

Important Notice

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As with any printed data, the information contained in these manuals may not be the most up-to-date available. It is provided as a convenience to our customers and all information should be verified before making repairs to an engine or component.

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Order parts from the Wisconsin Motors, LLC Distributor or Service Center in your locality. Refer to the Yellow Pages of the Telephone Directory under ENGINES, or write to Wisconsin Motors, LLC for a free copy of a list of authorized Distributors and Service Centers. Do not order parts from Wisconsin Motors, LLC in Memphis, TN.

The MODEL, SPECIFICATION and SERIAL NUMBER of your engine must be given when ordering parts. The MODEL and SPECIFICATION number are on the name plate. The SERIAL NUMBER is stamped either on the crankcase or the engine's identification tag.

Copy the MODEL, SPECIFICATION and SERIAL NUMBER in the spaces provided below so that it will be available when ordering parts.

MODEL

SPECIFICATION

SERIAL NUMBER

To insure prompt and accurate service, the following information must also be given:

1. State EXACTLY the quantity of each part and part number.
2. State definitely whether parts are to be shipped by express, freight or parcel post.
3. State exact mailing address.

PARTS FOR MODELS VE4 AND VF4 ENGINES

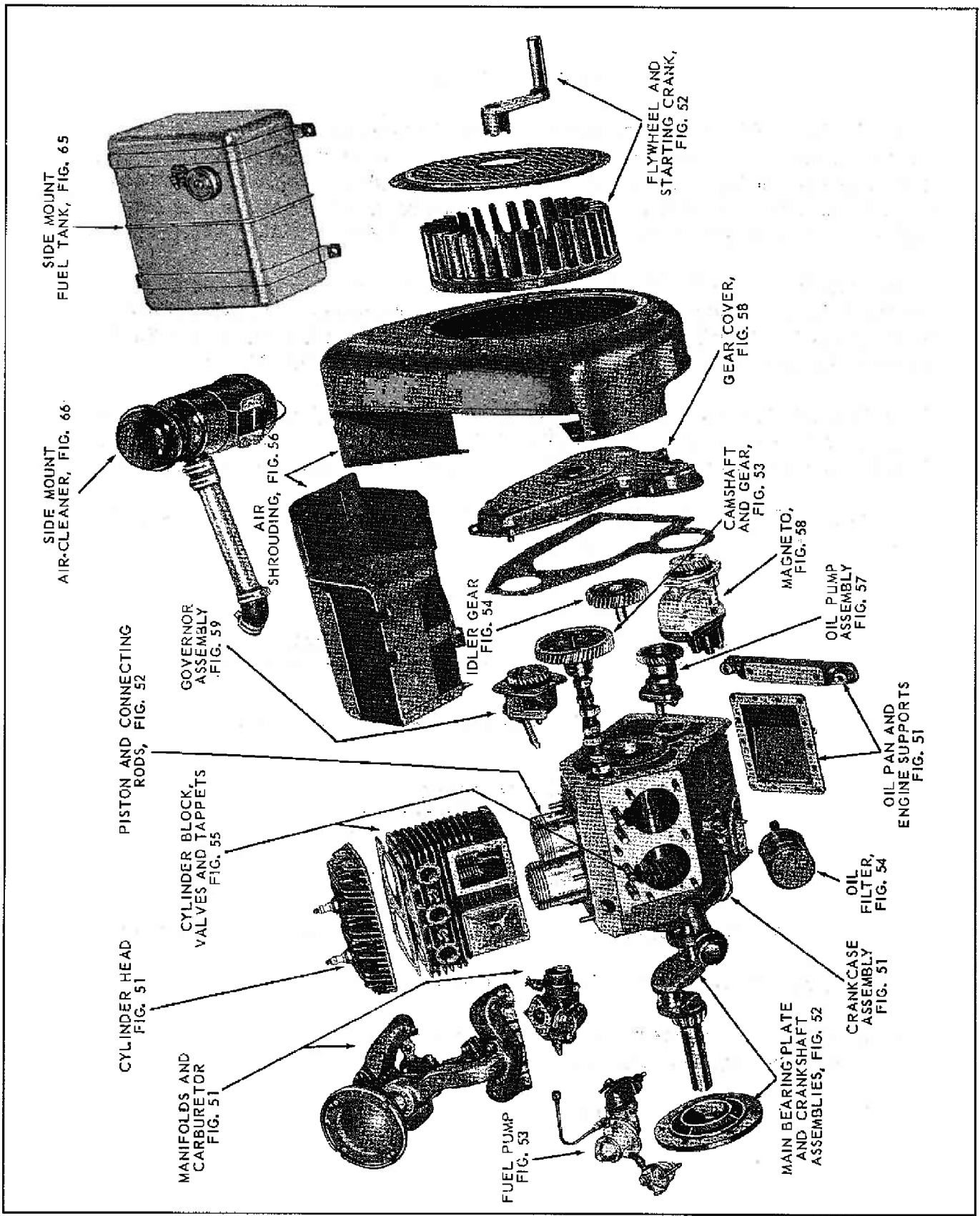


Fig. 50, EXPLODED VIEW OF ENGINE
 Refer to figure numbers for break down of parts.

164956C

PARTS FOR MODELS VE4 AND VF4 ENGINES

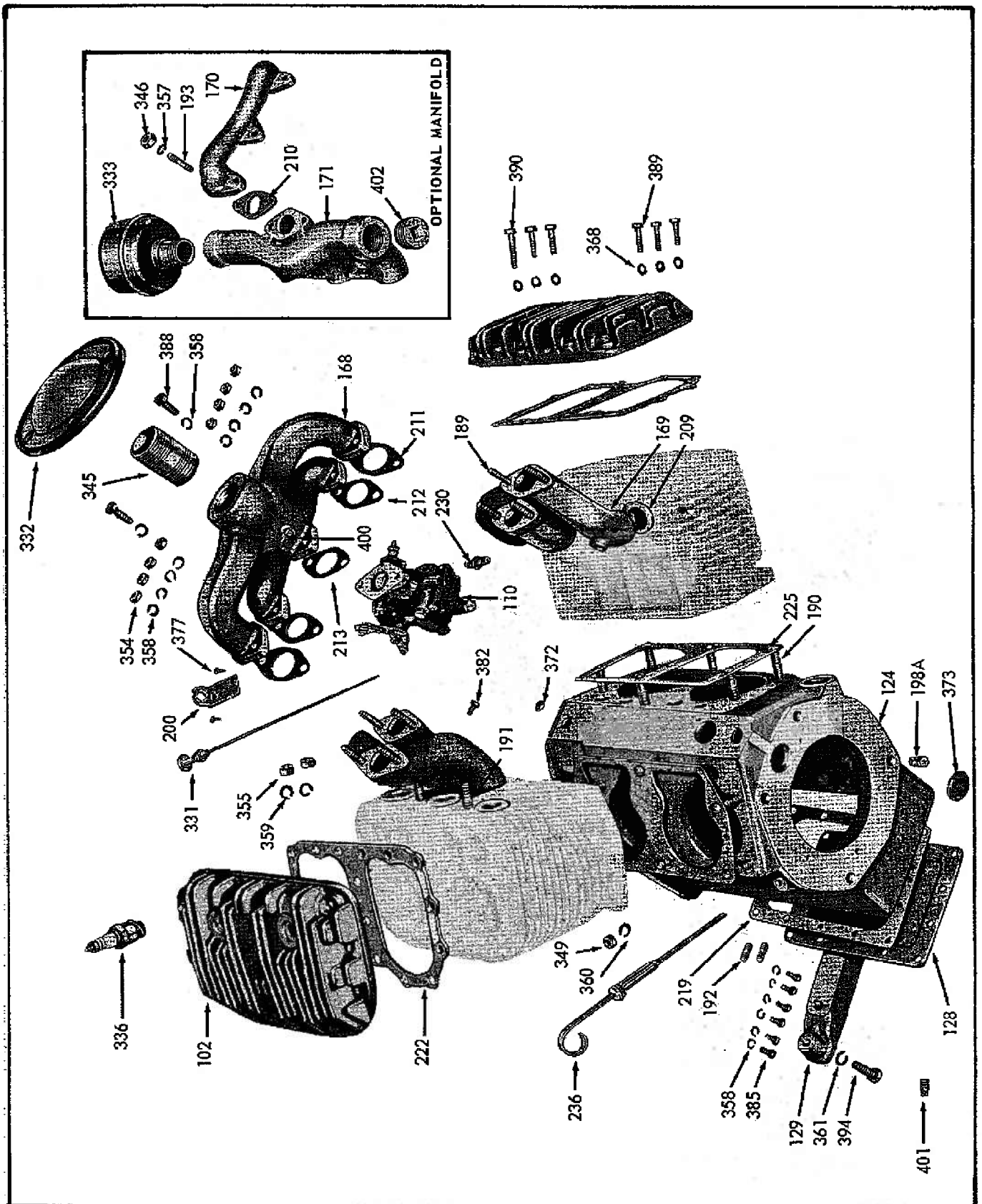


Fig. 51, MANIFOLD AND CRANKCASE GROUP

Parts are identified by reference number. See parts list for correct part number.

104809C-3

PARTS FOR MODELS VE4 AND VF4 ENGINES

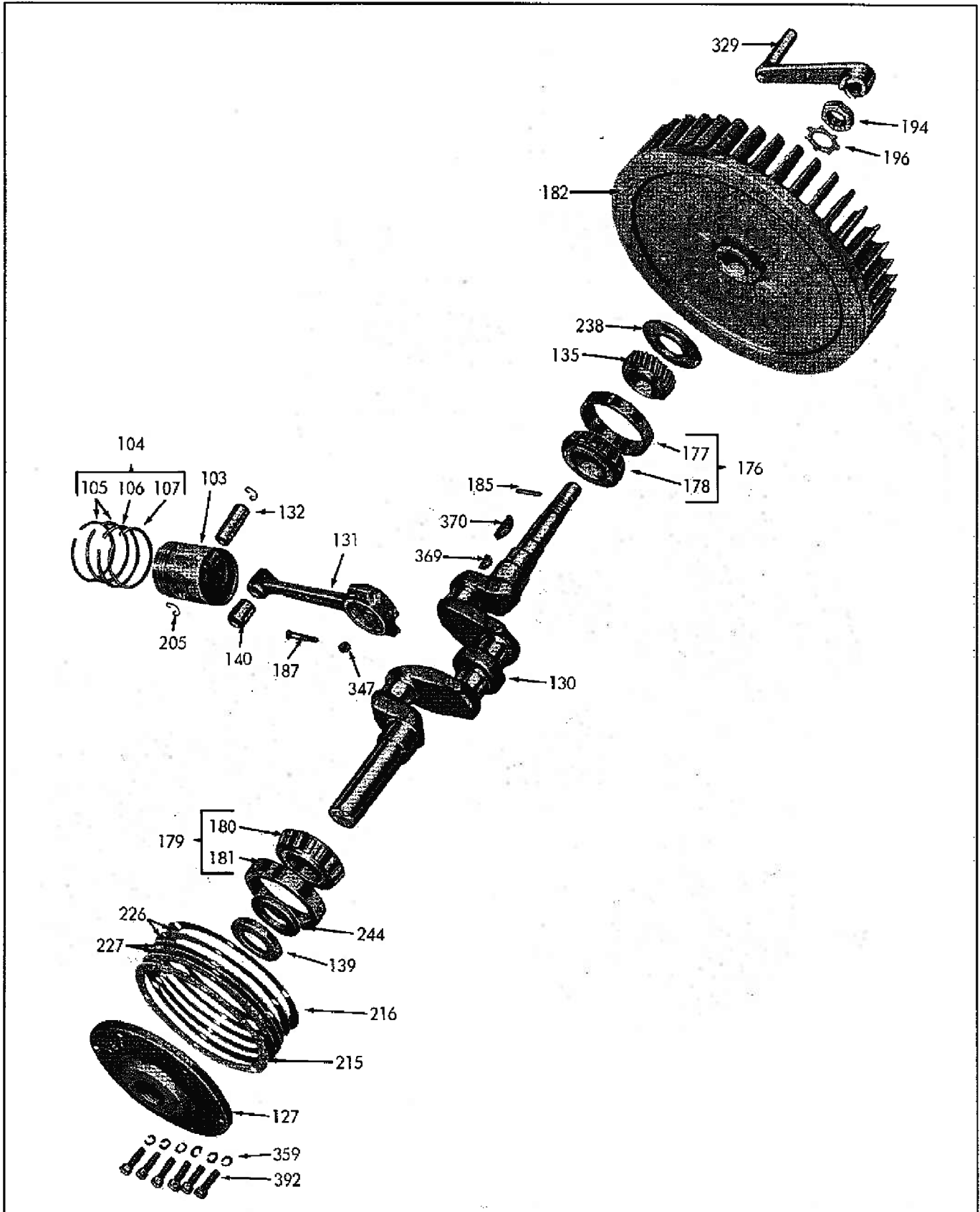


Fig. 52, CRANKSHAFT, PISTON AND CONNECTING ROD GROUP
 Parts are identified by reference number. See parts list for correct part number.

203937C-A

PARTS FOR MODELS VE4 AND VF4 ENGINES

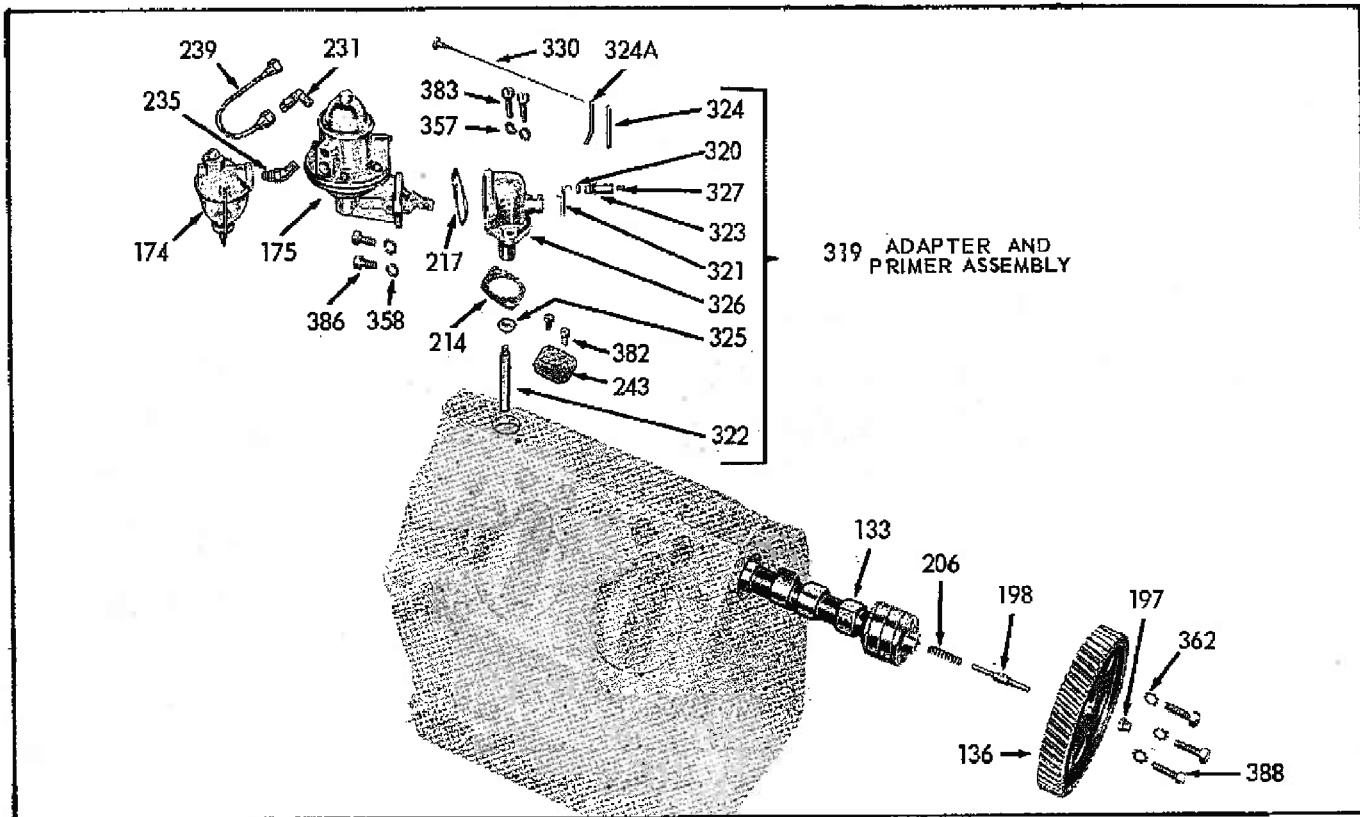


Fig. 53, CAMSHAFT AND FUEL PUMP MOUNTING GROUP

180193C-B.1

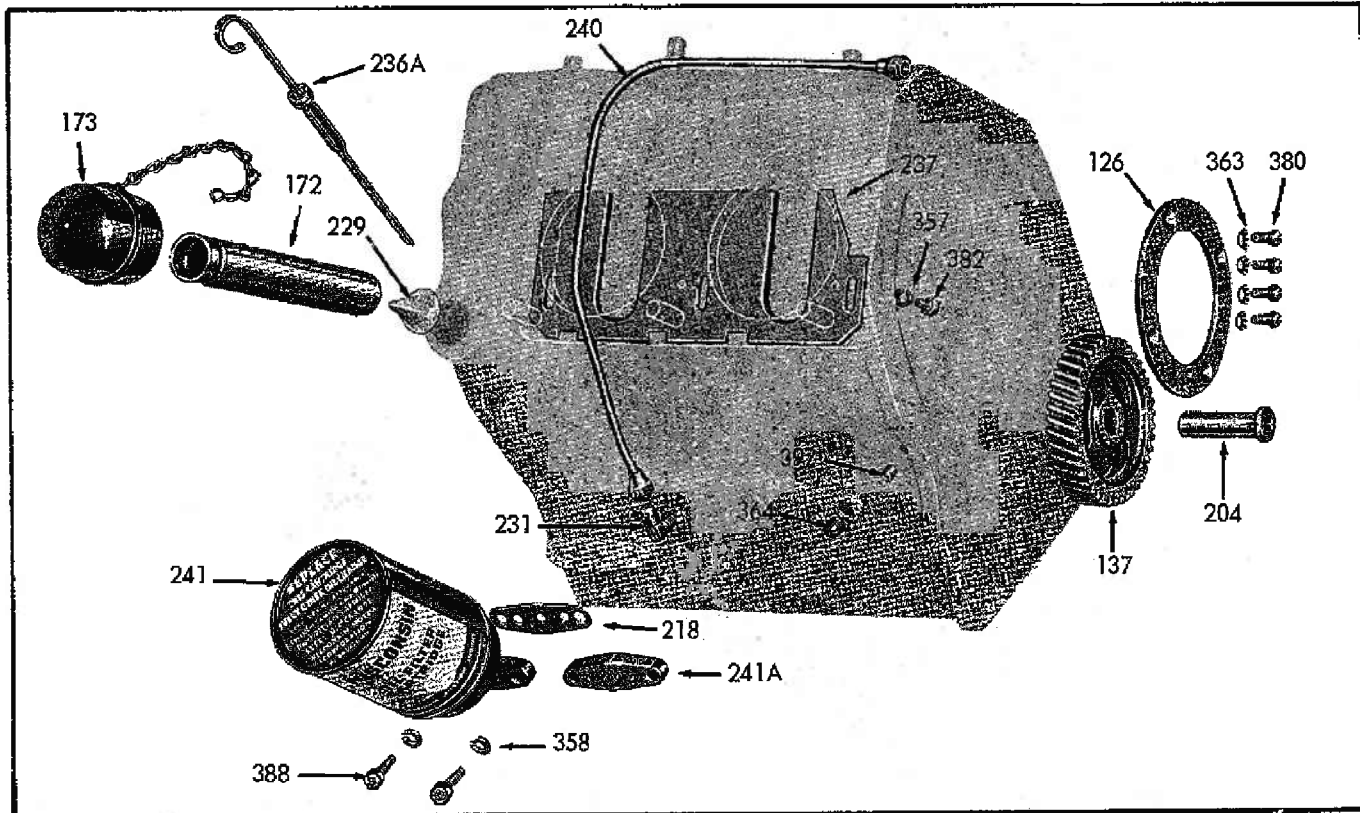


Fig. 54, OIL FILTER AND OIL FILLER MOUNTING GROUP

Parts are identified by reference number. See parts list for correct part number.

180190C-1

PARTS FOR MODELS VE4 AND VF4 ENGINES

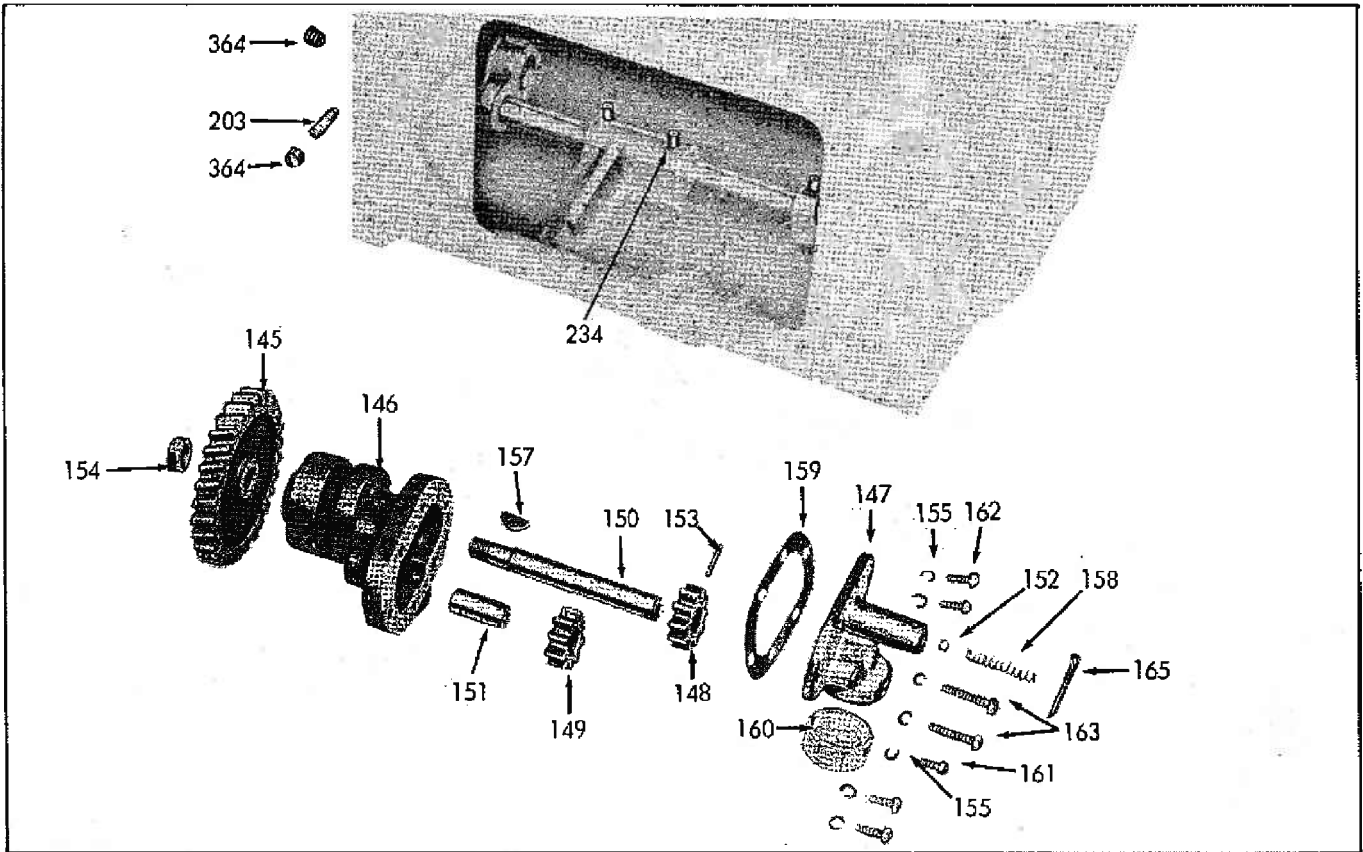


Fig. 57, Ref. No. 144, OIL PUMP ASSEMBLY

129786C-2

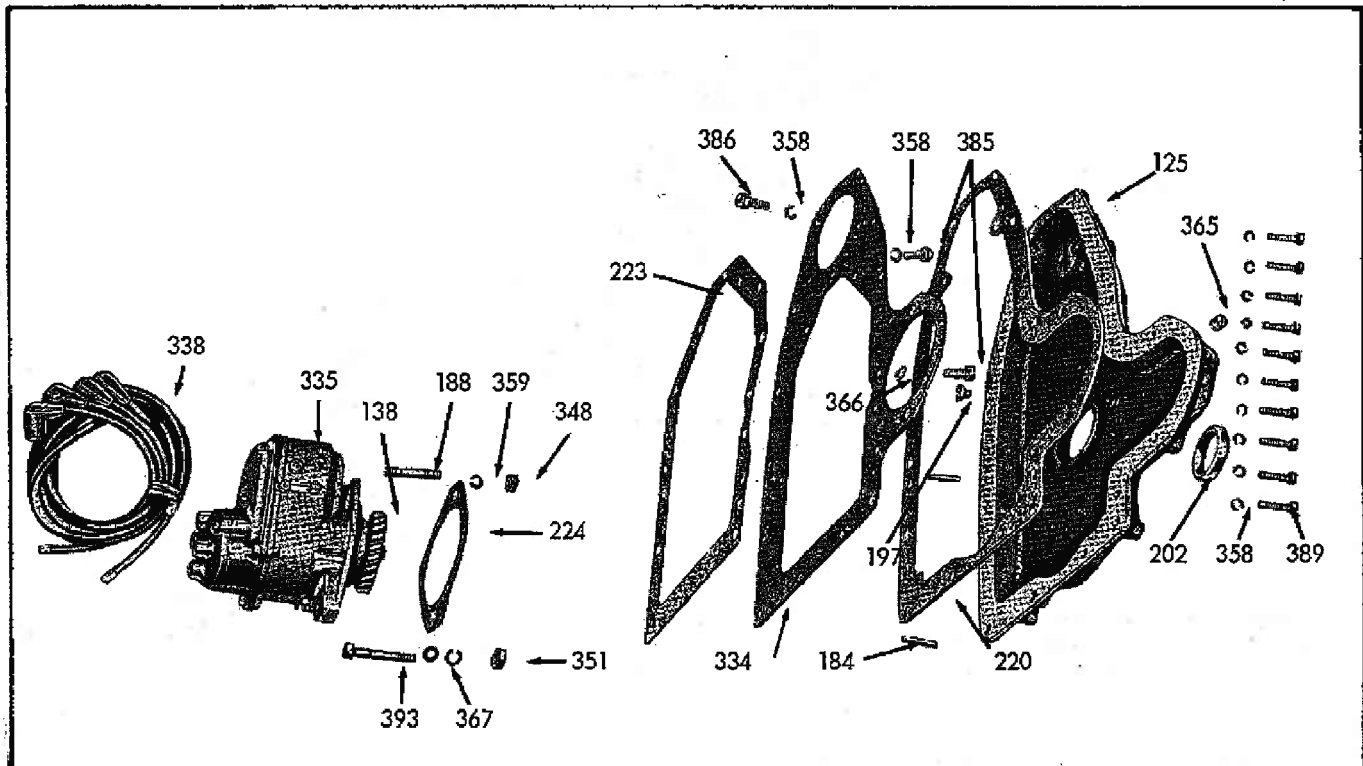
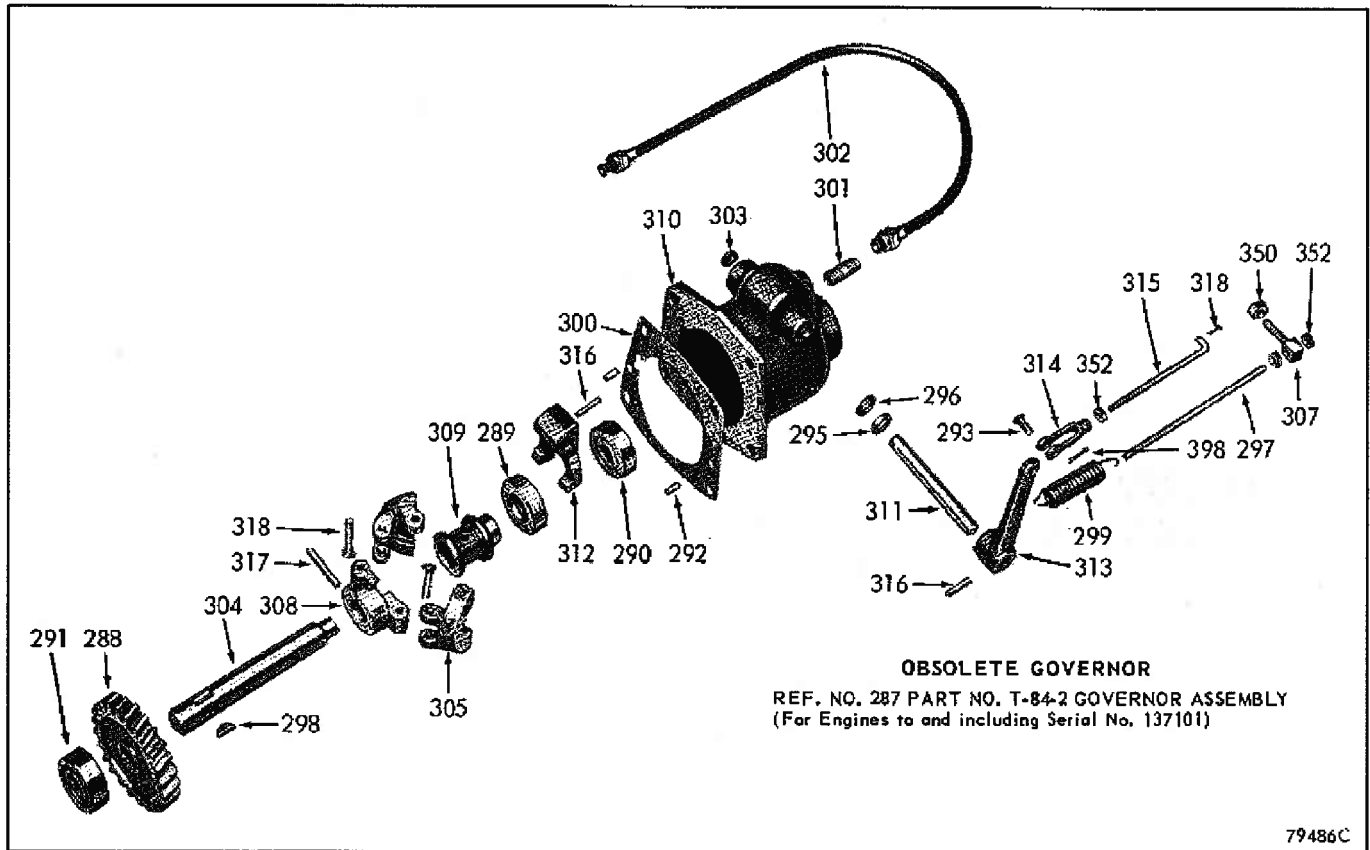


Fig. 58, MAGNETO AND GEAR COVER GROUP

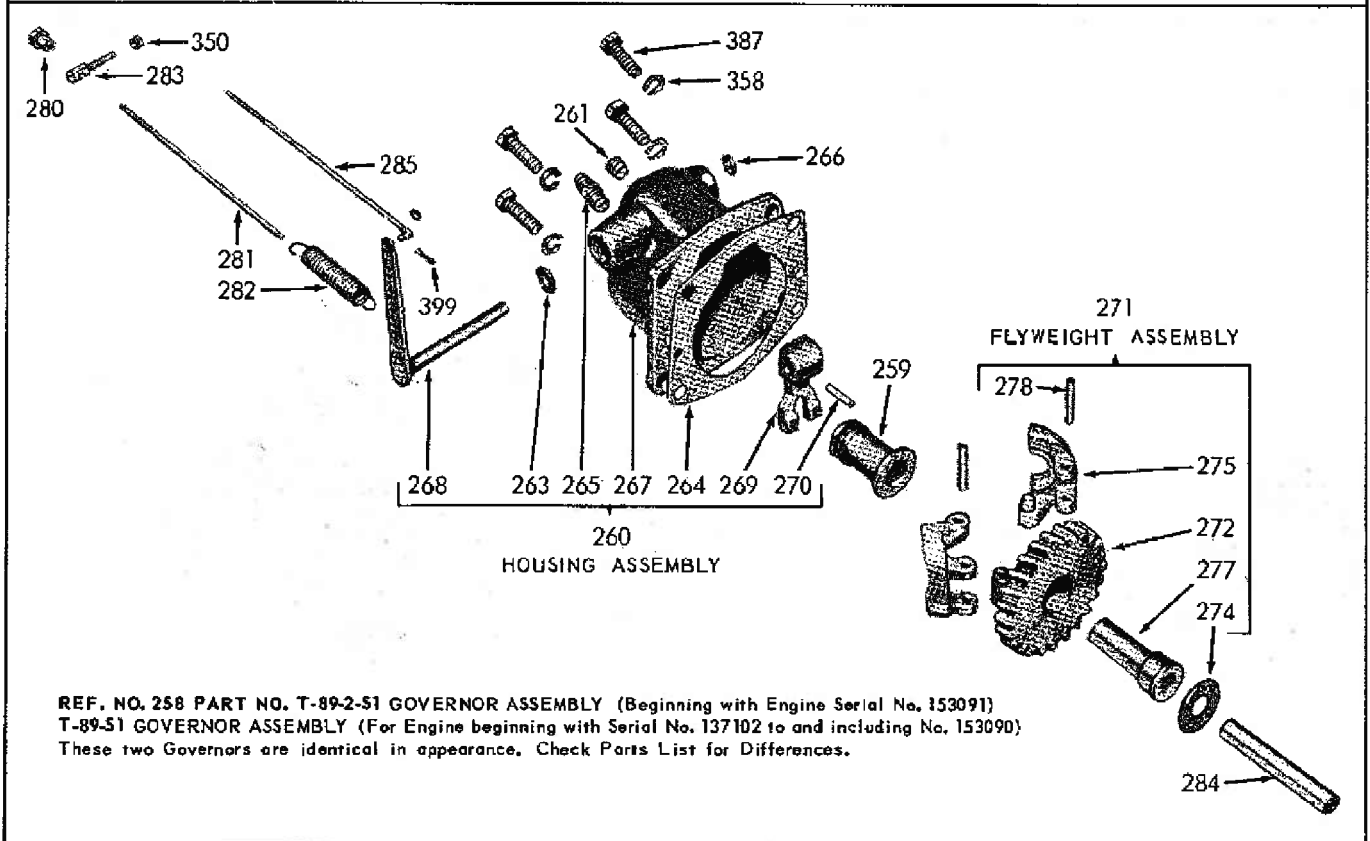
85759C-1

Parts are identified by reference number. See parts list for correct part number.

PARTS FOR MODELS VE4 AND VF4 ENGINES



79486C



129792C-1

Fig. 59, GOVERNOR ASSEMBLY

Parts are identified by reference number. See parts list for correct part number.

PARTS FOR MODELS VE4 AND VF4 ENGINES

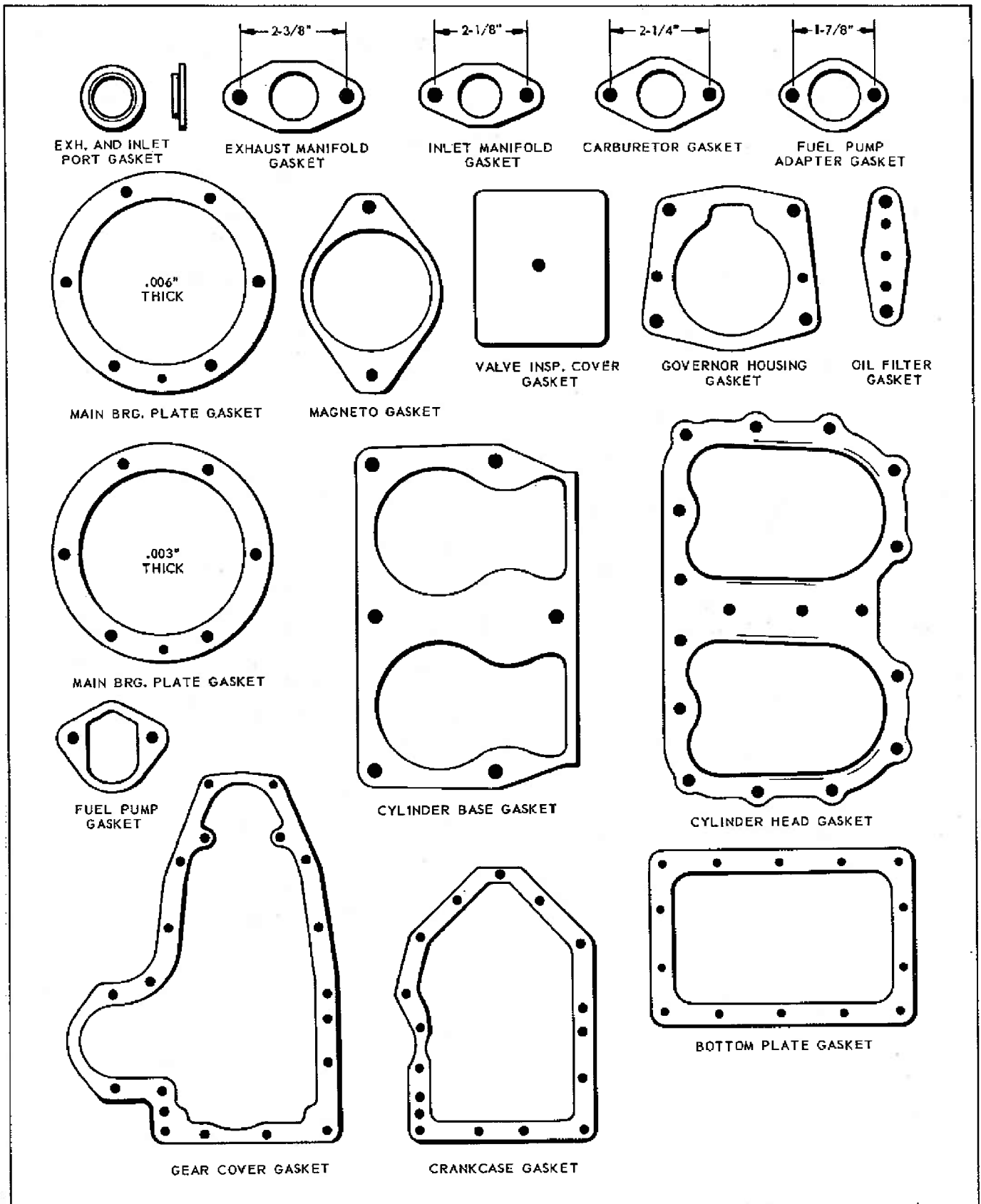


Fig. 60, Ref. No. 207, GASKET SET

PARTS LIST

MODELS VE4D and VF4D - 4 CYLINDER STANDARD ENGINE

This list is for a standard engine without house. If power unit house parts are required, refer to Page 47.

THE FOLLOWING PARTS ARE NOT INTERCHANGEABLE BETWEEN MODELS VE4D AND VF4D ENGINES WITHOUT STELLITE EXHAUST VALVES, STELLITE SEAT INSERTS, AND POSITIVE TYPE EXHAUST VALVE ROTATORS, WERE DESIGNATED AS MODELS VE4 AND VF4.

PARTS LIST MODEL VE4D

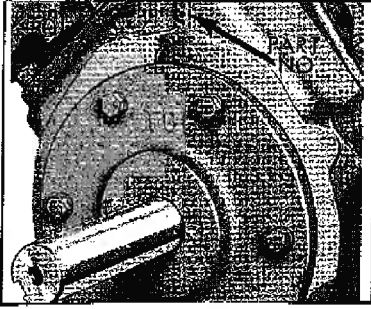
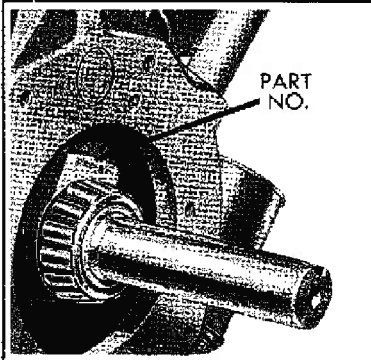
Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb	Oz
101	AA-85-523	CYLINDER BLOCK ASSEMBLY Complete, but with STELLITE exhaust valves and seat inserts, and with exhaust VALVE ROTATORS . AA-85-52, AA-85-56, AA-85-522, replaced by AA-85-523.	2	31	
102	AB-100-B	CYLINDER HEAD AB-80, AB-80-A, AB-80-E, AB-80-G, replaced by AB-100-B.	2	3	13
103	DB-208	PISTON , split skirt, std. size, aluminum DB-187B-2 and (DB-189 cast iron) replaced by DB-208. Pistons are also furnished .010", .020", .030" oversize.	4		12
104	DR-12	PISTON RING SET , standard size Consisting of:	1	10	
105	DC-163	COMPRESSION RING 1st and 2nd groove	8	1	
106	DC-163-1	SCRAPER RING 3rd groove	4	1	
107	DC-169	OIL RING 4th groove	4	1	
	DR-39	TRI-CROME RE-RING SET , std. size .. NOTE: Ring sets are also furnished .010", .020" and .030" oversize.	1		
110	L-63-S1	CARBURETOR with gasket, Zenith Model 68-7, No. 12098. LQ-39 Carburetor Repair Kit L-48 Zenith No. 10034-E and L-45-11, Stromberg No. 4260260, replaced by L-63-S1. NOTE: The above is a standard carburetor. Special carburetors are identified by Part Number stamped on carburetor name plate. Refer to this number for service replacement carburetor or parts. See carburetor bulletins in back of manual for service replacement parts list.	1		2
114	XD-148	SCREW , 5/16"-18 thread x 1-5/8" long, hexagon head For valve inspection cover plate. XD-23, 2" long - replaced by XD-148 (cover plate inverted).	4		2

PARTS LIST MODEL VF4D

Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb	Oz
101	AA-86A-S30	CYLINDER BLOCK ASSEMBLY Complete, but with STELLITE exhaust valves and seat inserts, and with exhaust VALVE ROTATORS . AA-86-65, AA-86A-65, AA-86A-66, AA-86A-24, replaced by AA-86A-S30.	2	30	
102	AB-100-A	CYLINDER HEAD AB-86, AB-86A, replaced by AB-100-A.	2	4	1
103	DB-190A-1	PISTON , cam ground, standard size DB-190, DB-190A, split skirt piston and (DB-203 cast iron), replaced by DB-190A-1. Pistons are also furnished .010", .020", .030" oversize.	4		12
104	DR-31-C	PISTON RING SET , Standard size Consisting of:	1	10	
105	DC-209	COMPRESSION RING 2nd groove	4	1	
106	DC-209-B	COMPRESSION RING chrome faced, top groove	4		
106	DC-210	SCRAPER RING 3rd groove	4	1	
107	DC-211	OIL RING 4th groove DR-31, replaced by DR-31-C.	4	1	
	DR-42	TRI-CROME RE-RING SET , Std. size .. NOTE: Ring sets are also furnished .010", .020" and .030" oversize.	1		8
110	L-63-S1	CARBURETOR with gasket Zenith Model 68-7, No. 12098. LQ-39 Carburetor Repair Kit L-48-2 Zenith No. S-632-B, and L-45-20 Stromberg No. 426041, replaced by L-63-S1. NOTE: The above is a standard carburetor. Special carburetors are identified by Part Number stamped on carburetor name plate. Refer to this number for service replacement carburetor or parts. See carburetor bulletins in back of manual for service replacement parts list.	1	1	12
114	XD-21	SCREW , 5/16"-18 thread x 1-1/2" long, hexagon head For valve inspection cover plate. XD-22, 1-3/4" long, replaced by XD-21 (cover plate inverted).	4		2

Order parts from nearest **WISCONSIN DISTRIBUTOR** or **SERVICE CENTER**.
IMPORTANT: Always give Model, Specification and Serial Numbers as shown on name plate.

PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No.		Net Wt.		Ref. No.	Part Number	Description	No.		Net Wt.	
			Req.		Lb.	Oz.				Req.		Lb.	Oz.
119	AD-41	VALVE STEM GUIDE for engines beginning with Serial No. 2322869 for VE4 engines and No. 2247771 for VF4 eng.	8		2								
120	AE-75-B	VALVE , inlet (For inlet and exh. in Models VE4, VF4)	4		3								
	AE-75-D	STELLITE EXHAUST VALVE Valves are also furnished with .004" oversize stem.	4		3		125	BD-100K-S1	GEAR COVER ASSEMBLY , Std. (Beginning with engine Serial No. 4238373 (has rough flange for flywheel alternator). Consisting of: PIF-296 Seal 1 BD-100K Gear cover 1 TC-388-1 Shaft 1 PF-52 Button 1 XX-3 Plug BD-100H-1-S1, replaced by BD-100K-S1.	1		12	
121	AF-49-A	VALVE SPRING , inlet 2-5/16" free length. Spring rated at 49 pounds when compressed to approx. 1-3/8" height. (For inlet and exh. in Models VE4, VF4)	4		2			BD-100C-2-S1	for engine Serial No. 153091 to and incl. No. 4238372 (without flywheel alternator flange).			11	8
	AF-54	VALVE SPRING , exhaust, for STELLITE valves and VALVE ROTATORS 1-1/2" free length, rated at 85 pounds, when compressed to approx. 1-1/8".	4		2			BD-100C-S1	Gear Cover Assembly (Beginning with engine Serial .37102 to and including 153090.)			11	8
	AF-51	VALVE SPRING , exhaust, with STELLITE valves, less valve rotators 1-31/32" free length, rated at 85 pounds, when compressed to approximately 1-9/32" height.	4		2			BD-100C-4-S1	Gear Cover Assembly (For engines to and including Serial 137121.)			11	4
122	AG-26	SEAT for valve spring, inlet (For inlet and exh. in Models VE4, VF4)	4		1			BD-100K-4-S1	For engine with flywheel alternator BD-100F-S1, replaced by BD-100K-4-S1.	1		12	
	AG-31	VALVE ROTATOR and spring SEAT (exhaust) used with Stellite valves	4		1		126	BG-209	BEARING RETAINER PLATE Flywheel end.	1		10	
123	AH-9	LOCK for valve spring seat	3 pr		1		127	BG-210-C-S2	MAIN BEARING PLATE ASSEMBLY , std. take-off end. (Beginning with engine Serial No. 3,106,939 and used with BA-48-C-etc. crankcase.) Consisting of: 1 BG-210C Plate 1 ME-114-2 Cup 1 IIF-261 Seal 1 SD-43 Retainer	1		6	
124	See Fig. A	CRANKCASE ASSEMBLY Consisting of: 1 Crankcase 1 LJ-308A Tube 4 RF-1143 Nozzles 12 PC-337 Studs 2 PC-396 Studs 1 RJ-173A Saber 7 PF-18 Plugs 2 SA-26 Plugs 4 PF-144 Plugs 1 SA-58 Plug 1 RC-81 Screen 2 XD-17 Screws	1		60			BG-210-S2	Assembly (For engines to and including Serial No. 3,106,939 and used with BA-48-A-etc. crankcase.)	1		8	
		NOTE: Beginning with engine Serial No. 3,106,939, the basic standard crankcase part number became BA-48-C . (With a 5-7/8" dia. bore for main bearing plate pilot.) Any special machining is indicated by a number stamped on the crankcase in the location shown in Fig. A. Add this number to BA-48-C . The further addition of -S1A to the Part No. (BA-48C-dash #-S1A) specifies a complete crankcase assembly for VE4D and VF4D engines. Order by complete number, or by engine Model, Spec and Serial Numbers.							NOTE: Engines equipped with a clutch, reduction or clutch reduction unit, require a special main bearing plate as specified in the rear section of this manual where these accessories are located.				
							128	BH-141-A	CRANKCASE BOTTOM COVER PLATE BH-141-A, with underslung fuel tank.	1		1	8
		Fig. A 76638C					129	BK-65	ENGINE SUPPORT (cast iron)	2		1	13
							130	See Fig. B	CRANKSHAFT ASSEMBLY Includes: 1 GA-36A Gear 1 ME-114 Bearing 1 ME-71 Bearing 1 PL-53 Key	1		27	
													
								Fig. B 71057C					

Order parts from nearest WISCONSIN DISTRIBUTOR or SERVICE CENTER.
IMPORTANT: Always give Model, Specification and Serial Numbers as shown on name plate.

PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No.			Net Wt.		
			Req.	Lb.	Oz.	Req.	Lb.	Oz.
		<p>NOTE: The basic crankshaft part number (raised letters on side counterweight), is CA-55. Dash numbers are added to the basic part number to identify special machining at the take-off end. The dash (-) number will be found stamped on the cheek facing the take-off end of the shaft, as illustrated in Fig. B. Order by complete part number, (dash number added to basic number) and by giving the model, specification and serial numbers of the engine.</p>						
131	DA-51-C-51	<p>CONNECTING ROD — shell bearing type 4 1 6</p> <p>Assembly includes: 1 HG-157A Bushing 2 P-148 Bolts 2 PD-246 Locknuts</p>						
		<p>NOTE: The connecting rod is furnished LESS shell bearings. Refer to following HA-133 part number for standard and undersize shell bearings available.</p>						
	HA-133-5	<p>DA-51B-51 Babbitt Lined connecting rod, repl'd by DA-51-C-51 and shell bearings.</p> <p>SHELL BEARING (2 halves) 4 2</p> <p>For connecting rod, standard size.</p> <p>NOTE: The following undersize shell bearings are also available. HA-133-51 (.001" undersize) HA-133-52 (.002" undersize) HA-133-510 (.010" undersize) HA-133-520 (.020" undersize)</p>						
132	DE-65	<p>PISTON PIN, standard size 4 3</p> <p>Piston pins are also furnished .005" and .010" oversize.</p>						
133	EA-102	CAMSHAFT 3 8						
134	F-61	<p>VALVE TAPPET with lockscrew 8 4</p> <p>FA-40-R Tappet, replaced by F-61.</p>						
135	GA-36-A	CRANKSHAFT GEAR 1 14						
136	GB-45-A	CAMSHAFT GEAR 1 2 2						
137	GC-27-B-1	IDLER GEAR 1 1 6						
138	GD-93-C-5	<p>MAGNETO GEAR 1 9</p> <p>GD-93-C, replaced by GD-93-C-5.</p>						
139	HF-261	<p>CORK OIL SEAL, standard 1 1</p> <p>For main bearing, take-off end. PH-364 Oil seal for engines with clutch, reduction or clutch reduction unit.</p>						
140	HG-157-A	<p>PISTON PIN BUSHING 4 1</p> <p>HG-157-A-1, replaced by HG-157-A.</p>						
141	HG-201	<p>VALVE SEAT INSERT, inlet 4 2</p> <p>(For inlet and exhaust in Models VE4 and VF4.)</p>						
	HG-201-D	VALVE SEAT INSERT , stellite exhaust 4 2						
144	K-95-L	<p>OIL PUMP ASSEMBLY, complete 1 3 13</p> <p>K-95-D, K-95-A and K-95 replaced by K-95-L (interchangeable as a unit).</p>						

Ref. No.	Part Number	Description	No.			Net Wt.		
			Req.	Lb.	Oz.	Req.	Lb.	Oz.
		<p>NOTE: Beginning with Serial No. 3810396 the K-95-L oil pump replaces K-95-D and utilizes the same internal gears for both the drive and driven gears. Therefore, driven gear and stub shaft for old pumps are not interchangeable since gear bore diameters are not the same.</p>						
145		<p>Pump assembly consists of: GD-94-C Oil Pump Drive Gear (exhaust) 1 11</p>						
146		<p>KA-61-C-51 Body — includes: KC-56A Gear KD-122A Shaft KA-61A-1-S1, replaced by KA-61C-S1.</p>						
147		<p>KB-42-S2 Cover Assembly, includes relief valve and screen 1 11</p>						
148		<p>KC-56-A Driver Gear 1 1</p> <p>KC-54-1 and KC-56-1, replaced by KC-56-A.</p>						
149		<p>KC-54 to and including Serial 80146, replaced by KC-59-1. KC-56-A Driver Gear, .495-.493 I.D., beginning with Serial No. 3810396 1 1</p> <p>KC-56-1, KC-56-2 (K-95D pump) .5015-.5005 I.D. previous to Serial 3810396. For replacement use KC-56A-1. KC-55 to and including Serial 80149. For replacement use KC-56-2.</p>						
150		KD-121-S1 Drive Shaft with KC-56-A gear 1 4						
151		<p>KD-122-A Stub Shaft, for engines beginning with Serial No. 3810396 1 2</p> <p>KD-122 (K-95D pump) previous to engine No. 3810396, no longer available, order KA-61C-S1 Body Assembly.</p>						
152		ME-60 Check Ball , 1/4" dia. steel 1 1						
153		PA-64 Pin , 1/8" dia. x 3/4" long steel straight, for driver gear 1 1						
154		PD-195 Jam Lock-Nut , 7/16"-20 thread. For gear mounting. 1 1						
155		PE-14 Lockwasher , No. 10 Positive 7 1						
156		6-for cover 1-for screen						
157		PL-137 Key , No. 1 Woodruff 1 1						
158		For drive gear.						
159		PM-111 Spring for relief valve 1 2						
		QD-535-A , Gasket for oil pump cover (not included in gasket set) — .003" thick, for engines beginning with Serial #379557. QD-535 , .012" thick jute tag paper. For engines to and including #379556. Not interchangeable with QD-535-A. 1 1						
160		RD-112 Screen 1 1						
161		XA-7 Screw for screen, No. 10-32 thread x 3/8" long steel round head 1 1						
162		XA-8 Screw for cover, No. 10-32 thread x 1/2" long steel round head 4 1						
163		XA-56 Screw for cover, No. 10-32 thread x 1-1/4" long steel round head 2 1						
165		XI-16 Cotter Pin for valve, 1/8" x 1" .. 1 1						
168	LD-227-D	<p>MANIFOLD, upper branch 1 6 1</p> <p>LD-227, replaced by LD-227-D.</p>						
169	LD-228-S1	<p>MANIFOLD ASSEMBLY, Lower branch. Consisting of: 1 LD-228 Manifold 4 PC-171 Studs 1 XI-4 Screw for plugging top Optional manifold with double exhaust outlet. (Furnished as standard equipment on engines to & including Serial 85815).</p>	2	3	12			

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PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No. Req.	Net Wt.		Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb.	Oz.					Lb.	Oz.
170		LC-261-A INLET MANIFOLD.....	1	2		186	PB-169-A	VALVE TAPPET ADJUSTING SCREW .. For H-81 tappet.	2		1
171		LD-226 EXHAUST MANIFOLD.....	2	4	8			PB-147 Screw with PD-141 nut for ob- solete FA-10-B tappet.			
172	LJ-300-A	OIL FILLER TUBE	1		6						
173	LO-60-3	CAP for oil filler and breather	1		6	187	PB-148-S1	CONNECTING ROD BOLT ASSEMBLY Consisting of: 1 PB-148 Bolt 1 PD-246 Nut	6		1
174	LP-19-B	FUEL STRAINER, Tiltonson CW-244 NOTE: See illustration on Page 54 for service parts list of fuel strainer.	1		6	188	PC-110	STUD for magnets mounting	1		1
175	LP-38E-S1	FUEL PUMP for open engine (low dome) For replacement, LP-38H-S1 can be used. LQ-46 Repair kit for LP-38E-S1	1	1	8	189	PC-171	STUD for lower to upper manifold	8		1
	LP-38H-S1	FUEL PUMP for power units (with rotat- ing dome and inlet connection)	1		12	190	PC-337	STUD for cylinder block to crankcase	12		2
		LQ-47 Repair kits for LP-38H-S1.	1		2	191	PC-369	STUD for manifold to cylinder block	4		1
		LP-38-S1 (high dome style pump)	1		11	192	PC-396	STUD for starter bracket	2		1
		Replaced by LP-38E-S1 but for service replacement, LP-38H-S1 can be used for both LP-38-S1 and LP-38E-S1.				193	PC-405	STUD for inlet to exhaust manifold	4		1
		LQ-30 Repair kit for obsolete LP-38-S1	1		2	194	PD-123	NUTS for flywheel mounting	1		2
176	ME-71	MAIN BEARING ASSEMBLY, flywheel end. Consisting of:	1	1	14	196	PE-66	LOCKWASHER for flywheel nut	1		1
177		ME-69-1 Bearing cup - Timken 414	1		12	197	PF-52	BUTTON for camshaft thrust plunger ...	1		1
178		ME-71-1 Bearing cone - Timken 420	1		2	198	PF-101	THRUST PLUNGER for camshaft	1		1
179	ME-114	MAIN BEARING ASSEMBLY, take-off end Consisting of:	1	3		198A	PF-144	PLUG for 7/16"-14 taps in face of case	4		1
180		ME-114-1 Bearing cone - Timken 3382 ..	1	2	4	199	PG-314	CLIP for spark plug ignition cables	2		1
181		ME-114-2 Bearing cup - Timken 3328	1		12	200	PG-475	BRACKET for choke control	1		2
182	NC-140-G	FLYWHEEL, standard	1	33	2			PG-319-A, replaced by PG-475.			
		NC-140 and NC-140-D, replaced by NC-140-C.				202	PH-299	OIL SEAL for crankshaft, flywheel end	1		2
		NC-140G-1-S1 for engines with electric starter	1	34	8	203	PI-143-B	LOCKSCREW for oil pump. Beginning with engine Serial 145636	1		1
		Includes:						PI-143-A, replaced by PI-143-B. PI-143 Lock screw, to and including en- gine Serial 145635	1		1
		GH-44 Ring Gear	1		18	204	PJ-105	STUD for idler gear	1		5
		NC-140-1-S1 and NC-140D-1-S1, replaced by NC-140G-1-S1.				205	PK-52	RETAINING RING for piston pin	6		1
		FLYWHEELS for Flywheel Alternator, refer to electrical equipment section of parts list.				206	PM-108	SPRING for camshaft thrust plunger	1		1
		NOTE: Because of the numerous variations in flywheels; for mounting screens, stub shafts, alternators, etc., only the standard and ring gear flywheels are listed. Therefore, give Model, Specification and Serial Numbers of engine when ordering new flywheel.				207	Q-12-J	GASKET SET (Fig. 60) Consisting of: 5 QB-75 3 QD-527-C 4 QD-612-A 2 QR-73 3 QD-527-D 2 QD-612-C 2 QE-79 1 QD-539-A 1 QD-614 5 QC-71-A 1 QD-595-A 2 QD-616-A 1 QD-67 1 QD-610-A 1 QD-616 2 QD-527-A 1 QD-611 2 QD-617 1 QD-527-B Q-10-B and Q-12-B, replaced by Q-12-J.	1		8
184	PA-291	DOWEL PIN for gear cover	2			-	Q-29	VALVE GRINDING GASKET SET	1		2
185	PA-333	PIN for starting crank	1		1			Consisting of: 6 QD-75 2 QB-75 4 QD-612-A 2 QB-79 2 QD-613-C			

Order parts from nearest **WISCONSIN DISTRIBUTOR** or **SERVICE CENTER**.
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PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No.			Ref. No.	Part Number	Description	No.		
			Req	Lb	Oz				Req	Lb	Oz
209	QB-75	GASKET for manifold to cylinder block	6			229	RC-91	SCREEN for oil filler	1		1
210	QB-77	GASKET upper to lower branch manifold For engines with LD-251A and LD-226 manifolds.	2		1	230	RF-269	STRAIGHT FITTING in carburetor	1		2
211	QB-78	GASKET for exhaust manifold, upper to lower branch	2		1	231	RF-1225	ELBOW for fuel line 1-for fuel pump. 1-for oil line to governor, in crankcase.	2		2
212	QB-79	GASKET for inlet manifold, upper to lower branch	2		1	234	RF-1143	OIL SPRAY NOZZLE, short. Beginning with engine Serial No. 615486 Previous to engine 615486 use: RF-1121 (long), for #1 and #3 rods RF-1143 (short), for #2 and #4 rods	4		1
213	QC-71-A	GASKET for carburetor flange QC-55-A, replaced by QD-71-A.	3		1	235	RF-1397	ELBOW, 45° male, for fuel strainer mfg.	1		1
214	QD-67	GASKET for fuel pump adapter	1		1	NOTE: Oil dip stick, used in conjunction with an adapter tube, replaces dip stick mounted directly into crankcase, but is not interchangeable for service. Order by part number indicated on blade of dip stick.					
215	QD-527-C	GASKET for bearing plate, .007" thick 5-29/32" I.D. (For engines beginning with Serial No. 3,106,939). QD-527-A, 5-17/32" I.D. (To and including Serial No. 3,106,938)	3		1	236	RJ-173-A	DIP STICK 6-1/4" long starter side	1		3
216	QD-527-D	GASKET for bearing plate, .003" thick 5-29/32" I.D. (For engines beginning with Serial No. 3,106,939). QD-527-B, 5-17/32" I.D. (To and including Serial No. 3,106,938)	3		1	236A	RJ-173	DIP STICK (10" long) below oil filler RJ-159C (obsolete), 7-1/8" long blade	1		3
217	QD-538-A	GASKET for fuel pump mounting	1		1	237	RK-182 (Obsolete)	SPLASH PLATE for crankcase Discontinued as of Serial No. 4479592.	2		3
218	QD-595-A	GASKET for oil filter mounting	1		1	238	RK-170	OIL SLING	1		2
219	QD-610-A	GASKET for crankcase bottom cover	1		1	239	RM-1122	FUEL LINE, pump to carburetor RM-850-1, replaced by RM-1122.	1		2
220	QD-611	GASKET for gear cover	1		1	240	RM-675	OIL LINE, crankcase to governor RM-980, replaced by RM-675.	1		3
221	QD-612-A	GASKET for valve inspection cover plate	4		1	241	-----	OIL FILTER, consisting of: RV-40-S4 CARTRIDGES (4 pack) RV-40A-1 BASE ASSEMBLY	1	3	4
222	QD-613-C	GASKET for cylinder head QD-613-B, replaced by QD-613-C.	2		4	NOTE: Beginning with engine Serial No. 3408750, the RV-29-A oil filter is replaced by a BASE ASSEMBLY and CARTRIDGE listed above. Replacement cartridges are not interchangeable, therefore RV-29-S4 cartridges must be used for obsolete RV-28-A oil filter. Part number is located on top of cartridge for identification.					
223	QD-614	GASKET for gear cover spacer to case	1		1	241A	SA-65-C	PAD COVER, for engine loss oil filter	1		4
224	QD-616	GASKET for magneto flange	1		1	242	SA-68	COVER PLATE for valve inspection	4		9
225	QD-617	GASKET for cylinder base	2		1	243	SA-69	COVER for engine without fuel pump	1		2
226	QF-33-B	SHIM for main bearing plate, .006" thick 5-57/64" I.D. (For engines beginning with Serial No. 3,106,939). * Obsolete - 2 were used - replaced by 1 QD-527-C and 2 QD-527-D. QF-33, 5-33/64" I.D. (To and including Serial No. 3,106,938)	2		1	244	SD-43	RETAINER for main bearing oil seal cork, take-off end	1		1
227	QF-33-C	SHIM for main bearing plate, .013" thick 5-57/64" I.D. (For engines beginning with Serial No. 3,106,939). NOTE: 2 were required - use same quantity of shims and gaskets as were removed, to give .002" to .004" end play. QF-33-A, 5-33/64" I.D. (To and including Serial No. 3,106,938)	2		1	245	SD-248	INSTRUCTION AND NAME PLATE When ordering name plate, give Model, Specification Number and Serial Number for correct stamping. SD-115-N, replaced by SD-248.	1		1
						246	SE-20-B-3	SCREEN for flywheel shroud	1	1	2

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PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No.			Ref. No.	Part Number	Description	No.		
			Req	Lb	Oz				Req	Lb	Oz
		NOTE: Beginning with engine Serial No. 4238373, the SE-74-Y series of flywheel shrouds replaces the SE-74-V series, because of a gear cover alteration for mounting flywheel alternator. The new shrouds are interchangeable if gear cover is replaced, or by omitting use of the two center screws for attaching flywheel shroud to gear cover.				264	QD-615A Housing gasket	1		1	
247	SE-74-Y	FLYWHEEL SHROUD , for std. engine and power unit. (No pad for air cleaner) SE-74, SE-74-V, replaced by SE-74Y (See note).	1	11		265	RF-269-2 Straight fitting	1		1	
		SE-74-YA With pad for mounting starter SE-74-A, SE-74-VA, repl'd by SE-74-YA.	11	8		266	SA-52 Plug-1/2" expansion	1		1	
		SE-74-YC with pads for air cleaner and starter mounting	12			267	TC-395 Housing	1	1	14	
248	SE-75-B	LOWER CYLINDER SHROUD , R. H. side	1			268	TC-398 Cross shaft and lever	1		2	
249	SE-76-B	LOWER CYLINDER SHROUD , L. H. side	1			269	VB-151 Yoke	1		3	
250	SE-80	SIDE COVER , flywheel shroud	1			270	XH-1 Pin for yoke-#8 x 3/4" taper	1		1	
		NOTE: The remaining shroud parts, Ref. 251, 252, 253, 254, 255, 256, have been redesigned and are used on engines beginning with Serial No. 2,631,413. The old style shrouding is available for service as these are not interchangeable unless all 3 matching parts for either bank of cylinders is ordered.				271	TC-405 FLYWEIGHT ASSEMBLY	1	1		
251	SE-77-C	CYLINDER HEAT DEFLECTOR , Left hand side, beginning with Serial 2631413-SE-77-A, to and including Serial 2631412-	1	11		272	Includes:				
252	SE-77-D	CYLINDER HEAT DEFLECTOR , Right hand side, beginning with Serial 2631413-SE-77-B, to and including Serial 2631412-	1	14		273	GD-100A Gear	1		7	
253	SE-78-C	CYLINDER HEAD SHROUD , Right hand side, beginning with Serial 2631413-SE-78-A, to and including Serial 2631412-	1	14		274	PH-313A Bushing washer	1			
254	SE-79-C	CYLINDER HEAD SHROUD , Left hand side, beginning with Serial 2631413-SE-79-A, to and including Serial 2631412-	1	1		275	TC-322D-51 Flyweight assembly	2		3	
255	SE-82-C	REAR SHROUD COVER , Left hand side Beginning with Serial 2631413-SE-82-B, to and including Serial 2631412-	1	15			Includes TC-328D Thrust pin. TC-322-A, replaced by TC-322-D-51.				
256	SE-83-C	REAR SHROUD COVER , Right hand side Beginning with Serial 2631413-SE-83-B, to and including Serial 2631412-	1	15		277	TC-389A-1 Gear bushing	1		2	
258	T-89-2-S1	GOVERNOR ASSEMBLY , Beginning with engine Serial 153091 (Fig. 59)	1	3		278	PA-340 Flyweight roll pin	2			
259		Consisting of:					XJ-47 Rivet or PA-285 Pin with 2 XI-33 Cutter Pins replaced by PA-340, but drill out holes in governor gear to .196 (No. 9 drill).				
260		TC-391-B Thrust sleeve and bearing ..	1	2		280	NOTE: The following governor linkage parts are not included in the T-89-2-S1 governor assembly.				
261		TC-395-S1 Housing assembly	1	2		281	PD-173A Governor adjusting screw and	1		1	
263		Consisting of:				282	PI-115F Governor adjusting screw ...	1		3	
		PF-18 Pipe plug-1/8" slotted	1	1		283	PM-76 Governor spring	1		1	
		PH-571 Oil seal for cross shaft	1	1		284	TC-367 Adjusting screw pin	1		1	
		(Neoprene) Mount with .115 in. PH-318-A cork seal & PF-118 retainer replaced by PH-571-				285	TC-388-1 Governor drive shaft	1		3	
							VE-464 Governor control rod				
							T-89-S1 GOVERNOR ASSEMBLY , Beginning with engine Serial 137102 to and including 153090	1	3	3	
							This governor is the same as T-89-2-S1 with the following exceptions:				
							TC-405-1 Flyweight assembly in place of TC-405	1			
							TC-388 Gear bushing in place of TC-389A-1			2	
							TC-388 Governor drive shaft in place of TC-389-1			3	
							T-84-2 GOVERNOR ASSEMBLY , To and including engine Serial 137101	1	6		
							Consisting of:				
							GD-95A Governor gear	1		9	
							MD-100 Thrust bearing, Nice 5774 ..	1		6	
							or				
							ME-138 (Nice 607), Use TC-348-S1 Assembly				
							ME-111 Housing bearing	1		6	
							ME-112 Shaft bearing	1		6	
							PA-294 Housing dowel pin	2		1	
							PA-251 Yoke pin	1		1	
							PF-118 Cross shaft seal retainer	1			
							PH-318 Cross shaft seal	1		1	
							PI-115B Adjusting screw	1		2	
							PI-21 Gear key-Woodruff No. 3	1		1	
							PM-76 Governor spring	1		1	
							QD-615A Housing gasket	1		1	
							RF-269-2 Straight fitting	1		1	
							HM 960 Oil line to crankcase	1		4	
							SA-52 Plug-1/2" expansion	1		1	
							TA-112 Drive shaft	1		6	
							TC-322D-S1 Flyweight assembly	2		3	
							Includes TC-328D Thrust pin. TC-322A, replaced by TC-322D-S1.				

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PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb.	Oz.
307		TC-330 Adjusting screw pin	1	1	
308		TC-346B Flyweight hub	1	4	
309		TC-348-S1 Thrust sleeve and bearing TC-348A-S1, replaced by TC-348-S1.	1	6	
310		TC-353 Housing	1	2	
311		TC-354 Cross shaft	1	2	
312		VE-98A-2 Yoke	1	2	
313		VD-132 Lever (Give engine Serial Number when ordering)	1	5	
314		VD-158-1 Control rod yoke	1	1	
315		VE-273B-1 Control rod	1	1	
316		XH-1 Pin, No. 0 x 3/8" long, taper XH-2, replaced by XH-1.	2	1	
317		XH-9 Pin, No. 2 x 1 1/2" long, taper	1	1	
318		PA-34C Flyweight roll pin	2	1	
		XJ-47 Rivet or PA-265 ful- crumpin with 2 XJ-33 cotter pins, replaced by PA-340, but drill out holes in fly- weight hub to .195 (No. 9).			
319	TF-96	FUEL PUMP ADAPTER and PRIMER ASSEMBLY (with straight handle, for open engine).	1	1	
	TF-96-6	ADAPTER and PRIMER ASSEMBLY (with bent handle for power units with fuel pump). Both assemblies consist of the follow- ing parts, except where noted.	1	1	
320		JK-50 Packing ring	1		
321		PM-145 Spring	1		
322		TA-111-J Plunger (TA-116 must also be ordered)	1	1	
323		TA-114-S1 Shaft with JK-50 packing For TF-96 assembly.	1	1	
		TA-114C-S1 For TF-96-6 assembly	1	1	
324		TA-115 Handle (straight)	1	1	
		For TF-96 assembly.			
324A		TA-115-4 Handle (bent)	1	1	
		For TF-96-6 assembly.			
325		TA-116 Cap	1	1	
326		Adapter, not serviced separately; order complete Adapter assembly.	1		
327		XE-65 Set screw, for shaft in TF-96-6 assembly	1	1	
329	U-212	STARTING CRANK	1	2	
330	VE-471-4	PRIMER CONTROL	1		
		For power units with fuel pump.			
331	VE-693	CHOKE CONTROL	1	2	
		VE-433 and VE-575, repl'd by VE-693.			
332	WD-98	MUFFLER , standard, for 1 1/2" pipe tap .. WD-26-A, replaced by WD-93.	1	2	1
333	WD-66A-S2	MUFFLER , for 1" pipe tap, used on en- gine with LD-226 manifolds	2	1	
		WD-35, replaced by WD-56A-S2.			
334	WE-182-A	SPACER for gear cover	1	2	
		WE-182A-1, replaced by WE-182-A.			

Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb.	Oz.
335	Y-106-S1	MAGNETO , with gear, FAIRBANKS- MORSE No. FMZV4B7	1	5	8
		Y-74-S1 (FMXV4B7) and Y-41-S1 (FMJV4B7) replaced by Y-106-S1. YQ-6 Points and Condenser Kit			2
		YQ-3 Overhaul Kit			6
	OPTIONAL Y-54-S1	WICO No. XH-1343B magneto with gear Y-37C (J-1343), replaced by Y-54-S1. YQ-5 Points and Condenser Kit		5	10
		YQ-2 Overhaul Kit			6
		NOTE: These engines are equipped with either a 'Fair- banks-Morse' or 'Wico' magneto as shown. See magneto bulletins in back of manual for service replacement parts list.			
336	YD-6-S1 OPTIONAL YD-6-S2	SPARK PLUG , 18mm, CHAMPION No. D-16-J	2		2
		AC No. C86 Commercial			
	YD-20	RUBBER NIPPLE for magneto towers .. (Not illustrated)	4		1
338	YL-100-A	Set of Magneto Ignition Cables with in- tegral molded spark plug boot	1		12
		Consisting of:			
		YL-339-26 Cable for No. 1 cylinder	1		3
		YL-339-34 Cable for No. 2 cylinder	1		3
		YL-339-32 Cable for No. 3 cylinder	1		3
		YL-339-38 Cable for No. 4 cylinder	1		3
		YD-12 Terminal boots and YL-100 Cable Set, (which consisted of YL-78, YL-80, YL-81 and YL-82) is replaced by YL-100A Cable Set, but YD-294 Spark plug post terminal nut must be ordered for use with the integral molded boot.			
		MISCELLANEOUS STANDARD HARDWARE			
345	LJ-184	NIPPLE , 1 1/2" x 2 1/2" long, W.I. pipe	1		5
		For muffler mounting.			
346	PD-9	NUT , 1/4"-28 thread, hexagon steel	4		1
		For mounting LD-226 manifold.			
347	PD-246	LOCKNUT , 5/16"-24 thread, (special) .. For connecting rod bolts. PD-10, replaced by PD-246.	8		1
348	PD-11	NUT , 3/8"-24 thread, hexagon steel	1		1
		For magneto stud.			
349	PD-12	NUT , 7/16"-20 thread, hexagon steel ..	12		1
		For mounting cylinder block.			
350	PD-77	NUT , 1/4"-20 thread, hexagon steel	1		1
		For governor adjusting screw pin.			
351	PD-79	NUT , 3/8"-16 thread; hexagon steel	1		1
		For magneto mounting screw.			
352	PD-115	NUT , No. 10-32 thread, hexagon steel ..	3		1
		2-for governor adjusting screw. 1-for governor control rod (P-84-2 Gov.).			

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PARTS INTERCHANGEABLE ON MODELS VE4D AND VF4D

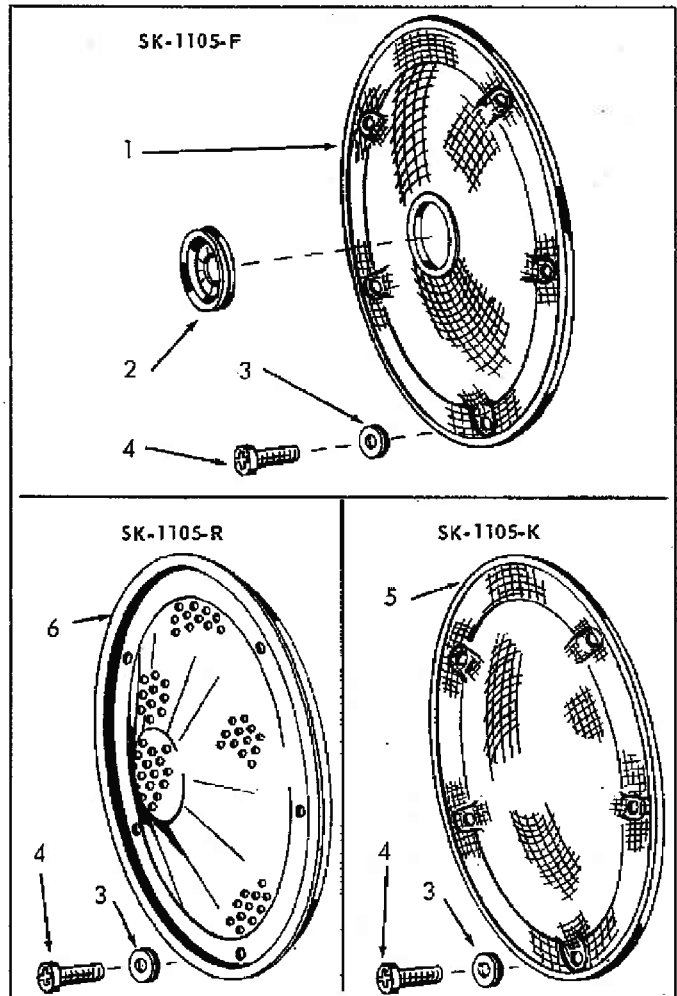
Ref. No.	Part Number	Description	No.			Ref. No.	Part Number	Description	No.		
			Req	Lb	Oz				Req	Lb	Oz
354	PD-205	NUT, 5/16"-24 thread (Seize proof), hexagon steel For exhaust and inlet manifold studs. PD-10A, brass nut, replaced by PD-205.	8		1	369	PL-53	KEY, No. 8 Woodruff For crankshaft gear.	1		1
355	PD-206	NUT, 3/8"-24 thread (Seize proof), hexagon steel For manifold to cylinder block studs. PD-109, brass nut, replaced by PD-206.	4		1	370	PL-83	KEY, No. 23 Woodruff For mounting flywheel.	1		2
357	PE-3	LOCKWASHER, 1/4" spring lock 2-for mounting fuel pump adaptor. 6-for splash plates (obsolete). 6-for flywheel screen. 4-for LD-226 exhaust manifold. 32-for air shrouding.	51		1	372	SA-26	PLUG, 5/8" expansion For camshaft bearing oil hole.	2		1
358	PE-4	LOCKWASHER, 5/16" spring lock 14-for crankcase bottom cover plate. 6-for flywheel shroud to gear cover. 15-for gear cover and spacer. 4-for governor housing. 2-for fuel pump. 2-for carburetor. 2-for oil filter. 8-for lower to upper manifold.	53		1	373	SA-58	PLUG, 1-3/8" expansion For camshaft end hole.	1		1
359	PE-5	LOCKWASHER, 3/2" spring lock 4-for mounting manifold to cylinder. 6-for main bearing plate—take-off end. 2-for magneto.	12		1	375	XA-33	SCREW, 1/4"-20 thread x 3/8" long, round or indented hexagon head 6-for flywheel screen. 8-for lower cylinder shroud, L. & R. sides. 2-for cylinder heat deflector, R.H. side. 12-for cylinder head shrouds. 3-for air shroud side cover. 2-for rear shroud cover, lower holes.	33		1
360	PE-6	LOCKWASHER, 7/16" spring lock For cylinder block to crankcase.	12		1	376	XA-36	SCREW, 1/4"-20 thread x 1/2" long, round or indented hexagon head 2-for rear shroud cover, top holes. 2-for cylinder head deflector R & L.	4		1
361	PE-7	LOCKWASHER, 1/2" spring lock For engine supports to crankcase.	4		1	377	XA-65	SCREW, No. 8 x 1/2" long, self-tapping, sheet metal For mounting choke bracket.	2		1
362	PE-46	LOCKWASHER, 5/16" external 'Everlock' For mounting camshaft gear.	3		1	378	XA-67	SCREW, No. 4 x 1/2" long, self-tapping, sheet metal For mounting name and instruction plate.	4		1
363	PE-49	LOCKWASHER, 5/16" countersunk 'Everlock', for bearing retainer plate — flywheel end	4		1		OPTIONAL XJ-46-A	RIVET, 9/64" dia. x 3/16" long, tubular steel For mounting name and instruction plate to cylinder head cover.			
364	PF-18	PIPE PLUG, 1/8" slotted 1-for oil hole to pump. 4-for oil spray nozzles. 1-for oil pump linkage hole. 1-for oil header.	7		1	380	XC-17	SCREW, 5/16"-18 thread x 3/4" long, flat head For bearing retainer plate—flywheel end	4		1
365	XK-3	PIPE PLUG, 3/8" square head For timing hole in gear cover. PF-25, slotted, replaced by XK-3.	1		2	381	XA-33	SCREW, 1/4"-20 thread x 3/8" long, indented hexagon head For lower cylinder shrouds. XD-3, replaced by XA-33.	4		1
366	PH-14	PLAIN WASHER, 5/16" copper 4-for valve inspection cover plate. 2-for spacer plate to crankcase (at idler gear).	6		1	382	XD-4	SCREW, 1/2"-20 thread x 1/2" long, hexagon head 2-for fuel pump pad cover. 1-for exhaust manifold, R.H. side.	3		1
367	PH-22-A	PLAIN WASHER, 3/8" steel For magneto mounting screw.	1		1	382	XA-34	SCREW, 1/4"-20 x 1/2", indented hex. hd. 4-for cylinder heat deflector. 6-for splash plates. Obsolete—discontinued as of serial No. 4479692.	10		
368	PH-77-A	PLAIN WASHER, 5/16" steel For mounting cylinder heads.	34		1	383	XD-6	SCREW, 1/4"-20 thread x 3/4" long, hexagon head 2-for cylinder heat deflector, L.H. side. 2-for fuel pump adapter. XR-75 (Allen capscrew), replaced by XD-6.	6		1
						384	XD-13	SCREW, 5/16"-18 thread x 1/2" long, hexagon head For flywheel shroud mounting.	4		1

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PARTS INTERCHANGEABLE ON MODELS YE4D AND VF4D

ROTATING SCREENS

Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb	Oz
384	XD-172	SCREW, 5/16"-18 x 1/2" long, 1/8" thick hexagon head For center holes in flywheel shroud.	2	1	
385	XD-14	SCREW, 5/16"-18 thread x 5/8" long, hexagon head 14-for crankcase bottom cover plate. 5-for mounting spacer to crankcase.	19	1	
386	XD-15	SCREW, 5/16"-18 thread x 3/4" long, hexagon head 2-for mounting spacer to gear cover. 2-for mounting fuel pump.	4	1	
387	XD-16	SCREW, 5/16"-18 thread x 7/8" long, hexagon head For mounting governor housing.	4	1	
388	XD-17	SCREW, 5/16"-18 thread x 1" long, hexagon head 3-for mounting camshaft gear. 2-for mounting carburetor. 2-for oil filter mounting. PC-112 Studs for oil filter, replaced by XD-17.	7	2	
389	XD-19	SCREW, 5/16"-18 thread x 1 1/4" long, hexagon head (Special hardness) 10-for mounting gear cover. 30-for mounting cylinder heads.	40	2	
390	XD-20	SCREW, 5/16"-18 thread x 1-3/8" long, hexagon head (Special hardness) For mounting cylinder heads. XD-21 (1 1/2" long), replaced by XD-20.	4	2	
392	XD-29	SCREW, 3/8"-15 thread x 1 1/4" long, hexagon head For main bearing plate—take-off end.	6	2	
393	XD-33	SCREW, 3/8"-16 thread x 2 1/4" long, hexagon head For mounting magnets (Lower hole).	2		
394	XD-43	SCREW, 1/2"-13 thread x 1 1/2" long, hexagon head For mounting engine supports.	4	2	
397	XE-55	SCREW, 5/16"-18 thread x 3/8" long, Allen head set For idler stud.	1	1	
398	XI-1	COTTER PIN, 1/16" x 1/2" long For governor yoke pin (T-84-2 Gov.).	1	1	
399	XI-32	COTTER PIN, 3/64" x 3/8" long For governor control rod.	1	1	
400	XK-1	PLUG, 1/8" pipe, square head For inlet manifold.	2	1	
401	XK-3	PLUG, 3/8" pipe, square head For oil drain.	1	1	
402	XK-12	PLUG, 1" pipe, countersunk head For LU-225 exhaust manifold.	2	2	



Ref. No.	Part Number	Description	No. Req.	Net Wt.	
				Lb	Oz
THE FOLLOWING REPLACE STANDARD PARTS					
	NC-140G-3-S1	FLYWHEEL—includes GI-43 Ring Gear and tapped holes for mt'g rotating screen.	1	35	
	N-101-7	FLYWHEEL — for 10 amp alternator, ring gear and rotating screen	1		
	N-101-11	FLYWHEEL for 30 amp alternator, ring gear and rotating screen	1		
	U-212-A	HAND CRANK	1	2	
PER SK-1105-F					
1	SE-204C-S1	ROTATING SCREEN ASSEMBLY	1	2	
Consisting of:					
2	PH-426	Grommet	1	1	
3	PH-442	Washers	5	1	
—	SE-204-C	Screen	1	8	
4	XA-104	Lok-Thread screws	5	1	
PER SK-1105-K					
5	SE-204-D	ROTATING SCREEN	1	1	
PER SK-1105-R					
6	SE-321	ROTATING SCREEN	1	2	8

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