

# INJECTION PUMP TEST SPECIFICATIONS

096000-5240

<b>INJECTION PUMP</b>	096000-524# (VE4/10F2400RND524)	<b>MANU-FACTURER</b>	TOYOTA	
<b>Governor Type</b>	Maximum-minimum speed	<b>ENGINE TYPE</b>	2C-T	
<b>Rated Voltage</b>	12V	<b>VEHICLE MODEL</b>	MODEL F / LITEAGE	
<b>Rotation</b>	Clockwise viewed from drive side	Dimension (mm) MS	: 0.70 – 0.90	
<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	
<b>1. TEST CONDITIONS</b> 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)				
<b>NOTE:</b> Apply 6 volts DC across the fuel cut solenoid during adjustment.				
<b>2. PRE-ADJUSTMENT</b> (at full lever position, boost pressure 450 mmHg)				
	<b>Pump Speed (rpm)</b>	<b>Fuel Delivery (cc/200st· 1cyl.)</b>	<b>Remarks</b>	
<b>Full Load</b>	1500	10.7 – 11.5	By full load setting screw	
<b>High Speed</b>	2600	3.2 – 4.8	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.				
<b>3. ADJUSTMENT OF PUMP INTERNAL PRESSURE</b> (at full lever position)				
	<b>Pump Speed (rpm)</b>	<b>Internal Pressure (kgf/cm<sup>2</sup>)</b>	<b>Remarks</b>	
	700	3.0 – 3.6	By the regulating valve	
	2250	6.9 – 7.5		
<b>4. OVERFLOW QUANTITY CHECK</b> (at full lever position)				
	<b>Pump Speed (rpm)</b>	<b>Overflow Quantity (cc/1000st)</b>	<b>Remarks</b>	
	2250	167 – 364	The overflow valve belonging to the pump should be used for checking.	
<b>5. ADJUSTMENT OF TIMER</b> (at full lever position, boost pressure 450 mmHg)				
<b>Pump Speed (rpm)</b>	700	1500	1800	2250
<b>Piston Travel (mm)</b>	1.0 – 2.0	4.6 – 5.6	5.9 – 6.8	6.9 – 7.7
<b>NOTE:</b> 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	10.9 – 11.3	0.4	450	By full load setting screw
	2600	3.4 – 4.6	—	450	By max. speed setting screw
	2500	7.1 – 9.5	—	450	
	2900	Less than 0.7	—	450	
	100	9.6 – 14.4	1.2	0	By governor sleeve plug
	2250	9.7 – 10.6	0.5	450	
	2350	9.4 – 10.7	0.5	450	
700	7.6 – 8.2	0.5	0		
—	—	—	—	—	
7. SETTING OF LOAD SENSING TIMER (at full lever position, boost pressure 0 mmHg) <span style="float: right;">N.A. : Not Applicable</span>					
	Pump Speed (rpm)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
Start of Load Sensing	1800	Full-load delivery – (0.7 – 1.3 )	By governor shaft		
End of Pressure Drop	1800	Full-load delivery – (2.0 – 2.6 )	Check		
<b>CHECK POINTS</b> 1. Change of Piston Travel : 1.3 – 1.9 mm (pump speed 1800 rpm) 2. Dimension of Governor Shaft : L = 0.5 – 2.0 mm					
8. SETTING OF ADJUSTING LEVER AT LOW SPEED					
Lever Position	Pump Speed (rpm)	Fuel Delivery (cc/500st, 1cyl)	Max. Spread In Delivery (cc)	Remarks	
IDLE	400	A = 9.125 – 10.375	0.85	By idle setting screw	
	375	More than (A + 1.25)	—		
	475	A - (5.5 to 8.0)	—		
9. ADJUSTMENT OF BOOST COMPENSATOR <span style="float: right;">N.A. : Not Applicable</span>					
Pump Speed (rpm)	Boost Pressure (mmHg)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
700	300	48.0 – 52.0			
700	200	43.0 – 47.0			
700	0	38.0 – 41.0			
1500	450	54.7 – 56.4			
1500	500	54.0 – 57.0			
1500	700	42.5 – 51.0			
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 6.0 ±0.01V 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.		3.055 – 3.105
<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) : 0.72 – 0.92	
	400	24 – 26	Idle-up Quantity (cc/500st) : A + (2 to 2.5)	
<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) After adjustment has been completed, confirm that there is no injection when voltage at fuel cut solenoid is reduced to zero. (pump speed NP = 100rpm, at full lever position.)</p> <p>(3) Resistance of pick-up tachometer must be 600 – 800 ohms.</p> <p>(4) Apply 5.99 – 6.01V to RPS when adjusting it.</p> <p>(5) Heater Idle Up Absorute pressure: less than 300 mmHg, Pump speed 450 rpm, Fuel Delivery 7.5 – 10.5cc/1000st.</p>				