

DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION NO. 153
ON

MAINTENANCE OF PIONJAR ROCK DRILIS BRH 50

Introduction

1. This instruction lays down the procedure to be followed in maintenance of Pionjar Rock Drills BRH 50.

DAILY MAINTENANCE

2. Clearing the main filter

Rock particles and dust must not be allowed to enter the machine. An air filter is fitted to prevent this. This filter cover is located on the control body. To open push the spring keeping the cover in position to one side and remove the parts of the filter thus made accessible. Wash them in gasoline. Moisten the filter element with light or diluted oil before replacing.

3. Clearing the Gas Duct and Valve

The carbon deposits which are continually being formed must be removed with the cleaning needle supplied for this purpose. In the first instance the gas duct should be derecognized. Its opening in the cylinder wall must be cleared so that the needle will not strike the piston, should this be in the way. Turn the flywheel, by putting gently on starting wire, until the rubber plug visible through the grill is at its lowest position. The dust is now clear unscrew the valve and push the needle into the duct twisting and truning it until the duct is cleaned.

If this is not have regularly the carbon will harden and become very difficult to remove and reduce the efficiency of the machine. The value which has been unscrewed should be cleared.

General Maintenance

4. Clean the following parts as and when necessary :-

Chuck
Rotation mechanisms
Hammer piston
Cylinder
Exhaust pipe
Overpressure valve
Fuel jet

5. Checking and adjustment

Contact breaker points :- Oil, dirt and oxide may require cleaning fo the breaker points. An inspection hole in the flywheel, fitted with a rubber plug, is provided for this purpose. Remove the cover and the plug and the points on then be gleaned A thin file. The gap between the points should be 0.018-.....(.04-0.5 mm).

Speed : - The engine r.p.m may increase or decrease after running in. this can easily be remedied by means of the throttle. Increase or decrease the idling speed is done with wing nut 2724, while the engine is running.

Method : - Slacken the castle nut 2684 and turn the wing nut to the required position i.e. turning to the right will increase the r.p.m The corresponding adjustment of full speed is done with screw 2726 and the nut 743. Adjust these until on even running is achieved.

6. Dismantling and reassembly

Shan..... housing 1623 :- Unscrew the nut, 1642, to allow easy removal of the check, K.1621. When removing the nuts from the retainer, K.1637, be careful to take out the looking ring, 1646. First turn the nuts four turns to the right. The looking ring can then be reached and should be removed. Then turn the nuts to the left.

Rotation housing Z 2620 :- Remove the ignition cable from the plug. Slacken the nuts, 1642 on the two hits, 2643.

Hammer piston. 2602-4 :- First, back off the valve for the exhaust a little. The guide for the hammer piston can easily be reached and should now be removed. Removal can be rendered easier by setting a drift in the groove; a few light taps will then release the guide. Now remove the piston by taking hold of the shaft and turning and drawing simultaneously.

Cover. Z 2504 :- Remove the spark plug and the valve for the gas duct K 1610. Unscrew the four nuts and remove the cover, thus revealing the cylinder. Clean and decarbonize the cylinder after removing exhaust pip. Check the valve.

7. Points to watch when reassembling

(i) Hammer piston :- Push the hammer piston so that it is $\frac{3}{4}$ " (20 mm) from the bottom.

(ii) Rotation housing :- it is important that the straight splines on the upper spline retainer 1627 are correctly entered into the straight grooves of the hammer piston shaft. The oblique splines of the lower spline retainer 1626 are easily moved into their corresponding grooves by setting a drill in the chuck and pressing gently. Afterwards, the rotation housing can be lifted up over this 2643 and fixed in place. At this stage, remember to replace the blowing air pipe 2798.

When the rotation housing is being secured to its bolts by the nuts, 1642, remember that the cylinder will become warm during running and therefore expand. Tighten up the nuts one turn at a time to ensure even pressure. Do not tighten the nuts too hard.

Removal and refitting the control plate : If it is necessary to reach anything under the control plate eg. To adjust the leaf valves, this plate can be lifted off after the five holding nuts have been removed.

Trouble shooting

Poor start :- Check that the current reaches the plug. Check that the spark plug is clean undamaged and has the right spark gap, 0.020" (0.5 mm). Check the contact breaker points. Examine the jet. First, unscrew the nut, 728A, a little, leaving about 1/16" gap. Pass a screw driver into the opening in the collar and carefully ease the wing out off the taper. It may be very firmly seated and care must be taken not to bend the fuel screw 2727. The jet is now accessible for cleaning. To remove this, unscrew check screw 2737 and then unscrew the jet, with the socket wrench supplied. When refitting, screwing the needle valve by hand, first as far as possible, the back about a half-turn. A thin screw-driver may be used. When replacing the wing nut on the taper it is important to set it in such a position that the projection on the underside is to the left of the check screw 2737. The wing nut is then secured with a nut, 728A, but the needle valve must not be disturbed from its position, otherwise the check point will not be correctly aligned.

Poor running : - Uneven running or misfiring may be due to ignition faults. Firstly try a new spark plug. The other probable cause can be in the fuel supply or the jet (dirt in the needle). Blow the system clean as follows:-

- (a) Unscrew the cap of the fuel tank.
- (b) Remove the screw 736.
- (c) Blow hard in the tank filler hole. A stream of gasoline should shoot from the lower hole. The vacuum caused will also clear the jet, if it is not excessively dirty. The following action should be taken :-
 - (i) Inspect the gas duct.
 - (ii) Irregular running can also be caused by a choked filter.
 - (iii) Also check that the leaf valves are not damaged.

Insufficient flushing :-

- (a) Clean the gas duct.
- (b) Clean the air filter.
- (c) Check whether the packing of the chuck requires a renewal. The valves K 2596 may be faulty and require new washers and springs.

Insufficient rotation :-

- (a) Clean the gas duct.
- (b) Drill chuck K 1621 may require oiling.
- (c) Replacement of pawls 1623 and springs 1575 may be necessary.

Use Gasoline and oil Mixture 12:1 (8%)

Recommended Make	Grade	Viscosity
ESSO	ESSO Motor Oil 50	SAE 50
Caltex	RPM Motor Oil SAE-50HD	-do-
IOC	Mobiloil BB	-do-
Castrol	Castrol Gradprix 50	-do-
Gulf	Gulf Lube MO 50	-do-

OIC EQUIVALENT OF THESE OILS - MOBILE OIL BB

8. Lubrication to engine is provided by the use of oil/gasoline mixture. The oil measure supplied will provide the right amount of oil for 1:1 Tmp Gal (1.3 US Gal or 5 Litres) if it is filled with oil. Shake the mixture of petrol and oil before pouring it in the tank. Do not fill the tank higher than 2 $\frac{1}{2}$ " (6 Cm) from upper edge of the tank.
