Trouble shooting Techniques Intraskan DC

Rev 3

Errors and Warnings

When in a fault state, the unit would display an error message with a corresponding error code as defined here.

General Note: Power Recycling:-After switching OFF the Unit wait at least for 5 min before restarting the
Power.

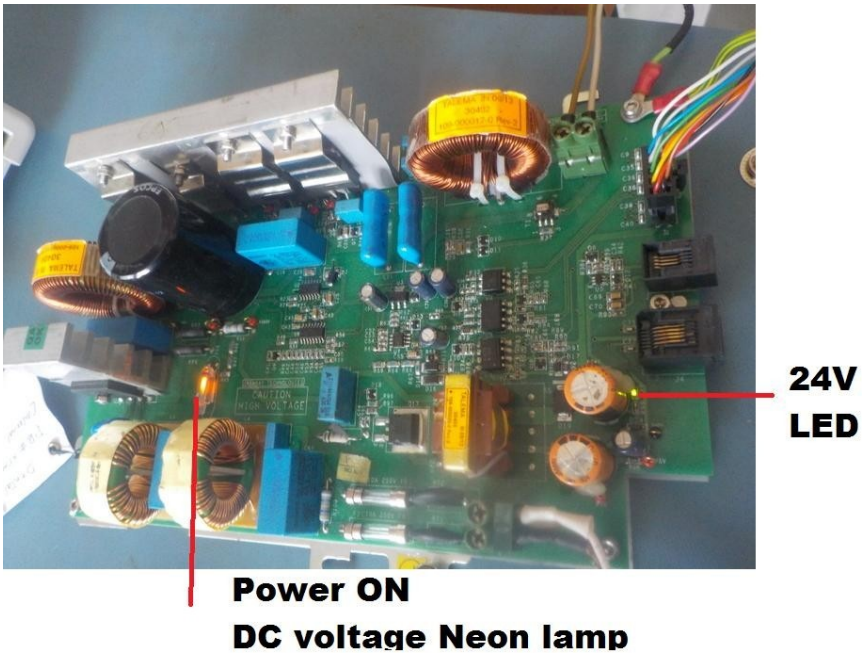
Error Codes

ERROR CODE	ERROR DETAIL
CN001	Communication Error
CN002	Console & Tube head incompatible
CN003	X Ray Preparation (Prep) time out
CN004	Anode Arc Fault
CN005	Cathode Arc Fault
CN006	Over kV Fault
CN007	Over mA Fault
CN008	kV Regulation Fault
CN009	Filament Open Fault
CN010	Filament Limit Fault
CN011	CAN Fault
KB001	Key Jam Error

TROUBLESHOOTINGCHART(ELECTRICAL)			
SLI#	**OBSERVED PROBLEM**	**Error details**	**RECOMMENDED ACTION**
1	Error state with display indicating CN001	Communication Error: **As soon as power ON MASTER USB scanner occurs then immediately error CN001.**	**Cold check(power OFF condition) with all boards connected and base unit ID opened.** **Step1:-** Check grounding wires continuity with respect to GND pin of mains 3-pin plug and check & GND screws on the power board are tightened correctly. If the problem exists still check next step. **Step2:-**Replace internal console. If the problem exists still check next step **Step3:** Replace control board,If the Control board is replaced the Tube head has to undergo recalibration.
2	Error state with display indicating CN002	Console & Tube head incompatible.	Recycle the power. Retry to give exposures. Normally this error reported only due to console version mismatch. **In Hatch X ray we have only one version console assy so possibility of this error occurrence is less.**
3	Error state with display indicating only CN003	Prep Time out **Controller on the TH interrupted X-ray command after PREP command execution.**	**Step1:-**Recycle the power. Give the Exposure. If the problem exists still check next step. **Cold check(power OFF condition) with all boards connected and base unit ID opened.** **Step2:-** Check grounding wires continuity with respect to GND pin of mains 3-pin plug and check & GND screws on the power board are tightened correctly. If the problem exists still check next step. **Step 3:--**If problem still persists then replace control board.
3a	Abort / Set time and actual time don't match	X-ray command terminated.	**Step1:-**Recycle the power. Retry to give the Exposure with ensuring exposure switch pressed till it completes . If the problem exists still check next step. **Step 2:-**Switch OFF the unit,keeping exposure switch pressed & hold and switch ON the unit.KB001 error should appear in the console. If error occurs exposure switch found to be OK.If not replace exposure switch. If the problem exists still check next step. **Step 3:-**Check end to end continuity of 10 core cable connectors pin 3,pin 9,pin10.If found open/ measuring more than 10 ohms /either pin 3 or pin 9 or pin 10 shorted to GND .Replace 10 core cable. **Step 4:--**If problem still persists then replace control board.
4	Error state with display indicating CN004	Anode Arc Fault:	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still replace the Tube head .
5	Error state with display indicating CN005	Cathode Arc Fault:	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still replace the Tube head .
6	Error state with display indicatingCN006	Over kV Fault	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still replace the Tube head .
7	Error state with display indicatingCN007	Over mA Fault	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still check next step. **Step 2:-**Calibrate the tube head. **Step 3:-** If the problem exists still replace the Tube head .
8	Error state with display indicatingCN008	KV Regulation Fault:	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still check next step. **Step 2:-**Check continuity of INV power cable(3 way), measuring more than 10 ohm / any of wires shorted to GND .Replace INV power cable. **Step 3:-**Check end to end continuity of 10 core cable for pin4,pin5,pin6,pin9.If Pin 4,pin5 ,pin9 ,pin 6 open,/ measuring more than 10 ohm/ Pin 4,pin5 ,pin9 shorted to GND .Replace 10 core cable. **Step 4:-** (a) Ensure that there is no loose connection at the Input power source between the plug and socket. (b) Check the mains input voltage, it should be within specified

			tolerance limits.Check the power connections all the way till the Power board. (c) Ensure no loose connection of all cables. (d) Give Exposure at 4mA, 0.20secs and check whether the error is repeating. If there is no error at this lower mA and if the error is observed only at higher mA, then recalibrate the unit. [Please note that if the Unit works at lower mA, and not at higher mA it may also be due to Input power source loose connection as indicated above.] (e) Ensure the RJ45 (6P6C) cable from the power board J4 should be connected at the 'PB' connector on daughter board and console cable is connected to J5 of daughter board.If the connections are swapped there is a chance of CN008 error. After correcting the connections the power to the Unit has to be recycled once. **Step 5:**-Remove base ID cover ,set 4mA, 2secs .Press exposure switch till PREP command completes.Measure voltage at test points P380V & PGND in the power board.This voltage should be 370V-410V DC.If the measured voltage is less, following parts to be replaced one by one in the given order below:- • Console along with cable • Power board. **Rare occurrence:-** Replace control board if still problem persists replace tube head. **Note:** If the Control board is replaced the Tube head has to undergo re-calibration.
9	Error state with display indicatingCN009	Filament Open Fault	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still replace the Tube head .
10	Error state with display indicatingCN010	Filament Limit Fault	**Step1:-**Recycle the power. Retry to give the Exposure. If the problem exists still replace the Tube head .
11	Error state with display indicatingCN011	CAN communication fault:	**Step1:-**Recycle the power. Clean the contacts of the Console connector Spiral chord. Retry to give exposure. If the problem persists, replace the console. **Step 2:-**Check end to end continuity of 10 core cable connectors Pin 7 &pin 8 ,If found open /measuring more than 10 ohm /either pin 7 or pin 8 shorted to ground, Replace 10 core cable. If the problem exists still check next step. **Step3:** Check end to end continuity of RJ45 cables, console cables, if found ok replace the console. **Rare occurrence:-** Replace the control board. **Note:** If the Control board is replaced the Tube head has to undergo re-calibration .
12	Error state with display indicating KB001	Key JAM error	**Step1:-**Ensure that none of the console keys or exposure switch depressed accidentally. Recycle the Power. **Step 2:-**If the problem persists replace the console or exposure switch.
13	The unit does not power on when mains is switched on.	Mains fuse blown/No DC bus voltage.	**Step1:-**Remove the Base Unit Top cover. Is there any loose contact at the wall socket end or the wall outlet is not receiving power. Check local electrical circuit for trips. Check if neon pilot lamp is ON in the power board. If neon lamp is ON then check the following:- Ensure that the cable connection to the base Unit is proper. Recycle the power. **Step 2:-**If the problem persists replace the console. **Step 3:-**If the problem persists replace the power Board.
14	No x-ray image even though the unit indicates normal exposure	KV, mA values mismatch	Ensure the set kV, mA values matches with feedback values displayed on the console. Ensure that there is no error in the console. If ok then check the image receptor used.
15	Tube Head Hot	Tubehead heated up due to prolong usage	**Step1:-**In Unit OFF condition, remove the control board wait for some time to cool and reconnect it back. If the problem exists still check next step. **Step2:-**Replace tube head.

Power board (301-000012-0) Indication details.



Control board (301-000010-1) Indication details.