

INJECTION PUMP TEST SPECIFICATIONS

196000-5080

| | | | | | | |
|-------------------|------------|-----------------|----------------------------------|---|-------------|--|
| MANUFACTURER | MITSUBISHI | INJECTION PUMP | | 196000-508# VE6/12F1100RND508 | | |
| ENGINE TYPE | S6S-DT | | | | | |
| VEHICLE MODEL | BULLDOZER | ROTATION | Clockwise viewed from drive side | GOVERNOR TYPE | All speed | |
| RATED VOLTAGE | 12V | INJECTION ORDER | A - B - C - D - E - F | INJECTION INTERVAL | 60° ± 30' | |
| Dimension KF (mm) | | 5.20 ± 0.10 | | Dimension MS (mm) | 0.44 ± 0.05 | |
| Dimension K (mm) | | 3.00 ± 0.15 | | Dimension PS (mm) | 0.25 ± 0.02 | |

1. TEST CONDITIONS

| | | | |
|-------------------------|---|--------------------|-------------------------------------|
| Nozzle | 093400-0540 (DN12SD12A) | Feed Pressure | 19.6 kPa (0.2 kgf/cm ²) |
| Nozzle Opening Pressure | 14.7 ± 0.5 MPa (150 ± 5 kgf/cm ²) | High Pressure Pipe | Ø2 × Ø6 × 840 mm |
| Test Oil | SAE J967 (ISO4113) | Fuel Temperature | 40 - 45 °C (104 - 113°F) |

NOTE : Apply 14 volts DC across the fuel cut solenoid during adjustment.

2. PRE-ADJUSTMENT

| | Lever Position (deg) | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Max. Spread in Delivery | |
|------------|----------------------|------------------|----------------|--------|-----------------------|------------|-------------------------|------|
| | | | (kPa) | (mmHg) | (mm ³ /st) | (cc/200st) | (mm ³) | (cc) |
| Full Load | 30 ± 5° | 700 | — | — | 71.5 ± 2.0 | 14.3 ± 0.4 | 4.0 | 0.8 |
| High Speed | (Full position) | 1220 | — | — | 14.0 ± 5.0 | 2.8 ± 1.0 | — | — |

3. ADJUSTMENT OF INTERNAL PRESSURE

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Internal Pressure | | Remarks |
|----------------|------------------|----------------|--------|-------------------|------------------------|-------------------------|
| | | (kPa) | (mmHg) | (kPa) | (kgf/cm ²) | |
| Full | 1100 | — | — | More than 382.0 | More than 3.9 | By the regulating valve |
| Full | 1250 | — | — | Less than 981.0 | Less than 10.0 | |
| Idle | 325 | — | — | Less than 137.0 | Less than 1.4 | |
| Idle | 900 | — | — | 671.5 ± 29.5 | 6.8 ± 0.3 | |

4. OVERFLOW QUANTITY CHECK

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Overflow Quantity | | Remarks |
|----------------|------------------|----------------|--------|-------------------|-------------|---------|
| | | (kPa) | (mmHg) | (L/h) | (cc/1000st) | |
| Full | 900 | — | — | 38.9 - 64.9 | 721 - 1202 | |

NOTE : The overflow valve belonging to the pump should be used checking.

5. ADJUSTMENT OF TIMER

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Piston Travel (mm) | Remarks |
|----------------|------------------|----------------|--------|--------------------|---------|
| | | (kPa) | (mmHg) | | |
| Full | 1100 | — | — | Less than 0.20 | |
| Idle | 1250 | — | — | 2.05 ± 0.40 | |
| Idle | 800 | — | — | 1.30 ± 0.20 | |
| Idle | 870 | — | — | 2.05 ± 0.40 | |

NOTE : Hysteresis at each pump speed is less than 0.3 mm.

6. ADJUSTMENT OF BOOST COMPENSATOR

— : Not Applicable

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Max. Spread in Delivery | | Remarks |
|----------------|------------------|----------------|--------|-----------------------|------------|-------------------------|------|---------|
| | | (kPa) | (mmHg) | (mm ³ /st) | (cc/200st) | (mm ³) | (cc) | |
| — | — | — | — | — | — | — | — | — |

7. ADJUSTMENT OF FUEL DELIVERY

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Max. Spread in Delivery | | Remarks |
|----------------|------------------|----------------|--------|-----------------------|-----------------------|-------------------------|------|-------------------------------|
| | | (kPa) | (mmHg) | (mm ³ /st) | (cc/200st) | (mm ³) | (cc) | |
| Full | 700 | — | — | 71.5 ± 2.0 | 14.3 ± 0.4 | 4.0 | 0.8 | By full load setting screw |
| | 1220 | — | — | 14.0 ± 5.0 | 2.8 ± 1.0 | — | — | By max. speed setting screw |
| | 1120 | — | — | A – 5.0 | A – 1.0 | — | — | A = measurement (1100 rpm) |
| | 1300 | — | — | Less than 3.0 | Less than 0.6 | — | — | |
| | 100 | — | — | 46.6 ± 12.0 = B | 9.3 ± 2.4 = B | 10.0 | 2.0 | By governor sleeve plug |
| | 180 | — | — | More than B – 1.0 = C | More than B – 0.2 = C | — | — | End of fuel quantity increase |
| | 280 | — | — | Less than C – 5.0 | Less than C – 1.0 | — | — | |
| | 350 | — | — | 29.6 ± 3.0 | 5.9 ± 0.6 | — | — | |
| | 550 | — | — | 51.8 ± 5.0 | 10.4 ± 1.0 | — | — | |
| | 900 | — | — | 74.8 ± 4.5 | 15.0 ± 0.9 | — | — | |
| | 1100 | — | — | 71.7 ± 4.0 | 14.3 ± 0.8 | — | — | |

8. SETTING OF LOAD SENSING TIMER

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Remarks |
|-----------------------|--|----------------|--------|-----------------------|------------|-------------------|
| | | (kPa) | (mmHg) | (mm ³ /st) | (cc/200st) | |
| Start of Load Sensing | 1100 | — | — | 26.5 ± 1.5 | 5.3 ± 0.3 | By governor shaft |
| End of Pressure Drop | 1100 | — | — | 17.5 ± 2.0 | 3.5 ± 0.4 | Check |
| Repeat Advance Angle | | | | | | |
| Check Points | 1. Piston Travel at End of Pressure Drop : 2.05 ± 0.4 mm (Pump speed 1100 rpm) 2. : mm 3. Dimension of Governor Shaft : L = 1.15 ± 0.85 mm | | | | | |

9. SETTING OF ADJUSTING LEVER AT LOW SPEED

| Lever Position (deg) | Pump Speed (rpm) | Boost Pressure (kPa) | Fuel Delivery | | Max. Spread in Delivery | | Remarks |
|------------------------------|---------------------|-------------------------|-----------------------|------------------|-------------------------|------|---------------|
| | | | (mm ³ /st) | (cc/500st) | (mm ³) | (cc) | |
| - 15 ± 5° (Idle position) | 420 | — | 2.8 ± 1.5 | 1.4 ± 0.8 | 3.0 | 1.5 | Lever setting |
| | 500 | — | Less than 3.0 | Less than 1.5 | — | — | |

10. SETTING OF ADJUSTING LEVER AT PARTIAL RANGE

— : Not Applicable

| Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Remarks |
|---------------------|----------------|--------|-----------------------|------------|---------|
| | (kPa) | (mmHg) | (mm ³ /st) | (cc/500st) | |
| — | — | — | — | — | — |

11. CHARACTERISTIC OF A.C.S.D.

— : Not Applicable

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Measuring Value | Remarks |
|----------------|---------------------|----------------|--------|-----------------|---------|
| | | (kPa) | (mmHg) | | |
| — | — | — | — | — | — |

Fuel temperature : 39 - 41°C

12. ADJUSTMENT OF T.C.V.

— : Not Applicable

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Piston Travel (mm) | Remarks |
|----------------|---------------------|----------------|--------|-----------------------|---------|
| | | (kPa) | (mmHg) | | |
| — | — | — | — | — | — |

13. SETTING OF DIAPHRAGM FOR HEATER & POWER STEERING

— : Not Applicable

| Pump Speed (rpm) | Vacuum Pressure | | Fuel Delivery | | Remarks |
|---------------------|-----------------|--------|-----------------------|------------|---------|
| | (kPa) | (mmHg) | (mm ³ /st) | (cc/500st) | |
| — | — | — | — | — | — |

14. ADJUSTMENT OF POWER CONTROL

— : Not Applicable

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Remarks |
|----------------|---------------------|----------------|--------|-----------------------|------------|---------|
| | | (kPa) | (mmHg) | (mm ³ /st) | (cc/200st) | |
| — | — | — | — | — | — | — |

15. ADJUSTMENT OF THROTTLE POSITION SENSOR

— : Not Applicable

| Lever Position | Pump Speed (rpm) | Boost Pressure | | Fuel Delivery | | Sensor Output Voltage (V) | Remarks |
|----------------|---------------------|----------------|--------|-----------------------|------------|---------------------------------|---------|
| | | (kPa) | (mmHg) | (mm ³ /st) | (cc/500st) | | |
| — | — | — | — | — | — | — | — |

16. FINAL CHECK AFTER ADJUSTMENT

- 1 . Lever position at idle is $-15 \pm 5^\circ$ and $30 \pm 5^\circ$ at full.
- 2 . After adjustment has been completed, delivery quantity must be 5.0 mm³/st (1.0 cc/200st) when voltage at fuel cut solenoid is reduced to zero. (Pump Speed Np = 100 rpm at idle lever position)