

INSTRUCTION BOOK

WITH

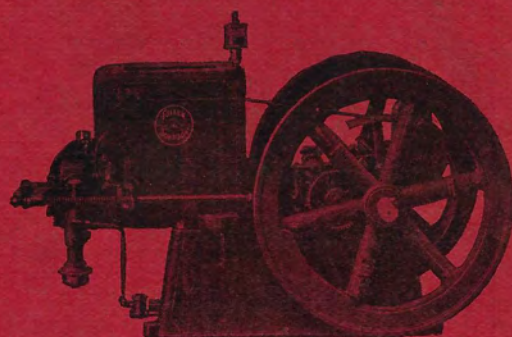
PRICE LIST OF PARTS

FULLER & JOHNSON

MODEL "N"

Gasoline Engines

3-5-7-9-12 H. P.



FULLER & JOHNSON MFG. CO.

Established 1840

Madison, Wisconsin, U. S. A.

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES

Section A

READ AND REMEMBER

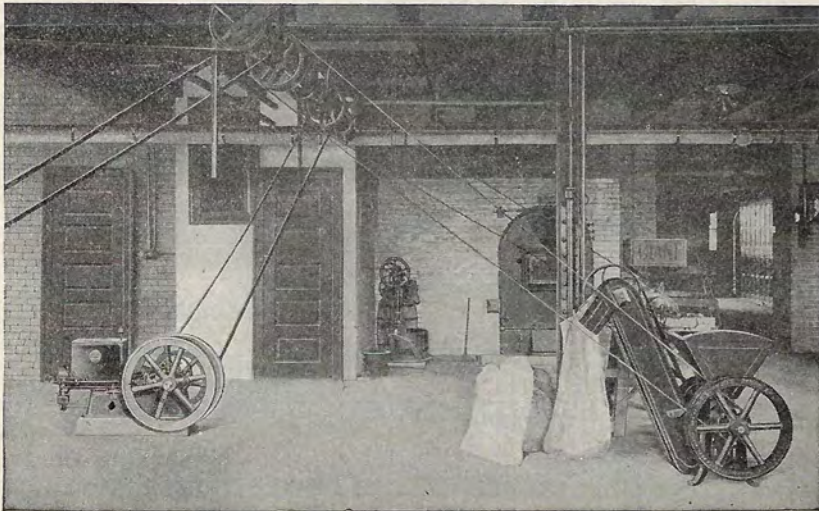
A1. Each Fuller & Johnson Engine is carefully built, thoroughly tested and rigidly inspected, when the engine leaves our factory. Therefore, leave the adjustments as they are set at the factory. Read the instructions and be sure you understand the operation of each part. **Follow the directions.**

Section B

FOUNDATION AND LOCATION

B1. When the engine is installed as a Stationary Engine in a permanent location, set the engine on a good concrete foundation and see that the engine is set perfectly level. An extra foundation plan will be furnished you on request, see Fig. 1, page 2. Where the ground is soft make the base of the foundation larger than shown. In selecting a place for the engine foundation, be sure to allow plenty of room, especially around the head end of the engine and on the operating side. For safety, a good plan is to install the engine so that the belt pulley is near the wall and set the engine so that the belt to the driven machine will not pass the head end of the engine. Place engine as shown in Fig. 2 below. Install engine in a good clean place.

B2. Small engines may be installed with the skids, provided the engine is set level and the skids securely anchored. If bolted to the floor be sure that the floor is well supported. A solid foundation adds much to the successful operation of the engine.



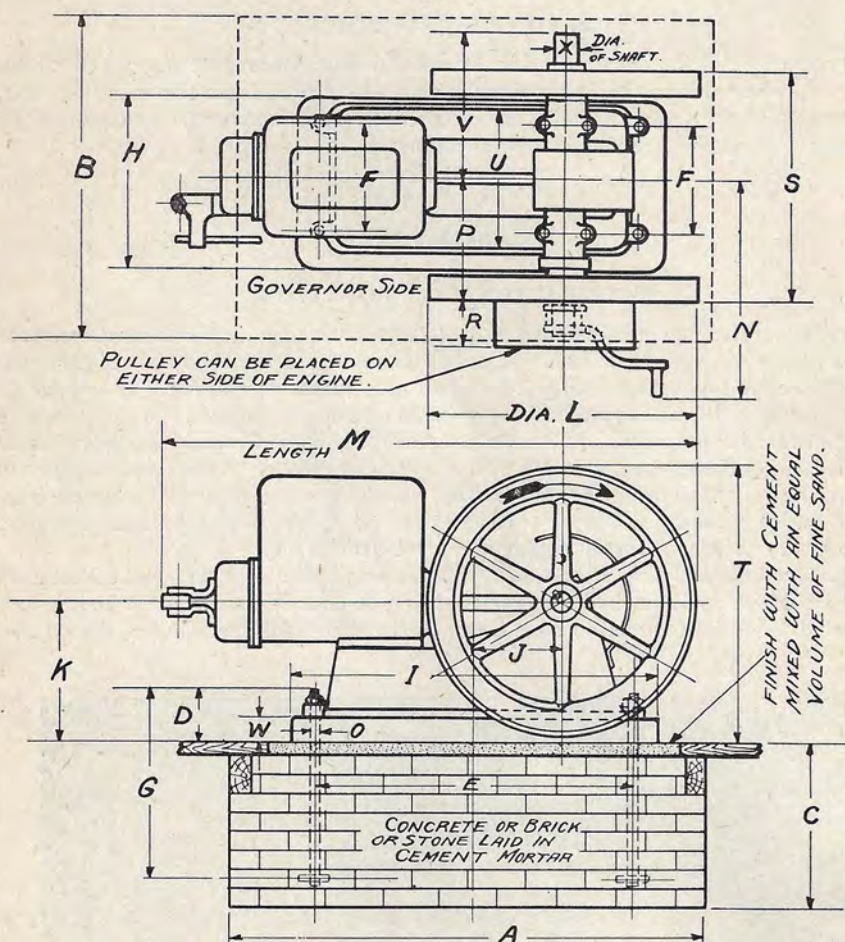
Engine on Concrete Foundation

Figure 2

Foundation Plan F. & J. Model "N" Engines

1½-2½-3-5-7-9-12 H. P.

Figure 1



FOUNDATION BOLTS SHOULD BE SET IN BOXES OR TUBES
TO ALLOW FOR VARIATIONS IN CASTINGS.
IF CAPSTONE IS DESIRED, USE DIMENSIONS "H" AND "J"

H.P.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T	U	V	W	X
1½	36	24	18	5	16	7½	NOT USED	10	22	4½	9½	16½	32	14½	7½	8½	4	15½	17½	8½	11½	3¾	1¼
2½	44	26	20	6	17½	8	24	10½	30	4½	10½	18	35½	21	½	9½	4½	18½	12½	8	13½	4½	1½
3	48	30	24	6	24½	8	24	18	32	7½	15½	22	43	21	5½	9½	4½	18½	26½	10½	15	4	1¾
5	54	32	30	6	29¾	9	24	18	40	8½	18	26	52	23	5½	11½	6½	21½	31	12	15½	4	2
7	62	36	38	8½	36	11½	36	18	44	11½	19½	32	63	25½	5½	13	8½	23½	34½	14½	17½	6	2½
9	64	40	44	8¾	38	15½	48	20	46	12	21	36	66	26½	¾	14	8½	26½	39	16½	20½	6	2½
12	72	42	44	8¾	47½	14½	48	22½	56	14½	23½	42	80	NO OR	¾	16½	8½	31	44½	17½	21½	6	2¾

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES

Section C

EXHAUST PIPING

C1. In piping the exhaust from the engine, wherever possible use a straight pipe. If the exhaust pipe passes through the wall, place a pipe union right near the cylinder head. If the exhaust pipe is longer than 10 ft. then use a size larger pipe. For each additional 20 ft. of length, enlarge one size. For example, if the exhaust opening in the engine is $1\frac{1}{4}$ " and the exhaust pipe is 15 ft. long, use $1\frac{1}{2}$ " pipe; if 25 ft. long use 2" pipe, and be sure to use the large pipe for the total length of the exhaust pipe. Remember for best results the exhaust should reach the open air within the shortest distance possible because long exhaust pipes invariably reduce the power of the engine.

C2. If the exhaust is piped up through the roof, then use a valve at the bottom of the vertical section of the pipe so that the condensed moisture in the pipe may be easily drained. To prevent rain entering the pipe, and in cold weather freezing, in which case the engine may be started but it cannot run with the exhaust pipe plugged up, a good plan is to put the muffler on the end of the pipe, or use a pipe Tee with two short nipples, or an ell with a nipple. Where the sound of the exhaust is not objectionable and where the exhaust is piped out horizontally remove the muffler. To drain the condensed moisture always have the outside end of the exhaust pipe a few inches lower than where the pipe connects to the engine. For further information see section H, page 7.

Section D

BEFORE STARTING

D1. Study the information given in illustrations on page 11, Figs. 11 and 12, and in reading the instructions where a reference is given, be sure to refer in every case to the illustration. If at the same time you will examine the part on the engine it will help you to become familiar with your engine.

D2. Clean Valves. When you are familiar with the parts proceed as follows:—Clean the admission and exhaust valve stems by squirting some gasoline or kerosene on the stems. This will clean the valve stems of any grease or dirt. Then push the valves in and out to be sure they work freely, and oil with cylinder oil.

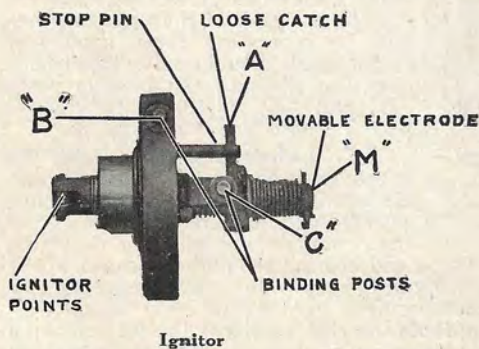
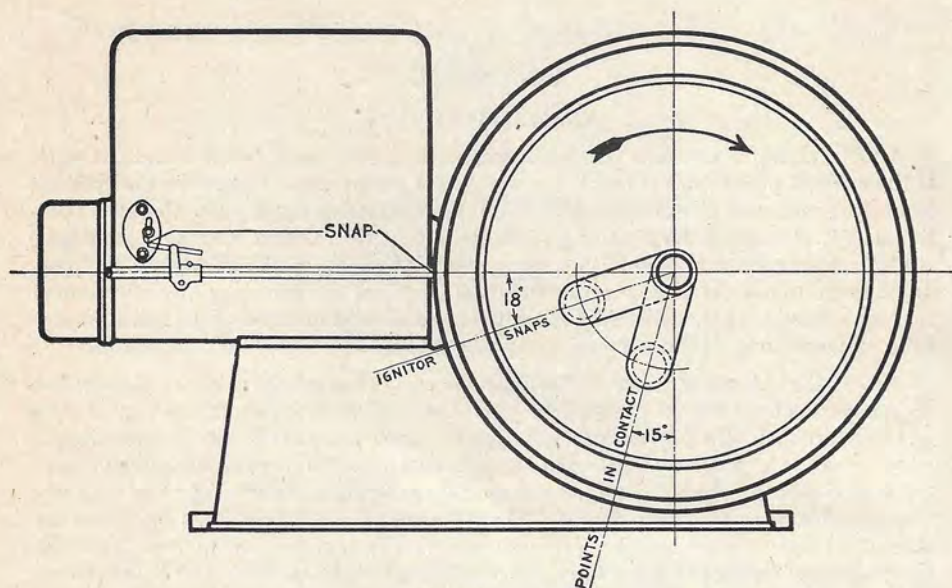


Figure 3

IGNITOR

D3. Ignitor. Examine the ignitor. Squirt kerosene on the ignitor. This will clean off the dirt and grease. Then operate the loose catch by pulling back the lever "A", Fig. 3, with a wiping stroke to be sure it snaps freely: also take hold of the movable electrode "M", Fig. 3, and rotate it slightly. Be sure electrode "M" works freely. Examine the ignitor setting frequently. Keeping the ignitor set properly will save fuel. See D4, page 4.

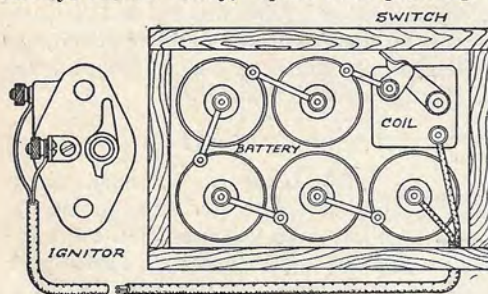


Showing Ignition Setting

Figure 4

D4. Ignition Setting. The engine gives best results when the ignition is set correctly. On Model N Engines 3—12 H. P. when equipped with battery or geared magneto, the ignitor should snap when the crank pin is about 18 degrees below the inner horizontal center, the piston moving forward on the compression stroke (before center). When the crank pin is in this position the word "snap" stamped on the face of the fly wheel will be at the center of the exhaust valve rod. See Fig. 4 above.

D5. Early and late ignition is provided for on the 9 and 12 H. P. Engines. Always run on "early," spark lever pointing vertically downward.



Shows Correct Way to Connect Battery

Figure 5

D6. Battery. If the engine is equipped with dry battery ignition, open the battery box, study the wiring diagram, Fig. 5. Be sure that all connections are tight before connecting wires to the engine, close the switch and rub the two ends of the wires together and by separating them quickly a bright spark should result. Then connect the wires to the binding posts "B" and "C" on the ignitor Fig. 3, page 3. Also see section K, page 9.

D7. Lubrication. Examine the grease cups on the main bearings and if there is plenty of grease in the cups give the cup an extra turn to force the grease on the bearing. The adjusting

nut on the spring grease cup on the connecting rod bearing should be loosened about two or three turns. This will permit the spring in the cup to force the grease on this bearing while the engine is running. In summer use a harder cup grease than in winter. If the cup on the crank pin bearing feeds too slowly enlarge the feed opening by means of the adjusting screw which is either inside the cup or on the shank of the cup depending on the style of grease cup.

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES



Figure 6

D8. Water Cooling Hopper. Next close the water cock, Fig. 11, page 11. and fill the hopper half full of clean water, Fig. 6. Warm water aids in starting in cold weather. Keep the hopper tank and water passages clean of any sediment or dirt. Never allow the water to freeze in the hopper. It is easier to drain the hopper than to repair the damage that may be caused by freezing. When engine is operating under load the water will boil and evaporate. More water must be added so that the inner cylinder is kept entirely submerged in water. See Fig. 6.

Section E

SPEED OF ENGINE

E1. A slight adjustment of speed is allowable and can be made by adjusting the speed regulator nut, Fig. 11, page 11. Turn to the right to increase speed and to left to decrease speed. Best results are obtained when the engine runs at the speed given on the name plate.

Section F

TO START ENGINE

- F1.** Study all the preceding instructions carefully. Then proceed as follows:
- F2.** Tighten the grease cups on main bearings and connecting rod and set feed on cylinder oil cup to drop 12 to 20 drops per minute. Oil small parts with a squirt can.
- F3.** Open the gasoline throttle to the starting mark "S."
- F4.** Close the starting damper. Place damper handle in horizontal position.
- F5.** Close switch on battery. (If battery ignition.)
- F6.** Close switch on magneto circuit (if magneto ignition).
- F7.** Prime the cylinder through the priming cup. Put in one or two priming cups full if the engine is cold, and one-half to one priming cupful if the engine is hot. The hotter the engine the less gasoline for priming is required. Read first twelve lines paragraph F10.
- F8.** Attach the starter crank on the governor side and give the engine a few quick turns. As soon as the engine starts, open the starting damper and adjust the gasoline throttle to the running mark "R." For starting 9 and 12 H. P. engines see paragraph F10.
- F9.** After the engine has been running a while, it will give best results if the throttle is closed slightly. The closer the throttle is set the less the fuel used and the better the engine will operate. In setting the gasoline throttle, close it as much as possible so long as the speed of the engine is maintained.

STARTING 9 AND 12 H. P. ENGINES

F10. If battery ignition, examine battery and connections and see to it that you have a good sharp spark about $\frac{1}{4}$ inch long. Open priming cup to relieve compression and then turn fly wheel in the direction the engine runs, until the ignitor snaps. Then just a little further until piston is at end of inner stroke with crank lying flat, pointing toward cylinder, and the exhaust valve closed. Open gasoline throttle valve to point "S", close starting damper (handle in horizontal position), close priming cup "A" and fill it full with high test gasoline from squirt can (see section F7), turn fly wheel forward one-half revolution at same time open priming cup so that gasoline may be drawn into cylinder, but don't open the priming cup till the crank is nearly perpendicular, because the piston will then have formed a partial vacuum which will cause the gasoline to rush in and be more perfectly sprayed and mixed with the in-passing air. Stop the fly wheel just as the crank reaches the end of the outer stroke, or one-half revolution. Turn fly wheel back against the compression once, then forward again until the crank again reaches the end of the outer stroke; this will help to thoroughly mix the gas; close battery switch, then grasp a spoke of the fly wheel and give a quick, strong pull, backward against the compression and just at the instant the highest possible compression is reached, trip the ignitor by quickly pulling back lever "A" (Fig. 3, page 3), but not so swift as to prevent the points of the ignitor making a perfect contact inside the cylinder. A "wiping" stroke is best.

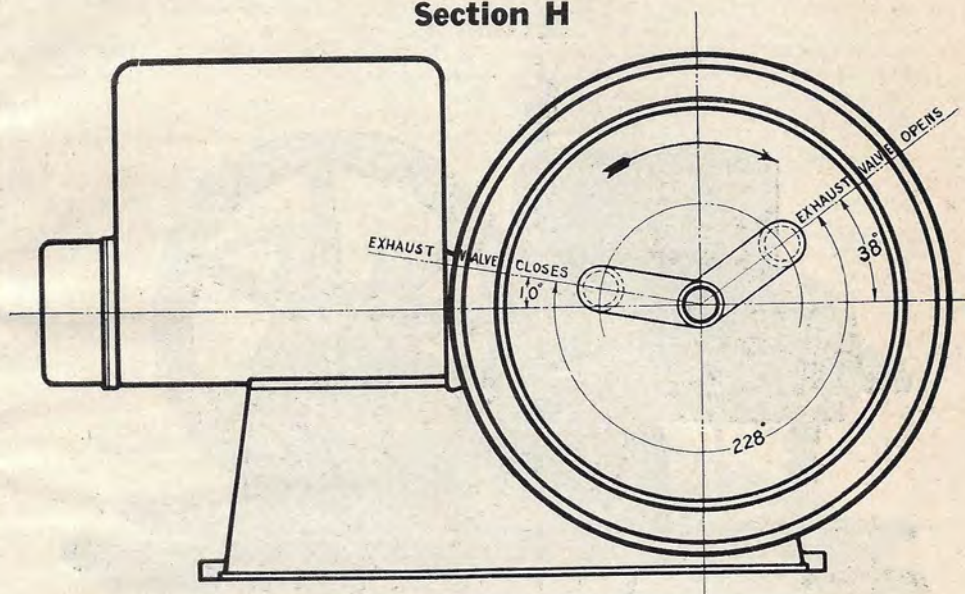
This should produce a spark that will ignite the charge and drive the piston forward with sufficient force to give the fly wheels two revolutions and draw in the second charge through the admission valve. On second explosion quickly open the air damper and close throttle valve to point "R." Too much gasoline will stop the engine as quickly as too little.

Section G**TO STOP ENGINE**

- G1.** Close fuel throttle.
- G2.** Shut off cylinder oiler.
- G3.** Open battery switch (if battery ignition).
- G4.** Drain hopper in cold weather.

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES

Section H



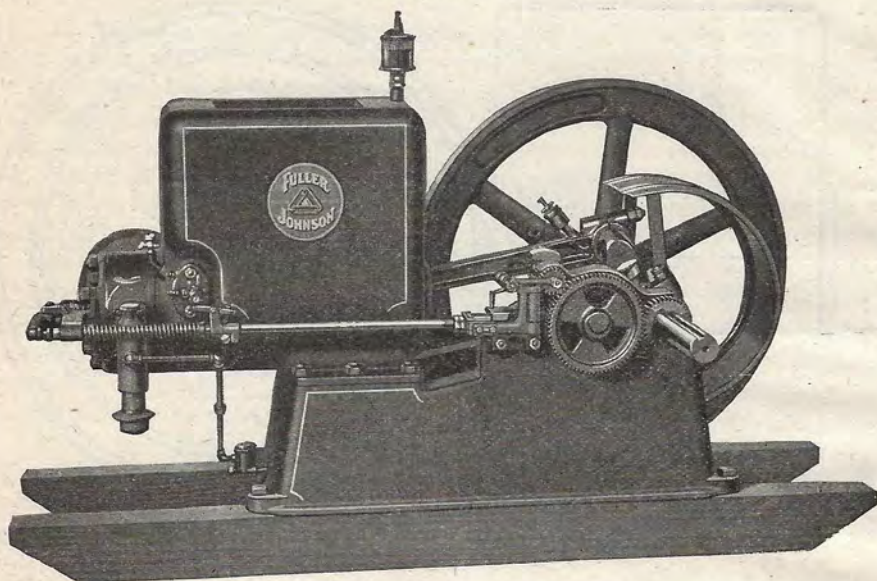
Showing Valve Setting

Figure 7

H1. Exhaust Valve. The burnt gases and refuse from the lubricating oil are forced out through the exhaust valve. Therefore it is necessary to use high grade **gas engine lubricating oil** and keep the fuel throttle set properly. Also use a large exhaust pipe and have it as short as possible. The least accumulation of anything that interferes with the perfect seating of the valve will cause a leak. To determine if the exhaust valve seats properly, turn the fly wheel around in the direction the engine runs until the piston moves forward on the compression stroke. If valve seats properly there will be no leaking or hissing noise at the exhaust. Should the valve leak, first be sure the valve stem is clean. Squirt some **gasoline** on the stem and push the valve in and out, in order that it will work freely in the valve guide. If the valve still leaks, start the engine and while the engine is running take a pair of pliers and rotate the valve on its seat. Then take a block of wood and tap on the end of the exhaust valve lever right next to the exhaust valve stem. By doing this you will find that the tapping will lift the valve from the seat at the time of the explosion and the force of the explosion will blow any accumulation off the valve seat, thus allowing the valve to seat properly. Should this fail it will be necessary to remove the cylinder head, clean and regrind the valve.

H2. Exhaust Valve Setting. For the best results the exhaust valve should begin to open when the crank pin is 38° above the outer horizontal center, the piston moving out on the power stroke, and should close when the crank pin is 10° above the inner horizontal center, the piston starting to move outward on the suction stroke, that is, the exhaust valve remains open while the crank pin passes through an arc of approximately 228 degrees, see Fig. 7 above.

Section I



Fly Wheel Removed Showing Governor

Figure 8

II. Governor. The hit-and-miss method of governing the speed is used on the Model N Engines. The speed governor is so arranged that the engine takes an explosion only when needed to maintain the set speed. If the engine is operating on a light load it will take an explosion, and due to this power impulse, the engine will increase in speed slightly, this slight increase in speed will cause the governor weights to move outward, which movement will force the detent swivel into the detent catch, Fig. 11, page 11, thus holding the exhaust valve open. With the exhaust valve open, no charge can be drawn into the combustion chamber, hence the engine continues to run without further power impulses until the speed drops slightly. With the slight drop in speed the detent blade swings out of the detent catch, thus allowing the exhaust valve to close and another charge to be drawn into the cylinder. If the engine is heavily loaded several successive explosions (power impulses) take place to again bring it up to the set speed. Keep the governor well oiled.

Section J

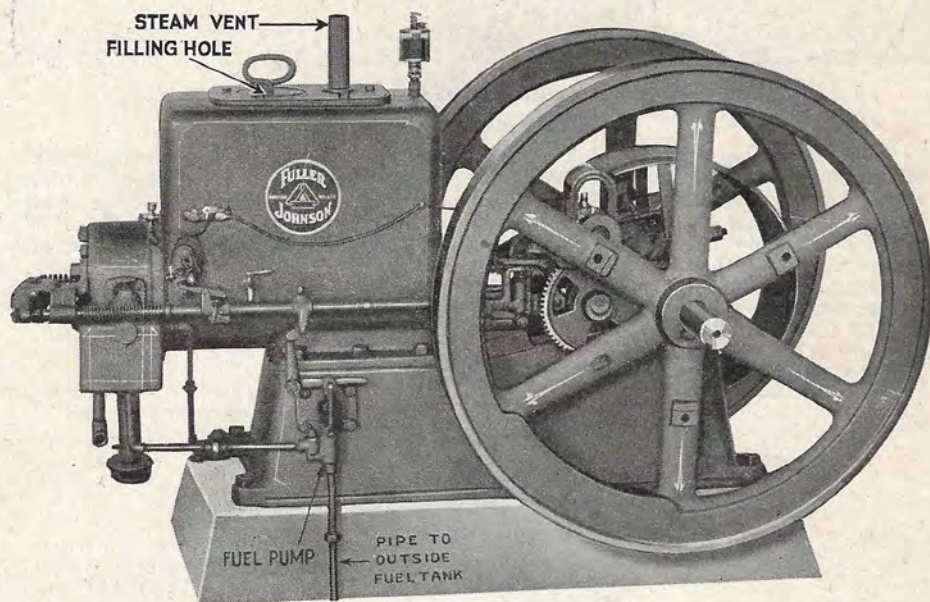
JI. Timing Gears. When the engine is adjusted at factory, the gears are set in correct relation to each other so that the parts operated by them will move in correct time. Two teeth on pinion and one on gear are marked. If for any reason they should be separated, be very careful to replace them so that the marked tooth on the gear is between the two marked teeth on the pinion, otherwise the parts operated by them will not be in time. If original marks cannot be found, make new ones before separating the gears. Read Section D4, page 4, and Section H2, page 7.

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES

Section K

K1. To Test the Circuit and Ignitor. First turn the engine in the direction in which it runs until the ignitor snaps, then stop. Close the switch and disconnect the battery wire from the binding post "B," Fig. 3, on the side of the ignitor and draw the wire across this binding nut. There should be no spark. Now push the top part of the movable catch collar "A" away from the stop pin until the ignitor points are together. Then by drawing the wire across the same binding post there should be a bright spark. If no spark, touch wire to other binding post "C", Fig. 3, page 3. If it sparks at "C" and does not spark on the first post "B," take out the ignitor and clean it thoroughly.

K2. To Remove Ignitor. To take out the ignitor turn engine fly wheel until ignitor trip, Fig. 11, page 11, moves back toward the fly wheel. Then by using the special socket wrench, the ignitor can be easily removed. In cleaning the ignitor be sure to clean the inside face of the ignitor and the ignitor points, also clean the mica washers. Be sure the movable electrode works freely. If it does not, then remove the electrode and clean the stem with fine emery cloth or fine sand paper, and oil the stem with a little gas engine oil. Be sure to examine the ignitor carefully before dismantling it. In this way you will be sure to assemble it correctly. In replacing the ignitor, first replace the ignitor gasket, then the ignitor and tighten the nuts evenly, not too tight.



Showing fuel pump on Model "N" Engine

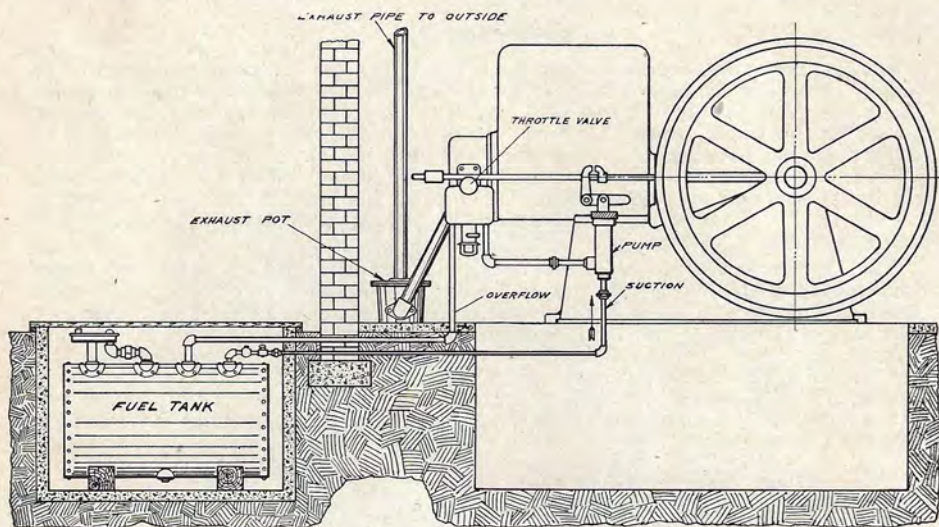
Figure 9

Section L

FUEL SUPPLY LINES

L1. To clean the fuel line or drain the tank remove the drain plug, Figure 12, page 11, by using the special socket wrench.

L2. Fuel Pump. For special installations where it is necessary to have the Model N Engine equipped with a fuel pump and outside fuel tank, the fuel tank should be installed so that the bottom of the tank is not more than 30" below the fuel pump and 30 ft. or less from the engine. See Fig. 10, page 10.



Showing outside fuel tank installation

Figure 10

L3. The suction or supply pipe must extend from gasoline pump to near the bottom of the supply tank and must be fitted with check valve and stop cock near the tank and be perfectly air tight. The return pipe from the reservoir on the engine must be so located that the surplus fuel can flow **freely** back to the supply tank. If higher at any point between the engine and the supply tank, a "trap" is formed which retards the flow of the fuel. This will interfere with the proper operation of the engine. The supply tank must be fitted with a vent and the vent must be open when the engine is running. All pipes must be thoroughly clean and washed with **gasoline** before putting together. All connections must be perfect and plenty of hard laundry soap used in the threads before screwing the pipe together.

L4. After making connections operate the fuel pump by hand (with quick strokes), to be sure all connections are O. K. and the fuel is delivered into the reservoir.

Section M

FOUR CYCLE

M1. The Fuller & Johnson Model N Gasoline Engines operate on the well known and reliable four cycle principle. In the four cycle engine the movement of the piston the full length of its travel in the cylinder constitutes a stroke, and the complete cycle, or the four strokes, to produce the explosion are as follows:

M2. Suction Stroke. Turn the fly wheels in the direction the engine runs; starting with the piston near the head end of the cylinder (the exhaust valve closed), as the piston moves outward it creates a vacuum and the mixture of air and fuel is sucked into the cylinder.

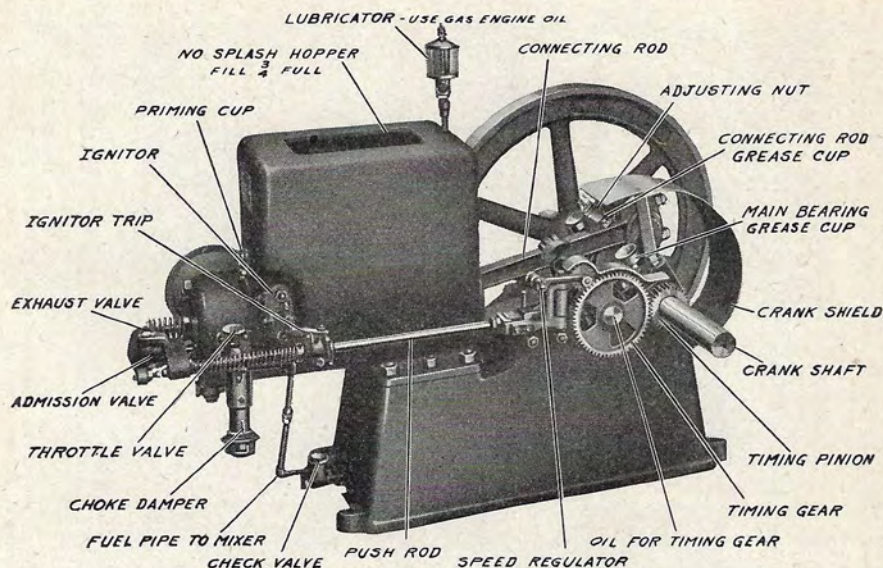
M3. Compression Stroke. As the piston moves inward it compresses the charge, both valves closed.

M4. Power Stroke. Just before the piston reaches the head end of the cylinder the spark occurs and just as the piston starts outward the explosion takes place and forces the piston outward.

M5. Exhaust Stroke. Just before the piston reaches the outer end of this stroke, the exhaust valve is opened and as the piston moves inward on the following stroke it drives out the burnt gases which the explosion created, thus clearing the cylinder ready for the next cycle.

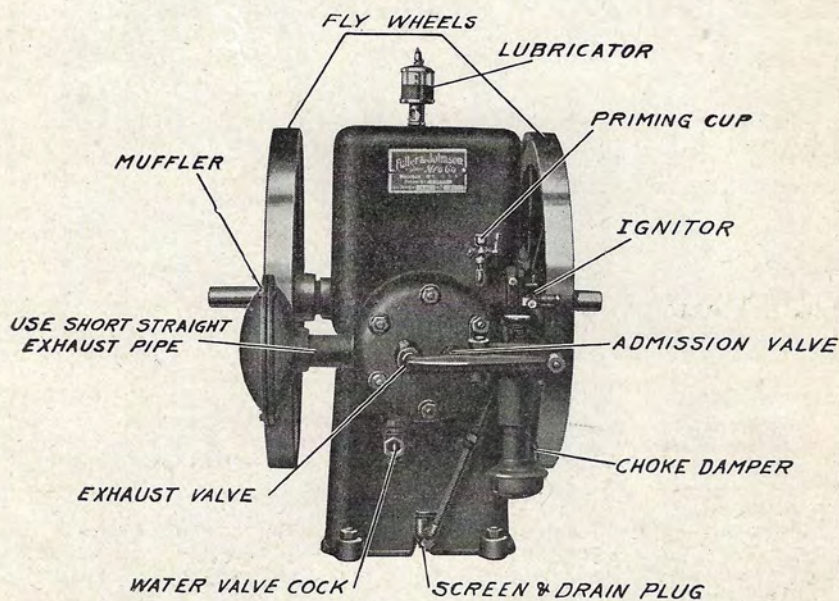
In studying your engine bear in mind the principle upon which the engine operates.

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES



Fly Wheel Removed Showing Governor on Model "N" Engine

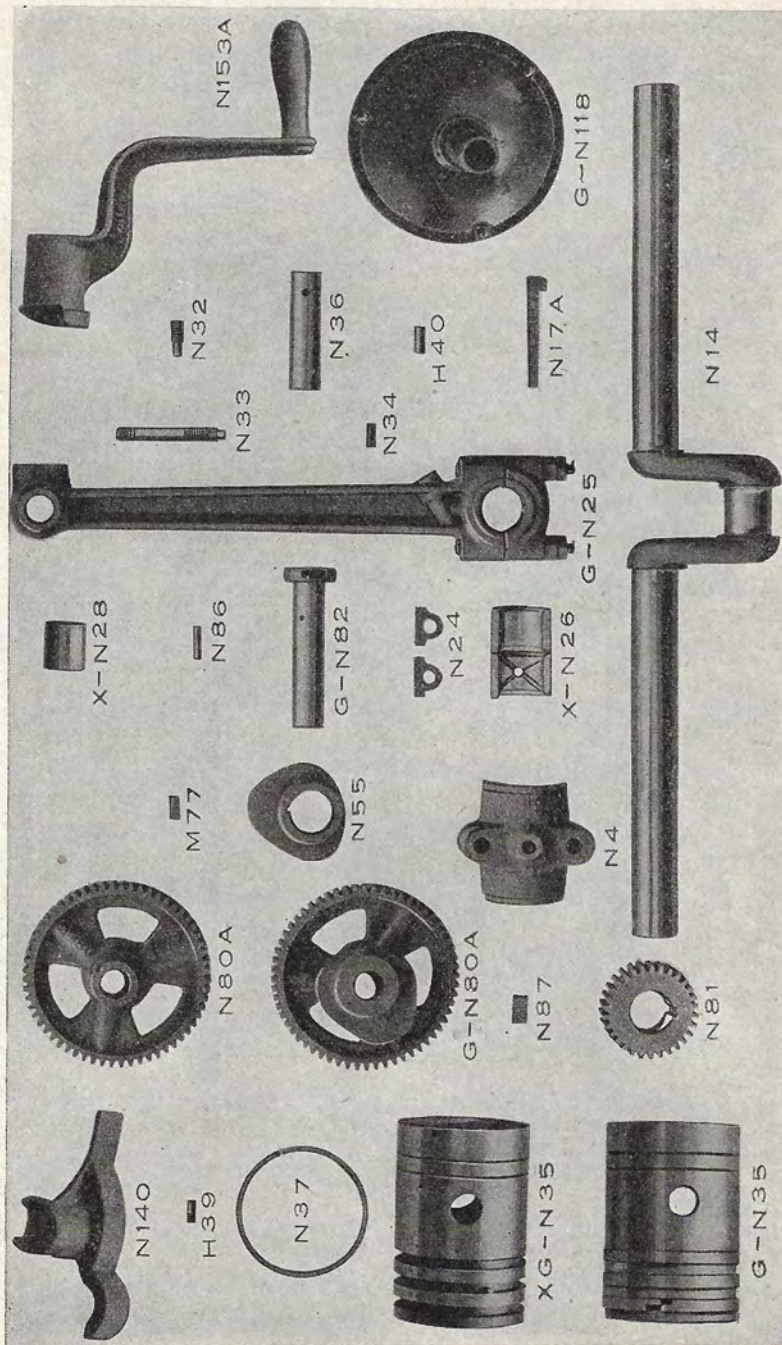
Figure 11



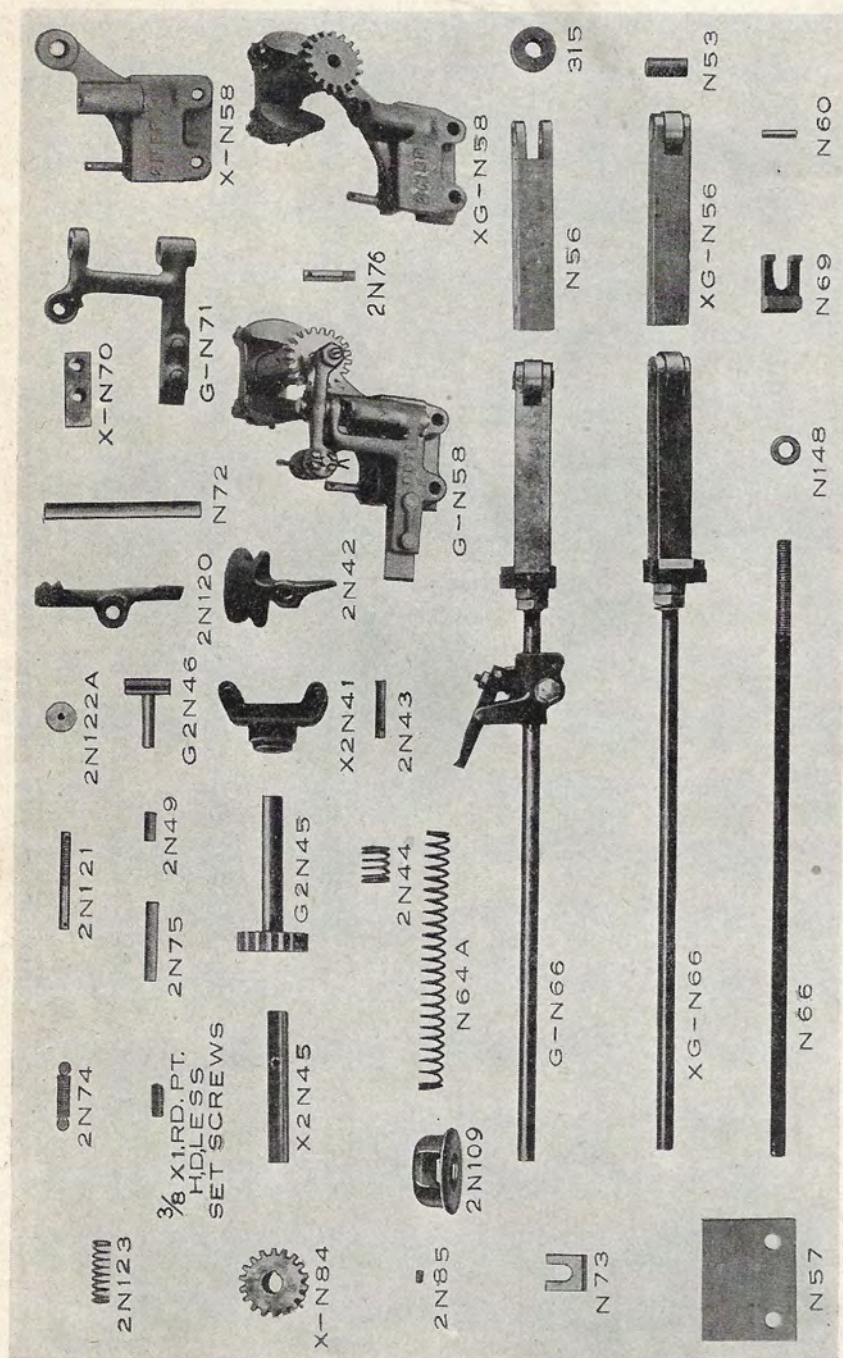
Head End View of Model "N" Engine

Figure 12

INSTRUCTIONS FOR THE FULLER & JOHNSON MODEL "N" ENGINES

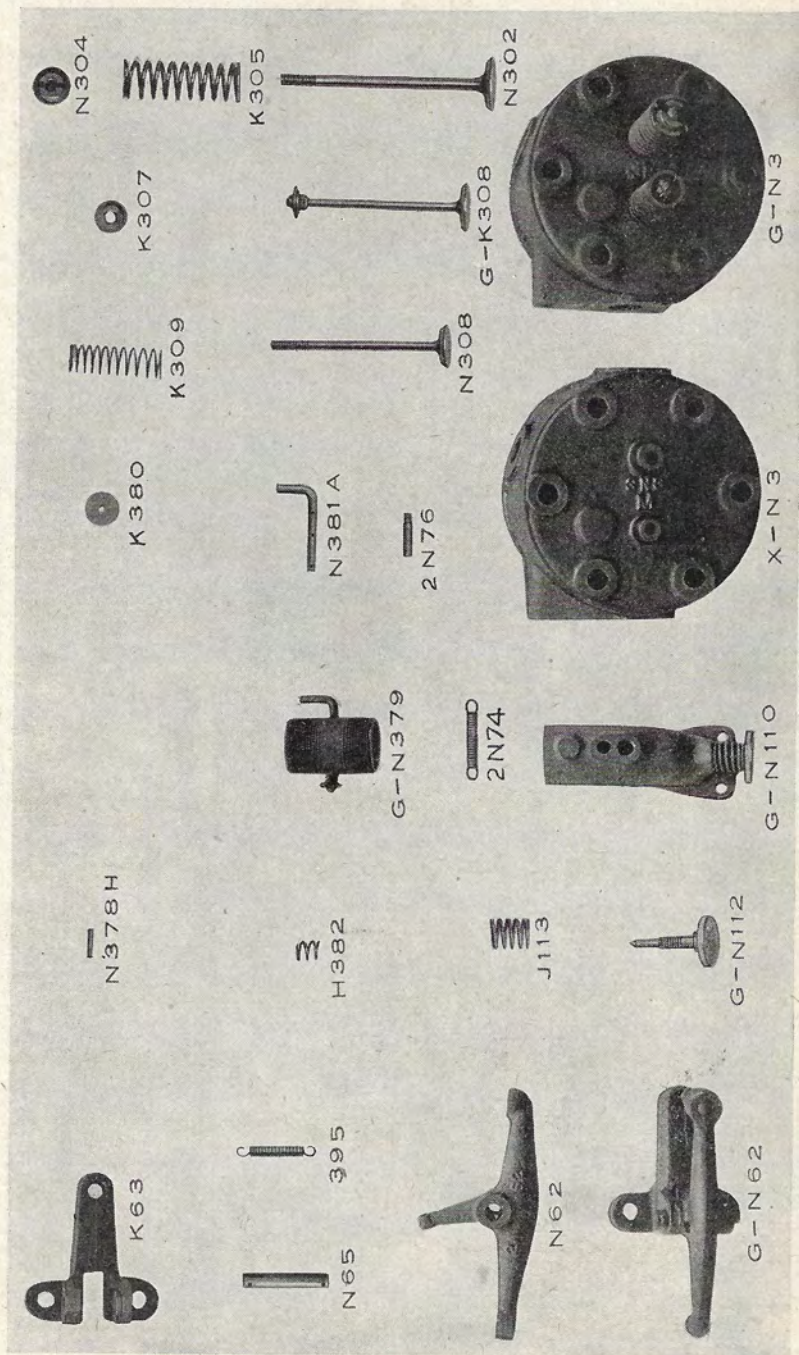


When a dash (—) appears in a symbol and number, under the photograph of the part; for example (G—N379)—look up in the Price List of Parts, under the H. P. of your engine, the number of the part; for example (379)—and you will there find the correct, complete symbol and number of the part for that particular H. P. engine.

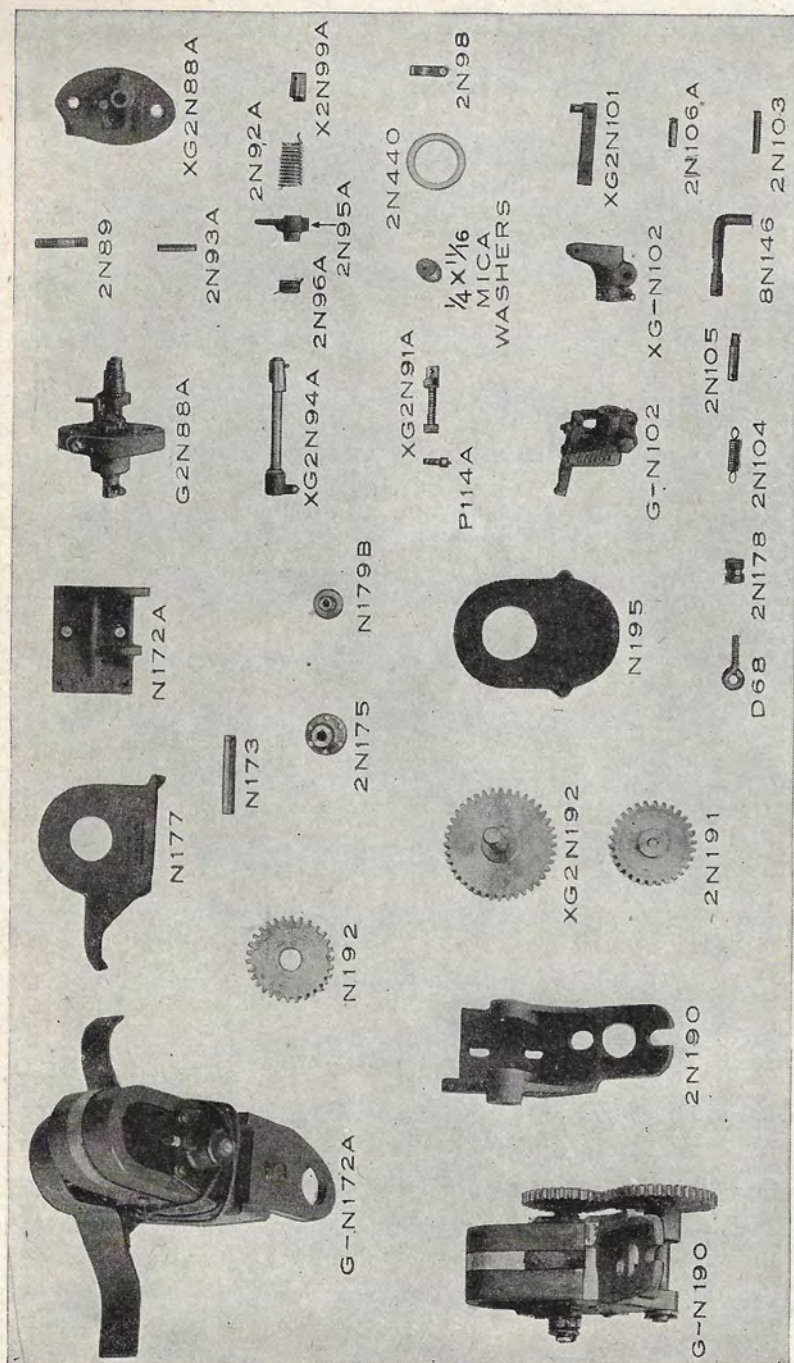


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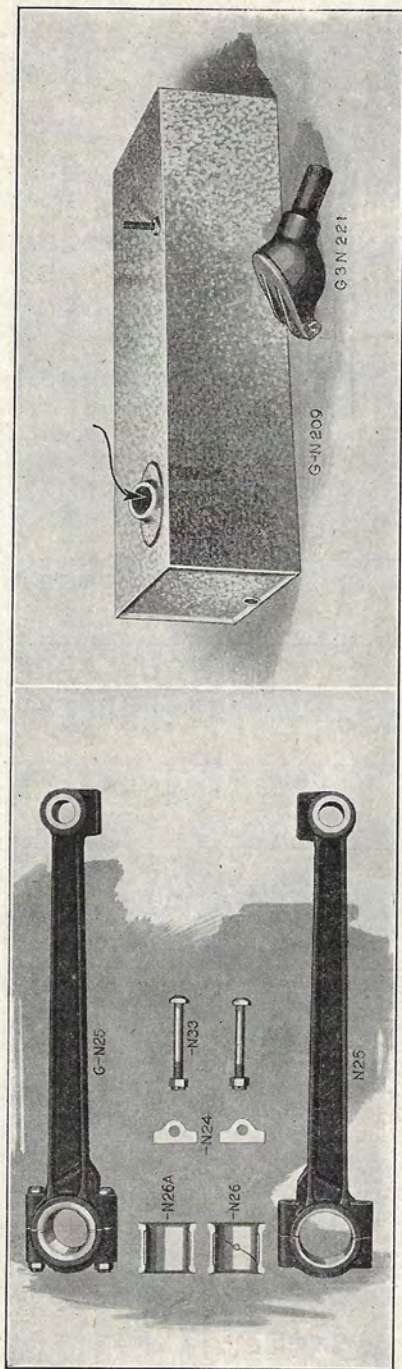
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Price List of Parts for Fuller & Johnson Model "N" Engines 3-5-7-9-12 H.P.

EFFECTIVE OCTOBER 10, 1923

All Prices Subject to Change Without Notice

TERMS: CASH WITH ORDER

To fill your orders for repairs promptly and correctly, it is absolutely necessary for you to

- ⌌ Give engine number and horse power found on name plate.
- ⌌ Give symbol number and name of part.
- ⌌ Give name of railroad or express station.
- ⌌ State how to ship, whether by mail, express or freight.
- ⌌ Write your name and address plainly.

Where a part is listed with the same symbol and number under more than one size engine, it means that this particular part is interchangeable on the different size engines under which it is listed.

Price List of Parts for Fuller & Johnson Model "N" Engines

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Crank Case (old style) with bearings, caps and studs.....	12	XG2N1A	\$22.50	XG4N1A	\$31.00	XG6N1B	\$47.00	XG9N1A	\$68.00	XG12N1A	\$110.00
Crank Case (new style) with bearings, caps and studs.....	12	XG3N1	25.00	XG5N1	34.00	XG7N1A	53.00				
Cylinder with studs only.....	12	X3N2	24.00	X5N2	34.00	X6N2	47.00	X9N2	78.00	X12N2	120.00
Cylinder complete with piston and rings.....	12	XG3N2	32.00	XG5N2	42.50	XG6N2	57.50	XG9N2	103.50	XG12N2	156.00
Cylinder Head only (old style) valve seats ground.....	15	X3N3	7.00	X5N3	9.00	X7N3	12.50	X9N3	16.00	X12N3	23.00
Cylinder Head only (new style) with 1 1/2" exhaust port, valve seats ground	15	X3N3A**	7.00								
Cylinder Head complete with valves and springs.....	15	G3N3	10.50	G5N3	13.50	G7N3	18.00	G9N3	22.00	G12N3	31.00
Cylinder Head complete with 1 1/4" exhaust port, valves and springs.....	15	G3N3A	10.50								
Main Bearing cap with bushing fitted	13	X2N4-1 1/2"	1.50	X4N4-1 3/4"	2.00	X6N4-2"	3.00	X9N4	3.75	X12N4	5.00
*Main Bearing cap with bushing, right	13	X3N4-1 1/4"	1.50	X5N4-2"	2.00	X7N4-2 1/4"	3.00				
*Main Bearing cap with bushing, left	13	X3N4A-1 1/4"	1.50	X5N4A-2 1/4"	2.00	X7N4A-2 1/4"	3.00				
Main Bearing studs.....	12	2N5	.15	4N5	.15	6N5	.20	8N5	.25	10N5	.30
Ignitor Wrench.....	12	2N7	.30	2N7	.30	2N7	.30	2N7	.30	2N7	.30
Skid for Crank case, each.....	12	2N10	1.00	4N10	1.25	6N10	2.00	8N10	2.50	12N10	3.00
Cylinder head studs, short.....	12	2N11	.15	4N11	.15	6N11	.30	8N11	.30	10N11	.40
Cylinder head studs, long.....	12	2N12	.15	4N12	.20	6N12	.30	8N12	.30	10N12	.40
Cylinder crank case studs.....	12	K13	.15	L21	.15	C13	.20	8N13	.20	L13	.30
Crank shaft.....	13	2N14-1 1/2"	11.00	4N14-1 3/4"	16.00	6N14-2"	24.00	9N14	38.00	12N14	56.00
*Crank shaft.....	13	3N14-1 1/4"	12.00	5N14-2"	18.00	7N14-2 1/4"	26.50				
Fly wheel.....	12	2N15A	12.50	4N15A	18.00	6N15A	30.00	9N15	47.00	12N15	68.00
*Fly wheel.....	12	3N15	12.50	5N15	18.00	7N15	30.00				
Fly wheel key.....	13	2N17A	.30	4N17	.35	6N17A	.45	8N17	.45	8N17	.45
*Fly wheel key.....	13	4N17	.35	6N17A	.40	8N17	.45				
Cylinder head gasket.....	12	3N20	.50	5N20	.60	7N20	.70	9N20	.75	12N20	.80

**Effective on 3 H. P. Engine No. 76881 and up, except Engines Nos. 77726 to 77825 and 77833 to 78032.

*Effective on 3 H. P. Engine No. 79201 and up. On 5 H. P. Engine No. 78993 and up. On 7 H. P. Engine No. 76751 and up, except 7 H. P. Engines Nos. 80486, 80487, 80488, 80489, 80490.

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Connecting rod shims (old style) price ea.....	13	2N24	.02	4N24	.03	6N24	.03	10N24	.03	12N24	.05
*Connecting rod shims (new style) per pair.....	17	3N24	.60	5N24	.70	7N24	.80				
Connecting rod (old style) complete with bearings, cap and studs.....	13	G2N25D	8.00	G4N25B	10.00	G6N25A	15.00	G9N25	19.50	G12N25	27.00
*Connecting rod (new style) complete with bushings, cap and bolts.....	17	G3N25	8.00	G5N25	10.00	G7N25	16.00	G9N25A	19.50		
Connecting rod bushing (old style) per pair.....	13	X2N26A	.75	X4N26	1.00	X6N26	1.50	X10N26	2.25	X12N26	3.00
*Connecting rod bushings (new style) rod half.....		X3N26	.55	X5N26	.65	X7N26	1.10				
*Connecting rod bushing (new style) cap half.....		X3N26A	.55	X5N26A	.65	X7N26A	1.10				
Connecting rod cap (old style).....	00	2N27A	1.75	4N27A	2.25	6N27A	3.00	10N27	3.50	12N27	4.00
Connecting rod bushing, piston end.....	13	X2N28	1.25	X4N28	1.50	X6N28	2.25	X8N28	2.75	X10N28	3.60
Piston pin set screw.....	13	3N32	.15	3N32	.15	7N32	.20	7N32	.25	7N32	.25
Connecting rod studs (old style).....	13	2N33	.20	H33	.25	6N33	.30	10N33	.35	10N33	.35
Connecting rod bolt with nut, each.....	17	3N33	.30	5N33	.35	7N33	.80				
Connecting rod dowel pin.....	13	11N34	.10	11N34	.10	6N34	.10	8N34	.10	8N34	.10
Piston assembled with ring pins only.....	13	XG3N35	7.00	XG5N35	8.50	XG7N35	12.00	XG9N35	20.50	XG12N35	29.50
Piston complete with rings.....	13	G3N35	9.00	G5N35	11.00	G7N35	15.00	G9N35	24.00	G12N35	34.00
Piston pin.....	13	3N36	1.35	5N36	1.75	7N36	3.00	9N36	3.25	12N36A	4.25
Piston rings.....	13	3N37	.50	5N37	.60	6N37	.75	10N37	1.00	12N37	1.35
Detent adjusting screw.....	14	2N38	.10	2N38	.10	2N38	.10	2N38	.10	2N38	.10
Piston ring pin.....	13	H39	.10	H39	.10	H39	.10	H39	.10	C39	.15
Piston pin oil tube.....	13	H40	.10	H40	.10	H40	.10	H40	.10	H40	.10
Governor yoke drilled for 2N45.....	14	X2N41	1.50	X2N41	1.50	X2N41	1.50	X2N41	1.50	X2N41	1.50
Governor weight.....	14	2N42	.60	2N42	.60	2N42	.60	2N42	.60	2N42	.60
Governor weight pin.....	14	2N43	.10	2N43	.10	2N43	.10	2N43	.10	2N43	.10
Governor weight spring.....	14	2N44	.12	2N44	.12	2N44	.12	2N44	.12	2N44	.12
Governor shaft, drilled and tapped for 2N84.....	14	X2N45	.90	X2N45	.90	X2N45	.90	X2N45	.90	X2N45	.90
Governor thrust rod complete, with rod head and flange.....	14	G2N46	.50	G2N46	.50	G2N46	.50	G2N46	.50	G2N46	.50

*Effective on 3 H. P. Engine No. 79201 and up. On 5 H. P. Engine No. 78993 and up. On 7 H. P. Engine No. 76751 and up, except 7 H. P. Engines Nos. 80486, 80487, 80488, 80489, 80490.

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Governor thrust rod bearing.....	14	2N49	.10	2N49	.10	2N49	.10	2N49	.10	2N49	.10
Cam roller pin.....	14	2N53	.10	2N53	.10	6N53	.15	6N53	.15	6N53	.15
Cam.....	13	*3N55	1.60	*3N55	1.60	6N55	2.25	6N55	2.25	6N55	2.25
Cam slide complete with roller and pin.....	14	XG2N56	2.75	XG2N56	2.75	XG6N56	4.00	XG8N56	4.75	XG8N56	4.75
Cam slide plate.....	14	2N57	.20	2N57	.20						
Cam slide bracket with spring stud.....	14	X2N58	3.00	X2N58	3.00	X6N58	3.75	X6N58	3.75	X6N58	3.75
Cam slide bracket complete with yoke, weights, pins, spring, shaft, rod, head, bearing, stud and pinion. Cam slide bracket complete with one XG2N58 bracket, with detent pin, springs, rod, swivel, speed regulator lever, screw and nut.....	14	XG2N58	10.50	XG2N58	10.50	XG6N58	12.00	XG8N58	12.00	XG8N58	12.00
Cam slide bracket stud.....	14	G2N58	14.00	G2N58	14.00	G6N58	16.50	G8N58	16.50	G8N58	16.50
Cam slide dowel pin.....	12	2N59	.10	2N59	.10	2N59	.10	2N59	.10	2N59	.10
Exhaust lever (old style).....	14	2N60	.05	2N60	.05	6N60	.05	6N60	.05	6N60	.05
Exhaust lever (new style).....	15	2N62	1.00	4N62	1.20	6N62	1.60	8N62	2.00	12N62	2.25
Exhaust lever bracket (old style) (not used) (use K63).....	15	2N62A	1.00	4N62A	1.20	6N62A	1.60				
Exhaust lever bracket (new style) (used without valve lock equipment).....	15	2N63	.....	4N63	.....	6N63	.....				
Exhaust rod spring.....	15	3K63	1.25	5K63	1.50	7K63	2.25	9K63	3.00	12K63	4.00
Exhaust lever pin.....	14	2N64A	.20	4N64A	.20	6N64A	.25	8N64	.30	8N64	.30
Push rod complete with slide, pin, collar, catch and roller.....	15	2N65	.15	4N65	.20	6N65	.35	8N65	.45	8N65	.45
Push rod complete with one XG-N66 push rod, with roller and pawl carrier complete.....	14	XG2N66	5.25	XG4N66	5.75	XG6N66	6.75	XG8N66	8.50	XG12N66	9.00
Cable eye bolt and bushing.....	14	G2N66	7.50	G4N66	8.00	G6N66	9.00	G8N66	11.50	G12N66	12.00
Detent catch.....	16	XGD68	.15	XGD68	.15	XGD68	.15	XGD68	.15	XGD68	.15
Detent blade, hardened and fitted.....	14	2N69	.90	2N69	.90	6N69	1.25	6N69	1.25	6N69	1.25
Detent complete with blade.....	14	X2N70	.35	X2N70	.35	X6N70	.50	X6N70	.50	X6N70	.50
Detent Pin.....	14	G2N71	1.50	G2N71	1.50	G6N71	2.50	G6N71	2.50	G6N71	2.50
	14	2N72	.20	2N72	.20	2N72	.20	2N72	.20	2N72	.20

*Interchangeable with 2N55.

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.			5 H. P.			7 H. P.			9 H. P.			12 H. P.		
		Symbol	Price Each		Symbol	Price Each		Symbol	Price Each		Symbol	Price Each		Symbol	Price Each	
Detent shims (set of three).....	14	2N73	.10		2N73	.10		6N73	.10		6N73	.10		6N73	.10	
Detent spring.....	14	2N74	.10		2N74	.10		2N74	.10		2N74	.10		2N74	.10	
Detent thrust rod.....	14	2N75	.10		2N75	.10		2N75	.10		2N75	.10		2N75	.10	
Detent thrust stud.....	14	2N76	.10		2N76	.10		2N76	.10		2N76	.10		2N76	.10	
Cam key.....	13	M77	.10		M77	.10		M77	.10		M77	.10		M77	.10	
Governor gear (old style).....	13	2N80	3.00		2N80	3.00		6N80A	5.50		8N80	6.00		8N80	6.00	
Governor gear (new style).....	13	2N80A**	3.00		2N80A	3.00		8N80	6.00							
Governor gear (old style) complete with cam and cam key.....	13	G2N80	5.00		G2N80	5.00		G6N80	8.00		G8N80	8.50		G8N80	8.50	
Governor gear (new style) complete with cam and cam key.....	13	G2N80A	5.00		G2N80A	5.00		G8N80	8.50							
*Timing pinion (old style).....	13	2N81-1 $\frac{3}{4}$ "	2.00		4N81-1 $\frac{3}{4}$ "	2.00		6N81-2"	2.75		10N81	3.00		12N81	3.25	
*Timing pinion (new style).....	13	4N81-1 $\frac{3}{4}$ "	2.00		5N81-2"	2.00		8N81-2 $\frac{1}{4}$ "	2.75							
Timing gear shaft with oil reservoir.....	13	G2N82A	1.00		G2N82A	1.00		G6N82A	2.50		G8N82	2.75		G8N82	2.75	
Governor pinion, drilled and tapped.....	14	X2N84	1.25		X2N84	1.25		X2N84	1.25		X8N84	1.25		X8N84	1.25	
Governor pinion screw.....	14	2N85	.05		2N85	.05		2N85	.05		2N85	.05		2N85	.05	
Timing gear shaft dowel pin.....	13	2N86	.10		2N86	.05		6N86	.05		6N86	.05		6N86	.05	
Timing pinion key (old style).....	13	2N87	.10		4N87	.10		6N87	.15		8N87	.20		8N87	.20	
*Timing pinion key (new style).....	13	4N87	.10		***5N87	.15		8N87	.20							
Ignitor body with stop pin.....	16	XG2N88A	1.75		XG2N88A	1.75		XG2N88A	1.75		XG2N88A	1.75		XG2N88A	1.75	
Ignitor complete with electrodes, springs, stop pin, loose catch, collar and ignitor points.....	16	G2N88A	6.00		G2N88A	6.00		G2N88A	6.00		G2N88A	6.00		G2N88A	6.00	
Ignitor studs.....	16	2N89	.12		2N89	.12		2N89	.12		2N89	.12		2N89	.12	
Ignitor fixed electrode, assembled with point.....	16	XG2N91A	.75		XG2N91A	.75		XG2N91A	.75		XG2N91A	.75		XG2N91A	.75	
Movable electrode spring.....	16	2N92A	.15		2N92A	.15		2N92A	.15		2N92A	.15		2N92A	.15	
Movable electrode stop pin.....	16	2N93A	.10		2N93A	.10		2N93A	.10		2N93A	.10		2N93A	.10	
Ignitor movable electrode with point, collar and taper pin.....	16	XG2N94A	2.00		XG2N94A	2.00		XG2N94A	2.00		XG2N94A	2.00		XG2N94A	2.00	
Ignitor loose catch.....	16	2N95A	1.00		2N95A	1.00		2N95A	1.00		2N95A	1.00		2N95A	1.00	
Ignitor loose catch spring.....	16	2N96A	.10		2N96A	.10		2N96A	.10		2N96A	.10		2N96A	.10	
Fixed electrode terminal (old style)...	16	2N98	.10		2N98	.10		2N98	.10		2N98	.10		2N98	.10	

**Interchangeable with N80

*Effective on 3 H. P. Engine No. 79201 and up. On 5 H. P. Engine No. 78993 and up. On 7 H. P. Engine No. 76751 and up, except 7 H. P. Engines Nos. 80486, 80487, 80488, 80489.

***Interchangeable with 6N87.

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Loose catch collar.....	16	X2N99A	.60	X2N99A	.60	X2N99A	.60	X2N99A	.60	X2N99A	.60
Mica washers (per set).....	16	.....	.15	.....	.15	.....	.15	.....	.15	.....	.15
Ignitor pawl with pin.....	16	XG2N101	.90	XG2N101	.90	XG2N101	.90	XG2N101	.90	XG2N101	.90
Pawl carrier, assembled with spring stud.....	16	†XG3N102	.90	†XG5N102	.90	†XG5N102	.90	XG8N102	1.20	XG8N102	1.20
Pawl carrier complete, with carrier, pawl pins, spring, and spring stud.....	16	G3N102	2.25	G5N102	2.50	G5N102	2.50	G8N102	3.75	G8N102	3.75
Ignitor pawl pin.....	16	2N103	.10	2N103	.10	2N103	.10	2N103	.10	2N103	.10
Ignitor pawl spring.....	16	2N104	.10	2N104	.10	2N104	.10	2N104	.10	2N104	.10
Ignitor pawl spring pin.....	16	3N105	.10	3N105	.10	3N105	.10	3N105	.10	3N105	.10
Ignitor pawl spring stud.....	16	3N106	.10	3N106	.10	3N106	.10	3N106	.10	3N106	.10
Suction pipe trap.....	14	2N109	.40	4N109	.40	4N109	.40	4N109	.40	4N109	.40
Vaporizer complete with throttle valve, and throttle spring.....	15	G2N110	3.00	G4N110	3.50	G6N110	4.00	G8N110B	4.75	G12N110	5.50
Throttle valve complete with knob.....	15	G2N112	.60	G4N112	.60	G4N112	.60	G8N112	.60	G4N112	.60
Throttle valve spring.....	15	J113	.10	J113	.10	J113	.10	J113	.10	J113	.10
Ignitor point, each.....	16	P114A	.25	P114A	.25	P114A	.25	P114A	.25	P114A	.25
Muffler complete (for 1" exhaust on 3 H. P.).....	13	G2N118	1.50	G4N118	1.85	G6N118	2.50	G8N118	4.75	G8N118	4.75
**Muffler complete (for 1½" exhaust on 3 H. P.).....	13	G4N118	1.85	.....	.....	.....	.....	.....	.....	.....	.....
Speed regulator lever.....	14	2N120	.35	2N120	.35	2N120	.35	2N120	.35	2N120	.35
Speed regulator screw.....	14	2N121	.15	2N121	.15	2N121	.15	2N121	.15	2N121	.15
Speed regulator nut.....	14	2N122A	.20	2N122A	.20	2N122A	.20	2N122A	.20	2N122A	.20
Speed regulator spring.....	14	2N123	.10	2N123	.10	2N123	.10	2N123	.10	2N123	.10
Timing gear shield.....	13	2N140	.35	2N140	.35	6N140	.40	8N140	.50	8N140	.50
Crank shield complete.....	12	G3N142	1.20	G5N142	1.50	G6N142	1.85	G8N142	2.00	G12N142	2.25
Starting crank (old style).....	13	2N153A 1½"	1.25	4N153-1½"	1.50	6N153A 2"	2.00	10N153	3.50	.....	.....
*Starting crank (new style).....	13	4N153-1½"	1.50	§6N153A-2"	2.00	.....	.....	.....	.....	.....	.....
Check valve body complete with valve, plug, cap and valve seat....	12	G2N160A	3.00	G2N160A	3.00	G2N160A	3.00	G2N160A	3.00	G2N160A	3.00

**Effective on 3 H. P. Engine No. 76881 and up, except Engine Nos. 77726, to 77825 and 77833 to 78032.

*Effective on 3 H. P. Engine No. 79901 and up. On 5 H. P. Engine No. 78993 and up. On 7 H. P. Engine No. 76751 and up, except 7 H. P. Engines Nos. 80486, 80487, 80488, 80489, 80490.

†Interchangeable with XG2N102.

‡Interchangeable with XG6N102.

§Interchangeable with 5N153.

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Check valve strainer plug with screen.	12	XG2N162	.55	XG2N162	.55	XG2N162	.55	XG2N162	.55	XG2N162	.55
Check valve cap.	12	2N163A	.60	2N163A	.60	2N163A	.60	2N163A	.60	2N163A	.60
Magneto bracket for Sumpster mag- neto.	16	2N172B	2.00	2N172B	2.00	6N172A	2.40	8N172B	2.40	8N172B	2.40
Magneto bracket pin.	16	2N173	.20	2N173	.20	6N173	.25	6N173	.25	6N173	.25
Magneto pinion and pin.	00	XG2N174	2.25	XG2N174	2.25	XG6N174	2.25	XG8N174	2.25	XG8N174	2.25
Magneto pinion bushing.	16	2N175	1.25	2N175	1.25	2N175	1.25	2N175	1.25	2N175	1.25
Magneto pinion collar.	00	2N176	.20	2N176	.20	2N176	.20	2N176	.20	2N176	.20
Magneto pinion shield.	16	2N177	.35	2N177	.35	6N177	.60	8N177	.60	8N177	.60
Magneto cable insulator.	16	2N178	.05	2N178	.05	2N178	.05	2N178	.05	2N178	.05
Magneto pinion nut.	16	2N179A	.70	2N179A	.70	6N179	.70	6N179	.70	6N179	.70
**Magneto complete (new style) with bracket and gears.	16	G2N190	20.50	G5N190	20.50	G6N172A	21.50	G8N172B	21.50	G8N172B	21.50
Magneto bracket only (new style).	16	2N190	1.50	2N190	1.50						
Magneto pinion (new style).	16	2N191	1.75	2N191	1.75						
Magneto idler gear and shaft.	16	XG2N192	2.25	XG2N192	2.25						
Magneto gear shield.	16	2N195	.40	2N195	.40						
Gasoline tank hanger.	12	2N208	.10	4N208	.10	6N208A	.15	8N208	.20	12N208	.20
Gasoline tank complete with flanges.	12	G2N209B	4.00	G4N209A	5.00	G6N209B	6.00	G8N209A	7.00	G12N209A	9.00
*Gasoline tank (new style).	17	3N209	4.00	5N209	5.00	7N209	6.00				
Filler funnel complete with cover.	17	G3N221	1.25	G3N221	1.25	G3N221	1.25				
Exhaust valve.	15	2N302	1.00	4N302	1.25	6N302	1.50	8N302	1.75	12N302	2.50
Exhaust valve nut.	15	2N304	.25	4N304	.30			8N304	.45	8N304	.45
Exhaust valve spring.	15	2N305	.20	4H305	.20	6N305	.25	8N305	.25	12N305	.35
Admission valve washer.	15	3K307	.05	3K307	.05	7K307	.05				
**Admission valve, with washer and nuts.	15	G3K308	1.25	G5K308	1.40	G7K308	1.90	G8N308	2.25	G12N308	2.75
Admission valve spring.	15	3K309	.20	5K309	.25	7K309	.25	8N309	.25	10N309	.30
Admission valve nut (old style).	00	3N310	.35	3N310	.35	7N310	.45	4N310	.50	6N310	.60

**Effective on 3 H. P. Engine No. 72215 and up. On 5 H. P. Engine No. 73132 and up.

*Effective on 3 H. P. Engine No. 79201 and up. On 5 H. P. Engine No. 78993 and up.

Nos. 80486, 80487, 80488, 80489, 80490.

***Effective on 3 H. P. Engine No. 69501 and up. On 5 H. P. Engine No. 69901 and up.

†Interchangeable with 4N305.

Admission Valve Stem $\frac{3}{16}$ " diameter on 3 H. P. Model "N".

Admission Valve Stem $\frac{1}{2}$ " diameter on 5 H. P. Model "N".

Admission Valve Stem $\frac{1}{2}$ " diameter on 7 H. P. Model "N".

On 7 H. P. Engine No. 76751 and up, except 7 H. P. Engines

On 7 H. P. Engine No. 76751 and up.

On 7 H. P. Engine No. 76751 and up.

On 7 H. P. Engine No. 76751 and up.

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On 7 H. P. Engine No. 76751 and up.

See Instructions on Page 17 Before Sending in Your Order

DESCRIPTION	Illustrated on page	3 H. P.		5 H. P.		7 H. P.		9 H. P.		12 H. P.	
		Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each	Symbol	Price Each
Cam roller.....	14	2N315	.60	G2N379	.90	G4N379	.90	G4N379	.90	G4N379	.90
Valve lock.....	00	2N368	.50	4N380	.05	4N380	.05	4N380	.05	4N380	.05
Valve lock pin.....	00	2N369	.10	2N369	.10	2N369	.10	2N369	.10	2N369	.10
Damper pipe complete with pin, damper and handle.....	15	G2N379	.90	G4N379	.90	G4N379	.90	G4N379	.90	G4N379	.90
Damper.....	15	2N380	.05	4N380	.05	4N380	.05	4N380	.05	4N380	.05
Damper handle.....	15	2N381A	.20	4N381A	.25	4N381A	.25	4N381A	.25	4N381A	.25
Damper spring.....	15	H382	.10	H382	.10	H382	.10	H382	.10	H382	.10
Valve lock spring.....	15	H395	.15	H341	.15	H341	.15	H341	.15	H341	.15
Suction tube with coupling.....	00	G3N398	.60	G5N398	.70	G7N398	.80	G9N398	1.00	G9N398	1.00
Ignitor gasket.....	16	2N440	.10	2N440	.10	2N440	.10	2N440	.10	2N440	.10
Sight feed cylinder oiler (see note).....	12		1.50		1.60		1.60		1.60		1.60
Large glass for cylinder oiler.....	12		.60		.60		.60		.60		.60
Small sight feed glass for cylinder oiler.....	12		.20		.20		.20		.20		.20
No. 0 Steel plain grease cup.....	12		.15		.15		.15		.15		.15
No. 1 Steel grease cup.....	12		.20		.20		.20		.20		.20
No. 0 Steel spring feed grease cup.....	12		.85		.85		.85		.85		.85
No. 22 Spark coil.....	12		2.20		2.20		2.20		2.20		2.20
1x4 Priming cup.....	00		.60		.60		.60		.60		.60
1-60° St. Ell. for priming cup.....	00		.10		.10		.10		.10		.10
1/2" Drain cock.....	00		.60		.60		.60		.60		.60
9" Monkey wrench.....	00		.50		.50		.50		.50		.50
3" Battery connectors, each.....	00		.05		.05		.05		.05		.05
No. 16x6 foot Duplex cable, per foot.....	00		.05		.05		.05		.05		.05
No. 24 Fahnestock connector.....	00		.10		.10		.10		.10		.10
No. 2 double throw switch.....	00		.35		.35		.35		.35		.35
Battery Box only.....	00	J324	.85	J324	.85	J324	.85	J324	.85	J324	.85
Battery Box complete with 5-3" battery connectors, 5 No. 6 Dry cells; 1 No. 16x6 ft. duplex cable, 1 No. 22 coil.....	00	GJ324	6.00	GJ324	6.00	GJ324	6.00	GJ324	6.00	GJ324	6.00

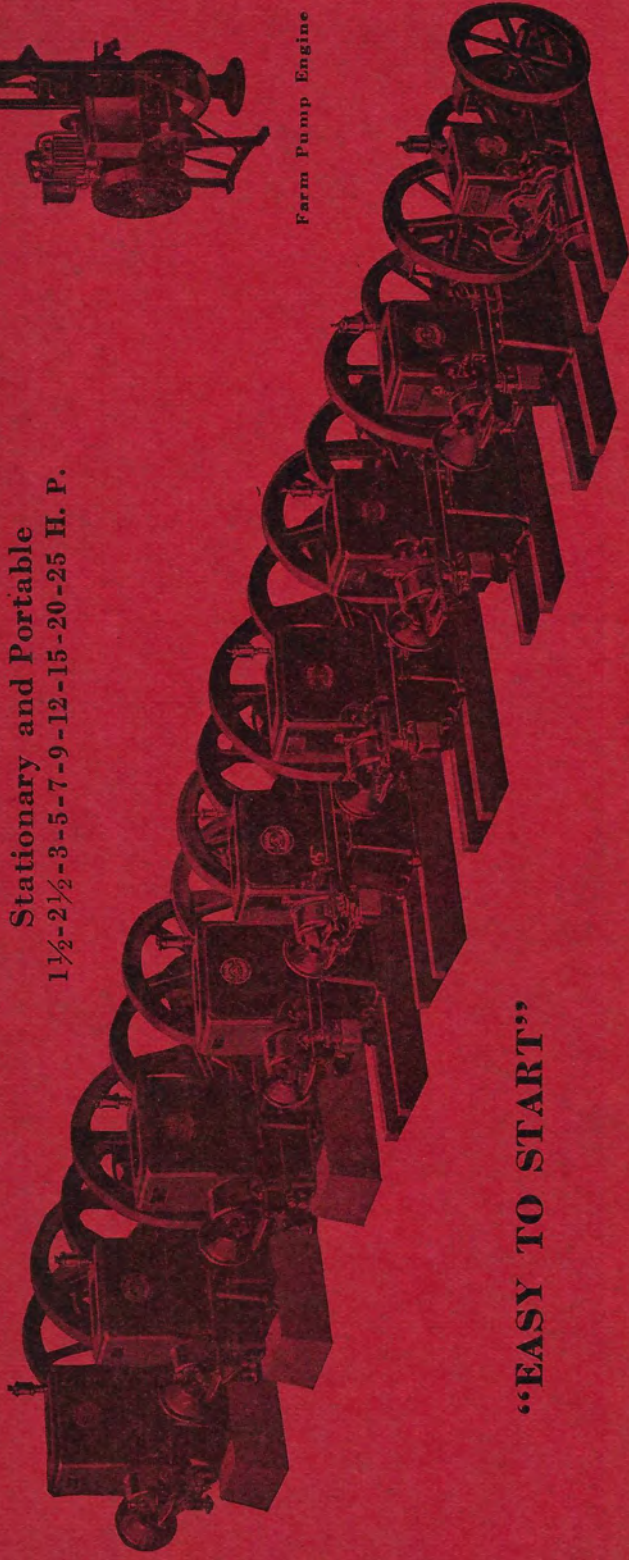
Note: Mention name on oiler when ordering repairs for same.

FULLER & JOHNSON ENGINES

KEROSENE-GASOLINE-DISTILLATE

Stationary and Portable

1½-2½-3-5-7-9-12-15-20-25 H. P.



Farm Pump Engine

“EASY TO START”

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ESTABLISHED 1840

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Madison, Wisconsin, U. S. A.

Form 284—031-3-4-24—50M

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