

SHIFT SELECTOR OPERATION & CODE MANUAL

Codes and instructions on how to use the shift selector to read oil level and diagnostic codes



pushbutton shift selector



lever shift selector



www.allisontransmission.com
P.O. Box 894 Indianapolis, IN 46206-0894 1-800-252-5ATD

ISO/QS 9000 and ISO 14001 certified
Information or specifications subject to change without notice or obligation. SA3360EN (2002/02)



DISPLAYING OIL LEVEL INFORMATION

Oil level information can be displayed on the shift selector if the transmission is equipped with an oil level sensor.

Use the following procedure to display oil level information if the transmission is equipped with the option:

1 TO ENTER THE OIL LEVEL DISPLAY MODE:

- Using a *pushbutton shift selector*, simultaneously press the **UP** and **DOWN** arrow buttons.

- Using a *lever shift selector*, press the **DISPLAY MODE** button.

A two minute countdown begins when the following conditions are met:

- Engine is at idle.
 - Sump oil is at operating temperature.
 - Transmission output shaft is stopped.
 - Transmission is in neutral.
 - Oil level sensor is functioning properly.
- Oil level will be displayed at the end of the two minute countdown. During the countdown, the display flashes and a count down occurs reducing by one digit every 15 seconds. (8, 7, 6, 5, 4, 3, 2, 1)

NOTE: Failure to meet any of the above conditions will stop the two minute countdown. The shift selector will display one of the following *oil level codes* to show the reason for the countdown interruption. The countdown will resume where it stopped once all conditions have been met. Shift selectors with single digit displays will display the four digit codes one digit at a time. Shift selectors with two digit displays will display the codes two digits at a time.

OIL LEVEL CODE

CODE DESCRIPTION

o L 0 X	Setting time too short
o L 5 0	Engine RPM too low
o L 5 9	Engine RPM too high
o L 6 5	Neutral not selected
o L 7 0	Sump fluid temperature too low
o L 7 9	Sump fluid temperature too high
o L 8 9	Output shaft rotation detected
o L 9 5	Oil level sensor failed

2 AFTER THE TWO MINUTE COUNTDOWN, the shift selector displays the oil level data as in the following examples:

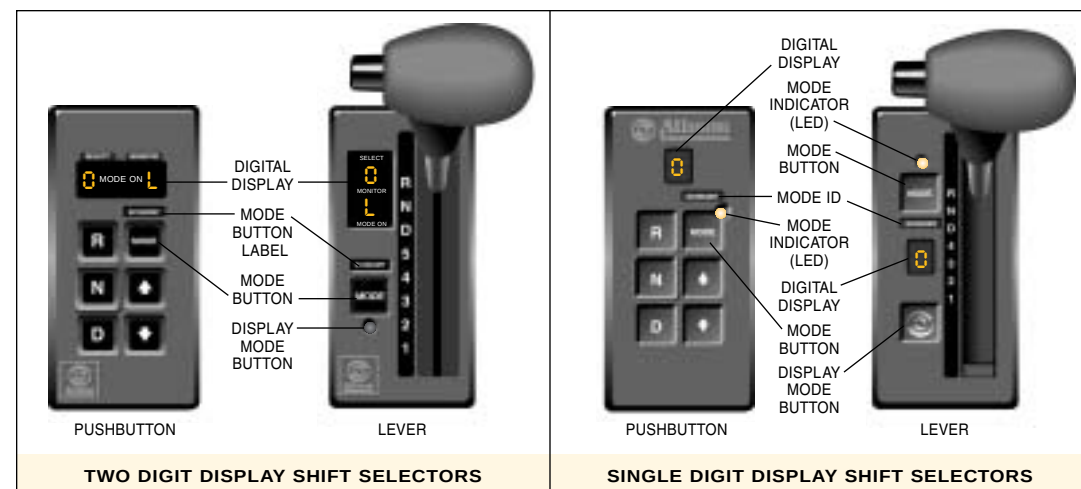
OIL LEVEL READINGS

MEANING OF READINGS

o L o K	Fluid level is correct
o, L, L, o, 1 or OL, LO, 01	Fluid level is 1 quart low
o, L, H, I, 1 or OL, HI, 01	Fluid level is 1 quart high

3 TO EXIT THE OIL LEVEL DISPLAY MODE:

- Using the *pushbutton shift selector*, press the **NEUTRAL** button or simultaneously press the **UP** and **DOWN** arrows twice.
- Using the *lever shift selector*, press the **DISPLAY** button twice or momentarily move the shift selector to any range and back to neutral.



DISPLAYING DIAGNOSTIC CODES

1 TO ENTER THE DIAGNOSTIC MODE:

- Using a *pushbutton shift selector*, simultaneously press the **UP** and **DOWN** arrows once if the transmission does not have an oil level sensor and twice if the transmission is equipped with an oil level sensor.
- Using a *lever shift selector*, press the **DISPLAY MODE** button once if the transmission does not have an oil level sensor and twice if the transmission is equipped with an oil level sensor.

2 IF NO CODES ARE PRESENT, the display will show a dash (-) on a single digit display shift selector or a double dash (- -) on a two digit display shift selector.

IF CODES ARE PRESENT, the code registered in the first of five code positions will display on the shift selector. The code list position is the first item displayed, followed by the two digit main code and then the two digit sub code. Each item is displayed for about one second. The display cycles continuously until the next code list position is selected by pressing the **MODE** button.

THE FOLLOWING LIST REPRESENTS A CODE DISPLAY USING CODE 25 11 AS AN EXAMPLE:

- Code list position - **d 1** (will be displayed one digit at a time on a shift selector with a single digit display).
- Main code - **2 5** (will be displayed one digit at a time on a shift selector with a single digit display).
- Sub code - **1 1** (will be displayed one digit at a time on a shift selector with a single digit display).

- Cycle will continue to repeat itself.

3 TO VIEW THE CODES in the second, third, fourth and fifth positions (d 2, d 3, d 4, d 5), momentarily press the **MODE** button as explained above in step 2. Momentarily pressing the **MODE** button when the fifth position is displayed, will restart the sequence by displaying code position one (d 1).

- 4 IF A LISTED CODE IS ACTIVE, the LED indicator next to the **MODE** button will be illuminated on shift selectors with a single digit display. On shift selectors with a two digit display, the **MODE ON** light will appear on the display.



CLEARING DIAGNOSTIC CODES

- 1 WHILE IN THE DIAGNOSTIC MODE, push and hold the **MODE** button for approximately ten seconds to clear all of the codes. Shift selectors with two digit displays will sound a tone at about eight seconds and a second tone at about ten seconds indicating that all of the codes are cleared. Shift selectors with a single digit display will flash the LED indicator three times after about 3 seconds and three times again after about 10 seconds indicating that all of the codes are cleared.
- 2 DRIVE THE VEHICLE AND CHECK FOR CODE REOCCURRENCE. If codes continue to reoccur, bring the vehicle to an authorized Allison Transmission repairing outlet to diagnose and repair the problem causing the codes.

EXITING THE DIAGNOSTIC MODE

- 1 ON PUSHBUTTON SHIFT SELECTORS, press the **NEUTRAL** button or simultaneously press the **UP** and **DOWN** arrows.
- 2 ON LEVER SHIFT SELECTORS, press the **DISPLAY MODE** button or move the shift selector to any range and back to neutral.

MAIN CODE	SUB CODE	CODE DESCRIPTION
12	12	OIL LEVEL - LOW
	23	OIL LEVEL - HIGH
13	12	ECU INPUT VOLTAGE LOW
	13	ECU INPUT VOLTAGE MEDIUM LOW
	23	ECU INPUT VOLTAGE HIGH
14	12	OIL LEVEL SENSOR FAILED LOW
	23	OIL LEVEL SENSOR FAILED HIGH
21	12	THROTTLE POSITION SENSOR FAILED LOW
	23	THROTTLE POSITION SENSOR FAILED HIGH
22	14	ENGINE SPEED SENSOR
	15	TURBINE SPEED SENSOR
	16	OUTPUT SPEED SENSOR
23	12	PRIMARY SHIFT SELECTOR
	13	PRIMARY SHIFT SELECTOR MODE FAULT
	14	SECONDARY SHIFT SELECTOR
	15	SECONDARY SHIFT SELECTOR MODE FAULT
	16	SHIFT SELECTOR DISPLAY LINE FAULT
24	12	SUMP FLUID TEMPERATURE COLD
	23	SUMP FLUID TEMPERATURE HOT
25	00	OUTPUT SPEED SENSOR @ 0 IN LOW
	11	OUTPUT SPEED SENSOR @ 0 IN 1ST
	22	OUTPUT SPEED SENSOR @ 0 IN 2ND
	33	OUTPUT SPEED SENSOR @ 0 IN 3RD
	44	OUTPUT SPEED SENSOR @ 0 IN 4TH
	55	OUTPUT SPEED SENSOR @ 0 IN 5TH
	66	OUTPUT SPEED SENSOR @ 0 IN 6TH
	77	OUTPUT SPEED SENSOR @ 0 IN REVERSE
26	00	THROTTLE SOURCE NOT DETECTED
	11	ENG. COOLANT SOURCE NOT DETECTED
32	00	C3 PRESSURE SWITCH OPEN IN LOW
	33	C3 PRESSURE SWITCH OPEN IN 3RD
	55	C3 PRESSURE SWITCH OPEN IN 5TH
	77	C3 PRESSURE SWITCH OPEN IN REVERSE
33	12	SUMP TEMPERATURE SENSOR FAILED LOW
	23	SUMP TEMPERATURE SENSOR FAILED HIGH
34	12	EPROM COMPATIBILITY NUMBER WONG
	13	EPROM CALIBRATION BLOCK CHECKSUM
	14	EPROM POWER OFF BLOCK CHECKSUM
	15	EPROM DIAGNOSE QUEUE BLOCK CHECKSUM

MAIN CODE	SUB CODE	CODE DESCRIPTION
34	16	EPROM REAL TIME BLOCK CHECKSUM
	17	EPROM MODIFIABLE CONSTANTS CHECKSUM
35	00	POWER INTERRUPTION
	16	REAL TIME WRITE INTERRUPTION
36	00	HARDWARE / SOFTWARE NOT COMPATIBLE
41	12	A SOLENOID OPEN OR SHORTED TO GROUND
	13	B SOLENOID OPEN OR SHORTED TO GROUND
	14	C SOLENOID OPEN OR SHORTED TO GROUND
	15	D SOLENOID OPEN OR SHORTED TO GROUND
	16	E SOLENOID OPEN OR SHORTED TO GROUND
	21	F SOLENOID OPEN OR SHORTED TO GROUND
	22	G SOLENOID OPEN OR SHORTED TO GROUND
	23	H SOLENOID OPEN OR SHORTED TO GROUND
	24	J SOLENOID OPEN OR SHORTED TO GROUND
	25	K SOLENOID OPEN OR SHORTED TO GROUND
	26	N SOLENOID OPEN OR SHORTED TO GROUND
42	12	A SOLENOID SHORTED TO BATTERY
	13	B SOLENOID SHORTED TO BATTERY
	14	C SOLENOID SHORTED TO BATTERY
	15	D SOLENOID SHORTED TO BATTERY
	16	E SOLENOID SHORTED TO BATTERY
	21	F SOLENOID SHORTED TO BATTERY
	22	G SOLENOID SHORTED TO BATTERY
	23	H SOLENOID SHORTED TO BATTERY
	24	J SOLENOID SHORTED TO BATTERY
	25	K SOLENOID SHORTED TO BATTERY
	26	N SOLENOID SHORTED TO BATTERY
44	12	A SOLENOID SHORTED TO GROUND
	13	B SOLENOID SHORTED TO GROUND
	14	C SOLENOID SHORTED TO GROUND
	15	D SOLENOID SHORTED TO GROUND
	16	E SOLENOID SHORTED TO GROUND
	21	F SOLENOID SHORTED TO GROUND
	22	G SOLENOID SHORTED TO GROUND
	23	H SOLENOID SHORTED TO GROUND
	24	J SOLENOID SHORTED TO GROUND
	25	K SOLENOID SHORTED TO GROUND
	26	N SOLENOID SHORTED TO GROUND
45	12	A SOLENOID CIRCUIT OPEN

(continued on next page)



MAIN CODE	SUB CODE	CODE DESCRIPTION
<i>(continued from last page)</i>		
45	13	B SOLENOID CIRCUIT OPEN
	14	C SOLENOID CIRCUIT OPEN
	15	D SOLENOID CIRCUIT OPEN
	16	E SOLENOID CIRCUIT OPEN
	21	F SOLENOID CIRCUIT OPEN
	22	G SOLENOID CIRCUIT OPEN
	23	H SOLENOID CIRCUIT OPEN
	24	J SOLENOID CIRCUIT OPEN
	25	K SOLENOID CIRCUIT OPEN
46	26	N SOLENOID CIRCUIT OPEN
	21	F SOLENOID CIRCUIT OVER CURRENT
	26	N & H SOLENOID CIRCUITS OVER CURRENT
51	27	A-HI SOLENOID CIRCUIT OVER CURRENT
	01	OFF GOING RATIO TEST LOW TO 1
	10	OFF GOING RATIO TEST 1 TO LOW
	12	OFF GOING RATIO TEST 1 TO 2
	21	OFF GOING RATIO TEST 2 TO 1
	23	OFF GOING RATIO TEST 2 TO 3
	24	OFF GOING RATIO TEST 2 TO 4
	35	OFF GOING RATIO TEST 3 TO 5
	42	OFF GOING RATIO TEST 4 TO 2
	43	OFF GOING RATIO TEST 4 TO 3
	45	OFF GOING RATIO TEST 4 TO 5
	46	OFF GOING RATIO TEST 4 TO 6
	53	OFF GOING RATIO TEST 5 TO 3
	64	OFF GOING RATIO TEST 6 TO 4
	65	OFF GOING RATIO TEST 6 TO 5
	XY	OFF GOING RATIO TEST X TO Y
52	01	OFF GOING C3PS TEST LOW TO 1
	08	OFF GOING C3PS TEST LOW TO N1
	32	OFF GOING C3PS TEST 3 TO 2
	34	OFF GOING C3PS TEST 3 TO 4
	54	OFF GOING C3PS TEST 5 TO 4
	56	OFF GOING C3PS TEST 5 TO 6
	71	OFF GOING C3PS TEST REVERSE TO 1
	72	OFF GOING C3PS TEST REVERSE TO 2
	78	OFF GOING C3PS TEST REVERSE TO N2
	79	OFF GOING C3PS TEST REVERSE TO NNC TO 2
	99	OFF GOING C3PS TEST N3 TO N2

MAIN CODE	SUB CODE	CODE DESCRIPTION
52	XY	OFF GOING C3PS TEST X TO Y
53	08	OFF GOING SPEED TEST LOW TO N1
	18	OFF GOING SPEED TEST 1 TO N1
	28	OFF GOING SPEED TEST 2 TO N1
	29	OFF GOING SPEED TEST 2 TO N2
	38	OFF GOING SPEED TEST 3 TO N1
	39	OFF GOING SPEED TEST 3 TO N3
	48	OFF GOING SPEED TEST 4 TO N1
	49	OFF GOING SPEED TEST 4 TO N3
	58	OFF GOING SPEED TEST 5 TO N1
	59	OFF GOING SPEED TEST 5 TO N3
99	68	OFF GOING SPEED TEST 6 TO N1
	69	OFF GOING SPEED TEST 6 TO N4
	78	OFF GOING SPEED TEST REVERSE TO N1
	XY	OFF GOING SPEED TEST X TO Y
	01	ON COMING RATIO TEST LOW TO 1
	07	ON COMING RATIO TEST LOW TO REVERSE
	10	ON COMING RATIO TEST 1 TO LOW
	12	ON COMING RATIO TEST 1 TO 2
	17	ON COMING RATIO TEST 1 TO REVERSE
	21	ON COMING RATIO TEST 2 TO 1
54	23	ON COMING RATIO TEST 2 TO 3
	24	ON COMING RATIO TEST 2 TO 4
	27	ON COMING RATIO TEST 2 TO REVERSE
	32	ON COMING RATIO TEST 3 TO 2
	34	ON COMING RATIO TEST 3 TO 4
	35	ON COMING RATIO TEST 3 TO 5
	42	ON COMING RATIO TEST 4 TO 2
	43	ON COMING RATIO TEST 4 TO 3
	45	ON COMING RATIO TEST 4 TO 5
	46	ON COMING RATIO TEST 4 TO 6
	53	ON COMING RATIO TEST 5 TO 3
	54	ON COMING RATIO TEST 5 TO 4
	56	ON COMING RATIO TEST 5 TO 6
	64	ON COMING RATIO TEST 6 TO 4
	65	ON COMING RATIO TEST 6 TO 5
	70	ON COMING RATIO TEST REV. TO LOW
	71	ON COMING RATIO TEST REVERSE TO 1

(continued on next page)

MAIN CODE	SUB CODE	CODE DESCRIPTION
<i>(continued from last page)</i>		
54	72	ON COMING RATIO TEST REVERSE TO 2
	80	ON COMING RATIO TEST N1 TO LOW
	81	ON COMING RATIO TEST N1 TO 1
	82	ON COMING RATIO TEST N1 TO 2
	83	ON COMING RATIO TEST N1 TO 3
	85	ON COMING RATIO TEST N1 TO 5
	86	ON COMING RATIO TEST N1 TO 6
	92	ON COMING RATIO TEST N2 TO 2
	93	ON COMING RATIO TEST N3 TO 3
	95	ON COMING RATIO TEST N3 TO 5
	96	ON COMING RATIO TEST N4 TO 6
	97	ON COMING RATIO TEST 2 TO REVERSE
	XY	ON COMING RATIO TEST X TO Y
55	07	ON COMING C3PS TEST LOW TO REVERSE
	17	ON COMING C3PS TEST 1 TO REVERSE
	27	ON COMING C3PS TEST 2 TO REVERSE
	80	ON COMING C3PS TEST N1 TO LOW
	87	ON COMING C3PS TEST N1 TO REVERSE
	97	ON COMING C3PS TEST NVL TO REVERSE
56	XY	ON COMING C3PS TEST X TO Y
	00	LOW RANGE VERIFICATION TEST
	11	1ST RANGE VERIFICATION TEST
	22	2ND RANGE VERIFICATION TEST
	33	3RD RANGE VERIFICATION TEST
	44	4TH RANGE VERIFICATION TEST
	55	5TH RANGE VERIFICATION TEST
	66	6TH RANGE VERIFICATION TEST
	77	REVERSE RANGE VERIFICATION TEST
57	11	1ST RANGE VERIFICATION C3PS TEST
	22	2ND RANGE VERIFICATION C3PS TEST
	44	4TH RANGE VERIFICATION C3PS TEST
	66	6TH RANGE VERIFICATION C3PS TEST
	88	N1 RANGE VERIFICATION C3PS TEST
61	99	N2 TO N4 RANGE VERIFICATION C3PS TEST
	00	RETARDER OIL TEMPERATURE HOT
62	12	RETARDER TEMP. SENSOR FAILED LOW
	23	RETARDER TEMP. SENSOR FAILED HIGH
	32	ENGINE COOLANT TEMP. SENSOR FAILED LOW
	33	ENGINE COOLANT TEMP. SENSOR FAILED HIGH

MAIN CODE	SUB CODE	CODE DESCRIPTION
63	00	INPUT FUNCTION FAULT
	26	KICKDOWN INPUT FAILED ON
	40	SERVICE BRAKE STATUS INPUT FAILED ON
64	12	RETARDER MODULATION SENSOR FAILED LOW
	23	RETARDER MODULATION SENSOR FAILED HIGH
65	00	ENGINE RATING TOO HIGH
66	00	SERIAL COMMUNICATION INTERFACE FAULT
	11	S. C. I. ENGINE COOLANT SOURCE FAULT
69	12	A SOLENOID DRIVER OPEN IN ECU
	13	B SOLENOID DRIVER OPEN IN ECU
	14	C SOLENOID DRIVER OPEN IN ECU
	15	D SOLENOID DRIVER OPEN IN ECU
	16	E SOLENOID DRIVER OPEN IN ECU
	21	F SOLENOID DRIVER OPEN IN ECU
	22	G SOLENOID DRIVER OPEN IN ECU
	23	H SOLENOID DRIVER OPEN IN ECU
	24	J SOLENOID DRIVER OPEN IN ECU
	25	K SOLENOID DRIVER OPEN IN ECU
	26	N SOLENOID DRIVER OPEN IN ECU
	27	A-HIGH SWITCH INOPERATIVE IN ECU
	28	F-HIGH SWITCH INOPERATIVE IN ECU
	29	N & H-HIGH SWITCH INOPERATIVE IN ECU
	32	SPI COMMUNICATIONS LINK FAULT IN ECU
	33	CENTRAL OPERATING PROCESSOR TIMEOUT
	34	EPROM WRITE TIMEOUT IN ECU
	35	EPROM CHECKSUM TEST IN ECU
66	36	RAM SELF TEST IN ECU
	39	COMMUNICATIONS CHIP ADDRESSING ERROR
	41	I/O ASIC ADDRESSING TEST IN ECU
	42	SPI OUTPUT FAILURE
63	43	SPI INPUT FAILURE

