

TROUBLESHOOTING

FAILSAFE DIAGNOSIS FUNCTIONAL SPECIFICATION CHART

Fail-safe Actions

Level 1 (LV1): Reduce engine speed to 2400 min⁻¹ or less

Level 2 (LV2): Reduce engine speed to 1600 min⁻¹ or less

Level 3 (LV3): Reduce engine speed to 1000 min⁻¹

Level 4 (LV4): Reduce engine speed to low idle

LCD	DTC	SPN	FMI	With FFD	DTC Description	Fail-safe Action					Note
						Level 1	Level 2	Level 3	Level 4	ENG Stop	
CHK ENG	P000F	157	16	-	Rail Pressure Limit Valve Open	x	-	-	-	-	
CHK ENG	P0088	157	0	x	Rail Pressure Too High - Exceed the limit	x	-	-	-	-	
CHK ENG	P0093	157	15	x	Rail Pressure Deviation Error - Higher Than The Target	x	-	-	-	-	
CHK ENG	P0094	157	18	x	Rail pressure Deviation Error - Lower Than The Target	x	-	-	-	-	Suspicious Fuel Leak on the high pressure line
CHK ENG	P0117	110	4	-	Coolant Temperature Sensor Error - High Range	-	-	-	-	-	Engine is still operational.
CHK ENG	P0118	110	3	-	Coolant Temperature Sensor Error - Low Range	-	-	-	-	-	Suspicious Broken sensor or wire
AC1 ERR	P0122	91	4	-	Main Analog Throttle Sensor 1 Error - Low Range	-	-	-	-	-	One signal of the dual throttle sensor is out of limit.
AC1 ERR	P0123	91	3	-	Main Analog Throttle Sensor 1 Error - High Range	-	-	-	-	-	
AC2 ERR	P0222	28	4	-	Main Analog Throttle Sensor 2 Error - Low Range	-	-	-	-	-	
AC2 ERR	P0223	28	3	-	Main Analog Throttle Sensor 2 Error - High Range	-	-	-	-	-	
AC1 ERR AC2 ERR	P0223 P0222	91 28	4 4	-	Main Analog Throttle Sensor 1 Error - Low Range Main Analog Throttle Sensor 2 Error - Low Range	-	-	x	-	-	Both signal of the dual throttle sensor are out of limit
AC1 ERR AC2 ERR	P0123 P0122	91 28	3 3	-	Main Analog Throttle Sensor 1 Error - High Range Main Analog Throttle Sensor 2 Error - High Range	-	-	x	-	-	
CHK ENG	P0168	174	0	x	Fuel Temperature Too High	x	-	-	-	-	Suspicious insufficient fuel in the fuel tank
CHK ENG	P0182	174	4	-	Fuel Temperature Sensor Error - Low Range	-	-	-	-	-	Engine is still operational.
CHK ENG	P0183	174	3	-	Fuel Temperature Sensor Error - High Range	-	-	-	-	-	Suspicious Broken sensor or wire, poor connection
CHK ENG	P0192	157	4	-	Rail Pressure Sensor Error - Low Range	x	-	-	-	-	Suspicious Broken sensor or wire, poor connection
CHK ENG	P0193	157	3	-	Rail pressure Sensor Error - High Range	x	-	-	-	-	
CHK ENG	P0201	651	5	-	Injector 1 - Open Circuit	x	-	-	-	-	Suspicious Broken injector or wire, poor connection
CHK ENG	P0202	652	5	-	Injector 2 - Open Circuit	x	-	-	-	-	
CHK ENG	P0203	653	5	-	Injector 3 - Open Circuit	x	-	-	-	-	
CHK ENG	P0204	654	5	-	Injector 4 - Open Circuit	x	-	-	-	-	
OV HFAT	P0217	110	0	x	Engine Coolant Temperature Too High	x	-	-	-	-	
OV REV	P0219	190	0	x	Engine Overspeed Condition	-	-	-	-	x	
-	P0227	29	4	-	Sub Throttle Sensor Error - Low Range	-	-	-	-	-	(When Backup Panel is operated only)
-	P0228	29	3	-	Sub Throttle Sensor Error - High Range	-	-	-	-	-	
bBOOST	P0234	102	0	x	Boost Pressure Too High	x	-	-	-	-	
CHK ENG	P0237	102	4	-	Boost Pressure Sensor Error - Low Range	-	-	-	-	-	Engine is still operational.
CHK ENG	P0238	102	3	-	Boost pressure Sensor Error - High Range	-	-	-	-	-	Suspicious Broken sensor or wire

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						Level 1	Level 2	Level 3	Level 4	ENG Stop	
CHK ENG	P0262	651	6	-	Injector1 Coil - Short Circuit	x	-	-	-	-	Suspicious Broken injector or wire, poor connection
CHK ENG	P0265	652	6	-	Injector2 Coil - Short Circuit	x	-	-	-	-	
CHK ENG	P0268	653	6	-	Injector3 Coil - Short Circuit	x	-	-	-	-	
CHK ENG	P0271	654	6	-	Injector4 Coil - Short Circuit	x	-	-	-	-	
CHK ENG	P0336	522400	2	-	Crankshaft Position Sensor - Irregular Signal	x	-	-	-	-	
CHK ENG	P0337	522400	5	-	Crankshaft Position Sensor - No Signal	x	-	-	-	-	
CHK ENG	P0341	522401	2	-	Camshaft Position Sensor - Irregular Signal	-	-	-	-	-	Engine is still operational. Suspicious Broken sensor or wire, poor connection
CHK ENG	P0342	522401	5	-	Camshaft Position Sensor - No Signal	-	-	-	-	-	
CHK ENG	P0541	522243	6	-	Glow relay - Short Circuit	-	-	-	-	-	Only for 3JH40
CHK ENG	P0543	522243	5	-	Glow relay - Open Circuit	-	-	-	-	-	
CHK ENG	P0601	630	12	-	ECU Error - EEPROM Memory Deletion	-	-	-	-	-	ECU internal failure
CHK ENG	P0611	523492	12	-	Injector Driver IC Error	-	-	-	-	x	ECU internal failure
CHK ENG	P0627	633	5	-	Fuel Pump - Open Circuit	-	x	-	-	-	Suspicious fuel pump failure, poor connection of wire
CHK ENG	P0629	633	3	-	Fuel Pump - High side VB Short Circuit	-	x	-	-	-	
CHK ENG	P062A	522572	6	-	Fuel Pump - Over Current	-	x	-	-	-	
CHK ENG	P068A	1485	2	-	Main Relay In ECU - Early Open	-	-	-	-	-	Battery switch has been turned off before ECU has shutdown at the previous shutdown. See <i>Shutting Down the Engine</i> on page 61. Or ECU internal failure
CHK ENG	P068B	1485	7	-	Main Relay In ECU - Stuck	-	-	-	-	-	ECU internal failure
CHK ENG	P1004	523016	5	-	Accessory Relay - Open Circuit	-	-	-	-	-	
CHK ENG	P1005	522778	7	-	Stop Switch - Stuck	-	-	-	-	-	
SEAL	P1006	522775	0	-	Water In Sail drive Seal	-	-	-	-	-	
CHK ENG	P1146	2797	6	-	Injector Bank1 - Short Circuit	x	-	-	-	(x)	3JH40: ENG Stop
CHK ENG	P1149	2798	6	-	Injector Bank2 - Short Circuit	x	-	-	-	-	
FUEL	P1151	522329	0	-	Water In Fuel Condition	-	-	-	-	-	
CHK ENG	P1192	100	4	-	Oil Pressure Switch - Open Circuit	-	-	-	-	-	Suspicious Broken sensor or wire, poor connection
OIL PRS	P1198	100	1	x	Oil Pressure Too Low	-	x	-	-	-	
CHK ENG	P1262	651	3	-	Injector 1 - Short Circuit	x	-	-	-	(x)	Suspicious Broken injector or wire, poor connection
CHK ENG	P1265	652	3	-	Injector 2 - Short Circuit	x	-	-	-	(x)	
CHK ENG	P1268	653	3	-	Injector 3 - Short Circuit	x	-	-	-	(x)	
CHK ENG	P1271	654	3	-	Injector 4 - Short Circuit	x	-	-	-	-	3JH40: ENG Stop
CHK ENG	P1341	522401	7	-	Camshaft Position Sensor Signal - Angle Offset	-	-	-	-	-	Suspicious cam gear offset, loose installation of sensor or pulsar
CHK ENG	P1467	523471	6	-	Starter relay coil side Short Circuit	-	-	-	-	-	
CHK ENG	P1469	523473	12	-	ECU Error - AD Converter1	-	-	-	-	x	ECU internal failure
CHK ENG	P1470	523474	12	-	ECU Error - AD Converter2	-	-	-	-	x	ECU internal failure
CHK ENG	P1471	523475	12	-	ECU Error - External monitoring IC & CPU1	-	-	-	-	x	ECU internal failure
CHK ENG	P1472	523476	12	-	ECU Error - External monitoring IC & CPU2	-	-	-	-	x	ECU internal failure
CHK ENG	P1473	523477	12	-	ECU Error - ROM	-	-	-	-	x	ECU internal failure
CHK ENG	P1474	523478	12	-	ECU Error - Shutoff Path1	-	-	-	-	x	Suspicious Broken injector or wire, poor connection of the wire harness to injector. Or ECU internal failure
CHK ENG	P1475	523479	12	-	ECU Error - Shutoff Path2	-	-	-	-	x	
CHK ENG	P1476	523480	12	-	ECU Error - Shutoff Path3	-	-	-	-	x	
CHK ENG	P1477	523481	12	-	ECU Error - Shutoff Path4	-	-	-	-	x	
CHK ENG	P1478	523482	12	-	ECU Error - Shutoff Path5	-	-	-	-	x	
CHK ENG	P1479	523483	12	-	ECU Error - Shutoff Path6	-	-	-	-	x	
CHK ENG	P1480	523484	12	-	ECU Error - Shutoff Path7	-	-	-	-	x	
CHK ENG	P1481	523485	12	-	ECU Error - Shutoff Path8	-	-	-	-	x	
CHK ENG	P1482	523486	12	-	ECU Error - Shutoff Path9	-	-	-	-	x	
CHK ENG	P1483	523487	12	-	ECU Error - Shutoff Path10	-	-	-	-	x	

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LCD	DTC	SPN	FMI	With FFD	DTC Description	Failsafe Action					Note
						Level 1	Level 2	Level 3	Level 4	ENG Stop	
CHK ENG	P1484	523488	0	-	ECU Error - Engine Speed Recognition	-	-	-	-	x	ECU internal failure
ALT	P1568	167	1	-	Charging System Error	-	-	-	-	-	
CHK ENG	P1608	522588	12	-	ECU Error - Actuator Supply1 Voltage High Range	-	-	-	-	x	ECU internal failure
CHK ENG	P1609	522590	12	-	ECU Error - Sensor Supply1 Voltage	-	-	-	-	-	ECU internal failure
bT VOLT	P160C	158	0	-	Battery Voltage Too High	-	-	-	-	-	
CHK ENG	P160E	522576	12	-	ECU Error - EEPROM Memory Read	-	-	-	-	-	ECU internal failure
CHK ENG	P160F	522578	12	-	ECU Error - EEPROM Memory Write	-	-	-	-	-	ECU internal failure
CHK ENG	P1613	522585	12	-	ECU Error - CY146 SPI Communication	-	x	-	-	-	ECU internal failure
CHK ENG	P1617	522589	12	-	ECU Error - Actuator Supply1 Voltage Low Range	-	-	-	-	x	ECU internal failure
CHK ENG	P1618	522591	12	-	ECU Error - Sensor Supply2 Voltage	-	-	-	-	-	ECU internal failure
CHK ENG	P1619	522592	12	-	ECU Error - Sensor Supply3 Voltage	-	-	-	-	-	ECU internal failure
CHK ENG	P1626	522744	4	-	ECU Error - Actuator Drive1 Short Circuit	-	-	-	-	-	ECU internal failure
CHK ENG	P1633	522994	4	-	ECU Error - Actuator Drive2 Short Circuit	-	-	-	-	-	ECU internal failure
bT VOLT	P1638	158	1	-	Battery Voltage Too Low	-	-	-	-	-	
CHK ENG	P1641	522571	3	-	Fuel Pump - Low side VB Short Circuit	-	x	-	-	-	Suspicious fuel pump failure, poor connection of wire
CHK ENG	P1642	633	6	-	Fuel Pump - High side GND Short Circuit	-	x	-	-	-	
CHK ENG	P1643	522571	6	-	Fuel Pump - Low side GND Short Circuit	-	x	-	-	-	
CHK ENG	P1645	522572	11	-	Fuel Pump - Over Load	-	x	-	-	-	
CHK ENG	P1648	523462	13	-	Injector 1 - QR Code Data Error	x	-	-	-	-	Input failure of the injector correction value
CHK ENG	P1649	523463	13	-	Injector 2 - QR Code Data Error	x	-	-	-	-	
CHK ENG	P1650	523464	13	-	Injector 3 - QR Code Data Error	x	-	-	-	-	
CHK ENG	P1651	523465	13	-	Injector 4 - QR Code Data Error	x	-	-	-	-	
CHK ENG	P1665	523468	9	-	Rail Pressure Error After Pressure Limit Valve Open	-	-	-	-	x	
CHK ENG	P1666	523469	0	-	Rail Pressure Limit Valve Open - Exceed Specified Time	-	x	-	-	-	
CHK ENG	P1667	523470	0	-	Rail Pressure Limit Valve Error - Exceed Specified Opening Hour	-	x	-	-	-	
CHK ENG	P1668	523489	0	-	Rail Pressure Limit Valve Error - Not Open	-	-	-	-	x	
CHK ENG	P1669	523491	0	-	Fuel Temperature Error under Limp Home Mode	-	x	-	-	-	
CHK ENG	P1670	523460	7	-	Double error - Rail pressure sensor and MPROP or fuel temperature sensor	-	-	-	-	x	
CHK ENG	P2530	522308	7	-	Start Switch - Stuck	-	-	-	-	-	
CHK ENG	U0292	522596	9	-	CAN Communication Error - TCS1	-	-	-	-	-	Suspicious Loose connection of CAN cable
CHK ENG	U0593	522596	19	-	CAN Throttle Signal Error - TCS1	-	-	-	x	-	Throttle control system error
CHK ENG	U0593 P0228 P0227	522596 29 29	19 3 4	-	CAN Throttle Signal Error - TCS1 Sub Throttle Sensor Error - High Range or Sub Throttle Sensor Error - Low Range	-	-	x	-	-	
CHK ENG	U1304	459726	9	-	CAN Communication Error - Y_PM1	-	-	-	-	-	Suspicious Loose connection of CAN cable
CHK ENG	U1305	459726	19	-	CAN Throttle Signal Error - Y_PM1	-	-	-	x	-	Throttle control system error
SAFE MD	-	-	-	-	Power reduction (Engine Protection Mode)	x	x	x	x	-	Status indication under Engine Protection Mode
ST LOCK	-	-	-	-	Starter Interlock	-	-	-	-	-	Neutral safety is active. Can not start the engine

TROUBLESHOOTING

	LCD	DTC	SPN	FMI	With FFD	DTC Description	Failsafe Action					Note
							Level 1	Level 2	Level 3	Level 4	ENG Stop	
Engine-ECU	EMG STP	-	-	-	-	Emergency Stop	-	-	-	-	-	Emergency Stop is active. Can not start the engine
	COM ERR	-	-	-	-	Communication error between panel and engine ECU	-	-	-	-	-	Suspicious Loose connection of Extention harness. Suspicious blown fuse(20A/ECU).
Drive-ECU	-	P0920	773	3	-	SHIFT FORWARD H RANGE	-	-	-	-	-	
	-	P0920	773	4	-	SHIFT FORWARD L RANGE	-	-	-	-	-	Shift Valve (F) shuts off
	-	P0924	784	3	-	SHIFT REVERSE H RANGE	-	-	-	-	-	
	-	P0924	784	4	-	SHIFT REVERSE L RANGE	-	-	-	-	-	
	-	P0745	740	3	-	CHANGE VALVE H RANGE	-	-	-	-	-	
	-	P0745	740	4	-	CHANGE VALVE L RANGE	-	-	-	-	-	Trolling function come to be unavailable
	-	P0720	191	8	-	PROP SPEED SENSOR L RANGE	-	-	-	-	-	C-type trolling function is switched E-type
	-	P0218	177	0	-	GEAR OIL TEMP TOO HIGH	-	-	-	-	-	Trolling function come to be unavailable
	-	P0710	177	3	-	GEAR OIL TEMP H RANGE	-	-	-	-	-	
	-	P0710	177	4	-	GEAR OIL TEMP L RANGE	-	-	-	-	-	
	-	U103	525	10	-	CAN COM ERROR	-	-	-	-	-	Shift is changed to Neutral position
	-	U100	190	10	-	CAN COM ERROR ENGINE SPEED	-	-	-	-	-	
	-	U404	525	2	-	CAN COM ERROR SHIFT	-	-	-	-	-	Shift is changed to Neutral position
	-	U402	684	2	-	CAN COM ERROR TROLLING	-	-	-	-	-	Trolling function come to be unavailable
Helim-ECU	-	P0560	158	1	-	BATTERY VOLTAGE TOO LOW	-	-	-	-	-	
	-	U100	523760	9	-	CAN COM ERROR ENG-ECU TO HELM-ECU	-	-	-	×	-	Station change comes to be unavailable
	-	U404	523761	9	-	CAN COM ERROR DRIVE-ECU TO HELM-ECU	-	-	-	×	-	Shift change comes to be unavailable
	-	U1201	523762	9	-	CAN COM ERROR HELM-ECU TO HELM-ECU	-	-	-	×	-	Station change comes to be unavailable
	-	U1202	523763	9	-	CAN COM ERROR HELM-LOCAL	-	-	-	×	-	Station change, Synch. Operation, Warmup operation, and Engine speed limit mode come to be unavailable
	-	B1001	523543	4	-	NEUTRAL SW ACTIVATED	-	-	-	-	-	Station change, Synch. Operation, Warmup operation, and Engine speed limit mode come to be unavailable
	-	B1002	523542	4	-	SELECT SW ACTIVATED	-	-	-	-	-	Station change and Indicator dimming operation come to be unavailable
	-	B1003	523544	4	-	SYNCHRO SW ACTIVATED	-	-	-	-	-	Station change and Synchronization feature come to be unavailable
	-	B1004	523545	4	-	TROLL SW ACTIVATED	-	-	-	-	-	Station change and Trolling function come to be unavailable
	-	B1005	523541	3	-	START/STOP SW ACTIVATED	-	-	-	-	-	Station change comes to be unavailable
	-	P0120	91	3	-	MAIN THROTTLE SENSOR H RANGE	-	-	-	×	-	Station change and Trolling function come to be unavailable
	-	P0120	91	4	-	MAIN THROTTLE SENSOR L RANGE	-	-	-	×	-	
	-	B1020	91	13	-	THROTTLE CALIBRATION INCONSISTENCY	-	-	-	×	-	Station change function come to be unavailable
-	B1043	523768	12	-	HELM-ECU EEPROM ERROR	-	-	-	-	-	Station change comes to be unavailable	