

SAFETY – IMPLEMENTED DURING NORMAL COURSE
OF PROVIDING SUPPORT

Z2049A-01-S

S E R V I C E N O T E

Supersedes:
NONE

Z2049A-002 NOKIA FLALI Core Mechanics (Customized Product)

Serial Numbers:
All Units

POSSIBLE “MECHANICAL PINCH” HAZARD

WARNING

HAZARD CLASS 2

When the door of the fixture closes, the user may be exposed to potential mechanical pinch hazard and could suffer from injuries due to impact from door closing force

Parts Required:

P/N	Description	Qty.
Z2049AU-U04-FG	Retrofit Kit for Z2049A PSE	1
0470-3132	Loctite 270	1

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:		
SAFETY		
ACTION CATEGORY: <input type="checkbox"/> ON SPECIFIED FAILURE <input checked="" type="checkbox"/> AGREEABLE TIME	STANDARDS LABOR: 1.0 Hours	
LOCATION CATEGORY: <input type="checkbox"/> CUSTOMER INSTALLABLE <input checked="" type="checkbox"/> ON-SITE <input type="checkbox"/> SERVICE CENTER <input type="checkbox"/> CHANNEL PARTNER	SERVICE INVENTORY: <input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input checked="" type="checkbox"/> SEE TEXT	USED PARTS: <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT
AVAILABILITY: ALWAYS	NO CHARGE AVAILABLE UNTIL: ALWAYS	
AUTHOR: KHAW HOE SOON	PRODUCT LINE: QX	
ADDITIONAL INFORMATION:		

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Rev. 15



Situation:

Agilent has identified a potential mechanical pinch hazard for Z2049A-002 NOKIA FLALI Core Mechanics related to 0101-1438 double acting pneumatic cylinder with a 16mm bore size. The MPN for this cylinder is CJ2D16-257A and its brand is SMC.

Investigation revealed that when the fixture operates at 0.6MPa, the 0101-1438 double acting pneumatic cylinder will create a door closing force equivalent to 104N which might cause mechanical pinch hazard to users. Previously, the cylinder used, with the Agilent Part Number 0101-1297, has a smaller bore size which is 10mm and its door closing force when the fixture operates at 0.6MPa is 40N. The MPN for the former cylinder is NCJ2D10-1100-X142US and it is also supplied by SMC. The design changes took place as more force is required to disengage a pair of ODU Mac connector which was introduced at the later development stage of this product to improve the reliability and quality of this product.



Figure 1: Fixture with 10mm bore size cylinder

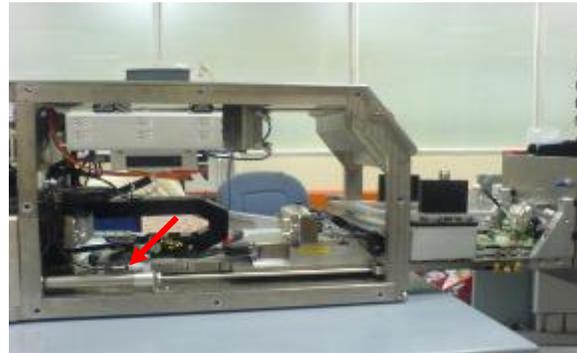


Figure 2: Fixture with 16mm bore size cylinder

Solution/Action:

1. Before starting to install any retrofit kit, seek for the availability of a green label at the rear panel of the fixture. When a green label is detected at the rear panel of the fixture, this means that the permanent fix kit is available in the fixture and no installation work is required. If no, proceed to step 2 to start the installation work.



Figure 1: Green label at the rear panel of the fixture

2. Before installing the permanent fix kit, it is advisable to understand the content of Appendix I, II & III. They can also be used as reference throughout the installation of the whole permanent fix kit.
3. Disconnect all the cables and tubing at the rear panel of the fixture and retrieve it from the rack.

4. Temporarily dismantle the top panel and side panels as shown in Figure 2, 3 & 4 to install the permanent fix kit.



Figure 2: Dismantling Front Side Panels



Figure 3: Dismantling Rear Side Panels



Figure 4: Dismantling Top Panel

5. Unplug the external Pressure Regulator [Brand: SMC, Manufacturing Part Number (MPN): AR10-M5BG] from the rear panel of the fixture as illustrated in Figure 5.

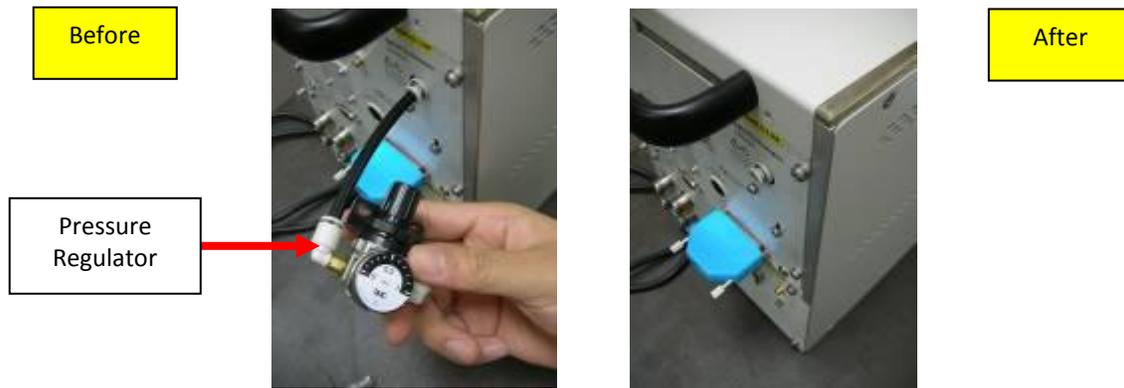


Figure 5: Disconnecting the pressure regulator from the fixture

6. Unplug the M8 tubing end that is linked to the elbow fitting of the Pilot Valve (Brand: SMC, MPN: EVT307-5DO-01F-Q) as indicated in Figure 6.

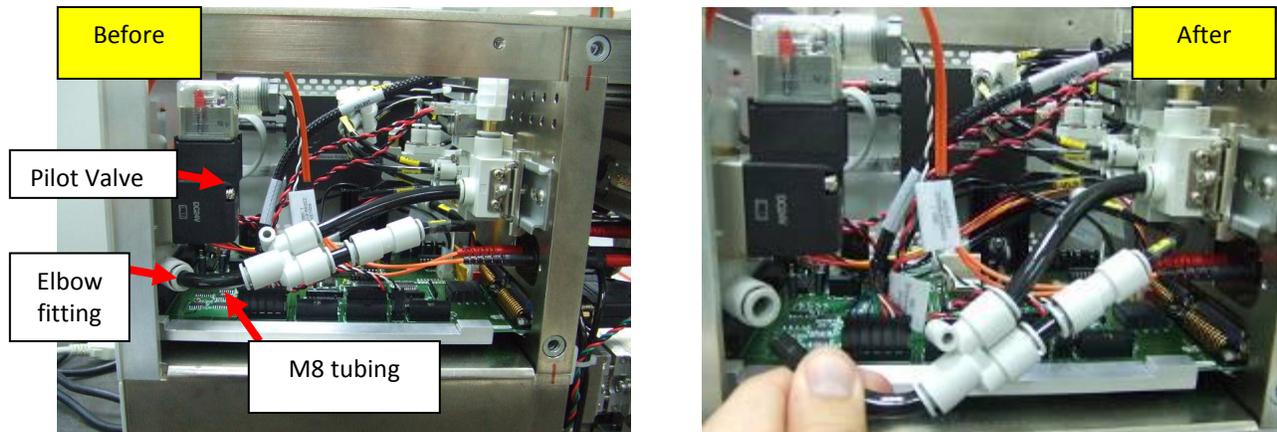


Figure 6: Disconnecting M8 tubing end from the Pilot Valve

- 7. After this, pull out the M6 tubing end that is linked to the fitting of the Air Pilot Valve (Brand: SMC, MPN: SYA3210-C4) as shown in Figure 7.

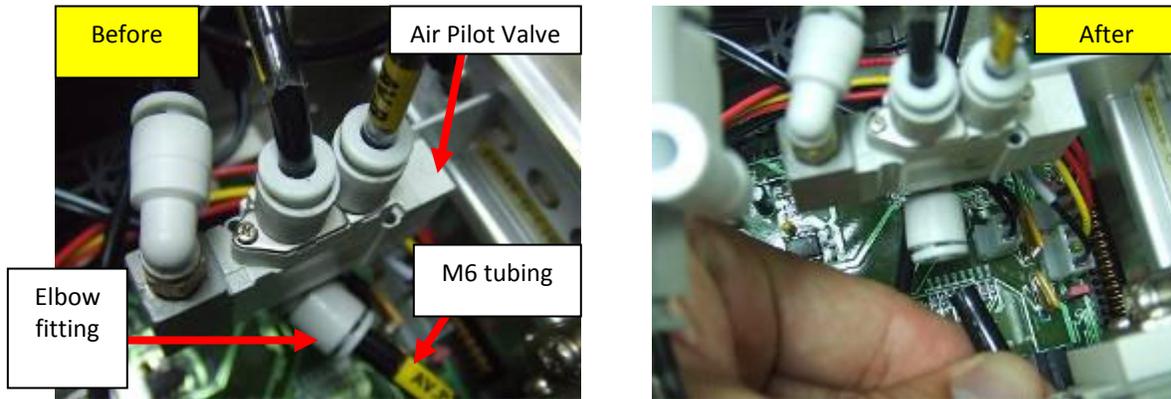


Figure 7: Disconnecting M6 tubing end from the Air Pilot Valve

- 8. Then, also disconnect the M8 tubing end from the incoming port of the Single Solenoid Valve assembly as illustrated in Figure 8.

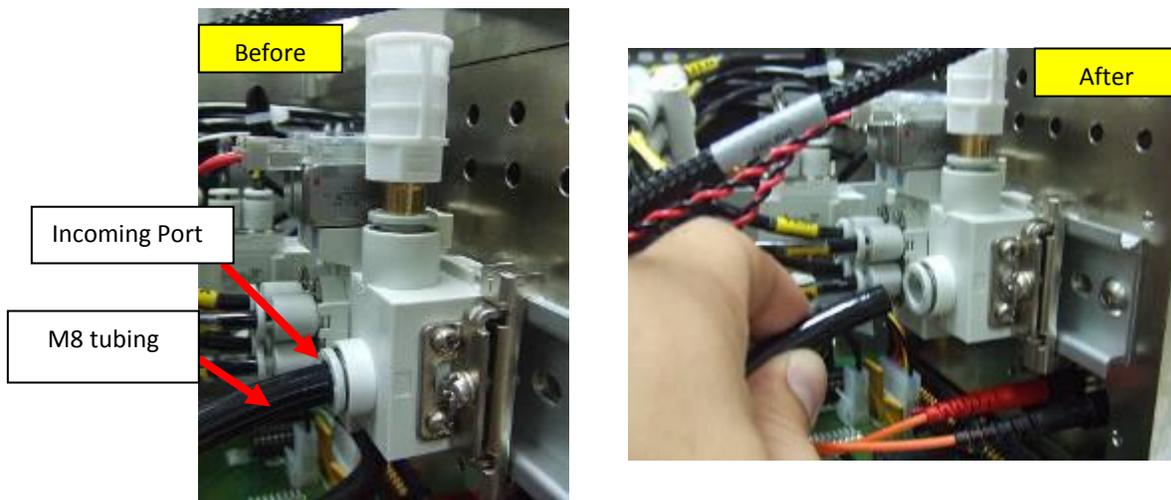


Figure 8 Disconnecting M8 tubing end from the Incoming Port

- 9. Now, the whole tubing and fitting assembly in Figure 9 is now removed from the fixture.

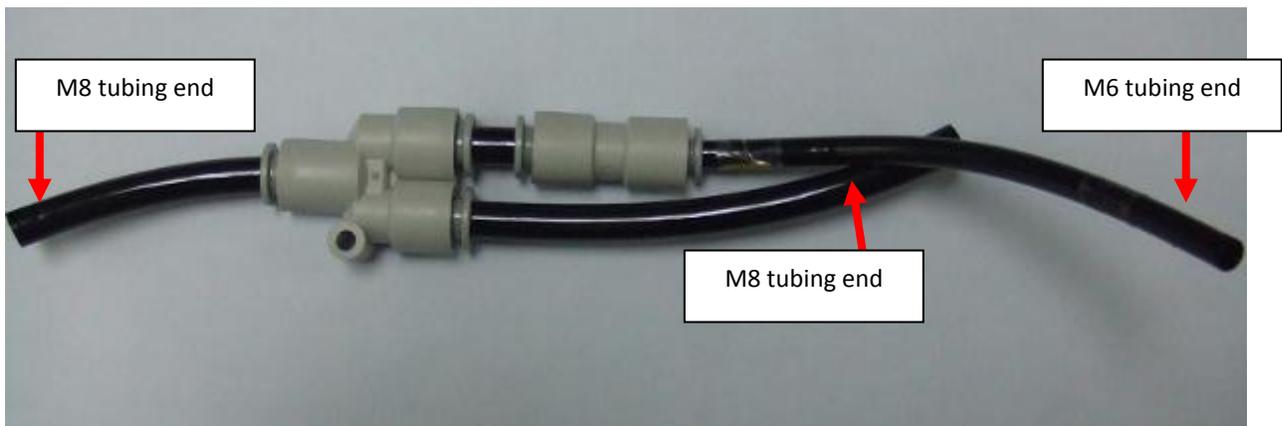


Figure 9: the removal of the existing tubing and fitting assembly

- Next, the external pressure regulator which has been removed in Step 5 will be installed back to fixture again. However, the nut of the pressure regulator needs to be loosened in order to flip the bracket of the pressure regulator at 180 degree to get the configuration as shown in Figure 10. Remember to tighten back the nut after the new configuration is achieved.

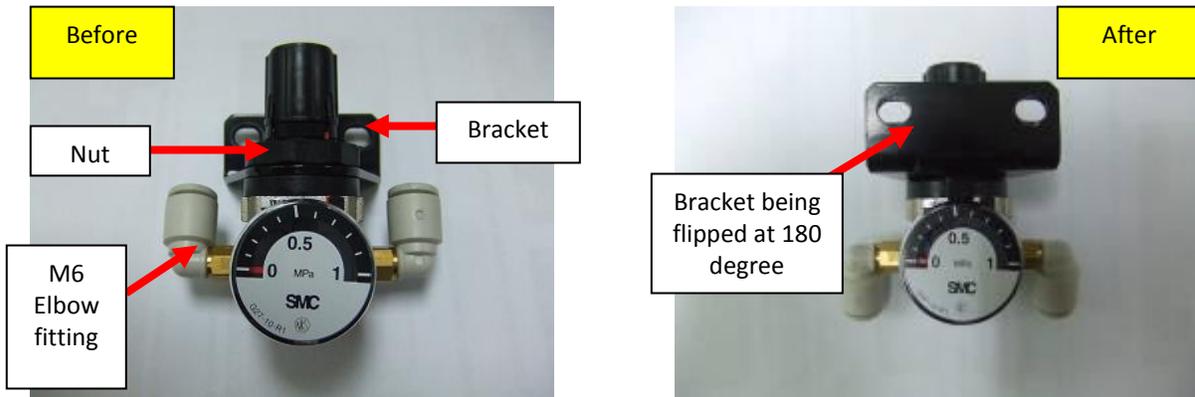


Figure 10: *Flipping the pressure regulator to new configuration*

- After this, install this pressure regulator to the Pressure Regulator Mounting sub-assembly which is retrieved from the permanent fix kit as indicated in Figure 11 & 12. Tighten it with 2 pieces of screws (SHCS M4 x 6).



Figure 11: *Pressure Regulator Mounting retrieved from the permanent fix kit*

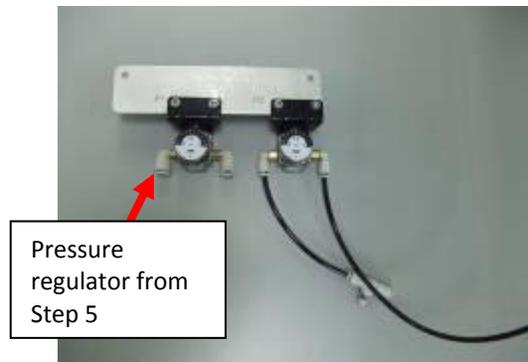


Figure 12: *Installing the Pressure Regulator sub- assembly which has been removed in Step 5*

- When this is done, plug in the tubing and fitting assembly (which consists of a Y-Joint 6 to 6 and a straight reducer 8 to 6 as provided in the permanent fix kit) as shown in Figure 13 into the *Out* port of the pressure regulator at *P1* as illustrated in Figure 14.

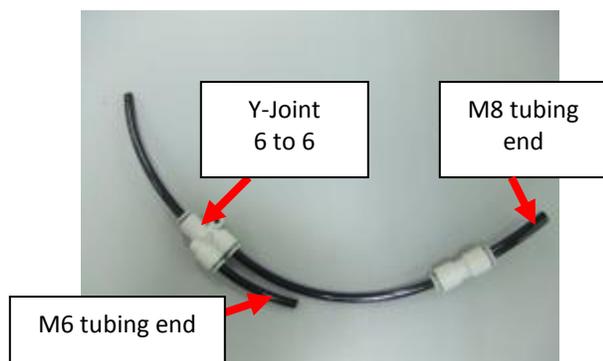


Figure 13: *Tubing and Fitting sub-assembly retrieved from the permanent fix kit*



Figure 14: *Tubing and Fitting sub-assembly linked to the Pressure Regulator at P1*

13. Subsequently, install the whole sub-assembly from Step 12 onto the top extrusion plate of the fixture as shown in Figure 15. Tighten 2 pieces of screws (SHCS M4 x 6) to hold the whole sub-assembly firmly on the top extrusion plate.

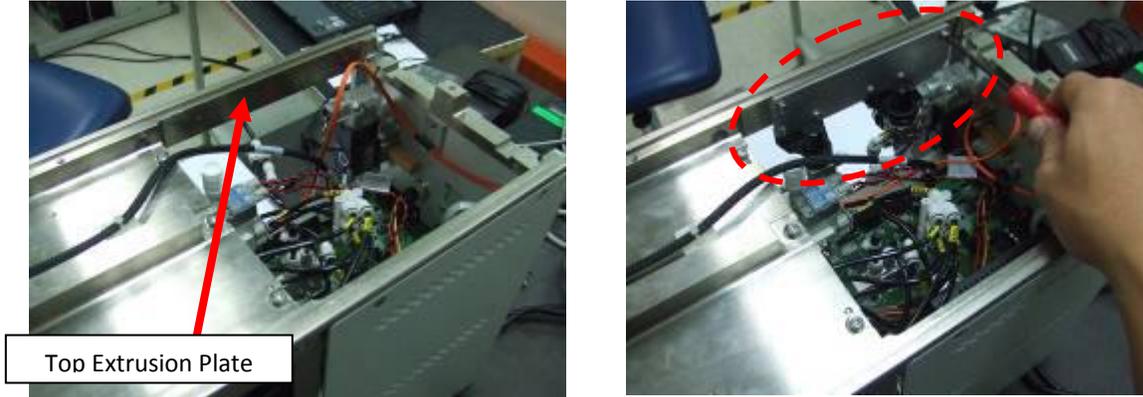


Figure 15: Installing the Pressure regulator mounting sub-assembly from Step 12 onto top extrusion plate

14. When this is completed, plug the M6 tubing end from the Y-Joint 6-6 to the elbow fitting of the Air Pilot Valve (Brand: SMC, MPN: SYA3210-C4) as indicated in Figure 16.

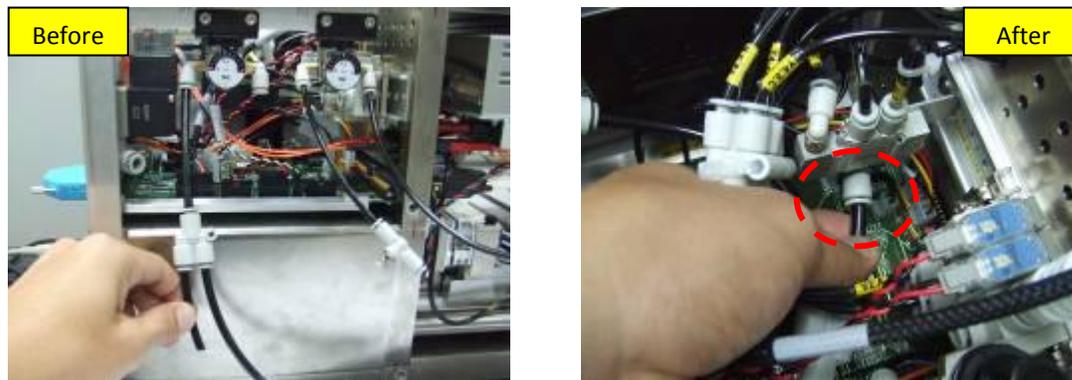


Figure 16: Plugging the M6 tubing end from Y-joint 6 to 6 into the elbow fitting

15. Next, plug the M8 tubing end from straight reducer 8 to 6 to the incoming port of the Single Solenoid Valve sub-assembly as shown in Figure 17.

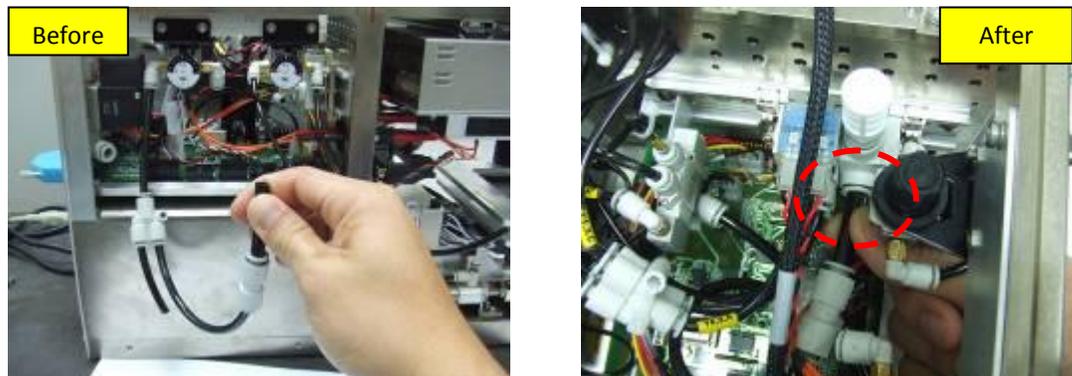


Figure 17: Plugging the M8 tubing end from the straight reducer 8 to 6 into the incoming port

16. The next step will involve the linking of the tubing and fitting sub-assembly as indicated in Figure 18, which is retrieved from the permanent fix kit, to the Pilot Valve and *In* port of the Pressure Regulator at *P1*.

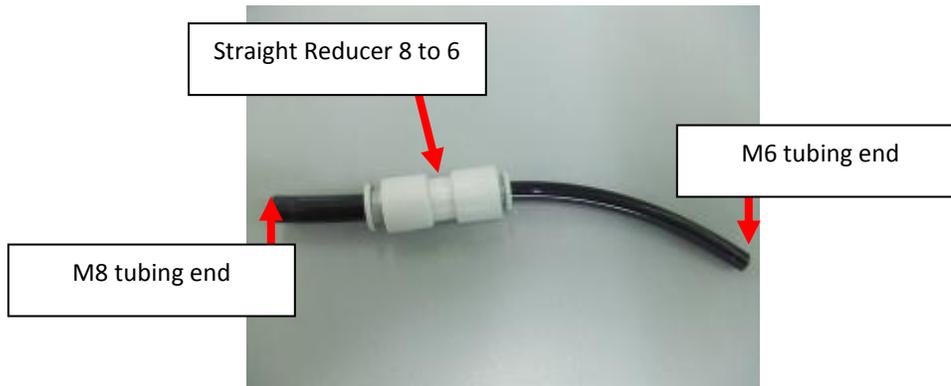


Figure 18: *Fitting and tubing sub-assembly from the permanent fix kit*

17. Plug in the M8 tubing end from Step 16 to the elbow fitting of the Pilot Valve (Brand: SMC, MPN: EVT307-5DO-01F-Q) as illustrated in Figure 19.



Figure 19: *Plugging the M8 tubing end from Step 16*

18. Plug in the M6 tubing end from Step 16 into the *In* port of the Pressure Regulator at *P1*.



Figure 20: *Plugging the M6 tubing end*

19. Identify the M4 tubing end (which is labeled as Y4.2.C) linked to the Y-Joint 4 to 4 which is connected to the Port *B* of the Single Solenoid Valve 2. Then, unplug this tubing from the Y-Joint 4 to 4.

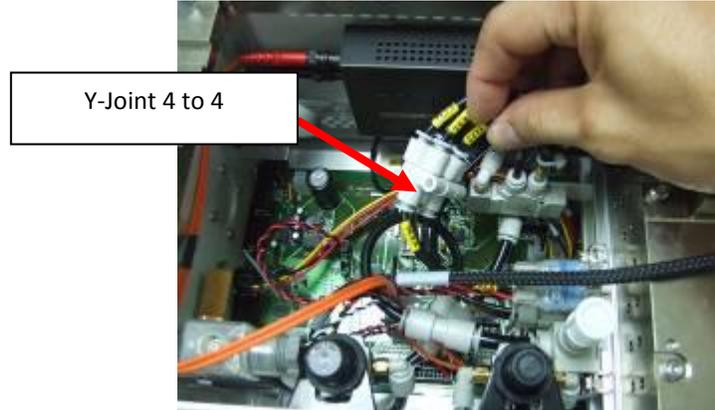


Figure 21: Identifying the tubing with Y4.2.C

20. Next, identify the inline flow controller that is linked to the *Out* port of the Pressure Regulator at P2 as shown in Figure 22. Then, plug in the M4 tubing end which is labeled as Y4.2.C from Step 19 into the empty end of the inline flow controller A as indicated in Figure 23.

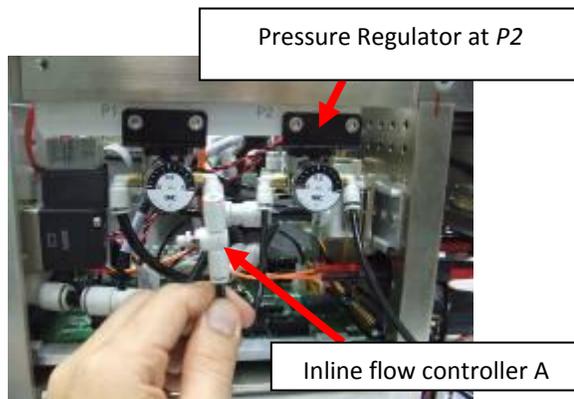


Figure 22: Identifying the inline flow controller A



Figure 23: Plugging in the M4 tubing end

Note: Please take note on the arrow symbols on the Inline Flow Controller A when making the connection. Please ensure that the bigger arrow is nearer to the M6 elbow fitting at the *Out* port of the pressure regulator at P2.

21. After this, identify the M4 tubing end at the *In* port of the Pressure Regulator at P2 as shown in Figure 24. Once this is done, connect this M4 tubing end to the empty port of the Y-Joint 4 to 4 which is left over after the previous unplugging of the M4 tubing end with the label of Y4.2.C in Step 19.

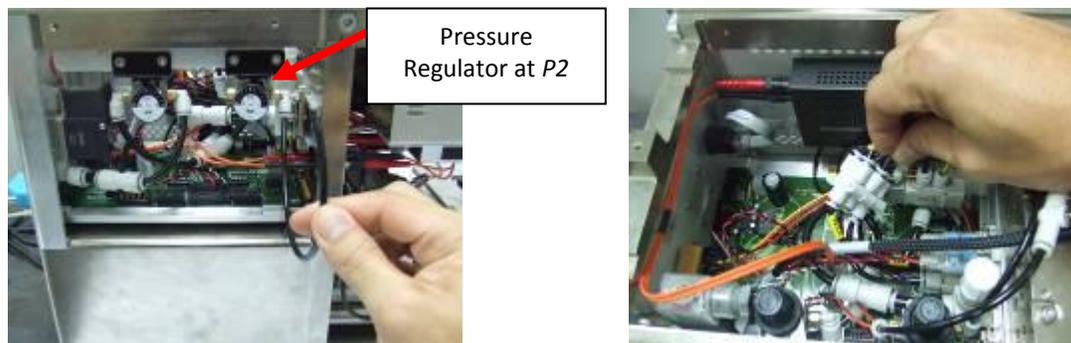


Figure 24: Identifying the M4 tubing end and make connection accordingly

22. Identify the M4 tubing end (which is labeled as Y4.3.B) linked to the Y-Joint 4 to 4 which is connected to the Port A of the Single Solenoid Valve 2. Then, unplug this tubing from the Y-Joint 4 to 4.

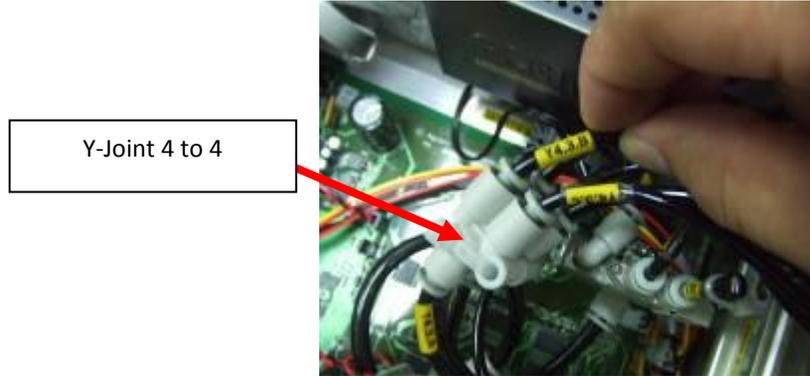


Figure 25: *Identifying the tubing with label Y4.3.B*

23. Retrieve the inline flow controller *B* sub-assembly from the permanent fix kit as shown in Figure 26. Then, plug this whole inline flow controller *B* sub-assembly into the empty port of the Y-Joint 4 to 4 which is left over after the previous unplugging of the M4 tubing end with the label of Y4.3.B in Step 22.

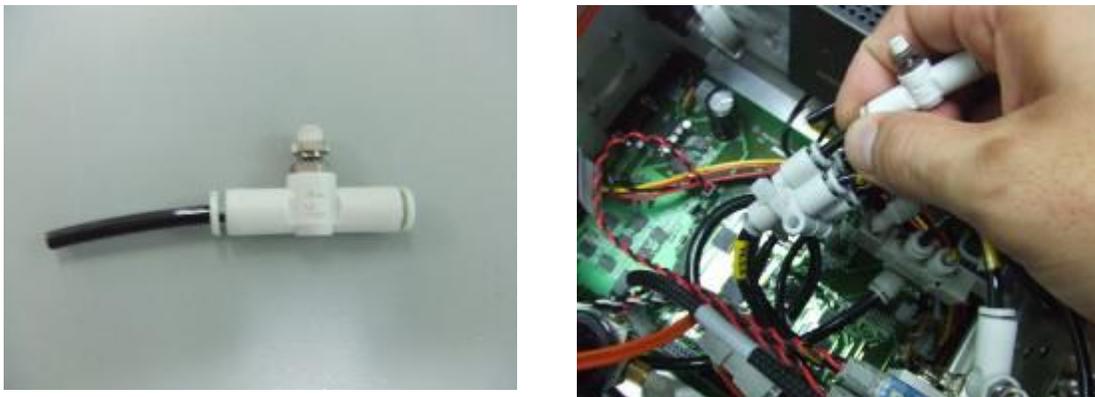


Figure 26: *Plugging in the inline flow controller B sub-assembly from the permanent fix kit*

Note: Please take note on the arrow symbols on the Inline Flow Controller *B* when making the connection. Please ensure that the bigger arrow is nearer to the empty port of the Y-Joint 6 to 6 which is left over after the previous unplugging of the M4 tubing end with the label of Y4.3.B in Step 21.

24. Next, plug in the M4 tubing end with the label of Y4.3.B to the empty port of the inline flow controller *B* from Step 23 as indicated in Figure 27.



Figure 27: *Plugging in the M4 tubing end with the label of Y4.3.B into the inline flow controller B*

25. When this is done, the whole installation of the permanent fix kit is completed. The next phase will be fine tuning the operating pressure and traveling speed of the drawer base cylinder.
26. Before initiating the software control, make sure that the following cables and tubing connection have been implemented at X716 Power port, X717 COM2 port and the incoming port of the Pilot Valve as shown in Figure 28.



Figure 28: Connecting the cables and tubing

27. Initiating the executable file of the Agilent Fixture Control as shown in Figure 29.



Figure 29: Short Cut for the executable file of Agilent Fixture Control

28. After initiating the file, the User Interface (UI) as shown in Figure 30 will pop up.

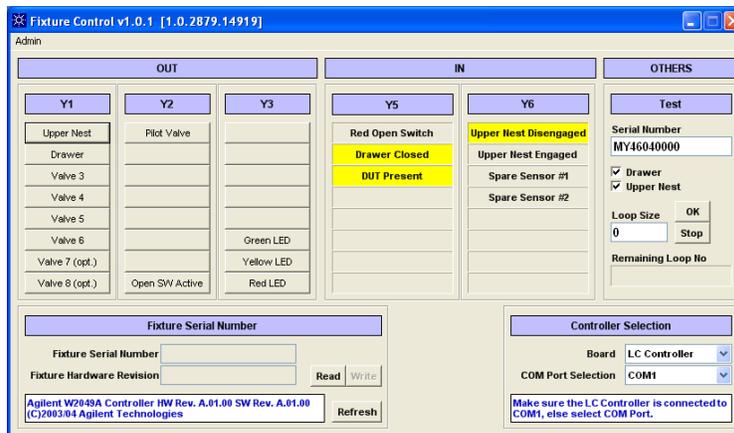


Figure 30: User Interface for the Agilent Fixture Control

29. Before triggering any button on the UI, please make sure that the front door of the fixture is fully closed as illustrated in the Figure 31.



Figure 31: Ensuring the door of the fixture is closed before triggering any button on the UI

30. After this, start supplying the air into the fixture by clicking the *Pilot Valve* tab in the UI as shown in Figure 32.

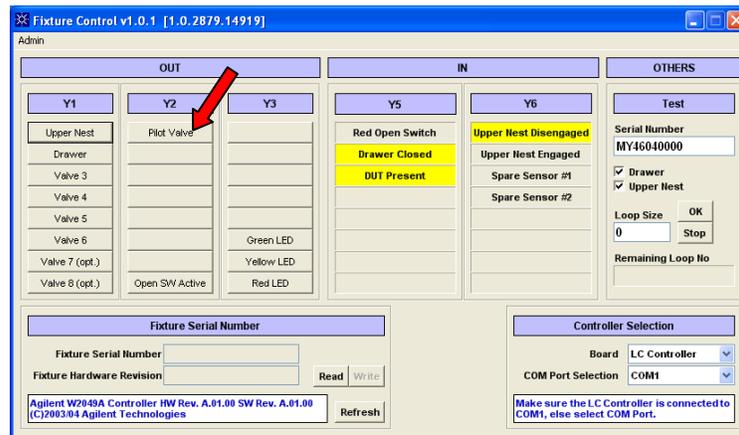


Figure 32: Clicking the Pilot Valve tab

31. The next step will involve the adjustment of the operating pressure for both pressure regulators at *P1* and *P2*. In order to adjust the operating pressure, pulled the knob upwards as shown in Figure 33. Then, rotate the knob in clockwise direction to increase the operating pressure and vice versa.

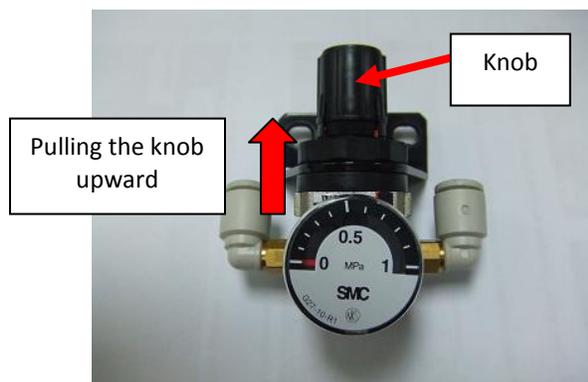


Figure 33: Pulling the knob upwards

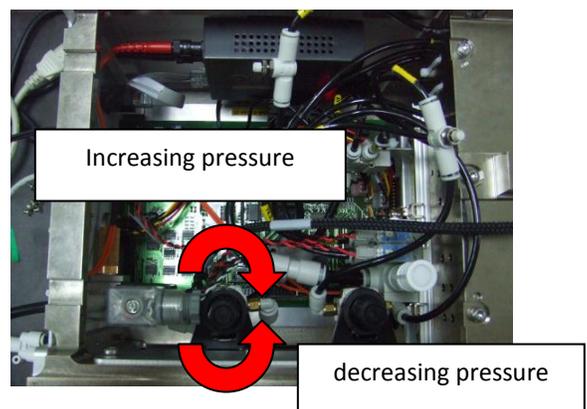


Figure 34: Adjusting the operating pressure

- Set the operating pressure at 0.6MPa for the pressure regulator at P1 (refer to Figure 35) while 0.22MPa for the pressure regulator at P2 (refer to Figure 36).



Figure 35: Pressure Regulator at P1 operating at 0.6MPa



Figure 36: Pressure Regulator at P2 operating at 0.22MPa

- Fully loosening the knob of the fittings as shown in Figure 37 by rotating the knob in anti-clockwise direction so that maximum air can enter the cylinder.

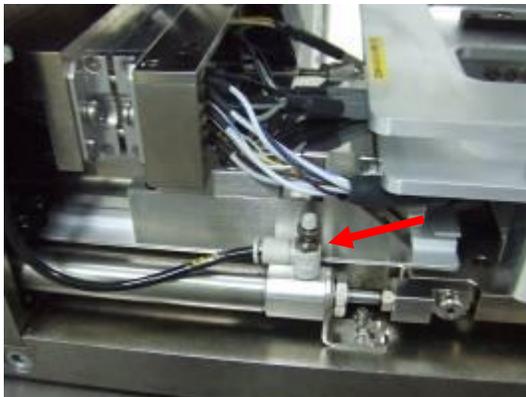


Figure 37: loosening the knob of the fittings

- Next, click the *Drawer* tab in UI to open the drawer base as shown in Figure 38.

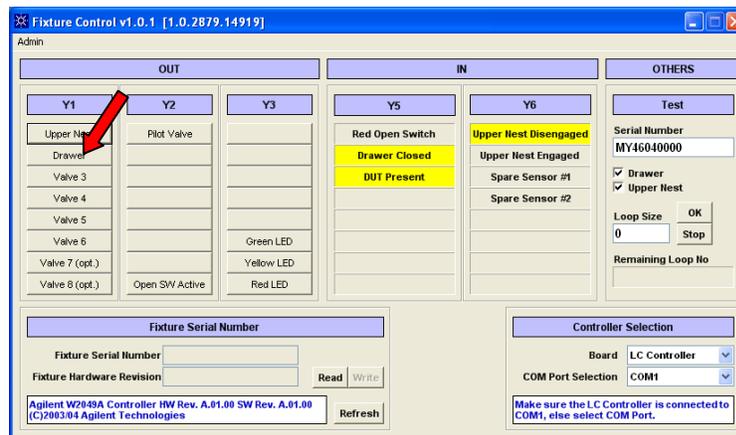


Figure 38: Clicking the *Drawer* tab to open the drawer

- After clicking the *Drawer* tab, the drawer base will not open immediately as the knob of the inline flow controller *B* is fully tightened. In order to open the drawer base, gradually loosen the knob of the inline flow controller *B* until the drawer base is fully open.

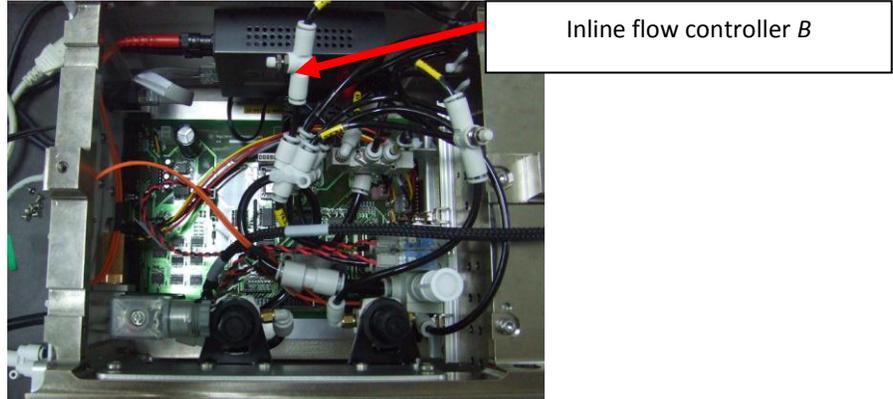


Figure 39: Gradually loosening the knob of the inline flow controller *B*

- Next, click the *Drawer* tab again in the UI to close the drawer base as shown in Figure 40.

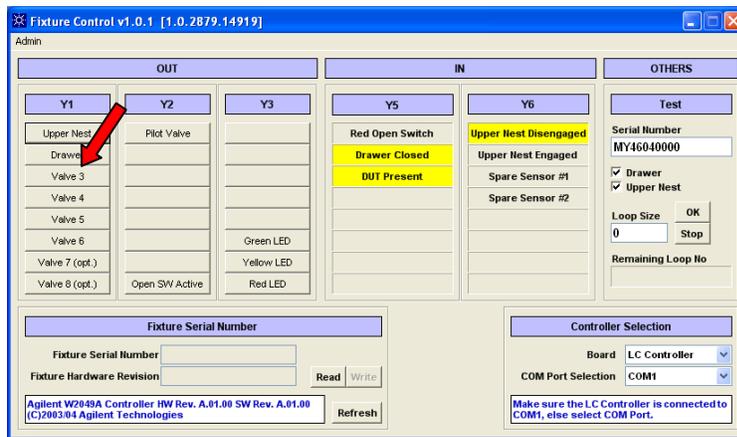


Figure 40: Clicking the *Drawer* tab again to close the drawer

- After clicking the *Drawer* tab, the drawer base will not close immediately as the knob of the inline flow controller *A* is fully tightened. In order to close the drawer base, gradually loosen the knob of the inline flow controller *A* until the drawer base is fully open.

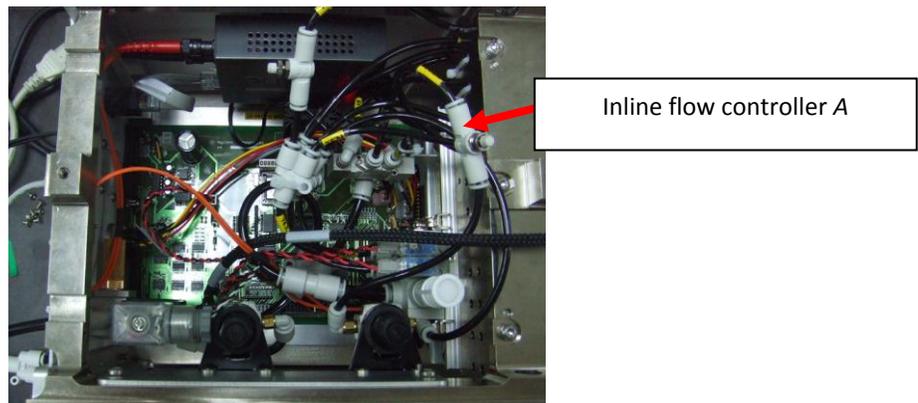


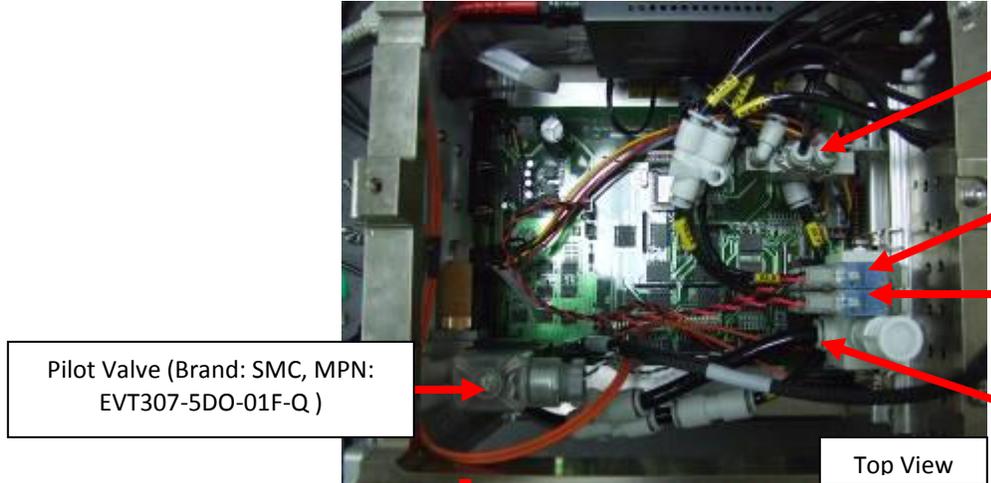
Figure 41: Gradually loosening the knob of the inline flow controller *A*

38. Repeat Step 34 until Step 37 until the drawer base can fully open within 2 seconds when it is close at its starting position.
39. Besides that, Step 34 until Step 37 also need to be performed repeatedly until the drawer base can fully close within 2 seconds when it is open at its starting position.
40. When the optimum setting is achieved, kindly tighten the nut of all the fittings. Apply some Loctite 270 on the thread to ensure that they are not easily adjusted by any other untrained users.
41. After this, attach a green label onto the rear panel of the fixture as shown in Figure 42 to indicate that the permanent fix kit has been fully installed into the fixture.



Figure 42: Attaching the green label

Appendix I: Existing main pneumatic components



Pilot Valve (Brand: SMC, MPN: EVT307-5DO-01F-Q)

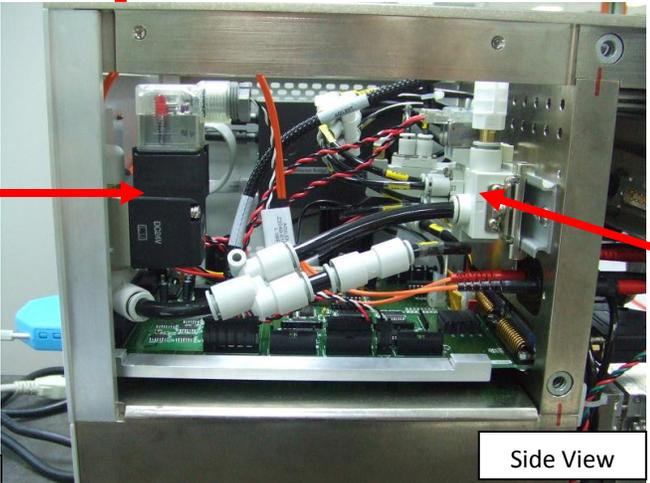
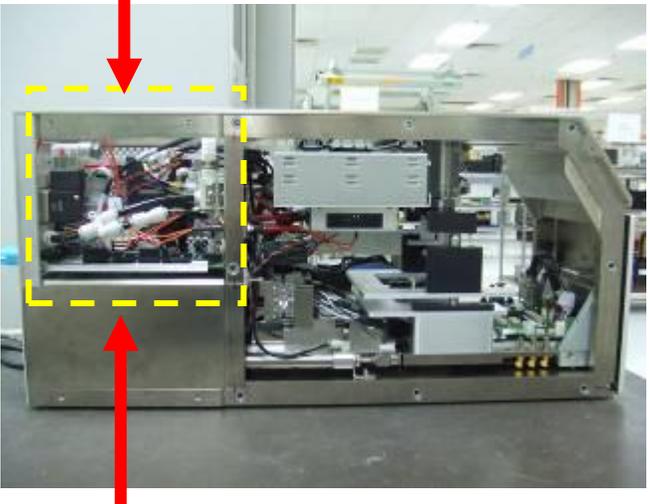
Air Pilot Valve (Brand: SMC, MPN: SYA3120-C4)

Single Solenoid Valve 2 (Brand: SMC, MPN: SY3160-5MOU-C4-Q)

Single Solenoid Valve 1 (Brand: SMC, MPN: SY3160-5MOU-C4-Q)

Incoming port of Valve Assembly

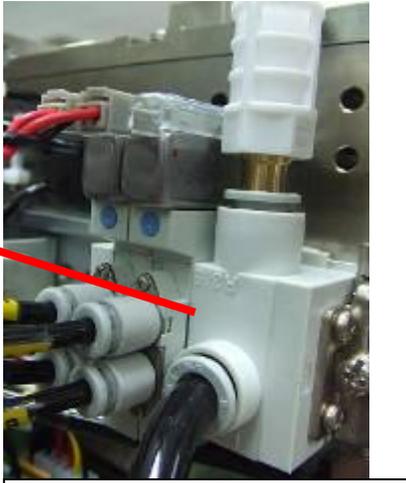
Top View



Side View

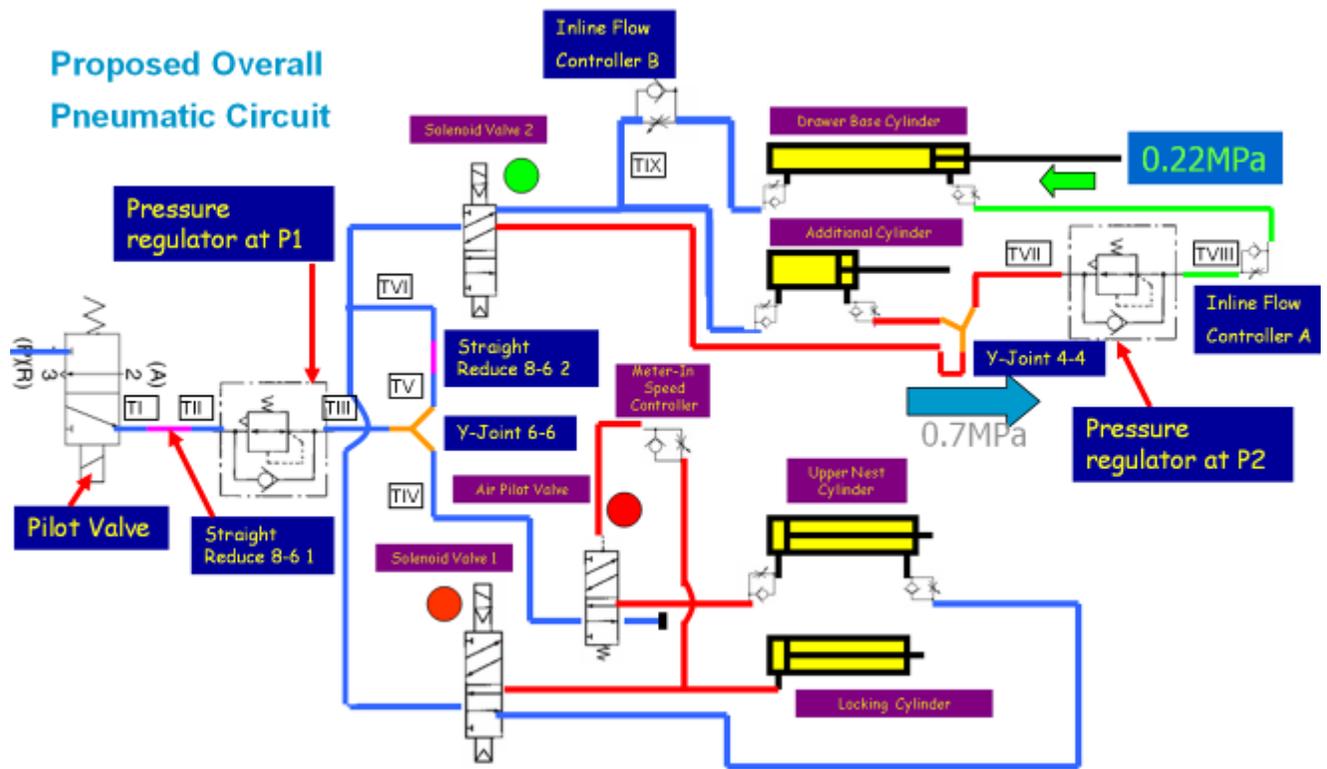


Pilot Valve (Brand: SMC, MPN: EVT307-5DO-01F-Q)

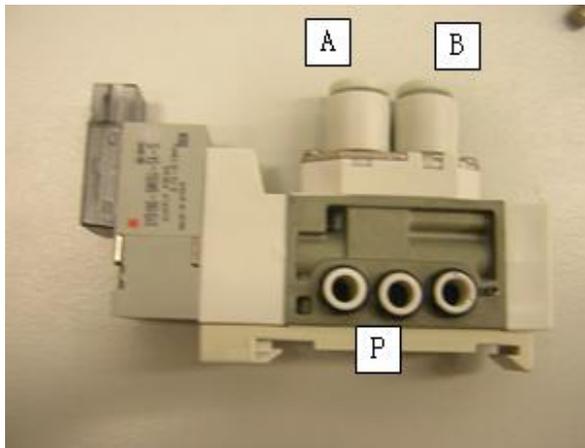


Incoming port of Valve Assembly

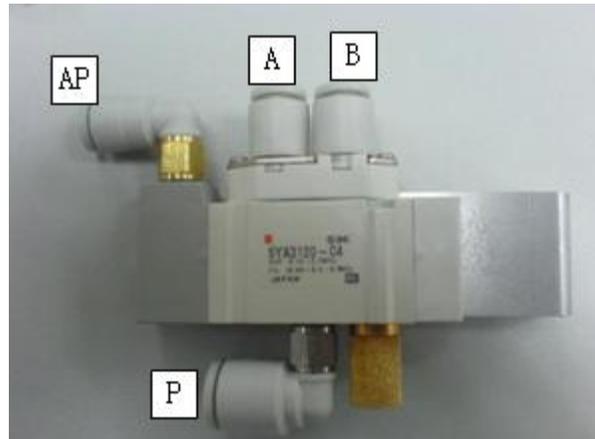
Appendix II: Proposed Overall Pneumatic Circuit



Appendix III: Port Labels on the key pneumatic component



Part Description: Single Solenoid Valve
MPN: SY3160-5MOU-C4-Q



Part Description: Single Solenoid Valve
MPN: SYA3120-C4



Part Description: Y-Joint M6-M6
MPN: KQ2U06-00



Part Description: Straight Reduce M8 to M6
MPN: KQ2H06-08



Part Description: Inline Flow Controller
MPN: AS1001F-04

ATTENTION
Port "A" is nearer to the larger arrow symbol
Port "B" is nearer to the smaller arrow symbol

Wrong connection will result in undesirable control over the air flow which then will lead to unanticipated operation of the fixture

Appendix IV: Labels on the tubing ends and description**Labels on the each tubing**

ITEM	LABEL ON END 1	LABEL ON END 2	TUBING #	TUBING SIZE	TUBING LENGTH (mm)
1	INC	SR1.8	I	M8	50
2	SR1.6	PR1.I	II	M6	95
3	PR1.O	Y6.A	III	M6	110
4	Y6.B	AV.P	IV	M6	65
5	Y6.C	SR2.6	V	M6	165
6	SR2.8	PB.P	VI	M8	55
7	PR2.I	Y4.2.C	VII	M4	240
8	PR2.O	FCA.A	VIII	M4	125
9	Y4.3.B	FCB.B	IX	M4	45

Description for each label

ITEM	END LABEL	DESCRIPTION
1	SR1.8	STRAIGHT REDUCER 1 PORT M8 SIZE
2	SR1.6	STRAIGHT REDUCER 1 PORT M6 SIZE
3	PR1.I	PRESSURE REGULATOR 1 PORT "IN"
4	PR1.O	PRESSURE REGULATOR 1 PORT "OUT"
5	Y6.A	Y-JOINT M6-M6 PORT A
6	Y6.B	Y-JOINT M6-M6 PORT B
7	Y6.C	Y-JOINT M6-M6 PORT C
8	Y4.2.A	Y-JOINT M4-M4 2 PORT A
9	Y4.2.B	Y-JOINT M4-M4 2 PORT B
10	Y4.2.C	Y-JOINT M4-M4 2 PORT C
11	Y4.3.A	Y-JOINT M4-M4 3 PORT A
12	Y4.3.B	Y-JOINT M4-M4 3 PORT B
13	Y4.3.C	Y-JOINT M4-M4 3 PORT C
14	SR2.8	STRAIGHT REDUCER 2 PORT M8 SIZE
15	SR2.6	STRAIGHT REDUCER 2 PORT M6 SIZE
16	PR2.I	PRESSURE REGULATOR 2 PORT "IN"
17	PR2.O	PRESSURE REGULATOR 2 PORT "OUT"
18	FCA.A	STRAIGHT FLOW CONTROLLER "A" PORT A
19	FCA.B	STRAIGHT FLOW CONTROLLER "A" PORT B
20	FCB.A	STRAIGHT FLOW CONTROLLER "B" PORT A
21	FCB.B	STRAIGHT FLOW CONTROLLER "B" PORT B