

## INJECTION PUMP TEST SPECIFICATIONS

096000-9710

INJECTION PUMP	096000-971# (VE4/10F2250RND971)	MANU-FACTURER	MITSUBISHI	
Governor Type	Maximum-minimum speed	ENGINE TYPE	4D68T	
Rated Voltage	12V	VEHICLE MODEL	EXPO/ SPACE WAGON	
Rotation	Clockwise viewed from drive side	Dimension (mm) MS	: 1.40 – 1.50	
Injection Order	A – B – C – D	Dimension (mm) K	: 3.20 – 3.40	
Injection Interval	90° ±30'	Dimension (mm) KF	: 5.20 – 5.40	
1. TEST CONDITIONS				
1) Nozzle	: 093400-0540 (DN12SD12A)	4) Feed Pressure	: 0.2 kgf/cm <sup>2</sup>	
2) Nozzle Opening Pressure	: 145 – 155 kgf/cm <sup>2</sup>	5) High Pressure Pipe	: ø2 x ø6 x 840 mm	
3) Test Oil	: SAE J967 (ISO4113)	6) Fuel Temperature	: 40 – 45°C (104 – 113°F)	
NOTE: Apply 6 volts DC across the fuel cut solenoid during adjustment.				
2. PRE-ADJUSTMENT (at full lever position, boost pressure 500 mmHg)				
	Pump Speed (rpm)	Fuel Delivery (cc/200st· 1cyl.)	Remarks	
Full Load	1250	10.16 – 10.76	By full load setting screw	
High Speed	2500	4.80 – 6.00	By max. speed setting screw	
Load Sensing Timer: Adjust the governor shaft so that the dimension "L" between the housing flange and the end of the governor shaft is about 2.5 mm.				
3. ADJUSTMENT OF PUMP INTERNAL PRESSURE (at full lever position, boost pressure 500 mmHg)				
	Pump Speed (rpm)	Internal Pressure (kgf/cm <sup>2</sup> )	Remarks	
	500	3.74 – 4.34	By the regulating valve	
	2250	8.35 – 8.95		
4. OVERFLOW QUANTITY CHECK (at full lever position, boost pressure 500 mmHg)				
	Pump Speed (rpm)	Overflow Quantity (cc/1000st)	Remarks	
	2250	167.0 – 364.0	The overflow valve belonging to the pump should be used for checking.	
5. ADJUSTMENT OF TIMER (at full lever position, boost pressure 500 mmHg)				
Pump Speed (rpm)	750	1250	1750	2150
Piston Travel (mm)	1.70 – 2.70	3.85 – 4.85	6.0 – 7.0	7.7 – 8.6
NOTE: Hysteresis at each pump speed is less than 0.3 mm.				

6. ADJUSTMENT OF FUEL DELIVERY					
Lever Position	Pump speed (rpm)	Fuel Delivery (cc/200st, 1cyl)	Max. Spread In Delivery (cc)	Boost Pressure Absolute Pressure (mmHg)	Remarks
FULL	1250	A = 10.36 – 10.56	0.4	500	By full load setting screw
	2500	5.00 – 5.80	—	500	By max. speed setting screw
	2400	7.00 – 9.00	—	500	Lever position : full/idle
	2900	Less than 1.40/ Less than 0.20	—	500	
	100	10.60 – 13.00	0.8	0	By governor sleeve plug
	2250	9.53 – 10.23	0.5	500	
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7. SETTING OF LOAD SENSING TIMER (at full lever position, boost pressure 500 mmHg)					
	Pump Speed (rpm)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
Start of Load Sensing	1250	Full-load delivery – (2.4 – 3.2)	By governor shaft		
End of Pressure Drop	1250	5.86 – 6.26	Check		
<b>CHECK POINTS</b> 1. Change of Piston Travel : 1.9 – 2.7 mm (pump speed 1250 rpm) 2. Dimension of Governor Shaft : L = 0.3 – 2.0 mm					
8. SETTING OF ADJUSTING LEVER AT LOW SPEED (at idle lever position)					
Lever Position	Pump Speed (rpm)	Fuel Delivery (cc/500st, 1cyl)	Max. Spread In Delivery (cc)	Remarks	
IDLE	375	B = 3.50 – 5.00	1.0	By idle setting screw	
	475	C = 0.25 – 1.25	—		
	400	C + +(1.25 – 3.75)	—		
9. ADJUSTMENT OF BOOST COMPENSATOR					
Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
750	0	6.46 – 6.86			
750	250	7.80 – 8.20			
750	350	8.60 – 9.40			
1250	938	Less than (A + 0.1)			
10. ADJUSTMENT OF T.C.V. <span style="float: right;">N.A. : Not Applicable</span>					
Pump Speed (rpm)		Boost Pressure (mmHg)		Piston Stroke (mm)	
N.A.		N.A.		N.A.	

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<b>11. ADJUSTMENT OF THROTTLE POSITION SENSOR</b> (Applying 5.0 $\pm$ 0.005V to sensor.)				N.A. : Not Applicable
	<b>Pump Speed (rpm)</b>	<b>Condition</b>		<b>Sensor Output Voltage</b>
<b>Set point</b>	0	N.A.		0.35 – 0.40
<b>Check point</b>	N.A.	N.A.		N.A.
<b>12. CHARACTERISTIC OF A.C.S.D.</b>				
<b>Lever Position</b>	<b>Pump Speed (rpm)</b>	<b>Fuel Temperature (°C)</b>	<b>Measuring Value</b>	<b>Remarks</b>
IDLE	375	24 – 26	Piston Travel (mm) : 0.3 – 0.5	
	375	24 – 26	Idle-up Quantity (cc/500st) : B + (1.5 – 2.0)	
<b>13. ADJUSTMENT OF POWER CONTROL</b>				N.A. : Not Applicable
<b>Lever Position</b>	<b>Pump Speed (rpm)</b>	<b>Boost Pressure (mmHg)</b>	<b>Fuel Delivery (cc/200st. 1cyl)</b>	<b>Remarks</b>
FULL	N.A.	N.A.	N.A.	
<b>14. SETTING OF DIAPHRAGM FOR HEATER</b>				N.A. : Not Applicable
<b>Lever Position</b>	<b>Pump Speed (rpm)</b>	<b>Fuel Delivery (cc/200st. 1cyl)</b>	<b>Boost Pressure To Diaphragm (mmHg)</b>	<b>Remarks</b>
IDLE	N.A.	N.A.	N.A.	
<b>15. FINAL CHECK AFTER ADJUSTMENT</b>				
<p>(1) Range of lever angle between idle and full lever position is 39° <math>\pm</math>5°.</p> <p>(2) Resistance of pick-up tachometer must be 1300 – 1600 ohms.</p>				