


<b>ZF FRIEDRICHSHAFEN Aktiengesellschaft</b>					
Description:	Technical customer information Fault Reaction Modes ASTronic-Lite	Nr.:	DIN A4	Page 1 of 6	
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	Index	No.	Date	Name	Film
K2 ZFN 904		<b>MODIFICATIONS</b>			
<b>Approved:</b>					
Name:					
Dept.:					
Date:					



## Fault Reaction Modes / Störfallbeschreibung

Version	Date	Pages	Remarks
1	2008-03-22	7	Service overview (only for Serviceline)

**1 VALIDITY FOR DATASET(S):**

<b>Hexfilename:</b>	<b>Programming number ZF:</b>
6070301070_503649000_IVE_V11CA01_6AS700TO_T1_D34.HEX	6070 301 070
6070301071_503649003_IVE_V11CA01_6AS700TO_T2_D34.HEX	6070 301 071
6070301072_503649006_IVE_V11CA01_6AS800TO_T1_D34.HEX	6070 301 072
6070301073_503649009_IVE_V11CA01_6AS1000TO_T1_D35.HEX	6070 301 073

<b>Hexfilename:</b>	<b>Programming number ZF:</b>
6070301087_503649012_IVE_V11CA01_6AS700TO_T1_D2.0.HEX	6070 301 087
6070301088_503649015_IVE_V11CA01_6AS700TO_T2_D2.0.HEX	6070 301 088
6070301089_503649018_IVE_V11CA01_6AS800TO_T1_D2.0.HEX	6070 301 089
6070301090_503649021_IVE_V11CA01_6AS1000TO_T1_D2.0.HEX	6070 301 090

## 2 ABBREVIATIONS

The abbreviations are used in the error description:

Bezeichnung	Erläuterung
VPHS (Kl.30-1)	Main electric-power supply of ECU.
VP (Kl.30-2)	Redundant electric-power supply of ECU.
VM (Kl.31-2)	Ground for ECU, sensor and valves.
VMHS (Kl.31-1)	Ground for hydraulic pressure pump.
ADMHS	ECU internal switch to control hydraulic pressure pump.
ADVP	Short-circuit-resistant switch to supply external electrical components. Connects the external component to electric-power supply (Kl.30).
ADM1	Short-circuit-resistant switch. Connects the external component to ground (VM).
WDC	WatchDog Controller

## 3 WARNINGS

Warning Number	Warning Description	Warning Reason	SPN IVECO (dez)	SPN IVECO (hex)
8	Clutch temperature too high	Too high temperature calculated in temperature model of clutch	770	302
9	Temperature in ECU too high	High ambient temperature, high vehicle load, application gearbox in chassis unfavourable (exhaust pipe)	773	305
12	Reduced functionality of gearbox	Imminent overload of valves / power stages Pressure supply not sufficient	774	306

## 4 ERRORDescription

ZF - ErrNo	Error Description	SPN IVECO (dez)	SPN IVECO (hex)
1	Security device (WatchDogController / redundant shut-off-path) malfunction	801	321
3	Check sum error EEPROM	803	323
4	Error detected by process monitoring.	804	324
5	SafetyLayer has been activated, transmission reacts according to Technical Manual ZF-AS Tronic lite, chapter "Malfunction-Concept for ZF-AS-Transmissions"	805	325
6	Exhausting operation of clutchactuator failure	806	326
8	voltage supply of shift- and select- sensor is invalid	808	328
9	Outputshaft speed is invalid	809	329
10	Front axle speed is invalid	810	32A
11	Outputshaft speed from TCO is invalid	811	32B
13	Inputshaft speed is invalid	813	32D
15	The closed position of the clutch is not plausible because while opening the clutch did not reach the desired position towards open.	815	32F
16	Signal of temperature sensor next to processor is invalid	816	330
17	Signal of temperature sensor next to output stage pump is invalid	817	331
18	The current time information on CAN is not completely available.	818	332
20	One or more signals of the message „Engine Configuration“ are invalid	820	334
21	Signal accelerator pedal position is invalid	821	335
22	Signal engine torque is invalid	822	336
23	Signal engine speed is invalid	823	337
24	Signal low idle switch is invalid	824	338
25	Signal torque driver demand is invalid	825	339
26	Signal percent load at current speed is invalid	826	33A
27	Signal cruise control active is invalid	827	33B
28	Cruisecontrol set speed is invalid	828	33C
29	Signal engine coolant temperature is invalid	829	33D
30	Signal clutch position is invalid	830	33E
31	Clutch touch point couldn't be teached within several attempts	831	33F
33	Error clutch control in clutch open direction	833	341
34	Error clutch control in clutch close direction	834	342
35	select actuator switched off because switch on time exceeded limit	835	343
36	shift actuator switched off because switch on time exceeded limit	836	344
37	At least one signal of Retarder Configuration is invalid.	837	345
40	Signal break switch is invalid	840	348
41	ABS Signal is invalid	841	349
42	Signal ASR Brake Control is invalid	842	34A
43	Signal ASR engine control is invalid	843	34B
44	Signal torque retarder exhaust is invalid	844	34C
45	Signal kick down is invalid	845	34D

47	temperature of ECU above upper threshold	847	34F
48	temperature of ECU below lower threshold	848	350
50	Overspeed at inputshaft	850	352
51	The clutch position is not plausible to the actuation of the clutch valves	851	353
52	Signal ambient temperature is invalid	852	354
53	Temperature signals of the two ECU internal sensors are not plausible to each other	853	355
54	Signal PTO1 engaged is invalid	854	356
55	Signal PTO2 engaged is invalid	855	357
56	Signal PTO 1 engage switch is invalid	856	358
57	Signal PTO 2 engage switch is invalid	857	359
58	Signal PTO 1 code is invalid	858	35A
59	Signal PTO2 code is invalid	859	35B
60	Invalid signal of pressure sensor	860	35C
61	Signal shifting position sensor invalid	861	35D
62	Signal selecting position sensor invalid	862	35E
63	The gear cant't be disengaged	863	360
64	During a gear shift the right gate couldn't be reached	864	361
65	Gearshift select operation failure	865	362
66	Synchronisation operation failure	866	363
67	Shift in gear operation failure	867	364
68	Fluid (Pentosin) level warning, level too low	868	365
70	Signal requested gear is invalid	870	367
71	Timeout of the message EEC2	871	368
72	Timeout of the message EEC3	872	369
73	Timeout of the message Cruise Control/Vehicle Speed	873	36A
74	Timeout of the message Engine Temperature	874	36B
75	Timeout of the message Ambient Conditions	875	36C
76	Timeout of the message TC1_FT	876	36D
77	Timeout of the message EBC1	877	36E
78	Timeout of the message EBC2	878	36F
79	Timeout of the message TCO1	879	370
81	Acknowledge fault of PTO 1	881	371
82	Acknowledge fault of PTO 2	882	372
83	Timeout of the message EEC1	883	373
84	Timeout of the message Time/Date	884	374
88	Timeout of the message Engine Configuration	888	378
89	Busoff drivetrain can	889	379
90	Gear detection failure	890	37A
91	Vehicle speed from TCO is invalid	891	37B
92	No signal of vehicle speed is available	892	37C
93	Timeout of the message ERC1_RX	893	37D
95	Error Transmit Queue Overrun drivetrain can	895	37F
96	Errorwarning drivetrain can	896	380
99	Signal parking brake is invalid	899	383
100	Disconnection or voltage below minimum threshold of VPHS (KL30-1). The pump is not or only limited available. For further supply of valves switch to KL30-2 (cf. local Errorreaction)	900	384
101	Disconnection or voltage below minimum threshold of VP (KL30-2). No restrictions, because redundant voltage supply by high current supply (VPHS/KI30-1). No further redundant voltage supply is available.	901	385

102	Disconnection or voltage below threshold of VMHS (KL31-1). ECU-Supply (including valves) by VM (KL31-2). The pump is not or only limited available.	902	386
103	Switch off ignition key (KL-15) while driving.	903	387
104	supply voltage below minimum threshold	904	388
105	supply voltage above maximum threshold	905	389
106	Short circuit to high source at main switch-off relay 1. That means the supply of the valves ClutchOpen1, ClutchClose1, SelectPositive, SelectNegative, ShiftPositive, ShiftNegative and ShiftForceControl cannot be switched off when "ignition off" and in error case "short circuit to low source" of one of these valves	906	38A
107	Main switch-off relay 1 has got disconnection or was switched-off because of a detected "short circuit to low source"- Error at at least one of the values ClutchOpen1, ClutchClose1, SelectPositive, SelectNegative, ShiftPositive, ShiftNegative or ShiftForceControl.	907	38B
108	Short circuit to high source at main switch-off relay 2. That means the supply of the valves ClutchOpen2 and ClutchClose2 cannot be switched off when "ignition off" and in error case "short circuit to low source" of one of these valves.	908	38C
109	Main switch-off relay 2 has got disconnection or was switched off because of a detected "short circuit to low source"- Error at at least one of the valves ClutchOpen2 or ClutchClose2 .	909	38D
111	Disconnection of valve ClutchClose1 or short circuit at the solenoid of valve ClutchClose1. In both cases the valve cannot be used any more.	911	38F
112	Disconnection of valve SelectPositive or short circuit at the solenoid of valve SelectPositive. In both cases the valve cannot be used any more.	912	390
113	Disconnection of valve SelectNegative or short circuit at the solenoid of valve SelectNegative. In both cases the valve cannot be used any more.	913	391
114	Disconnection of valve ShiftForceControl or short circuit at the solenoid of valve. In both cases the valve cannot be closed any more.	914	392
115	Disconnection of valve ShiftPositive or short circuit at the solenoid of the valve. In both cases the valve cannot be opened any more.	915	393
116	Disconnection of valve ShiftNegative or short circuit at the solenoid of the valve. In both cases the valve cannot be used any more.	916	394
117	Disconnection of valve ClutchOpen2 or short circuit at the solenoid of the valve. In both cases the valve cannot be used any more.	917	395
118	Disconnection of valve ClutchClose2 or short circuit at the solenoid of the valve. In both cases the valve cannot be used any more.	918	396
119	short circuit to high source at ADMHS, that means short circuit at pump motor	919	397
120	Short circuit to low source at ADHMS. Pump motor is switched on permanently and runs until damage. Failure can not be resolved by switching-off the ignition. Consequently a breakdown of high current supply and a damage of ECU must be assumed respectively.	920	398
121	Disconnection at ADMHS. Pump motor cannot be switched on.	921	399
128	Signal torque engine loss is invalid	928	3A0
129	No pressure build-up while pump control	929	3A1
130	The pressure decrease in the reservoir is greater than an threshold although no valve is actuated	930	3A2
131	Error ShutDown ECU. Shut down of ECU not possible	931	3A3
132	Limited function of position control in shifting direction	932	3A4
133	Limited function of position control in selecting direction	933	3A5
134	Limited function of position control of clutch actuation	934	3A6
138	Signal relative speed front axle left wheel is invalid	938	3AA
139	Signal relative speed front axle right wheel is invalid	939	3AB
140	Signal relative speed rear axle left wheel is invalid	940	3AC
141	Signal relative speed rear axle right wheel is invalid	941	3AD
142	Actual speed of cruise control is invalid	942	3AE
145	Engagement fault of PTO1	945	3B1
146	Engagement fault of PTO2	946	3B2
147	Disengagement fault of PTO 1	947	3B3
148	Disengagement fault of PTO 2	948	3B4
152	Timeout of the message Ret_ConfRX	952	3B8
162	Signal engine torque mode is invalid	962	3C2
165	Timeout of the message EM_CMD	965	3C5