Subject
4WD System Diagnosis

Market
USA

Service Category
Drivetrain

Section
Transfer/4wd/Awd

Applicability
2008 - 2011 Sequoia

APPLICABLE VEHICLES

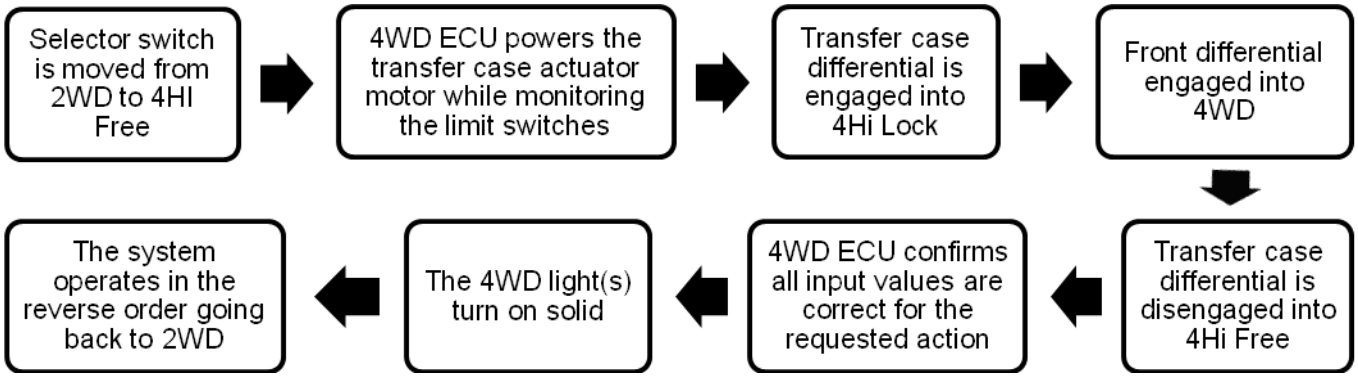
2008 – 2011 Sequoia

CONDITION

4WD System Inoperative.

RECOMMENDATIONS

Basic System Operation



Note: If the system does not complete the requested action or the actuator limit switches do not match the 4WD ECU desired position, the 4WD light(s) will flash indicating a problem. Additionally if the system is unsure of its position, it may stop operating and not move in or out of its current position.

Before Beginning Diagnosis:

- If the 4WD system is inoperative or has harsh engagement/disengagement while driving but works normally when the wheels are off the ground, it may be caused by a difference in front and rear driveshaft speeds. Confirm: Tire size differences, uneven wear, or incorrect inflation pressures.
- The vehicle must be stopped and transmission in N or the system will not go into 4LO and beeping will be heard.
- Confirm customer is not attempting to engage 4WD at speeds above 62MPH as operation will be prohibited.
- If the vehicle has a DTC in another system, diagnose that condition first as it may be prohibiting 4WD operation.

Inspection Procedure

1. Print and complete the 4WD System Diagnosis Pre-Call Worksheet on TIS (refer to link on bottom of page 2).
2. Refer to the table on page 2. The columns in the table provide the correct voltage values for each component position. Using the information from the Pre-Call worksheet, compare the voltages in the columns that match the mechanical position and selector switch input of the system.
3. Identify which switch position(s) do not match the mechanical position of the system.
4. Inspect the component and circuit that is not completing the requested action. Example: Transfer case engaged in 4HI, transfer switch voltages correct for 4HI, ADD voltages not correct for 4HI, inspect ADD and related circuits.

Diagnostic Tips:

- If the 4WD light(s) flash in 2WD, make sure the front differential is not staying engaged in 4WD. Rotate the front wheels by hand and if the front driveshaft turns, the front differential is engaged.
- Rotate the rear driveshaft by hand and note which direction the front driveshaft turns. If it turns in the same direction, the center differential is engaged. If it turns in the opposite direction, the center differential is disengaged.

Ver. 1.0 2/9/2010 T

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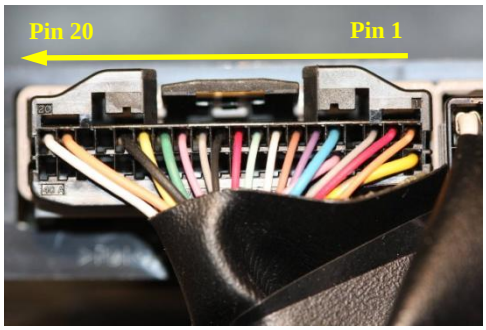
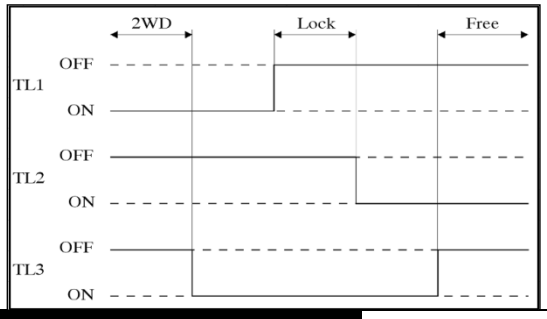
RECOMMENDATIONS

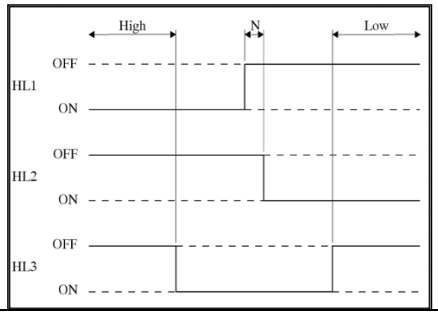
Circuit	Pin #	2WD	4HI	4HI lock	4LO	4LO lock	Circuit Function
HL1	1	0~1V	0~1V	0~1V	10~14V	10~14V	Transfer case actuator HI/LO range limit switches
HL2	2	10~14V	10~14V	10~14V	0~1V	0~1V	
HL3*	3	10~14V	10~14V	10~14V	10~14V	10~14V	
TL1	6	0~1V	10~14V	10~14V	10~14V	10~14V	Transfer case actuator 2WD/4WD & Lock/Free limit switches
TL2	7	10~14V	0~1V	10~14V	0~1V	10~14V	
TL3	8	10~14V	10~14V	0~1V	10~14V	0~1V	
DL1	9	10~14V	0~1V	0~1V	0~1V	0~1V	ADD actuator limit switches
DL2	10	0~1V	10~14V	10~14V	10~14V	10~14V	
2-4	11	0~1V	0.5V~0.7V	0.5V~0.7V	10~14V	10~14V	2WD/4WD switch request input
DL*	12	10~14V	10~14V	10~14V	10~14V	10~14V	Center Differential switch request input
LO	13	10~14V	0.5V~0.7V	0.5V~0.7V	0~1V	0~1V	4LO switch request input
4WD	14	10~14V	10~14V	0~1V	10~14V	0~1V	Center Differential engagement switch
ADD	15	10~14V	0~1V	0~1V	0~1V	0~1V	Front Differential engagement switch
NP*	16	10~14V	10~14V	10~14V	10~14V	10~14V	Transfer N position engagement switch
L4	21	10~14V	10~14V	10~14V	0~1V	0~1V	4LO engagement status output

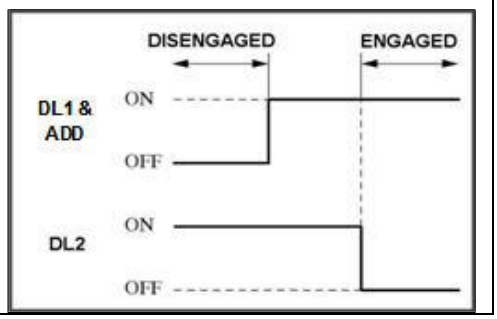


*Operation Notes:

- HL3 voltage will drop to less than 1V during High ↔ Low transition.
- DL is a momentary type input switch and will read 0v only when the center differential request switch is depressed.
- NP will read 0v only when the transfer case is in a neutral position.







LINK REFERENCES

- 4WD System Diagnosis Pre-Call Worksheet
- Foreword (2008 Sequoia)
- JF3A TRANSFER / 4WD / AWD: TOUCH SELECT 2-4 AND HIGH-LOW SYSTEM: PARTS LOCATION (2011 Sequoia)
- JF3A TRANSFER / 4WD / AWD: TOUCH SELECT 2-4 AND HIGH-LOW SYSTEM: FAIL-SAFE CHART (2011 Sequoia)