REFURB SG371-SG606

SECTION 14

Entrance Door Refurbish

Specification

1. **Remove Door Wings & Door Shafts as per instructions on Section 14A.**

2. **Replace Top & Bottom Door Shaft Bearings as per instructions on Section 14B.**

3. **Refit Door Wings, connect sensitive edge and check door set up & operation as per instruction on Section 14C.**

4. **Adjust Doors mechanically as per instructions on Section 14D.**

5. **Replace proximity (Reed) switches as per instruction on Section 14E.**

6. **Replace driver's door control buttons in side console (3 off) with new buttons.**

7. **Replace broken/missing exterior emergency controls flap with new flap supplied by BAC.**

N.B. All replacement parts supplied by BAC

Section 14A

Refurbish Entrance Door Wings & Shafts

1. Remove air from system.

2. Remove guiding bracket from top of door wings & disconnect sensitive edge plugs (see Figure 1 below).

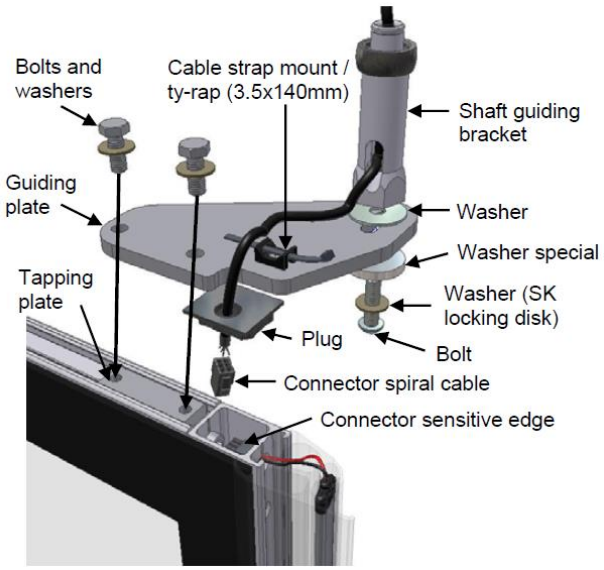


Figure 1

3. Remove Precision Bolt from top of door wings (see Figure 2 below).

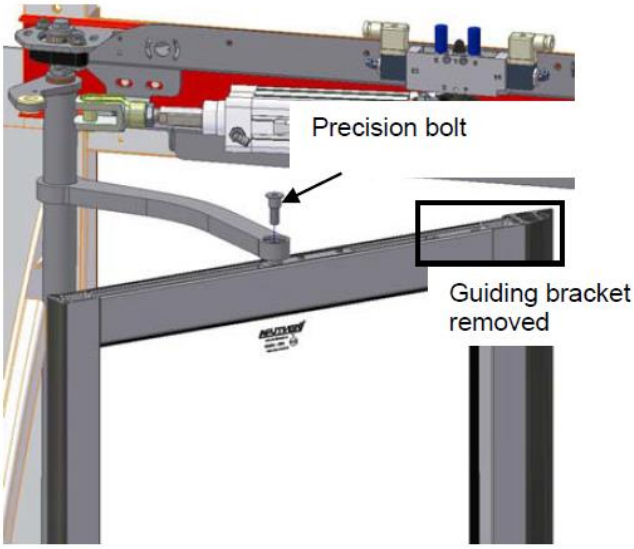


Figure 2

4. Remove bolts from lower door wing attach brackets (see Figure 3 below).

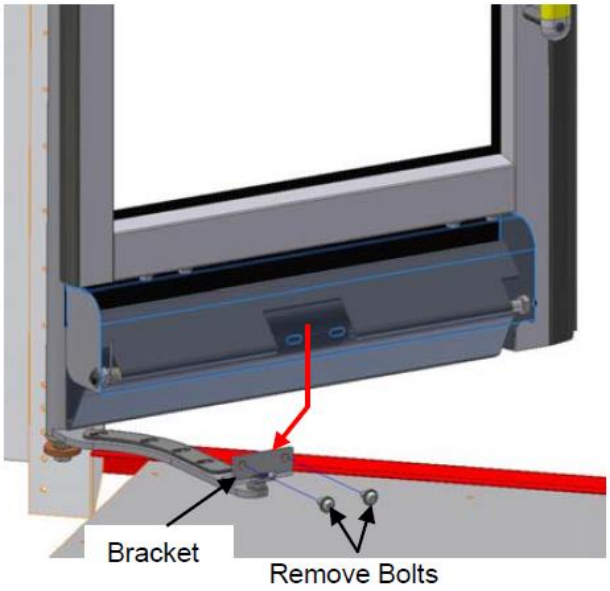


Figure 3

5. Loosen secure nut, remove secure spring and disconnect the cylinder fork joints from the top of the door shafts (see Figure 5 below).

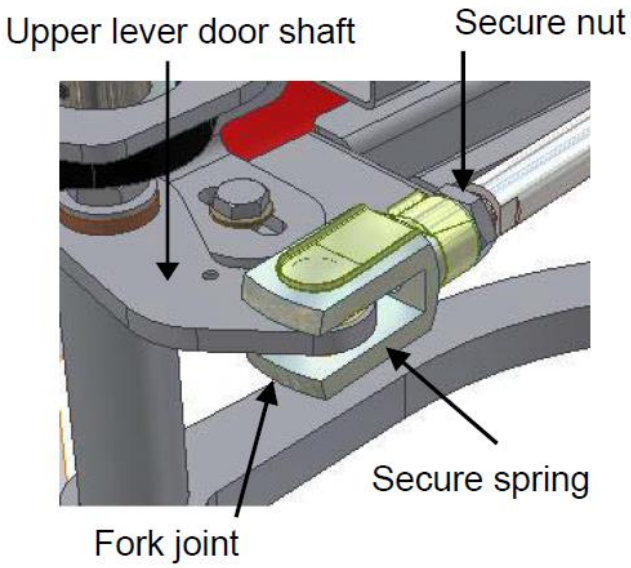


Figure 5

6. Disconnect upper part of door shaft from shelfplate (see Figure 6 below). Lift door shaft off bottom pivot bolt.

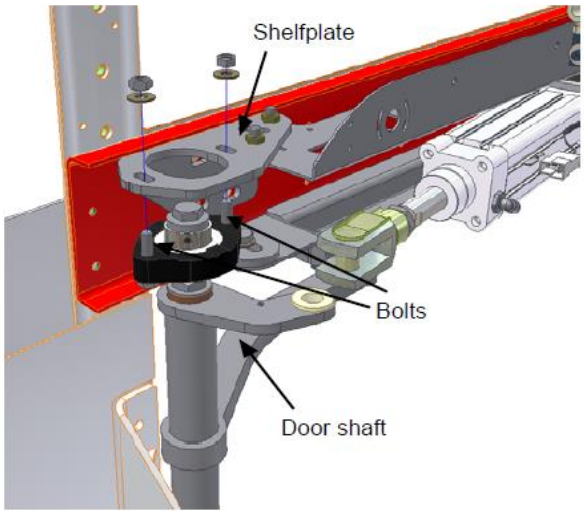


Figure 6

Section 14B

Replace Top & Bottom Door Shaft Bearings

1. Remove existing door shaft bottom bearings and fit new bearings (see Figure 7 below).



Figure 7

2. Remove existing spring bearing bush and fit new bearing bush (see Figure 8 below).

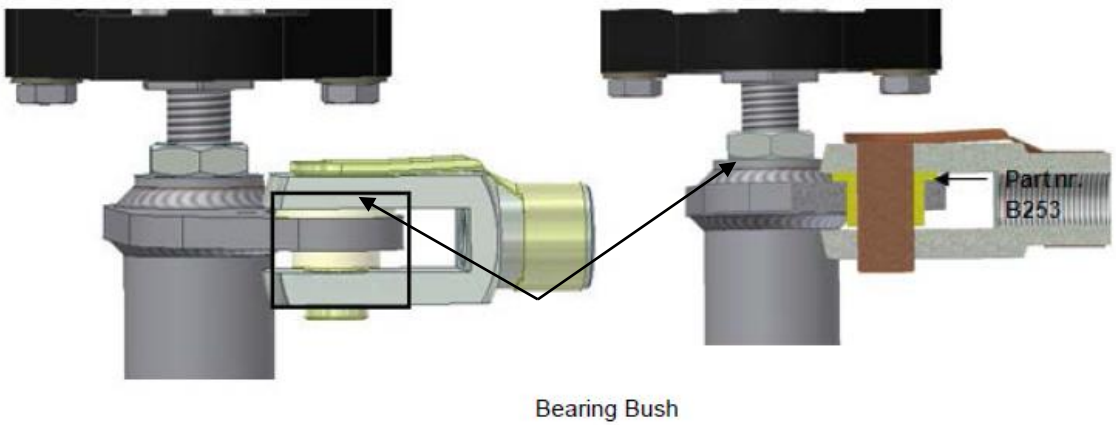


Figure 8

3. Remove door shaft lower arm bush and door bottom mounting bracket bearing bush & ring. Fit new bearings & ring (see Figure 9 below).

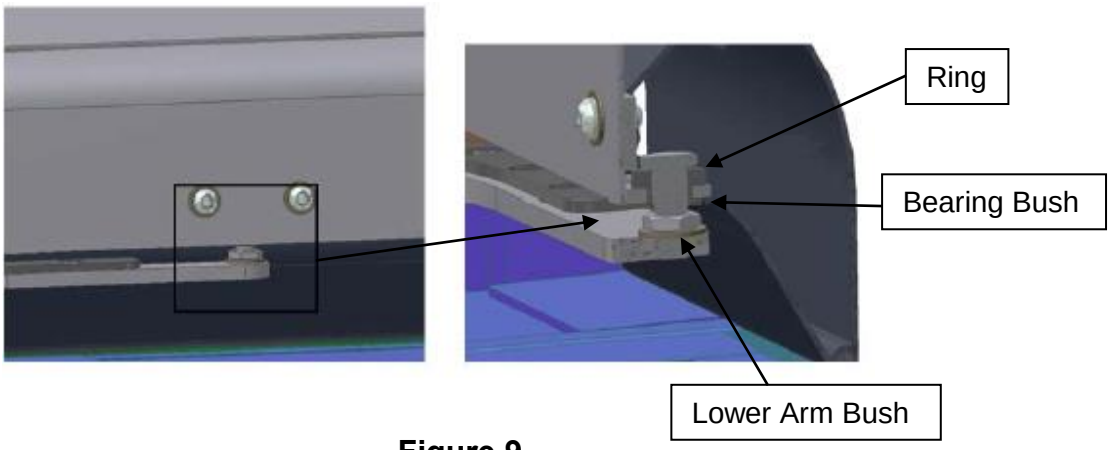


Figure 9

4. Remove door shaft upper arm ball joint and fit new ball joint (see Figure 10 below).

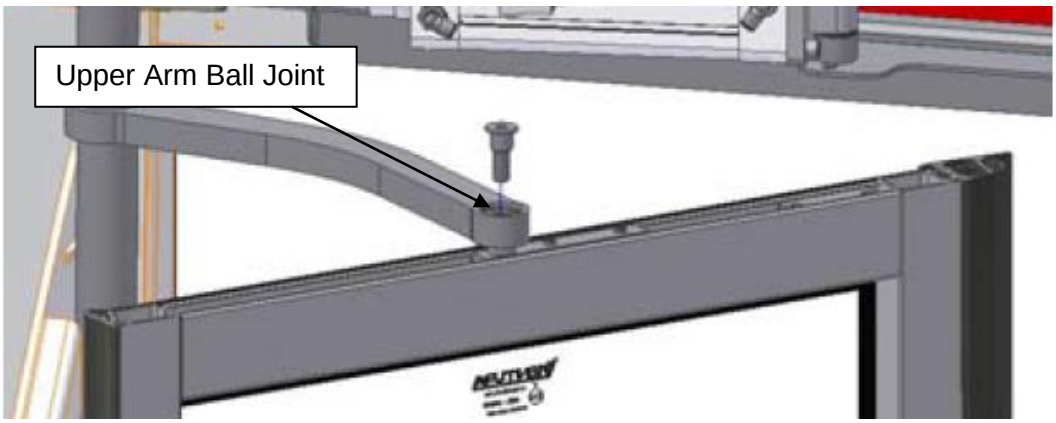


Figure 10

Section 14C

Refit Door Shafts & Wings and Connect Sensitive Edge

1. Replace any damaged sensitive edge rubbers with new parts supplied by BAC.

2. Fit **new** hinge flap springs supplied by BAC to bottom of door wings.

3. Fit new sliding plate to door shaft bottom arms.

4. Mount the upper part of the door shaft to the door shelfplate (see Figure 6). Position the door shaft nominal in the slotted holes, for reference check the marks in the door shelfplate frame (see Figure 11 below). Tighten the bolts.

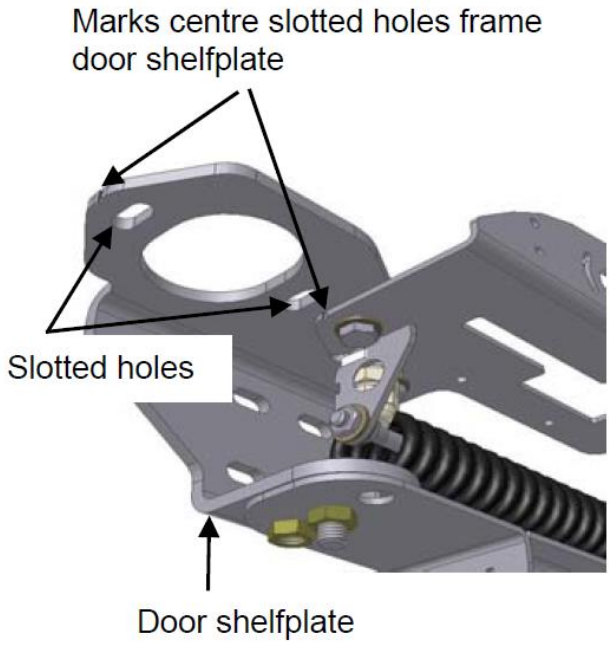


Figure 11

5. Remove door shaft support bracket & clean bottom pivot bolt and inspect for wear. If wear is present change pivot bolt.

6. Apply multipurpose grease to the pivot bolt and insert into door shaft bottom bearing.

7. Mount the door shaft support bracket to the aperture and tighten bolts but not to maximum torque (see Figure 12 below). Make sure there is no up & downward movement of the door shaft.

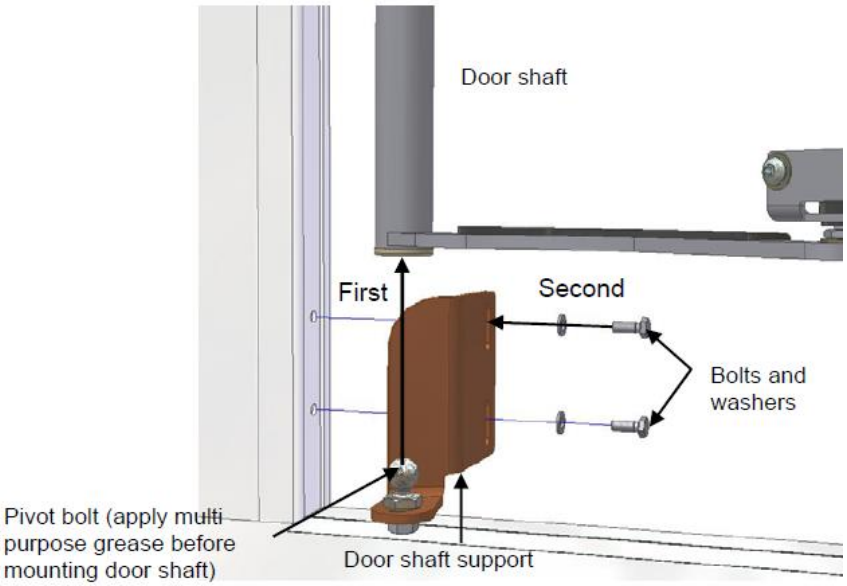


Figure 12

8. Adjust door shafts as follows;

a) Put the door shaft into a position to measure the distance between the aperture and the upper lever of the door shaft
b) The distance between the upper lever of the door shaft and the aperture should be approx. 17±1mm (see Figure 13).
c) If necessary adjust the hexagon bolt as shown in Figure 13. Securing the door shaft by the secure nut will not be done as part of the door wing setup.

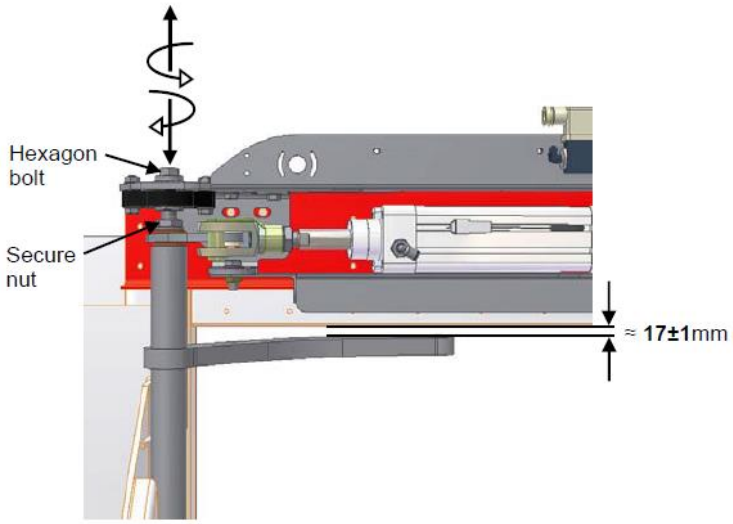


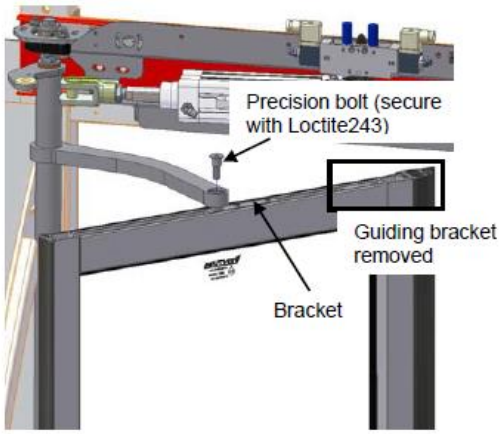
Figure 13

9. Position the door wing over the bracket on the door shaft lower arm and fit the bolts & washers (see Figure 14).

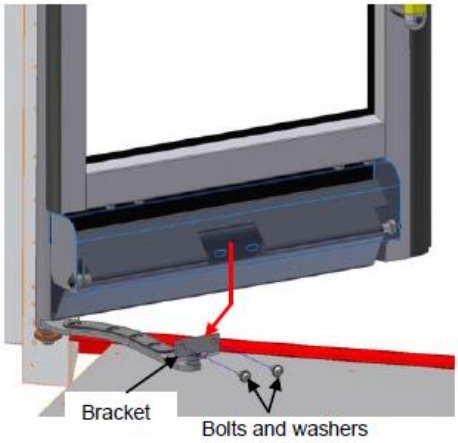
10. Line up the ball joint in door shaft upper arm with precision bolt mounting hole (see Figure 14).

11. Apply Loctite 243 to the thread of a new precision bolt supplied by BAC.

12. Fit the precision bolt and tighten firmly.



Mounting door wing to upper lever door shaft



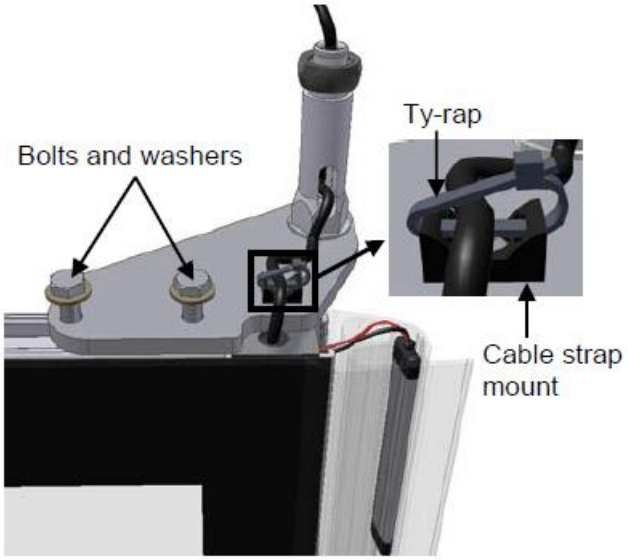
Place door wing over bracket

Figure 14

13. Replace the guiding bracket as follows;

    a) Replace guiding shaft roller and bearing.
    b) Connect the connector of the spiral cable with the connector of the sensitive edge (see Figure 1). The last winding of the spiral cable should not be too big a loop (loop should be equal like the other windings. Put the extra length of spiral cable in the door profile and mount the plug in the door profile.

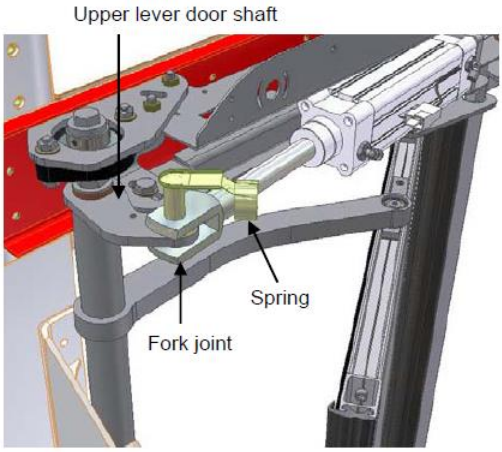
c) Mount the guiding bracket plate to the tapping plate in the door wing & lay the spiral cable in the cable strap mount & tie the cable with a ty-rap. (see Figure 15).



Securing spiral cable and mounting guiding bracket

Figure 15

14. Link the fork joint of the cylinder to the upper lever of the door shaft as follows;
    a) Put the door wing in the half open position and untie the fork joint spring (see Figure 16 below).
    b) Bring the fork joint in position with the lever of the door shaft and put the spring through the fork joint and the lever (see Figure 16 below).
    c) Lever and clip the spring to the fork joint and secure the fork joint with the secure nut (see Figure 17 below).



Align and connect fork joint

Figure 16

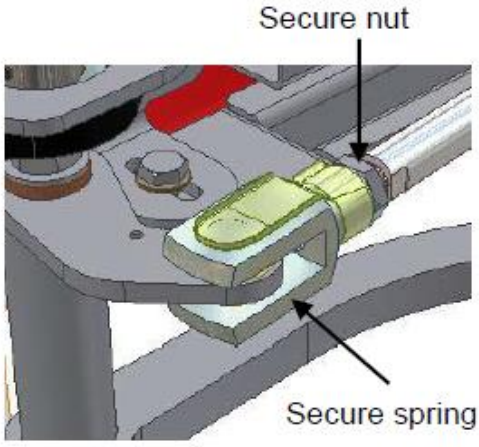


Figure 17

Section 14D

Mechanical Adjustment of Doors

1. Adjust the side seals with the side of the aperture as follows:

- Put the door wings in a fully closed position. See figure **19**.
- At the top and the bottom of the door system is a possibility to adjust the side seals of the door wings with the side of the aperture.
- Check if the side seals of the door wings are in line with the sides of the aperture.
- If necessary to adjust the side seals, loosen the nuts of the door shafts at the top and bottom and adjust the side seals with the aperture, as shown in detailed figures **20**.
- After adjustment, tighten the nuts firmly.



Figure **19**: Adjusting side seal of door wing

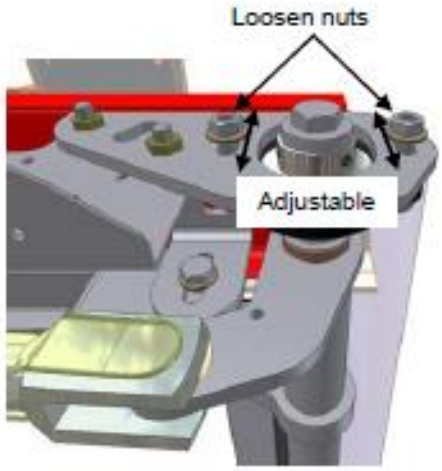


Figure **20**: Adjusting door shaft at top

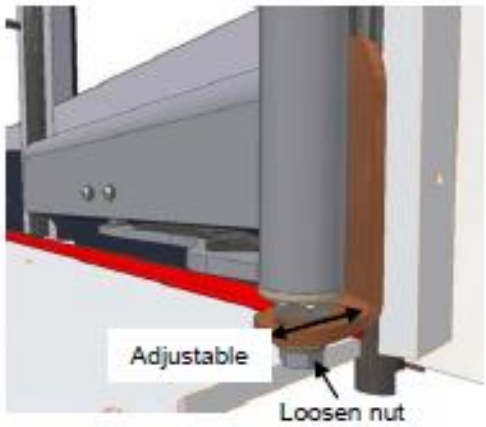


Figure **20**: Adjusting door shaft below

2. Line up the mid seals and the door wings with the step edge as follows:

- Put the door wings in a fully closed position.
- Check if the top and bottom of the door wings are in line with each other and if the door wings are in line with the step edge. See figure **21**.
- If necessary to adjust the mid. seal rubber, loosen the bolts of the guiding bracket and bring the door wings in line with each other. See figure **22**.
- After adjustment, tighten the bolts of the guiding brackets, according appendix 1 “Torque setting”.

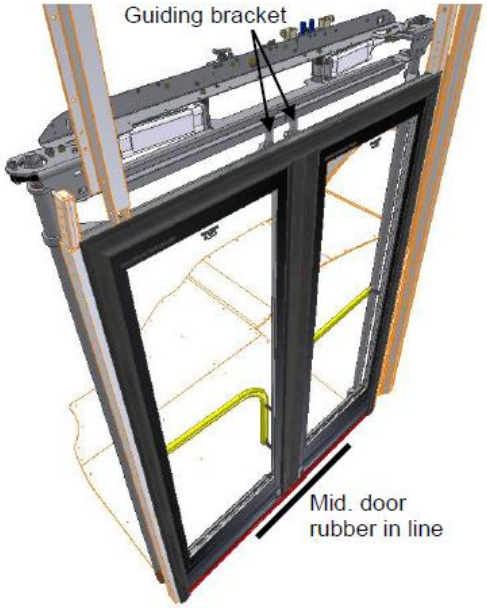


Figure **21**: Lining mid. seal of door wings

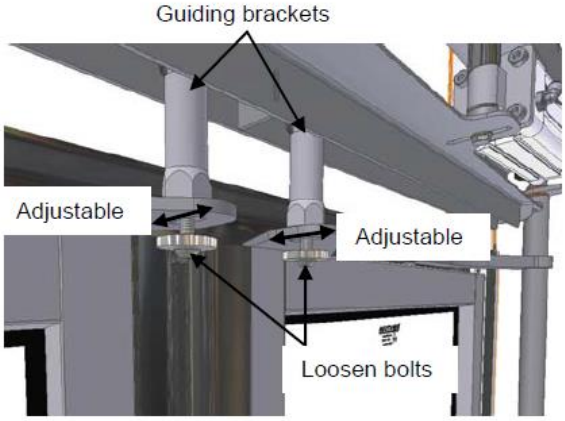
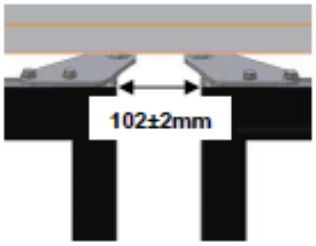


Figure **22**: Adjusting guiding brackets

3. Adjust Door Wings as follows;

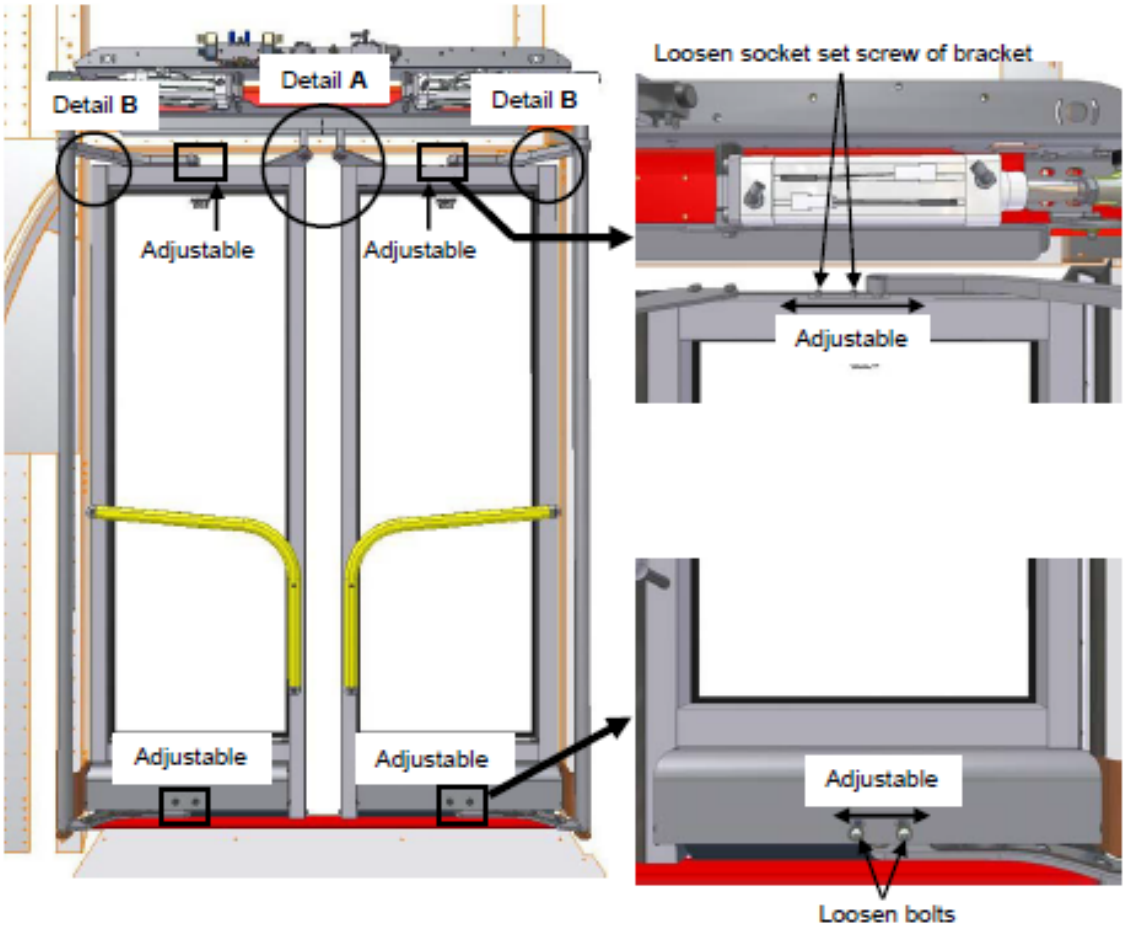
- Put the door wings in a fully closed position
- Check if the distance between the profiles of the door wing is 102±2mm, see detail A
- Check if the distance between the profile of the door wing and the aperture is equal distance on both sides, see detail B
- If necessary to adjust the door wings, loosen the bolts of the brackets at the top and bottom of the door wing and move the door wing sideways to gain the prescribed dimensions
- After adjustment tighten the bolts, according to Appendix 1 “Torque Settings”



Detail **A** distance between door wings profiles

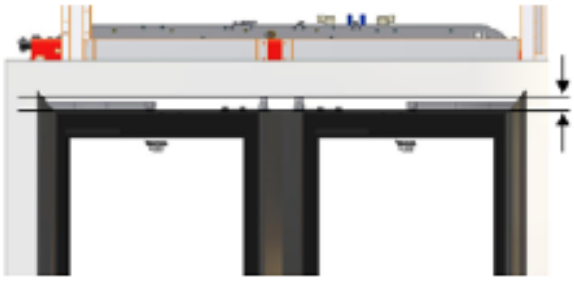


Detail **B** distance between door wing profile and door post



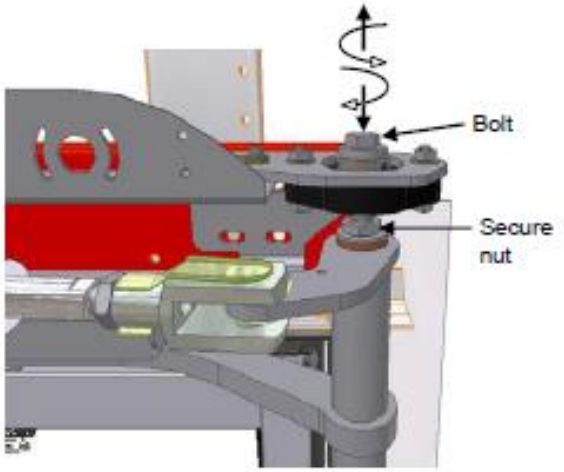
4. Check the door height as follows;

- Check that the gap between the vertical profiles of the door leafs and the floor is a minimum of 9mm over the full movement of the door
- Check that the door leafs open and close without the top lever hitting the portal rubbers. The lever must be straight.
- If necessary to adjust the door height, the bolt at the top of the door shaft can be turned inwards or outwards to lift or lower the door leafs. The door leafs should be at the same level
- After adjustment, secure the door shaft by the nut.





Adjusting door height



Detail adjusting door height

N.B. – When final adjustment of door height is finished, the secure nut should be torqued to 100 Nm with tools supplied by BAC and torque striped as per Appendix 2.

5. Adjust the open position of the door wings as follows;

- Put the door wings in a fully open position and check if the door wings in open position are in a 90° angle with the step edge of the vehicle (with the nominal adjustments as done by the initial installation). *Do not force the door when opening*. See figure **22**.
- If necessary, loosen the bolts of the guiding bracket, so the guiding bracket is free to move in the upper profile of the door. See figure **23**.
- In a fully open position the door stop on the door wing should touch the lower lever of the door shaft, see figure **24**. If this is not possible than the cylinder should be re-adjust. See figure **23**.
- When necessary to adjust the fork joint of the cylinder (so the door stop contacts the lever of the door shaft) secure the fork joint afterwards, see step "link the fork joint of the cylinder".
- Put the door wing in a closed position, the guiding bracket should move frictionless through the guiding rail. Adjust the guiding bracket on behalf of this state. Push the roller on the guiding bracket softly against the inner face of the guiding rail. See figure **25**.
- After adjustment tighten the bolts of the guiding bracket, according appendix 1 "Torque setting".



Figure **22**: Door opening 90° with side aperture

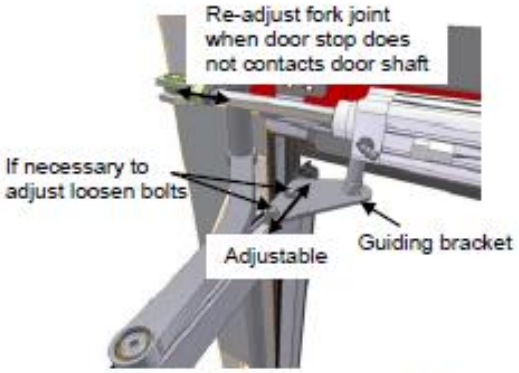


Figure **23**: Adjusting guiding bracket

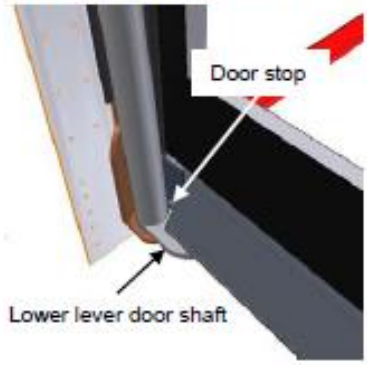


Figure **24**: Door stop touches lower lever door shaft

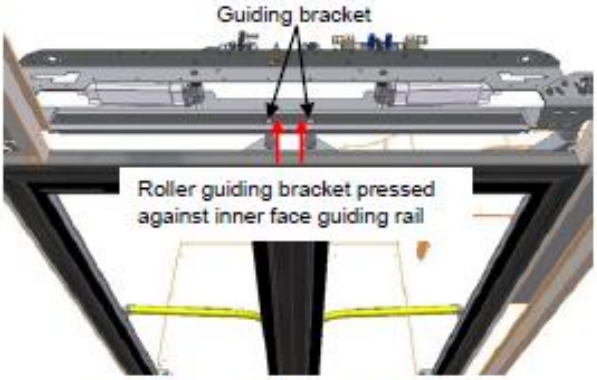


Figure **25**: Adjusting guiding bracket

6. Adjust the door shaft sliding plate as follows;

- Loosen the bolts in the sliding plate in such a way that there is still some friction when moving the sliding plate. See figure **26**.
- Put the door wings in a fully closed position and than push the sliding plate to the backside of the flap extension. See figure **27** / **28**.
- Tighten the bolts again and check if the flap is down on the right moment (when the door is almost fully closed, the flap is fully down). Otherwise re-adjust, the sliding plate.

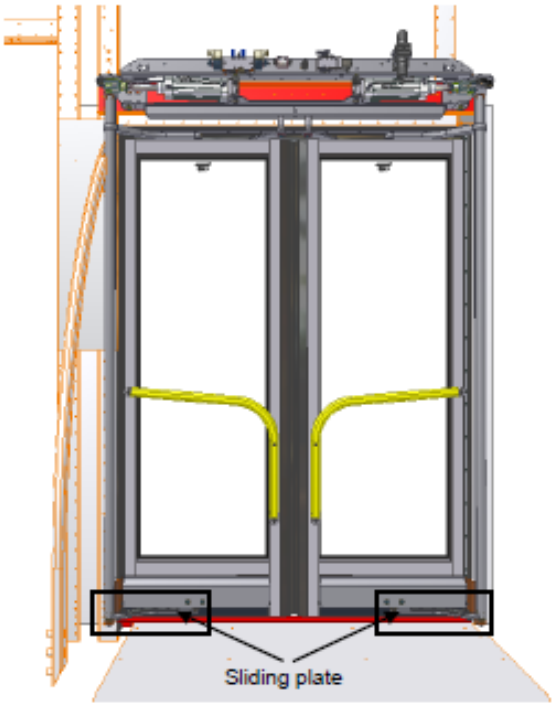


Figure **26**: Adjusting sliding plate

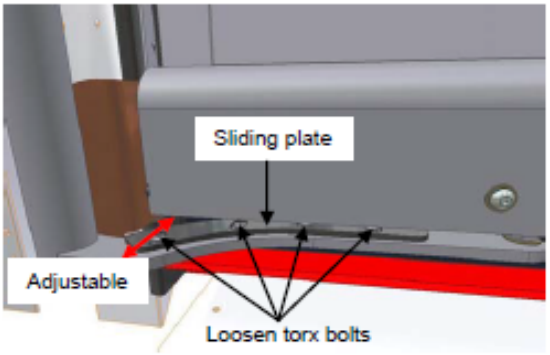


Figure **27**: Detail adjustment sliding plate

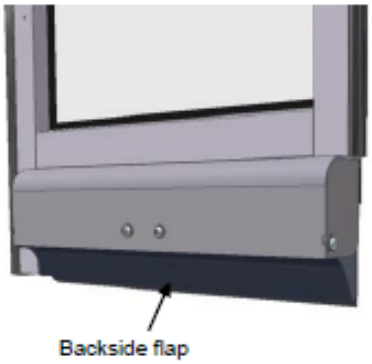


Figure **28**: Backside flap

7. Adjust the flap height as follows;

- Put the door wings in a fully closed position. See figure 29.
- If necessary to adjust the flap height, loosen the bolts of the flap and change the flap height by means of the slotted holes. See figure 30.
- The margin between the rubber flap and the step edge should be within 0.5 - 1mm.
- Check if the flap runs free from the step edge during open and closing movement. See figure 30.
- After adjustment, tighten the bolts, according appendix 1 "Torque setting".

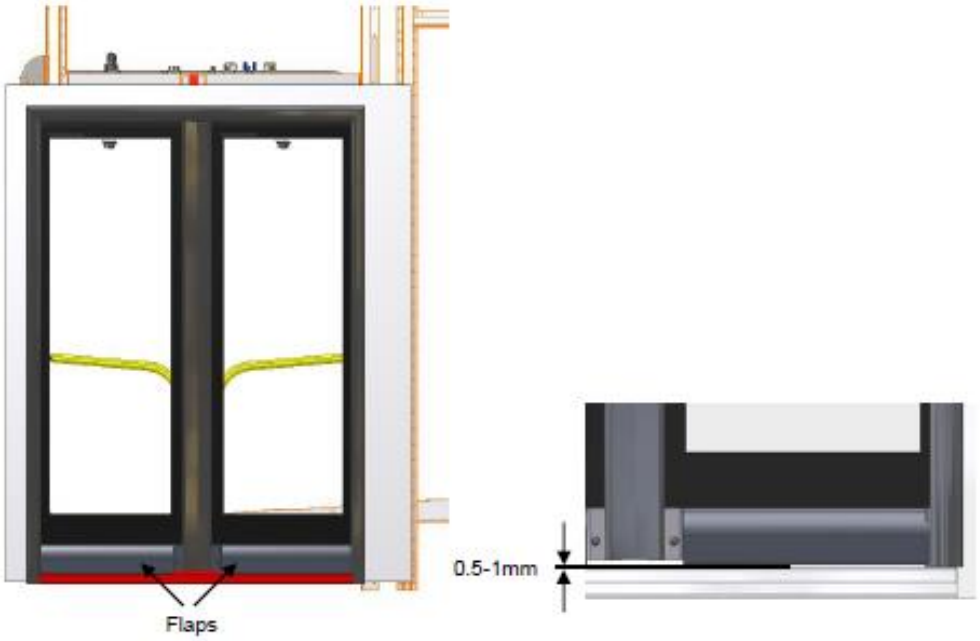


Figure **29**: Flap heights

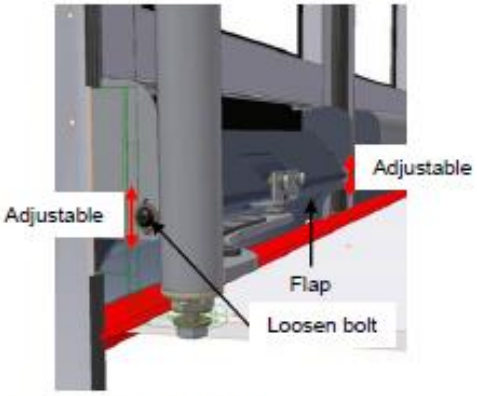


Figure **30**: Adjust flap height

8. Set cushioning of cylinders as follows;

- Reapply AIR PRESSURE to the system.
  Be aware that sudden pressure changes in the cylinder causes sudden movements of the door wings.
- Start as follows (starting situation), turn the cushioning screws complete inward (see figure 31), when the door moves in open or closed position, the door will stop before fully closed or open. Adjust the cushioning screws to finish the door movement.
- By turning the cushioning screws inwards or outwards, the smoothness of the door can be adjusted.
- In closing direction, the movement of the door can be adjusted by the closing cushioning screw. The doors should in closed position not slam, adjust the door system on behalf of this state, with the cushioning screw.
- In opening direction, the movement of the door can be adjusted by the open cushioning screw. The doors should in open position not slam, adjust the door system on behalf of this state, with the cushioning screw.
- When the cushioning screws are adjusted correctly, the door system will move fluent into its cushioning track.

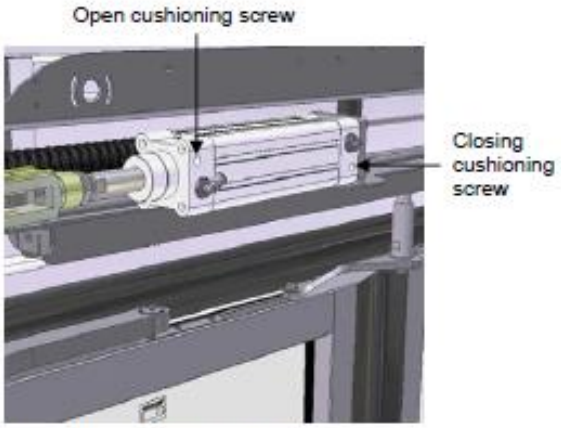


Figure **31**: Cushioning cylinder

Section 14E

Replace & Adjust Reed Switches

Remove existing Reed switches. Fit new Reed switches supplied by BAC in a nominal position on the cylinder & adjust as follows;

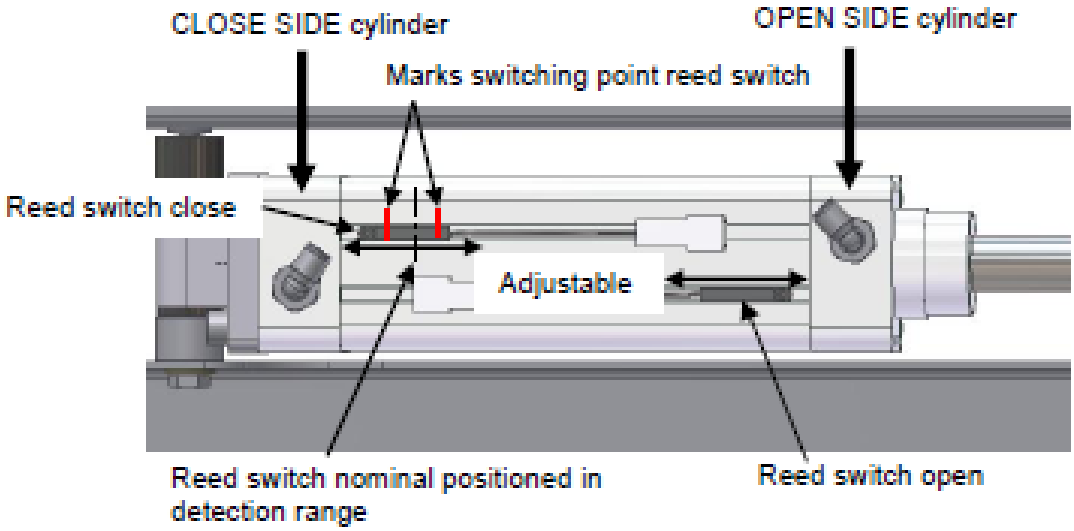
1. Apply air pressure to the door system.

2. Close doors and loosen the close reed switch screw on both cylinders (Do not turn the screw more than 90º).

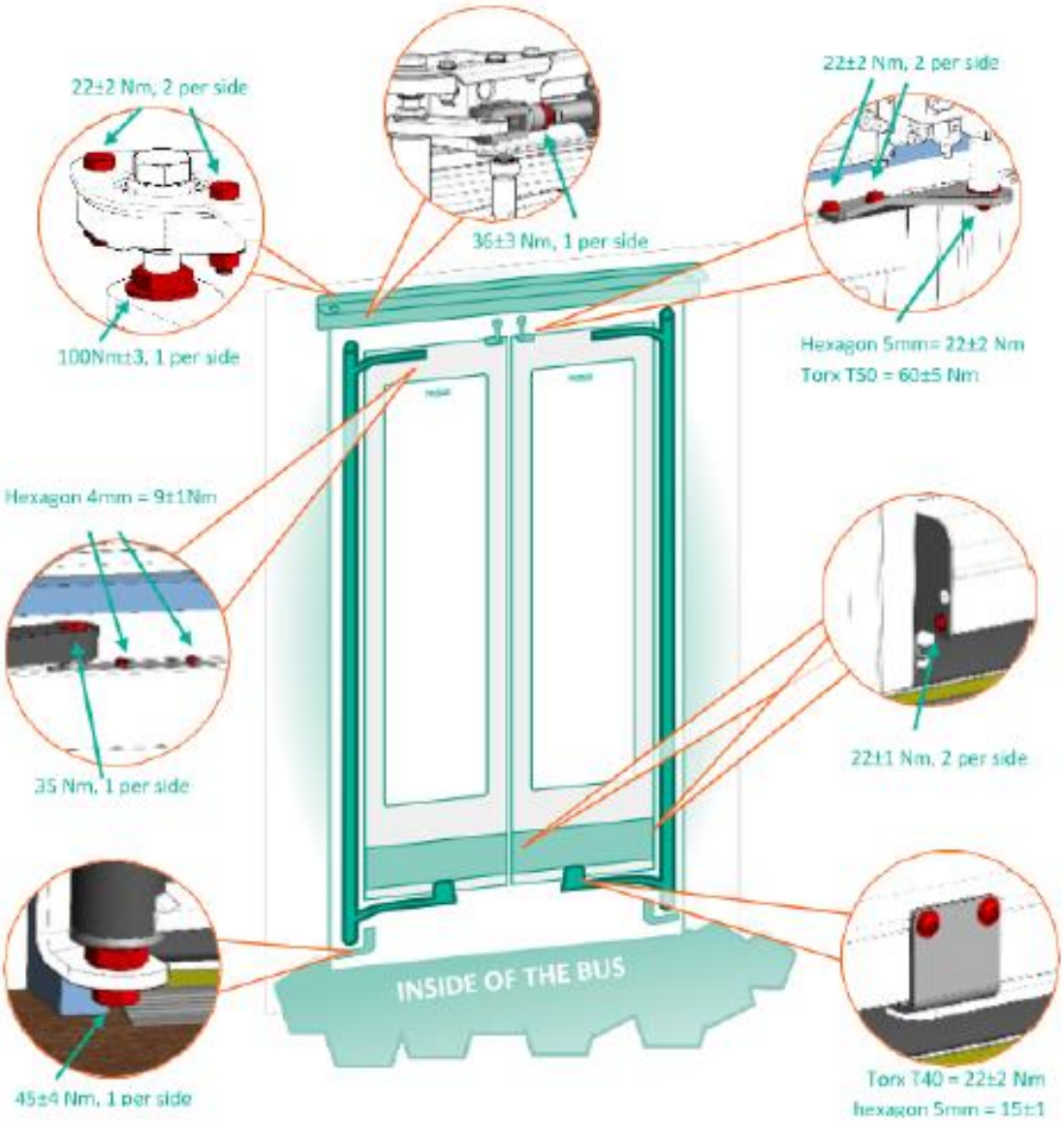
3. Move the reed switch back & forth to determine the detection range and mark the switching positions.

4. Position the reed switch nominally in the detection range and tighten the reed switch screw.

5. Open the doors and repeat the above procedure for the open reed switches.



Appendix 1 – Torque Settings



Appendix 2

Door Shaft Top Securing Nut - Torque Procedure

The tools to undertake this procedure are listed below:
Standard ½" ratchet drive mechanical torque wrench (40-200 Nm capability/range).
V-03: custom ½" drive spanner (in Wrightbus kit, Figure 1).
V-04: custom ½" drive spanner (in Wrightbus kit, Figure 1).

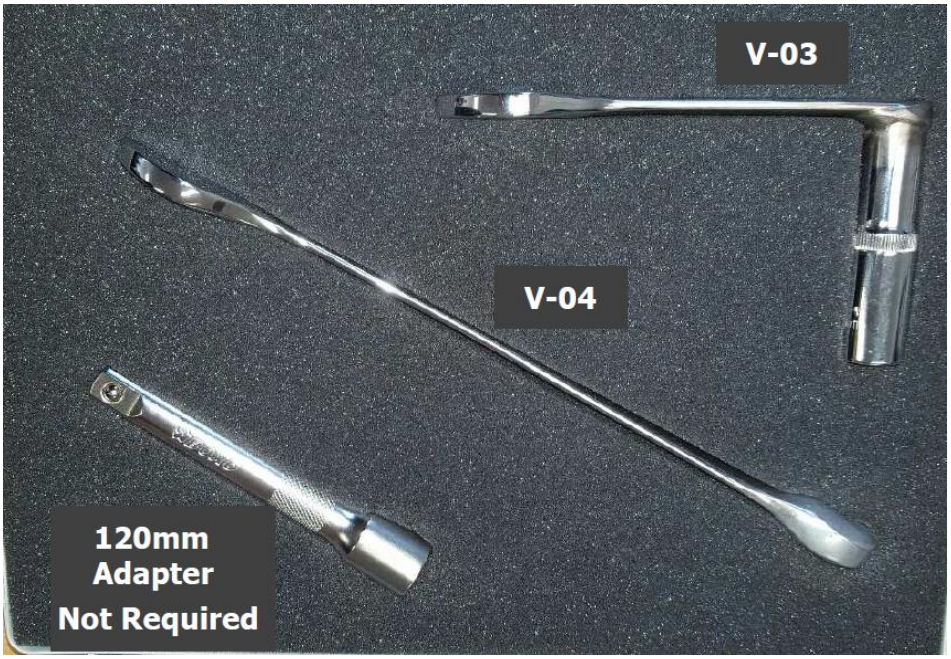


Figure 1

1. Isolate the air supply to the doors as detailed on page 1 Section 2.1. Remove the shelfplate cover plus the GRP door head.

2. Detach the fork joint of the cylinder by unclipping the ring clamp from the cylinder rod and pulling the clip clear from the point where the cylinder connects to the door shaft (Figure 2).



Figure 2

3. Move cylinder away from the door shaft in order to gain better access to the securing nut.

4. Check the orientation of bearing housing bolts. If they are inserted from the top, remove bolts and insert from the bottom (Figure 3) in order to gain better access to the securing nut.

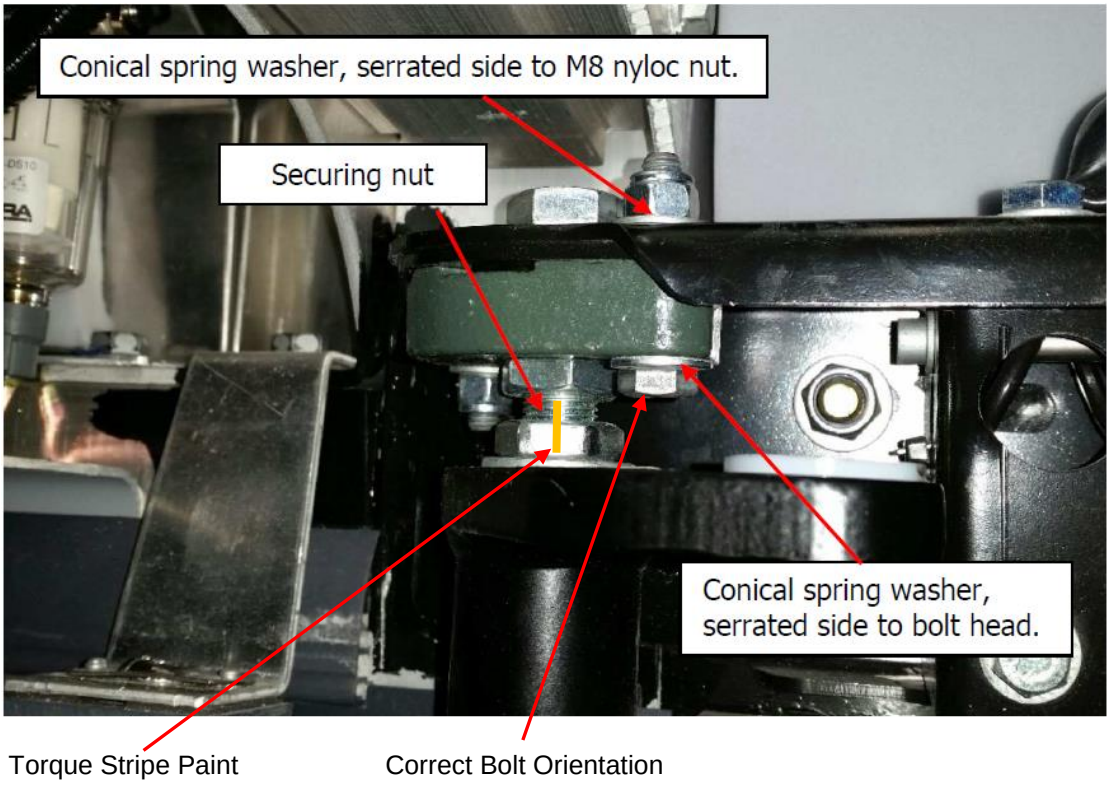


Figure 3

5. Using custom spanner V-04, torque securing nut on front door leaf shaft to 65 Nm.

6. Using custom spanner V-03, torque securing nut on rear door leaf shaft to 82 Nm.

7. If present, remove existing torque stripe and apply fresh torque stripe paint as per Figure 3. If no torque stripe paint is present, apply fresh torque stripe paint.

8. Re-attach the cylinder rod to the fork joint.

9. Re-apply air to system, check that pressure is set to 110 p.s.i. (7.6 bar), and operate the doors in order to check/test that they are working correctly.

10. Fix GRP door head & shelfplate cover back into position.