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Title: Bus Entrance Door Adjustment Procedures

Applies To: BE, CE, FE and RE Bus Models built prior to 9/15/2011

DESCRIPTION

The following procedures outline the entrance door bracket, control bar, actuator rod, electric door controller, and air door cylinder and valve adjustments.

Entrance door adjustment is critical for proper performance and life of the entrance door components. Failure modes of an incorrectly adjusted door include broken door pivot points, loose or pulled bracket attachment points, over heating of the electric door controller, and inappropriate door opening and closing speed.

WARNING:

To prevent unexpected movement of the vehicle and possible serious personal injury or death, park the vehicle on a flat, level surface, set the parking brake, turn the engine off, and chock the wheels to prevent the vehicle from moving in both directions.

WARNING:

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

CAUTION:

To prevent accidental power being applied to the entrance door during service, remove the ignition keys prior to beginning the following repairs.

PROCEDURE

Door Replacement

After removing the door leaf to be replaced, verify the condition of the header bearing. Bearings showing signs of wear, rough operation, or missing seals should be replaced. Prior to installing the replacement door leaf, transfer the glass and seals.

Clean replacement door threads using a 3/8-16 taper tap. (Figure 1)

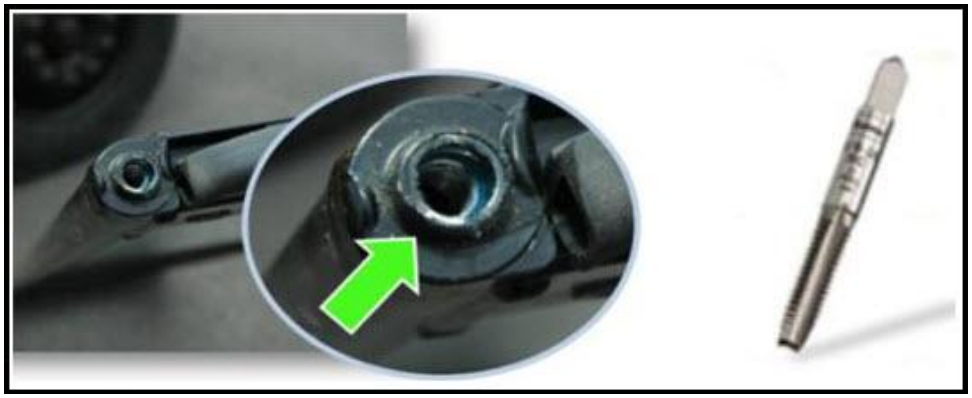

Figure 1

Insert the bearing(s) into the header bearing recess. (Figure 2)

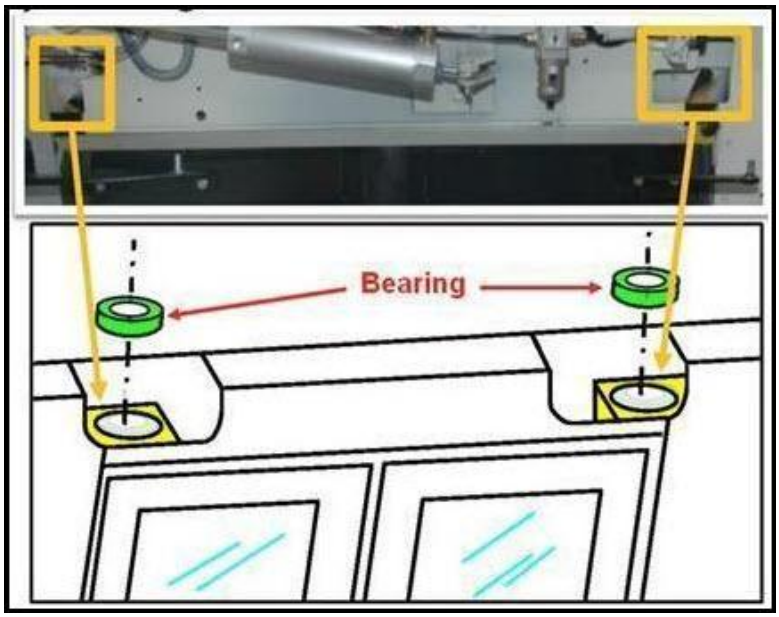

Figure 2

Place the bottom alignment pin of the door into the lower pivot. (Figure 3)

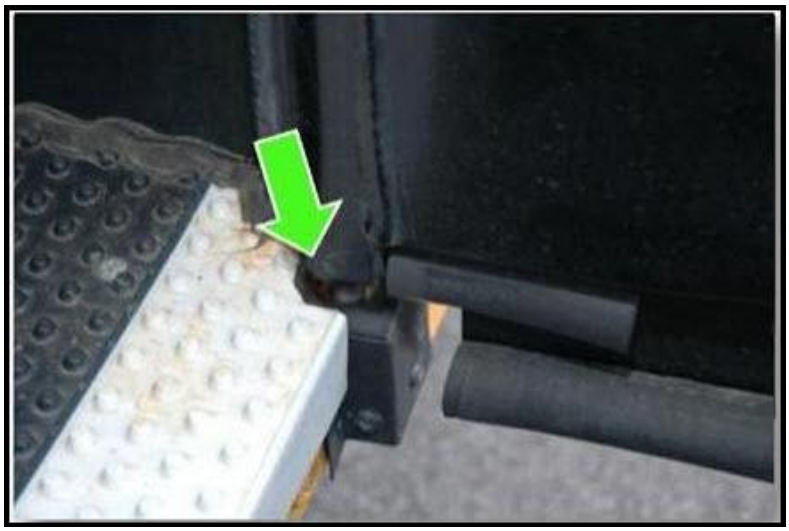
Figure 3

Align the top of the door and install the bolt and lock washer through the bearing and thread the bolt into the door. (Figure 4)

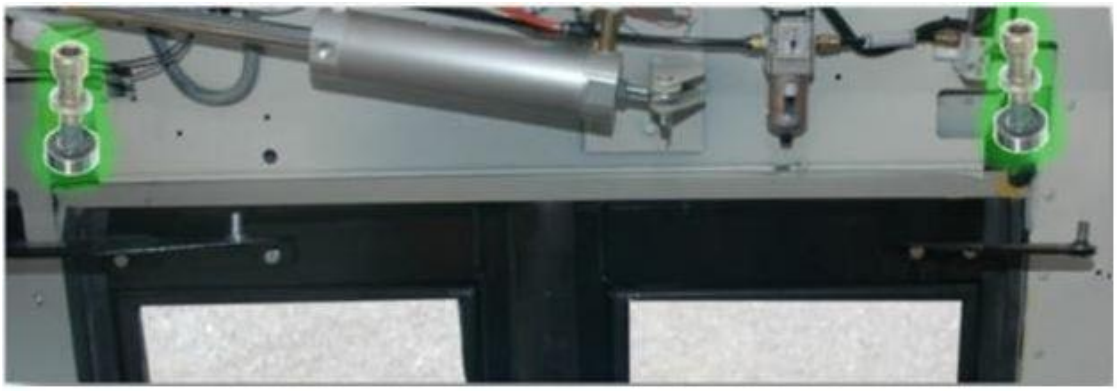

Figure 4

Torque the bolt to 4 ft-lbs. The door should be pulled up to the bottom bearing surface and the lock washer should be fully compressed. (Figure 5)

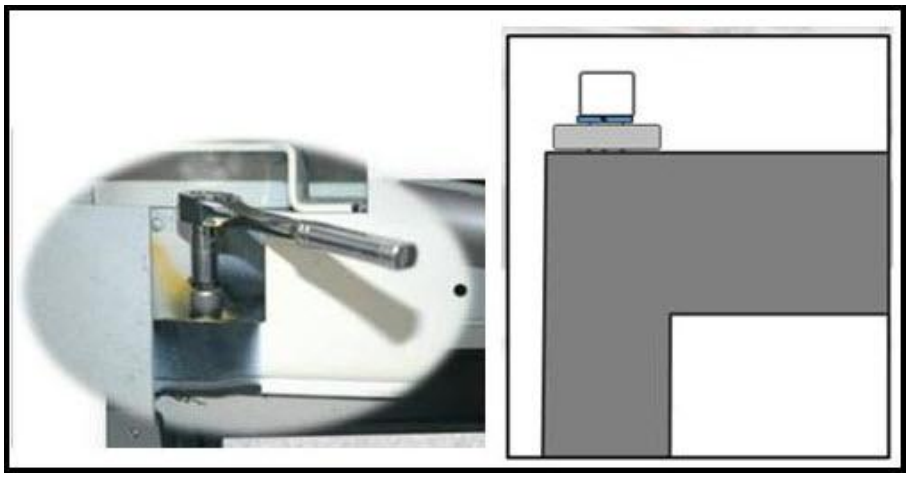

Figure 5

A properly installed door can have approximately 1/8” of vertical play while in the open position. Once the door is lifted, it should return without assistance. When the door is in the closed position, friction prevents the door from bouncing.
Adjust door components as outlined in the following sections.

Bracket and Control Bar Adjustment

Prior to beginning this adjustment procedure, release the air or electric manual release allowing the door to be manually opened and closed. Reapply air pressure or engage the electric controller when appropriate during the adjustment process.

When re-applying air pressure to an air door system, be aware of the door control switch position and the actual door position. If the switch is in the closed position and the door is open position, the door will rapidly return to the door control switch (closed) position.

With the forward door at a 90 degree open position, verify the door bracket has approximately 1/8” gap

between it and the door header. If the gap is not present, loosen the forward door bracket and reposition as needed. (Figure 6)

Figure 6

While holding the forward door at the 90 degree open position, inspect the aft door leaf. The aft door leaf opening should be 90 degrees. If not, remove one end of the control bar and adjust until the 90 degree opening of the aft door is achieved.

Once adjusted correctly, the doors will have a very slight break over feel when reaching the closed position.

A hard break over point, snapping the doors closed, indicates the doors are not correctly adjusted. Repeat this step to ensure that both doors are opening to 90 degrees. If the hard break over point persists, slide the aft door bracket back and readjust the control bar. (Figure 7)

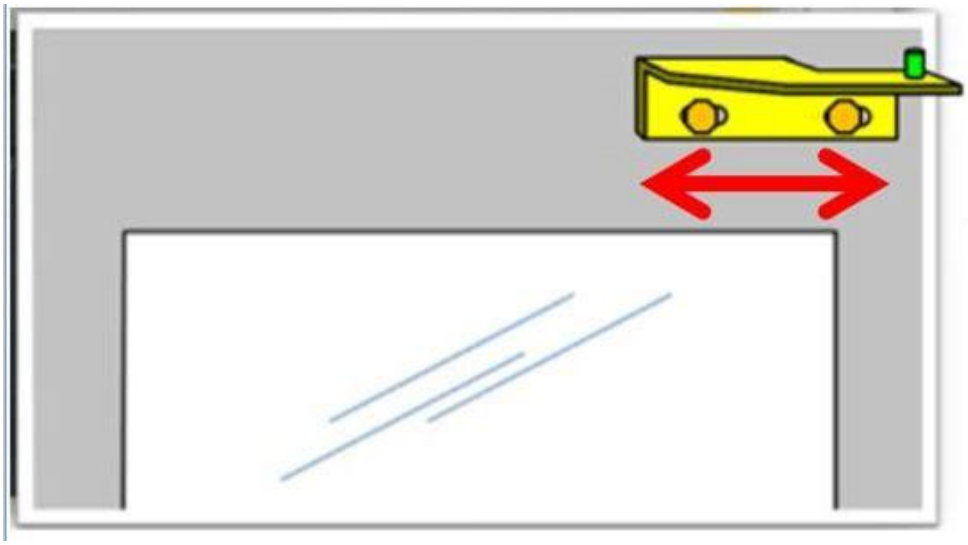

Figure 7

Once the bracket and control bar is correctly adjusted, reinstall the washers and cotter pins and ensure all lock nuts and bracket bolts are tight.

Actuator Rod Adjustment – Air Door

With the doors in the 90 degree open position, attach the actuator rod to the upper pin on the forward door bracket. If needed, adjust the actuator rod so that the rod end slips over the pin with the door at 90 degrees. The air cylinder may require one or both ends to be adjusted. Once installed, insert the cotter pin and tighten the lock nut(s).

Air pressure will be required to fully retract the cylinder. (Figure 8)

Figure 8

Verify the door regulator pressure is between 40 and 60 psi. If the pressure is correct, cycle the door. The screws on the control valve can be adjusted to increase or decrease the speed with which the doors open or close. The left screw adjusts the speed of the doors closing and the right screw adjusts the speed of the doors opening. (Figure 9)

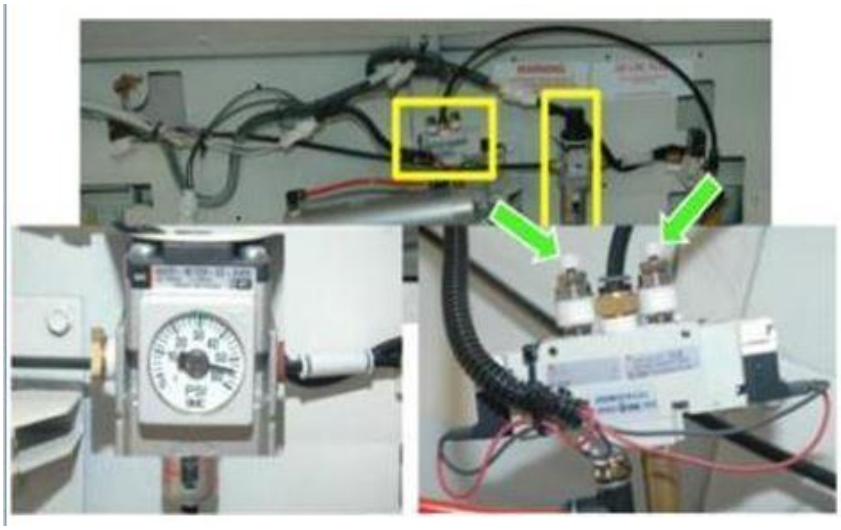

Figure 9

Actuator Rod Adjustment – Electric Door

Manually place the electric controller in the open position with the striker making contact with the open micro switch. (Figure 10)

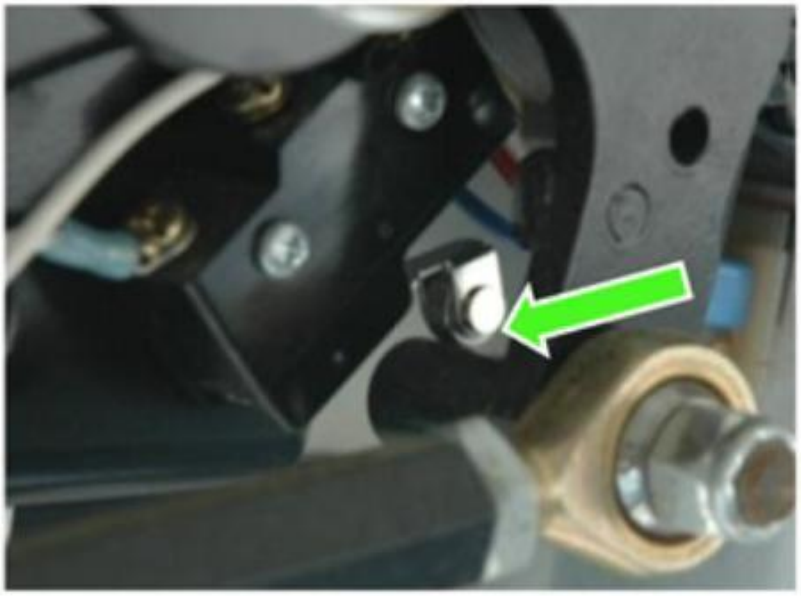

Figure 10

With the doors in the 90 degree open position, attach the actuator rod to the upper pin on the forward door bracket. If needed, adjust the actuator rod so that the rod end slips over the pin with the door at 90 degrees. Once installed, insert the cotter pin and tighten the lock nut(s). (Figure 11)

Figure 11

Cycle the entrance door and adjust the position of the right micro-switch so that the switch contacts open just as the doors come to a 90 degree open position. To adjust the position of the micro-switch, loosen the two crosshead screws until the switch slides freely. Do not remove the screws completely as the backing plate will fall out. Close the doors and repeat the procedure for the left micro-switch. (Figure 12)

Figure 12

If the micro switches are not adjusted correctly, the doors can bottom out in the open or closed position, resulting in continuous motor operation. The switches are sensing the position of the gear, not the door. Care must be taken to fully adjust the actuator rod, and then adjust the micro switches to eliminate premature motor failure.

If the electric door controller motor and gear are making noise, it may require lubrication. Lithium-based grease such as Mobiltemp SCH32 should be applied to the gear teeth, both on the large gear and the motor pinion gear. An SAE 20oil such as Mobil Almo 525, should be applied to the gear shaft at the top and bottom of the gear. (Figure 13)

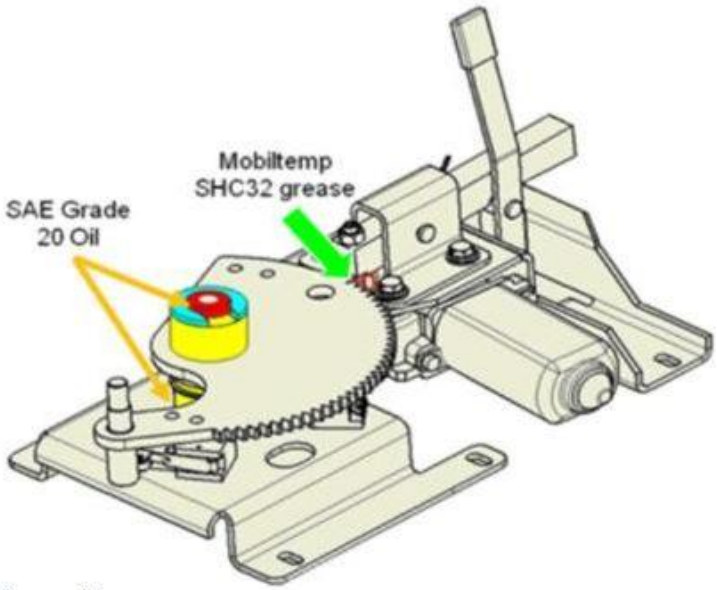

Figure 13

Verify door operation. If the door header or any other components were removed or loosened during this process, reinstall the components prior to releasing the unit for service.

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