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PARTS ORDERING, RECORD ENGINE
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J.A.P.

INDUSTRIAL ENGINES

MODELS 4/2, 4/3, 5 & 6
TYPE 1

Reference Book, Diagrams,
Spare Parts Lists

SB/E/06
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MODEL 5 INDUSTRIAL UNIT

- Engine.**—Petrol, four-stroke. Air-cooled. Type, Model 5.
- Main Dimensions.**—Bore, 80 millimetres. Stroke, 82 millimetres. Cubic capacity, 412 c.c.
- B.H.P.**—4.5 at 2,200 R.P.M.
- Valves.**—Type, Mushroom. Position, side valve. Tappet clearances : EXHAUST .020" ; INLET .010".
Timing : EXHAUST OPENS 48° before bottom dead centre, CLOSES 9° after top dead centre.
INLET OPENS 17° before top dead centre, CLOSES 52° after bottom dead centre.
- Camshaft.**—Type, cast in one piece, driven by spur gear.
- Piston.**—Material, low expansion alloy. Number of rings, 3. Gudgeon pin fixing, circlips.
- Connecting Rod.**—Material, 40-45 ton steel. Type of big end bearing, white metal, steel backed.
- Crankshaft.**—Number of bearings, 2. Type, taper roller.
- Carburetter.**—Make, Zenith. Type 24 T-2.
- Ignition.**—Magneto. Make, Wico. Type CJ, 936. Timing, 20° before top dead centre. Drive, direct coupled. Sparking plug, size 14 millimetres. Gap, .025" LODGE-CN.
- Lubrication System.**—J.A.P. dipper. Sump capacity, 2 pints.
- Fuel Tank Capacity.**—1 gallon.
- Fuel Consumption.**—9 pints per B.H.P. hour.
- Weight.**—122 lbs. (55.5 Kilogrammes).

RECONDITIONING DIMENSIONS

- Cylinder Bore.**—Diameter 3.170" or 3.190".
- Oversize Pistons Available.**—+ .020" and + .040".
- Undersize Bearings Available.**—Connecting rod, 1.1150" to 1.1050".

RECOMMENDED CLEARANCES ON RECONDITIONING

- Clearances.**—Crankshaft and connecting rod, big-end .001" to .0025". Side clearances, connecting rod and crankshaft, .004" to .009". Gudgeon pin and connecting rod, small end .0005" to .0014" Gudgeon pin and piston, .0002" to .0009".
- Piston.**—On diameter of piston at right angles to gudgeon pin : .008" skirt, .017" top land. Between piston rings and grooves, .0035" to .0055". Between scraper ring and groove, .0015" to .0035".

MODEL 6 INDUSTRIAL UNIT

- Engine.**—Petrol, four-stroke. Air cooled. Type, Model 6.
- Main Dimensions.**—Bore, 85.7 millimetres. Stroke, 102 millimetres. Cubic capacity 588 c.c.
- B.H.P.**—5.5 at 1,800 R.P.M.
- Valves.**—Type, Mushroom. Position, side valve. Tappet clearances : EXHAUST .020" ; INLET .010".
Timing : EXHAUST OPENS 48° before bottom dead centre ; CLOSES 9° after top dead centre.
INLET OPENS 17° before top dead centre ; CLOSES 52° after bottom dead centre.
- Camshaft.**—Type, cast in one piece, driven by spur gear.
- Piston.**—Material, low expansion alloy. Number of rings, 4. Gudgeon pin fixing, circlips.
- Connecting Rod.**—Material, steel. Type of big end bearing, white metal, steel backed.
- Crankshaft.**—Number of bearings, 2. Type, taper roller.
- Carburetter.**—Make, Zenith. Type 24 T-2.
- Ignition.**—Magneto. Make, Wico. Type, CJ. 936. Timing, 20° before top dead centre. Drive, direct coupled. Sparking plug, size 14 millimetres. Gap, .025" LODGE-CN.
- Lubrication System.**—J.A.P. dipper. Sump capacity, 3 pints.
- Fuel Tank Capacity.**—1 gallon.
- Fuel Consumption.**—9 pints per B.H.P. hour.
- Weight.**—172 lbs. (88 Kilogrammes).

RECONDITIONING DIMENSIONS

- Cylinder Bore.**—Diameter, 3.3955" or 3.4155".
- Oversize Pistons Available.**—+ .020" and + .040".
- Undersize Bearings Available.**—Connecting rod, 1.3655" to 1.3555".

RECOMMENDED CLEARANCES ON RECONDITIONING

- Clearances.**—Crankshaft and connecting rod, big end, .001" to .003". Side clearances, connecting rod and crankshaft, .004" to .009". Gudgeon pin and connecting rod, small end, .0005" to .0015". Gudgeon pin and piston, .0002" to .0009".
- Piston.**—On diameter of piston : .006" skirt, .0185" top land. Between piston rings and grooves, .0035" to .0055". Between scraper ring and groove, .0015" to .0035".

SERVICE INSTRUCTIONS FOR WIPAC

TYPE CJ 936 MAGNETO

INSTALLING MAGNETO

Slowly turn the engine crankshaft in the normal manner until the piston begins to rise on the compression stroke (i.e. when both valves are closed). Next assemble the steel floating coupling on to the engine coupling. Finally take the magneto and turn the magneto shaft anti-clockwise until the impulse pawl engages the impulse stop, then slowly turn the magneto shaft in the opposite direction until the two driving dogs are in line with the two free slots in the steel coupling and secure the magneto in position. To re-check the timing, slowly pull the engine over on the compression stroke, and if the magneto has been correctly positioned, the magneto impulse will give a click just before top dead centre.

TIMING

No adjustment is provided for timing the magneto, which is unnecessary, as the magneto is correctly set before leaving the works, so that the starting spark occurs just before top dead centre and the running spark in accordance with details on Pages Nos. 5, 6 and 7.

LUBRICATION

The only part requiring attention in the field is the cam oil pad which should be re-lubricated after every 1,000 hours. This is done by removing the pad and squeezing and working into it a Summer grade of motor transmission grease which will closely resemble that used at the factory. Do not use ordinary grease as this will splash on to the breaker points causing misfiring and difficult starting.

The main bearing situated at the rear end of the magneto is packed with grease before leaving the works and should be renewed only whenever the magneto is serviced. The front main bearing is oil impregnated and should only require a few drops of lubricating oil at the same time.

IMPULSE COUPLING

The impulse coupling is designed to give a spark of high density for starting. It automatically cuts out at about 165 r.p.m. The engine should not be run continuously below this speed, as this would cause unnecessary strain and wear on the impulse parts.

The impulse also provides a retarded spark for starting, automatically advancing it as the engine speeds up, returning to the retarded position when the engine stops.

CLEANING OF IMPULSE

If the impulse becomes clogged with dirt, and the trip arm fails to engage or disengage, or the impulse is sluggish in action, it should be flushed out thoroughly with paraffin, taking care not to allow any paraffin to work its way into the magneto housing.

BREAKER POINT OPENING

Remove cover screws and cover to obtain access to the breaker points.

The correct breaker point opening is .015". When re-adjustment is necessary, loosen the screw which locks the fixed contact plate and raise or lower the plate until the correct opening of points is obtained, then lock the plate securely.

REPLACEMENT OF BREAKER POINTS

The breaker points are supplied as an assembly including the fixed and moveable point, the die-cast back plate and oil pad. To remove the original assembly loosen the breaker arm spring retainer screw and release the two leads coming from the coil and condenser, then remove the two screws securing the die-cast back plate to the main housing.

When fitting the new breaker point assembly secure the die-cast back plate in an approximate position and adjust the breaker point opening to .015", then slightly loosen the two back plate screws

and turn the plate within its slots until the breaker points begin to open and when the rotor laminations have left the core laminations by approximately $\frac{1}{8}$ ". Finally tighten the two screws and reconnect the two leads from the coil and condenser.

REMOVAL OF CONDENSER

The condenser is housed in the base of the main housing immediately below the breaker points. Remove the hexagon nuts securing the connecting lead and earthing strip. Unscrew the condenser out of its housing, using a special tool, part number 00146, but before doing this it is advisable first to remove the magneto cover so that the connecting lead can be pushed back into the main housing out of the way of the tool.

REPLACEMENT OF H.T. LEAD

The H.T. lead is secured to the H.T. coil by passing the wire through the small hole in the coil H.T. tab and twisting the wire around this tab. When removing, or refitting a new H.T. lead exercise

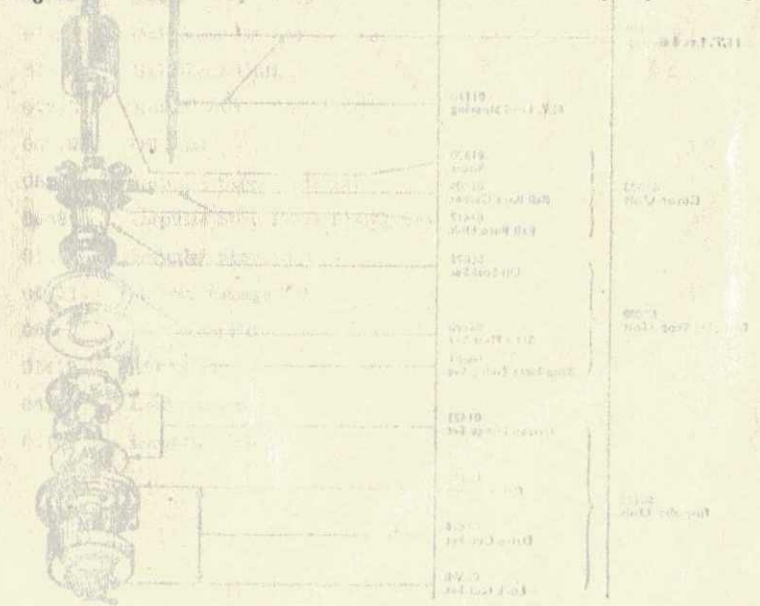
the greatest care to ensure that no damage is done to the coil.

Never solder the H.T. lead to the tab because even with the greatest care it is possible to sever the internal connection. This would not immediately be apparent, but the defect would cause the coil to break down within a comparatively short period.

REMOVAL OF COIL

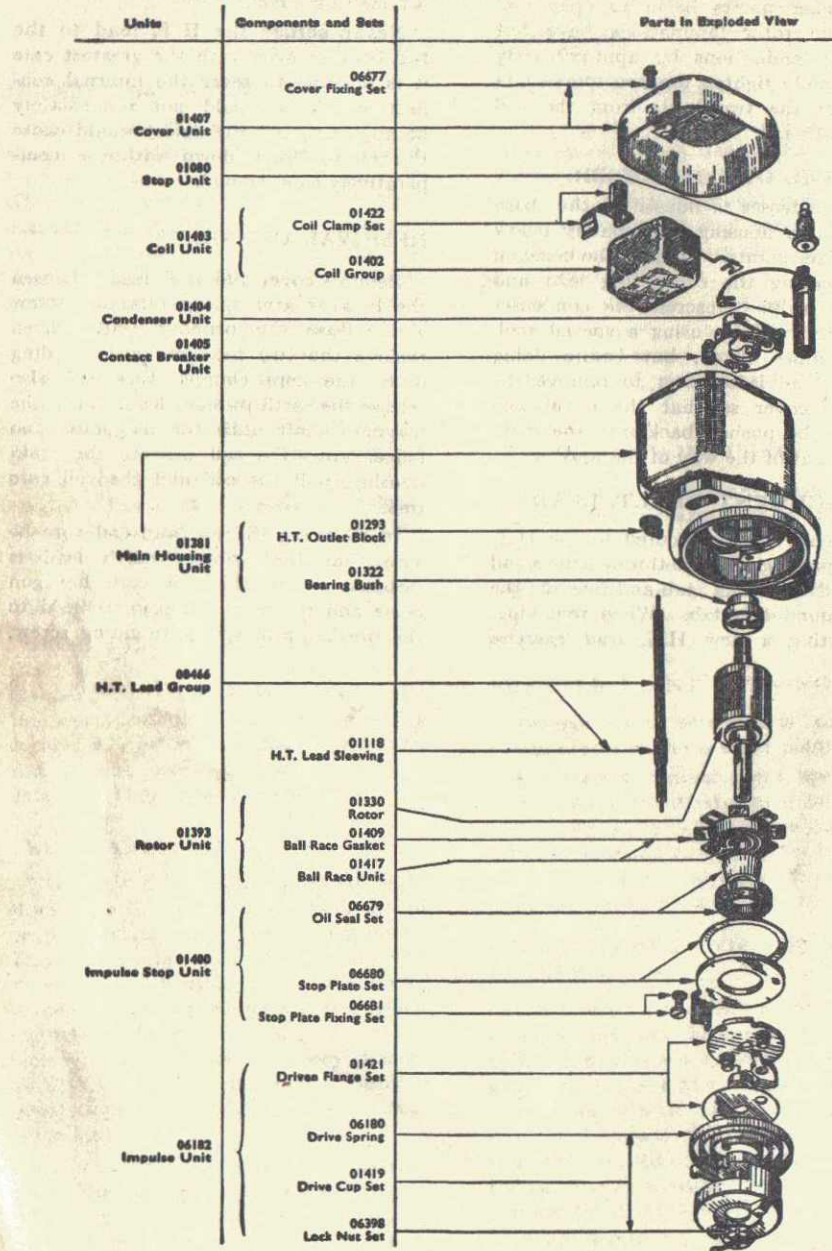
Remove cover and H.T. lead. Loosen the breaker arm spring retaining screw and release the primary lead. Then remove the two hexagon posts holding down the core clamps, this will also release the earth primary lead. Turn the magneto shaft until the magnetism no longer grips the coil core to the main housing, pull the coil and the coil core free.

In replacing the coil and coil core be sure that the primary earth lead is fastened under the coil core hexagon posts and the insulated primary lead to the breaker arm spring retaining screw.



TECHNICAL DRAWING OF WIPAC TYPE CJ 936 MAGNETO

SPARE PARTS LIST FOR WIPAC C.J. 936 MAGNETO



EXPLODED DRAWING OF WIPAC CJ 936 MAGNETO

Part No.	Description	No. Of
06677	Cover Fixing Screw	2
01407	Cover Unit	1
01080	Stop Unit	1
01422	Coil Clamp Set	2
01402	Coil Group	1
01408	Coil Unit... ..	1
01404	Condenser Unit... ..	1
01405	Contact Breaker Unit	1
01293	Outlet Block	1
01381	Main Housing Unit	1
01322	Bearing Bush	1
00466	H.T. Lead Group	1
01118	H.T. Lead Sleeving	1
01330	Rotor	1
01409	Ball Race Gasket	1
01417	Ball Race Unit	1
01393	Rotor Unit	1
06679	Oil Seal	1
06680	Impulse Stop Plate Set	1
06681	Impulse Stop Plate Fixing Set	3
01400	Impulse Stop Unit	1
01421	Driven Flange Set	1
06180	Drive Spring	1
01419	Drive Cup Set	1
06398	Locknut Set	1
06182	Impulse Unit	1