



Malfunction: False levelsensing on Coatron A4

Error Description:

Sometimes the needle does stop in air instead of liquid. This is caused by poor electrical contact from Alidum sensor over golden plug to insulation block and/or by defect insulation block, Alidum sensor or ADRI board. It is solved normally by two fixes:

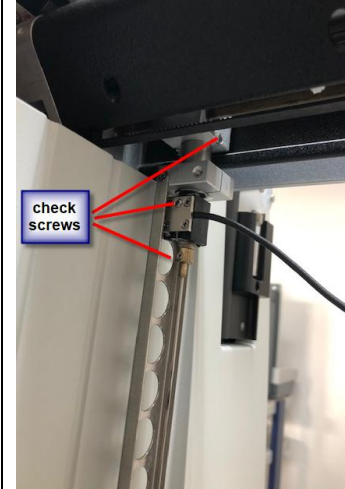
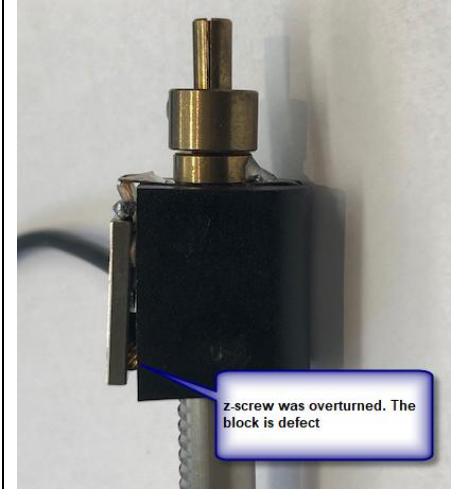
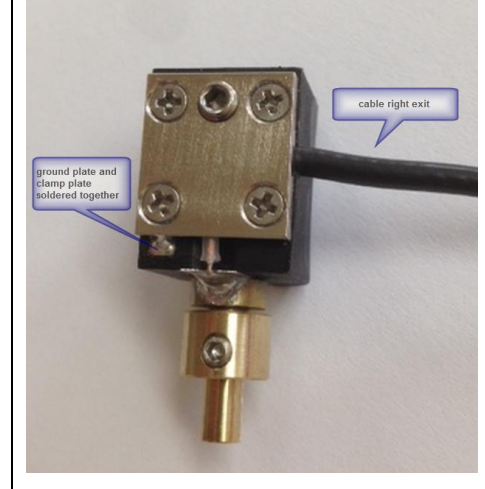
- a) Install new insulation block (important: new version with COAX cable on right side)
- b) Fixing the golden plug with two cable binder

Spareparts:

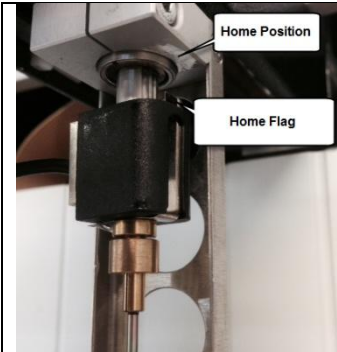
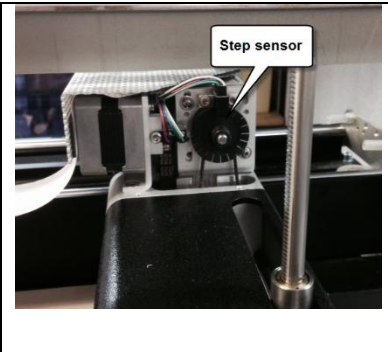
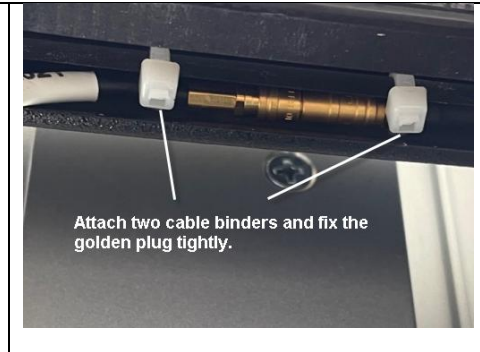
- 21 806 00 Insulating block A4/A6 with cable (new version "D", COAX cable on right side)
 - 21 067 01 Pipette needle A4/A6
 - 21 802 00 Alidum sensor
 - 21 804 00 ADRI board without Alidum sensor
- Further spare parts are on last page

Most possible reasons and fixes:

- | | |
|---|--|
| 1. insulation block,
poor electrical contact | Check <ul style="list-style-type: none">- connections (Pic-1)- overturn screw (Pic-2)- COAX cable broken- Golden plug not fixed (Pic-9= |
| 2. insulation block,
coax cable is broken | Run check robotics (Pic-6) <ul style="list-style-type: none">- Remove all vials and add one cuvette- Start check- During level sensing touch cable and z-rack. If needle stops and printer give "false level" then the insulation block is defect. |
| 3. Golden Plug is not fixed | Use two cable binders to fix the golden plug (Pic-9) <ul style="list-style-type: none">- Attach near the ends of plug- Attach tightly |
| 4. Water is inside of Z-Rack | Happens, if tubing is leaky <ul style="list-style-type: none">- Follow „How to fix leaky tube"- Remove needle can check tubing- Remove insulation block and blow out all liquid- Remove z-rack and blow out all liquid |
| 5. Needle not correct installed or adjusted | Check <ul style="list-style-type: none">- follow "How to adjust XYZ" (see next page)- installation of isolation tube (Pic-10) |
| 6. Rinse solution to from TECO | It is important to use |
| 7. Alidum sensor is defect | check TP5 (pic-11) <ul style="list-style-type: none">- Follow „How to check the Alidum sensor |
| 8. Adri Board is defect | replace board |
| 9. Z-bearing worn out | replace z-bearing+z-pinion (see PIC-11) <ul style="list-style-type: none">- Follow „How to overhaul the XYZ system |

		
Pic1 Check tight connections	Pic2 Check, if z-screw was overturned	Pic3 Spare part: Insulationblock Rev "D", COAX cable on right side

		SERVICE 1 PRINT REPORT 2 ADJUST XYZ 3 ADJUST TEMPERATURE 4 CHECK OPTIC 5 CHECK ROBOTICS 6 MOVE CUVETTES 7 CLEAN NEEDLE 8 REPLACE RINSE TANK 9 REPLACE NEEDLE 10 REPLACE SYRINGE 11 ADJUST MOTOR 12 CAP PIERCING
Pic4 spare part ADRI board	Pic5 Spare part: Alidum	Pic6 Check function of level sensor

		
Pic7 Check Home position and Flag	Pic8 Check Sensor	Pic9 Fix golden plug of coax cable with two cable binders.

	
Pic10 Check, if isolation tube is mounted	



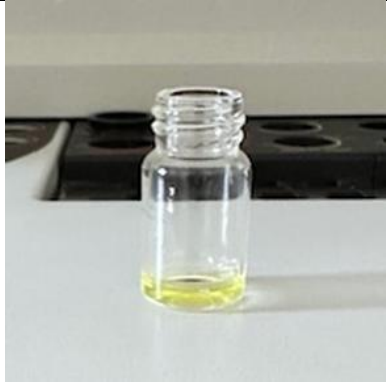
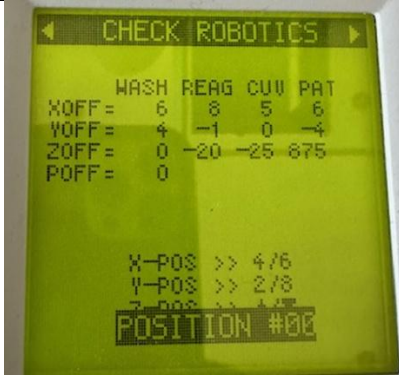
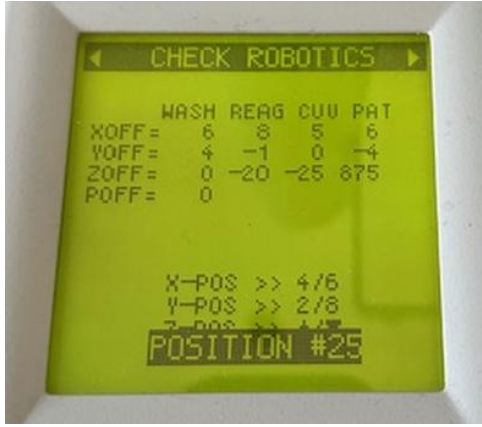
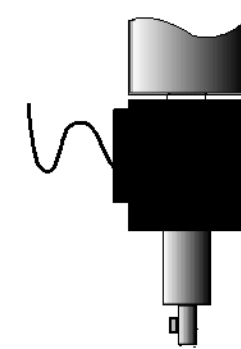
1-How to adjust XYZ

https://www.teco-medical.com/downloads.html?group=Coatron_A&category=Videos&search=xyz

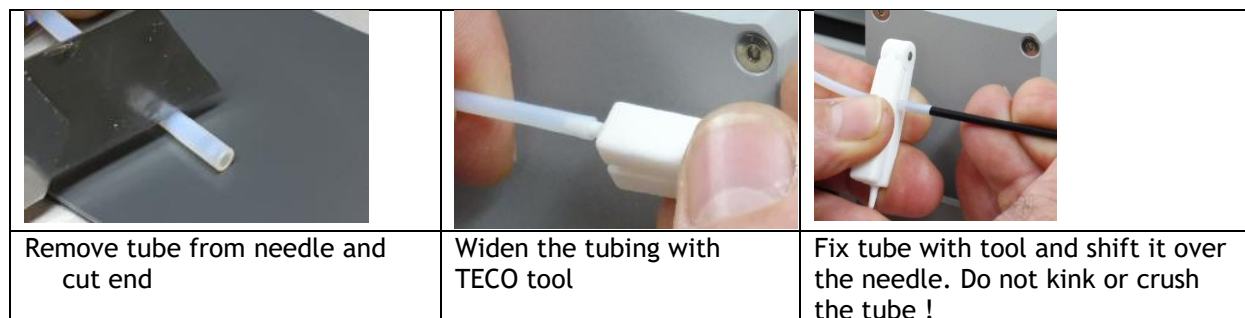
1)Start SERVICE menu  Preparation: a) check cuvette position (ADJUST motor) first b) place empty vial or cup at PT position c) place empty tube at patient rack P01 d) Needle must be straight and centered. You can bend needle, if required. Run "ADJUST XYZ"	2)Mount needle (115mm) Run "ADJUST XYZ".  When needle stops at wash - set ZOFF to "0" - open z-screw and shift needle until it touches inner dome - close z-screw																									
3) Adjust all offsets Download video 	4)Best XYZ offsets <table><tr><th></th><th>WASH</th><th>REAG</th><th>CUV</th><th>PAT</th></tr><tr><td>XOFF= 0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>YOFF= 0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>ZOFF= 0</td><td>0</td><td>0</td><td>0</td><td>850</td></tr><tr><td>POFF= 0</td><td></td><td></td><td></td><td></td></tr></table> ZOFF (wash) must be [-10 to +10] ZOFF (reag) must be [-20 to +10] ZOFF (cuv) must be [-25 to +10] ZPAT (cuv) must be [825 - 875] POFF (Piercing) must be "0" Redo step-2, if offsets are not in range		WASH	REAG	CUV	PAT	XOFF= 0	0	0	0	0	YOFF= 0	0	0	0	0	ZOFF= 0	0	0	0	850	POFF= 0				
	WASH	REAG	CUV	PAT																						
XOFF= 0	0	0	0	0																						
YOFF= 0	0	0	0	0																						
ZOFF= 0	0	0	0	850																						
POFF= 0																										

Attention: You must run through all positions and real check and adjust x-y and especially z, "everytime" when starting the service menu "2 ADJUST XYZ" !

2-How to check liquid level detection of PT vial:

 1)Pipet 300µl drinking water and place vial to P25. (the water here is colored just for better presentation)	 2)Goto SERVICE and press "5" to start.	 3)When needle moves to P1, P2; Press "ESC" to break auto-run.
 4)Drive needle to P25. Press left/right to switch ± 1 Press left/right + "0" ± 10 ZOFF (wash) must be [-10 to +10] ZOFF (reag) must be [-20 to +10] ZOFF (cuv) must be [-25 to +10] ZPAT (cuv) must be [825 - 875] POFF (Piercing) must be "0" ➔ If not, exit screen (ESC) and run menu 2 "ADJUST XYZ"	 5)Press Down to activate level searching. During move touch z-rack and or z-cable or snip finger slightly to z-rack. Needle should always with vialtop at level. If it does not, adjust XYZ (deeper Z-offset).	 6)Remove needle (don't open fitting on valve !) and Press Down to activate level searching. Needle should stop at level. If it does not, adjust XYZ (deeper Z-offset).

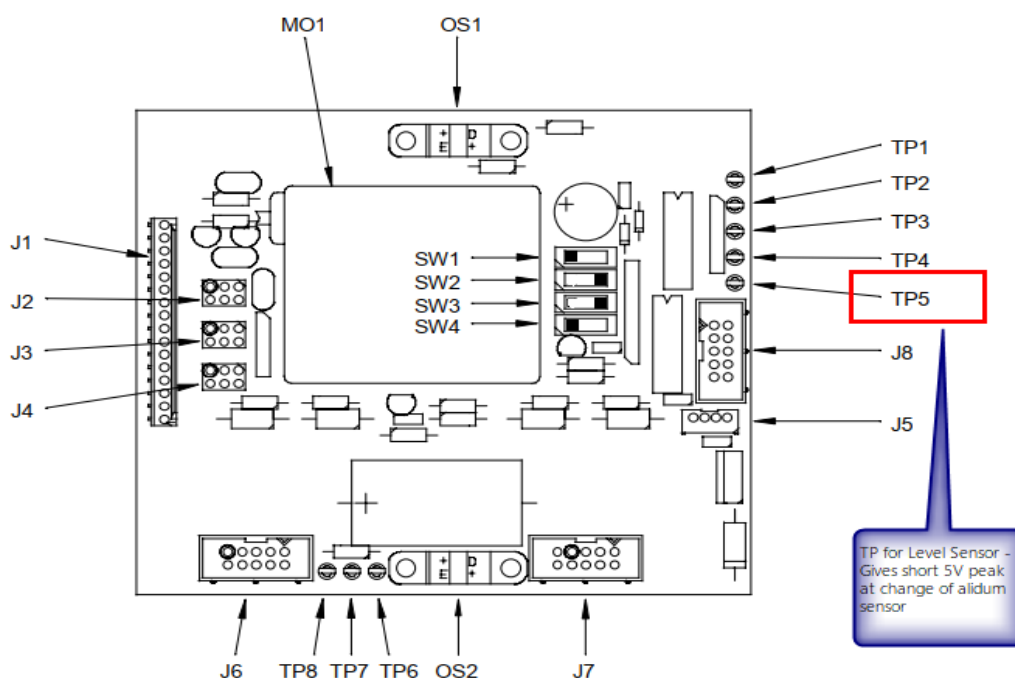
3-How to fix leaky tube



4-How to check the Alidum sensor

The TP5 should be 0V in idle mode. After change of capacity (e.g. by touch or release the needle) it must give a short pulse signal (TTL, 5V).

- If no signal change can be measured , then the COAX cable has no connection
- If signal changes are caused by movements of cabling, then the COAX cable is broken or corroded



Pic-11: ADRI Board (SW3 is here enabled)

SW1	Arm Left ☒ Right
SW2	DITI Enabl ☒ Disabl
SW3	ALIDUM Switching by Enabl ☒ Disabl
SW4	Value for Sensitivi High ☒ Very

CodeDescriptio

J1: Flex Cable
J2: Optical Switch Connector (Y-
J3: Optical Switch Connector (Step Loss
J4: Optical Switch Connector (Step Loss
J5: DITI Connector (Power /
J6: Y-axis Motor
J7: Z-axis Motor
J8: Switchable Input / Output
MO1 ALIDUM (Adaptive Liquid Level
OS1 Optical Switch X-axis (Left Arm X-axis
OS2 Optical Switch X-axis (Right Arm X-axis
SW1- Selector Switches (see
TP1 Test Point
TP2 Test Point (VCC
TP3 Test Point (X-axis Initialization
TP4 Test Point (Y-axis Initialization
TP5 Test Point (Liquid Detection
TP6 Test Point (Power
TP7 Test Point (VPP
TP8 Test Point



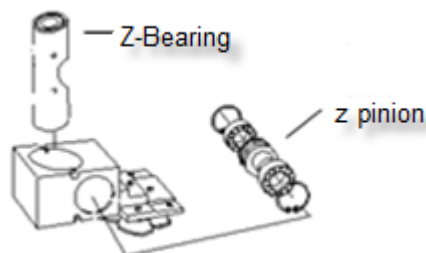
5-How to overhaul XYZ system

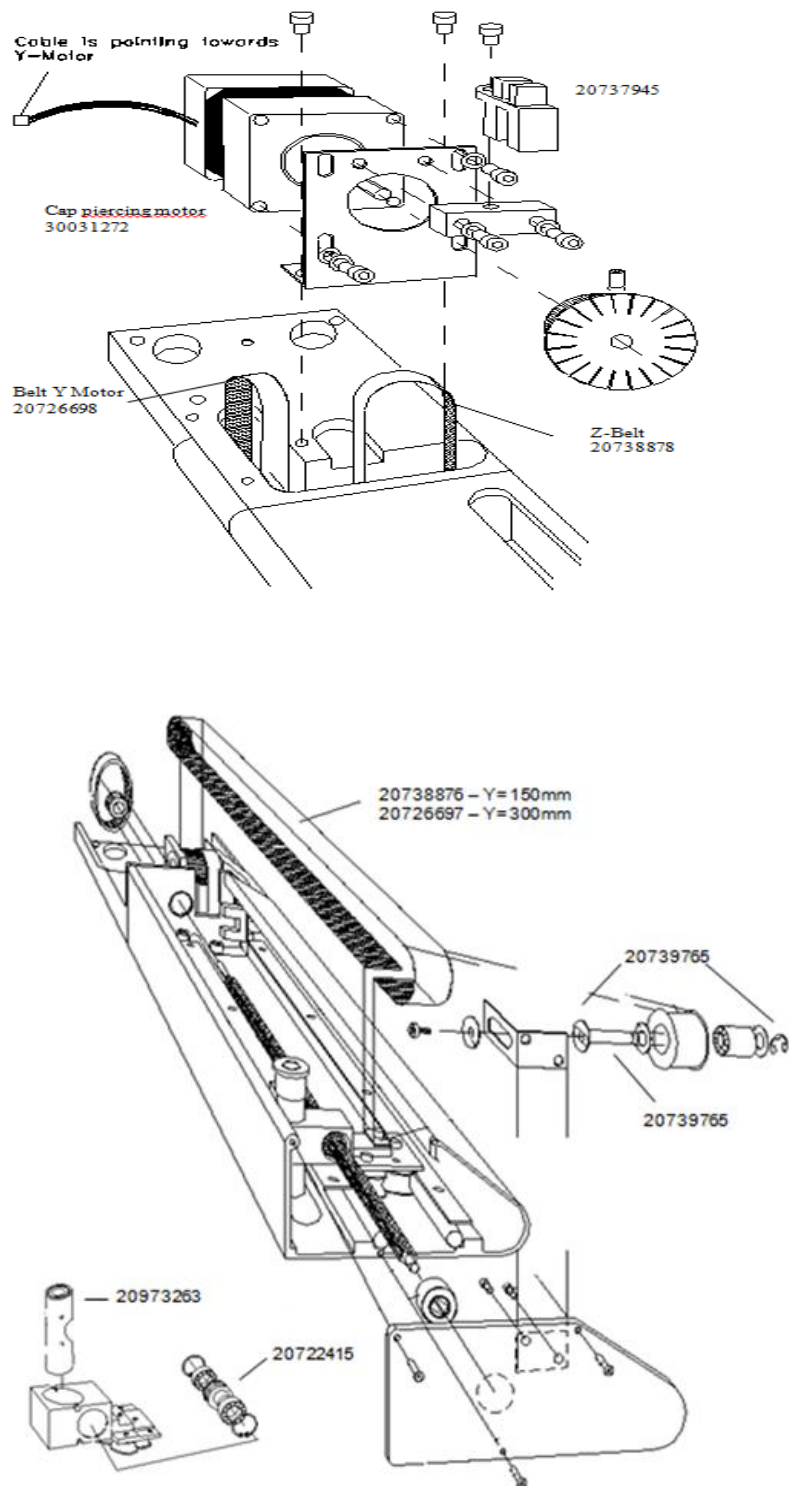
Perform service every **200.000** test

- Replace all belts (x,y,z)
- Replace Z-Pinion
- Replace Flatcable
- Replace Y-Pulley (Umlenkrolle)
- Clean all wheels, rollers and guide rails with alcoholic solution and lubricate with silica oil. Apply only a very thin film.
- Check Z-Bearing and replace if required

Spare PARTS for COATRON ROBOTIC SYSTEM

Teco CAT.	PN (Tecan)	Description
21 802 00	20739256	Sensor Alidum Level
21 813 00	20739765	Pulley Y-Idler Assy
21 813 01	30071112	PULLEY X-IDLER ASSY RSP SPR
21 822 00	20722415	Gear Pinion Z
21 807 06	30031272	MOTOR RSP Z ARM H-TORQUE
21 814 00	20738870	Kit Belt X Drive RSP L520 (3.310 FT)
21 814 01	20738876	Kit Belt Y Drive RPS 150
21 814 02	20738878	Kit Belt Z Drive RSP 85T
21 807 00	20739763	MOTOR ASSY X-AXIS
21 823 00	20973263	Z-Bearing
21 809 00	20729370	Valve, 3P, 1/4-28, XE/XC/XLP/SVP
21 810 02	20739046	PCBA XE RS-232/RS-485 Spare
21 803 00	20739717	PCBA RSP V4.2 CCU 1-Arm Spare
21 804 00	20739419	PCBA ADRI-9 V2.0
21 810 00	30045657	MOTOR VALVE ASSY XE 3P SPARE
21 805 00	20737945	Sensor Optical RSP9000
21 812 00	20739435	Flatcable Flex Left Arm RSP





Pic-11: Spare parts of XYZ robotic