may blow out the dirt. If this does not stop the leak, the valve will have to be ground (see page 10).

Squirt a little kerosene on the exhaust valve stem occasionally, which helps to remove any carbon which may have accumulated and prevents valve stem from sticking. It is a good plan to put a few drops of oil on both valve stems every time you run the engine.

FOURTH. Refer to page 6 and go over the magneto carefully to be sure it is sparking properly and at the right time.

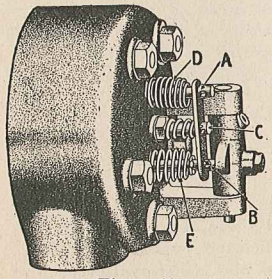

Figure 13.

A. Intake valve. D. Intake valve spring. B. Exhaust valve. E. Exhaust valve spring. C. Intake valve lock to hold Intake valve tight during the exhaust stroke.

FIFTH. If there is a hissing sound in the cylinder, the rings may be stuck in their grooves. Take out the piston and clean the rings and grooves thoroughly, putting plenty of lubricating oil on the rings when you put them back in again.

If water gets into the cylinder or you hear a gurgling sound in the water reservoir when you turn the engine over against compression, the gasket between the cylinder and cylinder head has blown out and will have to be replaced (see page 10).

SIXTH. If you have had the cam gear off or changed its adjustment in any way, see page 9 to be sure it is set properly, as this cam controls the time the valves open and close.

SEVENTH. If after following the above instructions and going over the adjustment of each part according to the instructions in this book you still cannot get the engine to run properly, write us just what you have done, how the engine acts and we will tell you just what to do. Do not call in an engine expert unless you have the utmost confidence in his ability. Usually a neighbor who has an engine will be of more help. If not, go to your nearest garage or write us and we will advise you by return mail.

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THE GOVERNOR.

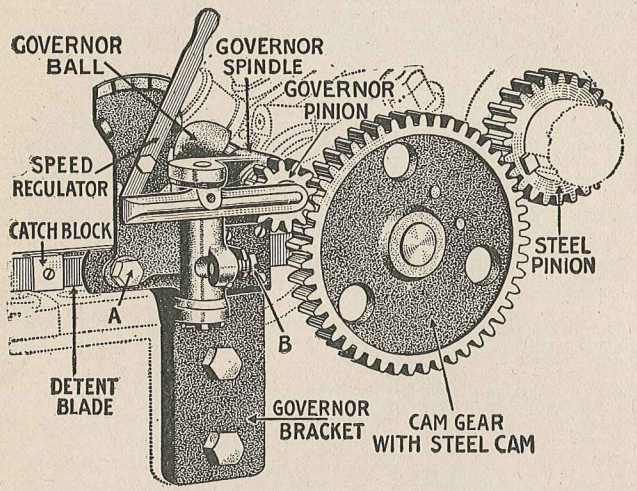

Figure 14.

The governor controls the speed of the engine and is of the hit and miss fly ball type. When the engine runs above its regular speed the balls on the governor widen their circuit, which presses in on the pin going through the governor spindle. This forces the detent blade in so that it catches behind the block on the cam rod and holds the exhaust valve open, at the same time stopping the spark and cutting off the supply of gasoline, until the speed of the engine is reduced to where it should be, then the detent blade flies out again, releasing the cam rod, and the engine takes up its regular operations.

Always keep the speed lever set in the notch to the right, as this runs the engine at its regular speed, where it will give its full power. If you reduce the speed of the engine you also reduce the power it will develop. Never slow the engine down on a heavy load if you want less speed. (See rules for determining the size of pulleys on page 10). If you set the speed lever in the center notch it gives a reduction in speed of from 50 to 60 R. P. M. and the notch to the left a reduction of from 100 to 125 R. P. M.

HOW TO ADJUST THE DETENT BLADE.

When the exhaust valve is wide open and the detent blade is pushed in behind the catch block on the cam rod, there should be only the thickness of a postal card between the end of the detent blade and the catch block. To adjust the detent blade, set the speed lever in position, as shown at top of this page; as the detent blade passes the catch block the blade should stand about ¾ inch away from the block. If the detent blade is out more than ¾ inch take a pair of pliers and bend it into the proper position.

To adjust the play between the end of the detent blade and the catch block loosen the locknut "A" and screw the adjusting screw "B," either in or out, until you have the blade where it should be, then tighten the locknut.

TO TAKE OFF THE GOVERNOR BALLS, SPINDLE OR PINION.

If you find it necessary to take the governor apart, first take off the governor pinion. To do this hold the flywheels stationary, which locks the gears, take out the set screw in the pinion, then take a wrench, stand on the governor side of the engine and turn the governor balls to the right, as the pinion is put on with a right hand thread. The governor spindle screws into the governor pinion.

THE DETENT CATCH BLOCK.

The catch block on the cam rod is made of tool steel and should last a long time. If the block should wear on one side so it does not hold the detent blade properly, file off the point of screw where it is riveted on side of rod next to the engine, remove the screw with a screwdriver and turn the catch block around, using the other side. After both sides of the block are worn, buy a new one. (See 47F054 in list of repairs, page 15.)

THE CAM ROD SPRING.

The cam rod spring holds the cam rod and roller against the cam on the cam gear. As this spring does a lot of work it may wear out; if it does, buy a new one. (See 47F059 in list of repairs, page 15.) To put on a new spring remove the cylinder head, slip the spring over the end of the cam rod and replace the cylinder head. If necessary to repack cylinder head see page 10.

HOW TO TAKE OFF A FLYWHEEL OR PULLEY.

To take off the flywheel loosen the bolt and drive an iron or wooden wedge into the slot, one on each side of the hub. This will loosen the flywheel so it can be removed. To take off the pulley on the 1½ horse-power engine loosen the set screw with a screwdriver and drive the pulley off.

On the larger engines all you have to do is loosen the nuts, take out the bolts or cap screws and the pulley will come off.

If you have to drive the flywheel or pulley off the shaft, use a piece of hardwood against the hub of the wheel and do not drive too hard. A number of light blows will loosen the flywheel without danger of breaking.

TO REMOVE GASOLINE TANK.

Take off the fuel pipe which connects the tank to the mixing valve, tip the engine over on one side, remove the rods which hold tank in the base and the tank will come out.

HOW TO PUT ON THE CAM GEAR.

If it is ever necessary to take off the cam gear or to put on a new one it must be put on in a certain position, as the cam on the gear controls the time of the spark and the opening and closing of the valves. In fact, every operation of the engine depends on this cam being set just right.

To put on the cam gear turn the flywheels around until the key in the crankshaft is straight up, as shown by "B" in Figure 15; then set the two teeth that are just under the indicator "A" on the cam gear over the one tooth that is just above the key "B;" then roll the cam gear around to the right until it reaches the position as shown by dotted gear, being sure to keep the gear teeth together. Then slip the cam gear pin in place and fasten it with the lock washer and nut.

Be very careful in putting on this gear to see that it is just right. One tooth out of the way makes quite a little difference in the way your engine will run.

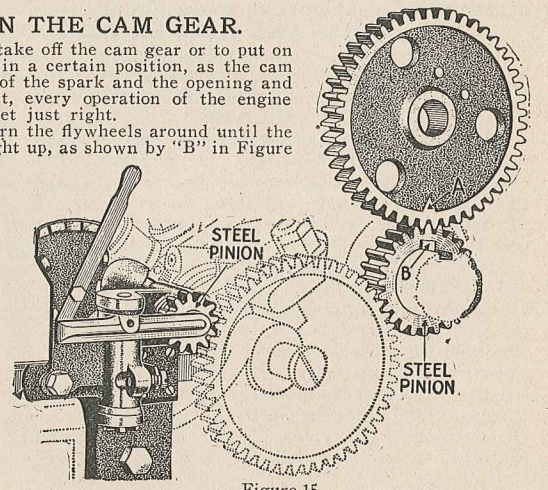

Figure 15.

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BE SURE YOU ARE USING THE RIGHT PULLEYS ON ENGINE AND MACHINES IT IS DRIVING.

The machines you run with an engine, to give you satisfactory service, must be equipped with the proper size of pulley to correspond with the pulley on the engine.

To be sure that the pulleys you are using are the right size to give the best results, take the speed of the engine multiplied by the size of the pulley on the engine and divide the result by the speed of the machine that you want to run. The result will give you the size of the pulley you should have on the machine.

If there is a pulley on the machine you want to run, to find out what size of pulley to use on the engine, take the speed of the machine multiplied by the diameter of the pulley on the machine and divide by the speed of the engine you are going to use, which will give the size of pulley you should have on the engine to give the best results.

REPACKING THE CYLINDER HEAD.

We use a special gasket between the cylinder and cylinder head to prevent the escape of the compressed gas, which we have found to be the best for this type of engine.

If it is ever necessary to replace this gasket, be sure to use the special gasket that we furnish under 47F17 on page 16. Before putting on the new gasket be sure all particles of the old gasket are scraped off so the face of cylinder and the cylinder head show a smooth, clean surface.

After you have the packing in place push the cylinder head in close to the cylinder and screw on the nuts by hand as far as they will go, then use a wrench and turn each nut, one after the other, about one-half turn at a time. **Do not screw one nut down perfectly tight and then go to the next, as this causes an uneven joint and the gasket will not hold.** After the engine has been running for about ten minutes tighten the nuts again and you will have a perfectly tight joint. Be sure you have large enough wrench to get nuts tight. It is a good plan to go over these nuts occasionally to be sure they are tight.

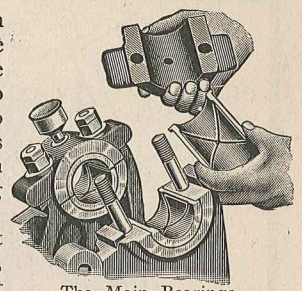
INTAKE AND EXHAUST VALVES.

There is a certain amount of gummy substance in all fuel, including kerosene, that sometimes collects on the exhaust valve stem, causing the valve to stick. A little kerosene squirted on the valve stem from the outside will usually relieve this.

A little particle of carbon or dirt may get under one of the valves, causing them to leak a little. To overcome this, while the engine is running take a block of wood and tap the end of the valve just as the piston goes in on the compression stroke and the compression will blow out the dirt, allowing the valve to seat properly. If you can't start engine, have some one turn the flywheels around by hand while you tap the end of the valve.

If the valves need regrinding, remove the cylinder head, take off the valve springs, remove the valves and clean thoroughly with kerosene. Then smear a fine grade of valve grinding compound (47F196, page 16) on the valve and the valve seat, put the valve in place and slip a nail through the hole in the outer end of the valve stem. Grasp the nail with your fingers and turn the valve from left to right for a minute or so, then lift the valve off its seat and turn it about one-half way around, then turn it again from left to right for two or three minutes, repeating this until the valve and valve seat show an even surface all the way around. When through, wash the cylinder head and valve carefully with kerosene to remove any of the valve grinding compound.

BEARINGS.



The Main Bearings.

The crankshaft bearings and the bearing in the crankshaft end of the connecting rod are made of a special die cast babbitt. They are fitted with steel liners so you can take up any wear in the bearings. If the bearing is too loose to be tightened by drawing down the nuts remove the bearing cap and take out enough of the strips from both sides of each bearing so they fit snug.

After you have removed the strips and put the cap back on again, screw down the bolts, but before starting the engine open the exhaust valve by pushing the detent blade in behind the catch block on the cam rod and turn the flywheels around by hand to see that they turn freely. If they bind you have taken out too many strips and you will have to put enough back until the flywheels turn easily. A bearing should be neither too tight nor too loose; it must fit snug and the engine never be allowed to run when it is loose.

PISTON AND RINGS.

The piston should be a snug fit in the cylinder but the rings are really what hold the compression and must fit free in the grooves of the piston. Feeding a poor grade of gasoline or lubricating oil, or too much of either, will cause a carbon deposit to form around the rings, which will in time bind them in the grooves, so they cannot spring out against the walls of the cylinder to hold the compression. It is very necessary that you use the proper grade of oil, a good grade of medium gas engine cylinder oil, also watch the supply of gasoline, for on this depends the proper running of the engine.

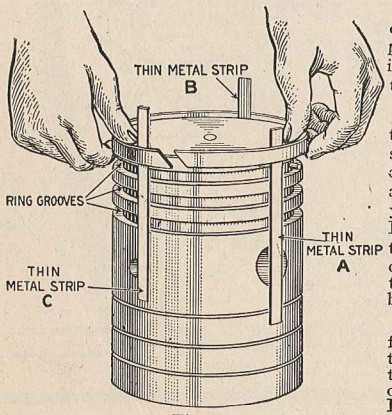


Figure 16.

To remove the piston from the cylinder take out the governor spindle, as instructed at top of page 9. Take out the connecting rod bolts where it fastens around crankshaft, disconnect rod from the shaft and pull the piston out of the cylinder.

To remove the rings from the piston take three thin metal strips (pieces of an old hack saw blade are fine for this) and slip under the center ring. Start the first strip under the ring at the joint and force it all the way around until you have it at the position shown by "A," Figure 16, then slip the second strip to "B" and the third to "C," which will raise the ring out of the groove so it can be slipped off. Take the top ring next and repeat the operation; then the bottom ring.

In replacing the rings, put the center ring on first, using the three metal strips as before, then without the three metal strips you can slip the top ring on and then put the bottom ring on, bringing it up from the bottom of the piston. Before putting the piston back in the cylinder, oil the rings and surface of the piston thoroughly.

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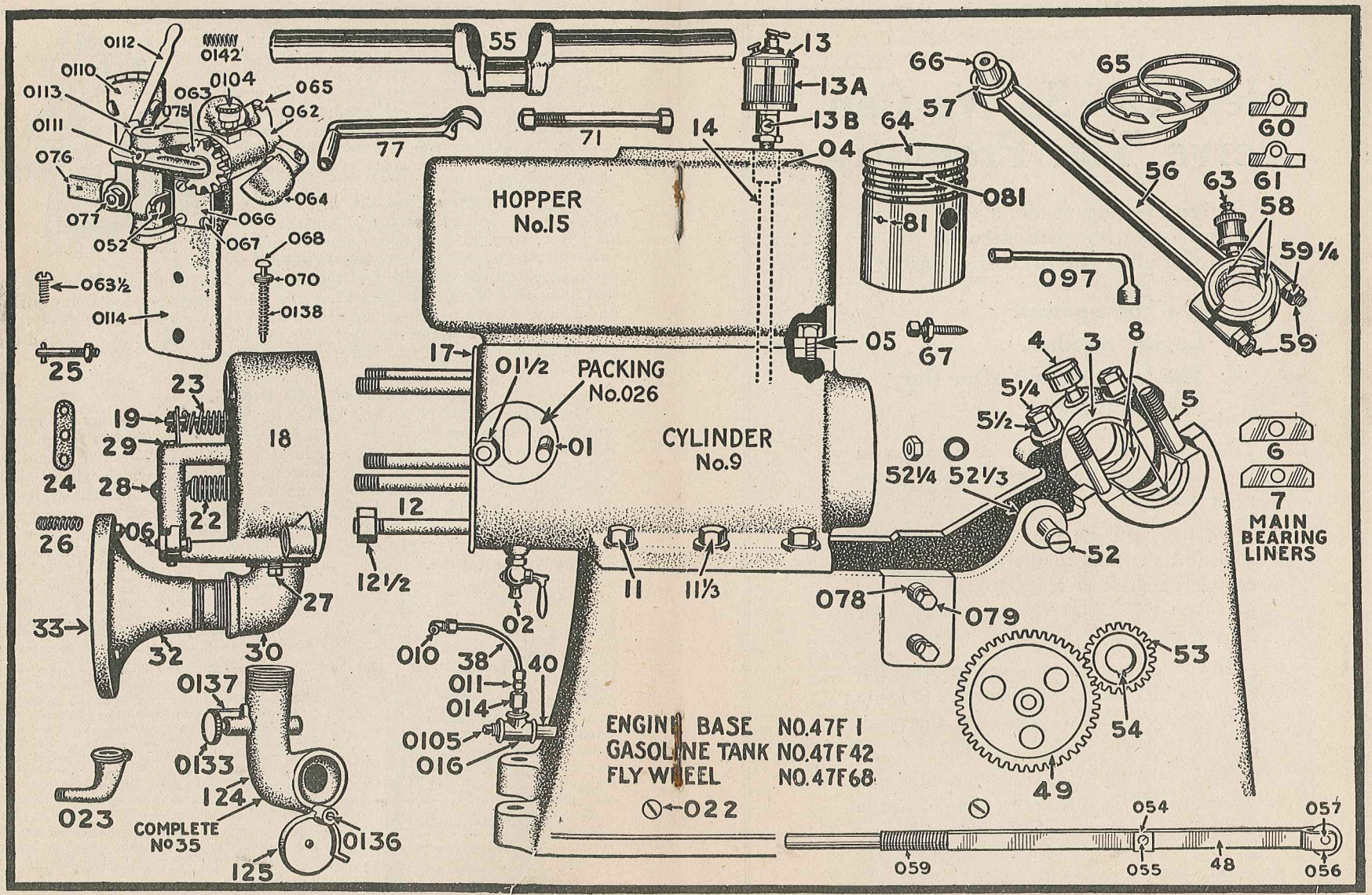

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Help Us—So We Can Serve You Promptly

When ordering repairs always give us the following information so we can be sure of sending you the correct parts:

The horse-power.

Engine number.

The letter shown after the horse-power.

You will find all of this information on the brass plate on the top of the water reservoir.

Do not send us the parts as sample. Pick out the part in the picture on preceding page, then refer to the number given on the following pages and order by the name and number of the part.

If you do not give us the information as requested above, we may have to write you for it before we can send the parts you want.

To save delay in getting the parts you want always be sure to give us all of the information as requested above.

Be Sure When Ordering to Give the Number of Your Engine.

Part No.	Description	Horse-Power 1½	2½	5	7	9	12
47F01	*Igniter Stud	$0.15	$0.15	$ 0.15	$ 0.15	$ 0.15	$ 0.15
47F01½	*Igniter Stud Nut	.10	.10	.10	.10	.10	.10
47F02	*Drain Cock	.50	.50	.50	.50	.50	.50
47F03	*Priming Cup	...	...	.50	.50	.50	.50
47F04	*Oiler Pipe Coupling	...	.15	.15	.15	.15	.15
47F05	*Water Reservoir Bolt	...	.15	.15	.15	.15	.15
47F06	*Valve Lever Adjusting Screw	.15	.15	.15	.15	.15	.15
47F010	*Angle Connection	.25	.25	.25	.25	.25	.25
47F011	*Straight Connection	...	.30	.30	.30	.30	.30
47F013	*Pipe Union and Coupling	...	.30	.30	.30	.30	.30
47F014	*Straight Valve Cage	.35	.35	.35	.35	.35	.35
47F015	*Check Valve	.15	.15	.15	.15	.15	.15
47F016	*Pipe Tee	.20	.20	.20	.20	.20	.20
47F022	*Tank Rod	.20	.30	.30	.30	.35	.35
47F023	*Filler Pipe	.30	.30	.30	.30	.30	.30
47F026	*Igniter Gasket	.15	.15	.15	.15	.15	.15
47F052	xDetent Blade Adjusting Screw	.15	.15	.15	.15	.15	.15
47F052K	Trip Blade Adjusting Screw	.15	.15	.15	.15	.15	.15
47F053	*Igniter Trip Blade Locknut	.10	.10	.10	.10	.10	.10
47F054	*Detent Catch Block	.25	.25	.25	.25	.25	.25
47F055	*Catch Block Screw	.05	.05	.05	.05	.05	.05
47F056	*Cam Roller	.25	.25	.25	.25	.25	.25
47F057	*Cam Roller Pin	.15	.15	.15	.15	.15	.15
47F058	*Cam Roller Pin Dowel	...	.10	.10	.10	.10	.10
47F059	*Cam Rod Spring	.10	.10	.10	.10	.10	.10
47F060	*Governor, complete	4.00	5.00	5.00	5.00	5.00	5.00
47F062	*Governor Spindle	.75	.75	.75	.75	.75	.75
47F063	*Governor Pinion	.50	.50	.50	.50	.50	.50
47F063½	Governor Pinion Set Screw	.05	.05	.05	.05	.05	.05
47F064	*Governor Ball	.25	.25	.25	.25	.25	.25
47F065	*Governor Weight Pin With Cotter Pin	.10	.10	.10	.10	.10	.10
47F066	*Governor Bracket Plate	...	.15	.15	.15	.15	.15
47F067	*Bracket Plate Screw	...	.06	.06	.06	.06	.06
47F068	*Governor Spindle Rod	.35	.35	.35	.35	.35	.35
47F070	*Speed Changing Washer	...	.05	.05	.05	.05	.05
47F075	*Detent Lever Pin	.10	.10	.10	.10	.10	.10
47F076	*Detent Blade	.15	.15	.15	.15	.15	.15
47F077	*Detent Locknut, complete	.15	.15	.15	.15	.15	.15
47F078	*Governor Bracket Dowels	.10	.10	.10	.10	.10	.10
47F079	*Cap Screws	.08	.08	.08	.08	.08	.08
47F081	*Piston Ring Pin	.06	.06	.06	.06	.06	.06
47F097	*Igniter Wrench	.35	.35	.35	.35	.35	.35
47F098	*Oil Can	.35	.35	.35	.35	.35	.35
47F0104	Grease Cup for Governor	...	.25	.25	.25	.25	.25
47F0105	*¼-Inch Drain Plug	.10	.10	.10	.10	.10	.10
47F0110	*Speed Change Body	.35	.35	.35	.35	.35	.35
47F0111	*Detent Lever	.25	.25	.25	.25	.25	.25
47F0112	*Speed Change Lever	.10	.10	.10	.10	.10	.10
47F0113	*Speed Lever Screw	.05	.05	.05	.05	.05	.05
47F0114	*Governor Bracket	.75	1.00	1.00	1.00	1.00	1.00
47F0133	*Fuel Valve	.25	.25	.25	.25	.25	.25
47F0136	*Damper Screw	.05	.05	.05	.05	.05	.05
47F0137	*Fuel Valve Spring	.10	.10	.10	.10	.10	.10
47F0138	*Governor Spindle Spring	.10	.10	.10	.10	.10	.10
47F0142	*Detent Spring	.10	.10	.10	.10	.10	.10
47F1	xBase (Stationary)	9.00	9.00	15.00	25.00	50.00	75.00
47F3	*Base Cap	.75	.95	1.25	1.50	1.75	2.00
47F4	*Main Bearing Grease Cup	.35	.40	.45	.50	.65	.65
47F5	*Base Cap Stud	.20	.25	.25	.35	.35	.35
47F5¼	*Main Bearing Locknut	.10	.10	.10	.10	.10	.10
47F5½	*Main Bearing Stud Nut	.10	.10	.10	.10	.10	.10
47F6	*Bearing Liners, thick, per set	.20	.20	.20	.20	.20	.20
47F7	*Bearing Liners, thin, per set	...	.20	.20	.20	.20	.20

NOTE—All parts marked (*) will be shipped by parcel post, postage paid. All items marked (x) will be shipped by express or freight, collect.

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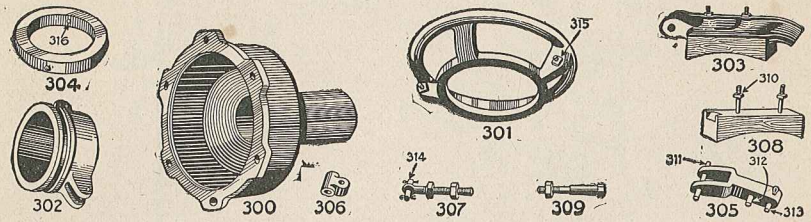
Be Sure When Ordering to Give the Number of Your Enigne.

Part No.	Description	Horse-Power 1½	2½	5	7	9	12
47F8	*Main Bearings (2 halves)	$1.00	$1.25	$ 1.75	$ 3.25	$ 3.75	$ 4.50
47F9	xCylinder	...	6.00	8.25	11.25	16.50	23.00
47F11	*Cylinder Cap Screw	...	.15	.15	.15	.15	.15
47F12	*Cylinder Head Stud	.25	.30	.30	.35	.45	.45
47F12½	*Cylinder Head Stud Nut	.10	.10	.15	.15	.15	.15
47F13	*Sight Feed Oiler, complete	1.00	1.25	1.25	1.50	1.75	1.75
47F13A	*Large Glass for Oiler	.35	.40	.40	.45	.50	.55
47F13B	*Small Glass for Oiler	.25	.25	.25	.25	.25	.25
47F14	*Oiler Pipe	...	.25	.25	.35	.35	.35
47F15	xWater Reservoir	...	2.25	3.35	4.50	6.00	8.00
47F16	*Water Reservoir Gasket	...	.85	.90	1.00	1.35	1.65
47F17	*Cylinder Head Gasket	.50	.50	.75	.75	1.25	1.50
47F18A	xCylinder Head Complete with Valves, Springs, etc.	3.75	5.00	6.50	8.00	10.00	12.50
47F18	xCylinder Head only	1.75	2.50	3.75	4.50	6.25	7.35
47F19	*Exhaust or Inlet Valve	.35	.45	.50	.60	.65	.75
47F22	*Exhaust Valve Spring	.15	.15	.15	.15	.15	.15
47F23	*Inlet Valve Spring	.15	.15	.15	.15	.15	.15
47F24	*Valve Lock Lever	...	.15	.15	.15	.15	.15
47F25	*Valve Lock Stud	...	.15	.15	.15	.15	.15
47F26	*Valve Lock Spring	...	.10	.10	.10	.10	.10
47F27	*Pipe Plug	...	.06	.06	.06	.06	.06
47F28	*Valve Lever	.40	.45	.50	.55	.60	.75
47F29	*Valve Lever Pin	.15	.15	.15	.15	.20	.20
47F30	*Street Elbow	.25	.25	.30	.40	.70	1.00
47F32	*Muffler Body with Nipple	.80	1.20	1.45	1.65	2.00	2.90
47F33	*Muffler Cap only	.55	.80	.95	1.20	1.45	1.60
47F33A	*Muffler complete with Nipple and Cap	1.35	2.00	2.40	2.85	3.45	4.50
47F35	*Gasoline Mixing Valve Complete	1.95	2.10	2.60	2.85	3.40	3.75
47F38	*Supply Pipe and Connectors	.50	.50	.50	.50	.50	.50
47F40	*Strainer Nipple	.45	.45	.45	.45	.45	.45
47F42	*Gasoline Tank	1.60	1.95	2.45	2.60	3.10	3.50
47F48	*Cam Rod	.95	1.05	1.20	1.30	1.45	1.85
47F49	*Cam Gear	1.10	1.20	1.50	1.75	2.25	2.50
47F52	*Cam Gear Stud	.20	.35	.40	.45	.50	.65
47F52¼	*Cam Gear Stud Nut	.10	.10	.10	.15	.15	.15
47F52⅓	*Cam Gear Lock Washer	.06	.06	.06	.06	.06	.06
47F53	*Crankshaft Pinion	.75	2.00	2.50	2.75	3.25	3.75
47F54	*Crankshaft Pinion Key	.10	.15	.15	.15	.15	.15
47F55	xCrankshaft	4.00	5.50	7.75	9.75	12.75	18.00
47F56	Connecting Rod	*2.00	*3.50	x4.00	x5.25	x6.50	x8.25
47F57	*Connecting Rod Bushing	.30	.35	.40	.45	.50	.60
47F58	*Connecting Rod Bearing (2 halves)	.85	.95	1.25	1.75	2.25	3.00
47F59	*Connecting Rod Bolt with Cotter Pin	.35	.35	.35	.50	.55	.60
47F59¼	*Connecting Rod Nut	.10	.10	.10	.10	.10	.10
47F60	*Connecting Rod Liners, thick, per set	.20	.20	.20	.20	.20	.20
47F61	*Connecting Rod Liners, thin, per set	...	.20	.20	.20	.20	.20
47F63	*Connecting Rod Grease Cup	.35	.40	.45	.50	.55	.60
47F64	Piston	*1.45	*1.90	*2.40	x3.00	x3.75	x4.75
47F65	*Piston Ring	.35	.40	.45	.50	.55	.75
47F66	*Piston Pin	.45	.50	.55	.65	.95	1.35
47F67	*Piston Pin Set Screw with Locknut	.10	.10	.15	.15	.20	.20
47F68	xFlywheel (each)	3.50	6.75	13.50	18.75	30.00	38.00
47F70	*Flywheel Key	.10	.10	.15	.15	.15	.25
47F71	*Flywheel Bolt	.25	.25	.25	.30	.30	.30
47F79	*Machine Bolt for Pulley	...	.10	.15	.15	.20	.20
47F80	*Pulley Stud with Nut	...	.15	.15	.15	.15	.20
47F80	*Pulley Set Screw on ½ H.-P.	.15	...	...	...	...	...
47F81	*Piston Oil Tube	.35	.35	.35	.35	.35	.35
47F124	*Mixing Valve Body	.75	.75	.75	1.00	1.00	1.00
47F125	*Mixing Valve Damper	.15	.15	.15	.20	.20	.20
47F196	*Valve Grinding Compound	.25	.25	.25	.25	.25	.25

NOTE—All parts marked (*) will be shipped by parcel post, postage paid. All items marked (x) will be shipped by express or freight, collect.

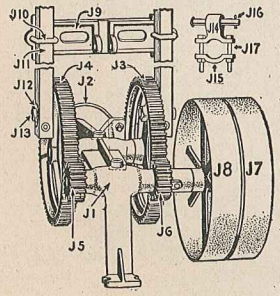
BIERMAN FRICTION CLUTCH PULLEY PARTS



Part No.	Be Sure to Give Diameter and Face of Pulley Rim	SIZE OF PULLEY 10x6	12x6 14x8 16x8	20x8 24x8
†47FC300	Clutch Spider	$6.00	$9.25	$10.00
*47FC301	Hand Wheel	1.60	2.00	2.15
*47FC302	Sliding Sleeve	3.00	3.50	4.65
*47FC303	Brake Shoe and Block	.60	1.00	1.40
*47FC304	Set Collar for Spider	.90	1.10	1.65
*47FC305	Adjusting Arm	.85	.85	1.20
*47FC306	Knuckle Joint	.....	.70	.75
*47FC307	Adjusting Bolt	.....	.60	.85
*47FC308	Friction Block	.35	.35	.45
*47FC309	Adjusting Bolt	.....	.55	.85
*47FC310	Bolt and Nut	.15	.15	.15
*47FC311	Pin	.20	.20	.20
*47FC312	Pin	.20	.20	.20
*47FC313	Pin	.20	.20	.20
*47FC314	Pin	.20	.20	.20
*47FC315	Bolt and Nut	.15	.15	.15
*47FC316	Set Screw	.10	.10	.10

PARTS FOR PUMP JACK

Part No.	Name of Part	Price
†47J1	Main Base	$4.15
*47J2	U Bolt and Nuts	.45
*47J3	Crank Gear	2.70
*47J4	Gear Shaft	.35
*47J5	Small Gear	1.25
*47J6	Shaft for Gear and Pulleys	.50
*47J7	Tight Pulley	2.70
*47J8	Loose Pulley	2.70
*47J9	Crosshead	1.00
*47J10	Crosshead Clamp with Nuts, each	.30
*47J11	Pump Arms, each	1.25
*47J12	Crank Pin Washer	.10
*47J13	Crank Pin with Nut and Cotter	.60
*47J14	Clamp Body	.75
*47J15	Clamp Cap	.38
*47J16	Clamp Pin and Cotter Pin	.20
*47J17	Clamp Bolt and Nut	.15
*47J18	Clamp, complete	1.50
*47J19	Pulley Set Screw	.15
*47J20	Extra Stand for Horizontal Jack	.60
*47J21	Bolt for Attaching Stand, each	.10
*47J22	Shaft Collar	.15
*47J23	Crank Gear Set Screw	.15



NOTE—All parts marked (*) will be shipped by parcel post, postage paid. All parts marked (†) will be shipped by express or freight, collect.

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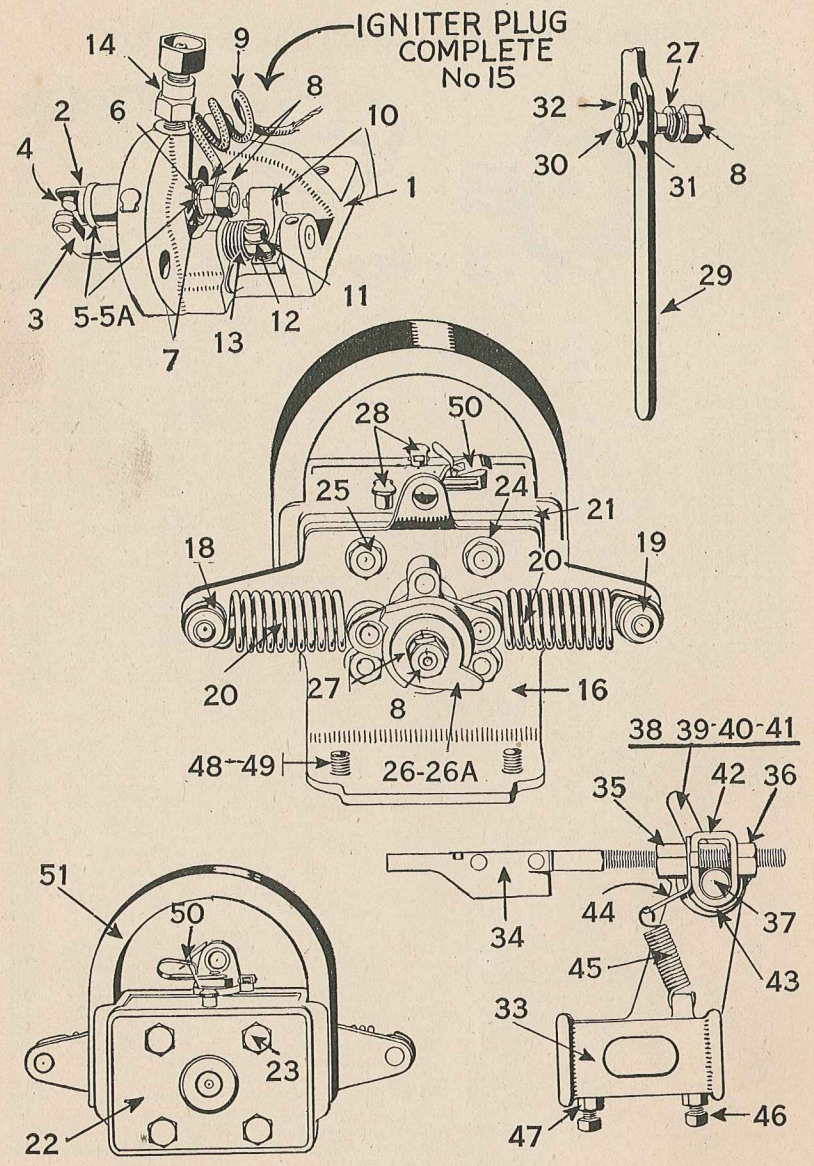

WEBSTER MAGNETO PARTS FOR MODEL F ENGINES.

We must have number, model and horse-power of your engine, also the number or model of the magneto, to furnish proper parts.

Part No.	Name of Part	Price
*47F1	Igniter Plug Body	$2.55
*47F2	Stationary Electrode with Point	.45
*47F3	Movable Electrode with Point	1.00
*47F4	Electrode Points, each	.15
*47F5	Mica Washers, each	.06
*47F5A	Mica Tube, each	.21
*47F6	Asbestos Washer	.03
*47F7	Steel Washer	.03
*47F8	Nut	.05
*47F9	Lead Wire	.18
*47F10	Electrode Arm	.75
*47F11	Electrode Arm Clamp Screw	.09
*47F12	Lock Washer for Clamp Screw	.03
*47F13	Electrode Arm Spring	.15
*47F14	Priming Cup	.45
*47F15	Igniter Plug, complete	6.00
*47F16	Magneto Bracket	1.50
*47F18	Spring Roller	.09
*47F19	Retaining Washer for Spring Roller	.03
*47F20	Inductor Springs, each	.18
*47F21	Side Plate Long Bearing	1.20
*47F22	Side Plate Short Bearing	1.00
*47F23	Bolt, Long	.21
*47F24	Lock Washer for No. 23 Bolt	.03
*47F25	Nut for No. 23 Bolt	.05
*47F26	Push Finger	1.05
*47F26A	Key to hold Push Finger on Shaft	.03
*47F27	Lock Washer	.03
*47F28	Oil Cup	.16
*47F29	Starting Lever	.21
*47F30	Stud for Starting Lever	.12
*47F31	Washer for No. 30 Stud	.03
*47F32	Cotter Pin for No. 30 Stud	.02
*47F33	Valve Rod Clamp	1.00
*47F34	Push Rod, complete	1.26
*47F35	Push Rod Nut, special	.06
*47F36	Push Rod Nut, standard	.05
*47F37	Push Rod Journal Stud	.21
*47F38	Control Lever	.36
*47F39	Ball for Control Lever	.03
*47F40	Spring for Control Lever	.09
*47F41	Retaining Washer for Control Lever	.06
*47F42	Clamp for Push Rod Journal	.15
*47F43	Washer for Push Rod Journal Stud	.03
*47F44	Spring Holder	.03
*47F45	Spring	.15
*47F46	Set Screw for Valve Rod Clamp	.06
*47F47	Lock Nut for No. 46 Set Screw	.03
*47F48	Stud for Magneto Bracket	.09
*47F49	Lock Washer for No. 48 Stud	.03
*47F50	Clip for Holding Wire	.09
47F51	If magnet needs recharging, the magneto and igniter plug complete must be returned to the factory.	

Do not return magneto until you have written us explaining your trouble, as we may be able to tell you just what to do, then if it is necessary to return be sure to ship by express, charges prepaid, and send the igniter and magneto complete.

NOTE—All parts marked (*) will be shipped by parcel post, postage paid.

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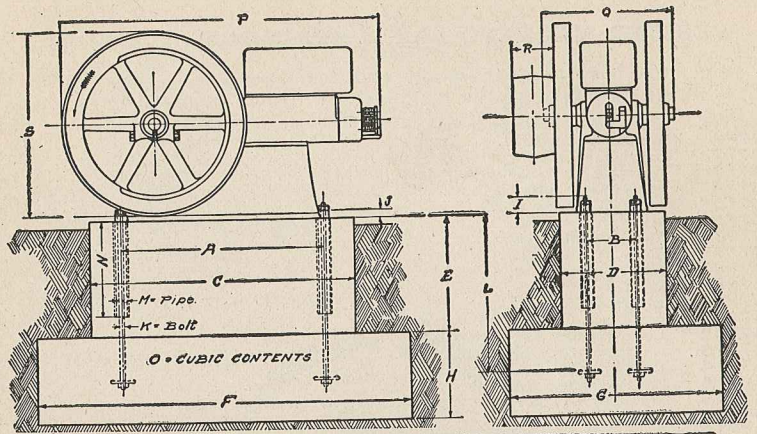


ENG.	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O. cu.ft.	P.	Q.	R.	S.
1½ H.P.	20"	5½"	29"	14"	12"	41"	26"	12"	1½"	⅞"	⅜"	18"	1"	10"	10¼	30⅞	22⅝	4"	18"
2½ H.P.	25 9/16	6½"	36"	18"	18"	48"	30"	12"	2¼"	1⅜"	½"	24"	1"	15"	16¾	39⅜	21½	4"	22"
5 H.P.	29¼	8"	42"	20"	18"	56"	34"	12"	2½"	1½"	⅝"	24"	1¼"	15"	22"	46⅜	24 13/32	4"	28"
7 H.P.	36¼	9"	48"	20"	18"	66"	38"	18"	2½"	1½"	⅝"	27"	1¼"	15"	36"	56 7/16	26 11/16	6"	34"
9 H.P.	41½	10"	54"	22"	24"	77"	44"	18"	2¾"	1½"	¾"	33"	1¼"	20"	52	64⅝	28 31/32	8"	38"
12 H.P.	47 1/16	12"	62"	25"	24"	86"	50"	18"	2¾"	1½"	¾"	33"	1¼"	20"	66¼	73 7/16	31 23/32	8"	44"

When an engine is to be located permanently it is best to mount it on a concrete foundation as shown above. In the table each letter shows the distance between the points as indicated in the drawing above.

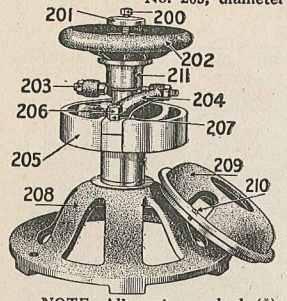
To make a foundation like this dig a hole as long and wide as indicated by "F" and "G" and as deep as the sum of "E" and "H". If ground is not solid line hole with lumber or sheet metal to prevent caving. Make a box without top or bottom of size as indicated by "C," "D" and "E." Across the top of this box securely attach a couple of strips 2 or 3 inches wide, thickness as indicated by "J" and spaced as indicated by "A," measuring from center to center. These strips should be long enough to reach clear across the hole for foundation and box hung in the center of it. The top edges of box must be perfectly level. In the cross strips bore holes of size as indicated by "K" spaced as indicated by "A" and "B." Foundation bolts of length indicated by "L" fitted with large washers on the bottom should be hung from the cross strips. A piece of pipe or tubing larger than the bolt should be placed on the bolts as indicated by the dotted lines in the diagram. The pipe or tubing should come about ¼ inch below the top of the cross pieces and is put in so bolts can be shifted on account of a variation in the bolt holes in the engine base.

If engine is to be raised from ground the measurement "E" and length of bolts "L" should be increased to correspond with the height of foundation above ground, but measurements below ground must not be changed.

The concrete should be made up of one part good Portland cement, two parts clean sharp sand and four parts clean gravel or crushed stone. Mix thoroughly while dry and then add water, again mixing well till you have a good mixture. Place this in the foundation hole and fill up to within ½ inch of the top of the box. Then fill the remaining space with a mixture of one part cement and two parts sand mixed thoroughly and moistened sufficiently so it can be spread and troweled smooth. Let the foundation set for two or three days, when the wood forms can be removed and space around foundation filled with earth or cinders. Then mix cement and water about like thick cream and fill the spaces between the pipe and bolts. Mount the engine, put nuts on bolts and screw down tight. It will be best to let foundation harden for at least a week or ten days before using the engine.

EDGEMONT FRICTION CLUTCH PULLEY PARTS.

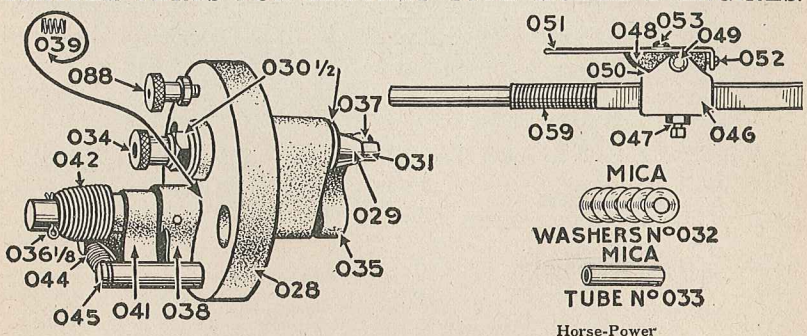
Be sure when ordering parts for clutch to give diameter of friction No. 205, diameter and width of pulley and horse-power of engine.



Part No.	Description	2½, 5	7	9, 12
		Horse-Power		
*47E200	—Bolt	$0.15	$ 0.15	$ 0.15
*47E201	—Washer	.30	.30	.30
*47E202	—Hand Wheel	1.50	2.00	2.00
*47E203	—Adjusting Screw	.18	.18	.18
*47E204	—Clutch Dog, each	.75	.90	.90
x47E205	—Friction	7.50	10.00	10.00
*47E206	—Locknut	.12	.12	.12
*47E207	—Nut	.12	.12	.12
x47E208	—Pulley Frame	5.00	5.75	8.75
*47E209	—Clutch Cover	1.50	1.75	1.75
*47E210	—Set of 3 Screws	.16	.16	.16
*47E211	—Cam	2.25	2.50	2.50
x47E212	—Pulley Shaft	.75	.75	.75
*47E213	—Threaded Clutch Collar	.40	.40	.40
*47E214	—Shaft Set Screw	.16	.16	.16
*47E215	—Key for Friction	.30	.30	.30

NOTE—All parts marked (*) will be shipped by parcel post, postage paid, at prices shown. Parts marked (x) will be shipped by express, collect.

IGNITER PARTS FOR BATTERY TYPE MODEL E ENGINES.



Part No.	Description	1½	2½	5	7	9	12
		Horse-Power					
47E028	*Igniter Body	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50
47E029	*Stationary Electrode	.25	.25	.25	.25	.25	.25
47E030½	*Stationary Electrode Nut	.05	.05	.05	.05	.05	.05
47E031	*Stationary Electrode Point	.08	.08	.08	.08	.08	.08
47E032	*Insulating Washers (set)	.06	.08	.08	.08	.08	.08
47E033	*Insulating Tube	..	.10	.10	.10	.10	.10
47E034	*Binding Nut	.10	.10	.10	.10	.10	.10
47E035	*Movable Electrode	.50	.50	.50	.50	.50	.50
47E036⅛	*Cotter Pin	.05	.05	.05	.05	.05	.05
47E037	*Movable Electrode Point	.08	.08	.08	.08	.08	.08
47E038	*Igniter Anvil	.25	.25	.25	.25	.25	.25
47E039	*Igniter Anvil Seating Spring	..	.08	.08	.08	.08	.08
47E041	*Igniter Trip	.45	.45	.45	.45	.45	.45
47E042	*Igniter Tension Spring	.08	.08	.08	.08	.08	.08
47E044	*Igniter Trip Spring	.08	.08	.08	.08	.08	.08
47E045	*Igniter Stop Pin	.10	.10	.10	.10	.10	.10
47E046	*Igniter Trip Bracket	.35	.50	.50	.50	.50	.50
47E047	*Set Screw and Locknut	.10	.10	.10	.10	.10	.10
47E048	*Igniter Trip Lever	.15	.30	.30	.30	.30	.30
47E049	*Igniter Trip Lever Pin	.08	.08	.08	.08	.08	.08
47E050	*Igniter Trip Lever Spring	.08	.08	.08	.08	.08	.08
47E051	*Igniter Trip Lever Blade	.35	.35	.35	.35	.35	.35
47E052	*Trip Lever Adjusting Screw	.08	.08	.08	.08	.08	.08
47E053	*Igniter Trip Blade Locknut	.06	.06	.06	.06	.06	.06

NOTE—All parts marked (*) will be shipped by parcel post, postage paid.

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Instructions for Adjusting Webster Magneto as Used on Model E Engines.

To see if it is furnishing a spark, remove the magneto and the igniter by taking off the two nuts that hold the igniter to the cylinder. See if the igniter points are together. If not, loosen the locknut "P" (Figure 17) and turn the adjusting screw "E" until they do come together. Then trip the magneto with the tripping lever the same as when you start the engine, and see if the spark occurs at the igniter points.

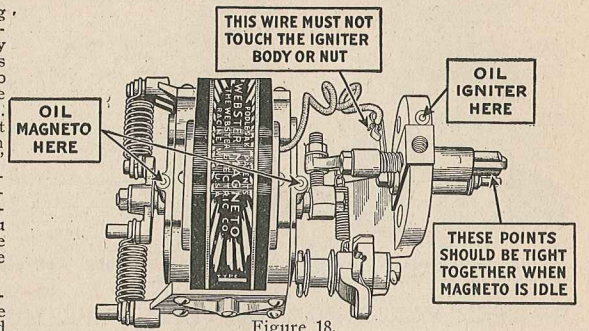


Figure 18.

Be sure the wire connecting magneto to the igniter is securely fastened and that it does not touch any other metal part of the igniter.

The magneto is equipped with a spark advance or retard. When starting the engine push this lever away from the cylinder head as far as it will go; as soon as the engine is running push it back toward the cylinder head; you will not get the power from your engine if this lever is not in the running position as mentioned.

Under no circumstances take the magneto apart. Keep it clean and properly oiled. If you cannot get a spark, write us for further information.

TO SEE THAT SPARK TAKES PLACE AT PROPER TIME.

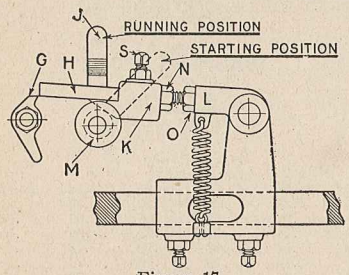


Figure 17.

First. Adjust the screw "E" (Figure 19) so you can slip a piece of paper between the screw and push finger "G." Tighten locknut "P." The points of the igniter must be tight together when magneto is idle.

Second. Turn flywheels to the right until the piston starts back into the cylinder on the compression stroke, then continue to turn them slowly until the word **Spark** on the rim of the flywheel is opposite the top of the cam rod (Figure 20). This is the point at which the spark should be made.

Third. Place the tripping lever on the magneto and cock the springs. Be sure the timing lever "J" (Figure 17) is in the running position.

Fourth. See that the screws which fasten the clamp to the push rod are tight and that the screw nearest the cylinder head is in the hole in the bottom of the cam rod. Then adjust the length of push rod "H" (Figure 17) until the end of the rod touches the push finger "G" and tighten locknut "O."

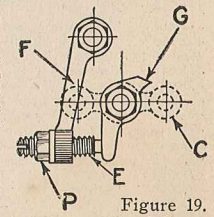


Figure 19.

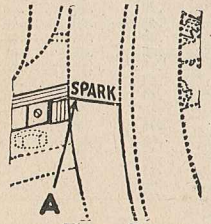


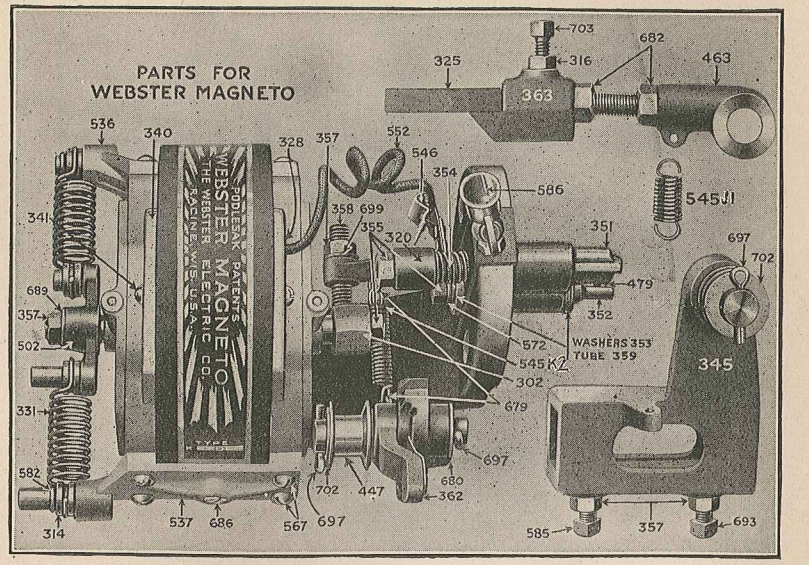
Figure 20.

Fifth. Loosen set screw "S," move wedge "K" on the push rod toward the magneto until the lower edge of the end of the rod "H" is just even with the upper edge of the magneto push finger "G" as shown, tighten set screw "S," then the locknut "N."

Sixth. Be sure the magneto wire is fastened to the terminal (Figure 18). Turn the flywheels to the right to see if the magneto trips off when the word **Spark** on the flywheel is opposite the top of the cam rod (Figure 20). If not, adjust the wedge "K" (Figure 17) carefully until it does. To make engine fire earlier, move wedge "K" toward magneto. To fire later, move wedge "K" away from magneto.

Parts List for Wester Magneto as Used on Model E Engines.

When ordering parts always give engine number, horse-power, and the letter that is given after the horse-power on the plate on top of the water reservoir; also type and number as shown on the magneto itself.



Part No.	Description	Price	Part No.	Description	Price
47E302	Push Finger	$0.55	47E502	Spring Arm	$0.60
47E303	Bracket, complete	5.50	47E536	Magnet Clamp (short pin)	.30
47E314	Spring Roller	.20	47E537	Magnet Clamp (long pin)	.35
47E316	Nut for Set Screw	.05	47E542	Key (Shafts or Electrode)	.05
47E320	Electrode Arm	.30	47E545J1	Journal Spring	.15
47E325	Push Rod	.35	47E545K2	Electrode Arm Spring	.15
47E328	Fiber Bushing	.10	47E546	Plug Terminal—Bronze	.20
47E331	Inductor Spring	.15	47E552	Terminal Wire	.10
47E339	Shaft Washer	.05	47E567	Clamp Screw	.05
47E340	Top Cover	.40	47E572	Electrode Washer	.05
47E341	Cover Screw	.05	47E577	Starting Lever	.25
47E345	Valve Rod Clamp	.85	47E582	Split Ring	.05
47E351	Movable Electrode and Point	.85	47E585	Set Screw (sharp point)	.10
47E352	Stationary Electrode and Point	.75	47E586	Priming Cup	.45
47E353	Insulating Washer	.10	47E679	Spring Cotter Pin	.05
47E354	Electrode Spring	.10	47E680	Eccentric Washer	.05
47E355	Nut	.05	47E682	Push Rod Nut	.05
47E357	Nut	.05	47E686	Magnet Bar Set Screw	.10
47E358	Adjusting Screw	.10	47E689	Washer for Spring Arm Nut	.05
47E359	Mica Tube	.25	47E693	Set Screw (cup point)	.10
47E362	Control Lever	.80	47E697	Eccentric Cotter Pin	.05
47E363	Wedge	.25	47E699	Adjustable Screw Lock Washer	.05
47E447	Push Rod Roller	.25	47E702	Roller Washer	.05
47E463	Push Rod Journal	.35	47E703	Wedge Set Screw	.10
47E479	Spark Point	.25	47E708	Wedge Set Screw Nut	.05

NOTE—All parts shipped by parcel post, postage paid.

Do not return the magneto until you have taken the matter up with us, and then be sure to send the magneto and igniter complete.

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Instruction Book *and* List *of* Parts

Model F
Gasoline Engines

Be Sure to Give *Number* and *Horse-Power* of Engine When Ordering Parts; Also the Letter After the Horse-Power as Shown on Brass Plate on Water Reservoir.

Do not return any parts of your engine to us unless we ask you to do so. Write us first, giving number of part you want, and we will mail part at once. By doing this you will obtain quicker service.

F3779.Rev.11.16.21

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