Message clas	ss Id	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Warning	25	GXXmsg.mc	Gradient Power Amplifier warning: Internal error (synchronization fault/service mode). Reboot Scanner. If the problem still persists, please call Siemens Service	The GPA is in service mode. The GPA is not synchronized with the system clock.	 1.a) Check gradient data cable. 1.b) Check switch positions on D40 / S2-18 = off on off off on on off off, see jumper list. 1.c) Check D10. 1.d) Check D40. 2.) Check for monitoring error. 	None.
Error	26	GXXmsg.mc	Gradient Power Amplifier error: Hardware error (GSSU power supply). Please call Siemens Service	The GSSU power supply unit is defective. All 3 driver voltages of the power stages are out of tolerance	 1.a) Check fuse F2 in GPA 1.b) Measure and adjust the output voltage at the output of slot 1 of the power supply (17.5V). 1.c) Check cable connection between E4A and X1/D110 and the power stages X2/D21; E4A to T11 2.) Check for monitoring error. 	None.
Error	27	GXXmsg.mc	Gradient Power Amplifier error: The modulator of the GPA made a wrong controlling signal. Please call Siemens Service	The modulator of the GPA made a wrong controlling signal, danger for the power stages.	Replace defective D40. Check jumper settings of a newly replaced D40. In rare cases a power stage or a cable from a power stage to the D40 may be defective. Check for monitoring error.	None.
Error	28	GXXmsg.mc	Gradient Power Amplifier error: Hardware error (cable pull protection). Please call Siemens Service.	Some cable connections between modulator and power stages are missing or defective.	1.a) Check cables/connectors between modulator and power stages. X5, X4, X3/D40 to X1/D21 of respective E6 (SCSI cable)	None.
Error	29	GXXmsg.mc	Gradient Power Amplifier error: Temperature of the gradient coil is too high. Check sequence parameter, retry in 10 minutes. If the problem still persists, please call Siemens Service	The gradient coil temperature is too high.	 1.a) Wait (approx. 10 min.) for cooling down of the gradient coil and try again. Reduce the thermal load of the coil by appropriate measurement conditions. 1.b) Check the cooling system. 2.a) Check the signal lines between the gradient coil NTC's, X2 and the patient table electronics, A4120 SUPF/X50 (refer to wiring diagrams). Measure and compare the NTC resistances.2.b) If temperature of gradient coil is ok, check output A4120 SUPF/U9; if light is of, replace A4120SUPF. 2.c) Check FOC from the patient table electronics A4120 SUPF/U9 to U1/D70 (light off = error). Look for kinks and dents. 2.d) Remove the FOC from U1/D70, let a strong pocket flashlight shine into U1 and press S1 of D70 (power on). If now while the pocket flashlight still is on the error is removed, then the GPA is o.k. 	None.
Warning	30	GXXmsg.mc	Gradient Power Amplifier warning: Temperature of air too high. The system keeps working, but wait approximately 10 minutes before you start the next sequence. If the problem still persists, please call Siemens Service	The temperature of the GPA is too high.	Check the ACS cooling system. Check for monitoring error, temperature is measured of D70 in the GSSU.	None.
Error	31	GXXmsg.mc	Gradient Power Amplifier error: Temperature of air too high. Check sequence parameter, reboot Scanner. If the problem still persists, please call Siemens Service	The temperature of the GPA is too high.	Check the ACS cooling system. Check for monitoring error, temperature is measured of D70 in the GSSU.	None.

Message clas	s Id_	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Error	32	GXXmsg.mc	Gradient Power Amplifier error: Temperature of main power supply is too high. Retry after 10 minutes. If the problem still persists, please call Siemens Service	The main supply transformer T1 is in overtemperature condition. Please check the cabinet cooling system (ACS and fans).	1.a) Check sequence parameters and measurement conditions.1.b) Check the ACS cooling system and the fans inside the GPA cabinet.2.) Check for monitoring errors (defective temperature sensors of the transformer, D110, cable D110 to D70, D70) connections);	None.
Error	33	GXXmsg.mc	Gradient Power Amplifier error: No reaction of modulator. Retry, reboot Scanner. If the problem still persists, please call Siemens Service	The modulators cannot be switched into the o	 d 1.a) Check modulator switches on D70 ('ON' position). 1.b) If they are in the 'ON' position, check LED status on D40; get rid of all errors, which could disable the modulator. 1.c) Run TestTools/ AMC/ PCI-TX and Gradient/GPA Comm/Status. 1.d) Check D40. 1.e) Check D70 and/or D60. 	None.
Warning	88	GXXmsg.mc	Gradient Power Amplifier warning: Init state not reached. Regulator, Grad Curr and Slewrate values are missing (in service mode). Reboot Scanner. If the problem still persists, please call Siemens Service.	The GPA needs from the AMC the correct specific values for gradient current, slewrate and regulator settings for going to Power ON	Check CAN-connection, do Regulator Adjustment.	None.
Error	34	GXXmsg.mc	Gradient Power Amplifier error: Init state not reached. Regulator, Grad Curr and Slewrate values are missing. Restart Scanner If the problem still persists, please call Siemens Service.	The GPA needs from the AMC the correct specific values for gradient current, slewrate and regulator settings for going to Power ON		None.
Error	35	GXXmsg.mc	Gradient Power Amplifier error: The Gradient Power Amplifier has detected an oscillation. Please check the sequence parameters an start the sequence again. If the problem still persists, please call Siemens Service.	The GPA detected an oscillation of at least one Gradient axis.	To locate the axis disable each time the other 2 modulators (switch D70, or CAN command). Service mode extends the investigation time. Possible reasons for this error: - Wrong regulator setting, do regulator adjust - The customer made his own sequence, the sequence does not work as it should. - Defective gradient data generation, defective gradient data cable, defective DAC board, - do the DAC loop test. - Short circuit of the gradient coil. - Any defect within the regulation loop	None.
Error	36	GXXmsg.mc	Gradient Power Amplifier error: Internal error (invalid message code)/spare 2. Please call Siemens Service.	This message code is currently not used.	Replace D70, D40, D60.	None.
Error	37	GXXmsg.mc	Gradient Power Amplifier error: Power Stage defect. Please call Siemens Service.	The Power Pack D110 doesn't switch on because Power Stage is shorten.	Change the defective Power Stage E6	None.
Error	38	GXXmsg.mc	Gradient Power Amplifier error: Fan Error. Please call Siemens Service.	One of the GPA internal fans doesn't work.	Wait for cool down; check the air condition system. Replace defective Fan assembly. Check for monitoring error (D110 - D70 - D40).	None.

Message clas	ss Id_	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Error	39	GXXmsg.mc	Gradient Power Amplifier error: Regulation error on X-axis. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The Regulation error on X-Axis too big (Gradient pulse edge too steep) or the regulation loop is open (e.g. no coil connected, modulator disabled) or instable mains or low input voltage.	 1.a) Look for other GPA error messages. 1.b) Check sequence parameters (Gradient pulse edge too steep, if other than SIEMENS released sequences are used). 1.c) Run TestTools/AMC test and Gradient test for DAC. Check gradient data cable and connectors. Check waveforms with the gradient loop or with a scope. 1.d) Check the continuity of the load circuit. Check for loose cable connections. 1.e) Perform Regulator adjust/check. Check for other error messages. 1.f) Perform QA/Grad. Rise Time Check. 1.g) Check the fifteen 3-phase circuit breakers between outputs of T1 and the inputs of D100. 1.h) Measure the output voltage of the main power supply at connected plug X31/X32 at power stage. X31(1-4, 7-10), X31(13)-X32(1), X32(4-7), X32(10-13): 80 VDC < U < 450 VDC; all five voltages should be approximately the same. 1.i) Check current sensor and/or the connection between D22 and current sensors. Measure the current actual value at D22, X11 with scope -> No overshoots after the pulse ramps. 1.k) Measure the regulator output signal at D22/X61 with scope -> Voltage pulse < 10V. 1.l) Swap/Replace power stage. 	None.
Warning	40	GXXmsg.mc	Gradient Power Amplifier warning: Regulation error on X-axis (in service mode). Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The Regulation error on X-Axis too big (Gradient pulse edge too steep) or the regulation loop is open (e.g. no coil connected, modulator disabled) or instable mains or low input voltage.	 1.a) Look for other GPA error messages 1.b) Check sequence parameters (Gradient pulse edge too steep, if other than SIEMENS released sequences are used). 1.c) Run TestTools/ AMC test, run Gradient test for DAC. Check gradient data cable and connectors. Check waveforms with the gradient loop or with a scope. 1.d) Check the continuity of the load circuit. Check for loose cable connections. 1.e) Perform Regulator adjust/check. Check for other error messages. 1.f) Perform QA/Grad. Rise Time Check. 1.g) Check the fifteen 3-phase circuit breakers between outputs of T1 and the inputs of D100. 1.h) Measure the output voltage of the main power supply at connected plug X31/X32 at power stage. X31(1-4, 7-10), X31(13)-X32(1), X32(4-7), X32(10-13): 80 VDC < U < 450 VDC; all five voltages should be approximately the same. 1.i) Check current sensor and/or the connection between D22 and current sensors. Measure the current actual value at D22, X11 with scope -> No overshoots after the pulse ramps. 1.k) Measure the regulator output signal at D22/X61 with scope -> Voltage pulse < 10V. 1.l) Swap/Replace power stage. 	None.

Message class	s Id_	Source	Message Text	Explanation	Action	Information
S/I/W/E Error	41	GXXmsg.mc	Gradient Power Amplifier error: Internal control error (current value error on X-axis). Please call Siemens Service.	The measured value of the actual gradient current on X-axis is not plausible.	for continuity and shorts. 1.b) Check the gradient coil circuit and gradient filter assembly for ground shorts and sparks. 1.c) Replace D22. 1.d) Check the cable connections. 1.e) Measure the sensor signals at D22, X11 for X-axis. 1.f) Replace defective pair of current sensors (LA305S_SP1 and 867-700SM) (SENS). 2.) Check for monitoring error.	None.
Error	42	GXXmsg.mc	Gradient Power Amplifier error: Overcurrent on X-axis. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The actual current on X-axis exceeds the limit (calculation on D22).	1.a) Check the sequence parameters (Gradient pulse edge too steep, if other than SIEMENS released sequences are used). 1.b) Run AMC test. Check gradient data cable. Run Gradient test for DAC. 1.c) Measure the resistance of the load circuit, short if only a few mOhm, measure the line voltage. 1.d) Run the Regulator Adjust/Check. Replace defective D22. 1.e) Replace defective danfysik current sensor 867-700SM. 2.) Check for monitoring error.	None.
Error	43	GXXmsg.mc	Gradient Power Amplifier error: Current duty cycle for power stage X too high. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The duty cycle for X of the actual current is too high.	1.a) Check the sequence parameters. Check the system by running a high duty cycle sequence. 1.b) Run AMC test. Check gradient data cable. Run gradient test for DAC. 1.c) Run Regulator Adjust/Check. Replace defective D22. 2.) Check for monitoring error.	None.
Error	44	GXXmsg.mc	Gradient Power Amplifier error: Controlling frequency error, power stage X. Reboot Scanner. If the problem still persists, please call Siemens Service	The frequency of the control signals for the power stage X is not ok.	, ,	None.
Error	45	GXXmsg.mc	Gradient Power Amplifier error: Temperature of power stage X too high. Retry after 10 minutes. If the problem still persists, please call Siemens Service	The X power stage transistors are too hot.	1.a) Check the sequence parameters. Run an approved high duty cycle sequence. 1.b) Check the cooling system. 1.c) Check the cables between power stages and D40. 1.d) Replace defective D40 and/or power stage. 2.) Check for monitoring error.	None.

Message clas	ss Id_	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Error	46	GXXmsg.mc	Gradient Power Amplifier error: Overvoltage on Power stage X. Retry, reboot Scanner. If the problem still persists, please call Siemens Service.	Line overvoltage or negative feeding for the power stage X by the load circuit.	 1.a) Check line voltage. If necessary, set transformer according to the line voltage (especially if errors occur during start up). 1.b) Measure the output voltage of the main power supply at connected plug X31/X32 at power stage. X31(1-4, 7-10), X31(13)-X32(1), X32(4-7), X32(10-13) with enabled/disabled modulator: 80 VDC < U < 450 VDC; all five voltages should be approximately the same. If voltage not ok with disabled modulator -> Failure of mains voltage, transformer T1, supervision D100, cabling. If voltage not ok with enabled modulator -> Failure of D40, cabling D40 to power stage, power stage. 1.c) Replace defective D100. Check cabling X1/D100 to X8/D110 and X1/D110 to X3/D70, D70. 1.d) Replace defective power stage. 1.e) Check cable connection between modulator D40 and power stage. 1.f) Replace defective D40. 	None.
Warning	47	GXXmsg.mc	Gradient Power Amplifier warning: Under voltage of power stage X. Check sequence parameter, retry. If the problem still persists, please call Siemens Service.	Occurence of under voltage for X-axis was detected.	Check 100A curcuit breaker. Check secondary side automatic circuit breaker. Check the rectifier D100. Check jumper setting of D40. Signal flow: D100 - D110 - D70 - D40	none
Error	48	GXXmsg.mc	Gradient Power Amplifier error: Under voltage of power stage X. Check sequence parameter, retry. If the problem still persists, please call Siemens Service.	Occurence of under voltage for X-axis was detected.	Check 100A curcuit breaker. Check secondary side automatic circuit breaker. Check the rectifier D100. Signal flow: D100 - D110 - D70 - D40	none
Error	49	GXXmsg.mc	Gradient Power Amplifier error: Driver power supply X defect. Please call Siemens Service.	The driver power supply for X power stage is defective.	1.a) Check the cable connections between GSSU power supply E4, D110 and power stage. Measure GSSU power supply E4 Slot 1: 17.5V. 1.b) Check the green LED's on D21/power stage; replace defective power stage. 2.) Check for monitoring error (D40).	None.
Error	50	GXXmsg.mc	Gradient Power Amplifier error: Current duty cycle error (Ohm power loss X). Please call Siemens Service.	Ohm power loss in X-axis.	1.a) Decrease the rating of the system by gradient pulses. 1.b) Check for high shim offset currents of the GPA, sequence parameters. 2.) Check for monitoring error (D22).	None.
Error	51	GXXmsg.mc	Gradient Power Amplifier error: Rectifier temp of X too high. Check sequence parameter, retry. Please call Siemens Service	D100 is too high.	1.a) Check the ACS cooling system, check water hoses to D100. 1.b) Check flat cable between D110 and D100. Replace defective rectifier board D100; for further checks refer to TSG of GPA. 2.) Check for monitoring error.	None.
Error	52	GXXmsg.mc	Gradient Power Amplifier error: Inductor temp of X too high. Check sequence parameter, retry. Please call Siemens Service	The regulator is oscillating or the fan doesn't run.	Check for Fan Error.	
Error	53	GXXmsg.mc	Gradient Power Amplifier error: Power stage cable X defect. Please call Siemens Service	The cable between D40 and power stage is defect or pulled out.	Check connection between D40 (Modulator) and X-power stage E6. Check jumper setting of D40.	

Message class	ld	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Error	54	GXXmsg.mc	Gradient Power Amplifier error: The measurement of the power stage voltage X was interrupted. Check whether the line voltage was out of tolerance, check the sequence for extreme power demand for the GPA, restart. If the problem still persists, please call Siemens Service.	There was no voltage feed back signal from the X power stage to the modulator for at least 1 second. Possible reasons: Power stage voltage >450V or <250V during at least 1 second	Investigate line voltage errors, broken fuses, extreme power conditions for the GPA. Replace defective D40, cable from power stage X to D40, power stage X, cable from power stage X to D100, D100	None.
Error	55	GXXmsg.mc	Gradient Power Amplifier error: Regulation error on Y-axis. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The Regulation error on Y-Axis too big (Gradient pulse edge too steep) or the regulation loop is open (e.g. no coil connected, modulator disabled) or instable mains or low input voltage.	 1.a) Look for other GPA error messages 1.b) Check sequence parameters (Gradient pulse edge too steep, if other than SIEMENS released sequences are used). 1.c) Run TestTools/AMC test, run Gradient test for DAC. Check gradient data cable and connectors. Check waveforms with the gradient loop or with a scope. 1.d) Check the continuity of the load circuit. Check for loose cable connections. 1.e) Perform Regulator adjust/check. Check for other error messages. 1.f) Perform QA/Grad. Rise Time Check. 1.g) Check the fifteen 3-phase circuit breakers between outputs of T1 and the inputs of D100. 1.h) Measure the output voltage of the main power supply at connected plug X31/X32 at power stage. X31(1-4, 7-10), X31(13)-X32(1), X32(4-7), X32(10-13): 80 VDC < U < 450 VDC; all five voltages should be approximately the same. 1.i) Check current sensor and/or the connection between D22 and current sensors. Measure the current actual value at D22, X12 with scope -> No overshoots after the pulse ramps. 1.k) Measure the regulator output signal at D22/X71 with scope -> Voltage pulse < 10V. 1.l) Swap/Replace power stage. 	None.

Message clas	d ld_	Source	Message Text	Explanation	Action	Information
S/I/W/E Warning	56	GXXmsg.mc	Gradient Power Amplifier warning: Regulation error on Y-axis (in service mode). Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The GPA is in service mode. The Regulation error on Y-Axis too big (Gradient pulse edge too steep) or the regulation loop is open (e.g. no coil connected, modulator disabled) or instable mains or low input voltage.	1.b) Check sequence parameters (Gradient pulse edge too steep, if other	None.
Error	57	GXXmsg.mc	Gradient Power Amplifier error: Internal control error (current value error on Y-axis). Please call Siemens Service.	The measured value of the actual gradient current on Y-axis is not plausible.	 Swap/Replace power stage. Check supply/signal line from SENS to D22/X10 for continuity and shorts. Check the gradient coil circuit and gradient filter assembly for ground shorts and sparks. Replace D22. Check the cable connections. Measure the sensor signals at D22, X12 for Y-axis. Replace defective pair of current sensors (LA305S_SP1 and 867-700SM) (SENS). Check for monitoring error. 	None.
Error	58	GXXmsg.mc	Gradient Power Amplifier error: Overcurrent on Y-axis. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The actual current on Y-axis exceeds the limit (calculation on D22).	1.a) Check the sequence parameters (Gradient pulse edge too steep, if other than SIEMENS released sequences are used). 1.b) Run AMC test. Check gradient data cable. Run Gradient test for DAC. 1.c) Measure the resistance of the load circuit, short if only a few mOhm, measure the line voltage. 1.d) Run the Regulator Adjust/Check. Replace defective D22. 1.e) Replace defective danfysik current sensor 867-700SM. 2.) Check for monitoring error.	None.
Error	59	GXXmsg.mc	Gradient Power Amplifier error: Current duty cycle for power stage Y too high. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	The duty cycle for Y of the actual current is too high.	1.a) Check the sequence parameters. Check the system by running a high duty cycle sequence. 1.b) Run AMC test. Check gradient data cable. Run gradient test for DAC. 1.c) Run Regulator Adjust/Check. 2.) Check for monitoring error.	None.
Error	60	GXXmsg.mc	Gradient Power Amplifier error: Controlling frequency error, power stage Y Reboot Scanner. If the problem still persists, please call Siemens Service	The frequency of the control signals for the .power stage Y is not ok.	Reboot Scanner. (Reloading of regulator parameters). Perform TestTools/AMC. Perform the DAC loop test. Perform Regulator Adjust. Check for monitoring error.	None.

Message clas	ss Id_	Source	Message Text	Explanation	Action	Information
S/I/W/E						
Error	61	GXXmsg.mc	Gradient Power Amplifier error: Temperature of power stage Y too high. Retry after 10 minutes. If the problem still persists, please call Siemens Service	The Y power stage transistors are too hot.	 1.a) Check the sequence parameters. Run an approved high duty cycle sequence. 1.b) Check the cooling system. 1.c) Check the cables between power stages and D40. 1.d) Replace defective D40 and/or power stage. 2.) Check for monitoring error. 	None.
Error	62	GXXmsg.mc	Gradient Power Amplifier error: Overvoltage on Power stage Y. Retry, reboot Scanner. If the problem still persists, please call Siemens Service.	Line overvoltage or negative feeding for the power stage Y by the load circuit.	 1.a) Check line voltage. If necessary, set transformer according to the line voltage (especially if errors occur during start up). 1.b) Measure the output voltage of the main power supply at connected plug X31/X32 at power stage. X31(1-4, 7-10), X31(13)-X32(1), X32(4-7), X32(10-13) with enabled/disabled modulator: 80 VDC < U < 450 VDC; all five voltages should be approximately the same. If voltage not ok with disabled modulator -> Failure of mains voltage, transformer T1, supervision D100, cabling. If voltage not ok with enabled modulator -> Failure of D40, cabling D40 to power stage, power stage. 1.c) Replace defective D100. Check cabling X1/D100 to X8/D110 and X1/D110 to X3/D70, D70. 1.d) Replace defective power stage. 1.e) Check cable connection between modulator D40 and power stage. 1.f) Replace defective D40. 	None.
Warning	63	GXXmsg.mc	Gradient Power Amplifier warning: Under voltage of power stage Y. Check sequence parameter, retry. If the problem still persists, please call Siemens Service.	Occurence of under voltage for Y-axis was detected.	Check 100A curcuit breaker. Check secondary side automatic circuit breaker. Check the rectifier D100. Check jumper setting of D40. Signal flow: D100 - D110 - D70 - D40	none
Error	64	GXXmsg.mc	Gradient Power Amplifier error: Under voltage of power stage Y. Check sequence parameter, retry. If the problem still persists, please call Siemens Service	Occurence of under voltage for Y-axis was detected.	Check 100A curcuit breaker. Check secondary side automatic circuit breaker. Check the rectifier D100. Signal flow: D100 - D110 - D70 - D40	none
Error	65	GXXmsg.mc	Gradient Power Amplifier error: Driver power supply Y defect. Please call Siemens Service.	The driver power supply for Y power stage is defective.	1.a) Check the cable connections between GSSU power supply, D110 and power stage. Measure GSSU power supply E4 Slot 1: 17.5V. 1.b) Check the green LED's on D21/power stage; 2.) Check for monitoring error (D40).	None.
Error	67	GXXmsg.mc	Gradient Power Amplifier error: Rectifier temp of Y too high. Check sequence parameter, retry. Please call Siemens Service	The temperature of the rectifier assembly on D100 is too high.	1.a) Check the ACS cooling system, check water hoses to D100. 1.b) Check flat cable between D110 and D100. Replace defective rectifier board D100; for further checks refer to TSG of GPA. 2.) Check for monitoring error.	None.
Error	66	GXXmsg.mc	Gradient Power Amplifier error: Current duty cycle error (Ohm power loss Y). Please call Siemens Service.	Ohm power loss in Y-axis.	1.a) Decrease the rating of the system by gradient pulses. 1.b) Check for high shim offset currents of the GPA, sequence parameters. 2.) Check for monitoring error (D22).	None.
Error	68	GXXmsg.mc	Gradient Power Amplifier error: Inductor temp of Y too high. Check sequence parameter, retry. Please call Siemens Service	The regulator is oscillating or the fan doesn't run.		
Error	69	GXXmsg.mc	Gradient Power Amplifier error: Power stage cable Y defect Please call Siemens Service	The cable between D40 and power stage is defect or pulled out.	Check connection between D40 (Modulator) and Y-power stage E6 Check jumper setting of D40.	

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