



(Also applies to Mack Trucks Australia)  
(Supersedes SB222007 dated 09/04/08)

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## Out-of-Warranty Injection Nozzle Repairs

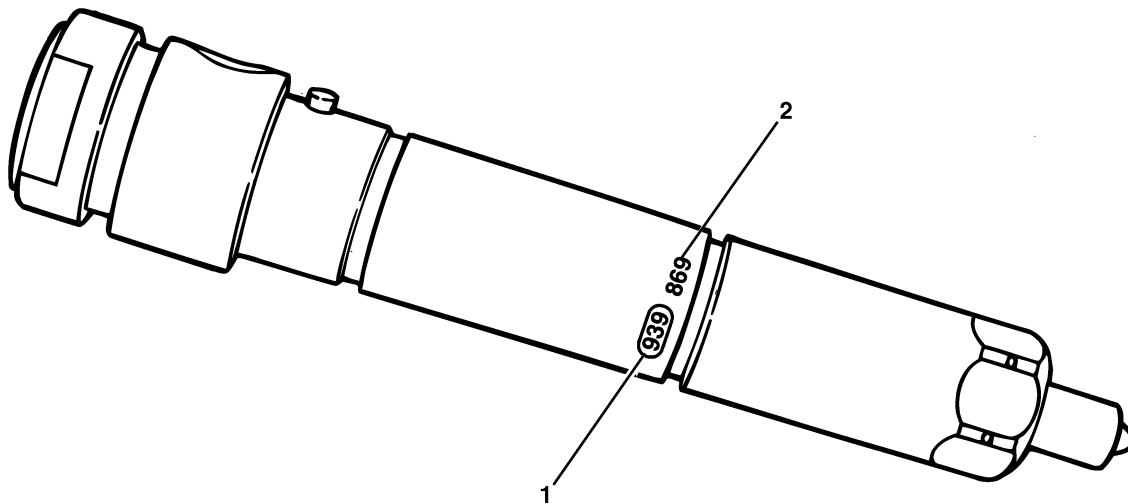
E-Tech™ Pre-CCRS

### SB222007, Out-of-Warranty Injection Nozzle Repairs

(October 2009)

For out-of-warranty repairs of E-Tech™ pre-CCRS injection nozzles (beginning with date code 869, September 1998 and later), replacement nozzle tips and cap nuts (manufactured by Delphi Automotive Systems) are available through the MACK Parts System.

The date code can be found stamped on the nozzle body, in the area of the joint between the body and the cap nut (next to the manufacturing plant identification number). The plant identification number is the number located inside the oblong circle (refer to the following illustration).



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Figure 1 — Nozzle Holder Date Code Location

1. Manufacturing Plant Code (939)	2. Date Code (869)
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### **CAUTION**

*When removing or reinstalling the injection nozzles, use the procedures outlined in the **MACK E-Tech™ Engine Service Manual**, 5-106, to avoid damage.*

Part Numbers are as follows:

REV

E-Tech™ Injection Nozzle Replacement Tips (VCO Tips)					
Engine Model	MACK Nozzle Holder Assembly Part No.	BOSCH Nozzle Tip Part No.	ID No. on Tip (BOSCH)	DELPHI Replacement Tip Part No.	ID No. on Tip (DELPHI)
E-Tech™ pre-CCRS with 460 HP	736GB49M3 736GB49BM3	935-F00Z2TS004	1802	7158-L285PBB	1802
All E-Tech™ pre-CCRS except 460 HP	736GB49M4 736GB49BM4	935-F00Z2TS005	1803	7158-L293PBB	1803

E-Tech™ Injection Nozzle Replacement Tips (SAC Tips)					
Engine Model	MACK Nozzle Holder Assembly Part No.	BOSCH Nozzle Tip Part No.	ID No. on Tip (BOSCH)	DELPHI Replacement Tip Part No.	ID No. on Tip (DELPHI)
All E-Tech™ pre-CCRS except 460 HP	736GB415M	935-O433171803	1803	7158-L293PBB	1803
E-Tech™ pre-CCRS 460 HP	736GB415M2	935-O433171802	1802	7158-L285PBB	1802

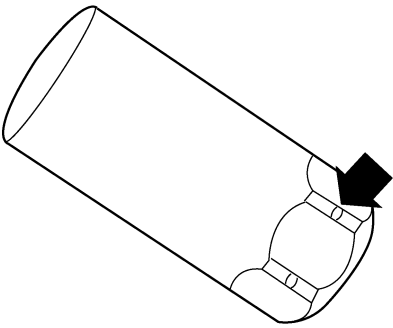
REV

Part numbers for the cap nut, pressure spindle, intermediate disc and spring are as follows:

Cap Nut Part No.	Pressure Spindle Part No.	Intermediate Disc Part No.	Spring Part No.
7158-7169778	935-F00ZB20002	935-2430136221	935-2434614040

**NOTE**

REV Previously, Delphi service replacement nozzle tips were supplied with replacement cap nuts, but this is no longer the case. The Delphi cap nuts are easily identified by the single groove in the nut flats around the circumference as shown in the following illustration. Cap nuts that DO NOT have this groove must be replaced with cap nut part No. 7158-7169778.



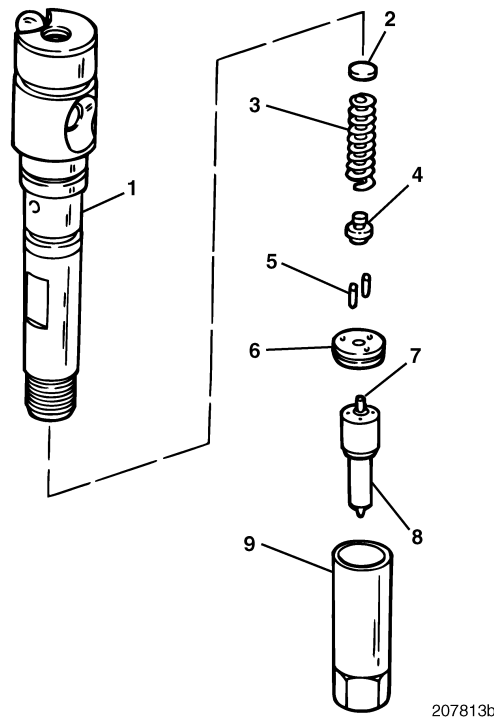
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**Figure 2 — Delphi Cap Nut**

Nozzle test, assembly and disassembly procedures are outlined in the *1998 Certified MACK Engine Tune-Up Specifications Manual*, 5-309. E-Tech™ injection nozzle pressure should be 4351–4554 psi (300–314 bar). Nozzle pressure is adjusted by disassembling the nozzle and installing shims on top of the spring.

**NOTE**

For additional nozzle testing and service procedures, and for additional information concerning nozzle holder assemblies manufactured after September 1998, refer to service bulletin SB222009.



**Figure 3 — Injection Nozzle Exploded View**

1. Nozzle Holder	6. Intermediate Disc
2. Adjusting Shim	7. Needle
3. Spring	8. Nozzle Tip
4. Thrust Pin	9. Cap Nut
5. Center Grooved Pin	

Part Numbers for the adjusting shims are as follows:

<b>E-Tech Pre-CCRS Injection Nozzle Shims</b>			
<b>Part No.</b>	<b>Shim Thickness</b>	<b>Part No.</b>	<b>Shim Thickness</b>
7158-42724049LA	0.30 mm	7158-42724049LL	0.60 mm
7158-42724049LB	0.42 mm	7158-42724049LM	0.62 mm
7158-42724049LC	0.44 mm	7158-42724049LN	0.64 mm
7158-42724049LD	0.46 mm	7158-42724049LP	0.66 mm
7158-42724049LE	0.48 mm	7158-42724049LR	0.68 mm
7158-42724049LF	0.50 mm	7158-42724049LS	0.70 mm
7158-42724049LG	0.52 mm	7158-42724049LT	1.00 mm
7158-42724049LH	0.54 mm	7158-42724049LU	1.28 mm
7158-42724049LJ	0.56 mm	7158-42724049LV	1.56 mm
7158-42724049LK	0.58 mm		

When reassembling the injection nozzle, tighten the nozzle cap nut to 40–50 N·m (29.5–37 lb-ft).