



Document Title: ALPHA Reactor Upgrade Retrofit

Date: 5/30/2023

Drawing Number/Customer Order Number: 4196387 (REV.A)

Instructions for Reactor Upgrade Retrofit

| Data | REV | Description of Change | Author |
|-----------|-----|-----------------------------------|--------|
| 5/19/2023 | INI | RELEASE | GGAO |
| 5/30/2023 | A | ADD Reactor tube back to flux box | JMA |
| | | | |
| | | | |

Read and understand all instructions prior to beginning work. Ensure that all parts have received per retrofit BM.

1. SCOPE:

Reactor Upgrade.
Reactor tube back to flux box design

2. TOOLS / ITEMS REQUIRED:

- Full set metric wrenches
- Adjustable or crescent wrenches;
- Diagonal pliers;
- Small flathead screwdriver;
- Wire stripper;
- Crimping pliers;
- Knife;
- Pistol drill;
- Electronic Torque wrench

**3. ASSEMBLY DRAWINGS & OTHER REFERENCES:****4. PRECAUTIONS:**

1. Ensure that the tool is turned off. Use proper Lock-Out/ Tag-Out procedure to prevent any accidental startup of the equipment.
2. Do not perform maintenance while the tool is hot. Ensure tool is cool before opening.

INSTRUCTION:

If machine is running hot, load cool down and allow it to come to a comfortable working temperature. Remove panels and caps as required for access.

1. Stop conveyor. Power machine off. Follow facility lock out and tag out procedures.
2. Remove front or rear panels and all side panels as required.

➤ Reactor Upgrade

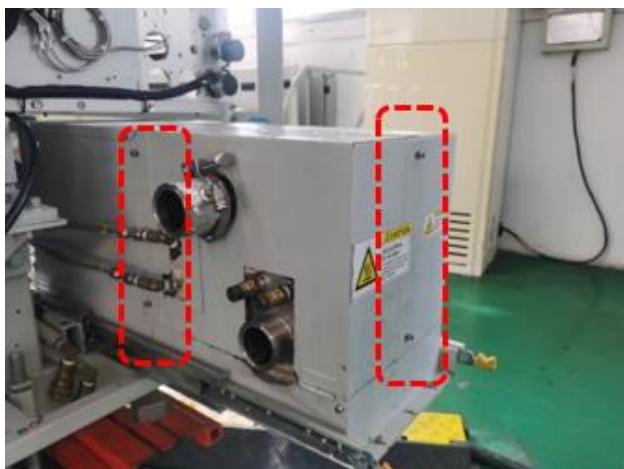
1. Remove the SS hose, N2 tube and water tube.



2. Pull out the reactor box (Loosen the reactor box fix screw)



3. Open the reactor box front cover



Loosen the screws to remove the reactor box front cover



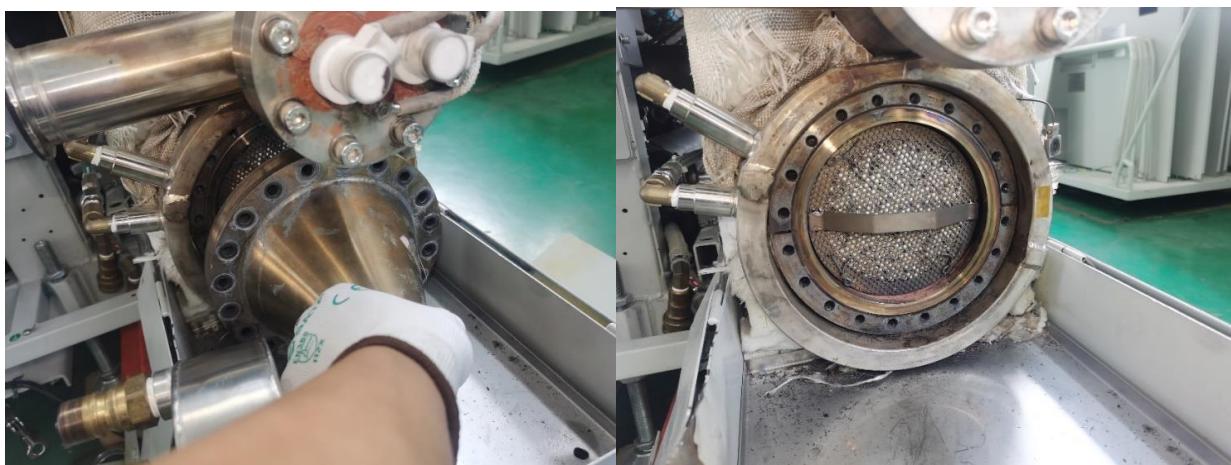
4. Take out the reactor insulation bags



5. Use the torque wrench to loosen the reactor flange screws



6. Remove the reactor flange

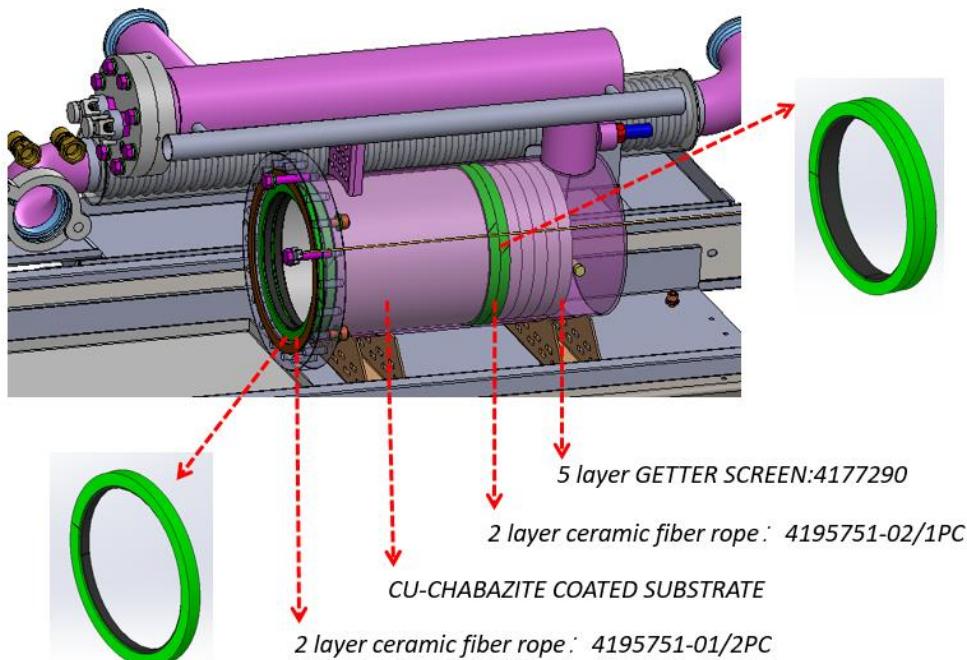


7. Take out the basket filled with zeolite



New design shown:

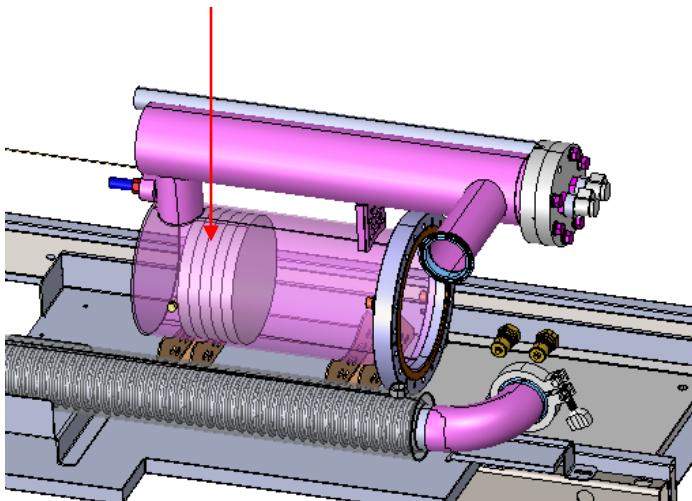
New catalytic design shown



8. For getter screen



9. Insert 5 layer Getter screen in reactor pipe first



10. Make new ring and ceramic fiber rope assembly



Use the width ring 4195452-02



3M ELECTRICAL TAPE 5941C



Splices for 2 layer ceramic fiber ropes need to be staggered



Splices for ceramic fiber rope need to be package 2 layer
Others 1 layer as shown

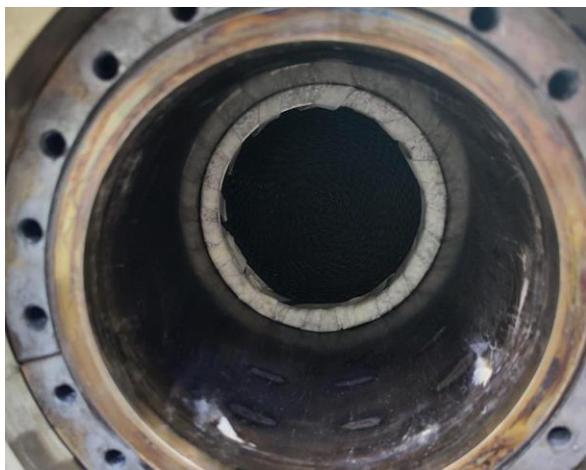


11. Insert 2 layer ceramic fiber rope

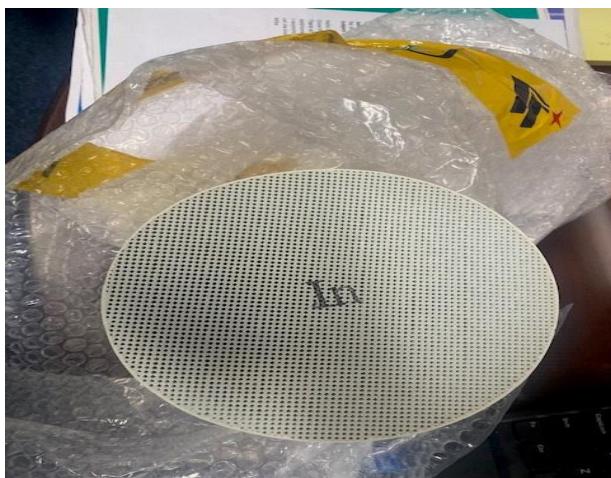
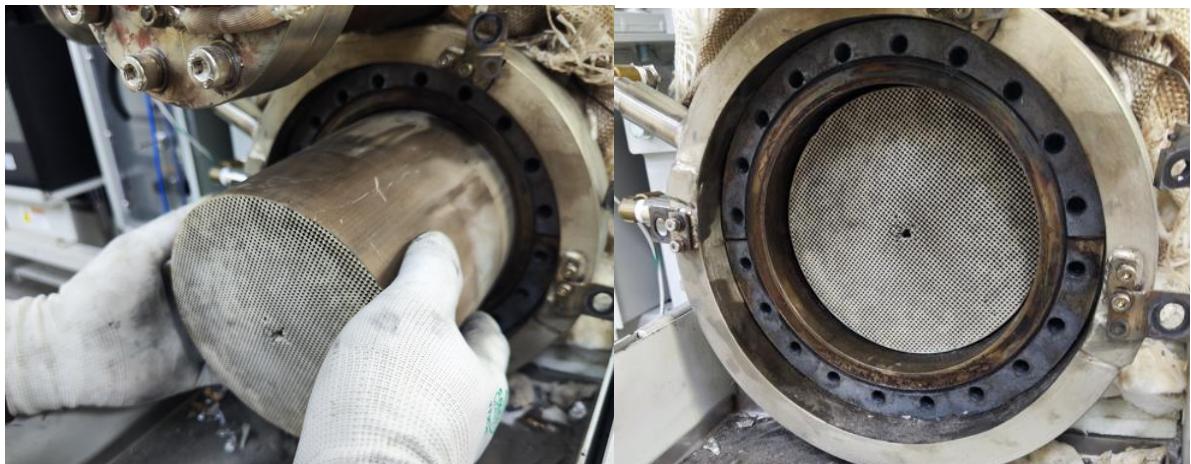


Use one long tool to squeeze sealing ring
let the seal ring to become vertical





12. Insert ceramic filter- 4188290



It's important to note, that for all ceramic filter technology applied to like Tools, there is a gas inlet and outlet declaration on the filter perimeter. Please insert these filters according to the prescribed flow direction Indicated by arrows.

13. Make 2 rings and rope components



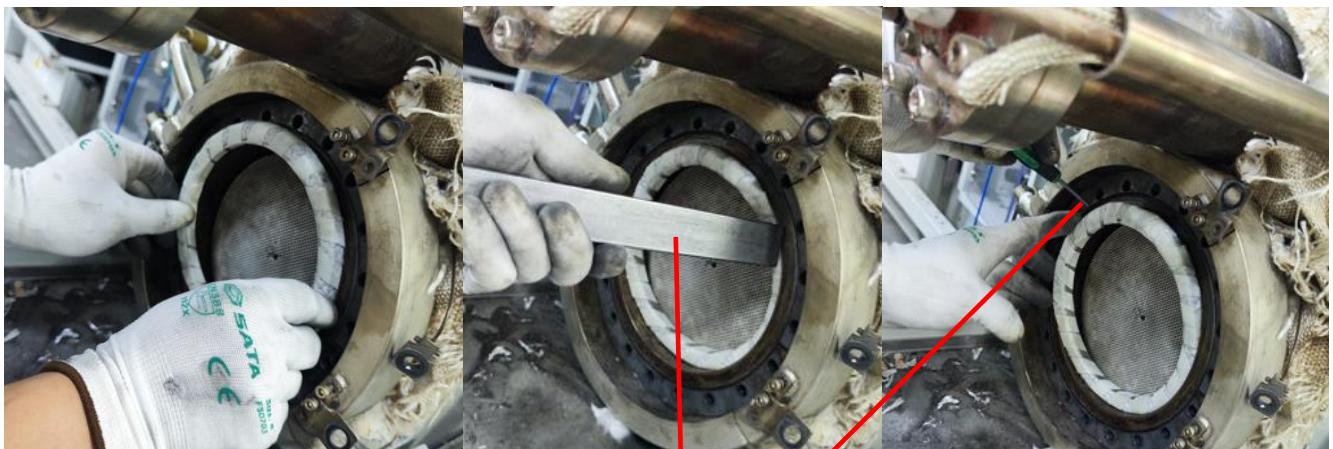
13.1 Use the narrow ring 4195452-01

13.2 Splices for ceramic fiber rope need to be package 2 layer .Others 1 layer as shown

13.3 3M ELECTRICAL TAPE 5941C

13.4 Need to make 2 rings and rope components

14. Insert 1 ring and ceramic fiber rope assembly



Use one long tool and screwdriver to squeeze sealing ring

let the seal ring to become vertical

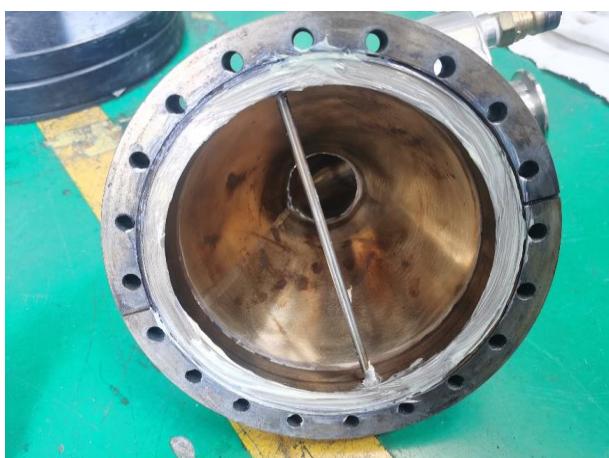


Use the same method to insert more one in it

15. The reactor flange copper gasket installation



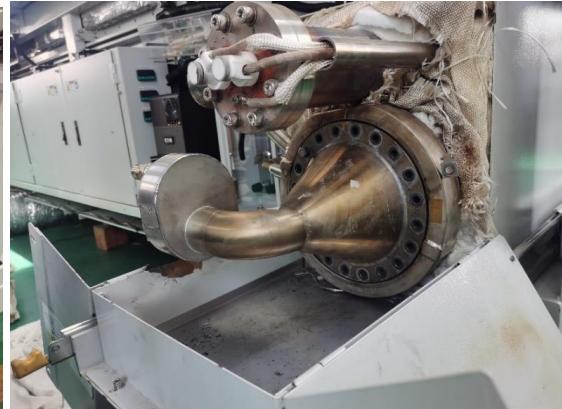
Apply a thin layer of grease to the flange



16. Place the copper gasket in position



17. Reinstall the flange and the screws.



18. The screws should be applied with the high temperature anti-seize oil



19. Reinstall the reactor front cover and locate the reactor box in position



20. Reconnect back the SS hose, N2 tube and water tubes.



Item 2 : Reactor tube back to flux box

1. Remove rear panel from oven .
2. Remove Flat coil quick connector. Remove drip pan of flat coil , Retain all hardware. Set aside for reinstallation. (see Fig 1/Fig 2)

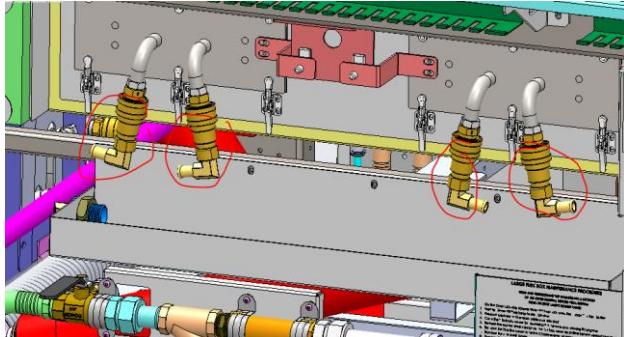


Fig 1

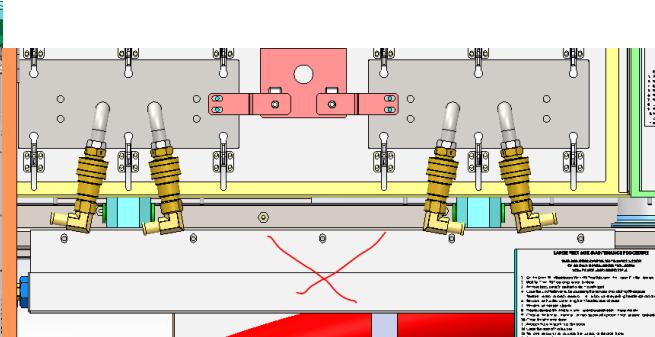


Fig 2

3. Release water tube on strainer (see Fig 3)

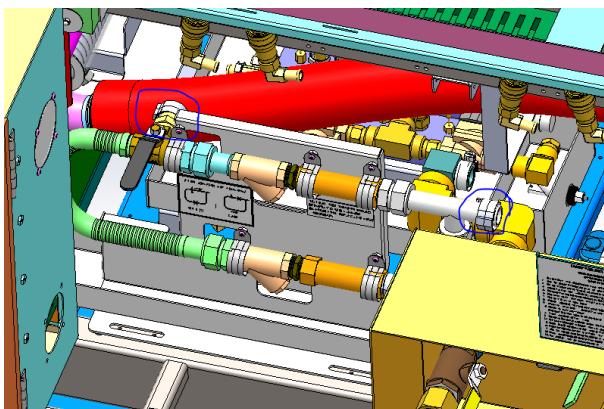


Fig 3

4. Loosen strainer fixed screw , remove strainer assembly , Retain all hardware. Set aside for reinstallation. (see Fig 4)

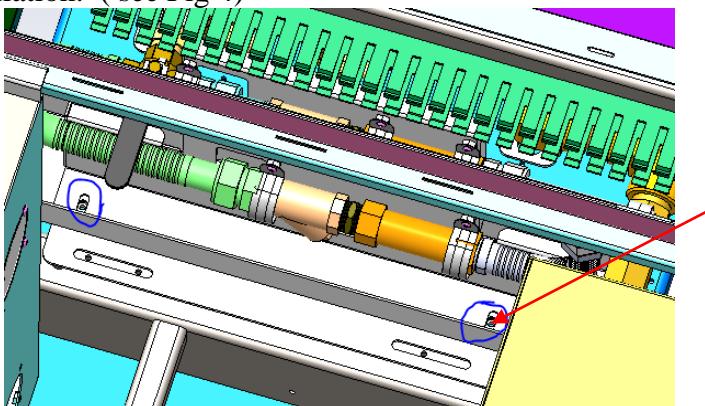


Fig 4

5. Loosen below exhaust tube connector, Retain clamp. Set aside for reinstallation. (see Fig 5)

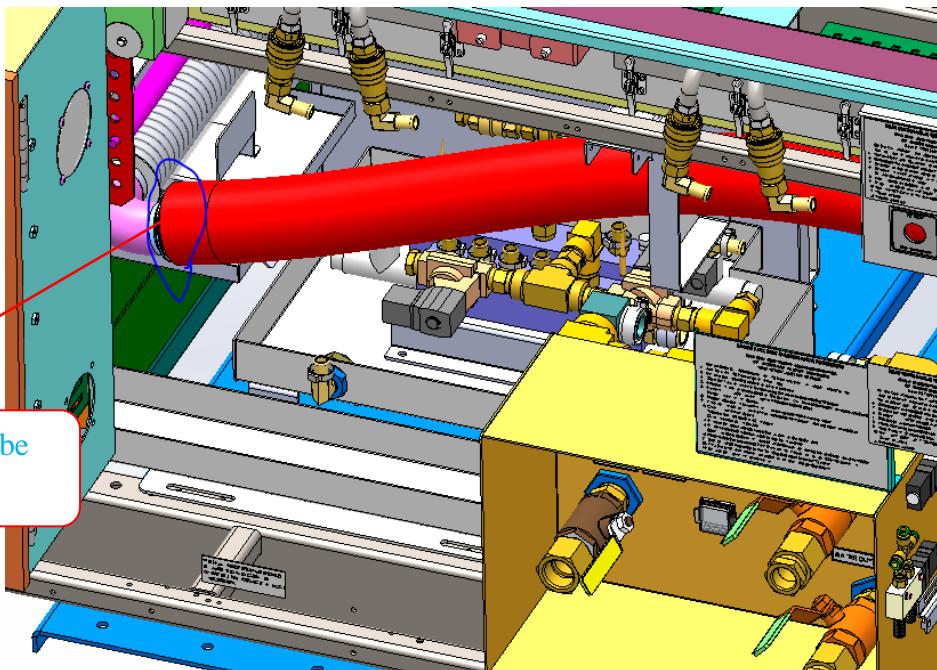


Fig 5

6. Remove quick clamp , water tube , caster adjust to floor , rotate big flux box to outside (see Fig 6/Fig 7)

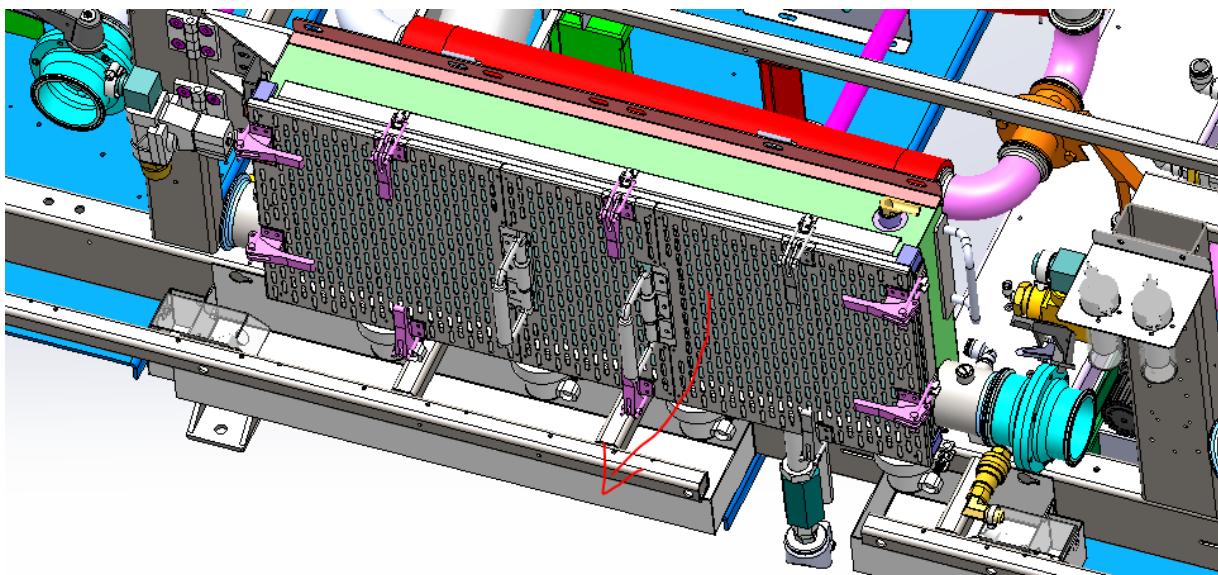


Fig 6

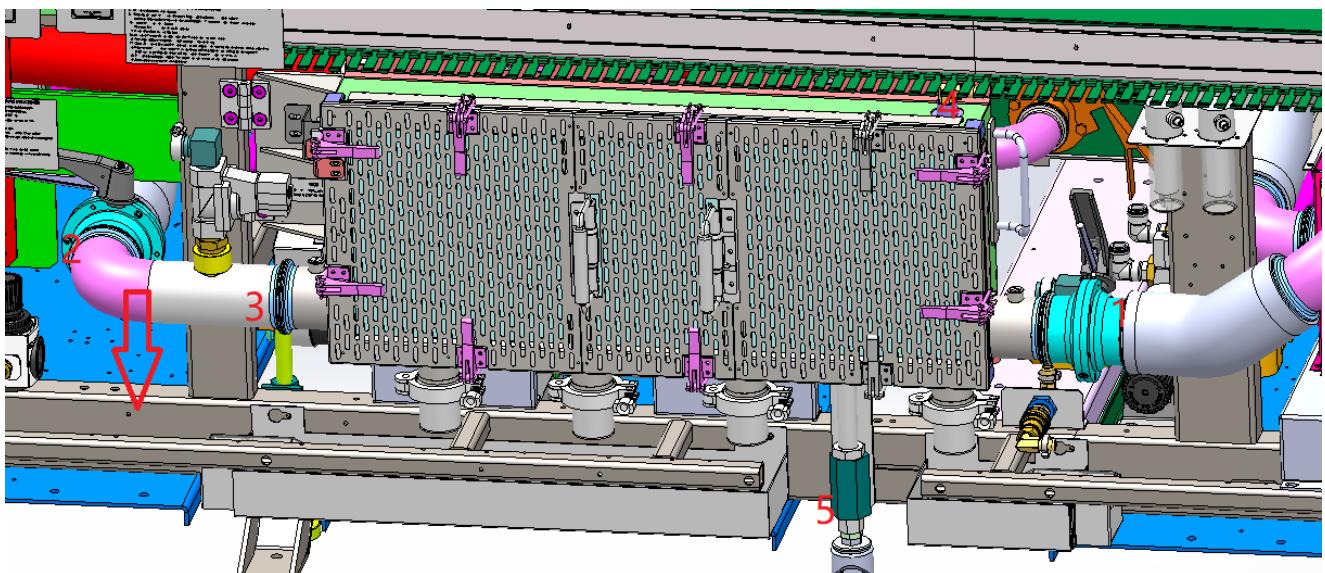


Fig 7

7. Loosen below exhaust tube connector , Retain clamp. Set aside for reinstallation (see Fig 8)

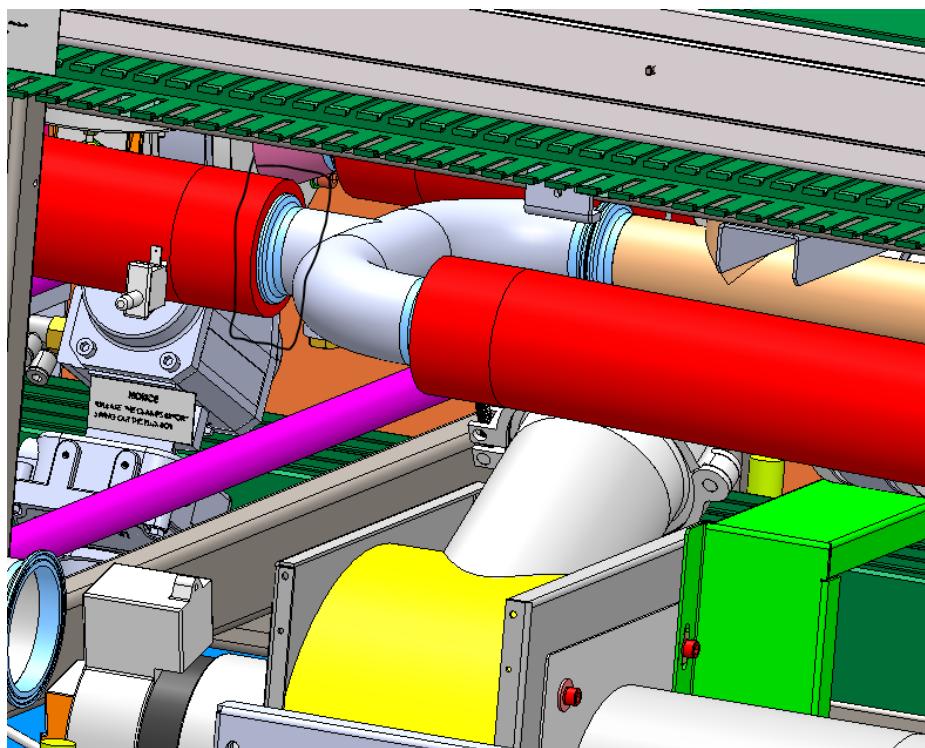


Fig 8

8. Loosen below exhaust tube connector , Retain clamp. Set aside for reinstallation (see Fig 9)

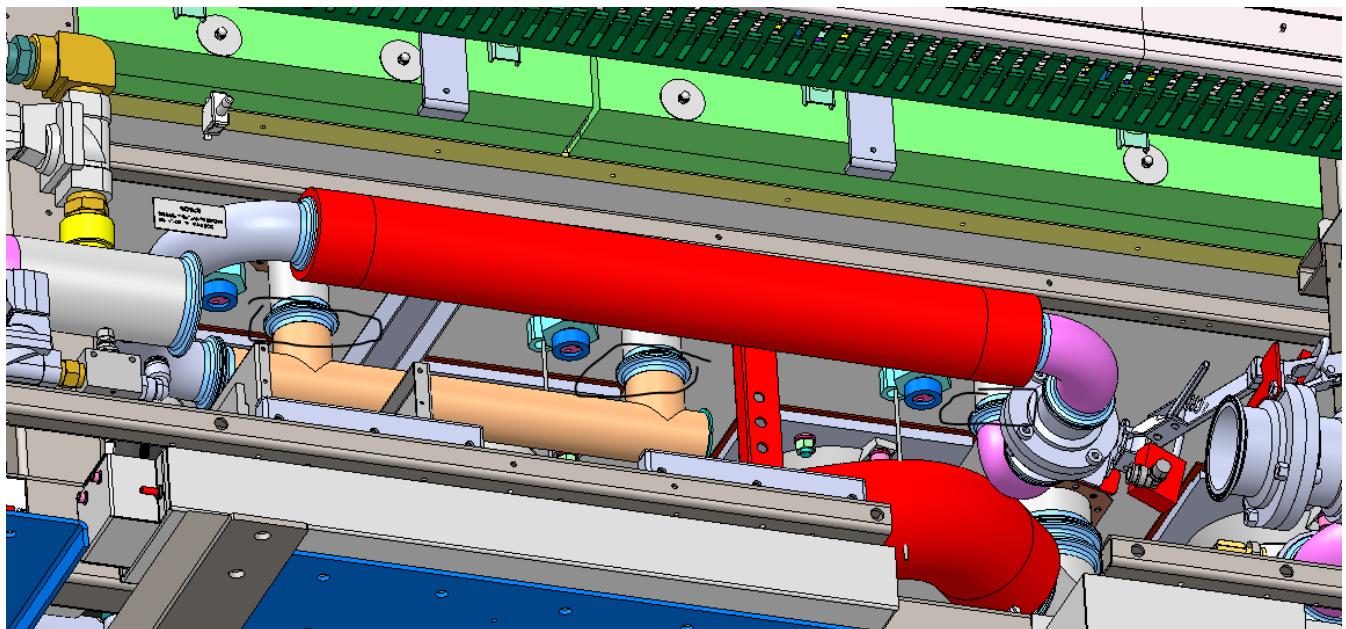
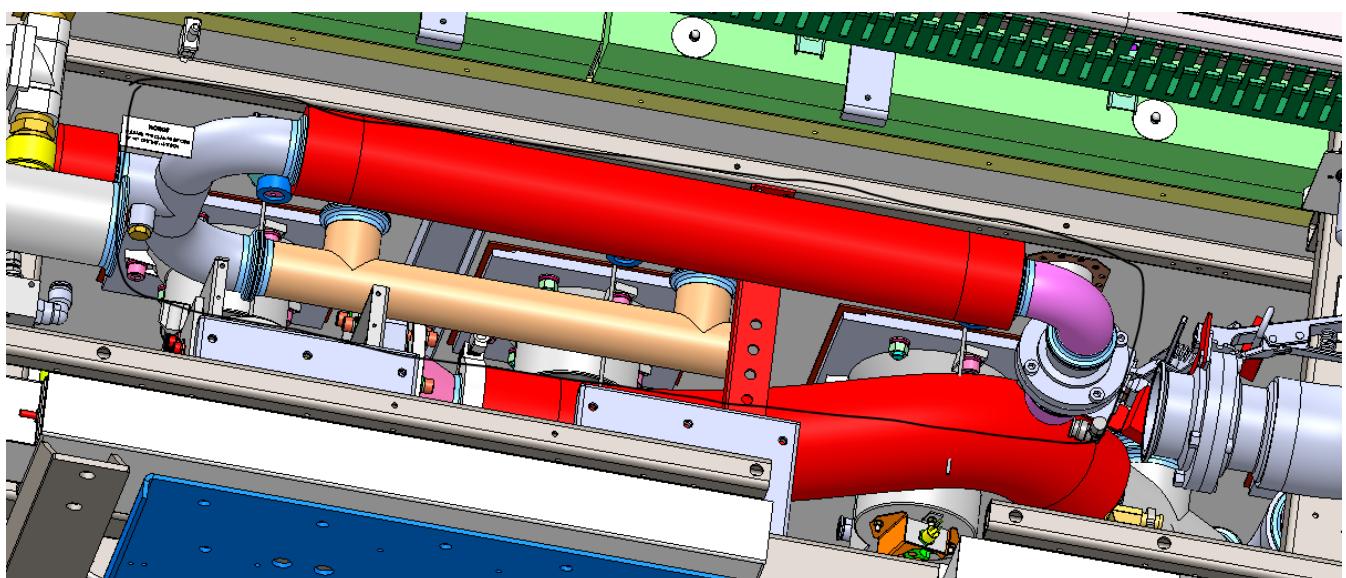


Fig 9

9. remove below tube from oven . Retain clamp and 2" butterfly assy. Set aside for reinstallation (see Fig 10/11)



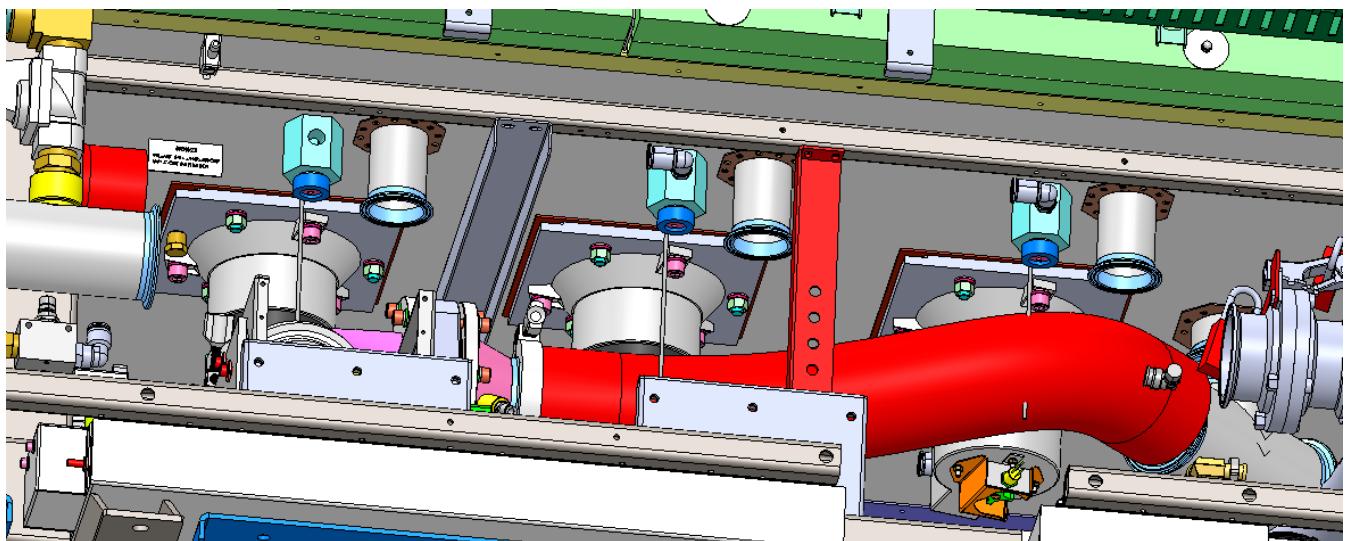


Fig 10/11

10. Use 6347C/226228 to plug 3 holes (see Fig 12)



Fig 12

11. Use 3"TEE (205053) Replace 3" ELBOW (204906) (see Fig 13)

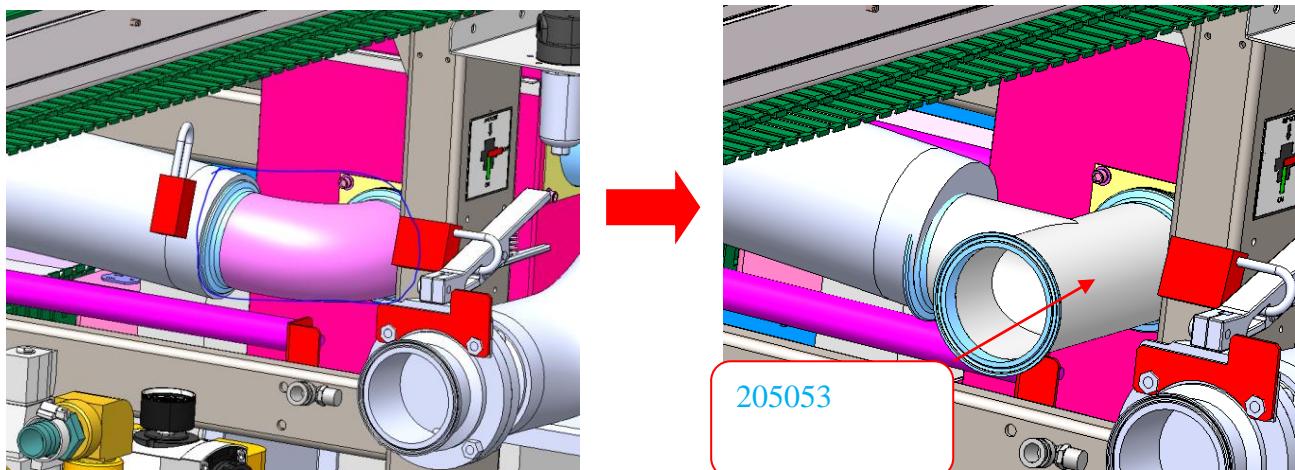


Fig 13

12. Install REDUCER, CLAMP FITTING, 3"-2" (593368) And 2" butterfly Assembly (see Fig 14)

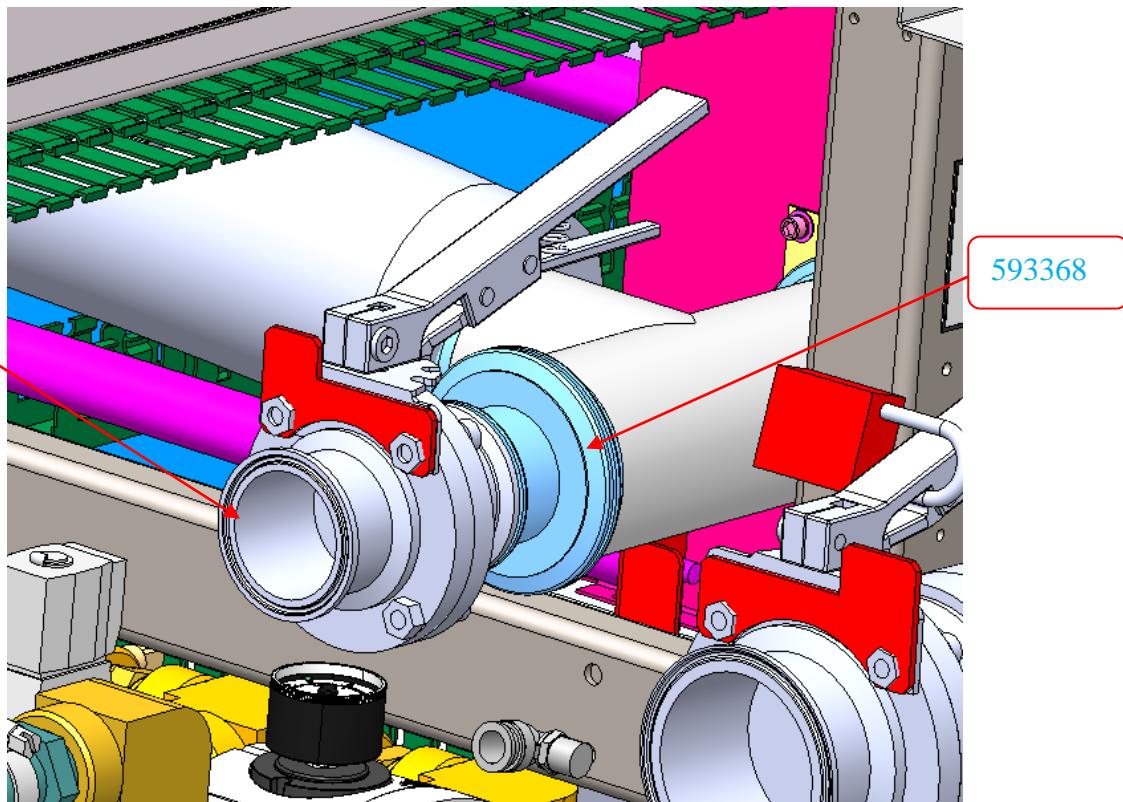


Fig 14

13. Install bracket (4191119) to oven. Use 2-M5 fixed it . (see Fig 15)

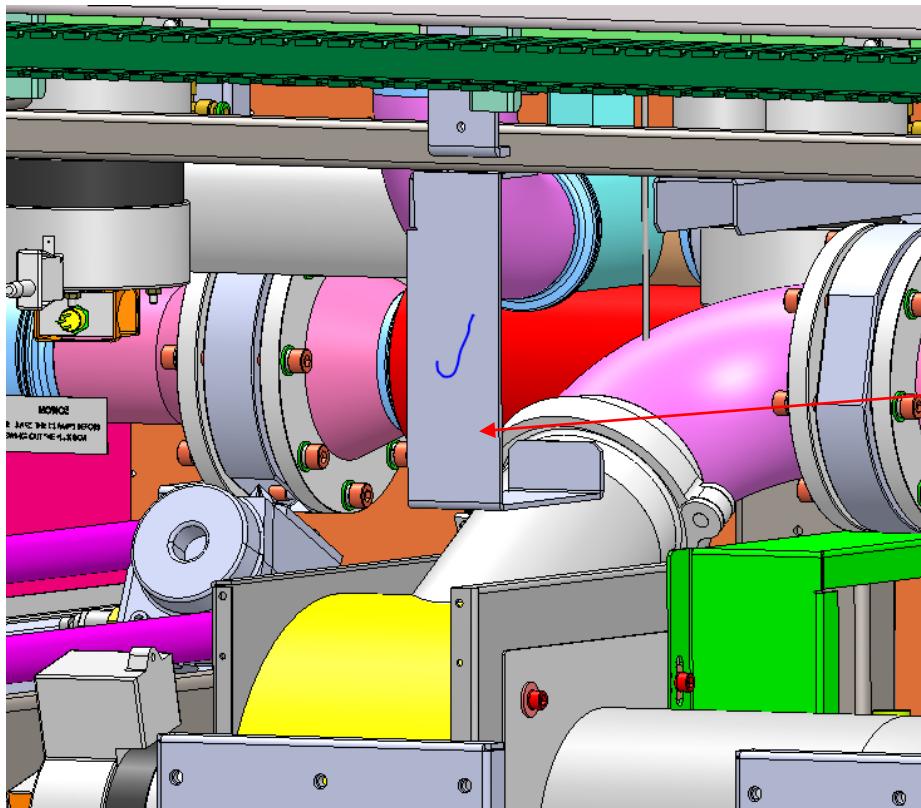
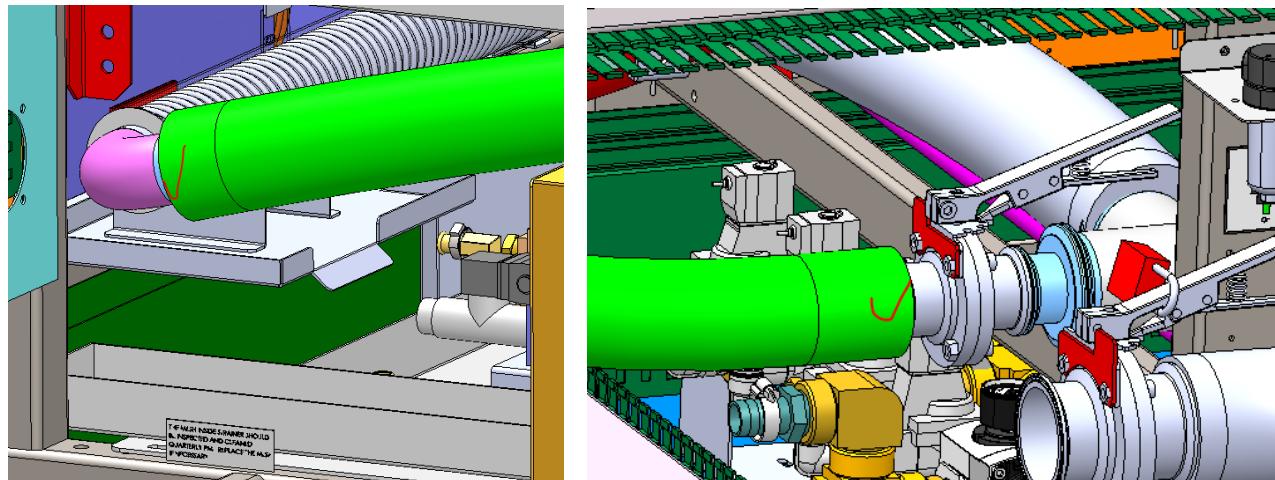


Fig 15

14. use 2" tube (4184768) connect like below shown (see Fig 16)



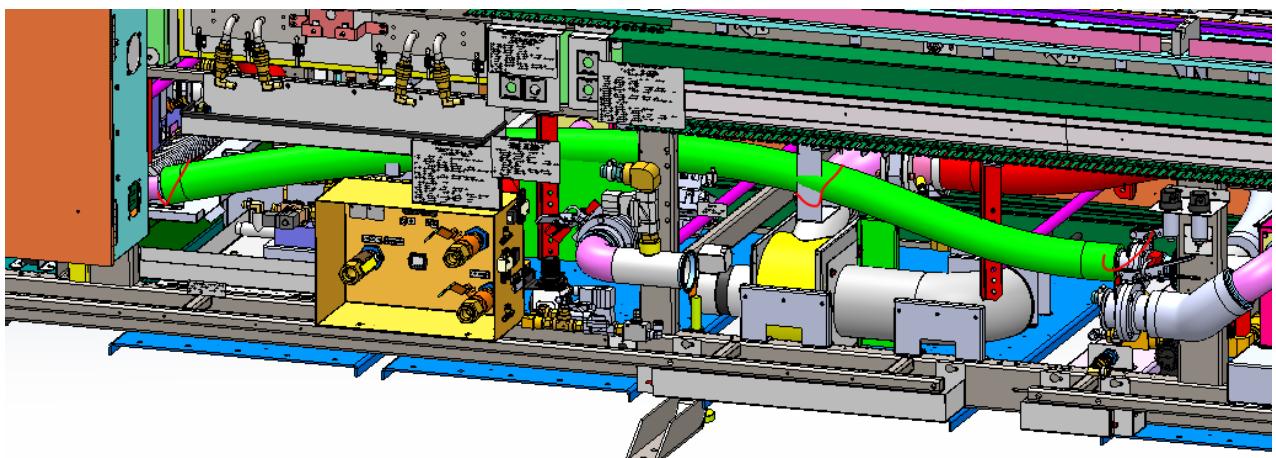


Fig 16

15. Reinstall strainer assembly to oven , connect water tube . fixed screw need use RTV (see Fig 17)

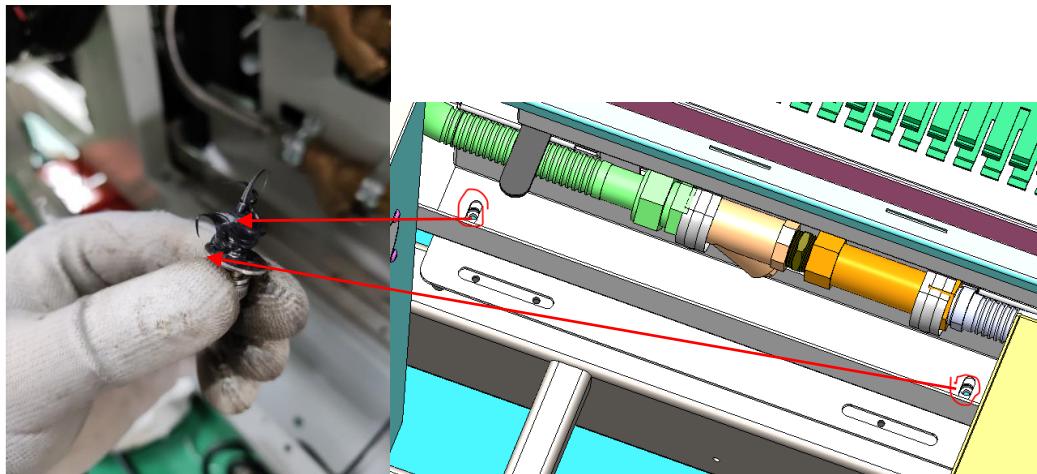


Fig 17

16. Reinstall back Drip pan for flat coil and quick connector (see Fig 18)

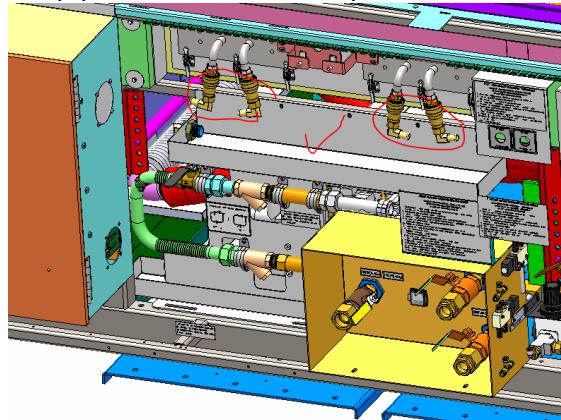


Fig 18



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17. Reinstall back large water box to oven , check all water tube and N2 tube , restore all other removed parts .