



# Parts List

# HERCULES

## SIX CYLINDER ENGINE

*of the*

## WX SERIES

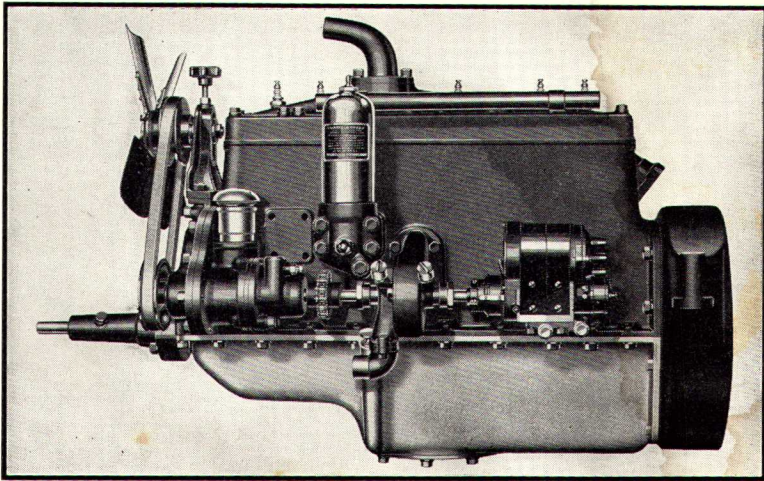
WXA	— $3\frac{3}{8}$ " x $4\frac{1}{2}$ "
WXA2	— $3\frac{1}{2}$ " x $4\frac{1}{2}$ "
WXB	— $3\frac{3}{4}$ " x $4\frac{1}{2}$ "
WXC	—4" x $4\frac{1}{2}$ "
WXC2	— $4\frac{1}{8}$ " x $4\frac{1}{2}$ "
WXC3	— $4\frac{1}{4}$ " x $4\frac{1}{2}$ "
<hr/>	
WXLC	—4" x $4\frac{3}{4}$ "
WXLC3	— $4\frac{1}{4}$ " x $4\frac{3}{4}$ "

REPRINTED JUNE 14, 1949

Supersedes All Previous Parts Lists

**HERCULES MOTORS CORPORATION**  
**CANTON, OHIO, U. S. A.**

PARTS LIST  
**HERCULES**  
SIX CYLINDER ENGINE  
*of the*  
"WX" Series



**HERCULES MOTORS CORP.**

CANTON, OHIO, U. S. A.

# HERCULES MOTORS CORPORATION

CANTON, OHIO

Hercules Motors Corporation is a Member of the Internal Combustion Engine Institute and is pleased to warrant all Hercules products sold by it in accordance with the following Basic Warranty adopted by the Institute May 8, 1947, which is subject to future amendment without notice. This warranty is in lieu of any warranty expressed or implied by law and supercedes any different warranty in customer's purchase orders.

## BASIC WARRANTY

The Manufacturer warrants each new engine sold by the Manufacturer to be free from defects in material and workmanship for six (6) months from date of shipment, but not to exceed ninety (90) days of service, or such other period of time as may be agreed upon in respect to the application in which the engine is used. The obligation under this Warranty, statutory or otherwise, is limited to the replacement or repair at the Manufacturer's factory or at a point designated by the Manufacturer, of such part as shall appear to the Manufacturer, upon inspection at such point, to have been defective in material or workmanship.

This Warranty does not obligate the Manufacturer to bear the cost of labor or transportation charges in connection with the replacement or repair of defective parts, nor shall it apply to an engine upon which repairs or alterations have been made unless authorized by the Manufacturer.

The Manufacturer makes no Warranty in respect to trade accessories, such being subject to the Warranties of their respective Manufacturers.

The Manufacturer shall in no event be liable for consequential damages or contingent liabilities arising out of the failure of any engine or parts to operate properly.

No express, implied or statutory Warranty other than herein set forth is made or authorized by the Manufacturer.

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New service parts are sold subject to the same warranty as new engines.

# INSTRUCTIONS *for* ORDERING PARTS

This parts list supersedes all others of previous date.

All prices are subject to change without notice.

All shipments are strictly C. O. D., except when otherwise agreed to by contract with our company.

All parts are shipped F. O. B. Canton, Ohio, except Parcel Post packages, which are prepaid and billed to customer on the invoice.

When ordering by telegram or telephone, be sure to send us confirming order.

DO NOT order anything in sets; for example, "One set of Piston Rings" might be understood as meaning Four—a set for one Piston—or Twenty-Four—a set for one Engine.

When in doubt as to whether you can order from this parts book, send in a sketch, or the old part (prepaid) and specify on order "as per sketch," or "as per sample".

### **When ordering parts, give engine number.**

If you return old part as sample be sure to advise us that you are doing so, and put a tag on the part with your name and address, so it may be quickly identified.

### **PARTS RETURNED FOR CREDIT**

All claims must be made within **three** days after receipt of goods. Transportation charges must be prepaid. Never return a part to our factory without writing us a letter informing us what you are returning and why. Place on outside of box or package, tag showing name and address. Tag each article in box or package, stating what, how many, and why returned, specifying number of engine from which part was removed.

Your careful attention and adherence to the above instructions will assist us in giving you prompt and correct service.

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# Group and Illustration Index



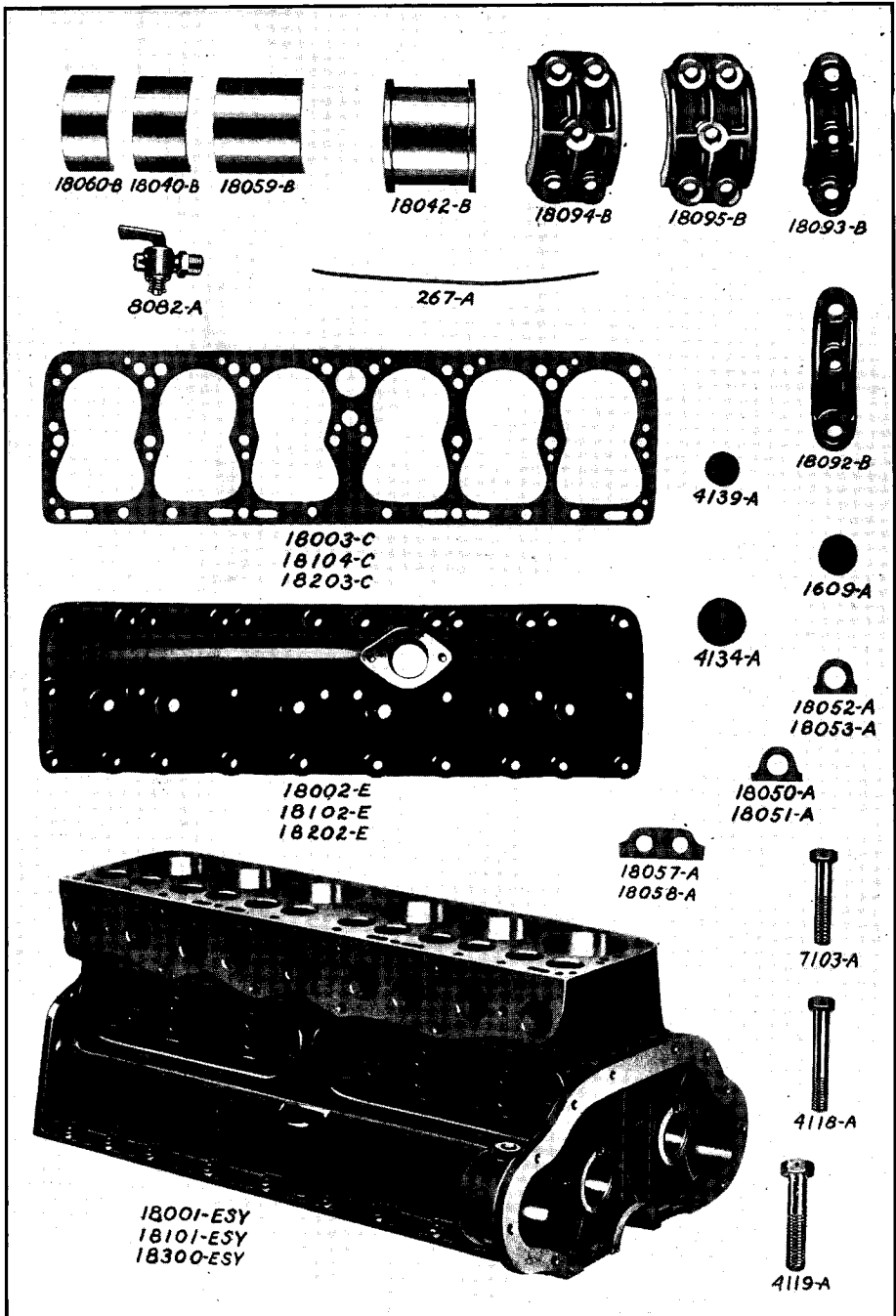
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18060-B 18040-B 18059-B

18042-B

18094-B

18095-B

18093-B

8082-A

267-A

18003-C  
18104-C  
18203-C

18092-B

4139-A

1609-A

18002-E  
18102-E  
18202-E

4134-A

18052-A  
18053-A

18050-A  
18051-A

18001-ESY  
18101-ESY  
18300-ESY

18057-A  
18058-A

7103-A

4118-A

4119-A

Plate No. 1

Cylinder Head, Gasket, Block, Main Bearings, Main Bearing Caps

### PARTS LIST

Parts carrying mark ■ in front of part number have been selected as those necessary to care for emergency service and maintenance. The quantity of such parts to be carried as spares will depend on the number of engines in service.

If gasket assemblies are ordered then gaskets shown under group headings may be omitted to avoid duplication.

### GASKET ASSEMBLY

This Assembly does not include cylinder head gaskets or gaskets for special oil pans, air compressor or any other accessories.

Part No.	No. Req.	PART NAME	Plate No.
■ 18022-AS	1	Gasket Assembly (Includes parts marked *)	
18005-B	2	*Valve cover gasket	
18024-C	1	*Gear cover gasket	
15149-A	2	*Water pump sleeve gasket	
18065-B	1	*Bellhousing gasket	
18164-A	1	*Water pump cover gasket	
18173-A	1	*Water pump gasket	
18085-B	2	*Oil pan gasket	
8146-A	1	*Oil pan strainer gasket	
15133-A	1	*Oil orifice gasket	
18241-A	1	*Oil pressure regulator gasket	
19732-E	1	*Manifold gasket	
18028-A	1	*Companion flange gasket	
18786-A	1	*Cover plate gasket	
22564-A	1	*Fuel pump gasket	
4790-A	1	*Generator seal	
829-A	1	*Water outlet gasket	
86-A	1	*Water inlet gasket	
2452-A	1	*Oil filtrator shell gasket	
8575-A	2	*Oil filtrator drain plug gasket	
40247-A	1	*Oil conditioner cooling unit gasket	
18249-A	1	*Oil filtrator gasket	

### CYLINDER AND CRANKCASE (Poured Type Bearings)

18001-ESY 1 Cylinder and crankcase, with valve guides, camshaft bearings and idler gear bearing

This assembly for poured type bearing caps and does not have notches for locking shell type bearings. Diameter of bore for bearings 2<sup>1</sup>/<sub>16</sub>".

18352-DS 1 Cylinder and crankcase, with above parts, also main bearings, caps and screws, all reamed to size

■ 18040-B	1	Front upper main bearing	
■ 18059-B	1	Center upper main bearing	
■ 18060-B	4	Intermediate upper main bearing	
■ 18042-B	1	Rear upper main bearing	
■ 19106-B	1	Front main bearing cap—supersedes and interchangeable with 18093-B	
■ 19108-B	1	Center main bearing cap—supersedes and interchangeable with 18095-B	
■ 19105-B	4	Intermediate main bearing cap—supersedes and interchangeable with 18092-B	
■ 19107-B	1	Rear main bearing cap—supersedes and interchangeable with 18094-B	
4119-A	8	Center and rear main bearing screws— <sup>1</sup> / <sub>2</sub> "—13x2 <sup>1</sup> / <sub>2</sub> "	
7103-A	10	Front and intermediate main bearing screws— <sup>5</sup> / <sub>8</sub> "—11x2 <sup>7</sup> / <sub>8</sub> "	
267-A	16	Main bearing lock wire	

NOTE: A suitable allowance for each of the main bearing caps will be made, if returned in condition to be rebabbitted and reused, provided our invoice reference is given covering bearing cap which replaced one returned.

18050-A	1	Front main bearing shim .002"	
18051-A	4	Front main bearing shim .003"	
18052-A	6	Intermediate main bearing shim .002"	
18053-A	16	Intermediate main bearing shim .003"	
18057-A	4	Center and rear main bearing shim .002"	
18058-A	8	Center and rear main bearing shim .003"	

Give Engine Number with Each Parts Order

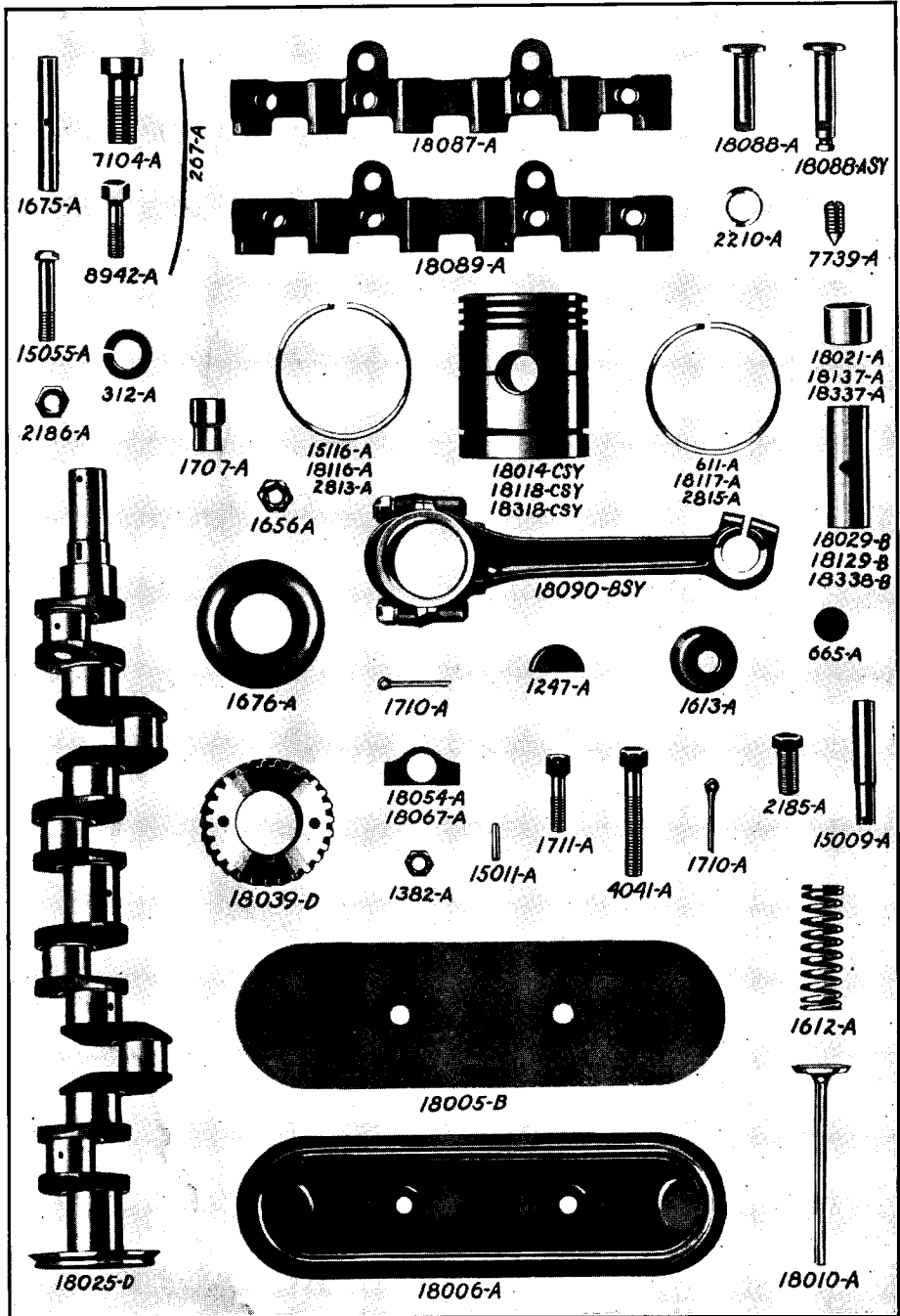


Plate No. 2

Crankshaft, Connecting Rod, Piston, Piston Rings, Push Rod, Push Rod Cluster, Valves



**CYLINDER AND CRANKCASE (Shell Type Bearings)**

Part No.	No. Req'd	PART NAME	Plate No.
20008-ESY	1	Cylinder and crankcase assembly with valve guides, camshaft bearings, idler shaft bearing, main bearing caps and screws, pipe plugs and expansion plugs, also new style idler shaft. This assembly for shell type bearings. Diameter of bore for bearings 2.770"—2.771" .....	
20009-DS	1	Cylinder and crankcase assembly with above parts, also main bearing shells .....	
■ 20076-AS	1	Main bearing assembly (Includes parts marked *)—Replaces 20596-AS .....	
20072-B	2	*Front main bearing (replaces 18072-B and 18077-B) .....	
20073-B	2	*Center main bearing (replaces 18073-B and 18079-B) .....	
20074-B	2	*Rear main bearing (replaces 18074-B and 18078-B) .....	
20075-B	8	*Intermediate bearing (replaces 18075-B and 18076-B) .....	
19680-B	4	†*Rear main bearing thrust flange .....	
4765-A	4	†*Rear main bearing thrust flange dowel .....	
■ 21571-AS	1	Main bearing assembly (Includes parts marked †) .....	
21572-B	2	†Front main bearing, F-77 .....	
21573-B	2	†Center main bearing, F-77 .....	
21574-B	2	†Rear main bearing, F-77 .....	
21575-B	8	†Intermediate main bearing, F-77 .....	
35200-A	As Req.	Front main bearing shim—.002" .....	
35205-A	6	Front main bearing shim—.003" .....	
35202-A	As Req.	Center main bearing shim—.002" .....	
35207-A	6	Center main bearing shim—.003" .....	
35203-A	As Req.	Intermediate main bearing shim—.002" .....	
35208-A	24	Intermediate main bearing shim—.003" .....	
35201-A	As Req.	Rear main bearing shim—.002" .....	
35206-A	6	Rear main bearing shim—.003" .....	
267-A	9	Main bearing screw lockwire .....	

NOTE: Bearing caps used with Shell type bearings are not usually furnished separately. They are listed below for information. Three types of caps have been used but the same interchangeable shells are used with each type of caps. The cap screws required with each type of caps are listed with their respective parts. Likewise the oil header line used with each type is indicated.

		35192-B	Intermediate main bearing cap .....	
		35193-B	Front main bearing cap .....	
		35194-B	Rear main bearing cap .....	
		35195-B	Center main bearing cap .....	
4119-A	8	Center and rear main bearing screw—1/2"-13x2 1/2" .....		
7103-A	10	Front and intermediate main bearing screw—5/8"-11x2 7/8" .....		
18135-BS	1	Oil pump discharge pipe assembly .....		
		19905-B	Intermediate main bearing cap .....	
		19906-B	Front main bearing cap .....	
		19907-B	Rear main bearing cap .....	
		19908-B	Center main bearing cap .....	
4119-A	8	Center and rear main bearing screw—1/2"-13x2 1/2" .....		
7103-A	10	Front and intermediate main bearing screw—5/8"-11x2 7/8" .....		
19104-BS	1	Oil pump discharge pipe assembly .....		
		20092-B	Front main bearing cap .....	
		20093-B	Center main bearing cap .....	
		20094-B	Rear main bearing cap .....	
		20095-B	Intermediate main bearing cap .....	
20096-A	10	Front and intermediate main bearing screw—5/8"-11x4" .....		
20097-A	8	Center and rear main bearing screw—1/2"-13x3 5/8" .....		
19171-CS	1	Oil pump discharge pipe assembly .....		

**CYLINDER AND CRANKCASE PARTS**

Common to both of above types

1609-A	2	Expansion plug (1 1/4") .....	1
4746-A	4	Pipe plug (3/4") .....	

Give Engine Number with Each Parts Order

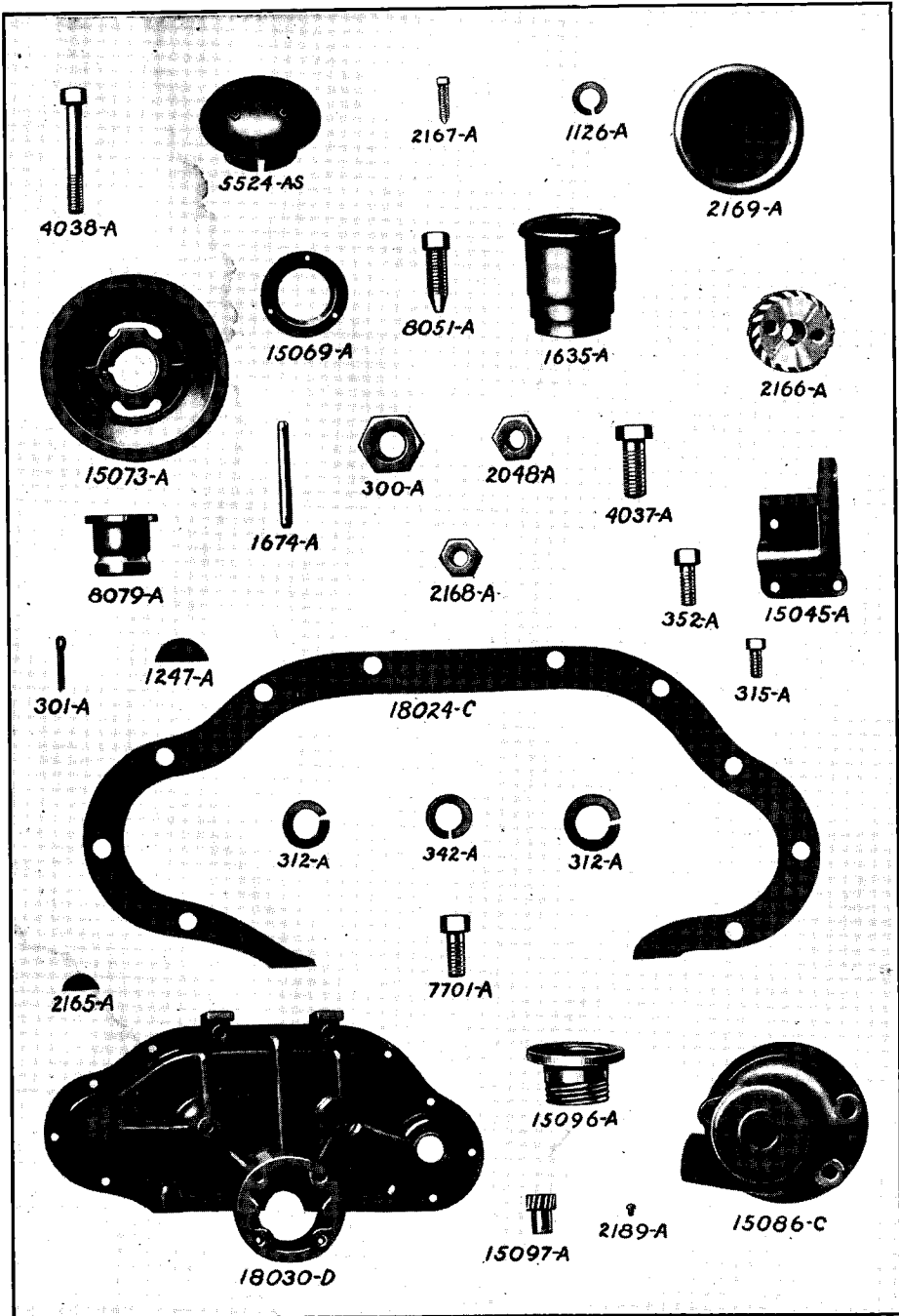


Plate No. 3

Gear Cover, Breather, Fan Driving Parts, Magneto Equipment, Generator Attaching Parts, Distributor Drive

**CYLINDER AND CRANKCASE PARTS (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
4134-A	6	Expansion plug (1 <sup>1</sup> / <sub>2</sub> " )	1
60-A	2	Cylinder pipe plug (1/4" )	
632-A	2	Expansion plug (1 <sup>3</sup> / <sub>16</sub> " )	
59-A	1	Cylinder pipe plug (1/8" )	
665-A	2	Cylinder expansion plug (5/8" )	
981-A	1	Cylinder expansion plug (1 <sup>1</sup> / <sub>8</sub> " )	
15739-A	1	Cylinder oil orifice	
4251-A	1	Cylinder oil orifice plug	
■ 15133-A	1	Cylinder oil orifice gasket	
4243-A	2	Cylinder oil orifice screw	
4242-A	2	Cylinder oil orifice lockwasher	
4879-A	1	Cylinder fuel pump hole cover plate	
■ 22564-A	1	Cylinder fuel pump hole cover plate gasket	
1048-A	2	Cylinder fuel pump hole cover plate screw	
615-A	2	Cylinder fuel pump hole cover plate screw lockwasher	
■ 4790-A	1	Cylinder generator gasket	

**SHIM ASSEMBLY**

For WXA, WXB, WXC, WXC-2 and WXC-3 engines with Poured Type Babbitt Bearings.

■ 18056-AS	1	Shim assembly, (Includes parts marked *)
18050-A	4	*Front main bearing shim .002"
18051-A	2	*Front main bearing shim .003"
18052-A	16	*Intermediate main bearing shim .002"
18053-A	8	*Intermediate main bearing shim .003"
18057-A	8	*Center and rear main bearing shim .002"
18058-A	4	*Center and rear main bearing shim .003"
18067-A	24	*Connecting rod shim .002" (1/2" bolt)
18054-A	18	*Connecting rod shim .003" (1/2" bolt)
21067-A	24	*Connecting rod shim .002" (1/16" bolt)
21054-A	18	*Connecting rod shim .003" (1/16" bolt)

**SHIM ASSEMBLY**

For WXC, WXC-3, WXLC and WXLC-3 engines with removable shell type bearings.

■ 21068-AS	1	Shim assembly (Includes parts marked **)
35200-A	4	**Front main bearing shim .002"
35205-A	4	**Front main bearing shim .003"
35202-A	4	**Center main bearing shim .002"
35207-A	4	**Center main bearing shim .003"
35203-A	16	**Intermediate main bearing shim .002"
35208-A	16	**Intermediate main bearing shim .003"
35201-A	4	**Rear main bearing shim .002"
35206-A	4	**Rear main bearing shim .003"
35067-A	24	**Connecting rod shim .002" (7/16" bolt)
35068-A	18	**Connecting rod shim .003" (7/16" bolt)
18194-A	24	**Connecting rod shim .002" (1/2" bolt)
18196-A	18	**Connecting rod shim .003" (1/2" bolt)

**CONNECTING ROD (Poured Type Bearings)**

Be sure that the connecting rod requirements are known before ordering, as different pistons as well as different models use certain connecting rods.

A suitable allowance for each rod and cap of the babbitted type connecting rod will be made, if returned in condition to be rebabbitted and reused provided our invoice reference is given covering the connecting rod which replaced the one returned.

■ 18090-CSY	6	Connecting rod assembly, center to center distance 9 <sup>1</sup> / <sub>8</sub> " (includes bolts, nuts and shims). This connecting rod is used on: Model WXB with piston 18505-CSY (Cast Iron) Model WXA with piston 18118-CSY (Cast Iron) *Model WXC with piston 18506-CSY (Cast Iron) *Model WXC-2 with piston 18714-CSY (Cast Iron) *Model WXC-2 with piston 18511-C (Aluminum)
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Give Engine Number with Each Parts Order

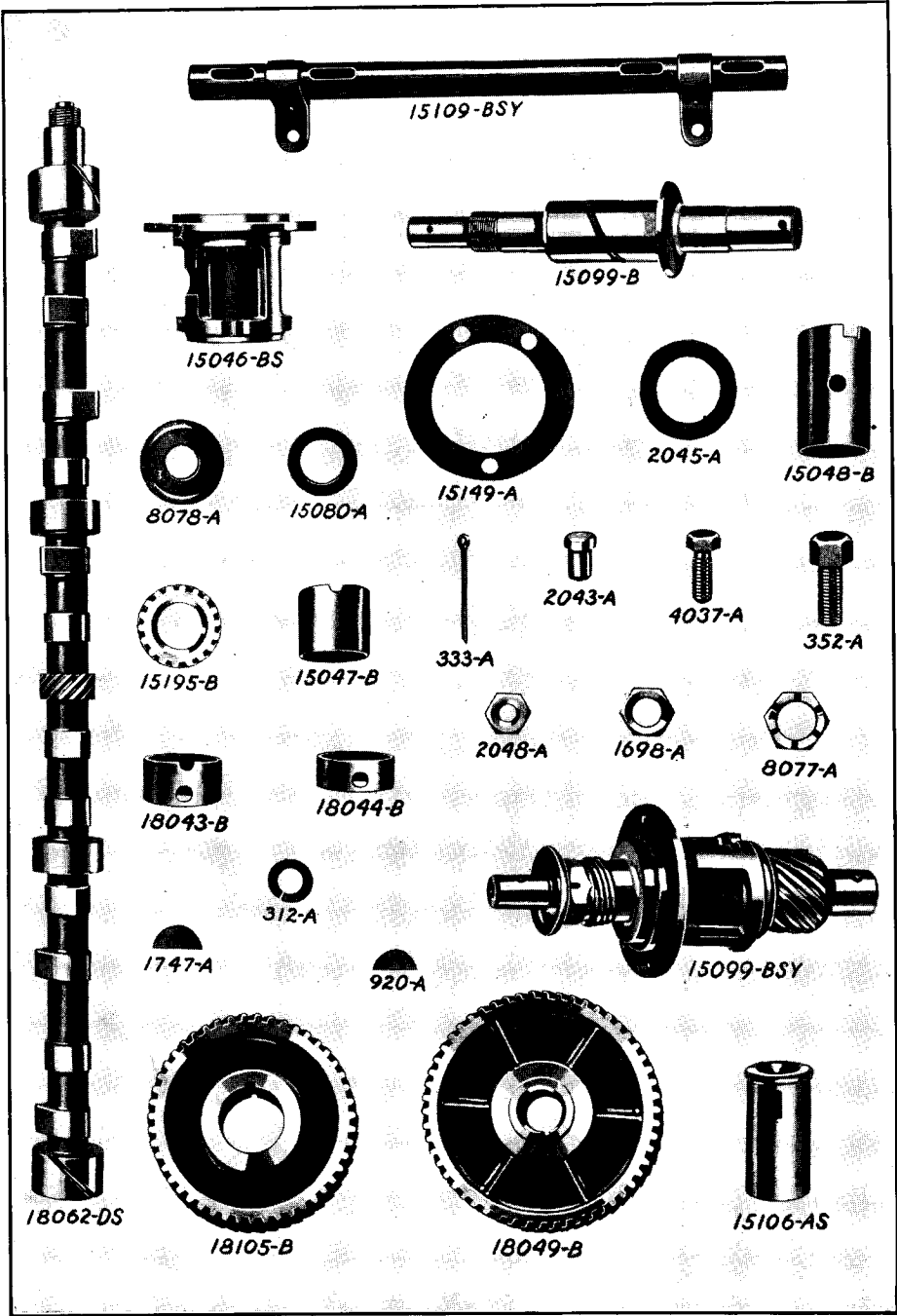


Plate No. 4

Camshaft, Water Pump Drive, Camshaft Bearings, Idler Gear, Cable Tube

**CONNECTING ROD (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
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\*Model WXC-3 with piston 18875-CSY (Cast Iron)  
 \*Model WXC-3 with piston 18709-C (Aluminum)

\*For these models order assembly 20597-AS, below.

The following parts are used with this connecting rod:

15055-A	12	Connecting rod bolt.....	2
1656-A	12	Connecting rod bolt nut.....	2
1710-A	12	Connecting rod bolt cotter pin.....	2
18054-A	36	Connecting rod shim .003".....	2
18067-A	As Req.	Connecting rod shim .002".....	2
■ 11756-A	6	Connecting rod piston pin clamp screw.....	2
21229-A	6	Connecting rod piston pin clamp screw lock washer.....	2

NOTE: 11756-A Clamp screw does not have drilled head for lock wire and 21229-A lockwasher must be used.

18790-CSY	6	Connecting rod assembly, center to center distance 9 <sup>1</sup> / <sub>8</sub> " (includes bolts nuts and shims). This connecting rod is used on: Model WXA-2 with pistons 18509-CSY and 18507-CSY (Cast Iron)	
18890-CSY	6	Connecting rod assembly, center to center distance 8 <sup>7</sup> / <sub>8</sub> " (Includes bolts, nuts and shims). This connecting rod is used on: Model WXA-2 with piston 21014-C (Aluminum)	
■ 21190-CSY	6	Connecting rod assembly, center to center distance 8 <sup>7</sup> / <sub>8</sub> " (Includes bolts, nuts and shims). This connecting rod is used on: Model WXB with piston 21215-C (Aluminum) *Model WXC with piston 21321-C (Aluminum)	

\*For this model, order assembly 21297-AS, page 15.

The following parts are used with the above three connecting rods:

21055-A	12	Connecting rod bolt.....	
21056-A	12	Connecting rod bolt nut.....	
301-A	12	Connecting rod bolt cotter pin.....	
21054-A	36	Connecting rod shim .003".....	
• 21067-A	As Req.	Connecting rod shim .002".....	
11756-A	6	Connecting rod piston pin clamp screw.....	2
21229-A	6	Connecting rod piston pin clamp screw lock washer.....	2

**CONNECTING ROD (Shell Type Bearings)**

Do not put high lead bronze bearings in engines formerly equipped with babbitt bearings unless the crankshaft is known to be made of special steel suitable for use with high lead bronze bearings.

On all connecting rods using the shell type bearings, the connecting rod assembly does not include the bearings; these must be ordered in addition to the assembly.

20597-AS	6	Connecting rod and bearing assembly—includes parts marked**.....	
18191-CSY	6	**Connecting rod assembly, center to center distance 9 <sup>1</sup> / <sub>8</sub> " (Includes bolts, nuts and shims but does not include the bearing shells). This connecting rod is used on: Model WXC with piston 18506-CSY (Cast Iron) Model WXC-2 with piston 18714-CSY (Cast Iron) Model WXC-2 with piston 18511-C (Aluminum) Model WXC-3 with piston 18875-CSY (Cast Iron) Model WXC-3 with piston 18709-C (Aluminum)	

The following parts are used with this connecting rod:

■ 20198-B	12	**Connecting rod bearing shell, babbitt lined, brass back—interchangeable with 18193-B, 18195-B and 19198-B .....	
18194-A	As Req.	Connecting rod shim—.002" .....	
18196-A	18	Connecting rod shim—.003" .....	
15055-A	12	Connecting rod bolt .....	2
1656-A	12	Connecting rod bolt nut .....	2
1710-A	12	Connecting rod bolt cotter pin .....	2
11756-A	6	Connecting rod piston pin clamp screw—supersedes 1711-A .....	2
21229-A	6	Connecting rod piston pin clamp screw lockwasher .....	2

Give Engine Number with Each Parts Order

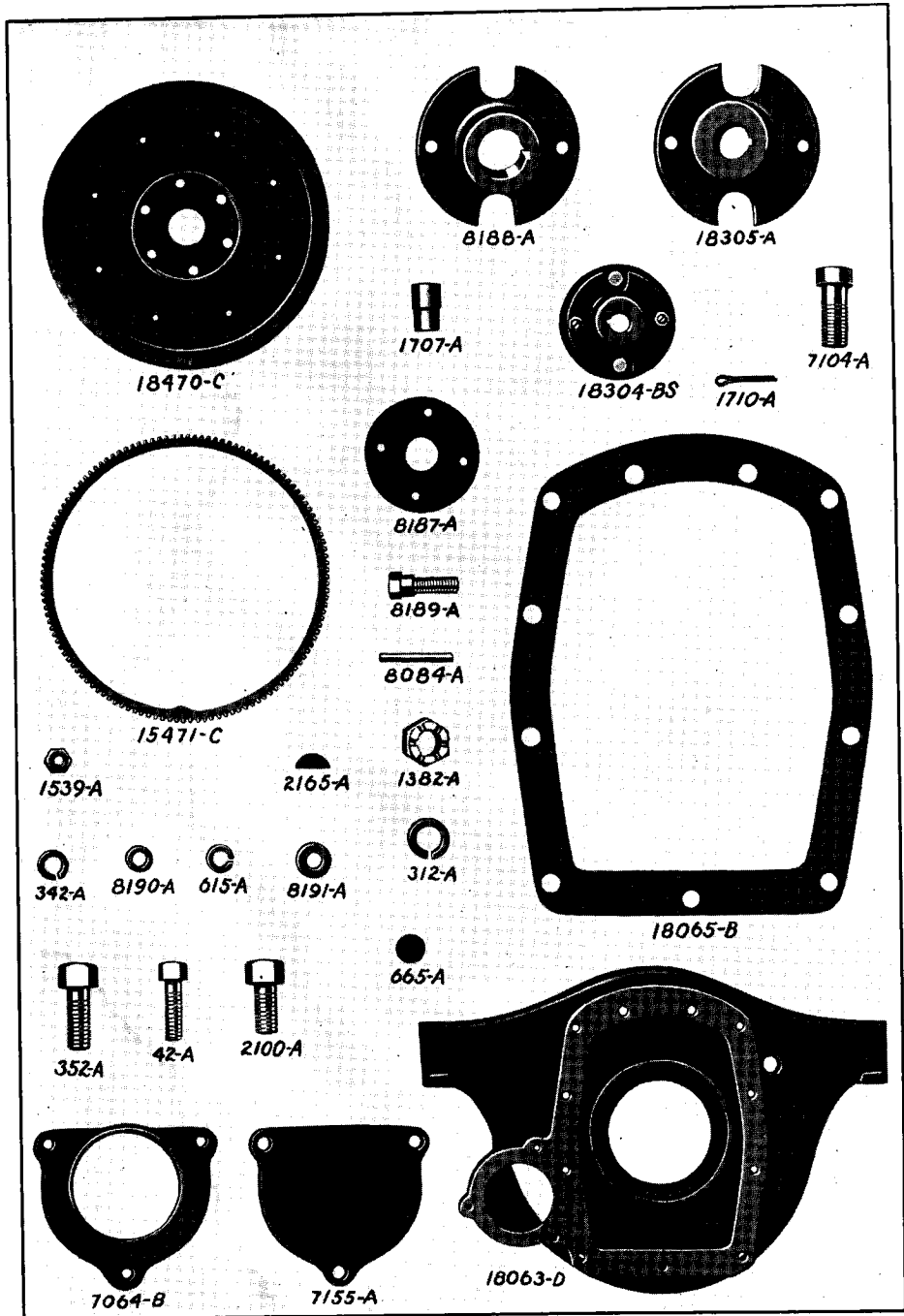


Plate No. 5

Flywheel, Ring Gear, Bellhousing, Water Pump Flexible Coupling

**CONNECTING ROD (Shell Type Bearings) Continued**

Part No.	No. Req'd	PART NAME	Plate No.
21581-AS	6	Connecting rod and bearing assembly—includes parts marked †	
21297-AS	6	Connecting rod and bearing assembly—includes parts marked *	
21290-CSY	6	†*Connecting rod assembly, center to center distance 8 7/8". (Includes bolts, nuts and shims but does not include the bearing shells.) This connecting rod is used on: Model WXC with piston 21321-C (Aluminum) Model WXLC with piston 19390-C (Aluminum) Model WXLC-3 with piston 18709-C (Aluminum)	

The following parts are used with this connecting rod:

■ 20198-B	12	*Connecting rod bearing shell—babbitt lined brass back, interchangeable with 18194-B, 18195-B and 19198-B	
■ 21576-B	12	†Connecting rod bearing—F-77	
21055-A	12	Connecting rod bolt	
21056-A	12	Connecting rod bolt nut	
301-A	12	Connecting rod bolt cotter pin	
35067-A	As Req.	Connecting rod shim—.002"—Used only on some engines...	
35068-A	18	Connecting rod shim—.003"—Used only on some engines...	
11756-A	6	Connecting rod piston pin clamp screw—supersedes 1711-A	2
21229-A	6	Connecting rod piston pin clamp screw lockwasher	2

**PISTONS (Cast Iron)**

NOTE: Pistons and rings are supplied in the following oversizes; .005, .010, .015, .020, .030 and .040. Piston pins supplied in .003 and .005 oversizes. On orders for sizes other than specified above, an additional 25 per cent will be added to the list price.

■ 18505-CSY	6	Piston with bushings. In ordering state if standard or oversize is wanted.	
■ 18029-B	6	Piston pin, special alloy steel. State if standard or oversize is wanted	2
18021-A	12	Piston pin bushing	2
■ 3812-A	18	Piston ring (3 3/4" x 3 1/8" plain). State if standard or oversize is wanted (See note above)—replaces 611-A	2
■ 3911-A	6	Piston ring (3 3/4" x 3 1/8" oil regulating). State if standard or oversize is wanted (See note above)—replaces 40116-A	

Use connecting rod 18090-CSY with this piston.

**PISTONS (Aluminum)**

See note above about oversizes.

■ 21215-C	6	Piston	
■ 18029-B	6	Piston pin	2
■ 3811-A	18	Piston ring (3 3/4" x 1 1/8" plain)—replaces 40117-A	
■ 3911-A	6	Piston ring (3 3/4" x 3 1/8") oil regulating—replaces 40116-A	

Use connecting rod 21190-CSY with this piston.

**CRANKSHAFT**

18025-D	1	Crankshaft (used with babbitt bearings) (standard)	2
19138-E	1	Crankshaft (surface hardened) special front end	
19584-B	1	Crankshaft (surface hardened and counterweighted) special front end	
19585-B	1	Crankshaft (surface hardened) counterweighted	
1676-A	1	Crankshaft oil thrower—not used on latest engines	2
■ 18039-D	1	Crankshaft gear (has center punch mark on tooth for timing)	2
1247-A	1	Crankshaft gear key (No. 15 Woodruff)	2
7104-A	4	Flywheel bolt	2
1382-A	4	Flywheel bolt nut (9/16" 18 S. A. E.)	2
1710-A	4	Flywheel bolt nut cotter (1/8" x 1")	2
1707-A	2	Flywheel dowel (1/2" x 5/8")	2
665-A	2	Flywheel dowel plug (5/8" expansion)	2
1675-A	1	Starting crank pin (3/8" x 2 1/2")	2
1739-A	1	Starting crank pin set screw	
14624-AS	1	Crankshaft oil wick sleeve. (Includes parts marked *)	
14624-A	1	*Crankshaft oil wick	
14933-A	1	*Crankshaft oil wick sleeve	

Give Engine Number with Each Parts Order

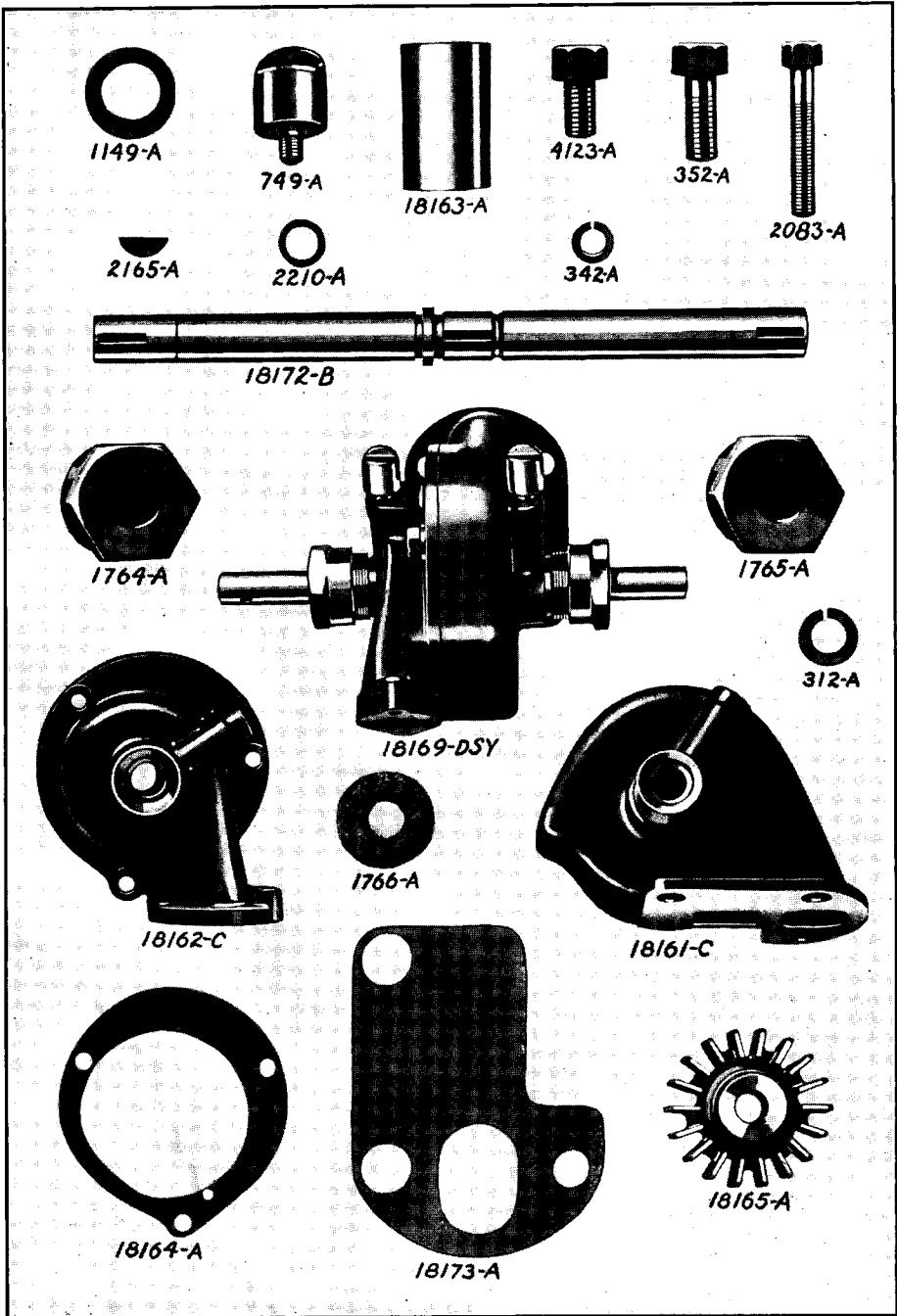


Plate No. 6

Water Pump, and Water Pump Parts



**VALVE (Pin Type Lock)**

Part No.	No. Req'd	PART NAME	Plate No.
■ 18201-A	6	Valve, intake .....	
■ 20012-A	6	Valve, exhaust, special steel .....	
15015-A	6	Valve guide—Exhaust .....	
■ 15009-A	6	Valve guide—Intake .....	2
■ 19772-A	12	Valve spring—replaces 21012-A .....	2
1613-A	12	Valve spring seat or washer .....	
15011-A	12	Valve spring seat pin (round) .....	2
■ 21011-A	12	Valve spring seat pin (oblong) .....	
18384-A	6	Valve seat insert (exhaust) .....	

**VALVE (Split Type Lock)**

For high speed military engines used in amphibian tractors, etc.

18012-A	6	Valve, intake .....	
18011-A	6	Valve, exhaust .....	
19866-A	12	Valve spring, cadmium plated .....	
18004-A	12	Valve spring seat .....	
76011-A	24	Valve spring seat lock .....	
18019-A	12	Valve guide .....	

**VALVE COVER**

18006-A	2	Valve cover .....	2
4384-A	4	Valve cover screw—(1/2"-13x3 1/2") .....	
Takes place of Part No. 4041-A—Plate No. 2			
■ 18005-B	2	Valve cover gasket .....	2
794-A	4	Valve cover washer .....	
14311-A	4	Valve cover lead washer .....	

**PUSH ROD**

20853-AS	12	Push rod assembly (valve tappet)—includes 18728-A, 2185-A and 2186-A (used with steel camshaft like 18822-D or 19072-D) .....	
18728-A	12	Push rod (valve tappet) .....	
18013-ASY	12	Push rod assembly (valve tappet)—includes 18013-A, 2185-A and 2186-A (used with cast alloy camshaft like 18046-D) ..	
18013-A	12	Push rod (valve tappet) .....	
2185-A	12	Push rod screw (hardened) .....	2
2186-A	12	Push rod screw nut .....	2
18087-A	1	Push rod cluster—front .....	2
18089-A	1	Push rod cluster—rear .....	2
8942-A	8	Push rod cluster screw (1/2"-13x2" U.S.S.) .....	2
2210-A	4	Push rod cluster dowel .....	2
312-A	8	Push rod cluster screw lockwasher (1/2" S.A.E.) .....	2

**CYLINDER HEAD**

Part numbers which differ from casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

18002-E	1	Cylinder head, 4.7:1 compression ratio .....	1
18208-E	1	Cylinder head (Dual ignition) 4.7:1 compression ratio .....	
18214-E	1	Cylinder head 5.3:1 compression ratio—standard .....	
■ 18953-E	1	Cylinder head 6.0:1 compression ratio .....	
■ 18003-C	1	Cylinder head gasket .....	1
6346-A	30	Cylinder head cap screw (1/2"x13x3 1/8")—replaces 4118-A .....	1
1075-A	1	Cylinder head pipe plug 1/2" .....	
415-A	1	Cylinder head pipe plug 3/8" .....	

**GEAR COVER (First Type)**

NOTE: This gear cover used with oil thrower on crankshaft and screw thrust adjustment for both cam and idler.

19934-DS	1	Gear Cover Assembly (includes parts marked *) .....	
18030-D	1	*Gear cover (Std.) .....	3

Give Engine Number with Each Parts Order

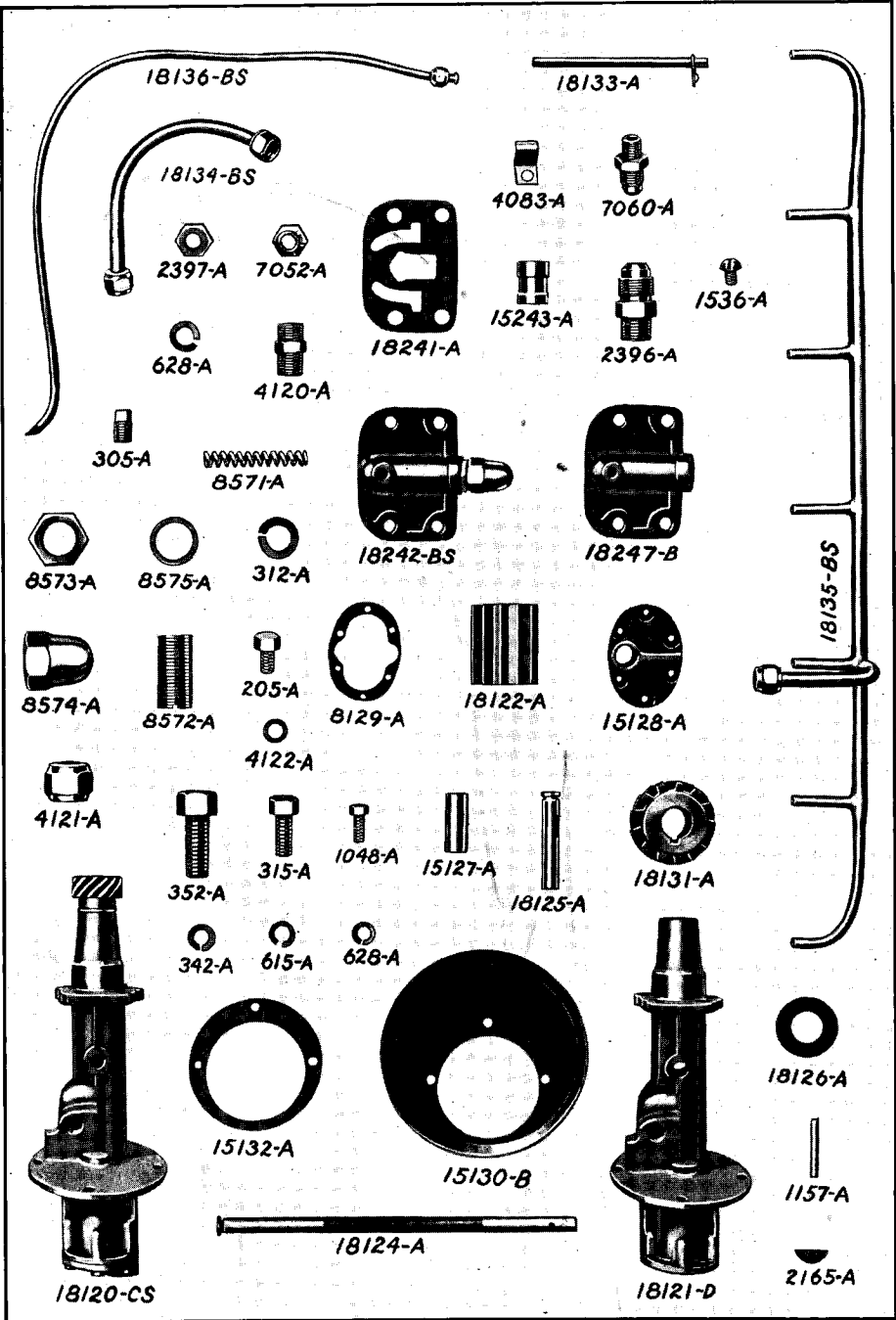


Plate No. 7

Oil Pump and Drive, Oil Lines and Connections, Oil Pressure Regulator

**GEAR COVER (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
■ 18024-C	1	Gear cover gasket.....	3
352-A	6	Gear cover screw short (1/2"x13x1 1/4" U. S. S.).....	3
4578-A	2	Gear cover screw long (1/2"x13x2 1/4").....	
4038-A	1	Gear cover screw long.....	
312-A	9	Gear cover screw lockwasher (1/2" light).....	3
■ 14596-AS	1	*Thrust adjusting screw assembly—camshaft.....	
14594-AS	1	*Thrust adjusting screw assembly—idler.....	
14591-A	2	Thrust adjusting screw fiber plug.....	
2048-A	2	*Thrust adjusting screw nut.....	3
15069-A	1	*Gear cover oil thrower.....	3
2189-A	3	*Gear cover oil thrower pin.....	3
15061-A	1	*Pilot hole plug (Governor).....	
1712-A	1	*Pilot hole plug screw.....	
312-A	1	*Pilot hole plug lockwasher.....	

**GEAR COVER (Second Type)**

NOTE: This gear cover used with flexible seal around crankshaft and screw thrust adjustment for both cam and idler.

19940-D	1	Gear cover (standard).....	
18024-C	1	Gear cover gasket.....	
352-A	6	Gear cover screw—short (1/2"-13x1 1/4").....	
4578-A	2	Gear cover screw—long (1/2"-13x2 1/4").....	
4038-A	1	Gear cover screw—long (1/2"-13x3 1/2").....	
312-A	9	Gear cover lockwasher.....	
15039-A	1	Gear cover oil thrower.....	
2189-A	3	Gear cover oil thrower pin.....	
15061-A	1	Governor opening plug.....	
1712-A	1	Governor opening plug screw.....	
312-A	1	Governor opening plug screw lockwasher.....	
11137-AS	1	Gear cover oil seal assembly—includes parts marked *.....	
11136-A	1	*Gear cover oil seal sleeve—rubber.....	
14596-AS	1	Gear cover thrust adjusting screw assembly—camshaft.....	
14594-AS	1	Gear cover thrust adjusting screw assembly—idler.....	
14591-A	2	Gear cover thrust adjusting screw fiber plug.....	
2048-A	2	Gear cover thrust adjusting screw nut.....	

**GEAR COVER (Third Type)**

NOTE: This gear cover used with flexible seals around crankshaft and accessory shaft, also plate and shim adjustments for idler.

19944-D	1	Gear cover (standard).....	
18024-C	1	Gear cover gasket.....	
352-A	6	Gear cover screw—short (1/2"-13x1 1/4").....	
4578-A	2	Gear cover screw (1/2"-13x2 1/4").....	
4038-A	1	Gear cover screw—long (1/2"-13x3 1/2").....	
312-A	9	Gear cover lockwasher.....	
15061-A	1	Governor opening plug.....	
1712-A	1	Governor opening plug screw.....	
312-A	1	Governor opening plug screw lockwasher.....	
11087-AS	1	Gear cover oil seal assembly—includes parts marked *.....	
11784-A	1	*Gear cover oil seal sleeve.....	
20054-A	1	Gear cover idler shaft thrust plate.....	
30066-A	1	Gear cover idler shaft thrust plate plug.....	
13820-A	2	Gear cover thrust plug lock pin.....	
30064-A	As Req.	Gear cover thrust plate shims.....	
14715-A	3	Gear cover thrust plate screw.....	
4867-A	3	Gear cover thrust plate screw washer.....	
■14236-A	1	Gear cover water pump drive shaft oil seal.....	

Give Engine Number with Each Parts Order

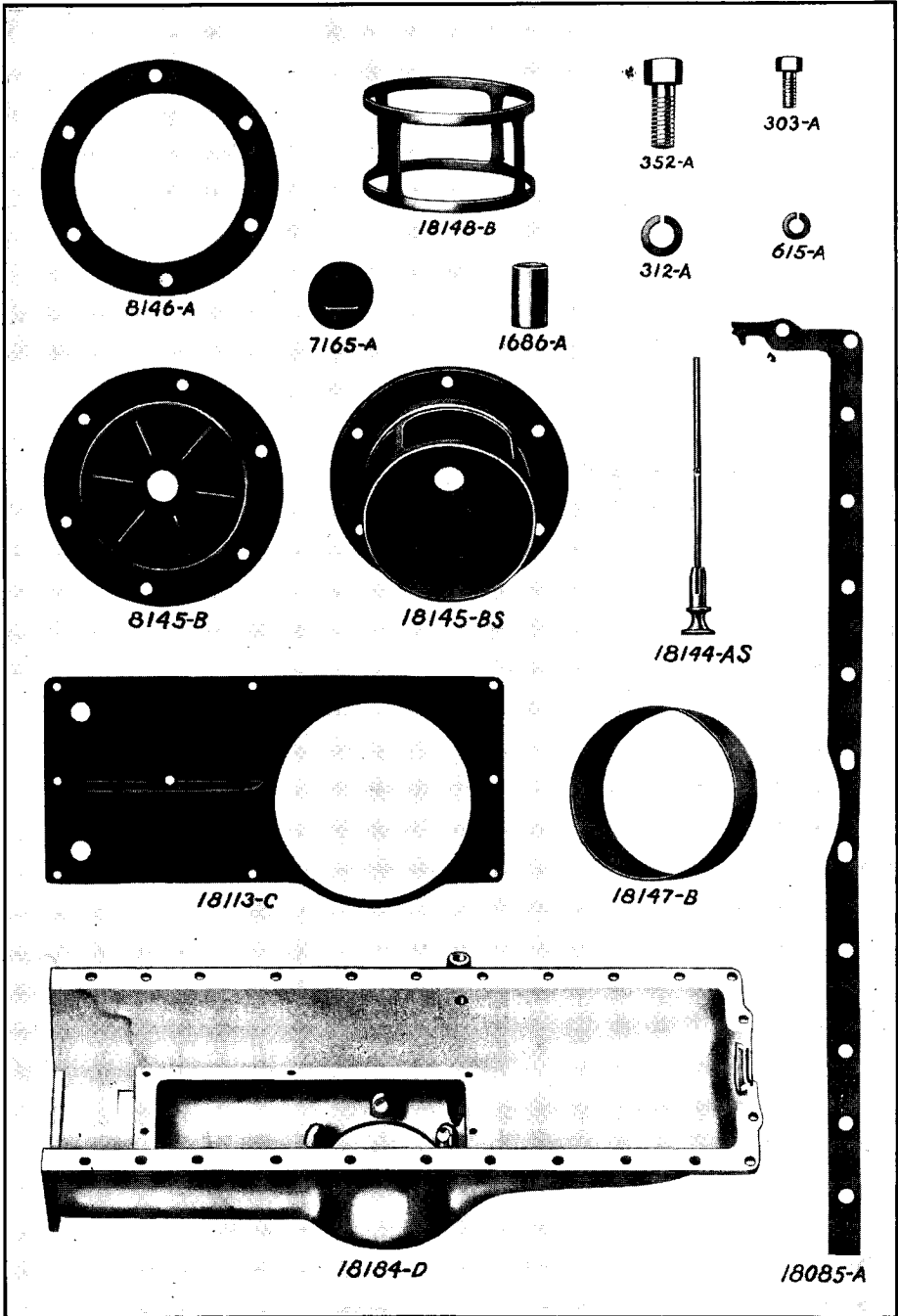


Plate No. 8  
Oil Pan, Oil Gauge, Etc.

**BREATHER**

Part No.	No. Req.	PART NAME	Plate No.
■ 5524-AS	1	Breather cap assembly (Oil filler cap).....	3
1635-A	1	Breather extension pipe.....	3

**CAMSHAFT**

18822-DS	1	Camshaft and 14209-A Plunger—Forged steel—used in engines up to No. 170,500—use oil pump drive gear 15131-A with this shaft .....	
18046-DS	1	Camshaft and 14209-A Plunger—cast alloy—use oil pump drive gear 19291-A with this shaft .....	
19072-DS	1	Camshaft and 14209-A Plunger—Forged steel—High Lift—use oil pump drive gear 15131-A with this shaft .....	
■ 18049-B	1	Camshaft gear .....	4
■ 4342-A	1	Camshaft gear thrust washer .....	
		Takes place of Part No. 2045-A—Plate No. 4	
1247-A	1	Camshaft gear key (No. 15 Woodruff) .....	3
1698-A	1	Camshaft gear nut .....	4
11039-A	1	Camshaft gear nut lockwasher .....	
14209-A	1	Camshaft plunger .....	
		Takes place of Part No. 2043-A—Plate No. 4	
18043-B	2	Camshaft bearing, front and rear .....	4
18044-B	2	Camshaft bearing, center .....	4
14596-AS	1	Camshaft gear thrust adjusting screw assembly .....	
2048-A	1	Camshaft gear thrust adjusting screw nut .....	4
14591-A	1	Camshaft gear thrust adjusting screw fiber plug .....	
11170-A	1	Camshaft thrust adjusting screw—bronze—used on late engines in place of 14596-AS .....	

**IDLER GEAR (First Type)**

NOTE: Parts in this group used with 18030-D gear cover or similar cover having screw adjustment for idler thrust.

■ 18105-B	1	Idler gear .....	4
4342-A	1	Idler gear thrust washer .....	
		Takes place of Part No. 2043-A—Plate No. 4	
920-A	1	Idler gear key (No. "A" Woodruff) .....	4
18107-AS	1	Idler gear shaft and No. 14209-A plunger .....	4
17082-A	1	Idler gear shaft bushing—interchangeable with 18098-A .....	
14209-A	1	Idler gear plunger .....	
14594-AS	1	Idler gear thrust adjusting screw assembly .....	
2048-A	1	Idler gear thrust adjusting screw nut .....	4
14591-A	1	Idler gear thrust adjusting screw fiber plug .....	

**IDLER GEAR (Late Type)**

NOTE: Parts in this group used with 19944-D gear cover or similar cover having thrust plate and shim adjustment for idler thrust.

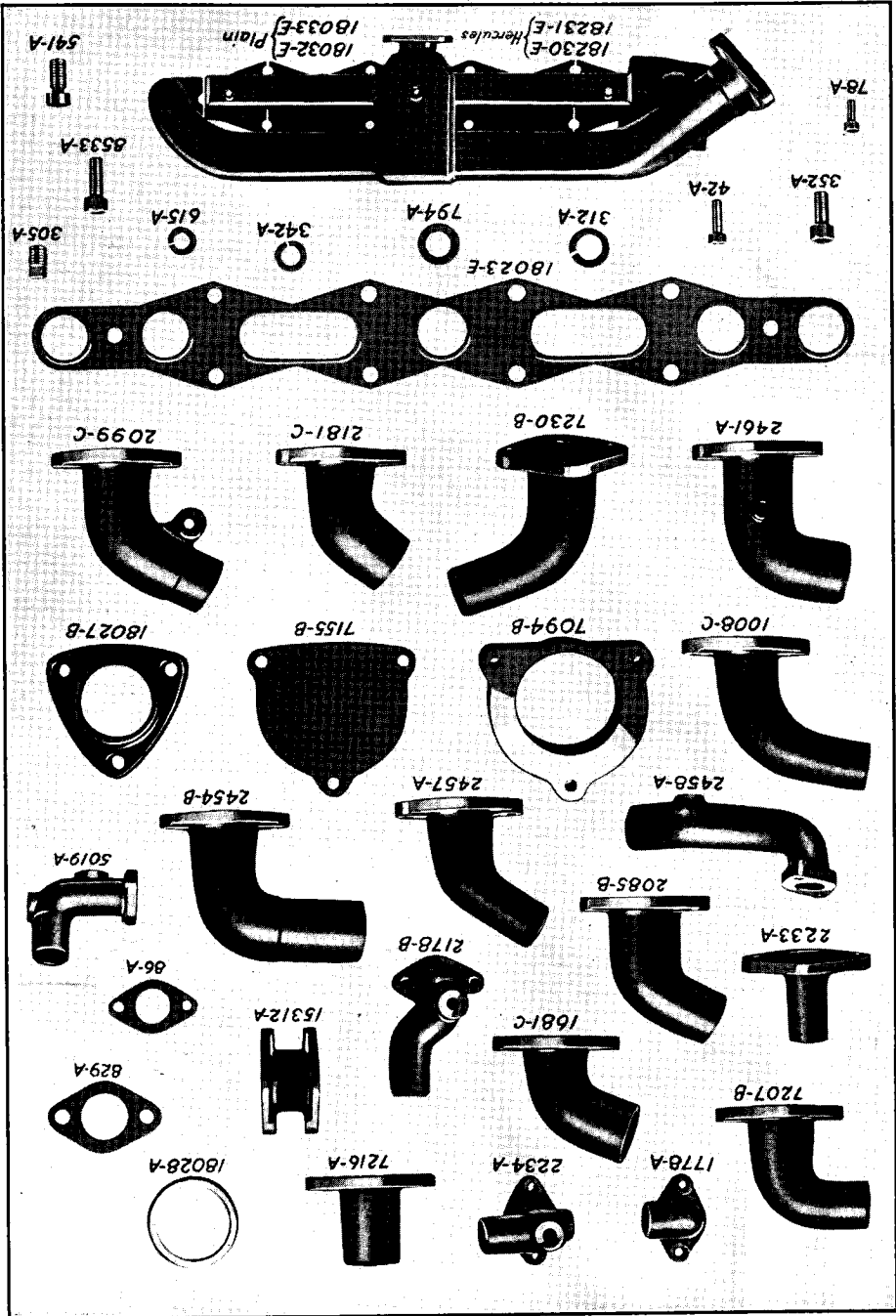
20053-AS	1	Idler shaft and gear assembly, includes parts marked * .....	
20052-AS	1	*Idler shaft assembly, includes parts marked ** .....	
20056-B	1	*Idler gear (not interchangeable with 18105-B) .....	
20055-B	1	**Idler shaft (not interchangeable with 18107-A) .....	
20057-A	1	Idler shaft bearing, flanged type (not interchangeable with 17082-A) .....	
17917-A	1	Idler shaft thrust washer (not interchangeable with 4342-A) .....	
30890-A	1	**Idler shaft oil metering plug .....	
920-A	1	*Idler shaft gear key .....	

NOTE: When servicing engines equipped with thrust plate and shims in gear cover and 17082-A bearing (not flanged), then order all of above six items.

Give Engine Number with Each Parts Order

Water Outlet and Inlet Pipes, Manifold, Manifold Extension

Plate No. 9



**IDLER GEAR (Service Type)**

NOTE: Parts in this group when used together can replace all parts in group covering "First Type" used with 18030-D gear cover or similar cover.

Part No.	No. Req'd	PART NAME	Plate No.
20056-B	1	Idler gear .....	
20057-A	1	Idler bearing—flanged type .....	
20058-A	1	Idler shaft with thrust plug .....	
17917-A	1	Idler thrust washer .....	
14209-A	1	Idler shaft thrust plug .....	
926-A	1	Idler shaft key .....	

**WATER PUMP DRIVE (Slotted Nut Type)**

(Used with Distributor Drive Listed below)

15099-BSY	1	Water pump drive shaft sleeve assembly. Includes parts marked * and 15096-A and 2165-A listed below .....	4
■ 15195-B	1	*Water pump drive gear .....	4
1247-A	1	*Water pump gear key (No. 15 Woodruff) .....	3
15099-B	1	*Water pump gear shaft .....	4
8077-A	1	*Water pump gear shaft adjusting nut—slotted .....	4
333-A	1	*Water pump gear shaft adjusting nut cotter .....	4
15048-B	1	Water pump gear shaft bushing .....	4
15056-BS	1	*Water pump gear shaft sleeve assembly with bushing No. 15048-B .....	
4342-A	2	*Water pump gear thrust washer (Bronze) .....	
■ 15149-A	2	*Water pump gear shaft sleeve gasket .....	4
15080-A	1	*Water pump gear shaft oil thrower, small .....	4
8078-A	1	*Water pump gear shaft oil thrower, large (engines numbered to 170528) .....	4
1701-A	3	Water pump shaft sleeve cap screw (1/2"x13x2" U. S. S.) .....	
312-A	3	Water pump gear shaft cap screw lockwasher (1/2" light type) .....	4

NOTE—For water pump parts, see pages 25 and 26.

**WATER PUMP DRIVE (Double Nut Type)**

20099-BS	1	Water pump drive shaft sleeve assembly—includes parts marked * and 15096-A and 2165-A listed below .....	
15099-B	1	**Water pump drive shaft .....	
11316-A	2	**Water pump drive shaft adjusting nut .....	
11697-A	1	**Water pump drive shaft tongue washer .....	
15056-BS	1	*Water pump drive shaft sleeve assembly with bushing 15048-B .....	
15048-B	1	Water pump drive shaft bushing .....	
4342-A	2	*Water pump drive shaft washer .....	
15195-B	1	*Water pump drive shaft gear .....	
1247-A	1	*Water pump drive shaft gear key .....	
15149-A	2	*Water pump drive shaft sleeve gasket .....	
19053-A	1	*Water pump drive shaft oil thrower .....	
17999-AS	1	*Water pump drive shaft and nut assembly—includes parts marked ** .....	

**BATTERY IGNITION DISTRIBUTOR DRIVE**

■ 15096-A	1	Distributor driving gear .....	3
2165-A	1	Distributor driving gear key (No. 8 Woodruff) .....	3
■ 15097-A	1	Distributor driven gear (used for distributor) .....	3
1181-A	1	Distributor driven gear pin (3/8"x1") .....	
15086-C	1	Distributor support housing (engines numbered to 170,528) .....	
16508-CS	1	Distributor support housing with 4550-A seal (engines 170,528 and up) .....	
4550-A	1	Distributor housing oil seal (engines 170,528 and up) .....	
11929-A	1	Distributor support housing screw—3/8"-16x1/2" Rd. Hd. ....	
342-A	1	Distributor support housing screw lockwasher .....	
4937-A	1	Distributor Hole Plug—Wood .....	

Give Engine Number with Each Parts Order

**BATTERY IGNITION DISTRIBUTOR DRIVE (Continued)**

The following parts are used when no distributor is used.

Part No.	No. Req.	PART NAME	Plate No.
8079-A	1	Distributor plug.....	3
8051-A	1	Distributor plug screw ( $\frac{3}{8}$ "x16x1 $\frac{1}{8}$ " cone point).....	3
300-A	1	Distributor plug screw lock nut ( $\frac{3}{8}$ "x16).....	3

**FAN DRIVING PARTS**

15073-B	1	Fan drive pulley ("V" type belt).....	3
1674-A	1	Fan drive pulley pin ( $\frac{5}{16}$ "x3 $\frac{1}{16}$ ").....	3
5921-A	2	Fan drive pulley pin cotter ( $\frac{3}{32}$ "x $\frac{1}{2}$ ").....	3
1247-A	1	Fan pulley key.....	3

**FLYWHEELS**

Part numbers on flywheels are stamped on the rims. If flywheel is ordered be sure to give part number of flywheel and engine number of engine for which the wheel is ordered as there is such a large variety of flywheels used it would be impossible to list all in a book this size. Some of the more common are listed below.

18470-C	1	Flywheel S.A.E. No. 3 .....	5
18471-C	1	Flywheel No. 3 S.A.E.—12GX Borg & Beck clutch .....	
18472-C	1	Flywheel No. 3 S.A.E.—11 QL Borg & Beck clutch .....	
18474-C	1	Flywheel No. 2 S.A.E.—31-A Long clutch .....	
18475-C	1	Flywheel No. 2 S.A.E. standard .....	
18476-C	1	Flywheel No. 2 S.A.E.—12 Borg & Beck clutch .....	
18480-C	1	Flywheel No. 3 S.A.E.—B-10 Twin Disc clutch .....	
18481-C	1	Flywheel No. 2 S.A.E.—B-1-11 $\frac{1}{2}$ Twin Disc clutch .....	
18483-C	1	Flywheel No. 3 S.A.E.—12 Borg & Beck clutch .....	
18485-C	1	Flywheel No. 3 S.A.E.—14-S. P. Brown Lipe clutch .....	
18490-C	1	Flywheel No. 2 S.A.E.—14-S. P. Brown Lipe clutch .....	
18491-C	1	Flywheel No. 3 S.A.E.—13 QL Borg & Beck clutch .....	
19403-C	1	Flywheel No. 2 S.A.E.—B-2-11 $\frac{1}{2}$ G. T. Twin Disc .....	
19411-C	1	Flywheel, special, 31AD Long .....	
19413-C	1	Flywheel No. 2 S.A.E.—14 Q Borg & Beck .....	
15471-C	1	Ring gear, 126 teeth—Interchangeable with 17471-C .....	
18492-C	1	Ring gear, 126 teeth—Interchangeable with 19455-C .....	
18494-C	1	Ring gear, 146 teeth—Interchangeable with 19550-C .....	
18484-C	1	Ring gear, 110 teeth—Interchangeable with 19454-C .....	
18467-C	1	Ring gear, 124 teeth—Interchangeable with 19453-C .....	
19071-C	1	Ring gear, 131 teeth—Interchangeable with 19553-C .....	
15480-C	1	Ring gear, 135 teeth—Interchangeable with 17472-C .....	
7104-A	4	Flywheel bolt .....	5
1382-A	4	Flywheel bolt nut ( $\frac{1}{8}$ "-18 S.A.E. Castle) .....	5
1710-A	4	Flywheel bolt cotter ( $\frac{1}{8}$ "x1") .....	5
1707-A	2	Flywheel dowel ( $\frac{5}{8}$ "x $\frac{1}{2}$ ") .....	5
665-A	2	Flywheel dowel plug ( $\frac{5}{8}$ " expansion) .....	5

**BELLHOUSING  
(Or Flywheel Housing)**

As there are many special bellhousings used, always give engine number of engine for which bellhousing is being ordered. Some of the bellhousings more commonly used are listed below.

18063-B	1	Bellhousing (No. 3 S. A. E. with starter provision below center line) 17 $\frac{3}{4}$ " O. D. ....	5
18420-D	1	Bellhousing (No. 2 S. A. E. Std.).....	
18423-D	1	Bellhousing (No. 3 S. A. E.) (Power unit) .....	
18425-D	1	Bellhousing (No. 3 S. A. E. Arm type).....	
18450-D	1	Bellhousing No. 2 Arm type.....	
18445-D	1	Bellhousing No. 2 Special.....	
19063-D	1	Bellhousing, Special Plate type.....	
19511-D	1	Bellhousing, No. 3 Arm type.....	

Give Engine Number with Each Parts Order



**BELLHOUSING (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
■ 18065-B	1	Bellhousing gasket.....	5
352-A	2	Bellhousing to crankcase screw (1/2" x 13 x 1 1/4" Hex. head).....	5
14394-A	9	Bellhousing to crankcase screw (1/2" x 13 x 1 1/8" Hex. head).....	
		Takes place of Part No. 2100-A—Plate No. 5	
312-A	11	Bellhousing to crankcase screw lockwasher (1/2" S. A. E.).....	5
11159-A	1	Bellhousing oil seal—used on some engines.....	
7064-B	1	Bellhousing starter adapter.....	5
7155-B	1	Bellhousing starter cover.....	5
42-A	3	Bellhousing starter cover screw (3/8" x 16 x 1 1/4").....	5
342-A	3	Bellhousing starter cover screw lockwasher (3/8").....	5
18421-A	1	Timing hole cover plate.....	
1048-A	3	Timing hole cover plate screw.....	
615-A	3	Timing hole cover plate screw lockwasher.....	

**WATER PUMP**

This is a through shaft water pump used when a magneto is used and uses the bronze packing gland.

18179-DS	1	Water pump assembly (Takes place of 18169-DSY—Plate 6) Includes parts marked * .....	
21262-C	1	*Water pump cover with bushing (Takes place of 18162-C—Plate 6) .....	
18181-C	1	*Water pump body with bushing (Takes place of 18161-C—Plate 6) .....	
18172-B	1	*Water pump shaft—Length 10 3/8" .....	6
22177-A	1	*Water pump packing nut—L.H. (This packing nut is interchangeable with earlier hexagon nut 1765-A—Plate 6) .....	
22178-A	1	*Water pump packing nut—R.H. (This packing nut is interchangeable with earlier hexagon nut 1764-A—Plate 6) .....	
21263-A	2	*Water pump bushing .....	
■ 18165-A	1	*Water pump impeller .....	6
■ 21270-A	2	*Water pump packing (Takes place of 1766-A—Plate 6) .....	
21265-A	2	*Water pump packing gland .....	
2165-A	1	*Water pump impeller key .....	6
■ 18164-A	1	*Water pump gasket .....	6
18166-A	1	*Water pump snap ring .....	
749-A	2	*Water pump grease cup .....	6
2083-A	3	*Water pump cover screw .....	6
342-A	3	*Water pump cover screw lockwasher .....	6
352-A	2	Water pump attaching screw .....	6
312-A	3	Water pump attaching screw lockwasher .....	6
■ 18173-A	1	Water pump attaching gasket .....	6
2210-A	2	Water pump dowel .....	6
2100-A	1	Water pump attaching screw—1/2"-13x1" .....	
61-A	1	Water pump pipe plug—3/8" .....	

**WATER PUMP—Standard**

This water pump has a blind end and is used when no magneto is required and has only one shaft bushing.

18189-DS	1	Water pump assembly includes parts marked * .....	
18961-C	1	*Water pump body .....	
18960-C	1	*Water pump cover with bushing .....	
■ 18971-A	1	*Water pump impeller .....	
18190-A	1	*Water pump shaft—Length 7 1/8" .....	
18166-A	1	*Water pump snap ring .....	
18973-A	1	*Water pump bushing (Cover) .....	
■ 18164-A	1	*Water pump cover gasket .....	
22177-A	1	*Water pump packing nut L. H. .... This packing nut is interchangeable with earlier hexagon nut	
■ 21270-A	1	*Water pump packing .....	
21265-A	1	*Water pump packing gland .....	

Give Engine Number with Each Parts Order

**WATER PUMP—Standard (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
620-A	1	Water pump drain plug— <sup>1</sup> / <sub>4</sub> "	
2165-A	1	*Water pump impeller woodruff key	
61-A	1	*Water pump pipe plug— <sup>3</sup> / <sub>8</sub> "	
2083-A	3	*Water pump cover screw ( <sup>3</sup> / <sub>8</sub> "-16x2 <sup>1</sup> / <sub>4</sub> ")	
342-A	3	*Water pump cover screw lockwasher— <sup>3</sup> / <sub>8</sub> "	
749-A	1	*Water pump grease cup	
352-A	2	Water pump attaching screw ( <sup>1</sup> / <sub>2</sub> "x1 <sup>3</sup> / <sub>8</sub> x1 <sup>1</sup> / <sub>4</sub> ")	
2100-A	1	Water pump attaching screw ( <sup>1</sup> / <sub>2</sub> "x1 <sup>3</sup> / <sub>8</sub> x1")	
312-A	3	Water pump attaching screw lockwasher— <sup>1</sup> / <sub>2</sub> "	
■ 18173-A	1	Water pump attaching gasket	
2210-A	2	Water pump dowel	

**WATER PUMP FLEXIBLE COUPLING**

18304-AS	1	Water pump flexible coupling includes parts marked *	5
8084-A	2	Water pump flexible coupling taper pin	5
2165-A	2	Water pump flexible coupling key (No. 8 Woodruff)	5
■ 8187-A	1	*Water pump flexible coupling disc	5
8188-A	1	*Water pump flexible coupling hub (1" hole)	5
18305-A	1	*Water pump flexible coupling hub ( <sup>3</sup> / <sub>4</sub> " hole)	5
3189-A	4	*Water pump flexible coupling bolt	5
1539-A	4	*Water pump flexible coupling bolt nut	5
615-A	4	*Water pump flexible coupling bolt nut lock washer	5
8190-A	4	*Water pump flexible coupling bolt washer ( <sup>2</sup> / <sub>64</sub> x <sup>3</sup> / <sub>16</sub> x <sup>3</sup> / <sub>64</sub> plain)	5
8191-A	4	*Water pump flexible coupling bolt washer ( <sup>2</sup> / <sub>64</sub> x <sup>3</sup> / <sub>4</sub> "x <sup>1</sup> / <sub>16</sub> plain)	5

**WATER PUMP CHAIN COUPLING**

This coupling replaces coupling 18304-AS as an assembly only. Coupling 18304-AS is listed above only for ordering repair parts; if the entire coupling is needed order coupling 18354-AS—Used with 18179, 18189 and 18183 Water Pumps.

18354-AS	1	Water pump coupling assembly	
2372-A	2	Water pump coupling taper pin—replaces 8084-A	5
2165-A	2	Water pump coupling key	5
18359-A	1	Water pump coupling sprocket half ( <sup>3</sup> / <sub>4</sub> " Hub)	
18364-A	1	Water pump coupling sprocket half (1" Hub)	
16143-A	1	Water pump coupling sprocket chain	
18361-A	As Req.	Water pump coupling connecting link	
18362-A	As Req.	Water pump coupling cover side	
18363-A	As Req.	Water pump coupling spring lock	
18365-A	As Req.	Water pump coupling link roller	

**OIL PAN (Early Type)**

18184-D	1	Oil pan (Pressed steel)	8
■ 18085-B	2	Oil pan gasket half	8
2100-A	24	Oil pan screw ( <sup>1</sup> / <sub>2</sub> "x1 <sup>3</sup> / <sub>8</sub> x1" U. S. S.)	5
312-A	24	Oil pan screw lockwashers	8
18145-BS	1	Oil pan oil strainer assembly	8
■ 8146-A	1	Oil pan oil strainer cap gasket	8
2100-A	6	Oil pan oil strainer cap screws ( <sup>1</sup> / <sub>2</sub> "x1 <sup>3</sup> / <sub>8</sub> x1" U. S. S.)	5
312-A	6	Oil pan oil strainer cap screw lock washer ( <sup>1</sup> / <sub>2</sub> " S. A. E.)	8
7165-A	1	Oil pan oil strainer cap pipe plug (1" C. S. Head)	8

On some of the first engines an aluminum oil pan was used. This was later replaced by a pressed steel oil pan. The following parts were used with the aluminum oil pan.

18113-C	1	Oil pan strainer baffle plate	8
303-A	8	Oil pan strainer baffle plate screw	8
615-A	8	Oil pan strainer baffle plate screw lock washer	8
1686-A	1	Bayonet oil gauge bushing	8

Do not confuse the above aluminum oil pan with certain aluminum oil pans used on special installations.

**Give Engine Number with Each Parts Order**

**OIL PAN (Late Type)**

(with flexible type seal)

Part No.	No. Req.	PART NAME	Plate No.
20184-D	1	Oil Pan .....	
19263-C	2	Oil Pan Gasket .....	
2100-A	24	Oil Pan Screw .....	
312-A	24	Oil Pan Lockwasher .....	
18145-BS	1	Oil Pan Strainer Assembly .....	
8146-A	1	Oil Pan Strainer Gasket .....	
2100-A	6	Oil Pan Strainer Cap Screw .....	
312-A	6	Oil Pan Strainer Lockwasher .....	
7165-A	1	Oil Pan Strainer Pipe Plug .....	
Oil seal listed under "Gear Cover" page 19			

**OIL GAUGE**

18144-AS	1	Bayonet oil gauge (Dip Stick) .....	8
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**OIL PUMP**

Oil pumps, identified under various part numbers, have been used on engines in this series. Some early engines had oil pump 18120-CS. This pump had a paper gasket 8129-A between the pump body and the cover. This pump was later superseded by 18126-CS oil pump assembly having body 18127-D with which no gasket is used between body and cover. This body 18127-D can be used on oil pump 18120-CS by leaving out the gasket. Oil pump 18126-CS is interchangeable as assembly with 18120-CS. Both of above oil pumps have steel driving gear 15131-A and are used with steel camshaft 18822-DS or 19072-DS.

Oil pump 19290-CS has a cast alloy drive gear 19291-A and is used with cast alloy camshaft 18046-D.

18126-CS	1	Oil pump assembly includes parts marked *—used on engines up to 170,500.....	
18127-DS	1	*Oil pump body assembly—Includes parts marked**.....	
15127-A	2	*Oil pump body bushing.....	7
15128-A	1	*Oil pump cover.....	7
4604-A	6	*Oil pump cover screw.....	7
11739-A	1	*Oil pump cover screw lock wire.....	7
18122-A	2	*Oil pump gears.....	7
18124-A	1	*Oil pump drive shaft.....	7
18125-A	1	*Oil pump idler shaft.....	7
15131-A	1	*Oil pump driving gear (steel gear—used with camshaft 18822-D)..... Takes place of Part No. 18131-A—Plate No. 7	
15126-A	1	*Oil pump driving gear fibre washer..... Takes place of Part No. 18126-A—Plate No. 7	
1157-A	1	*Oil pump driving gear pin.....	7
2165-A	3	*Oil pump gear key.....	7
4362-A	2	*Oil pump snap ring.....	
305-A	1	*Oil pump pipe plug.....	7
315-A	4	Oil pump screw (Body to crankcase) (3 <sup>5</sup> / <sub>8</sub> "x16x <sup>1</sup> / <sub>8</sub> " U. S. S.).....	7
342-A	4	Oil pump screw lock washer (3 <sup>5</sup> / <sub>8</sub> " S. A. E.).....	7
15130-B	1	Oil pump baffle shell.....	7
15132-A	1	Oil pump baffle shell gasket.....	7
4592-A	3	Oil pump baffle shell screw (3 <sup>5</sup> / <sub>16</sub> "x18x3 <sup>5</sup> / <sub>8</sub> " U. S. S.).....	7
11739-A	1	Oil pump baffle shell screw lock wire.....	

**OIL PUMP (Alternate Type)**

19290-CS	1	Oil pump assembly—This pump has cast alloy drive gear—Includes same parts as 18126-CS pump except as follows:.....	
19291-A	1	Oil pump drive gear—cast alloy—use with cast alloy camshaft.....	

Give Engine Number with Each Parts Order

**OIL LINES AND CONNECTIONS**

Part No.	No. Req'd	PART NAME	Plate No.
18123-BS	1	Oil pump outlet pipe with nuts .....	7
2396-A	2	Oil pipe union—for flared tube .....	7
2397-A	1	Oil pipe union nut—for flared end of 18123 .....	7
4259-A	1	Oil pump outlet pipe union .....	
4260-A	1	Oil pump outlet pipe nut .....	
4261-A	1	Oil pump outlet pipe ferrule .....	
18135-BS	1	Oil pump main discharge pipe with nut—used with bearing caps like 18040-B, 18042-B, etc. Also with bearing caps like 35192-B, 35195-B, etc. ....	
19104-BS	1	Oil pump main discharge pipe with nut—used with bearing caps like 19105-B, 19108-B, etc. Also with bearing caps like 19905-B and 19908-B. ....	
19171-CS	1	Oil pump main discharge pipe with nut—used with bearing caps like 20092-B, 20095-B. ....	
4120-A	8	Oil pump main discharge pipe union .....	7
4121-A	8	Oil pump main discharge pipe nut .....	7
4122-A	8	Oil pump main discharge pipe ferrule .....	7
305-A	1	Pressure gauge connection with 1/8" pipe plug .....	7

On some of the earlier engines of this series an oil overflow pipe was used to carry oil to the gear compartment. This was later replaced by an oil orifice, listed under "Cylinder and Crankcase."

The oil overflow pipe parts are listed here for convenience.

18136-BS	1	Overflow pipe with nut.....	7
7060-A	1	Overflow pipe union.....	7
4083-A	2	Overflow pipe clamp.....	7
1536-A	2	Overflow pipe clamp screw.....	7
628-A	2	Overflow pipe clamp screw lock washer.....	7
7052-A	1	Overflow pipe nut.....	7

A few of the earlier engines also had an overflow tube. This was later replaced by a drilled hole in the cylinder block.

18133-A	1	Oil overflow tube.....	7
1536-A	1	Oil overflow tube screw.....	7
628-A	1	Oil overflow tube screw lock washer.....	7

**OIL PRESSURE REGULATOR  
(Used Only When Filtrator is Not Used)**

18242-BS	1	Oil pressure regulator assembly (Includes all parts listed below).....	7
18247-B	1	Oil pressure regulator body.....	7
■ 18241-A	1	Oil pressure regulator body gasket.....	7
352-A	4	Oil pressure regulator attaching screw.....	7
312-A	4	Oil pressure regulator attaching screw lock washer.....	7
15243-A	1	Oil pressure regulator plunger.....	7
8571-A	1	Oil pressure regulator plunger spring.....	7
8572-A	1	Oil pressure regulator screw.....	7
8573-A	1	Oil pressure regulator screw lock nut.....	7
8574-A	1	Oil pressure regulator screw cover nut.....	7
8575-A	2	Oil pressure regulator lock nut gasket.....	7

**MANIFOLD  
(Updraft Type)**

If the manifold on engine does not appear in this list send a sketch or description of manifold wanted and engine number of engine for which manifold is wanted. With the large variety of manifolds in use it is impossible to list them in a book of this size.

18032-E	1	Exhaust and intake manifold (For 1 1/4" carburetor) plain.....	9
18033-E	1	Exhaust and intake manifold (For 1 1/2" carburetor) plain.....	9
18230-E	1	Exhaust and intake manifold (For 1 1/4" carburetor) Hercules.....	9
18231-E	1	Exhaust and intake manifold (For 1 1/2" carburetor) Hercules.....	9
18232-E	1	Exhaust and intake manifold (Center outlet 1 1/4" carburetor).....	

Give Engine Number with Each Parts Order

**MANIFOLD (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
18233-E	1	Exhaust and intake manifold (Center outlet 1 <sup>1</sup> / <sub>2</sub> " carburetor).....	
■ 19732-E	1	Exhaust and intake manifold gasket.....	
		Takes place of Part No. 18023-E—Plate No. 9	
8533-A	10	Exhaust and intake manifold screw.....	9
794-A	10	Exhaust and intake manifold screw washer.....	9
305-A	2	Intake manifold pipe plug 1/8".....	9
415-A	1	Intake manifold pipe plug 3/8".....	9
18027-B	1	Manifold exhaust companion flange.....	9
■ 18028-A	1	Manifold exhaust companion flange gasket.....	9
8533-A	3	Companion flange screw.....	

**MANIFOLD (Downdraft Type)**

18736-E	1	Downdraft manifold exhaust and intake, center outlet.....	
18980-E	1	Downdraft manifold exhaust and intake, exhaust outlet to rear of center.....	
■ 19732-D	1	Manifold attaching gasket.....	
4150-A	10	Manifold attaching stud.....	
1317-A	10	Manifold attaching stud nut.....	
794-A	10	Manifold attaching stud washer.....	
4640-A	1	Manifold exhaust flange set screw.....	

The following parts are not included with manifold and if needed, must be ordered:

18794-BS	1	Manifold heat control valve assembly (Includes parts marked*).....	
18783-B	1	*Manifold heat control valve.....	
18784-A	1	*Manifold heat control valve shaft.....	
18787-A	1	*Manifold heat control valve lever.....	
1333-A	1	*Manifold heat control lever pin.....	
5807-A	2	*Manifold heat control valve pin.....	
18785-B	1	*Manifold heat control cover plate.....	
■ 18786-A	1	Manifold heat control cover plate gasket.....	
4588-A	4	Manifold heat control cover stud.....	
4079-A	4	Manifold heat control cover stud nut.....	
16122-A	1	*Manifold heat control spring.....	
16123-A	1	*Manifold heat control spring clip.....	

When no heat control is used, use the following parts:

40814-B	1	Manifold heat control cover plate.....	
18786-A	1	Manifold heat control cover plate gasket.....	
4588-A	4	Manifold heat control cover plate stud.....	
4079-A	4	Manifold heat control cover plate stud nut.....	
4727-A	1	Manifold plug (Presses into shaft hole).....	
1388-A	1	Manifold plug washer.....	

**MANIFOLD EXTENSION**

15254-A	1	Manifold extension (For 1 <sup>1</sup> / <sub>2</sub> " carburetor).....	
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**STARTER ATTACHING PARTS**

7050-B	1	Starter adapter, No. 1.....	
7064-B	1	Starter adapter—Standard.....	9
		Takes place of Part No. 7094-B—Plate No. 9	
7155-B	1	Starter hole cover.....	9
42-A	3	Starter hole cover screw (3/8"x16x1 1/4" Hex. Hd.).....	9
342-A	3	Starter hole cover screw lock washer (3/8" S. A. E.).....	9
1789-A	3	Starter attaching stud.....	
752-A	3	Starter attaching stud nut.....	
342-A	3	Starter attaching stud lockwasher.....	

**GENERATOR ATTACHING EQUIPMENT**

2166-B	1	Generator gear.....	3
2169-A	1	Generator gear opening cover.....	3
2167-A	1	Generator lock screw (Taper end).....	3

Give Engine Number with Each Parts Order

**GENERATOR ATTACHING EQUIPMENT (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
2168-A	1	Generator lock screw nut.....	3
1126-A	1	Generator screw lock washer.....	3
15416-B	1	Generator short gear (Used with governor).....	

**MAGNETO EQUIPMENT**

15045-A	1	Magneto bracket.....	3
352-A	1	Magneto bracket screw (1 <sup>1</sup> / <sub>2</sub> "x13x1 <sup>1</sup> / <sub>2</sub> ").....	3
1701-A	1	Magneto bracket screw (1 <sup>1</sup> / <sub>2</sub> "x13x2").....	
312-A	2	Magneto bracket screw lock washer (1 <sup>1</sup> / <sub>2</sub> " light).....	3
315-A	3	Magneto to bracket screw (3 <sup>5</sup> / <sub>8</sub> "x16x3 <sup>5</sup> / <sub>8</sub> ").....	3
342-A	3	Magneto to bracket screw lock washer (3 <sup>5</sup> / <sub>8</sub> " S. A. E.).....	3

**FUEL PUMP**

19561-BS	1	Fuel pump—Std.....	
18559-BS	1	Fuel pump.....	
■ 22564-A	1	Fuel pump attaching gasket.....	
303-A	2	Fuel pump attaching screw.....	
615-A	2	Fuel pump attaching screw lock washer.....	

The following parts are used when fuel pump is not used.

4879-A	1	Fuel pump hole cover.....	
22564-A	1	Fuel pump gasket.....	
1048-A	2	Fuel pump hole cover screw.....	
615-A	2	Fuel pump hole cover screw lock washer.....	

**CABLE TUBE**

18111-BSY	1	Cable tube assembly.....	4
Takes place of Part No. 15109-BSY—Plate No. 4			

**WATER OUTLET PIPES**

There is such a wide variety of water inlet and outlet pipes used it is impossible to list them in a book of this size. Many manufacturers using these models of engines supply their own special pipes which the Hercules Motors Corporation do not usually service. When ordering give engine number and a complete description of pipe wanted, giving outside and inside diameters, angles and length together with kind of material or send in the water pipe as a sample.

2181-C	1	Water outlet pipe (32 <sup>1</sup> / <sub>2</sub> °—2 <sup>1</sup> / <sub>8</sub> " dia.).....	9
1008-C	1	Water outlet pipe (20°—1 <sup>5</sup> / <sub>8</sub> " dia.).....	9
1681-C	1	Water outlet pipe (20°—2" dia.).....	9
2085-B	1	Water outlet pipe (24°—1 <sup>13</sup> / <sub>16</sub> " dia.).....	9
2099-B	1	Water outlet pipe (25°—1 <sup>13</sup> / <sub>16</sub> " dia.).....	9
2457-B	1	Water outlet pipe (32°—1 <sup>13</sup> / <sub>16</sub> " dia.).....	9
2465-B	1	Water outlet pipe (60°—1 <sup>9</sup> / <sub>16</sub> " dia., 5 <sup>3</sup> / <sub>16</sub> " high).....	9
352-A	2	Water outlet pipe screw (1 <sup>1</sup> / <sub>2</sub> "x13x1 <sup>1</sup> / <sub>2</sub> ").....	9
312-A	2	Water outlet pipe screw lock washer (1 <sup>1</sup> / <sub>2</sub> " S.A.E.).....	9
■ 829-A	1	Water outlet pipe gasket.....	9
2233-A	1	Water outlet pipe straight (1 <sup>3</sup> / <sub>16</sub> " dia.).....	9

**WATER INLET PIPES**

Used in Connection with Water Pump Only

(See note under water outlet pipes)

1778-A	1	Water inlet pipe (1 <sup>13</sup> / <sub>32</sub> " from flange to pipe center).....	9
5019-A	1	Water inlet pipe (2 <sup>3</sup> / <sub>8</sub> " from flange to pipe center).....	9
19080-A	1	Water inlet pipe (90°—1 <sup>5</sup> / <sub>8</sub> " dia. 2 <sup>3</sup> / <sub>4</sub> " long).....	
■ 86-A	1	Water inlet pipe gasket.....	9
78-A	2	Water inlet pipe screw (5 <sup>5</sup> / <sub>16</sub> "x18x <sup>1</sup> / <sub>8</sub> " Hex. Hd.).....	9
615-A	2	Water inlet pipe screw lock washer (5 <sup>5</sup> / <sub>16</sub> " S. A. E.).....	9
2234-B	1	Water inlet pipe (Same as 5019-A except has drain hole).....	9
2458-B	1	Water inlet pipe.....	9

Give Engine Number with Each Parts Order

FAN ASSEMBLY

There is such a wide variety of fan assemblies in use, it is impossible to list all of them in a book of this size. Some of the more common, are listed below. Many manufacturers using these models of engines supply their own fan assemblies which the Hercules Motors Corporation do not usually service. When ordering, please give all available dimensions and part numbers, also give engine number.

Part No.	No. Req.	PART NAME	Plate No.
18270-CS	1	Fan assembly 18" dia. bracket 4 3/8" high.....	
18272-CS	1	Fan assembly 20" dia. bracket 4 3/8" high.....	
18274-CS	1	Fan assembly 18" dia. bracket 6 5/8" high.....	
18303-CS	1	Fan assembly 22" dia. bracket 4 3/4" high.....	
18842-CS	1	Fan assembly 22" dia. bracket 6 5/8" high.....	
18862-CS	1	Fan assembly 22" dia. six blade—Bracket 5 3/32" high.....	
18857-CS	1	Fan assembly, 22" dia.—Bracket 9 3/8" high.....	
18867-CS	1	Fan assembly, 20" dia. 6 blade—Bracket 19 3/8" high.....	
352-A	2	Fan attaching screw 1/2"x13x1 1/4".....	
312-A	2	Fan attaching screw lockwasher 1/2" S. A. E.....	

FAN BELT

18271-A	1	Fan belt, 38 1/2" inside circumference, "Vee" type.....
18275-A	1	Fan belt, 45 1/2" outside circumference, "Vee" type.....
18868-A	1	Fan belt, 47 5/8" outside circumference, "Vee" type.....
18302-A	1	Fan belt, 37 1/8" inside circumference, "Vee" type.....
15538-A	1	Fan belt, 51 1/2" outside circumference, "Vee" type.....

STARTING CRANK

7200-CS	1	Starting crank assembly (Includes parts marked *).....	10
4339-A	3	Starting crank assembly to engine screw (1/2"x13x1 3/8").....	
312-A	3	Starting crank screw lock washer (1/2" S. A. E.).....	9
2032-BS	1	*Starting crankshaft housing with bushing.....	10
2039-A	1	*Starting crankshaft housing bushing.....	10
2034-B	1	*Starting crankshaft.....	10

Give Engine Number with Each Parts Order

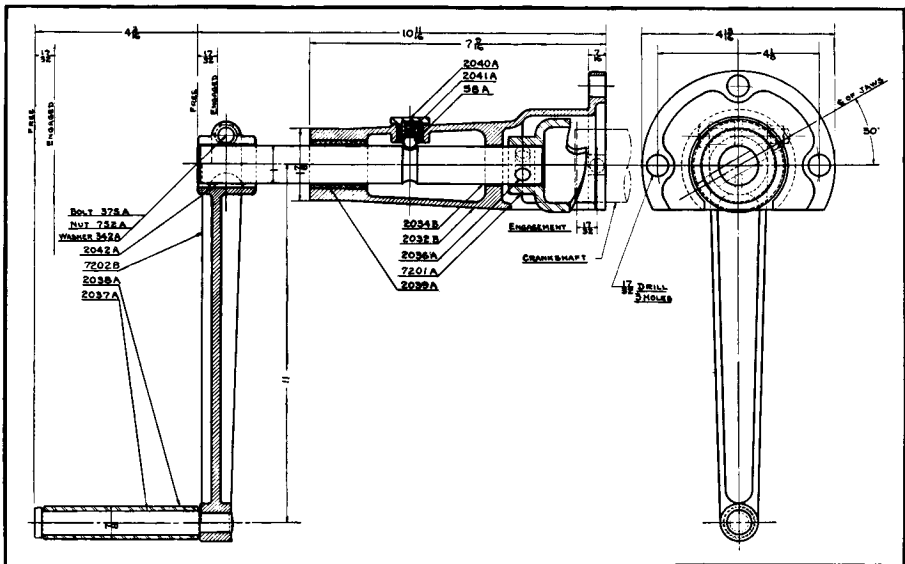
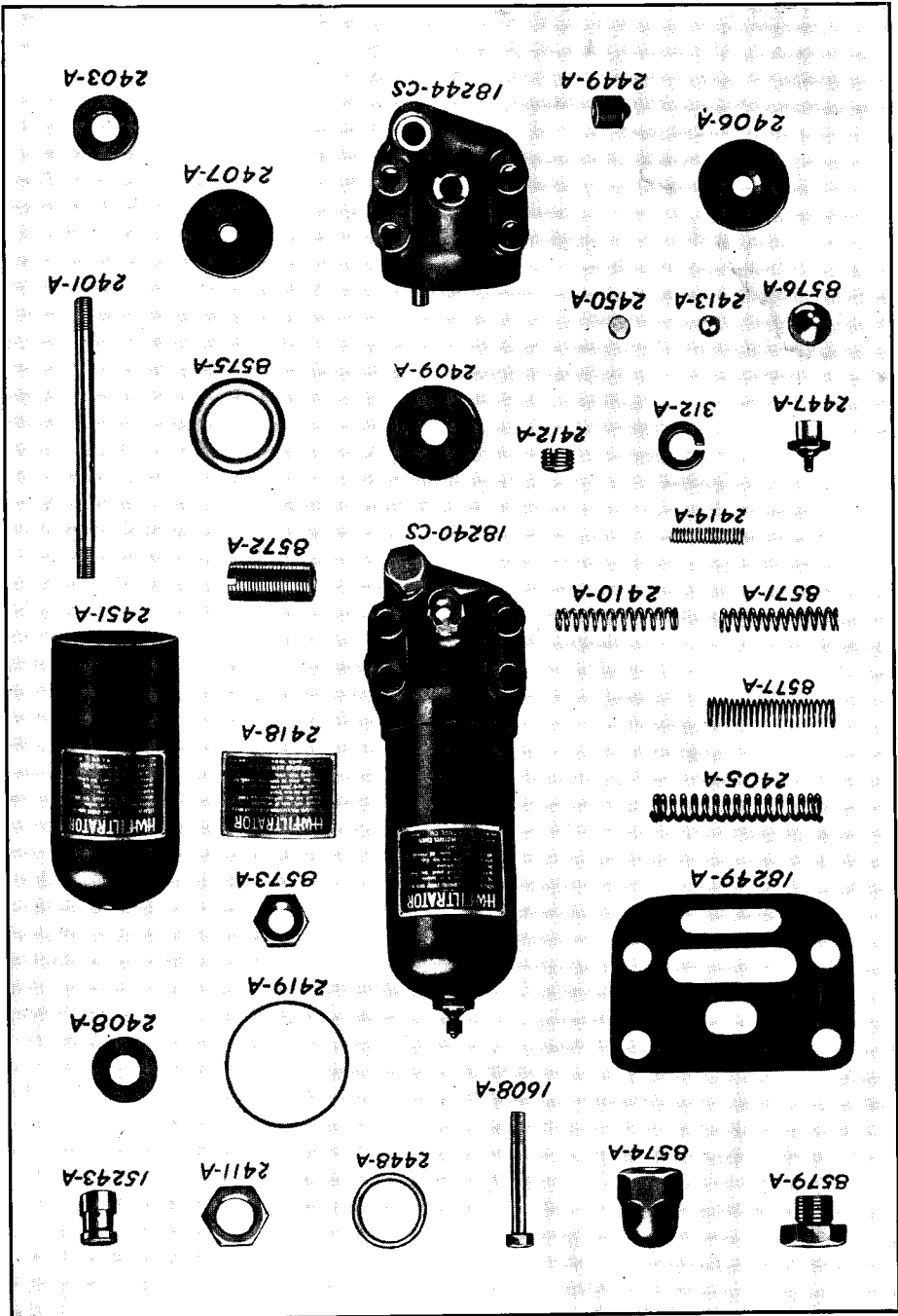


Plate No. 10  
Starting Crank Assembly

Oil Filtrator and Parts

Plate No. II





**STARTING CRANK (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
7201-A	1	*Starting crankshaft jaw.....	10
2036-A	1	*Starting crankshaft jaw pin.....	10
2041-A	1	*Starting crankshaft spring.....	10
2040-A	1	*Starting crankshaft spring nut.....	10
58-A	1	*Starting crankshaft ball (3/8" steel).....	10
7202-BS	1	*Starting crank (Includes parts marked †).....	10
2038-A	1	†Starting crank hand grip.....	10
2037-A	1	†Starting crank stud.....	10
2042-A	1	*Starting crank key (No. 11 Woodruff).....	10
375-A	1	†Bolt (3/8" x 24 x 2").....	10
342-A	1	†Lockwasher (3/8" S. A. E.).....	10
752-A	1	†Starting crank handle bolt nut (3/8" x 24).....	10

**FRONT SUPPORT**

18370-C	1	Front support 1 1/4" wide and the attaching lugs are 3/8" back of center	
8008-A	1	Front support clamp screw (1/2" x 1 3/4 x 4 1/4").....	
312-A	1	Front support clamp screw lockwasher (1/2" S. A. E.).....	
5033-A	1	Front support clamp screw nut (1/2" x 1 3/4").....	
18371-C	1	Front support 1 5/16" wide and the attaching lugs are 5/32" ahead of center line.....	
14496-A	1	Front support clamp screw (1/2" x 1 3/4 x 4 1/4").....	
312-A	1	Front support clamp screw lock washer (1/2" S. A. E.).....	
5033-A	1	Front support clamp screw nut (1/2" x 1 3/4").....	

**STARTING CRANK  
(With Removable Crank Handle)**

7527-CS	1	Starting crank assembly (Includes parts marked *).....	
2619-BS	1	*Starting crankshaft housing with bushing.....	
2039-A	1	*Starting crankshaft bushing.....	10
2621-B	1	*Starting crankshaft.....	
7201-A	1	*Starting crankshaft jaw.....	10
2036-A	1	*Starting crankshaft jaw pin.....	10
58-A	1	*Starting crankshaft ball.....	10
2041-A	1	*Starting crankshaft spring.....	10
2040-A	1	*Starting crankshaft spring nut.....	10
2623-A	1	*Starting crankshaft pin.....	
7528-BS	1	*Starting crank handle assembly (Includes parts marked **)	
2037-A	1	**Starting crank handle stud.....	10
2038-A	1	**Starting crank handle grip.....	10

**OIL FILTRATOR**

18240-CS	1	Oil filtrator assembly.....	11
18249-A	1	Oil filtrator gasket.....	
2445-A	1	Oil filtrator shell.....	
		Takes place of Part No. 2451-A—Plate No. 11	
2452-A	1	Oil filtrator shell gasket.....	
		Takes place of Part No. 2419-A—Plate No. 11	
2447-A	1	Oil filtrator clean out fitting.....	11
2448-A	1	Oil filtrator clean out fitting gasket.....	11
2449-A	1	Oil filtrator clean out fitting cap.....	11
2450-A	1	Oil filtrator clean out fitting cap gasket.....	11
2808-A	1	Oil filtrator name plate.....	
		Takes place of Part No. 2418-A—Plate No. 11	
2402-BS	1	Slug assembly (Includes items marked *).....	

The slug assembly 2402-BS will be supplied on all orders for felt washers. This felt slug assembly may be replaced by the "Micro-mesh" filtering element assembly 35246-BS listed under "Oil Conditioner or Oil Filtrator and Cooler." These units are interchangeable.

2403-A	28	*Felt washer.....	11
2406-A	1	*Felt retaining washer (Top).....	11
2407-A	1	*Felt retaining washer (Bottom).....	11

Give Engine Number with Each Parts Order

**OIL FILTRATOR (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
2408-A	1	*Cork washer.....	11
2409-A	1	*Cork retaining washer.....	11
2411-A	1	*Felt core retaining nut.....	11
2410-A	1	*Compression spring.....	11
2412-A	1	*Check valve nut.....	11
2413-A	1	*Check valve ball.....	11
2414-A	1	*Check valve spring.....	11
2415-A	1	*Check valve rivet.....	11
2401-A	1	*Outlet tube.....	11
2405-A	1	*Spacer coil.....	11
18244-CS	1	Base (Includes inlet tube).....	11
15248-A	1	Differential valve plug.....	11
8577-A	1	Differential valve spring.....	11
8576-A	1	Differential valve ball.....	11
8579-A	1	Drain plug.....	11
8575-A	1	Drain plug gasket.....	11
8575-A	2	Pressure regulating valve gasket.....	11
8571-A	1	Pressure regulating valve spring.....	11
15243-A	1	Pressure regulating valve plunger.....	11
8572-A	1	Pressure regulating valve adjusting plug.....	11
8573-A	1	Pressure regulating valve lock nut.....	11
8574-A	1	Pressure regulating valve cap nut.....	11
59-A	1	Oil filtrator pipe plug.....	11
1608-A	4	Oil filtrator attaching screw.....	11
312-A	4	Oil filtrator attaching screw lock washer.....	11

**OIL CONDITIONING EQUIPMENT**

**OIL CONDITIONER OR FILTRATOR AND COOLER**

(This can only be used with water pump 18183-DS)

20340-CS	1	Oil conditioner assembly (Includes parts marked *)—interchangeable with 18243-CS and 18259-CS.....	
35242-D	1	*Oil conditioner base.....	
60-A	3	*Oil conditioner base pipe plug 1/4".....	
77238-B	1	*Oil conditioner cooling unit—interchangeable with 40242-B and 45542-B.....	
40247-A	1	*Oil conditioner cooling unit gasket.....	
752-A	3	*Oil conditioner cooling unit nut (5/16"x24).....	
342-A	3	*Oil conditioner cooling unit lockwasher.....	
18248-B	1	*Oil conditioner cover.....	
60-A	4	*Oil conditioner cover pipe plug 1/4".....	
35244-A	1	*Oil conditioner cover gasket.....	
14069-A	8	*Oil conditioner cover screw (1/4"x20x3/4").....	
628-A	8	*Oil conditioner cover lock washer.....	
1864-A	2	*Oil conditioner cover screw (3/8"x16x1").....	
342-A	2	*Oil conditioner cover lock washer.....	
4423-A	1	*Oil conditioner cover screw (3/8"x16x3/4").....	
35247-A	1	*Oil conditioner cover copper gasket.....	
35246-BS	1	*Oil conditioner filtering element assembly.....	
2445-A	1	*Oil conditioner shell.....	
2452-A	1	*Oil conditioner shell gasket.....	
18245-A	1	*Oil conditioner top fitting.....	
2448-A	1	*Oil conditioner top fitting gasket.....	
35248-A	1	*Oil conditioner inlet tube.....	
27250-A	1	*Oil conditioner differential valve ball.....	
8577-A	1	*Oil conditioner differential valve spring.....	
8578-A	1	*Oil conditioner differential valve plug.....	
8575-A	1	*Oil conditioner differential valve gasket.....	
27250-A	1	*Oil conditioner by-pass valve ball.....	
40249-A	1	*Oil conditioner by-pass valve spring.....	
15248-A	1	*Oil conditioner by-pass valve plug.....	

Give Engine Number with Each Parts Order

**OIL CONDITIONER OR FILTRATOR AND COOLER (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
17346-A	1	*Oil conditioner pressure regulating valve piston—replaces 15243-A	
8571-A	1	*Oil conditioner pressure regulating valve spring	
8572-A	1	*Oil conditioner pressure regulating valve adjusting plug	
8575-A	2	*Oil conditioner pressure regulating valve gasket	
8573-A	1	*Oil conditioner pressure regulating valve lock nut	
8574-A	1	*Oil conditioner pressure regulating valve cap nut	
59-A	1	*Oil conditioner pressure regulating valve drain plug	
8579-A	1	*Oil conditioner drain plug	
8575-A	1	*Oil conditioner drain plug gasket	
20229-A	1	Oil conditioner attaching gasket	
1608-A	4	Oil conditioner attaching screw ( $\frac{1}{2}$ "x13x3 $\frac{5}{8}$ ")	
312-A	4	Oil conditioner attaching lockwasher ( $\frac{1}{2}$ " S. A. E.)	
35241-A	1	Oil conditioner to water pump gasket	
1864-A	4	Oil conditioner to water pump screw ( $\frac{3}{8}$ "x16x1")	
342-A	4	Oil conditioner to water pump lock washer	

**WATER PUMP (Blind End)**

(This Water Pump can only be used with the Oil Conditioner)

Shaft end diameter .750"—Use Coupling No. 18354-AS with this pump.

18183-DS	1	Water pump assembly (Includes parts marked *)	
35170-C	1	*Water pump body	
35171-CS	1	*Water pump cover with bushings	
■ 18164-A	1	*Water pump cover gasket	
59-A	1	*Water pump cover pipe plug $\frac{1}{8}$ "	
315-A	3	*Water pump cover screw ( $\frac{3}{8}$ "x16x $\frac{1}{8}$ ")	
342-A	3	*Water pump cover lock washer ( $\frac{3}{8}$ " S. A. E.)	
■ 18178-A	1	*Water pump impeller	
35172-A	1	*Water pump shaft—7 $\frac{1}{8}$ " long	
35173-A	2	*Water pump shaft bushing	
14505-A	1	*Water pump shaft thrust washer	
14815-A	2	*Water pump shaft bushing pin	
1782-A	1	*Water pump shaft impeller pin	
2165-A	1	*Water pump shaft impeller key	
18166-A	1	*Water pump shaft snap ring	
18177-A	1	*Water pump seal sleeve	
4875-A	1	*Water pump seal sleeve screw	
■ 40684-AS	1	*Water pump seal assembly (Includes parts marked **)	
28178-A	1	**Water pump seal cup	
28162-A	1	**Water pump seal cup spring	
14511-A	1	**Water pump seal cup pin	
40685-A	1	**Water pump seal spring guide	
40687-A	1	**Water pump rubber seal	
40686-A	1	**Water pump seal clamp ring	
28177-A	1	**Water pump seal carbon washer	
60-A	1	*Water pump pipe plug $\frac{1}{4}$ "	
749-A	1	*Water pump grease cup	
■ 18173-A	1	Water pump attaching gasket	
352-A	2	Water pump attaching screw ( $\frac{1}{2}$ "x13x1 $\frac{1}{4}$ ")	
2100-A	1	Water pump attaching screw ( $\frac{1}{2}$ "x13x1")	
312-A	3	Water pump attaching lock washer ( $\frac{1}{2}$ " S. A. E.)	
2210-A	2	Water pump attaching dowel	

**WATER PUMP ASSEMBLY (Thru Shaft Pump)**

Used with Oil Filtrator and Cooler Assembly 18259-CS

Shaft diameter at end .738"—Use Coupling No. 20169-AS with this pump.

20168-DS	1	Water pump assembly—Includes parts marked *	
61-A	1	*Water pump pipe plug— $\frac{3}{8}$ "	
20229-A	1	Water pump and oil conditioner gasket	
352-A	2	Water pump attaching screw— $\frac{1}{2}$ "-13x1 $\frac{1}{4}$ "	

Give Engine Number with Each Parts Order

**WATER PUMP ASSEMBLY (Thru Shaft Pump)—Continued**

Part No.	No. Req'd	PART NAME	Plate No.
14860-A	1	Water pump attaching stud .....	
312-A	3	Water pump attaching screw lockwasher— <sup>1</sup> / <sub>2</sub> " .....	
2210-A	2	Water pump attaching dowel .....	
20171-C	1	*Water pump body .....	
20172-C	1	*Water pump cover .....	
20173-A	1	§ Water pump impeller .....	
20174-B	1	§ Water pump shaft—10 <sup>1</sup> / <sub>2</sub> " long .....	
11433-A	1	*Water pump bearing .....	
11434-A	1	*Water pump bearing .....	
626-A	1	Water pump attaching stud nut .....	
16839-A	2	*Water pump bearing lockwasher .....	
11539-A	2	*Water pump bearing lock nut .....	
20178-BS	2	*Water pump seal assembly—Includes parts marked ** .....	
3746-A	2	**Water pump seal lockwire .....	
88724-A	2	**Water pump seal carbon washer .....	
20177-A	2	**Water pump seal spring guide .....	
20176-A	2	**Water pump rubber seal .....	
88722-A	2	**Water pump seal clamp ring .....	
88725-A	2	**Water pump seal ring .....	
72-A	2	*Water pump shaft key .....	
11435-A	1	*Water pump bearing snap ring .....	
61-A	2	*Water pump pipe plug .....	
20175-A	1	*Water pump cover gasket .....	
315-A	3	*Water pump cover attaching screw— <sup>3</sup> / <sub>8</sub> "-16x <sup>7</sup> / <sub>8</sub> " .....	
342-A	3	*Water pump cover attaching screw lockwasher— <sup>3</sup> / <sub>8</sub> " .....	
11451-A	1	§ Water pump grooved pin .....	
20180-BS	1	*Water pump shaft and impeller assembly—Includes parts marked § .....	

**WATER PUMP COUPLING**

Used with 20168-DS Water Pump

20169-AS	1	Water pump flexible coupling assembly—Includes parts marked * .....
2165-A	2	Water pump flexible coupling key—No. 8 Woodruff .....
8084-A	2	Water pump flexible coupling taper pin—3"x1 <sup>1</sup> / <sub>2</sub> " .....
20170-A	1	*Water pump coupling sprocket .....
18364-A	1	*Water pump coupling sprocket .....
16143-A	1	*Water pump coupling chain .....
18361-A	1	*Water pump coupling connecting link .....
18362-A	1	*Water pump coupling cover side .....
18363-A	1	*Water pump coupling spring lock .....
18365-A	1	*Water pump coupling link roller .....

**GOVERNOR DRIVE ASSEMBLY**

15413-AS	1	Governor drive assembly (Includes parts marked *) .....
15355-A	1	*Governor drive sleeve .....
15357-A	1	*Governor drive shaft .....
15356-A	1	*Governor drive washer .....
15787-A	1	*Governor driven gear—is bolted to horizontal shaft .....
8173-A	1	*Governor drive bushing .....
2165-A	1	*Governor drive gear key (No. 8 Woodruff) .....
763-A	1	*Governor drive expansion plug (1 <sup>3</sup> / <sub>8</sub> ") .....
2167-A	1	*Governor drive lock screw ( <sup>5</sup> / <sub>8</sub> "-11x2 <sup>1</sup> / <sub>2</sub> ") .....
2168-A	1	*Governor screw locknut ( <sup>5</sup> / <sub>8</sub> "-11) .....
1126-A	1	*Governor lock screw lockwasher ( <sup>5</sup> / <sub>8</sub> " S.A.E.) .....
4253-A	2	*Governor drive screw ( <sup>1</sup> / <sub>4</sub> "-20x1 <sup>1</sup> / <sub>2</sub> ") .....
267-A	1	*Governor drive screw lock wire .....
15416-A	1	*Governor drive gear—meshes with camshaft gear .....

Give Engine Number with Each Parts Order

# GOVERNORS

There is a wide variety of governors in service. Some of the more common are listed below. Always give engine number when ordering governors or governor parts. Combine type governors are driven by horizontal shaft and are mounted on front of gear cover. Front vertical drive type governors are mounted in vertical opening in gear cover.

## GOVERNOR ASSEMBLY

(FRONT VERTICAL DRIVE TYPE) 2000 R.P.M.

Part No.	No. Req.	PART NAME	Plate No.	Symbol
18406-DS	1	Governor assembly 1 $\frac{1}{2}$ " (includes parts marked *)		
15838-C	1	*Governor body	13	BG
15843-A	1	*Governor shaft— $\frac{1}{2}$ " diameter x 8"	13	BH
15872-A	1	*Governor lower bearing (Timken)	13	AN
5802-A	1	*Governor upper bearing (Timken)	13	BF
15788-A	1	*Governor gear	13	AP
1179-A	1	*Governor gear key (No. 2 Woodruff)	13	AO
2-A	1	*Governor retaining nut ( $\frac{3}{8}$ "-24)	13	AR
301-A	1	*Governor retaining nut cotter ( $\frac{3}{32}$ "x $\frac{3}{4}$ " )	13	AQ
15859-A	1	*Governor oil retaining disc	13	BE
15846-A	1	*Governor thrust sleeve	13	BA
15841-A	1	*Governor spider	13	BC
5813-A	1	*Governor shaft pin	13	AM
15858-A	2	*Governor weight	13	BB
5805-A	2	*Governor weight pin	13	BD
15860-A	1	*Governor oil slinger	13	T
15867-A	1	*Governor oil slinger screw (No. 8—32x $\frac{1}{4}$ " )	13	S
15866-A	1	*Governor oil slinger rivet	13	U
15871-A	1	*Governor thrust bearing	13	AZ
15840-B	1	*Governor throttle lever	13	AH
15849-A	2	*Governor throttle lever retaining screw ( $\frac{3}{8}$ "-24)	13	AY
15855-A	1	*Governor spring collar	13	AV
15847-A	2	*Governor rocker arm roller	13	AA
15856-A	1	*Governor rocker arm pin	13	AD
15877-A	2	*Governor rocker arm pin cotter ( $\frac{1}{16}$ "x $\frac{7}{16}$ " )	13	AC
30734-A	1	*Governor rocker arm seal	13	AG
30735-A	1	*Governor rocker arm seal snap ring	13	AF
15837-A	1	*Governor body plug	13	AI
15839-A	1	*Governor cap	13	AW
15854-A	1	*Governor cap gasket	13	AX
5891-A	4	*Governor cap screw (No. 10-24x $\frac{1}{2}$ " )	13	R
14219-A	2	*Governor cap screw (No. 10-24x $\frac{1}{2}$ " head drilled)	13	
15880-A	1	*Governor spring	13	AU
30722-A	1	*Governor adjusting screw	13	AS
15836-A	1	*Governor adjusting screw locknut	13	AT
5353-A	1	*Governor oil cup	13	AE
15892-A	1	*Governor connecting rod	13	X
1177-A	1	*Governor connecting rod lock nut ( $\frac{1}{4}$ "-28)	13	AL
15845-A	1	*Governor connecting rod link	13	AK
15852-A	1	*Governor connecting rod link screw (special)	13	AJ
15844-A	1	*Governor connecting rod link (valve end)	13	M
15865-A	1	*Governor connecting rod link attaching pin	12	N
15862-A	1	*Governor connecting rod link pin	12	L
15877-A	2	*Governor connecting rod link pin cotter ( $\frac{1}{16}$ "x $\frac{7}{16}$ " )	12	O
15891-A	1	*Governor connecting rod tube	13	W
15853-A	1	*Governor connecting rod tube locknut	13	V
15894-B	1	*Governor valve box	12	E
15893-A	1	*Governor valve shaft	12	B
19830-A	1	*Governor valve butterfly	12	C
15868-A	2	*Governor valve butterfly screw	12	D
15861-A	1	*Governor valve lever	12	Q
15864-A	1	*Governor valve lever pin	12	P
15783-A	1	*Governor rod bumper spring	12	F

Give Engine Number with Each Parts Order

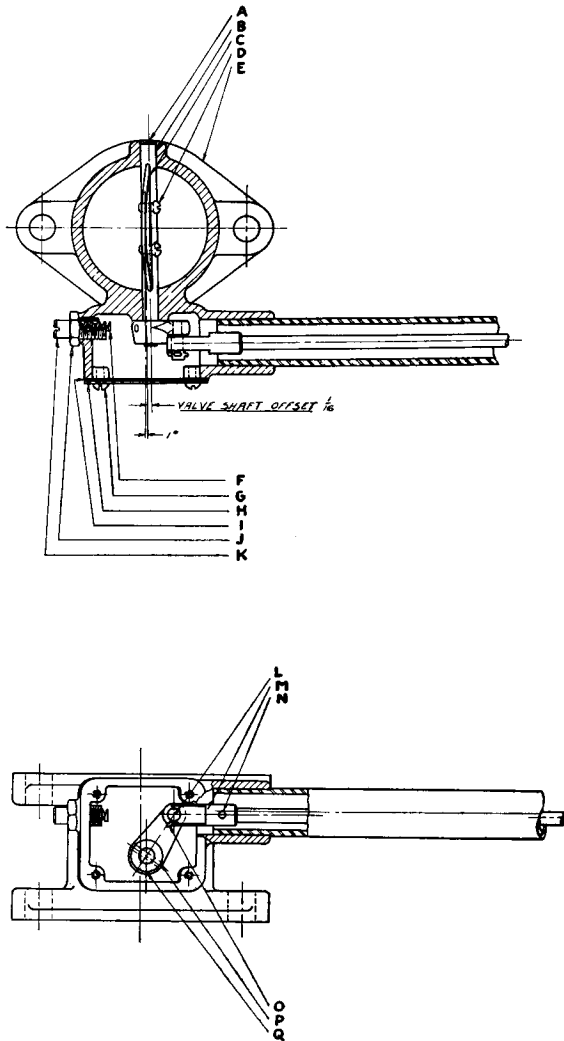


Plate No. 12

Valve Box For Vertical Type Governor

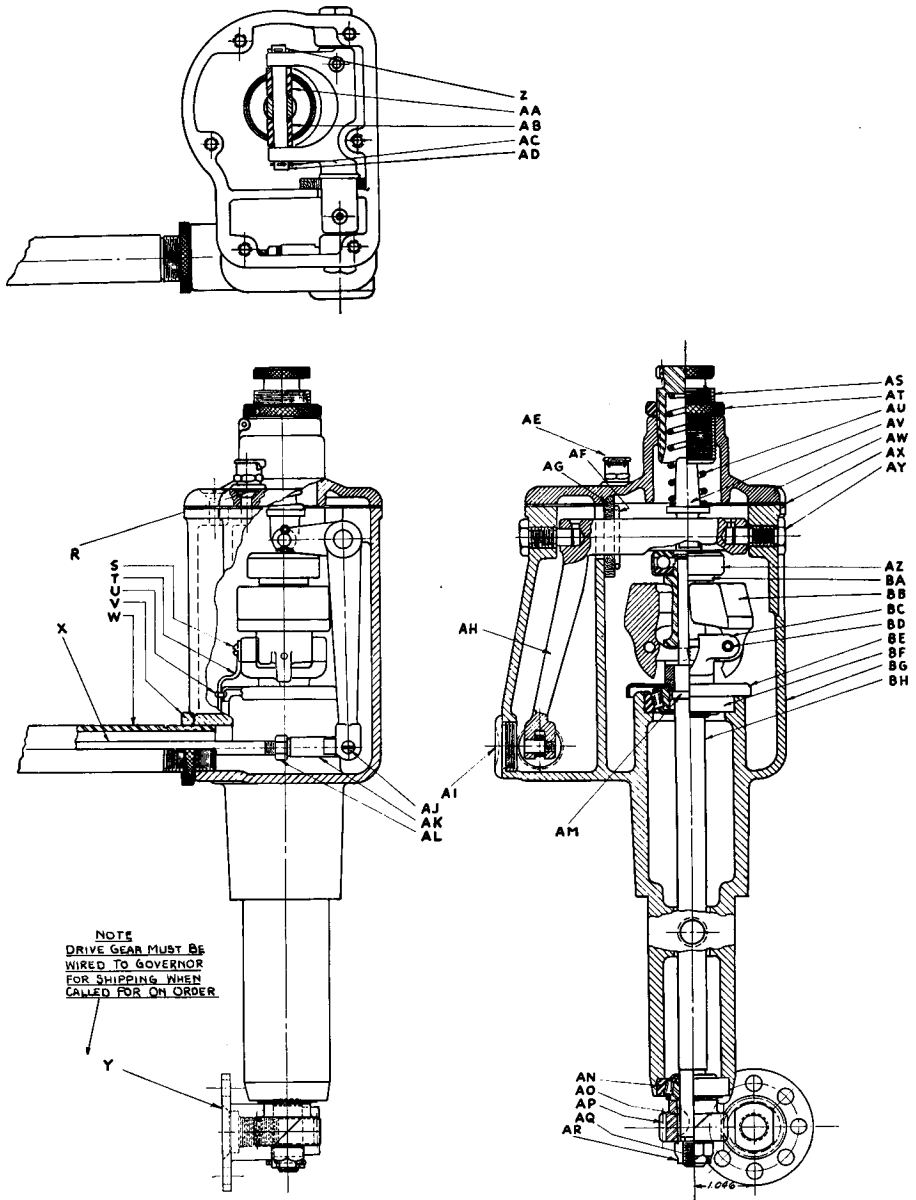


Plate No. 13  
Vertical Type Governor

## GOVERNOR ASSEMBLY (Continued)

Part No.	No. Req.	PART NAME	Plate No.	Symbol
15775-A	1	*Governor push rod bumper spring screw.....	12	K
5855-A	1	*Governor push rod bumper screw locknut ( $\frac{3}{8}$ "-24).....	12	J
15879-A	1	*Governor valve box cover.....	12	H
15863-A	1	*Governor valve box cover gasket.....	12	I
15868-A	4	*Governor valve box cover screw (No. 6-32x $\frac{1}{4}$ ").....	12	G
15769-A	1	*Governor valve box expansion plug.....	12	A

## GOVERNOR ASSEMBLY

(FRONT VERTICAL DRIVE TYPE) 2000 R.P.M.

18405-DS	1	Governor assembly 1 $\frac{1}{4}$ ", includes same parts as 18406-DS Governor assembly with following exceptions.....		
15896-B	1	Governor valve box—replaces 15894-B.....	12	E
15895-A	1	Governor valve shaft—replaces 15893-A.....	12	B
15755-A	1	Governor valve butterfly—replaces 19830-A.....	12	C

## GOVERNOR ASSEMBLY

(FRONT VERTICAL DRIVE TYPE—Has Manual Control)

18399-CS	1	Governor assembly—1 $\frac{1}{2}$ ". Includes same parts as 18406-DS Governor assembly with following exceptions.....		
18397-A	1	Speed change body (replaces 30722-A)..... (Following parts are added)		
18398-A	1	Speed change lever.....		
18388-A	1	Speed change lever.....		
18389-A	1	Speed change rocker shaft.....		
18393-A	1	Speed change adjusting screw.....		
14173-A	1	Plunger nut.....		
19814-A	1	Plunger.....		
14168-A	1	Taper pin.....		

## GOVERNOR ASSEMBLY

(FRONT VERTICAL DRIVE TYPE PRESSURE LUBRICATED) 1200 R.P.M.

19819-DS	1	Governor assembly 1 $\frac{1}{2}$ " updraft—pressure lubricated (includes parts marked *).....		
19825-B	1	*Governor body.....	13	BG
19826-A	1	*Governor shaft.....	13	BH
16981-A	1	*Governor shaft lower bushing.....		
16980-A	1	*Governor shaft upper bushing.....		
15788-A	1	*Governor gear.....	13	AP
1179-A	1	*Governor gear key.....	13	AO
2-A	1	*Governor gear retaining nut.....	13	AR
301-A	1	*Governor gear retaining nut cotter.....	13	AQ
15846-A	1	*Governor thrust sleeve.....	13	BA
16724-A	1	*Governor spider.....	13	BC
4958-A	1	*Governor shaft pin.....	13	AM
30721-A	2	*Governor weight.....	13	BB
30729-A	2	*Governor weight pin.....	13	BD
15871-A	1	*Governor ball bearing.....	13	AZ
30792-A	1	*Governor ball bearing.....		
19809-B	1	*Governor rocker shaft.....		
19804-A	1	*Governor rocker shaft bearing.....		
19827-A	1	*Governor throttle lever.....	13	AH
14166-A	1	*Governor throttle lever set screw ( $\frac{1}{4}$ "-20x $\frac{1}{2}$ ").....		
19805-A	1	*Governor spring collar.....	13	AV
19356-A	1	*Governor yoke spacer.....		
27584-A	1	*Governor yoke.....		
4962-A	2	*Governor yoke pin.....		
15837-A	1	*Governor body plug.....	13	AI
19824-A	1	*Governor cap.....	13	AW
15854-A	1	*Governor cap gasket.....	13	AX

Give Engine Number with Each Parts Order



## GOVERNOR ASSEMBLY (Continued)

Part No.	No. Req.	PART NAME	Plate No.	Symbol
5891-A	4	*Governor cap screw.....	13	R
14219-A	2	*Governor cap screw.....		
19829-A	1	*Governor spring.....	13	AU
30722-A	1	*Governor adjusting screw.....	13	AS
15836-A	1	*Governor adjusting screw locknut.....	13	AT
19828-A	1	*Governor connecting rod.....	13	X
1177-A	1	*Governor connecting rod locknut.....	13	AL
15845-A	1	*Governor connecting rod link.....	13	AK
15852-A	1	*Governor connecting rod link screw.....	13	AJ
15844-A	1	*Governor connecting rod link valve end.....	12	M
15865-A	1	*Governor connecting rod link attaching pin.....	12	N
15862-A	1	*Governor connecting rod link pin.....	12	L
15877-A	2	*Governor connecting rod link pin cotter.....	12	O
19823-A	1	*Governor connecting rod tube.....	13	W
15853-A	1	*Governor connecting rod tube locknut.....	13	V
15894-A	1	*Governor valve box.....	12	E
15893-A	1	*Governor valve shaft.....	12	B
19830-A	1	*Governor valve butterfly.....	12	C
15868-A	2	*Governor valve butterfly screw.....	12	D
15861-A	1	*Governor valve lever.....	12	Q
15864-A	1	*Governor valve lever pin.....	12	P
15783-A	1	*Governor push rod bumper spring.....	12	F
15775-A	1	*Governor push rod bumper screw.....	12	K
5855-A	1	*Governor push rod bumper screw locknut.....	12	J
15879-A	1	*Governor valve box cover.....	12	H
15863-A	1	*Governor valve box cover gasket.....	12	I
15868-A	4	*Governor valve box cover screw.....	12	G
15769-A	1	*Governor valve box expansion plug.....	12	A

## GOVERNOR ASSEMBLY

(FRONT VERTICAL DRIVE TYPE—PRESSURE LUBRICATED) 830 R.P.M.

19818-DS	1	Governor assembly 1 $\frac{1}{4}$ " updraft—pressure lubricated—includes same parts as 19819-DS with following exceptions.....		
30728-A	2	*Governor weight—replaces 30721-A.....	13	BB
30768-A	1	*Governor spring—replaces 19829-A.....	13	AU
15896-A	1	*Governor valve box—replaces 15894-A.....	12	E
15895-A	1	*Governor valve shaft—replaces 15893-A.....	12	B
15755-A	1	*Governor valve butterfly—replaces 19830-A.....	12	C

## ATTACHING PARTS FOR FRONT VERTICAL DRIVE GOVERNORS

4123-A	1	Governor attaching screw—in gear cover ( $\frac{1}{2}$ "-13x $\frac{1}{8}$ ").....		
312-A	1	Governor attaching screw lockwasher $\frac{1}{2}$ ".....		
7218-A	1	Governor valve box gasket 1 $\frac{1}{2}$ ".....		
87-A	1	Governor valve box gasket 1 $\frac{1}{4}$ ".....		
4484-A	2	Governor valve box attaching screw ( $\frac{3}{8}$ "-24x1 $\frac{5}{16}$ ").....		
342-A	2	Governor valve box attaching screw lockwasher ( $\frac{3}{8}$ " S.A.E.).....		
752-A	2	Governor valve box attaching screw nut ( $\frac{3}{8}$ "-24).....		

## GOVERNOR LUBRICATING PARTS

(For 19818-DS and 19817-DS)

19369-A	1	Governor oil pipe (used on engines equipped with filtrator).....		
19375-A	1	Governor oil pipe—replaces 19369-A on engines equipped with oil pressure regulator.....		
1532-A	2	Governor oil pipe nut.....		
1659-A	2	Elbow—attach to governor and tee.....		
4055-A	1	Street ell attach to oil filtrator.....		
4280-A	1	Close nipple— $\frac{1}{8}$ " pipe.....		
14670-A	1	"T"—attach to close nipple $\frac{1}{8}$ ".....		
305-A	1	Pipe plug $\frac{1}{8}$ ".....		

Give Engine Number with Each Parts Order

**GOVERNOR ASSEMBLY**

(Combine Type—Attaches to Front of Gear Cover)

Part No.	No. Req.	PART NAME	Plate No.
18413-CS	1	Governor assembly (includes parts marked *)	
5800-B	1	*Governor body	
5801-A	1	*Governor body cap	
5846-A	1	*Governor bearing adjusting shim	
5802-A	2	*Governor bearing (Timken)	
5803-A	2	*Governor body screw	
22882-A	2	*Governor weight	
5805-A	2	*Governor weight rivet	
5806-A	1	*Governor weight spider	
5807-A	1	*Governor weight spider pin	
5815-ASY	1	*Governor shaft and gear assembly	
5829-A	1	*Governor shaft nut	
5828-A	1	*Governor shaft nut tongue washer	
5810-A	1	*Governor thrust sleeve	
5811-A	1	*Governor thrust ball bearing	
5812-A	1	*Governor thrust yoke	
5842-A	1	*Governor thrust yoke pin	
5814-A	1	*Governor thrust yoke shaft	
5817-A	1	*Governor connecting rod lever	
5813-A	1	*Governor connecting rod pin	
4735-A	1	*Governor cork washer	
5862-A	1	*Governor spring (1050 R.P.M. to 1350 R.P.M.)	
5820-A	1	*Governor spring (1200 R.P.M. to 1500 R.P.M.)	
4537-A	1	*Governor adjusting spring bolt	
5821-A	1	*Governor adjusting spring collar	
5823-A	1	*Governor adjusting spring bolt nut	
5824-A	1	*Governor adjusting spring bolt lockwire	
18415-A	1	*Governor connecting rod	
984-A	2	*Governor connecting rod washer	
301-A	2	*Governor connecting rod cotter pin	
18379-BS	1	*Governor valve box assembly (includes parts marked †)	
18414-B	1	†Valve box—1 <sup>1</sup> / <sub>2</sub> "	
5849-A	1	†Butterfly valve	
5851-A	1	†Butterfly valve shaft	
5839-A	2	†Butterfly valve screw (No. 8-32x <sup>1</sup> / <sub>4</sub> ")	
1219-A	2	†Butterfly screw lockwasher	
5841-A	1	†Butterfly valve shaft lever	
5842-A	1	†Butterfly valve shaft lever pin	
5853-A	1	†Butterfly valve shaft lever bumper spring	
5854-A	1	†Butterfly valve shaft lever bumper screw	
5855-A	1	†Butterfly valve shaft lever bumper nut	

**GOVERNOR ASSEMBLY**

(Combine Type—Attaches to Front of Gear Cover)

18403-CS	1	Governor assembly—Includes same parts as 18413-CS governor assembly except as follows:	
18404-BS	1	Governor valve box assembly (Includes parts marked †)	
18417-B	1	†Valve box—1 <sup>1</sup> / <sub>4</sub> "	
5837-A	1	†Butterfly valve	
5838-A	1	†Butterfly valve shaft	
5839-A	2	†Butterfly valve screw (No. 8-32x <sup>1</sup> / <sub>4</sub> ")	
1219-A	2	†Butterfly valve screw lockwasher	
5841-A	1	†Butterfly valve shaft lever	
5842-A	1	†Butterfly valve shaft lever pin	
5853-A	1	†Butterfly valve shaft lever bumper spring	
5854-A	1	†Butterfly valve shaft lever bumper screw	
5855-A	1	†Butterfly valve shaft lever bumper nut	

Give Engine Number with Each Parts Order

**ATTACHING PARTS FOR COMBINE GOVERNORS**

Part No.	No. Req.	PART NAME	Plate No.
10471-A	1	Governor attaching gasket.....	
1173-A	2	Governor attaching screw (1/16"-14x1 1/4").....	
335-A	2	Governor attaching screw lockwasher—1/16".....	
7218-A	1	Governor valve box gasket—1 1/2".....	
87-A	1	Governor valve box gasket—1 1/4".....	

**GOVERNOR ASSEMBLIES**  
(Velocity Type)

18411-BS	1	Governor, handy 1 1/4" velocity type.....
18416-BS	1	Governor, handy 1 1/2" velocity type.....

**AIR COMPRESSOR DRIVE**

For 3 cu. ft. and 6 cu. ft. air compressor

The difference between the 3 and 6 cu. ft. drive is the coupling assembly.

19300-D	1	Gear cover.....
19301-C	1	Gear cover plate.....
19302-A	As Req.	Gear cover plate shim .005".....
19303-A	As Req.	Gear cover plate shim .003".....
19306-B	1	Gear cover plate bearing.....
315-A	6	Gear cover plate screw.....
342-A	6	Gear cover plate screw lock washer.....
4123-A	1	Gear cover screw.....
19309-B	1	Drive gear.....
72-A	1	Drive gear key.....
2045-A	1	Drive gear thrust washer.....
19308-A	1	Drive shaft.....
4357-A	1	Drive shaft nut (1/2"x20).....
298-A	1	Drive shaft nut cotter pin (3/32"x1").....
4738-A	1	Drive shaft snap ring.....
19304-C	1	Drive shaft distributor housing (This housing has two drilled and tapped holes on top flange).....
19321-C	1	Drive shaft distributor housing (This housing has three drilled and tapped holes on top flange).....
19863-C	1	Distributor support housing (This housing covers the water pump drive and replaces housing 16508-C listed under "Distributor drive").....
19307-A	1	Drive shaft distributor housing gasket.....
19305-B	1	Drive shaft distributor housing bearing.....
4596-A	1	Drive shaft distributor housing oil seal.....
1864-A	2	Drive shaft distributor housing screw (3/8"x16x1").....
682-A	1	Drive shaft distributor housing screw (3/8"x16x2 3/4").....
342-A	3	Drive shaft distributor housing screw lock washer.....
30898-A	1	Distributor support housing cover.....
30897-A	1	Distributor support housing cover gasket.....
4010-A	2	Distributor support housing cover screw.....
615-A	2	Distributor support housing cover screw lock washer.....
19310-A	1	Distributor driving gear.....
19311-A	1	Distributor driven gear (On distributor).....
1181-A	1	Distributor driven gear pin (3/16"x1").....
1279-A	1	Distributor driving gear key.....

For the 3 cu. ft. and 6 cu. ft. compressors two types of couplings have been used, the first type was so constructed that the ball cups into which the fiber coupling disc fits were separate parts; in the latest type these parts are welded to the coupling hub. Should any of these parts require replacement, order the latest type hub and since the latest type coupling has longer bolts also order these.

19915-AS	1	Air compressor coupling assembly (Used with 3 cu. ft. air compressor), (Includes parts marked *) Replaces 19312-AS.....
72-A	1	Air compressor coupling key.....

Give Engine Number with Each Parts Order

## AIR COMPRESSOR DRIVE (Continued)

Part No.	No. Req.	PART NAME	Plate No.
19916-A	2	*Air compressor coupling hub—replaces 19313-A	
15731-A	1	*Air compressor coupling disc	
15734-A	6	*Air compressor coupling cup	
3230-A	6	*Air compressor coupling bolt—replaces 4108-A	
309-A	6	*Air compressor coupling bolt nut	
19913-A	1	Air compressor coupling assembly (Used with 6 cu. ft. air compressor). (Includes parts marked **) Replaces 19318-AS	
19916-A	1	**Air compressor coupling front hub—replaces 19313-A	
19914-A	1	**Air compressor coupling rear hub—replaces 19319-A	
15731-A	1	**Air compressor coupling disc	
15734-A	6	**Air compressor coupling cup	
3230-A	6	**Air compressor coupling bolt—replaces 4108-A	
309-A	6	**Air compressor coupling bolt nut	
19314-D	1	Filtrator compressor bracket	
19315-B	1	Filtrator compressor bracket gasket	
4625-A	4	Filtrator compressor bracket screw	
312-A	4	Filtrator compressor bracket screw lock washer	
60-A	5	Filtrator compressor bracket pipe plug 1/4"	
59-A	1	Filtrator compressor bracket pipe plug 3/8"	
4746-A	2	Filtrator compressor bracket pipe plug 3/4"	
19316-A	1	Adapter plate	
19317-A	1	Adapter plate gasket	
14628-A	4	Compressor attaching screw	
335-A	4	Compressor attaching screw lock washer	
4740-A	1	Drain tube	
4739-A	1	Drain tube cork washer	
4280-A	1	Water pump grease cup nipple	
4053-A	1	Water pump grease cup coupling	
4625-A	1	Water pump attaching screw	
59-A	1	Pipe plug 1/8"	
4749-A	1	Expansion plug 2 1/4" dia.	
40038-AS	1	Breather cap	
27098-A	1	Breather pipe—used with 3 cu. ft. compressor	
27099-A	1	Breather pipe—used with 6 cu. ft. compressor	
15795-A	1	Air compressor gasket	

AIR COMPRESSOR DRIVE  
FOR BELT DRIVEN COMPRESSOR

35702-C	1	Air compressor bracket	
35703-A	1	Air compressor bracket gasket	
8533-A	3	Air compressor bracket screw	
4489-A	1	Air compressor bracket screw	
35704-C	1	Air compressor pulley	
35073-B	1	Fan driving pulley	
35035-C	1	Breather pipe	
35087-C	1	Distributor support housing	
8080-A	1	Water pump drive shaft housing screw	
35135-B5	1	Oil pump discharge pipe assembly	
2397-A	1	Oil pump discharge pipe nut	
4120-A	1	Oil pump discharge pipe union	
4121-A	1	Oil pump discharge pipe nut	
4122-A	1	Oil pump discharge pipe ferrule	
1173-A	4	Air compressor attaching screw	
335-A	4	Air compressor lockwasher	
15795-A	1	Air compressor gasket	
40038-A	1	Breather cap	

Give Engine Number with Each Parts Order

# Model "WXA"

Supplement showing parts which are different from Model "WXB". The Model "WXA" Hercules has 3 3/8" cylinders. The Model "WXB" Hercules has 3 3/4" cylinders.

## CYLINDER AND CRANKCASE

Part No.	No. Req.	PART NAME	Plate No.
18101-ESY	1	Cylinder and crankcase with valve guides, camshaft bearings and idler gear bearing.....	1
18351-DS	1	Cylinder and crankcase with above parts, also main bearings and caps and screws, all reamed to size.....	

## CYLINDER HEADS

18102-E	1	Cylinder head (Std. compression) 4.4:1 compression ratio.....	1
18205-E	1	Cylinder head, 4.4:1 compression ratio.....	
18210-E	1	Cylinder head, dual ignition.....	
■ 18104-D	1	Cylinder head gasket.....	1

## PISTONS

See note about oversizes on page 15

■ 18118-CSY	6	Piston with bushings.....	2
■ 18129-B	6	Piston pin (Special alloy steel).....	2
18137-B	12	Piston pin bushing.....	2
■ 3808-A	12	Piston ring (3 3/8" x 3 1/8" plain) replaces 18117-A.....	2
■ 3907-A	6	Piston ring (3 3/8" x 3 1/8" oil regulating) replaces 18116-A.....	2

## CONNECTING ROD

The connecting rod used in the "WXA" model is the standard 18090-BSY and is assembled to piston by inserting the rod from the bottom and putting the piston on it above the block. Put in the piston pin, clamp screw and lock wire before installing piston in cylinder bore.

# Model "WXA-2"

Supplement showing parts which are different from Model "WXB". The Model "WXA-2" Hercules has 3 1/2" cylinders. The Model "WXB" Hercules has 3 3/4" cylinders.

## CYLINDER AND CRANKCASE

Part No.	No. Req.	PART NAME	Plate No.
18800-ESY	1	Cylinder and crankcase with valve guides, camshaft bearings, idler shaft bearings, expansion plugs and pipe plugs.....	
18801-DS	1	Cylinder and crankcase with above parts, also main bearings, caps and screws, all reamed to size.....	

## CYLINDER HEAD

Part numbers which differ from the casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

18212-E	1	Cylinder head, 4.7:1 compression ratio.....	
18215-E	1	Cylinder head, 4.84:1 compression ratio.....	
18902-E	1	Cylinder head, 5.3:1 compression ratio, dual ignition.....	
■ 18003-C	1	Cylinder head gasket.....	

Give Engine Number with Each Parts Order

**PISTON (Cast Iron)**

See note about oversizes on page 15

The first engines built were equipped with a short three ring piston—4" long. This was later replaced by a long three ring piston (18509-CSY) 4¾" long, and still later replaced by a four ring piston (18507-CSY) 4⅞" long. The four-ring piston is used in all engines where the cylinder bore is 8⅝" long and in engines where the bore is shorter than 8⅝" it may be used (especially in an emergency) in place of the three ring piston (18509-CSY) by leaving the bottom ring off, this bottom ring cannot be used due to the bore being too short and allowing the ring to come out.

Part No.	No. Req.	PART NAME	Plate No.
■ 18509-CSY	6	Piston with bushings (3 ring type).....	
■ 18507-CSY	6	Piston with bushings (4 ring type).....	
■ 21029-B	6	Piston pin.....	
18502-A	12	Piston pin bushing.....	
■ 18501-A	18	Piston ring (compression 3½"x¾").....	
■ 3909-A	6	Piston ring (oil regulating—3½"x¾") replaces 40019-A.....	

Use connecting rod 18790-CSY with this piston.

**PISTON (Aluminum)**

See note about oversizes on page 13

■ 21014-C	6	Piston.....	
■ 21029-B	6	Piston pin.....	
■ 3809-A	18	Piston ring (compression—3½"x¾") replaces 22212-A.....	
■ 3909-A	6	Piston ring (oil regulating—3½"x¾") replaces 40019-A.....	

Use connecting rod 18890-CSY with this piston.

# Model "WXC"

Supplement showing parts which are different from Model "WXB". The Model "WXC" Hercules has 4" cylinders. The Model "WXB" Hercules has 3¾" cylinders.

**CYLINDER AND CRANKCASE**

Part No.	No. Req.	PART NAME	Plate No.
18300-ESY	1	Cylinder and crankcase, with valve guides, camshaft bearings and idler gear bearing.....	1
18353-DS	1	Cylinder and crankcase with above parts, also main bearings and caps, and screws all reamed to size.....	

**CYLINDER HEAD**

Part numbers which differ from casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

18202-E	1	Cylinder head 4.33:1 compression ratio.....	1
18207-E	1	Cylinder head (Low compression).....	
18209-E	1	Cylinder head (Dual ignition) 4.7:1 compression ratio.....	
18211-E	1	Cylinder head (High altitude) 5.1:1 compression ratio.....	
18217-E	1	Cylinder head (High altitude) 5.93:1 compression ratio.....	
18227-E	1	Cylinder head, 4.33:1 compression ratio, Metric spark plug 18 m. m.....	
18901-E	1	Cylinder head, 5.0:1 compression ratio.....	
18954-E	1	Cylinder head, 5.0:1 compression ratio, dual ignition.....	
19219-E	1	Cylinder head, 5.0:1 compression ratio, 18 m. m. spark plug hole.....	
19221-E	1	Cylinder head, 5.0:1 compression ratio 18 m. m. spark plug hole, dual ignition.....	
19218-E	1	Cylinder head, 4.7:1 compression ratio.....	
18959-E	1	Cylinder head, 4.9:1 compression ratio, dual ignition.....	
19231-E	1	Cylinder head, 5.36:1 compression ratio.....	
■ 19109-C	1	Cylinder head gasket—replaces 18883-C.....	

Give Engine Number with Each Parts Order

## PISTON (Cast Iron)

See note about oversizes on page 15

Part No.	No. Req.	PART NAME	Plate No.
■ 18506-CSY	6	Pistons with bushings.....	2
■ 18338-B	6	Piston pin (Special alloy steel).....	2
18337-A	12	Piston pin bushing.....	2
■ 3814-A	18	Piston ring (4"x $\frac{3}{16}$ " plain) replaces 2815-A.....	2
■ 3913-A	6	Piston ring (4"x $\frac{3}{16}$ " oil regulating) replaces 2817-A.....	2

Use connecting rod 18090-CSY with this piston.

## PISTON (Aluminum)

See note about oversizes on page 15

■ 21321-C	6	Piston.....	
■ 18338-B	6	Piston pin.....	
■ 3813-A	18	Piston ring (compression—4"x $\frac{1}{8}$ " ) replaces 22213-A.....	
■ 3913-A	6	Piston ring (oil regulating—4"x $\frac{3}{16}$ " ) replaces 2817-A.....	

Use connecting rod 21190-CSY with this piston.

## Model "WXC"

Equipped with removable shell bearings.

Supplement showing parts which are different from the babbitt bearing equipped Model "WXC" listed above.

## CYLINDER AND CRANKCASE

Part No.	No. Req.	PARTNAME	Plate No.
19205-ESY	1	Cylinder and crankcase assembly with valve guides, camshaft bearings, idler shaft bearing, main bearing caps and screws, pipe plugs and expansion plugs.....	
19212-DS	1	Cylinder and crankcase assembly with above parts also main bearing shells.....	
■ 20072-B	2	Front main bearing (Replaces 18077-B and 18072-B).....	
35200-A	As Req.	Front main bearing shim .002".....	
35205-A	6	Front main bearing shim .003".....	
■ 20073-B	2	Center main bearing (Replaces 18079-B and 18073-B).....	
35203-A	As Req.	Center main bearing shim .002".....	
35207-A	6	Center main bearing shim .003".....	
■ 20075-B	8	Intermediate main bearing (Replaces 18076-B and 18075-B).....	
35203-A	As Req.	Intermediate main bearing shim .002".....	
35208-A	24	Intermediate main bearing shim .003".....	
■ 20074-B	2	Rear main bearing (Replaces 18078-B and 18074-B).....	
■ 19680-B	4	Rear main bearing thrust washer— $3\frac{3}{4}$ " wide—replaces 35204-B.....	
4765-A	4	Rear main bearing thrust washer dowel pin.....	
35201-A	As Req.	Rear main bearing shim .002".....	
35206-A	6	Rear main bearing shim .003".....	

NOTE: Bearing caps used with shell type bearings are not usually furnished separately. They are listed below for information. Two types of caps have been used but the same interchangeable shells are used with each type of caps. The cap screws required with each type are listed with their respective parts.

19905-B Intermediate main bearing cap

19906-B Front main bearing cap

Give Engine Number with Each Parts Order

**CYLINDER AND CRANKCASE (Continued)**

Part No.	No. Req.	PART NAME	Plate No.
		19907-B Rear main bearing cap	
		19908-B Center main bearing cap	
4119-A	8	Center and rear main bearing screw— <sup>1</sup> / <sub>2</sub> "-13x2 <sup>1</sup> / <sub>2</sub> "	
7103-A	10	Front and intermediate main bearing screw— <sup>5</sup> / <sub>8</sub> "-11x2 <sup>7</sup> / <sub>8</sub> "	
		20092-B Front main bearing cap	
		20093-B Center main bearing cap	
		20094-B Rear main bearing cap	
		20095-B Intermediate main bearing cap	
20096-A	10	Front and intermediate main bearing screw <sup>5</sup> / <sub>8</sub> "-11x4"	
20097-A	8	Center and rear main bearing screw <sup>1</sup> / <sub>2</sub> "-13x3 <sup>5</sup> / <sub>8</sub> "	
19171-CS	1	Oil pump main discharge line assembly	

For all other cylinder and crankcase parts see pages 7, 9 and 11.

**PISTON (Aluminum)**

See note about oversizes on page 15

■ 21321-C	6	Piston	
■ 18338-B	6	Piston pin	
■ 3813-A	18	Piston ring (compression—4"x <sup>1</sup> / <sub>8</sub> ") replaces 22213-A	
■ 3913-A	6	Piston ring (oil regulating—4"x <sup>3</sup> / <sub>16</sub> ") replaces 2817-A	

Use connecting rod 21290-CSY with this piston.

# Model "WXC-2"

Supplement showing parts which are different from Model "WXB". The Model "WXC-2" Hercules has 4<sup>1</sup>/<sub>8</sub>" cylinders. The Model "WXB" Hercules has 3<sup>3</sup>/<sub>4</sub>" cylinders.

**CYLINDER AND CRANKCASE**

Part No.	No. Req.	PART NAME	Plate No.
18700-ESY	1	Cylinder and crankcase, with valve guides, camshaft bearings, idler shaft bearing, expansion plugs and pipe plugs	
18701-DS	1	Cylinder and crankcase, with above parts, also main bearings, caps and screws, all reamed to size	

**CYLINDER HEAD**

Part numbers which differ from the casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

18216-E	1	Cylinder head, 4.7:1 compression ratio	
18218-E	1	Cylinder head, 4.7:1 compression ratio, Metric spark plug 18 m. m.	
18219-E	1	Cylinder head, dual ignition	
18221 E	1	Cylinder head, dual ignition, 4.7:1 compression ratio	
19216-E	1	Cylinder head, 5.0:1 compression ratio	
18220-E	1	Cylinder head, 4.7:1 compression ratio	
19230-E	1	Cylinder head, 5.0:1 compression ratio, dual ignition, 18 m. m. spark plug hole	
19235-E	1	Cylinder head, 5.75:1 compression ratio, 5000 ft. altitude	
19237-D	1	Cylinder head, 6.2:1 compression ratio	
19238-D	1	Cylinder head, 5.9:1 compression ratio	
■ 19109-C	1	Cylinder head gasket—replaces 18883-C	

Give Engine Number with Each Parts Order



**PISTON (Cast Iron)**

See note about oversizes on page 15

Part No.	No. Req.	PART NAME	Plate No.
■ 18714-CSY	6	Piston with bushings.....	
■ 18729-B	6	Piston pin.....	
18721-A	12	Piston pin bushing.....	
■ 3815-A	18	Piston ring (compression—4 1/8" x 3/16") replaces 15917-A.....	
■ 3915-A	6	Piston ring (oil regulating—4 1/8" x 3/16") replaces 18131-A.....	

Use connecting rod 18090-CSY with this piston.

**PISTON (Aluminum)**

See note about oversizes on page 15

■ 18511-C	6	Piston.....	
■ 18729-B	6	Piston pin.....	
■ 3816-A	18	Piston ring (compression—4 1/8" x 1/8") replaces 18724-A.....	
■ 3915-A	6	Piston ring (oil regulating—4 1/8" x 3/16") replaces 18131-A.....	

Use connecting rod 18090-CSY with this piston.

# Model "WXC-3"

Supplement showing parts which are different from Model "WXB". The Model "WXC-3" Hercules has 4 1/4" cylinders. The Model "WXB" Hercules has 3 3/4" cylinders.

**CYLINDER AND CRANKCASE**

Part No.	No. Req.	PART NAME	Plate No.
19975-ESY	1	Cylinder and crankcase, with valve guides, camshaft bearings, idler shaft bearing, expansion plugs and pipe plugs.....	
19972-DS	1	Cylinder and crankcase, with above parts, also main bearings, caps and screws, all reamed to size.....	

**CYLINDER HEAD**

Part numbers which differ from casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

18224-E	1	Cylinder head, 5.08:1 compression ratio.....	
18225-E	1	Cylinder head, 4.43:1 compression ratio, dual ignition.....	
18903-E	1	Cylinder head, 4.7:1 compression ratio, dual ignition, metric spark plugs 18 m. m.....	
18955-E	1	Cylinder head, 5.0:1 compression ratio, metric spark plugs 18 m. m.....	
19222-E	1	Cylinder head, 6.0:1 compression ratio, natural gas.....	
18222-E	1	Cylinder head, 4.7:1 compression ratio.....	
18223-E	1	Cylinder head, 18 m. m. spark plug holes.....	
19215-E	1	Cylinder head, 5.0:1 compression ratio, dual ignition.....	
19217-E	1	Cylinder head, 5.0:1 compression ratio, dual ignition, 18 m. m. spark plug holes.....	
19223-E	1	Cylinder head, 6.9:1 compression ratio, natural gas.....	
19224-E	1	Cylinder head, 5.3:1 compression ratio, dual ignition.....	
19232-E	1	Cylinder head, 5.5:1 compression ratio.....	
19233-E	1	Cylinder head, 5.5:1 compression ratio.....	
19234-E	1	Cylinder head, 5.5:1 compression ratio, 18 m. m. spark plug holes.....	
19239-E	1	Cylinder head, 5.3:1 compression ratio, dual ignition, 18 m. m. spark plug holes.....	
■ 19109-C	1	Cylinder head gasket—replaces 18883-C.....	

Give Engine Number with Each Parts Order

**PISTON (Cast Iron)**

See note about oversizes on page 15

Part No.	No. Req.	PART NAME	Plate No.
■ 18875-CSY	6	Piston.....	
■ 18876-B	6	Piston pin.....	
18877-A	12	Piston pin bushing.....	
■ 3817-A	18	Piston ring (compression—4 1/4" x 3/16") replaces 613-A.....	
■ 3917-A	6	Piston ring (oil regulating—4 1/4" x 3/16") replaces 18130-A.....	

Use connecting rod 18090-CSY with this piston.

**PISTON (Aluminum)**

See note about oversizes on page 15

■ 18709-C	6	Piston.....	
■ 18876-B	6	Piston pin.....	
■ 3818-A	18	Piston ring (compression—4 1/4" x 1/8") replaces 18726-A.....	
■ 3917-A	6	Piston ring (oil regulating—4 1/4" x 3/16") replaces 18130-A.....	

Use connecting rod 18090-CSY with this piston.

# Model "WXC-3"

Equipped with removable shell bearings.

Supplement showing parts which are different from the babbitt bearing equipped Model "WXC-3" listed above.

**CYLINDER AND CRANKCASE**

Part No.	No. Req.	PART NAME	Plate No.
19990-ESY	1	Cylinder and crankcase assembly, with valve guides, camshaft bearings, idler shaft bearing, main bearing caps and screws, pipe plugs and expansion plugs.....	
19999-DS	1	Cylinder and crankcase assembly with above parts, also main bearing shells.....	

For Main Bearings and Caps See Under WXC Pages 47 and 48

For all other cylinder and crankcase parts see pages 7, 9 and 11.

**PISTON (Aluminum)**

See note about oversizes on page 15

■ 18709-C	6	Piston.....	
■ 18876-B	6	Piston pin.....	
■ 3818-A	18	Piston ring (compression—4 1/4" x 1/8") replaces 18726-A.....	
■ 3917-A	6	Piston ring (oil regulating—4 1/4" x 3/16") replaces 18130-A.....	

Use connecting rod 18191-CSY with this piston.

Give Engine Number with Each Parts Order

# Model "WXLC"

Supplement showing parts which are different from Model "WXB". The model "WXLC" Hercules has 4" cylinders and 4<sup>3</sup>/<sub>4</sub>" stroke. The model "WXB" Hercules has 3<sup>3</sup>/<sub>4</sub>" cylinders and 4<sup>1</sup>/<sub>2</sub>" stroke.

## CYLINDER AND CRANKCASE

The model "WXB" cylinder block is equipped with babbitt main bearings. The Model "WXLC" cylinder block is equipped with removable main bearing shells.

Part No.	No. Req.	PART NAME	Plate No.
19205-ESY	1	Cylinder and crankcase assembly with valve guides, camshaft bearings, idler shaft bearing, main bearing caps and screws, pipe plugs and expansion plugs.....	
19212-DS	1	Cylinder and crankcase assembly with above parts also main bearing shells.....	

For Main Bearings and Caps see under WXC pages 47 and 48

For all other cylinder and crankcase parts, see pages 7, 9 and 11.

## CYLINDER HEAD

Part numbers which differ from casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

19226-E	1	Cylinder head, 5.5:1 compression ratio.....
19229-E	1	Cylinder head, 6.25:1 compression ratio—high altitude.....
19223-E	1	Cylinder head, 6.5:1 compression ratio—natural gas.....
19236-D	1	Cylinder head, 5.42:1 compression ratio—dual ignition.....
■ 19109-C	1	Cylinder head gasket—replaces 18883-C.....

## PISTON (Aluminum)

See note about oversizes on page 15

■ 19390-C	6	Piston.....
■ 18338-B	6	Piston pin.....
■ 3813-A	18	Piston ring, (compression—4"x <sup>1</sup> / <sub>8</sub> " ) replaces 22213-A.....
■ 3959-A	6	Piston ring, (oil regulating—4"x <sup>9</sup> / <sub>16</sub> " ) replaces 2817-A and 3913-A.....

Use connecting rod 21290-CSY with this piston.

## CRANKSHAFT

20532-E	1	Crankshaft—counter balanced.....
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All other crankshaft parts listed on page 15.

## OIL GAUGE

18146-AS	1	Bayonet oil gauge.....
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# Model "WXLC-3"

Supplement showing parts which are different from Model "WXB" and Model "WXLC". The Model "WXLC-3" Hercules has 4 1/4" cylinders. The Model "WXLC" has 4" cylinders.

## CYLINDER AND CRANKCASE

See note, page 51

Part No.	No. Req.	PART NAME	Plate No.
19990-ESY	1	Cylinder and crankcase assembly with valve guides, camshaft bearings, idler shaft bearing, main bearing caps and screws, pipe plugs and expansion plugs.....	
19999-DS	1	Cylinder and crankcase assembly with above parts, also main bearing shells.....	

## PISTON (Aluminum—Four Ring Type)

See note about oversizes on page 15

20117-AS	6	Piston and pin assembly, includes parts marked * .....
■ 18709-C	6	*Piston—4 1/4" .....
■ 18876-B	6	*Piston pin .....
■ 3917-A	6	Piston ring, (oil regulating—4 1/4" x 3/16") replaces 18130-A .....
■ 3818-A	18	Piston ring, (compression—4 1/4" x 1/8") replaces 18726-A ....

Use connecting rod 21290-CSY with this piston.

## PISTON (Aluminum—Three Ring Type)

(For high speed operation)

20115-C	6	Piston—4 1/4" .....
18876-B	6	Piston pin .....
20116-A	6	Piston ring—Compression—Top groove .....
18516-A	6	Piston ring—Compression—2nd groove .....
18711-A	6	Piston ring—Oil regulating—Bottom groove .....

## CYLINDER HEAD

Part numbers which differ from casting numbers are usually stamped on the water outlet flange machined surface under water outlet elbow.

19225-E	1	Cylinder head, 5.5:1 compression ratio.....
19228-E	1	Cylinder head, 5.5:1 compression ratio, 18 m. m. Metric spark plug..
19227-E	1	Cylinder head, 5.5:1 compression ratio, dual ignition.....
19223-E	1	Cylinder head, 6.75:1 compression ratio, natural gas.....
■ 19109-C	1	Cylinder head gasket—replaces 18883-C.....

## TOOLS

Wrenches for servicing the "WX" series engines may be obtained from the Hercules Motors Corporation. The wrenches listed below are all that is needed to make the majority of repairs and adjustments.

3100-B	1	Socket wrench ratchet handle—Cornwell No. HR1.....
3101-A	1	Socket wrench handle extension—Cornwell No. HE12.....
3103-A	1	Socket—7/8" H.D.—Cornwell No. HS2.....
3104-A	1	Socket—15/16" H.D.—Cornwell No. HS4.....
3107-A	1	Socket adapter—3/4" female & 1/2" male—Cornwell No. SA8.....
3109-A	1	Socket—3/4"—Cornwell No. SS14.....
3171-A	1	Socket—5/8"—Cornwell No. SS10.....
3170-A	1	Socket—9/16"—Cornwell No. SS8.....
3256-A	2	Open end wrench 1/2" for tappets.....
3175-A	1	Open end wrench 1/2" and 9/16".....
3177-A	1	Open end wrench 5/8" and 3/4".....

Tools listed above are not furnished with engines unless specified.

Give Engine Number with Each Parts Order