

# INJECTION PUMP TEST SPECIFICATIONS

096000-7380

<b>INJECTION PUMP</b>	096000-738# (VE4/10F2500RND738)	<b>MANU-FACTURER</b>	TOYOTA
<b>Governor Type</b>	Maximum-minimum speed	<b>ENGINE TYPE</b>	2C-L
<b>Rated Voltage</b>	12V	<b>VEHICLE MODEL</b>	COROLLA
<b>Rotation</b>	Clockwise viewed from drive side	Dimension (mm) MS	: 0.43 – 0.63
<b>Injection Order</b>	A – B – C – D	Dimension (mm) K	: 3.20 – 3.40
<b>Injection Interval</b>	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	: 149 – 151 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 – mmHg)

	<b>Pump Speed (rpm)</b>	<b>Fuel Delivery (cc/200st· 1cyl.)</b>	<b>Remarks</b>
<b>Full Load</b>	1500	8.09 – 8.83	By full load setting screw
<b>High Speed</b>	2700	1.80 – 3.40	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 – mmHg)

<b>Pump Speed (rpm)</b>	<b>Internal Pressure (kgf/cm<sup>2</sup>)</b>	<b>Remarks</b>
600	2.70 – 3.30	By the regulating valve
2100	6.47 – 7.07	

## 4. OVERFLOW QUANTITY CHECK (at full lever position, boost pressure – mmHg)

<b>Pump Speed (rpm)</b>	<b>Overflow Quantity (cc/1000st)</b>	<b>Remarks</b>
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 – mmHg)

<b>Pump Speed (rpm)</b>	600	1500	2100	
<b>Piston Travel (mm)</b>	0.68 – 1.68	4.92 – 5.92	7.75 – 8.75	

**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	8.29 – 8.63	0.4	—	By full load setting screw
	2700	2.00 – 3.20	—	—	By max. speed setting screw
	2600	4.50 – 6.30	—	—	
	2950	Less than 0.70	—	—	
	100	8.60 – 13.40	1.2	—	
	500	6.81 – 7.71	0.5	—	By governor sleeve plug
	2350	7.19 – 8.09	0.5	—	
2500	6.39 – 7.65	0.5	—		
—	—	—	—	—	
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	1500	Full-load delivery – (0.70 – 1.30)	By governor shaft		
End of Pressure Drop	1500	Full-load delivery – (2.00 – 2.60)	Check		
<b>CHECK POINTS</b> 1. Change of Piston Travel : 1.34 – 1.94 mm (pump speed 1500 rpm) 2. Dimension of Governor Shaft : L = 0.50 – 2.00 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	400	Q = 5.88 – 8.13	0.85	Presetting	
	375	More than (Q +1.25)	—	Dash pot adjustment	
	475	Q – (3.75 – 6.25)	—	Lever setting	
	1300	Less than 0.50	—		
9. ADJUSTMENT OF BOOST COMPENSATOR <span style="float: right;">N.A. : Not Applicable</span>					
Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/1000st, 1cyl)	Remarks		
N.A.	N.A.	N.A.			
10. ADJUSTMENT OF T.C.V. (with no power supply to 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 V to sensor.)				N.A. : Not Applicable
	<b>Pump Speed (rpm)</b>	<b>Condition</b>		<b>Sensor Output Voltage</b>
<b>Set point</b>	700	N.A.		2.715 – 2.765
<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	400	24 – 26	Piston Travel (mm) : 0.55 – 0.95	
	400	24 – 26	Idle-up Quantity (cc/500st) : Q + (3.00 – 4.00)	
<b>13. ADJUSTMENT OF POWER CONTROL</b> (Adjustment should be done while the power control lever is in contact with the stopper.)				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. ADJUSTMENT OF DASH POT</b>				N.A. : Not Applicable
<b>Pump Speed (rpm)</b>	<b>Boost Pressure (mmHg)</b>	<b>Fuel Delivery (cc/500st)</b>	<b>Remarks</b>	
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 47° ±5°.</p> <p>(2) Resistance of pick-up tachometer must be 650 – 970 ohms.</p>				