

# INJECTION PUMP TEST SPECIFICATIONS

196000-1340

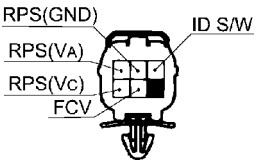
MANUFACTURER	MAZDA	INJECTION PUMP		<b>196000-134#</b>				
ENGINE TYPE	R2	VE4/10F2300RND134						
VEHICLE MODEL	E SERIES	ROTA TION	Clockw ise view ed from drive side	GOVERNOR TYPE	Maximum-minimum speed			
RATED VOLTAGE	12V	INJECTION ORDER	A - B - C - D	INJECTION INTERV AL	90° ± 30'			
Dimension KF (mm)	5.30 ± 0.10		Dimension MS (mm)	0.55 ± 0.10				
Dimension K (mm)	3.30 ± 0.10		Dimension PS (mm)	—				
<b>1. TEST CONDITIONS</b>								
Nozzle	093400-0540 (DN12SD12A)		Feed Pressure	19.6 kPa (0.2 kgf/cm <sup>2</sup> )				
Nozzle Opening Pressure	14.7 ± 0.5 MPa (150 ± 5 kgf/cm <sup>2</sup> )		High Pressure Pipe	Ø2 X Ø6 X 840 mm				
Test Oil	SAE J967 (ISO4113)		Fuel Temperature	40 - 45 °C (104 - 113°F)				
NOTE : Apply 6 volts DC across the fuel cut solenoid during adjustment.								
<b>2. PRE-ADJUSTMENT</b>								
	Lever Position (deg)	Pump Speed (rpm)	Boost Pressure		Fuel Delivery		Max. Spread in Delivery	
			(kPa)	(mmHg)	(mm <sup>3</sup> /st)	(cc/200st)	(mm <sup>3</sup> )	(cc)
Full Load	35 ± 4° (Idle - Full)	1250	—	—	44.6 ± 0.5	8.9 ± 0.1	2.0	0.4
High Speed		2550	—	—	17.0 ± 2.5	3.4 ± 0.5	—	—
<b>3. ADJUSTMENT OF INTERNAL PRESSURE</b>								
Lever Position	Pump Speed (rpm)	Boost Pressure		Internal Pressure		Remarks		
		(kPa)	(mmHg)	(kPa)	(kgf/cm <sup>2</sup> )			
Full	500	—	—	392.5 ± 29.5	4.0 ± 0.3	By the regulatng valve		
	2125	—	—	813.5 ± 29.5	8.3 ± 0.3			
<b>4. OVERFLOW QUANTITY CHECK</b>								
Lever Position	Pump Speed (rpm)	Boost Pressure		Overflow Quantity		Remarks		
		(kPa)	(mmHg)	(L/h)	(cc/1000st)			
Full	2125	—	—	20 - 46	157 - 361			
NOTE : The overflow valve belonging to the pump should be used checking.								
<b>5. ADJUSTMENT OF TIMER</b>								
Lever Position	Pump Speed (rpm)	Boost Pressure		Piston Travel (mm)	Remarks			
		(kPa)	(mmHg)					
Full	750	—	—	0.60 ± 0.40	Max. piston travel			
	1250	—	—	3.10 ± 0.40				
	2125	—	—	7.40 ± 0.40				
	2550	—	—	7.40 ± 0.40				
NOTE : Hysteresis at each pump speed is less than 0.3 mm.								

6. ADJUSTMENT OF BOOST COMPENSATOR								— : Not Applicable	
Lever Position	Pump Speed (rpm)	Boost Pressure		Fuel Delivery		Max. Spread in Delivery		Remarks	
		(kPa)	(mmHg)	(mm <sup>3</sup> /st)	(cc/200st)	(mm <sup>3</sup> )	(cc)		
—	—	—	—	—	—	—	—	—	
7. ADJUSTMENT OF FUEL DELIVERY									
Lever Position	Pump Speed (rpm)	Boost Pressure		Fuel Delivery		Max. Spread in Delivery		Remarks	
		(kPa)	(mmHg)	(mm <sup>3</sup> /st)	(cc/200st)	(mm <sup>3</sup> )	(cc)		
Full	1250	—	—	44.6 ± 0.5 = A	8.9 ± 0.1 = A	2.0	0.4	By full load setting screw	
	2550	—	—	17.0 ± 2.5	3.4 ± 0.5	—	—	By max. speed setting screw	
	2400	—	—	32.0 ± 3.0	6.4 ± 0.6	—	—		
	2800	—	—	Less than 5.0	Less than 1.0	—	—		
	100	—	—	60.0 ± 10.0	12.0 ± 2.0	6.0	1.2	By governor sleeve plug	
	400	—	—	42.0 ± 4.0	8.4 ± 0.8	—	—		
	500	—	—	37.6 ± 2.0	7.5 ± 0.4	2.5	0.5		
2125	—	—	42.3 ± 2.0	8.5 ± 0.4	2.5	0.5			
8. SETTING OF LOAD SENSING TIMER									
Lever Position	Pump Speed (rpm)	Boost Pressure		Fuel Delivery		Remarks			
		(kPa)	(mmHg)	(mm <sup>3</sup> /st)	(cc/200st)				
Start of Load Sensing	1250	—	—	(A - 5.0) ± 2.0	(A - 1.0) ± 0.4	By governor shaft			
End of Pressure Drop	1250	—	—	33.6 ± 1.0	6.7 ± 0.2	Check			
Check Points	1. Piston Travel at End of Pressure Drop : 1.60 ± 0.40 mm (Pump speed 1250 rpm) 2. Dimension of Governor Shaft : L = 1.15 ± 0.85 mm								



15. ADJUSTMENT OF THROTTLE POSITION SENSOR						Applying $5 \pm 0.005$ V to sensor.	
Lever Position	Pump Speed (rpm)	Boost Pressure		Fuel Delivery		Sensor Output Voltage (V)	Remarks
		(kPa)	(mmHg)	(mm <sup>3</sup> /st)	(cc/500st)		
Full	0	—	—	—	—	$4.2 \pm 0.025$	Set point
Idle	0	—	—	—	—	$1.28 \pm 0.35$	Check point

16. FINAL CHECK AFTER	
<ol style="list-style-type: none"> <li>1. Range of lever angle between idle and full lever position is <math>35 \pm 4^\circ</math>.</li> <li>2. Resistance of pick-up tachometer must be <math>810 \pm 160</math> ohms.</li> <li>3. After adjustment has been completed, delivery quantity must be <math>0 \text{ mm}^3/\text{st}</math> (<math>0 \text{ cc}/200\text{st}</math>) when voltage at fuel cut solenoid is reduced to zero. (Pump Speed <math>N_p = 100 \text{ rpm}</math>)</li> </ol>	 <p>RPS Connector</p>