



# ODI RESUME

U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

INVESTIGATION: EA02-021  
DATE OPENED: Sep - 06 -02  
SUBJECT: Front Suspension U-bolts  
PROMPTED BY: PE01-042  
PRINCIPAL ENGINEER: Tom Bowman

MANUFACTURER: Volvo Trucks North America  
MODEL(S): Day Cab, 420, 610, 660, and 770  
MODEL YEAR(S): 1998 - 2001  
EQUIPMENT POPULATION: 54,237 units

PROBLEM DESCRIPTION: 20 mm (approximately 3/4") coarse thread front suspension U-bolts installed in 1998 - 2001 Volvo Truck VN Models could loosen / break which could cause loss of vehicle control due to front axle shifting out of position.

## FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	11 (*)	0	11 (*)
CRASHES:	2	0	2
INJ CRASHES:	0	0	0
FAT CRASHES	0	0	0
WARRANTY (unedited)	n/a	1107	1107

(\*) ODI resumes PE01-042 and DP01-003.5b list four complaints that describe a fracture of the front suspension U-bolt and three reports that describe a loosening condition. (The remaining four reports offer ambiguous descriptions.) These complaints contain little additional technical information or vehicle service history.

ACTION: Open an Engineering Analysis (EA)

ENGINEER: G. T. Bowman DIV CHF: [Signature] OFC DIR: [Signature]

DATE: 9/6/02

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SUMMARY: ODI investigation EA01-011 determined that the 20mm coarse thread U-bolts installed in model year 1998-2001 Volvo tractor rear suspensions do not maintain the same clamp integrity as equivalent diameter fine threaded U-bolts and that this could be a factor in U-bolt loosening. PE01-042 determined that Volvo also assembled front axle suspensions using 20mm coarse thread U-bolts.

ODI is concerned that the front axle suspension may not restrict front axle displacement if two same-side U-bolts were to severely loosen and/or fracture and that such an event could result in loss of vehicle control.

ODI is aware of two crashes in which front suspension U-bolt loosening and/or fracture may have been a factor. Post-crash interviews found that drivers in two cases reported hearing a "loud snap" preceding the crash. The "loud snap" reported could indicate that front suspension U-bolts had fractured prior to the vehicle's loss of control and may have been a factor in causing the crash.

Following is a summary of crashes potentially related to front suspension U-bolt failures:

- (1) Fleet C R England, 3/25/00, Rockford, IL. The vehicle operator reported that he had heard a 'loud snap' from the truck immediately prior to the incident; post-incident photos indicate that the left front axle U-bolts had separated. ODI does not have the missing u-bolts. It is possible that the bolts broke prior to the incident causing a loss of control; it is also possible that the bolts fractured as a result of vehicle impact with a concrete barrier wall.
- (2) Owner-operator, 6/14/01, Chicago, IL. The driver reported that he had heard a snap immediately prior to the incident. The front suspension U-bolts were found fractured after the incident but are no longer available since they had been discarded when the vehicle was repaired.

*[Handwritten signature]*  
09/09/02