1999 3.0L (L81) V-car Catera
4L30-E TRANSMISSION DIAGNOSTIC PARAMETERS

99c30R_V__aT.DOC

P code	Fault name	DTC type	Failure enabling conditions	Failure major conditions	Monitoring time length (ms) (1 MLT = 15ms)
P 0560	System Voltage	**B**	no hysteresis range (9.5 V - 9 V)	Ubatt <= KVLO1 (9V)	149+1 MLT = 2.25s
P 0560	System Voltage	**B**	no hysteresis range (15.5V - 16V)	Ubatt >= KVLHI1 (16V)	149+1 MLT = 2.25s
P 0601	TCM Memory- ROM	**B**	none	calculated checksum different from EPROM checksum	1318+1 MLT (40s) & (20 times faster during initialization : 2s)
P 0602	TCM Not Porgrammed	**B**	1 time after power on reset	a wrong data or a wrong checksum is detected in the transmission configuration range of EEPROM	Immediate
P 0602	TCM Not Programmed	**B**	Ignition off (at that time the EEPROM is updated).	read bytes not equal to written bytes	Immediate
P 0705	Transmission Range Switch Circuit	**B**	none	Switch decodes electrical failure (flags Z+E)	(MLT+1)x KMODMLF (9+1)x1,995s = 19.95s
P 0705	Transmission Range Switch Circuit	**B**	none	Switch decodes undefined state (flag Z)	(MLT+1)x KMODMLF (9+1)x1,995s = 19.95s
P 0722	Output Speed Sensor Circuit-Low Input	**B**	- position not equal to P, R, N or Z - ES > KVSHLFNE (3008rpm)	Output speed = 0	255+1 MLT = 3.84s
P 0725	Engine Speed Input Circuit- Low Input	**B**	- position not equal to P, R, N or Z - Throttle > KNEMLFTH (12%) - OS > KNEMLFVS (1024rpm)	N_MOT <= 112rpm	255+1 MLT = 3.84s
P 0727	Engine speed Input Circuit	**B**	none	- CAN information VALID_ESPEED = 1 or 2 or 3	66+1 MLT = 1s
P 0730	Incorrect Gear Ratio	**B**	position not equal to P, R, N or Z - No Safety Mode - only in main loop - static conditions - enable conditions met or set for code P0757, Fail case 1 1. ES > ES_LIM (3488rpm) 2. 3rd gear, ES > OS > OS_LIM (2976rpm)	1. abs(OS - N_ABsoll) > SCHLUPF characteristic line f(gear) : Absolute slippage > Gear 1 : SCHLUPF[0] (352rpm) Gear 2 : SCHLUPF[1] (576rpm) Gear 3 : SCHLUPF[2] (896rpm) Gear 4 : SCHLUPF[3] (1216rpm) 2. ES < OS - SCHLUPF2 (992rpm)	225+1 MLT = 3.39s
P 0742	TCC System - Stuck On	**B**	- TCC mode = OFF - GEAR <> FIRST - Eng. running status set - HCCU_FP (18.18%) < Throttle < HCCO_FP (100%) - Selector = D - MCCU_MM (50Nm) < Engine torque < MCCO_MM (200Nm) - NCCU_ES (1000rpm) < ES < NCCO_ES (3488rpm) - NCCU_VS (25Kph) < Veh. Spd < NCCO_VS (120Kph) - No Throttle, OS, ES and TCC codes	NCCU_FSS (-20rpm) < SLIP < NCC)_FSS (64rpm) for a time >= TCC_FSS (3s.) If conditions are met, increment "Fail counter". To fail "Fail counter" >= 2	depends on fail detection (minimum 6s.)
P 0743	TCC Enable Solenoid Circuit - short to ground	**B**	- TCC solenoid commanded off - FET driver closed	- (TCC) Feedback voltage < UCG_KM (2,45V)	11+1 MLT = 180ms

1999 3.0L (L81) V-car Catera
4L30-E TRANSMISSION DIAGNOSTIC PARAMETERS

99c30R_V__aT.DOC

P code	Fault name	DTC type	Failure enabling conditions	Failure major conditions	Monitoring time length (ms) (1 MLT = 15ms)
P 0743	TCC Enable Solenoid Circuit - open	**B**	- TCC solenoid commanded off - FET driver closed	- UCG_KM (2,45V) <= (TCC) Feedback voltage < UCG_UBR (3,53V)	11+1 MLT = 180ms
P 0743	TCC Enable Solenoid Circuit - short to battery	**B**	- TCC solenoid commanded on - FET driver closed	- (TCC) Feedback voltage > UCG_KP (4,02V)	11+1 MLT = 180ms
P 0748	Pressure Control Solenoid Circuit Electrical	**B**	- FET driver closed - Force motor on. - IWERT > (DR_PB=f(TEMPG,UBATT))	- No falling edge on feedback line during 2ms - Feedback Voltage is low	Initialization : 500ms Main loop : 35+1 MLT = 540ms
P 0748	Pressure Control Solenoid Circuit Electrical	**B**	- FET driver closed - Force motor on.	- No falling edge on feedback line during 2ms - Feedback Voltage is high	Initialization : 500ms Main loop : 35+1 MLT = 540ms
P0751	Shift solenoid 1-2/3-4 stuck off (1-1-4-4)	**B**	- Range = D4 - No 705, 722, 753, 758, 1600, 1625, 1743, 1890 codes set. Fail case 1 : - Commanded gear = 2 for a time >= TSP_F_CG[2] (0,7s.) - Throttle (pedal) >= HSPS_FTP[2] (30,8%) - NSPU_FES[2] (3104rpm) <= ES <= NSPO_FES[2] (3904rpm) - OS >= NSPS_FOS[2] (992rpm) - Torque >= MSPS_FMM[2] (50Nm) (if all conditions resets Pass case 1) Fail case 2 : - Commanded gear = 3 for a time >= TSP_F_CG[4] (0,7s.) - Throttle (pedal) >= HSPS_FTP[4] (24.9%) - NSPU_FES[4] (1216rpm) <= ES <= NSPO_FES[4] (2016rpm) - OS >= NSPS_FOS[4] (2016rpm) - Torque >= MSPS_FMM[4] (50Nm) (if all conditions met, resets Pass case 2) - TCC is commanded on	1) - Fail case 1 - NSPU_FSS[2] (1400rpm) <= TCC slip <= NSPO_FSS[2] (2000rpm) for a time >= TSP_FC[2] (0,9s.) 2) - Fail case 2 - NSPU_FSS[4] (-1000rpm) <= TCC slip <= NSPO_FSS[4] (-100rpm) for a time >= TSP_FC[4] (3s.) If case 1) and 2) are met, increment Fail counter. Fail counter >= 2	Depends on Commanded Gear

1999 3.0L (L81) V-car Catera
4L30-E TRANSMISSION DIAGNOSTIC PARAMETERS

99c30R_V__aT.DOC

P code	Fault name	DTC type	Failure enabling conditions	Failure major conditions	Monitoring time length (ms) (1 MLT = 15ms)
P0752	Shift solenoid 1-2/3-4 stuck on (2-2-3-3)	**B**	- Range = D4 - No 705, 722, 753, 758, 1600, 1625, 1743, 1890 codes set. Fail case 1 : - Commanded gear = 1 for a time >= TSP_F_CG[0] (1,5s.) - Throttle (pedal) >= HSPS_FTP[0] (41,1%) - NSPU_FES[0] (2400rpm) <= ES <= NSPO_FES[0] (3008rpm) - OS >= NSPS_FOS[0] (704rpm) - Torque >= MSPS_FMM[0] (50Nm) (if all conditions resets Pass case 1) Fail case 2 : - Commanded gear = 4 for a time >= TSP_F_CG[6] (0,5s.) - Throttle (pedal) >= HSPS_FTP[6] (15%) - NSPU_FES[6] (1696rpm) <= ES <= NSPO_FES[6] (4992rpm) - OS >= NSPS_FOS[6] (1696rpm) - Torque >= MSPS_FMM[6] (50Nm) (if all conditions met, resets Pass case 2) - TCC is commanded on	1) - Fail case 1 - NSPU_FSS[0] (-711rpm) <= TCC slip <= NSPO_FSS[0] (350rpm) for a time >= TSP_FC[0] (0,6s.) 2) - Fail case 2 - NSPU_FSS[6] (666rpm) <= TCC slip <= NSPO_FSS[6] (1000rpm) for a time >= TSP_FC[6] (5s.) If case 1) and 2) are met, increment Fail counter. Fail counter >= 2	Depends on Commanded Gear
P 0753	Shift solenoid 1-2/3-4 circuit - short to ground	**B**	- Shift solenoid 1-2/3-4 commanded off - FET driver closed	- (1-2/3-4) Feedback voltage < UCG_KM (2,45V)	11+1 MLT = 180ms
P 0753	Shift solenoid 1-2/3-4 circuit - open	**B**	- Shift solenoid 1-2/3-4 commanded off - FET driver closed	- UCG_KM (2,45V) <= (1-2/3-4) Feedback voltage < UCG_UBR (3,53V)	11+1 MLT = 180ms
P 0753	Shift solenoid 1-2/3-4 circuit - short to battery	**B**	- Shift solenoid 1-2/3-4 commanded on - FET driver closed	- (1-2/3-4) Feedback voltage > UCG_KP (4,02V)	11+1 MLT = 180ms
P0756	Shift solenoid 2-3 stuck off (4-3-3-4)	**B**	- Range = D4 - No 705, 722, 753, 758, 1600, 1625, 1743, 1890 codes set. Fail case 1 : - Commanded gear = 1 for a time >= TSP_F_CG[1] (1,5s.) - Throttle (pedal) >= HSPS_FTP[1] (41,1%) - NSPU_FES[1] (2400rpm) <= ES <= NSPO_FES[1] (3008rpm)	1) - Fail case 1 - NSPU_FSS[1] (-3000rpm) <= TCC slip <= NSPO_FSS[1] (100rpm) for a time >= TSP_FC[1] (1,5s.) 2) - Fail case 2 - NSPU_FSS[3] (-500rpm) <= TCC slip <= NSPO_FSS[3] (400rpm) for a time >= TSP_FC[3] (1,5s.)	Depends on Commanded Gear

1999 3.0L (L81) V-car Catera
4L30-E TRANSMISSION DIAGNOSTIC PARAMETERS

99c30R_V__aT.DOC

P code	Fault name	DTC type	Failure enabling conditions	Failure major conditions	Monitoring time length (ms) (1 MLT = 15ms)
			- OS >= NSPS_FOS[1] (704rpm) - Torque >= MSPS_FMM[1] (50Nm) (if all conditions resets Pass case 1) <u>Fail case 2 :</u> - Commanded gear = 2 for a time >= TSP_F_CG[3] (0,7s.) - Throttle (pedal) >= HSPS_FTP[3] (41.8%) - NSPU_FES[3] (2592rpm) <= ES <= NSPO_FES[3] (3008rpm) - OS >= NSPS_FOS[3] (1408rpm) - Torque >= MSPS_FMM[3] (50Nm) (if all conditions met, resets Pass case 2)	If case 1) and 2) are met, increment Fail counter. Fail counter >= 2	
P0757	Shift solenoid 2-3 stuck on (1-2-2-1)	**B**	- Range = D4 - No 705, 722, 753, 758, 1600, 1625, 1743, 1890 codes set. <u>Fail case 1</u> : - Commanded gear = 3 for a time >= TSP_F_CG[5] (0,7s.) - Throttle (pedal) >= HSPS_FTP[5] (26,4%) - NSPU_FES[5] (3104rpm) <= ES <= NSPO_FES[5] (4192rpm) - OS >= NSPS_FOS[5] (1088rpm) - Torque >= MSPS_FMM[5] (50Nm) (if all conditions resets Pass case 1) <u>Fail case 2 :</u> - Commanded gear = 4 for a time >= TSP_F_CG[7] (0,5s.) - Throttle (pedal) >= HSPS_FTP[7] (13,8%) - NSPU_FES[7] (3008rpm) <= ES <= NSPO_FES[7] (6016rpm) - OS >= NSPS_FOS[7] (1216rpm) - Torque >= MSPS_FMM[7] (0Nm) (if all conditions met, resets Pass case 2)	1) - Fail case 1 - NSPU_FSS[5] (1200rpm) <= TCC slip <= NSPO_FSS[5] (1800rpm) for a time >= TSP_FC[5] (3s.) 2) - Fail case 2 - NSPU_FSS[7] (2000rpm) <= TCC slip <= NSPO_FSS[7] (6000rpm) for a time >= TSP_FC[7] (1,3s.) If case 1) and 2) are met, increment Fail counter. Fail counter >= 1	Depends on Commanded Gear
P 0758	Shift solenoid 2-3 circuit - short to ground	**B**	- Shift solenoid 2-3 commanded off - FET driver closed	- (2-3) Feedback voltage < UCG_KM (2,45V)	11+1 MLT = 180ms
P 0758	Shift solenoid 2-3 circuit - open	**B**	- Shift solenoid 2-3 commanded off - FET driver closed	- UCG_KM (2,45V) <= (2-3) Feedback voltage < UCG_UBR (3,53V)	11+1 MLT = 180ms
P 0758	Shift solenoid 2-3 circuit - short to battery	**B**	- Shift solenoid 2-3 commanded on - FET driver closed	- (2-3) Feedback voltage > UCG_KP (4,02V)	11+1 MLT = 180ms

1999 3.0L (L81) V-car Catera
4L30-E TRANSMISSION DIAGNOSTIC PARAMETERS

99c30R_V__aT.DOC

P code	Fault name	DTC type	Failure enabling conditions	Failure major conditions	Monitoring time length (ms) (1 MLT = 15ms)
P 1600	Power control relay watchdog failure	**B**	- Only initialization - FET driver open (all outputs OFF) - UBATT > UBAT_LIM - Watchdog not released	PCR closes although no Watchdog pulses are present	Immediate
P 1621	TCM Long Term Memory Performance	**B**	1 time after power on reset	no EEPROM acknowledge to the TCM at first read cycle	Immediate
P 1625	TCM System Reset	**B**	Initialization	high output although PCR off by software and all solenoids off	Immediate
P 1625	TCM System Reset	**B**	Initialization	high output although Force Motor released	Immediate
P 1800	TCM Power Relay Output Control Circuit	**B**	No codes short to ground or open P0753, P0758, P1850, P0743	Solenoid supply is disconnected.	7+1 MLT = 120ms
P 1850	Band Apply Solenoid Circuit - short to ground	**B**	- Shift solenoid band commanded off - FET driver closed	- (Band) Feedback voltage < UCG_KM (2,45V)	11+1 MLT = 180ms
P 1850	Band Apply Solenoid Circuit - open	**B**	- Shift solenoid band commanded off - FET driver closed	- UCG_KM (2,45V) <= (Band) Feedback voltage < UCG_UBR (3,53V)	11+1 MLT = 180ms
P 1850	Band Apply Solenoid Circuit - short to battery	**B**	- Shift solenoid band commanded on - FET driver closed	- (Band) Feedback voltage > UCG_KP (4,02V)	11+1 MLT = 180ms
P 1870	Trans. component slipping	**B**	- position not equal to P, R, N or Z - No Safety Mode - TCC commanded on - only in main loop - static conditions - No P0730 code - enable conditions met or set for codes : P0751, Fail Case 1 & FC2 P0752, FC1 & FC2 P0757, FC1 & FC2	Absolute slippage (Engine speed - calculated turbine speed) > NDIS_WKZU (288rpm)	255+1 MLT = 3.825s
P 1890	Throttle Position Signal	**B**	none	CAN throttle information VALID_ACCEL_POS = 1	66+1 MLT = 1s
P 1890	Throttle angle (CAN)	**B**	none	CAN throttle information VALID_ACT_THROTTLE_ANGLE = 1	66+1 MLT = 1s
U 2100	CAN bus off	**B**	none	CAN driver signals bus off	66+1 MLT = 1s
U 2104	CAN bus reset counter overrun	**B**	none	NWM counter ZCN_DLL >= 40h	66+1 MLT = 1s
P 2105	CAN Bus Error ECM	**B**	none	No CAN messages from ECU	66+1 MLT = 1s