

PUMP SPECIFICATION

Rotation: Clockwise
 Plunger Diameter: 7.5 mm
 Roller to roller: 50.60 mm
 Advance Type: Automatic speed and light load.
 Governor type: Mechanical mini-maxi.
 Gov. Link Length: 16.5 ± 0.2 mm
 Throttle lever link hole: -
 Gov.arm hole No.: -
 Drive type: Externally splined hub - unsupported shaft.
 Light load advance by external adjustment.
 Boost control.
 Stop solenoid 12 V.
 Double lever idling.
 Automatic advance override

ISO TEST CONDITIONS.

This data is only valid for the test conditions specified and the following test benches: HA3000/HA2500/HA1150/HA1100MkII/HA875
 HA700/HA400/AVM/PGM

Test Fluid: ISO 4113 at 40 ± 2 °C.
 Nozzles: ISO 4010.
 Nozzle opening pressure: 125 +3 -0 bar.
 H.P. pipes: 6 x 2 x 600 mm (ISO 4093.1)
 H.P. Outlet Connections: Original (M12 x 1.5)
 Test machine drive: ADC103
 Test machine drive in supported position.
 Inlet feed pressure: 0.1 bar

PRE-TEST NOTES

3.5 mm shim fitted in advance housing.
 Retain idling lever using 3mm dia. rod, SIN RD/TOOLS A13
 LLA valve lever to be at 90° to pump axis.
 See SIN RD/PUMPS 67 (If Pump Housing or Advance parts replaced)
 Fit advance gauge to speed piston end.
 Timing: -To accurately set the internal and external timing, use the following tools: 1804-003/1804-615

ISO TEST PROCEDURE

Test	Operation	S/C	RPM	Requirements
1.	Priming	(C)	100 -1000	Obtain delivery from all injectors. No air in pump backleak.
2.	Transfer press. (Initial set.)	(S)	1000	4.4 ± 0.2 bar, Boost 0.8 bar. (Tool 7244-382), SIN RD/PUMPS 71
3.	Transfer press.	(C)	500	3.4 to 4.5 bar, Boost 0 bar.

				(Tool 7244-382) SIN RD/PUMPS 71
Stop test machine & wait 10 sec min. Cambox press. 0.1 bar max.				
4.	Advance Gauge	(S)	0	0 mm (0°) Boost 0 bar. SIN RD/TOOLS 18 (Tool 7244-590)
5.	XS fuel valve Backleak change (Initial set)	(S)	125	Increases by 3 to 12 litre/hr. Boost 0 bar. Throttle closed. SIN D109 LLA lever towards HP outlets.
Set LLA valve lever at 90° to pump axis.				
6.	Throttle test	(C)	400	1 cm3 maximum, Throttle closed. Boost 0 bar.
7.	T. P Vacuum	(C)	100	0.5 bar vacuum. 60 seconds maximum. Boost 0 bar. Tool 7244-382.
8.	Transfer press.	(C)	70	0.35 bar minimum. Boost 0 bar. (Tool 7244-382) SIN RD/PUMPS 71
9.	Advance (Full load)	(S)	1500	3.6 mm (4.75°) Boost 0.8 bar. SIN RD/TOOLS 18. (Tool 7244-590)
10.	Transfer press.	(C)	1500	5.2 to 6.3 bar, Boost 0.8 bar. (Tool 7244-382) SIN RD/PUMPS 71
11.	Boost control	(S)	750	43 to 45 mm3/st. Boost 0 bar.
12.	Anti-stall	(S)	450	1.9 to 2.4 cm3, Tool 1804-481. Boost 0 bar. SIN RD/PUMPS A81 & TOOLS A14.
13.	Idling screw	(S)	400	1.9 to 2.4 cm3, Boost 0 bar. Remove 3mm dia. rod.
14.	LLA Linkage	(S)	500	Delivery 26 to 34 mm3/st. Boost 0.8 bar. Tool 1804-612. Throttle 15 ± 2 mm off min. stop Advance 0 to 0.5 mm (0 to 0.7°) Tool 7244-590
Lock LLA linkage in this position.				
15.	LLA Advance	(C)	500	2 to 2.9 mm (2.7 to 3.9°) Boost 0.8 bar. Throttle as test(14) - 1 mm. Tool 7244-590
16.	Advance (Full load)	(C)	1000	1.5 to 2.4 mm (2 to 3.2°) Boost 0.8 bar. SIN RD/TOOLS 18 (Tool 7244-590)
17.	LLA Advance	(C)	1500	6.3 to 7.8 mm (8.4 to 10.4°) Boost 0.8 bar. Throttle closed. Tool 7244-590.
Stop test machine - remove tool 7244-382				
Fit stop solenoid.				
18.	Stop solenoid	(C)	400	0.4 cm3 max., De-energize solenoid. Boost 0 bar.

Stop test machine & wait 10 sec. min. Cambox press. 0.1 bar max.

Energise solenoid shut-off with 12 V.

Screw in excess fuel valve adjustment screw.

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|---|---------------------------------|-----|------|--|
| 19. | XS fuel valve | (S) | 125 | Increases by 3 to 12litre/hr.
Boost 0 bar. Throttle closed.
3mm dia. rod removed. SIN D109 |
| | Backleak change | | | |
| Stop test machine & wait 10 sec min. Cambox press. 0.1 bar max. | | | | |
| 20. | Excess delivery | (C) | 100 | 8.4 cm ³ minimum, Advance 0 mm,
Boost 0bar(7244-590)SIN RD/TOOLS 18 |
| 21. | LLA Advance | (C) | 270 | 1.9 to 2.6 mm (2.5 to 3.4°)
Boost 0 bar.
Throttle closed. Tool 7244-590. |
| 22. | Cambox pressure | (C) | 270 | 0.65 to 0.85 bar. Boost 0 bar
Throttle closed. Tool 1804-447B. |
| 23. | Max. delivery | (S) | 1875 | 60.5 ± 0.5 mm ³ /st.
Boost 0.8bar,Max. spread 4mm ³ /st.
Tools 1804-423 & 1804-448 |
| 24. | Cambox pressure | (C) | 1875 | 0.65 to 0.85 bar. Boost 0.8 bar
Throttle closed. Tool 1804-447B. |
| 25. | Gov. delivery | (C) | 2000 | Record average delivery,Boost 0.8bar |
| 26. | Gov. operation | (S) | 2300 | 25.5 to 28.5 mm ³ /st, Boost 0.8 bar. |
| 27. | Gov. cut-off | (C) | 2800 | Maximum 2 cm ³ , Line max. 2.4 cm ³ .
Boost 0.8 bar. |
| 28. | Advance
(Full load) | (C) | 2800 | 5.4 to 6.6 mm (7.2 to 8.8°)
Boost 0.8 bar.
SIN RD/TOOLS 18 (Tool 7244-590) |
| 29. | Gov. delivery | (C) | 2000 | Minimum as test(25), Boost 0.8 bar. |
| 30. | Delivery(F.L.) | (C) | 1000 | 10.8 to 11.6 cm ³ . Boost 0.8 bar. |
| 31. | Backleakage | (C) | 1000 | 30 to 50 cm ³ per 100 shots.
0.30 to 0.50 litre per minute.
Boost 0.8 bar. |
| 32. | Boost control | (S) | 750 | 44 ± 0.5 mm ³ /st. Boost 0 bar. |
| 33. | Delivery(F.L.) | (C) | 1875 | 11.8 to 12.4 cm ³ . Boost 0.7 bar. |
| 34. | Delivery(F.L.) | (C) | 500 | 8.9 cm ³ maximum, Boost 0 bar. |
| 35. | Advance-
Override | (C) | 500 | 3.2 to 4.3 mm (4.2 to 5.7°)
Override in maximum position.
Tool 7244-590 |
| 36. | Internal timing
-Micrometric | S/C | | HP outlet'X ' , Press 80 bar
Torque 0.16daN.m
Tools 1804-003 & 1804-615
SIN RD/PUMPS 102,TOOLS 5 on 4 outlets |
| 37. | External timing | S/C | | Stamp timing value on the timing disc
Refer to product application sheet.
Tool 1804-615.
Shows if timing is at beginning of |

injection or at TDC.

REFER TO STATEMENT AT END OF EXPLANATORY NOTES REGARDING MAXIMUM FUEL AND SPEED SETTING AND VARIATIONS IN ENGINE PERFORMANCE.