U.S. Department of Transportation
National Highway Traffic Safety Administration

ODI RESUME

INVESTIGATION: RQ98-018
DATE OPENED: 10-JUL-1998 DATE CLOSED: 8 -JUL-02
SUBJECT: Post-Recall Fuel Injection Assembly Leakage
PROMPTED BY: Recall 98V-184
PRINCIPAL INVESTIGATOR: Jeffrey Quandt

MANUFACTURER: DaimlerChrysler Corporation
MODEL(S): Chrysler Concorde, New Yorker, and LHS; Dodge Intrepid; Eagle Vision; and Plymouth Prowler vehicles equipped with 3.5L V6 engines
MODEL YEAR(S): 1993-1997
VEHICLE POPULATION: 722,765

PROBLEM DESCRIPTION: Owners complain of leakage from the fuel rail assembly following recall repairs.

FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	69	800	869
FIRES:	6	68	74
INJ FIRES:	0	0	0
# INJURIES:	0	0	0
FAT FIRES:	0	0	0
FATALITIES:	0	0	0

ACTION: This Recall Query (RQ) is closed.

Investigator: DIV. CHF: OFC. DIR:
DATE: 7/2/02 DATE: 7/2/02 DATE: 7/8/02

Summary: On August 6, 1998, DaimlerChrysler filed a Defect Information Report (NHTSA Recall No. 98V-184, ODI Investigation EA98-007) concerning engine compartment fuel rail leaks and potential fire in approximately 722,600 model year 1993 through 1997 Chrysler Concorde, LHS, and New Yorker; Dodge Intrepid; Eagle Vision; and Plymouth Prowler vehicles built with 3.5L V6 engines. DaimlerChrysler reported that a fuel leak could result from deteriorated nitrile rubber o-rings or hairline cracks in the thermoset plastic fuel injection rails. The recall remedy involved replacement of the fuel rail nitrile o-rings with fluorocarbon o-rings and reinforcement of outlet (passenger side) fuel rails at mold gate areas where cracking had been observed most frequently. Any cracked outlet rails would be replaced.

Because of delays in validating appropriate corrective actions, DaimlerChrysler did not start the recall until January 5, 1999. On February 1, 1999, in response to dealer feedback and high complaint levels of post-repair fuel injector o-ring leakage, the company revised the remedy to

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include conditional replacement of the fluorosilicone upper injector o-rings with new o-rings of upgraded material composition. Severe degradation of upper injector o-rings has been observed in some vehicles. This has been attributed to the poor resistance of fluorosilicone to some aggressive fuels. Following DaimlerChrysler's February 1, 1999 revision to the repair procedure, dealers can chose from four different labor operations based on the results of pre- and post-repair pressure tests (Table 1). The data provided by DaimlerChrysler in response to this investigation is for incidents that have occurred since March 1, 1999.

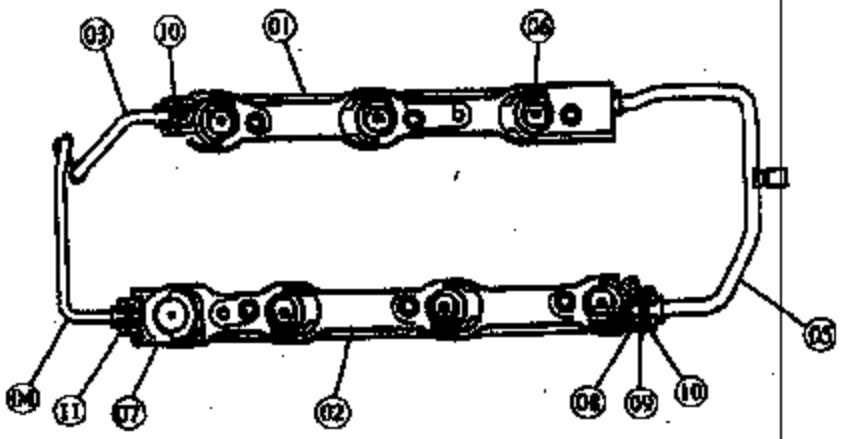
Labor Operation No.	Description	Time Allowance (hrs)	Date Effective
14790182	Replace fuel rail o-rings and REINFORCE outlet rail	1.3	1/9/99
14790183	Replace fuel rail o-rings and REPLACE outlet rail	1.2	1/9/99
14790184	Replace fuel rail o-rings, REINFORCE outlet rail and replace ALL injector o-rings in EACH rail	1.7	2/1/99
14790185	Replace fuel rail o-rings, REPLACE outlet rail and replace ALL injector o-rings in INLET rail	1.4	2/1/99

TABLE 1. Dealer Labor Operation Codes for Recall 98V-184.

On September 11, 2000, ODI was petitioned to investigate the effectiveness of DaimlerChrysler's remedy procedure in Recall 98V-184. The petitioner alleged that DaimlerChrysler had not met the requirements of 49 U.S.C. Chapter 301 with respect to the durability and suitability of the recall remedy regarding the fuel injection delivery system of the 1995 model year Dodge Intrepid equipped with the 3.5L engine. In October 2000, the petition was incorporated into RQ98-018.

The remedy procedure developed by DaimlerChrysler for 98V-184 is complex, involving pressure testing, removal, disassembly, reassembly, and re-testing of the fuel rail assembly in the subject vehicles. The repair procedure can potentially disturb as many as 13 different underhood fuel delivery system joints: 6 fuel injector o-rings, 1 pressure regulator o-ring, 1 inlet crossover o-ring, 1 outlet crossover o-ring, 1 inlet supply tube o-ring, 1 outlet supply tube o-ring, 1 inlet quick-connect, and 1 outlet quick-connect (see Figure 1). If the o-ring seals in any of these joints are not properly seated or are fouled or damaged during a repair, a potential for future fuel leaks remains.

There have been 74 fires in vehicles that had received the recall remedy. DaimlerChrysler's analysis of these fires has attributed about one third (23) to dealer errors in performing the recall service repairs. Most of these occurred within 14 days after having the recall work performed. DaimlerChrysler's analyses of the remaining 51 fires found that fuel injector leakage (11) or fuel rail leakage (18) were the most probable cause in the 29 incidents where the cause could be determined.



ITEM	DESCRIPTION	QTY
01	RAIL, INLET	1
02	RAIL, OUTLET	1[1]
03	TUBE, INLET	1
04	TUBE, OUTLET	1
05	TUBE, CROSSOVER ASSEMBLY	1
06	INJECTOR, DEKA II	6[2]
07	PRESSURE REGULATOR	1[3]
08	PLUG, CROSSOVER	2
09	O-RING, CROSSOVER PLUG	2[3]
10	O-RING, INLET/CROSSOVER	3[3]
11	O-RING, OUTLET	1[3]

FIGURE 1. 3.5L FUEL RAIL ASSEMBLY

Through March 2002, DaimlerChrysler had completed recall repairs in 614,041 vehicles, approximately 80 percent of the recall population. DaimlerChrysler's data indicates that 587,317 of these vehicles have required a single recall repair, 25,033 vehicles required two repairs, and 1,691 vehicles have required three or more repairs. This indicates that 95.7 percent of the vehicles received effective repair on the first dealer visit and 99.7 percent were corrected after two dealer visits.

Statistics provided by DaimlerChrysler show that approximately two-thirds of initial repairs have involved the most basic level of repair (Labor Operation 14790182) and a little over one-fourth of initial repairs include the injector o-rings (Labor Operations 14790184 or 14790185). Injector o-ring replacement is about twice as likely (54 percent) to occur in vehicles repaired a second time.

ODI has received a total of 260 complaints regarding Safety Recall 98V-184 since it was initiated in January 1999. The biggest category of complaints involved reports of prior leakage and requests for reimbursement (111 records). Many of the other ODI complaints are related to part availability (34

[1] Outlet rail replaced if cracked/leaking (Labor Op.14790183 or 14790185).
[2] Upper injector o-rings (6), replaced if one or more leak during initial or final pressure test (Labor Op. 14790184 or 14790185).
[3] Fuel rail (6) and pressure regulator (2) nitrile o-rings, replaced for all 98V-184 procedures.

records) or a DaimlerChrysler dealer's denial of repair (22 records). Sixty-nine (69) complaints involved allegations of fuel injector assembly leakage in vehicles that had the recall repairs completed.

Post-repair leakage complaints to ODI have continued at a constant level of about 20 per year since the recall was initiated (Figure 2). Problems with leakage occurring immediately following recall service have been largely corrected by DaimlerChrysler's revisions to the recall procedure and increased dealer proficiency in performing the appropriate repairs. There is some concern that some fuel leakage incidents are continuing to recur, in some instances more than two years after recall repairs were completed. However, the data indicate that such events are relatively rare and that follow-up dealer repairs are providing appropriate resolution when they do occur. DaimlerChrysler has advised ODI that there are no time restrictions on the availability of free repairs for the fuel injector assembly leakage remedy procedures provided by Recall 98V-184.

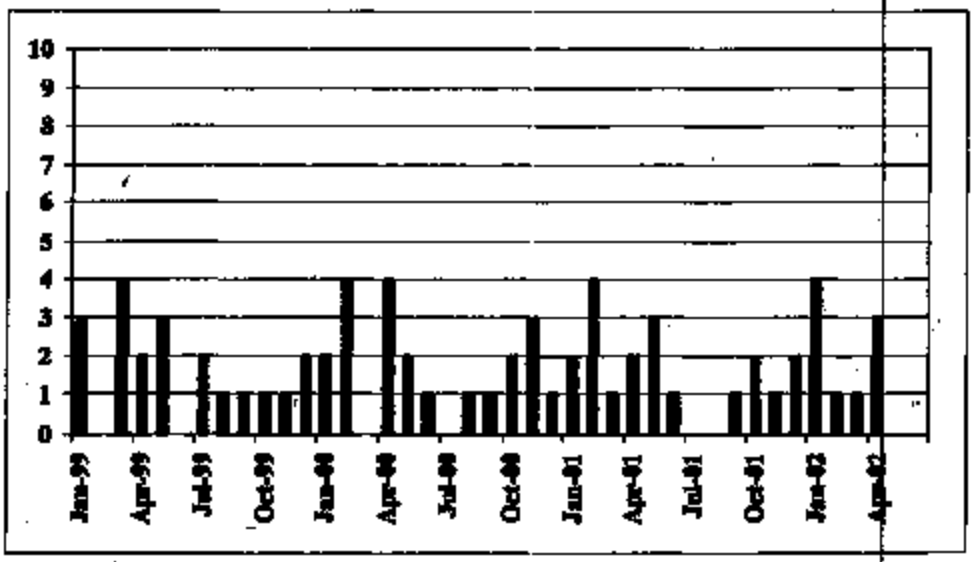


Figure 2. ODI Complaint Trend,
Fuel Rail Assembly Leakage Following Recall 98V-184 Repairs.

Based on the available information, a safety-related defect has not been identified in the remedy procedure or parts for Safety Recall 98V-184 at this time and further use of agency resources does not appear to be warranted. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. The agency reserves the right to take further action if warranted by future circumstances. This investigation is closed.

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