TEST STAND ISO 4008:
1. CALIBRATION HIGH PRESSURE LINES: SAE J1418 / ISO 4093: .063” (1.60mm) I.D. x 25’ (762mm) LONG, P/N 70050
2. CALIBRATING INJECTORS: STANADYNE P/N: 36951
   (LOW DEAD VOLUME)
   0.5mm ORIFICE PLATE 3625 PSI (250 BAR) OPENING PRESSURE
3. CALIBRATION FLUID: SAE J967 / ISO 4113
   a. INLET TEMPERATURE: 110° - 115°F (43.3°- 46.6°C)
   b. RETURN TEMPERATURE: 115° - 156°F (46.6°- 68.6°C)
   c. SUPPLY PRESSURE: 5 PSI /+/- 1.0 PSI (34 +/- 6 kPa) AT PUMP INLET.

PUMP INSTALLATION: IT-117
1. CALIBRATION HIGH PRESSURE LINES:
   NAME PLATE: LEFT SIDE

PUMP CALIBRATION CHECKS: AS RECEIVED FOR SERVICE
NOTE: USE DE ELECTRONIC CONTROL PACKAGE (P/N 36269), REFERENCE 99820 DE PUMP MANUAL FOR TEST BENCH SET-UP INSTRUCTIONS.
SOLENOID VOLTAGE: 17 VDC

1. 000 RPM: MANUALLY ROTATE SHAFT TO INSTALL TIMING PIN (P/N 36275). ALIGN TIMING WHEEL WITH INDICATOR AND TIGHTEN TIMING WHEEL IN PLACE.
2. 000 RPM: REMOVE TIMING PIN, INSTALL HOUSING PRESSURE TAP (P/N 36464) AND CONNECT TO HOUSING PRESSURE GAUGE.
3. 150 RPM: TEST PACKAGE PERFORMING SELF-DIAGNOSTICS.
4. 1400 RPM: (LOSSOP: 9.0°, SPW: 9.96°) WAIT FOR PUMP TO STABILIZE FOR 60 SEC.
5. 2500 RPM: (LOSSOP: 9.0°, SPW: 9.50°)
   a. STABILIZE INLET FUEL TEMPERATURE AT 43.3°-46.6°C. RETURN FUEL IS BEING MONITORED FOR RATE OF CHANGE LESS THAN 5° C/MIN. RETURN TEMPERATURE 68.6°C MAXIMUM.
   b. CHECK TRANSFER PUMP PRESSURE FOR 130 PSI MINIMUM.
   c. CHECK RETURN OIL FOR 400-1100 CC/MIN.
   d. CHECK RETURN RETURN TEMPERATURE 68.6°C MAXIMUM.

6. 1500 RPM: (LOSSOP: 10.0°, SPW: 9.50°)
   a. CHECK TRANSFER PUMP PRESSURE TO 150 - 155 PSI.
   b. CHECK HOUSING PRESSURE 2-10 PSI.
   c. CHECK CLOSURE TIME 1.1-2.1 ms.
   d. CHECK RETURN FUEL FOR 500-900 CC/MIN. ADJUST IF NECESSARY.
   e. STABILIZE INLET FUEL TEMPERATURE AT 43.3°-46.6°C. MONITOR RETURN FUEL RATE OF CHANGE TO BE LESS THAN 1.1-2.1 CLOSURE TIME AT ALL SPEEDS/LOADS:

7. 1500 RPM: (LOSSOP: 10.0°, SPW: 9.50°)
   a. CHECK CYL-CYL VARIATION FOR A MAXIMUM OF 12.0 mm/STROKE.
   b. CHECK CYL-CYL VARIATION FOR A MAXIMUM OF 12.0 mm/STROKE.
   c. (LOSSOP: 0°, SWP: 0°) CHECK SHUT-OFF FUEL DELIVERY FOR 4.0 mm³/STROKE MAXIMUM.

8. 150 RPM: (LOSSOP: 8.0°, SPW: 18.00°)
   a. CHECK TRANSFER PUMP PRESSURE FOR 16-PSI MINIMUM.
   b. CHECK HOUSING PRESSURE FOR 2.0-10.0 PSI.
   c. CHECK FUEL DELIVERY FOR 100.0 mm³/STROKE MINIMUM.
   d. IF ADJUSTMENT IS NECESSARY RETURN TO 6a.

9. 3000 RPM: (LOSSOP: 9.0°, SPW: 9.00°) CHECK TRANSFER PUMP PRESSURE FOR 100-PSI MINIMUM.
   a. RUN PUMP LONG ENOUGH TO STABILIZE RETURN TEMPERATURE 46.6°C MINIMUM.
   b. CHECK RETURN FLOW 400 - 1000 CC/MIN.
   c. CHECK RETURN TEMPERATURE 110 - 130°C.
   d. IF ADJUSTMENT IS NECESSARY RETURN TO STEP 6a.

10. CHECK POINTS:
    NOTE: CLOSURE TIME AT ALL SPEEDS/LOADS: 1.1-2.1 ms.
     CLOSURE TIME DELTA MUST BE BETWEEN 2.0 AND 150.0 MICRO SECONDS.

PUMP SETTINGS: FOLLOWING PUMP SERVICE
NOTE: POPPET VALVE STROKE SETTINGS:
   a. FOR NEW H&R/POPPET VALVE: 0.066° +/- .0002°
   b. FOR ORIGINAL H&R/POPPET VALVE: .0070° +/- .0002°

1. 000 RPM: MANUALLY ROTATE SHAFT TO INSTALL TIMING PIN (P/N 36275). ALIGN TIMING WHEEL WITH INDICATOR AND TIGHTEN TIMING WHEEL IN PLACE.
2. 000 RPM: REMOVE TIMING PIN, INSTALL HOUSING PRESSURE TAP (P/N 36464) AND CONNECT TO HOUSING PRESSURE GAUGE.
3. 150 RPM: TEST PACKAGE PERFORMING SELF-DIAGNOSTICS.
4. 1000 RPM: (LOSSOP: 8.0°, SPW: 7.00°)
   a. SET TPP FOR 85-PSI MINIMUM. ADJUST IF NECESSARY.
   b. CHECK RETURN FUEL FOR 400-1000 CC/MIN RETURN.
   c. 1400 RPM: (LOSSOP: 9.0°, SPW: 9.96°) WAIT FOR PUMP TO STABILIZE FOR 60 SEC.
5. 2500 RPM: (LOSSOP: 9.0°, SPW: 9.50°)
   a. CHECK FUEL DELIVERY FOR 110-130 mm³/STROKE.
   b. CHECK CYL-CYL VARIATION FOR A MAXIMUM OF 12.0 mm³/STROKE.
   c. (LOSSOP: 0°, SWP: 0°) CHECK SHUT-OFF FUEL DELIVERY FOR 4.0 mm³/STROKE MAXIMUM.

6. 1500 RPM: (LOSSOP: 10.0°, SPW: 9.50°)
   a. CHECK TRANSFER PUMP PRESSURE FOR 16-PSI MINIMUM.
   b. CHECK HOUSING PRESSURE FOR 2.0-10.0 PSI.
   c. CHECK FUEL DELIVERY FOR 100.0 mm³/STROKE MINIMUM.
   d. IF ADJUSTMENT IS NECESSARY RETURN TO 6a.

7. 3000 RPM: (LOSSOP: 9.0°, SPW: 9.00°) CHECK TRANSFER PUMP PRESSURE FOR 100-PSI MINIMUM.
   a. RUN PUMP LONG ENOUGH TO STABILIZE RETURN TEMPERATURE 46.6°C MINIMUM.
   b. CHECK RETURN FLOW 400 - 1000 CC/MIN.
   c. CHECK RETURN TEMPERATURE 110 - 130°C.
   d. IF ADJUSTMENT IS NECESSARY RETURN TO STEP 6a.

8. 150 RPM: (LOSSOP: 8.0°, SPW: 18.00°)
   a. CHECK TRANSFER PUMP PRESSURE FOR 16-PSI MINIMUM.
   b. CHECK HOUSING PRESSURE FOR 2.0-10.0 PSI.
   c. CHECK FUEL DELIVERY FOR 100.0 mm³/STROKE MINIMUM.
   d. IF ADJUSTMENT IS NECESSARY RETURN TO STEP 6a.

9. CHECK POINTS:
    NOTE: CLOSURE TIME AT ALL SPEEDS/LOADS: 1.1-2.1 ms.
     CLOSURE TIME DELTA MUST BE BETWEEN 2.0 AND 150.0 MICRO SECONDS.

10. 2500 RPM: LOSSOP SPW FUEL DEL. (mm³) TPP (psi)
    a. 12.0°  9.50°  110.1 ± 8.0  152.5 ± 5.0 *
    b. 14.0°  6.34°  79.6 ± 6.6
    1400 RPM
    c. 15.9°  9.96°  131.0 ± 8.9
    d. 16.4°  7.70°  100.2 ± 7.5
    800 RPM
    e. 12.8°  7.12°  101.4 ± 9.1
    f. 14.1°  3.60°  33.5 ± 8.0

* (1051.5 ± 34.5 kPa)

12. SPECIAL NOTE:
    a. TORQUE ALL FASTENERS PER 70338.

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## Description

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### Note:

- PLUG, Rotor, use 39189-35181 (STD) or 39190-35186 (CIS) as ind. on rotor S. B. 60R
- ROLLER, CAM
- SCREW, SOCKET SET
- PIN, VALVE HOLDING
- HEAD & ROTOR ASSY, 4 CYL HYD
- SHIM, POPPET VALVE, OR 26654-26601 AS REQ'D
- SPRING, POPPET VALVE
- VALVE, POPPET, OR 36153-36170 AS REQ'D
- SEAL, SNUBBER
- PLATE, SNUBBER
- SPRING, SNUBBER PLATE
- RING, SNUBBER RETAINER
- SCREW, SNUBBER
- RETAINER, ROTOR
- RETAINER, ADJ SPACER
- SPACER, ADJUSTABLE
- PIN, LOCATING

## Description

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### Note:

- SEAL, O-RING
- SEAL, O-RING
- SEAL, O-RING
### APPLICABLE SERVICE ASSEMBLIES

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