

REPAIR PARTS PRICE LIST

for

LeBLOND AIRCRAFT ENGINES

MODELS

5D	LeBLOND	"60"
5DE	"	"70"
5DF	"	"85"
5E	"	"70"
5F	"	"90"
7D	"	"90"
7DF	"	"110"
7F	"	"110"



REARWIN AIRCRAFT & ENGINES, INC.

FAIRFAX AIRPORT
KANSAS CITY

Effective January 1, 1937

REARWIN AIRCRAFT & ENGINES, INC. - SUCCESSOR TO
THE LeBLOND AIRCRAFT ENG. CORP.
Cincinnati, Ohio

**KEY TO DESIGN CHANGES NOT APPLICABLE
TO SPECIFIC ENGINE MODELS**

- (a).....Used on Engine No. 300 to 360, inclusive.
- (b).....Used on Engine No. 361 to
- (c).....Used on Engine No. 300 to 475. .
- (d).....Used on Engine No. 476 to
- (e).....Used on Engine No. 300 to 546, inclusive.
- (f).....Used on Engine No. 361 to 546, inclusive.
- (g).....Used on Engine No. 547 to 927.
- (h).....Used on Engine No. 775 to
- (i).....Used on Engine No. 928 to 939, inclusive, and 963 to
- (j).....Used on Engine No. 1002 to
- (k).....Used on Model "F" Engines 961, 975, 981, 983, and 993 to
- (s).....Special Equipment.
- ac.....U. S. A. Air Corps.

- SA.....Sold with Assembly only.
- OPR.....Obsolete Parts—Prices furnished on request.
- OPN.....Obsolete Parts—Not furnished. .
- SPR.....Special Parts—Prices on request.

**ALWAYS GIVE ENGINE NUMBER AND MODEL
WHEN ORDERING PARTS**

Prices Subject to Change Without Notice.

Part No.	NAME	NUMBER REQUIRED									Price Each
		MODEL									
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05006	Bearing Spacer.....		2	2	2	1	1	2	2	1	\$ 0.26
06301	Bearing Spacer—Front.....					1	1			1	3.05
06703	Breather Connection.....	s	1	1	1	1	1	1	1	1	1.05
05195	Breather Extension.....	a	1								OPR
05137	Breather Screen.....		1	1	1	1	1	1	1	1	SA
05013	Breather Screen Assembly.....		1	1	1	1	1	1	1	1	1.25
05092	Breather Screen Frame.....		1	1	1	1	1	1	1	1	SA
05101	Cam.....		1	1	1	1	1				29.25
07101	Cam.....							1	1	1	29.50
05102	Cam Bushing.....		1	1	1	1	1				.50
07102	Cam Bushing.....							1	1	1	.70
05100	Cam and Bushing Assembly.....		1	1	1	1	1				30.00
07100	Cam and Bushing Assembly.....							1	1	1	31.00
05133	Cam Drive Idler Gear.....		1	1	1	1	1	1	1	1	7.50
05108	Cam Drive Idler Shaft.....		1	1	1	1	1				6.10
07108	Cam Drive Idler Shaft.....							1	1	1	10.00
07300	Cam Drive Idler Shaft Assembly.....							1	1	1	13.75
07301	Cam Drive Idler Shaft Collar.....							1	1	1	.60
05130	Cam Drive Idler Shaft Nut.....		1	1	1	1	1	1	1	1	3.40
05129	Cam Drive Idler Shaft Washer.....		1	1	1	1	1	1	1	1	.35
05098	Cam Drive Idler Shaft Bushing.....		4	4	4	4	4	4	4	4	.25
					(See 06099)						
05099	Cam Drive Shaft.....		1	1	1	1	1				11.30
06099	Cam Drive Shaft.....	j				1	1				11.30
07099	Cam Drive Shaft.....							1	1	1	17.50
05147	Cam Drive Shaft Assembly.....		1	1	1	1	1				18.45
06147	Cam Drive Shaft Assembly (Plain).....	j				1	1			1	20.80
06147-1	Cam Drive Shaft Assembly (For Starter).....	j				1	1			1	24.45
06147-2	Cam Drive Shaft Assembly (For Starter and Fuel Pumps).....	j				1	1			1	24.95
07147	Cam Drive Shaft Assembly.....							1	1	1	37.85
05103	Cam Drive Shaft Gear.....		1	1	1	1	1				3.35
07103	Cam Drive Shaft Gear.....							1	1	1	24.60
05197	Cam Follower.....					Substitute 06197					OPN
06197	Cam Follower.....	i		10	10	10	10		14	14	3.00
05034	Cam Follower Assembly.....					Substitute 06034					OPN
06034	Cam Follower Assembly.....	i	10	10	10	10	10	14	14	14	4.60
05053	Cam Follower Bushing.....		10					14			35 1.58
06053	Cam Follower Bushing.....			10	10	10	10		14	14	85 1.58
05196	Cam Follower Roller.....					Substitute 06196					OPN
06196	Cam Follower Roller.....	i	10	10	10	10	10	14	14	14	.70
05198	Cam Follower Lock Wire.....		10	10	10	10	10	14	14	14	.07
06198	Cam Follower Roller Pin.....	i	10	10	10	10	10	14	14	14	.15
05136	Cam Follower and Roller Assembly.....					Substitute 06136					OPN
06136	Cam Follower and Roller Assembly.....		10	10	10	10	10	14	14	14	5.65
06194	Cam Shaft Collar (Optional).....					1	1			1	1.80
05109	Cam Timing Flange.....		1	1	1	1	1	1	1	1	7.25
05215	Carburetor (Stromberg).....			1	1	1	1				100.00
06215	Carburetor (Holley).....				1	1	1				100.00
07215	Carburetor (Stromberg).....							1			100.00
08215	Carburetor (Stromberg).....								1	1	100.00
05246	Carburetor Air Cleaner (Air Maze).....	s	1	1	1	1	1	1	1	1	3.00

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05247	Carburetor Air Cleaner Assembly.....	s	1	1	1	1	1	1	1	1	\$ 8.40
05239	Carburetor Air Cleaner Support.....	s	1	1	1	1	1	1	1	1	4.50
05243	Carburetor Air Heater.....	s	1	1	1	1	1	1	1	1	35.00
05213	Carburetor Air Horn.....		1	1	1	1	1	1	1	1	2.65
05043	Carburetor Gasket.....		1	1	1	1	1	1	1	1	.04
05178	Clip Ignition Cable—Front.....		5					7		1	OPR
06178	Clip Ignition Cable—Front.....			5	5	5	5		7	7	.10
05179	Clip Ignition Cable—Rear.....		5	5	5	5	5	7	7	7	.10
05209	Clip Ignition Cable Tube.....	a	2								OPR
05210	Clip Ignition Cable Tube.....	a	2								OPR
05211	Clip Ignition Cable Tube.....	a	1								OPR
05212	Clip Ignition Cable Tube.....	a	1								OPR
05257	Connecting Rod Bearing.....	h									OPR
05150	Connecting Rod Bolt.....		4	4	4	4	4			1	4.00
07150	Connecting Rod Bolt.....										1.50
05188	Connecting Rod Bushing.....		9	9	9	9	9	13	13	13	1.60
05093	Counterweight.....		2	2							.21
06093	Counterweight.....				2						9.65
06393	Counterweight.....					2					9.65
07093	Counterweight.....						2				9.65
08093	Counterweight.....							2			12.50
05051	Crankcase.....		1	1		1	1		2	2	12.50
06051	Crankcase.....				1						SA
07051	Crankcase.....							1	1		SA
05002	Crankcase Assembly.....		1					1	1	1	SA
05249	Crankcase Assembly.....			1		1					OPR
06002	Crankcase Assembly.....				1		1				305.00
07002	Crankcase Assembly.....							1			315.00
08002	Crankcase Assembly.....								1		389.00
05056	Crankcase Cover.....		1	1	1			1	1	1	400.00
06306	Crankcase Cover.....							1	1		SA
05004	Crankcase Cover Assembly.....		1	1	1	1	1			1	16.10
06304	Crankcase Cover Assembly.....							1	1		40.00
05005	Crankcase Cover Gasket.....		1	1	1	1	1			1	60.00
05139	Crankcase Cover Studding Assembly.....		1	1	1	1	1	1	1	1	.14
06305	Crankcase Cover Studding Assembly.....					1	1	1	1		30.25
05050	Crankcase Studding Assembly.....		1			1	1			1	54.10
05250	Crankcase Studding Assembly.....			1							OPR
06050	Crankcase Studding Assembly.....				1	1					205.00
07050	Crankcase Studding Assembly.....						1				217.00
07250	Crankcase Studding Assembly.....							1			OPR
08050	Crankcase Studding Assembly.....								1		249.00
05200	Crankshaft.....									1	263.00
05200-1	Crankshaft.....		1	1				1			123.00
06300	Crankshaft.....				1				1		125.00
05055	Crankshaft Assembly.....		1	1		1	1			1	110.00
06055	Crankshaft Assembly.....										172.00
06355	Crankshaft Assembly.....				1						191.50
07055	Crankshaft Assembly.....					1	1				180.00
08055	Crankshaft Assembly.....							1			160.00
05112	Crankshaft Oil Plug.....		1	1	1				1	1	185.00
06312	Crankshaft Oil Plug.....					1	1			1	1.60
											2.40

Part No.	NAME	NUMBER REQUIRED MODEL									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05010	Crankshaft Oil Thrower.....		1	1	1	1	1	1	1	1	\$ 0.10
05003	Crankshaft and Conn. Rod Assembly...		1	1							290.00
06003	Crankshaft and Conn. Rod Assembly...				1						400.00
06303	Crankshaft and Conn. Rod Assembly...					1	1				461.00
07003	Crankshaft and Conn. Rod Assembly...							1			OPR
08003	Crankshaft and Conn. Rod Assembly...									1	416.50
05061	Crankshaft Rear Bearing Nut.....		1	1	1	1	1	1	1	1	1.50
05062	Crankshaft Rear Bearing Nut Lock.....		1	1	1	1	1	1	1	1	.05
05085	Cylinder.....		5					7			SA
05231	Cylinder.....			5		5					SA
06085	Cylinder.....				5		5		7	7	19.25 49.00
06085-1	Cylinder.....	k					5			7	22.00 49.00
05023	Cylinder Assembly.....		5					7			75.90
05245	Cylinder Assembly.....			5		5					92.00
06023	Cylinder Assembly.....				5		5		7	7	192.00
06023-1	Cylinder Assembly.....	k					5			7	192.00
05075	Cylinder and Bushing Assembly.....	k	5					7			40.00
05244	Cylinder and Bushing Assembly.....			5		5					36.75
05024	Cylinder Gasket.....		5	5	5	5	5	7	7	7	.14
06402	Cylinder Head.....				5		5			5	SA
06402-1	Cylinder Head.....	k					5				SA
05259	Cylinder and Valve Assembly.....			5		5					44.50
06259	Cylinder and Valve Assembly.....				5				7		125.00
06259-1	Cylinder and Valve Assembly.....	k					5			7	
06400	Cylinder and Head Assembly.....						5			7	110.00 118.00
06400-1	Cylinder and Head Assembly.....	k					5			7	
06075	Cylinder Head Studding Assembly.....				5		5			7	65.50
06075-1	Cylinder Head Studding Assembly.....	k					5			7	
05165	Distributor Block (R. Front).....	a	1								OPR
05166	Distributor Block (R. Rear).....	a	1								OPR
05170	Distributor Block (L. Front).....	a	1								OPR
05171	Distributor Block (L. Rear).....	a	1								OPR
07165	Distributor Block (R. Front).....							1		1	OPR
07166	Distributor Block (R. Rear).....							1		1	OPR
07170	Distributor Block (L. Front).....							1		1	OPR
07171	Distributor Block (L. Rear).....							1		1	OPR
05052	Dowel.....		2	2	2	2	2	2	2	2	.21
05007	Dowel—Carburetor.....		1								OPR
06007	Dowel—Carburetor.....			1	1	1	1	1	1	1	.40
05000	Engine Assembly.....		1								
05260	Engine Assembly.....			1		1					
06000	Engine Assembly.....				1						
06360	Engine Assembly.....						1				
07000	Engine Assembly.....							1			
08000	Engine Assembly.....								1		
08360	Engine Assembly.....									1	
05217	Engine Mount Assembly.....		1	1	1	1	1	1	1	1	34.25
05218	Engine Mount Clip.....		10	10	10	10	10	10	10	10	.25
05219	Engine Mount Flange.....		8	8	8	8	8	8	8	8	.35
05221	Engine Mount Bolt Sleeve.....		10	10	10	10	10	10	10	10	SA
05235	Engine Mount Lower Brace.....		1	1	1	1	1	1	1	1	SA
05233	Engine Mount Side Brace.....		2	2	2	2	2	2	2	2	SA

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05234	Engine Mount Upper Brace.....		1	1	1	1	1	1	1	1	SA
05220	Engine Mount Ring.....		1	1	1	1	1	1	1	1	SA
07305	Exhaust Stack Assembly.....							1	1	1	\$ 2.75
07306	Exhaust Stack.....							1	1	1	1.00
07307	Exhaust Stack Collar.....							1	1	1	.11
05176	Expander—Oil Pump Ring.....		1	1	1	1	1	1	1	1	.20
05242	Filler Block (Starter).....	s	1	1	1	1	1	1	1	1	3.80
05267	Fuel Pump.....	s	1	1	1	1	1	1	1	1	25.00
05261	Fuel Pump Connection.....	s	1	1	1	1	1	1	1	1	2.50
05262	Fuel Pump Bracket.....					1	1			1	1.25
05105	Gearcase.....	a	1								OPN
05183	Gearcase.....	b	1	1	1	1	1	1	1	1	SA
05032	Gearcase and Oil Pump Assembly.....	a	1	1	1	1	1				OPN
05206	Gearcase and Oil Pump Assembly.....	b	1	1	1	1	1				260.00
07206	Gearcase and Oil Pump Assembly.....							1	1	1	277.00
05225	Gearcase Assembly.....		1	1	1	1	1				202.50
05059	Gearcase Cover.....	a	1	1	1	1	1				OPN
05184	Gearcase Cover.....	b	1	1	1	1	1	1	1	1	SA
05184-1	Gearcase Cover (for Fuel Pump).....					1	1			1	SA
05038	Gearcase Cover Assembly.....	a	1							1	OPN
05199	Gearcase Cover Assembly.....	b	1	1	1	1	1	1	1	1	16.70
05199-1	Gearcase Cover Assembly (for Fuel Pump).....	s		1	1	1	1	1	1	1	20.75
05039	Gearcase Cover Gasket.....	b	1								OPN
05192	Gearcase Cover Gasket.....	b		1	1	1	1	1	1	1	.04
05026	Gearcase Cover Studding Assembly.....	a				Substitute 0	5207				
05207	Gearcase Cover Studding Assembly.....	b	1	1	1	1	1	1	1	1	15.05
05207-1	Gearcase Cover Studding Assembly (for Fuel Pump).....			1	1	1	1	1	1	1	16.50
05033	Gearcase Gasket.....		1	1	1	1	1	1	1	1	.11
05095	Gearcase Studding Assembly.....	a				Substitute 0	5205				
05205	Gearcase Studding Assembly.....	b		1	1	1	1				83.40
07205	Gearcase Studding Assembly.....							1	1	1	60.00
05146	Idle Gear and Timing Flange Assembly.....		1	1	1	1	1	1	1	1	18.55
05091	Ignition Cable.....					As Required					ft., .10
05090	Ignition Cable Terminal.....		10	10	10	10	10	14	14	14	.15
05090-1	Ignition Cable Terminal.....		10	10	10	10	10	14	14	14	.25
05008	Ignition Cable Tube.....	a	1			Substitute 0	5159				
05159	Ignition Cable Tube.....	e	1					1	1		4.40
05238	Ignition Cable Tube.....	g	1	1	1	1	1				4.40
05060	Ignition Cable Tube Assembly.....	e	1								12.25
05251	Ignition Cable Tube Assembly.....	g	1								12.25
06251	Ignition Cable Tube Assembly.....			1	1	1	1				12.25
07060	Ignition Cable Tube Assembly.....							1	1		15.20
05173	Ignition Cable Tube Clip.....		6	6	6	6	6	6	6	6	.03
05113	Inlet Pipe.....		5	5	5	5	5	7	7	7	SA
06706	Inlet Pipe Assembly (with connection).....	ac	5	5	5	5	5	7	7	7	3.00
05046	Inlet Pipe Assembly.....		5	5	5	5	5	7	7	7	2.55
05256	Inlet Pipe Filler Gasket.....		5	5	5	5	5	7	7	7	.07
05094	Inlet Pipe Flange.....		5	5	5	5	5	7	7	7	SA
05048	Inlet Pipe Flange Gasket.....		5	5	5	5	5	7	7	7	.03
05114	Inlet Pipe Nut.....		10	10	10	10	10	14	14	14	.80

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05123	Inlet Pipe Packing.....		10	10	10	5	5	14	14	7	\$ 0.08
05186	Link Connecting Rod.....		4	4	4	4	4	6	6	6	SA
05187	Link Connecting Rod Assembly.....		4	4	4	4	4	6	6	6	4.60
05143	Magneto (R. H. Scintilla AP-5).....	a	1			Substitute	0	5201	or 0	5252	
05144	Magneto (L. H. Scintilla AP-5).....	a	1			Substitute	0	5202	or 0	5253	
05201	Magneto (R. H. Scintilla PN-5D).....	f	1			1	1				60.00
05202	Magneto (L. H. Scintilla PN-5D).....	f	1			1	1				60.00
05252	Magneto (R. H. Bosch FU-5).....	g	1	1	1						66.00
05253	Magneto (L. H. Bosch FU-5).....	g	1	1	1						66.00
05263	Magneto (L. H. Scintilla SB-5).....	i			1	1	1				55.00
05264	Magneto (R. H. Scintilla SB-5).....	i			1	1	1				55.00
07201	Magneto (R. H. Scintilla) MN-7D.....							1	1	1	100.00
07202	Magneto (L. H. Scintilla) MN-7D.....							1	1	1	100.00
05030	Magneto Adjusting Eye.....	a	2								OPR
05031	Magneto Adjusting Yoke.....	a	2								OPR
05041	Magneto Assembly (AP-5, R.H.).....	a	1			Substitute	0	5203	or 0	5254	
05203	Magneto Assembly (PN-5D, R.H.).....	f	1			1	1				64.00
05044	Magneto Assembly (AP-5, R.H.).....	a	1			Substitute	0	5204	or 0	5255	
05204	Magneto Assembly (PN-5D, L.H.).....	f	1			1	1				64.00
05254	Magneto Assembly (FU-5, R.H.).....	g	1	1	1	1	1				70.00
05255	Magneto Assembly (FU-5, L.H.).....	g	1	1	1	1	1				70.00
05265	Magneto Assembly (SB-5, L.H.).....	i				1	1				59.00
05266	Magneto Assembly (SB-5, R.H.).....	i				1	1				59.00
07203	Magneto Assembly (MN-7D, R.H.).....							1	1	1	104.00
07204	Magneto Assembly (MN-7D, L.H.).....							1	1	1	104.00
05040	Magneto Coupling.....		2	2	2	2	2	2	2	2	5.25
05168	Magneto Coupling Disc.....		2	2	2	2	2	2	2	2	.90
05148	Magneto Drive Assembly.....		1	1	1	1	1				33.60
07148	Magneto Drive Assembly.....							1	1	1	35.60
05145	Magneto Drive Flange.....		2	2	2	2	2	2	2	2	SA
05104	Magneto Drive Shaft.....		1	1	1	1	1				6.75
07104	Magneto Drive Shaft.....							1	1	1	7.10
05149	Magneto Drive Shaft Assembly.....		1	1	1	1	1				21.10
07149	Magneto Drive Shaft Assembly.....							1	1	1	21.35
05097	Magneto Drive Shaft Bushing.....		2	2	2	2	2	2	2	2	.30
05084	Magneto Drive Shaft Cap.....		1	1	1	1	1				2.45
07084	Magneto Drive Shaft Cap.....							1	1	1	3.45
05029	Magneto Drive Shaft Support Assembly.....		1	1	1	1	1				9.45
07029	Magneto Drive Shaft Support Assembly.....							1	1	1	14.20
05111	Magneto Drive Shaft Support Plate.....		1	1	1	1	1				3.40
06112	Magneto Drive Shaft Support Plate Gasket.....		1	1	1	1	1				.12
07111	Magneto Drive Shaft Support Plate.....							1	1	1	4.10
05107	Magneto Shaft Oil Thrower.....		2	2	2	2	2	2	2	2	.05
05106	Magneto Shaft Support Plate Dowel.....		1	1	1	1	1				.25
07106	Magneto Shaft Support Plate Dowel.....							1	1	1	.10
05172	Magneto Shim.....	e	2								1.50
05237	Magneto Shim.....	g	2	2	2	2	2				.15
07172	Magneto Shim.....							2	2	2	.95
05190	Master Connecting Rod.....		1								SA
05190-1	Master Connecting Rod.....	h		1	1	1	1				SA
07190	Master Connecting Rod.....							1	1	1	SA

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05191-1	Master Connecting Rod Assembly.....	h	.....	1	1	1	1	.....	.....	.....	\$ 75.00
07191	Master Connecting Rod Assembly.....	.....	.....	.....	.....	.....	.....	1	1	1	143.75
05248	Master and Link Rod Assembly.....	.....	1	1	1	1	1	.....	.....	.....	289.45
07248	Master and Link Rod Assembly.....	.....	.....	.....	.....	.....	.....	1	1	1	226.00
05189	Master Connecting Rod Cap.....	.....	1	1	1	.....	.....	1	1	1	SA
05189-1	Master Connecting Rod Cap.....	h	.....	.....	.....	1	1	.....	.....	.....	SA
07189	Master Connecting Rod Cap.....	.....	.....	.....	.....	.....	.....	1	1	1	SA
05258	Master Rod and Bearing Assembly.....	.....	.....	.....	.....	1	1	.....	.....	.....	66.15
05076	Name Plate.....	.....	1	.....	.....	.....	.....	1	.....	.....	1.00
06076	Name Plate.....	.....	1	1	1	1	1	1	1	1	1.00
06712	Name Plate.....	.....	1	1	1	1	1	1	1	1	1.00
05151	Oil Connection.....	.....	2	2	2	2	2	2	2	2	1.30
05132	Oil Connection Stud.....	.....	2	2	2	2	2	2	2	2	.90
05128	Oil Pressure Adjuster.....	.....	1	1	1	1	1	1	1	1	.35
05127	Oil Pressure Spring.....	.....	1	1	1	1	1	1	1	1	.05
05126	Oil Pressure Valve.....	.....	1	1	1	1	1	1	1	1	.25
05153	Oil Pressure Screen.....	.....	1	1	1	1	1	1	1	1	SA
05152	Oil Pressure Screen Assembly.....	.....	1	1	1	1	1	1	1	1	.90
05154	Oil Pressure Screen Frame.....	.....	1	1	1	1	1	1	1	1	SA
05036	Oil Pump Assembly.....	.....	1	1	1	1	1	1	1	1	SA
05117	Oil Pump Drive Gear.....	.....	1	1	1	1	1	1	1	1	57.50
05116	Oil Pump Drive Shaft.....	.....	1	1	1	1	1	1	1	1	5.25
05037	Oil Pump Gasket.....	.....	1	1	1	1	1	1	1	1	10.00
05125	Oil Pump Idler Shaft.....	.....	1	1	1	1	1	1	1	1	.05
05124	Oil Pump Lower Body.....	.....	1	1	1	1	1	1	1	1	1.35
05120	Oil Pump Plate.....	.....	1	1	1	1	1	1	1	1	7.35
05118	Oil Pump Pressure Idler Gear.....	.....	1	1	1	1	1	1	1	1	2.10
05135	Oil Pump Ring.....	b	1	1	1	1	1	1	1	1	1.85
05121	Oil Pump Scavenger Drive Gear.....	.....	1	1	1	1	1	1	1	1	.25
05122	Oil Pump Scavenger Idler Gear.....	.....	1	1	1	1	1	1	1	1	2.60
05115	Oil Pump Upper Body.....	.....	1	1	1	1	1	1	1	1	1.65
05156	Oil Scavenger Screen.....	.....	1	1	1	1	1	1	1	1	4.20
05155	Oil Scavenger Screen Assembly.....	.....	1	1	1	1	1	1	1	1	SA
05158	Oil Scavenger Screen Frame.....	.....	1	1	1	1	1	1	1	1	.90
05157	Oil Sump.....	.....	1	1	1	1	1	1	1	1	SA
07304	Oil Sump.....	.....	1	1	1	1	1	.....	.....	.....	11.25
08304	Oil Sump.....	.....	.....	.....	.....	.....	1	.....	.....	.....	OPR
05058	Oil Sump Assembly.....	.....	1	1	.....	.....	.....	1	1	.....	16.75
06058	Oil Sump Assembly.....	.....	.....	.....	1	1	.....	.....	.....	.....	14.60
07058	Oil Sump Assembly.....	.....	.....	.....	.....	.....	.....	1	.....	.....	14.60
08058	Oil Sump Assembly.....	.....	.....	.....	.....	.....	.....	1	.....	.....	OPR
05045	Oil Sump Gasket.....	.....	1	.....	.....	.....	.....	.....	1	1	14.60
05045-1	Oil Sump Gasket.....	.....	.....	1	1	.....	.....	.....	.....	.....	.05
07045	Oil Sump Gasket.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.05
08045	Oil Sump Gasket.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.05
05069	Patent Plate.....	.....	.....	.....	.....	.....	.....	.....	1	1	.05
06705	Priming Jet Boss.....	.....	1	1	1	1	1	1	1	1	.35
05160	Piston.....	.....	1	1	1	1	1	1	1	1	SA
06160	Piston.....	.....	5	5	.....	5	.....	7	.....	.....	7.50
06160-1	Piston (High Compression).....	k	.....	.....	5	.....	5	.....	7	7	8.65
05021	Piston Assembly.....	.....	.....	.....	.....	5	.....	.....	.....	7	9.40
06021	Piston Assembly.....	.....	5	5	.....	5	.....	7	.....	.....	12.25
					5	.....	5	.....	7	7	15.75

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
06021-1	Piston Assembly (High Compression)...	k					5			7	\$16.75
05073	Piston Pin.....		5					7			1.95
05073-2	Piston Pin.....			5	5	5	5		7	7	1.95
05022	Piston Pin Assembly.....		5	5		5		7			2.15
06022	Piston Pin Assembly.....				5		5		7	7	2.35
05074	Piston Pin Plug.....		10	10		10		14			.20
06074	Piston Pin Plug.....				10		10		14	14	.20
05071	Piston Ring (Oil Control) <i>McQuay-Norris</i>					5		7			.35
	Perfect Circle (Single Duty).....		5	5		5		7			.39
	Perfect Circle (Type 85).....		5	5		5		7			.64
	A. H. Oil Control.....			5		5		7			.40
05072	Piston Ring (Compression) <i>McQuay Norris</i>		10	10		10		14			.30
	Perfect Circle (Bevel Cut).....		10	10		10		14			.28
	Perfect Circle (Straight Cut).....		10	10		10		14			.39
06071	Piston Ring (Oil Control) <i>McQuay Norris</i>				5		5		7	7	.35
	Perfect Circle (Single Duty).....				5		5		7	7	.39
	Perfect Circle (Type 85).....				5		5		7	7	.64
	A. H. Oil Control.....				5		5		7	7	.40
06072	Piston Ring (Compression) <i>McQuay Norris</i>				10		10		14		.30
	Perfect Circle (Bevel Cut).....				10		10		14	14	.28
	Perfect Circle (Straight Cut).....				10		10		14	14	.39
05015	Propeller Hub.....		1	1	1	1	1	1	1	1	11.50
05057	Propeller Hub Assembly.....		1	1	1	1	1	1	1	1	27.50
05016	Propeller Hub Bolt.....		6	6	6	6	6	6	6	6	.40
05047	Propeller Hub Bolt Nut.....	c	6	6							OPN
05222	Propeller Hub Bolt Nut.....	d	6	6	6	6	6	6	6	6	.35
05018	Propeller Hub Flange.....		1	1	1	1	1	1	1	1	6.30
05014	Propeller Hub Key.....		1	1	1			1	1		.25
05223	Propeller Hub Bolt Washer.....					6	6			6	.20
06314	Propeller Hub Key.....					1	1				.25
06701	Propeller Hub Lock Nut.....	ac									SPR
06702	Propeller Hub Lock Nut Wire.....	ac									SPR
05017	Propeller Hub Nut.....		1	1	1	1	1	1	1	1	1.95
06700	Propeller Hub Retaining Nut.....	ac									SPR
05019	Propeller Hub Puller Nut.....		1	1	1	1	1	1	1	1	1.15
05070	Push Rod.....		10								.15
06070	Push Rod <i>sold in assembly only</i>			10	10	10	10				.15
07070	Push Rod.....							14			0.15
08070	Push Rod.....								14	14	.15
05141	Push Rod Adjusting Sleeve.....		10	10	10	10	10	14	14	14	.40
05035	Push Rod Assembly.....		10								1.60
06035	Push Rod Assembly.....			10	10	10	10				1.60
07035	Push Rod Assembly.....							14			1.60
08035	Push Rod Assembly.....								14	14	1.60
05110	Push Rod Ball End (Plain).....		10	10	10	10	10	14	14	14	.25
05142	Push Rod Ball End (Threaded).....		10	10	10	10	10	14	14	14	.45
05140	Push Rod Plug.....		10	10	10	10	10	14	14	14	.05
05131	Push Rod Sleeve.....		20	20	20	20	20	28	28	28	.10
05066	Push Rod Socket (Threaded).....		10	10	10			14	14		.55
05216	Push Rod Socket (Plain).....	b	10	10	10	20	20	14	14	28	.25
05208	Push Rod Socket Assembly.....	a	10								OPR
06411	Push Rod Cover Tube Insert.....										OPN

Part No.	NAME	NUMBER REQUIRED									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
06410	Push Rod Cover Tube (Lower).....				Substitute 0	6423					OPN
06423	Push Rod Cover Tube (Lower).....			10	10	10	10	.....	14	14	\$ 0.50
06412	Push Rod Cover Tube (Upper).....				Substitute 0	6422					OPN
06422	Push Rod Cover Tube (Upper).....			10	10	10	10	.....	14	14	.60
06416	Push Rod Cover Tube Assembly (Lower)				Substitute 0	6423					OPN
06419	Push Rod Cover Tube Assembly (Upper)				Substitute 0	6422					OPN
06424	Push Rod Cover Tube and Spring Assembly.....			10	10	10	10	.....	14	14	1.20
06418	Push Rod Cover Tube Ball End										OPN
06414	Push Rod Cover Tube Spring			10	10	10	10	.....	14	14	.05
06420	Push Rod Cover Tube and Spring Assembly.....										OPN
05054	Rear Bearing Sleeve.....		1	1	1	1	1	1	1	1	4.40
06087	Rocker Arm.....			10	10	10	10	.....	14	14	1.90
05063	Rocker Arm (L. H.).....		5					7			2.25
05087	Rocker Arm (R. H.).....		5					7			2.25
06405	Rocker Arm Assembly.....			10	10	10	10	.....	14	14	3.60
05163	Rocker Arm and Ball Socket Assembly (Inlet).....				Substitute 0	5229	or 0	5230			
05164	Rocker Arm and Ball Socket Assembly (Exhaust).....				Substitute 0	5229	or 0	5230			
06406	Rocker Arm Box.....		10	10	10	10	.....	14	14		3.65
06404	Rocker Arm Box Assembly.....		10	10	10	10	.....	14	14		11.00
06517	Rocker Arm Box Cover.....		10	10	10	10	.....	14	14		.05
06518	Rocker Arm Box Cover Lock.....		10	10	10	10	.....	14	14		.05
06417	Rocker Arm Box Shim.....				As Required						.05
05089	Rocker Arm Bushing.....		20					28			.25
05088	Rocker Arm Shaft.....				Substitute 0	5224					
05224	Rocker Arm Shaft.....		10					14			OPR
06088	Rocker Arm Shaft.....			10	10	10	10	.....	14	14	1.20
05229	Rocker Arm Shaft and Ball Socket Assembly (Intake).....		5					7			OPR
05230	Rocker Arm Shaft and Ball Socket Assembly (Exhaust).....		5					7			OPR
06408	Rocker Arm Shaft Cap (L. H.).....				Substitute 0	6519					
06409	Rocker Arm Shaft Cap (R. H.).....				Substitute 0	6519					
06519	Rocker Arm Shaft Cap.....			10	10	10	10	.....	14	14	.40
05161	Rocker Arm and Tappet Assembly (Inlet)		5					7			OPR
05162	Rocker Arm and Tappet Assembly (Exhaust).....		5					7			OPR
05232	Shim—Thrust Bearing Nut.....				As Required						.10
06302	Sleeve—Front Bearing.....					1	1			1	3.10
05169	Spacer—Engine Mount.....		10	10	10	10	10	10	10	10	.03
05025	Spark Plug and Gasket (Champion No. 13).....		10	10	10	10	10	14	14	14	.65
05025-1	Spark Plug (Champion M-31).....		10	10	10	10	10	14	14	14	2.25
05025-2	Spark Plug (BG-4-B-1).....		10	10	10	10	10	14	14	14	3.00
05241	Starter Clutch.....	s	1	1	1			1	1		13.00
06708	Starter and Fuel Pump Mounting Assembly.....										SPR
06194-1	Starter Clutch.....	j				1	1			1	13.00
06194-2	Starter Clutch (for Fuel Pump).....	j				1	1			1	13.75

06405-1 Rocker Arm (Inlet)
06087-1
06404-1

0 } -10-
0 } refer to front cover

Part No.	NAME	NUMBER REQUIRED MODEL									Price Each
		Eng. No.	5D	5DE	5DF	5E	5F	7D	7DF	7F	
05242	Starter Filler Block.....	s	1	1	1	1	1	1	1	1	\$ 3.80
05242-1	Starter Filler Block.....	sj	1	1	1	1	1	1	1	1	6.75
05185	Starter Flange Cover.....		1	1	1	1	1	1	1	1	1.85
05193	Starter Flange Gasket.....	b	1	1	1	1	1	1	1	1	.05
05194	Starter Nut.....	b	1	1	1	1	1	1	1	1	2.75
05180	Strap—Ignition Cable Clip.....		5	5	5	5	5	7	7	7	.15
05138	Tachometer Drive Connection.....		1	1	1	1	1	1	1	1	1.50 1.95
06709	Tachometer Drive Connection.....	ac					1			1	1.95
06711	Tachometer Drive Connection and Oil Seal Assembly.....	ac					1			1	2.95
05065	Tappet.....		10	10	10	10	10	14	14	14	65 1.15
05011	Thrust Bearing Nut.....		1	1	1	1	1	1	1	1	4.60
05064	Thrust Bearing Sleeve.....		1	1	1			1	1		8.50
06307	Thrust Bearing Sleeve.....					1	1			1	8.25
06308	Thrust Bearing Cover.....					1	1			1	3.60
06309	Thrust Bearing Cover Gasket.....					1	1			1	.12
05214	Tube Coupling 45°.....		1	1	1	1	1	1	1	1	.50
05078	Valve.....		10					14			3.50
06078	Valve.....			10	10	10	10		14	14	3.50
06378	Valve.....	k				10	10			14	3.90
05086	Valve Gear Cover.....		10					14			.30
05077	Valve Guide (Intake).....		5					7			.60
05236	Valve Guide (Exhaust).....		5					7			2.40
06077	Valve Guide (Intake).....			5		5					.60
06236	Valve Guide Exhaust.....			5		5					2.70
06421	Valve Guide (Intake and Exhaust).....				10		10		14	14	1.25
05119	Valve Port Sleeve.....		10	10				14	14	14	.55
06119	Valve Port Sleeve.....				10		10		14	14	.50
05079	Valve Safety Clip.....		10	10	10	10	10	14	14	14	.03
05240	Valve Seat Insert.....		5	5		5		7			60 1.40
06403	Valve Seat Insert.....				10		10		14	14	1.20
06440	Valve Seat Insert.....						10			14	1.40
05080	Valve Spring.....		10	10	10	10	10	14	14	14	1.25
05081	Valve Spring Washer.....		10	10	10	10	10	14	14	14	.85
05082	Valve Spring Washer Retainer.....		10	10	10	10	10	14	14	14	.20
05181	Wiring Diagram.....		1								.25
06181	Wiring Diagram.....			1	1	1	1				.25
06181-1	Wiring Diagram.....					1	1				.25
07181	Wiring Diagram.....							1	1	1	.25
05068	Wrist Pin.....		4	4	4	4	4	6	6	6	SA
05067	Wrist Pin Assembly.....		4	4	4	4	4	6	6	6	2.50
	Complete Set Gaskets.....					1	1				1.60
	Complete Set Gaskets.....		1	1	1						1.60
	Complete Set Gaskets.....							1	1	1	2.00
06065	rocker arm roller } 00219 " " " pin }	o									
06378-1	valve	M									
05081-1	" spr. washer	M									
05082-1	" " " retainer	M									

STANDARD PARTS LIST

Part No.	NAME	Where Used	NUMBER REQUIRED MODEL							Price Each		
			5D	5DE	5DF	5E	5F	7D	7DF		7F	
00101	Lock Screw.....	Tachometer Drive.....	1	1	1	1	1	1	1	1		
		Valve Timing Flange....	4	4	4	4	4	4	4	4		\$0.19
00102	Cap Screw.....	Magneto.....	8									.25
00103	Cup Plug.....	Crankshaft.....	1	1	1	1	1	1	1	1		.04
00104	Nut.....	Oil Pump.....	2	2	2	2	2	2	2	2		.04
		Rocker Arm Shaft.....		10	10	10	10	14	14			
00105	Washer.....	Front Cover.....	15	15	15	15	15	15	15	15		.01
		Gear Case Cover.....	6	6	6	6	6	6	6	6		
00106	Screw.....	Patent Plate.....	4	4	4	4	4	4	4	4		.01
00107	Nut.....	Engine Mount.....	10	10	10	10	10	10	10	10		.02
00108	Washer.....	Oil Pump.....	1	1	1	1	1	1	1	1		.04
		Magneto.....	8	8	8	8	8	8	8	8		
		Breather.....	2	2	2	2	2	2	2	2		
00109	Screw.....	Ignition Cable Tube....	5	5	5	5	5	7	7	7		.02
		Clip.....	3	3	3	3	3	3	3	3		
		Breather.....	1	1	1	1	1	1	1	1		
00111	Screw.....	Oil Pump.....	2	2	2	2	2	2	2	2		.14
00112	Lock Wire.....	As Required.....									ft.,	.01
00113	Cotter Pin.....	Cam Drive Idler Shaft Nut.....	1	1	1	1	1	1	1	1		.04
00114	Screw.....	Propeller Hub Key.....	2	2	2			2	2			.02
00115	Gasket.....	Oil Pump Connection....	4	4	4	4	4	4	4	4		.02
00116	Woodruff Key...	Mag. Drive Shaft.....	2	2	2	2	2	2	2	2		.04
		Cam Drive Idler Shaft...	1	1	1	1	1	1	1	1		
		Cam Drive Shaft.....	1	1	1	1	1	1	1	1		
00117	Nut.....	Connect Rod Bolt.....	4	4	4	4	4	4	4	4		.07
00118	210 Ball Bearing..	Main Bearings.....	2	2	2	2	2	2	2	2		7.00
00119	Welch Plug.....	Magneto Drive Shaft Cap	1	1	1	1	1	1	1	1		.04
00120	Welch Plug.....	Wrist Pin.....	8	8	8	8	8	12	12	12		.01
00121	Dowel.....	Gear Case Cover.....	2	2	2	2	2	2	2	2		.02
		Magneto Shaft Drive Sup- port.....	1	1	1	1	1	1	1	1		
		Starter Adapter.....		3	3	3	3		3	3		
		Magneto Drive Shaft Cap	2	2	2	2	2	2	2	2		
00122	Taper Pin.....	Starter Nut.....	1	1	1	1	1	1	1	1		.11
00123	Stud.....	Front Cover.....	15					15				.26
00124	Stud.....	Cylinder.....	40	40		40		56				.30
		Starter.....	3	3	3	3	3	3	3	3		
		Front Cover.....		15	15	15	15		15	15		
00127	Stud.....	Gear Case Cover for 3-jaw Starter Flange.....	3	3	3	3	3	3	3	3		.30
00128	Stud.....	Gear Case to Crankcase..	10	10	10	10	10	10	10	10		.30
		Intake Pipe Flange.....	10	10	10	10	10	14	14	14		
		Oil Sump.....	6	6	6	6	6			6		
		Crankcase Cover.....	4	4	4	4	4	4	4	4		
		Oil Pump.....	6	6	6	6	6	6	6	6		
		Gear Case Cover.....	5	5	5	5	5	5	5	5		
00129	Zerk Fitting.....	Rocker Arm.....	10					14				.18
		Rocker Arm Box.....		10	10	10	10		14	14		
00130	Stud.....	Magneto Dr. Cap.....	4	4	4	4	4					.50
00131	Screw.....	Counterweight.....	4	4	4	6	6	4	6	6		.21

Part No.	NAME	Where Used	NUMBER REQUIRED MODEL							Price Each	
			5D	5DE	5DF	5E	5F	7D	7DF		7F
00132	Washer (Plain)...	Magneto Drive Shaft Cap	4	4	4	4	4	4	4	4	\$ 0.01
		Gear Case to Crankcase..	10	10	10	10	10	10	10	10	
		Oil Sump.....	6	6	6	6	6	6	6	6	
		Oil Pump.....	6	6	6	6	6	6	6	6	
		Gear Case Cover.....	5	5	5	5	5	5	5	5	
		Rocker Box to Cylinder..	55	55	60	60	77	84			
00133	Washer (Lock)...	Breather Screen.....	1	1	1	1	1	1	1	1	.03
		Magneto Drive Shaft Cap	4	4	4	4	4	4	4	4	
		Gear Case to Crankcase..	10	10	10	10	10	10	10	10	
		Oil Sump.....	6	6	6	6	6	6	6	6	
		Oil Pump.....	6	6	6	6	6	6	6	6	
		Gear Case Cover.....	5	5	5	5	5	5	5	5	
00134	Washer (Lock)...	Intake Pipe Flange.....	10	10	10	10	10	14	14	14	.01
		Carburetor Air Horn.....	4	4	4	4	4	4	4	4	
		Rocker Box to Cylinder..	60	60	60	60	84	84			
		Cylinder.....	40	40	40	40	56	56	56		
		Gear Case Cover.....	6	6	6	6	6	6	6	6	
		Front Cover.....	15	15	15	15	15	15	15	15	
00135	Washer.....	Cylinder Head.....	40	40	40	40	56	56			.01
		Valve Gear Cover.....	40	40	40	40	56	56			
		Breather.....	1	1	1	1	1	1	1	1	
		Ignition Cable Clip.....	5	5	5	5	5	7	7	7	
		Ignition Cable Tube Clip.	3	3	3	3	3	3	3	3	
		Rocker Arm Bearing Re- tainer.....	40	40	40	40	56	56			
00136	Nut.....	Gear Case to Crankcase..	10	10	10	10	10	10	10	10	.01
		Intake Pipe Flange.....	10	10	10	10	10	14	14	14	
		Oil Sump.....	6	6	6	6	6	4	4	4	
		Oil Pump.....	6	6	6	6	6	6	6	6	
		Gear Case Cover.....	5	5	5	5	5	5	5	5	
		Magneto Drive Shaft Cap	4	4	4	4	4	4	4	4	
00137	Nut.....	Rocker Arm Box.....	60	60	60	60	84	84			.01
		Front Cover.....	15	15	15	15	15	15	15	15	
		Gear Case Cover.....	6	6	6	11	11	6	6	11	
		Cylinder Head.....	40	40	40	40	56	56			
		Rocker Arm Shaft.....	10	10	10	10	14	14			
		Oil Pump.....	1	1	1	1	1	1	1	1	
00138	Pipe Plug.....	Gear Case.....	1	1	1	1	1	1	1	1	.04
		Engine Mount.....	10	10	10	10	10	10	10	10	
00140	Cotter Pin.....	Taper Pin.....	1	1	1	1	1	1	1	1	.04
		Oil Pump Idler Shaft....	1	1	1	1	1	1	1	1	
00141	Cotter Pin.....	Connecting Rod Bolt....	4	4	4	4	4	4	4	4	.01
		Rocker Arm Shaft.....	10	10	10	10	10	14	14	14	
		Propeller Hub Bolt Nut..	6	6	6	6	6	6	6	6	
		Oil Pump Shaft.....	1	1	1	1	1	1	1	1	
		Carburetor.....	2	2	2	2	2	2	2	2	
		Propeller Hub Nut.....	1	1	1	1	1	1	1	1	
00142	Cotter Pin.....	Crankshaft Oil Plug.....	1	1	1	1	1	1	1	1	.04
		Crankshaft.....	1	1	1	1	1	1	1	1	
00143	Welch Plug.....	Crankshaft.....	1	1	1	1	1	1	1	.04	
00145	Screw.....	Rocker Arm Bearing Re- tainer.....	40	40	40	40	56	56		.01	

Part No.	NAME	Where Used	NUMBER REQUIRED							Price Each		
			5D	5DE	5DF	5E	5F	7D	7DF		7F	
00147	Copper Tube Fitting.....	Gear Case.....	1	1	1	1	1	1	1	1	1	\$ 0.04
00148	Nut.....	Oil Pump Idler Shaft.....	1	1	1	1	1	1	1	1	1	.28
00149	Plug.....	Oil Sump.....	1	1	1	1	1	1	1	1	1	.14
00150	Pipe Plug.....	Gear Case.....	1	1	1	1	1	1	1	1	1	.04
		Oil Sump.....				1	1					
00151	Nut.....	Cylinder.....	40	40	40	40	40	56	56	56		.02 ⁰⁶
00152	Screw.....	Main Bearing Sleeve.....	6	6	6	3	3	6	6	3		.04
00154	Lock Screw.....	Cam Follower.....	10	10	10	10	10	14	14	14		.11
00155	Stud.....	Magneto Drive Shaft Cap.....						4	4	4		.40
00156	Screw.....	Magneto.....						8	8	8		.19
00157	Nut.....	Ignition Cable Strap.....	5	5	5	5	5	7	7	7		.02
		Ignition Cable Tube Clip.....	6	6	6	6	6	6	6	6		
00159	Stud.....	Engine Mount.....	10	10	10	10	10	10	10	10		.55
00160	Zerk Fitting.....	Rocker Arm Shaft.....	10					14				.25
00161	Screw.....	Rocker Arm Cover.....	40					56				.01
00162	Stud.....	Gear Case.....	3	3	3	3	3	3	3	3		.40
00163	Stud.....	Carburetor.....	2	2	2	2	2	2	2	2		.35
00164	Washer (Plain)...	Rocker Arm Bearing Cap.....		40	40	40	40		56	56		.01
00165	Nut.....	Carburetor.....	2	2	2	2	2	2	2	2		.07
00166	Screw.....	Carburetor Air Horn.....	4	4	4	4	4	4	4	4		.01
00167	Screw.....	Ignition Cable Tube Clip.....	3	3	3	3	3	3	3	3		.01
00168	Screw.....	Name Plate.....	4	4	4	4	4	4	4	4		.01
00178	Bearing.....	Rocker Arm.....		20	20	20	20		28	28		1.80
00182	Stud.....	Cylinder to Crankcase.....			40		40		56	56		.35
00183	Stud.....	Cylinder Head to Cylinder.....			60		60		84	84		.30
00186	Stud (Long).....	Rocker Box to Cylinder.....			20	20	20		28	28		.30
00187	Stud (Short).....	Rocker Box to Cylinder.....		40	40	40	40		56	56		.30
00188	Stud.....	Oil Sump.....						4	4	4		.25
00192	Tube Coupling.....	Carburetor to Fuel Line.....	1	1	1	1	1	1	1	1		.50
00193	Woodruff Key.....	Magneto Drive Shaft.....	1	1	1	1	1	1	1	1		.05
00194	Stud.....	Gear Case for 3-jaw Starter Clutch.....	3	3	3	3	3	3	3	3		.40
00195	Nut.....	Air Maze.....	2	2	2	2	2	2	2	2		.01
00196	Screw.....	Magneto (Bosch).....	8	8	8	8				8		.19
00205	Dowel.....	Crankcase Cover Assy.....				1	1			1		.01
00204	Bearing.....	Crankshaft.....				1	1			1		8.00
00206	Pal Nut.....	Cylinder to Crankcase Lock Nut.....		40	40	40	40		56	56		.01
00207	Cap Screw.....	Cam Drive Shaft.....		1	1	1	1		1	1		.60
00208	Cotter Pin.....	Cam Drive Shaft Nut.....		1	1	1	1		1	1		.01
00209	Stud.....	Starter Mounting with Fuel Pump.....		3	3	3	3		3	3		.39
00211	Stud.....	Starter with Fuel Pump Mounting.....		3	3	3	3		3	3		.49
00213	Stud.....	Thrust Bearing Cover.....				6	6			6		.33
00214	Pipe Plug.....	Oil Sump Drain.....				1	1					.01
00215	Washer.....	Cam Drive Shaft.....			1	1	1	1	1	1		.10
00216	Grease Fitting.....	Rocker Armshaft.....			10	10	10		14	14		.25
00217	Oil Seal.....	Tach. Drive Connection.....					1					.95
00218	Screw.....	Breather Connection.....					1					.05

SERVICE STATION TOOLS

No.	Part	Price
ST— 1	Assembly Stand.....	\$60.00
ST— 2	Crankcase Cylinder Flange Plate.....	.50
ST— 3	Master Rod Pin.....	4.00
ST— 4	Thrust Bearing Nut Wrench.....	13.50
ST— 5	Valve Spring Compressor.....	2.80
ST— 6	Cylinder Support Plate.....	9.90
ST— 7	Valve Seat Roughing Cutter (75°).....	6.00
ST— 8	Valve Seat Roughing Cutter (45°).....	6.00
ST— 9	Valve Seat Finishing Cutter (45°).....	6.00
ST—10	Handle (Valve Seating Tool).....	6.00
ST—11	Wrench—Rear Bearing Nut.....	18.20
ST—12	Puller—Rear Bearing.....	10.60
ST—13	Plug Gauge—Connecting Rod Bearing.....	16.00
ST—14	Wrench— $\frac{3}{4}$ " Socket.....	.60
ST—15	Socket—Cam Drive Shaft.....	2.50
ST—16	Compressor—Piston Ring.....	1.90
ST—17	Tool—Crankshaft Turning (Model 5DE, 5DF, 7DF).....	19.50
ST—17-1	Tool—Crankshaft Turning (Model 5E, 5F, 7F).....	19.50
ST—18	Wrench—Propeller Hub Puller Nut.....	14.00
ST—19	Mandrel—Propeller Hub.....	9.50
ST—20	Timing Protractor.....	24.00
ST—21	Spreader—Piston Ring.....	1.20
ST—22	Puller Front Cover (Model 5DE, 5DF, 7DF).....	15.00
ST—22-1	Puller Front Cover (Model 5E, 5F, 7F).....	15.00
ST—23	Remover—Valve Guide.....	2.50
ST—24	Installer—Rocker Arm Bushing (Model 5D and 7D Eng.).....	4.00
ST—25	Wrench—Cam Timing Flange.....	3.60
ST—26	Cutter—Valve Seat Roughing (15°).....	6.00
ST—27	Reamer—Valve Guide.....	7.00
ST—28	Reamer—Rocker Arm Bushing (Model 5D and 7D Eng.).....	3.30
ST—29	Facer—Rocker Arm Bushing (Model 5D and 7D Eng.).....	7.00
ST—31	Stem—Valve Seat Cutter.....	2.00
ST—32	Puller—Oil Pump.....	9.40
ST—33	Plug—Inlet and Exhaust Valve Guide.....	11.00
ST—34	Plug—Rocker Arm Bushing—Cylinder Valve Guide Hole (Model 5D and 7D Eng.).....	11.00
ST—35	Installer—Valve Seat.....	12.00
ST—36	Cutter—Valve Seat Recess Finishing.....	4.50
ST—37	Tool—Valve Seating.....	5.00
ST—38	Cutter—Valve Seat Recess Roughing.....	4.50
ST—41	Gauge—Valve Stem Height.....	.75
SERVICE KIT TOOLS		
SE—1	Wrench (for $\frac{5}{16}$ " Nut).....	3.75
SE—2	Wrench (for $\frac{1}{4}$ " Nut).....	3.75
SE—3	Wrench (Intake Pipe Nut).....	1.50
SE—4	Wrench (Spark Plug).....	1.50
SE—5	Grease Gun.....	2.50
SE—7	Bag.....	.40



COMMONWEALTH AIRCRAFT, INCORPORATED
(Formerly Roarwin Aircraft & Engines, Inc.)
Fairfax Airport
Kansas City, Kansas

Service Bulletin 7F-4 (Supersedes
Bulletins 7F-1, 7F-2, and 7G-3)
Page 1 of 3 Pages
Date: October 20, 1943

SUBJECT: Crankshaft and Master Rod Failures
MODELS: Ken-Royce Engine Models 7F and 7G
SERIAL NUMBERS APPLICABLE: Crankshafts - All Serial Numbers Up To
1339, Except 1176, 1249, 1268, 1299, 1317. Master Rods - All
Serial Numbers Except 1176, 1262, 1329, 1330, 1333, 1335, 1356,
1359, 1365, 1366, 1376, 1378, 1379, 1380.

CRANKSHAFTS

Due to continued crankshaft failures, it is apparent that previous Service Bulletins have not satisfactorily precluded the possibility of these failures. In view of this fact, and in order to insure continued airworthiness of your engine, we are recommending that all old style crankshafts on 7F and 7G engines of serial numbers preceding 1339, except those noted above, be replaced as soon as possible.

Since it is realized that this involves a considerable amount of expense to the owners, we will furnish a new crankshaft for \$100, instead of the usual \$176. In order to insure proper installation, we would much prefer that you send your complete engine to the factory, if at all possible, at which time we would strongly recommend a major overhaul. This, incidentally, would be the most economical, since the engine would have to be torn down in any event.

In those cases where it is not feasible for the owner to send the complete engine to the factory, it will be necessary for us to have the master rod assembly, the old crankshaft, and the crankcase assembly, so that we can properly balance the engine.

From many standpoints, it is quite unfortunate that this step is necessary at the present time, but we will do our best to see that each owner is given the best service possible. We will be in a position to furnish the new crankshafts by January 1, 1944.

Until the factory is in a position to furnish the new style crankshafts, periodic crankshaft inspections should be made, as follows:



1. Old type crankshafts installed in engines having a serial number below 1359, with the exceptions noted in the subject, should be removed from the engine immediately and magnafluxed by licensees of the Magnaflux Corporation, or equal. If this inspection indicates that an unairworthy condition exists in your crankshaft, it is necessary to replace the crankshaft. Careful inspection should be made for cracks at the propeller tapered end in contact with the edge of the rear face of the propeller hub and the front cheek between the crankshaft journal and the crank-pin fillet. This inspection should be made every 100 hours, or until such time as the newly designed crankshaft, which has greater strength, is installed in the engine.

2. At any time, if an unusual vibration period is noted within the cruising r.p.m. of the engine, the following inspection should be made by competent personnel:

A. Carefully check the run-out of the propeller (track) at the tip and at the 1/2 radius station. If the run-out is greater than 1/8 inch and 1/16 inch respectively, the crankshaft should be removed and magnafluxed.

B. Remove the propeller and metal hub and measure the eccentricity of the crankshaft with a suitable micrometer gauge. If the eccentricity at the forward end is greater than .005, the crankshaft should be removed and magnafluxed.

C. Replace the propeller with a new propeller that has been carefully balanced, and fly the airplane. If the roughness (vibration) persists at the cruising r.p.m. of the engine, the crankshaft should be removed and magnafluxed.

While any one of the above methods will indicate the condition of the part of the crankshaft inside the crankcase, it is recommended that both "A" and "C" or both "B" and "C" be followed in making this inspection, unless "A" or "B" indicates definitely that the crankshaft should be removed and magnafluxed for cracks.

The results of the foregoing inspection should be noted in the engine log book for reference purposes.



MASTER RODS

Approximately one year ago, a newly designed master rod was made for the 7F and 7G engines because of several failures experienced in service. The necessity for replacing these master rods has become more apparent in the past year, and it is therefore urged that all owners replace their old style master rods with the new style at the time the crankshafts are replaced.

A list of those engines which we know have the new master rods is included in the subject of the bulletin. We know, also, that a number of other rods were shipped from our plant for ultimate installation in 7F and 7G engines, but we do not have the information with regard to the serial number of the engines in which they are installed. These can be easily discerned, however, when the engine is torn down, since all rods with a serial number ending in "B", and preceded by a one- or two-digit number are the new style. This serial number is stamped on the large end of the master rod and also on the master rod cap.

Due to the war situation, we have been unable to fill the demand for this new style rod, but we expect to be in a position to have a sufficient supply of these rods on hand to take care of this condition along with the correcting of the crankshaft difficulties by January 1, 1944.

All owners who complied with the conditions of Service Bulletin 7G-3 will be supplied with new master connecting rods at that time on a "No Charge" basis. The owners entitled to take advantage of this offer requested these new rods before November 30, 1942, and up to the present time we have been unable to furnish master rods to all those persons requesting them, due to our inability to obtain the necessary material and forgings.

Until the factory is in a position to furnish the new style master rods, periodic inspection should be made as follows: All old type master rods installed in engines not listed in the exceptions outlined in the subject are to be inspected immediately, and every 100 hours thereafter, for cracks in the front flange of the big end of the master rod by the magnaflux method. If cracks are found, the master rod is to be replaced immediately by the redesigned rod, which has greater strength.

A regular entry should be made in your engine log book to record the inspection of the master rod in accordance with the above-outlined procedure for the information of the C.A.A. inspectors.

We would appreciate receiving word from you with regard to when it will be possible for you to send your engine to the factory for this work. In this way, we will be in a better position to anticipate requirements and take care of your needs.

