# Microwave Reactor Chamber Switching Procedure

Red applies when switching from B-doped to Undoped, Blue from Undoped to B-doped.

## Water system removal

1. Remove water tubes ×4, using Swagelock fittings/push-fits (hold collar in): T-Wall, T-Base, Base-FM (flow metre), Wall-HS (Heat sink)
2. Remove water fittings ×4: Brass BSP-Swage ×3 (2 on T, 1 on HS)+large BSP steel fitting series on FM/Push-fits ×3 (2 on T, 1 on HS)+2-part fitting on FM
3. Put removed fittings in the bag, store bag and tubes

## Gas-line and chamber removal

1. Flow some Ar through the chamber to make sure gas line is clean
2. With the gas line tap open/closed, vent the chamber

(Steps 6-11 can be done in any order)

1. Seal off the (left/right) pump and switch it off
2. Remove the exhaust line bellows from the chamber and blank, don’t mix up contaminated blank with uncontaminated
3. Remove the blower fitting from the top half of the chamber (4 bolts)
4. Remove the pyrometer from the top of the chamber
5. Remove the gas line from the chamber using the two opposing Swagelok/VCO fittings. Blank the VCOs loosely with the VCR/VCO-BSP fittings
6. Remove the gas line from the solenoid valve (make sure its off), being careful not to twist the welded fittings. Put VCR male blank into the removed fitting to keep as much Ar in as possible. Store gas line in-position or under. Store gas line in cupboard.
7. With lab jack in place, remove the bolts from the top of the chamber: Hexheads ×4, hexkeys ×12
8. Lower chamber down, take it away and store in cupboard. Fittings attached to the side of the chamber wall need removing; it must rest on top of a block in cupboard

## New chamber setup

1. Put new chamber on lab-jack and raise into position. Replace Hexkeys and hexheads

(Steps 15-21 can be done in any order, 20 and 21 low priority).

1. Get a VCR gasket ready. Position the box correctly, take out the male VCR blank. Attach, turning to finger-tight, then 1/8 with spanners
2. Attach chamber-side of gas-line to chamber, making sure VCO O-rings are clean. Ensure bellows are free and not twisted
3. Attach the exhaust+leak valve fittings to the chamber wall. Attach the wide/narrow exhaust line bellows to the chamber
4. Switch on right/left pump, then open valve on top of it
5. Once chamber is sealable, you can put in wire+disk and begin pumping prior to test
6. Attach pyrometer to the top of the chamber
7. Attach blower fitting
8. Once pumped down to near-base, flow 300 sccm H2 while fitting water system

## New water system setup

1. Fit water fittings ×4: Brass BSP-Swage ×3 (2 on T, 1 on HS)+large BSP steel fitting series on FM/Push-fits ×3 (2 on T, 1 on HS)+2-part fitting on FM
2. Fit water tubes ×4, using swagelock fittings/push-fits (note, 2 ‘pushes’ in (hard)): T-Wall, T-Base, Base-FM (flow metre), Wall-HS (Heat sink)

## Test

1. Test reactor by running at (*e.g*.) 150 torr, 1.5 kW in H2. Pump for 2 days before flowing B with gas-line tap and solenoid valve open. Always check leak-rate test (< 1 mtorr per 20 min)