

SERVICE BULLETIN

DATE: 14 August 1989

BULLETIN NUMBER: 175

MODEL: Diesel Generators WMD, BCD, BTD up to 12.5 KW and BTDA up to 12.5 KW

SUBJECT: Fuel Solenoid #023041 Circuit Improvement

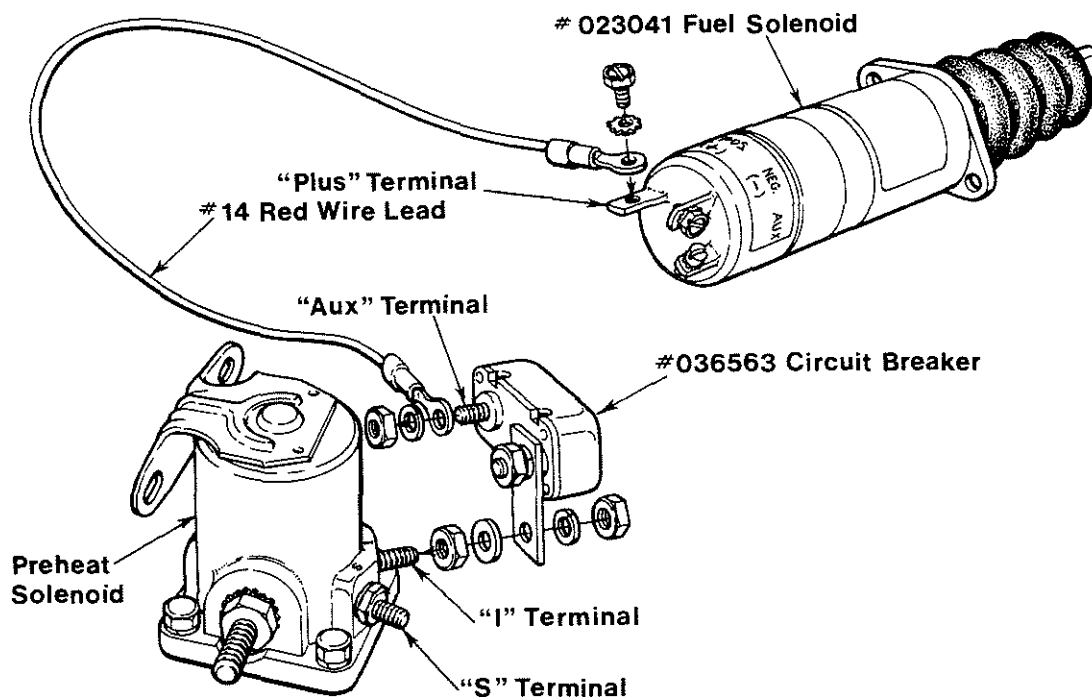
In an effort to prevent fuel solenoid failures that are the result of a voltage loss/reduction in the fuel solenoid circuit during "preheat" and "start," this circuit is now energized using battery voltage available at the "I" terminal on the preheat solenoid when this solenoid is energized during "preheat."

Early model WMD, BCD, BTD and BTDA units up to 12.5 KW can incorporate this circuit by installing circuit breaker assembly #036563 to the vacant "I" terminal of the unit's preheat solenoid and running a #14 red wire from the "aux" terminal of the circuit breaker assembly over to and connecting with the leads presently attached to the "plus" terminal of the fuel solenoid #023041. Ensure this wire is secured and protected against chafing and engine hot areas it passes near.

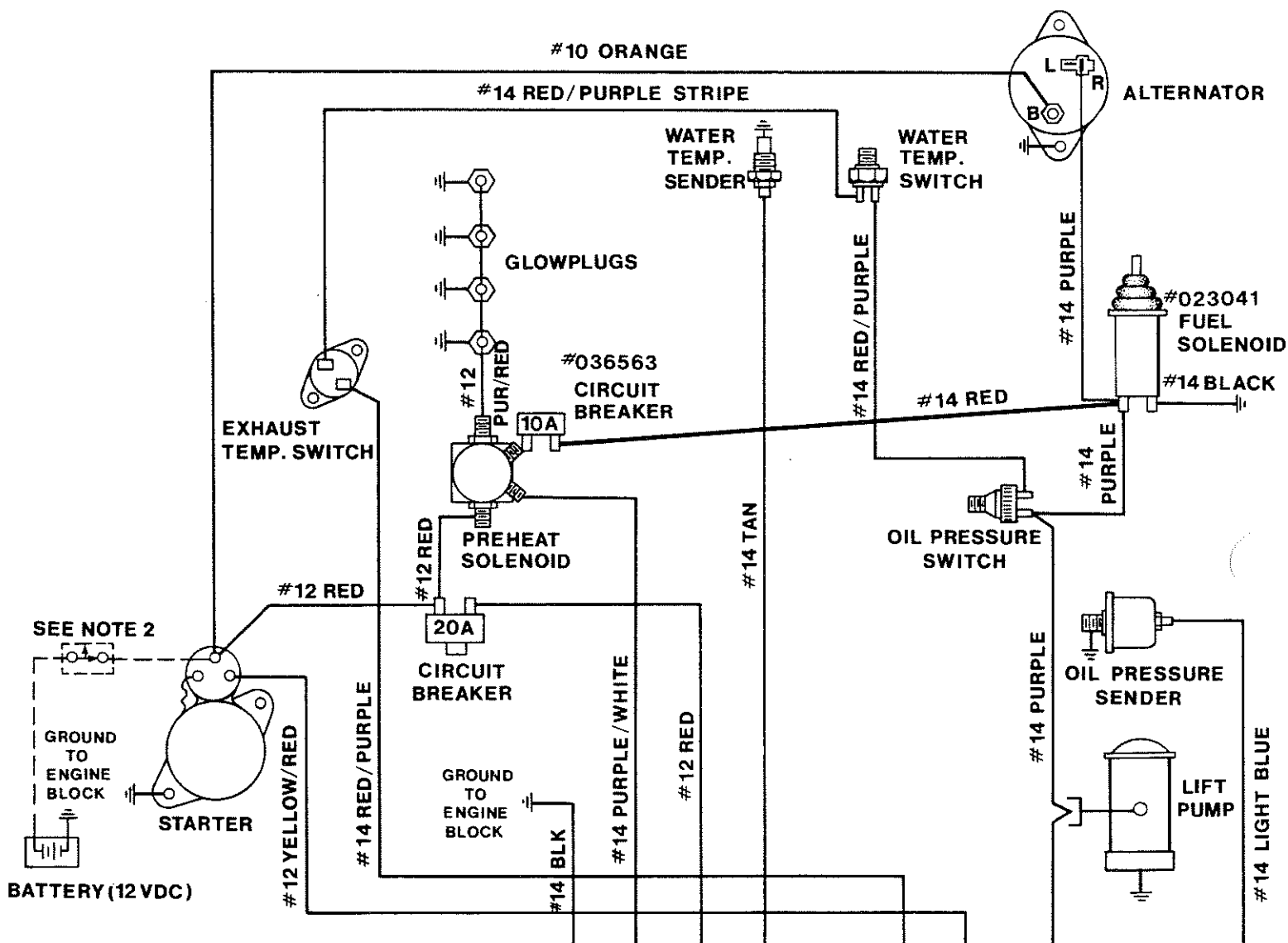
The wiring diagram, on the reverse of this page shows this circuitry being installed on earlier model diesel generators as listed above.

NOTE: The "I" terminal 10 - 32 threads, circuit breaker connection #10 terminal end for #14 wire, fuel solenoid (plus) terminal #8 terminal end for #14 wire, and #14 wire - length as required.

Illustration of Circuit Breaker and Red Wire Lead
Between the
Preheat Solenoid and Fuel Solenoid



WIRING DIAGRAM



NOTE: The issuing of this service bulletin is not justification for the submitting of a warranty claim for the installation of this circuit.

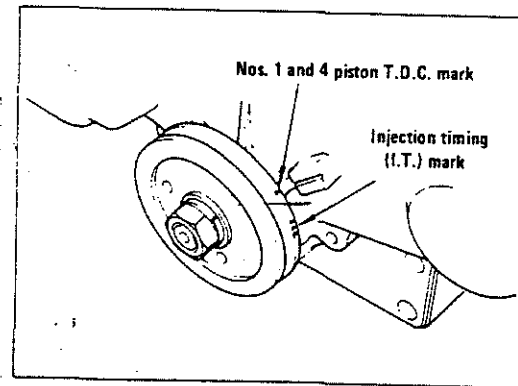
ADJUSTMENT OF VALVE CLEARANCE
MODEL: BTD 11.0 KW & BTDA (A) 12.5 KW



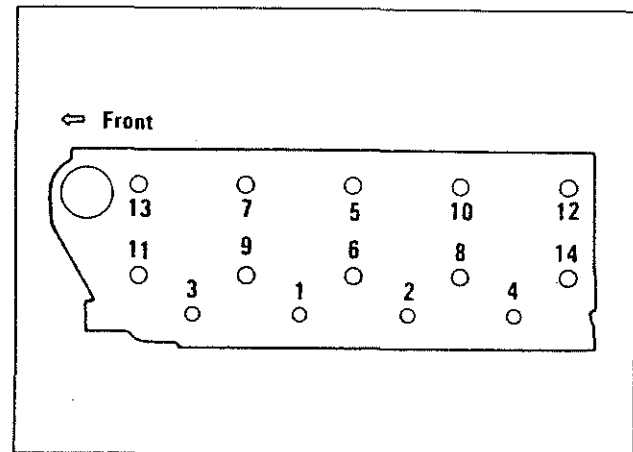
Adjust the valve clearance when the engine is cold.
 0.010 inches (0.25 mm)

Tighten the cylinder head bolts to the specified torque.

1. Pull off the air breather pipe from the rocker cover, and take off the rocker cover bolts.
2. Adjust the valve clearances at TDC (Top Dead Center) for each cylinder when they are on their compression stroke.
3. Make sure that the timing mark on the gear case and the timing mark on the crankshaft pulley are exactly aligned; if not, the valve will interfere with the piston because of improper cam positioning. (Refer to page 71 another illustration showing crankshaft timing marks.)



Timing Mark



Cylinder Head Bolts Tightening Sequence

NOTE: Retighten the cylinder head bolts before the valve clearance is adjusted.

BTDA 11.0KW & BTDA 12.5KW
BOLTS 5,6,7,8,9,10,11,12,13&14
 (17MM 11.5 - 12.5 kg/m)
 83.1 - 86.7 ft-lbs
BOLTS 1,2,3, & 4
 (14MM 6.5 - 8.0 kg/m)
 47.0 - 57.8 ft-lbs

BTDA 12.5KW
BOLTS 5,6,7,8,9,10,11,12,13 &14
 (22MM 15-16 kg/m)
 108.4 - 115.7 ft-lbs
BOLTS 1,2,3, & 4
 (22MM 11-12 kg/m)
 79 - 86 ft-lbs

NOTE: mm size shown are socket size for holddown bolts

BTDA 11.0KW & BTDA 12.5 KW
Rocker Shaft Holddown Bolts
 14mm (4.0-5.5 kg/m) 28.9 - 39.8 ft-lbs
 10mm (0.8-1.2 kg/m) 5.8 - 8.7 ft-lbs

BTDA 12.5 KW
Rocker Shaft Holddown Bolts
 14mm (4.0-5.5 kg/m) 28.9-39.8ft-lbs
 10mm (0.8-1.2 kg/m) 5.8 - 8.7 ft-lbs

Revised
 August 1994

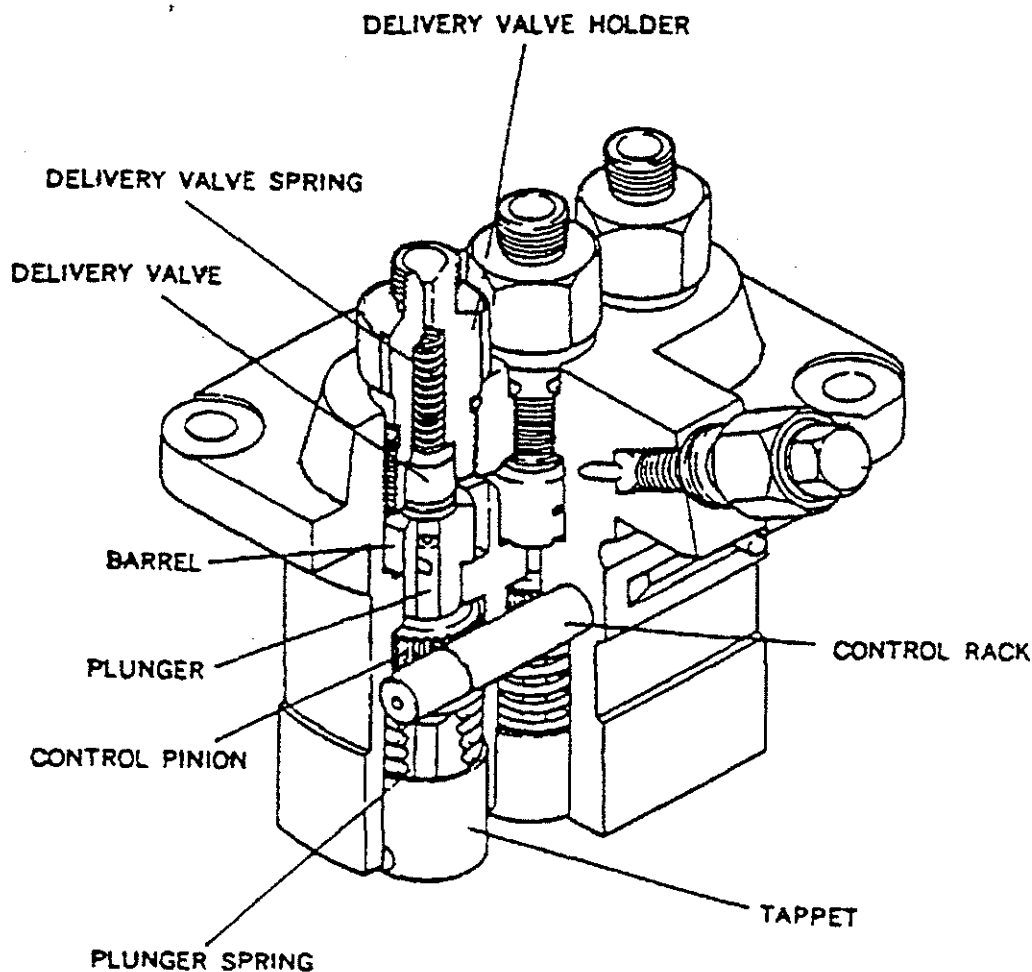
Injection Timing Adjustment (BTD 8.0KW, 10.0KW, 11.0KW & 12.5KW)

Incorrect fuel injection timing will result in hard engine starting and poor engine performance. Adjust the injection timing as follows:

NOTE: The fuel lever (throttle) must be in the Run position while making the adjustment or no fuel will flow to the fuel injection pump.

Refer to the cutaway view of the fuel injection pump and remove the high-pressure fuel line from the No. 1 fuel delivery valve holder. Remove the No.1 fuel delivery valve holder and remove the delivery valve spring beneath the holder. Reinstall the delivery valve holder and reattach the fuel line. Disconnect the opposite end of the No. 1 fuel line (from the No. 1 fuel injector) and turn the fitting away from the injector, in order to catch the fuel as the pump operates.

Rotate the crankshaft clockwise (as viewed from the front), catching the fuel from the No. 1 fuel line, until the instant the fuel completely stops flowing (no drips). At this instant, the 19° BTDC timing mark on the crankshaft pulley should be directly aligned with the timing indicator on the front of the cylinder block (see the illustration on the next page).



Cutaway View of 3-Cylinder Fuel Injection Pump