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Title: Wabco Full Power Hydraulic Brake Diagnostic Code (DTC) Index

Applies To: All Vehicles with Wabco Full Power Hydraulic Brakes

NOTE:

Merritor WABCO requires pre-authorization for all repairs over $125. For any repairs above that amount, you must contact Ontrac at 1-800-535-5560 prior to making the repair. For further information look at warranty policy letter 05-003G and 04-004G

Click here for Wabco Full Power brake manual S04048.

Wabco Full Power Hydraulic Brake Diagnostic codes and related diagnostics

Component	SPN	SID	PID	FMI	System Fault	Diagnostic Instructions Click on number
Wheel Sensor Right Front	2	2		1	Air Gap	2.1, 2.4
Wheel Sensor Right Front	2	2		5	Impedance	2.5
Wheel Sensor Right Front	2	2		7	Pole Wheel	2.4
Wheel Sensor Right Front	2	2		8	No Trigger	2.1, 2.3, 2.4, 2.5, 2.6
Wheel Sensor Right Front	2	2		11	Brake Chatter	
Wheel Sensor Right Front	2	2		13	Tire Combination	2.2
Wheel Sensor Left Rear	3	3		1	Air Gap	2.1, 2.4
Wheel Sensor Left Rear	3	3		5	Impedance	2.5
Wheel Sensor Left Rear	3	3		7	Pole Wheel	2.4
Wheel Sensor Left Rear	3	3		8	No Trigger	2.1, 2.3, 2.4, 2.5, 2.6
Wheel Sensor Left Rear	3	3		11	Brake Chatter	
Wheel Sensor Left Rear	3	3		13	Tire Combination	2.2
Wheel Sensor Left Front	1	1		1	Air Gap	2.1, 2.4
Wheel Sensor Left Front	1	1		5	Impedance	2.5
Wheel Sensor Left Front	1	1		7	Pole Wheel	2.4
Wheel Sensor Left Front	1	1		8	No Trigger	2.1, 2.3, 2.4, 2.5, 2.6
Wheel Sensor Left Front	1	1		11	Brake Chatter	
Wheel Sensor Left Front	1	1		13	Tire Combination	2.2
Wheel Sensor Right Rear	4	4		1	Air Gap	2.1, 2.4
Wheel Sensor Right Rear	4	4		5	Impedance	2.5
Wheel Sensor Right Rear	4	4		7	Pole Wheel	2.4
Wheel Sensor Right Rear	4	4		8	No Trigger	2.1, 2.3, 2.4, 2.5, 2.6
Wheel Sensor Right Rear	4	4		11	Brake Chatter	
Wheel Sensor Right Rear	4	4		13	Tire Combination	2.2
Wheel Speed Sensors All	254	254		9	Inlet valve actuation time not plausible (75 % switch on time within 5 minutes)	2.1, 2.4, 2.5
Main controller ECU	254	254		12		1.1
Inlet Valve Right Front	43	43		3	Short to Bat B+	1.1
Inlet Valve Right Front	43	43		5	Open Circuit	1.1
Inlet Valve Right Front	43	43		6	Short to Ground B-	1.1
Outlet Valve Right Front	49	49		3	Short to Bat B+	1.1
Outlet Valve Right Front	49	49		5	Open Circuit	1.1
Outlet Valve Right Front	49	49		6	Short to Ground B-	1.1
Inlet Valve Left Front	42	42		3	Short to Bat B+	1.1
Inlet Valve Left Front	42	42		5	Open Circuit	1.1

Inlet Valve Left Front	42	42		6	Short to Ground B-	1.1
Outlet Valve Left Front	48	48		3	Short to Bat B+	1.1
Outlet Valve Left Front	48	48		5	Open Circuit	1.1
Outlet Valve Left Front	48	48		6	Short to Ground B-	1.1
Inlet Valve Left Rear	44	44		3	Short to Bat B+	1.1
Inlet Valve Left Rear	44	44		5	Open Circuit	1.1
Inlet Valve Left Rear	44	44		6	Short to Ground B-	1.1
Outlet Valve Left Rear	50	50		3	Short to Bat B+	1.1
Outlet Valve Left Rear	50	50		5	Open Circuit	1.1
Outlet Valve Left Rear	50	50		6	Short to Ground B-	1.1
Inlet Valve Right Rear	45	45		3	Short to Bat B+	1.1
Inlet Valve Right Rear	45	45		5	Open Circuit	1.1
Inlet Valve Right Rear	45	45		6	Short to Ground B-	1.1
Outlet Valve Right Rear	51	51		3	Short to Bat B+	1.1
Outlet Valve Right Rear	51	51		5	Open Circuit	1.1
Outlet Valve Right Rear	51	51		6	Short to Ground B-	1.1
ATC NC	18	18		3	Short to Bat B+	1.1
ATC NC	18	18		5	Open Circuit	1.1
ATC NC	18	18		6	Short to Ground B-	1.1
ATC NO	19	19		3	Short to Bat B+	1.1
ATC NO	19	19		5	Open Circuit	1.1
ATC NO	19	19		6	Short to Ground B-	1.1
Brake Relay	13	13		3	Short to Bat B+	15.1
Brake Relay	13	13		5	Open Circuit	15.2
Brake Relay	13	13		6	Short to Ground B-	15.3
Brake Light Signal	100	100		3	Short to Bat B+	16.1
Brake Light Signal	100	100		5	Open Circuit	16.2
Brake Light Signal	100	100		6	Short to Ground B-	16.3
Park Brake Press Supply Valve	234	234		3	Short to Bat B+	4.1
Park Brake Press Supply Valve	234	234		5	Open Circuit	4.2
Park Brake Press Supply Valve	234	234		6	Short to Ground B-	4.3
Park Brake Press Cut-Off Valve	235	235		3	Short to Bat B+	5.1
Park Brake Press Cut-Off Valve	235	235		5	Open Circuit	5.2
Park Brake Press Cut-Off Valve	235	235		6	Short to Ground B-	5.3
Internal valve relay (provides supply voltage for ABS/ATC pressure control valves)	30	30		3	Can't Switch Off	1.1
Internal valve relay (provides supply voltage for ABS/ATC pressure control valves)	30	30		4	Can't Switch On	11.1
ABS warning light bulb (if available)	1438	23		5	No continuity to bulb	12.1
Brake warning light bulb (if available)	1439	101		5	No continuity to bulb	13.1
Buzzer (if available)	224	224		5	No continuity to Buzzer	14.1
ECU main ground or reference ground connection	98	98		2	Supply Voltage, Ground Connection	11.2 / 11.3
ECU Battery Voltage	251	251		4	ECU low voltage (< 10.0 V)	11.5
ECU Battery Voltage	251	251		3	ECU high voltage (> 16.5 V)	11.4
Accumulator pressure sensing front axle	59	59		3	Short to Bat B+	3.1
Accumulator pressure sensing front axle	59	59		4	Short to Ground B-	3.1
Accumulator pressure sensing front axle	59	59		10	Abnormal high pressure gradient (short charge time)	7.1
Accumulator pressure sensing rear axle	62	62		3	Short to Bat B+	3.1
Accumulator pressure sensing rear axle	62	62		4	Short to Ground B-	3.1
Accumulator pressure sensing rear axle	62	62		10	Abnormal high pressure gradient (short charge time)	7.1
Electronic pressure control front axle pump	2580	57		3	Short to Bat B+	6.6
Electronic pressure control front axle pump	2580	57		4	Pump monitor voltage unexpected low (motor monitor indicates motor on although driver is off)	6.4
Electronic pressure control front axle pump	2580	57		5	Supply voltage for pump motor missing	6.3
Electronic pressure control front axle pump	2580	57		6	Pump monitor voltage unexpected low (motor monitor indicates motor on although driver is off)	6.4
Electronic pressure control front axle pump	2580	57		7	Master cylinder brake circuit	18.1
Electronic pressure control front axle pump	2580	57		8	Diaphragm accumulator precharge level too low (detected by short run time and high switch on frequency)	7.1
Electronic pressure control front axle pump	2580	57		9	Internal leakage too high	6.1
Electronic pressure control front axle pump	2580	57		10	Abnormal low pressure gradient	6.5
Electronic pressure control rear axle pump	2581	60		3	Short to Bat B+	6.6
Electronic pressure control rear axle pump	2581	60		4	Pump monitor voltage unexpected low (motor monitor indicates motor on although driver is off)	6.4
Electronic pressure control rear axle pump	2581	60		5	Supply voltage for pump motor missing	6.3
Electronic pressure control rear axle pump	2581	60		6	Pump monitor voltage unexpected low (motor monitor indicates motor on although driver is off)	6.4

Electronic pressure control rear axle pump	2581	60		7	Master cylinder brake circuit	18.1
Electronic pressure control rear axle pump	2581	60		8	Diaphragm accumulator precharge level too low (detected by short run time and high switch on frequency)	7.1
Electronic pressure control rear axle pump	2581	60		9	Internal leakage too high	6.1
Electronic pressure control rear axle pump	2581	60		10	Abnormal low pressure gradient	6.5
Foot Brake Switch	246	246		3	Out of Range	9.1
Foot Brake Switch	246	246		10	Long Term Supervision	9.1
Parking Brake Switch	70	70		3	Out of Range	10.1
Parking Brake Switch	70		70	10	Long Term Supervision	10.1
Parking Brake System	619		61	3	Could not be applied	17.1
Parking Brake System	619		61	4	Could not be released	17.2
Parking Brake System	619		61	13	Over Travel	17.3
J1939 Data link communication	231	231		5	Bus Error	8.1
J1939 Data link communication	231	231		12	Internal ECU Error	1.1
J1939 Data link communication	231	231		9	Message Time Out	8.1

Diagnostics : Click here for Wabco Full Power brake manual S04048.

Ref	Number	Diagnostic Instructions
1		**Wabco Electronic Control Unit (ECU)**
	1.1	Replace ECU - Internal failure - Call OnTrac - Wabco for authorization if under warranty -
2		**Wheel Speed Sensor / Tone Ring**
	2.1	Amplitude of sensor signal is too low. Check bearing play and tone ring run out. Eliminate root cause for air gap extension and push sensor back in afterwards.
	2.2	Wheel sizes or number of tone ring teeth are different.
	2.3	Check J1939 Data Link Communication with Engine Controller (ECM)
	2.4	Check Tone Ring for Damage (corrosion, missing or damaged teeth) Replace if necessary
	2.5	Check sensor wiring and connectors for intermittent contact. Replace Sensor or repair wiring if necessary
	2.6	Check for correct sensor to tone ring air gap - Air gap too large. Push sensor in if necessary
3		**Pressure Sensors**
	3.1	Remove ECU and check pressure sensor connections. In case of visual damage on ECU-side change ECU, otherwise change HCU.
4		**Parking Brake Pressure Supply Valve**
	4.1	Shorted to Bat B+ Check connectors for shorts. If none found go to 1.1
	4.2	Open Circuit -. Check wiring and connectors for intermittent contact. Replace coil if necessary. Check front axle pump motor fuse and replace if broken. If further failure occurs go to 1.1
	4.3	Shorted to ground. Check wiring and connectors for short to ground. Replace coil if necessary. Check front axle pump motor fuse and replace if broken. If further failure occurs go to 1.1
5		**Parking Brake Pressure Cut- Off Valve**
	5.1	Shorted to Bat B+ Check connectors for shorts. If none found go to 1.1
	5.2	Open Circuit -. Check wiring and connectors for intermittent contact. Replace coil if necessary. Check front axle pump motor fuse and replace if broken. If further failure occurs go to 1.1
	5.3	Shorted to ground. Check wiring and connectors for short to ground. Replace coil if necessary. Check front axle pump motor fuse and replace if broken. If further failure occurs go to 1.1
6		**Pump Motor**
	6.1	Check front axle pump motor circuit for external leakage. Observe frequency of pump motor operation. Proceed Diagnostic Service to actuate the parking brake valves for about 3 minutes. If frequency is significant lower change supply valve. If not change HCU. 1.1
	6.2	Check rear axle pump motor circuit for external leakage. If no leakage found change HCU.
	6.3	Check corresponding pump motor fuse and wiring and replace/repair if broken
	6.4	Check if corresponding pump motor is able to run. If not change HCU. If pump motor runs permanently -> 1.1.
	6.5	1. Check accumulator precharge level of the corresponding circuit by using Wabco Toolbox diagnostic software and replace accumulator if necessary. 2. Check hose and pipes between master cylinder reservoir and HCU reservoir for any flow restrictions. 3. Run system without filler cap. Replace filler cap if failure disappears. 4. Bleed System according to bleeding procedure. 5. Replace Corresponding Pump in the HCU

	6.6	Check pump motor current draw of the corresponding circuit. Current should be less than 30 A. If value exceeded change HCU. If not exceeded -> 1.1
7		**Accumulator**
	7.1	Check accumulator precharge level of the corresponding circuit by using Wabco Toolbox diagnostic service and replace accumulator if necessary.
8		**J1939 Data Link**
	8.1	Check data link for continuity and proper resistance. Check EOL Resistor and all connections
9		**Foot Brake Switch**
	9.1	Check switch wiring and connectors, replace Foot Brake Switch if necessary
10		**Parking Brake Switch**
	10.1	Check switch wiring and connectors, replace parking brake switch if necessary.
11		**Supply Voltage, Ground connection**
	11.1	Check valve supply voltage fuse and wiring. If fuse OK -> 1.1
	11.2	Check wiring and connectors of the ECU ground connections.
	11.3	Check wiring and connectors of reference ground.
	11.4	Supply voltage too high. Check alternator and battery.
	11.5	Supply voltage too low. Check alternator and battery.
12		**ABS-Warning Light bulb**
	12.1	Check wiring and connections of the ABS-Warning light bulb. Replace bulb if necessary
13		**Brake-Warning Light bulb**
	13.1	Check wiring and connections of the Brake-Warning light bulb. Replace bulb if necessary
14		**Buzzer**
	14.1	Check wiring and connections of the Buzzer. Replace Buzzer if necessary
15		**Endurance Brake Relay (EBR)**
	15.1	Shorted to Bat B+. Check wiring and connections of the EBR. Replace EBR if necessary. If further failure occurs -> 1.1.
	15.2	Open circuit. Check wiring and connections of the EBR. Replace EBR if necessary. If further failure occurs -> 1.1.
	15.3	Shorted to Ground B-. Check wiring and connections of the EBR. Replace EBR if necessary. If further failure occurs -> 1.1.
16		**Brake Light Signal (BLS)**
	16.1	Shorted to Bat B+. Check wiring and connections of the BLS. If further failure occurs-> 1.1.
	16.2	Open circuit. Check wiring and connections of the BLS. If further failure occurs ->1.1.
	16.3	Shorted to Ground. Check wiring and connections of the BLS. If further failure occurs -> 1.1.
17		**SAHR (Parking Brake System)**
	17.1	Parking Brake could not be applied. - Check SAHR for correct mechanical functionality - Check brake lining (overtravel) - Check travel switch (always in the released position) - Check pressure supply valve - Check pressure cut off valve
	17.2	Parking Brake could not be released - Check SAHR for correct mechanical functionality - Check travel switch (always in the applied position) - Check SAHR chamber for leakage- Check pressure supply valve - Check pressure cut off valve - Check brake line to SAHR
	17.3	SAHR overtravel detected Check actuation cable between SAHR and drive line brake. Check SAHR brake lining.
18		**Master Cylinder Circuit /Relay Valves**
	18.1	Check Relay Valve of the corresponding circuit. - Check brake lines between Master Cylinder and Relay Valves of the corresponding circuit. - Check bleeding condition for Master Cylinder circuit. - Check brake performance on dynamometer if possible. - Check Master Cylinder itself.