

INJECTION PUMP TEST SPECIFICATIONS

096000-9102

INJECTION PUMP	096000-910# (VE4/10F2300RND910)		MANU-FACTURER	TOYOTA
Governor Type	Maximum-minimum speed		ENGINE TYPE	3C-T
Rated Voltage	12V		VEHICLE MODEL	MODET F/LITEACE
Rotation	Clockwise viewed from drive side		Dimension (mm) MS : 0.70 – 0.90	
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 ² 2) Nozzle Opening Pressure : 149 – 151 kgf/cm ² 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 750 mmHg)				
	Pump Speed (rpm)	Fuel Delivery (cc/200st· 1cyl.)	Remarks	
Full Load	1500	11.98 – 12.54	By full load setting screw	
High Speed	2500	4.30 – 5.50	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 750 mmHg)				
	Pump Speed (rpm)	Internal Pressure (kgf/cm²)	Remarks	
	700	2.95 – 3.55	By the regulating valve	
	2100	6.50 – 7.10		
4. OVERFLOW QUANTITY CHECK (at full lever position, boost pressure 750 mmHg)				
	Pump Speed (rpm)	Overflow Quantity (cc/1000st)	Remarks	
	2100	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 750 mmHg)				
Pump Speed (rpm)	700	1300	1800	2250(L.S.T Off)
Piston Travel (mm)	1.28 – 2.08	3.81 – 4.61	5.92 – 6.72	6.93 – 7.41
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	1500	12.18 – 12.34	0.4	750	By full load setting screw
	2500	4.50 – 5.30	—	750	By max. speed setting screw
	2400	7.28 – 9.28	—	750	
	2800	Less than 0.20	—	750	
	100	13.0 – 17.0	1.2	0	By governor sleeve plug
	2000	10.25 – 10.95	0.5	750	
2250	9.09 – 10.15	0.5	750		
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7. SETTING OF LOAD SENSING TIMER (at full lever position, boost pressure 300 mmHg)					
	Pump Speed (rpm)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
Start of Load Sensing	1800	Full-load delivery – (0.8 – 1.2)	By governor shaft		
End of Pressure Drop	1800	Full-load delivery – (2.1 – 2.5)	Check		
CHECK POINTS 1. Change of Piston Travel : 1.44 – 1.84 mm (pump speed 1800 rpm) 2. Dimension of Governor Shaft : L = 0.5 – 2.0 mm					
8. SETTING OF ADJUSTING LEVER AT LOW SPEED (at idle lever position, boost pressure 0 mmHg)					
Lever Position	Pump Speed (rpm)	Fuel Delivery (cc/500st, 1cyl)	Max. Spread In Delivery (cc)	Remarks	
IDLE	400	A = 7.125 – 8.375	0.85	By idle setting screw	
	375	More than (A + 1.25)	—		
	500	A – (4.25 – 6.75)	—		
9. ADJUSTMENT OF BOOST COMPENSATOR					
Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
700	550	54.2 – 57.2			
700	150	41.2 – 44.2			
700	0	40.0 – 42.0			
1500	800	60.3 – 62.3			
1500	1000	Less than 57.0			
1500	0	41.55 – 45.05			
10. ADJUSTMENT OF T.C.V. N.A. : Not Applicable					
Pump Speed (rpm)	Boost Pressure (mmHg)	Piston Stroke (mm)			
N.A.	N.A.	N.A.			

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11. ADJUSTMENT OF THROTTLE POSITION SENSOR (Applying 5.0 ±0.01V to sensor.)				
	Pump Speed (rpm)	Condition		Sensor Output Voltage
Set point	1000	Lever Position : Full Fuel Delivery Quantity : 12.8 – 13.2 cc/500st.cyl.		2.945 — 2.995
Check point	—	Lever Position : Full/ Idle		0.20 — 1.60 3.31 — 4.43
12. CHARACTERISTIC OF A.C.S.D. (at idle lever position, boost pressure 0 mmHg)				
Lever Position	Pump Speed (rpm)	Fuel Temperature (°C)	Measuring Value	Remarks
IDLE	400	24 – 26	Piston Travel (mm) : 1.42 – 1.62	
	400	24 – 26	Idle-up Quantity (cc/500st) : A + (5.0 – 6.0)	
13. ADJUSTMENT OF POWER CONTROL N.A. : Not Applicable				
Lever Position	Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/200st. 1cyl)	Remarks
FULL	N.A.	N.A.	N.A.	
14. ADJUSTMENT OF DASH POT N.A. : Not Applicable				
Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/500st)	Remarks	
N.A.	N.A.	N.A.		
15. FINAL CHECK AFTER ADJUSTMENT				
<p>(1) Range of lever angle between idle and full lever position is 47° ±5°.</p> <p>(2) Resistance of pick-up tachometer must be 650 – 970 ohms.</p>				