“THE X / Y NODE HAS DETECTED A COLLISION”

APPLICABLE TO: Precision system

ERROR MESSAGE: The (X/Y) node has detected a collision

INFORMATION: This is an error related to motorized movement in X or Y direction only. The message will always state either X or Y. It can only occur during autopositioning, ie when the user is pressing the servo button.

HOW THE AFFECTED FUNCTIONALITY IN THE SYSTEM *SHOULD* WORK:

The system should, when a protocol is selected and the servo button is being pressed, drive to the desired position (which is the pre-programmed autoposition selected in the protocol setup). Movement should be completed from beginning to end without any stops or error messages along the way. When the servo button goes from flashing light to steady lit the autopositioning sequence is completed.

(note that for some examinations and depending on setup it is required that the user make final adjustments of the equipment - for example move Wallstand bucky, define stitching area etc – for the servo button to go from flashing to steady lit)

SYMPTOMS OF THIS ERROR:

When this error occur all movements will stop and an error message will be present in OTC display.

User needs to release and press the servo button again for movements to continue. The behavior then might differ from time to time - depending on the root cause. Here are a few examples:

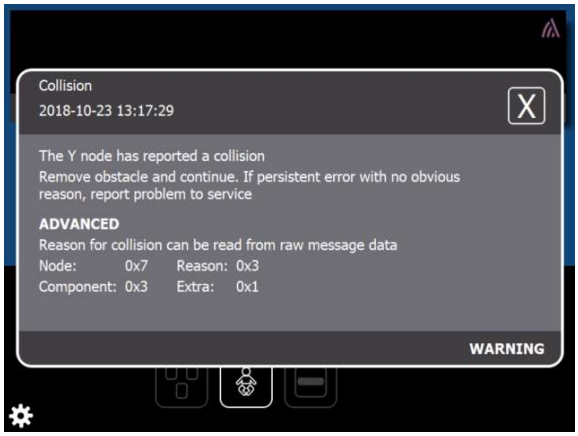
- Sometimes the movement will continue when pressing the button again and the system will reach the desired position. The user can then proceed (although slightly annoyed of course!).
- Sometimes the system will be stuck in the position even though the button is pressed again.
- Sometimes it will seem as if the system already reached its desired position. The system might even begin to drive in Z direction (to align with Table or Wallstand) and THEN all of a sudden an error message occur…!

POSSIBLE CAUSES:

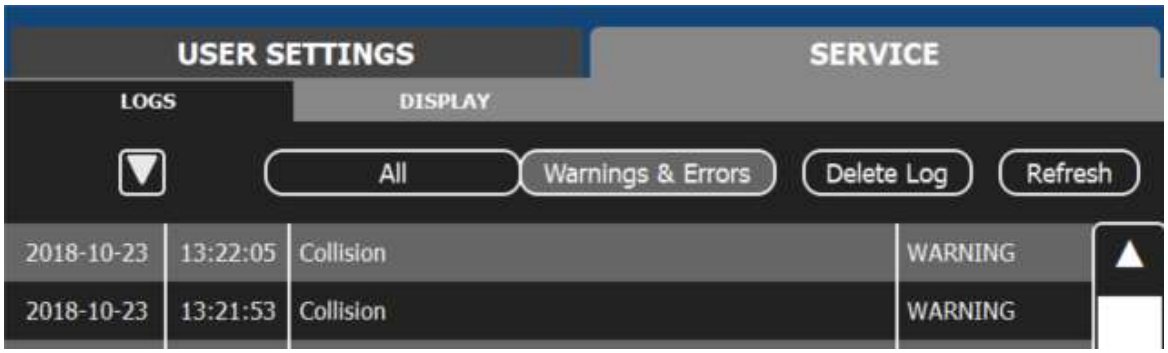
- Incorrect mechanical adjustment
  (tension between drive unit and tooth belt too strong or too weak)
- Set screws on drive unit shafts have become loose
- No or insufficient voltage supply to the drive board
- Problem with encoder (positioning feedback)
- Incorrect programming of autopositions

ACTION STEPS:

1. If you are on site and the error is reproducible – provoke it and check the error message by tapping the Collision-message appearing on the tube display:



2. If it is not reproducible while on site – ask users for the date and time of occurrence and check the log to find the error message:



3. The information we should focus on is the “Extra”-value.

In the above example it says: **Extra: 0x1**
There are 5 different values you might find though – and the value determines how to proceed with your troubleshooting. Here is a brief explanation of their meaning:

Extra: 0x1	The system reports a positioning deviation during a longer movement.
Extra: 0x2	Time out. The system did not reach its desired final position in time.
Extra: 0x3	Power to the driver board was switched off during movement.
Extra: 0x4	Driver board externally inhibited (electrical inputs deactivated).
Extra: 0x5	Encoder value feedback did not change during a movement command

If you are not yet on site and want to get this information in advance to prepare for your visit, the most convenient way is to ask someone on site to collect the CXDI NE Overwrap log files for you.

(They are stored and accessible from the image system PC as text files in the “CXDI NE OVERWRAP/Log” folder)

In these log files you will find the same information as in the display although it is stated in **decimal values** (tube display states *hexadecimal values*). See below example:

"Log" Warning 0 "[20170703 09:50:18.243] Table log message: The node has detected a collision. See extra bits for more information., [Code1=6 Code2=3 Code3=3 **Code4=1**]"

"Log" Verbose 0 "[20170703 09:50:18.248] TableErrorInfoNotify: from table."

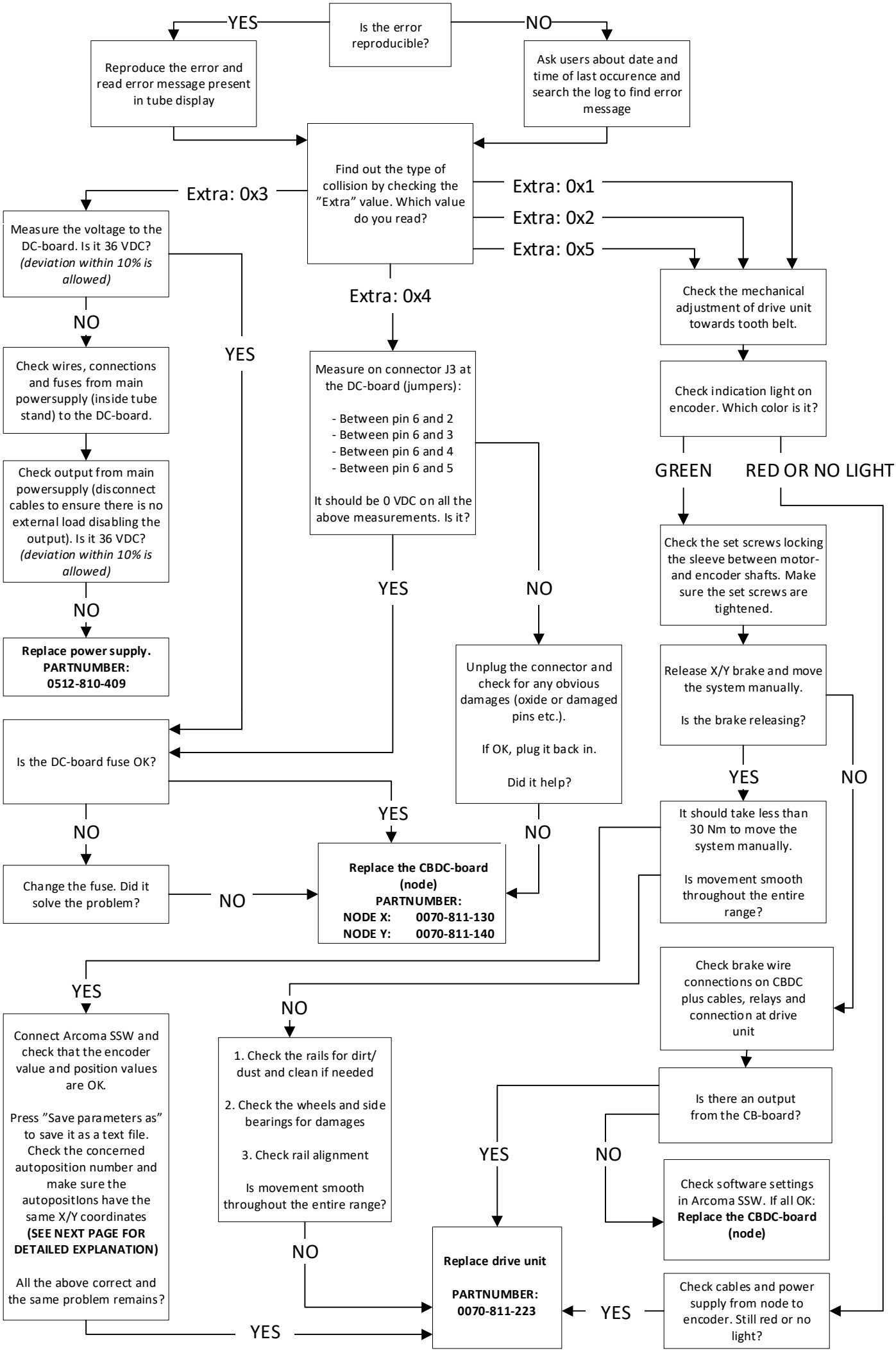
The highlighted “**Code4= 1**” above is the equivalent for “**Extra: 0x1**” in the tube display log.

So this gives us the same information:

Code4: 1	The system reports a positioning deviation during a longer movement.
Code4: 2	Time out. The system did not reach its desired final position in time.
Code4: 3	Power to the driver board was switched off during movement.
Code4: 4	Driver board externally inhibited (electrical inputs deactivated).
Code4: 5	Encoder value feedback did not change during a movement command

(only difference from tube display log is it says “Code4” instead of “Extra” and format is decimal)

4. Now that we narrowed down the meaning of the error message we have a basic understanding of the problem. Continue the trouble shooting by using the flow chart on next page.


Is the error reproducible?
YES
NO
Reproduce the error and read error message present in tube display
Ask users about date and time of last occurence and search the log to find error message
Find out the type of collision by checking the "Extra" value. Which value do you read?
Extra: 0x3
Extra: 0x1
Extra: 0x2
Extra: 0x5
Extra: 0x4
Measure the voltage to the DC-board. Is it 36 VDC? (deviation within 10% is allowed)
NO
YES
Check wires, connections and fuses from main powersupply (inside tube stand) to the DC-board.
Check output from main powersupply (disconnect cables to ensure there is no external load disabling the output). Is it 36 VDC? (deviation within 10% is allowed)
NO
Replace power supply. PARTNUMBER: 0512-810-409
Measure on connector J3 at the DC-board (jumpers):
- Between pin 6 and 2
- Between pin 6 and 3
- Between pin 6 and 4
- Between pin 6 and 5
It should be 0 VDC on all the above measurements. Is it?
YES
NO
Unplug the connector and check for any obvious damages (oxide or damaged pins etc.).
If OK, plug it back in.
Did it help?
NO
Check the mechanical adjustment of drive unit towards tooth belt.
Check indication light on encoder. Which color is it?
GREEN
RED OR NO LIGHT
Check the set screws locking the sleeve between motor- and encoder shafts. Make sure the set screws are tightened.
Release X/Y brake and move the system manually.
Is the brake releasing?
YES
NO
It should take less than 30 Nm to move the system manually.
Is movement smooth throughout the entire range?
YES
NO
Check brake wire connections on CBDC plus cables, relays and connection at drive unit
Is there an output from the CB-board?
YES
NO
Check software settings in Arcoma SSW. If all OK: Replace the CBDC-board (node)
Check cables and power supply from node to encoder. Still red or no light?
YES
Replace drive unit
PARTNUMBER: 0070-811-223
Is the DC-board fuse OK?
YES
NO
Change the fuse. Did it solve the problem?
NO
Replace the CBDC-board (node)
PARTNUMBER:
NODE X: 0070-811-130
NODE Y: 0070-811-140
Connect Arcoma SSW and check that the encoder value and position values are OK.
Press "Save parameters as" to save it as a text file. Check the concerned autoposition number and make sure the autopositIons have the same X/Y coordinates (SEE NEXT PAGE FOR DETAILED EXPLANATION)
All the above correct and the same problem remains?
YES
1. Check the rails for dirt/ dust and clean if needed
2. Check the wheels and side bearings for damages
3. Check rail alignment
Is movement smooth throughout the entire range?
NO

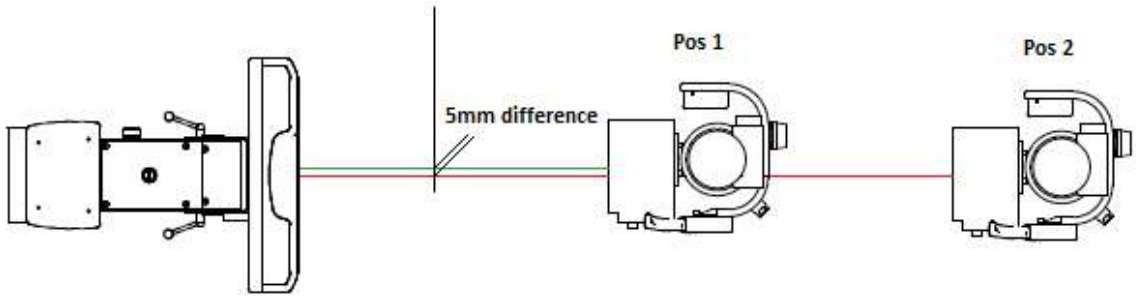
Auto position programming and the importance of correct X/Y coordinate setup

It is important that autopositions aiming at the same detector field are programmed with the exact same coordinate *in the non-SID direction.*

Example: Two positions are used against the Wallstand. One is at an SID of 140cm and the other is at an SID of 180cm. The two saved positions have a difference in Y-direction of 5mm.

The positioning accuracy for Y-direction is 3mm – meaning the position needs to be this close to the desired position (the pre-programmed autoposition you defined during installation or service). Otherwise an error message will occur, stating a collision in Y-direction.

When the system is in position 1 and is required to move to position 2 it will try to move 5mm in Y direction which likely will end in a collision message from the Y node.



If you experience problems like described above a reprogramming of autopositioning may be necessary.

When saving autopositions over table; use one position to save all the other table modes. Move all axes Z, X, Y, Alpha, Beta and Bucky to the required position. Without moving anything, save all required position (modes), for example Table Flexible, Filmtracking, Table Stitching etc. This way all positions will be in the exact same place and the system will not try to move when sent between them.

The same applies for positions at the wall stand; use one position to save all the other WS modes. When setting up WS positions at different SID's, make sure to move only the axis required (X or Y depending on room layout).

The parameter file can be used to confirm that "similar" positions are stored in the exact same place.

Save the parameter file and open it with Notepad or similar. Go to **[Node Y]** and check the position address for each autoposition stated in hexadecimal values. As you can see in below examples, position 1 and 2 (P1 and P2) have the same value **0x65f7** (or 26 103 in decimal = 2610,3 mm from calibration point).

```
[NodeY]
...
...
P1PosAdress=0x65f7
P1PosValidity=0
P2PosAdress=0x65f7
P2PosValidity=0
...
...
```

- This is the way it should be!

- *END OF DOCUMENT* -