COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
TCM, Internal Fault	P0605	ROM checksum or RAM error	Calculated checksum differs from stored.	Number of failed calculations: 2			Immediately Continuous	Immediately
Lost communication with	U0100	Frame missing from ECM	Detect no Status CAN frame from	Т	Inc. 4 ii avvi	TRUE	4 sec	Immediately
ECM (Engine)	00100	Frame missing nom ECM	ECM		DS_Active_CAN <sup>1</sup>			immediately
Low (Engine)			2011		Ignition Emergency mode	ON >3sec. FALSE	Continuous	
				- -	1		1.	I
Invalid data from ECM	P1895	Engine Torque signal is indicated	Invalid Torque data from ECM		DS_Active_CAN <sup>1</sup>	TRUE	4 sec	Immediately
		invalid			Ignition	ON >3sec.	Continuous	
					Emergency mode	FALSE		
					No DTC set	U0100		
Solenoid S1	P0985	Circuit continuity check	Short-cut ground	<u> </u>	DS_Active <sup>2</sup>	TRUE	500 msec	Immediately
Colcitoid C1	1 0303	on our continuity of con	onort out ground		DS_Active		ooo msee	immodiatory
	P0986		Not connected or short-cut Ubatt		Emergency mode	FALSE	Continuous	
					Time after solenoid output change	> 25 ms		
					Change		· L	
Solenoid S2	P0973	Circuit continuity check	Short-cut ground		DS_Active <sup>2</sup>	TRUE	500 msec	Immediately
	P0974		Not connected or short-cut Ubatt		Emergency mode	FALSE	Continuous	·
					Time after solenoid output change	> 25 ms		
					_			
Solenoid S3	P0976	Circuit continuity check	Short-cut ground		DS_Active <sup>2</sup>	TRUE	500 msec	Immediately
	P0977		Not connected or short-cut Ubatt		Emergency mode	FALSE	Continuous	
					Time after solenoid output change	> 25 ms		
	1					•	•	1
Solenoid S4	P0979	Circuit continuity check	Short-cut ground		DS_Active <sup>2</sup>	TRUE	500 msec	Immediately
	P0980		Not connected or short-cut Ubatt		Emergency mode	FALSE	Continuous	
					Time after solenoid output change	> 25 ms		
						<u> </u>		<u> </u>
Solenoid S5	P0982	Circuit continuity check	Short-cut ground		DS_Active <sup>2</sup>	TRUE	500 msec	Immediately
	P0983		Not connected or short-cut Ubatt		Emergency mode	FALSE	Continuous	
					Time after solenoid output	> 25 ms		
					change			
Torque Convertes Clutch	D0744	Comparison of one income and and	(Engine Chood Transmississ	> 100rpm	N. Oliffica Cont. if		12 000	Immodiatel:
Torque Converter Clutch	P0741	Comparison of engine speed and	(⊏ngine Speea - Fransmission	> 100rpm	No Shiftina Control <sup>6</sup>	I	12 sec	Immediately

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM
					abs(1-SpeedABS/Trans. Output			
					Speed)	< 10%		
					abs(1-SpeedABS/Trans. Input			
					Speed)	< 10%		
					Shift Position	RANGE_D, 4, 3, 2, M		
						(defined)		
					Engine Speed	< 4000 rpm		
					SLU target current	>= 1000mA		
					Time after shifting	> 0,5 sec		
					Battery voltage	> 10,5 V		
					DS Active <sup>2</sup>	TRUE FALSE		
					Emergency mode Lock-up	TRUE	1	
					LOCK-up	INUL		
					No DTC set	P0501	1	
					No B To Set	P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962 P0963		
						P0973		
						P0974		
						P0976		
						P0977		
						P0979		
						P0980		
						P0982	]	
						P0983	]	
						P0985		
						P0986		
						P1820		
						P1895	]	
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		
						U0001 U0100	1	
						U0100 U0121		
					I	00121		

	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Torque Converter Clutch	P0742	Comparison of engine speed and	(Engine Speed - Transmission	< 50rpm	EngineTorque	>=	12 sec	Immediately
Stuck On			Input speed)	·		Fotro LUP FailMan <sup>5</sup>		•
		, , , , , , , , , , , , , , , , , , ,	, , ,		EngineTorque	<= 240 Nm	Continuous	
					Trans. Input Speed	<= 3000rpm		
					Time after changing to Shift	>8.0 sec		
					position == RANGE D,4,3,2,M			
					Time after IG ON or a reset of the	>3 min		
					controller	0 111111		
					Time after shifting control	>0.5sec		
					Oil temperature	>= 20°C		
						Z= 20 C		
					No Shifting Control <sup>6</sup>			
					Not garage shifting co	ontrol <sup>7</sup> (N-D)		
					(Shift position	RANGE_D,M,L		
					<u>'</u>	(defined) or >75 sec		
						with over 5km/h and		
						RANDE_D,L		
						(undefined) fulfilled		
					Engine Speed	>= 400 rpm		
					IG voltage	>= 10.5 V		
					DS Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					Emergency mode	FALSE		
					No DTC set	P0721		
						P0722		
						P0716		
						P0717		
						P0705		
						P0985		
						P0986		
						P0973		
						P0974		
						P0976		
						P0977		
						P0977 P0979		
						P0980		
						P0982		
						P0983		
						P0961		
						P0962		
						P0963		
						P0786		
						P0787		
						P0788		
						P2762		
						P2763		
						P2764		
						U0001		
						U0100		
						P1820		
						P0725		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						P1895		
						P0711		
						P0712		
				<u> </u>		P0713		
Pressure solenoid SLU	P2764	Circuit continuity check	Short-cut ground or open		DS_Active <sup>2</sup>	TRUE	12,5 sec	Immediately
		•	Current	<92 mA	Emergency mode	FALSE	Continuous	
			(AD	< 68)	Lineigency mode	TALSE	Continuous	
			(AD	- 00)				
	P2762		Terminal short		Emergency mode	FALSE	2,75 sec	Immediately
			Error current	> 80 mA	Oil temperature	> 20°C	Continuous	ĺ
					System voltage	11 -18 V		
					System voltage change	< 0,2V		
					Output current target	> 853mA and not		
						changed during		
						detection		
					DS Active <sup>2</sup>	TRUE		
					No DTC set	P0711		
						P0712		
						P0713		
	P2763		Short-cut Ubatt		2	TRUE	2 sec	lmm a diatalu
	P2/63				DS_Active <sup>2</sup>			Immediately
			Measured Current	> 1356 mA	Emergency mode	FALSE	Continuous	
			(AD	> 1000)				
Pressure solenoid SLT	P0962	Circuit continuity check	Short-cut ground or open	1	DS Active <sup>2</sup>	TRUE	12.5 sec	Immediately
1000010 001011010 021	. 5552	Circuit Continuity Circuit	Current	<92 mA	Emergency mode	FALSE	Continuous	immodiatory
			(AD	< 68)	zmergeney mede		001111111111111111111111111111111111111	
				,				
	P0961		Terminal short		Emergency mode	FALSE	2.75 sec	Immediately
			Error current	> 80 mA	Oil temp	> 20°C	Continuous	
					System voltage	11 -18 V		
					System voltage change	< 0,2V		
					Output current target	> 853mA and not		
						changed during		
					_	detection		
					DS Active <sup>2</sup>	TRUE		
					No DTC set	P0711		l
						P0712		
						P0713		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
	P0963		Short-cut Ubatt		DS_Active <sup>2</sup>	TRUE	2 sec	Immediately
			Measured Current	> 1356 mA	Emergency mode	FALSE	Continuous	
			(AD	> 1000)				
Timing solenoid SLS	P0787	Circuit continuity check	Short-cut ground or open		DS_Active <sup>2</sup>	TRUE	12.5 sec	Immediately
			Current	<92 mA	Emergency mode	FALSE	Continuous	
			(AD	< 68)				
	P0786		Terminal short	Error current > 80 mA	Emergency mode	FALSE	2.75 sec	Immediately
	1 0.00		Tommar onorg		Oil temp	> 20°C	Continuous	
					System voltage	11 -18 V		
					System voltage change	< 0.2V		
					Output current target	> 853mA and not		
					output ourroint tailgot	changed during		
						detection		
					DS Active <sup>2</sup>	TRUE		
					No DTC set	P0711		
					110 2 1 0 001	P0712		
						P0713		
	P0788		Short-cut Ubatt		DS_Active <sup>2</sup>	TRUE	2 sec	Immediately
			Measured Current	> 1356 mA	Emergency mode	FALSE	Continuous	
			Measured Current (AD	> 1356 mA > 1000)	Emergency mode	FALSE	Continuous	
Shift Malfunction	P0780	Shift time check		> 1000)		FALSE		Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup>			Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature	> 60°C	Detected 5 times	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode	> 60°C FALSE	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup>	> 60°C FALSE TRUE	Detected 5 times	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode	> 60°C FALSE	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup>	> 60°C FALSE TRUE D, 4, 3, L, or M	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717 P0705	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717 P0705 P0985	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979 P0980	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979 P0980 P0982	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979 P0980 P0982 P0983	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979 P0980 P0980 P0982 P0983 P0961	Detected 5 times during DCY	Immediately
Shift Malfunction	P0780	Shift time check	(AD	> 1000)	No Multiplex Shifting <sup>8</sup> Oil temperature Emergency mode DS Active <sup>2</sup> Shift position	> 60°C FALSE TRUE D, 4, 3, L, or M  P0721 P0722 P0716 P0717 P0705 P0985 P0986 P0973 P0974 P0976 P0977 P0979 P0980 P0982 P0983	Detected 5 times during DCY	Immediately

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				!		P0787		
						P0788 P2762	-	
						P2763		
						P2764		
						U0001		
						U0100		
						P1820		
						P0725	=	
						P1895		
						P0711 P0712	-	
						P0713		
						P1896		
						P2159		
						P0501		
			1			U0121		
CAN Bus Off Counter	U0001	CAN controller continuity check	CAN controller Bus Off is		Ind. 4 ii AAAI	TRUE	12,7sec (9-5)	Immediately
Overrun	00001	CAN controller continuity check	detected		DS_Active_CAN <sup>1</sup>	INOL	12,7560 (9-5)	lillillediately
Overruin			Counter reaches	7	Time after Ignition ON or a reset of the controller	>3 sec	28sec (9-3)	
							Continuous	
Tananasianian innatanan	ID0747	Cincuit continuits about	Condition ( (consults)		T	I	0	l
Transmission input speed sensor	P0717	Circuit continuity check	Condition 1 (no pulse)		No Shifting Control <sup>6</sup>		Speed dependent (e.g 4 sec at 100	immediately
serisoi			No of pulses from input sensor	0	Not garage shifting control <sup>7</sup> (N-D)		km/h)	
			No of pulses from output sensor	3000	B1 not released			
					outRpm * GearRatioExpected	> 600 rpm		
					Shifter position	D,4,3,2,M Range(defined)	Continuous	
			Condition 2 (no pulse)		CurrentGear	>= 2	30sec	
			Transmission Input Speed	0	Time since change from P, R or N to others if vehicle speed <= 66km/h and oiltemp. <= 20°C	>10 sec	Continuous	
			SpeedABS	>20km/h	Time since change from P, R or N to others if vehicle speed >66km/h or oiltemp. > 20°C	>2,5 sec		
					DS Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
	I				No DTC set	P0705		
						P0721 (only condition 1)		
		1	1	Î.	1	P0722 (only condition	1	Ī
						1)		
			Condition 3 (no pulse)		DS Active <sup>2</sup>	1) TRUE	30sec	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
	P0716		Pulses incorrect		No Shifting Control <sup>6</sup>		10 sec	Immediately
	(only				Not garage shifting control <sup>7</sup> (N-D)		Continuous	
	Saab 9-		abs(1-SpeedABS/ Transmission	> 15%	B1 not released			
	3)		Input Speed)		LockUp	ON		
					abs(1-outRpmABS/ outRpmSP)	< 5%		
					abs(1-outRpmABS/ outRpmEG)	< 5%		
					Time after shifting control	>8 sec		
					Time after changing to	>8 sec		
					GearSelector = RANGE_D,4,3,2			
					Gear	>= 2ND		
					Range	Other than P and N and R		
					EgRpm	> 400rpm		
					Spinnina <sup>11</sup> DS Active <sup>2</sup>	FALSE		
					DS Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					SpeedABS	>30km/h		
	<b> </b>				No DTC set	P0705		
					No DTC set	P0705 P0711		ł
	<b> </b>					P0711 P0712		
						P0713		
	l					P0721		
						P0722		
						P0725		
						P0741		
						P0786		
						P0787		
						P0788		
						P0961		1
						P0962		
						P0963		1
	1 F					P0973		1
	1					P0974		1
	1					P0976		
	1 h					P0977		1
	1					P0979		1
	1					P0980		
	1 h					P0982		1
	1					P0983		
	1					P0985		
	1 F					P0986		1
	-					P1820		
	1 F		<u> </u>		1	P1895		1
	1 ⊢				+	P2762	+	1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM
						P2763		
	=					P2764 U0121		=
					- !	00121	<u> </u>	<u> </u>
nvalid signal from ECM	P1820	Accelerator pedal position signal	Data from ECM indicated as		DS_Active <sup>2</sup>	TRUE	4 sec	Immediately
		is invalid	invalid		Time after Ignition ON or reset of CAN controller.	>3 sec	Continuous	
					Emergency mode	FALSE		
	-				N. BTO	110400		
		l	l	<u> </u>	No DTC set	U0100	<u> </u>	
rans. Output speed sensor	P0722	Circuit continuity check	Condition 1 (No pulse)		Not in Neutral control <sup>9</sup>		6000 pulses	Immediately
			No of pulses from output sensor	0	No Shifting Control <sup>6</sup>			,
			No of pulses from input sensor	6000	Not garage shifting control <sup>7</sup> (N-D)		Continuous	
					DS Active <sup>2</sup>	TRUE		
					Trans.Output Speed calculated	>300rpm (only		
					from ABS	Condition 1)		
			Condition 2 (No pulse)		Selected gear	D, 4, 3, 2, M	30 sec	Immediately
					Time since change from P, R or N to others if vehicle speed <= 66km/h and oiltemp. <= 20°C	>10 sec	Continuous	
					Time since change from P, R or N to others if vehicle speed >66km/h or oiltemp. > 20°C	>2,5 sec		
					Emergency mode	FALSE		
			Transmission Output Speed	0	Emergency mode	7,202		
			SpeedABS	>20km/h	No DTC set	U0121		
						P0705		
						P0716 (only Condition 1)		
						P0717 (only Condition 1)		
			Short to Ubatt or GND		DS Active <sup>2</sup>	TRUE	30sec	Immediately
					Emergency mode	FALSE	Continuous	
	P0721		Incorrect rpm		B1 not released		10 sec	Immediately
	(only		abs(1-SpeedABS/ Transmission	> 15 %	No Shifting Control <sup>6</sup>		Continuous	Galatoly
	Saab 9-		Output Speed)	- 7-	=			
	3)				Not garage shifting control <sup>7</sup> (N-D)	1		1
	ĺ .				abs(1-outRpmABS/ outRpmNC)	< 5 %		
					Time after shifting control <sup>6</sup>	>8 sec		1
					Time after changing to	>8 sec		1
					GearSelector = RANGE_D,4,3,2			
					Gear	>= 2ND		1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM
					Range	other than P and N and R		
					EgRpm	> 400rpm		
					Spinnina <sup>11</sup>	FALSE		
					DS Activo <sup>2</sup>	TRUE		
					DS Active <sup>2</sup> Emergency mode	FALSE		
					SpeedABS	> 30km/h		
					opoda. iso	0011111111		
					No DTC set	P0716		
						P0717		
						P0705		
						P0985		
						P0986		
						P0973		
						P0974		
						P0976		
						P0977		
						P0979		
						P0980		
						P0982		
						P0983		
						P0741		
						P0961		
						P0962		
						P0963		
						P0786		
						P0788		
						P2762		
						P2763		
						P2764		
						P1820		
						P0725		
						P1895		
						U0121		
						P0711		
						P0712		
				<u> </u>	1	P0713	<u> </u>	
	D0700	Indianalia (Odratai di Care	01974			I	40	1 2
Sear error, hydraulic fault		Rationality, (Calculation of actual	Condition 1		No Shifting Control <sup>6</sup>		12 sec	Immediately
		gear ratio is not correct)			Not garage shifting control <sup>7</sup> (N-D)			
			Driving on 4th gear and abs(1-		Transmission Output Speed	>= 500rpm		
			GRCurrent/GRExpected)	> 20%	Time after changing to Shift	>8.0 sec	Continuous	
					position ==			
					RANGE D.4.3.2(defined)			
	]				Time after shifting control	>0.5 sec		
	1				Oil temperature	>= 20°C		
					Shift position	RANGE_D,4,3,2(define		
						d)		
	]				Engine speed	> 400 rpm		
	1				IG voltage	>= 10.5 V		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM
					brake	OFF		
	1				Spinning <sup>11</sup>	FALSE		
	1				DS Active <sup>2</sup>	TRUE		
	1				Soinnina <sup>11</sup> DS Active <sup>2</sup> Emergency mode abs( 1 - SpeedABS / SpeedSP)	FALSE		
	l		Condition 2		abs( 1 - SpeedABS / SpeedSP)	< 10 %		
	l		1		Throttle	> 10 %		
	1		Driving on 5th gear - gear ratio	1.504 ± 4%				
	i		J J J		No DTC set	P0721		
	i					P0722		
	i					P0716		
	1					P0717		
	İ					P0705		
	i					P0985		
	ł					P0986		
	ł					P0973		
						P0974		
						P0976		
	ł					P0976 P0977		
						P0977		
						P0979		
						P0980		
						P0982		
						P0983		
						P0961		
						P0962		
						P0963		
						P0786		
						P0787		
						P2762		
	1					P2763		
	1					P2764		
	İ					U0001		
	Ī					U0100		
	1					P1820		
	1					P0725		
	1					P1895		
	i					P1896		
	i					P0711		
	1				+	P0712		
	ı					P0713		
	ł					P2159		
	l				+	P0501		
	1				+	U0121		
			1	l .	1	00121	1	
nsmission range switch	P0705	Check of switch output pattern	Failure combination of signals		DS_Active <sup>2</sup>	TRUE	5 sec	Immediatel
monnosion range switch	0,03	oncok of switch output patient	from Gear Selector range switch		Do_Active		Continuous	Culatel
	l		nom Gear Selector range switch	I			Sommous	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Transmission oil	P0711	Rationality	Oil temperature change less than	10 (AD value)	Oil temp sensor	10< AD < 1000	10 min	Two DCY
temperature sensor		,	·	,	Oil temp	< 20 °C	Continuous	
•					Gear Selector	≠ (P, R or N)		
					DS Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					Vehicle speed	> 40 km/h once		
					No DTC set	P0705		
	D0712	Circuit continuity check	Short-cut ground		DO A. I 2	TRUE	5 min	Two DCY
	F0/12	Circuit Continuity Crieck	<u> </u>		DS_Active <sup>2</sup>			TWO DCT
			Voltage	< 50 mV	Emergency mode	FALSE	Continuous	
			(AD	< 10)				
	P0713	Circuit continuity check	Short-cut Ubat or open circuit		DS_Active <sup>2</sup>	TRUE	12 sec	Two DCY
		onean community and an	•	4000				
			AD	> 1000	Emergency mode	FALSE	Continuous	
			L		Driving time	>10 min		l .
Gear error, hydraulic fault	P0731	Rationality	(Transmission Input Speed -	>300rpm	Not garage shifting control <sup>7</sup> (N-D)		10 sec	Immediately
		,	Transmission Output Speed X		IG voltage	>= 10.5V	Continuous	
			GRExpected)		Engine speed	>(T/M input rev + 150)	Continuous	
			(Transmission Input Speed -	<100rpm	Lingine speed	for 150msec		
			Transmission Output Speed X	- Toolpin		continuously.		
			GRExpected(2nd))		In Tanna - na A 0010	30Nm <=		
			CI (Exposiod(Ella))		InTorqe_noACC <sup>10</sup>	InTorq_noACC <		
						200Nm		
					T/M input rev	>Table1 <sup>4</sup>		
					T/M output rev	>Table1 <sup>4</sup>		
					current Gear	1		
					Time after changing to shift	>8.0sec		
					position == RANGE D,4,3,2			
					Time after shifting control <sup>7</sup>	>0.5 sec		
					Oil temperature	>= 20°C		
					Engine speed	>400rpm		
					Shiftposition	RANGE_D,4,3,2(define		
						d) or		
						RANGE_D,4,3,2(undefi		
						ned) for 75sec.		
					DS_Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					No DTC set	P0501		
						P0705		
						P0711		
						P0712 P0713		ł
						P0716		ł
				i e		1 01 10		
						P0717		]

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973		
						P0974		
						P0976 P0977		
						P0977		
						P0980		
						P0982		
						P0983		
						P0985		
						P0986		
						P1820		
						P1895		
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		
						U0001		
						U0100		
						U0121		
	P0732	Rationality	Calculated ratio for 2nd gear	>20%	No Shifting Control <sup>6</sup>		12 sec	Immediately
			difference from expected		Not garage shifting control <sup>7</sup> (N-D)		Continuous	
4						/		
					Throttle	> 10%		
					Throttle Current gear	> 10% 2		
					Current gear			
					Current gear Time after changing to Shift position ==	2		
					Current gear Time after changing to Shift position == RANGE D.4.3.2(defined)	2 >8.0 sec		
					Current gear Time after changing to Shift position == RANGE D,4,3,2(defined) Time after shifting control <sup>7</sup>	2 >8.0 sec >0.5 sec		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature	2 >8.0 sec >0.5 sec >= 20°C		
					Current gear Time after changing to Shift position == RANGE D,4,3,2(defined) Time after shifting control <sup>7</sup>	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define		
					Current gear Time after changing to Shift position == RANGE D.4.3.2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d)		
					Current gear Time after changing to Shift position == RANGE D,4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position Engine speed	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm		
					Current gear Time after changing to Shift position == RANGE D.4.3.2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position Engine speed IG voltage Brake	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) >= 400 rpm >= 10.5 V OFF		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage Brake Spinning 11	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V OFF FALSE		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage Brake Spinning <sup>11</sup> DS_Active <sup>2</sup>	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V OFF FALSE TRUE		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage Brake Spinning <sup>11</sup> DS_Active <sup>2</sup> Emergency mode	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V OFF FALSE TRUE FALSE		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage Brake Spinning <sup>11</sup> DS_Active <sup>2</sup> Emergency mode abs(1 - SpeedABS / Trans.	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V OFF FALSE TRUE		
					Current gear Time after changing to Shift position == RANGE D.4,3,2(defined) Time after shifting control <sup>7</sup> Oil temperature Shift position  Engine speed IG voltage Brake Spinning <sup>11</sup> DS_Active <sup>2</sup> Emergency mode	2 >8.0 sec >0.5 sec >= 20°C RANGE_D,4,3,2(define d) > 400 rpm >= 10.5 V OFF FALSE TRUE FALSE		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					No DTC set	P0501		
						P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973		
						P0974		
						P0976		
						P0977		
						P0979		
						P0980		
						P0982 P0983		
						P0985		
						P0986		
						P1820		
						P1895		
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		
						U0001		
						U0100		
						U0121		
					1	00.21		
	P0733	Rationality		>20%	No Shifting Control <sup>6</sup>			Immediately
			difference from expected		Not garage shifting control <sup>7</sup> (N-D)		Continuous	
					Throttle	> 10%		
					Current gear	3		
					Time after changing to Shift	>8.0 sec		
					position ==			
					RANGE D,4,3,2(defined)			
					Time after shifting control <sup>7</sup>	>0.5 sec		
					Oil temperature	>= 20°C		
					Shift position	RANGE_D,4,3,2(define		
						d)		
					Engine speed	> 400 rpm		
					IG voltage	>= 10.5 V		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Brake	OFF		
					Spinning <sup>11</sup>	FALSE		
					DS_Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					abs( 1 - SpeedABS / Trans.	< 10 %		
					Output Speed)			
					Transmission Output Speed	>= 500rpm		
					No DTC set	P0501 P0705		
						P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973 P0974		
						P0974 P0976		1
						P0977		
						P0979		
						P0980		
						P0982		
						P0983		
						P0985		1
						P0986		ł
						P1820		1
						P1895		
						P1896		ĺ
						P2159		
						P2762		
						P2763		1
						P2763 P2764		1
						U0001		
						U0100		1
						U0121		
	P0734		Calculated ratio for 4th gear	>20%	No Shifting Control <sup>6</sup>		12 sec	Immediately
			differendes from expected.		Not garage shifting control <sup>7</sup> (N-D)	I	Continuous	
					Throttle	> 10%		1
	1 ]				Current gear	4		1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM
					Time after changing to Shift	>8.0 sec		
					position ==			
					RANGE D,4,3,2(defined)			
					Time after shifting control <sup>7</sup>	>0.5 sec		
					Oil temperature	>= 20°C		
					Shift position	RANGE_D,4,3,2(define d)		
					Engine speed	> 400 rpm		
					IG voltage	>= 10.5 V		
					Brake	OFF		
					Spinning <sup>11</sup>	FALSE		
					DS_Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					abs( 1 - SpeedABS / Trans.	< 10 %		
					Output Speed)	10 /0		
					Transmission Output Speed	>= 500rpm		
					No DTC set	P0501		
					No DTC set	P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973		
						P0974		
						P0976		
						P0977		
						P0979		
						P0980		
						P0982		
						P0983		
						P0985		
						P0986 P1820		
						P1895		
						P1895 P1896		
						P2159		
						P2762		
						P2763		
	1				1	P2764		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						U0001		
						U0100		
						U0121		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUN
	P0735	Rationality	Calculated ratio for 5th gear	>20%	No Shifting Control <sup>6</sup>		12 sec	Immediately
	1. 0.00	radonanty	difference from expected	2070	Not garage shifting control <sup>7</sup> (N-D)		Continuous	immodiatory
			· ·		Throttle			
					Current gear	> 10% 5		
					Time after changing to Shift	>8.0 sec		1
					position ==	0.0 000		
					RANGE D,4,3,2(defined)			
					Time after shifting control <sup>7</sup>	>0.5 sec		
					Oil temperature	>= 20°C		
					Shift position	RANGE_D,4,3,2(define		
						d)		
					Engine speed	> 400 rpm		
					IG voltage	>= 10.5 V		
					Brake	OFF		
					Spinning <sup>11</sup>	FALSE		
					DS Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					abs( 1 - SpeedABS / Trans.	< 10 %		
					Output Speed) Transmission Output Speed	>= F00rnm		
					Transmission Output Speed	>= 500rpm		
					No DTC set	P0501		
					140 B 1 0 3ct	P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725 P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973		
			1			P0974		
			1			P0976		
						P0977 P0979		
			1			P0979 P0980		
						P0982		1
						P0983		1
			1			P0985		
			1			P0986		
			1			P1820		
	1			ĺ		P1895		

	CODE	DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		1
						U0001		
						U0100		
						U0121		4
<u> </u>						00121		
Ī	P0736	Rationality	Calculated ratio for Reverse gear	>20%	No Shifting Control <sup>6</sup>		6 sec	Immediately
			difference from expected		Not garage shifting control <sup>7</sup> (N-R)		Continuous	
					abs( 1 - SpeedABS / Trans.	< 10 %		
					Output Speed)	D		
					Selected gear	R		-
					A/T oil temp.	> 20°C		
					Throttle	> 10%		
					Engine speed	> 400 rpm		
					Time after N-R shift	8 sec		
					IG voltage	> 10,5 V		
					Transmission Output Speed	>= 500rpm		
					Brake	OFF		
					DS_Active <sup>2</sup>	TRUE		
					Emergency mode	FALSE		
					No DTC set	P0501		
						P0705		1
						P0711		i
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		•
						P0725	1	1
						P0786		1
						P0787	+	1
						P0788	+	1
						P0961	+	1
						P0962	+	1
						P0963		1
					-	P0973	1	1
						P0974	1	1
						P0974 P0976	-	1
								1
						P0977		-
						P0979		ł
						P0980		ł
						P0982		ĺ
						P0983	I	
						P0985		1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						P1820		
						P1895		
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		
						U0001		
						U0100		
						U0121		
	P1731	Rationality	Calculated ratio for Reverse gear	>20%	N = 01:10: - = 0 = 1 = 16	00121	12 sec	Immediately
	F1/31	Rationality	difference from expected	2078	No Shifting Control <sup>6</sup>		12 300	iiiiiieulaleiy
			difference from expected		Mode Selector	Triptronic mode <b>or</b> Shift position Range_L	Continuous	
					Shift position	RANGE_D(defined)		
					A/T oil temp.	> 20°C		
					Throttle	0%		
					Through	> 400 rpm		
					Engine speed			
					Time after shift to	8 sec		
					D.4.3.2(defined)	40.514		
					IG voltage	> 10,5 V		
					Transmission Output Speed	1260rpm >= outRpm		
						>= 500rpm		
					Brake	OFF		
					DS_Active <sup>2</sup>	TRUE		
					Time after shifting control	>0,5sec		
					Current gear	1st engine brake		
					No DTC set	P0501		
						P0705		
						P0711		
						P0712		
						P0713		
						P0716		
						P0717		
						P0721		
						P0722		
						P0725		
						P0786		
						P0787		
						P0788		
						P0961		
						P0962		
						P0963		
						P0973		
						P0974		
						P0974 P0976		
						F09/0		
						P0977		
						P0979		
	l					P0980		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
						P0982		
						P0983		
						P0985		
						P0986		
						P1820 P1895		
						P1896		
						P2159		
						P2762		
						P2763		
						P2764		
						U0001		
						U0100		
						U0121		
Engine speed signal	P0725	Signal from ECM stated as	Engine Speed Validity	Invalid	Not lost communication with ECM		4 sec	Immediately
		unreliable				ON > 3 sec		
					DS_Active_CAN <sup>1</sup>	TRUE	Continuous	
					Transmission input speed	>500rpm (only Saab 9- 5)		
					Emergency mode	FALSE		
					Battery voltage	> 10,2 V		
Note: All components/system	n (DTCs)	have a test frequency of 30~60ms						
1) DS_Active_CAN								
DS_Active_CAN = TRUE wh detection is fulfilled for 2.0 se								
DS_Active_CAN = FALSE w failure detection is not fulfilled		ermission condition for CAN						
Start Condition for CAN fai	lure dete	ction:						
Ignition ON and 10.2V < Battery Voltage < 18	BV and							
Not in service mode and Reading EEPROM finish	-							
Permission condition for C	AN failur	e detection:						
Ignition ON and								
9.0V < Battery Voltage < 18V	/ and							
Not in service mode	-							
2) DS_Active								
_		ndition for failure detection is						

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
DS_Active = FALSE when the is not fulfilled.	e permiss	ion condition for failure detection						
Start Condition for failure o	detection:							
Ignition ON and								
10.2V < Battery Voltage < 18	3V and							
Not in service mode and	lot in service mode and leading EEPROM finish and							
	grpm > 400rpm							
Permission condition for failure detection:								
La Maria Chilara I								
Ignition ON and 9.0V < Battery Voltage < 18\	/ and							
Not in service mode and	anu							
Egrpm > 400rpm								
<sup>4)</sup> Table1:								
InTorque(Nm)	<=190	230						
InRpm(Rpm)	400	600						
OutRpm(Rpm)		300						
5) Egtrq_LUP_FailMap (Nm)								
Trans in Cased	1000rp m	1500rpm		2500rpm	3000rpm			
Trans. In. Speed TrqConv.(217KII)		49		80	106			
TrqConv.(206KII)		56		91	121			
6) Shifting Control								
		transmission is in between two led pressure has reached to full						
<sup>7)</sup> "Garage Shifting"								
	activated v	when the range selector changes						
from N to D or R until approp	riate Gea	r Ratio is detected.						
8) "Multiplex Shifting"								
	ft control, t	that shift control is stopped and a						
For example: If "BestGear" on shift control is stopped and a		3rd in a 3-4 shift control, the 3-4 control is started.						
9) "Neutral Control"								

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Neutral Control is activated it with the brake pressed for 2		ele is at stand still and in range D until the brake is released.						
10) "InTorque_noACC"	10) InTorque_noACC"							
Engine output torque, accele	ration iner	rtia torque not included.						
<sup>11)</sup> Spinning								
Spinning = 1 if Transversal a	cceleratio	n > 0.7G (input from ABS signal)						
	Spinning = 0 if Transversal acceleration parameter < 0.7G for 2sec.  Continuously. (input from ABS signal)							