

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 7

SP413001Bulletin[1]

Date	Group	No.	Release	Page
1.2010	<b>413</b>	<b>001</b>	<b>01</b>	1(4)

**Clutch Control Actuator Failure**

VN, VT

**SP 413-001, Clutch Control Actuator Failure**

(January 2010)

**Information**

Software has been released for the Engine ECU, Instrument Cluster ECU and the Transmission Electronic Control Unit (TECU) to add more functionality and diagnostic capability to vehicles with the I-Shift transmission. The new software enables the TECU to identify and respond to air leaks that may potentially affect transmission performance.

The software provides warnings through the Instrument Cluster (IC) to alert the driver:

- a. A yellow warning light will illuminate if an air leak is detected and the TECU can compensate for the air loss to ensure normal operation of the transmission. Idle driving and Eco-Roll will be inhibited when this warning is active.
- b. A red warning light and buzzer alarm will activate when the TECU has determined that the air leak is too large to maintain normal function of the transmission. When this warning is activated and the vehicle is stopped, the TECU will either shift the transmission into neutral or shut the engine down if it cannot shift into neutral.

This software was introduced into production on 12/15/09; therefore, this service program applies to all vehicles equipped with an I-Shift transmission prior to 12/15/09.

**Required Tools**

Premium Tech Tool version 1.10.43 or higher

Diagnostic Connector 88890034

Communication Interface 88890020 with firmware 1.12.0.2 or higher

## Procedure

You must read and understand the precautions and guidelines in Service Information, group 4, "General Safety Practices, Transmission" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.



### **DANGER**

Do not attempt to repair or service this vehicle without having sufficient training, the correct service literature and the proper tools. Failure to follow this could make the vehicle unsafe and lead to serious personal injury or death.

- 1 Verify service program eligibility by checking service program status in eWarranty.
- 2 Connect Premium Tech Tool (PTT) to the vehicle diagnostics connector using the 9 pin diagnostic Connector 88890034 and Communication Interface 88890020. Connect the PC to a functional LAN or modem connection and a 120 Volt AC source (do not use intermediate storage).
- 3 Turn the ignition switch "ON".
- 4 Log in to PTT and proceed to the Identification of Vehicle/Machine panel.
- 5 Once the vehicle has been identified and selected start VCADS Pro.
- 6 Enter the job card information.
- 7 Perform the following operations in order:
  - a. MID 128, ECU campaign programming
  - b. MID 140, ECU campaign programming
  - c. MID 130, ECU campaign programming

**Note:** Failure to follow programming sequence may cause the programming to stop, cancelling the campaign on the chassis.

- d. Transmission, Clutch Calibration.
- 8 From the VCADS Pro Operations Menu select:
  - a. Select the programming button on the tool bar
  - b. 2 - Engine, Engine Mounting and Equipment
  - c. 2841-22-03-02 – MID 128 ECU, Campaign
  - d. Select campaign E1198

**Note:** If you lose power or your LAN/modem connection during programming you will need to start programming over from the beginning.

- 9 When programming is complete do not shutdown VCADS Pro. Early shutdown will complete the campaign on the chassis, leaving the IC and TECU un-programmed.

10 Use the back button to return to the VCADS Pro operations menu and select:

- a. 3 - Electric Systems and Instruments
- b. 3810-22-03-01 - MID 140 ECU, Campaign
- c. Select campaign E1198

11 When programming is complete, do not shutdown VCADS Pro.

12 Use the back button to return to the VCADS Pro operations menu and select:

- a. 4 - Transmission
- b. 4320-22-03-03 MID 130 ECU, Campaign
- c. Select campaign E1198

13 When programming is complete, do not shutdown VCADS Pro.

14 Use the back button to return to the VCADS Pro operations menu and select:

- a. Select the calibration button on the tool bar
- b. 4320-07-03-01 - Transmission and Clutch Calibration

15 Click the start button. The check conditions box will appear, check the required boxes and click continue.

16 In the options dialog box, select "Replacing the software in the TECU, click OK and Follow the on-screen instructions for the remainder of the programming process.

**Reimbursement**

<b>This repair is covered by an authorized Service Program. Reimbursement is obtained via the normal claim handling process.</b>	
<b>Claim Type (used only when uploading from the Dealer Bus. Sys.)</b>	B
<b>Recall Status</b>	
Vehicle inspected, repair not required	1- Inspected OK
Vehicle repaired per instruction	2- Modified per instruction
<b>Labor Code</b>	
Primary Labor Code	41301-0-02 1.5 hrs.
Time to take charge and determine campaign status	17003-0-0 0.3 hrs.
<b>Causal Part</b>	20829012
<b>Authorization Number</b>	SP413001
<b>Expiration Date</b>	30-SEP-10

**Note:** Take Charge Time is not included in the Labor Code for this operation. Take charge may be eligible but can only be used once per repair visit. If vehicle is having other warranty repairs performed, take charge should be charged to the warranty repair, otherwise take charge can be charged to this service program.

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 7

SP432024Bulletin

Date	Group	No.	Page
6.08	<b>432</b>	<b>024</b>	1(4)

## Redundant Brake Pedal Micro Switch, Removal VN VHD

### SP 432-024, Redundant Brake Pedal Micro Switch, Removal

(June 2008)

Certain Volvo vehicles, built between 06/30/2006 and 04/15/2008 with a Volvo I-Shift transmission will require the removal of the redundant brake pedal micro switch and the installation of new instructional decals on the drivers side sun visor and door. The brake switch was determined to be unnecessary and to some extent a maintenance issue. The new instructional decals provide more specific towing instruction for vehicles equipped with the I-Shift transmission.

#### Required parts

- 1 – 20913375 Jumper harness
- 1 – 21209122 Decal Visor
- 1 – 21209123 Decal Door

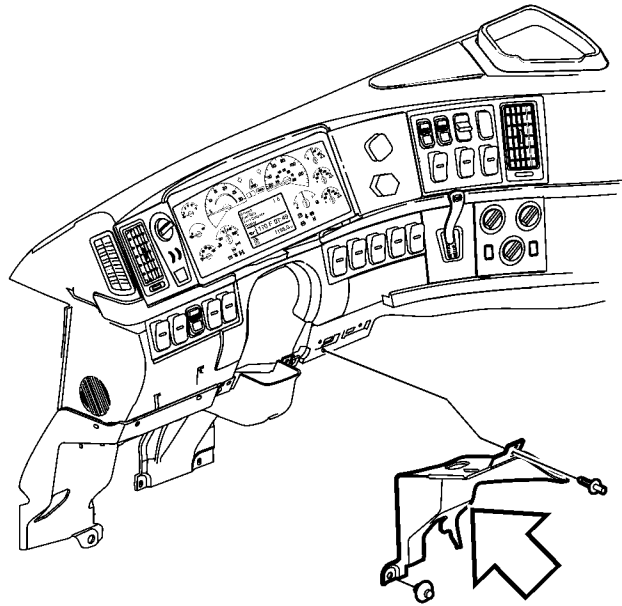
Service personnel: Please circulate, read and initial

Service Manager	Warranty Administrator	Workshop Foreman	Service Technicians					

## Method

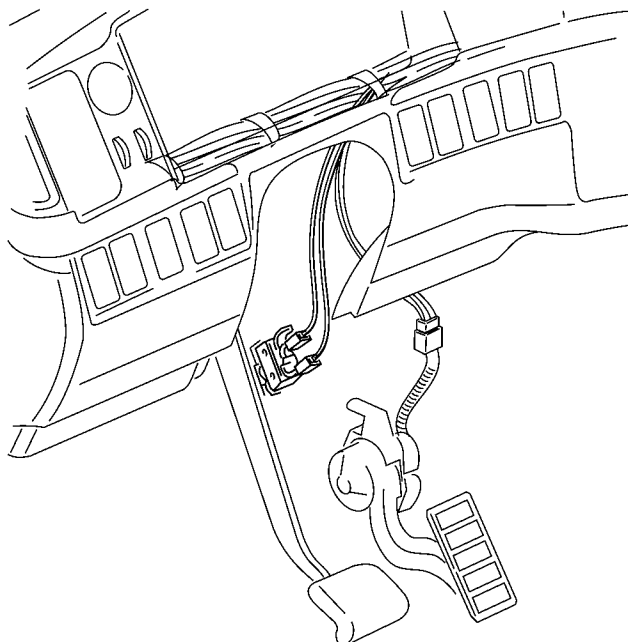
You must read and understand the precautions and guidelines in Service Information, group 30, "General Safety Practices, Electrical and Electronics" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

- 1 Remove the drivers side lower right hand dash panel to gain access to the brake pedal switch.



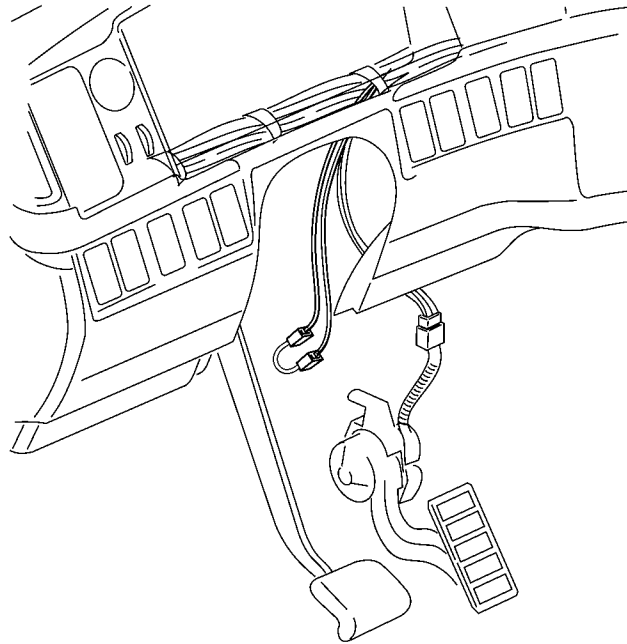
W8003940

- 2 Locate and remove the I-Shift brake pedal micro switch.



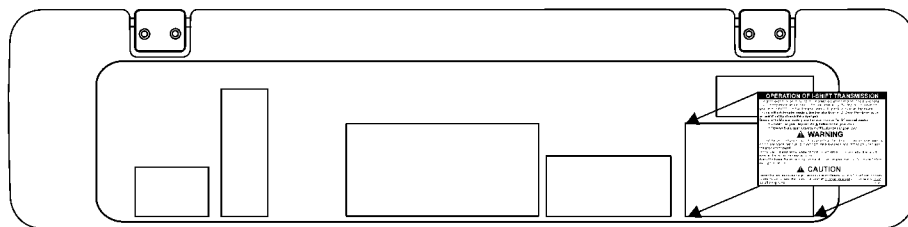
W3007823

- 3 Insert jumper wire (20913375) into the now vacant connector terminals.



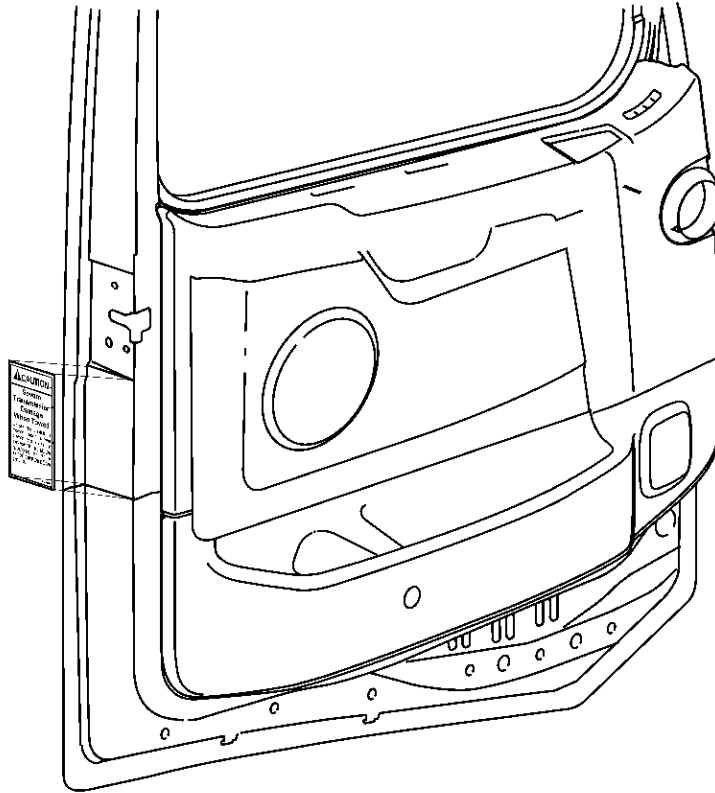
W3007822

- 4 Reinstall the drivers side lower right hand dash panel.
- 5 Lower the drivers side sun visor and install the new I-Shift instruction decal over the existing decal.



W8003941

- 6 Wipe clean the surface of the left hand door frame directly below the latch and install the I-Shift towing warning decal (21209123) as shown in below.



W8003942

**Reimbursement**

<b>This repair is covered by an authorized Service Program. Reimbursement is obtained via the normal claim handling process.</b>	
<b>Claim Type (used only when uploading from the Dealer Bus. Sys.)</b>	B
<b>Recall Status</b>	
Vehicle inspected, repair not required	1- Inspected OK
Vehicle repaired per instruction	2- Modified per instruction
<b>Labor Code</b>	
Primary Labor Code	43244-0-02 — 0.4 hrs.
Time to perform repair	17003-0-01 — 0.3 hrs.
<b>Causal Part</b>	20913375
<b>Authorization Number</b>	SP432024
<b>Expiration Date</b>	31- Dec -08

**Note:** Take Charge Time is not included in the Labor Code for this operation. Take charge may be eligible but can only be used once per repair visit. If vehicle is having other warranty repairs performed, take charge should be charged to the warranty repair, otherwise take charge can be charged to this service program.

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 7

SP432026Bulletin

Date	Group	No.	Page
8.08	<b>432</b>	<b>026</b>	1(3)

Redundant Brake Pedal Micro  
Switch, Removal  
VN-2 VHD-2 VT

## SP 432-026, Redundant Brake Pedal Micro Switch, Removal

(August 2008)

Certain Volvo vehicles, built between April 15, 2008 and July 3, 2008 with a Volvo I-Shift transmission may require the removal of the redundant brake pedal micro switch. The brake switch was determined to be unnecessary and to some extent a maintenance issue. Some vehicles built within this time period may not have the brake switch installed from the factory but this will still need to be visually verified.

### Required parts

1 – 20913375 Jumper harness

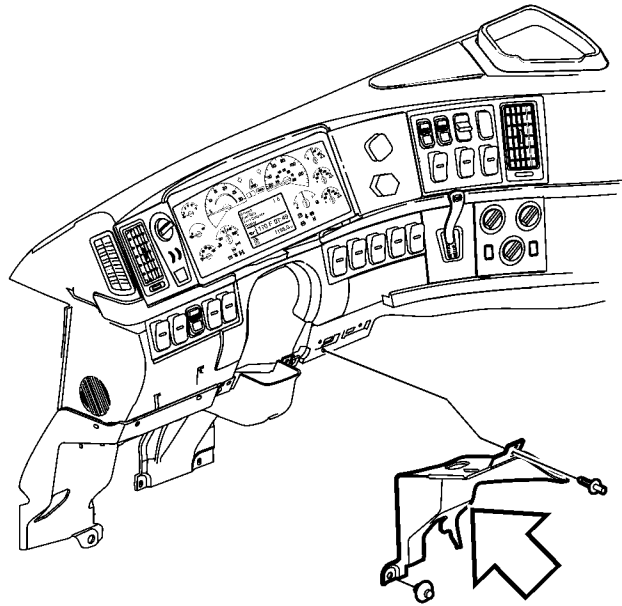
Service personnel: Please circulate, read and initial

Service Manager	Warranty Administrator	Workshop Foreman	Service Technicians						

## Method

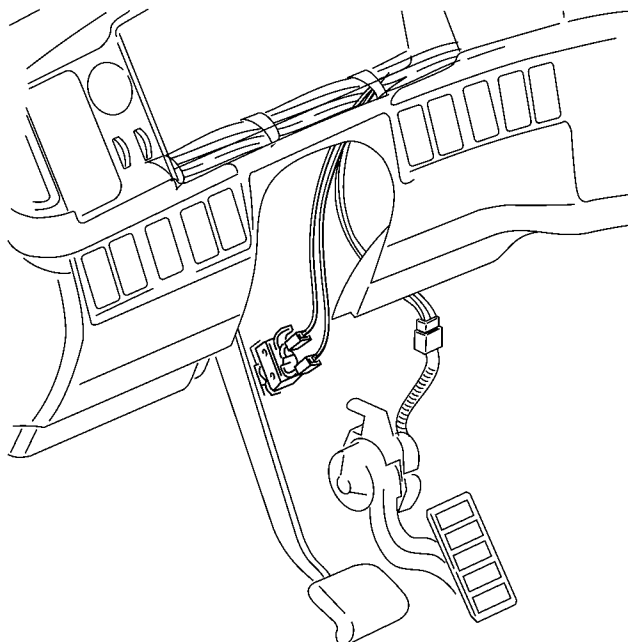
You must read and understand the precautions and guidelines in Service Information, group 30, "General Safety Practices, Electrical and Electronics" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

- 1 Remove the drivers side lower right hand dash panel to gain access to the brake pedal switch.



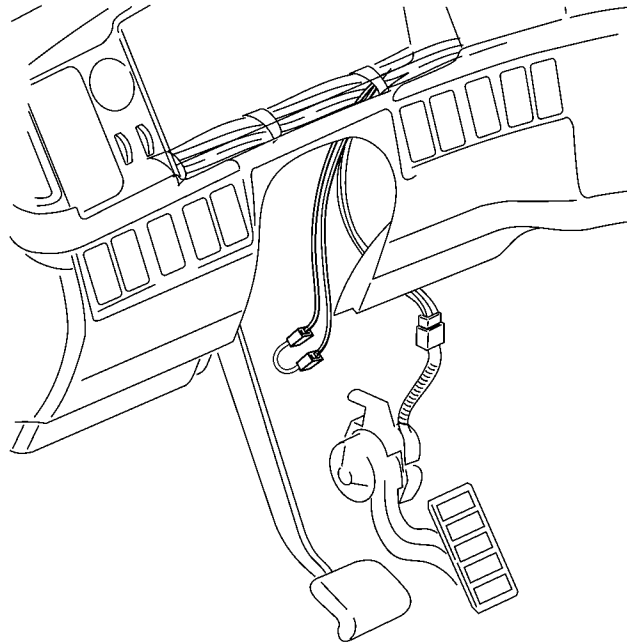
W8003940

- 2 Locate and remove the I-Shift brake pedal micro switch.



W3007823

- 3 Insert jumper wire (20913375) into the now vacant connector terminals.



W3007822

- 4 Reinstall the drivers side lower right hand dash panel.

**Reimbursement**

<b>This repair is covered by an authorized Service Program. Reimbursement is obtained via the normal claim handling process.</b>	
<b>Claim Type (used only when uploading from the Dealer Bus. Sys.)</b>	B
<b>Recall Status</b>	
Vehicle inspected, repair not required	1- Inspected OK
Vehicle repaired per instruction	2- Modified per instruction
<b>Labor Code</b>	
Primary Labor Code	43246-0-02 — 0.3 hrs.
Time to perform repair	17003-0-01 — 0.3 hrs.
<b>Causal Part</b>	20913375
<b>Authorization Number</b>	SP432026
<b>Expiration Date</b>	31- March -09

**Note:** Take Charge Time is not included in the Labor Code for this operation. Take charge may be eligible but can only be used once per repair visit. If vehicle is having other warranty repairs performed, take charge should be charged to the warranty repair, otherwise take charge can be charged to this service program.

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 8

## Howell, Rosa (NHTSA)

---

**From:** Lahr Jeremy  
**Sent:** Monday, April 29, 2013 2:12 PM  
**To:** Lafon Tim (othy)  
**Subject:** brake switch meeting minutes  
**Attachments:** Meeting Minutes.ppt

### *Jeremy A. Lahr*

Senior Engineer  
Volvo 3P  
System and Architectural Engineering - Electrical  
7900 National Service Road  
P.O. Box 26115  
Greensboro, NC 27409, USA

Telephone: 1 (336) 393-2958  
Telefax: 1 (336) 393-2773  
E-mail: [Jeremy.Lahr@volvo.com](mailto:Jeremy.Lahr@volvo.com)

## Howell, Rosa (NHTSA)

---

**Subject:** Ride and Drive  
**Location:** Wes Chominsky's office.

**Start:** Wed 1/30/2013 2:00 PM  
**End:** Wed 1/30/2013 3:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Lafon Tim (othy)  
**Required Attendees:** Chominsky Wesley

Hi Wes,  
Thanks for taking the time to look into this. I will see you at 2 pm tomorrow for a ride/drive.

Best Regards,  
Tim

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 10

20489118 Brake Switch 1



1980716

**VOLVO**

LOCATION 4 BO 49 11 D		PART ID VO 20489118		QTY TO PICK 1	COUNTRY US
DESCRIPTION SWITCH				UOM EA	
INSTRUCTIONS	MS ORDER # 22220000121422	SWITCH #	CHARGE QTY	GROSS WEIGHT / LINE WEIGHT 0.1 / 0.1	
DEST CUST 7557 57890		ORDER TYPE/CLASS D		List ID 175792	
POC MEM	CUSTOMER P. O. # V07738	VOLVO ORDER NO. 20604		DATE & TIME 11/19/09 17:02	
LINE REF	LINE # 4	ORDERED PART # VO 20489118		CONSIGNMENT 1119FDX1E	

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 10

20489118 Brake Switch 2



PIN 20489118  
PSI N.O.

PE13-002

VOLVO TRUCK

5/1/2013

QUESTION 12



maintenance-site-vpt ▸ Driveline - Active Issues...  
Question 12 Describe the manner in which the wiring harness from the I Shift Trans All Documents



Owner :



I Like It



Tags & Notes

<input type="checkbox"/> Type	Name	Modified	<input type="checkbox"/> Modified By
	<u>Main cab wiring install</u>	4/11/2013 1:16 PM	<u>Henson Toby</u>

Add document



maintenance-site-vpt ▶ Driveline - Active Issues...  
Question 12 Describe the manner in which the wiring harness from the I Shift Trans All Documents



Owner :  
[Redacted]



I Like It



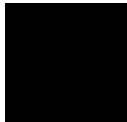
Tags & Notes

<input type="checkbox"/> Type	Name	Modified	<input type="checkbox"/> Modified By
	<u>Main cab wiring install</u>	4/11/2013 1:16 PM	<u>Henson Toby</u>

Add document



maintenance-site-vpt ▶ Driveline - Active Issues... Main  
cab wiring install All Documents



Owner :



I Like It

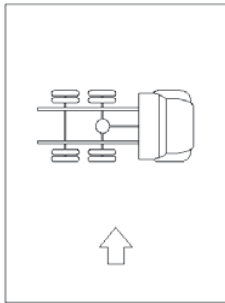


Tags &  
Notes

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	<a href="#">211348262_01_1_w</a>	4/11/2013 1:19 PM	<a href="#">Henson Toby</a>
	<a href="#">22010946_01_1</a>	4/11/2013 1:18 PM	<a href="#">Henson Toby</a>
	<a href="#">FW Controls assistance needed</a>	4/11/2013 1:19 PM	<a href="#">Henson Toby</a>

Add document

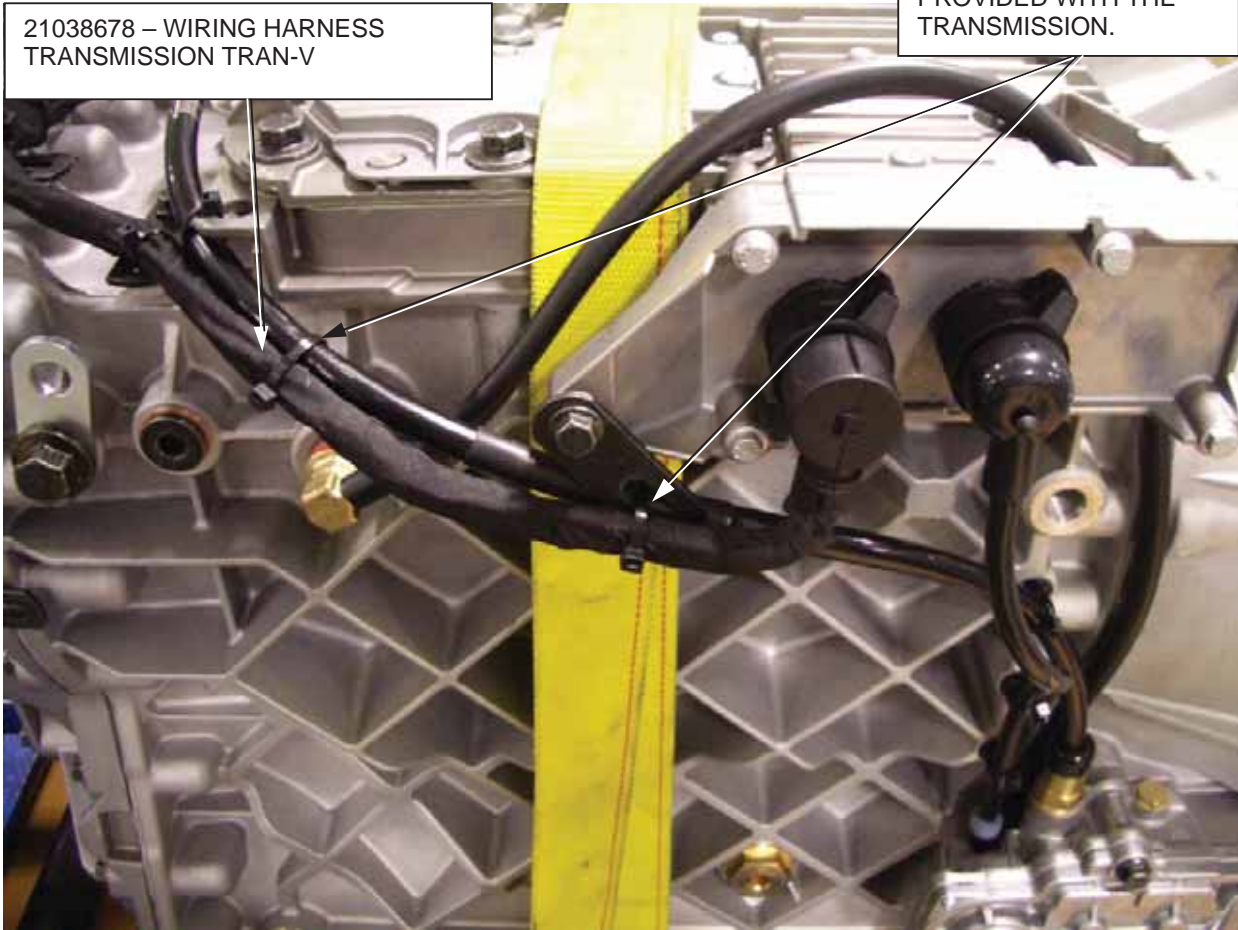
Engineering Release Notice (ERN)	Location	Change Description	A = Added D = Deleted	W = Was	Document Release Status <b>RELEASED</b>
D-13503-52					Date 2007-04-18
					Modification Count



THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE I-SHIFT WIRING HARNESS FROM THE TCM ON THE RIGHT SIDE OF THE TRANSMISSION UP TO THE TOP BACK SIDE.

2x 948211 – CABLE TIE.  
CLIPPING BRACKET  
PROVIDED WITH THE  
TRANSMISSION.

21038678 – WIRING HARNESS  
TRANSMISSION TRAN-V



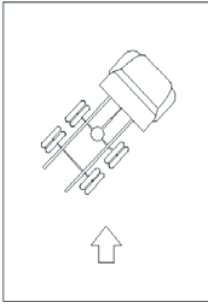
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Document Title  
**INSTALL WIRING HARNESS  
TRAN-V  
ROUTING AND CLIPPING**



Document Type <b>INSTALLATION REQUIREMENT</b>			
Owner Domain: Document Prefix			
Document No <b>21090262</b>	Issue Index <b>01</b>	Volume No <b>01</b>	Page No <b>1(5)</b>

EDM-W 2000-04-01



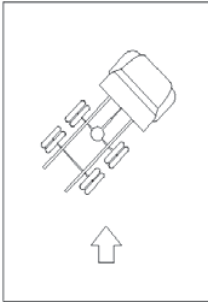
THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS TO THE RIGHT REAR SIDE OF THE TRANSMISSION. NOTE: WIRING HARNESS IS TO BE TIED TO THE BOTTOM OF THE AIR LINE TO PREVENT ANY RUBBING OR CHAFFING.

948211 – CABLE TIE.  
NOT SHOWN IS A METAL SLEEVE AT TIE AREA ON TUBE.  
DO NOT OVER TIGHTEN CABLE TIE.

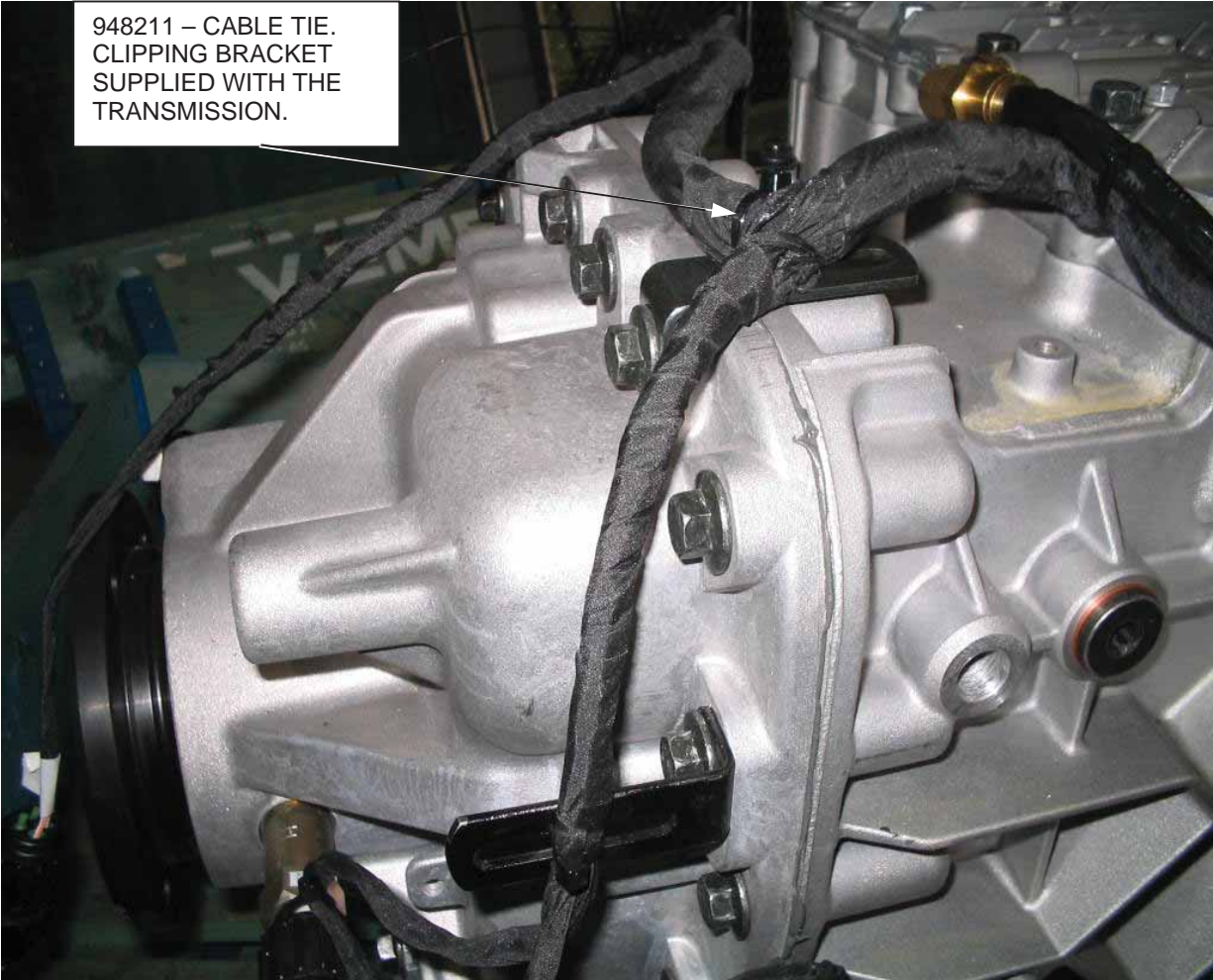


**VOLVO**  
Volvo Trucks North America  
Volvo Group North America, Inc.


Document Title			
<b>INSTALL WIRING HARNESS</b>			
Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>2(5)</b>

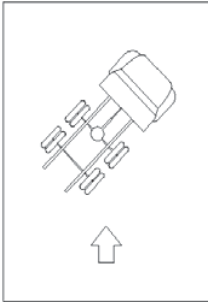


THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS AT THE TOP RIGHT REAR CORNER OF THE TRANS AND ROUTING DOWN TO THE SPEEDO SENSOR CONNECTION.

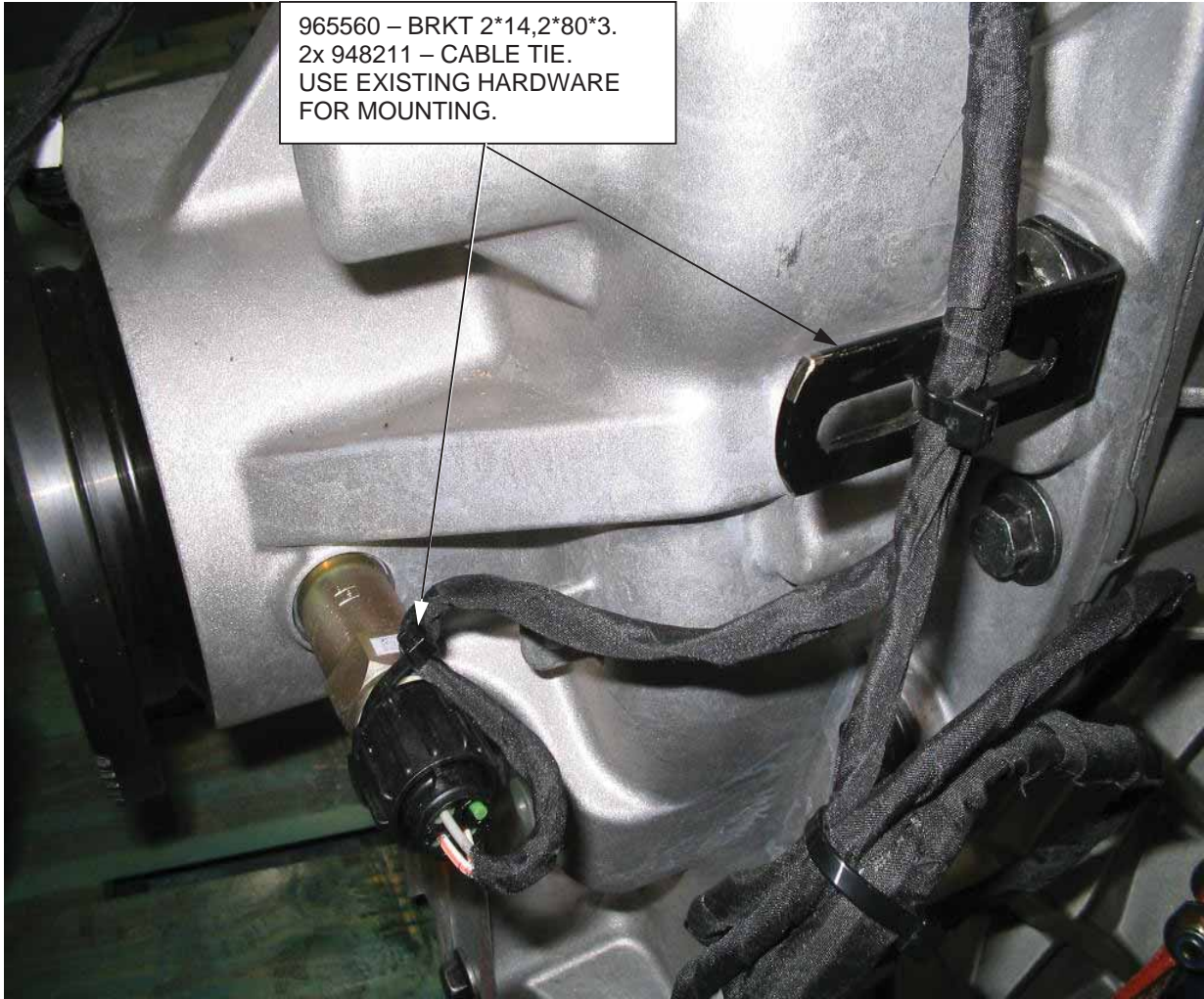


948211 – CABLE TIE. CLIPPING BRACKET SUPPLIED WITH THE TRANSMISSION.

 Volvo Trucks North America Volvo Group North America, Inc.	Document Title			
	<b>INSTALL WIRING HARNESS</b>			
	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>3(5)</b>	



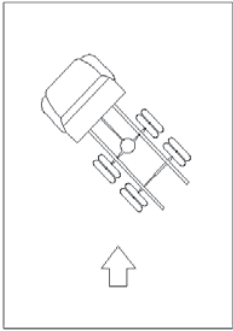
THIS VIEW SHOWS THE WIRING HARNESS ROUTED AND CLIPPED DOWN THE RIGHT REAR SIDE OF THE TRANSMISSION TO THE SPEEDO SENSOR.  
 NOTE: THE HARNESS IS TO BE TIED NEXT TO THE BRASS SPEEDO SENSOR INSERT NUT FOR STRAIN RELIEF CLIPPING.



965560 – BRKT 2\*14,2\*80\*3.  
 2x 948211 – CABLE TIE.  
 USE EXISTING HARDWARE FOR MOUNTING.

NOTE: HARNESS TO CHASSIS AND DPF CONNECTION ARE TO BE COILED AND TIED SECURELY TO TRANSMISSION FOR SHIPPING.

 Volvo Trucks North America Volvo Group North America, Inc.	Document Title			
	<b>INSTALL WIRING HARNESS</b>			
	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>4(5)</b>	




THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS TO THE LEFT REAR TOP OF THE TRANSMISSION.  
 NOTE: PTO BREAKOUTS TO BE TEMPORARILY TIED BACK TO THE HARNESS AS RECEIVED FROM THE HARNESS MANUFACTURE AND WILL BE CUT LOOSE WHEN A PTO IS REQUIRED.

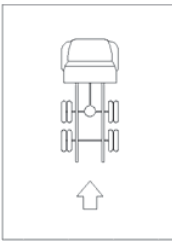


965558 – BRKT 2\*9\*80\*30.  
 946440 – FLG SCREW M8\*16.  
 948211 – CABLE TIE.

NOTE: HARNESS TO CAB AND GROUND CONNECTIONS ARE TO BE COILED AND TIED SECURELY TO THE TRANSMISSION FOR SHIPPING.

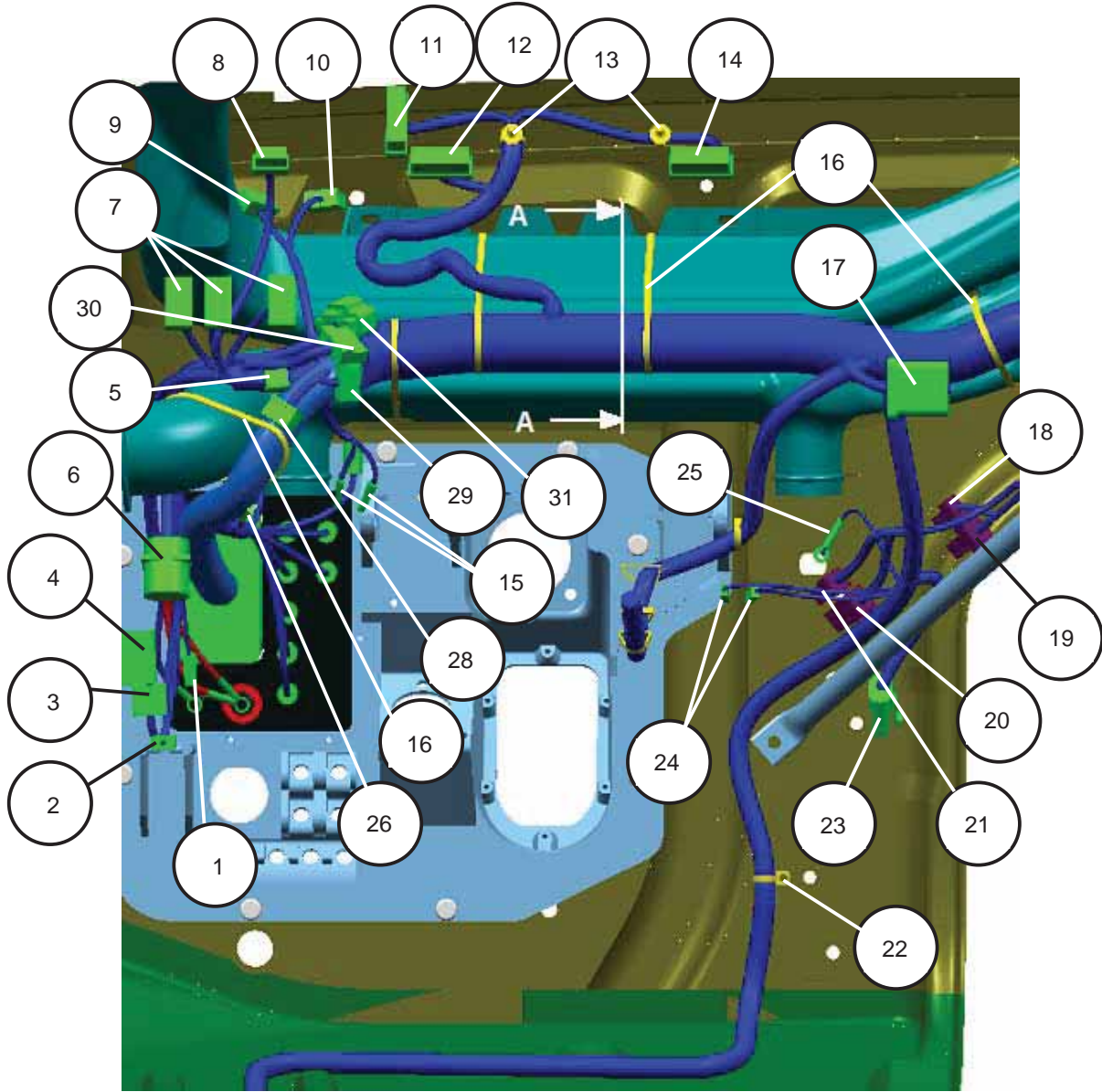
 Volvo Trucks North America Volvo Group North America, Inc.	Document Title			
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	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>5(5)</b>	

Engineering Release Notice (ERN)	Location	Change Description	A = Added D = Deleted	W = Was	Document Release Status <b>RELEASED</b>
D-13587-42					Date 2007-09-11
					Modification Count



**NOTES:**

- SEE TABLE (PAGES 7-9) FOR BALLOON PART NUMBERS / DESCRIPTIONS.
- INSTALL IS GOOD FOR ALL MAIN CAB HARNESSSES. SEE KOLA/BOM FOR APPROPRIATE PART NUMBERS
- ITEMS MAY BE SHOWN ON MORE THAN ONE PAGE. REFER TO TABLE (PAGES 7-9) FOR CORRECT PART QUANTITIES.
- SYMBOLS, DESIGNATIONS AND GENERAL DRAWING METHODS STD 101-0005 AND 5023,503.



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Document Title  
**INSTALL, HARN  
MAIN CAB**

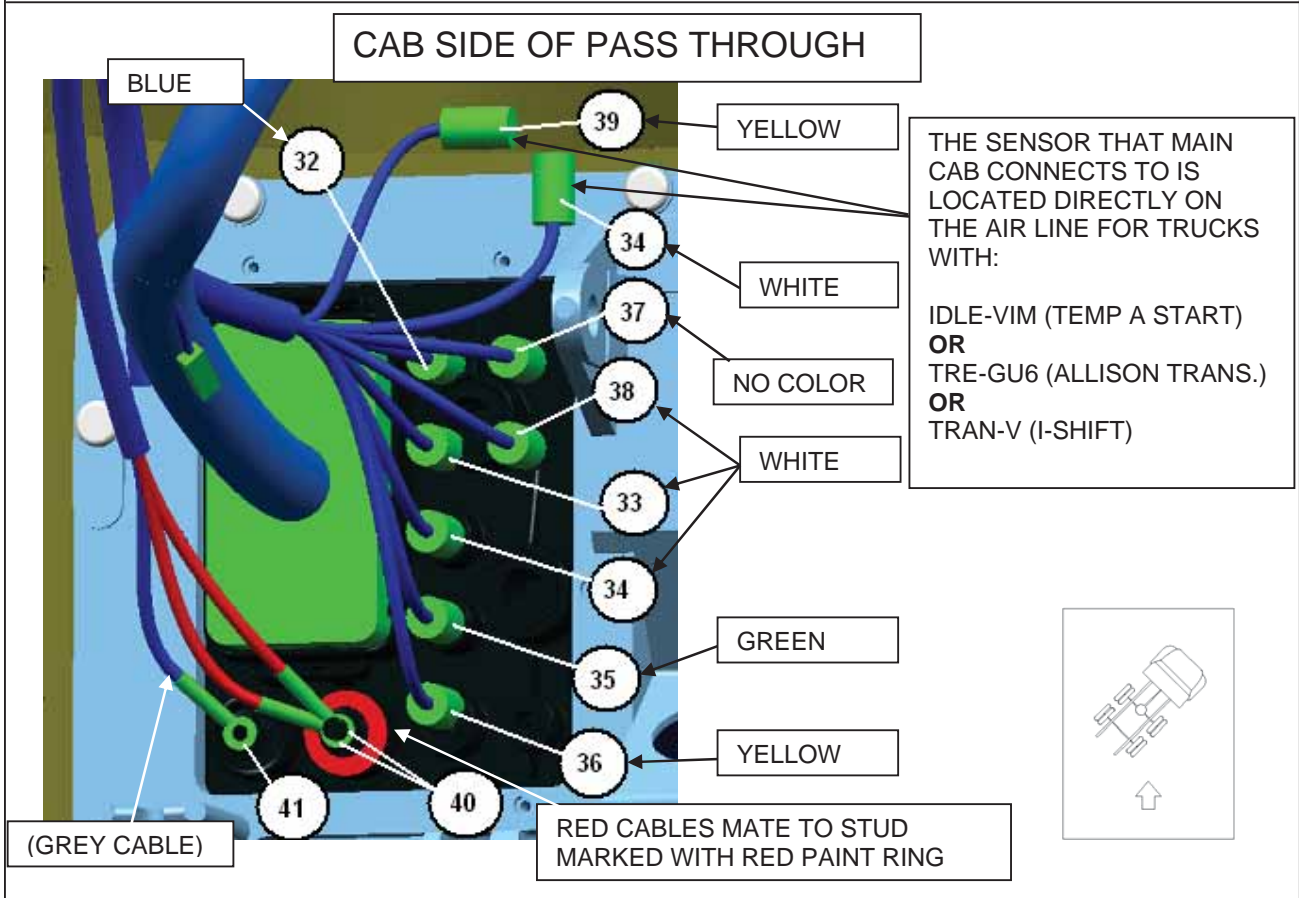
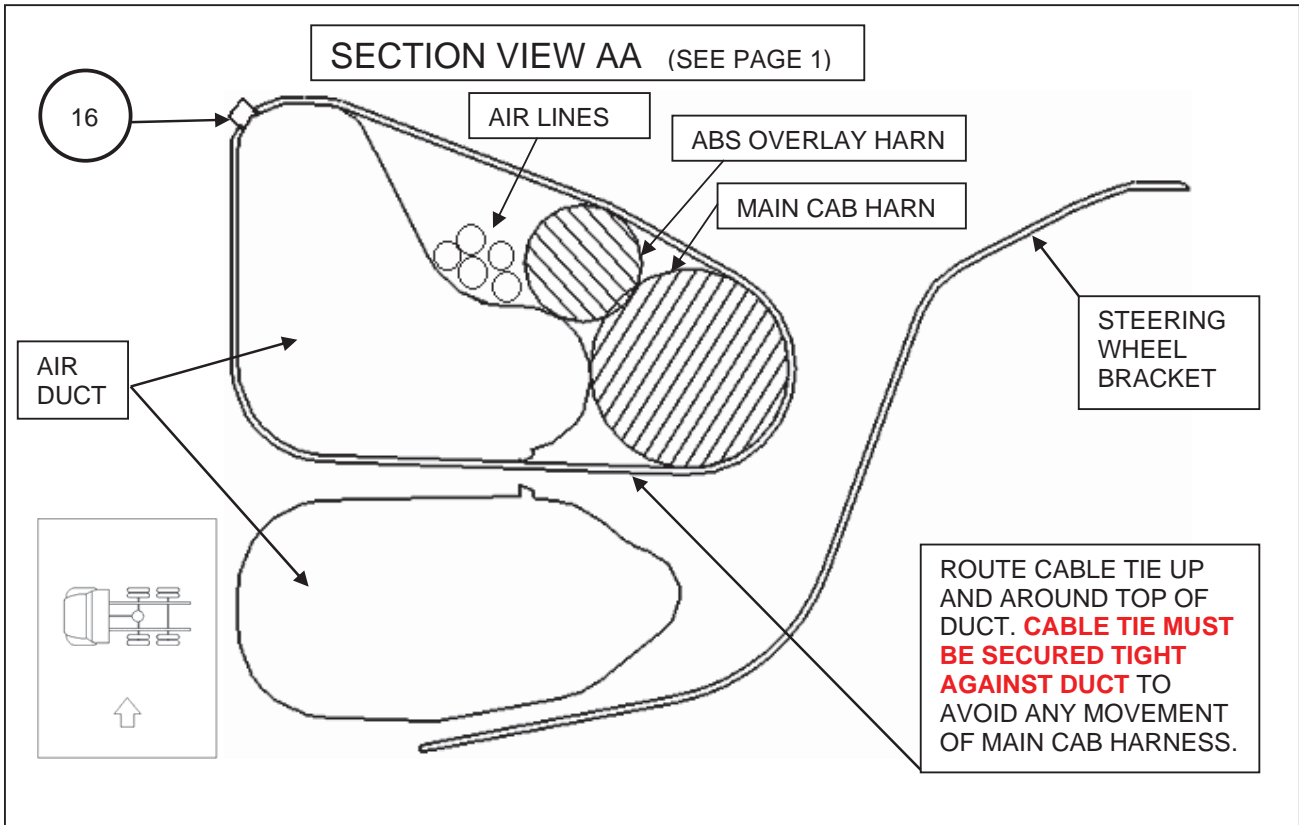
EDM-W 2000-04-01

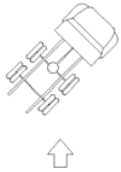
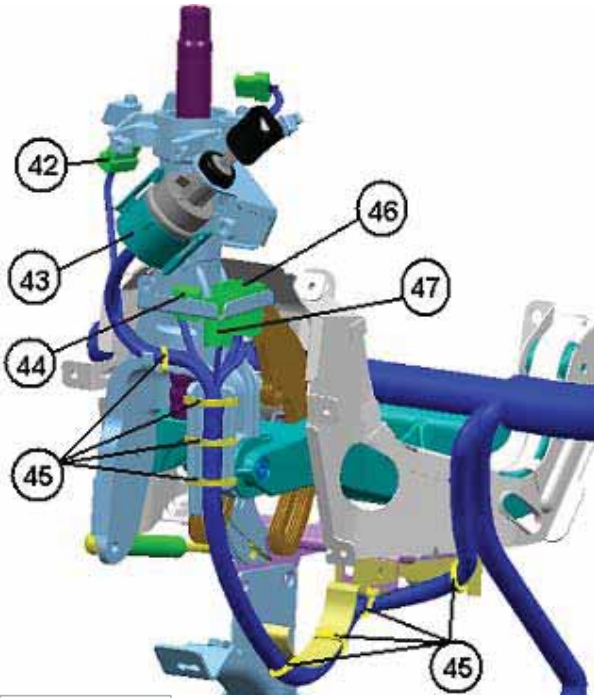
**VOLVO**  
Volvo Trucks North America  
Volvo Group North America, Inc.

Document Type  
**INSTALLATION REQUIREMENT**

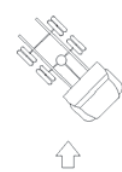
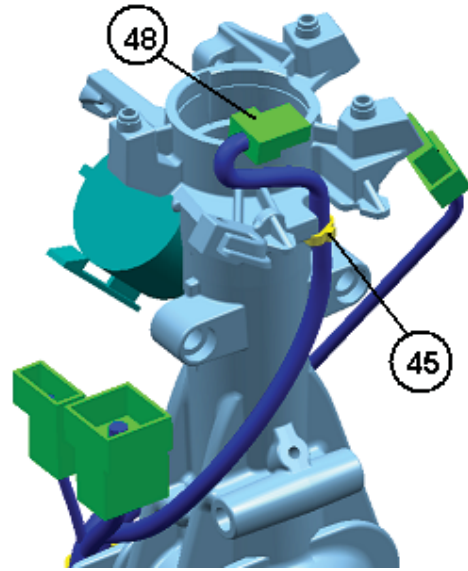
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Document No <b>21134826</b>	Issue Index <b>01</b>	Volume No <b>01</b>	Page No <b>1(9)</b>
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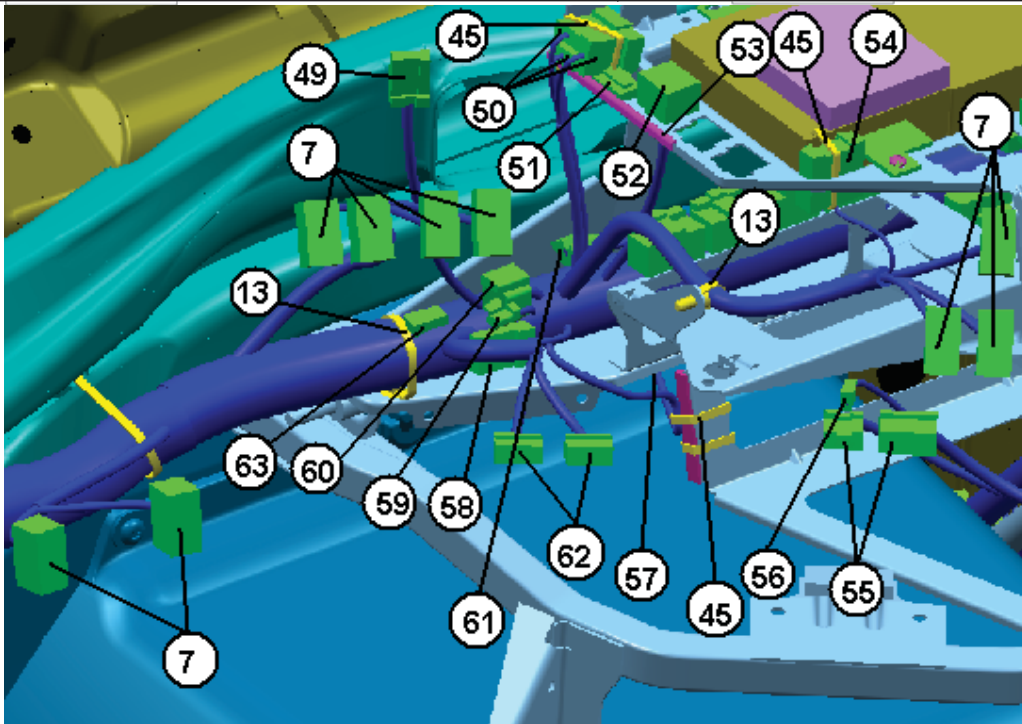




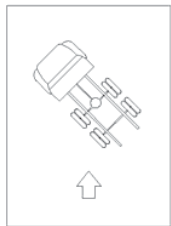
STEERING COLUMN  
ASSEMBLY AREA



STEERING COLUMN  
ASSEMBLY AREA



TECH CENTER  
DRIVER SIDE



**VOLVO**

Volvo Trucks North America  
Volvo Group North America, Inc.

Document Title  
**INSTALL, HARN**

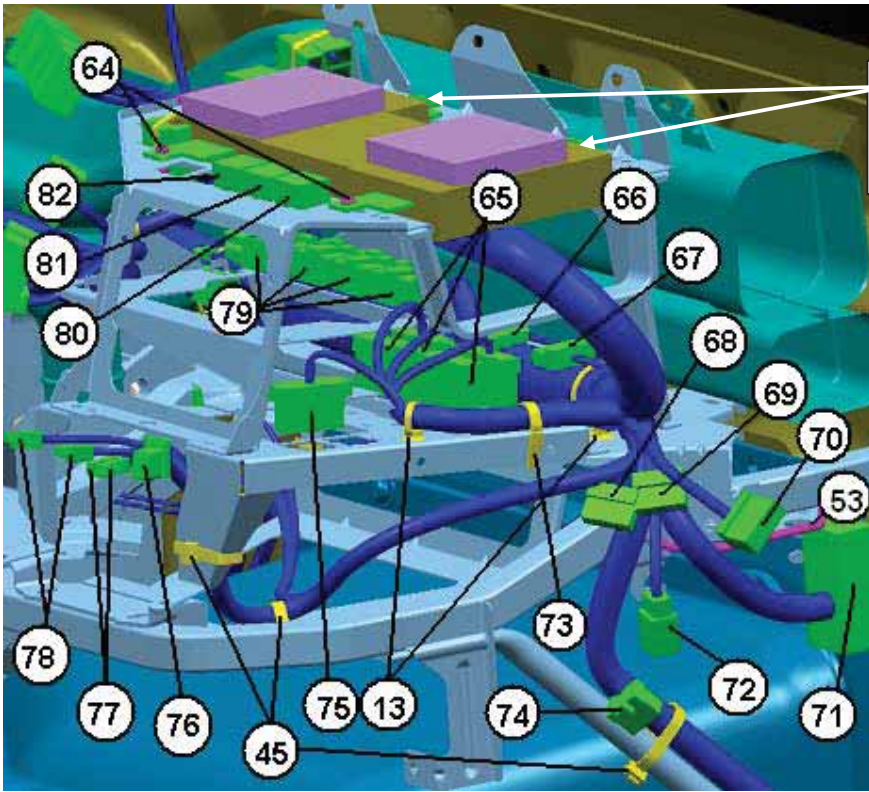
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Document No  
**21134826**

Issue Index  
**01**

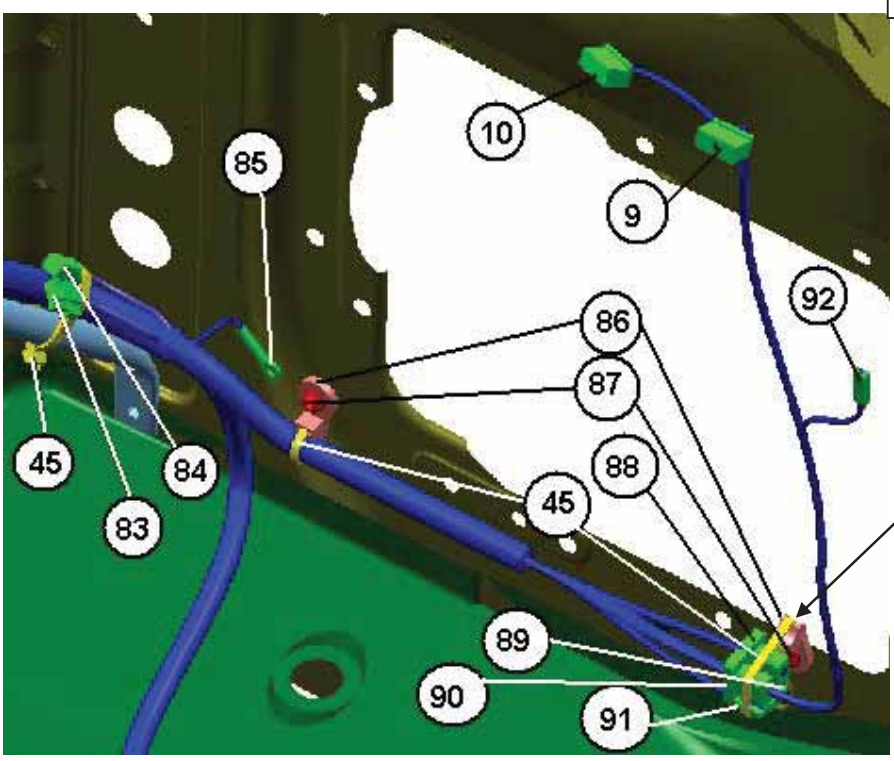
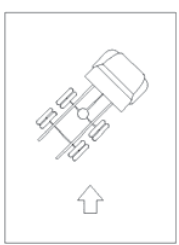
Volume No  
**01**

Page No  
**3(9)**



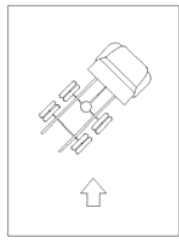
TECH CENTER PASS. SIDE

2 ADDITIONAL 971306 SCREWS (BALLOON 64) LOCATED BEHIND FRC UNIT



PASSENGER FLOOR AREA

NOTE: CABLE TIE CLIP (BALLOON 86) IS MOUNTED TO STUD POINTING UP AT THIS LOCATION. (CLIP POINTS DOWNWARD AT THE INBOARD STUD MOUNT LOCATION)



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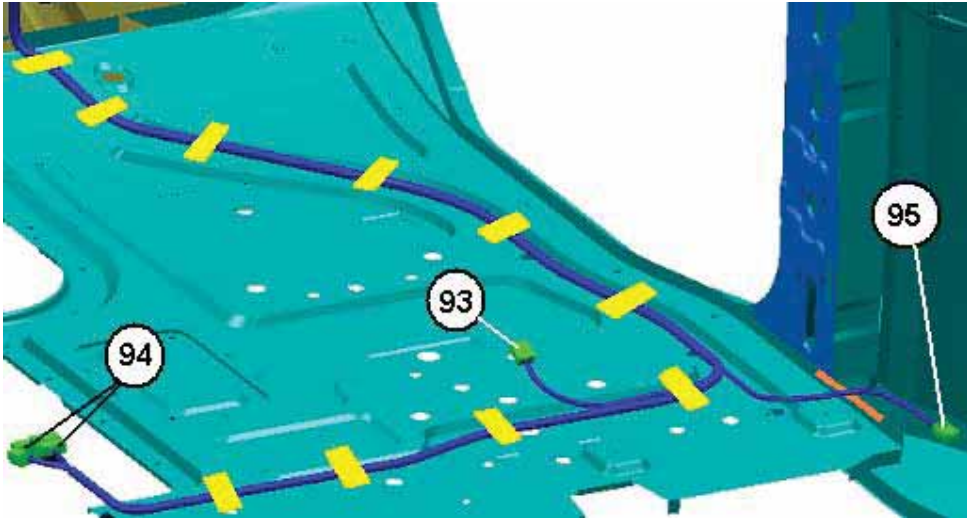
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Document No  
**21134826**

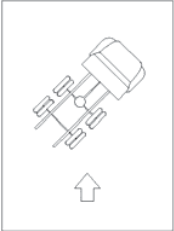
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**01**

Volume No  
**01**

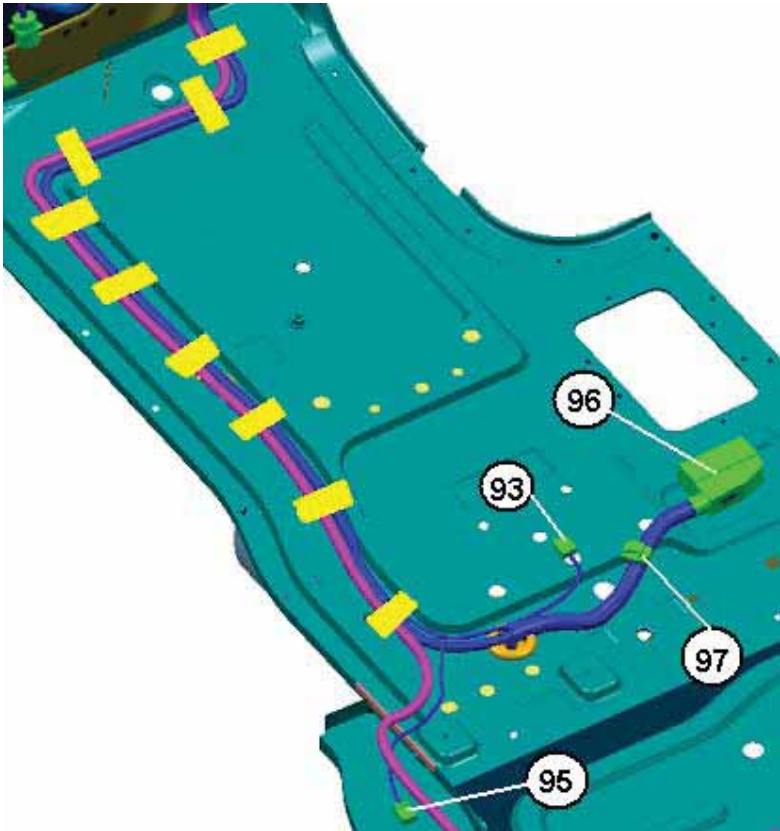
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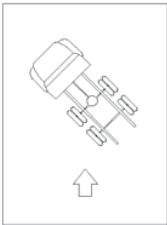
PASSENGER  
FLOOR INSIDE OF  
CAB



ALL CABS EXCEPT THOSE WITH DUAL OR LH EXHAUST



DRIVER SIDE FLOOR  
INSIDE OF CAB



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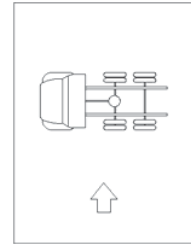
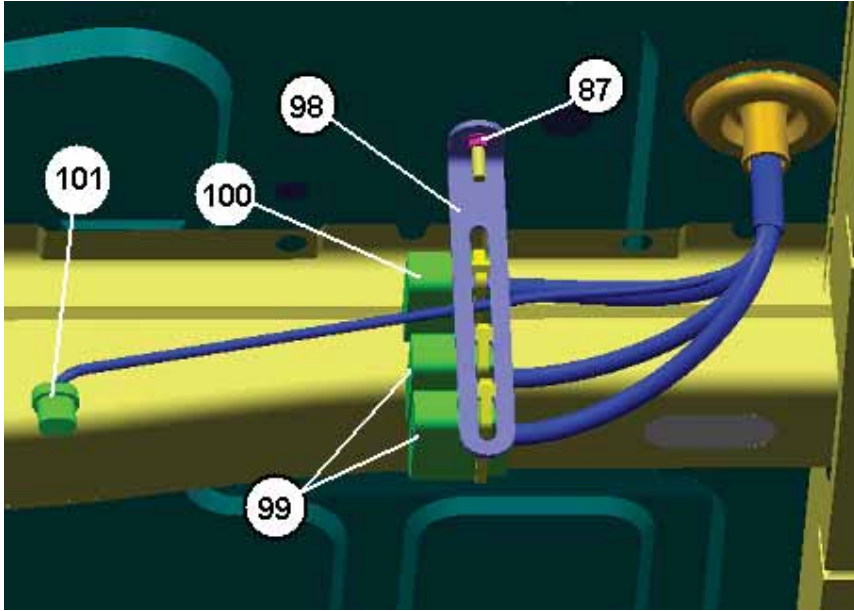
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**21134826**

Issue Index  
**01**

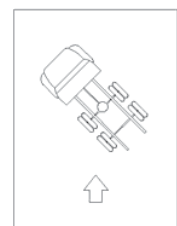
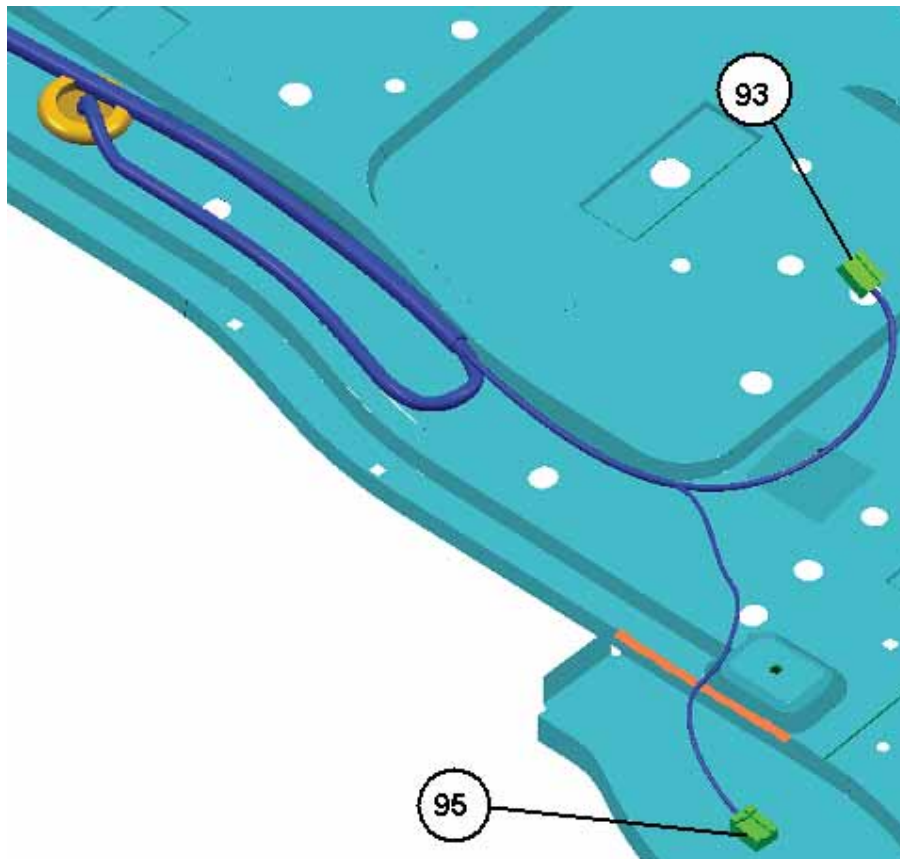
Volume No  
**01**

Page No  
**5(9)**

ALL CABS EXCEPT THOSE WITH DUAL OR LH EXHAUST



CABS WITH DUAL OR LH EXHAUST



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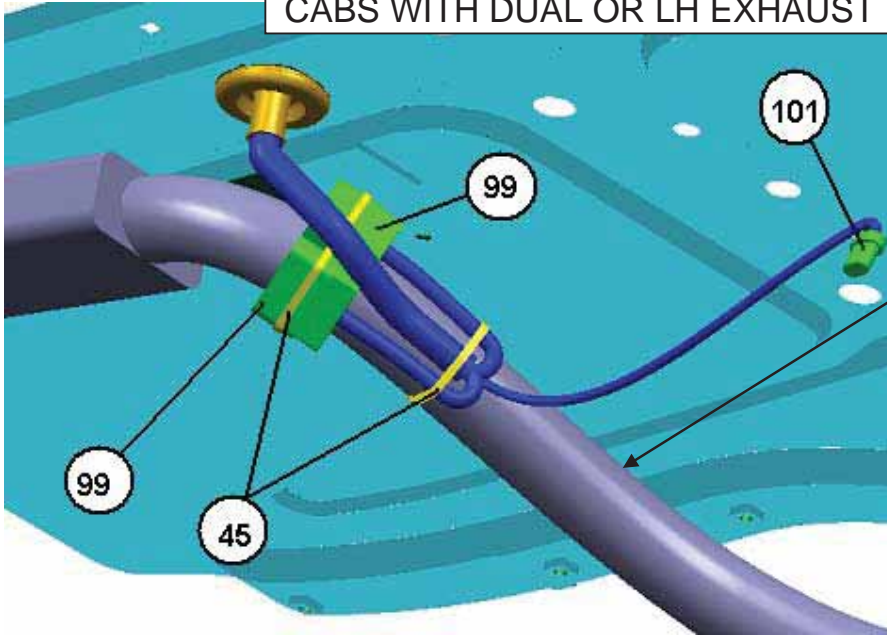
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**21134826**

Issue Index  
**01**

Volume No  
**01**

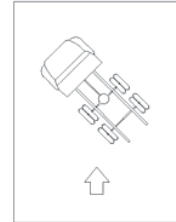
Page No  
**6(9)**

## CABS WITH DUAL OR LH EXHAUST



MAIN CAB TIES  
BACK TO AIR  
LINES AS SHOWN

(AIR LINES)



### CHART FOR VOLVO PRODUCT ONLY

ITEM	PART #	QTY	DESCRIPTION	REMARKS	PAGE
1			DOOR SPKR	REF (MCDL2)	1
2			MIRROR	REF (MCMJ2)	1
3			DOOR HARN	REF (MCDL3)	1
4			DOOR HARN	REF (MCDL4)	1
5			LIFT AXEL OVERLAY	REF (MCLA)	2
6			DIAGNOSTIC CONNECTOR	REF (Z01)	1
7			SWITCH PANEL	REF (SEE INSTALL FOR FUNCTION GROUP 364)	1, 3
8			LIGHT CONTROL PANEL	REF (S01)	1
9			TWEETER	REF (B61A, B61B)	1,4
10			SPEAKER	REF (B60A)	1,4
11			INSTRUMENT CLUSTER A	REF (A03A)	1
12			INSTRUMENT CLUSTER B	REF(A03B)	1
13	20466164	6	CABLE TIE		1, 3, 4
14			INSTRUMENT CLUSTER C	REF (A03C)	1
15			CLUTCH SWITCH	REF (S58A, S58B)	1
16	949902	5	CABLE TIE (XTRA LONG)		1
17			GROUND SPLICE PACK	REF (XOB)	1
18			SLEEPER	REF (MCSL4)	1
19			SLEEPER	REF (MCLS3)	1
20			SLEEPER	REF (MCSL1)	1
21			SLEEPER	REF (MCSL2)	1

# VOLVO

Volvo Trucks North America  
Volvo Group North America, Inc.

Document Title

**INSTALL, HARN**

Document Type

**INSTALLATION REQUIREMENT**

Document No

**21134826**

Issue Index

**01**

Volume No

**01**


Page No

**7(9)**

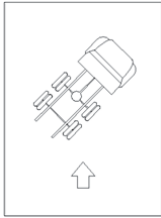
22	980883	1	CABLE TIE		1
23			ACCELERATOR PEDAL	REF (B25)	1
24			BRAKE SWITCH	REF (S59.A, S59.B)	1
25			GROUND	REF (X06A, X06B)	1
26			CUSTOMER OPTION	REF (MCTT)	1
27			*****NOT IN USE*****		
28			SPLICE PACK - GND	REF (SKX03.D)	1
29			SPLICE PACK - ILLUMI	REF (SK141A)	1
30			SNOW PLOW OVERLAY	REF (MCPL2)	1
31			VORAD OVERLAY	REF (MCVE)	1
32			REAR SUP (BLUE)	REF (B58R)	2
33			AP-TD (WHITE)	REF (B06AP)	2
34			PBS (WHITE)	REF (S43)	2
35			B-TD (GREEN)	REF (B06A)	2
36			A-TD (YELLOW)	REF (B06B)	2
37			FRT-SUP (NO COLOR)	REF (B56)	2
38			SLS (WHITE)	REF (S48)	2
39			TAS-PBS (YELLOW)	REF (S43A)	2
40			GROUND STD	REF (U01C, U01D)	2
41			POWER STUDS	REF (X03D, X03E, X03F, U01)	2
42			STALK SWITCH	REF (S02)	3
43			IGNITION SWITCH	REF (S15)	3
44			ALLISON RETARDER	REF (S24A)	3
45	948211	19	CABLE TIE		3, 4, 5, 6, 7
46			WIPER CONTROL SW	REF (S06)	3
47			HORN	REF (S14A)	3
48			CONTACT REEL	REF (Z06)	3
49			DISPLAY TIRE INFLATION	REF (A52)	3
50			AUX SW POWER	REF(X17A1,X17B1,X17C1)	3
51			CB MOUNTING (DASH)	REF (MCCB)	3
52			RELAY - BATTERY PROTECTION (ER8)	REF (RLY44)	3
53	1203161	2	EDGE PROTECTION	LENGTH 150MM	3, 4
54			MAXI FUSE (TRAILER)	REF (MF01)	3
55			RADIO JUMPER	REF (RJMC, RJMC2)	3
56			RADIO (YELLOW)	REF (A07D.C)	3
57			SRS MODULE	REF (A15)	3
58			SPLICE PACK - GND	REF (SKX03F_A)	3
59			ENGINE BRAKE	REF (MCEB2)	3
60			ENGINE BRAKE	REF (MCEB1)	3
61			DOOR LOCK	REF (MCLK)	3
62			CLIMATE CONTROL	REF (A34.A, A34.B)	3
63			AUX SW	REF (MCAX)	3
64	971306	4	SCREW	M5*16	4
65			VECU	REF (A17A, A17B, A17C)	4

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	<b>INSTALL, HARN</b>			
	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21134826</b>	<b>01</b>	<b>01</b>	<b>8(9)</b>	

66		SPLICE PACK – ILLUMI	REF (SK141B)	4	
67		SPLICE PACK - GND	REF (SKX03F_A)	4	
68		DATALINK S.P. (LOW)	REF (SK1587L)	4	
69		DATALINK S.P. (HI)	REF (SK1587H)	4	
70		HVAC UNIT	REF (E32A)	4	
71		TEMP A START	REF (A14F.A THRU C)	4	
72		ESPD CONVERTER	REF (B160)	4	
73	980464	1	CABLE TIE	4	
74		SNOWPLOW OVERLAY	REF (MCPL)	4	
75		I-SHIFT ECU	REF(A19B)	4	
76		SENSOR INDOOR TEMP	REF (B59)	4	
77		ASHTRAY ILLUMINATION	REF (E20.A, E20.B)	4	
78		12V SOCKET	REF (G05A, G05F)	4	
79		LCM	REF (A27.A THRU D)	4	
80		RELAY - ALLISON BODY BUILDER (ER1)	REF (RLY24)	4	
81		RELAY - ALLISON BODY BUILDER (ER2)	REF (RLY23)	4	
82		RELAY - I-SHIFT POWER	REF (RLY33B)	4	
83		BODY BUILDER	REF(MCBB)	4	
84		OVERLAY	REF (MCVL)	4	
85		GROUND	REF (X06A, X06B)	4	
86	8081349	2	RETAINER, 8	4	
87	945407	3	FLANGE NUT	M6	6
88		OVERHEAD FRONT	REF (MCOF1)	4	
89		DOOR	REF (MCDR2, MCDR3)	4	
90		BODY BUILDER CAMERA	REF (Z04)	4	
91		RADIO SHELF	REF (MCRS)	4	
92		POWER MIRROR	REF (MCMJ1)	4	
93		POWER SEAT	REF (M20L, M20R)	5, 6	
94		BODY BUILDER	REF (Z03A, Z03B)	5	
95		SIDE REPEAT	REF (MCSR1, MCSR2)	5, 6	
96		ECU - ALLISON TRANS	REF (A57A)	5, 6	
97		POWER SEAT	REF (MCST1, MCST2, MCST3)	5	
98	965564	1	BRACKET	6	
99		TRANSMISSION	REF (MCTR1 THRU 5)	6, 7	
100		TEMP A START	REF (MCTS)	6	
101		WASHER PUMP	REF (M02B)	6, 7	

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	<b>INSTALL, HARN</b>			
	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21134826</b>	<b>01</b>	<b>01</b>	<b>9(9)</b>	

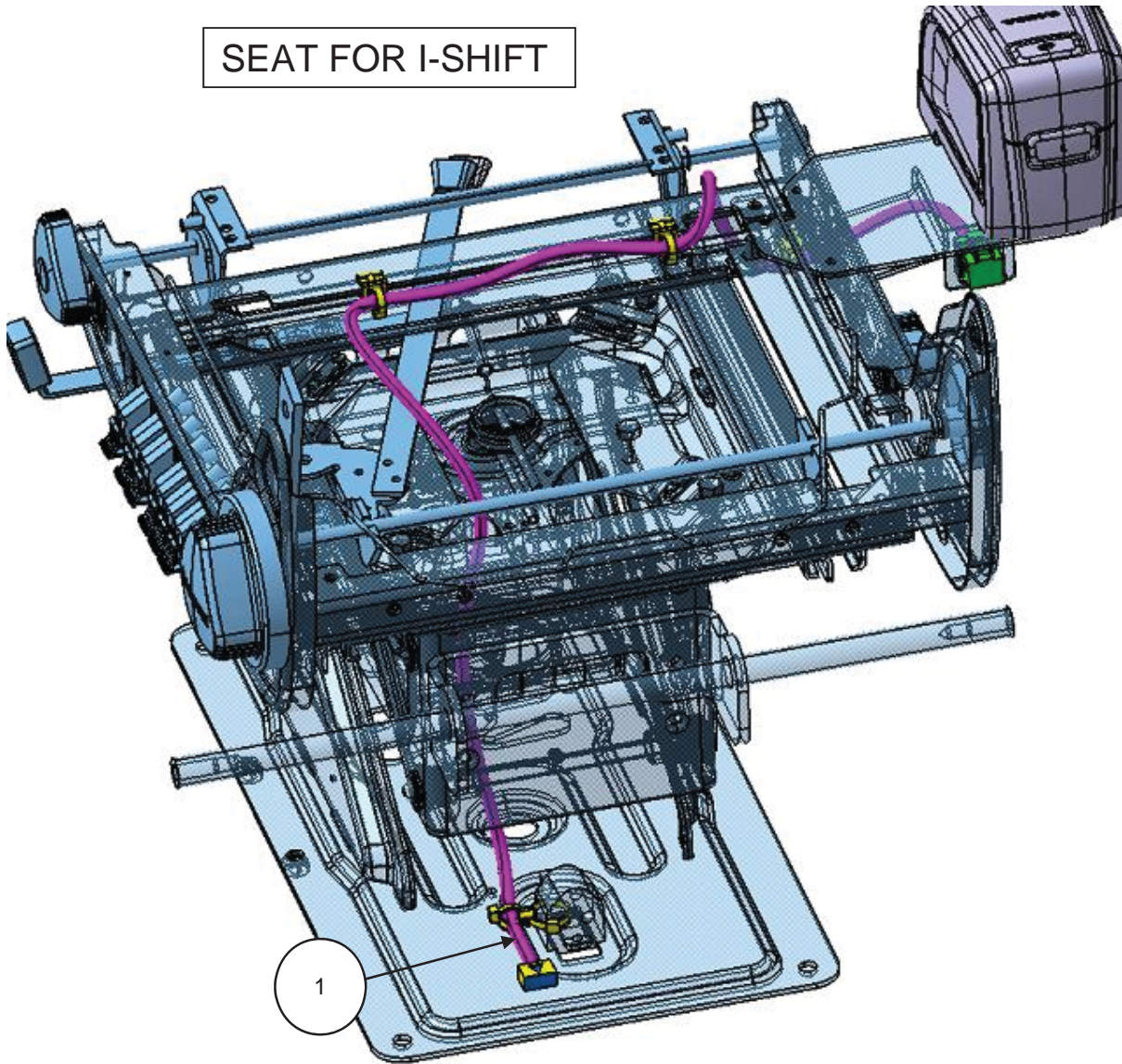
Engineering Release Notice (ERN)	Location	Change Description	A = Added D = Deleted	W = Was	Document Release Status <b>RELEASED</b>
					Date
					Modification Count



**NOTES:**

- INSTALL IS GOOD FOR I-SHIFT SEAT HARNESS AND DASH MOUNTED ECU.
- INSTALL CREATED WITH HELP MODEL 82732097 AND GRUNKA 82732098
- SCREW JOINT TORQUE NOT IDENTIFIED IN THE DOCUMENT SHALL COMPLY WITH VOLVO STADARD 5511,15. THE MEDIUM LEVEL TORQUE APPLIES IF A MEDIUM LEVEL TORQUE IS IDENTIFIED IN THE STANDARD.

**SEAT FOR I-SHIFT**



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Document Title  
**INSTALL, I SHIFT  
HARN AND ECU**

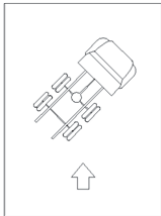


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Document No	Issue Index	Volume No	Page No
<b>22010946</b>	<b>01</b>	<b>01</b>	<b>1(5)</b>

EDM-W 2000-04-01



## BASE OF SEAT

CUT AND REMOVE CABLE TIE FOR VENDOR HARNESS FROM RUBBER STOPPER AT BASE OF SEAT (WHEN APPLICABLE) AND ROUTE VENDOR HARNESS WITH SHIFTER HARNESS THROUGH DOUBLE RETAINER CABLE TIE (2). VENDOR HARNESS NOT SHOWN.

TO FRONT CROSS BAR OF SEAT

2

CONNECTS TO MAIN CAB HARN

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Document Title

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Document Type

**INSTALLATION REQUIREMENT**

Document No

**22010946**

Issue Index

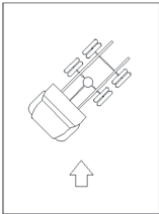
**01**

Volume No

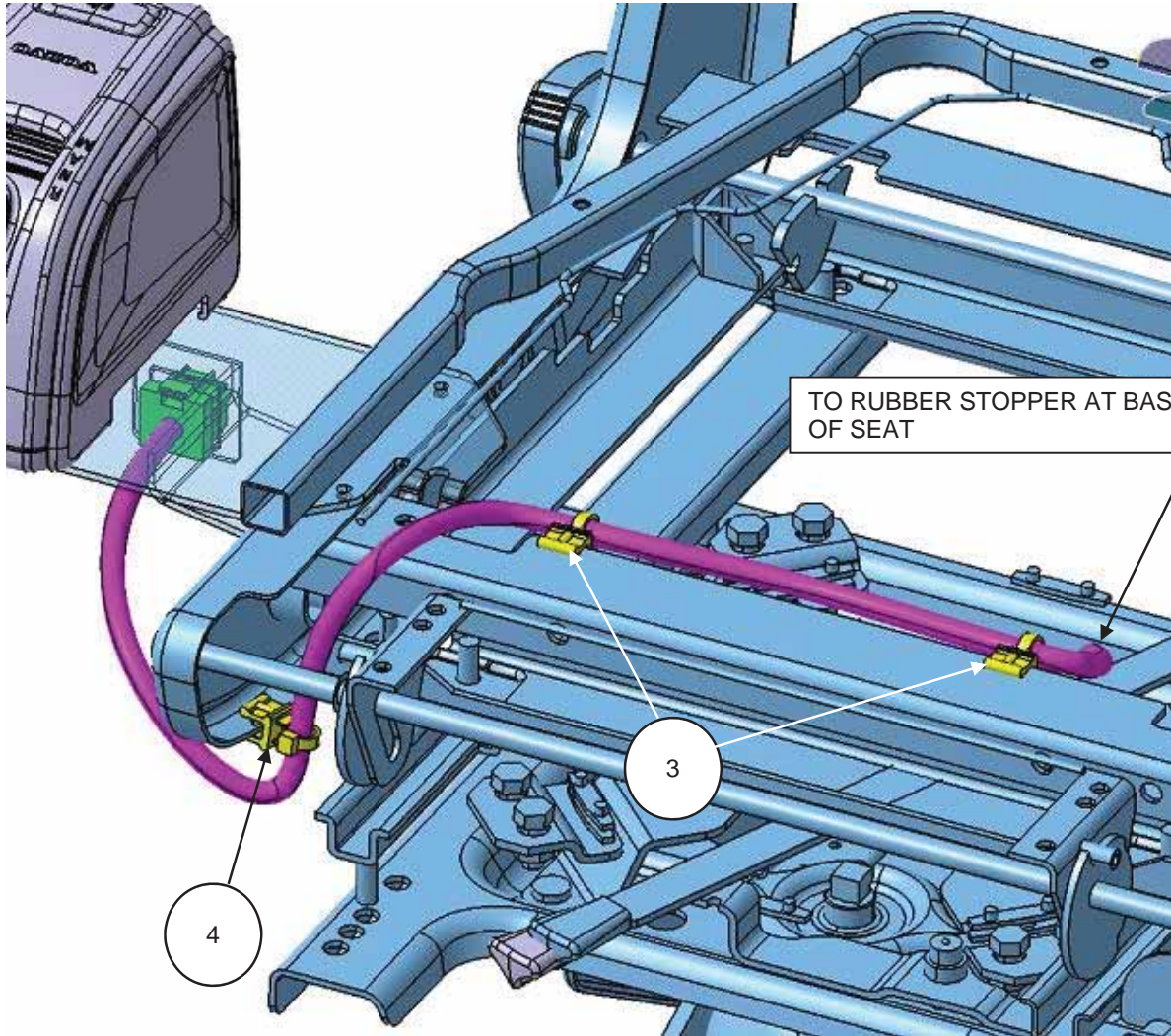
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Page No

**2(5)**



# UNDER SEAT CUSHION



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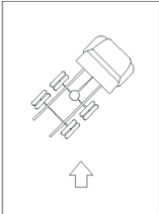
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Document No  
**22010946**

Issue Index  
**01**

Volume No  
**01**

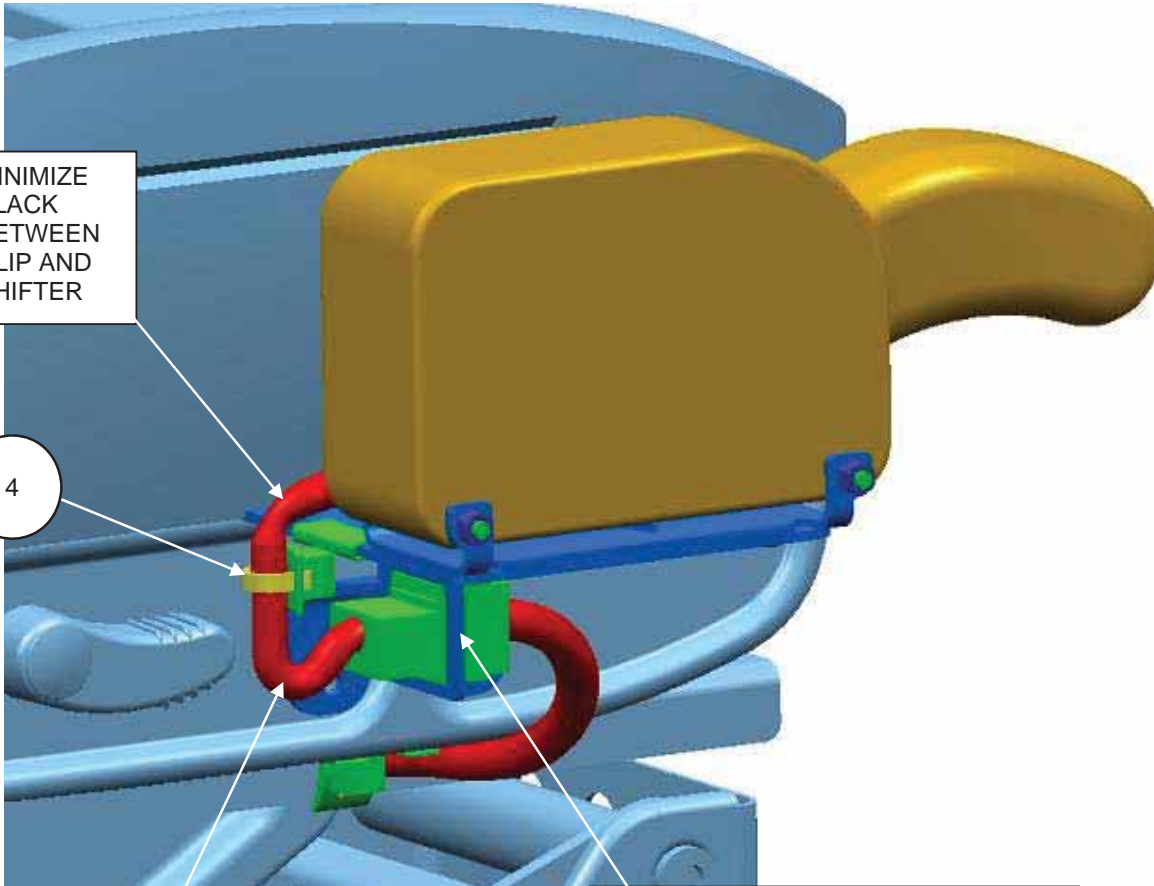
Page No  
**3(5)**



SHIFTER ON SIDE OF SEAT

MINIMIZE SLACK BETWEEN CLIP AND SHIFTER

4



CREATE A DRIP LOOP FOR THE SHIFTER PIGTAIL WITH CABLE TIE (4) AS SHOWN.

CLIP SHIFTER PIGTAIL AND SEAT HARN CONNECTORS INTO SHIFTER BRACKET ASSEMBLY AS SHOWN

**VOLVO**

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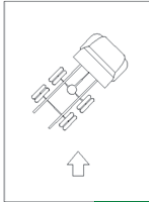
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Document No  
**22010946**

Issue Index  
**01**

Volume No  
**01**

Page No  
**4(5)**



## SHIFTER ECU IN TECH CENTER

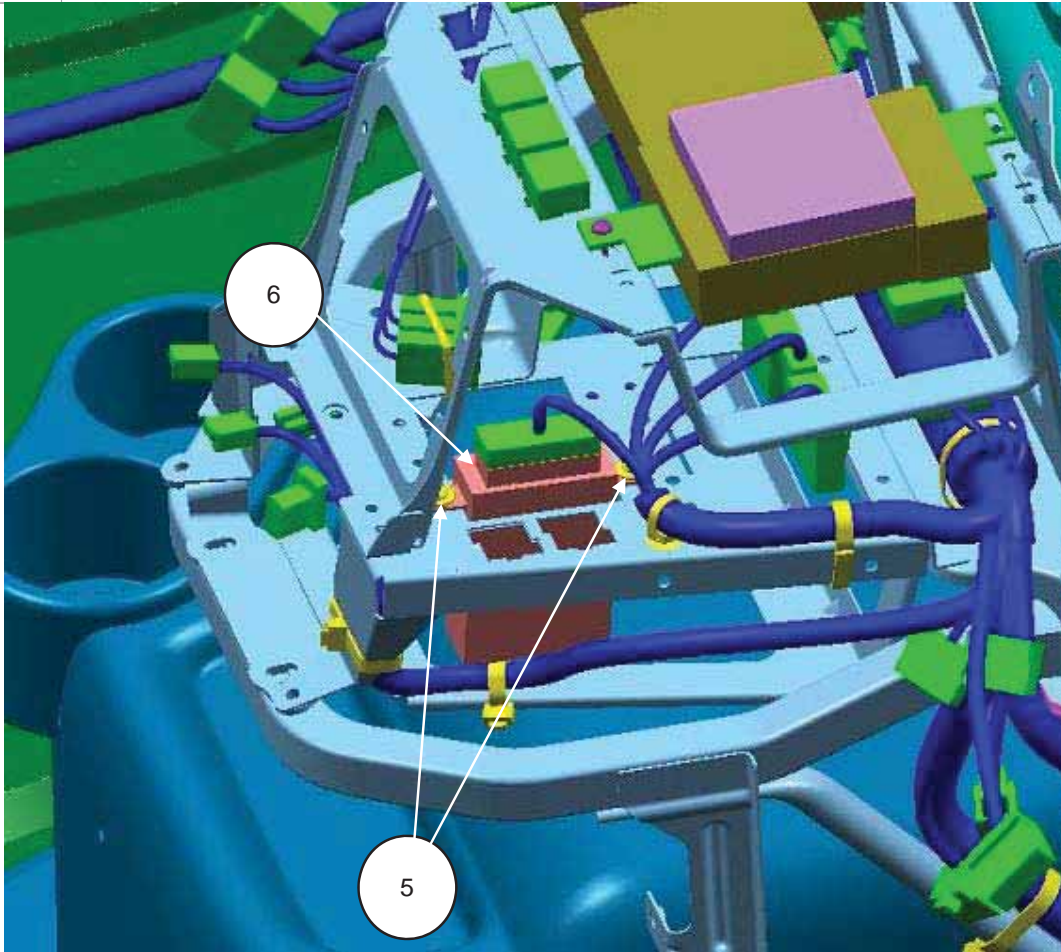


CHART FOR REFERENCE ONLY

#	PART #	QTY	PART NAME	NOTES
1	20962710	1	WIRES, SEAT, I-SHIFT	
2	20885496	1	RETAINER, DOUBLE TIE RETAINER	
3	21096682	2	CABLE TIE, 45	EDGE CLIP CABLE TIE HORIZONTAL
4	25375492	2	CABLE TIE, 45	EDGE CLIP CABLE TIE VERTICAL
5	971306	2	SIX POINT SOCKET SCREW, M5*16	
6	21194165	1	CONTROL UNIT, GSECU	

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Document Title  
**INSTALL, I SHIFT**

Document Type  
**INSTALLATION REQUIREMENT**

Document No  
**22010946**

Issue Index  
**01**

Volume No  
**01**

Page No  
**5(5)**

## Howell, Rosa (NHTSA)

---

**From:** Lew Derek  
**Sent:** Thursday, April 11, 2013 12:53 PM  
**To:** Louzon Mark; Bartel John; Henson Toby  
**Subject:** FW: Controls assistance needed  
**Attachments:** 21134826[2].01.1.w.pdf; 21090262[1].01.1.w.pdf; 22010946\_01\_1.pdf

**Importance:** High

Here is vehicles answer for #12 for the NHTSA inquiry.

Thanks

*Best Regards,*

\*\*\*\*\*

*Derek Lew  
Project Engineer – AMT & Mack Axles  
Driveline & Hybrid Subsystem*

*Volvo Group Trucks Technology  
13302 Pennsylvania Ave.  
Hagerstown, MD 21742  
Phone: 1-301-790-5400 x5062  
Fax: 1-301-790-6744  
Email: [derek.lew@volvo.com](mailto:derek.lew@volvo.com)*

---

**From:** Teasley Timothy  
**Sent:** Thursday, April 11, 2013 12:19 PM  
**To:** Louzon Mark  
**Cc:** Edwards Walter; Lew Derek; Lafon Tim (othy)  
**Subject:** RE: Controls assistance needed

Lew  
Attached is the main cab wiring install for 2009, 21134826, it shows how all the main cab wiring is installed, also attaché is the 2009 transmission harness installation, 21090262, I also attached the 2010 version, 21321725, since it has the detail for the cab interface. Drawing 22010946 is the current I-shift gear selector and gear selector ECU installation and it replaced Installation 21274969 in week 46 of 2012, both are attached. The file for the US07 schematic is in RAPID under number 20758328, refer to pages 9, 26, and 80. Page 26 is the main page for I-shift wiring and links to the other 2 pages. If you need more information I will help you as I can or refer you to the engineer with more in depth knowledge.

BR

Mark

## MARK TEASLEY

Lead Engineer

Volvo Trucks North America

Electrical Department (18921) TC2-35

7900 National Service Road (27409)

Greensboro,NC,27402-6115

Telephone: 336 393 3998

Fax:336 393 2773;

E-mail: [timothy.teasley@Volvo.com](mailto:timothy.teasley@Volvo.com)

---

**From:** Louzon Mark

**Sent:** Thursday, April 11, 2013 10:59 AM

**To:** Teasley Timothy

**Cc:** Edwards Walter; Lew Derek; Lafon Tim (othy)

**Subject:** FW: Controls assistance needed

**Importance:** High

Mark,

Derek Lew will be contacting you shortly for some information required to fulfill a request from NHTSA (National Highway Transit and Safety Admin) regarding I-Shift transmissions. The details are listed below in Derek's request to Walter.

The information is needed for tomorrow so Tim Lafon (legal) can prepare his response to NHTSA. Your help is needed and appreciated.

Thanks,

**Mark Louzon**

Engineering Maintenance, Group Manager

Volvo Group Trucks Technology

Powertrain Engineering

13302 Pennsylvania Avenue

Hagerstown, MD 21742

(301) 790-6733 – desk

(301) 573-1346 – mobile

Email: [mark.louzon@volvo.com](mailto:mark.louzon@volvo.com)

---

**From:** Edwards Walter

**Sent:** Tuesday, April 09, 2013 1:28 PM

**To:** Lew Derek

**Cc:** Louzon Mark

**Subject:** RE: Controls assistance needed

Hi Derek

This is a 3P part. You need to ask [timothy.teasley@volvo.com](mailto:timothy.teasley@volvo.com). He goes by Mark.

BR

*Walter*

---

**From:** Lew Derek

**Sent:** Tuesday, April 09, 2013 12:59 PM

**To:** Edwards Walter

**Cc:** Louzon Mark  
**Subject:** Controls assistance needed  
**Importance:** High

Walt,

Based on some of the things we have been looking into involving previous I-Shift concerns, Sweden has asked that we answer this question #12. Mark suggested that you may be able to provide the needed info for this.

John  
Bortell

12. Describe the manner in which the wiring harness from the I-Shift transmission gear selector to the I-Shift transmission electronic control module is routed and secure and pictorial descriptions. In addition, describe all modifications or changes made behalf of, Volvo in the design, material composition, manufacture, quality control installation of the subject wiring harness.

We need to submit all this data no later than this Friday 4/12!

Thanks!

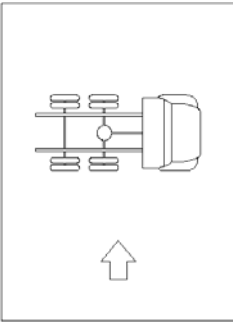
*Best Regards,*

\*\*\*\*\*

**Derek Lew**  
*Project Engineer – AMT & Mack Axles  
Driveline & Hybrid Subsystem*

*Volvo Group Trucks Technology  
13302 Pennsylvania Ave.  
Hagerstown, MD 21742  
Phone: 1-301-790-5400 x5062  
Fax: 1-301-790-6744  
Email: [derek.lew@volvo.com](mailto:derek.lew@volvo.com)*

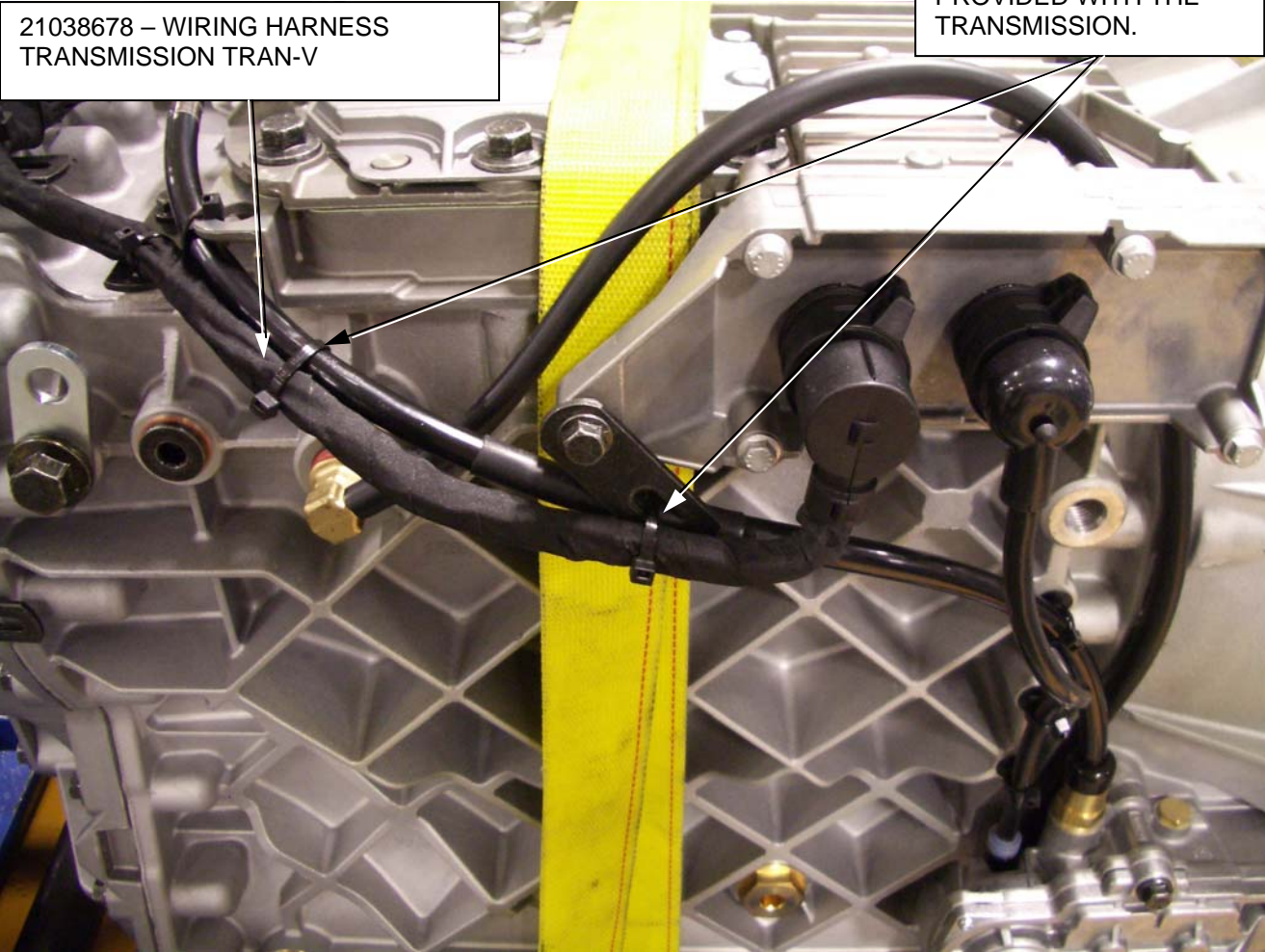
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D-13503-52					Date 2007-04-18
					Modification Count



THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE I-SHIFT WIRING HARNESS FROM THE TCM ON THE RIGHT SIDE OF THE TRANSMISSION UP TO THE TOP BACK SIDE.

21038678 – WIRING HARNESS TRAN-V

2x 948211 – CABLE TIE. CLIPPING BRACKET PROVIDED WITH THE TRANSMISSION.



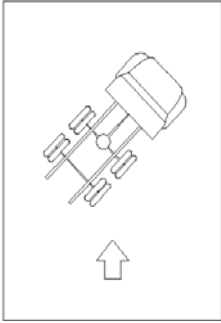
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Document Title  
**INSTALL WIRING HARNESS TRAN-V ROUTING AND CLIPPING**

**VOLVO**  
**Volvo Trucks North America**  
**Volvo Group North America, Inc.**

Document Type  
**INSTALLATION REQUIREMENT**  
Owner Domain: Document Prefix

Document No	Issue Index	Volume No	Page No
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>1(5)</b>



THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS TO THE RIGHT REAR SIDE OF THE TRANSMISSION.  
 NOTE: WIRING HARNESS IS TO BE TIED TO THE BOTTOM OF THE AIR LINE TO PREVENT ANY RUBBING OR CHAFFING.

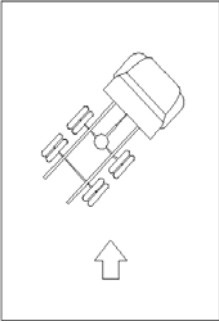
948211 – CABLE TIE.  
 NOT SHOWN IS A METAL SLEEVE AT TIE AREA ON TUBE.  
 DO NOT OVER TIGHTEN CABLE TIE.



**VOLVO**

Volvo Trucks North America  
 Volvo Group North America, Inc.

Document Title			
<b>INSTALL WIRING HARNESS</b>			
Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>2(5)</b>



THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS AT THE TOP RIGHT REAR CORNER OF THE TRANS AND ROUTING DOWN TO THE SPEEDO SENSOR CONNECTION.

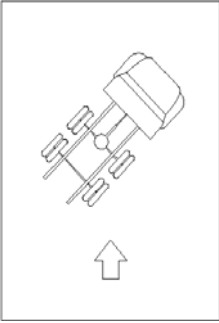


948211 – CABLE TIE. CLIPPING BRACKET SUPPLIED WITH THE TRANSMISSION.

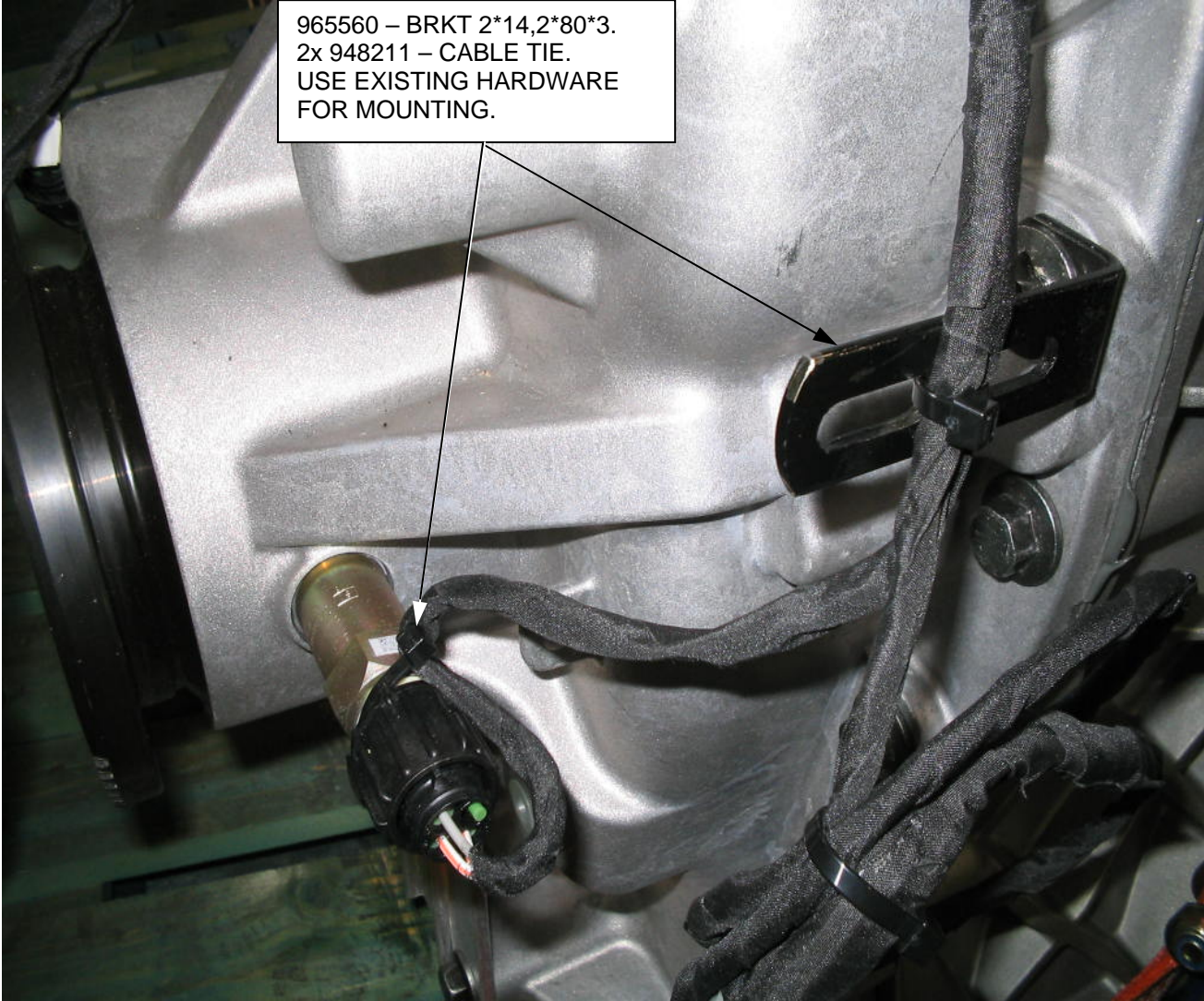
**VOLVO**

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Volvo Group North America, Inc.

Document Title			
<b>INSTALL WIRING HARNESS</b>			
Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>21090262</b>	<b>01</b>	<b>01</b>	<b>3(5)</b>

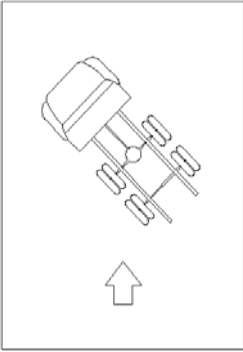


THIS VIEW SHOWS THE WIRING HARNESS ROUTED AND CLIPPED DOWN THE RIGHT REAR SIDE OF THE TRANSMISSION TO THE SPEEDO SENSOR.  
 NOTE: THE HARNESS IS TO BE TIED NEXT TO THE BRASS SPEEDO SENSOR INSERT NUT FOR STRAIN RELIEF CLIPPING.



NOTE: HARNESS TO CHASSIS AND DPF CONNECTION ARE TO BE COILED AND TIED SECURELY TO TRANSMISSION FOR SHIPPING.

 Volvo Trucks North America Volvo Group North America, Inc.	Document Title			<b>INSTALL WIRING HARNESS</b>
	Document Type			<b>INSTALLATION REQUIREMENT</b>
	Document No	Issue Index	Volume No	Page No
	<b>21090262</b>	<b>01</b>	<b>01</b>	<b>4(5)</b>



THIS VIEW SHOWS THE ROUTING AND CLIPPING OF THE WIRING HARNESS TO THE LEFT REAR TOP OF THE TRANSMISSION.

NOTE: PTO BREAKOUTS TO BE TEMPORARILY TIED BACK TO THE HARNESS AS RECEIVED FROM THE HARNESS MANUFACTURE AND WILL BE CUT LOOSE WHEN A PTO IS REQUIRED.



965558 – BRKT 2\*9\*80\*30.  
 946440 – FLG SCREW M8\*16.  
 948211 – CABLE TIE.

NOTE: HARNESS TO CAB AND GROUND CONNECTIONS ARE TO BE COILED AND TIED SECURELY TO THE TRANSMISSION FOR SHIPPING.

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 Volvo Group North America, Inc.

Document Title

**INSTALL WIRING HARNESS**

Document Type

**INSTALLATION REQUIREMENT**

Document No

**21090262**

Issue Index

**01**

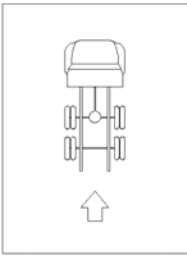
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**01**

Page No

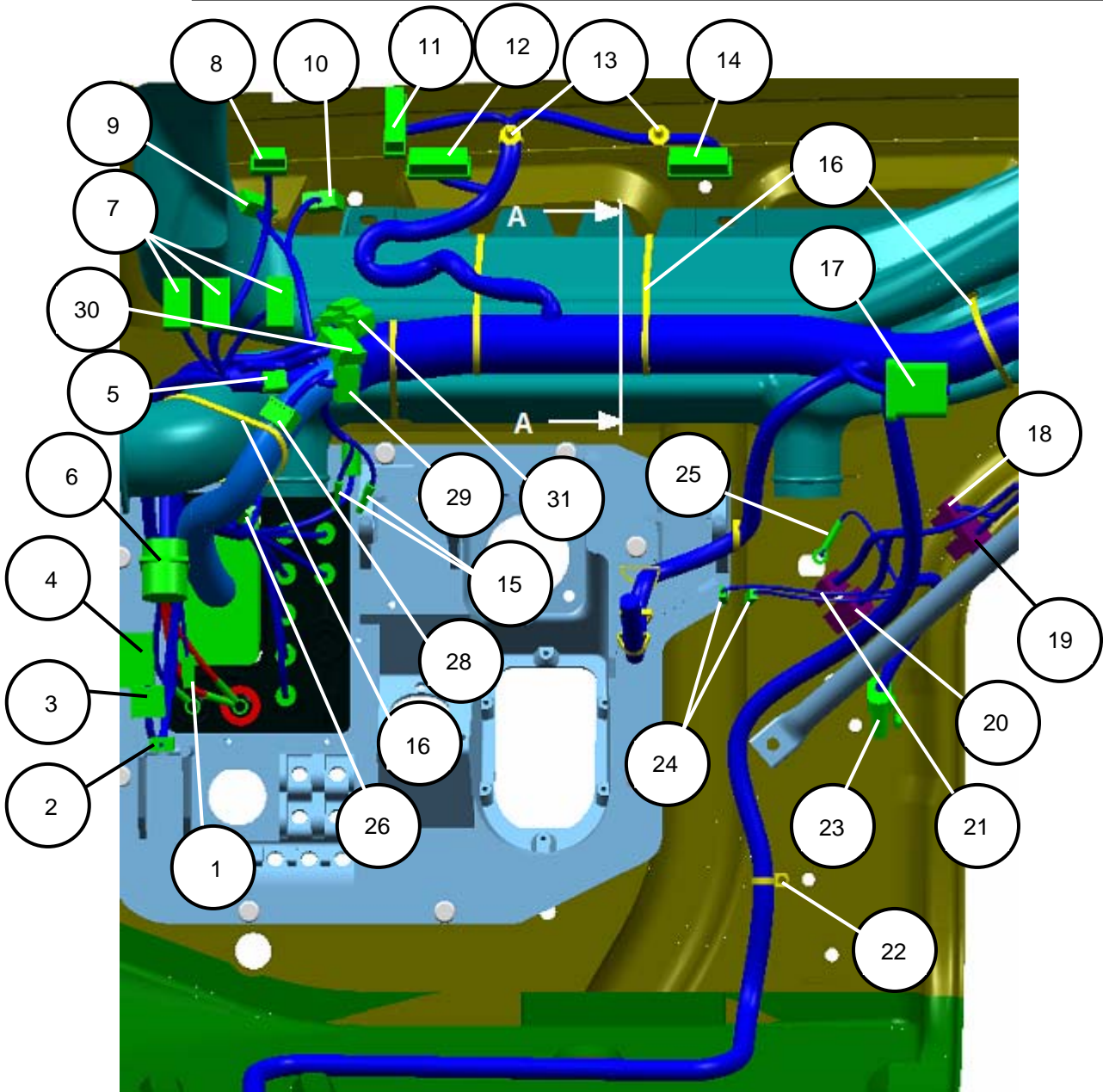
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Engineering Release Notice (ERN)	Location	Change Description	A = Added D = Deleted	W = Was	Document Release Status <b>RELEASED</b>
D-13587-42					Date 2007-09-11
					Modification Count



**NOTES:**

- SEE TABLE (PAGES 7-9) FOR BALLOON PART NUMBERS / DESCRIPTIONS.
- INSTALL IS GOOD FOR ALL MAIN CAB HARNESSSES. SEE KOLA/BOM FOR APPROPRIATE PART NUMBERS
- ITEMS MAY BE SHOWN ON MORE THAN ONE PAGE. REFER TO TABLE (PAGES 7-9) FOR CORRECT PART QUANTITIES.
- SYMBOLS, DESIGNATIONS AND GENERAL DRAWING METHODS STD 101-0005 AND 5023,503.



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Document Title  
**INSTALL, HARN  
MAIN CAB**

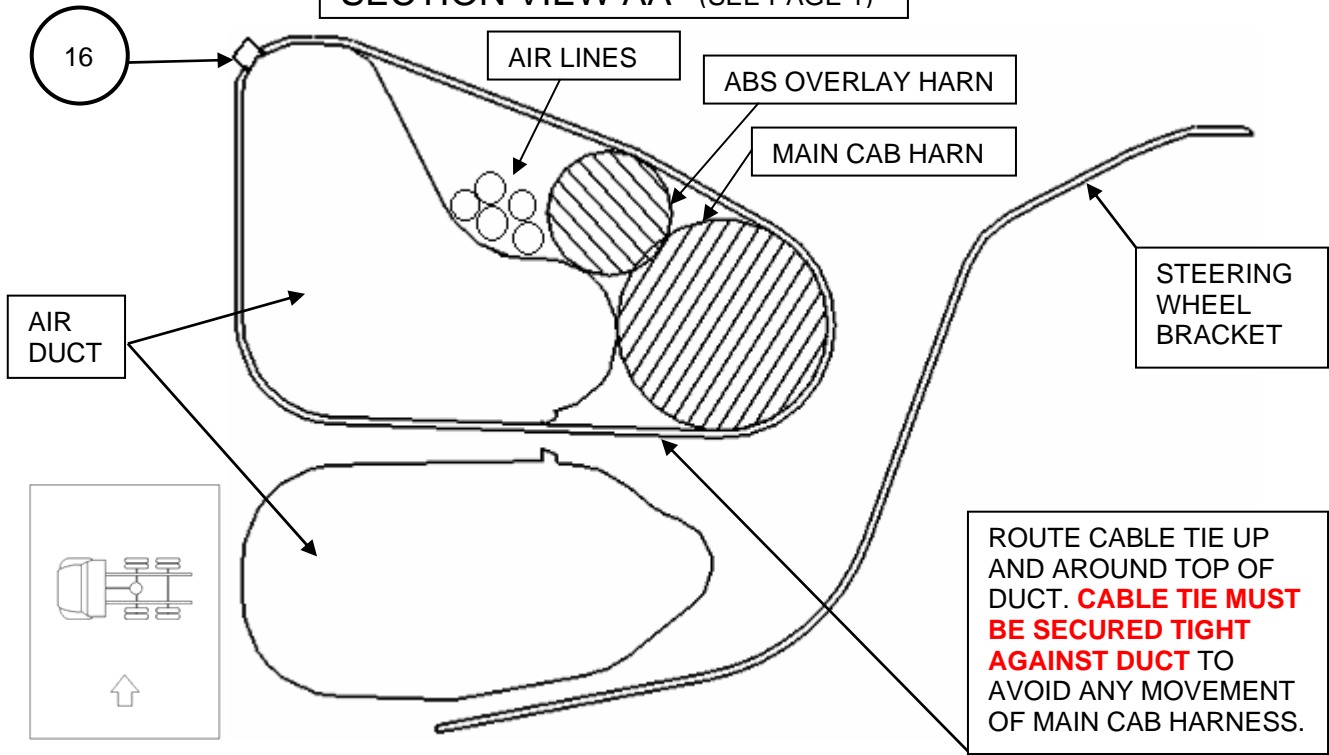
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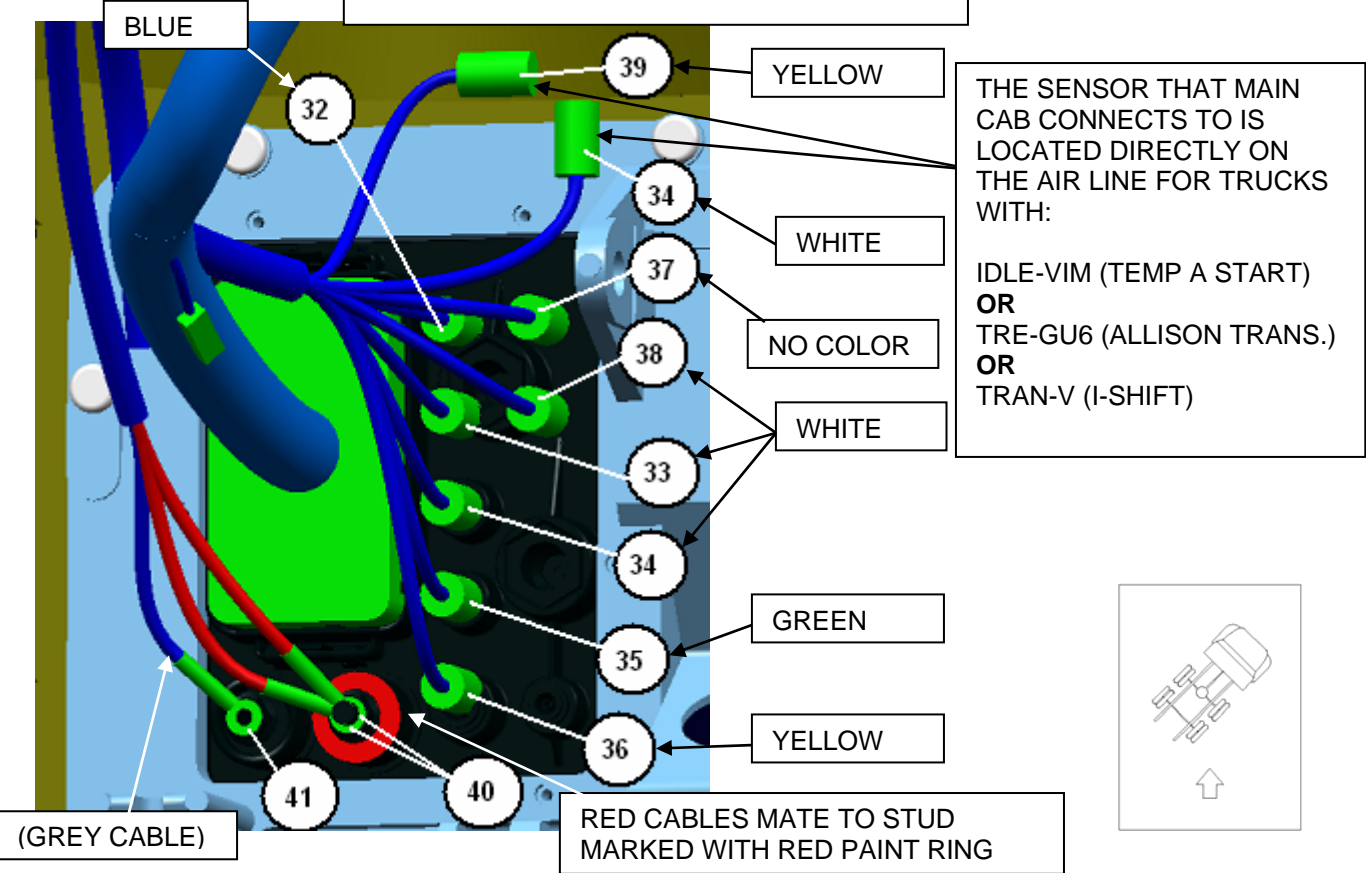
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Owner Domain: Document Prefix			
Document No <b>21134826</b>	Issue Index <b>01</b>	Volume No <b>01</b>	Page No <b>1(9)</b>

EDM-W 2000-04-01

SECTION VIEW AA (SEE PAGE 1)



CAB SIDE OF PASS THROUGH



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**INSTALL, HARN**

Document Type

**INSTALLATION REQUIREMENT**

Document No

**21134826**

Issue Index

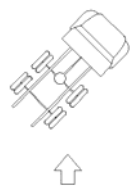
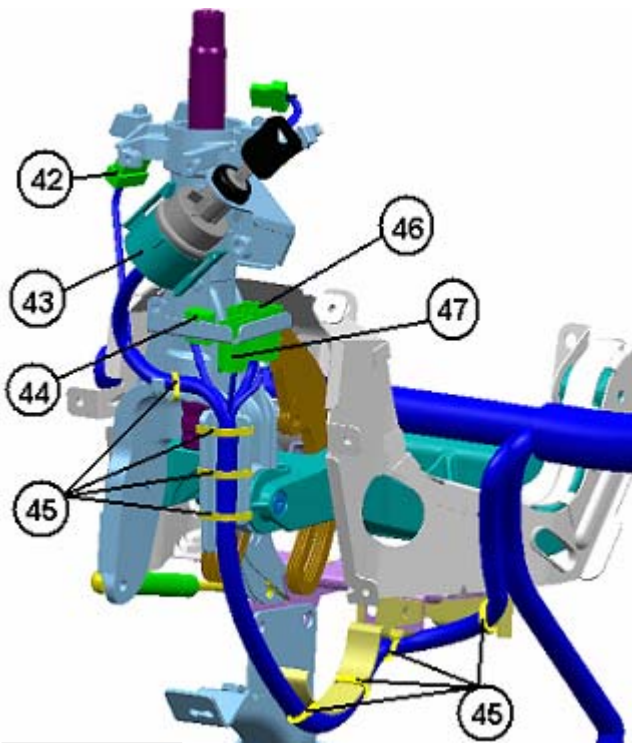
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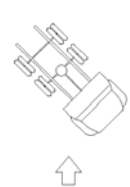
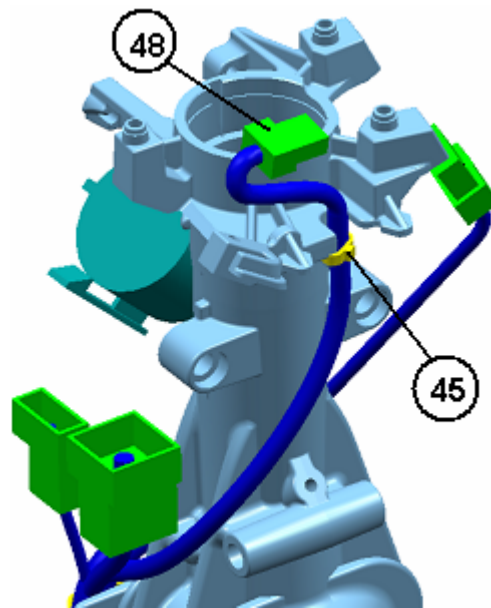
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Page No

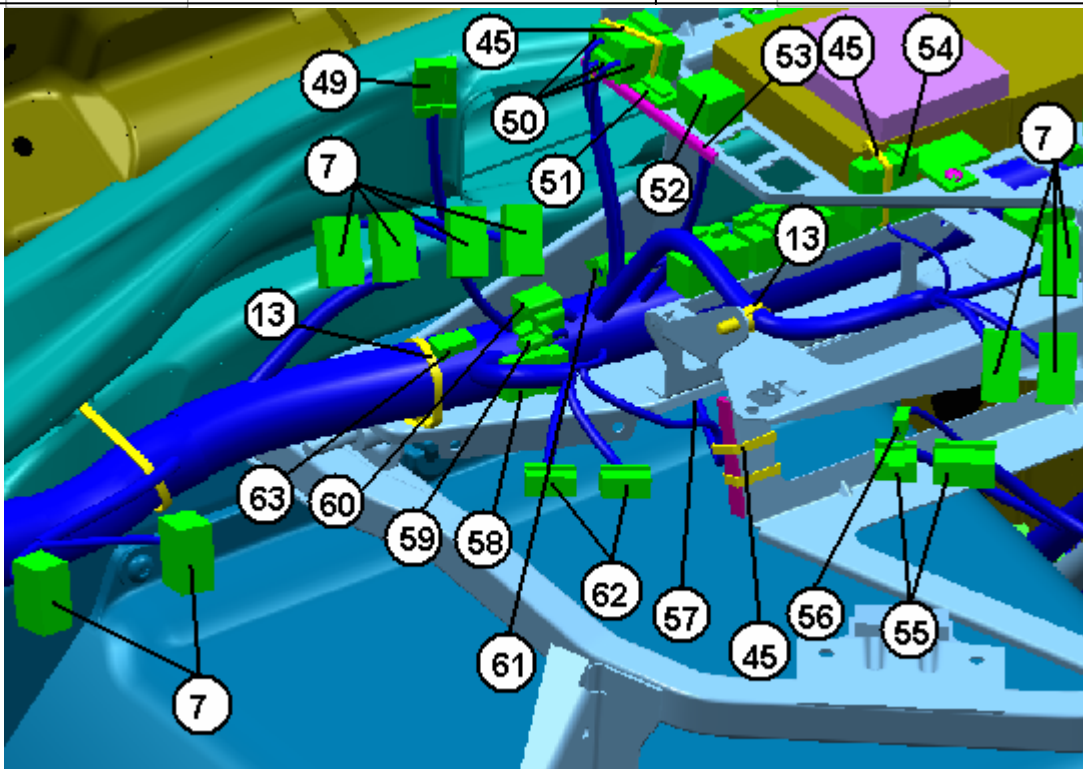
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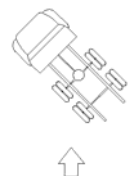
STEERING COLUMN  
ASSEMBLY AREA



STEERING COLUMN  
ASSEMBLY AREA



TECH CENTER  
DRIVER SIDE



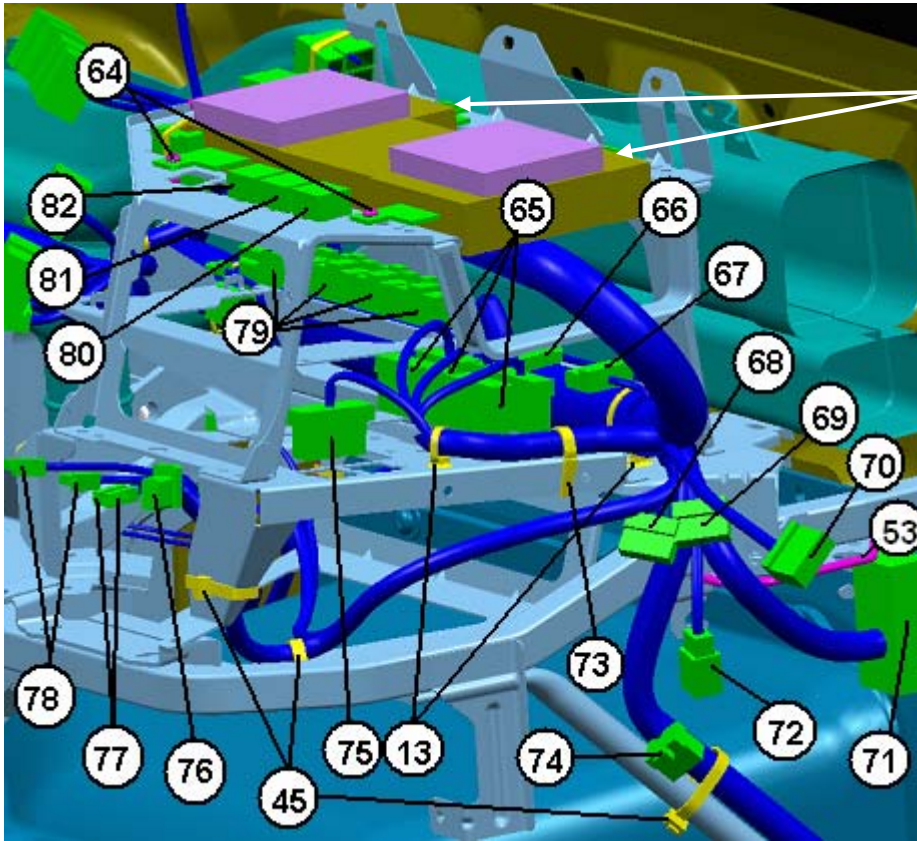
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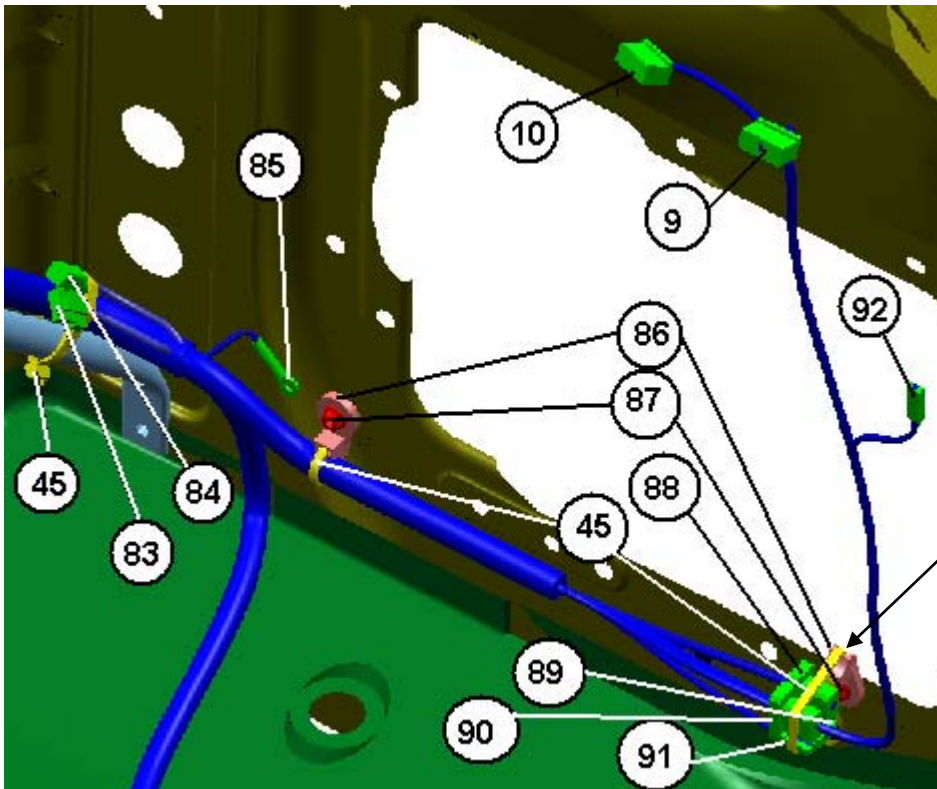
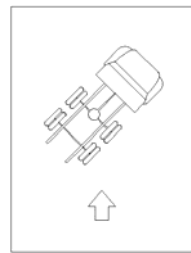
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Document No	Issue Index	Volume No	Page No
<b>21134826</b>	<b>01</b>	<b>01</b>	<b>3(9)</b>



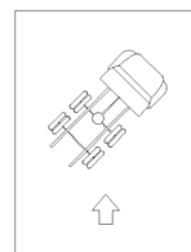
TECH CENTER PASS. SIDE

2 ADDITIONAL 971306 SCREWS (BALLOON 64) LOCATED BEHIND FRC UNIT



PASSENGER FLOOR AREA

NOTE: CABLE TIE CLIP (BALLOON 86) IS MOUNTED TO STUD POINTING UP AT THIS LOCATION. (CLIP POINTS DOWNWARD AT THE INBOARD STUD MOUNT LOCATION)



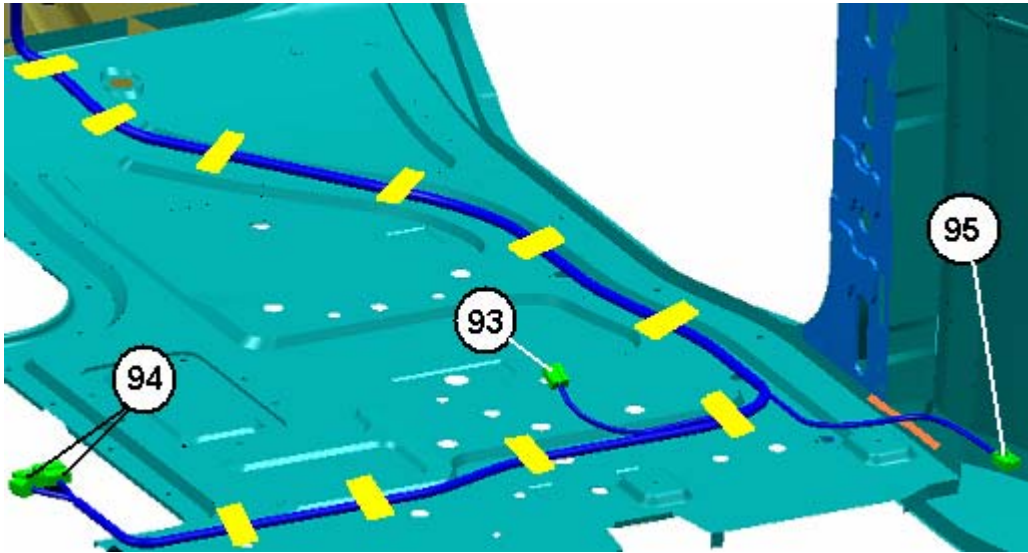
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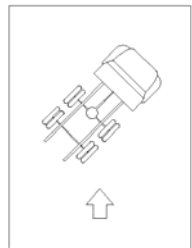
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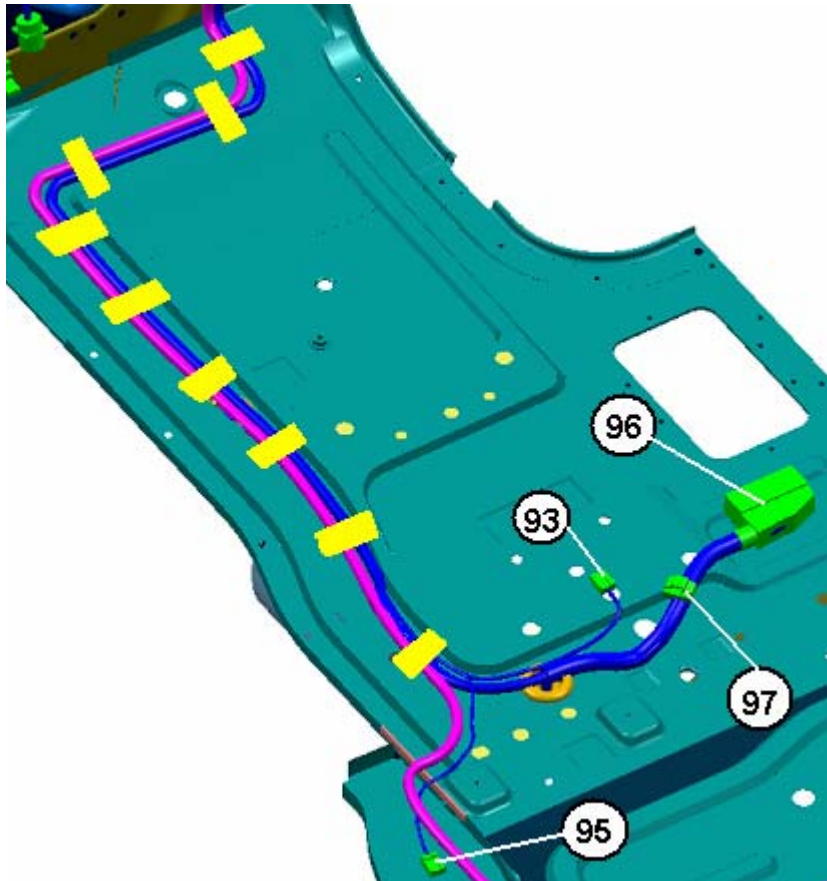
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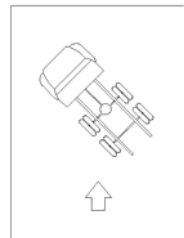
PASSENGER  
FLOOR INSIDE OF  
CAB



ALL CABS EXCEPT THOSE WITH DUAL OR LH EXHAUST



DRIVER SIDE FLOOR  
INSIDE OF CAB

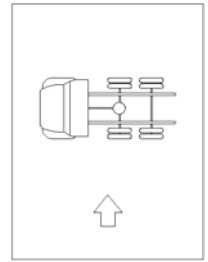
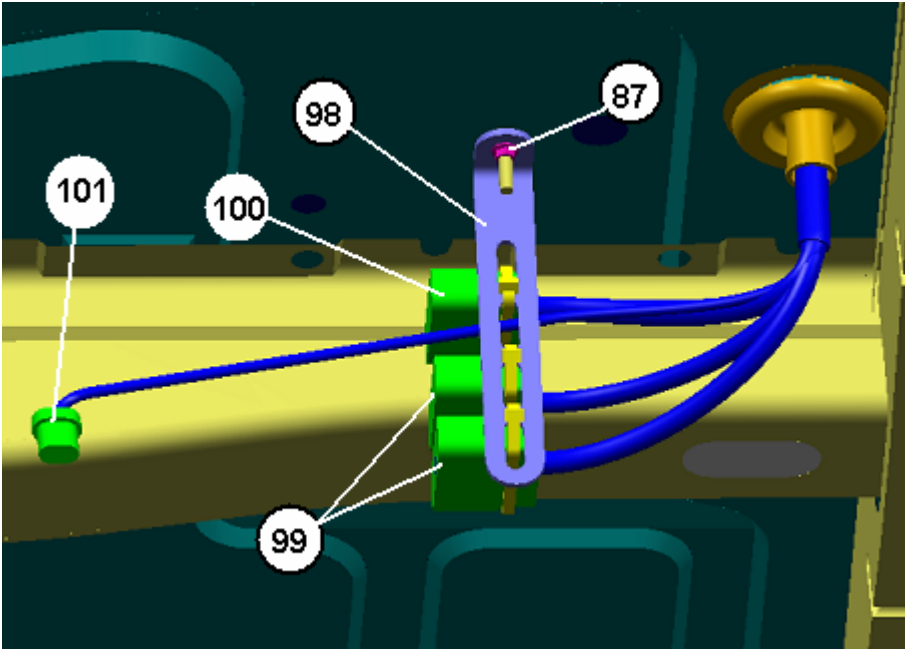


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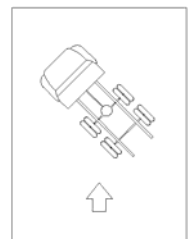
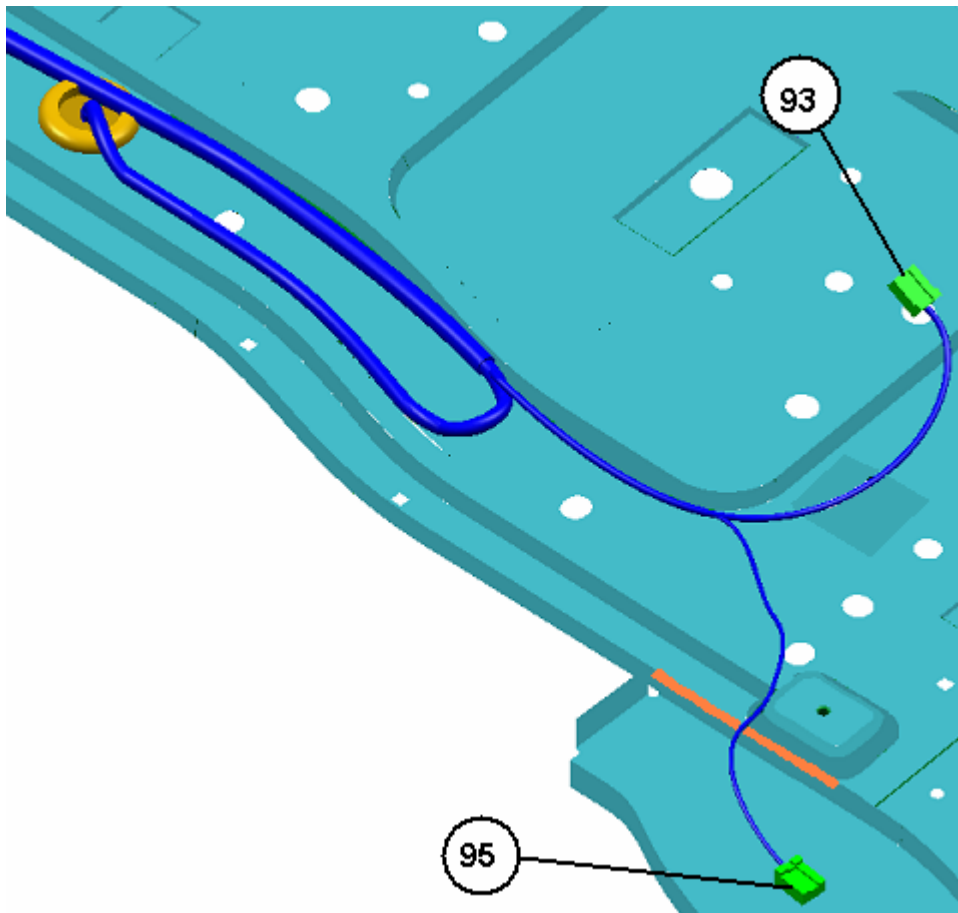
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<b>INSTALL, HARN</b>			
Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>21134826</b>	<b>01</b>	<b>01</b>	<b>5(9)</b>

ALL CABS EXCEPT THOSE WITH DUAL OR LH EXHAUST



CABS WITH DUAL OR LH EXHAUST



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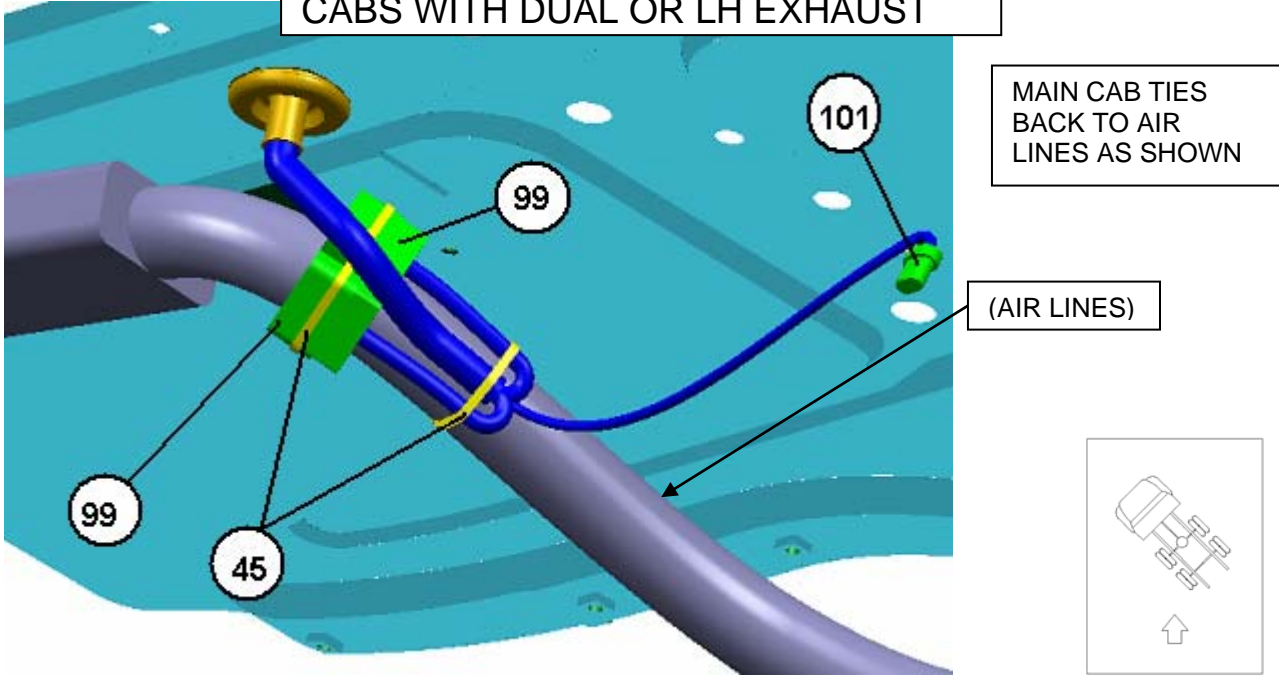
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**21134826**

Issue Index  
**01**

Volume No  
**01**

Page No  
**6(9)**

## CABS WITH DUAL OR LH EXHAUST



### CHART FOR VOLVO PRODUCT ONLY

ITEM	PART #	QTY	DESCRIPTION	REMARKS	PAGE
1			DOOR SPKR	REF (MCDL2)	1
2			MIRROR	REF (MCMJ2)	1
3			DOOR HARN	REF (MCDL3)	1
4			DOOR HARN	REF (MCDL4)	1
5			LIFT AXEL OVERLAY	REF (MCLA)	2
6			DIAGNOSTIC CONNECTOR	REF (Z01)	1
7			SWITCH PANEL	REF (SEE INSTALL FOR FUNCTION GROUP 364)	1, 3
8			LIGHT CONTROL PANEL	REF (S01)	1
9			TWEETER	REF (B61A, B61B)	1,4
10			SPEAKER	REF (B60A)	1,4
11			INSTRUMENT CLUSTER A	REF (A03A)	1
12			INSTRUMENT CLUSTER B	REF(A03B)	1
13	20466164	6	CABLE TIE		1, 3, 4
14			INSTRUMENT CLUSTER C	REF (A03C)	1
15			CLUTCH SWITCH	REF (S58A, S58B)	1
16	949902	5	CABLE TIE (XTRA LONG)		1
17			GROUND SPLICE PACK	REF (XOB)	1
18			SLEEPER	REF (MCSL4)	1
19			SLEEPER	REF (MCLS3)	1
20			SLEEPER	REF (MCSL1)	1
21			SLEEPER	REF (MCSL2)	1

# VOLVO

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Document Title

**INSTALL, HARN**

Document Type

**INSTALLATION REQUIREMENT**

Document No

**21134826**

Issue Index

**01**


Volume No

**01**


Page No

**7(9)**

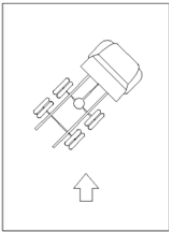
22	980883	1	CABLE TIE		1
23			ACCELERATOR PEDAL	REF (B25)	1
24			BRAKE SWITCH	REF (S59.A, S59.B)	1
25			GROUND	REF (X06A, X06B)	1
26			CUSTOMER OPTION	REF (MCTT)	1
27			*****NOT IN USE*****		
28			SPLICE PACK - GND	REF (SKX03.D)	1
29			SPLICE PACK - ILLUMI	REF (SK141A)	1
30			SNOW PLOW OVERLAY	REF (MCPL2)	1
31			VORAD OVERLAY	REF (MCVE)	1
32			REAR SUP (BLUE)	REF (B58R)	2
33			AP-TD (WHITE)	REF (B06AP)	2
34			PBS (WHITE)	REF (S43)	2
35			B-TD (GREEN)	REF (B06A)	2
36			A-TD (YELLOW)	REF (B06B)	2
37			FRT-SUP (NO COLOR)	REF (B56)	2
38			SLS (WHITE)	REF (S48)	2
39			TAS-PBS (YELLOW)	REF (S43A)	2
40			GROUND STD	REF (U01C, U01D)	2
41			POWER STUDS	REF (X03D, X03E, X03F, U01)	2
42			STALK SWITCH	REF (S02)	3
43			IGNITION SWITCH	REF (S15)	3
44			ALLISON RETARDER	REF (S24A)	3
45	948211	19	CABLE TIE		3, 4, 5, 6, 7
46			WIPER CONTROL SW	REF (S06)	3
47			HORN	REF (S14A)	3
48			CONTACT REEL	REF (Z06)	3
49			DISPLAY TIRE INFLATION	REF (A52)	3
50			AUX SW POWER	REF(X17A1,X17B1,X17C1)	3
51			CB MOUNTING (DASH)	REF (MCCB)	3
52			RELAY - BATTERY PROTECTION (ER8)	REF (RLY44)	3
53	1203161	2	EDGE PROTECTION	LENGTH 150MM	3, 4
54			MAXI FUSE (TRAILER)	REF (MF01)	3
55			RADIO JUMPER	REF (RJMC, RJMC2)	3
56			RADIO (YELLOW)	REF (A07D.C)	3
57			SRS MODULE	REF (A15)	3
58			SPLICE PACK - GND	REF (SKX03F_A)	3
59			ENGINE BRAKE	REF (MCEB2)	3
60			ENGINE BRAKE	REF (MCEB1)	3
61			DOOR LOCK	REF (MCLK)	3
62			CLIMATE CONTROL	REF (A34.A, A34.B)	3
63			AUX SW	REF (MCAX)	3
64	971306	4	SCREW	M5*16	4
65			VECU	REF (A17A, A17B, A17C)	4

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	Document Type			
	<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No	
<b>21134826</b>	<b>01</b>	<b>01</b>	<b>8(9)</b>	

66		SPLICE PACK - ILLUMI	REF (SK141B)	4
67		SPLICE PACK - GND	REF (SKX03F_A)	4
68		DATALINK S.P. (LOW)	REF (SK1587L)	4
69		DATALINK S.P. (HI)	REF (SK1587H)	4
70		HVAC UNIT	REF (E32A)	4
71		TEMP A START	REF (A14F.A THRU C)	4
72		ESPD CONVERTER	REF (B160)	4
73	980464	1	CABLE TIE	4
74		SNOWPLOW OVERLAY	REF (MCPL)	4
75		I-SHIFT ECU	REF(A19B)	4
76		SENSOR INDOOR TEMP	REF (B59)	4
77		ASHTRAY ILLUMINATION	REF (E20.A, E20.B)	4
78		12V SOCKET	REF (G05A, G05F)	4
79		LCM	REF (A27.A THRU D)	4
80		RELAY - ALLISON BODY BUILDER (ER1)	REF (RLY24)	4
81		RELAY - ALLISON BODY BUILDER (ER2)	REF (RLY23)	4
82		RELAY - I-SHIFT POWER	REF (RLY33B)	4
83		BODY BUILDER	REF(MCBB)	4
84		OVERLAY	REF (MCVL)	4
85		GROUND	REF (X06A, X06B)	4
86	8081349	2	RETAINER, 8	4
87	945407	3	FLANGE NUT	M6 6
88		OVERHEAD FRONT	REF (MCOF1)	4
89		DOOR	REF (MCDR2, MCDR3)	4
90		BODY BUILDER CAMERA	REF (Z04)	4
91		RADIO SHELF	REF (MCRS)	4
92		POWER MIRROR	REF (MCMJ1)	4
93		POWER SEAT	REF (M20L, M20R)	5, 6
94		BODY BUILDER	REF (Z03A, Z03B)	5
95		SIDE REPEAT	REF (MCSR1, MCSR2)	5, 6
96		ECU - ALLISON TRANS	REF (A57A)	5, 6
97		POWER SEAT	REF (MCST1, MCST2, MCST3)	5
98	965564	1	BRACKET	6
99		TRANSMISSION	REF (MCTR1 THRU 5)	6, 7
100		TEMP A START	REF (MCTS)	6
101		WASHER PUMP	REF (M02B)	6, 7

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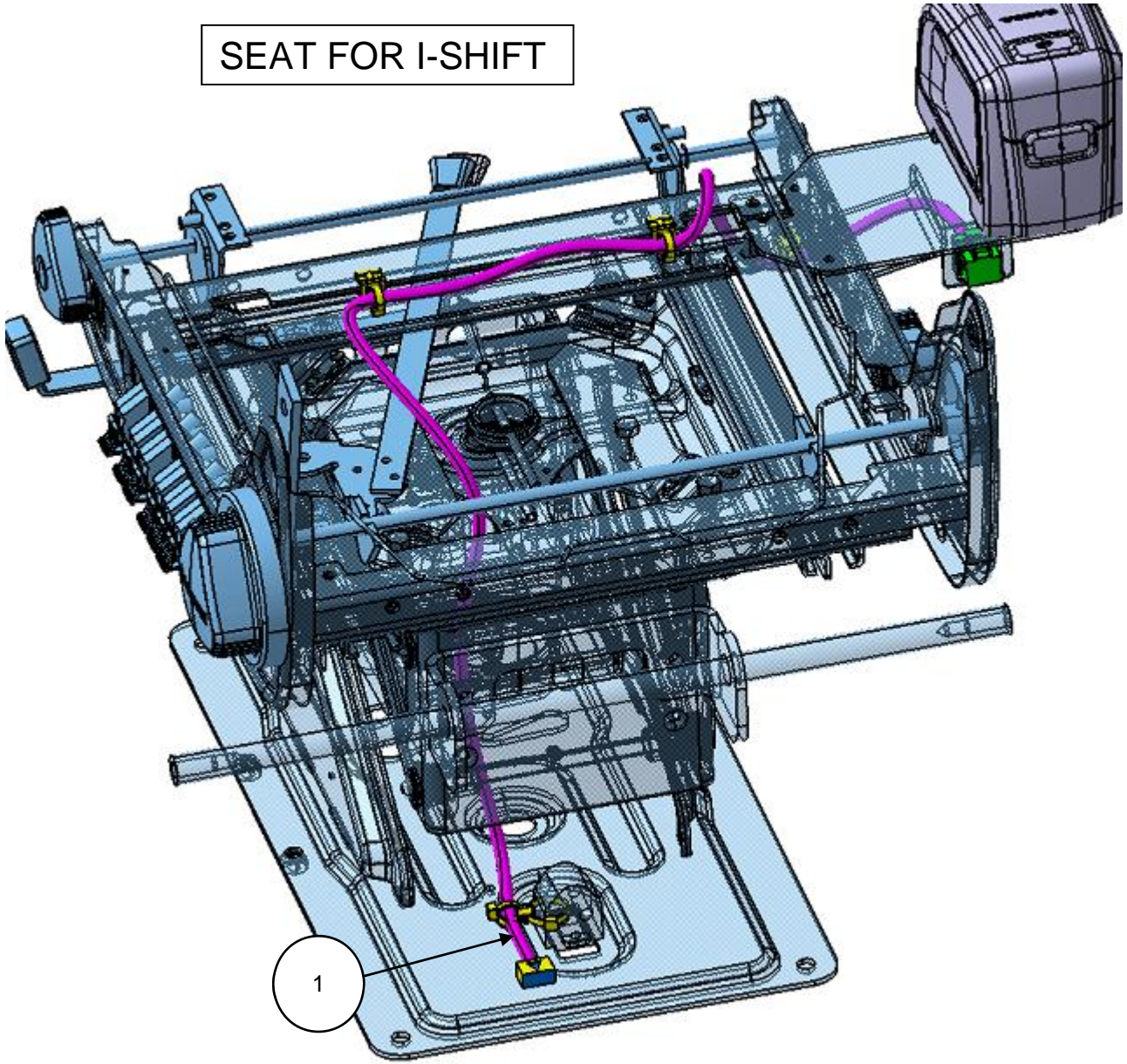
Engineering Release Notice (ERN)	Location	Change Description	A = Added D = Deleted	W = Was	Document Release Status <b>RELEASED</b>
					Date Modification Count



**NOTES:**

- INSTALL IS GOOD FOR I-SHIFT SEAT HARNESS AND DASH MOUNTED ECU.
- INSTALL CREATED WITH HELP MODEL 82732097 AND GRUNKA 82732098
- SCREW JOINT TORQUE NOT IDENTIFIED IN THE DOCUMENT SHALL COMPLY WITH VOLVO STADARD 5511,15. THE MEDIUM LEVEL TORQUE APPLIES IF A MEDIUM LEVEL TORQUE IS IDENTIFIED IN THE STANDARD.

**SEAT FOR I-SHIFT**



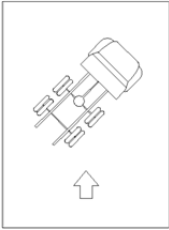
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Document Title  
**INSTALL, I SHIFT HARN AND ECU**

**VOLVO**  
Group Trucks Technology

Document Type <b>INSTALLATION REQUIREMENT</b>			
The legal owner of this document is stated under "Design Location" in KOLA and in the associated "Part Version Report"			
Document No <b>22010946</b>	Issue Index <b>01</b>	Volume No <b>01</b>	Page No <b>1(5)</b>

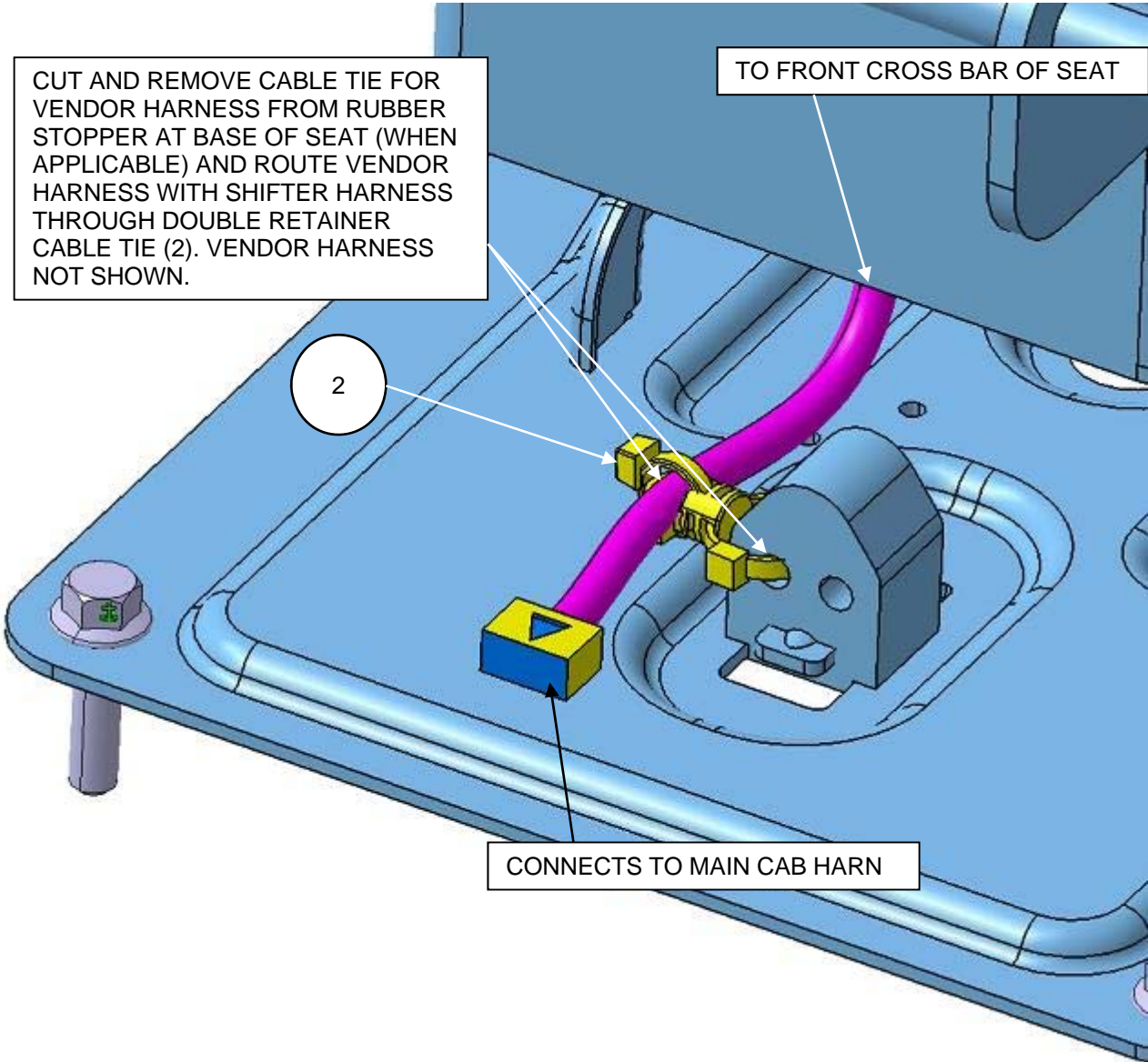
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# BASE OF SEAT

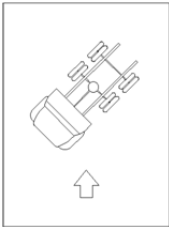
CUT AND REMOVE CABLE TIE FOR VENDOR HARNESS FROM RUBBER STOPPER AT BASE OF SEAT (WHEN APPLICABLE) AND ROUTE VENDOR HARNESS WITH SHIFTER HARNESS THROUGH DOUBLE RETAINER CABLE TIE (2). VENDOR HARNESS NOT SHOWN.

TO FRONT CROSS BAR OF SEAT

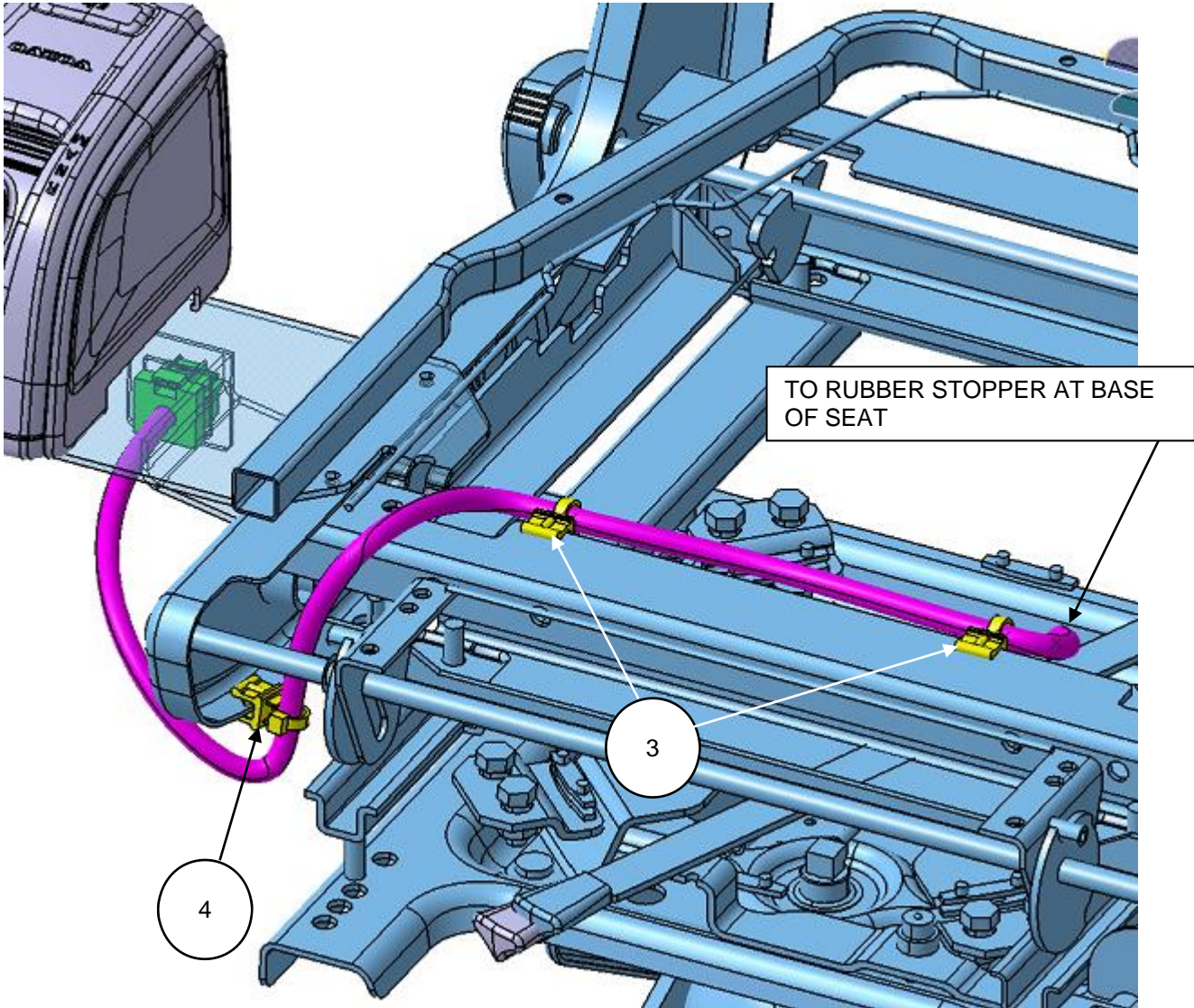


CONNECTS TO MAIN CAB HARN

Document Title			
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Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>22010946</b>	<b>01</b>	<b>01</b>	<b>2(5)</b>

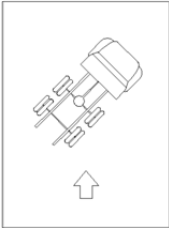


UNDER SEAT CUSHION

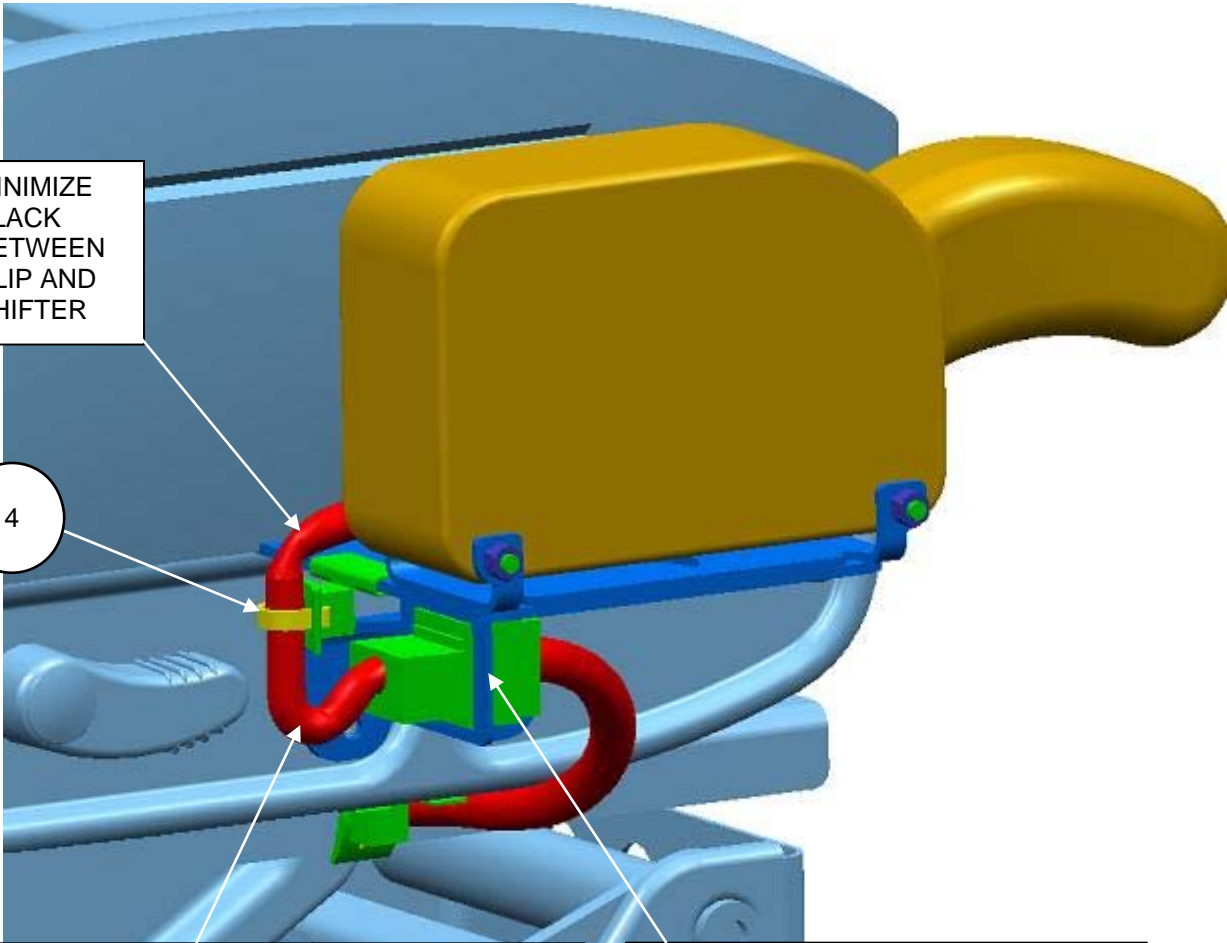


**VOLVO**  
Group Trucks Technology

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<b>INSTALL, I SHIFT</b>			
Document Type			
<b>INSTALLATION REQUIREMENT</b>			
Document No	Issue Index	Volume No	Page No
<b>22010946</b>	<b>01</b>	<b>01</b>	<b>3(5)</b>



SHIFTER ON SIDE OF SEAT

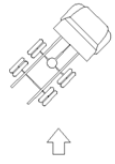


MINIMIZE SLACK BETWEEN CLIP AND SHIFTER

4

CREATE A DRIP LOOP FOR THE SHIFTER PIGTAIL WITH CABLE TIE (4) AS SHOWN.

CLIP SHIFTER PIGTAIL AND SEAT HARN CONNECTORS INTO SHIFTER BRACKET ASSEMBLY AS SHOWN



## SHIFTER ECU IN TECH CENTER

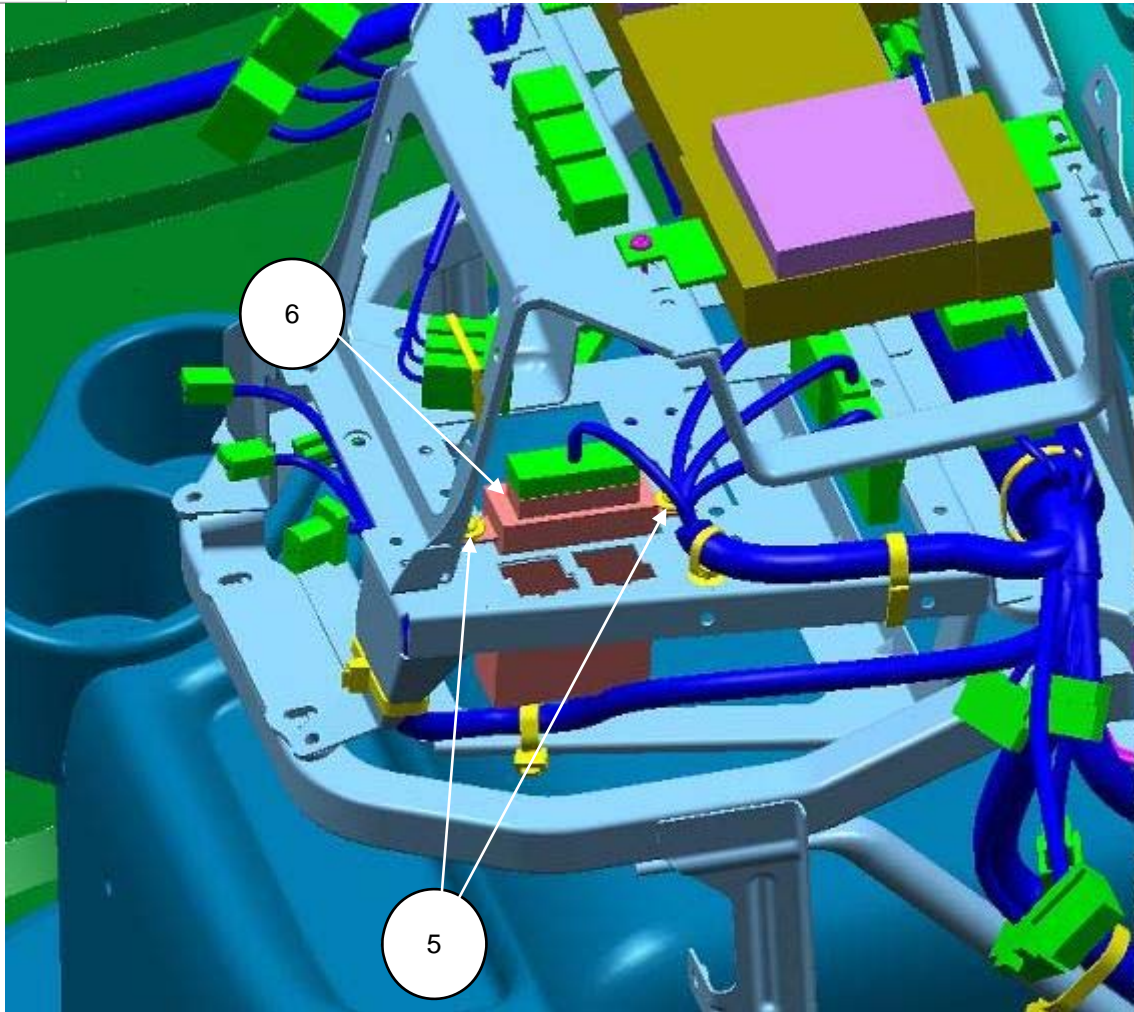


CHART FOR REFERENCE ONLY

#	PART #	QTY	PART NAME	NOTES
1	20962710	1	WIRES, SEAT, I-SHIFT	
2	20885496	1	RETAINER, DOUBLE TIE RETAINER	
3	21096682	2	CABLE TIE, 45	EDGE CLIP CABLE TIE HORIZONTAL
4	25375492	2	CABLE TIE, 45	EDGE CLIP CABLE TIE VERTICAL
5	971306	2	SIX POINT SOCKET SCREW, M5*16	
6	21194165	1	CONTROL UNIT, GSECU	

**VOLVO**  
Group Trucks Technology

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