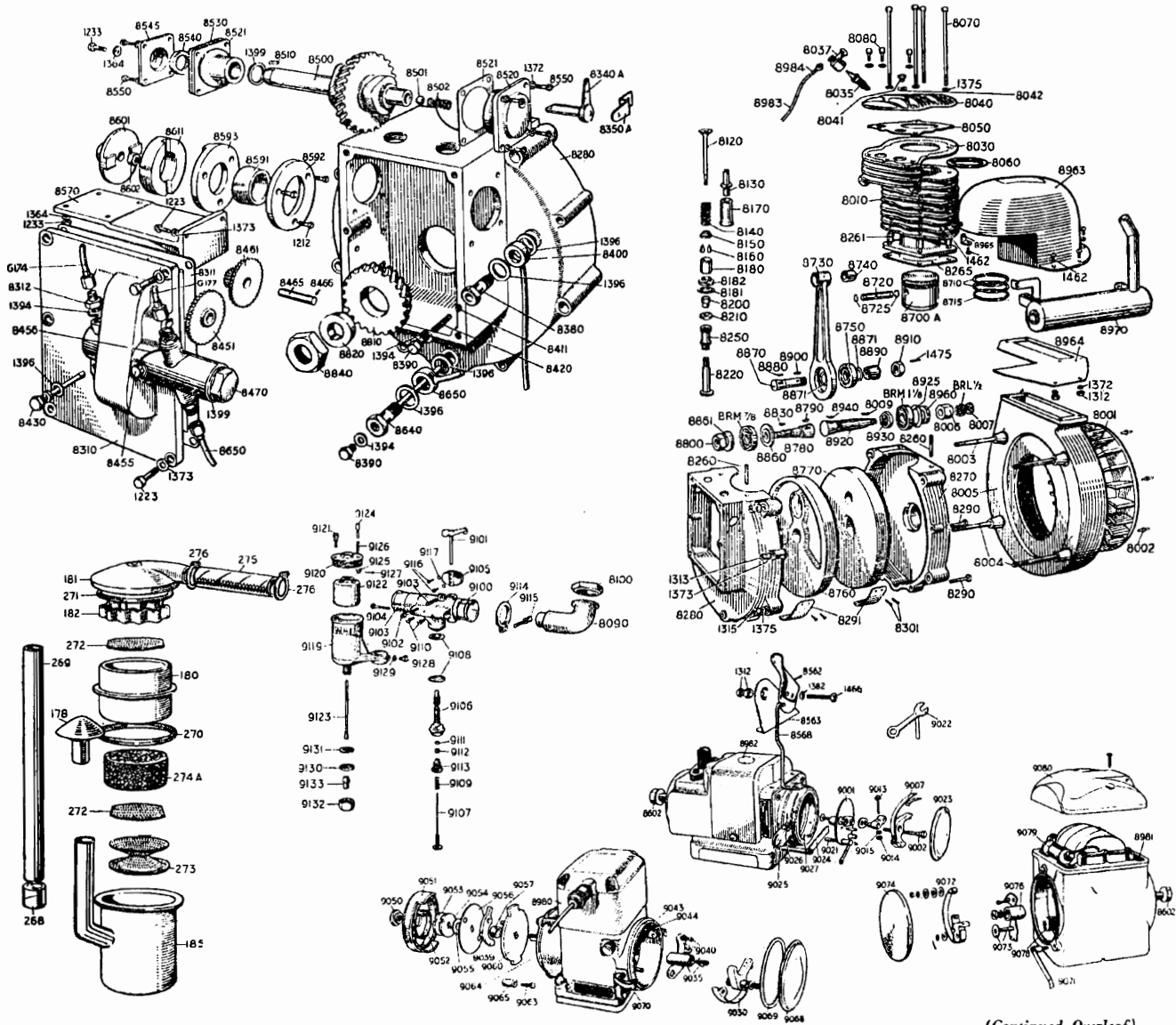


- * NE CLASSEZ CE BULLETIN DE SERVICE MAIS PRENEZ NOTE DE SON CONTENU ET PORTEZ EN CONNAISSANCE A L'ATTENTION DE VOS REPRESENTANTS ET DE VOS INGENIEURS.
- * NO LO ARCHIVE, USELO. HAGALO CONOCER DE VENEDORES Y MECANICOS.
- * ACHTUNG! DIESES MERKBLATT IST FUR DEN KUNDENDIENST UND FUR DIE VERKAUFER BESTIMMT UND NICHT FUR DEN AKTENSCHRANK.

ANCIENT HISTORY—B.J. ENGINE.

Although many thousands of B.J. Engines manufactured by Rotary Hoes Ltd., used on the Series II Gems, are still in service, the handbook is out of print and we

frequently receive queries concerning service points. We are reproducing below a composite illustration showing this engine, complete with parts list.



(Continued Overleaf)

ROTARY HOES LTD. WEST HORNDON, ESSEX, ENGLAND.

Phone: HERONGATE 581
Cables: ROTAVATOR, BRENTWOOD

SERVICE NOTES ON B.J. ENGINE.

1. Valve Chamber.

The Valve Chamber of this engine is a separate casting and not part of the cylinder. If at any time the cylinder or the Valve Chamber are replaced, ensure that clearance exists between the outside of the port casting and the cylinder barrel fins. Insufficient clearance at this point results in distortion at the valve seats leading to leaking and burnt-out valves.

2. Pistons.

B.J. Engines were originally fitted with 3-ring pistons. Later engines were equipped with 4-ring pistons, but on delivery only 3 rings were fitted, 2 compression rings and one slotted oil control ring above the gudgeon pin. The fourth (lowest) ring groove was left empty—the purpose being to ensure ample lubrication to the top rings during the early part of the engine life. Later when oil consumption increased, a slotted oil control ring could be fitted to give a greater degree of oil control.

Correct Piston clearance in the cylinder bore is 0.007" —0.008".

3. Camshaft (8500) and Timing Gear (8810).

Early B.J. Engines were fitted with Camshaft and Timing gears of hardened steel. Later engines had hardened steel camshafts and Manganese Bronze Timing Gears.

In the later type, the Bronze Timing Gear was 0.020" larger on its outer Diameter and in some cases may foul the timing box casting if fitted to an early type engine, which will necessitate removal of excess material to obtain clearance. Because of the 0.020" difference in the gear size, camshafts and timing gears are only supplied in matched pairs.

4. Valve Timing.

Valves are timed to give equal overlap at T.D.C., i.e., Inlet Valve opens 10°—12½° before T.D.C., exhaust valve closes 10°—12½° after T.D.C. Set tappets at 0.012" clearance to time valves, then reset inlet tappet at 0.006" and exhaust tappet at 0.008" after timing.

Note There is a 0.010" quietening ramp on each cam, consequently the running clearance must be set on the "dwell" of the cam. (that part of the cam which does not lift the valve at all).

5. Ignition Timing.

Bring the Piston to T.D.C. with both valves closed. Then turn the engine anti-clockwise until piston is ¾" before T.D.C. With the three magneto coupling set-screws slackened and the taper free, turn the magneto in the direction of normal rotation with the impulse starter tripped until the contact breaker points are just breaking. Secure coupling and recheck timing.

PARTS LIST

Part No.	Description	No. off	Part No.	Description	No. off
BJ.8001	Flywheel	1	S.1373	Crankcase Flanging Stud Spring Washer, 5/16" dia.	8
BJ.8002	Flywheel Clutch Pin	6	BJ.8291	Crankcase Splash Plate	2
BJ.8003	Flywheel Housing Stud—Short	2	BJ.8301	Crankcase Splash Plate Rivet	4
BJ.8004	Flywheel Housing Stud—Long	2	BJ.8700A	Piston	1
S.1315	Flywheel Housing Stud Nut, 7/16" BSW.	4	BJ.8710	Piston Ring—compression	2
S.1375	Flywheel Housing Stud Spring Washer 7/16" dia.	4	BJ.8715	Piston Ring—oil control	1
BJ.8005	Flywheel Housing	1	BJ.8720	Gudgeon Pin	1
BJ.8006	Flywheel Nut	1	BJ.8725	Gudgeon Pin Circlip	2
BRL.1/2	Flywheel Nut Ballbearing	1	BJ.8730	Connecting Rod	1
BJ.8007	Flywheel Nut Ballbearing Retaining Plate	1	BJ.8740	Connecting Rod Top End Bush	1
BJ.8009	Flywheel Key	1	BJ.8750	Connecting Rod Bottom End Bearing	1
BJ.8010	Cylinder	1	BJ.8760	Flywheel Timing Side	1
BJ.8030	Valve Chamber	1	BJ.8770	Flywheel Drive Side	1
BJ.8031	Valve Chamber Insert	As required	BJ.8780	Crankshaft Timing Side	1
BJ.8035	Spark Plug—KLC.18mm. corundite	1	BJ.8790	Crankshaft Timing Side Key	1
BJ.8037	Spark Plug Terminal Cover	1	BJ.8800	Crankshaft Timing Side Nut	1
BJ.8040	Cylinder Head	1	BJ.8830	Crankshaft Timing Gear Bush Key	1
BJ.8041	Inspection Plug	1	BRM.7/8	Crankshaft Timing Side Ballbearing	1
BJ.8042	Inspection Plug Copper Asbestos Washer	1	BJ.8860	Crankshaft Timing Side Oilseal Disc—Large and	1
BJ.8050	Cylinder Head Gasket	1	BJ.8861	Crankshaft Timing Side Oilseal Disc—Small (superseded by BJ.8786, 8787, 8785)	1
BJ.8060	Valve Chamber Gasket	1	BJ.8786	Crankshaft Timing Side Oilseal Disc—Large	1
BJ.8070	Cylinder Head Holding Down Stud—Long	4	BJ.8787	Crankshaft Timing Side Oilseal Disc—Small	1
BJ.8080	Cylinder Head Bolt—Short	3	BJ.8785	Crankshaft Timing Side Shim	1
S.1375	Cylinder Head Bolt Spring Washer, 7/16" dia.	7	BJ.8870	Crankpin	1
BJ.8120	Valve	2	BJ.8871	Crankpin Shim	2
BJ.8130	Valve Guide	2	BJ.8880	Crankpin Key	1
BJ.8140	Valve Spring	2	BJ.8890	Crankpin Flywheel Bush	1
BJ.8150	Valve Spring Cup	2	BJ.8900	Crankpin Flywheel Bush Key	1
BJ.8160	Valve Spring Collet	2 pair	BJ.8910	Crankpin Nut	1
BJ.8170	Valve Spring Upper Cover	2	S.1475	Crankpin Locking Screw ¼" BSW. x ¾" long, Grub Screw	1
BJ.8180	Valve Spring Bottom Cover	2	BJ.8920	Crankshaft Drive Side	1
BJ.8181	Valve Spring Bottom Cover Lock Nut	2	BJ.8930	Crankshaft Drive Side Nut	1
BJ.8182	Valve Spring Bottom Cover Centering Ring	2	BJ.8925	Crankshaft Drive Side Shim	As required
BJ.8200	Tappet Cap	2	BJ.8940	Crankshaft Drive Side Key	1
BJ.8210	Tappet Cap Lock Nut	2	BRM.1.1/8	Crankshaft Drive Side Ballbearing	1
BJ.8220	Tappet	2	BJ.8960	Crankshaft Drive Side Oilseal, Weston 200.112.50	1
BJ.8250	Tappet Guide	2	BJ.8963	Cooling Blast Shroud	1
BJ.8260	Cylinder Base Stud	4	BJ.8964	Cooling Blast Shroud Base Plate	1
BJ.8261	Cylinder Base Stud Nut	4			
BJ.8265	Cylinder Base Gasket	1			
BJ.8270	Crankcase Drive Side	1			
BJ.8280	Crankcase Timing Side	1			
BJ.8290	Crankcase Flanging Stud	4			
S.1313	Crankcase Flanging Stud Nut, 5/16" BSW.	8			

SERVICE BULLETIN No. H.14. *continued*

Part No.	Description	No. off	Part No.	Description	No. off
S.1462	Cooling Blast Shroud Base Plate Screw, $\frac{1}{4}$ " BSW. x $\frac{1}{2}$ " Rd. Head	6	S.1396	Crankcase Oil Suction Body Fibre Washer, $\frac{17}{32}$ " i.d. x $\frac{7}{8}$ " o.d. x $\frac{1}{16}$ "	2
S.1312	Cooling Blast Shroud Base Plate Screw Nut, $\frac{1}{4}$ " BSW.	2	BJ.8650	Crankcase Oil Suction Pipe	1
S.1372	Cooling Blast Shroud Base Plate Screw Spring Washer, $\frac{1}{4}$ " dia.	6	BJ.8810	Crankshaft Timing Gear	1
BJ.8965	Clip for Shroud	1	BJ.8820	Crankshaft Timing Gear Bush	1
S.1462	Clip to Shroud and Cylinder Set Screw, $\frac{1}{4}$ " BSW. x $\frac{1}{2}$ " long, Rd. Head	2	BJ.8840	Crankshaft Timing Gear Bush Nut	1
S.1372	Clip Set Screw Spring Washer, $\frac{1}{4}$ " dia.	2	S.1233	Magneto Holding Down Setscrew, $\frac{3}{8}$ " BSW. x $\frac{3}{4}$ " long, Hex. Head	2
BJ.8970	Exhaust Muffler	1	S.1364	Magneto Holding Down Setscrew Washer, $\frac{3}{8}$ " dia.	2
BJ.8983	Magneto Lead	1	C.178	Air Cleaner Inlet Pipe Cap	1
BJ.8984	Magneto Lead Terminal Spade	1	C.180	Air Cleaner Gauze Container	1
BJ.8310	Timing Cover and Oil Pump Body	1	C.181	Air Cleaner Cover	1
BJ.8311	Timing Cover and Oil Pump Body Gasket	1	C.182	Air Cleaner Container Clip	1
S.1223	Timing Cover and Oil Pump Body Setscrew, $\frac{5}{16}$ " BSW. x $\frac{3}{4}$ " long, Hex. Head	5	C.185	Air Cleaner Tank	1
S.1373	Timing Cover and Oil Pump Body Spring Washer, $\frac{5}{16}$ " dia.	5	BJ.8090	Induction Pipe	1
BJ.8312	Oil Pump Union	3	BJ.8100	Induction Pipe Nut	1
S.1394	Oil Pump Union Washer, $\frac{3}{8}$ " i.d. x $\frac{5}{8}$ " o.d. x $\frac{1}{16}$ " Fibre	3	C.268	Air Cleaner Extension Tube Hose Connection	1
BJ.8340A	Exhaust Valve Lifting Spindle	1	C.269	Air Cleaner Extension Tube	1
BJ.8350A	Exhaust Valve Lifting Spindle Clip	1	C.270	Air Cleaner Tank Gasket	1
BJ.8380	Breather Body	1	C.271	Air Cleaner Cover Gasket	1
BJ.8390	Breather Body Plug	2	C.272	Air Cleaner Perforated Plate	2
S.1394	Breather Body Plug Fibre Washer, $\frac{3}{8}$ " i.d. x $\frac{5}{8}$ " o.d. x $\frac{1}{16}$ "	1	C.273	Air Cleaner Perforated Base Cone	1
BJ.8400	Breather Tube Breather Ring Washer, Sealing Washer Wipac No. 03178	1 2	C.274A	Air Cleaner Filter	1
BJ.8411	Breather Ball Valve	1	C.275	Air Cleaner Cover to Carburettor Hose	1
BJ.8420	Breather Ball Valve Spring	1	C.276	Air Cleaner Cover to Carburettor Hose Clip	2
BJ.8430	Crankshaft Oil Feed Screw	1	PARTS OF 'AMAL' CARBURETTOR (not manufactured by Rotary Hoes)		
S.1396	Crankshaft Oil Feed Screw Fibre Washer, $\frac{17}{32}$ " i.d. x $\frac{7}{8}$ " o.d. x $\frac{1}{16}$ "	1	BJ.8098	Carburettor Complete	1
BJ.8450	Oil Pump Plunger	1	BJ.9100	Carburettor Body	1
BJ.8451	Oil Pump Drive Gear	1	BJ.9101	Throttle Lever Spindle and Stop	1
BJ.8455	Oil Pump Plunger Fulcrum Screw	1	BJ.9102	Stop Screw	1
BJ.8456	Oil Pump Plunger Fulcrum Screw Locking Wire	1	BJ.9103	Stop Screw and Air Adjusting Screw Spring	2
BJ.8461	Oil Pump Drive Intermediate Gear	1	BJ.9104	Air Adjusting Screw	1
BJ.8465	Oil Pump Drive Intermediate Spindle	1	BJ.9105	Throttle Valve	1
BJ.8466	Oil Pump Drive Intermediate Spindle Taper Pin	1	BJ.9106	Adjustable Main Jet Body	1
BJ.8470	Oil Pump Body Plug	1	BJ.9107	Needle for Adjustable Main Jet	1
S.1399	Oil Pump Body Plug Fibre Washer, $\frac{3}{8}$ " i.d.x. x $\frac{1}{4}$ " o.d.x. x $\frac{1}{16}$ "	1	BJ.9108	Washer for Float Chamber	2
BJ.8500	Camshaft	1	BJ.9109	Spring for Needle	1
BJ.8501	Camshaft Thrust Ball	1	BJ.9110	Plug Screw for Mixing Chamber	2
BJ.8502	Camshaft Thrust Ball Spring	1	BJ.9111	Gland Washer	1
S.1399	Camshaft Thrust Fibre Washer, $\frac{3}{8}$ " i.d. x $\frac{1}{4}$ " o.d. x $\frac{1}{16}$ "	1	BJ.9112	Cork Gland	1
S.1364	Camshaft Setscrew Flat Washer, $\frac{3}{8}$ " dia.	1	BJ.9113	Gland Adjusting Screw	1
BJ.8510	Camshaft Key	1	BJ.9114	Outlet Clip	1
S.1233	Camshaft Setscrew, $\frac{3}{8}$ " BSW. x $\frac{3}{4}$ " long, Hex. Head	1	BJ.9115	Outlet Clip Pin	1
BJ.8520	Camshaft Bearing—Exhaust Lift Side	1	BJ.9116	Throttle Valve Screw	2
BJ.8521	Camshaft Bearing Gasket	2	BJ.9117	Throttle Valve Screw Lock Washer	2
BJ.8530	Camshaft Bearing (Magneto Side) (Superseded by BJ.8531, 8532, 8533)	1	BJ.9118	Float Chamber Complete	1
BJ.8531	Camshaft Bearing (Magneto Side)	1	BJ.9119	Float Chamber only	1
BJ.8532	Camshaft Bearing Thrust Cap	1	BJ.9120	Float Chamber Cover	1
BJ.8533	Camshaft Bearing Thrust Cap Plug	1	BJ.9121	Cover Lock Screw	1
BJ.8540	Camshaft Oilseal, Weston 150.075.40	1	BJ.9122	Float	1
BJ.8550	Camshaft Bearing Set Screw	8	BJ.9123	Needle	1
BJ.8545	Camshaft Oilseal Holder	1	BJ.9124	Tickler	1
S.1372	Camshaft Bearing Spring Washer, $\frac{1}{4}$ " dia.	8	BJ.9125	Tickler Stop	1
BJ.8570	Magneto Platform	1	BJ.9126	Tickler Spring	1
S.1223	Magneto Platform Fixing Screw, $\frac{5}{16}$ " BSW. x $\frac{3}{4}$ " long	4	BJ.9127	Tickler Cotter	1
S.1373	Magneto Platform Fixing Screw Spring Washer, $\frac{5}{16}$ " dia.	4	BJ.9128	Plug Screw	1
BJ.8591	Magneto Coupling Body Camshaft Half	1	BJ.9129	Plug Screw Washer	1
BJ.8592	Magneto Coupling Flange Locking Plate	1	BJ.9130	Needle Seat Lock Nut	1
BJ.8593	Magneto Coupling Flange Drive Plate	1	BJ.9131	Needle Seat Lock Washer	1
S.1212	Magneto Coupling Flange Locking Plate Set Screw, $\frac{1}{4}$ " BSW. x $\frac{1}{2}$ " long, Hex. Head	3	BJ.9132	Petrol Union Nut (part of G.173)	1
BJ.8601	Magneto Flange (BTH. and Lucas)	1	BJ.9133	Petrol Union Nipple (part of G.173)	1
BJ.8602	Magneto Flange Nut (BTH. and Lucas)	1	B.T.H. MAGNETO		
BJ.8611	Magneto Laminated Coupling	1	BJ.8562	Magneto Hand Control Lever	1
BJ.8610	Crankcase Oil Suction Body	1	S.1466	Magneto Hand Control Lever Setscrew	1
			S.1312	Magneto Hand Control Lever Setscrew Nut	2
			S.1382	Magneto Hand Control Lever Setscrew Thackeray Washer	1
			BJ.8563	Magneto Hand Control Lever Setscrew Bracket	1
			BJ.8568	Magneto Hand Control Connecting Link	1
			PARTS OF 'B.T.H.' MAGNETO (not manufactured by Rotary Hoes)		
			BJ.8982	B.T.H. Magneto complete with Driving Flange, Advance and Retard Lever, etc.	1
			BJ.9000	Contact Breaker complete assembly	1

SERVICE BULLETIN No. H.14. *continued*

Part No.	Description	No. off	Part No.	Description	No. off
BJ.9001	Base and Pivot Arm assembly	1	BJ.9055	Drive Flange Spacing Washer	1
BJ.9002	Screw Fixing Contact Breaker to Armature	1	BJ.9056	Drive Spring Retainer	1
BJ.9007	Lever and Spring assembly	1	BJ.9057	Driver Flange Spacer	1
BJ.9013	Contact Screw—Adjustable	1	BJ.9059	Trip Arm	1
BJ.9014	Locknut—for item BJ.9013	1	BJ.9060	Driven Flange Group	1
BJ.9015	Lock Washer—for item BJ.9014	1	BJ.9061	End Plate Screw	4
BJ.9021	Bush Spring assembly	1	BJ.9062	End Plate Screw Lock Washer	4
BJ.9022	Spanner and Gauge	1	BJ.9063	Impulse Stop Screw	1
BJ.9023	Cover	1	BJ.9064	End Plate	1
BJ.9024	Pillar and Spring assembly	1	BJ.9065	Impulse Stop	1
BJ.9025	Timing Lever complete with Clamping Screw	1	BJ.9066	Impulse Stop Screw Lock Washer	1
BJ.9026	Cover Tube for Cam Ring	1	BJ.9067	Impulse Stop Screw Nut	1
BJ.9027	Cam Ring and Screw	1	BJ.9068	Breaker Box Cover	1
			BJ.9069	Breaker Box Cover Gasket	1
			BJ.9070	Breaker Box Cover Clip assembly	2
	PARTS OF 'WICO' MAGNETO			PARTS OF 'LUCAS' MAGNETO	
	(not manufactured by Rotary Hoes)			(not manufactured by Rotary Hoes)	
BJ.8980	Wico Magneto complete with Driving Flange and H.T. Lead	1	BJ.8981	Lucas Magneto complete with Driving Flange and H.T. Lead	1
BJ.9030	Breaker Arm assembly	1	BJ.9071	Contact Breaker Cover Spring Clip	1
BJ.9035	Cam assembly	1	BJ.9072	Contact Breaker Arm assembly	1
BJ.9040	Fixed Contact assembly	1	BJ.9073	Contact Point assembly	1
BJ.9043	Condenser assembly	1	BJ.9074	Contact Breaker Cover	1
BJ.9044	Condenser assembly Setscrew	2	BJ.9076	Cam assembly	1
BJ.9050	Impulse Locknut	1	BJ.9078	Cam Oiling Felt	1
BJ.9051	Driver Cup	1	BJ.9079	Condenser assembly	1
BJ.9052	Drive Spring	1	BJ.9080	Condenser Cover assembly	1
BJ.9053	Drive Cup Spacing Washer—Brass	1			
BJ.9054	Drive Cup Spacing Washer—Steel	1			

*** DO NOT FILE, USE THIS. BRING IT TO THE ATTENTION OF YOUR SALES AND SERVICE ENGINEERS.**

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