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PARTS CATALOG
for
WRIGHT GIPSY
ENGINES



WRIGHT AERONAUTICAL
CORPORATION

PATERSON, N. J., U. S. A.

PARTS CATALOG
for
WRIGHT GIPSY ENGINES



WRIGHT AERONAUTICAL CORPORATION
PATERSON, N. J., U. S. A.

WRIGHT GUARANTEE

WE WARRANT each new engine manufactured by us to be free from defects in material and workmanship under normal use and service and proper installation; our obligation under this warranty being limited to making good at our factory any part or parts thereof which shall within ninety (90) days after delivery of such engine to the original purchaser be returned to us with transportation charges prepaid and which our examination shall disclose to our satisfaction to have been defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on our part and we neither assume nor authorize any other person to assume for us any other liability in connection with the sale of our engines.

This warranty does not cover any labor charges for replacement of parts, adjustments, repairs, or any other work done on Wright engines.

This warranty shall not apply to any engine which shall have been repaired or altered outside of our factory in any way so as, in our judgment, to affect its stability, or which has been subject to misuse, negligence or accident, or which shall have been operated at a speed exceeding the factory rated speed.

We make no warranty whatever in respect to ignition, starting devices, generators, carburetors, or other trade accessories, inasmuch as they are usually warranted separately by their respective manufacturers.

WRIGHT AERONAUTICAL CORPORATION

Paterson, N. J.

INDEX

Name of Part	Page	Name of Part	Page
A		F	
Adapter, fuel pump	24	Filter, oil	12
Arm, rocker	19	Filter screen, oil	12
B		Flange, carburetor air scoop	23
Ball bearing, accessory drive shaft	20	Flange, propeller hub	15
Ball bearing, crankshaft thrust	14	Foot, engine	10
Ball bearing, magneto drive gear	20	G	
Ball bearing, oil pump drive gear	20	Gaskets, complete set	29
Bearing, camshaft	16	Gauge, oil level	12
Bearing, connecting rod	17	Gear, accessory drive	20
Bearing, crankshaft main	14	Gear, camshaft	16
Bracket, rocker arm shaft	19	Gear, impulse starter coupling	21
Bracket, spark and throttle control shaft	25	Gear, magneto	21
Breather	10	Gear, magneto drive	20
Bushing, rocker arm	19	Gear, oil pump	12
Bushing, tachometer drive gear	20	Gear, oil pump drive	20
C		Gear, tachometer drive	20
Camshaft	16	Grease fitting, rocker arm shaft	19
Cap, oil filler	10	Grommet, ignition wire rubber	26
Carburetor	23	Guide, intake and exhaust valve	18
Catalog, description of	4	Guide, valve tappet	19
Clamp, crankshaft extension bolt	14	H	
Clamp, flexible pipe	23	Hub, camshaft gear	16
Classification, engine	6	Hub, propeller	14
Clip, ignition wire manifold	17	K	
Connecting rod	17	Key, propeller hub	14
Connection, fuel pump and carburetor feed pipe	24	L	
Connection, oil manifold	13	Lever, carburetor mixture and primer control	25
Connection, oil pipe	13	Lever, magneto control	25
Connection, oil pump pipe	12	Lever, spark and throttle control shaft control	25
Cover, camshaft front bearing	16	Lever, throttle control	25
Cover, fuel pump flange	9	Lever, throttle shaft	25
Cover, starter flange	11	M	
Cowling, engine	26	Magneto	21
Crankcase, lower section	10	Magneto Switch	21
Crankcase, rear section	11	Manifold, exhaust	23
Crankcase, upper section	9	Manifold, intake	23
Crankshaft	14	Manifold, oil	12
Cylinder	18	Marker, ignition wire	21
D		N	
Disc, oil pressure relief valve packing	12	Nut, propeller hub	14
E			
Extension, crankshaft	14		

CONTENTS

General information	1
Telegraph orders	7
Crankcase	9
Oil pump system	12
Crankshaft and propeller hub	14
Camshaft and bearings	16
Connecting rods	17
Cylinders and pistons	18
Valve mechanism	19
Accessory drive	20
Magneto, spark plugs and ignition wiring	21
Carburetor, intake and exhaust manifold	23
Fuel pump and carburetor feed pipe	24
Engine controls	25
Engine cowling	26
Tool kit	27
Accessories	28
Quantity prices	29
Index	31

GENERAL INFORMATION

Description of Catalog

This catalog lists and describes the parts for all Gipsy engines and indicates the parts which are interchangeable. PARTS OR ASSEMBLIES NOT LISTED ARE NOT STOCKED OR SUPPLIED.

The arrangement of the catalog avoids cross reference by grouping all parts according to their functions and by listing together all types of each part. Parts listed without a qualifying description are used on all models of Gipsy engines.

Drawing Numbers are used exclusively in the catalog to identify parts. Drawing Numbers are used exclusively in the factory to identify parts and dealers are requested to identify parts in their stock rooms by DRAWING NUMBERS ONLY.

The table of contents at the front of the book shows the method of grouping the parts and the sequence of the groups. A comprehensive index is at the back of the book.

Owners of Gipsy engines will be supplied with pocket size catalogs at no charge provided the owners write direct to the factory giving the serial numbers of their engines. To non-owners, the pocket size catalogs will be supplied at \$.60 each.

Wright Parts Dealers will be supplied with one registered catalog in a substantial 8½" x 9" loose leaf binder at no charge. Additional registered catalogs will be supplied at \$3.50 net each. Registered catalogs are kept up to date by the issuance of new sheets covering price and engineering changes. No charge is made for this service to the holders of registered catalogs.

Prices

Prices are subject to change without notice, although the policy of Wright will be to give advance notification to Wright Parts Dealers and Approved Service Stations.

Prices listed here are f.o.b. Paterson, N. J. Wright Parts Dealers will sell parts f.o.b. their places of business at prices not to exceed those published here, making no additional charge for transportation from the factory or for handling.

Parts marked by an asterisk are sold to Wright Parts Dealers at a special discount; all other parts are subject to the Wright Parts Dealer's standard discount.

GENERAL INFORMATION—Cont'd

How to Order

Parts must whenever possible be ordered by or through a Wright Parts Dealer.

To insure prompt handling, Wright Parts Dealers' orders should always be *typewritten* on the standard Spare Parts Order form and mailed in the special Spare Parts Order envelope. These forms and envelopes can be obtained by dealers at no charge under the following Drawing Numbers: 21683—Spare Parts Order. 21738—Spare Parts Order Envelope.

A part must be designated by a **DRAWING NUMBER** together with a name sufficiently descriptive to give the factory a check on the accuracy of the Drawing Number. *It is not necessary to write the full catalog description of the part.* Do not enter the price of the part on the order. Be sure to give definite shipping instructions. If shipping instructions are omitted, we shall ship by express or parcel post.

Engine Classification

Engines are classified solely by the serial numbers that are stamped on the name plates which are on the right side of the upper crankcase.

TELEGRAPH ORDERS

Use of Code

Code words are for telegraphic orders only. Begin telegram with shipping code as per table below.

Use plain English to designate quantity wanted.

Example of Proper Code Order

Original message:

Ship to us by express two cylinder heads with valves and valve rockers, two cylinder barrels and two pistons complete with rings, piston pins and plugs.

Coded message:

YOWBA TWO HERUS TWO HETAZ TWO HETUL.

Shipping Code

Y O V U K	Ship to us by Air Mail
Y O W A R	Ship to us by Air Express
Y O W B A	Ship to us by Express or Parcel Post
Y O W D O	Ship to us by Parcel Post Special Handling
Y O W E F	Ship to us by Freight
Y O W F I	Ship to.....by Air Express and charge to us
Y O W G A	Ship to.....by Express or Parcel Post and charge to us
Y O W I N	Ship to.....by Parcel Post Special Handling and charge to us
Y O W M E	Ship to.....by Freight and charge to us
Y O W O B	Ship to.....by Air Express C. O. D.
Y O W R U	Ship to.....by Express or Parcel Post C. O. D.
Y O W U L	Ship to.....by Parcel Post Special Handling C. O. D.
Y O X A L	Ship to.....by Freight C. O. D.
Y O X B O	Advise date of shipment of our order number (or date).....
Y O X E N	Acknowledge receipt of this order and give shipping date

Confirmation

Always send a confirmation of telegram by mail. Confirmation should contain both coded telegram and translation.

Telegraphic Reply

If a telegraphic acknowledgment of an order is required, be sure to add the code word YOXEN to your order. The above shipping code words are also used by the factory in telegrams advising method of shipment.

All telegraphic replies are sent at customer's expense.

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CRANKCASE					
UPPER SECTION					
HAABE	90466		Crankcase upper section Not fitted for fuel pump. Includes: Crankshaft bearings and caps. Camshaft bearings. Dowels. Studs, nuts and washers.	1	\$315.00
HAACO	90622		Crankcase upper section Fitted for fuel pump. Includes: Crankshaft bearings and caps. Camshaft bearings. Fuel pump adapter and cover. Dowels. Studs, nuts and washers.	1	315.00
HAAPT	90341		Crankcase upper section to front plate stud ($\frac{3}{8}$ " x 18-24 x $1\frac{3}{8}$ ")	3	.20
HAAHI	90156		Crankcase upper section to lower section stud ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{8}$ ")	9	.20
HAAALD	90304		Crankcase upper section to rear section stud ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{8}$ ")	7	.25
HAAMP	90274		Cylinder hold-down stud ($\frac{1}{2}$ " x 13-20 x $9\frac{15}{16}$ ")	16	1.60
HAANY	90288		Crankcase upper section oil filler neck stud ($\frac{3}{4}$ " x 20-28 x $1\frac{5}{16}$ ")	3	.15
HAASU	90156		Crankcase upper section breather stud ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{8}$ ")	4	.20
HAAAYA	90286		Crankcase upper section engine foot stud ($\frac{3}{8}$ " x 18-24 x $1\frac{3}{8}$ ")	16	.25
HABAZ	90098		Crankcase upper section camshaft front bearing retainer stud ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{8}$ ")	3	.25
HABEF	90102		Crankcase upper section camshaft rear bearing retainer stud ($\frac{1}{4}$ " x 20-28 x 1")	2	.20
HABID	90120		Crankcase upper section valve tappet guide stud ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{8}$ ")	8	.20
HABKO	90102		Crankcase upper section control shaft bracket stud ($\frac{1}{4}$ " x 20-28 x 1")	3	.20
HABPV	90591		Crankcase upper section fuel pump stud ($\frac{3}{16}$ " x 24 x $1\frac{13}{16}$ ")	2	.60
HABUS	90106		Crankshaft rear and intermediate main bearing cap stud, long ($\frac{9}{16}$ " x 12-18 x $4\frac{7}{8}$ ")	4	.90
HADCO	90107		Crankshaft rear and intermediate main bearing cap stud, short ($\frac{9}{16}$ " x 12-18 x $4\frac{13}{16}$ ")	4	.80
HADEX	90105		Crankshaft front main bearing cap stud ($\frac{3}{8}$ " x 13-20 x $4\frac{3}{8}$ ")	4	.75
HADIM	90345		Crankcase upper section to lower section bolt ($\frac{1}{4}$ " x 28 x $1\frac{3}{8}$ ")	25	.30
HADLA	90348		Crankcase upper section to lower section dowel	2	.07
HADUJ	90347		Crankcase upper section to rear section dowel	2	.07
HAEGH	90602		Fuel pump flange cover	1	1.25
HAEKA	90589		Fuel pump flange cover to upper section gasket	1	.03Q
HAE LY	90082		Fuel pump flange cover to upper section nut ($\frac{3}{16}$ " x 24)	2	.25
HAEMS	90224		Fuel pump flange cover to upper section washer	2	.05
CRANKSHAFT MAIN BEARING CAPS					
HAEZI	90113		Crankshaft front main bearing cap	1	6.75
HAFAX	90109		Crankshaft front main bearing cap nut ($\frac{1}{2}$ " x 20)	4	.40
HAFEM	90111		Crankshaft front main bearing cap washer	4	.10
HAFID	90115		Crankshaft intermediate main bearing cap	3	5.65
HAFKO	90114		Crankshaft rear main bearing cap	1	4.05
HAGEC	90108		Crankshaft intermediate and rear main bearing cap nut ($\frac{9}{16}$ " x 18)	8	.45
HAGGA	90110		Crankshaft intermediate and rear main bearing cap washer	8	.10

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CRANKCASE—Cont'd					
OIL FILLER					
HAGUP		90512	Oil filler neck	1	\$ 3.25
			Includes pins.		
HAHAW		90100	Oil filler neck to upper section nut ($\frac{1}{4}$ " x 28)	3	.15
HANCE		90088	Oil filler neck to upper section plain washer	3	.04
HAHFO		90351	Oil filler neck to upper section lockwasher ($\frac{1}{4}$ ")	3	.02
HAHMI		90168	Oil filler strainer	1	1.25
			Includes flange, screen and ring.		
HAHPY		90470	Oil filler cap with spring	1	1.35
BREATHER					
HAIBO		90625	Crankcase breather	1	3.25
HAIFE		90359	Crankcase breather to upper section gasket	1	.02Q
HAINA		90100	Crankcase breather to upper section nut ($\frac{1}{4}$ " x 28)	4	.15
HAIRP		90207	Crankcase breather to upper section plain washer	4	.05
HAIRH		90351	Crankcase breather to upper section lockwasher ($\frac{1}{4}$ ")	4	.02
ENGINE FEET					
<small>The terms "Right" and "Left" in connection with parts listed in this group refer to the viewpoint from the cockpit when the engine is installed as a tractor.</small>					
HAJIM		90306	Engine foot. (Standard type)	4	4.40
HAJKA		90433	Engine foot, left front. (Special type for Moth planes)	1	4.25
HAJNU		90434	Engine foot, left rear. (Special type for Moth planes)	1	4.95
HAJOT		90490	Engine foot, right front. (Special type for Moth planes)	1	4.25
HAJSE		90491	Engine foot, right rear. (Special type for Moth planes)	1	4.95
HAKAF		90307	Engine foot rubber ring	4	.15
HAKBE		90092	Engine foot to upper section nut ($\frac{3}{16}$ " x 24)	16	.25
HAKDI		90224	Engine foot to upper section washer	16	.05
LOWER SECTION					
HALJU		90629	Crankcase lower section	1	86.00
			Includes studs.		
HALMO		90100	Crankcase lower section to main section nut ($\frac{1}{4}$ " x 28)	34	.15
HALNT		90207	Crankcase lower section to main section plain washer	34	.05
HALOP		90351	Crankcase lower section to main section lockwasher ($\frac{1}{4}$ ")	34	.02
HALRA		90341	Crankcase lower section to front plate stud ($\frac{5}{16}$ " x 18-24 x $1\frac{1}{8}$ ")	2	.20
HALSI		90304	Crankcase lower section to rear section stud ($\frac{1}{4}$ " x 20-28 x $1\frac{1}{8}$ ")	7	.25
HALTE		90344	Crankcase lower section oil suction pipe flange stud ($\frac{1}{4}$ " x 20-28 x $1\frac{1}{8}$ ")	2	.20
HAMB A		90305	Crankcase lower section oil filter screen housing stud, short ($\frac{1}{4}$ " x 20-28 x $1\frac{1}{8}$ ")	5	.25
HAMBE		90418	Crankcase lower section oil filter screen housing stud, long ($\frac{1}{4}$ " x 20-28 x $1\frac{1}{8}$ ")	2	.25
HAMHO		90191	Crankcase lower section oil filter tray	1	9.75
			Includes: Screen. Upper and lower plates. Oil level gauge guide.		
HAMKU		90336	Crankcase lower section oil filter tray screw ($\frac{1}{4}$ " x 20 x $\frac{1}{16}$ ")	12	.40

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CRANKCASE—Con'td					
FRONT PLATE					
HANCU		90119	Front plate	1	\$ 5.75
HANEH		90092	Front plate to crankcase nut ($\frac{3}{16}$ " x 24)	5	.25
HANFA		90340	Front plate to crankcase washer	5	.05
REAR SECTION					
HANPO		90508	Crankcase rear section	1	70.00
			Includes: Accessory drive shaft ball bearing retainer. Magneto gear ball bearing retainer. Tachometer thrust ball. All studs.		
HAOBY		90176	Crankcase rear section to upper and lower section gasket	1	.12Q
HAOCS		90239	Crankcase rear section to upper section bolt ($\frac{1}{4}$ " x 28 x $2\frac{3}{8}$ ")	2	.45
HAOFI		90101	Crankcase rear section to upper and lower section nut ($\frac{1}{4}$ " x 28)	16	.20
HAOGN		90207	Crankcase rear section to upper and lower section washer	16	.05
HAOHM		90373	Crankcase rear section magneto stud ($\frac{3}{16}$ " x 18-24 x $1\frac{13}{16}$ ")	4	.25
HAPIP		90223	Crankcase rear section starter stud ($\frac{3}{16}$ " x 18-24 x $1\frac{11}{16}$ ")	5	.20
HAFOM		90157	Crankcase rear section oil pump stud, long ($\frac{3}{4}$ " x 20-28 x $2\frac{3}{4}$ ")	2	.30
HAFPE		90362	Crankcase rear section oil pump stud, short ($\frac{1}{4}$ " x 20-28 x $1\frac{3}{16}$ ")	2	.25
HAFPT		90370	Starter flange cover	1	3.75
HAFUG		90371	Starter flange cover to rear section gasket	1	.03Q
HARAM		90092	Starter flange cover to rear section nut ($\frac{3}{16}$ " x 24)	5	.25
HARCE		90224	Starter flange cover to rear section washer	5	.05

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
OIL PUMP SYSTEM					
OIL PUMP					
HASUS	90472		Oil pump complete	1	\$30.00
HATEB	90158		Oil pump to rear section bolt ($\frac{1}{4}$ " x 28 x 2 $\frac{3}{4}$ ")	1	.45
HATFO	90101		Oil pump to rear section nut ($\frac{1}{4}$ " x 28)	5	.20
HATHI	90207		Oil pump to rear section washer	6	.05
HATKA	90520		Oil pump body with dowels	1	9.00
HATMY	90128		Oil pump body dowel	2	.05
HATUD	90153		Oil pump spacer	1	2.50
HAUBS	90154		Oil pump driving gear	1	8.10
HAUDO	90155		Oil pump driven gear	1	7.50
HAUGI	90162		Oil pump pipe straight connection (for $\frac{5}{8}$ " O.D. pipe)	1	.70
HAUKA	90159		Oil pump pipe straight connection (for $\frac{1}{2}$ " O.D. pipe)	1	.60
OIL PRESSURE RELIEF VALVE					
HAVIC	90196		Oil pressure relief valve with stem	1	1.50
HAVLE	90142		Oil pressure relief valve spring	1	.15
HAVMU	90133		Oil pressure relief valve packing disc	As req'd	.10
HAVOD	90132		Oil pressure relief valve plug ($\frac{3}{8}$ " x 18)	1	1.30
HAVPA	90138		Oil pressure relief valve plug gasket	1	.03Q
OIL FILTER					
HAWGI	90493		Oil filter body with studs	1	10.75
HAWME	90156		Oil filter body stud ($\frac{3}{4}$ " x 20-28 x 1 $\frac{13}{16}$ ")	6	.20
HAWOC	90129		Oil filter body to lower section gasket	1	.15Q
HAWSU	90100		Oil filter body to lower section nut ($\frac{1}{4}$ " x 28)	7	.15
HAXAF	90207		Oil filter body to lower section plain washer	7	.05
HAXBE	90351		Oil filter body to lower section lockwasher ($\frac{1}{4}$ ")	7	.02
HAXGO	90132		Oil drain plug	1	1.30
HAXIN	90138		Oil drain plug gasket	1	.03Q
HAXLU	90428		Oil filter screen complete	1	5.25
Includes oil filter relief valve.					
HAXPY	90130		Oil filter screen to housing gasket	1	.03Q
HAYAJ	90100		Oil filter screen to housing nut ($\frac{1}{4}$ " x 28)	6	.15
HAYBI	90207		Oil filter screen to housing plain washer	6	.05
HAYDY	90351		Oil filter screen to housing lockwasher ($\frac{1}{4}$ ")	6	.02
OIL LEVEL GAUGE					
HAZAW	90317		Oil level gauge with handle	1	3.10
HAZDI	90320		Oil level gauge retaining clip	1	.15
HAZET	90321		Oil level gauge retaining clip screw (# 10 x 32 x $\frac{1}{2}$ ")	1	.15
HAZKY	90180		Oil level gauge retaining clip screw lockwasher	1	.02
OIL PIPES AND CONNECTIONS					
HAZUR	90381		Oil manifold complete	1	16.90
Includes:					
Oil pipe, front.					
Oil pipe, intermediate.					
Oil pipe, rear.					
Oil pipe connecting nuts.					
Oil pipe connections.					

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
OIL PUMP SYSTEM—Cont'd					
OIL PIPES AND CONNECTIONS—Cont'd					
HEABA		90173	Oil manifold to crankcase union	5	\$.75
HEAGL		90174	Oil manifold union to crankcase washer	5	.05
HEAHM		90175	Oil manifold union to oil manifold washer	5	.05
HEAJO		90178	Oil manifold to crankcase union cap nut ($\frac{3}{16}$ " x 20)	5	.30
HEAKS		90177	Oil manifold to crankcase union cap nut washer	5	.05
HEAPN		90179	Oil manifold connection, front end	1	1.50
HEATU		90233	Oil manifold connection, front end, plug ($\frac{3}{8}$ ")	1	.15
HEAWE		90172	Oil manifold connection, intermediate (3-way)	1	2.15
HEAXI		90183	Oil manifold connection, intermediate (2-way)	2	1.40
HEAYD		90186	Oil manifold connection, rear	1	2.50
HEBAC		90233	Oil manifold connection, rear, plug ($\frac{3}{8}$ ")	1	.15
HEBBO		90375	Oil manifold pipe with connecting nuts, front	1	2.00
HEBDF		90376	Oil manifold pipe with connecting nuts, intermediate	2	2.00
HEBEK		90374	Oil manifold pipe with connecting nuts, rear	1	2.00
HEBGH		90160	Oil manifold pipe connecting nut	8	.35
HEBIM		90377	Oil filter pipe with connecting nuts, oil filter to oil manifold	1	2.50
HEBKS		90160	Oil filter pipe connecting nut	2	.35
HEBLY		90170	Oil filter pipe elbow connection, filter end	1	.55
HEBNU		90378	Timing gear oil pipe with connecting nuts, oil manifold to timing gear	1	1.50
HEBPT		90188	Timing gear oil pipe connection nut	2	.15
HEBRI		90190	Timing gear oil pipe connection	1	1.65
HECAF		90233	Timing gear oil pipe connection plug ($\frac{1}{2}$ ")	1	.15
HECBN		90380	Oil pump suction pipe with connecting nuts ($\frac{5}{8}$ " O.D. pipe)	1	4.40
HECDI		90163	Oil pump suction pipe connecting nut	2	.50
HECHU		90165	Oil pump suction pipe flanged elbow connection, lower crankcase	1	1.40
HECLE		90166	Oil pump suction pipe flanged elbow connection gasket	1	.03Q
HECOR		90100	Oil pump suction pipe flanged elbow connection nut ($\frac{1}{4}$ " x 28)	2	.15
HECSY		90351	Oil pump suction pipe flanged elbow connection lockwasher ($\frac{1}{4}$ ")	2	.02
HEDCA		90379	Oil pump pressure pipe with connecting nuts ($\frac{1}{2}$ " O.D. pipe)	1	2.10
HEDES		90160	Oil pump pressure pipe connecting nut	2	.35
HEDHO		90159	Oil pump pressure pipe straight connection, lower crankcase	1	.50

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CRANKSHAFT AND PROPELLER HUB					
CRANKSHAFT					
HEEMO	90494		Crankshaft	1	\$205.00
Includes:					
Oil seals.					
Propeller hub key.					
Bolts, screws, nuts and washers.					
HEEPH	90086		Crankshaft oil seal	4	.15
HEERA	90087		Crankshaft oil seal washer	4	.10
HEESE	90093		Crankshaft oil seal bolt ($\frac{1}{4}$ " x 28 x $4\frac{1}{2}$ " ^{*)}	2	1.25
HEETI	90099		Crankshaft oil seal bolt copper washer	4	.04
HEEVU	90085		Crankshaft oil seal bolt steel washer	4	.04
HEEWN	90101		Crankshaft oil seal bolt nut ($\frac{1}{4}$ " x 28)	2	.20
HEFAW	90091		Crankpin oil seal	8	.15
HEFBO	90090		Crankpin oil seal washer	8	.15
HEFDY	90094		Crankpin oil seal bolt ($\frac{1}{4}$ " x 28 x $4\frac{1}{2}$ " ^{*)}	4	1.25
HEFER	90099		Crankpin oil seal bolt copper washer	8	.04
HEFGU	90088		Crankpin oil seal bolt steel washer	8	.04
HEFIF	90101		Crankpin oil seal bolt nut ($\frac{1}{4}$ " x 28)	4	.20
HEFKN	90221		Crankshaft front end plug	1	.25
HEGAL	90353		Crankcheeck oil passage headless set screw ($\frac{1}{4}$ " x 20 x $\frac{3}{8}$ " ^{*)}	4	.12
HEGCO	90057		Propeller hub key	1	.75
HEGDU	90323		Propeller hub key retaining screw (# 10 x 32 x $\frac{1}{8}$ " ^{*)}	1	.15
HEGGE	90076		Crankshaft thrust ball bearing	1	5.35
HEGIF	90278		Crankshaft thrust ball bearing oil slinger	1	.35
HEGMY	90279		Crankshaft thrust spanner nut ($2\frac{3}{8}$ " x 16)	1	4.50
HEGOH	90280		Crankshaft thrust spanner nut lock ring	1	.15
CRANKSHAFT EXTENSION					
HEGST	90095		Crankshaft extension	1	36.50
HEHAK	90096		Crankshaft extension bolt ($\frac{5}{8}$ " x 24 x $3\frac{1}{2}$ " ^{*)}	1	1.20
HEHDO	90085		Crankshaft extension bolt clamp	1	.50
HEHIZ	90092		Crankshaft extension bolt nut ($\frac{5}{8}$ " x 24)	1	.25
CRANKSHAFT MAIN BEARING					
HEHLY	90467		Crankshaft front main bearing, upper and lower halves	1	3.50
HEHUB	90468		Crankshaft intermediate main bearing, upper and lower halves	3	2.90
HEJAJ	90469		Crankshaft rear main bearing, upper and lower halves	1	2.30
HEJBY	90349		Crankshaft main bearing dowel	5	.30
PROPELLER HUB					
HEJME	90495		Propeller hub complete	1	48.00*
Includes:					
Propeller hub.					
Propeller hub flange.					
Dowel.					
Bolts, nuts and washers.					
HEJPO	90080		Propeller hub nut, inner	1	3.75
HEJRU	90079		Propeller hub nut, outer	1	3.25

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CRANKSHAFT AND PROPELLER HUB—Cont'd					
PROPELLER HUB—Cont'd					
HEKAN	90496		Propeller hub with dowel	1	\$38.00*
			Includes timing pointer.		
HEKCU	90605		Timing pointer	1	.35
HEKDY	90438		Propeller hub flange	1	6.25
			Includes name plate.		
HEKGI	90084		Propeller hub bolt ($3\frac{1}{8}$ " x 24 x $5\frac{1}{8}$ ")	6	1.10
HEKJE	90081		Propeller hub bolt nut ($3\frac{1}{8}$ " x 24)	6	.70
HEKMO	90083		Propeller hub bolt washer	6	.07

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CAMSHAFT AND BEARINGS					
CAMSHAFT					
HEMAG	90586		Camshaft	1	\$90.00
			Used for engines fitted for fuel pump.		
HEMBO	90007		Camshaft	1	90.00
			Used for engines not fitted for fuel pump.		
HEMDU	90018		Camshaft gear	1	26.50
HEMIN	90017		Camshaft gear hub	1	5.75
HEMKE	90030		Camshaft gear hub key	1	.05
HEMRY	90282		Camshaft gear to hub bolt ($\frac{1}{4}$ " x 28 x $\frac{5}{8}$ ")	3	.25
HENBY	90283		Camshaft gear to hub bolt lock	3	.15
HENES	90284		Camshaft gear to hub nut ($\frac{1}{4}$ " x 28)	3	.15
HENIZ	90028		Camshaft gear to camshaft nut ($\frac{3}{4}$ " x 16)	1	.60
CAMSHAFT BEARINGS					
HENRU	90025		Camshaft front bearing	1	2.75
HENTA	90097		Camshaft front bearing cover	1	1.50
HENVO	90100		Camshaft front bearing cover to crankcase nut ($\frac{1}{4}$ " x 28)	3	.15
HEOBI	90207		Camshaft front bearing cover to crankcase plain washer	3	.05
HEOCY	90351		Camshaft front bearing cover to crankcase lockwasher ($\frac{1}{4}$ ")	3	.02
HEOFA	90024		Camshaft intermediate bearing	3	1.75
HEOGH	90058		Camshaft intermediate bearing dowel	3	.05
HEOKT	90026		Camshaft rear bearing	1	4.75
HEOMD	90101		Camshaft rear bearing retaining nut ($\frac{1}{4}$ " x 28)	2	.20

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CONNECTING RODS					
HEPIC	90008		Connecting rod complete	4	\$24.00
			Includes:		
			Bearing.		
			Bearing cap.		
			Bolts, nuts and washers.		
HEPME	90499		Connecting rod bearing, upper and lower halves	4	2.80
HEPOR	90021		Connecting rod bearing dowel	4	.30
HEPSA	90022		Connecting rod bolt ($\frac{3}{4}$ " x 24 x $2\frac{3}{4}$ ")	8	2.25
HEPTU	90019		Connecting rod bolt nut ($\frac{3}{8}$ " x 24)	8	.30
HEPZY	90023		Connecting rod bolt washer	8	.05

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CYLINDERS AND PISTONS					
CYLINDERS					
HERUS	90505		Cylinder head with valves and valve rockers	4	\$83.00
			Includes: Valves and springs. Rocker arms and bracket. Intake and exhaust port studs.		
HESCE	90504		Cylinder head with studs	4	56.50
			Includes: Valve guides and seats. Spark plug inserts. Intake and exhaust port studs.		
HESFO	90027		Cylinder head gasket	4	.120
HESIM	90277		Cylinder hold-down nut ($\frac{1}{2}$ " x 20)	16	.30
HESNA	90275		Cylinder hold-down washer	8	.07
HESSY	90037		Valve guide, intake and exhaust	8	3.25
HESUV	90240		Intake and exhaust port stud ($\frac{1}{4}$ " x 20-28 x $1\frac{1}{16}$ ")	28	.20
HETAZ	90005		Cylinder barrel	4	18.00
PISTONS					
			Pistons are not sold without fitted rings.		
HETUL	90502		Piston complete with rings, piston pin and plugs	4	18.40
HEUCH	90503		Piston with rings	4	14.00
HEUGA	90544		Piston pin	4	3.80
HEUJY	90543		Piston pin plug	8	.30
PISTON RINGS					
HEURD	90034		Piston compression ring	8	.40
HEUTH	90031		Piston wiper ring	4	.50

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
VALVE MECHANISM					
ROCKER ARM AND BRACKET					
HEVHE	90515		Rocker arm assembly	8	\$6.25
			Includes bushing and button.		
HEVKO	90067		Rocker arm bushing	8	.80
HEVNY	90049		Rocker arm adjusting screw	8	1.50
HEVRA	90127		Rocker arm adjusting screw lock nut ($\frac{5}{16}'' \times 24$)	8	.17
HEVTI	90456		Rocker arm shaft with pin	4	2.00
HEVUP	90151		Rocker arm shaft grease fitting	4	.20
HEWAL	90610		Rocker arm shaft grease fitting washer	4	.03
HEWCE	90074		Rocker arm shaft nut ($\frac{3}{8}'' \times 24$)	8	.30
HEWGO	90103		Rocker arm shaft washer	8	.07
HEWID	90015		Rocker arm shaft bracket	4	4.50
HEWKY	90256		Rocker arm shaft bracket clamp bolt ($\frac{1}{4}'' \times 28 \times 1\frac{1}{2}''$)	8	.35
HEWNU	90101		Rocker arm shaft bracket clamp bolt nut ($\frac{3}{4}'' \times 28$)	8	.20
HEXAD	90368		Rocker arm shaft bracket to cylinder head bolt ($\frac{3}{16}'' \times 24 \times 1\frac{1}{2}''$)	12	.40
HEXBV	90092		Rocker arm shaft bracket to cylinder head nut ($\frac{3}{16}'' \times 24$)	12	.25
HEXCO	90224		Rocker arm shaft bracket to cylinder head washer	12	.05
PUSH ROD					
HEXIN	90338		Push rod complete	8	3.75
			Includes socket, ball end and plug.		
VALVE TAPPET					
HEXNE	90510		Valve tappet and guide matched assembly	8	9.75
			Includes tappet, socket and guide.		
HEXRU	90100		Valve tappet guide to upper section nut ($\frac{1}{4}'' \times 28$)	8	.15
HEYAN	90351		Valve tappet guide to upper section lockwasher ($\frac{1}{4}''$)	8	.02
VALVES					
HEYHI	90038		Intake valve	4	\$9.00
HEYKU	90039		Exhaust valve	4	8.50
HEYOT	90051		Valve spring, inner	8	.50
HEYSY	90050		Valve spring, outer	8	.60
HEYZE	90053		Valve spring washer	8	.60
HEZAT	90052		Valve spring locking washer (split)	16	.80
HEZEM	90063		Valve thimble	8	.50
HEZGO	90066		Valve circlelet	8	.02

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
ACCESSORY DRIVE					
ACCESSORY DRIVE GEAR AND SHAFT					
HIADA	90202		Accessory drive gear	1	\$18.90
HIAGU	90225		Accessory drive shaft	1	28.40
HIALY	90354		Accessory drive gear key (Woodruff #3)	1	.02
HIAMP	90122		Accessory drive shaft ball bearing, large	1	2.80
HIANE	90204		Accessory drive shaft ball bearing, small	1	1.20
HIARF	90215		Accessory drive shaft spanner nut (1 $\frac{1}{4}$ " x 18)	1	1.25
HIATH	90217		Accessory drive shaft spanner nut lock ring	1	.15
HIAVO	90356		Accessory drive shaft ball bearing retainer plate	1	.65
HIA XI	90358		Accessory drive shaft ball bearing retainer plate screw (1 $\frac{1}{4}$ " x 20 x 1 $\frac{1}{16}$ ")	5	.80
OIL PUMP DRIVE					
HIBAY	90198		Oil pump drive gear	1	23.90
HIBCI	90121		Oil pump drive gear ball bearing	2	1.75
HIBET	90199		Oil pump drive gear ball bearing spacer	1	.65
HIBOL	90200		Oil pump drive gear ball bearing retaining nut (1 $\frac{3}{8}$ " x 16)	1	.60
HIBUN	90201		Oil pump drive gear ball bearing retaining nut lock	1	.05
MAGNETO DRIVE					
The terms "Right" and "Left" in connection with parts listed in this group refer to the viewpoint from the cockpit when the engine is installed as a tractor.					
HICEM	90222		Magneto drive gear, right	1	18.35
HICFA	90213		Magneto drive gear, left	1	18.35
HICIL	90355		Magneto drive gear washer, inner	2	.30
HICON	90216		Magneto drive gear washer, outer	2	.15
HICUD	90122		Magneto drive gear ball bearing	4	2.80
HICVY	90214		Magneto drive gear ball bearing spacer	2	.75
HIDAF	90218		Magneto drive gear ball bearing retainer plate	2	.25
HIDBE	90219		Magneto drive gear ball bearing retainer plate screw (# 10 x 32 x 1 $\frac{1}{2}$ ")	8	.25
HIDDI	90215		Magneto drive gear ball bearing retaining spanner nut (1 $\frac{1}{4}$ " x 18)	2	1.25
HIDDL	90217		Magneto drive gear ball bearing retaining spanner nut lock ring	2	.15
TACHOMETER DRIVE					
HIECS	90211		Tachometer drive gear	1	14.00
HIEFI	90212		Tachometer drive gear bushing	1	1.25

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
MAGNETO, SPARK PLUGS AND IGNITION WIRING					
<p>Magneto and impulse starter parts are stocked by us in small quantities only. We recommend that orders for these parts be placed direct with the manufacturers, or with their authorized service stations.</p> <p>For detail parts of magnetos, see Parts List issued by Scintilla Magneto Co., Sidney, N. Y.</p> <p>For detail parts of impulse starters, see Parts List issued by Apollo Magneto Corp., Kingston, N. Y.</p> <p>When ordering parts for a magneto, be sure to note the type as given on the front end plate of the magneto and enter it upon your order.</p>					
MAGNETO					
HIFNA	90513		Magneto, right (Scintilla PN4-D-F1)	1	\$87.00
			Includes impulse starter.		
HIFUM	90012		Magneto, left (Scintilla PN4-D-F1)	1	76.00
			Does not include impulse starter.		
HIFYO	90092		Magneto to crankcase rear section nut (3/8" x 24)	4	.25
HIFZE	90372		Magneto to crankcase rear section washer	4	.05
HIGAN	90220		Magneto gear	1	5.25
HIGDY	90123		Impulse starter coupling gear	1	7.25
HIGEM	90354		Magneto gear key (Woodruff #3)	2	.14
HIGHO	90555		Magneto gear nut (3/4" x 16)	2	.16
HIGLI	90634		Magneto gear washer	2	.04
HIGUP	90014		Magneto impulse starter (Apollo, AR-351-S)	1	8.60
HIHAM	90013		Magneto impulse starter catch plate	1	2.00
HIHET	90522		Magneto impulse starter catch plate screw	4	.05
MAGNETO SWITCH					
HIJEM	90523		Magneto switch (Scintilla Model E.C.)	1	10.00
IGNITION WIRING					
<p>The terms "Right" and "Left" in connection with parts listed in this group refer to the viewpoint from the cockpit when the engine is installed as a tractor.</p>					
HIKAN	90573		Wiring harness assembly, right	1	12.00
HIKEC	90572		Wiring harness assembly, left	1	12.00
HIKIM	90329		Ignition wire manifold	2	3.60
HIKOL	90335		Ignition wire manifold to cylinder head bracket	4	.15
HIKST	90333		Ignition wire manifold to cylinder head bracket clip	4	.10
HIKUR	90334		Ignition wire manifold to cylinder head bracket clip bolt (1/4" x 28 x 3/4")	4	.30
HIKWY	90101		Ignition wire manifold to cylinder head bracket clip nut (1/4" x 28)	4	.20
HILAX	90207		Ignition wire manifold to cylinder head bracket clip washer	4	.05
HILCE	90568		Spark plug wire with terminal, right (#1 cylinder)	1	1.65
HILIN	90564		Spark plug wire with terminal, left (#1 cylinder)	1	1.65
HILMO	90569		Spark plug wire with terminal, right (#2 cylinder)	1	1.60
HILRU	90565		Spark plug wire with terminal, left (#2 cylinder)	1	1.60
HILTY	90570		Spark plug wire with terminal, right (#3 cylinder)	1	1.65
HIMAN	90566		Spark plug wire with terminal, left (#3 cylinder)	1	1.65
HIMCR	90571		Spark plug wire with terminal, right (#4 cylinder)	1	1.45
HIMET	90567		Spark plug wire with terminal, left (#4 cylinder)	1	1.45
HIMFY	90352		Spark plug wire terminal	8	.15
HIMHI	90325		Ignition wire marker (Complete set)	2 sets	.45

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
MAGNETO, SPARK PLUGS AND IGNITION WIRING—Cont'd					
SPARK PLUGS					
<small>Spark plugs are handled as an accommodation only. Whenever possible, they should be bought direct from the maker or the maker's representative.</small>					
HIMLU	90048		Spark plug (A.C.—Type N)	8	\$ 1.25q
HIMOB	90062		Spark plug gasket	8	.03q

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
CARBURETOR, INTAKE AND EXHAUST MANIFOLD					
Carburetor parts are stocked by us in small quantities only. We recommend that orders for these parts be placed direct with Bendix Stromberg Carburetor Co., South Bend, Indiana, or with their authorized service stations. For detail parts of carburetors, see Parts List issued by Bendix Stromberg.					
CARBURETOR					
HINAS		90011	Carburetor (Bendix Stromberg NA-R3A)	1	\$100.00
HINDI		90303	Carburetor to intake manifold gasket	1	.04Q
HINEX		90315	Carburetor to intake manifold nut ($\frac{3}{8}$ " x 24)	2	.30
HINLD		90023	Carburetor to intake manifold washer	2	.05
HINSY		90416	Carburetor screen	1	.75
HINWU		90271	Carburetor support	1	.40
HINYA		90272	Carburetor support and screen cap screw ($\frac{1}{4}$ " x 28 x $\frac{1}{8}$ ")	6	.35
HIPIN		90207	Carburetor support washer	2	.05
HIPLO		90435	Carburetor air scoop flange	1	.30
INTAKE MANIFOLD					
HIPRU		90630	Intake manifold Includes studs and plugs.	1	42.25
HIRAF		90045	Intake manifold to cylinder head gasket	4	.06Q
HIRDE		90100	Intake manifold to cylinder head nut ($\frac{1}{4}$ " x 28)	16	.15
HIRFI		90351	Intake manifold to cylinder head lockwasher ($\frac{3}{4}$ ")	16	.02
HIRJO		90316	Intake manifold to carburetor stud ($\frac{3}{8}$ " x 24 x $\frac{1}{8}$ ")	2	.30
HIRTU		90233	Intake manifold pipe plug ($\frac{3}{8}$ ")	4	.15
EXHAUST MANIFOLD					
HISAN		90342	Exhaust manifold complete. Includes flanges.	1	19.50
HISDI		90044	Exhaust manifold to cylinder head gasket	4	.05Q
HISDY		90309	Exhaust manifold to cylinder head nut ($\frac{1}{4}$ " x 28)	12	.15
HISOR		90351	Exhaust manifold to cylinder head lockwasher ($\frac{3}{4}$ ")	12	.02
HISUW		90429	Exhaust manifold to intake manifold flexible pipe	1	.15
HISTE		90430	Flexible pipe clamp	3	.10
HITAW		90432	Flexible pipe clamp bolt (#10 x 32 x $\frac{1}{2}$ ")	3	.05
HITCE		90431	Flexible pipe clamp nut (#10 x 32)	3	.02
HITIF		90180	Flexible pipe clamp lockwasher	3	.02

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
FUEL PUMP AND CARBURETOR FEED PIPE					
FUEL PUMP					
Fuel pump parts are stocked by us in small quantities only. We recommend that orders for these parts be placed direct with A. C. Spark Plug Co., Flint, Michigan, or with their authorized service stations.					
HIVAL	90597		Fuel pump (A.C.—Type B)	1	\$10.00
HIVDE	90589		Fuel pump to adapter gasket	1	.03q
HIVGI	90585		Fuel pump adapter	1	1.90
HIVKO	90598		Fuel pump adapter to upper section screw (# 10 x 32 x 3/8")	2	.05
HIVNU	90588		Fuel pump adapter to upper section gasket	1	.03q
HIVTY	90092		Fuel pump and adapter to upper section nut (3/8" x 24)	2	.25
HIVCA	90224		Fuel pump and adapter to upper section washer	2	.05
CARBURETOR FEED PIPE AND CONNECTIONS					
HIZAB	90593		Fuel pump to carburetor feed pipe with connecting nuts	1	2.75
HIZDE	90594		Fuel pump elbow connection, body half	1	.35
HIZIG	90595		Carburetor elbow connection, body half	1	.35
HIZLO	90596		Carburetor feed pipe connecting nut	2	.20

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
ENGINE CONTROLS					
SPARK AND THROTTLE CONTROLS					
The terms "Right" and "Left" in connection with parts listed in this group refer to the viewpoint from the cockpit when the engine is installed as a tractor.					
HOABA	90244		Spark and throttle control shaft	1	\$.90
HOADI	90234		Spark and throttle control shaft bracket, right	1	4.75
Includes bushings.					
HOAFN	90241		Spark and throttle control shaft bracket, left	1	2.75
Includes bushings.					
HOAHM	90101		Spark and throttle control shaft bracket to crankcase nut ($\frac{1}{4}$ " x 28)	5	.20
HOAJO	90238		Spark and throttle control shaft bracket, right, to crankcase washer	2	.05
HOAKY	90207		Spark and throttle control shaft bracket, left, to crankcase washer	3	.05
HOALE	90245		Spark and throttle control shaft control lever	1	.85
HOAPT	90245		Magneto control lever	2	.85
HOARX	90252		Throttle control lever	1	.90
HOASU	90246		Control lever split taper pin (# 00 x $\frac{3}{16}$ ")	4	.04
HOBAG	90484		Magneto control rod complete with yoke end	2	1.75
HOB DY	90249		Magneto control rod yoke end	2	.60
HOB ER	90273		Magneto control rod yoke end lock nut (# 10 x 32)	2	.05
HOB IM	90247		Magneto control rod yoke end pin	2	.35
HOB KA	90511		Throttle control rod complete with ball joints	1	1.00
HOB LO	90270		Throttle control rod	1	.25
HOB UN	90269		Throttle control rod ball joint	2	.35
HOC AF	90250		Throttle control rod ball joint lock nut ($\frac{7}{16}$ " x 32)	4	.05
HOC BU	90264		Throttle shaft assembly	1	2.50
Includes plate and pins.					
HOC ER	90268		Throttle shaft lever	1	.95
HOC GO	90254		Throttle shaft lever split taper pin (# 000 x $\frac{1}{16}$ ")	1	.04
CARBURETOR MIXTURE AND PRIMER CONTROLS					
HOD BI	90255		Carburetor mixture and primer control lever	2	1.00
HOD DU	90477		Carburetor mixture control rod complete with yoke end	1	2.00
HOD EL	90476		Carburetor primer control rod complete with yoke end	1	1.90
HOD HO	90249		Carburetor mixture and primer control rod yoke end	2	.60
HOD NA	90273		Carburetor mixture and primer control rod yoke end lock nut (# 10 x 32)	2	.05
HOE BE	90247		Carburetor mixture and primer control rod yoke end pin	2	.35

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
ENGINE COWLING					
A few engines were equipped with a special type of cowling which differs from the standard type in the length and depth of the lower baffle. The lower edge of the standard type baffle fits between the fifth and sixth fins from the bottom of the cylinders while the special type fits between the first and second fins from the bottom. The two types of cowling are interchangeable as assemblies; detail parts are all interchangeable with the exception of the lower baffle and door assemblies.					
HOEWA	90552		Cowling assembly complete, standard type	1	\$68.00
HOEYT	90553		Cowling assembly complete, special type	1	68.00
HOFBE	90384		Lower cowl baffle and door assembly, standard type	1	34.75
Includes:					
Lower and rear baffle.					
Deflectors.					
Door.					
Hooks.					
Hinge.					
HOFGU	90599		Lower cowl baffle and door assembly, special type	1	34.75
Includes:					
Lower and rear baffle.					
Deflectors.					
Door.					
Hooks.					
Hinge.					
HOFJA	90408		Lower cowl baffle hook catch	2	.15
HOFMI	90409		Lower cowl baffle spring anchor	2	.20
HOGAG	90406		Lower cowl baffle spring	2	.25
HOGBU	90417		Ignition wire rubber grommet	1	.20
HOGDY	90393		Cowl baffle assembly, left	1	8.75
Includes:					
Locking rods.					
Locking rod guides.					
Door catch spring.					
HOKEN	90412		Cowl baffle, left, to rear baffle screw (# 8 x 32 x 3/8")	3	.05
HOGFO	90413		Cowl baffle, left, to rear baffle nut (# 8 x 32)	3	.05
HOGHA	90180		Cowl baffle, left, to rear baffle washer	3	.02
HOGMI	90219		Cowl baffle, left, to rocker bracket screw (# 10 x 32 x 3/16")	4	.25
HOGAJ	90273		Cowl baffle, left, to rocker bracket nut (# 10 x 32)	4	.05
HONDE	90180		Cowl baffle, left, to rocker bracket lockwasher	4	.02
HOHFY	90395		Cowl cover and right baffle assembly	1	21.25
Includes:					
Cover and plate.					
Baffle.					
Hinge.					
HOHIN	90334		Cowl cover and baffle to intake pipe flange bolt (1/4" x 28 x 3/16")	4	.30
HOKKO	90351		Cowl cover and baffle to intake pipe lockwasher (1/4")	4	.02
HOHUB	90411		Cowling rivets, round head (3/16" x 3/16")	as req'd	.02
HOIBA	90410		Cowling rivets, countersunk head (3/8" x 3/16")	as req'd	.02

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
TOOL KIT					
HOJAJ	90526		Tool kit with canvas container	1	\$9.50*
HOJCO	90527		Hammer, ball peen $\frac{3}{4}$ "	1	.60*
HOJEG	90523		Screw driver, 5"	1	.25*
HOJHI	90529		Spark plug wrench and handle	1	1.00*
HOJKU	90530		Adjustable end wrench, 8"	1	1.00*
HOJRY	90531		Pliers, 6" combination	1	.50*
HOKAK	90532		Cold chisel, $\frac{3}{8}$ "	1	.25*
HOKBY	90533		Pin punch, $\frac{1}{16}$ "	1	.25*
HOKEC	90534		Double end wrench (#725)	1	.45*
HOKGI	90535		Double end wrench (#728)	1	.65*
HOKJO	90536		Double end wrench (#734)	1	1.15*
HOKMU	90537		T-Handle socket wrench (#752-C)	1	.75*
HOLAG	90538		Feeler gauge, .005"	1	.65*
HOLCU	90539		Tool container	1	2.00*
HOLEX	90308		Grease gun	1	2.50
			Not included in standard tool kit.		
HOLRI	90574		Magneto wrench	1	.25 net

Code Word	Reference Number	Drawing Number	Description of Part	Number Used	Price Each
ACCESSORIES					
HOMAF	90010		Hand turning gear (Eclipse, Series 4-H-4)	1	\$123.00*

Includes:

Hand crank.

Hand crank extension.

Weight complete 12½ lbs.

This type of starter is designed for cranking the engine by hand through a bevel reduction gear.

The rotation of the hand crank causes the starter drive shaft to engage with the engine starting jaw. As soon as the starter drive shaft pinion is fully engaged, it rotates as a unit with the drive shaft, revolving the engine. The starter becomes automatically disengaged the instant the engine fires. In the event of engine backfire, the torque overload release disconnects the drive, thus protecting the starter from damage. To further protect the operator, a ratchet is provided on the hand crank shaft to prevent kicking.

For detail parts of this starter, see Part List issued by Eclipse Aviation Corp., East Orange, New Jersey, and order direct from Eclipse.

QUANTITY PRICES

Drawing Number	Description of Part	Unit Price	Size of Package	Package Price
90027	Cylinder head gasket	\$.12	50	\$3.85
90044	Exhaust manifold gasket . . . . .	.05	50	1.70
90045	Intake manifold gasket . . . . .	.06	50	2.00
90048	Spark plug (A.C.—Type N)	1.25	300	337.50
90062	Spark plug gasket . . . . .	.03	50	.85
90129	Oil filter body gasket . . . . .	.15	50	5.00
90130	Oil filter screen gasket . . . . .	.03	50	.85
90138	Oil pressure relief valve plug and oil drain plug gasket . . . . .	.03	50	.85
90166	Oil pump suction pipe flanged elbow connection gasket . . . . .	.03	50	.85
90176	Crankcase rear section gasket . . . . .	.12	50	4.00
90303	Carburetor gasket . . . . .	.04	50	1.20
90359	Crankcase breather gasket . . . . .	.02	50	.70
90371	Starter flange cover gasket . . . . .	.03	50	.85
90588	Fuel pump adapter gasket . . . . .	.03	50	1.00
90589	Fuel pump gasket . . . . .	.03	50	1.00
90549	Complete set of gaskets	1.75	10	1.25
	<i>This set contains all the gaskets required to completely rebuild a Gipsy engine.</i>			

INDEX—Cont'd

Name of Part	Page	Name of Part	Page
O			
Oil filler	10	Screen, carburetor	23
Oil filler neck	10	Screen, oil filter	12
Oil level gauge	12	Screw, rocker arm adjusting	19
Oil manifold	12	Shaft, accessory drive	20
Oil seal, crankshaft	14	Shaft, rocker arm	19
Order, how to	5	Shaft, spark and throttle control	25
P			
Pipe, flexible, exhaust manifold to intake manifold	23	Shaft, throttle	25
Pipe, fuel pump to carburetor feed	24	Slinger, crankshaft thrust ball bearing oil	14
Pipe, oil filter	13	Spacer, magneto drive gear ball bearing	20
Pipe, oil manifold	13	Spacer, oil pump	12
Pipe, oil pressure	13	Spacer, oil pump drive gear ball bearing	20
Pipe, oil suction	13	Spark plug	22
Pipe, timing gear oil	18	Spring, lower cowl baffle	26
Piston	18	Spring, oil pressure relief valve	12
Piston pin	18	Spring, valve	19
Piston ring	18	Starter, hand turning gear	28
Plate, crankcase front	11	Starter, magneto impulse	21
Plug, oil drain	12	Strainer, oil filter	10
Plug, spark	22	Switch, magneto	21
Prices, general information	4	T	
Prices, quantity	29	Tappet, valve	19
Prices, terms	5	Telegraph orders	7
Propeller, hub	14	Terminal, ignition wire spark plug	21
Pump, fuel	24	Thimble, valve	19
Pump, oil	12	Tool kit	27
Push rod	19	Tray, oil filter	10
R			
Relief valve, oil pressure	12	U	
Ring, piston	18	Union, oil manifold to crankcase	13
Rocker arm	19	V	
Rod, connecting	17	Valves, intake and exhaust	19
Rod, magneto control	25	Valve, tappet and guide	19
Rod, mixture control	25	Valve, thimble	19
Rod, primer control	25	W	
Rod, push	19	Wire, spark plug	21
Rod, throttle control	25	Wiring harness, ignition	21