



CAT Products, Inc

Technical Service Bulletin

Bulletin #: 0027
Manufacturer: All
Vehicle: All w/ZF Transmissions
Service: Fuel and Induction System

Protect Automatic Transmissions During Raised RPM

COMPLAINT: Transmission fluid blows out the fill tube during or after a fuel and induction system service. In some cases, the transmission may be damaged or destroyed.

CAUSE: Holding the engine at raised RPM can cause a transmission clutch to apply partially, overheating the clutches and damaging the transmission.

CORRECTION: This condition has been linked specifically to transmissions made by ZF. Unfortunately there are two important variables involved in identifying the vehicles affected:

1. Several auto manufacturers have used ZF transmissions over the years.
2. While only some of the ZF units are susceptible to this condition, no one has been able to identify which ones.

This has made it impossible to identify exactly which vehicles can be affected and which can't. The only answer is to treat every vehicle that could come with a ZF transmission as though it could have a problem with a sustained raised idle.

We've attached a list of all of the vehicles found to use ZF transmissions over the last 20 years or so. To service these vehicles safely:

1. Raise the drive wheels off the ground; if necessary, raise all four wheels.
2. Put the transmission in manual low.

Now you can service the vehicle normally; the clutches that drag in neutral won't drag in manual low, so the transmission can't be damaged by this procedure.

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Model	Type	Year	Engine	Trans
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Alfa Romeo

75	4 Speed	87-90	V6	2.5L	ZF4HP22
164 Spider	4 Speed	90-01	V6	3.0L	ZF4HP18Q
166	4 Speed	00-06	V6	3.0L	ZF4HP20

Aston Martin

DB7	5 Speed	00-04	V12	5.9L	ZF5HP30
DB9	6 Speed	04-12	V12	5.9L	ZF6HP26
	8 Speed	12	V12	5.9L	ZF8HP70
DBS	6 Speed	08-12	V12	5.9L	ZF6HP26
Rapide	6 Speed	10-12	V12	5.9L	ZF6HP26

Audi

100	4 Sp, F/AWD	92-94	V6	2.6, 2.8L	ZF4HP18
A4	5 Sp, F/AWD	96-08	L4, V6	1.8, 2.8, 3.0L	ZF5HP19
	6 Sp, F/AWD	02-12	L4, V6, V8	2.0, 3.0, 4.2L	ZF6HP26
	6 Sp, F/AWD	04-11	L4, V6	2.0, 3.0L	ZF6HP19A
	6 Sp, F/AWD	07-12	L4, V6	2.0, 3.0, 3.2L	ZF6HP28
	8 Sp, F/AWD	11-12	L4	2.0L	ZF8HP55AF
A5	6 Sp, F/AWD	07-12	L4, V6, V8	2.0, 3.0, 3.2, 4.2L	ZF6HP28
A5, A5 Cabriolet	8 Sp, F/AWD	10-12	L4	2.0L	ZF8HP55AF
A6	4 Sp, FWD	95-96	V6	2.8L	ZF4HP18
	5 Sp, F/AWD	97-05	L4, V6, V8	1.8, 2.4, 3.0L	ZF5HP19FL
	6 Sp, F/AWD	04-11	V6, V8, V10	3.0, 4.2, 5.0, 5.2L	ZF6HP26
	6 Sp, F/AWD	04-12	V6	2.7, 2.8, 3.0, 3.2L	ZF6HP19A
	6 Sp, F/AWD	08-11	V6	3.0L	ZF6HP28
	8 Sp, F/AWD	12	V6, V8	2.7, 2.8, 3.0, 4.0L	ZF8HP55AF
A6, A6 AllRoad	5 Sp, F/AWD	00-05	V6, V8	2.5, 2.7, 4.2L	ZF5HP24A
A7	8 Sp, F/AWD	11-12	V6	3.0L	ZF8HP55AF
A8	5 Sp, FWD	97-03	V6, V8	2.5, 2.8, 3.7L	ZF5HP19FL
	5 Sp, F/AWD	00-03	V8, V12	3.3, 4.2, 6.0L	ZF5HP24A
	6 Sp, F/AWD	02-10	V6, V8	3.0, 3.2, 3.7, 4.2L	ZF6HP19A
	6 Sp, F/AWD	03-10	V8, V10, V12	4.0, 4.2, 5.2, 6.0L	ZF6HP26A
	8 Sp, F/AWD	09-12	V6, V8, V12	2.8, 3.0, 4.0, 4.2, 6.3L	ZF8HP55AF
	8 Sp, F/AWD	12	V8	4.2L	ZF8HP90AF
	6 Sp, AWD	04	V8	4.2L	ZF5HP26A
AllRoad	6 Sp, F/AWD	06-12	V6, V8	2.7, 3.0, 3.2, 4.2L	ZF6HP19A
Allroad Quattro	5 Sp, AWD	02-04	V6, V8	2.7L Turbo, 4.2L	ZF5HP19FLA
Q5	8 Sp, F/AWD	10-12	L4	2.0L	ZF8HP55AF /H
Q7	6 Sp, F/AWD	05-09	V6	3.6L	ZF6HP19A
	6 Sp, F/AWD	08-12	V12	6.0L	ZF6HP32
	8 Sp, F/AWD	10-11	V6	3.6L	ZF8HP45
S4	5 Sp, AWD	00-02	V6	2.7L	ZF5HP19
	6 Sp, AWD	04	V8	4.2L	ZF6HP26A
S4/RS4	6 Sp, AWD	04-09	V8	4.2L	ZF6HP19
S5	6 Sp, AWD	08-09	V8	4.2L	ZF6HP28
S6/RS6	5 Sp, AWD	03-06	V8	4.2L	ZF5HP19
S6/S8	6 Sp, AWD	07-08	V10	5.2L	ZF5HP26A
V8	4 Sp, AWD	90-94	V8	3.6, 4.2L	ZF4HP24

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Model	Type	Year	Engine	Trans	
BMW					
All Others	4 Sp, RWD	84-00	All	4-Spd RWD	ZF4HP22
1 Series	6 Sp, RWD	04-07	L4	1.6, 2.0L	ZF6HP19
	6 Sp, RWD	07-12	L4, L6	1.6, 2.0, 3.0L	ZF6HP21
	8 Sp, RWD	12	L4	1.6, 2.0L	ZF8HP45
3 Series	5 Sp, RWD	00	L6	2.5, 2.8L	ZF5HP18
	5 Sp, RWD	00-07	L4, L6	2.0, 2.2, 2.5, 3.0L	ZF5HP19
	6 Sp, R/AWD	03-12	L4, L6	2.0, 2.5, 3.0L	ZF6HP19
	6 Sp, R/AWD	05-11	L6	3.0L	ZF6HP26
	6 Sp, R/AWD	06.12	L4, L6	2.0, 2.5, 3.0L	ZF6HP21
	6 Sp, R/AWD	06.12	L4, L6	2.0, 3.0L	ZF6HP28
	8 Sp, R/AWD	12	L4, L6	1.6, 2.0, 3.0	ZF8HP45
	8 Sp, R/AWD	12	L4, L6	2.0, 3.0L	ZF8HP70
5 Series	5 Sp, RWD	91-03	V8	3.5, 4.4L	ZF5HP30
	5 Sp, RWD	93-95	V8	3.0L	ZF5HP18
	5 Sp, RWD	96-04	L4, L6	2.0, 2.2, 2.5L	ZF5HP24
	5 Sp, RWD	02-03	L6	2.5L	ZF5HP19
	6 Sp, R/AWD	00-11	L4, L6	2.0, 2.2, 2.5, 3.0L	ZF6HP19
	6 Sp, R/AWD	03-10	L4, L6, V8	2.0, 2.5, 3.0, 4.0 4.4, 4.8L	ZF6HP28
	6 Sp, R/AWD	04-10	L4, L6, V8	2.0, 3.0, 4.8L	ZF6HP28
	6 Sp, R/AWD	06-10	L4, L6	2.0, 2.5, 3.0	ZF6HP21
5 Series/GT	8 Sp, R/AWD	09-12	L4, L6	2.0, 3.0L	ZF8HP45
	8 Sp, R/AWD	10-12	L4, L6, V8	2.0, 2.5, 3.0, 4.8L	ZF8HP70
6 Series	6 Sp, RWD	03-08	V8	4.4, 4.8L	ZF6HP26
	6 Sp, RWD	04-07	L6	3.0L	ZF6HP19
	6 Sp, RWD	07-11	L6	3.0L	ZF6HP21
	6 Sp, RWD	07-12	L6, V8	3.0, 4.8L	ZF6HP28
	8 Sp, RWD	11-12	L6, V8	3.0, 4.4L	ZF8HP70
7 Series	4 Sp, RWD	88-94	V12	5.0L	ZF4HP24
	5 Sp, RWD	95-01	V8, V12	3.5, 3.9, 4.4, 5.4L	ZF5HP30
	5 Sp, RWD	00	L6	2.8L	ZF5HP18
	5 Sp, RWD	01-02	L6	3.0L	ZF5HP24
	6 Sp, R/AWD	01-08	V8	3.9, 4.4L	ZF6HP32
	6 Sp, R/AWD	02-09	L6, V8, V12	2.9, 3.0, 3.6, 4.0, 4.4, 4.8, 6.0L	ZF6HP26
	6 Sp, R/AWD	08-09	L6	3.0L	ZF6HP21
	6 Sp, R/AWD	09-10	L6, V8	3.0, 4.4L	ZF6HP28
	8 Sp, R/AWD	09-12	L4, L6, V8	2.0, 3.0, 4.4L	ZF8HP70
	8 Sp, R/AWD	09-12	V12	6.0L	ZF8HP30
Gran Coupe	8 Sp, R/AWD	12	L6	3.0L	ZF6HP45
	8 Sp, R/AWD	12	V8	4.4L	ZF8HP70
M5	5 Sp, RWD	95-98	L6	3.0, 3.2L	ZF5HP18
X1	6 Sp, R/AWD	10-12	L4	2.0L	ZF6HP21
	8 Sp, R/AWD	11-12	L4, L6	2.0, 3.0L	ZF8HP45
X3	6 Sp, R/AWD	06-07	L6	3.0L	ZF6HP26
	6 Sp, R/AWD	06-11	L6	3.0L	ZF6HP19
	6 Sp, R/AWD	06-12	L4, L6	2.0, 3.0L	ZF6HP28
	6 Sp, R/AWD	08-11	L4	2.0L	ZF6HP21
	8 Sp, R/AWD	10-11	L4, L6	2.0, 2.5L	ZF8HP23
	8 Sp, R/AWD	11-12	L4	2.0L	ZF8HP70
	8 Sp, R/AWD	11-12	L4, L6	2.0, 3.0L	ZF8HP45

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Model	Type	Year	Engine		Trans
BMW (continued)					
X5	5 Sp, R/AWD	00-03	V8	4.4, 4.6L	ZF5HP24A
	6 Sp, R/AWD	03-10	L4, L6, V8	2.0, 3.0, 4.4, 4.8L	ZF6HP26
	6 Sp, R/AWD	06-09	L6	3.0L	ZF6HP19
	6 Sp, R/AWD	08-12	L6	3.0L	ZF6HP21
	6 Sp, R/AWD	09-11	L6, V8	3.0, 4.4, 4.8L	ZF6HP28
	8 Sp, R/AWD	10-12	L6	3.0L	ZF6HP45
	8 Sp, R/AWD	10-12	L6, V8	3.0, 4.8L	ZF8HP70
X6	6 Sp, R/AWD	07-10	L6, V8	3.0, 4.4L	ZF6HP26
	6 Sp, R/AWD	09-11	L6, V8	3.0, 4.4L	ZF6HP28
	8 Sp, R/AWD	10-11	L4	2.0L	ZF8HP70
Z4 Roadster	5 Sp, R/AWD	02-05	L6	2.2, 2.5, 3.0L	ZF5HP19
Z4 Roadster/Coupe	6 Sp, R/AWD	06-08	L6	2.5, 3.0, 3.2L	ZF6HP19
Z4 Roadster	6 Sp, R/AWD	09-12	L6	2.5, 3.0L	ZF6HP21
	8 Sp, R/AWD	12	L4	2.0L	ZF8HP45

Bentley

Arnage	6 Sp, RWD	07-09	V8	6.8L	ZF6HP32
Azure	6 Sp, RWD	06-09	V8	6.8L	ZF6HP32
Brooklands	6 Sp, RWD	08-09	V8	6.8L	ZF6HP32
Flying Spur	6 Sp, RWD	05-12	V12	6.0L	ZF6HP26A
	8 Sp, RWD	10-12	V8, V12	4.0, 6.0L	ZF8HP90AF
GT/GTC	6 Sp, RWD	03-12	V12	6.0L	ZF6HP26A
	8 Sp, RWD	10-12	V12	6.0L	ZF8HP90AF
Mulsanne	8 Sp, RWD	10-12	V8	6.8L	ZF8HP90

Citroen

C5	4 Sp, FWD	00-05	L4, V6	2.0, 2.2, 2.9L	ZF4HP20
C8	4 Sp, FWD	02-05	V6	2.9L	ZF4HP20
Jumper	4 Sp, FWD	00-06	L4	2.8L	ZF4HP20

Daewoo

Lacetti	4 Sp, FWD	02-12	L4	1.6, 1.8, 2.0L	ZF4HP16
Lanos II	4 Sp, FWD	00-03	L4	1.4, 1.5, 1.6L	ZF4HP14
Leganza	4 Sp, FWD	00-03	L4	1.8, 2.0, 2.2L	ZF4HP16
Magnus	4 Sp, FWD	02-12	L4, V6	1.8, 2.0, 2.4L	ZF4HP16
Rezzo	4 Sp, FWD	00-08	L4	2.0L	ZF4HP16

Dodge

Challenger	8 Sp, RWD	12	V8	6.4L	ZF8HP45
Charger	8 Sp, RWD	12	V6	3.6L	ZF8HP45
Monaco	4 Sp, FWD	90-92	V6	3.0L	ZF4HP18

Eagle

Premier	4 Sp, FWD	90-92	V6	3.0L	ZF4HP18
Vanden Plas	5 Sp, RWD	98-02	V8	4.0L	ZF5HP24
XJ6	4 Sp, RWD	88-94	L6	4.2L	ZF4HP22
	4 Sp, RWD	95-97	L6	3.2L	ZF4HP22
	4 Sp, RWD	96-97	L6	4.0L	ZF4HP24
XJ8	6 Sp, RWD	03-04	V8	4.2L	ZF6HP32
XJ8, XJL	5 Sp, RWD	98-02	V8	4.0L	ZF5HP24
XJR	5 Sp, RWD	98-02	V8	4.0L SC	ZF5HP30
XJ & XK Series	5 Sp, RWD	97-02	V8	4.0L	ZF5HP24
XJ Series/Vanden Plas	5 Sp, RWD	03	V8	4.0L	ZF5HP24
	6 Sp, RWD	04	V8	4.2L	ZF6HP26
XK8	5 Sp, RWD	97-04	V8	4.0L	ZF5HP24
XK Series	6 Sp, RWD	03-04	V8	4.2L	ZF6HP26

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Model	Type	Year	Engine	Trans
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Fiat

Ducato	4 Sp, FWD	01-07	L4	2.8L	ZF4HP20
Palio	4 Sp, FWD	04-07	L4	1.5L	ZF4HP14
Siena	4 Sp, FWD	04-08	V6	2.9L	ZF4HP20
Ulysse	4 Sp, FWD	02-06	L4	1.5L	ZF4HP14

Ford

Falcon BA/FG	6 Sp, RWD	04-12	L6, V8	2.7, 3.5, 4.0, 5.4L	ZF6HP26
Mondeo	4 Sp, F/AWD	00-01	L4	2.0L	ZF4HP20
Territory SY	6 Sp, R/AWD	05-12	L6, V8	4.0L	ZF6HP26

Hyundai

Equus	6 Sp FWD	09-11	V8	4.6L	ZF6HP26
Genesis	6 Sp, RWD	09-11	V8	4.6L	ZF6HP26
Genesis Coupe	6 Sp, RWD	08-11	V6	3.8L	ZF6HP19

Jaguar

S Type	5 Sp, RWD	01-03	V6	2.5, 3.0L	ZF5HP19
	6 Sp, RWD	02-07	V6, V8	2.7, 3.0, 4.2L	ZF6HP26
	6 Sp, RWD	03-05	V6	2.5L	ZF6HP19
Vanden Plas	4 Sp, RWD	93-97	L6	4.0L	ZF4HP24
	5 Sp, RWD	98-02	V8	4.0L	ZF5HP24
XF	6 Sp, RWD	07-12	V8	4.2, 5.0L	ZF6HP28
	8 Sp, RWD	11-12	L4, V6, V8	2.2, 3.0, 5.0L	ZF8HP70
XJ	6 Sp, RWD	03-10	V6, V8	2.7, 3.0, 4.2L	ZF6HP26
	8 Sp, RWD	11-12	V6	3.0, 3.6, 5.0L	ZF8HP70
XJ Series	4 Sp, RWD	93-97	L6	4.0L	ZF4HP24
	6 Sp, RWD	02-09	V6, V8	2.7, 3.5, 4.2L	ZF6HP26
	6 Sp, RWD	03-11	V6	3.2, 4.2L	ZF6HP19
	6 Sp, RWD	10-12	V8	5.0L	ZF6HP28
XJ6	4 Sp, RWD	88-97	L6	3.2, 4.2L	ZF4HP22
XJ8	5 Sp, RWD	98-03	V8	3.2, 4.0L	ZF5HP24
XK	6 Sp, RWD	08-11	V8	5.0L	ZF6HP28
	8 Sp, RWD	12	V8	5.0L	ZF8HP70
XK Series	6 Sp, RWD	03-08	V8	3.5, 4.2L	ZF6HP26
	6 Sp, RWD	08-11	V8	5.0L	ZF6HP28
XK8	5 Sp, RWD	97-02	V8	4.0L	ZF5HP24

Jeep

Grand Cherokee	8 Sp, RWD, 4X4	11-12	L6	3.0L	ZF8HP45
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Kia

Borrego	6 Sp, R/AWD	09-10	V8	4.6L	ZF6HP26
Mohave	6 Sp, RWD, 4X4	07-12	V6, V8	3.0, 4.6L	ZF6HP26

Lancia

K	4 Sp, FWD	00-01	V6	3.0L	ZF4HP20
Phedra	4 Sp, FWD	02-06	V6	2.9L	ZF4HP20
Thesis	8 Sp, R/AWD	12	L4, L5, V6	1.8, 2.5, 3.6L	ZF8HP45
	8 Sp, R/AWD	12	V8	6.4L	ZF8HP70

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Model	Type	Year	Engine		Trans
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Land Rover

Defender	4 Sp, RWD, 4X4	00	V8	3.9L	ZF4HP24
Discovery	4 Sp, RWD, 4X4	94-04	L5, V8	2.5, 3.9, 4.6L	ZF4HP22
Discovery (LR3)	6 Sp, RWD, 4X4	04-12	L6	2.7, 3.0, 4.0, 4.4L	ZF6HP26
	6 Sp, RWD, 4X4	09-12	V8	5.0L	ZF6HP28
	8 Sp, RWD, 4X4	10-11	L6	3.7L	ZF8HP45
	8 Sp, RWD, 4X4	10-11	V8	5.0L	ZF8HP70
Range Rover	4 Sp, RWD, 4X4	87-01	L6, V8	2.5, 3.9L	ZF4HP22
	4 Sp, RWD, 4X4	00-01	V8	4.6L	ZF4HP24
	5 Sp, RWD, 4X4	01-05	V8	4.4l	ZF5HP22
Range Rover & Sport	6 Sp, RWD, 4X4	06-10	L6, V8	2.7, 4.4, 5.0L	ZF6HP26A
	6 Sp, RWD, 4X4	09-12	L6, V8	3.0, 4.4, 5.0L	ZF6HP28
Range Rover Sport	8 Sp, RWD, 4X4	11-12	V8	4.4L	ZF8HP70

Lincoln

Navigator	6 Sp, RWD, 4X4	04-06	V8	5.4L	ZF6HP26
Town Car	6 Sp, RWD	05-07	V8	4.6L	ZF6HP26

Maserati

Grancabrio	6 Sp, R/AWD	10-12	V8	4.2L	ZF6HP26
GT Coupe	6 Sp, R/AWD	07-12	V8	4.2, 4.7L	ZF6HP26
Quattroporte	6 Sp, R/AWD	07-12	V8	4.2, 4.7L	ZF6HP26
	8 Sp, R/AWD	12	V8	4.2, 4.7L	ZF8HP70

Mercedes

MB	4 Sp, FWD	02-04	L4	2.2L	ZF4HP20
V-Class	4 Sp, FWD	00-03	L4	2.2, 2.3L	ZF4HP20
Vito	4 Sp, FWD	00-03	L4	2.0, 2.2L	ZF4HP20

Peugeot

405	4 Sp, RWD	89-91	L4	N/A	ZF4HP14
406; 406 Coupe	4 Sp, FWD	00-04	V6	2.9L	ZF4HP20
407	4 Sp, FWD	03-10	L4	2.0, 2.2L	ZF4HP20
504	3 Sp, RWD	75-84	L4	2.1, 2.3L	ZF3HP22
505	3 Sp, RWD	80-91	L4	2.0, 2.2, 2.3L	ZF3HP22
604	3 or 4 Spd	82-85	L4	2.3, 2.8L	ZF3, 4HP22
607	4 Sp, FWD	00-06	L4, V6	2.2, 2.9L	ZF4HP20
807	4 Sp, FWD	002-06	V6	2.9L	ZF4HP20

Porsche

911	4 Sp, RWD	91-96	N/A	3.3, 3.6L	ZF4HP22
911	5 Sp, RWD	00-02	V6	3.4, 3.6L	ZF5HP19HLA
928	4 Sp, RWD	91-95	N/A	4.9L	ZF4HP24
944	4 Sp, RWD	91-92	N/A	N/A	ZF4HP18FAL/E
968	4 Sp, RWD	92-95	N/A	3.0L	ZF4HP18FAL/E
Boxter	5 Sp, R/AWD	00-08	V6	2.5, 2.7, 3.2, 3.4L	ZF5HP19HL
Cayman	5 Sp, R/AWD	05-08	V6	2.7, 3.4L	ZF5HP19HL

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Model	Type	Year	Engine		Trans
Rolls Royce					
Drophead Coupe	6 Sp, R/AWD	07-12	V12	6.8L	ZF6HP32A
Ghost	8 Sp, R/AWD	09-11	V12	6.6L	ZF8HP70
Phantom	6 Sp, R/AWD	03-11	V12	6.8L	ZF6HP32A
Arnage; Silver Seraph	5 Sp, R/AWD	00=03	V8, V12	4.4, 5.4L	ZF5HP30
Saab					
9000	4 Sp, RWD	86-98	N/A	N/A	ZF-4HP18
Seat					
Exeo	6 Sp, FWD	09-12	L4	1.8, 2.0L	ZF6HP28
Skoda					
Superb	5 Sp, F/AWD	02-08	L4, V6	1.8, 2.8L	ZF5HP19FL
	5 Sp, F/AWD	02-08	L4, V6	1.9, 2.5, 2.8L	ZF5HP19FLA
Suzuki					
Reno	4 Sp, FWD	04-08	L4	2.0L	ZF4HP16
Verona	4 Sp, FWD	04-06	L6	2.5L	ZF4HP16
Volkswagen					
Amarok	6 Sp, RWD	12	L4	2.0L	ZF8HP45
Passat	5 Sp, FWD, AWD	98-04	All	1.8, 2.8, 4.0L	ZF5HP19FL
Phaeton	5 Sp, AWD	01-04	V6	3.2L	ZF5HP19FL
	5 Sp, AWD	01-08	W12	6.0L	ZF5HP24A
	6 Sp, AWD	02-06	V10	4.9L	ZF6HP32A
	6 Sp, AWD	04-11	V6, V8	3.0, 4.2L	ZF5HP26A
	6 Sp, AWD	05-11	V6	3.2, 3.6L	ZF6HP19A
Volvo					
740	4 Sp, RWD	85-89	L4	2.3L	ZF4HP22