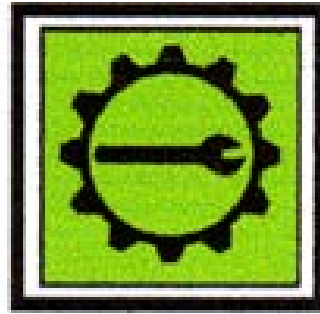


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FAULT CODES

1000 TRANSMISSIONS

2000 TRANSMISSIONS

SA 3

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ALLISON 1000/2000/24000 SERIES ELECTRONIC CONTROLS TROUBLESHOOTING MANUAL

DIAGNOSTIC TROUBLE COPDES (DTC)

5-5. DIAGNOSTIC TROUBLE CODES (DTCs)

DTC LIST AND DESCRIPTIONS INDEX

DTC	Description	Check Trans Light	Page
P0121	Pedal Position Sensor Performance Problem	No	5-15
P0122	Pedal Position Sensor Circuit Low Voltage	No	5-16
P0123	Pedal Position Sensor Circuit High Voltage	No	5-19
P0218	Transmission Fluid Over Temperature	No	5-22
P0562	System Voltage Low	Yes	5-26
P0563	System Voltage High	Yes	5-29
P0602	TCM Not Programmed	Yes	5-33
P0606	Controller Internal Performance	Yes	5-34
P0701	Transmission Control System Performance	No	5-35
P0703	Brake Switch Circuit	No	5-37
P0705	Transmission Range Sensor Circuit (PRNDL Input)	No	5-41
P0706	Transmission Range Sensor Circuit Performance	Yes	5-45
P0708	Transmission Range Sensor Circuit High Input	Yes	5-49
P0710	Transmission Fluid Temperature Sensor Malfunction	No	5-53
P0711	Transmission Fluid Temperature Sensor Circuit Performance	Yes	5-57
P0712	Transmission Fluid Temperature Sensor Circuit Low Input (High Temperature)	Yes	5-61
P0713	Transmission Fluid Temperature Sensor Circuit Low Input (Low Temperature)	Yes	5-65
P0716	Turbine Speed Sensor Circuit Performance	Yes	5-69
P0717	Turbine Speed Sensor Circuit No Signal	Yes	5-73
P0721	Output Speed Sensor Circuit Performance	Yes	5-77
P0722	Output Speed Sensor Circuit No Signal	Yes	5-81
P0726	Engine Speed Input Circuit Performance	Yes	5-85
P0727	Engine Speed Sensor Circuit No Signal	Yes	5-89
P0731	Incorrect 1st Gear Ratio	Yes	5-93
P0732	Incorrect 2nd Gear Ratio	Yes	5-97
P0733	Incorrect 3rd Gear Ratio	Yes	5-101
P0734	Incorrect 4th Gear Ratio	Yes	5-105
P0735	Incorrect 5th Gear Ratio	Yes	5-109
P0736	Incorrect Reverse Ratio	Yes	5-113
P0741	Torque Converter Clutch System Stuck Off	Yes	5-117
P0742	Torque Converter Clutch System Stuck On	Yes	5-120
P0748	Pressure Control Solenoid A Electrical	Yes	5-123
P0763	Shift Solenoid C Electrical	Yes	5-127
P0768	Shift Solenoid D Electrical	Yes	5-131
P0773	Shift Solenoid E Electrical	Yes	5-135
P0778	Pressure Control Solenoid B Electrical	Yes	5-139
P0840	Transmission Pressure Switch Solenoid C Circuit	Yes	5-143
P0841	Transmission Pressure Switch Solenoid C Circuit Stuck Open	Yes	5-147

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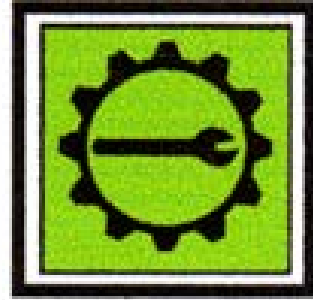
ALLISON 1000/2000/24000 SERIES ELECTRONIC CONTROLS TROUBLESHOOTING MANUAL

DIAGNOSTIC TROUBLE COPDES (DTC)

DTC LIST AND DESCRIPTIONS INDEX (cont'd)

DTC	Description	CHECK TRANS LIGHT	Page
P0842	Transmission Pressure Switch Solenoid C Circuit Stuck Closed	Yes	5-151
P0843	Transmission Pressure Switch Solenoid C Circuit High	Yes	5-155
P0845	Transmission Pressure Switch Solenoid D Circuit	Yes	5-159
P0846	Transmission Pressure Switch Solenoid D Circuit	Yes	5-163
P0847	Transmission Pressure Switch Solenoid D Circuit	Yes	5-167
P0848	Transmission Pressure Switch Solenoid D Circuit	Yes	5-171
P1688	Unmanaged Engine Torque Delivered to TCM	Yes	5-175
P1709	Transmission Pressure Switch Solenoid E Circuit	Yes	5-177
P1710	Transmission Pressure Switch Solenoid E Circuit Stuck Open	Yes	5-181
P1711	Transmission Pressure Switch Solenoid E Circuit Stuck Closed	Yes	5-185
P1712	Transmission Pressure Switch Solenoid E Circuit High	Yes	5-189
P1713	Transmission Pressure Switch Reverse Circuit	Yes	5-193
P1714	Transmission Pressure Switch Reverse Circuit Stuck On	Yes	5-197
P1716	Transmission Pressure Switch Reverse Circuit High	no	5-201
P1718	Incorrect Neutral Gear Ration	No	5-205
P1720	Solenoid A Controlled Clutch Not Engaged	Yes	5-209
P1721	Solenoid B Controlled Clutch Not Engaged	Yes	5-213
P1723	Solenoid A Controlled Clutch Engaged	Yes	5-217
P1724	Solenoid B Controlled Clutch Engaged	Yes	5-221
P1726	Shift Solenoid D Controlled Clutch Engaged	No	5-225
P1727	Shift Controlled E Clutch Engaged	No	5-229
P1760	TCM Supply Voltage	No	5-233
P1779	Engine Torque Delivered To ECM	Yes	5-236
P1835	Kickdown Circuit	Yes	5-238
P1860	Torque Converter Clutch PWM Solenoid Circuit --Electrical	Yes	5-241
P1875	4WD Low Switch Circuit	Yes	5-245
P1891	Throttle Position Sensor Pulse Width Modulation (PWM) Signal Low Input	No	5-249
P1892	Throttle Position Sensor Pulse Width Modulation (PWM) Signal High Input	No	5-252
U1000	Serial Data Communication Link Malfunction (Class2)	No*	5-255
U1016	Class 2 Powertrain Controller State of Health Failure	No*	5-258
U1041	Class 2 ABS Controller State of Health Failure	No*	5-261
U1064	Class 2 TBC Controller State of Health Failure	No*	5-264
U1096	Class 2 IPC Controller State of Health Failure	No*	5-267
U1300	Serial Data Communication Link Low (Class2)	No	5-270
U1301	Serial Data Communication Link High (Class2)	No	5-273
U2104	Can Bus Rest Counter Overrun	Yes	5-276
U2105	Can Bus Error ECM	Yes	5-279

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FAULT CODES

3000 MH
TRANSMISSIONS

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3000 Series Gen IV

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
C1312	Retarder Request Sensor Failed Low	No	May inhibit retarder operation if not using J1939 datalink
C1313	Retarder Request Sensor Failed High	No	May inhibit retarder operation if not using J1939 datalink
P0122	Pedal Position Sensor Low Voltage	No	Use default throttle values. Freezes shift adapts.
P0123	Pedal Position Sensor High Voltage	No	Use default throttle values. Freezes shift adapts.
P0218	Transmission Fluid Over Temperature	No	Use hot mode shift schedule. Holds fourth range. TCC is inhibited. Freezes shift adapts.
P0602	TCM Not Programmed	Yes	Lock in Neutral
P0610	TCM Vehicle Options (TransID) Error	Yes	Use TIDA calibration
P0613	TCM Processor	No	All solenoids off
P0614	Torque Control Data Mismatch—ECM/TCM	Yes	Allows operation only in reverse and second range.
P0634	TCM Internal Temperature Too High	Yes	SOL OFF (hydraulic default)
P063E	Auto Configuration Throttle Input Not Present	Yes	Use default throttle values

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Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions (cont'd)

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P063F	Auto Configuration Engine Coolant Temp Input Not Present	No	None
P0658	Actuator Supply Voltage 1 (HSD1) Low	Yes	DNS, SOL OFF (hydraulic default)
P0659	Actuator Supply Voltage 1 (HSD1) High	Yes	DNS, SOL OFF (hydraulic default)
P0702	Transmission Control System Electrical (TransID)	Yes	Uses TID A calibration
P0703	Brake Switch Circuit Malfunction	No	No Neutral to Drive shifts for refuse packer. TCM inhibits retarder operation if a TPS code is also active.
P0708	Transmission Range Sensor Circuit High Input	Yes	Ignore defective strip selector inputs
P070C	Transmission Fluid Level Sensor Circuit—Low Input	No	None
P070D	Transmission Fluid Level Sensor Circuit—High Input	No	None
P0711	Transmission Fluid Temperature Sensor Circuit Performance	Yes	Use default sump temp
P0712	Transmission Fluid Temperature Sensor Circuit Low Input	Yes	Use default sump temp
P0713	Transmission Fluid Temperature Sensor Circuit High Input	Yes	Use default sump temp
P0716	Turbine Speed Sensor Circuit Performance	Yes	DNS, Lock in current range
P0717	Turbine Speed Sensor Circuit No Signal	Yes	DNS, Lock in current range
P0719	Brake Switch ABS Input Low	No	TCM assumes ABS is OFF
P071A	RELS Input Failed On	Yes	Inhibit RELS operation
P071D	General Purpose Input Fault	Yes	None
P0721	Output Speed Sensor Circuit Performance	Yes	DNS, Lock in current range
P0722	Output Speed Sensor Circuit No Signal	Yes	DNS, Lock in current range
P0726	Engine Speed Sensor Circuit Performance	No	Default to turbine speed
P0727	Engine Speed Sensor Circuit No Signal	No	Default to turbine speed
P0729	Incorrect 6th Gear Ratio	Yes	DNS, Attempt 5th, then 3rd
P0731	Incorrect 1st Gear Ratio	Yes	DNS, Attempt 2nd, then 5th
P0732	Incorrect 2nd Gear Ratio	Yes	DNS, Attempt 3rd, then 5th
P0733	Incorrect 3rd Gear Ratio	Yes	DNS, Attempt 4th, then 6th
P0734	Incorrect 4th Gear Ratio	Yes	DNS, Attempt 5th, then 3rd
P0735	Incorrect 5th Gear Ratio	Yes	DNS, Attempt 6th, then 3rd, then 2nd
P0736	Incorrect Reverse Gear Ratio	Yes	DNS, Lock in Neutral
P0741	Torque Converter Clutch System Stuck Off	Yes	None
P0776	Pressure Control Solenoid 2 Stuck Off	Yes	DNS, RPR
P0777	Pressure Control Solenoid 2 Stuck On	Yes	DNS, RPR

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Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions (cont'd)

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P0796	Pressure Control Solenoid 3 Stuck Off	Yes	DNS, RPR
P0797	Pressure Control Solenoid 3 Stuck On	Yes	DNS, RPR
P0842	Transmission Pressure Switch 1 Circuit Low	Yes	DNS, Lock in current range
P0843	Transmission Pressure Switch 1 Circuit High	Yes	DNS, Lock in current range
P0880	TCM Power Input Signal	No	None
P0881	TCM Power Input Signal Performance	No	None
P0882	TCM Power Input Signal Low	Yes	DNS, SOL OFF (hydraulic default)
P0883	TCM Power Input Signal High	No	None
P0894	Transmission Component Slipping	Yes	DNS, Lock in first
P0960	Pressure Control Solenoid Main Mod Control Circuit Open	Yes	None
P0962	Pressure Control Solenoid Main Mod Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0963	Pressure Control Solenoid Main Mod Control Circuit High	Yes	None
P0964	Pressure Control Solenoid 2 (PCS2) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P0966	Pressure Control Solenoid 2 (PCS2) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0967	Pressure Control Solenoid 2 (PCS2) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0968	Pressure Control Solenoid 3 (PCS3) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P0970	Pressure Control Solenoid 3 (PCS3) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0971	Pressure Control Solenoid 3 (PCS3) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0973	Shift Solenoid 1 (SS1) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P0974	Shift Solenoid 1 (SS1) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P0975	Shift Solenoid 2 (SS2) Control Circuit Open	Yes	7-speed: Allow 2 through 6, N, R
P0976	Shift Solenoid 2 (SS2) Control Circuit Low	Yes	7-speed: Allow 2 through 6, N, R. Inhibit TCC operation
P0977	Shift Solenoid 2 (SS2) Control Circuit High	Yes	7-speed: Allow 2 through 6, N, R
P0989	Retarder Pressure Sensor Failed Low	No	None
P0990	Retarder Pressure Sensor Failed High	No	None
P1739	Incorrect Low Gear Ratio	Yes	Command 2nd and allow shifts 2 through 6, N, R
P1891	Throttle Position Sensor PWM Signal Low Input	No	Use default throttle values
P1892	Throttle Position Sensor PWM Signal High Input	No	Use default throttle values
P2184	Engine Coolant Temperature Sensor Circuit Low Input	No	Use default engine coolant values

DIAGNOSTIC TROUBLE CODES (DTC)

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions (cont'd)

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P2185	Engine Coolant Temperature Sensor Circuit High Input	No	Use default engine coolant values
P2637	Torque Management Feedback Signal (SEM)	Yes	Inhibit SEM
P2641	Torque Management Feedback Signal (LRTP)	Yes	Inhibit LRTP
P2670	Actuator Supply Voltage 2 (HSD2) Low	Yes	DNS, SOL OFF (hydraulic default)
P2671	Actuator Supply Voltage 2 (HSD2) High	Yes	DNS, SOL OFF (hydraulic default)
P2685	Actuator Supply Voltage 3 (HSD3) Low	Yes	DNS, SOL OFF (hydraulic default)
P2686	Actuator Supply Voltage 3 (HSD3) High	Yes	DNS, SOL OFF (hydraulic default)
P2714	Pressure Control Solenoid 4 (PCS4) Stuck Off	Yes	DNS, RPR
P2715	Pressure Control Solenoid 4 (PCS4) Stuck On	Yes	DNS, SOL OFF (hydraulic default)
P2718	Pressure Control Solenoid 4 (PCS4) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2720	Pressure Control Solenoid 4 (PCS4) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2721	Pressure Control Solenoid 4 (PCS4) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P2723	Pressure Control Solenoid 1 (PCS1) Stuck Off	Yes	DNS, RPR
P2724	Pressure Control Solenoid 1 (PCS1) Stuck On	Yes	DNS, RPR
P2727	Pressure Control Solenoid 1 (PCS1) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2729	Pressure Control Solenoid 1 (PCS1) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2730	Pressure Control Solenoid 1 (PCS1) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
P2736	Pressure Control Solenoid 5 (PCS5) Control Circuit Open	Yes	Inhibit retarder operation
P2738	Pressure Control Solenoid 5 (PCS5) Control Circuit Low	Yes	Allow 2 through 6, N, R. Inhibit retarder and TCC operation
P2739	Pressure Control Solenoid 5 (PCS5) Control Circuit High	Yes	Inhibit retarder operation
P2740	Retarder Oil Temperature Hot	No	None
P2742	Retarder Oil Temperature Sensor Circuit—Low Input	No	Use default retarder temp values
P2743	Retarder Oil Temperature Sensor Circuit—High Input	No	Use default retarder temp values
P2761	TCC PCS Control Circuit Open	Yes	Inhibit TCC operation
P2763	TCC PCS Control Circuit High	Yes	Inhibit TCC operation
P2764	TCC PCS Control Circuit Low	Yes	7-speed: allow 2 through 6, N, R. Inhibit TCC operation
P278A	Kickdown Input Failed ON	No	Inhibit kickdown operation
P2793	Gear Shift Direction Circuit	Yes	Ignores PWM input from shift selector
P2808	Pressure Control Solenoid 6 (PCS6) Stuck Off	Yes	DNS, RPR

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DIAGNOSTIC TROUBLE CODES (DTC)

Table 6–2. Diagnostic Troubleshooting Codes (DTC) and Descriptions *(cont'd)*

DTC	Description	CHECK TRANS Light	Inhibited Operation Description
P2809	Pressure Control Solenoid 6 (PCS6) Stuck On	Yes	DNS, RPR
P2812	Pressure Control Solenoid 6 (PCS6) Control Circuit Open	Yes	DNS, SOL OFF (hydraulic default)
P2814	Pressure Control Solenoid 6 (PCS6) Control Circuit Low	Yes	DNS, SOL OFF (hydraulic default)
P2815	Pressure Control Solenoid 6 (PCS6) Control Circuit High	Yes	DNS, SOL OFF (hydraulic default)
U0001	Hi Speed CAN Bus Reset Counter Overrun (IBSCAN)	No	Use default values, inhibit SEM
U0010	CAN BUS Reset Counter Overrun	No	Use default values, inhibit SEM
U0100	Lost Communications with ECM/PCM (J1587)	Yes	Use default values
U0103	Lost Communication With Gear Shift Module (Shift Selector) 1	Yes	Maintain range selected, observe gear shift direction circuit
U0115	Lost Communication With ECM	Yes	Use default values
U0291	Lost Communication With Gear Shift Module (Shift Selector) 2	Yes	Maintain range selected, observe gear shift direction circuit
U0304	Incompatible Gear Shift Module 1 (Shift Selector) ID	Yes	Ignore shift selector inputs
U0333	Incompatible Gear Shift Module 2 (Shift Selector) ID	Yes	Ignore shift selector inputs
U0404	Invalid Data Received From Gear Shift Module (Shift Selector) 1	Yes	Maintain range selected, observe gear shift direction circuit
U0592	Invalid Data Received From Gear Shift Module (Shift Selector) 2	Yes	Maintain range selected, observe gear shift direction circuit