



Parts List

HERCULES

ENGINE *and* POWER UNIT

of the

"IX-5" Series

IX-5 —2½" x 4"

IXA-5—3" x 4"

IXB-5—3¼" x 4"

(Five Gear Type)

OCTOBER 1, 1941

Supersedes All Previous Parts Lists

HERCULES MOTORS CORPORATION

CANTON, OHIO, U. S. A.

PARTS LIST

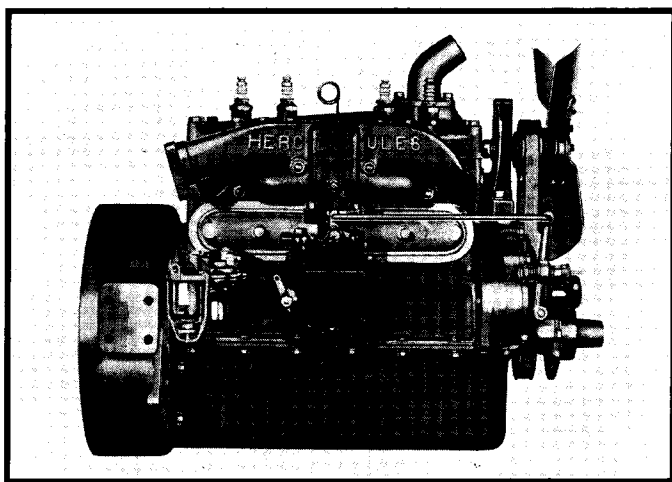
HERCULES

FOUR CYLINDER ENGINE

of the

"IX" Series

(Five Gear Type)



HERCULES MOTORS CORP.

CANTON, OHIO, U. S. A.

HERCULES MOTORS CORPORATION

Canton, Ohio

STANDARD WARRANTIES, FIELD SERVICE, RETURNS AND EXPENSES ISSUED BY THE INTERNAL COMBUSTION ENGINE INSTITUTE, OCTOBER 20, 1933

HERCULES MOTORS CORPORATION is a MEMBER of THE INTERNAL COMBUSTION ENGINE INSTITUTE and all engines, power units, parts and accessories are sold by us subject to the terms of the "STANDARD WARRANTIES, FIELD SERVICE, RETURNS AND EXPENSES" of said Institute adopted and issued October 20, 1933 and all amendments thereof which may be in effect from time to time hereafter. The following is a copy of the terms of the "Standard Warranties, Field Service, Returns and Expenses" issued October 20, 1933, but it is subject, however, to future amendment without notice. Notwithstanding any different terms or conditions which may be contained in any customer's purchase order received by us, we will be governed by and conform to the terms and provisions of the "Standard Warranties, Field Service, Returns and Expenses" of The Internal Combustion Engine Institute.

1. STANDARD SERVICE WARRANTIES

The term "member of this industry" as used herein means a member of the Internal Combustion Engine Institute.

The term "Buyer," as used herein means a customer of a member of this Institute.

- a) The members of this industry shall guarantee their engines and parts thereof against defective material or workmanship as prescribed in paragraph 1 (b).
- b)

Type of Application	Warranty Period
Bus and Truck Equipment	Six months from date of shipment but not to exceed ninety days or 15,000 miles of service.
Rail Cars and Locomotives	Six months from date of shipment but not to exceed ninety days or 15,000 miles of service.
Agricultural Equipment	Six months from date of shipment but not to exceed ninety days of service.
Industrial and Oil Field Equipment	Six months from date of shipment but not to exceed ninety days of service.
Marine Equipment	One year from date of shipment.
Fire Equipment	One year from date of shipment.
- c) Parts returned to any member of this industry, transportation charges prepaid, which are found by the member to be defective in material or workmanship, shall at the member's option be repaired, replaced or credited. No claims will be allowed which, in the opinion of the member, result from engines or parts having been subject to abuse or neglect or where failure has been caused by accident.
- d) Warranty on accessories furnished by each member shall be limited to the warranty of the accessory manufacturer.
- e) Any warranty is void unless the Buyer or his agents provide proper care and storage of engines and parts from date of shipment to date placed in service.

- f) Each member reserves the right to improve his product through changes in design or materials without being obligated to incorporate such changes in engines of prior manufacture.
- g) No responsibility for contingent liability through the failure of any engine or engine part will be assumed by a member of this industry.

2. FIELD SERVICE

- a) The responsibility of maintaining or arranging for adequate and proper field service facilities shall be with the Buyer, and he shall not request the assistance of any member of this industry except in cases of a complex character.
- b) All requests for service in the field shall emanate from the Buyer of the engines. Requests received from a Buyer's dealer or the ultimate user shall, under normal conditions, be referred to the Buyer.
- c) If a member renders field service at the request of the Buyer and the fault is found not to be with the engine, the Buyer shall pay the time and expense of the member's field representative.
- d) No member shall accept bills for service, labor or other expense that has not been previously approved and authorized.
- e) Before consideration can be given to requests for adjustments covering field service and alleged defective material, the Buyer shall furnish the member with the following data:

Owner's name and address.

Engine model.

Serial number.

Information as to the nature of the trouble.

Date actually placed in service.

Accumulated days or miles of service

3. THE RETURN OF NEW MATERIAL

- a) Any member of this industry may at his option accept the return of any part or parts provided such return has been authorized, and at prices agreed upon, transportation charges prepaid. Such authorized returns shall be subject to the member's inspection and to a handling charge to ten percent (10%) of the cost of the part or parts returned.

4. LABOR AND OTHER EXPENSES

- a) No member of this industry shall assume any expense except direct labor in replacing parts or servicing engines within the warranty period, and in no case shall such expense be assumed unless authorized by the member.

The obligation hereinabove provided to repair, replace or credit at the option of Hercules Motors Corporation any engines, power units or parts that are found by it to be defective in material or workmanship is in lieu of any and all other warranties expressed or implied by law and all other obligations or liabilities on the part of Hercules Motors Corporation to the Buyer or to any other party.

HERCULES MOTORS CORPORATION
Canton, Ohio, U. S. A.

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 Three—a set for one Piston—or Twelve—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.

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

October 1, 1941

Supersedes All Previous Parts Lists

Group and Illustration Index



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SPECIAL PARTS

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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 each group may be omitted to avoid duplication.

GASKET ASSEMBLIES

The following assemblies do not include cylinder head gaskets or gaskets for fan assemblies, special oil pans or any of the various accessories.

Part No.	No. Req.	PART NAME	Plate No.
■ 27415-AS	1	Gasket assembly—primary, Includes parts marked (*).....	
27799-B	2	*Manifold gasket.....	
27187-B	2	*Oil pan gasket.....	
27064-B	1	*Bellhousing gasket.....	
28009-B	1	*Valve cover gasket.....	
27024-B	1	*Gear cover gasket.....	
14642-A	1	*Gear cover cork seal.....	
4982-A	1	*Oil pan cork seal.....	
14224-A	1	*Water outlet gasket.....	
■ 27416-AS	1	Gasket assembly—secondary—Includes parts marked (**).....	
22564-A	1	**Fuel pump gasket.....	
27553-A	1	**Governor gasket.....	
27753-A	1	**Water pump cover gasket.....	
27264-A	1	**Water pump attaching gasket (also accessory drive).....	
27255-A	1	**Oil filtrator gasket.....	
27127-A	1	**Oil pump attaching gasket.....	
27173-A	1	**Generator attaching gasket.....	
27028-A	1	**Companion flange gasket.....	
4931-A	1	**Magnetto bracket gasket.....	
86-A	1	**Water inlet pipe gasket.....	
58839-A	1	**Governor body gasket.....	
86-A	1	**Governor valve box gasket (1" SAE).....	
27249-A	1	**Oil filtrator shell gasket.....	
8575-A	2	**Oil filtrator drain plug gasket.....	
27244-A	1	**Oil pressure regulator gasket.....	

NOTE: The above assemblies do not include gaskets for cylinder heads, special oil pans, accessories etc.

■ 27233-C	1	Cylinder Head Gasket—IXA & IXB..... (Takes place of part 27203-C—Plate No. 1).....	
■ 27310-C	1	Cylinder Head Gasket IX..... (Takes place of part 27303-C—Plate No. 1).....	
27712-B	1	Oil Pan (base type) Cover Plate Gasket.....	
■ 28107-B	2	Oil Pan Gasket—Used with Flexible Front Seal.....	
■ 28106-AS	1	Gear Cover Oil Seal Assembly.....	

CYLINDER AND CRANKCASE

28366-ESY	1	Cylinder and crankcase—3" bore—with valve guides, camshaft bearings, idler gear bearing and jacket plugs.....	
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NOTE: 28366-E block has cup type plugs and supersedes 27001-E and 28001-E blocks which have expansion type plugs. Plugs of each type are listed below.

28058-DS	1	Cylinder and crankcase—3" bore—same as above; also main bearings machined to size with caps and screws.....	
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NOTE: 28058-DS block supersedes 27057-DS and 28057-DS.

2534-A	7	Expansion plug (1¼" diameter brass) for 27001-E block.....	1
633-A	1	Expansion plug (⅞" diameter brass) for 27001-E block.....	1
4934-A	1	Expansion plug (1⅞" diameter brass with hole for ⅛" pipe thread). Used with water pump—for 27001-E block.....	

Give Engine Number with Each Parts Order

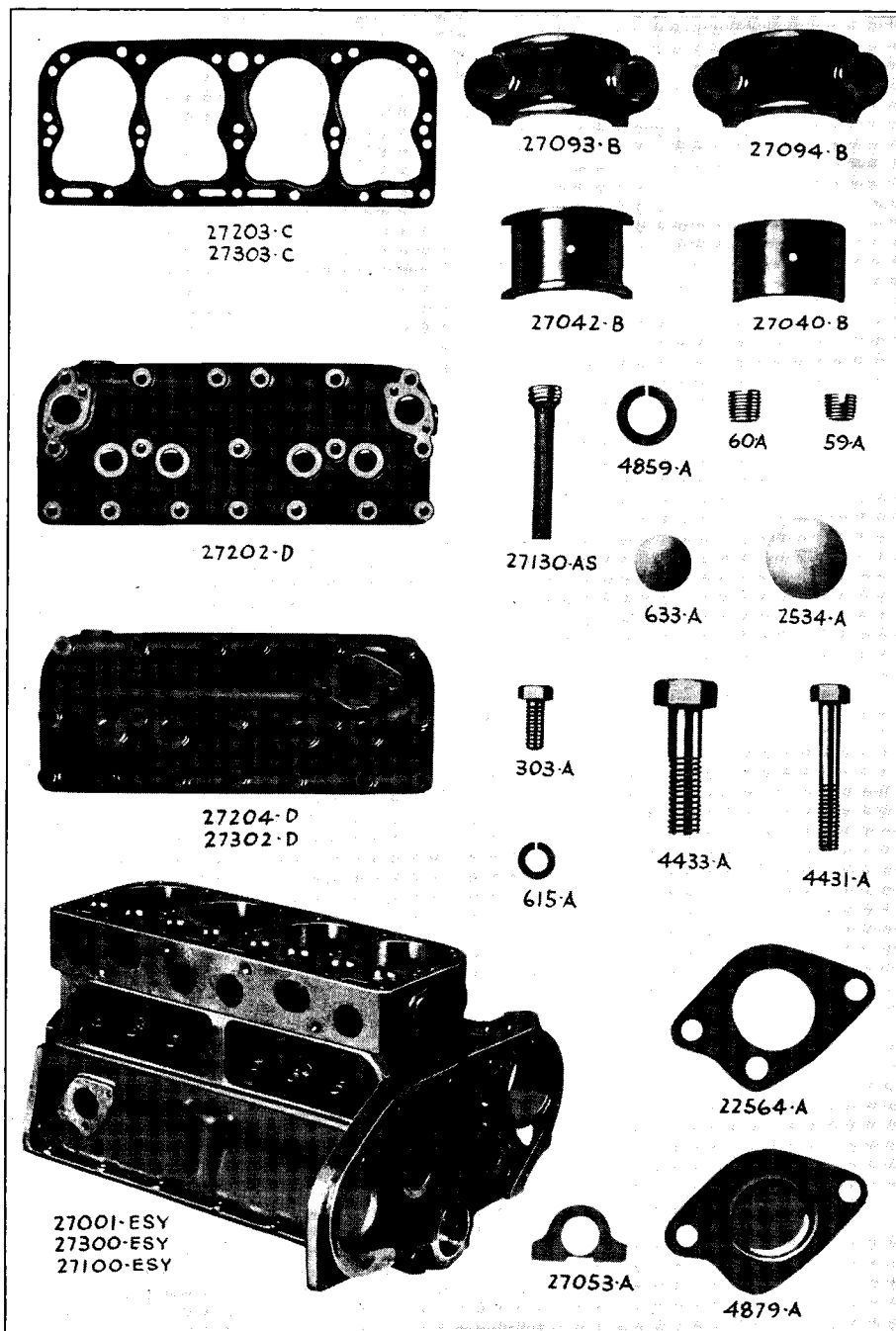


Plate No. 1

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

CYLINDER AND CRANKCASE (Continued)

Part No.	No. Req.	PART NAME	Plate No.
4935-A	2	Expansion plug ($1\frac{1}{8}$ " diameter brass) for 27001-E block.....	
7239-A	1	Expansion plug ($1\frac{1}{2}$ " diameter brass) for 27001-E block.....	
1075-A	2	Pipe plug ($\frac{1}{2}$ " standard) for 27001-E block.....	
3585-A	4	Cup plug ($1\frac{1}{4}$ " diameter brass) for 28366-E block.....	
11051-A	1	Cup plug ($\frac{7}{8}$ " diameter brass) for 28366-E block.....	
3586-A	3	Cup plug ($1\frac{1}{2}$ " diameter brass) for 28366-E block.....	
11052-A	1	Cup plug ($1\frac{3}{4}$ " diameter brass with hole for $\frac{1}{8}$ " pipe thread)—with water pump for 28366-E block.....	
■ 27040-B	2	Front and center main bearing—upper.....	1
■ 27042-B	1	Rear main bearing—upper.....	1
■ 27093-B	2	Front and center main bearing cap, babbitted and machined.....	1
■ 27094-B	1	Rear main bearing cap, babbitted and machined.....	1
NOTE: A suitable allowance will be made for main bearing caps if returned in condition to be rebabbitted and reused providing our invoice reference is given covering bearing cap which replaced one returned.			
4433-A	5	Main bearing cap screw, special steel ($\frac{9}{16}$ "-12x $1\frac{15}{16}$ ") (6 used on first type engines).....	1
11017-A	1	Main bearing cap screw, special steel ($\frac{9}{16}$ "-12x $1\frac{15}{16}$ " thin head—used on late engines replacing 1-4433-A).....	1
4859-A	6	Main bearing cap screw lockwasher ($\frac{9}{16}$ " S. A. E.).....	1
27061-A As Req.		Main bearing shim (.002").....	
27053-A	12	Main bearing shim (.003").....	1
27130-AS	1	Cylinder oil metering plug and tube—used with 27001-E block.....	1
60-A	2	Oil tube pipe plug ($\frac{1}{4}$ " standard).....	1
59-A	2	Oil tube pipe plug ($\frac{1}{8}$ " standard).....	1
4879-A	1	Cylinder fuel pump hole cover plate.....	1
■ 22564-A	1	Cylinder fuel pump hole cover plate gasket.....	1
1048-A	2	Cylinder fuel pump hole cover plate screw ($\frac{5}{16}$ "x $1\frac{1}{2}$ ") (Takes place of Part No. 303-A—Plate No. 1).....	
615-A	2	Cylinder fuel pump hole cover plate lockwasher ($\frac{5}{16}$ " S. A. E.).....	1
27143-AS	1	Bayonet oil gauge.....	5
■ 8-A	1	Cylinder drain cock—used on engines with water pump.....	
29744-A	1	Oil Overflow Deflector Elbow.....	

SHIM ASSEMBLY

27414-AS	1	Shim assembly includes following four items:.....	
27061-A	6	Main bearing shim .002".....	
27053-A	12	Main bearing shim .003".....	
27067-A	12	Connecting rod shim .002".....	
27054-A	12	Connecting rod shim .003".....	

CONNECTING ROD

(FOR MODELS IXA AND IXB)

For Model IX Connecting Rod see page 36.

■ 28094-BSY	4	Connecting rod and cap assembly, babbitted and reamed..... (The above includes all bolts, nuts and shims—The angle of the clamp screw is 20°). (Replaces Part No. 27090-BSY—Plate No. 2.) A suitable allowance for each connecting rod assembly (rod and cap) will be made if returned in condition to be re-babbitted and re-used, provided our invoice reference is given covering the connecting rod which replaced the one returned.	
28096-A	8	Connecting rod bolt $1\frac{13}{16}$ " overall length—replaces 27055-A—Used only with assembly 28094-BSY.....	
27055-A	8	Connecting rod bolt $1\frac{7}{8}$ " overall length—used with 27090-BSY and 28090-BSY connecting rod assembly.....	2
27056-A	8	Connecting rod bolt nut.....	2
301-A	8	Connecting rod bolt cotter ($\frac{3}{32}$ "x $\frac{3}{4}$ ").....	2
27111-A	4	Connecting rod clamp screw (Holds pin).....	2
267-A	4	Connecting rod clamp screw wire.....	2

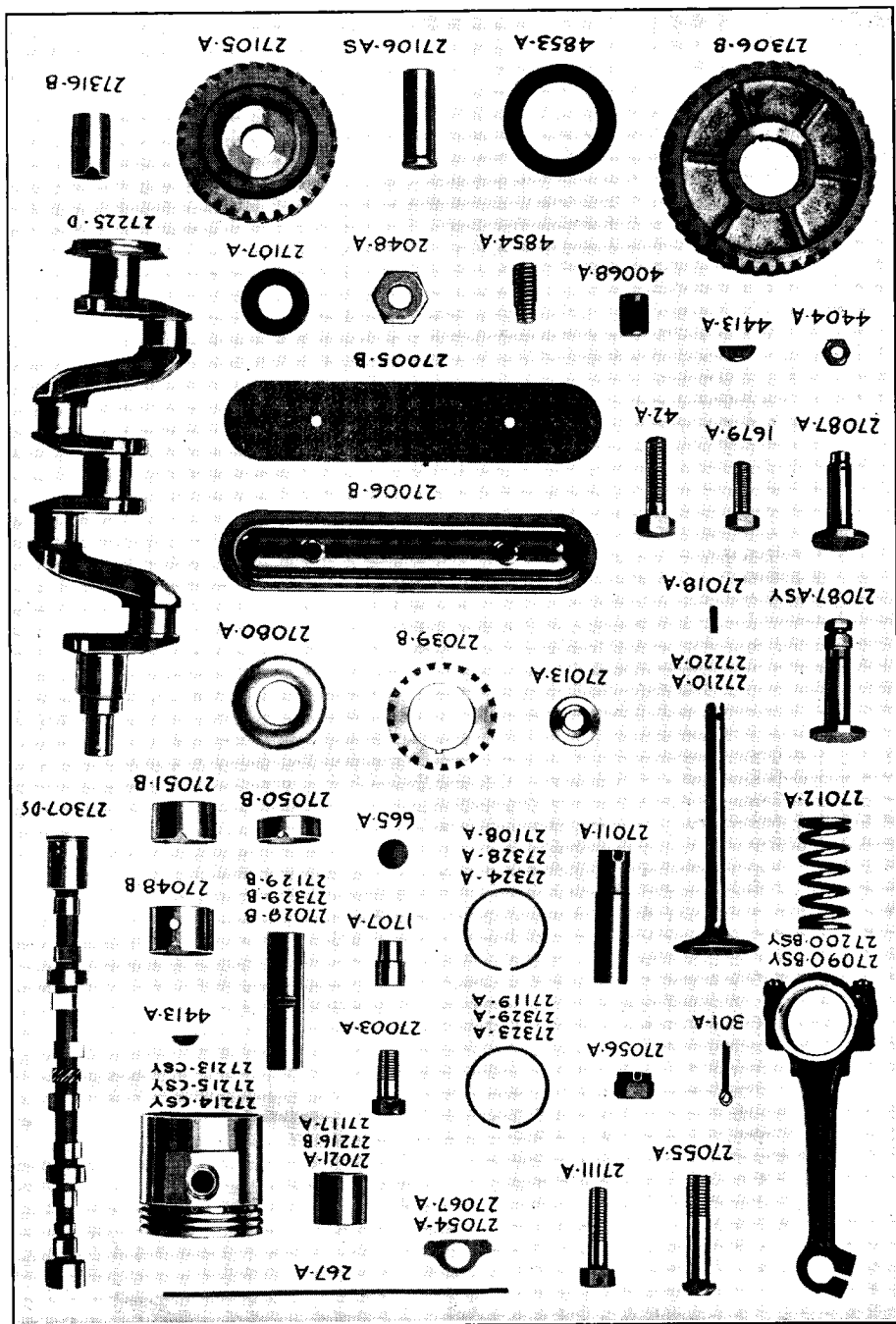
Give Engine Number with Each Parts Order

PARTS LIST

Model "1XA" 3"x4"

Crankshaft, Connecting Rod, Piston, Push Rod, Camshaft and Valves

Plate No. 2



CONNECTING ROD (Continued)

Part No.	No. Req.	PART NAME	Plate No.
27054-A	24	Connecting rod shim (.003" Brass).....	2
27067-A	As Req.	Connecting rod shim (.002" Brass).....	2

PISTONS (Cast Iron) 3" Diameter

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

27110-AS	4	Piston and pin assembly (includes parts marked *).....	
■ 27214-CSY	4	*Piston with bushings—In ordering state if standard or oversize is wanted.....	2
■ 27029-B	4	*Piston pin (Molybdenum steel) state if standard or oversize is wanted.....	2
27021-A	8	Piston pin bushings.....	2
■ 3803-A	8	Piston ring, compression (replaces 27324-A).....	
■ 3903-A	4	Piston ring, oil regulating (replaces 27323-A).....	

PISTONS (Aluminum) 3" Diameter

(See note on page 8 about oversizes)

■ 27218-C	4	Piston—In ordering state if standard or oversize is wanted.....	
■ 27029-B	4	Piston pin (Molybdenum steel) state if standard or oversize is wanted.....	2
■ 3803-A	8	Piston ring, compression (replaces 27324-A).....	
■ 3903-A	4	Piston ring, oil regulating (replaces 27323-A).....	

CRANKSHAFT

All crankshafts have a number either embossed or stamped on the cheek between three and four rod bearing journals. If there is any doubt as to the number or if number has been destroyed in any way send sketch of crankshaft showing particularly the front and rear end construction.

27225-D	1	Crankshaft, standard.....	2
27226-B	1	Crankshaft same as 27225-D except counter balanced.....	
27995-D	1	Crankshaft same as 27225-D except nichrome.....	
27080-A	1	Crankshaft oil thrower—not used on late engines.....	2
■ 27039-B	1	Crankshaft gear, 21 teeth.....	2
4413-A	1	Crankshaft gear key.....	2
27003-A	4	Flywheel bolt $\frac{1}{16}$ "x20x1 $\frac{1}{32}$ " long.....	2
27481-A	4	Flywheel bolt $\frac{1}{16}$ "x20x1 $\frac{13}{32}$ " long.....	
27514-A	4	Flywheel bolt $\frac{1}{16}$ "x20x1 $\frac{17}{32}$ " long.....	
1707-A	2	Flywheel dowel.....	2
665-A	2	Flywheel dowel plug ($\frac{5}{8}$ " expansion).....	2
267-A	1	Flywheel bolt lockwire.....	2

VALVE

■ 27140-A	4	Valve, intake—Replaces 27220-A.....	
■ 28212-A	4	Valve, exhaust (replaces 27210-A).....	
27011-A	8	Valve guide (.532" O. D.).....	2
■ 28214-A	8	Valve guide (.485" O. D.).....	

NOTE: Two types of valve guides have been used on IX-5 engines, therefore, it is necessary to know the outside diameter of the valve guide before ordering. Valve guide 28214-A has a .485" O.D. while 27011-A has a .532" O.D. Engines with the latest type pressure regulator which is built into the cylinder block and not a separate assembly attached to the block have the small diameter (.485) valve guide 28214-A.

■ 27008-A	8	Valve spring.....	
		(Takes place of Part No. 27012-A—Plate No. 2)	
27013-A	8	Valve spring seat.....	2
■ 27018-A	8	Valve spring seat pin.....	2
27006-B	1	Valve cover (Steel).....	2
■ 28009-B	1	Valve cover gasket.....	2
1865-A	2	Valve cover screw ($\frac{3}{8}$ "x16x1 $\frac{1}{2}$ ").....	2

Give Engine Number with Each Parts Order

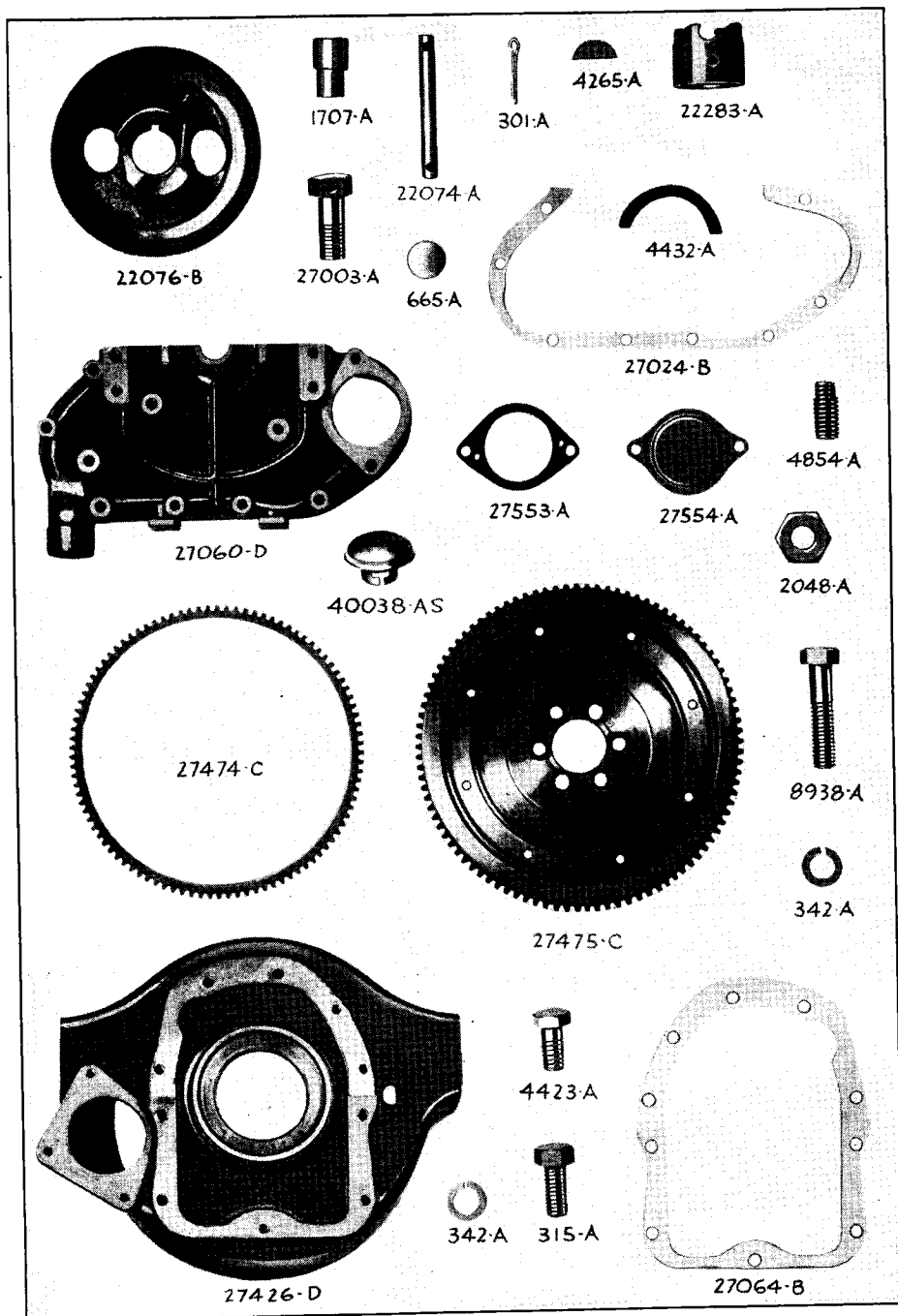


Plate No. 3

Gear Cover, Breather, Fan Drive Parts, Flywheel and Bellhousing

PUSH ROD

Part No.	No. Req.	PART NAME	Plate No.
■ 27317-ASY	8	Push rod assembly (27317-A, 46019-A, 14974-A) (Takes place of Part No. 27087-ASY—Plate No. 2)	
27317-A	8	Push rod..... (Takes place of Part No. 27087-A—Plate No. 2)	
46019-A	8	Push rod screw (Hardened) Replaces 1679-A	
14974-A	8	Push rod screw nut, Replaces 4404-A	

CYLINDER HEAD

NOTE: For the convenience of those who wish to know the compression ratio of a head which has had the part number destroyed, we list below the dimension of the depth over the intake valve for the various compression ratios.

		Compression Ratio	Depth over Valve	
		5.2	$\frac{5}{8}$ "	
		5.92	$\frac{37}{64}$ "	
		6.9	$\frac{1}{2}$ "	
27202-D	1	Cylinder head (Flat type) used on some of the first engines		1
27204-D	1	Cylinder head—4.7:1 compression ratio, kerosene		1
27206-D	1	Cylinder head—5.2:1 compression ratio		
27207-D	1	Cylinder head—5.2:1 compression ratio—flat type		
27212-D	1	Cylinder head, Natural gas—5.92:1 compression ratio		
27229-D	1	Cylinder head, Metric 18 M.M.—5.2:1 compression ratio		
27232-D	1	Cylinder head, 6.9:1 compression ratio—Natural gas 4000 ft. alt.		
27211-D	1	Cylinder head—5.27:1 compression ratio, metric 18 M. M.		
27239-D	1	Cylinder head—5.2:1 compression ratio, metric 14 M. M.		
28202-D	1	Cylinder head—5.92:1 compression ratio		
■ 27233-C	1	Cylinder head gasket..... (Takes place of Part No. 27203-C—Plate No. 1)		
4431-A	18	Cylinder head cap screw $\frac{3}{8}$ "x16x2 $\frac{1}{4}$ "		1
1075-A	1	Cylinder head pipe plug $\frac{1}{2}$ "		

GEAR COVER—With cork type seal

27060-D	1	Gear cover	3
■ 27024-B	1	Gear cover gasket	3
4266-A	8	Gear cover screw $\frac{3}{8}$ "x16x1 $\frac{3}{4}$ " (Takes place of Part No. 8938-A—Plate No. 3)	
342-A	8	Gear cover lockwasher	3
■ 14592-AS	3	Thrust adjusting screw assembly..... (Takes place of Part No. 4854-A—Plate No. 3)	
■ 14591-A	3	Thrust adjusting screw fiber	
2048-A	3	Thrust adjusting screw nut	3
14642-A	1	Gear cover cork..... (Takes place of Part No. 4432-A—Plate No. 3)	
27554-A	1	Gear cover governor opening cover	3
27553-A	1	Gear cover governor opening cover gasket	3

GEAR COVER—With flexible type seal

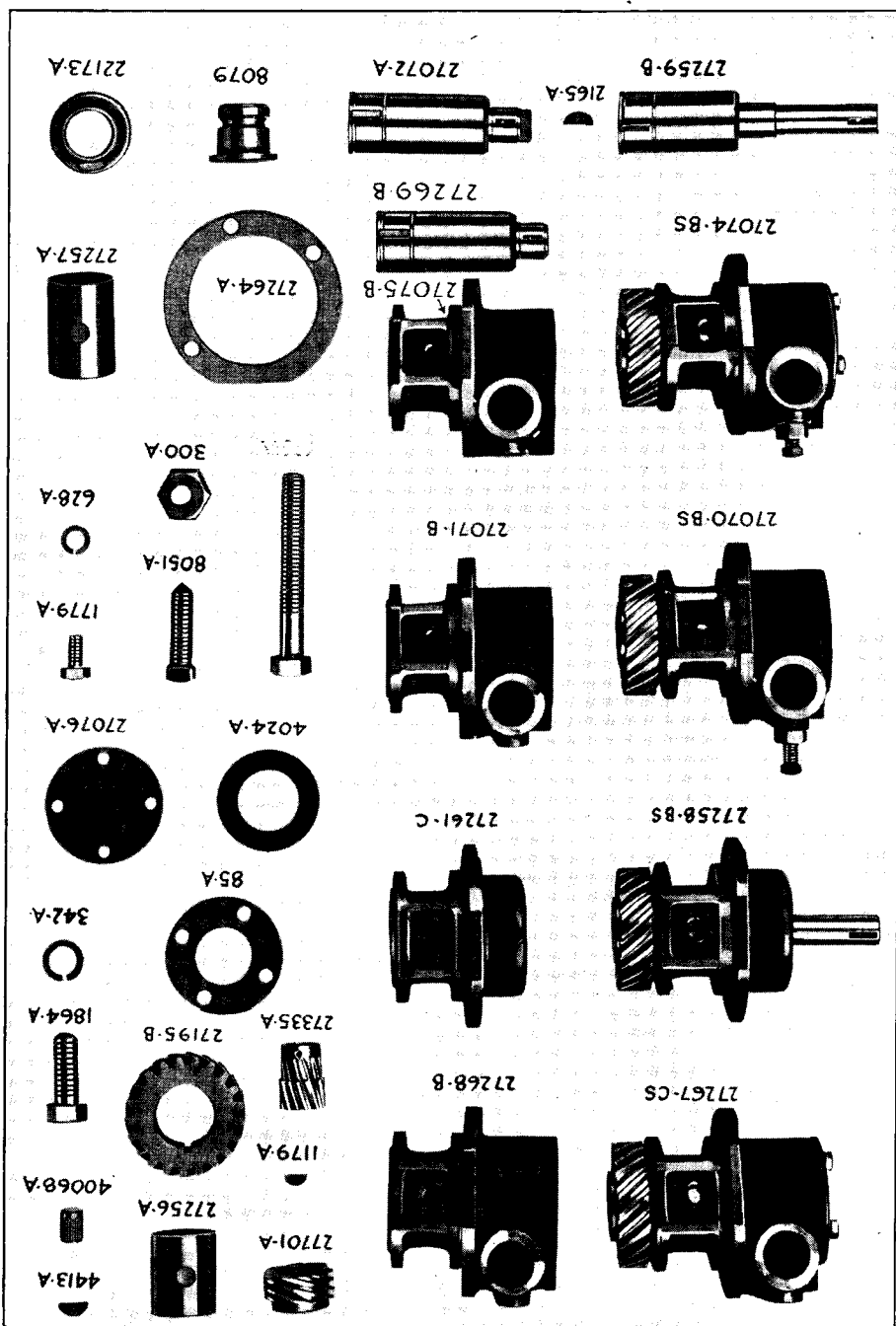
29385-D	1	Gear cover	
■ 27024-B	1	Gear cover gasket	
4266-A	8	Gear cover screw— $\frac{3}{8}$ "—16x1 $\frac{3}{4}$ "	
342-A	8	Gear cover lockwasher— $\frac{3}{8}$ "	
■ 14592-AS	3	Gear cover thrust screw assembly	
■ 14591-A	3	Gear cover thrust screw fiber	
2048-A	3	Gear cover thrust screw nut	
■ 28106-AS	1	Gear cover seal assembly—Includes parts marked *	
3690-A	1	*Gear cover seal	
3689-A	1	*Gear cover seal sleeve—Rubber	
27554-A	1	Gear cover governor opening cover	
27553-A	1	Gear cover governor opening cover gasket	

BREATHER

■ 40038-AS	1	Breather cap assembly (Oil filler cap)	3
27099-A	1	Breather pipe	

Give Engine Number with Each Parts Order

Model "IXA" 3"x4"



CAMSHAFT

Part No.	No. Req.	PART NAME	Plate No.
All engines numbered up to No. 672102 were equipped with a forged steel camshaft and standard engines (except marine) numbered 672102 and up have cast alloy camshaft. The proper oil pump drive gear must be used with each type shaft. On orders for camshafts the latest type will be shipped and if the shaft is for engine numbered below 672102 then new oil pump gear 28371-A should be ordered.			
27307-DS	1	Camshaft and thrust plunger, standard lift. Forged steel shaft (super-seeded by 28973-DS). Use oil pump gear 27126-A with this shaft...	
28973-DS	1	Camshaft and thrust plunger, standard lift. Cast alloy shaft (super-seedes 27307-DS). Use oil pump gear 28371-A with this shaft...	
27305-DS	1	Camshaft and thrust plunger, high lift. Forged steel shaft. Use oil pump gear 27126-A with this shaft.....	2
27048-B	1	Camshaft front bearing.....	2
27051-B	1	Camshaft rear bearing.....	2
27050-B	2	Camshaft intermediate bearing.....	2
■ 27306-B	1	Camshaft gear, 42 teeth.....	2
4413-A	1	Camshaft gear key.....	2
4853-A	1	Camshaft thrust washer.....	2
40068-A	1	Camshaft thrust plunger.....	2
14592-AS	1	Camshaft thrust screw assembly..... (Takes place of Part No. 4854-A—Plate No. 2)	2
2048-A	1	Camshaft thrust screw nut.....	2
14591-A	1	Camshaft thrust screw fiber.....	

IDLER GEAR

■ 27105-B	1	Idler gear, 31 teeth.....	2
27106-AS	1	Idler gear shaft and plunger 40068-A.....	2
■ 27107-A	1	Idler thrust washer.....	2
27316-B	1	Idler shaft bearing.....	2
40068-A	1	Idler thrust plunger.....	2
14592-AS	1	Idler gear thrust adjusting screw assembly..... (Takes place of Part No. 4854-A—Plate No. 2)	2
2048-A	1	Idler gear thrust adjusting screw nut.....	2
14591-A	1	Idler gear thrust adjusting screw fiber.....	

ACCESSORY DRIVES

There are many different types of accessory drive assemblies used on engines of this series. Some meet the requirements for driving both distributor and magneto while others are only for one particular type of ignition, and still others are required for a particular type of magneto. Be sure to give engine number when ordering in order to help eliminate the possibility of error. The shaft length is given as this is generally the major change.

ACCESSORY DRIVE

NOTE: This accessory drive used with standard S. A. E. Magneto installation on thermo-syphon engines. Does not have distributor provision.

27266-BS	1	Accessory drive assembly (Includes parts marked *).....	4
27261-B	1	*Accessory drive sleeve.....	
27265-A	1	*Accessory drive shaft (6 $\frac{3}{4}$ " long).....	4
27257-A	1	*Accessory drive bushing (2 $\frac{1}{4}$ " long).....	4
■ 27264-A	1	Accessory drive attaching gasket.....	4
27195-B	1	*Accessory drive gear.....	4
4413-A	1	*Accessory drive gear key.....	4
23116-A	1	*Accessory drive oil retainer.....	
40068-A	1	*Accessory drive thrust plunger.....	4
4024-A	1	*Accessory drive thrust washer.....	4
4661-A	1	*Accessory drive cork washer.....	

Give Engine Number with Each Parts Order

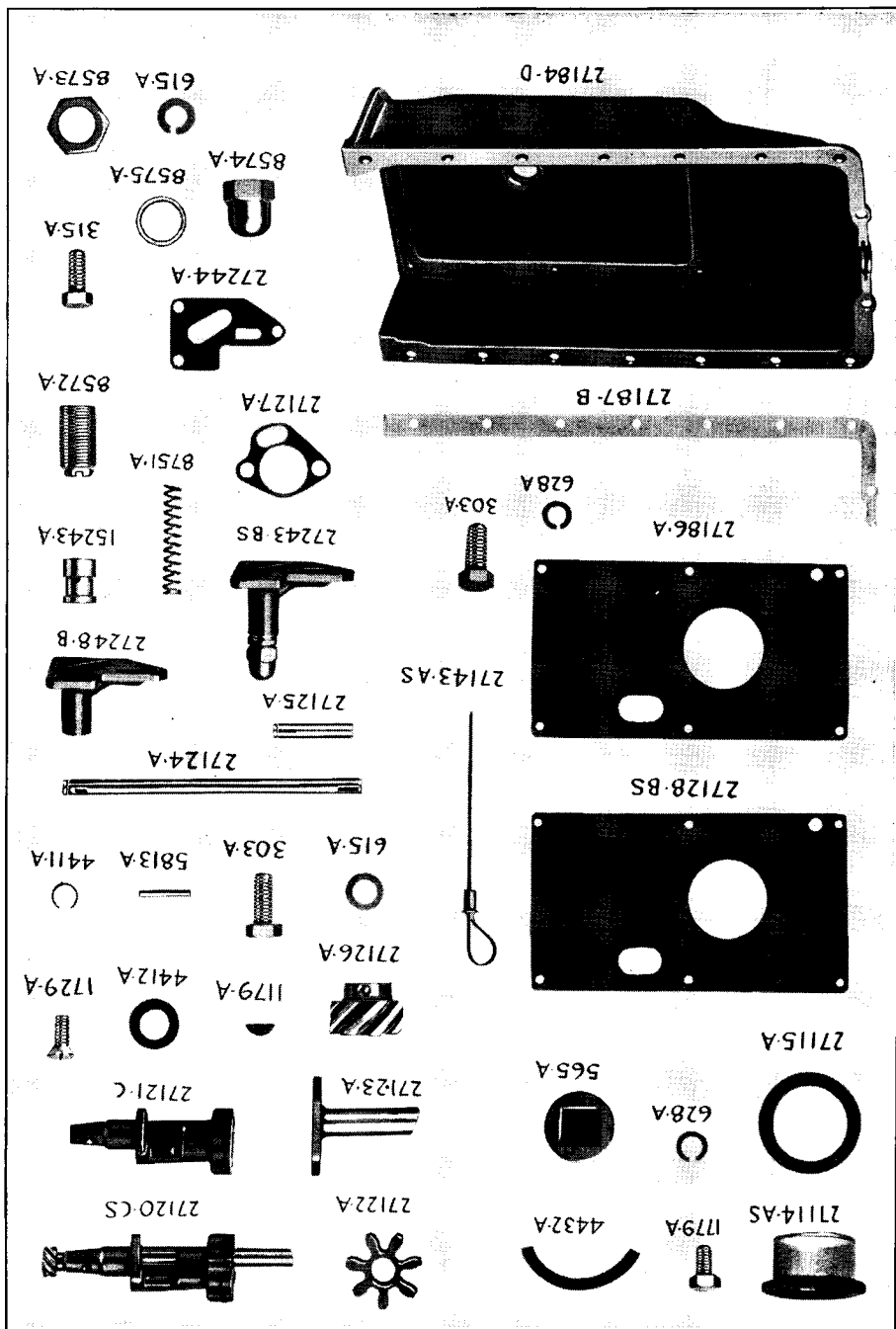


Plate No. 5

Oil Pan, Oil Pump, and Oil Pressure Regulator

ACCESSORY DRIVE (Continued)

Part No.	No. Req.	PART NAME	Plate No.
2165-A	1	*Accessory drive key.....	4
1864-A	2	Accessory drive attaching screw $\frac{3}{8}$ "x16x1"	4
682-A	1	Accessory drive attaching screw $\frac{3}{8}$ "x16x2 $\frac{3}{4}$ "	
342-A	3	Accessory drive attaching lockwasher.....	4

ACCESSORY DRIVE

NOTE: This accessory drive used with Wico magneto on thermo-syphon engines. Does not have distributor provision.

27258-BS	1	Accessory drive assembly (Includes same parts as 27266-BS assembly except as follows:)	4
27259-A	1	Accessory drive shaft (6 $\frac{5}{16}$ " long) replaces 27265-A.....	
1864-A	1	Accessory drive attaching screw ($\frac{3}{8}$ "-16x1") Replaces 682-A.....	4

ACCESSORY DRIVE

NOTE: This accessory drive used with Bosch MJC4 magneto on thermo-syphon engines. Does not have distributor provision.

27776-CS	1	Accessory drive assembly (Includes same parts as 27266-BS assembly except as follows:)	
28025-A	1	Accessory drive shaft (7 $\frac{17}{64}$ " long) replaces 27265-A.....	

ACCESSORY DRIVE

NOTE: This accessory drive used with Bosch MJC4 magneto on thermo-syphon engines and has distributor provision.

27774-BS	1	Accessory drive assembly (Includes same parts as 27266-BS assembly except as follows:)	
27775-A	1	Accessory drive shaft (7 $\frac{17}{64}$ " long) replaces 27265-A.....	
28028-C	1	Accessory drive sleeve—replaces 27261-B.....	
27743-A	1	Accessory drive bushing—replaces 27257-A.....	
27073-A	1	Accessory drive distributor drive gear.....	
1179-A	1	Accessory drive distributor drive gear key.....	4
23116-A	1	Accessory drive oil retainer.....	
315-A	2	Accessory drive attaching screw (replaces 1864-A).....	
4337-A	1	Accessory drive attaching screw (replaces 682-A).....	

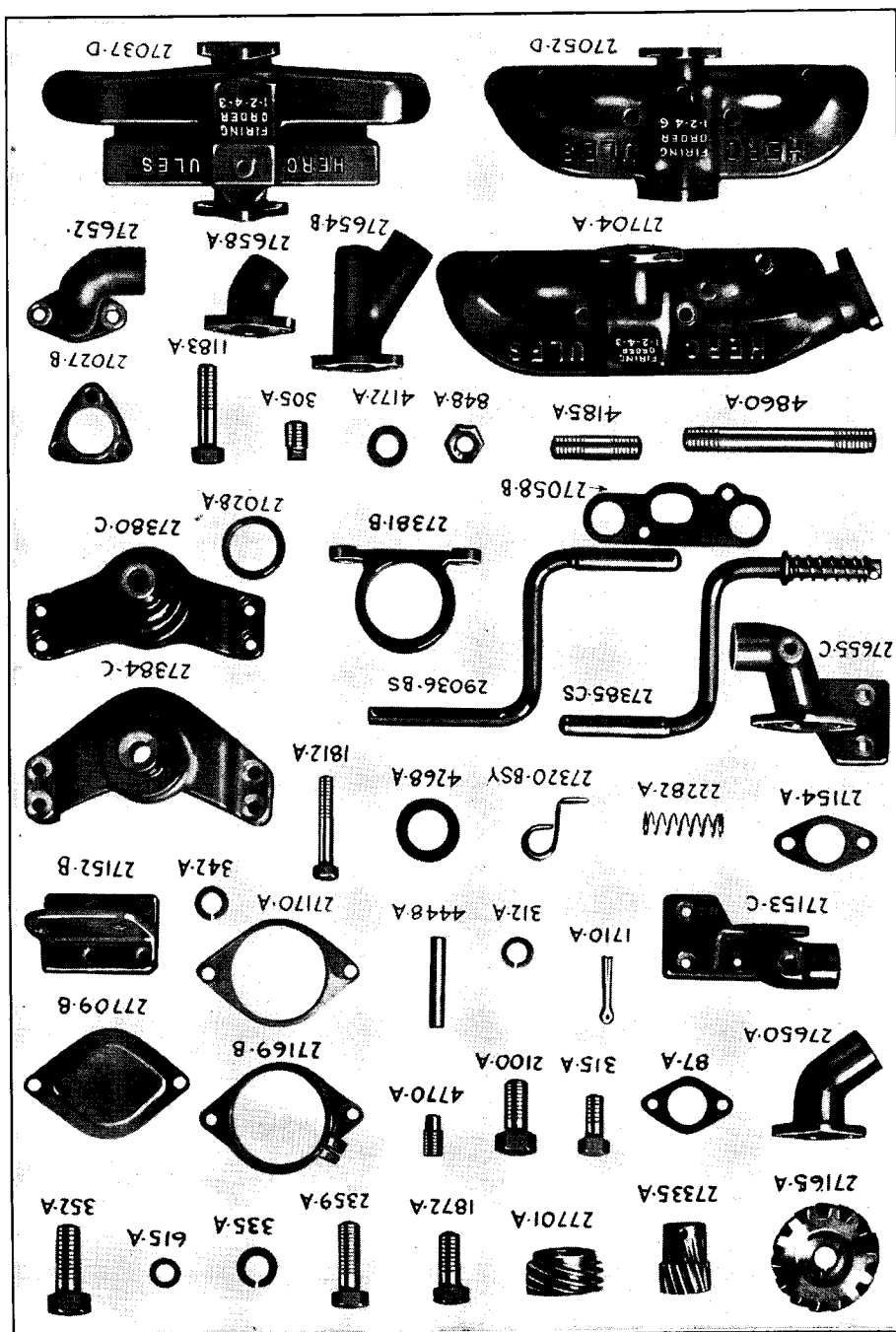
ACCESSORY DRIVE

NOTE: This accessory drive is used with distributor ignition on thermo-syphon engines and distributor is mounted 13° from vertical.

27267-BS	1	Accessory drive assembly (Includes following parts marked *).....	4
27268-B	1	*Accessory drive housing.....	4
27072-A	1	*Accessory drive shaft (4 $\frac{15}{16}$ " long).....	4
27257-A	1	*Accessory drive bushing.....	4
27195-B	1	*Accessory drive gear.....	4
4413-A	1	*Accessory drive gear key (No. 16 Woodruff).....	4
4024-A	1	*Accessory drive thrust washer.....	4
40068-A	1	*Accessory drive thrust plunger.....	4
27073-A	1	*Distributor driving gear (Takes place of 27701-A—Plate 4).....	
1179-A	1	*Distributor driving gear key.....	4
27076-A	1	*Accessory drive cover plate.....	4
85-A	1	*Accessory drive cover plate gasket.....	4
1779-A	4	*Accessory drive cover plate screw ($\frac{1}{4}$ "-20x $\frac{1}{2}$ ").....	4
628-A	4	*Accessory drive cover plate screw lockwasher.....	4
8051-A	1	*Accessory drive distributor clamp screw ($\frac{3}{8}$ "-16x1 $\frac{1}{8}$ ").....	4
4609-A	1	*Accessory drive distributor clamp screw nut ($\frac{3}{8}$ "-16").....	
1864-A	2	Accessory drive attaching screw ($\frac{3}{8}$ "-16x1").....	
682-A	1	Accessory drive attaching screw ($\frac{3}{8}$ "-16x2 $\frac{3}{4}$ ").....	
342-A	3	Accessory drive attaching screw lockwasher $\frac{3}{8}$ ".....	
27264-A	1	Accessory drive attaching gasket.....	

Give Engine Number with Each Parts Order

Plate No. 6



ACCESSORY DRIVE

Part No.	No. Req.	PART NAME	Plate No.
NOTE: This accessory drive is used with distributor ignition on marine engines and has no tachometer drive.			
27070-BS	1	Accessory drive assembly (Includes same parts as 27267-BS assembly except as follows:)	
27071-B	1	Accessory drive sleeve—replaces 27268-B	
NOTE: 27076-A cover plate not used on this assembly.			

ACCESSORY DRIVE

NOTE: This accessory drive is used with distributor ignition on marine engines and has a tachometer drive provision.			
27074-BS	1	Accessory drive assembly (Includes same parts as 27267-BS assembly except as follows:)	
27075-B	1	Accessory drive sleeve—replaces 27268-B	4

FAN DRIVE PARTS

22072-B	1	Fan pulley	
(Takes place of Part No. 22076-B—Plate No. 3)			
22071-A	1	Fan pulley pin	
(Takes place of Part No. 22074-A—Plate No. 3)			
5921-A	2	Fan pulley pin cotter	
4265-A	1	Fan pulley key	3
22283-A	1	Starting crank grab (Used when fan pulley is not used)	3

FLYWHEELS

Part numbers on flywheels are stamped on the rims. If flywheel is ordered be sure to give part number 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 of this size. Some of the more common are listed below.

27530-C	1	Flywheel No. 5—9" Borg & Beck	
27477-C	1	Flywheel, Kermath	
27479-C	1	Flywheel Rockford 9-R-R clutch No. 5	
27480-C	1	Flywheel No. 5	
27482-C	1	Flywheel No. 5 C-8 Twin Disc	
27483-C	1	Flywheel 12 S. P. Brown Lipe	
27484-C	1	Flywheel No. 5	
28462-C	1	Flywheel No. 5 Twin Disc C-6½	
28450-C	1	Flywheel No. 5 Twin Disc SL 7½ GT	
27490-C	1	Flywheel No. 5 Borg & Beck 9A1	
27520-C	1	Flywheel No. 5	
27493-C	1	Flywheel No. 5 Rockford No. 8	
27496-C	1	Flywheel No. 5 Rockford 9-C	
27498-C	1	Flywheel No. 4 Borg & Beck 10A1	
27502-C	1	Flywheel Special No. 4 Borg & Beck 10A1	
27503-C	1	Flywheel No. 4 Borg & Beck 10A1 or 10-RD	
27507-C	1	Flywheel No. 5 Borg & Beck 10A1	
27508-C	1	Flywheel No. 5 Twin Disc C-6½	
27511-C	1	Flywheel No. 5 Twin Disc C-10	
27515-C	1	Flywheel No. 3	
27516-C	1	Flywheel No. 5 Borg & Beck 9A1	
27517-C	1	Flywheel No. 5 Twin Disc C-8GT	
28457-C	1	Flywheel No. 5 Twin Disc C-6½	
28459-C	1	Flywheel No. 5 Borg & Beck 9A1	
28471-C	1	Flywheel—Special	
27474-C	1	Ring gear, 96 teeth	3
27476-C	1	Ring gear, 97 teeth	
27478-C	1	Ring gear, 97 teeth	
27487-C	1	Ring gear, 97 teeth	
27506-C	1	Ring gear, 112 teeth	
28470-C	1	Ring gear, 113 teeth	
27003-A	4	Flywheel bolt (7/16"x20x1½") Std.	3

Give Engine Number with Each Parts Order

FLYWHEELS (Continued)

Part No.	No. Req.	PART NAME	Plate No.
27481-A	4	Flywheel bolt ($\frac{7}{16}$ "x20x1 $\frac{13}{32}$ ")	
27514-A	4	Flywheel bolt ($\frac{7}{16}$ "x20x1 $\frac{13}{32}$ ")	
1707-A	2	Flywheel dowel	3
665-A	2	Flywheel dowel plug ($\frac{5}{8}$ ")	3
267-A	1	Flywheel bolt lockwire	2

BELLHOUSING

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

27426-D	1	Bellhousing No. 5 side pads	3
27427-D	1	Bellhousing S. A. E. No. 4—side pads	
27428-D	1	Bellhousing No. 4 S. A. E.	
27431-D	1	Bellhousing Marine type	
27442-D	1	Bellhousing No. 5 round	
27444-D	1	Bellhousing special	
27445-D	1	Bellhousing special	
27460-D	1	Bellhousing No. 5—Foot type	
29403-D	1	Bellhousing Special No. 5 S. A. E.	
29402-D	1	Bellhousing Special No. 4 S. A. E.	

Give Engine Number with Each Parts Order

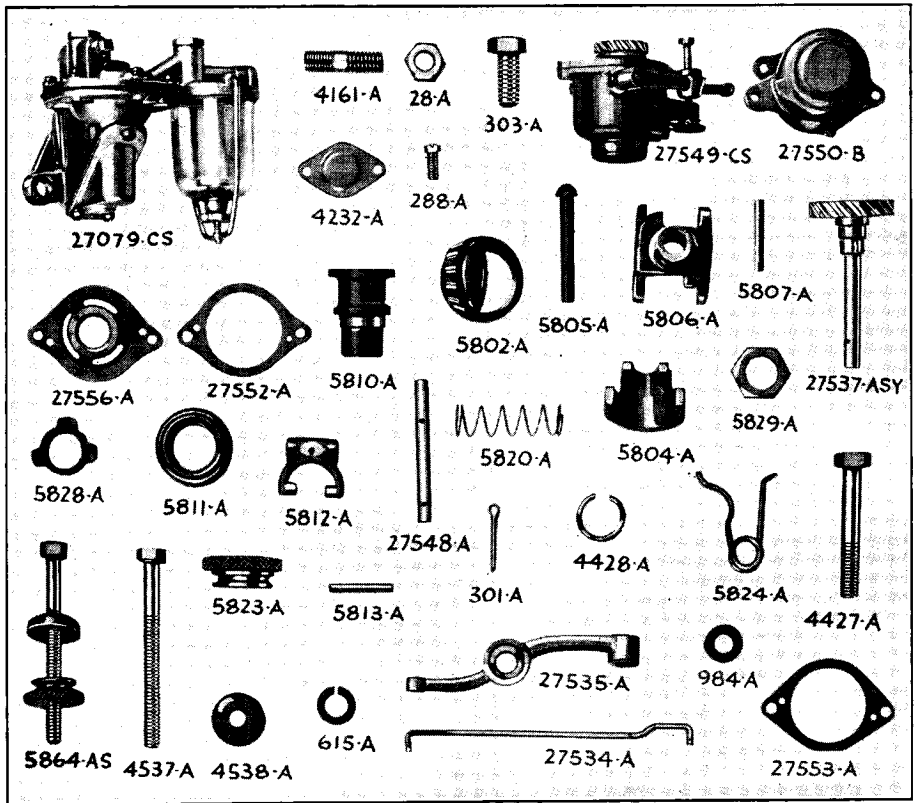


Plate No. 7
Fuel Pump and Governor Parts

BELLHOUSING (Continued)

Part No.	No. Req.	PART NAME	Plate No.
29080-D	1	Bellhousing S. A. E. No. 4 Aluminum.....	
29000-D	1	Bellhousing—Power Unit—No. 5.....	
29400-D	1	Bellhousing S. A. E. No. 4.....	
27437-D	1	Bellhousing S. A. E. No. 5 Round.....	
27425-D	1	Bellhousing—Special.....	
27447-D	1	Bellhousing—Special round.....	
62421-D	1	Bellhousing—Plate Type with feet.....	
62422-D	1	Bellhousing No. 5 Pad Type.....	
62427-D	1	Bellhousing No. 5 Special Pad Type.....	
27432-D	1	Bellhousing No. 5 Special Ventilated.....	
29406-D	1	Bellhousing No. 4.....	
27466-D	1	Bellhousing No. 3.....	
■ 27064-D	1	Bellhousing gasket.....	3
4423-A	7	Bellhousing to crankcase screw.....	3
315-A	3	Bellhousing to crankcase screw.....	3
342-A	10	Bellhousing screw lockwasher.....	3

OIL PAN—With cork type front seal

28084-D	1	Oil pan (Replaces 27184-D).....	
■ 27187-B	2	Oil pan gasket (Vellumoid).....	5
4318-A	16	Oil pan screw ($\frac{3}{16}$ "x $1\frac{1}{8}$ "x $\frac{5}{8}$ ").....	
615-A	16	Oil pan screw lockwasher ($\frac{3}{16}$ " S. A. E.).....	5
28080-CS	1	Oil pan baffle plate and strainer assembly (includes parts marked †) Replaces 28085-B listed below	
28081-B	1	†Oil pan strainer assembly.....	
27197-B	1	†Oil pan baffle plate.....	
14590-A	1	Oil pan baffle plate to oil pump felt washer (Used with oil pumps 27120 and 28370).....	
11022-A	1	Oil pan baffle to oil pump felt (Used with pumps 28360 and 28375)...	
14589-A	1	Oil pan baffle plate to oil pump steel washer.....	
The following three items are used only with oil pan 27184-D.			
28085-B	1	Oil pan baffle plate and strainer assembly (Includes parts marked *)	
27186-B	1	*Oil pan baffle plate.....	5
28086-A	1	*Strainer assembly.....	
1435-A	1	Oil pan strainer pipe plug ($\frac{3}{4}$ "x14) (Takes place of Part No. 565-A—Plate No. 5)	
1779-A	6	Oil pan baffle plate screw.....	5
628-A	6	Oil pan baffle plate lockwasher.....	5
■ 4982-A	1	Oil pan cork..... (Takes place of Part No. 4432-A—Plate No. 5)	

For oil pans equipped with oil strainer similar to 27114-AS shown in plate No. 5. The following felt ring must be ordered for service.

When the complete assembly is required order 28085-B listed above.

27115-AS	1	Oil pan strainer felt ring.....	
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OIL PAN— With flexible type front seal

28105-D	1	Oil pan.....	
■ 28107-B	2	Oil pan gasket.....	
4318-A	16	Oil pan screw— $\frac{3}{16}$ "—18x $\frac{5}{8}$ ".....	
615-A	16	Oil pan screw lock washer.....	
28080-CS	1	Oil pan strainer and baffle plate assembly (Includes parts marked †)	
28081-B	1	†Oil pan oil strainer screen.....	
27197-B	1	†Oil pan baffle plate.....	
1435-A	1	Oil pan pipe plug— $\frac{3}{4}$ ".....	
1779-A	6	Oil pan baffle plate screw— $\frac{1}{4}$ "—20x $\frac{1}{2}$ ".....	
628-A	6	Oil pan baffle plate screw lock washer.....	

OIL PAN—BASE TYPE—With cork type seal

28082-D	1	Oil pan.....	
27187-B	2	Oil pan gasket.....	

Give Engine Number with Each Parts Order

OIL PAN—BASE TYPE (Continued)

Part No.	No. Req.	PART NAME	Plate No.
78-A	14	Oil pan attaching screw $\frac{5}{16}$ "-18x $\frac{1}{8}$ "	
615-A	14	Oil pan attaching screw lockwasher	
27151-B	1	Oil pan cover plate	
27712-B	1	Oil pan cover plate gasket	
78-A	24	Oil pan cover plate attaching screw ($\frac{5}{16}$ "-18x $\frac{1}{8}$ ")	
2075-A	24	Oil pan cover plate attaching screw—copper washer	
14152-A	1	Oil pan pipe plug— $\frac{1}{2}$ " standard brass	
28077-AS	1	Oil pan bayonet gauge assembly	
4982-A	1	Oil pan cork seal	
5497-A	6	Oil pan to bellhousing screw $\frac{3}{8}$ "-16x $\frac{1}{4}$ "	
14058-A	2	Oil pan to bellhousing screw $\frac{3}{8}$ "-16x $\frac{1}{8}$ "	
28333-CS	1	Oil pump assembly (Including parts marked #)	
		(Same as 28375-CS pump except cover parts as follows:)	
27714-A	1	#Oil pump cover	
11365-A	2	#Oil pump cover screw $\frac{1}{4}$ "-20x $\frac{1}{8}$ "	
4604-A	2	#Oil pump cover screw $\frac{1}{4}$ "-20x $\frac{5}{8}$ "	
266-A	4	#Oil pump cover screw lockwire	
27718-AS	1	Oil strainer assembly	
27715-A	1	Oil strainer suction pipe	
15133-A	1	Oil strainer gasket	
43-A	2	Oil strainer attaching screw $\frac{5}{16}$ "-18x $\frac{1}{4}$ "	
615-A	2	Oil strainer attaching screw lockwasher $\frac{5}{8}$ "	

OIL PUMP

There are two types of oil pumps with respect to driving gears. The driving gears of the two types are the same except for the material. Oil pumps with steel driving gear 27126-A are to be used with engines having forged steel camshaft such as 27307-DS and 27305-DS shafts. Oil pumps with cast alloy driving gear 28371-A are to be used with engines having cast alloy camshaft such as 28973-DS shaft. See notes following description of each pump as well as those following description of each camshaft.

There are also two types of oil pumps with respect to pumping gears. Engines up to No. 673122 and some engines after this number used an oil pump having pumping gears $\frac{5}{8}$ " long while engines numbered higher than 673122 with some exceptions were equipped with an oil pump having pumping gears 1" long. The latest type pump either 28260-CS or 28375-CS can be used as an assembly on any standard IX-5 engine to replace early type pump by making certain minor changes. See notes under each type pump. All detail parts of the early type pumps are listed so individual parts can be ordered for repairs.

In an emergency any of the oil pumps as an assembly can be used on any standard IX engine as a temporary repair until the proper pump can be obtained.

27120-CS	1	Oil pump assembly (Includes parts marked *)	5
		This pump has steel drive gear and is used with camshafts 27307-D and 27305-D. Pumping gears are $\frac{5}{8}$ " long.	
27121-C	1	*Oil pump body	5
27123-A	1	*Oil pump cover	5
4411-A	2	*Oil pump snap ring	5
1729-A	4	*Oil pump cover screw	5
27122-A	2	*Oil pump gears— $\frac{5}{8}$ " long	5
27124-A	1	*Oil pump shaft—6 $\frac{3}{32}$ " long	5
■ 27126-A	1	*Oil pump drive gear	5
4412-A	1	*Oil pump drive gear thrust washer	5
5813-A	1	*Oil pump drive gear pin	5
1179-A	3	*Oil pump gear key (No. 2 Woodruff)	5
27125-A	1	*Oil pump idler shaft—1 $\frac{1}{8}$ " long	5
27127-A	1	Oil pump body attaching gasket (Vellumoid)	5
303-A	2	Oil pump body attaching screw	5
615-A	2	Oil pump body attaching screw lockwasher	5

Give Engine Number with Each Parts Order

OIL PUMP

Part No.	No. Req.	PART NAME	Plate No.
28370-CS	1	Oil pump assembly. This pump has cast alloy drive gear and is used with 28973-DS camshaft. Includes same parts as 27120-CS pump except as follows:-----	
28371-A	1	Oil pump drive gear—cast alloy (replaces 27126-A)-----	
OIL PUMP (Large Capacity Pump)			
28260-CS	1	Oil pump assembly. This pump has steel drive gear and is used with camshafts 27307-DS and 27305-DS. Pumping gears are 1" long. Includes the following parts marked *. Can be used to replace 27120-CS pump by using additional parts marked ‡-----	
28261-C	1	*Oil pump body-----	
28265-A	1	*Oil pump cover-----	
1729-A	4	*Oil pump cover screw— $\frac{1}{4}$ "-20x $\frac{5}{8}$ " flat head-----	
4411-A	2	*Oil pump snap ring-----	
28262-A	1	*Oil pump drive shaft—7 $\frac{3}{32}$ " long-----	
27126-A	1	*Oil pump drive gear-----	
4412-A	1	*Oil pump drive gear washer-----	
5813-A	1	*Oil pump drive gear pin-----	
1179-A	3	*Oil pump gear keys—No. 2 Woodruff-----	
28264-A	2	*Oil pump gears—1" long-----	
28263-A	1	*Oil pump idler shaft—2 $\frac{1}{8}$ " long-----	
11022-A	1	‡Oil pump to baffle felt washer-----	
14589-A	1	Oil pump to baffle plate washer-----	
11017-A	1	‡Main bearing cap screw—thin head-----	

OIL PUMP

(First used on engine No. 673122, however some engines with higher numbers have earlier type pumps).

28375-CS	1	Oil pump assembly. This pump has cast alloy drive gear and is used with camshaft 28973-DS. Has pumping gears 1" long and includes same parts as 28260-CS pump except as follows. Can be used to replace 28370-CS pump by using additional parts marked ‡-----	
28371-A	1	Oil pump drive gear—cast alloy (replaces 27126-A)-----	
11022-A	1	‡Oil pump to baffle felt washer-----	
11017-A	1	‡Main bearing cap screw—thin head-----	

OIL PRESSURE REGULATOR

27243-B	1	Oil pressure regulating assembly (Includes parts marked *) (Used with blocks 27001 and 27100)-----	5
27248-B	1	*Oil pressure regulating body (Used with blocks 27001 and 27100)-----	5
27244-A	1	*Oil pressure regulating body gasket (Used with blocks 27001 and 27100)-----	5
15243-A	1	*Oil pressure regulating piston-----	5
27417-A	1	*Oil pressure regulating spring-----	
8572-A	1	*Oil pressure regulating adjusting screw-----	5
8574-A	1	*Oil pressure regulating cap nut-----	5
8575-A	2	*Oil pressure regulating nut gasket-----	5
8573-A	1	*Oil pressure regulating adjusting nut-----	5
315-A	3	Oil pressure regulating attaching screw (Used with blocks 27001 and 27100)-----	5
342-A	3	Oil pressure regulating attaching lockwasher (Used with blocks 27001 and 27100)-----	4

MANIFOLD

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.

27683-D	1	Exhaust and intake manifold (Center outlet $\frac{5}{8}$ ")-----	
27704-D	1	Exhaust and intake manifold (Rear outlet) $\frac{1}{8}$ " S.A.E. (1" flange)-----	
28809-D	1	Exhaust and intake manifold 1" Center outlet-----	

Give Engine Number with Each Parts Order

MANIFOLD (Continued)

Part No.	No. Req.	PART NAME	Plate No.
27052-D	1	Exhaust and intake manifold (Center outlet) 1".....	6
28801-D	1	Exhaust and intake manifold 1" Rear straight outlet.....	
27686-D	1	Exhaust and intake manifold 1" downdraft rear outlet.....	
27745-C	1	Exhaust and intake manifold 1" center outlet.....	
27702-C	1	Exhaust and intake manifold 1" center outlet.....	
27746-C	1	Exhaust and intake manifold 1" center outlet.....	
27817-C	1	Exhaust and intake manifold 1" center outlet for automatic choke....	
27816-D	1	Exhaust and intake manifold 1 1/4" downdraft center outlet.....	
27818-C	1	Exhaust and intake manifold 1 1/4" center outlet.....	
27819-C	1	Exhaust and intake manifold 1" special center outlet.....	
27820-C	1	Exhaust and intake manifold 1" center outlet 1 1/2" tap for muffler....	
27821-C	1	Exhaust and intake manifold 7/8" center outlet.....	
27688-D	1	Exhaust and intake manifold 1" rear outlet.....	
28803-D	1	Exhaust and intake manifold 1" Center outlet.....	
■ 27799-B	2	Exhaust and intake manifold gasket.....	
		(Takes place of Part No. 27058—Plate No. 6)	
4860-A	2	Exhaust and intake manifold stud, long.....	6
4185-A	2	Exhaust and intake manifold stud, short.....	6
848-A	4	Exhaust and intake manifold stud nut (1/16"x20).....	6
4172-A	4	Exhaust and intake manifold stud washer.....	6
305-A	1	Exhaust and intake manifold pipe plug.....	6
27027-B	1	Companion flange (Std.).....	6
■ 27028-A	1	Companion flange gasket (Std. copper asbestos).....	6
1865-A	3	Companion flange screw (3/8"x16x1 1/2").....	
		(Takes place of Part No. 1183-A—Plate No. 6)	

DISTRIBUTOR GEAR

Number is stamped on Gear.

27073-A	1	Distributor driving gear keyed on pump or accessory shaft.....	
		(Takes place of Part No. 27701-A—Plate No. 6)	
27335-A	1	Distributor driven gear .136" pin hole, standard.....	6
27336-A	1	Distributor driven gear .199" pin hole, special.....	

GENERATOR GEAR & COVER

■ 27165-B	1	Generator gear (Short) used with combine governor.....	6
■ 27172-B	1	Generator gear (When no combine governor is used).....	
27709-A	1	Generator opening cover.....	6
■ 27173-A	1	Generator opening cover gasket 1/16" cork.....	6
		(Takes place of Part No. 27170-A—Plate No. 6)	
4889-A	2	Generator opening cover attaching screw.....	
4732-A	2	Generator opening cover attaching screw lockwasher.....	6
		(Takes place of Part No. 335-A—Plate No. 6)	

GENERATOR BRACKET

27169-B	1	Generator bracket with pilot—Standard type.....	6
1872-A	2	Generator bracket attaching screw.....	6
335-A	2	Generator bracket attaching screw lockwasher.....	6
■ 27170-A	1	Generator bracket attaching gasket.....	6
2359-A	1	Generator bracket clamp screw.....	6
615-A	1	Generator bracket clamp screw lockwasher.....	6
4770-A	1	Generator locating screw.....	6
3337-A	1	Generator bracket cork gasket.....	
27167-B	1	Generator bracket—No pilot—First type.....	
27168-A	1	Generator bracket gasket for 27167-B.....	

MAGNETO EQUIPMENT

28534-B	1	Magneto bracket and thermosyphon cover.....	
27152-B	1	Magneto bracket.....	6
352-A	2	Magneto bracket screw (1/2"x13x1 1/4" long).....	6
312-A	2	Magneto bracket screw lockwasher (1/2" S.A.E.).....	6
27153-C	1	Magneto bracket and thermosyphon pipe.....	6
352-A	2	Magneto bracket and thermosyphon pipe screw.....	6

Give Engine Number with Each Parts Order

MAGNETO EQUIPMENT (Continued)

Part No.	No. Req.	PART NAME	Plate No.
312-A	2	Magneto bracket and thermosyphon pipe lockwasher.....	6
27154-A	1	Magneto bracket and thermosyphon pipe gasket, old style..... (Also see Water Inlet Pipes)	6
■ 4931-A	1	Magneto bracket and thermo syphon pipe gasket, latest type.....	
620-A	1	Magneto bracket and thermosyphon pipe plug $\frac{1}{4}$ ".....	

CABLE BRACKET

27320-A	1	Cable bracket.....	6
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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.

27650-A	1	Water outlet pipe (Standard).....	6
27654-B	1	Water outlet pipe.....	6
27658-A	1	Water outlet pipe.....	6
27680-B	1	Water outlet pipe.....	
27665-B	1	Water outlet pipe— 35° — $4\frac{1}{2}$ " high with $\frac{3}{4}$ " pipe tapped hole for thermometer.....	
27666-B	1	Water outlet pipe, special, $1\frac{3}{4}$ " O. D.....	
27682-B	1	Water outlet pipe, special, 6" high, 2" O. D.....	
28195-B	1	Water outlet pipe— 55° — $3\frac{3}{4}$ " high— $1\frac{3}{4}$ " O. D.— $1\frac{1}{16}$ " I. D.....	
■ 14224-A	1	Water outlet pipe gasket..... (Takes place of Part No. 87-A—Plate No. 6)	
1864-A	2	Water outlet pipe attaching screw.....	4
342-A	2	Water outlet pipe attaching screw lockwasher.....	4

WATER INLET PIPES (Thermosyphon)

On engines up to number 400263 the water inlet pipe attaching screw holes are on the center line of the water pipe; on all engines after this number, except for a few marine engines, the attaching screw holes are $\frac{1}{8}$ " above the center line of the water pipe. The old style water pipe uses gasket number 27154-A while the new style water pipe uses gasket number 4931-A. The water pipes are interchangeable BUT THE GASKETS ARE NOT INTERCHANGEABLE and must be ordered for either the old style of the new style block.

27652-B	1	Inlet pipe—Thermosyphon.....	6
■ 4931-A	1	Attaching gasket ($\frac{1}{32}$ " Vellumoid) new style.....	
2100-A	2	Attaching screw.....	6
312-A	2	Attaching screw lockwasher ($\frac{1}{2}$ " S.A.E.).....	6
27153-C	1	Thermosyphon pipe and magneto bracket.....	6
27660-C	1	Thermosyphon pipe and magneto bracket.....	
27671-C	1	Thermosyphon and magneto bracket (aluminum).....	
27155-C	1	Thermosyphon pipe and magneto bracket.....	
4931-A	1	Thermosyphon pipe and magneto bracket gasket, new style.....	
352-A	2	Thermosyphon pipe and magneto bracket screw.....	6
312-A	2	Thermosyphon pipe and magneto bracket lockwasher.....	6
27154-A	1	Thermosyphon pipe and magneto bracket gasket, old style.....	6
27655-C	1	Magneto bracket and water pipe.....	6
27681-C	1	Magneto bracket and water inlet pipe—Special rear outlet.....	
620-A	1	Magneto bracket and water pipe plug.....	
28194-B	1	Water inlet pipe—6" overall, $1\frac{3}{4}$ " O. D. — $1\frac{1}{16}$ " I. D.....	

WATER INLET PIPES (Water Pump)

(Read notes pages 23 and 24 before ordering)

27675-B	1	Water pump inlet pipe— $8\frac{7}{8}$ " long— $1\frac{3}{4}$ " O. D.....	
27679-A	1	Water pump inlet pipe $1\frac{1}{4}$ " diameter.....	

Give Engine Number with Each Parts Order

WATER INLET PIPES (Water Pump) (Continued)

Part No.	No. Req.	PART NAME	Plate No.
27653-A	1	Water pump inlet pipe $1\frac{1}{4}$ " diameter.....	
86-A	1	Water pump inlet pipe gasket.....	
2359-A	2	Water pump inlet pipe screw.....	7
615-A	2	Water pump inlet pipe screw lockwasher.....	7

THERMO-SYPHON INLET COVER

When a water pump is used the thermo-syphon inlet hole is covered in the old style engines up to engine number 400263 and a few later engines by means of a cast iron cover plate and on all engines after 400263 except for a few engines by means of an expansion plug $1\frac{7}{8}$ " in diameter.

27041-A	1	Thermosyphon inlet cover plate.....	
7078-A	1	Thermosyphon inlet cover plate gasket.....	
4123-A	2	Thermosyphon inlet cover plate screws.....	
312-A	2	Thermosyphon inlet cover plate lockwashers.....	
8-A	1	Thermosyphon inlet cover plate drain cock.....	
4934-A	1	Expansion plug $1\frac{7}{8}$ " diameter.....	
28534-B	1	Magneto bracket and thermosyphon cover.....	
4931-A	1	Magneto bracket and thermosyphon cover gasket.....	
352-A	2	Magneto bracket and thermosyphon cover screw.....	
312-A	2	Magneto bracket and thermosyphon cover lockwasher.....	

WATER PUMP

THIS PUMP IS USED WITH MAGNETO OR DISTRIBUTOR AND NEW STYLE BLOCK.

27162-DS	1	*Water pump assembly (Includes parts marked *).....	
27744-D	1	*Water pump body.....	
27738-C	1	*Water pump cover.....	
27753-A	1	*Water pump cover gasket $\frac{1}{32}$ " Vellumoid.....	
303-A	3	*Water pump cover screw $\frac{5}{16}$ " x $1\frac{1}{2}$ " x $\frac{3}{4}$ ".....	
615-A	3	*Water pump cover lockwasher $\frac{5}{16}$ " S.A.E.....	
27739-A	1	*Water pump impeller.....	
4199-A	1	*Water pump impeller key.....	
27754-A	1	*Water pump impeller rivet $\frac{3}{16}$ " x $1\frac{1}{8}$ " long.....	
27740-B	1	*Water pump shaft.....	
27743-A	1	*Water pump shaft bushing.....	
27752-A	1	*Water pump packing.....	
27751-A	2	*Water pump packing gland.....	
27747-A	1	*Water pump packing nut R. H.....	
27748-A	1	*Water pump packing nut L. H.....	
27750-A	1	*Water pump packing bushing L. H.....	
27749-A	1	*Water pump packing bushing R. H.....	
27195-A	1	*Water pump drive gear.....	
4413-A	1	*Water pump drive gear key.....	
27073-A	1	*Water pump distributor gear (Driving).....	
1179-A	1	*Water pump distributor gear key.....	
40068-A	1	*Water pump thrust button.....	
4024-A	1	*Water pump thrust washer.....	
4661-A	1	*Water pump cork washer.....	
23116-A	1	*Water pump cork retainer.....	
8-A	1	Cylinder expansion plug drain plug.....	
4934-A	1	Cylinder expansion plug ($1\frac{7}{8}$ " used in cyl. blocks 27001 and 27100).....	
11052-A	1	Cylinder cup plug ($1\frac{1}{4}$ " used in blocks 28366 and 28367).....	
14387-A	1	Water pump attaching stud $\frac{3}{8}$ " x $2\frac{1}{2}$ " long.....	
752-A	1	Water pump attaching stud nut $\frac{3}{8}$ " x 24.....	
315-A	2	Water pump attaching screw $\frac{3}{8}$ " x $1\frac{1}{2}$ " x $\frac{7}{8}$ ".....	
342-A	3	Water pump attaching lockwasher $\frac{3}{8}$ " S.A.E.....	
27664-A	1	Water pump outlet pipe.....	
4888-A	1	Water pump outlet pipe hose.....	
1774-A	2	Water pump outlet pipe hose clamp.....	
86-A	1	Water pump outlet pipe gasket.....	

Give Engine Number with Each Parts Order

WATER PUMP (Continued)

Part No.	No. Req.	PART NAME	Plate No.
2359-A	2	Water pump outlet pipe screw $\frac{5}{16}$ "x18x1"	
615-A	2	Water pump outlet pipe screw lockwasher $\frac{5}{16}$ " S.A.E.	
■ 27264-A	1	Water pump attaching gasket	
8079-A	1	Water pump distributor hole plug	
8051-A	1	Water pump distributor hole plug screw	
300-A	1	Water pump distributor hole plug screw nut	

WATER PUMP

(Packless Type with Cork Seal)

THIS PUMP IS USED WITH MAGNETO OR DISTRIBUTOR AND NEW STYLE BLOCK.

NOTE: Correct position of seal parts relative to pump body is indicated by bold number following seal name.

27163-CS	1	Water pump assembly (Includes parts marked *)	
27744-C	1	*Water pump body	
28165-A	1	*Water pump body bearing	
27738-C	1	*Water pump cover	
■ 27753-A	1	*Water pump cover gasket	
28164-A	1	*Water pump cover bearing	
303-A	3	*Water pump cover screw $\frac{5}{16}$ "x18x $\frac{3}{4}$ "	
615-A	3	*Water pump cover screw lockwasher $\frac{5}{16}$ " S.A.E.	
28160-B	1	*Water pump shaft	
27743-A	1	*Water pump shaft bushing	
27739-A	1	*Water pump impeller	
4199-A	1	*Water pump impeller key	
27754-A	1	*Water pump impeller rivet $\frac{5}{16}$ "x1 $\frac{3}{8}$ "	
■ 27195-B	1	*Water pump gear	
4413-A	1	*Water pump gear key	
40068-A	1	*Water pump thrust button	
4024-A	1	*Water pump thrust washer	
23116-A	1	*Water pump cork washer retainer	
4661-A	1	*Water pump cork washer	
28161-A	2	*Water pump seal cup (6)	
14511-A	2	*Water pump seal cup pin $\frac{1}{8}$ "x1" (7)	

The following seal parts should be replaced by the latest design, when ordering, order seal assembly number 40684-AS listed under Water Pump Assembly 28179-CS.

28162-A	2	*Water pump seal cup spring (5)	
28163-A	2	*Water pump seal cup spring retainer (4)	
28166-A	2	*Water pump seal black carbon washer (1)	
28168-A	2	*Water pump seal fiber washer (2)	
28169-A	2	*Water pump seal cork washer (3)	
■ 27073-A	1	*Water pump distributor drive gear	
1179-A	1	*Water pump distributor drive gear key	

NOTE: Attaching parts and outlet pipe parts are listed under 27162-AS.

WATER PUMP

(Packless Type with Rubber Seal)

THIS PUMP IS USED WITH MAGNETO OR DISTRIBUTOR AND NEW STYLE BLOCK.

NOTE: Correct position of seal parts relative to pump body is indicated by large number following seal part name.

27164-CS	1	Water pump assembly	
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NOTE: This water pump includes the same parts as 27163-CS assembly except the seal parts which are listed below for record only. When repairing this pump the seal parts should be replaced by the latest type parts. Order seal assembly 40684-AS listed under 28179-CS assembly.

Give Engine Number with Each Parts Order

WATER PUMP (Continued)

Part No.	No. Req.	PART NAME	Plate No.
28175-AS	2	*Water pump seal assembly (Includes parts marked †).....	
28161-A	2	†Water pump seal cup (7).....	
28162-A	2	†Water pump seal spring (6).....	
28174-A	2	†Water pump seal bronze washer (2).....	
28172-A	2	†Water pump seal rubber seal (3).....	
28173-A	2	†Water pump seal carbon washer (1).....	
28171-A	2	†Water pump seal clamp ring (5).....	
28170-A	2	†Water pump spring guide (4).....	

NOTE: Attaching parts and outlet pipe parts are listed under 27162-AS.

WATER PUMP

(Latest Packless Type with Flexible Seal)

THIS PUMP IS USED WITH MAGNETO OR DISTRIBUTOR AND NEW STYLE BLOCK.

NOTE: Correct position of seal parts relative to pump body is indicated by large number following seal part name.

The complete seal assembly No. 40684-AS should be used when replacing any seal parts on pump assemblies No. 27163-CS and No. 27164-CS.

28179-CS	1	Water pump assembly (Includes parts marked *).....	
28268-CS	1	*Water pump body assembly (Includes parts marked **)	
28180-CS	1	**Water pump body.....	
28182-A	1	*Water pump body bushing.....	
28181-C	1	*Water pump cradle.....	
■ 27753-A	1	*Water pump body gasket.....	
28183-A	1	**Water pump body bearing.....	
4318-A	4	*Water pump body screw $\frac{5}{16}$ "-18x $\frac{5}{8}$ ".....	
615-A	4	*Water pump body lockwasher.....	
28160-B	1	*Water pump shaft.....	
27743-A	1	*Water pump shaft bushing.....	
27739-A	1	*Water pump impeller.....	
3310-A	1	*Water pump impeller key.....	
26174-A	1	*Water pump impeller pin.....	
27195-B	1	*Water pump gear.....	
4413-A	1	*Water pump gear key.....	
40068-A	1	*Water pump thrust button.....	
4024-A	1	*Water pump thrust washer.....	
23116-A	1	*Water pump cork washer retainer.....	
4661-A	1	*Water pump cork washer.....	
■ 40684-AS	2	*Water pump seal assembly (Includes parts marked †).....	
28178-A	2	†Water pump seal cup (6).....	
28162-A	2	†Water pump seal spring (5).....	
40685-A	2	†Water pump seal spring guide (4).....	
40686-A	2	†Water pump seal clamp ring (3).....	
28177-A	2	†Water pump seal carbon washer (1).....	
40687-A	2	†Water pump flexible seal (2).....	
14511-A	2	*Water pump seal cup pin (7).....	
■ 27073-A	1	*Water pump distributor drive gear.....	
1179-A	1	*Water pump distributor drive gear key.....	

NOTE: Attaching parts and outlet pipe parts are listed under 27162-AS.

STARTING CRANK

27385-CS	1	Starting crank assembly (Including all parts marked *).....	6
29036-BS	1	*Starting crank.....	6
22282-A	1	*Starting crank spring.....	6
4268-A	1	*Starting crank washer ($\frac{1}{8}$ "x1 $\frac{1}{4}$ ").....	6
1710-A	1	*Starting crank washer pin ($\frac{1}{16}$ "x1").....	6
4448-A	1	*Starting crank pin ($\frac{5}{16}$ "x1 $\frac{13}{16}$ ").....	6

Give Engine Number with Each Parts Order

FRONT SUPPORT

Part No.	No. Req.	PART NAME	Plate No.
27384-C	1	Front support (Used with starting crank assy. 27385-CS).....	6
4868-A	4	Front support screw for support 27384-C.....	
335-A	4	Front support screw lockwasher.....	6
27381-B	1	Front support bracket.....	6
1872-A	4	Front support screw.....	6
335-A	4	Front support screw lockwasher.....	6

STARTING CRANK (Short Type)

27379-CS	1	Starting crank assembly (Including all parts marked *).....	
27382-B	1	*Starting crank.....	
22282-A	1	*Starting crank spring.....	6
4268-A	1	*Starting crank washer ($\frac{1}{8}$ " x $1\frac{1}{4}$ ").....	6
1710-A	1	*Starting crank washer pin ($\frac{1}{8}$ " x 1").....	6
4448-A	1	*Starting crank pin ($\frac{3}{16}$ " x $1\frac{1}{16}$ ").....	6

FRONT SUPPORT

27380-C	1	Front support (Used with starting crank assy. 27379-CS).....	6
27381-B	1	Front support bracket.....	6
1872-A	4	Front support screw ($\frac{1}{16}$ " x $1\frac{1}{4}$ " x 1").....	6
335-A	4	Front support screw lockwasher ($\frac{1}{16}$ " S.A.E.).....	6

STARTER ATTACHING PARTS

For starting motor with cast iron attaching flange:

1864-A	3	Starter attaching screw.....	
342-A	3	Starter attaching lock washer.....	

For starting motor with pressed steel attaching flange:

4072-A	3	Starter attaching screw.....	
342-A	3	Starter attaching lockwasher.....	

FAN ASSEMBLIES AND BELTS

There is such a wide variety of fan assemblies used 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.

27276-CS	1	Fan assembly, 15" dia. blade, bracket $4\frac{1}{2}$ " high.....	
28277-CS	1	Fan assembly, 17" dia. 6 blade.....	
27281-CS	1	Fan assembly, 15" dia. blade, "V" pulley, bracket $7\frac{3}{4}$ " high.....	
27837-CS	1	Fan assembly, 15" dia. 6 blade, "V" pulley, bracket $4\frac{1}{2}$ " high.....	
27841-CS	1	Fan assembly, 16" dia. blade, "V" pulley, bracket $10\frac{1}{2}$ " high.....	
28281-CS	1	Fan assembly, 15" dia. blade, bracket $4\frac{1}{2}$ " high—blower type.....	
28282-CS	1	Fan assembly, 17" dia. blade, bracket $3\frac{1}{2}$ " high—mounted on bell housing.....	
352-A	2	Fan attaching screw ($\frac{1}{2}$ " x $1\frac{1}{2}$ " x $1\frac{1}{4}$ ").....	
312-A	2	Fan attaching screw lockwasher.....	
27277-A	1	Fan belt, $36\frac{1}{2}$ " outside circumference, "V" type.....	
27283-A	1	Fan belt, $45\frac{23}{32}$ " outside circumference, "V" type.....	
28292-A	1	Fan belt, 35" outside circumference, "V" type (Replaces 27278).....	

FUEL PUMP

27968-CS	1	Fuel pump—Std.....	
27081-CS	1	Fuel pump.....	
27079-CS	1	Fuel pump.....	7
5313-A	2	Fuel pump reducing bushing $\frac{1}{4}$ "— $\frac{1}{8}$ ".....	
303-A	2	Fuel pump screw.....	7
615-A	2	Fuel pump lockwasher.....	7
■ 22564-A	1	Fuel pump gasket.....	1
		When fuel pump is not used:	
4879-A	1	Fuel pump cover plate.....	1
1048-A	2	Fuel pump cover plate screw.....	1

(Takes place of Part No. 303-A—Plate No. 1)

Give Engine Number with Each Parts Order

FUEL PUMP (Continued)

Part No.	No. Req.	PART NAME	Plate No.
615-A	2	Fuel pump cover plate lockwasher.....	1
■ 22564-A	1	Fuel pump gasket.....	1

OIL FILTRATOR

This oil filtrator is the full flow type mounted in place of oil pressure regulator on accessory side near front. Suitable for engines having cylinder blocks like 27001-E and 27100-E. Cannot be used on engines having cylinder blocks like 28366-E and 28367-E.

27240-CS	1	Oil filtrator (Includes parts marked †).....	
■ 27255-A	1	Oil filtrator attaching gasket.....	
1864-A	1	Oil filtrator attaching screw $\frac{3}{8}$ " x $1\frac{1}{2}$ " long.....	
4992-A	1	Oil filtrator attaching stud $\frac{3}{8}$ " x $2\frac{1}{8}$ " long.....	
752-A	1	Oil filtrator attaching stud nut $\frac{3}{8}$ " x 24.....	
1865-A	1	Oil filtrator attaching screw $\frac{3}{8}$ " x $1\frac{1}{2}$ " long.....	
342-A	3	Oil filtrator attaching screw lockwasher $\frac{3}{8}$ " S.A.E.....	
27246-A	1	†Oil filtrator shell.....	
■ 27249-A	1	†Oil filtrator shell gasket.....	
2447-A	1	†Oil filtrator clean-out fitting.....	
2448-A	1	†Oil filtrator clean-out fitting gasket.....	
2449-A	1	†Oil filtrator clean-out fitting cap.....	
2450-A	1	†Oil filtrator clean-out fitting cap gasket.....	
■ 27252-BS	1	†Slug assembly (Includes items marked *).....	
4969-A	12	*Felt washers.....	
4970-A	1	*Felt retaining washer—Upper.....	
27254-A	1	*Felt retaining washer—Lower.....	
27253-A	1	*Outlet tube.....	
2408-A	1	*Cork washer.....	
2409-A	1	*Cork retaining washer.....	
2411-A	1	*Retaining nut.....	
4971-A	1	*Spacer coil.....	
2410-A	1	*Compression spring.....	
2412-A	1	*Check valve nut.....	
2413-A	1	*Check valve ball.....	
2415-A	1	*Check valve rivet.....	
7344-A	1	*Check valve spring.....	
27245-BS	1	†Base (Includes inlet tube).....	
8578-A	1	†Differential valve plug.....	
8575-A	1	†Differential valve plug gasket.....	5
8577-A	1	†Differential valve spring.....	
27250-A	1	†Differential valve ball.....	
8579-A	1	†Drain plug.....	
■ 8575-A	1	†Drain plug gasket.....	5
■ 8575-A	2	†Pressure regulating valve gasket.....	5
8571-A	1	†Pressure regulating valve spring.....	
15243-A	1	†Pressure regulating valve plunger.....	5
8572-A	1	†Pressure regulating valve adjusting screw.....	5
8573-A	1	†Pressure regulating valve lock nut.....	5
8574-A	1	†Pressure regulating valve cap nut.....	5

OIL FILTRATOR - DELUXE

NOTE: This oil filtrator is the partial flow type mounted on a bracket and is connected by outside oil lines. Suitable for engines having cylinder blocks like 28366-E and 28367-E.

28752-B	1	Oil filtrator support bracket.....	
28751-BS	1	Oil filtrator assembly.....	
28794-B	1	Oil filtrator cartridge.....	
28254-AS	1	Oil filtrator inlet tube assembly (Includes parts marked *).....	
11024-A	2	*Oil filtrator inlet tube nut.....	
11025-A	2	*Oil filtrator inlet tube packing.....	
28255-B	1	Oil filtrator outlet tube assembly (Includes parts marked **).....	

Give Engine Number with Each Parts Order

OIL FILTRATOR - DELUXE (Continued)

Part No.	No. Req.	PART NAME	Plate No.
11024-A	2	**Oil filtrator outlet tube nut.....	
11025-A	2	**Oil filtrator outlet tube packing.....	
11026-A	3	Elbow for inlet and outlet tubes.....	
11027-A	1	Union for inlet tube.....	
14670-A	1	Oil filtrator attaching tee.....	
4131-A	1	Oil filtrator attaching nipple $\frac{1}{8}$ " standard pipe $2\frac{1}{2}$ " long.....	
303-A	4	Oil filtrator attaching screw $\frac{5}{16}$ "-18x $\frac{3}{4}$ ".....	
4173-A	4	Oil filtrator attaching screw nut $\frac{5}{16}$ "-18.....	
615-A	4	Oil filtrator attaching screw lockwasher.....	

GOVERNOR ASSEMBLY

A few of the first engines have governor assembly 27549-CS which is easily distinguished by the Timken roller bearings from the later assembly 27850-CS, which has ball bearings. These governors are interchangeable only as assemblies.

Plate No. 7 shows parts for assembly 27549-CS.

27558-CS	1	Governor assembly complete (includes parts marked *).....	
27549-CS	1	*Governor assembly (includes all parts marked **)	7
27550-B	1	**Governor body.....	7
27556-A	1	**Governor body cap.....	7
27555-A As Req.		**Governor bearing adjusting shim.....	
288-A	2	**Governor body cap screw.....	7
5802-A	2	**Governor bearing (Timken cone A-6157—Cup 6067).....	7
22882-A	2	**Governor weights.....	
(Takes place of Part No. 5804-A—Plate No. 7)			
5805-A	2	**Governor weight rivets.....	7
5806-A	1	**Governor spider.....	7
5807-A	1	**Governor spider straight pin ($\frac{1}{8}$ "x $1\frac{1}{16}$ ").....	7
■ 28904-ASY	1	**Governor shaft and gear assembly.....	7
5829-A	1	**Governor shaft nut.....	7
5828-A	1	**Governor shaft nut tongue washer.....	7
5810-A	1	**Governor thrust sleeve.....	7
5811-A	1	**Governor thrust ball bearing (Nice No. 605).....	7
5812-A	1	**Governor thrust yoke.....	7
5842-A	1	**Governor thrust yoke pin ($\frac{1}{8}$ "x $\frac{3}{4}$ ").....	
27548-A	1	**Governor yoke shaft.....	7
5813-A	1	**Governor connecting rod lever pin ($\frac{1}{8}$ "x $\frac{1}{8}$ ").....	7
27535-A	1	**Governor connecting rod lever.....	7
5820-A	1	**Governor high speed adjusting spring.....	7
5864-AS	1	**Governor adjusting screw assembly (Includes parts marked †).....	7
4538-A	1	†Governor adjusting screw collar.....	7
4537-A	1	†Governor adjusting screw bolt.....	7
5823-A	1	†Governor adjusting nut.....	7
4735-A	1	**Governor cork washer.....	
4428-A	1	**Governor snap ring.....	7
5824-A	1	**Governor adjusting nut friction spring.....	7
27560-A	1	Governor connecting rod.....	7
984-A	2	Governor connecting rod washer.....	7
301-A	2	Governor connecting rod cotter.....	7
4877-A	2	Governor attaching screw.....	7
342-A	2	Governor attaching screw lockwasher.....	
■ 27553-A	1	Governor attaching gasket.....	7
27557-A	1	*Governor valve box assembly (Includes parts marked ††).....	
27559-A	1	††Governor valve box.....	
5858-A	1	††Governor butterfly valve.....	
5838-A	1	††Governor butterfly valve shaft.....	
5839-A	2	††Governor butterfly valve shaft screw.....	
4116-A	2	††Governor butterfly valve shaft screw lockwasher.....	
5841-A	1	††Governor butterfly valve lever.....	
5842-A	1	††Governor butterfly valve lever pin.....	
5853-A	1	††Governor bumper spring.....	
5854-A	1	††Governor bumper spring screw.....	

Give Engine Number with Each Parts Order

GOVERNOR ASSEMBLY (Continued)

Part No.	No. Req.	PART NAME	Plate No.
5855-A	1	††Governor bumper spring screw nut.....	
■ 86-A	1	Governor gasket.....	
2359-A	1	Governor valve box attaching screw.....	
43-A	1	Governor valve box attaching screw.....	
4173-A	1	Governor valve box attaching screw nut.....	7
615-A	1	Governor valve box attaching screw lockwasher.....	7

GOVERNOR HEAD ASSEMBLY

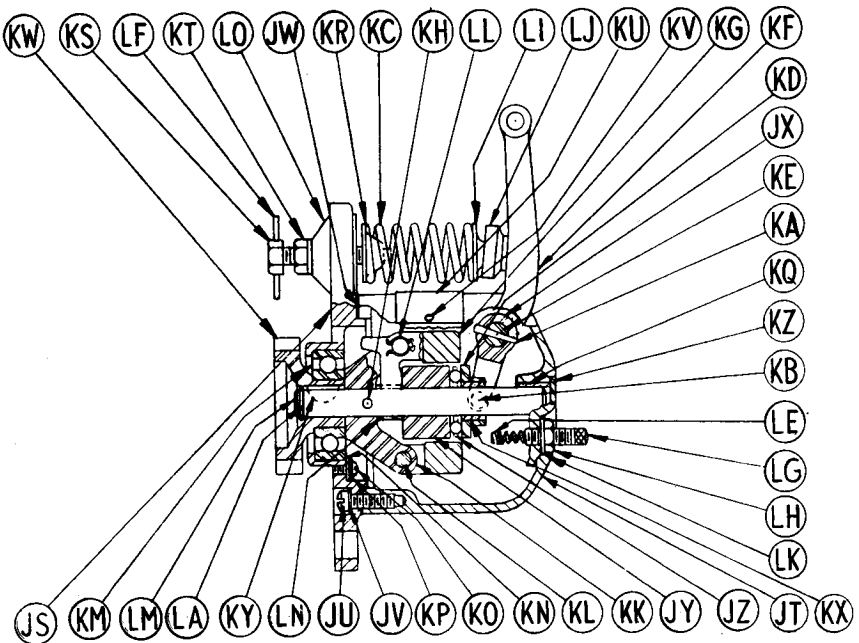
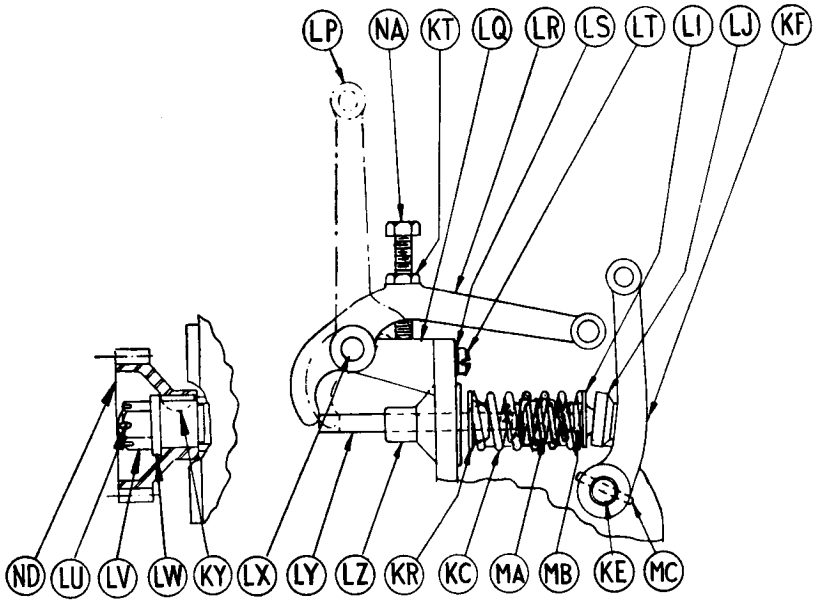
27989-B	1	Governor assembly (Same as 27850-CS except includes only parts marked †).....	
27850-CS	1	Governor assembly complete (Includes all parts marked *).....	
27576-B	1	†*Governor body.....	
27574-A	1	†*Governor body cap.....	
5803-A	2	†*Governor body cap screw.....	
4956-A	1	†*Governor thrust bearing.....	
4965-A	1	†*Governor thrust bearing washer.....	
15865-A	1	†*Governor plain bearing lock pin ($\frac{1}{8}$ "x $\frac{3}{8}$ ").....	
27575-A	1	†*Governor thrust plug.....	
22882-A	2	†*Governor weights.....	
5805-A	2	†*Governor weight rivets.....	7
5806-A	1	†*Governor spider.....	7
8731-A	1	†*Governor spider pin No. 0 taper.....	
■ 27597-ASY	1	†*Governor shaft and gear assembly.....	
5829-A	1	†*Governor shaft nut.....	7
5828-A	1	†*Governor shaft nut tongue washer.....	7
5810-A	1	†*Governor thrust sleeve.....	7
5811-A	1	†*Governor thrust ball bearing (Nice No. 605).....	7
5812-A	1	†*Governor thrust yoke.....	7
4949-A	1	†*Governor thrust yoke pin ($\frac{1}{8}$ "x $\frac{3}{4}$ ").....	
27548-A	1	†*Governor yoke shaft.....	7
1333-A	1	†*Governor connecting rod lever pin ($\frac{1}{8}$ "x $\frac{1}{8}$ ").....	
27535-A	1	†*Governor connecting rod lever.....	7
5820-A	1	†*Governor high speed adjusting spring.....	7
4735-A	1	†*Governor cork washer.....	
4428-A	1	†*Governor snap ring.....	7
5864-AS	1	†*Governor adjusting screw assembly (Includes parts marked ***).....	7
4538-A	1	**Governor adjusting screw collar.....	7
4537-A	1	**Governor adjusting screw bolt.....	7
5823-A	1	**Governor adjusting nut.....	7
5824-A	1	*Governor adjusting friction spring.....	7
59-A	1	*Governor pipe plug.....	
28879-A	1	Governor connecting rod.....	7
984-A	2	Governor connecting rod washer.....	7
301-A	2	Governor connecting rod cotter.....	7
4877-A	2	Governor attaching screw ($\frac{3}{8}$ "x16x2 $\frac{1}{2}$ ").....	
■ 27553-A	1	Governor gasket.....	7

GOVERNOR HEAD ASSEMBLY (Handy)

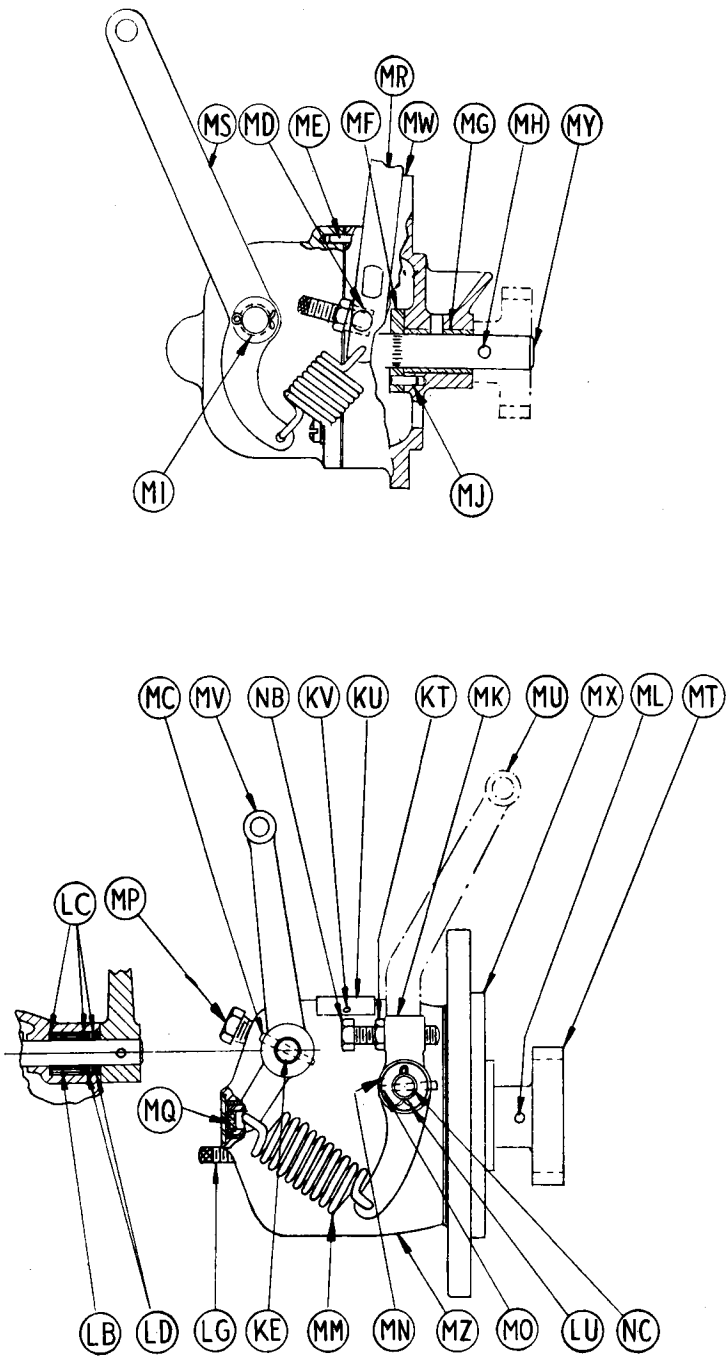
This governor can be readily distinguished from other standard governors as it has two external levers and also the "Handy" name plate.

			Illustration Reference
27992-CS	1	Governor assembly (Includes parts marked *).....	
28404-B	1	*Governor base.....	JS
28405-B	1	*Governor body.....	JT
14176-A	4	*Governor body screw (No. 10x24x $\frac{3}{4}$ ").....	JU
1219-A	4	*Governor body screw lockwasher ($\frac{3}{16}$ " S.A.E.).....	JV
■ 58839-A	1	*Governor body gasket.....	JW
40447-A	1	*Governor body bushing.....	KQ
14578-A	1	*Governor body expansion plug ($\frac{1}{16}$ " Dia.).....	KZ
28868-AS	1	*Governor operating fork assembly.....	JX
58844-A	2	*Governor operating fork pin.....	KB
14579-A	1	*Governor operating fork taper pin.....	KA

Give Engine Number with Each Parts Order



Sectional View of Handy Governor



Handy Governor Variations

GOVERNOR HEAD ASSEMBLY (Handy) (Continued)

Part No.	No. Req.	PART NAME	Illustration Reference
45265-A	1	*Governor fork riser thrust bearing assembly (includes parts marked **)	
40450-A	1	**Governor operating fork riser.....	JY
58843-A	1	**Governor operating fork thrust washer.....	JZ
58847-A	1	**Governor operating fork base.....	KD
40452-A	1	**Governor operating fork base bushing.....	KX
40453-A	1	*Governor operating fork shaft.....	KE
58849-A	2	*Governor operating shaft packing.....	LD
58850-A	12	*Governor operating shaft roller bearing.....	LB
14581-A	3	*Governor operating shaft roller bearing retainer.....	LC
40455-A	1	*Governor operating lever.....	KF
14579-A	1	*Governor operating lever taper pin.....	KA
40456-A	1	*Governor operating lever thrust button.....	LJ
45403-A	1	*Governor operating spring.....	KC
28858-A	1	*Governor operating spring rod.....	LY
28859-A	1	*Governor operating spring rod pilot.....	LZ
40457-A	1	*Governor operating spring pilot (Front).....	LI
40458-A	1	*Governor operating spring pilot (Rear).....	KR
28883-A	1	*Governor shaft and weight assembly (Includes parts marked †).....	
40459-A	2	†Governor weight.....	KG
58854-A	2	†Governor weight pin.....	KL
28860-A	1	†Governor weight carrier.....	KK
14681-A	1	†Governor weight carrier taper pin.....	KH
28861-A	1	†Governor shaft.....	LM
4411-A	1	*Governor shaft snap ring.....	LA
14585-A	1	*Governor bearing.....	KM
14586-A	2	*Governor bearing retaining washer.....	KN
14587-A	2	*Governor bearing retaining washer screw.....	KO
14588-A	2	*Governor bearing retaining washer screw lockwasher.....	KP
■ 28862-A	1	*Governor drive gear.....	KW
1179-A	1	*Governor drive gear key.....	KY
28863-A	1	*Governor manual control lever.....	LR
28864-A	1	*Governor manual control lever shaft.....	LX
14579-A	1	*Governor manual control lever taper pin.....	KA
28865-A	1	*Governor manual control lever shaft bracket.....	LQ
4990-A	2	*Governor manual control lever shaft bracket screw.....	LT
628-A	2	*Governor manual control lever shaft bracket lockwasher.....	LS
58845-A	1	*Governor bumper spring.....	LE
28870-A	1	*Governor bumper spring screw.....	LG
14580-A	1	*Governor bumper spring screw locknut.....	LH
28866-A	1	*Governor shaft sleeve.....	LN
4877-A	2	Governor attaching screw ($\frac{3}{8}$ " x $1\frac{1}{2}$ ").....	
342-A	2	Governor attaching screw lockwasher.....	
■ 27553-A	1	Governor attaching gasket.....	
28880-A	1	Governor connecting rod.....	
14411-A	1	Governor connecting rod ball joint.....	
1177-A	1	Governor connecting rod ball joint nut.....	
628-A	1	Governor connecting rod ball joint lockwasher.....	
301-A	1	Governor connecting rod cotter pin.....	
984-A	1	Governor connecting rod washer.....	

NOTE: There are many variations of "Handy" governors used on this series of engines; generally the majority of parts are the same as those listed above. To eliminate any possibility of errors, always give engine number when ordering governor parts.

GOVERNOR ASSEMBLY (Pierce)

This governor mounts in customary generator hole—Flange has bolt holes $5\frac{3}{8}$ " apart.

27561-CS	1	Governor assembly (includes parts marked *).....	
27578-B	1	*Governor body.....	
27587-A	1	*Governor body gasket.....	
27579-A	1	*Governor body cap.....	

Give Engine Number with Each Parts Order

GOVERNOR ASSEMBLY (Pierce) (Continued)

Part No.	No. Req.	PART NAME	Illustration Reference
4954-A	4	*Governor body cap screw.....	
1219-A	4	*Governor body cap screw lockwasher.....	
27583-A	2	*Governor weight.....	
27592-A	1	*Governor weight pin.....	
27586-A	1	*Governor weight spider.....	
8731-A	1	*Governor weight spider pin.....	
27582-A	1	*Governor drive gear.....	
8731-A	1	*Governor drive gear pin.....	
1179-A	1	*Governor drive gear key.....	
27585-A	1	*Governor drive shaft.....	
27589-A	1	*Governor drive shaft bushing.....	
4957-A	1	*Governor drive shaft expansion plug.....	
4956-A	1	*Governor drive shaft ball bearing.....	
4955-A	3	*Governor drive shaft ball bearing screw.....	
14390-A	3	*Governor drive shaft ball bearing lockwasher.....	
15871-A	1	*Governor shaft thrust bearing.....	
27590-A	1	*Governor drive shaft thrust sleeve.....	
27591-A	1	*Governor rocker shaft.....	
4961-A	2	*Governor rocker shaft bearing.....	
4960-A	1	*Governor rocker shaft expansion plug.....	
4959-A	1	*Governor rocker shaft cork.....	
27588-A	1	*Governor rocker shaft bearing retainer.....	
27584-A	1	*Governor rocker shaft yoke.....	
4962-A	2	*Governor rocker shaft yoke and control lever pin.....	
15769-A	1	*Governor rocker shaft yoke pin expansion plug.....	
27580-A	1	*Governor control lever.....	
27594-A	1	*Governor adjusting lever.....	
4952-A	1	*Governor adjusting lever screw.....	
15760-A	1	*Governor adjusting lever screw nut.....	
27595-A	1	*Governor adjusting screw.....	
1177-A	1	*Governor adjusting screw nut.....	
27596-A	1	*Governor speed change lever screw.....	
27581-A	1	*Governor spring.....	
27981-A	1	*Governor connecting rod.....	
1872-A	2	Governor attaching screw.....	
335-A	2	Governor attaching screw lockwasher.....	
27170-A	1	Governor gasket.....	

GOVERNOR ASSEMBLY (Handy)

This governor mounts in customary generator hole—Flange has bolt holes $5\frac{3}{8}$ " apart.

28898-CS	1	Governor assembly (includes parts marked *).....	
58836-B	1	*Governor base.....	JS
58837-B	1	*Governor body.....	MZ
14577-A	4	*Governor body screw ($10 \times 24 \times \frac{3}{4}$ ").....	JU
1219-A	4	*Governor body screw lockwasher.....	JV
14420-A	4	*Governor body name plate drive screw.....	
58839-A	1	*Governor body gasket.....	JW
58840-A	1	*Governor body bushing.....	
14578-A	1	*Governor body expansion plug $1\frac{1}{16}$ ".....	KZ
58841-AS	1	*Governor operating fork assembly.....	JX
58887-AS	1	*Governor operating fork riser thrust bearing assembly (includes parts marked x).....	
58842-A	1	xGovernor operating fork riser.....	JY
58843-A	1	xGovernor operating fork riser thrust bearing.....	JZ
58847-A	1	xGovernor operating fork spring base.....	KD
40452-A	1	xGovernor operating fork spring base bushing.....	KX
14579-A	1	*Governor operating fork taper pin.....	KA
58844-A	2	*Governor operating fork pin ($\frac{1}{4} \times \frac{19}{32}$ ").....	KB
58845-A	1	*Governor operating fork bumper spring.....	LE
58846-A	1	*Governor operating fork bumper spring adjusting screw ($\frac{1}{4}$ " x 20).....	LG
14580-A	1	*Governor operating fork bumper spring adjusting screw lock nut ($\frac{1}{4}$ " x 20).....	LH

Give Engine Number with Each Parts Order

GOVERNOR ASSEMBLY (Handy) (Continued)

Part No.	No. Req.	PART NAME	Illustration Reference
58848-A	1	*Governor operating fork shaft.....	KE
58849-A	2	*Governor operating fork shaft packing.....	LD
58850-A	12	*Governor operating fork shaft roller bearing.....	LB
14581-A	3	*Governor operating fork shaft roller bearing retainer washer.....	LC
58851-A	1	*Governor operating lever.....	MV
14579-A	1	*Governor operating lever taper pin (No. 00x $\frac{3}{4}$ ").....	KA
58871-A	1	*Governor spring adjusting lever.....	MK
58853-A	1	*Governor spring adjusting lever shaft.....	NC
14829-A	1	*Governor spring adjusting lever shaft pin.....	MO
14582-A	1	*Governor spring adjusting lever shaft washer.....	MN
10-A	1	*Governor spring adjusting lever shaft cotter ($\frac{1}{16}$ " x $\frac{1}{2}$ ").....	LU
14584-A	1	*Governor spring adjusting lever adjusting screw.....	NB
1177-A	1	*Governor spring adjusting lever adjusting screw lock nut ($\frac{1}{4}$ "-28).....	KT
58862-AS	1	*Governor shaft and weight assembly (includes parts marked **)	
3370-A	4	**Governor weight pin retainer.....	LL
58854-A	2	**Governor weight pin.....	KL
58855-A	1	**Governor weight carrier.....	KK
14583-A	1	**Governor weight carrier pin.....	KH
58856-A	1	**Governor weight shaft.....	LM
58857-A	2	**Governor weight.....	KG
14585-A	1	*Governor weight shaft bearing.....	KM
14586-A	2	*Governor weight shaft bearing retaining washer.....	KN
14587-A	2	*Governor weight shaft washer screw.....	KO
14588-A	2	*Governor weight shaft bearing washer screw lockwasher.....	KP
27582-A	1	*Governor drive gear.....	MT
4958-A	1	*Governor drive gear pin ($\frac{1}{8}$ " x $\frac{1}{8}$ ").....	ML
1179-A	1	*Governor drive gear key (No. 2 Woodruff).....	KY
58870-A	1	*Governor operating spring.....	MM
28848-A	1	Governor connecting rod.....	
14411-A	1	Governor connecting rod ball joint.....	
1177-A	1	Governor connecting rod ball joint nut ($\frac{1}{4}$ "-28).....	
628-A	1	Governor connecting rod ball joint nut lockwasher ($\frac{1}{4}$ " S. A. E.).....	
301-A	1	Governor connecting rod cotter pin ($\frac{3}{32}$ " x $\frac{3}{4}$ ").....	
27170-A	1	Governor attaching gasket.....	
1872-A	2	Governor attaching screw ($\frac{1}{16}$ " x $1\frac{1}{4}$ ").....	
335-A	2	Governor attaching screw lockwasher ($\frac{1}{16}$ " S. A. E.).....	
28846-AS	1	Governor valve box assembly (includes parts marked †).....	
22334-A	1	†Governor valve box.....	
5858-A	1	†Governor butterfly valve.....	
5838-A	1	†Governor butterfly valve shaft.....	
5839-A	2	†Governor butterfly valve shaft screw.....	
4116-A	2	†Governor butterfly valve shaft lockwasher.....	
28847-A	1	†Governor butterfly valve lever.....	
5842-A	1	†Governor butterfly valve lever pin.....	
5853-A	1	†Governor bumper spring.....	
5854-A	1	†Governor bumper spring screw.....	
5855-A	1	†Governor bumper spring screw nut.....	
2359-A	1	Governor valve box attaching screw— $\frac{5}{16}$ -18x1"	
44-A	1	Governor valve box attaching screw— $\frac{5}{16}$ -24x1 $\frac{1}{4}$ "	
28-A	1	Governor valve box attaching screw nut— $\frac{5}{16}$ "-24	
615-A	2	Governor valve box attaching lockwasher— $\frac{5}{16}$ "	
86-A	1	Governor valve box and carburetor attaching gasket.....	

GOVERNOR LUBRICATING PARTS

The following parts are used or can be installed on any engine having block 27001 or 27100 and having governor with the governor body drilled and tapped, this hole may be plugged with a $\frac{1}{8}$ " pipe plug.

28894-BS	1	Governor oil tube assembly.....
1532-A	2	Governor oil tube nut.....
28895-B	1	Governor oil tube metering fitting (In governor).....

Give Engine Number with Each Parts Order

GOVERNOR LUBRICATING PARTS (Continued)

Part No.	No. Req.	PART NAME	Plate No.
1533-A	1	Governor oil tube union.....	
14171-A	1	Governor oil tube clamp.....	
27418-BS	1	Oil pressure regulator (Same as 27243-BS except body 27248-B is replaced by body 27419-B).....	
27419-B	1	Oil pressure regulator body (Drilled for governor lubrication).....	

GOVERNOR LUBRICATING PARTS

The following parts are used or can be installed on any engine having cylinder blocks similar to 28001, 28002, 28366, 28367, etc., and having governor with the governor body drilled and tapped; this hole may be plugged with a $\frac{1}{8}$ " pipe plug.

28895-A	1	Governor oil metering fitting.....	
28066-BS	1	Governor oil tube assembly.....	
1532-A	2	Governor oil tube nut.....	
1533-A	2	Governor oil tube union.....	
14171-A	2	Governor oil tube clamp.....	
14670-A	1	Governor oil tube tee.....	
4131-A	1	Governor oil tube nipple.....	

SAFETY SWITCHES (LATEST TYPE)

These switches shut down the engine when the oil pressure fails or the water gets too hot; thus protecting the engine.

For Magneto Ignition only.

50686-AS	1	Thermo switch—mounts in cylinder head.....	
3141-A	1	Thermo switch reducing bushing.....	
50687-AS	1	Low oil pressure switch—mounts on crankcase.....	
4131-A	1	Low oil pressure switch nipple.....	
14670-A	1	Low oil pressure switch tee.....	
51151-AS	1	Oil pressure disconnecting switch.....	
29717-A	1	Oil pressure disconnecting switch bracket.....	
1218-A	4	Oil pressure disconnecting switch screw.....	
4743-A	4	Oil pressure disconnecting switch screw nut.....	
1219-A	4	Oil pressure disconnecting switch screw lockwasher.....	
29716-A	1	Oil pressure disconnecting switch lever—mounts on clutch shaft.....	
21864-A	1	Oil pressure disconnecting switch lever screw.....	
5074-A	1	Oil pressure disconnecting switch lever washer.....	
300-A	1	Oil pressure disconnecting switch nut.....	
342-A	1	Oil pressure disconnecting switch lockwasher.....	
3184-A	12 ft.	Armored cable.....	
14832-A	6	Cable terminals.....	

SAFETY SWITCHES (EARLY TYPE)

Some of the first units equipped with safety switches used the following in place of similar parts in above list. All other parts are the same.

50688-AS	1	Oil pressure disconnect switch.....	
27178-B	1	Oil pressure disconnect switch bracket.....	
31794-A	1	Oil pressure disconnect switch lever.....	

TOOLS

Wrenches for servicing the "IX" 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.

2245-A	1	Speed wrench handle ($\frac{1}{2}$ " square end) for use with the sockets and Universal listed below.....	
2252-A	1	Speed wrench Universal.....	

Give Engine Number with Each Parts Order

TOOLS (Continued)

Part No.	No. Req.	PART NAME	Plate No.
4976-B	1	"T" handle socket driver.....	
2246-A	1	Socket ½" Hex.....	
2247-A	1	Socket ⅝" Hex.....	
2248-A	1	Socket ⅝" Hex.....	
2251-A	1	Socket ⅞" Hex.....	
2249-A	1	Socket ¾" Hex.....	
4978-A	1	Double open end wrench ⅝"x ⅝".....	
3777-A	2	Tappet wrenches ⅞"x 1½".....	
14897-A	1	Tappet wrench ⅜".....	

Model "IX"

Supplement showing parts which are different from Model IXA.

CYLINDER AND CRANKCASE

- 28365-DSY 1 Cylinder and crankcase—2½" bore—with valve guides, camshaft bearings, idler gear bearing and jacket plugs.....

NOTE: 28365-DSY block has cup type plugs and supersedes 27300-ESY and 28000-DSY blocks which have expansion type plugs. Plugs of each type are listed on Page 6.

- 28056-DS 1 Cylinder and crankcase—2½" bore—same as above; also main bearings machined to size with caps and screws.....

NOTE: 28056-DS block supersedes 27330-DS and 28330-DS.

CYLINDER HEAD

NOTE: For the convenience of those who wish to know the compression ratio of a head which has had the part number destroyed, we list below the dimensions of depth over the intake valve for the various compression ratios.

Compression Ratio	Depth over valve
5.2	½"
5.69	1⅝"

- 27302-D 1 Cylinder head, 5.2:1 compression ratio..... 1
- 27308-D 1 Cylinder head, natural gas, 5.69:1 compression ratio.....
- 27309-D 1 Cylinder head, flat type, 5.2:1 compression ratio.....
- 27310-C 1 Cylinder head gasket.....

(Takes place of Part No. 27303-C—Plate No. 1)

PISTONS (Aluminum) 2½" Diameter

See note about oversizes on page 8.

- 27314-C 4 Pistons, aluminum.....
- 3800-A 8 Piston ring, compression (Replaces 27327-A).....
- 3900-A 4 Piston ring, oil regulating (Replaces 27328-A).....
- 27329-B 4 Piston pin..... 2

PISTONS (Cast Iron) 2½" Diameter

See note about oversizes on page 8.

- 27215-CSY 4 Pistons, cast iron..... 2
- 27329-B 4 Piston pin..... 2
- 27216-B 8 Piston pin bushing.....
- 3800-A 8 Piston ring, compression (Replaces 27328-A).....
- 3900-A 4 Piston ring, oil regulating (Replaces 27327-A).....

CONNECTING ROD

- 28093-BSY 4 Connecting rod assembly (The angle of the clamp screw is 11°).....
- 28096-A 8 Connecting rod bolt, 1⅜" overall length—Used only with assembly 28093-BSY.....
- 27055-A 8 Connecting rod bolt, 1⅞" overall length—Used with 27200-BSY and 28092-BSY Connecting rod assemblies.....

Give Engine Number with Each Parts Order

CONNECTING ROD (Continued)

Part No.	No. Req.	PART NAME	Plate No.
27056-A	8	Connecting rod cap nut.....	2
301-A	8	Connecting rod cap nut cotter.....	2
27054-A	24	Connecting rod shim .003".....	2
27067-A As Req		Connecting rod shim .002".....	2
27311-A	4	Connecting rod piston pin clamp screw.....	
267-A	4	Connecting rod lock wire.....	2

Model "IXB"

Supplement showing parts which are different from Model IXA.

CYLINDER AND CRANKCASE

28367-CSY 1 Cylinder and crankcase—3 1/4" bore— with valve guides, camshaft bearings, idler gear bearing and jacket plugs.

NOTE: 28367-CSY block has cup type plugs and supersedes 27100-ESY and 28002-ESY blocks which have expansion type plugs. Plugs of each type are listed on Page 6.

28055-DS 1 Cylinder and crankcase—3 1/4" bore—same as above; also main bearings machined to size with caps and screws.

NOTE: 28055-DS block supersedes 27157-DS and 28015-DS.

CYLINDER HEAD

NOTE: For the convenience of those who wish to know the compression ratio of a head which has had the part number destroyed, we list below the dimensions of the depth over the intake valve for the various compression ratios.

Compression Ratio	Depth over Valve
4.9	3 1/4"
5.5	1 1/4"
6.0	1 1/8"
6.2	5/8"
	1/64"

27202-D	1	Cylinder head, flat type, 5.5:1 compression ratio.....	1
27204-D	1	Cylinder head, 5.5:1 compression ratio—standard.....	1
27205-D	1	Cylinder head, 5.5:1 compression ratio, metric, 18 M.M.....	
27206-D	1	Cylinder head, 5.92:1 compression ratio.....	
27208-D	1	Cylinder head, 4.9:1 compression ratio, kerosene.....	
27209-D	1	Cylinder head, 4.9:1 compression ratio, flat type.....	1
27211-D	1	Cylinder head, 6:1 compression ratio, metric.....	
27228-D	1	Cylinder head, 6.2:1 compression ratio, natural gas.....	
27231-D	1	Cylinder head, 6.2:1 compression ratio, metric, 18 M.M.....	
27229-D	1	Cylinder head, 5.92:1 compression ratio, metric, 18 M.M.....	
27234-D	1	Cylinder head, 5.5:1 compression ratio, flat type.....	
27235-D	1	Cylinder head, 7.5:1 compression ratio, metric, 14 M.M.....	
27236-D	1	Cylinder head, 7.5:1 compression ratio, flat type, metric, 18 M.M.....	
27238-D	1	Cylinder head, 5.5:1 compression ratio, flat type, metric, 14 M.M.....	
■ 27233-C	1	Cylinder head gasket.....	

(Takes place of Part No. 27203-C—Plate No. 1)

PISTONS (Cast Iron) 3 1/4" Diameter

See note about oversizes on page 8.

■ 27213-CSY	4	Piston.....	2
■ 3806-A	8	Piston ring, compression (Replaces 27108-A).....	
■ 3906-A	4	Piston ring, oil regulator (Replaces 27119-A).....	
■ 27129-B	4	Piston pin.....	2
27117-A	8	Piston pin bushing.....	2

PISTONS (Aluminum) 3 1/4" Diameter

See note about oversizes on page 8.

■ 27017-C	4	Piston (aluminum).....	
■ 27129-B	4	Piston pin.....	2
■ 3806-A	8	Piston ring, compression (replaces 27108-A).....	
■ 3906-A	4	Piston ring, oil regulator (replaces 27119-A).....	

Give Engine Number with Each Parts Order

Model "IXAC"

Supplement showing parts which are different from Model "IXA." Model "IXAC" differs from Model "IXA" only in direction of rotation of crankshaft. Model "IXAC" rotates counter-clockwise looking at gear compartment end of engine.

Part No.	No. Req.	PART NAME	Plate No.
27800-D	1	Camshaft.....	
27801-B	1	Camshaft gear.....	
27802-B	1	Idler gear.....	
27803-B	1	Crankshaft gear.....	
27721-BS	1	Accessory drive assembly, same as 27070-BS except for gear 27804-B and distributor gears.....	
27804-B	1	Accessory drive gear.....	
27805-A	1	Oil pump drive gear (Included in 28372-CS).....	
28372-CS	1	Oil pump assembly.....	
27171-B	1	Generator gear.....	

Model "IXBC"

Supplement showing parts which are different from Model "IXB." Model "IXBC" differs from Model "IXB" only in direction of rotation of crankshaft. Model "IXBC" rotates counter-clockwise looking at gear compartment end of engine.

27800-D	1	Camshaft.....	
27801-B	1	Camshaft gear.....	
27802-B	1	Idler gear.....	
27803-B	1	Crankshaft gear.....	
27721-BS	1	Accessory drive assembly, same as 27070-BS except for gear 27804-B and distributor gears.....	
27804-B	1	Accessory drive gear.....	
27805-A	1	Oil pump drive gear (Included in 28372-CS).....	
28372-CS	1	Oil pump assembly.....	
27171-B	1	Generator gear.....	
27337-C	4	Piston (Aluminum) (When aluminum pistons are used).....	

POWER UNIT SECTION

MAGNETO

50315-CS	1	Magneto MJC-4 C110 American Bosch—Standard.....	
50362-CS	1	Magneto, A-4 Wico.....	
50259-CS	1	Magneto, U4X American Bosch—Used on early units as standard.....	
315-A	3	Magneto to bracket screw (3/8"x16x1/8").....	
203-A	1	Magneto to bracket dowel screw.....	
342-A	3	Magneto to bracket screw lockwasher (3/8" S.A.E.).....	
2165-A	1	Magneto coupling key (No. 8 Woodruff).....	
859-A	1	Magneto coupling taper pin (No. 3x1" long).....	

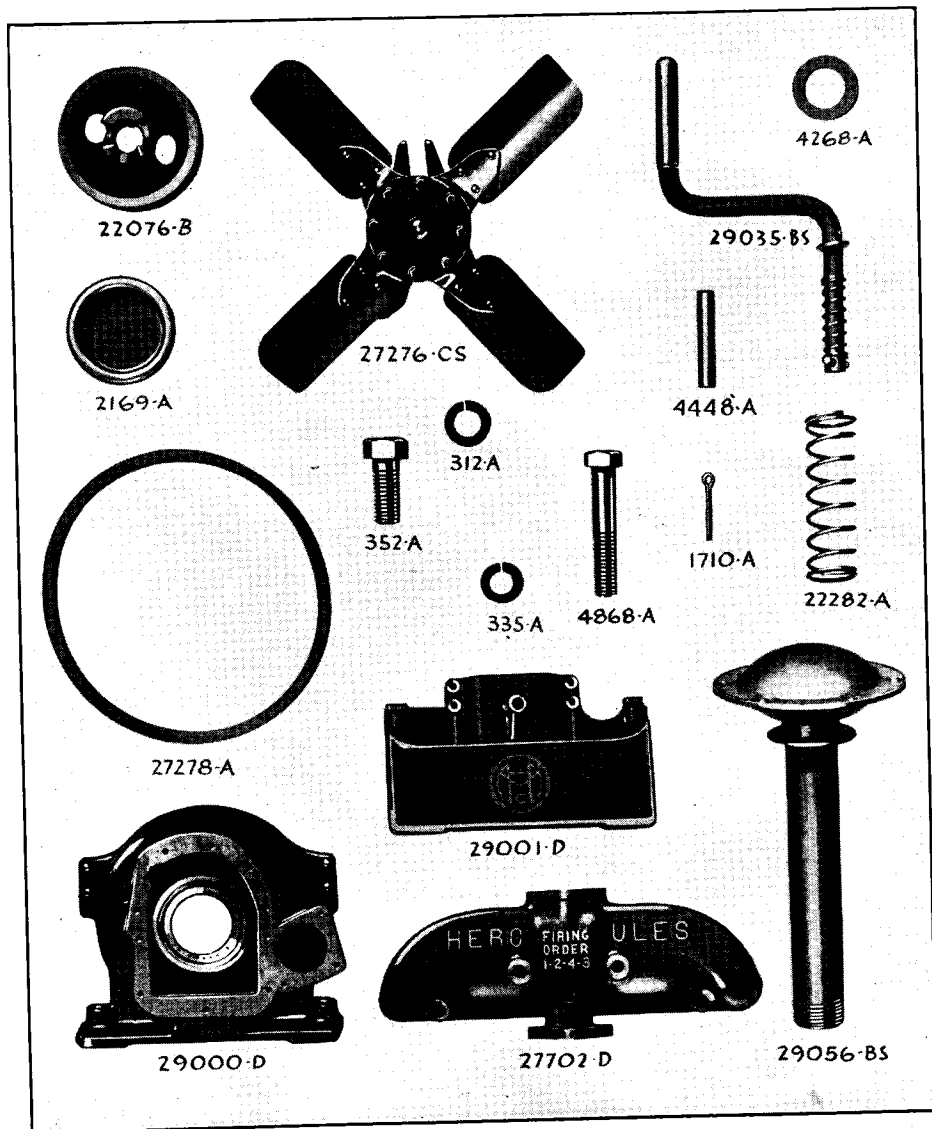
MAGNETO COUPLING

50265-AS	1	Magneto coupling assembly—For use with Bosch U4X magneto.....	
50517-AS	1	Magneto coupling assembly—A-4 Wico magneto.....	
50518-A	1	Magneto coupling floating member—A-4 Wico magneto.....	

Give Engine Number with Each Parts Order

CARBURETOR **ZENITH (First Type)**

Part No.	No. Req.	PART NAME	Plate No.
27607-AS	1	Carburetor 1" (154 Zenith—IXA).....	
27608-AS	1	Carburetor 1" (154 Zenith—IXB).....	
86-A	1	Carburetor attaching gasket.....	
78-A	2	Carburetor attaching screw ($\frac{5}{16}$ "x18x $\frac{7}{8}$ ").....	
615-A	2	Carburetor attaching screw lockwasher ($\frac{5}{16}$ " S.A.E.).....	
29021-A	1	Carburetor choke control.....	



CARBURETOR (Continued)

Plate
No.

Part No.	No. Req.	PART NAME	
		STROMBERG	
27628-BS	1	Carburetor $\frac{3}{4}$ " (UR $\frac{3}{4}$ Stromberg—IX)	
27624-BS	1	Carburetor $\frac{3}{4}$ " (UR $\frac{3}{4}$ Stromberg—IXA—IXB)	
■ 4502-A	1	Carburetor attaching gasket	
4973-A	2	Carburetor attaching stud	
615-A	2	Carburetor attaching lockwasher ($\frac{5}{16}$ " S.A.E.)	
28-A	2	Carburetor attaching nut ($\frac{5}{16}$ "x24)	
27625-A	1	Carburetor adapter offset $1\frac{1}{2}$ "	
■ 86-A	1	Carburetor adapter gasket	
14609-A	2	Carburetor adapter attaching stud ($\frac{3}{16}$ "x $1\frac{1}{8}$ ")	
615-A	2	Carburetor adapter attaching lockwasher ($\frac{5}{16}$ " S.A.E.)	
28-A	2	Carburetor adapter attaching nut ($\frac{5}{16}$ "x20)	
29021-A	1	Carburetor choke control	

ZENITH (Second Type)

This is the latest type carburetor used on the power unit, and is interchangeable with the Stromberg carburetor listed above.

28616-BS	1	Carburetor $\frac{7}{8}$ " (Zenith 193 $\frac{1}{2}$ —IX)	
28617-BS	1	Carburetor $\frac{7}{8}$ " (Zenith 193 $\frac{1}{2}$ —IXA)	
28618-BS	1	Carburetor $\frac{7}{8}$ " (Zenith 193 $\frac{1}{2}$ —IXB)	
28630-B	1	Carburetor adapter—offset ($1\frac{13}{16}$ ")	
■ 4502-A	1	Carburetor attaching gasket	
4973-A	2	Carburetor attaching stud ($\frac{3}{16}$ "x1")	
615-A	2	Carburetor attaching lockwasher	
28-A	2	Carburetor attaching stud nut	
■ 86-A	1	Carburetor adapter gasket	
14609-A	2	Carburetor adapter attaching stud	
615-A	2	Carburetor adapter attaching lock washer	
28-A	2	Carburetor adapter attaching nut	
29021-A	1	Carburetor choke control	

GOVERNOR LUBRICATION PARTS

14945-A	1	Governor oil tube union	
29844-BS	1	Governor oil tube assembly (Includes parts marked *)	
14946-A	2	*Governor oil tube nut	
14947-A	2	*Governor oil tube ferrule	
3794-A	1	Governor oil tube union (Metering)	
11347-A	2	Governor oil tube clamp	
14670-A	1	Governor oil tube tee	
4131-A	1	Governor oil tube nipple	
14945-A	1	Governor oil tube union	

GOVERNOR

See governor assembly No. 27850-CS listed on page 31.

GOVERNOR CONTROL

The governor control listed below is the standard power unit control; since there are many special controls it is advisable to give the engine number of the unit for which the control is required.

27853-A	1	Governor control bracket	
■ 86-A	1	Governor control bracket gasket	
27852-B	1	Governor control rod ($13\frac{1}{8}$ " over all length)	
27863-B	1	Governor control rod ($17\frac{1}{16}$ " over all length)	
4421-A	2	Governor control rod washer	
1710-A	2	Governor control rod cotter pin	
25274-B	1	Governor control handle	
4173-A	1	Governor control handle locknut ($\frac{5}{16}$ "x18)	
25275-A	1	Governor control stop	

Give Engine Number with Each Parts Order

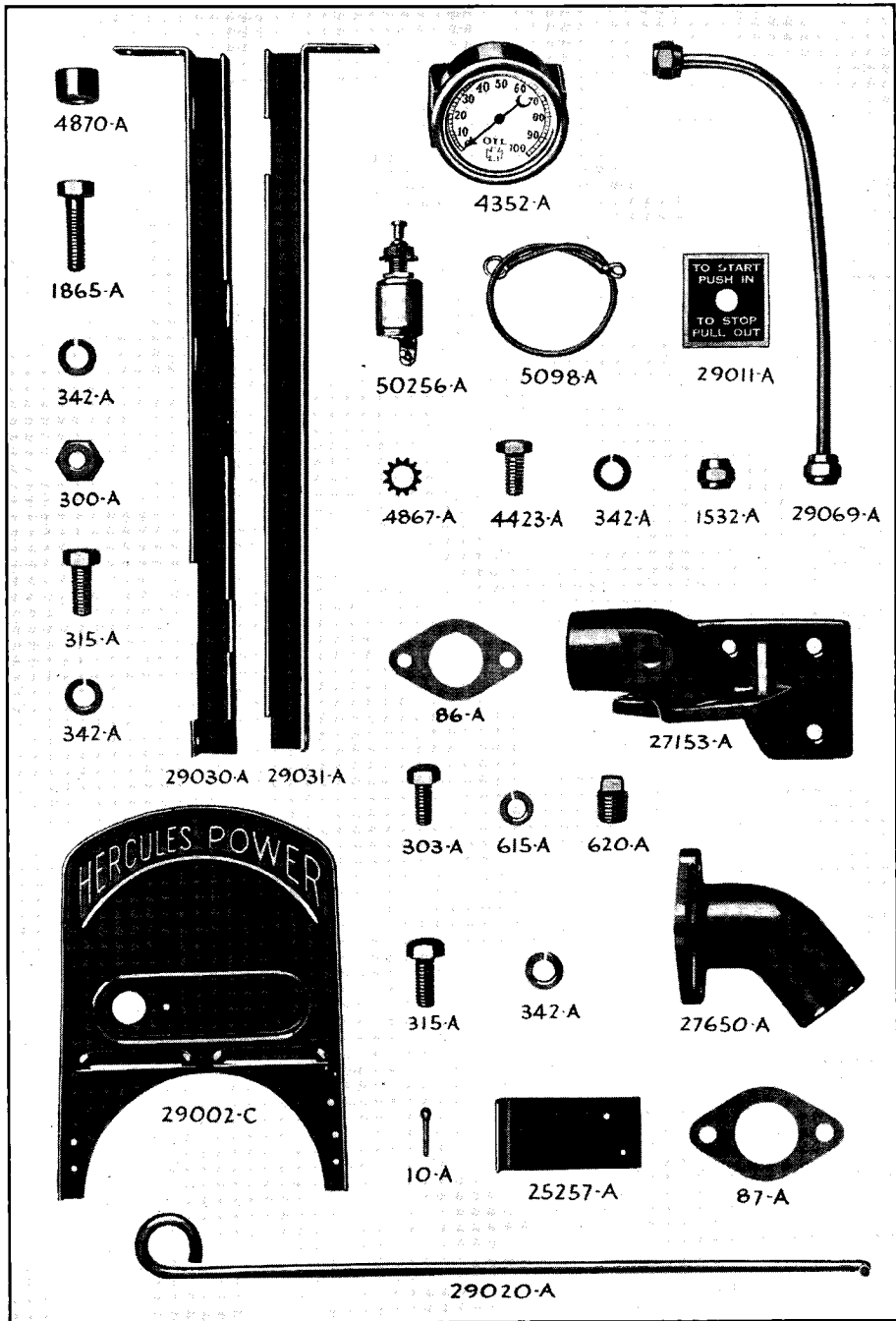


Plate No. 9

Instrument Panel, Channels and Water Pipes

GOVERNOR CONTROL (Continued)

Part No.	No. Req.	PART NAME	Plate No.
4385-A	2	Governor control stop screw ($\frac{1}{4}$ "x20x $\frac{1}{2}$ ")	
5034-A	2	Governor control stop nut ($\frac{1}{4}$ "x20)	
628-A	2	Governor control stop lockwasher ($\frac{1}{4}$ " S.A.E.)	
14059-A	1	Governor control rod spring (5" free length)	
4946-A	1	Governor control rod spring (4 $\frac{1}{4}$ " free length)	

MANIFOLD

See Page 23 for Attaching Parts.

27702-D	1	Manifold—1" center outlet	
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FUEL PUMP
(Sometimes used)

27968-CS	1	Fuel pump	
303-A	2	Fuel pump screw ($\frac{5}{16}$ "x18x $\frac{3}{4}$ ")	
615-A	2	Fuel pump lockwasher ($\frac{5}{16}$ " S.A.E.)	
■ 22564-A	1	Fuel pump gasket	

SPARK PLUG

2333-A	4	Spark plug—IX	
50563-A	4	Spark plug—IXA—IXB	

AIR CLEANER

29070-BS	1	Air cleaner—2 $\frac{1}{16}$ " carburetor connection	
29075-BS	1	Air cleaner—1 $\frac{7}{8}$ " carburetor connection	

The following parts are always used when a fuel pump is used on a power unit:

29076-A	1	Air cleaner elbow	
4981-A	1	Air cleaner elbow set screw	
4200-A	1	Air cleaner elbow set screw nut	

FAN ASSEMBLY

27276-CS	1	Fan assembly with bracket (15" diameter)	8
352-A	2	Fan assembly attaching screw	8
312-A	2	Fan assembly attaching screw lockwasher ($\frac{1}{2}$ " S.A.E.)	8
■ 28292-A	1	Fan belt ($\frac{3}{4}$ " V type) (Supersedes 27278-A)	
22072-B	1	Fan pulley (See engine section for attaching parts)	
(Takes place of Part No. 22076-B—Plate No. 8)			

BELLHOUSING

29000-D	1	Bellhousing (or rear motor support) No. 5 S.A.E.	8
2169-A	1	Bellhousing starter cover	

STARTING CRANK

(Assembles in Front Motor Support)

29035-BS	1	Starting crank	8
22282-A	1	Starting crank spring	8
4268-A	1	Starting crank washer	8
1710-A	1	Starting crank washer cotter pin	8
4448-A	1	Starting crank pin	8

HOOD

29023-DSY	1	Hood assembly	10
5036-A	2	Hood attaching screw (No. 24—16x1")	10
300-A	4	Hood attaching screw nut ($\frac{3}{8}$ "x16)	10
342-A	4	Hood attaching screw lockwasher ($\frac{3}{8}$ " S.A.E.)	10
4878-A	2	Hood attaching screw	10

When gasoline tank is not used the following parts are used to close up tank filler neck hole.

29028-A	1	Hood cover plate	
4385-A	2	Hood cover plate screw	
628-A	2	Hood cover plate lockwasher	
5034-A	2	Hood cover plate screw nut	

Give Engine Number with Each Parts Order

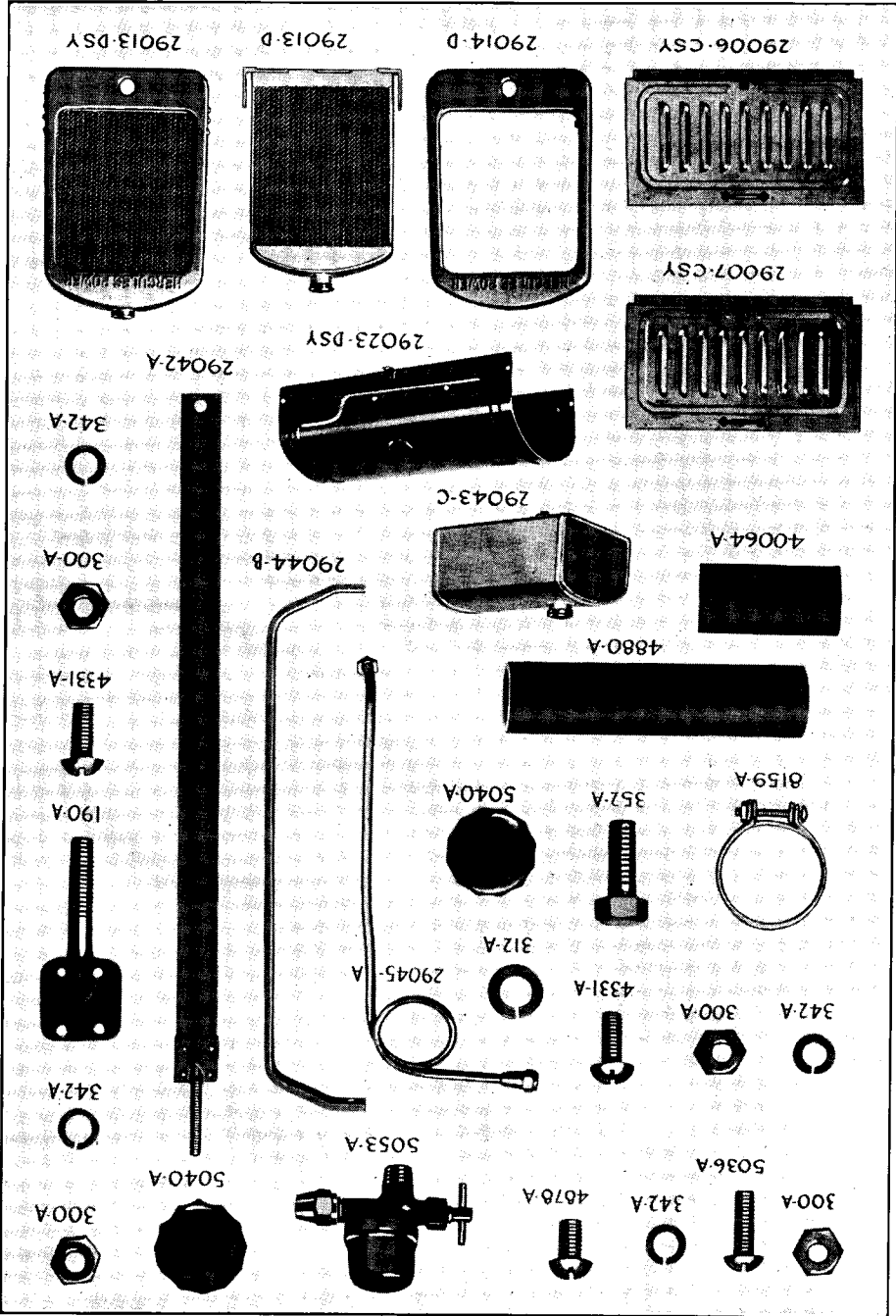


Plate No.10

Radiator Shell and Core, Side Panels, Hood, and Gasoline Tank

HOOD SIDE PANEL

Part No.	No. Req.	PART NAME	Plate No.
29007-CSY	1	Side panel, R. H.....	10
29006-CSY	1	Side panel, L. H.....	10

INSTRUMENT PANEL

29002-C	1	Instrument panel.....	9
50256-A	1	Instrument panel ignition switch.....	9
29011-A	1	Instrument panel ignition switch plate.....	9
5098-A	1	Instrument panel ignition switch ground wire.....	9
4867-A	1	Instrument panel ignition switch lockwasher.....	9
315-A	4	Instrument panel attaching screw ($\frac{3}{8}$ "x16x $\frac{1}{8}$ ").....	9
342-A	4	Instrument panel attaching screw lockwasher.....	9
4352-A	1	Instrument panel oil gauge.....	9
29069-AS	1	Instrument panel oil gauge pipe.....	9
1532-A	2	Instrument panel oil gauge nut.....	9
29273-A	2	Instrument panel to bellhousing spacer—1"x $\frac{1}{4}$ "x2 $\frac{5}{8}$ "—These spacers are used when radiator 29247-DS is used or when radiator is moved forward ($\frac{1}{4}$ ") to provide fan clearance.....	
14058-A	4	Instrument panel to bellhousing screw $\frac{3}{8}$ "-16x1 $\frac{1}{8}$ ".....	

FRONT MOTOR SUPPORT

29001-D	1	Front motor support.....	8
4868-A	4	Front motor support attaching screw.....	8
335-A	4	Front motor support attaching screw lockwasher.....	8

MUFFLER

29056-BS	1	Muffler and exhaust pipe assembly, pipe 12 $\frac{3}{8}$ " long (standard).....	8
29063-BS	1	Muffler exhaust pipe assembly, pipe 20" long.....	
29092-BS	1	Muffler and exhaust pipe assembly, pipe 42 $\frac{3}{8}$ " long.....	

RADIATOR

29233-DS	1	Radiator assembly (Includes 29233-D core and parts marked *). Supersedes 29223-DS, 29012-DS and 29218-DS.....	
29233-D	1	Radiator core—supersedes 29223-D, 29012-D and 29218-D.....	
29247-DS	1	Radiator assembly (Includes 29247-D core and parts marked *).....	
NOTE: This is the latest radiator and has mounting holes moved back $\frac{1}{4}$ ". (This moves radiator forward $\frac{1}{4}$ " and provides more fan clearance). When this radiator is used to replace any of above radiators then use 2-29273A spacers between instrument panel and bellhousing and use 4-14058A screws or elongate holes in radiator mounting foot so hood will fit properly.			
29247-D	1	Radiator core (See note above under 29247-DS).....	
29015-D	1	*Radiator shell.....	
40064-A	1	Radiator top hose.....	10
4880-A	1	Radiator bottom hose.....	10
4950-A	4	Radiator top and bottom hose clamp, 2 $\frac{1}{4}$ ".....	
5040-A	1	*Radiator filler cap, "screw on" type.....	10
29046-A	1	*Radiator filler cap, "easy on" type.....	
4331-A	8	*Radiator screw, shell to core.....	10
300-A	8	*Radiator nut, shell to core.....	10
342-A	8	*Radiator lockwasher, shell to core.....	10
352-A	2	Radiator screw, attaches core to front support.....	10
312-A	2	Radiator lockwasher, attaches core to front support.....	10

WATER PUMP

The component parts of the water pump assemblies are listed in the engine section.

28179-CS	1	Water pump assembly (packless type).....	
27164-CS	1	Water pump assembly (packless type).....	
27163-CS	1	Water pump assembly (packless type).....	
27162-DS	1	Water pump assembly (packing type).....	
4934-A	1	Cylinder expansion plug 1 $\frac{1}{8}$ "—use in cyl. blocks 27001 and 27100....	

Give Engine Number with Each Parts Order

WATER PUMP (Continued)

Part No.	No. Req.	PART NAME	Plate No.
11052-A	1	Cylinder cup plug $1\frac{3}{4}$ "—use in cyl. blocks 28366 and 28367	
8-A	1	Cylinder expansion plug drain cock	
4908-A	1	Water pump attaching stud	
752-A	1	Water pump attaching stud nut ($\frac{3}{8}$ "x24)	
315-A	2	Water pump attaching screw ($\frac{3}{8}$ "x16x $\frac{7}{8}$ ")	
342-A	3	Water pump attaching lockwasher ($\frac{3}{8}$ " S.A.E.)	
27664-A	1	Water pump outlet pipe	
■ 4888-A	1	Water pump outlet pipe hose	
1774-A	2	Water pump outlet pipe hose clamp	
■ 86-A	1	Water pump outlet pipe gasket	
2359-A	2	Water pump outlet pipe screw ($\frac{5}{16}$ "x18x1")	
615-A	2	Water pump outlet pipe screw lockwasher ($\frac{5}{16}$ " S.A.E.)	
■ 27264-A	1	Water pump attaching gasket	
8079-A	1	Water pump distributor hole plug	
These parts are used on the power unit when a water pump is used replacing thermo-syphon parts.			
27653-A	1	Water pipe—Lower (No magneto bracket attached)	
■ 4866-A	1	Water pipe—Lower—Hose	
4950-A	2	Water pipe hose clamp	
■ 86-A	1	Water pipe gasket	
2359-A	2	Water pipe screw ($\frac{5}{16}$ "x18x1")	
615-A	2	Water pipe screw lockwasher ($\frac{5}{16}$ " S.A.E.)	
27152-B	1	Magneto bracket	

WATER PIPE—UPPER

27666-A	1	Water pipe, upper—Replaces 27650-A	
■ 14224-A	1	Water pipe, upper, gasket	
315-A	2	Water pipe, upper, screw	9
342-A	2	Water pipe, upper, screw lockwasher	9

WATER PIPE—LOWER

27153-A	1	Water pipe and magneto bracket	9
■ 4931-A	1	Water pipe gasket	
2100-A	2	Water pipe, lower, screw ($1\frac{1}{2}$ "x13x1")	10
312-A	2	Water pipe, lower, screw lockwasher ($\frac{1}{2}$ " S.A.E.)	10
620-A	1	Water pipe, lower, pipe plug	9

GAS CONTROL

29020-A	1	Gas control rod	10
10-A	1	Gas control rod cotter pin	10
25257-A	1	Gas control rod clamp	10
1286-A	2	Gas control rod clamp rivet ($\frac{1}{8}$ "x $\frac{3}{8}$ ")	

GASOLINE TANK

29043-C	1	Gas tank with cap	10
5043-A	1	Gas tank cap, "screw on" type	10
29046-A	1	Gas cap, "easy on" type	
5053-AS	1	Gas tank strainer, all brass	10
27619-AS	1	Gas tank strainer, glass bowl type	
14864-A	1	Gas tank strainer adapter	
29045-AS	1	Gas tank to carburetor pipe	10
7052-A	2	Gas tank to carburetor pipe nut	
7059-A	2	Gas tank to carburetor pipe elbow	
29042-BS	2	Gas tank hold down strap assembly	10
300-A	2	Gas tank hold down strap nut	10
342-A	2	Gas tank hold down strap lockwasher	10
190-A	2	Gas tank hold down strap ends	10
29044-B	2	Gas tank support	10
315-A	4	Gas tank support attaching screw	10
300-A	4	Gas tank support attaching nut	10
342-A	4	Gas tank support attaching lockwasher	10
5048-A	2	Gas tank anti-squeak	
14534-A	1	Gas tank filler neck washer—Felt	

Give Engine Number with Each Parts Order

PANEL SUPPORT CHANNEL

Part No.	No. Req.	PART NAME	Plate No.
29030-A	1	Panel support channel R. H.—Used with Zenith 154 carburetor.....	9
29038-B	1	Panel support channel R. H.—Used with Stromberg UR or Zenith 193½ carburetor.....	
29031-A	1	Panel support channel L. H.—Used with both carburetors.....	9
4870-A	2	Panel support channel spacer.....	9
1865-A	2	Panel support channel screw.....	9
342-A	2	Panel support channel lockwasher.....	9
300-A	2	Panel support channel nut.....	9
315-A	4	Panel support channel screw.....	9
342-A	4	Panel support channel lockwasher.....	9

Equipment for Burning Kerosene

The following parts are used in place of and in addition to standard engine and power unit parts.

INSTRUMENT PANEL

29259-C	1	Instrument panel—can be made from standard panel 29002-C.....
4173-A	4	Tank support nuts—welded to panel.....

CYLINDER HEAD

Cylinder heads suitable for use with Kerosene are as follows:

27204-D	1	Cylinder head—Model IXA.....
27208-D	1	Cylinder head—Model IXB.....

FUEL TANKS

The kerosene tank is the same as the gasoline tank listed on page 47 except as follows:

4363-A	1	Kerosene tank elbow.....
5097-A	1	Kerosene tank nipple.....
25204-C	1	Gasoline tank—mounts on instrument panel.....
5040-A	1	Gasoline tank cap.....
58897-A	2	Gasoline tank support strap.....
4318-A	2	Gasoline tank support strap screw.....
78-A	2	Gasoline tank support strap screw.....
615-A	4	Gasoline tank support strap lockwasher.....
8866-A	2	Gasoline tank anti-squeak ¾"x 1/8"x 3".....
4173-A	4	Gasoline tank attaching nut—welded to instrument panel.....

FUEL LINES AND CONNECTIONS

5406-A	1	Three way valve.....
5053-AS	1	Fuel strainer assembly.....
280-A	2	Fuel line elbow.....
28758-B5	1	Fuel line assembly.....
785-A	2	Fuel line nut.....

CARBURETOR

If the above parts are ordered to replace Gasoline equipment the carburetor jets must be changed to Kerosene specifications. If a new carburetor is required the Hercules Motors Corporation will furnish any information which may be desired as well as supplying the carburetor. In ordering a carburetor be sure to give engine number.

Give Engine Number with Each Parts Order