



4RUNNER V6 4WD OPERATION 2003-2009

Quick Training Guide – QT312F

The 4WD components, switch positions, and related voltage values for H2, H4 Free, H4 Lock, 4L Free and 4L Lock modes are shown to aid in diagnosis.

Note the change in switch positions for each mode.

ENTER

Click the ENTER button to view the Quick Training Guide.

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COMPONENTS

H2

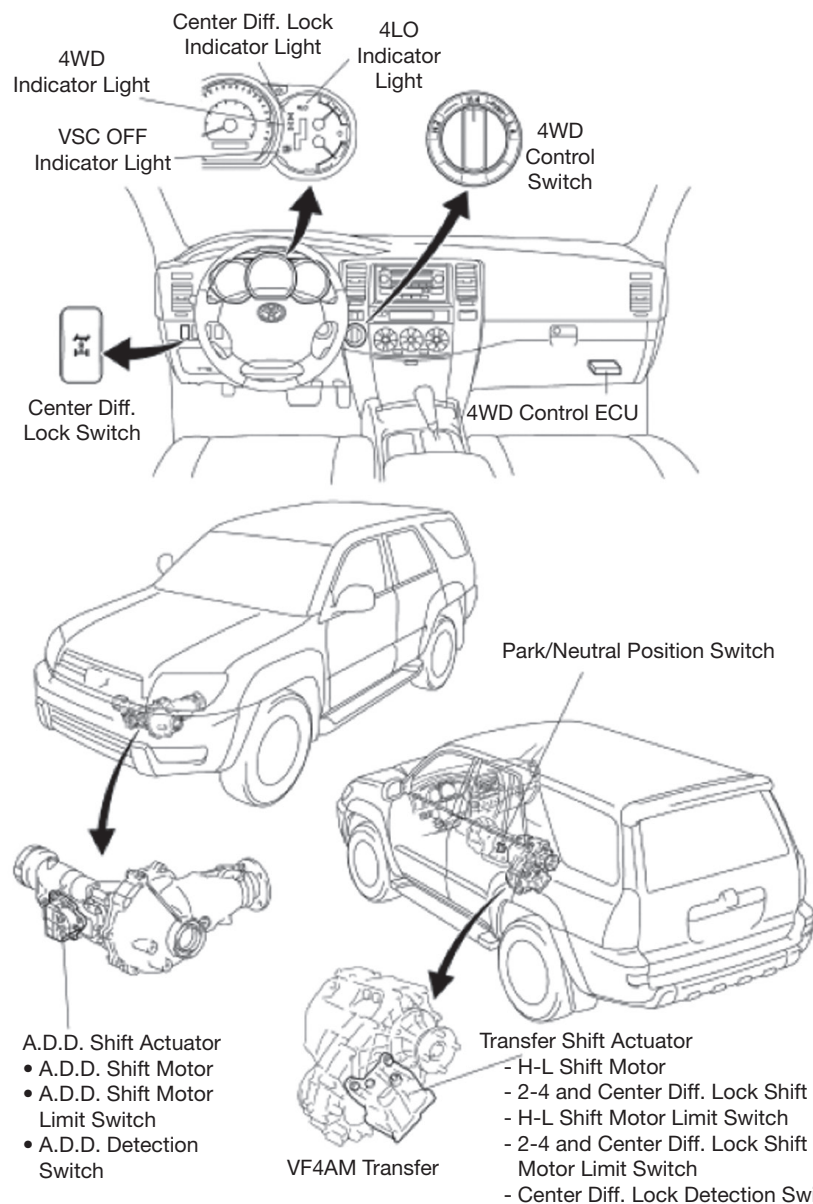
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

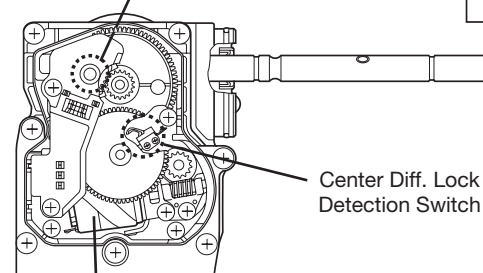
Main Components



Transfer Shift Actuator

Cross Section of Transfer Shift Actuator

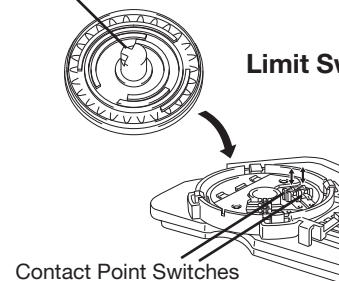
2-4 & Center Diff. Lock Shift Motor Limit Switch (TL1, TL2, TL3)



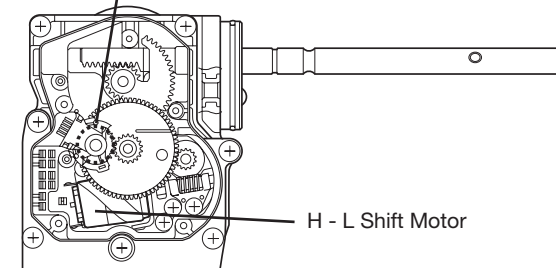
2-4 & Center Diff. Lock Shift Motor

Protuberance

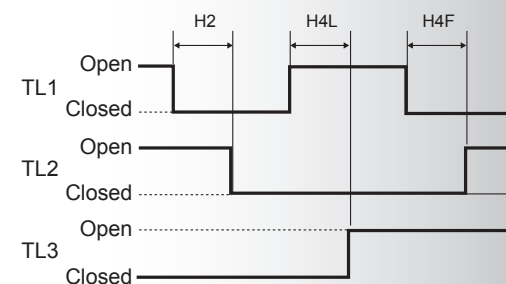
Limit Switch



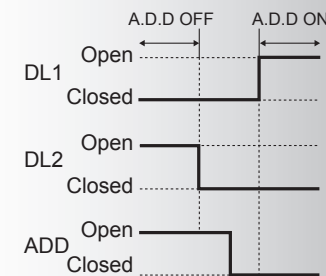
H - L Shift Motor Limit Switch (HL1, HL2)



Combination of 3 Contact Point Switches



Note Since all the limit and detection switches operate in a precise sequence, you can often pinpoint the source of a shift problem by identifying which switches did not open or close when they should have.



Click the tabs at the top to view each section

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COMPONENTS

H2

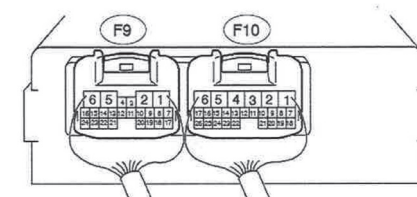
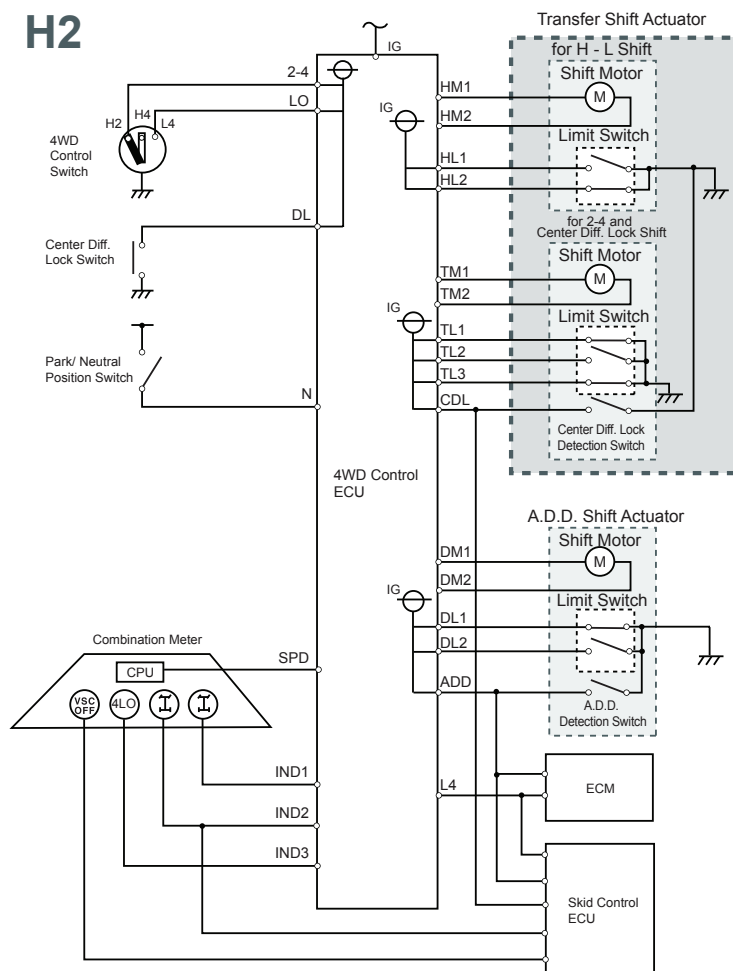
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

H2



Circuit	Pin # F9	H2
2-4	8	Below 2V
LO	15	10.5-14V
DL	16	10.5-14V
L4	24	10.5-14V

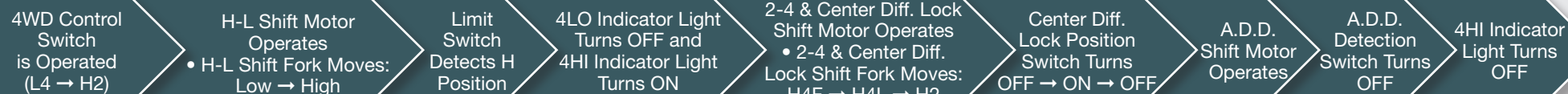
Circuit	Pin # F10	H2
HL1	17	10.5-14V
HL2	26	Below 2V
TL1	25	Below 2V
TL2	24	10.5-14V
TL3	23	Below 2V
CDL/P1	22	10.5-14V

Circuit	Pin # F10	H2
DL1	13	Below 2V
DL2	12	10.5-14V
ADD	18	10.5-14V

OPERATION FLOW – 4L FREE → 2WD



Operation prohibited unless vehicle is stopped and in neutral



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COMPONENTS

H2

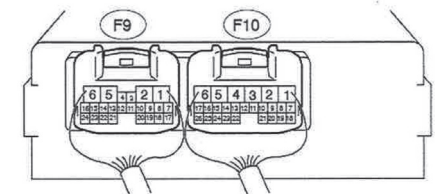
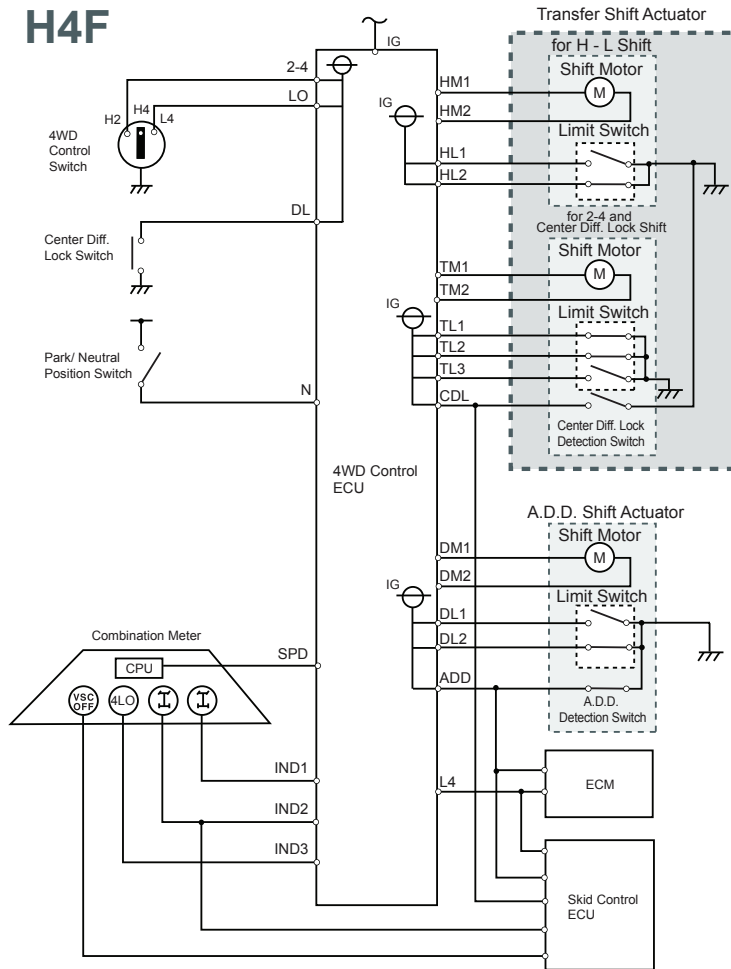
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

H4F



Circuit	Pin # F9	H4F
2-4	8	Below 2V
LO	15	Below 2V
DL	16	10.5-14V
L4	24	10.5-14V

Circuit	Pin # F10	H4F
HL1	17	10.5-14V
HL2	26	Below 2V
TL1	25	Below 2V
TL2	24	Below 2V
TL3	23	10.5-14V
CDL/P1	22	10.5-14V

Circuit	Pin # F10	H4F
DL1	13	10.5-14V
DL2	12	Below 2V
ADD	18	Below 2V

OPERATION FLOW – 2WD → 4HI

Note Operation prohibited above 62 mph

4WD Control Switch is Operated (H2 → H4)

2-4 & Center Diff. Lock Shift Motor Operates
• 2-4 & Center Diff. Lock Shift Fork Moves: H2 → H4L

Center Diff. Lock Position Switch Turns ON

A.D.D. Shift Motor Operates

A.D.D. Detection Switch Turns ON

2-4 & Center Diff. Lock Shift Motor Operates
• 2-4 & Center Diff. Lock Shift Fork Moves: H4L → H4F

Center Diff. Lock Position Switch Turns OFF

4HI Indicator Light Turns ON

4RUNNER V6 4WD OPERATION 2003-2009

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COMPONENTS

H2

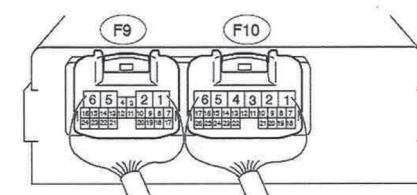
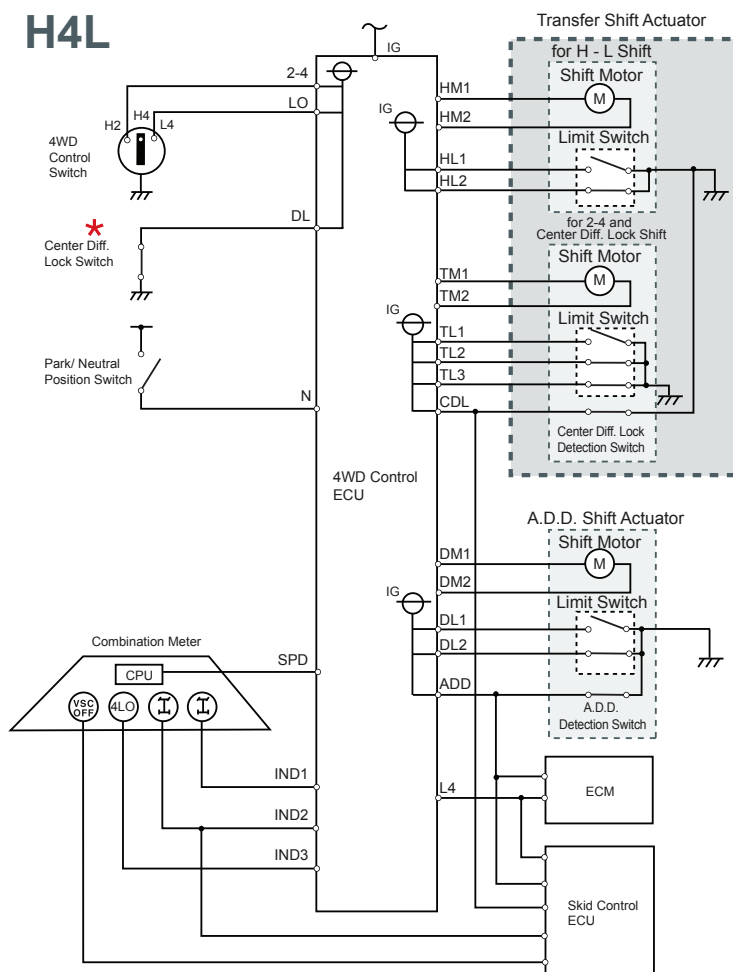
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

H4L



Circuit	Pin # F9	H4L
2-4	8	Below 2V
LO	15	Below 2V
DL	16	Below 2V*
L4	24	10.5-14V

Circuit	Pin # F10	H4L
HL1	17	10.5-14V
HL2	26	Below 2V
TL1	25	10.5-14V
TL2	24	Below 2V
TL3	23	Below 2V
CDL/P1	22	Below 2V

Circuit	Pin # F10	H4L
DL1	13	10.5-14V
DL2	12	Below 2V
ADD	18	Below 2V

OPERATION FLOW – 4HI → 4HI LOCKED Operation prohibited above 62 mph

* When Pressed

Center Diff. Lock Switch
is Pressed

2-4 Center Diff. Lock Shift Motor
Operates • 2-4 & Center Diff. Lock
Shift Fork Moves: H4F → H4L

Center Diff. Lock
Position Switch Turns ON

Center Diff. Lock
Indicator Light Turns ON

4RUNNER V6 4WD OPERATION 2003-2009

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COMPONENTS

H2

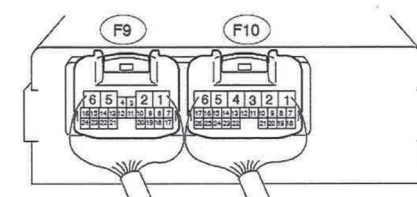
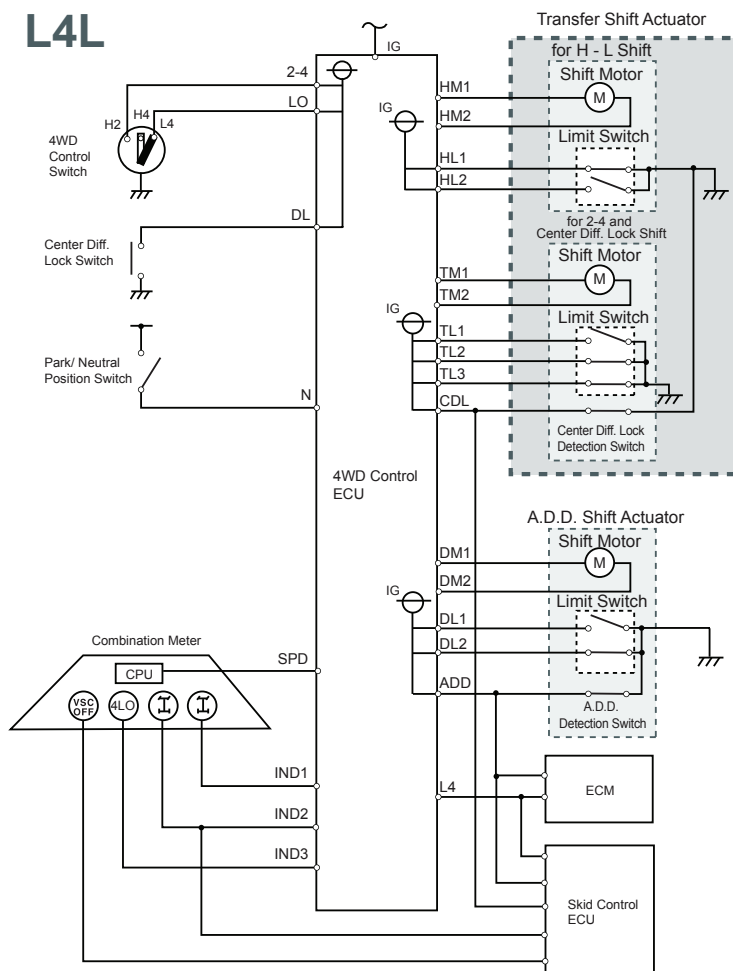
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

L4L



Circuit	Pin # F9	L4L
2-4	8	10.5-14V
LO	15	Below 2V
DL	16	10.5-14V
L4	24	Below 2V

Circuit	Pin # F10	L4L
HL1	17	Below 2V
HL2	26	10.5-14V
TL1	25	10.5-14V
TL2	24	Below 2V
TL3	23	Below 2V
CDL/P1	22	Below 2V

Circuit	Pin # F10	L4L
DL1	13	10.5-14V
DL2	12	Below 2V
ADD	18	Below 2V

OPERATION FLOW – 4HI LOCK → 4LO LOCK



Operation prohibited unless vehicle is stopped and in neutral

4WD Control Switch is Operated (4H → 4L)

H-L Shift Motor Operates • H-L Shift Fork Moves: High → Low

Limit Switch Detects L Position

4LO Indicator Light Turns ON and 4HI Indicator Light Turns OFF

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COMPONENTS

H2

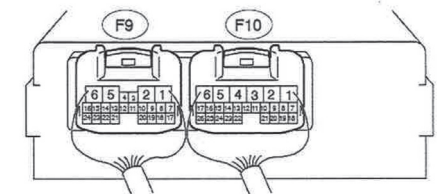
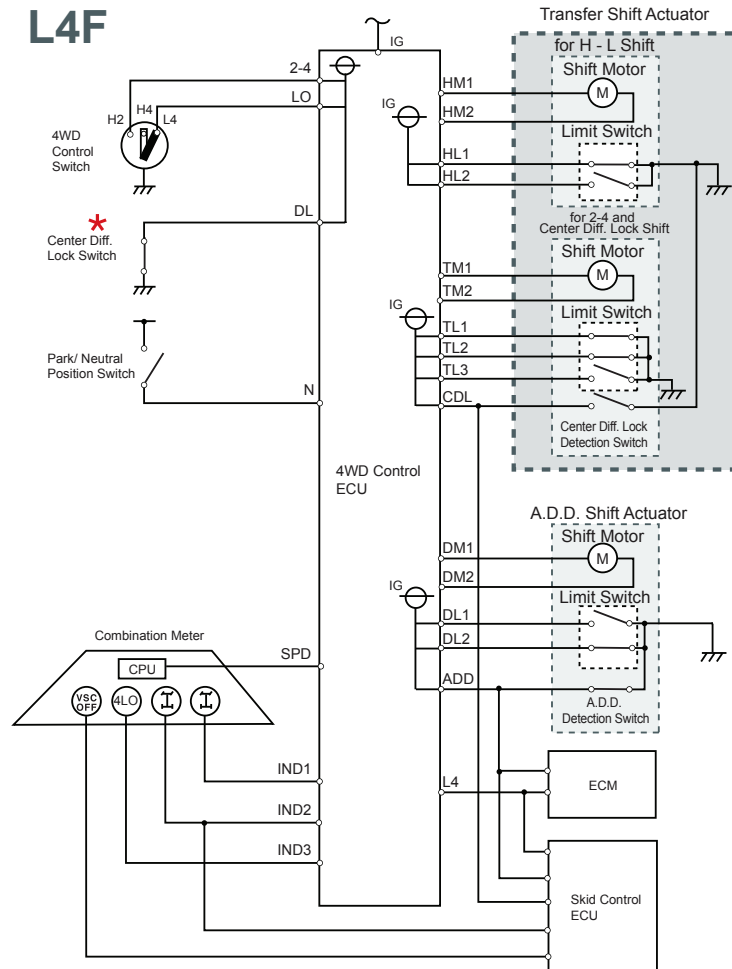
H4 FREE

H4 LOCK

L4 LOCK

L4 FREE

L4F



Circuit	Pin # F9	L4F
2-4	8	10.5-14V
LO	15	Below 2V
DL	16	Below 2V*
L4	24	Below 2V

Circuit	Pin # F10	L4L
HL1	17	Below 2V
HL2	26	10.5-14V
TL1	25	Below 2V
TL2	24	Below 2V
TL3	23	10.5-14V
CDL/P1	22	10.5-14V

Circuit	Pin # F10	L4L
DL1	13	10.5-14V
DL2	12	Below 2V
ADD	18	Below 2V

OPERATION FLOW – 4L LOCKED → 4L FREE

* When Pressed

Center Diff. Lock Switch
is Pressed

2-4 & Center Diff. Lock Shift
Motor Operates 2-4 & Center Diff. Lock Shift
Fork Moves: L4L → L4F

Center Diff. Lock
Position Switch Turns OFF

Center Diff. Lock
Indicator Light Turns OFF