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Model Year Start: 2016	Model: LX570	Prod Date Range: [09/2015 -]
Title: AE80F AUTOMATIC TRANSMISSION / TRANSAXLE: AUTOMATIC TRANSMISSION SYSTEM: FAIL-SAFE CHART; 2016 - 2018 MY LX570 [09/2015 -]		

FAIL-SAFE CHART

1. Description

This function minimizes the loss of the ECT functions when a malfunction occurs in each sensor or solenoid.

2. Fail-safe

(a) Fail-safe control list:

MALFUNCTIONING PART	FUNCTION
Transmission revolution sensor (NT)	- Prohibits shifting to 2nd and 8th. - Lock up clutch control is prohibited. - AI-SHIFT* control is prohibited. - High response gear shifts are prohibited.
Transmission revolution sensor (SP2)	- Prohibits shifting to 2nd and 8th gear. - Lock up clutch control is prohibited. - AI-SHIFT* control is prohibited. - High response gear shifts are prohibited.
Shift solenoid valve SL1, SL2, SL3, SL4, SL5, SC1 and SC2	If the TCM detects a solenoid valve malfunction, it performs fail-safe control.
No. 1 ATF temperature sensor	- Shifting between 1st and 5th gear is allowed. - Lock up clutch control is prohibited. - AI-SHIFT* control is prohibited. - High response gear shifts are prohibited.
TCM power supply (voltage is low)	- When driving in 1st to 7th gear, the transmission will be fixed in 7th gear. - When driving in 8th gear, the transmission will be fixed in 8th gear.
Knock sensor	- When driving in 1st to 5th gear, up-shift to 6th or higher is prohibited. - When driving in 6th gear or higher, from the time the malfunction is detected, up-shift to higher gear is prohibited. - Lock up clutch control is prohibited. - High response gear shifts are prohibited.
CAN communication	- Shifting to only either 1st or 3rd gear is allowed. - Lock up clutch control is prohibited. - High response gear shifts are prohibited.
Shift solenoid valve SLU	Lock up clutch control is prohibited.
Shift solenoid valve SLT	- Engine output is limited. - High response gear shifts are prohibited.

HINT:

*: In addition to the switching of the shift pattern through the pattern select switch, Artificial Intelligence Shift (AI-SHIFT) control enables the TCM to estimate the road conditions and driver intention in order to automatically select the optimal shift pattern.

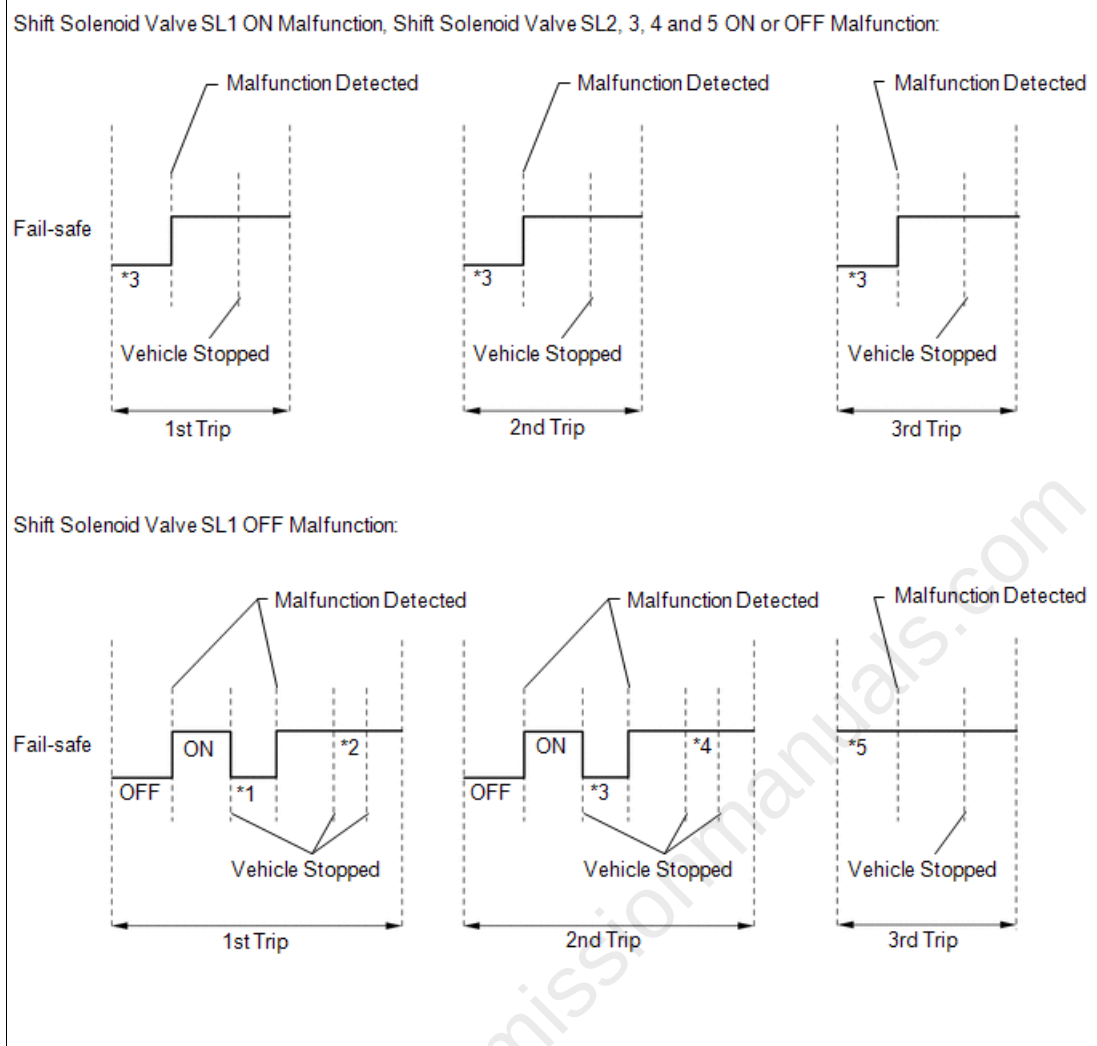
(b) Shift Solenoid Valve Normal Operation Chart:

Gear	1st	2nd	3rd	4th	5th	6th	7th	8th
Shift Solenoid Valve SL1	ON	ON	ON	ON	ON	OFF	OFF	OFF
Shift Solenoid Valve SL2	ON (OFF)*	ON	ON	ON	OFF	OFF	OFF	OFF
Shift Solenoid Valve SL3	ON	ON	OFF	ON	ON	ON	OFF	ON
Shift Solenoid Valve SL4	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
Shift Solenoid Valve SL5	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
Shift Solenoid Valve SC1	ON (OFF)*	ON	ON	ON	ON	ON	ON	ON

Shift Solenoid Valve SC2	OFF (ON)*	OFF	OFF	OFF	OFF	OFF	OFF	OFF
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*: Shift lever in S with the S1 (1st gear) range selected

(c) Fail-safe Control Chart:



HINT:

- *1: Operation of fail-safe is canceled the first time the vehicle stops.
- *2: Operation of fail-safe is not canceled for subsequent vehicle stops.
- *3: Operation of fail-safe is canceled when a new trip is started.
- *4: Operation of fail-safe is not canceled, as a vehicle stop was detected on the previous trip.
- *5: For the shift solenoid valve SL1 OFF malfunction, the 3rd trip is started with the fail-safe ON.
- Fail-safe operation is performed when the TCM detects a malfunction.

Gear under normal conditions		1st	2nd	3rd	4th	5th	6th	7th	8th
Shift Solenoid Valve SL1	ON malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during ON malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
	OFF malfunction (without fail-safe control)	N	N	N	N	N	6th	7th	8th
	Fail-safe control during OFF malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
Shift Solenoid Valve SL2	ON malfunction (without fail-safe control)	1st	2nd	3rd	4th	1st	N	N	N
	Fail-safe control during ON malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
	OFF malfunction (without fail-safe control)	5th	8th	7th	6th	5th	6th	7th	8th
	Fail-safe control during OFF malfunction	5th	5th	5th	5th	5th	5th	5th	5th
	ON malfunction (without fail-safe control)	1st	2nd	1st	4th	5th	6th	N	8th

Shift Solenoid Valve SL3	Fail-safe control during ON malfunction	4th	4th	4th	4th	4th	4th	4th	4th
	OFF malfunction (without fail-safe control)	3rd	3rd	3rd	3rd	7th	7th	7th	7th
	Fail-safe control during OFF malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
Shift Solenoid Valve SL4	ON malfunction (without fail-safe control)	4th	4th	3rd	4th	6th	6th	7th	6th
	Fail-safe control during ON malfunction	4th	4th	4th	4th	4th	4th	4th	4th
	OFF malfunction (without fail-safe control)	1st	2nd	3rd	1st	5th	N	7th	6th
	Fail-safe control during OFF malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
Shift Solenoid Valve SL5	ON malfunction (without fail-safe control)	2nd	2nd	3rd	4th	8th	6th	7th	8th
	Fail-safe control during ON malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
	OFF malfunction (without fail-safe control)	1st	1st	3rd	4th	5th	6th	7th	N
	Fail-safe control during OFF malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
Shift Solenoid Valve SC1	ON malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	4th	3rd	2nd
	Fail-safe control during ON malfunction	3rd	3rd	3rd	3rd	3rd	3rd	3rd	3rd
	OFF malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during OFF malfunction	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd
Shift Solenoid Valve SC2	ON malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during ON malfunction	1st	2nd	3rd	4th	5th	6th	7th	8th
	OFF malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during OFF malfunction	2nd	2nd	2nd	2nd	2nd	2nd	2nd	2nd
Shift Solenoid Valve SLT	ON malfunction (without fail-safe control)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during ON malfunction	1st	2nd	3rd	4th	5th	6th	7th	8th
	OFF malfunction (without fail-safe control) (Clutch slipping in any gear due to lowest possible line pressure)	1st	2nd	3rd	4th	5th	6th	7th	8th
	Fail-safe control during OFF malfunction (during engine torque reduction)	1st	2nd	3rd	4th	5th	6th	7th	8th