

# INJECTION PUMP TEST SPECIFICATIONS

096000-7590

INJECTION PUMP	096000-759# (VE4/10F2100RND759)	MANU-FACTURER	TOYOTA	
Governor Type	All speed	ENGINE TYPE	3L	
Rated Voltage	12V	VEHICLE MODEL	HILUX/4RUNNER	
Rotation	Clockwise viewed from drive side	Dimension (mm) MS	: 0.30 – 0.50	
Injection Order	A – B – C – D	Dimension (mm) K	: 3.20 – 3.40	
Injection Interval	90° ±30'	Dimension (mm) KF	: 5.40 – 5.60	
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)				
	Pump Speed (rpm)	Fuel Delivery (cc/200st· 1cyl.)	Remarks	
Full Load	1200	11.36 – 12.08	By full load setting screw	
High Speed	2450	4.40 – 6.40	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)				
Pump Speed (rpm)	Internal Pressure (kgf/cm <sup>2</sup> )		Remarks	
500	3.2 – 3.8		By the regulating valve	
2100	6.6 – 7.2			
4. OVERFLOW QUANTITY CHECK (at full lever position, boost pressure – mmHg)				
Pump Speed (rpm)	Overflow Quantity (cc/1000st)		Remarks	
2200	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)				
Pump Speed (rpm)	800	1200	2000	2300
Piston Travel (mm)	2.1 – 2.9	3.5 – 4.3	6.4 – 7.2	6.9 – 7.7
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	1200	11.56 – 11.88	0.4	—	By full load setting screw
	2450	4.60 – 6.20	—	—	By max. speed setting screw
	2150	8.90 – 10.90	—	—	
	2700	Less than 1.30	—	—	
	100	11.60 – 16.40	1.2	—	
	350	12.20 – 14.80	—	—	By governor sleeve plug
	500	10.44 – 11.44	0.5	—	
2000	10.19 – 11.09	0.5	—		
—	—	—	—	—	
7. SETTING OF LOAD SENSING TIMER (at full lever position, boost pressure – mmHg)					
	Pump Speed (rpm)	Fuel Delivery (cc/200st, 1cyl)	Remarks		
Start of Load Sensing	1200	Full-load delivery – (0.60 – 1.40)	By governor shaft		
End of Pressure Drop	1200	8.72 – 9.12	Check		
<b>CHECK POINTS</b> 1. Change of Piston Travel : 1.44 – 1.84 mm (pump speed 1200 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 = 4.5 – 7.0	0.85	By idle setting screw	
	575	Less than 3.0	—		
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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11. ADJUSTMENT OF THROTTLE POSITION SENSOR (Applying 5.0 ±0.005V to sensor.)				N.A. : Not Applicable	
	Pump Speed (rpm)	Condition		Sensor Output Voltage	
Set point	N.A.	N.A.		N.A.	
Check point	N.A.	N.A.		N.A.	
12. CHARACTERISTIC OF A.C.S.D.					
Lever Position	Pump Speed (rpm)	Fuel Temperature (°C)	Measuring Value		Remarks
IDLE	400	25	Piston Travel (mm) : 0.85 – 1.05		
	400	25	Idle-up Quantity (cc/500st) : Q + (5.00 – 5.50)		
13. ADJUSTMENT OF POWER CONTROL(Adjustment should be done while the power control lever is in contact with the stopper.)					
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.	By stopper screw	
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					
(1) Range of lever angle between idle and full lever position is 46° ±3°.					
(2) Resistance of pick-up tachometer must be 650 – 970 ohms.					