



**VEHICLE FACTORS ATTACHMENT**

**Bus Engine Operation and  
Maintenance Manual Excerpts**

**Williamsburg, VA**

**HWY23MH004**

9 pages

## SECTION 7 – MAINTENANCE INSTRUCTIONS

### Maintenance Operations (cont.)

**Table 2 Maintenance Schedule Chart for T 444E Series Diesel Engines (cont.)**

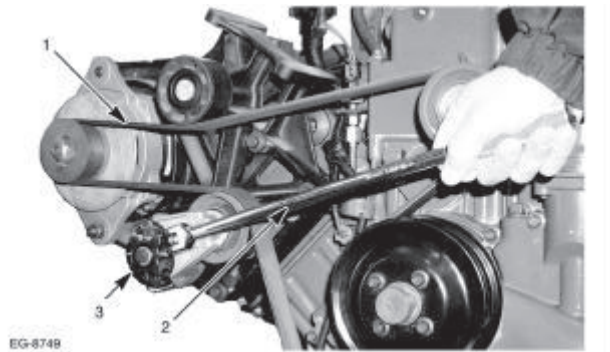
Op. No.	Maintenance Operation	Inspection Intervals (Whichever Miles, Kilometers, Hours, or Months Occurs First)								Annually	Every 241,000km or 150,000 miles or 6,000 hr or 2-1/2 years	Every 500,000km or 300,000 miles or 12,000 hr or 5 years
		Daily	Every 16,000 km 10,000 Miles 350 Hours 1,000 Gallons of Fuel OR 6 Months	Every 32,200 km 20,000 Miles 700 Hours 2,000 Gallons of Fuel OR 12 Months	Every 48,000 km 30,000 Miles 1050 Hours OR 12 Months	Every 116,000 km 72,000 Miles 2400 Hours OR 24 Months	Every 161,000 km 100,000 Miles 3,800 Hours OR 24 Months	Every 290,000 to 322,000 km OR 180,000 to 200,000 Miles 6,700 to 7,500 Hours				
7	Inspect Belt <sup>1</sup>	X										
8	Inspect Air Intake Piping and Clamps <sup>1</sup>	X										
9	Clean Fuel Filter Pre-Strainer	X										
10	Measure Air Intake Restriction <sup>1 45</sup>			X								
11	Change Fuel Filters <sup>6</sup>			X								
12	Change Coolant Filter If Equipped				X							
13	Inspect Vibration Damper <sup>1 7</sup>						X					

## SECTION 7 – MAINTENANCE INSTRUCTIONS

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**Maintenance Operations – 6 through 9 Inspection Interval: Every 16,000 km, (10,000 miles), 350 hours or 1,000 Gallons of Fuel or 6 months; Whichever Occurs First. (cont.)**

**OPERATION 7 — INSPECT AND IF REQUIRED, INSTALL BELT (cont.)**



**Figure 35 Belt Replacement**

1. Belt
2. Breaker Bar
3. Belt Tensioner

**OPERATION 8 — INSPECT AIR INTAKE PIPING AND CLAMPS**

Inspect air intake pipe as follows:

1. Check for loose hoses and clamps.
2. Check for ruptured hoses.
3. Check air cleaner housing for cracks.

**OPERATION 9 — CLEAN FUEL FILTER PRE-STRAINER**

1. Drain fuel as described in Operation 11 in this Section.
2. Remove plastic strainer cover from pre-strainer assembly using a 29mm or 1-1/8th inch (12 point) socket or box end wrench (Figure 36).

**NOTE:** Do not use vise grips or similar tool that could destroy the plastic strainer cover.

3. Clean strainer and reinstall strainer and cover to header assembly.

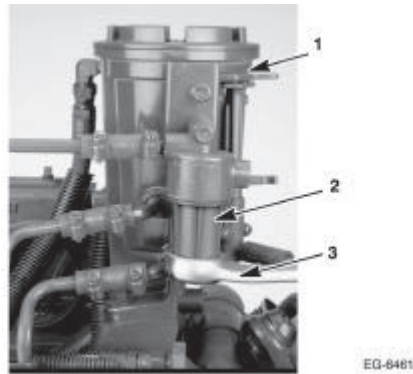
## SECTION 7 – MAINTENANCE INSTRUCTIONS

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**Maintenance Operations – 6 through 9 Inspection Interval: Every 16,000 km, (10,000 miles), 350 hours or 1,000 Gallons of Fuel or 6 months; Whichever Occurs First. (cont.)**

**OPERATION 9 — CLEAN FUEL FILTER PRE-STRAINER (cont.)**

**NOTE:** Install strainer with open end toward top.



**Figure 36 Fuel Filter Pre-Strainer Location**

1. Fuel Filter Assembly
2. Fuel Filter Pre-Strainer Cover
3. 12 Point Wrench

## SECTION 7 – MAINTENANCE INSTRUCTIONS

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**Maintenance Operations – 10 and 11 Inspection Interval: Every 32,200 km (20,000 miles), 700 hours, 2,000 Gallons of Fuel or 12 months; Whichever Occurs First. (cont.)**

### **OPERATION 11 — CHANGE FUEL FILTER AND PRE-STRAINER ELEMENT**

**NOTE:** Change Fuel Filter and Clean Pre-Strainer Element if optional filter restriction indicator light is illuminated.

Fuel with more than average impurities (Refer to Section 6) may require changing filter and strainer elements at shorter intervals.

Change the fuel filter and strainer elements as follows:



**WARNING:** To avoid serious personal injury, possible death, or engine damage, be sure to dispose of fuel in a proper container clearly marked “diesel fuel”.

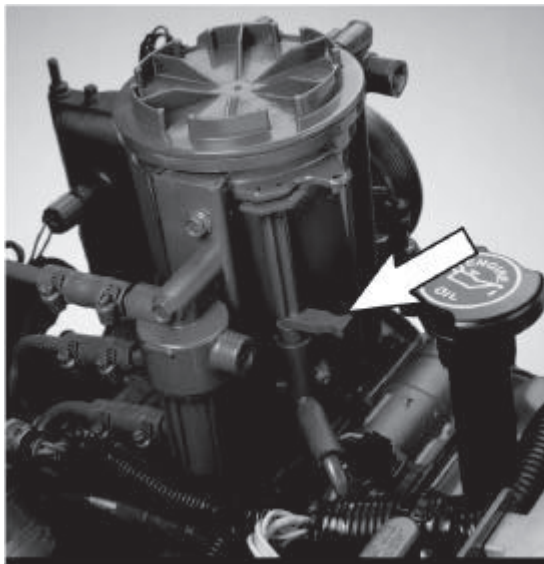
1. Place a suitable container at the end of the drain tube to catch the fuel. Turn valve to drain position. After draining close the valve.

## SECTION 7 – MAINTENANCE INSTRUCTIONS

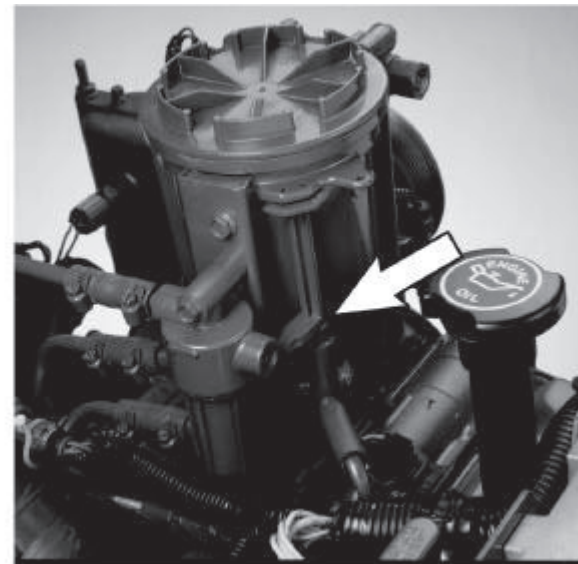
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**Maintenance Operations – 10 and 11 Inspection  
Interval: Every 32,200 km (20,000 miles), 700  
hours, 2,000 Gallons of Fuel or 12 months;  
Whichever Occurs First. (cont.)**

**OPERATION 11 — CHANGE FUEL FILTER AND  
PRE-STRAINER ELEMENT (cont.)**



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**Figure 39 Fuel Filter Drain Valve Lever Positions — Drain Valve in Closed Position (left), Drain Valve in Open Position (right)**

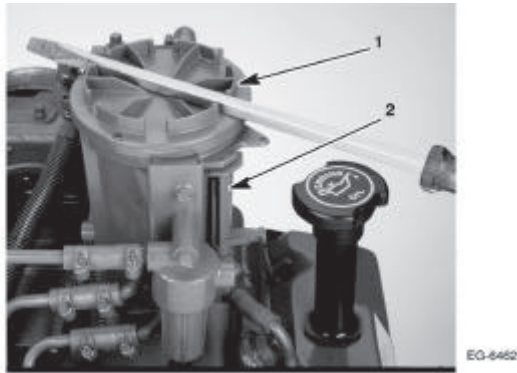
## SECTION 7 – MAINTENANCE INSTRUCTIONS

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**Maintenance Operations – 10 and 11 Inspection Interval: Every 32,200 km (20,000 miles), 700 hours, 2,000 Gallons of Fuel or 12 months; Whichever Occurs First. (cont.)**

### **OPERATION 11 — CHANGE FUEL FILTER AND PRE-STRAINER ELEMENT (cont.)**

2. Using a screwdriver or bar, remove fuel filter cap (Figure 40). Fuel filter element will come out with cap.



**Figure 40 Removing Fuel filter Cap**

1. Fuel Filter Cap
2. Fuel Filter Assembly

3. Remove/replace fuel filter element assembly as follows (Figure 41):

- a. Remove and discard bevel gasket. Carefully clean mating surfaces.
- b. Press in on fuel filter element locking tabs, securing element to cap and separate element from cap.
- c. Apply a coating of diesel fuel to new beveled-cut gasket and install onto fuel filter housing gland (Figure 41).
- d. Install new fuel filter element onto cap. Place new fuel filter element and cap into fuel filter housing. Tighten cap onto fuel filter housing until cap contacts the aluminum housing.

## SECTION 7 – MAINTENANCE INSTRUCTIONS

**Maintenance Operations – 10 and 11 Inspection Interval: Every 32,200 km (20,000 miles), 700 hours, 2,000 Gallons of Fuel or 12 months; Whichever Occurs First. (cont.)**

### OPERATION 11 — CHANGE FUEL FILTER AND PRE-STRAINER ELEMENT (cont.)



**Figure 41 Fuel Filter Components**

1. Fuel Filter Cap
2. Fuel Filter Element
3. Locking-Tab
4. Beveled-Cut Gasket

**NOTE:** Do not use vise gripes or similar tool that could destroy the plastic strainer cover.

4. Remove the pre-strainer assembly as follows: (Figure 42).
  - a. Remove plastic strainer cover from pre-strainer assembly using a 29mm or 1-1/8th inch (12 point) socket or box end wrench.
  - b. Clean or replace strainer after inspection and reinstall strainer and cover to header assembly.

**NOTE:** Install strainer with open end toward top.

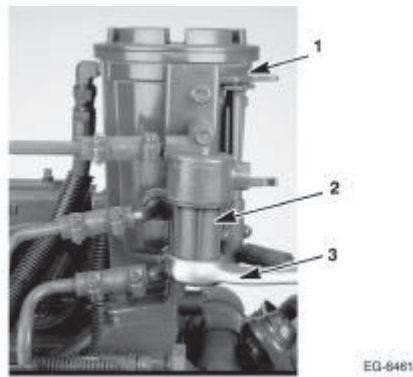


## SECTION 7 – MAINTENANCE INSTRUCTIONS

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**Maintenance Operations – 10 and 11 Inspection Interval: Every 32,200 km (20,000 miles), 700 hours, 2,000 Gallons of Fuel or 12 months; Whichever Occurs First. (cont.)**

**OPERATION 11 — CHANGE FUEL FILTER AND PRE-STRAINER ELEMENT (cont.)**



**Figure 42 Fuel Filter Pre-Strainer Location**

1. Fuel Filter Assembly
2. Fuel Filter Pre-Strainer Cover
3. 12 Point Box End Wrench