Service Handbook

Cento T with BOSCH

1. OPERATION MESSAGES 3

2. WARNINGS 4

3. FAULT CONDITIONS 9

4. HISTORY 16

5. BOSCH MESSAGES 21

6. BOSCH – FAULT BITS 25

1. Operation Messages

English	Czech	Information
BAP closed:	BAP zavřený	It gives information on the closed state of Safety Gas Valves as a result of Emergency Stop or Gas Valve Error. The message disappears once the Emergency Stop button is released, the Gas Valve Error is rectified and acknowledgment is made
Bus meas error:	ChybaMěřSběr	The alarm is issued when the bus measuring protection is activated by the Gener protect: BusMeasError parameter. Check the bus for measuring and state.
Not lubricated:	Nemaže	This message in the Alarm List is active until the first lubrication cycle has been completed. See the Engine States chapter in the IGS-NT-x.y-Reference Guide.
Start fail:	Chyba startu	The output is enabled if the engine start error occurs. That means the number of attempts to start reached the number specified by the Engine params: Crank attempts parameter with engine start failure. See the Engine Starting Procedures chapter in the IGS-NT-x.y-Reference Guide.
Start blocking:	Blok.startu	The corresponding binary input disables engine start. If enabled, the Not ready state is displayed on the controller display in the Alarm List. As soon as the input is disabled the engine start is allowed again. Check this input why it is enabled.
SyncStarted:	SpuštěníSynchr	Synchronization was commenced
RevSyncStarted:	SpuštZpětSynch	Reverse synchronization was commenced
Ready:	Připraven	The machine set is ready for operation
Idle:	Volnoběh	Once the engine has been started the engine runs in idling mode for Idle time.
Running:	Běží	The machine set is operating and it waits for GCB to close.
Warming:	Ohřívání	Once GCB closes in parallel to the mains, the power is reduced to the Engine params: Warming load value. Warming takes place until the engine reaches the temperature given by the Warming temp parameter or until the time given by the Max warming time parameter expires.
Soft load:	PomaléZatížení	Gradual loading (increasing of power)
Loaded:	Zatížen	Generator is loaded
Soft unload:	Pomalé Odlehč	Removal of the load (reduction of power)
Cooling:	Chlazení	Cooling before engine shutdown is in progress
Emerg man:	Záchraný MAN	Emergency Manual Mode - see the Emerg. manual BI description
Not Ready:	StartBlok	The machine set is not ready for the start
OfL StartBlck:	OdlehčStartBlk	The alarm indicates wrong parameter setting that disables engine start or takeover of load, alternatively, the mains error. For example, ProcessControl: Island enable; Parallel enable; Synchro enable; MF StartEnable. See the AUT Mode chapter in the IGS-NT-SPTM/SPI Manual, page 7 or the IGS-NT-COMBI Manual, page 8.
After cooling	Dochlazování	Operation of the PC pump after the engine shutdown for: AfterCoolTime

2. Warnings

English	Czech	Fault	Cause	Remedy
RTCbatteryFlat:	VybitaBaterRTC	There is a parameter loss hazard due to the discharge of inner RTC battery.	RTC battery almost flat	Replace the inner RTC battery (CR 1225 type).
U Bat:	U Bat	Erroneous supply voltage	Oxidized contacts	Clean the contacts
			Incorrect charger	Replace the charger
			Faulty battery	Replace the battery
WrnServiceTime (WrnServiceT1+2, WrnServiceT3+4):	VarovServisČas (TO-0 + TO-1, TO-2 + SO-1)	Zero service time	Engine protect: Service time X has reached the zero value	Set the Engine protect: Service time X to a value other than zero.
Wrn CylTemp1-32:	VarTeplVálc1-32	High temperature of cylinder 1-32	Faulty cabling of the cylinder temperature sensor	Check or, if necessary, replacement of the cylinder temperature sensor cabling
			Faulty cylinder temperature sensor	Replace the cylinder temperature sensors
			Malfunction of the engine air-fuel ratio control	Check the engine air-fuel ratio control for correct function
Wrn MCB fail:	VarChybaStSítě	Discrepancy in MCB status indication	Interrupted feedback wire	Replace the feedback wire
			Inoperative auxiliary contact on MCB	Replace the auxiliary contact.
Wrn MGCB fail:	Var MGCB chyba	Discrepancy in MGCB status indication	Interrupted feedback wire	Replace the feedback wire
			Malfunction of MGCB auxiliary contact	Replace the auxiliary contact
PassInsertBlck:	VložHeslaBlok	Password cracking protection active	Consecutively entered incorrect password for 6 times	Enter the correct password after 30,60,120 or 240 min.
Wrn BadPwrCfg:	Var ChybVykKfg	Differently set unit of power than that for the other machine sets	Erroneously set units of power	Change to the correct units in GenConfig on the Power Format card
WrnTstOnLdFail:	VarChTestNaZát	Insufficient power for the transfer of load from the mains to generator	Load ramp is too short	Extend the load ramp Sync/Load ctrl: Load ramp
Wrn SpdRegLim:	VarLimRegRychl	Limit values for speed control	Incorrect parameters in the Sync/Load ctrl group	Correct the parameters in the Sync/Load ctrl group
			Erroneously wired speed governor	Check and correct the speed governor wiring

English	Czech	Fault	Cause	Remedy
Wrn VoltRegLim:	VarLimRegNap	Limit values for voltage control	Erroneously wired IG-AVRi	Check and correct the IG-AVRi wiring
			Erroneously set IG-AVRi	Set the potentiometer on IG-AVRi correctly
			Inoperative IG-AVRi	Replace IG-AVRi
			Erroneously wired voltage regulator in the generator	Check and correct the wiring of voltage regulator in the generator
			Inoperative voltage regulator in the generator	Replace the voltage regulator plate
Wrn Pump T.C. fail:	Var ČerpT.O.poruch	Technological circuit pump crash	Open thermal protection	Close thermal protection
			Interrupted wire	Check the line and replace the wire
			Faulty pump	Replace the pump
Wrn Addr error:	VarAdrChyba	Incorrect controller address	The same controller addresses for installation	Change the controller addresses in Comm settings: Contr. address and set the CANnegotiation: OFF
Wrn Gas Escape 1°:	Var Únik Plynu 1°	Degree 1 gas leakage	Gas leakages in the gas route	Check the gas route for tightness
Wrm FuelSolen Fail:	Var ChybaVentPlynu	Gas valve malfunction.	Incorrectly operating gas valves	Check the gas valves for function
Wrn RSync fail:	VarChybaZpSync	Reverse synchronization error, that is the generator was not synchronized	Incorrect parameters in the Sync/Load ctrl group	Correct the parameter settings in the Sync/Load ctrl group
			Incorrect parameters in the Volt/PF ctrl group	Correct the parameter settings in the Volt/PF ctrl group
			Incorrectly set AFR valve	Decrease the value by one percent: AFR control: StartPosition, RunPosition, LoPwrPosition
			Inoperative speed governor	Check and, if necessary, correct or replace the speed governor
			Inoperative voltage regulator	Check and, if necessary, correct or replace the voltage regulator
Wrn Sync fail:	Var Sync chyba	Reverse synchronization error, that is the generator was not synchronized	Incorrect parameters in the Sync/Load ctrl group	Correct the parameter settings in the Sync/Load ctrl group
			Incorrect parameters in the Volt/PF ctrl group	Correct the parameter settings in the Volt/PF ctrl group

English	Czech	Fault	Cause	Remedy
			Incorrectly set AFR valve	Decrease the value by one percent: AFR control: StartPosition, RunPosition, LoPwrPosition
			Inoperative speed governor	Check and, if necessary, correct or replace the speed governor
			Inoperative voltage regulator	Check and, if necessary, correct or replace the voltage regulator
G L neg:	Gen L neg	Measuring transformer is reversed on certain generator phase.	Measuring transformer erroneously wired on certain phase	Reconnect the wires at the generator measurement input to the incorrectly wired phase
			Incorrect orientation of the measuring transformer	Reverse the measuring transformer
G ph+L neg:	Gen ph+L neg	Measuring transformer is reversed on certain generator phase and the phases are simultaneously connected in incorrect sequence.	Measuring transformer erroneously wired on certain phase and a wrong phase sequence	Reconnect the wires at the generator measurement input to the incorrectly wired phase and connect the phases correctly by the sequence
			Incorrect orientation of the measuring transformer and a wrong phase sequence.	Reverse the measuring transformer and connect the phases correctly by the sequence.
G ph opposed:	G ph protiklad	The phases for generator measuring are connected in incorrect sequence.	Wrong phase sequence of the wires connected to the generator measurement input	Connect the phases by the correct phase sequence
M L neg:	Síť L neg	Measuring transformer is reversed on certain mains phase.	Measuring transformer erroneously wired on certain phase	Reverse the wires at the mains measurement input to the incorrectly wired phase
			Incorrect orientation of the measuring transformer	Reverse the measuring transformer.
M ph+L neg:	Síť ph+L neg	Measuring transformer is reversed on certain mains phase and the phases are simultaneously connected in incorrect sequence.	Measuring transformer erroneously wired on certain phase and a wrong phase sequence	Reverse the wires at the mains measurement input to the incorrectly wired phase and connect the phases correctly by the sequence

English	Czech	Fault	Cause	Remedy
			Incorrect orientation of the measuring transformer and a wrong phase sequence.	Reverse the measuring transformer and connect the phases correctly by the sequence.
M ph opposed:	M ph protiklad	The phases for mains measuring are connected in incorrect sequence.	Wrong phase sequence of the wires connected to the mains measurement input	Connect the phases by the correct phase sequence
B L neg:	B L neg	Measuring transformer is reversed on certain bus phase.	Measuring transformer erroneously wired on certain phase	Reverse the wires at the bus measurement input to the incorrectly wired phase
			Incorrect orientation of the measuring transformer	Reverse the measuring transformer.
B ph+L neg:	Sb fáz+L neg	Measuring transformer is reversed on certain bus phase and the phases are simultaneously connected in incorrect sequence.	Measuring transformer erroneously wired on certain phase and a wrong phase sequence	Reverse the wires at the bus measurement input to the incorrectly wired phase and connect the phases correctly by the sequence
			Incorrect orientation of the measuring transformer and a wrong phase sequence.	Reverse the measuring transformer and connect the phases correctly by the sequence.
B ph opposed:	Sb fáz proti	The phases for bus measuring are connected in incorrect sequence.	Wrong phase sequence of the wires connected to the mains measurement input	Connect the phases by the correct phase sequence
ActCall Fail:	ChybaAktVolání	Active call error indication with error messages	Erroneously set modem	Set Comms settings: RS232(1) mode = MODEM(HW)
			Disconnected GSM modem	Connect the modem
			Erroneously set parameters in Comms settings	Set the correct parameters in Comms settings
			Erroneously set parameters in Act. calls/SMS	Set the preset parameters in Act. calls/SMS
ECUDiagBlocked:	BlokDiagnECU	ECU diagnostics off	Basic settings: ECU diag = DISABLED is set	Set the Basic settings: ECU diag = ENABLED
UnivState 1-16:	UnivStav 1-16	Activity indication of Universal state 1-16 (or corresponding name).	Protection set to optional quantity. (GenConfig – Protections card)	Check the relevant quantity's value

English	Czech	Fault	Cause	Remedy
PLC State 1-4:	PLC Stav 1-4	Status indication of PLC 1-4. It is the Force Block function in PLC.	Compliance with the conditions for protection start in PLC	Identify the conditions in PLC monitor and take remedial measures accordingly.
CanopyFanFail:	VentKapPorucha	Inoperative sound enclosure fan	Thermal protection off	Close thermal protection
			Damaged sound enclosure fan	Repair and replace the sound enclosure fan
Spark Failure:	Chyba pálení	Spark failure	Damaged plugs	Replace the plugs
			High-voltage coil malfunction	Check or, if necessary, replace the high-voltage coil
			Erroneous ignition system	Replace the ignition
Wrn Manual Restore:	Var ManuálníObnova	With the parameter "RetFromIsland" = MANUAL, the situation in the older FW versions after the mains failure could be that the generator started, the controller changed the mode to MAN and the operator could switch the load into the mains. However, the load was without electrical energy when the mains dropped out and the generator failed. The situation is dealt with in such a way that, once the mains drops out and the machine set starts, the controller is left in AUT mode. Once the mains have recovered the normal values (enduring for the predefined time), the operator can press the MCB button to close MCB and supply the load into the mains. If the mains drops out and the generator later fails controller performs automatic transfer of the load into the mains. In case the mains return to the rated values after delayed restoration and if "RetFromIsland" = MANUAL the "Wrn Manual Restore" message will be in the Alarm List		
Wrn FailPumps&Fans:	Var PoruchaČerp&Ve	Failure of pumps or fans.	Thermal protection or any other protecting element is off	Close thermal protection
			Damaged pump or fan	Repair or replacement
Wrn Reduct Pwr:	Var Red Výkonu	Power control via RDS to 75(70) % or 50 % of the power. Limitation on part of the distribution network operator.		

3. Fault Conditions

English	Czech	Fault	Cause	Remedy
BIN 1-12: **ANA 1-10:** **BOUT 1-12:** **AOUT 1-4:**	BIN 1-12: ANA 1-10: BOUT 1-12: AOUT 1-4:	Active communication error with the analogue (binary) input (output) modules	Module is not supplied	Connect power supply
			Incorrect module addressing	Set the correct module address
			Erroneously set addressing jumper	Set the addressing jumper according to the module manual
			Reversed communication wires on CAN1	Check the L and H wires on CAN1 and their connection.
			Inoperative module	Replace the module
ECU:	ECU	Active communication error with ECU.	ECU is not supplied	Ensure power supply for ECU
			Incorrectly connected CAN1	Check the wires on CAN1 for correct connection
			Incorrectly connected port for CAN1 on ECU	Connect the port for CAN1 on ECU according to their manual
			Incorrectly connected terminating resistors	Connect the resistors according to the manual
SHBIN 1-4: **SHAIN 1-2:**	SHBIN 1-4: SHAIN 1-2:	Active communication error with SHBIN 1–4, SHAIN 1-2 modules	The SHBOUT (SHAOUT) module is not configured for certain CS of the installation	Configure SHBOUT or SHAOUT on relevant CS
			Power supply on CS with SHBOUT (SHAOUT) is off	Connect power supply
			Incorrectly wired CAN2 (L and H wires)	Connect the wires according to the Installations Guide document, the "Recommended CAN/RS485 connection" chapter
SHBinCfgErr:	ChKonfShBvst	Configuration error of the shared binary module	More SBOUT modules configured to one address	Change addresses of SBOUT modules in GenConfig on CS so that they cannot collide.
SHAinCfgErr:	ChKonfShAvst	Configuration error of the shared analogue module	More SHAOUT modules configured to one address	Change addresses of SHAOUT modules in GenConfig on CS so that they cannot collide.

English	Czech	Fault	Cause	Remedy
Wrong config:	ŠpatnáKonfig	Control system configuration error indication.	CS does not support certain PLC modules in the configuration	Send the information on Chip and Dongle ID and the downloaded archive to lukas.nechvatal@tedom.com
EarthFaultCurr:	ZemníProud	Earth Current Protection indication	Current leaking through the earth	Check generator for insulations
Gen V unbal:	NapNesymGener	Voltage unbalance on the generator	Burnt diodes in the generator	Replace the diodes
Gen I unbal:	ProudNesymGen	Current unbalance on the generator	Inoperative compensation in the generator	Replace the plate with compensation in the generator
			Unbalances supplies to the mains	Check the supply for balance
			Contact resistance in the power part	Check and tighten the contacts in the power part (contactors, circuit breakers, and connections)
Mains V unbal:	NesymNapSíťMez	Voltage unbalance in the mains	Different voltage in the mains phases	Check the mains for state
Mains I unbal:	ProudNesymSítě	Current unbalance in the mains	Different current in the mains phases	Check the mains for state
Emergency stop:	NouzZastavení	Emergency stop protection	Emergency stop button was pressed	Release the emergency stop button
			External emergency stop circuit opened.	Identify the reason for opening
			The circuit for emergency stop opened (Gas leakages, Smoke detection…)	Identify the reason for opening
Dongle incomp:	DongleNekomp	Indication of incompatible (hardware) key (dongle).	Missing dongle	Complete dongle by the application (MINT or AFR)
			Incorrect dongle	Replace dongle with the correct one
Bus V unbal:	NapNesymSběrn	Unbalanced voltage on the bus	Inoperative voltage regulators on generators	Check and, if necessary, replace the voltage regulators
			Burnt diodes in the generator	Replace the diodes
Sd stop fail:	HavStopChyStop	Engine stop error	Short time is set in Engine params: Stop time	Prolong this time
			The engine is still spinning even if commanded to stop and after expiration of the preset time. RPM > 0	Check measuring of relevant quantities and detect the cause in case the engine really failed to stop
			Oil pressure is higher than the oil pressure value at the start as well as after expiration of the preset time	

English	Czech	Fault	Cause	Remedy
			Generator frequency is higher than 0 after the stop command and after expiration of the preset time. Fgen > 0	
			Generator voltage is higher than 15V (all the phases) once the time since the stop command has expired	
Overspeed:	Přeběh	Speed too high - Overrun	The speed exceeded the limit for Engine protect: Overspeed.	Erroneously set speed: Engine protect: Overspeed.
				Generator's desynchronization from a high power
				Fault of the speed control
CAN2 bus empty:	Prázd CAN2Sběr	CS sees no other controller on the CAN2 bus	Comms settings:CAN2emptDetect = ENABLED	Change to DISABLED in the single applications
			Power supply of the other CS's disconnected	Connect power supply for the other CS's
			Incorrectly wired CAN2 line	Check and correctly connect the L and H wires for CAN2 bus
			Incorrect addresses of controllers	Check and set the correct CS addresses
Underspeed:	ZtrátaOtáček	Engine low speed protection	Speed lower than Engine params: Starting RPM	Check the starter for correct operation and power supply, check the starting system for correct operation or power supply and check the starting batteries for charged condition.
Sd BatteryFlat:	HavStop BaterV	The alarm is issued once the controller has been turned on after the attempt at start that caused a drop in the supply voltage and deactivation of the controller.	Battery with low capacity or nearly flat	Check, charge or, if necessary, replace the batteries
Mains Fail:	Porucha Sítě	Intervention of the external network protection that detected failure in the mains.	Opened circuit breaker	Close the circuit breaker
			Blown fuse in the fuse disconnector	Replace the fuse
BOC ShortCurr:	SOCHL zkrat	Short circuit protection.	Interconnected phases	Separate the phases

English	Czech	Fault	Cause	Remedy
			Phase-to-ground fault	Locate the fault and disconnect it.
			Faulted phase to zero	Locate the fault and disconnect it.
BOC Overload:	SOCHL přetíž	Overload protection	Machine set operating at higher power than the rated one (parallel operation)	Assure the machine set operates at its rated power as maximum
			Machine set operating at higher power than the rated one (island operation)	Reduce the load
AirFi+OverVolt:	VzdFi+PřepOchr	Air filter protection and overvoltage protections	Clogged air filter	Clean or, if necessary, replace the air filter
			Overvoltage protection closed	Check the mains voltage
Sd Pump P.C. Fail:	Hav ČerpPO Porucha	Primary circuit pump crash.	Thermal protection off	Close thermal protection
			Pump connection faulty or defective cabling	Check the pump wiring
			Faulty pump	Check the pump
Sd ECON4:	Hav ECON4	ECON4 ceased to operate or connection was interrupted.	Disconnected wire on the CAN bus	Replace the wire
			Reversed L and H wires	Connect the wires correctly
			Disconnected power supply	Connect power supply for ECON4
			Inoperative ECON4	Replace ECON4
Sd DifPress P.C.:	Hav Dif tlak P.O.1	Insufficient pressure difference in the primary circuit.	Disconnected contact wire	Check the cabling
			P.C. pump out of operation	Set the P.C. pump into operation
			Uncalibrated differential pressure sensor	Calibrate it
Sd Gas Escape 2°:	Hav Únik Plynu 2°	Gas leakage and emergency shutdown of machine set occurred.	Gas leakage in boiler room or sound enclosure	Shut off the main gas stop and check the gas route.
Sd Smoke Detect C / Sd Smoke Detects :	Hav Detekt Kouře C / Hav Detekt Kouře R	Smoke detector contact closed	Presence of smoke or fire was detected	Shut off the main gas stop and check the area of sound enclosure and switchboard.
BOC L1, L2, L3 under:	SOCHL L1,L2,L3 pod	Voltage L1, L2, L3 is below the level Gen <V BOC for longer period of time than Gen V del	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.

English	Czech	Fault	Cause	Remedy
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
BOC L1, L2, L3 over:	SOCHL L1,L2,L3 nad	Voltage L1, L2, L3 is above the level Gen >V BOC for longer period of time than Gen V del.	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
Sd L1, L2, L3 over:	HavStop L1,L2,L3 nad	Voltage L1, L2, L3 is above the level Gen >V SD for longer period of time than Gen V del.	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
BOC L12, L23, L31 under:	SOCHL L12,L23,L31 pod	Voltage L12, L23, L31 is below the level Gen <V BOC for longer period of time than Gen V del.	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
BOC L12, L23, L31 over:	SOCHL L12,L23,L31 nad	Voltage L12, L23, L31 is above the level Gen >V BOC for longer period of time than Gen V del.	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.

English	Czech	Fault	Cause	Remedy
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
Sd L12, L23, L31 over:	HavStop L12,L23,L31 nad	Voltage L12, L23, L31 is above the level Gen >V SD for longer period of time than Gen V del.	Interrupted wires to or from voltage regulator	Repair the wires
			Erroneously set IG-AVRi	Turn the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
			Damaged or faulty voltage regulator in the generator	Replace the regulator in the generator
BOC fgen under:	SOCHL Fg pod	Generator frequency is below the level Gener protect: Gen <f for longer period of time than Gen f del.	Damaged or faulty speed governor	Replace or repair the speed governor
			Incorrect parameters in Sync/Load ctrl	Set the correct parameters in Sync/Load ctrl
BOC fgen over:	SOCHL Fg nad	Generator frequency is above the level Gener protect:Gen >f for longer period of time than Gen f del.	Damaged or faulty speed governor	Replace or repair the speed governor
			Incorrect parameters in Sync/Load ctrl	Set the correct parameters in Sync/Load ctrl
BOC ReversePwr:	SOCHL ZpetnyP	CHP unit's reverse power.	Insufficient fuel level.	Check the fuel supply – sufficient gas pressure, sufficient gas flow.
			Malfunction of the air-fuel ratio control.	Check the air-fuel ratio control for correct function.
			Ignition malfunction.	Check the ignition for correct function.
Stp GCB fail:	StpChybaStGen	GCB error detected.	Feedback wire interrupted	Repair the connection for feedback
			Auxiliary contact is damaged	Replace the auxiliary contact
Sd Oil press B:	HavStopTlakOlB	Engine emergency stop activated by the Oil Pressure binary input.	Low oil pressure	Check the actual pressure against the reading, check the binary sensor, binary sensor wiring, check the actual engine speed, oil pump for correct operation and check the oil level in engine.
BOC IDMT:	SOCHL IDMT	Generator overcurrent protection	Machine set operating at higher power than the rated one (parallel operation)	Assure the machine set operates at its rated power as maximum

English	Czech	Fault	Cause	Remedy
			Machine set operating at higher power than the rated one (island operation)	Reduce the load
TEPOSTOP:	TEPOSTOP	The automatic fire stopping system was activated	Fire detected	Check the area of engine, sound enclosure and switchboard
Pickup fail:	Chyba Otáček	Speed sensor error indication Speed signal loss with the engine running.	Interrupted wires from the speed sensor	Check the wires to the speed sensor
			Faulty or detected speed sensor	Replace the sensor
			Speed sensor is too far from the flywheel	Set the distance of speed sensor to the specified value
Sd ServiceTime:	Hav servis	Machine set was shut down	The ServiceTimeSd timer has expired	Once servicing is done, set the parameter to value other than zero
Stp Reduct Pwr:	Stp Red Výkonu	Machine set stopped via RDS. Limitation on part of the distribution network operator		

4. History

English	Czech	Fault or information	Cause	Remedy
ROCOF:	ROCOF	If the df/dt (mains frequency) reading exceeds ROCOF df/dt (parameter in Mains protect), ROCOF protection is activated to open MCB. The ROCOF message is recorded in the history. The df/dt value is calculated and evaluated from the mains voltage.		Check the mains for measuring and status
Bus L1,L2,L3 under:	SběrL L1,L2,L3 pod	Voltage of L1, L2 or L3 bus is under the limit of Bus <V Hst for a period of Bus V del.	Inoperative voltage regulator of certain machine set in the installation	Check the voltage regulators in generators
			Erroneously set rated voltage on individual machine sets	Set the same rated voltage everywhere
			Inoperative IG-AVRi	Replace IG-AVRi
			Damaged or interrupted wires	Check the wires to the voltage regulators
			Erroneously set IG-AVRi	Set the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
Bus L1,L2,L3 over:	SběrL L1,L2,L3 nad	Voltage of L1, L2 or L3 bus is above the limit of Bus >V Hist for a period of Bus V del.	Inoperative voltage regulator of certain machine set in the installation	Check the voltage regulators in generators
			Erroneously set rated voltage on individual machine sets	Set the same rated voltage everywhere
			Inoperative IG-AVRi	Replace IG-AVRi
			Damaged or interrupted wires	Check the wires to the voltage regulators
			Erroneously set IG-AVRi	Set the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
Bus L12,L23,L31 under:	SběrL L12,L23,L31 pod		Inoperative voltage regulator of certain machine set in the installation	Check the voltage regulators in generators

English	Czech	Fault or information	Cause	Remedy
		Voltage of L12, L23 or L31 bus is under the limit of Bus <V Hst for a period of Bus V del.	Erroneously set rated voltage on individual machine sets	Set the same rated voltage everywhere
			Inoperative IG-AVRi	Replace IG-AVRi
			Damaged or interrupted wires	Check the wires to the voltage regulators
			Erroneously set IG-AVRi	Set the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
Bus L12,L23,L31 over:	SběrL L12,L23,L31 nad	Voltage of L1, L2 or L3 bus is above the limit of Bus >V Hist for a period of Bus V del.	Inoperative voltage regulator of certain machine set in the installation	Check the voltage regulators in generators
			Erroneously set rated voltage on individual machine sets	Set the same rated voltage everywhere
			Inoperative IG-AVRi	Replace IG-AVRi
			Damaged or interrupted wires	Check the wires to the voltage regulators
			Erroneously set IG-AVRi	Set the potentiometer to the correct position
			Erroneously set parameters in Volt/PF control	Set the correct parameters predominantly in AVR DCout BIAS.
fbus under:	FreqSběr pod	Bus frequency is under the limit of Bus <f for a period of Bus f del	Damaged or faulty speed governor	Replace or repair the speed governor
			Incorrect parameters in Sync/Load ctrl	Set the correct parameters in Sync/Load ctrl
fbus over:	FreqSběr nad	Bus frequency is above the limit of Bus >f for a period of Bus f del.	Damaged or faulty speed governor	Replace or repair the speed governor
			Incorrect parameters in Sync/Load ctrl	Set the correct parameters in Sync/Load ctrl
SyncStarted:	SpuštěníSynchr	Synchronization was commenced		
RevSyncStarted:	SpuštZpětSynch	Reverse synchronization was commenced		
Ready:	Připraven	The machine set is ready for operation		
Idle:	Volnoběh	Once the engine has been started the engine runs in idling mode for Idle time.		
Running:	Běží	The machine set is operating and it waits for GCB to close.		

English	Czech	Fault or information	Cause	Remedy
Warming:	Ohřívání	Once GCB closes in parallel to the mains, the power is reduced to the Engine params: Warming load value. Warming takes place until the engine reaches the temperature given by the Warming temp parameter or until the time given by the Max warming time parameter expires.		
Soft load:	PomaléZatížení	Gradual loading (increasing of power)		
Loaded:	Zatížen	Generator is loaded		
Soft unload:	Pomalé Odlehč	Removal of the load (reduction of power)		
Cooling:	Chlazení	Cooling before engine shutdown is in progress		
Not Ready:	StartBlok	The machine set is not ready for the start		
Incorrect password:	Nesprávné heslo	Record in the history is made if incorrect password is entered.		
AccessCodeSet:	PřístKódZadán	Access code was input		
AccessCodeChng:	PřístKódZměněn	Access code was changed		
Admin action:	AdminAkce	This information is recorded in history if user 0(administrator) made changes to the settings of users and their passwords.		
Terminal:	Terminál	Connection of external terminal		
BinaryUnstable:	BinNestabilní	Unstable binary input		
Force value:	VnucHodnota	Indication of active imposed value		
TimeModeChange:	ZměnaČasu	Indication of time mode change (summer/winter)		
GroupsLinked:	SkupinySpoj	Indication of the logical groups' interconnection. The GroupLink binary input closed. Parameters Pwr management: GroupLinkLeft and GroupLinkRight indicate which groups are interconnected.		
GroupsUnlinked:	SkupinyRozpoj	Indication of the logical groups' disconnection.		
Time stamp:	Časová Značka	Interval of regular recording of the time stamps into history. See the parameters Date/Time: Time stamp act and Time stamp per.		
Gen Peak start:	VyrovŠpič	Indication of the start of machine set based on the settings of the ProcessControl: PeakLevelStart, PeakLevelStop, PeakAutS/S del parameters.		
Gen Peak stop:	StopGener	Indication of the stop of machine set based on the settings of the ProcessControl: PeakLevelStart, PeakLevelStop, PeakAutS/S del parameters.		
Gen PMS start:	VykManagStart	Indication of the start of machine set based on the settings of the Pwr management parameters.		
Gen PMS stop:	StopGenPowMan	Indication of the stop of machine set based on the settings of the Pwr management parameters.		
Overload:	Přetížení-Mez	Indication of machine set overload. See the Gener protect: OverldStrtEval and 2POvrldStEvDel parameters.	Machine set operating at higher power than the rated one (parallel operation)	Assure the machine set operates at its rated power as maximum
			Machine set operating at higher power than the rated one (island operation)	Reduce the load
Gen Rem start:	VzdálStartGen	Indication of machine set start through the Rem start/stop binary input.		

English	Czech	Fault or information	Cause	Remedy
Gen MF start:	ZáskokStartGen	Indication of machine set start as a result of the automatic mains backup.		
Gen start:	Start gener	Indication of machine set start using the Start button.		
Gen stop:	Stop gener	Indication of machine set stop using the Stop button.		
Gen MF stop:	StopGenerMF	Indication of machine set stop after the automatic mains backup.		
Gen Rem stop:	VzdálStopGener	Indication of machine set stop through the Rem start/stop binary input.		
StopGener:	StopGener	Indication of the stop of machine set based on the settings of the ProcessControl: PeakLevelStart, PeakLevelStop, PeakAutS/S del parameters.		
Gen PMS stop:	StopGenPowMan	Indication of the stop of machine set based on the settings of the ProcessControl parameters.		
Load Shed:	RozdělZátěže	Indication of the automatic load dropping. See the Block Pwr. parameter setting.		
Load Reconect:	ZátěžPřipoj	Indication of load reconnection after its automatic dropping		
VectorShift:	Vektor skok	Indication of the vector jump protection. See the Mains protect: VectorS prot and VectorS limit parameters.		
Other CB trip:	Jiný CB trip	Tripping of another circuit breaker on the bus		
GCB opened:	StykG vypnut	GCB was opened		
GCB closed:	StykG sepnut	GCB was closed		
MCB opened:	StykS vypnut	MCB was opened		
MCB open ext:	StykS sep ext	MCB was opened externally		
MCB closed:	StykS sepnut	MCB was closed		
MGCB opened:	MGCB vypnut	MGCB was opened		
MGCB closed:	MGCB sepnut	MGCB was closed		
Password set:	HesloZadáno	Controller's password was input		
PasswChanged:	HesloZměněno	Controller's password was changed		
ActCallCH1-OK,CH2-OK, CH3-OK:	AKtVoláCH1-OK, CH2OK, CH3-OK	Indication of successful active call 1-3		
Switched On:	SystemZapnut	Controller was switched on		
SetpointChange:	ZměnaParam	Certain parameters were altered		
System Log:	Zápis systému	Only information recorded into the history (not error).		
Fault reset:	Kvitace	Indication of alarm acknowledgment (using the Fault reset button, binary input, by way of communication)		
MPR ImainsIDMT:	MPR IsíťIDMT	Mains overcurrent		
MPR PmainsIDMT:	MPR PsíťIDMT	Mains overloading		
MP L1 , L2, L3 under:	OchSíť L1,L2,L3 pod	Mains undervoltage	Check the mains for measuring and status.	

English	Czech	Fault or information	Cause	Remedy
MP L1 , L2, L3 over:	OchSíť L1,L2,L3 nad	Mains overvoltage	Check the mains for measuring and status.	
MP L12 , L23, L31 under:	OchSíť L12,L23,L31 pod	Mains undervoltage	Check the mains for measuring and status.	
MP L12 , L23, L31 over:	OchSíť L12,L23,L31 nad	Mains overvoltage	Check the mains for measuring and status.	
MP fmns under:	OchS fsíť pod	Mains under frequency	Check the mains for measuring and status.	
MP fmns over:	OchS fsíť nad	Mains over frequency	Check the mains for measuring and status.	
hist PLC 1-4:	hist PLC 1-4:	Activity of the Force History block 1-4 in the internal PLC	The conditions to record the history line from PLC were met	You will find the history line record conditions either in PLC Monitor or in PLC editor.
System Error:	Chyba systému	System error occurred:	Communication error with the display	Check the power supply
				Check the CAN line for wiring
			Programming error	Repeat programming
				Reload firmware and repeat programming
			Configuration error	Adapt configuration to be functional
				Send the configuration for review to Mr. Nechvátal (lukas.nechvatal@tedom.com)
			Parameter error	Open Setpoints in IM, the erroneous parameters are backlit in yellow. Modify them.
Watchdog:	Hlídač	Indication of the controller restart by inner watchdog.		Send the archive to Mr. Nechvátal (lukas.nechvatal@tedom.com)

5. Bosch Messages

English	Czech	Fault or information	Cause	Remedy
Sd Bosch EGC:		There is no connection with the Bosch MM unit. Check to see if the unit is powered and the communication is functioning	Inoperative power supply	Check and, if necessary, connect the power supply
			Inoperative communication via CAN1	Check Bosch for its connection to the terminal boxes for CAN1 and check to see if the L and H wires are reversed
Sd CAN CommError:		Error occurred in the communication with the BOSCH unit	Data communication error	Disconnect and reconnect the Bosch power supply
Wrn EngineTemp:		Increased engine temperature	The engine temperature sensor gives incorrect readings	Check the analogue sensor for function, if necessary, replace. Check the analogue sensor cabling, if necessary, replace.
			Primary circuit temperature control malfunction.	Check the SC's three-way valve control for correct function.
			Insufficient heat off-take from CHP unit.	Check the primary and secondary circuit pump for operation. Check the secondary circuit's temperature gradient. Check the emergency circuit for function
Sd EngineTemp:		High engine temperature	The engine temperature sensor gives incorrect readings	Check the analogue sensor for function, if necessary, replace. Check the analogue sensor cabling, if necessary, replace.
			Primary circuit temperature control malfunction.	Check the SC's three-way valve control for correct function.
			Insufficient heat off-take from CHP unit.	Check the primary and secondary circuit pump for operation. Check the secondary circuit's temperature gradient. Check the emergency circuit for function

English	Czech	Fault or information	Cause	Remedy
Sd EngOverspeed:		Engine speed too high	Engine speed evaluation malfunction.	Faulty engine speed sensor, check the speed sensor wiring, replace the speed sensor.
			Speed control malfunction.	Check the speed sensor plate for cabling, if necessary, replace. Check the speed sensor plate, if necessary, replace.
			Generator's desynchronization at the high engine power	Check history and locate the cause
EngTempSensErr:		Engine temperature sensor failed	Interrupted or damaged cable	Replace the cable
			Oxidized contacts	Clean the contacts
			Damaged sensor	Replace the sensor
Sd GasActuatorErr:		Air-fuel ratio valve error	Feedback from throttle valve is missing	Check the throttle valve feedback wire
			Damaged throttle valve	Replace the throttle valve
Sd Stop fail:		Machine set failed to stop in the defined time. See PickupFail		
Wrn IgnitionSystem:		Ignition system error	Faulty ignition coils and spark plugs	Check the coils and plugs, check the spark
			Error in the Bosch control unit	Reset the Bosch control unit, replace the Bosch control unit
IgnitCoil 1-6 Err:		Ignition coil error	Faulty ignition coil	Check the condition and spark, replace the coil
			Faulty spark plug	Replace the plug
Start failed:		It gives information on a failed start		
KnockCtrlLimit:		It gives information that the knock limit was exceeded		
Knocking Sens:		It detects knocking	Engine knocking	Detailed inspection of the engine is necessary. Check the engine air-fuel ratio control
			Faulty evaluation of knocking	Check the knocking sensor and cabling, if necessary, replace
Sd MM faliure:		MM error, Bosch Motor Management announced error.	Further errors from Bosch detected	Rectify the faults that cause the error messages and reset Bosch MM
Sd Lambda Sensor:		Lambda probe error	Damaged or interrupted cable	Replace the cable (Lambda probe)

English	Czech	Fault or information	Cause	Remedy
			Faulty Lambda probe	Replace the Lambda probe
Sd Low Press P.C.:		Too low a pressure detected in the primary circuit	Shortage of cooling medium in P. C.	Replenish the cooling medium
			Leaky primary circuit => leakage of the cooling medium	Check the primary circuit for tightness, check the expansion vessel for function and tightness, if necessary, replace
			Interrupted or damaged cable	Replace the cable
			Faulty minimum pressure sensor	Replace the sensor
Sd OilPSensErrMon:		Oil pressure sensor error (monitoring)	Damaged or interrupted cable	Replace the cable
			Faulty sensor	Replace the sensor
Sd OilPSensErrPrt:		Oil pressure sensor error (switch)	Damaged or interrupted cable	Replace the cable
			Faulty sensor	Replace the sensor
Sd OilTSensErrMon:		Oil temperature sensor error (monitoring)	Damaged or interrupted cable	Replace the cable
			Faulty sensor	Replace the sensor
Wrn OilPMonit:		Increased oil pressure	The oil pressure sensor gives incorrect reading	Check the analogue sensor for function, if necessary, replace. Check the analogue sensor cabling, if necessary, replace.
			Oil pressure reducing valve on the oil pump fails to reduce the oil pressure	Check the pressure reducing valve, repair, if necessary, replace
Sd OilPMonit:		High oil pressure	The oil pressure sensor gives incorrect reading	Check the analogue sensor for function, if necessary, replace. Check the analogue sensor cabling, if necessary, replace.
			Oil pressure reducing valve on the oil pump fails to reduce the oil pressure	Check the pressure reducing valve, repair, if necessary, replace
Wrn PwrLimitActive:		Active power limitation by the BOSCH unit	It limits because knocking was detected	Detailed inspection of the engine is necessary Check the engine air-fuel ratio control
			It limits because of high temperatures in the exhaust pipe	Check the engine air-fuel ratio control

English	Czech	Fault or information	Cause	Remedy
Sd PwrLimitFailed:		Power limitation by the BOSCH unit failed	If the engine operation fails to improve after the intervention of Wrn PwrLimitActive function, the engine will stop	Locate the cause for the intervention of Wrn PwrLimitActive function
Sd ThrottleVlvErr:		Throttle valve error	Feedback from throttle valve is missing	Check the throttle valve feedback wire
			Damaged throttle valve	Replace the throttle valve
Sd ThrottVlvEmerg:		Throttle valve in the emergency position	Result of the emergency stop for different error	Rectify the error and press the Fault Reset button on the controller
BoschParamFail:		Attempt at parameter input that is not present in the Bosch Motor Management as yet. Automatic acknowledgment take place when it is displayed.		
Wrn BOSCH CollectorT:		Increased filling mixture temperature downstream the intercooler.	The engine's filling mixture is not sufficiently cooled down.	Check the technological circuit's cooler for function. Check the technological circuit's pump for function.
			The filling mixture temperature sensor gives incorrect reading.	Check the analogue sensor cabling, if necessary, replace. Check the analogue sensor for function, if necessary, replace.
Stp BOSCH CollectorT:		High filling mixture temperature downstream the intercooler. Relief takes place.	The engine's filling mixture is not sufficiently cooled down.	Check the technological circuit's cooler for function. Check the technological circuit's pump for function.
			The filling mixture temperature sensor gives incorrect reading.	Check the analogue sensor cabling, if necessary, replace. Check the analogue sensor for function, if necessary, replace.
BOSCH CollectPresErr:		It gives information on the fact that the filling mixture pressure cannot be measured.	Damaged or interrupted cable	Replace the cable
			Damaged sensor	Replace the sensor
BOSCH ECUInternalErr:		Message informing on the fact that internal error took place in the BOSCH unit.	Internal error of the BOSCH unit - it may happen that CS will not start	Replace the BOSCH CS

6. Bosch – Fault Bits

Group	Bit position	Error description
Fault Bits 1	0	
	1	
	2	Lambda sensor
	3	Knock sensing
	4	Knock control at limit
	5	ECU pressure sensor
	6	
	7	Intake collector pressure sensor
	8	Engine temperature sensor
	9	Oil pressure sensor error (switch)
	10	Oil pressure sensor error (monitoring)
	11	Oil temperature sensor (monitoring)
	12	Power Limitation active
	13	Power Limitation failed
	14	Throttle valve in emergency position
	15	
Fault Bits 2	0	CAN communication error
	1	Engine over speed
	2	Start failed
	3	Gas actuator error
	4	Throttle valve error
	5	
	6	Ignition system
	7	Ignition coil 1 error
	8	Ignition coil 2 error
	9	Ignition coil 3 error
	10	Ignition coil 4 error
	11	Ignition coil 5 error
	12	Ignition coil 6 error

Group	Bit position	Error description
	13	
	14	
	15	
Fault Bits 3	0	Exhaust gas temperature sensor error (critical)
	1	Exhaust gas temperature sensor error (critical)
	2	Exhaust gas temperature sensor error (critical)
	3	Exhaust gas temperature sensor error (critical)
	4	Exhaust gas temperature sensor error (critical)
	5	Exhaust gas temperature sensor error (critical)
	6	Exhaust gas temperature sensor error
	7	Exhaust gas temperature sensor error
	8	Exhaust gas temperature sensor error
	9	Exhaust gas temperature sensor error
	10	Exhaust gas temperature sensor error
	11	Exhaust gas temperature sensor error
	12	Exhaust gas temperature sensor error (low temp)
	13	
	14	Engine shut off requested via CAN
	15	ECU internal error