

FULL LOAD RPM: 3400
 GOV. REGULATION: 10 %
 ENGINE: 6.5L TURBO-200 H.P.
 APPLICATION: 1992 Heavy Duty CK & P AUTO & MANUAL

CUSTOMER PART #: 10183901
 CUSTOMER'S NAME:
 G.M.

MODEL NO.: DB2831-4911
 SUPERSEDES:
 EDITION NO.: 13
 DATED: 01/19/2009

NOTE: ALL SPEEDS ARE IN ENGINE RPM UNLESS OTHERWISE NOTED.
 USE LATEST REVISION FOR ALL REFERENCED DOCUMENTS.

TEST STAND: ISO 4008:

- CALIBRATING HIGH PRESSURE PIPES...SAE J1418/ISO 4093:
 .098" (2.5 mm) I.D. X 25" (635 mm) LONG.
- CALIBRATING INJECTORS... SAE J968/ISO 7440:
 0.5 mm ORIFICE PLATE NOP: 1700 PSI (117 BAR) OPENING PRESSURE.

NOTE: INJECTORS SPECIFIED AT 1700 PSI OPENING PRESSURE MUST USE SPRING P/N WSF 2044 A 5X OR EQUIVALENT.

- CALIBRATING FLUID...SAE J967/ISO 4113 (REF. S.B. 201):
 a. TEMPERATURE AT INLET: **110°-115°F** (43°-46°C)
 b. SUPPLY PRESSURE (S.B. 334): 5.0 ± 0.5 PSI (34 ± 3 kPa) AT PUMP INLET.
- CAM MOVEMENT READOUT DEVICE: #23745.

PUMP INSTALLATION: IT-054

ROTATION-C/C*	LEVER ANGLES (REF.)
NAME PLATE-L-SIDE**	THOT MIN.(∠B) N/A
#1 CYL.-10-O'CLOCK**	THOT TOTAL(∠C) N/A
THROTTLE-L-SIDE**	S.O. (∠ E) N/A
TIMING MARK N/A	S.O. (∠ F) N/A

* VIEWED FROM DRIVE END ** VIEWED FROM TRANSFER PUMP END

AIR TIMED TO HOUSING FLANGE (PER S.B. 177)
 PUMP OPERATING SPEED...HALF...ENGINE SPEED

PUMP CALIBRATION CHECKS: AS RECEIVED FOR SERVICE
 (REF. SL-222)

- 1000 RPM (WOT):** OPERATE PUMP FOR 10 MINUTES TO BRING TO OPERATING TEMPERATURE AND CLEAR AIR FROM SYSTEM.
- 400 RPM (L.I.):** CHECK E.S.O. FOR PULL-IN WITH 8.8 VOLTS MAX., WITH THROTTLE IN LOW IDLE POSITION.
- CHECK POINTS:**

RPM	THROTTLE POSITION	mm³/STROKE	CAM MOVEMENT	(PSI) HOUSING
a. 150	L.I.	36 MIN.	---	0-12
b. 400	WOT	58 MIN.	---	---
c. 400	WOT*	4.0 MAX.	---	---
d. 700	L.I.**	10.0-18.0	---	8-12
e. 700	L.I.**	---	1.0° MIN.	0-1**
f. 1800	WOT	65.5-70.5	---	---
g. 2000	WOT	---	---	---
h. 3200	WOT	58.5 MIN.	2.5°-4.5°	---
i. 3200	ADJ.	21.5-23.5	4.75°-7.25°	---
j. 3200	L.I.	---	11.0°-12.0°	---
k. 3650	WOT	32.0 MIN.	---	---
l. 3900	WOT	15 MAX.	---	---

* E.S.O. DE-ENERGIZED ** HPCA ENERGIZED (11.0V)
 *** RESET USING LOW IDLE SCREW

- CHECK AIR TIMING USING GAUGE #23715 (PER S.B. 334 & 375) SET TO **-2.5° TO +0.5°**.
- TOTAL THROTTLE TRAVEL FROM LOW IDLE TO WIDE OPEN SHOULD BE **73°-82°**.

PUMP SETTINGS: (FOLLOWING PUMP SERVICE)

- ROLLER-TO-ROLLER DIMENSION: **1.976" ± .001"** (50.19 ± .026 mm)
 MAXIMUM ECCENTRICITY: **.008"** (0.2 mm) T.I.R.
- WITH OVERSIZE CAM RING ROLLER-TO-ROLLER DIMENSION TO BE **1.982" ± .0005** (50.34 ± .013 mm)(REF. S.B. 338).
- LINKAGE GAP: **.130" TO .175"** (3.3 TO 4.4 mm) (PER S.B. 95 & 342).
- USE GAUGE #23716, SET THROTTLE WITH LOW IDLE SCREW TO **34° ± 2°** AS MEASURED BETWEEN VERTICAL CENTERLINE OF THROTTLE SHAFT BUSHING BORE AND THROTTLE CONNECTION STUD.
 - ADJUST LOW IDLE SCREW UNTIL THROTTLE CONNECTION STUD MAKES CONTACT WITH GAGE.
- 1000 RPM (WOT):** OPERATE PUMP FOR 10 MINUTES TO BRING TO OPERATING TEMPERATURE AND CLEAR AIR FROM SYSTEM.

PUMP SETTINGS: (CON'T)

- 2000 RPM (WOT):**
 - SET TRANSFER PUMP PRESSURE FOR **60-62 PSI**, (414-427 kPa)(SUPPLY SET PER TEST STAND NOTE 3B)
 - SET RETURN OIL TO **225-375 CC/MIN.**
 - 700 RPM (L.I.):**
 - CHECK HOUSING PRESSURE FOR **8-12 PSI**, (55-83 kPa).
 - WITH HOUSING PRESSURE COLD ADVANCE SOLENOID ENERGIZED WITH **11.0 VOLTS**, HOUSING PRESSURE SHOULD BE **0-1 PSI**, (0-7 kPa).
 - WITH GOVERNOR COVER REMOVED, SET MIN.-MAX. GOVERNOR ASSEMBLY FOR **7-9 mm³/STROKE**. (FUEL READING WITH COVER INSTALLED).
 - ADJUST LOW IDLE SCREW FOR **13-15 mm³/STROKE**, (ALLOWABLE ADJUSTMENT IS ± 1 TURN). FOR THE REMAINDER OF THE SETTING AND CHECKING PROCEDURES, CONTROL FACE CAM AND THROTTLE SHAFT END PLAY TO **.004"- .006"** AS MEASURED BETWEEN SPACER #22900 AND HOUSING.
 - 1800 RPM (WOT):**
 - ROTATE FACE CAM TO ITS MAXIMUM LIFT POSITION IN CONTACT WITH THE CAM ROLLER.
 - ADJUST TRIMMER SCREW TO **0° ADVANCE**.
 - SET FUEL DELIVERY TO **67.5-68.5 mm³/STROKE**.
 - 3200 RPM (WOT):**
 - SET TRIMMER SCREW FOR **3.5° ADVANCE**.
 - ADJUST THROTTLE FOR **21.5-23.5 mm³/STROKE**.
 - ROTATE FACE CAM TO OBTAIN **6.0° ADVANCE** AND TORQUE SCREW #22398 TO **28-30 IN-LBS**.
 - CHECK FACE CAM RETENTION PER S.B. 361.
 - 3650 RPM (WOT):**
 - SET GUIDE STUD FOR **37.0-39.0 mm³/STROKE** AND TORQUE NUT #23585, TO **80-90 IN-LBS**.
 - CHECK DIMENSION FROM TOP OF NUT TO TOP OF GUIDE STUD FOR **.425"** MAX.
 - SET TOTAL THROTTLE TRAVEL:**
 - 1500 RPM:** SET THROTTLE FOR **22.5 ± 3 mm³/STROKE**.
 - LOCK THROTTLE LEVER IN POSITION AND INSTALL THROTTLE LEVER PROTRACTOR #22089 ONTO SHAFT.
 - ALIGN **0°** ON PROTRACTOR WITH CENTER OF RIB ON ROCKER LEVER #28937. UNLOCK THROTTLE LEVER AND ROTATE TO WOT POSITION. ADJUST MAX. TRAVEL SCREW TO **60°**.
 - CHECK TOTAL THROTTLE TRAVEL: WITH THROTTLE IN LOW IDLE POSITION, ALIGN **0°** ON PROTRACTOR WITH CENTER OF RIB ON ROCKER LEVER. MOVE THROTTLE TO WOT READING SHOULD BE BETWEEN **73° AND 82°**.
- NOTE: ANY CHANGES AFTER THIS POINT WILL REQUIRE RE-TESTING OF PUMP, STARTING WITH STEP 7.

12. CHECK POINTS:

RPM	THROTTLE POSITION	mm³/STROKE	CAM MOVEMENT	T.P. PRES	(PSI) HSG
a. 150	L.I.	37 MIN.	---	16 MIN.	0-12
b. 400	WOT	59 MIN.	---	---	---
c. 400	WOT*	4 MAX.	---	---	---
d. 700	L.I.	12-16	---	---	8-12
e. 700	L.I.**	---	2.0° MIN.	---	0-1**
f. 1500	WOT*	4 MAX.	---	---	---
g. 1800	WOT	66.5-69.5	---	---	---
h. 2000	WOT	---	---	60-62	---
i. 3200	WOT	59.5 MIN.	3.0°-4.0°	---	---
j. 3200	ADJ.	21.5-23.5	5.00°-7.00°	---	---
k. 3200	L.I.	---	11.0°-12.0°	---	---
l. 3650	WOT	33.0 MIN.	---	---	---
m. 3900	WOT	15 MAX.	---	125 MAX.	---

* E.S.O. DE-ENERGIZED ** HPCA ENERGIZED W/11.0V

- AIR-TIME PUMP USING GAGE #23715 SET TO: **-1.5° ± 0.5°**. (PER S.B. 334 & 375)
- SPECIAL NOTES:**
 - TORQUE ALL FASTENERS PER S.B. 106.
 - SECURE MAXIMUM TRAVEL ADJUSTING SCREW, ADVANCE TRIMMER SCREW, AND FACE CAM SCREW WITH RETAINING COMPOUND #21915.
 - INSTALL GUIDE STUD TAMPER PROOF CAP #26961 (FIELD SERVICE P/N) ON GUIDE STUD #26495 (REF. S.B. 365A).
 - SEAL PUMP FASTENERS PER S.B. 365.
- FURTHER INFORMATION SUPPLEMENTING THE ABOVE PROCEDURES SHOULD BE OBTAINED FROM S.B. 375.