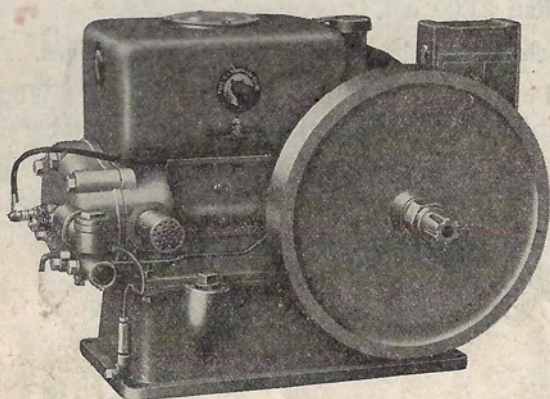


# INSTRUCTION AND REPAIR —BOOK—

FOR THE

## CUSHMAN CUB

MODEL R ENGINES



Equipped with Wico Magneto

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ALL MODELS ARE



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## CUSHMAN MOTOR WORKS

LINCOLN, NEBRASKA

No. 153B 3M-1-1-31-N.

Made in U. S. A.

### **IMPORTANT INSTRUCTIONS FOR ORDERING PARTS**

Give engine **number** and **model**.

Give catalog number and name of each part ordered.

Specify how shipment is to be made.

Repairs are handled on cash basis.

All collection charges are paid by this Company on orders for more than \$1.00 net.

Send cash with order and save C. O. D. charges.

Parcel Post C. O. D. shipments are insured. When damage or loss occurs, so indicate on the carrier's receipt before signing. Return receipt to us and we will file claim for your account.

When in need of magneto repairs see your nearest Wico Magneto Service Station. See repair list for complete list of Service Stations.

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### **RETURN GOODS**

Any parts returned to factory for repair, duplication, exchange or credit, must be **PREPAID**.

Don't forget to mark your name and address on returned shipments.

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### **PRICES**

Prices are subject to change without notice.

All parts are sold **F. O. B. factory**.

# Instructions for the Care and Operation

OF THE

## CUSHMAN CUB

### MODEL R ENGINES

Keep this book for future reference.

Give your engine good care and it will give you good service.

Read instructions carefully.

### BEFORE STARTING ENGINE

Fill crank case to the top mark on oil gauge (about 3 pints) with Gargoyle Mobiloil "A", or with an oil similar to this grade and weight. Oil filler hole and oil gauge are located in engine base under inspection plate.

Fill hopper with good clean water. Do not fill hopper within more than three inches of the top.

Fill gas tank in base with good clean gasoline "One Gallon."

The governor tension screw nut should be adjusted so that it will hold throttle open.

### TO START ENGINE

All engines are equipped with cranks to make starting easy.

Open mixer needle valve  $\frac{3}{4}$  of a turn. Retard the spark by shifting magneto advance and retard lever back to the magneto. Take crank and turn engine over compression once or twice, at the same time holding hand over the air intake on the mixer valve. The engine should start on the second or third turn. Care should be taken not to choke too much, to prevent flooding.

After engine is started advance spark lever to place suitable for load. "About one inch from magneto."

### TO STOP ENGINE

There is a grounding button located on the starting side of magneto marked "Stop." Press in on this button to stop engine.

### SPARK PLUG

The model "R" engine is equipped with  $\frac{7}{8}$ -inch Standard spark plug. In order to obtain the most efficient results the spark plug points should have .020-inch gap.

### TIMING

You will find one tooth of crank gear and two teeth of cam gear punch marked. Mesh the marked tooth on crank gear between the two marked teeth on cam gear. Turn flywheel until piston is on dead center on firing stroke. Adjust screw in rocker arm so that magneto will trip when timing lever is in retarded position.

## COOLING

The hopper type of engine should be filled with water up to within three inches of the top of the hopper. Boiling is normal under rated loads. Flush out from time to time to prevent foaming.

## OPERATING SUGGESTIONS

The engine is equipped with a mixing valve which is somewhat different than the ordinary carburetor. The mixing valve measures the fuel taken from the gasoline tank on the suction stroke of the piston. In order to accomplish this all connections from gasoline tank to mixing valve must be air tight. The only adjustment necessary is the occasional adjustment of the needle valve. You will find that it will be necessary to cut down on the needle valve adjustment from starting position to the best working position. It may be necessary to stretch the air valve spring occasionally to give it more tension. Low grade fuel and improper oil will cause excessive carbon deposit. The exhaust valve may become stuck in valve guide due to gummy oil or carbon. It may be loosened or resealed by turning with pliers after applying kerosene to the stem. If this procedure does not remedy the trouble, the valve should be removed, cleaned and ground into seat. Remove carbon from cylinder head and see that holes in muffler are open. Blow back through muffler denotes a leaky exhaust valve. . . . Through the mixer valve a leaky intake valve.

## OPERATING AND TIMING INSTRUCTIONS FOR MODEL R9 ENGINE

**TO START**—set the timing eccentric so that the pin in the end of the stud is in that portion of the quadrant marked with the letter "S". There is not an exact location for this pin setting.

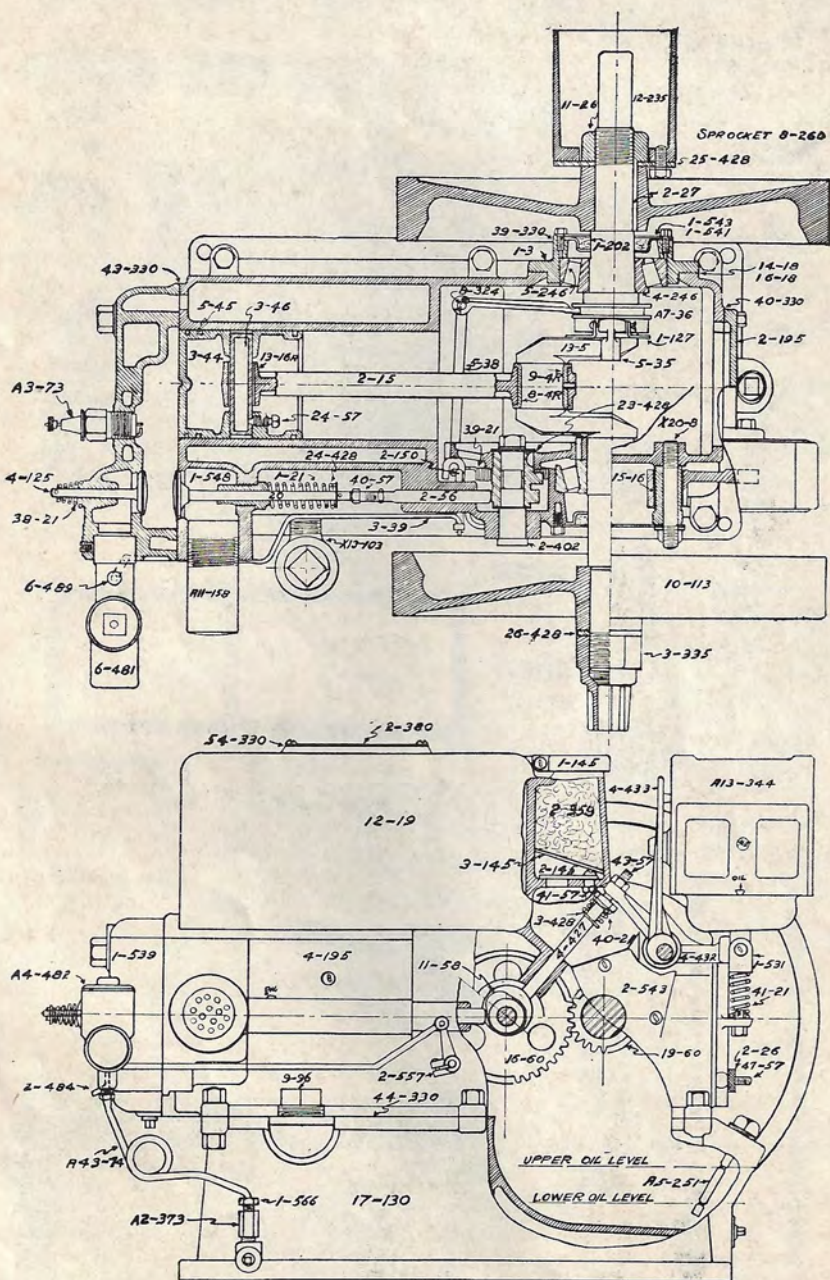
Open mixer needle valve about  $\frac{3}{4}$  of a turn. Crank engine over compression once or twice, at the same time hold hand over air opening in mixer valve to choke engine.

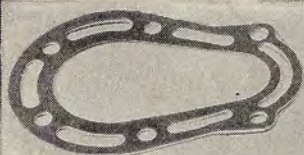
After the engine is started advance the spark by moving the eccentric handle over until pin is in that section of quadrant marked with letter "R". Be careful not to advance the spark too far or the engine will knock slightly. The best position will be determined by the speed at which the engine is running and the load you are pulling.

**STOP**—engine by swinging the timing lever away from flywheel or towards the letter "S" as far as it will go. This will disengage the trip mechanism of the magneto and cause a discontinuance of spark.

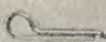
**TIMING**—of the engine is very simple if the operator will give it a little thought before starting to make adjustments. For starting the spark should occur at about compression dead center.

If the timing appears to be incorrect proceed as follows: Place the timing lever so that the letter "S" is about opposite the pointer pin. Loosen the trip rod lock nut. Turn the flywheel slowly in a clockwise rotation towards compression dead center and note where magneto trips. If the crank shaft has passed dead center screw the trip rod out of the eccentric strap about  $\frac{1}{2}$  turn and try again. If magneto trips before dead center screw trip rod into eccentric strap. After adjustment has been made, tighten trip rod lock nut. If magneto does not trip when timing lever is in extreme retarded position timing is correct.





43-330



X8-3



X14-4



38-21



4-125



1-145



3-145



2-145



2-380



X1-51



A3-73



A1-539



12-158



8-96



X13-98



44-57



28-57



10-158



X13-97



3-112



4-195



17-60



40-330



43-74



X10-30



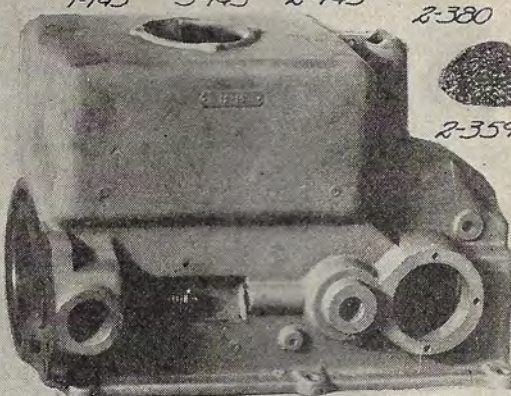
A5-251



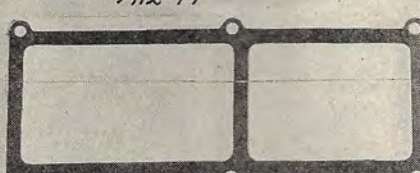
X13-74



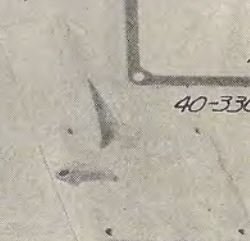
X13-14



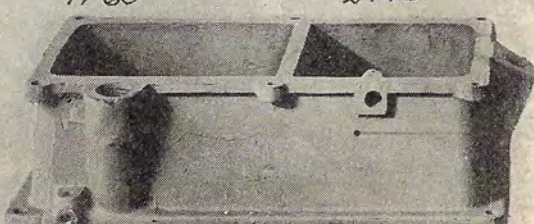
A12-19



44-330



2-195



16-130

# Price List of Repair Parts

## FOR THE

# CUSHMAN CUB

The following list covers parts for all models of Cub engines which are built in three sizes, 2, 3, 4HP.

All models are similar in design and many parts are interchangeable on all models.

For convenience in ordering parts we are using the late model symbols where possible, as these parts will be interchangeable with parts on older engines. When model symbol IS NOT given in model column, parts are the same for all models.

When ordering parts give engine number and model shown on name plate. Prices subject to change without notice.

Models R1, R2, R3 same as R20 except crank shaft and base.

Model R4 same as R30 except crank shaft and base.

Models R5, R5B same as R20 except crank shaft and base.

Models R6, R6B same as R30 except crank shaft and base.

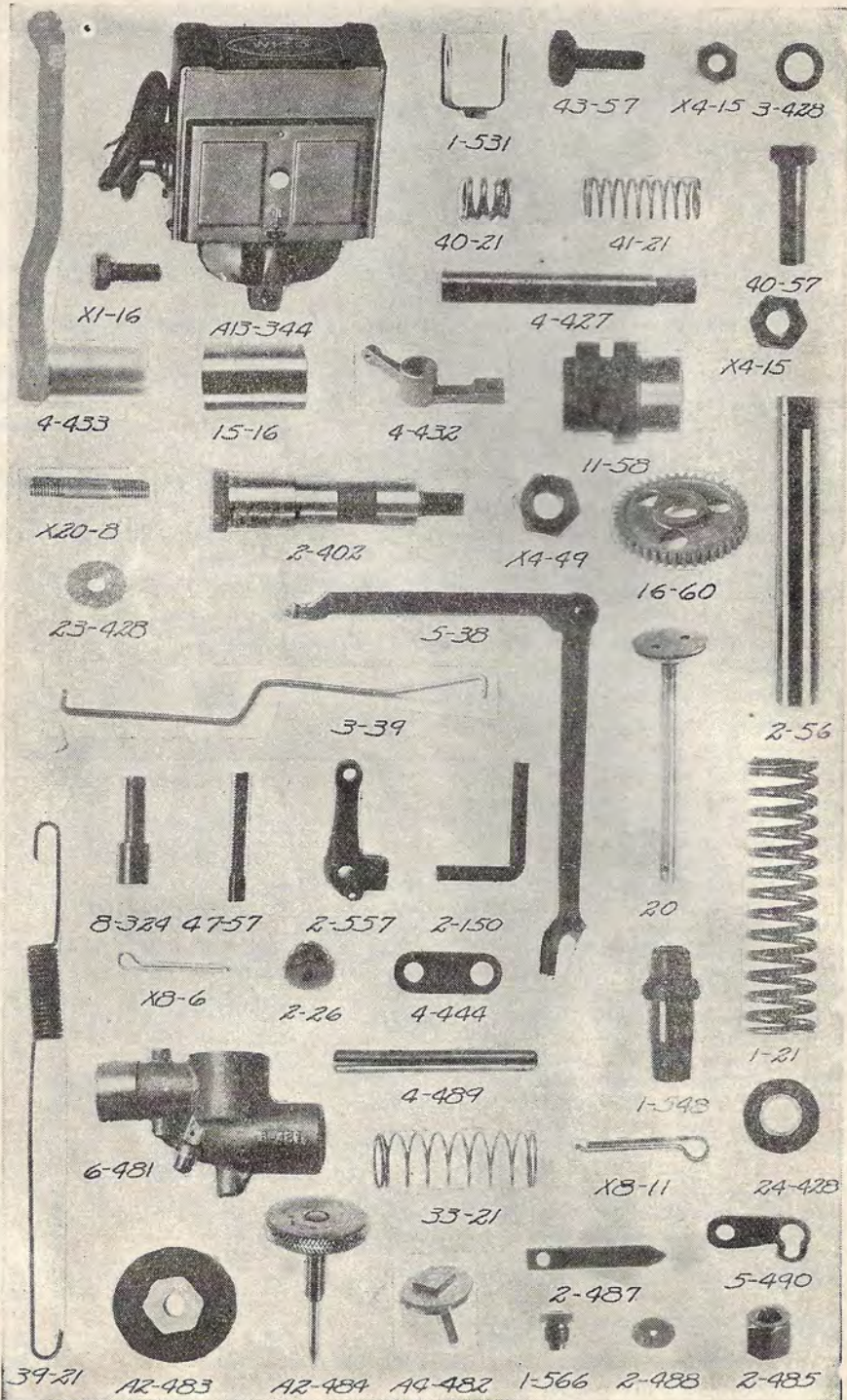
Model R9 same as R12 except magneto drive.

Models R12, R12B same as 2 HP.

Models R20, R20B same as 3 HP.

Models R30, R30B same as 4 HP.

| Part No. | DESCRIPTION                                                     | Model       | No. Used | Price Each |
|----------|-----------------------------------------------------------------|-------------|----------|------------|
| 1-3      | Side plate .....                                                | R20 R30     | 1        | \$1.00     |
| 9-3      | Side plate .....                                                | R12         | 1        | 1.00       |
| 8-4R     | Connecting rod bushing—upper half.....                          |             | 1        | .50        |
| 9-4R     | Connecting rod bushing—lower half.....                          |             | 1        | .50        |
| 1-5      | Crank shaft—17 $\frac{11}{16}$ " long .....                     | R1 R2 R3 R4 | 1        | 9.00       |
| A1-5     | Crank shaft—17 $\frac{11}{16}$ " long—with bearings.....        | R1 R2 R3 R4 | 1        | 20.00      |
| 13-5     | Crank shaft—20 $\frac{1}{16}$ " long .....                      | R20 R30     | 1        | 9.00       |
| A13-5    | Crank shaft—20 $\frac{1}{16}$ " long—with bearings.....         | R20 R30     | 1        | 20.00      |
| 17-5     | Crank shaft—19" long .....                                      | R12         | 1        | 9.00       |
| A17-5    | Crank shaft—19" long—with bearings.....                         | R12         | 1        | 20.00      |
| 2-15     | Connecting rod .....                                            | R12 R20     | 1        | 3.00       |
| A2-15    | Connecting rod assembly .....                                   | R12 R20     | 1        | 5.00       |
| 1A2-15   | Connecting rod assembly .....                                   | R30         | 1        | 5.00       |
| 1-16R    | Connecting rod bushing P. E.....                                | R30         | 1        | .50        |
| 13-16R   | Connecting rod bushing P. E.....                                | R12 R20     | 1        | .50        |
| 15-16    | Magneto rocker arm bushing (after engine<br>Number 53317) ..... | R12 R20 R30 | 1        | .25        |
| 20-16R   | Magneto drive eccentric bushing.....                            | R9          | 1        | .50        |
| 5-18     | Connecting rod shims $\frac{1}{32}$ " .....                     |             | 4        | .02        |
| 14-18    | Side plate shims .005.....                                      |             | 5        | .10        |
| 16-18    | Side plate shims .015.....                                      |             | 1        | .10        |
| 19-18    | Connecting rod shims laminated $\frac{1}{32}$ " .....           |             | 2        | .10        |
| A18-19   | Cylinder with exhaust valve and hopper.....                     | R30         | 1        | 30.00      |
| A21-19   | Cylinder with exhaust valve .....                               | R12         | 1        | 20.00      |
| A22-19   | Cylinder with exhaust valve.....                                | R9          | 1        | 20.00      |
| A23-19   | Cylinder with exhaust valve.....                                | R20         | 1        | 22.00      |
| 20       | Exhaust valve .....                                             |             | 1        | 1.00       |
| 1-21     | Exhaust valve spring .....                                      |             | 1        | .20        |



| Part No. | DESCRIPTION                                                               | Model       | No. Used | Price Each |
|----------|---------------------------------------------------------------------------|-------------|----------|------------|
| 22-21    | Magneto drive spring .....                                                | R9          | 1        | .40        |
| 23-21    | Magneto return spring .....                                               | R9          | 1        | .25        |
| 33-21    | Mixer air valve spring.....                                               |             | 1        | .10        |
| 39-21    | Governor spring .....                                                     |             | 1        | .05        |
| 40-21    | Magneto drive spring .....                                                | R12 R20 R30 | 1        | .20        |
| 41-21    | Magneto return spring.....                                                | R12 R20 R30 | 1        | .20        |
| 61-21    | Intake valve spring .....                                                 |             | 1        | .10        |
| 2-26     | Governor tension screw nut.....                                           |             | 1        | .15        |
| 11-26    | Fly wheel nut $1\frac{1}{4}$ "x $\frac{1}{2}$ " wide.....                 |             | 1        | .30        |
| 2-27     | Fly wheel key $\frac{5}{16}$ "x $\frac{5}{16}$ "x $1\frac{7}{8}$ " .....  |             | 2        | .05        |
| 17-27    | Fly wheel key $\frac{5}{16}$ "x $\frac{3}{8}$ "x $1\frac{7}{8}$ " .....   | R20 R30     | 2        | .05        |
| 19-27    | Fly wheel key $\frac{5}{16}$ "x $\frac{3}{8}$ "x $1\frac{7}{8}$ " .....   | R12         | 2        | .05        |
| 20-27    | Fly wheel key $\frac{5}{16}$ "x $\frac{3}{8}$ "x $1\frac{11}{16}$ " ..... | R20 R30     | 2        | .05        |
| 5-35     | Governor weight .....                                                     |             | 2        | .25        |
| 4-36     | Governor collar .....                                                     |             | 1        | .50        |
| 5-38     | Governor arm .....                                                        |             | 1        | .45        |
| 3-39     | Governor link .....                                                       |             | 1        | .30        |
| 3-44     | Piston $3\frac{1}{2}$ " .....                                             | R20         | 1        | 3.00       |
| 3-44A    | Piston .0025 oversize .....                                               | R20         | 1        | 3.00       |
| 3-44B    | Piston .005 oversize .....                                                | R20         | 1        | 3.00       |
| 3-44D    | Piston .015 oversize .....                                                | R20         | 1        | 3.00       |
| A3-44    | Piston and connecting rod assembled.....                                  | R20         | 1        | 9.00       |
| 9-44     | Piston $3\frac{3}{4}$ " .....                                             | R30         | 1        | 3.50       |
| 9-44A    | Piston .0025 oversize .....                                               | R30         | 1        | 3.50       |
| 9-44B    | Piston .005 oversize .....                                                | R30         | 1        | 3.50       |
| 9-44D    | Piston .015 oversize .....                                                | R30         | 1        | 3.50       |
| A9-44    | Piston and connecting rod assembled.....                                  | R30         | 1        | 9.50       |
| 12-44    | Piston $3\frac{1}{4}$ " .....                                             | R12         | 1        | 3.00       |
| 12-44A   | Piston .0025 oversize .....                                               | R12         | 1        | 3.00       |
| 12-44B   | Piston .005 oversize .....                                                | R12         | 1        | 3.00       |
| 12-44D   | Piston .015 oversize .....                                                | R12         | 1        | 3.00       |
| A12-44   | Piston and connecting rod assembled.....                                  | R12         | 1        | 9.00       |
| 1-45     | Piston ring $3\frac{3}{4}$ "x $\frac{3}{16}$ " .....                      | R30         | 3        | .40        |
| 1-45A    | Piston ring .0025 oversize .....                                          | R30         | 3        | .40        |
| 1-45B    | Piston ring .005 oversize .....                                           | R30         | 3        | .40        |
| 1-45D    | Piston ring .015 oversize.....                                            | R30         | 3        | .40        |
| 4-45     | Piston ring $3\frac{1}{4}$ "x $\frac{3}{16}$ " .....                      | R12         | 3        | .40        |
| 4-45A    | Piston ring .0025 oversize.....                                           | R12         | 3        | .40        |
| 4-45B    | Piston ring .005 oversize.....                                            | R12         | 3        | .40        |
| 4-45D    | Piston ring .015 oversize.....                                            | R12         | 3        | .40        |
| 11-45    | Oil ring $3\frac{1}{4}$ "x $\frac{3}{16}$ " .....                         | R12         | 1        | .40        |
| 5-45     | Piston ring $3\frac{1}{2}$ "x $\frac{3}{16}$ " .....                      | R20         | 3        | .40        |
| 5-45A    | Piston ring .0025 oversize.....                                           | R20         | 3        | .40        |
| 5-45B    | Piston ring .005 oversize.....                                            | R20         | 3        | .40        |
| 5-45D    | Piston ring .015 oversize.....                                            | R20         | 3        | .40        |
| 2-46     | Piston wrist pin .....                                                    | R30         | 1        | .75        |
| 2-46A    | Piston wrist pin .0025 oversize.....                                      | R30         | 1        | .75        |
| 3-46     | Piston wrist pin .....                                                    | R20         | 1        | .75        |
| 3-46A    | Piston wrist pin .0025 oversize.....                                      | R20         | 1        | .75        |
| 5-46     | Piston wrist pin .....                                                    | R12         | 1        | .50        |
| 5-46A    | Piston wrist pin .0025 oversize.....                                      | R12         | 1        | .50        |
| 22-57    | Connecting rod bolt $\frac{5}{16}$ "x $1\frac{3}{4}$ " SAE.....           |             | 2        | .10        |
| 24-57    | Wrist pin set screw.....                                                  |             | 1        | .10        |
| 40-57    | Push rod adjusting screw.....                                             |             | 1        | .10        |
| 41-57    | Breather valve bolt $\frac{1}{4}$ " .....                                 |             | 1        | .05        |
| 43-57    | Magneto trip rod adjusting screw.....                                     | R12 R20 R30 | 1        | .25        |
| 47-57    | Governor tension screw .....                                              |             | 1        | .15        |
| 11-58    | Cam .....                                                                 | R12 R20 R30 | 1        | 2.00       |
| A11-58   | Cam and gear assembled.....                                               | R12 R20 R30 | 1        | 3.75       |
| 16-58    | Cam .....                                                                 | R9          | 1        | 2.00       |
| A16-58   | Cam and gear assembled.....                                               | R9          | 1        | 3.75       |



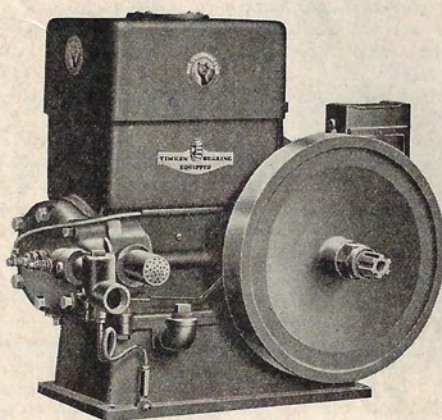
| Part<br>No. | DESCRIPTION                                        | Model       | No.<br>Used | Price<br>Each |
|-------------|----------------------------------------------------|-------------|-------------|---------------|
| 16-60       | Gam gear .....                                     |             | 1           | 1.50          |
| 19-60       | Crank shaft gear .....                             |             | 1           | 1.50          |
| A3-73       | Spark plug $\frac{7}{8}$ " Std. ....               |             | 1           | .75           |
| 14-74       | Gas tube 9" .....                                  | R20 R30     | ....        | .15           |
| A14-74      | Gas tube with nuts .....                           | R20 R30     | ....        | .30           |
| 45-74       | Gas tube $7\frac{3}{4}$ " .....                    | R12         | ....        | .15           |
| A45-74      | Gas tube with nuts .....                           | R12         | ....        | .30           |
| 54-77       | Governor weight pins .....                         |             | 2           | .05           |
| A8-88       | Magneto cable .....                                | R9          | 1           | .75           |
| A23-88      | Magneto cable .....                                | R12 R20 R30 | 1           | .75           |
| A9-96       | Gasoline tank filler plug 1" .....                 |             | ....        | .25           |
| 10-113      | Fly wheel 14"x2" .....                             | R20 R30     | 2           | 10.00         |
| 24-113      | Fly wheel same as above .....                      | R20 R30     | 2           | 10.00         |
| 25-113      | Fly wheel 14"x3 $\frac{3}{4}$ " face—special ..... |             | 1           | 14.00         |
| 27-113      | Fly wheel 12"x3 $\frac{3}{4}$ " face—special ..... |             | 1           | 14.00         |
| 29-113      | Fly wheel 12"x2" .....                             | R12         | 2           | 10.00         |
| 34-113      | Fly wheel 14"x2", double V belt—special .....      |             | 1           | 14.00         |
| 4-125       | Intake valve .....                                 |             | 1           | .50           |
| 4-127       | Governor frame .....                               |             | 1           | .15           |
| 10-130      | Base up to No. 500 .....                           | R1          | 1           | 6.00          |
| 15-130      | Base—long special .....                            |             | ....        | 12.00         |
| 16-130      | Base .....                                         | R2          | 1           | 6.00          |
| 19-130      | Base cover for 15-130 special .....                |             | ....        | 4.00          |
| 21-130      | Base .....                                         | R20 R30     | 1           | 6.00          |
| 22-130      | Base .....                                         | R12         | 1           | 6.00          |
| A20-143     | Magneto bracket .....                              | R9          | 1           | 2.00          |
| 1-145       | Breather cap .....                                 |             | 1           | .10           |
| 2-145       | Breather valve .....                               |             | 1           | .10           |
| 3-145       | Breather baffle .....                              |             | 1           | .05           |
| 2-150       | Governor arm pivot shaft .....                     |             | 1           | .05           |
| A11-158     | Muffler .....                                      |             | 1           | .50           |
| 21-184      | Rocker arm oiler .....                             | R9          | 1           | .25           |
| 22-184      | Eccentric strap oiler .....                        | R9          | 2           | .15           |
| A5-185      | Starting crank .....                               |             | 1           | 1.00          |
| 2-195       | Crank case inspection plate .....                  | R12 R20 R30 | 1           | .75           |
| 4-195       | Valve inspection plate .....                       |             | 1           | .10           |
| 5-195       | Crank case inspection plate .....                  | R9          | 1           | .20           |
| 1-202       | Main bearing felt washer .....                     |             | 2           | .10           |
| 4-246       | Main bearing cone with rollers .....               | R20 R30     | 2           | 4.00          |
| 5-246       | Main bearing cup .....                             | R20 R30     | 2           | 2.00          |
| 8-246       | Main bearing cone with rollers .....               | R12         | 2           | 4.00          |
| 9-246       | Main bearing cup .....                             | R12         | 2           | 2.00          |
| A5-251      | Oil gauge .....                                    |             | 1           | .25           |
| 3-324       | Governor arm stud .....                            |             | 1           | .15           |
| 2-300       | Oil dipper .....                                   |             | 1           | .10           |
| 39-330      | Main bearing felt retainer gasket .....            |             | 2           | .05           |
| 40-330      | Inspection plate gasket .....                      |             | 1           | .05           |
| 43-330      | Cylinder head gasket .....                         |             | 1           | .25           |
| 54-330      | Anti splasher gasket .....                         |             | 1           | .05           |
| 56-330      | Hopper extension gasket .....                      | R30         | 1           | .25           |
| 59-330      | Cylinder base copper gasket .....                  | R5 R6       | 1           | .80           |
| 60-330      | Cylinder base copper gasket—flat .....             | R12 R20 R30 | 1           | .80           |
| 3-335       | Starting crank nut .....                           |             | 1           | .75           |
| 1A3-344     | Magneto with cable .....                           | R9          | 1           | 18.00         |
| A13-344     | Magneto with cable .....                           | R12 R20 R30 | 1           | 18.00         |
| 7-355       | Pulley 5"x4" special .....                         |             | ....        | 2.00          |
| 12-355      | Pulley 4"x4" .....                                 | R12 R20     | ....        | 1.00          |
| 59-355      | Pulley 9"x4" special .....                         |             | ....        | 7.50          |
| 60-355      | Pulley 6"x4" .....                                 | R30         | ....        | 3.00          |
| 64-355      | Pulley 7"x4" special .....                         |             | ....        | 5.00          |

| Part<br>No. | DESCRIPTION                              | Model       | No.<br>Used | Price<br>Each |
|-------------|------------------------------------------|-------------|-------------|---------------|
| 65-355      | Pulley 8"x4" special.....                |             | ---         | 6.00          |
|             | Clutch complete 5"x4" .....              |             |             | Price on      |
|             | Clutch complete 6"x4" .....              |             |             | Request       |
| 2-359       | Breather screen .....                    |             | 1           | .05           |
| A2-373      | Check valve .....                        | R20 R30     | 1           | .75           |
| 1A3-373     | Check valve .....                        | R12         | 1           | .35           |
| 2-380       | Anti splasher .....                      |             | 1           | .35           |
| 4-480       | Hopper extension .....                   | R30         | 1           | 2.50          |
| 2-391       | Magneto bracket adapter plate .....      | R9          | 1           | .35           |
| 2-402       | Cam pivot .....                          | R12 R20 R30 | 1           | 1.50          |
| 6-425       | Eccentric strap .....                    | R9          | 1           | 1.00          |
| 1-426       | Magneto trip rod sleeve .....            | R9          | 1           | .60           |
| 1-427       | Magneto trip rod .....                   | R9          | 1           | .50           |
| 4-427       | Magneto trip rod .....                   | R12 R20 R30 | 1           | .35           |
| 1-428       | Magneto trip rod washer—large.....       | R9          | 1           | .10           |
| 3-428       | Magneto trip rod washer.....             |             | 1           | .05           |
| 18-428      | Magneto trip rod washer—small.....       | R9          | 1           | .10           |
| 23-428      | Cam retaining washer .....               |             | 1           | .05           |
| 24-428      | Exhaust valve washer .....               |             | 1           | .05           |
| 25-428      | Pulley washer $\frac{3}{16}$ " .....     |             | 1           | .10           |
| 26-428      | Pulley washer spacer .....               |             | 1           | .10           |
| 29-428      | Intake valve spring washer.....          |             | 1           | .05           |
| 1-431       | Magneto rocker arm stud.....             | R9          | 1           | .50           |
| 1-432       | Magneto rocker arm .....                 | R9          | 1           | 1.50          |
| 4-432       | Magneto rocker arm .....                 | R12 R20 R30 | 1           | .75           |
| 1-433       | Magneto timing eccentric.....            | R9          | 1           | 1.50          |
| 4-433       | Magneto timing eccentric .....           | R12 R20 R30 | 1           | .65           |
| 6-435       | Magneto drive eccentric .....            | R9          | 1           | 1.50          |
| 4-444       | Governor spring bracket .....            | R1 R2       | 1           | .05           |
| 6-481       | Mixer valve body .....                   |             | 1           | 2.50          |
| 1A6-481     | Mixer assembled .....                    |             | 1           | 4.50          |
| A4-482      | Mixer body cap .....                     |             | 1           | .50           |
| 1A4-483     | Mixer air valve assembly.....            |             | 1           | .50           |
| 2-484       | Mixer needle valve .....                 |             | 1           | .25           |
| 2-485       | Mixer needle valve packing nut.....      |             | 1           | .15           |
| 2-486       | Mixer needle valve packing .....         |             | 1           | .05           |
| 2-488       | Mixer throttle disc .....                |             | 1           | .20           |
| 6-489       | Mixer throttle stem and lever.....       |             | 1           | .30           |
| A2-524      | Gas strainer assembled .....             |             | 1           | .25           |
| 1-531       | Magneto return spring yoke.....          | R12 R20 R30 | 1           | .10           |
| 1-539       | Cylinder head .....                      | R20 R30     | 1           | 3.25          |
| A1-539      | Cylinder head assembly .....             | R20 R30     | 1           | 4.50          |
| 8-539       | Cylinder head .....                      | R12         | 1           | 3.25          |
| A8-539      | Cylinder head assembly .....             | R12         | 1           | 4.50          |
| 1-541       | Main bearing felt retainer PS.....       |             | 1           | .20           |
| 4-541       | Main bearing felt retainer GS.....       | R9          | 1           | .20           |
| 1-543       | Main bearing felt retainer cover PS..... |             | 1           | .10           |
| 2-543       | Main bearing felt retainer cover GS..... | R12 R20 R30 | 1           | .10           |
| 5-543       | Main bearing felt retainer cover GS..... | R9          | 1           | .10           |
| 1-548       | Exhaust valve guide.....                 |             | 1           | .25           |
| 2-557       | Governor pivot lever .....               |             | 1           | .35           |
| 1-566       | Gas tube nut .....                       |             | 2           | .05           |

## MISCELLANEOUS

| Part No. | DESCRIPTION                                                             | Model       | No. Used | Price Each |
|----------|-------------------------------------------------------------------------|-------------|----------|------------|
| X1-1     | Main bearing felt retainer screw $\frac{1}{4}$ "x $\frac{3}{8}$ "       | R20 R30     | 8        | .05        |
| X1-12    | Inspection plate screw $\frac{5}{16}$ "x $\frac{1}{2}$ "                | R9          | 4        | .05        |
| X1-14    | Inspection plate and side plate screw $\frac{5}{16}$ "x $\frac{3}{4}$ " | R12 R20 R30 | 4        | .05        |
| X1-16    | Magneto screws $\frac{1}{16}$ "x1"                                      | R12 R20 R30 | 2        | .05        |
| X1-26    | Pulley screw $\frac{3}{8}$ "x $\frac{3}{4}$ "                           |             | 3        | .05        |
| X1-30    | Magneto bracket screw $\frac{3}{8}$ "x1 $\frac{1}{2}$ "                 | R9          | 2        | .05        |
| X1-38    | Cylinder base screw $\frac{1}{16}$ "x1"                                 |             | 5        | .05        |
| X1-43    | Hopper extension screw $\frac{1}{2}$ "x1"                               | R30         | 4        | .05        |
| X1-51    | Cylinder head screw $\frac{1}{2}$ "x3"                                  |             | 6        | .10        |
| X1-69    | Magneto return spring screw $\frac{5}{16}$ "x $\frac{1}{2}$ "           | R12 R20 R30 | 1        | .05        |
| X1-72    | Magneto bracket screw $\frac{5}{16}$ "x1"                               | R9          | 1        | .05        |
| X1-91    | Cylinder base screw $\frac{1}{16}$ "x1 $\frac{3}{4}$ "                  |             | 1        | .05        |
| X1-93    | Main bearing felt retainer screw $\frac{1}{4}$ "x $\frac{3}{8}$ "       |             | 4        | .05        |
| X2-10    | Anti splasher screws                                                    |             | 4        | .05        |
| X2-12    | Governor pivot lever screw                                              |             | 1        | .05        |
| X2-16    | Throttle disc screw                                                     |             | 1        | .05        |
| X2-21    | Timing eccentric lock screw 12-24x $\frac{5}{8}$ "                      | R9          | 1        | .05        |
| X4-1     | Connecting rod nut $\frac{5}{16}$ "                                     |             | 2        | .05        |
| X4-12    | Magneto rocker arm stud nut $\frac{1}{2}$ "                             | R12 R20 R30 | 1        | .05        |
| X4-15    | Push rod or trip rod adj. screw nut $\frac{5}{16}$ "                    | R12 R20 R30 | 1        | .05        |
| X4-29    | Trip rod lock nut $\frac{3}{8}$ "                                       | R9          | 1        | .05        |
| X4-48    | Fly wheel nut 1 $\frac{1}{4}$ "x1 $\frac{1}{8}$ "                       |             | 1        | .30        |
| X4-49    | Cam pivot nut $\frac{1}{16}$ "                                          |             | 1        | .05        |
| X4-49    | Cylinder base screw nut $\frac{7}{16}$ "                                |             | 1        | .05        |
| X7-1     | Magneto bracket screw lock washer $\frac{5}{16}$ "                      | R9          | 2        | .02        |
| X7-6     | Magneto rocker arm lock washer $\frac{1}{2}$ "                          | R12 R20 R30 | 1        | .02        |
| X7-7     | Breather cap bolt lock washer $\frac{1}{4}$ "                           |             | 2        | .02        |
| X7-8     | Cam pivot nut lock washer $\frac{1}{8}$ "                               |             | 1        | .02        |
| X7-10    | Pulley screw lock washer $\frac{3}{8}$ "                                |             | 3        | .02        |
| X7-18    | Fly wheel nut lock washer                                               |             | 2        | .10        |
| X8-1     | Breather valve bolt cotter                                              |             | 1        | .02        |
| X8-2     | Connecting rod bolt cotter                                              |             | 2        | .02        |
| X8-3     | Intake valve cotter                                                     |             | 1        | .02        |
| X8-6     | Governor arm stud cotter                                                |             | 1        | .02        |
| X8-11    | Exhaust valve cotter                                                    |             | 1        | .02        |
| X8-11    | Trip rod cotter                                                         | R9          | 3        | .02        |
| X9-9     | Mixer valve set screw $\frac{3}{8}$ "x $\frac{3}{8}$ "                  |             | 2        | .05        |
| X9-45    | Rocker arm stud set screw $\frac{1}{4}$ "x $\frac{3}{8}$ "              | R9          | 1        | .05        |
| X10-29   | Breather cap bolt                                                       |             | 1        | .05        |
| X11-13   | Governor frame rivet                                                    |             | 1        | .05        |
| X13-38   | Oil drain plug $\frac{1}{4}$ "                                          |             | 1        | .05        |
| X13-74   | Water drain plug $\frac{3}{8}$ "                                        |             | 1        | .05        |
| X14-1    | Breather valve washer                                                   |             | 2        | .02        |
| X15-2    | Crank shaft gear key No. 9                                              |             | 1        | .05        |
| X15-4    | Drive eccentric key No. 5                                               | R9          | 2        | .05        |
| X15-8    | Cam gear key No. 3                                                      |             | 1        | .05        |
| X17-2    | Expansion plug 1 $\frac{5}{8}$ " in cylinder                            |             | 2        | .10        |
| X20-8    | Rocker arm stud                                                         | R12 R20 R30 | 1        | .25        |

**The New  
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