Test Specifications for Injection Pump and Governor

Injection Pump	with Governor	DAI Sheet
PES 4 M 50 A 320 RS 14 RS 14 z	EP/MN 60 M 14 d	1.9 i dated: Jan. 19th 1962

A. Adjustment Data of the Injection Pump

Feed Begin at a Pre-stroke of 1.7+0.1 mm (from BDC) at Control Rod Travel 18

1	2	3	4	5	6
Speed r. p. m.	Control Rod Travel mm	Feed Quantity cm³/100 strokes	Feed Quantity Differential cm³/100 strokes	Feed Quantity Drop (between 1000 and 200 r. p. m.) cm³/100 strokes	Pre-tension of Spring (Adaptation Valve) mm
1000	9	0.9–1.3			
	15	3 –3.5	0.2		
	18	3.8–4.4			
200	9	0.8–1.2			

Adjust delivery of equal quantities within outlined [ ] limits

B. Adjustment of Governor

1	2	3	4	5	6	7	8	9	10	11
Compensating Path mm	Tightness Vacuum drop mm Water Col.	Tightness Time red. sec.	Adjusting Point Control Rod Travel Vacuum mm Water Col.	Adjusting Point Control Rod Travel Control Path mm	Adjustment Supplementary Spring Vacuum mm Water C.	Adjustment Supplementary Spring Control Path mm	Control Rod Travel Test Vacuum mm Water Col.	Control Rod Travel Test Control Path mm	Compensation Vacuum mm Water Col.	Compensation Control Path mm
2.6+0.1	500–480	10	–	–	–	–	405 * 435 450 500	12.7–12.9 8–12 5–10 0–5.6	75 180 350	15.3–15.4 14.5–14.9 13–13.4

* Begin of governing between 410–430 mm WG by adding washers WMS 22 S 18 . . 19 X under governor spring.
During Control Rod Travel Test (Column 4–11) n = 500 r. p. m.

C. Adjustment of Injection Pump with Mounted Governor

0	1	2	3	4	5	6	7	8	9
Injection Pump	Adjustment of Full-Load Stop Screw r. p. m.	Adjustment of Full-Load Stop Screw Vacuum mm Water Col.	Adjustment of Full-Load Stop Screw cm³/1000 strokes	Testing of Feed Quantity Characteristics r. p. m.	Testing of Feed Quantity Characteristics Vacuum mm Water Col.	Testing of Feed Quantity Characteristics cm³/1000 strokes	Adjustment of Idling Stop r. p. m.	Adjustment of Idling Stop Vacuum mm Water Col.	Adjustment of Idling Stop Control Path from Full Load to Idling Load mm
RS 14	1850	420	29.5–30.5	1400 800	300 95	29–31 32.5–34.5	–	** please turn over	
				250	ap. 450	5–11			
				deviation max. 1.5					

At full load setting (column 3 and 6) individual measurement 1000 strokes
All test values apply only for BOSCH Injection Test Stands.

** Adjustment of Idling Stop

At 500 rpm and with governor stop cam disengaged set control rod to full load position by increasing WG to 405 mm (accurately) and measure control rod travel obtained. Increase control rod travel still further until control rod has adjusted to 3.0 mm less control rod travel than at full load position measured at 405 mm WG. In this position move stop cam slowly up to end position watching control rod during the process.

With spring cage correctly set the control rod should now adjust to a control rod travel 2.0 ± 0.5 mm less than in full load position measured at 405 mm WG. If the adjusted value is higher or lower the position of the spring bolt in the spring cage should be changed by placing the required washers between the spring bolt collar and the lock washer.

Attention please: This change will also change the pre-tension in the spring cage. By placing washers between spring and spring bolt bottom end the pre-tension will be brought back to the specified value of 50–90 grams.

RS 14 z with . . .M 14 d
Adjust delivery of equal quantities within outlined [ ] limits

B. Adjustment of Governor

1	2	3	4	5	6	7	8	9	10	11
Compensating Path	Tightness		Adjusting Point Control Rod Travel		Adjustment Supplementary Spring		Control Rod Travel Test		Compensation	
	Vacuum drop	Time red.	Vacuum	Control Path	Vacuum	Control Path	Vacuum	Control Path	Vacuum	Control Path
mm	mm Water Col.	sec.	mm Water Col.	mm	mm Water C.	mm	mm Water Col.	mm	mm Water Col.	mm
2.6+0.1	500–480	10	–	–	–	–	405* 435 450 500	11.8–12 6.6–11.1 4–9.6 0–5.5	75 180 350	14.4–14.5 13.6–14.1 12–12.5

* Begin of governing between 410–430 mm WG by adding washers WMS 22 S 18 . . 19 X under governor spring.
During Control Rod Travel (Column 4–11) n = 500 r. p. m.

C. Adjustment of Injection Pump with Mounted Governor

0	1	2	3	4	5	6	7	8	9
Injection Pump	Adjustment of Full-Load Stop Screw			Testing of Feed Quantity Characteristics			Adjustment of Idling Stop		
		Vacuum			Vacuum			Vacuum	Control Path from Full Load to Idling Load
	r. p. m.	mm Water Col.	cm³/1000 strokes	r. p. m.	mm Water Col.	cm³/1000 strokes	r. p. m.	mm Water Col.	mm
RS 14 z	1850	405	26.5–27.5	1400 800	300 95	26–28 29.5–31.5		** please see above	
				250	ap. 440	5–11			
				deviation max. 1.5					

At full load setting (column 3 and 6) individual measurement 1000 strokes
All test values apply only for BOSCH Injection Test Stands.

. . . Increase WG until control rod measure has set to 2.0 mm less control rod travel than at full load position and WG 405 mm.
. . . At the correct adjustment of spring cage the control rod travel should be 1.1 ± 0.5 mm less.