



INSTRUCTION TO SERVICE

ITS: 5842	
SECTION:	350 Driver's Control
WRITTEN BY:	Iman Fatemi
SUBJECT:	Replace brake pedal mounting plate and BVA valve

ITS5842

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PROCEDURE:

1. Turn the main battery disconnect switch to the “OFF” position.
2. Raise coach in accordance with the New Flyer Service Manual.
3. Open the access door for the brake treadle valves under the driver’s platform.
4. Locate the brake treadle valve assembly, see Figure 1.
5. Deplete all system air pressure.
6. Disconnect all airlines from E6 and BVA valve, see Figure 1.

NOTE: Draw a mark on each airline and electrical connection prior to removal, use different colors/marks to distinguish the ports and airlines attached to them. This will help finding the right port when returning the bus to the original configuration.

WARNING: Do NOT disconnect an airline unless you are certain all system pressure has been depleted.

7. Disconnect the electrical connector from the pressure switch, see Figure 1.

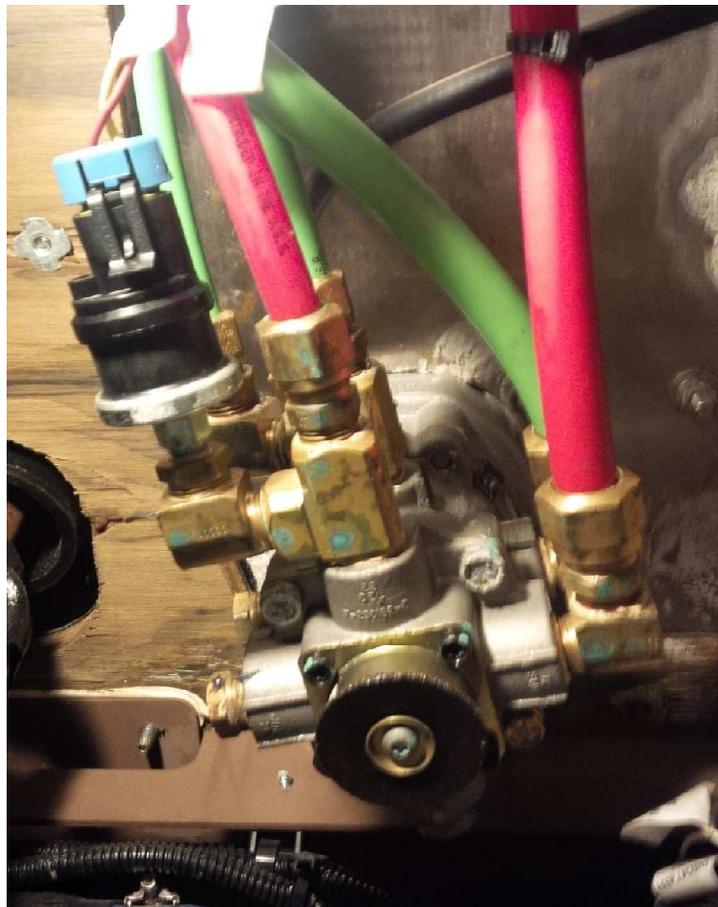


Figure 1: Brake Treadle Valve Assembly

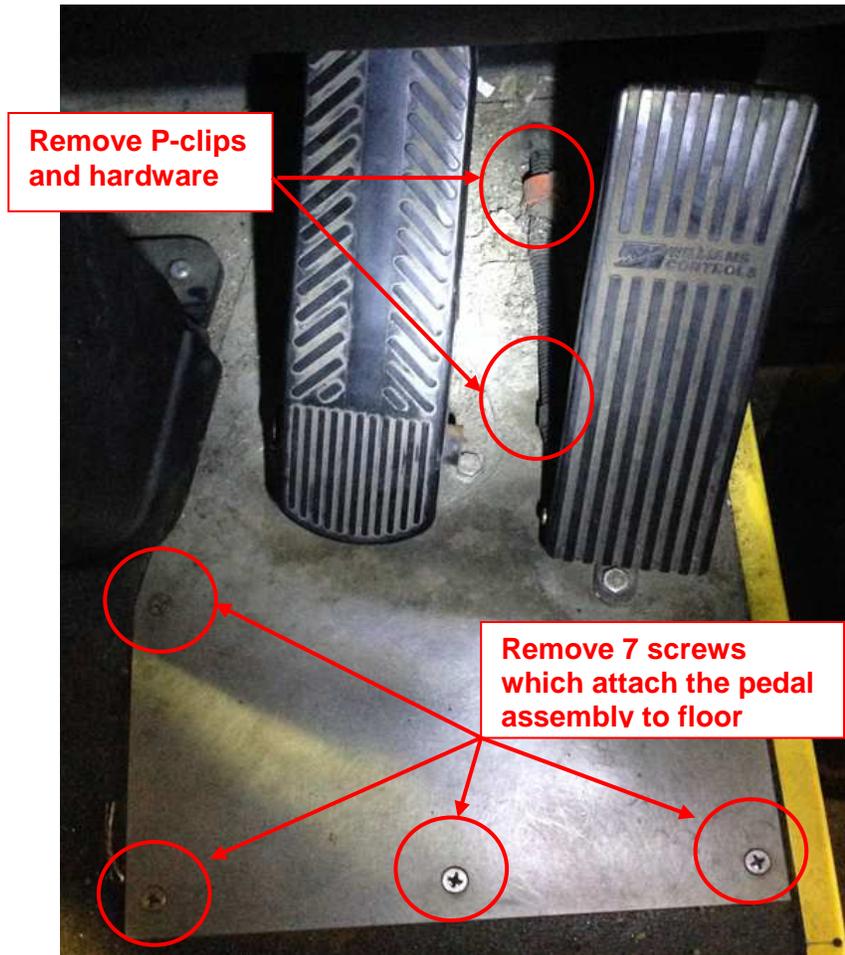


Figure 2: Brake/Accelerator Treadle Assembly

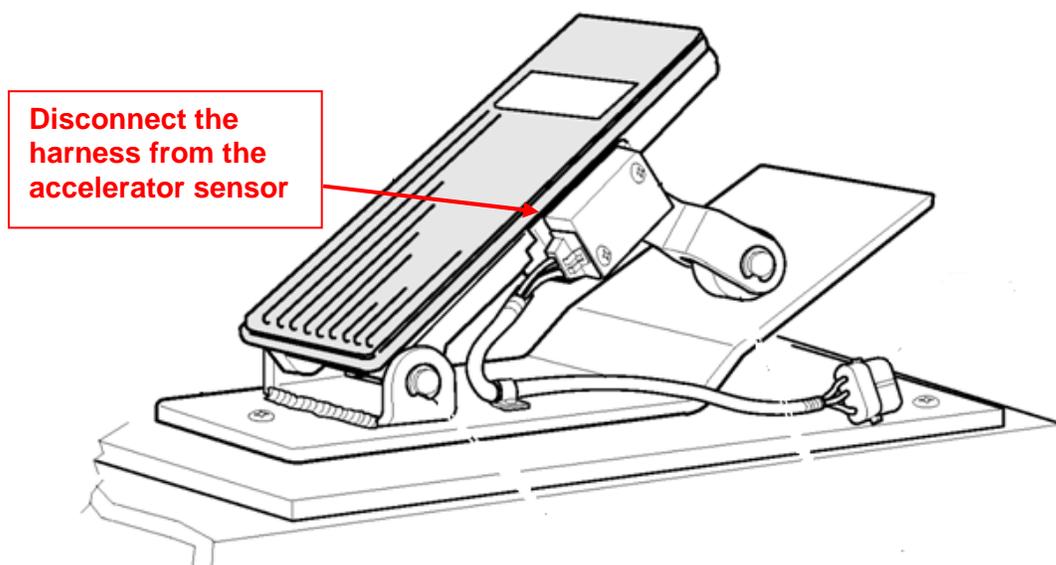


Figure 3: Brake/Accelerator Treadle Assembly

8. Close the treadle valve access door before lowering the coach.
9. Lower coach in accordance with the New Flyer Service Manual.
 - ⚠ **WARNING:** Ensure the treadle valve access door is closed before lowering the coach.
10. Remove p-clips securing the accelerator harness to the brake pedal assembly. Set aside the P-clips and hardware for reuse, see Figure 2.
11. Disconnect the harness from the accelerator sensor, see Figure 3.
12. Remove 7 screws which attach brake/accelerator pedal assembly to floor, see Figure 2.
13. Remove the entire assembly from bus and put it on a work bench.

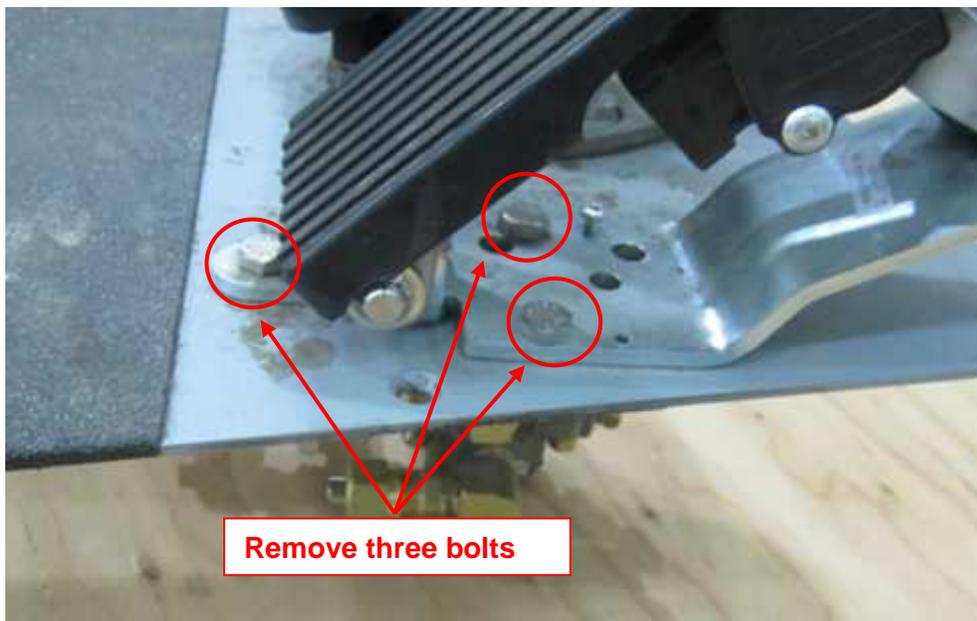


Figure 4: Remove Accelerator Treadle Assembly

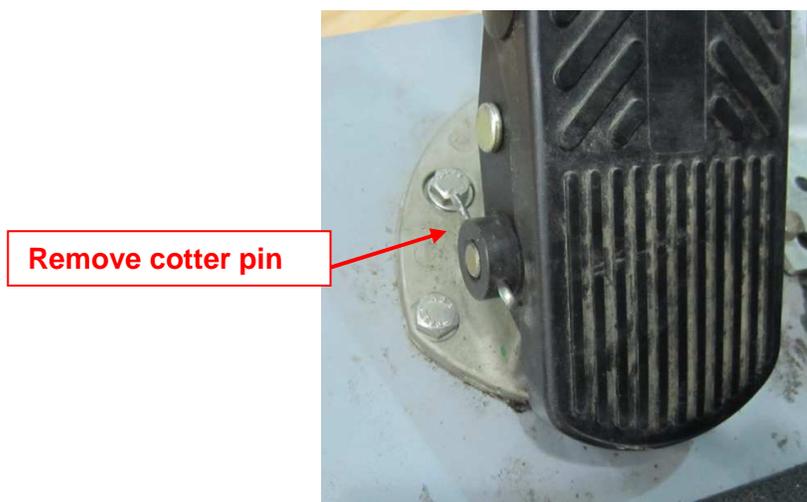


Figure 5: Remove Cotter Pin from Brake Pedal

14. Remove 3 bolts which attach the accelerator treadle to the plate. Discard locknuts and retain all remaining hardware for reuse, see Figure 4.
15. Remove the cotter pin from the brake pedal, see Figure 5. Remove the brake pedal from the mount, set the hinge pin and pedal aside for re-use, discard the cotter pin.



Figure 6: Pedal Mount

16. Remove the pedal plunger and rubber boots, set aside for reuse.
17. Remove 3 inner bolts shown by three circles in Figure 6 and disconnect the valve assembly. Set aside the hardware for reuse.
18. Remove 3 outer bolts shown by three squares in Figure 6 and disconnect the pedal mount from the pedal plate. Discard lock nuts and retain all remaining hardware for reuse.
19. Discard the brake pedal mounting plate (stainless steel plate).

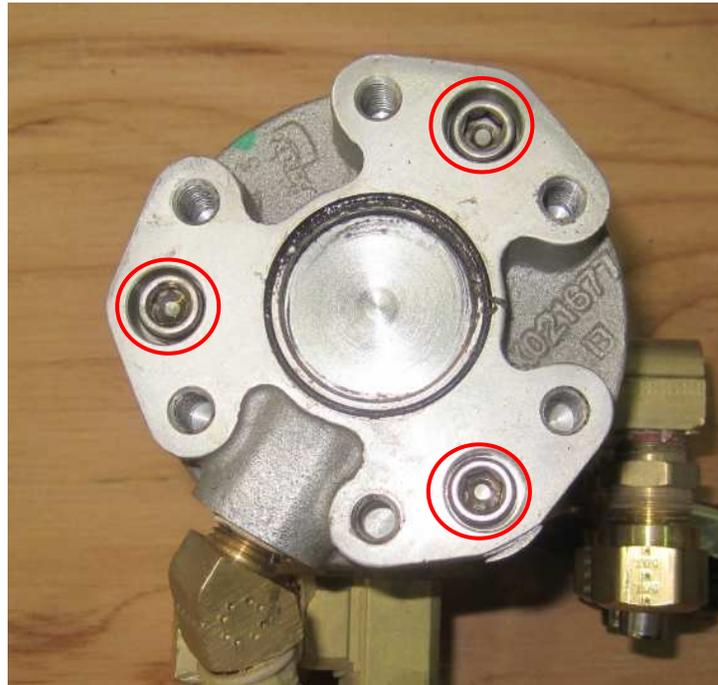


Figure 7: Remove BVA Valve

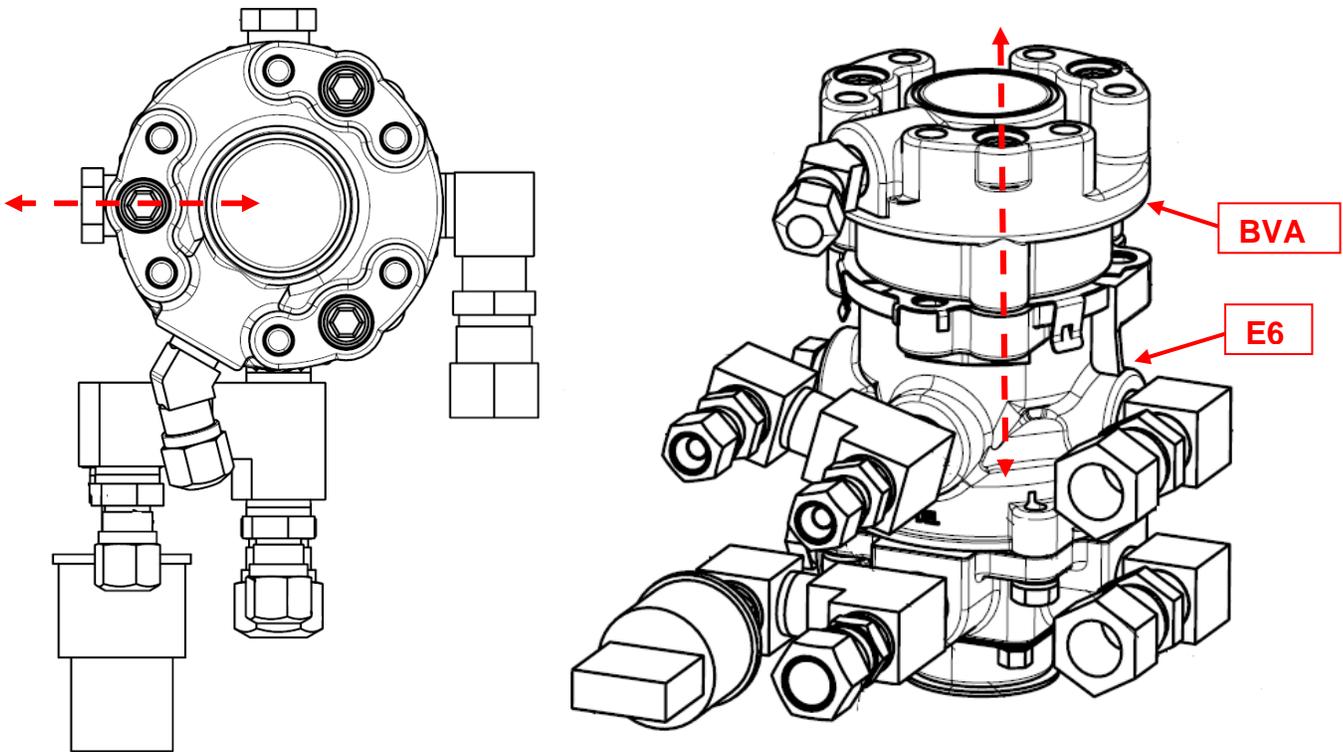


Figure 8: Replace BVA Valve



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20. Remove three allen bolts which attach the BVA valve to the E6 treadle valve, see Figure 7. Retain the allen bolts for reuse.
 21. Remove the BVA valve from E6.
 22. Remove the 45 degree elbow from BVA valve, retain the elbow and discard the BVA valve.
 23. Align a new BVA valve (PN: 477422) with the E6 valve as shown in Figure 8. Attach the BVA valve using the 3 allen bolts previously removed in Step 20, see Figure 7.
- ☞ **NOTE: Apply loctite – 243 (PN: 081034) Medium to the allen bolts.**

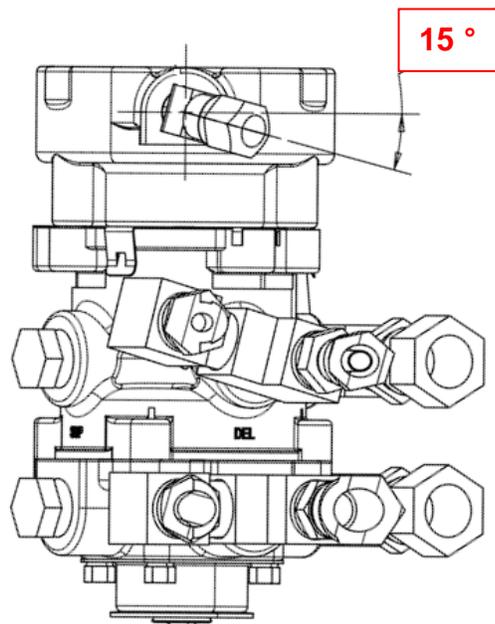


Figure 9: Align the 45 Degree Elbow

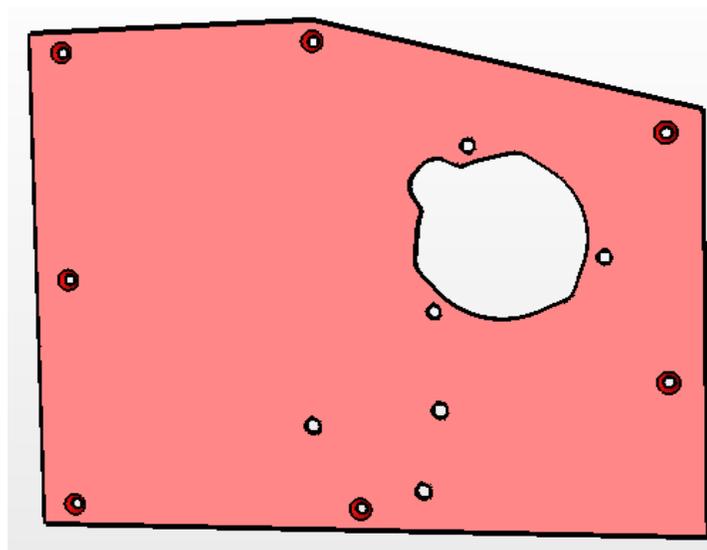


Figure 10(a): New Modified Brake Pedal Mounting Plate

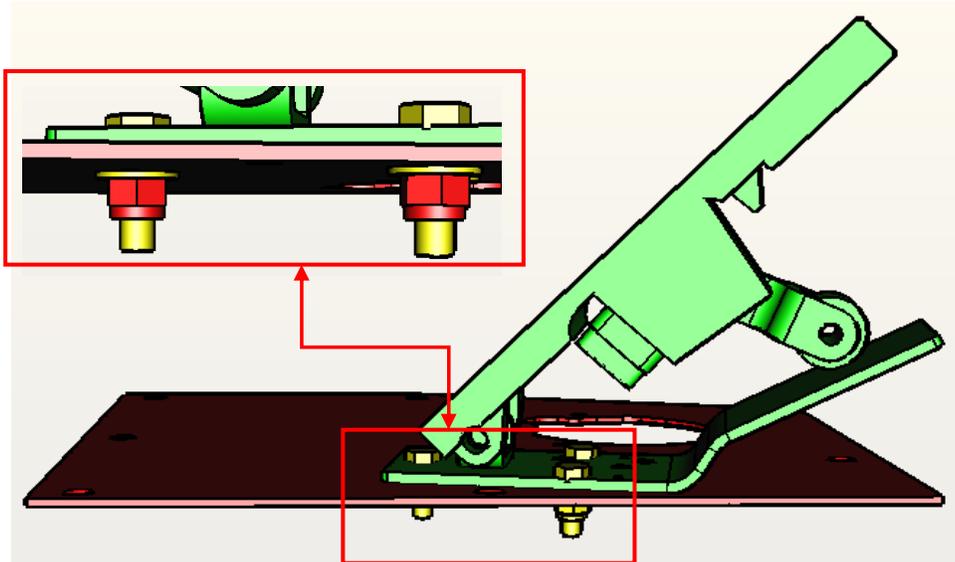


Figure 10(b): Install Accelerator Treadle

24. Install the 45 degree elbow previously removed in step 22 at the BVA port, see Figure 9.

☞ **NOTE: Apply loctite 567 – Thread Sealant (PN: 8110442) to the thread fitting.**

25. Align the elbow as shown in Figure 9 (15 ° relative to BVA mounting surface).

26. Using the hardware removed in Step 14 and 3 new lock nuts (PN: 40N05000), install the accelerator treadle on the new modified brake plate (PN: 553382), see Figures 4, 10(a) and 10(b).

☞ **NOTE: Place a washer between the new plate and the locknuts, see Figure 10(b). No washer between the bolt head and the accelerator base plate.**



Figure 11: Pedal Mount



Figure 12: Pedal Mount

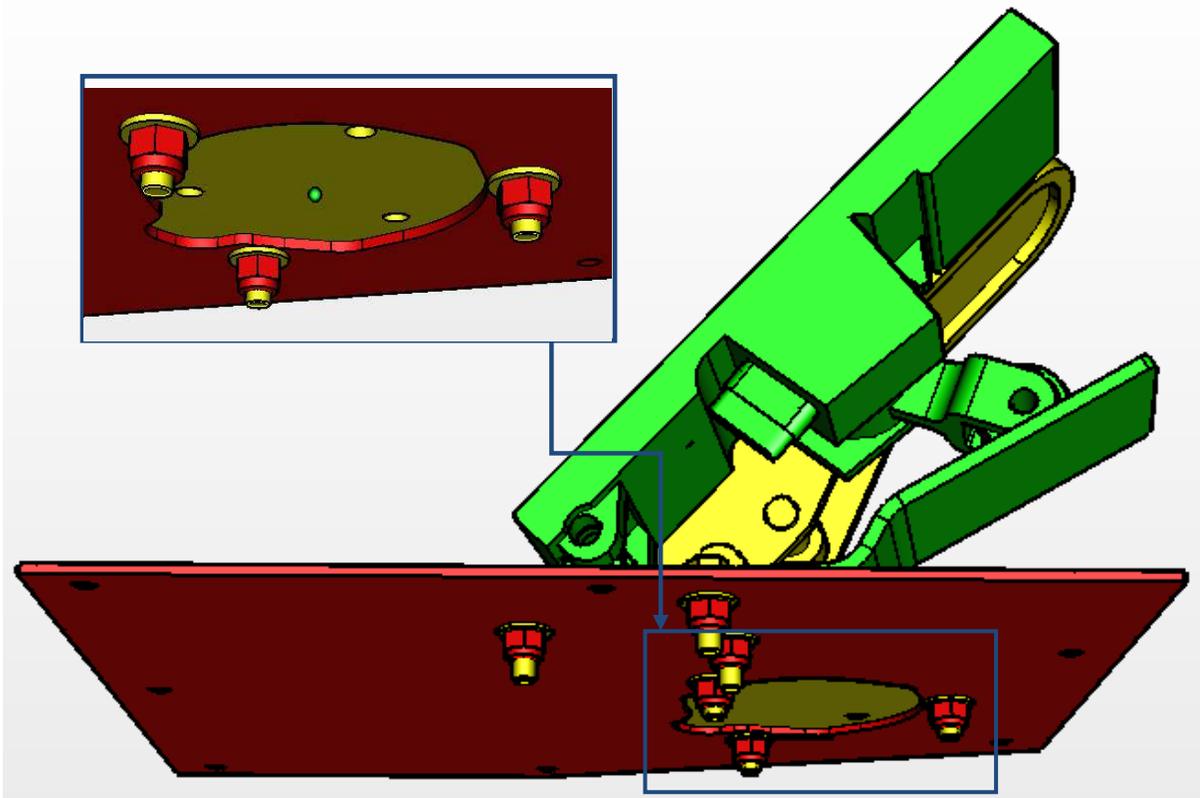


Figure 13: Pedal Mount

27. Locate the pedal mount on top of the hole in the brake pedal mounting plate, see Figure 11.
28. Secure the pedal mount to the brake plate using the hardware previously removed in Step 18 and 3 new lock nuts (PN: 40N05000), see Figure 12. Tighten the bolts.
- ☞ **NOTE: Place a washer between the new plate and the locknuts, see Figure 13. No washer between the bolt head and the pedal mount, see Figures 12 and 13.**
29. Align the BVA valve and the 45 degree elbow with the open slot in new plate as shown in Figure 14.
30. Attach the pedal mount to the BVA valve using the hardware previously removed in Step 17 (3 bolts, 6 washers), see Figure 11. Tighten the bolts.
- ☞ **NOTE: Place two washers between the bolt head and the pedal mount, see Figure 15.**
- ☞ **NOTE: Apply loctite – 243 (PN: 081034) Medium to the mounting bolts.**

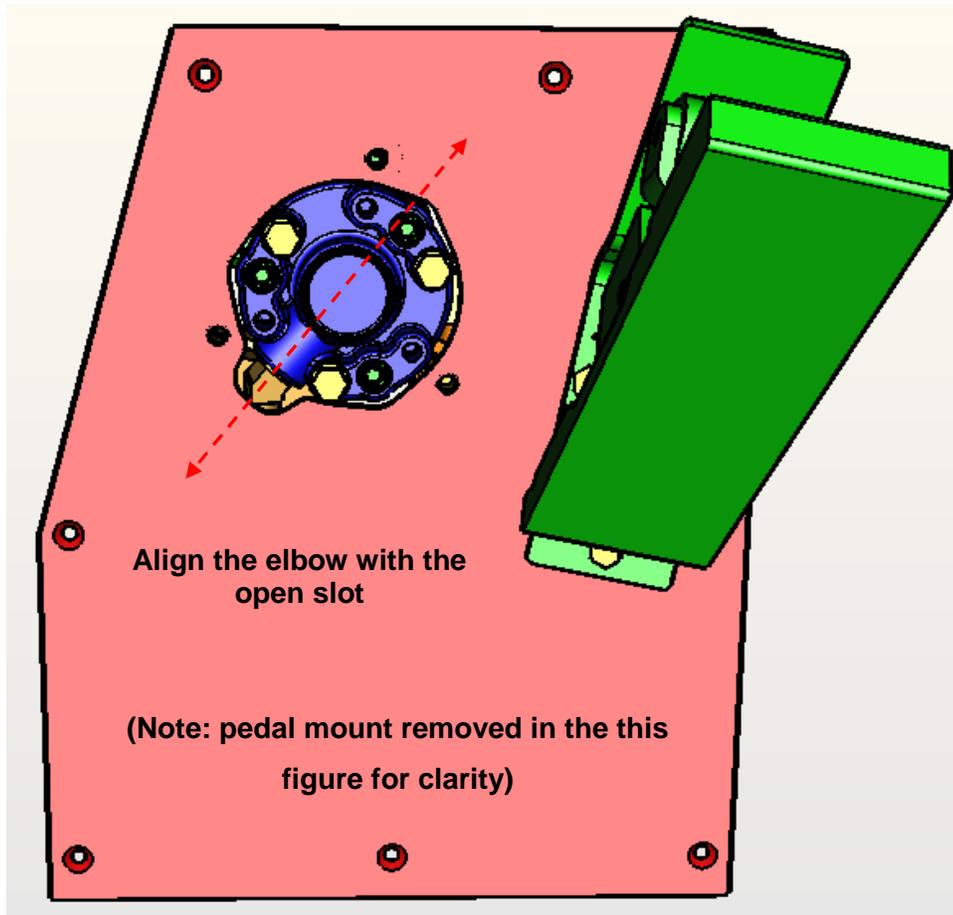


Figure 14: Align the BVA Valve with the New Plate

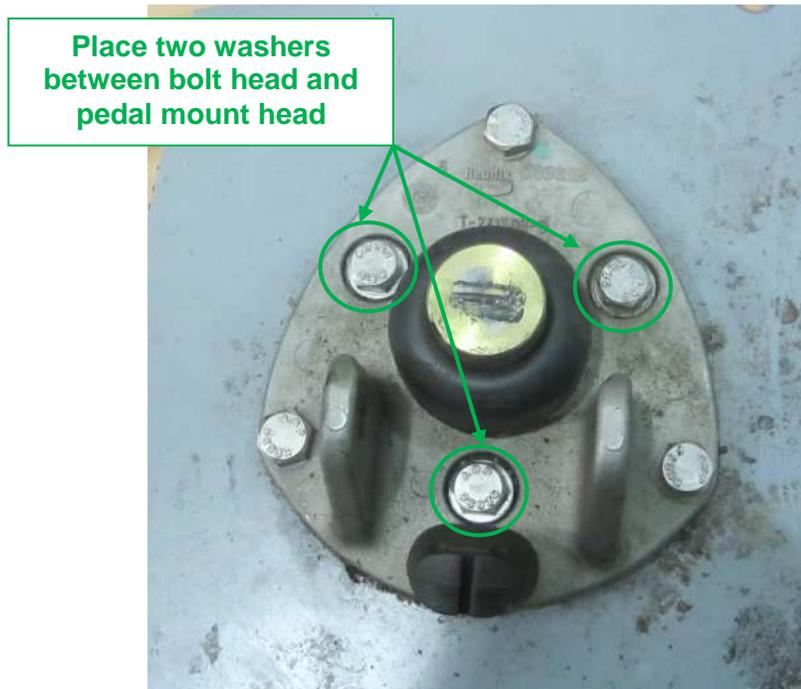


Figure 15: Pedal Mount

31. Clean and inspect the treadle roller, the roller pin, the hinge pin, the pedal mount, the plunger and the rubber boot in accordance with in accordance with the New Flyer Service Manual, Preventive Maintenance, Section Brake Treadle Assembly & Brake Valve, see Appendix A.
32. Apply a thin layer of Barium based grease per BW-204-M (PN: 117267) to pedal plunger and the bore in pedal mount, see Figure 16.
33. Put the plunger in the bore and install the rubber boot, ensure the rubber boot is seated properly.
34. Re-install the hinge pin and the brake pedal. Install a new cotter pin (PN: 6325654). Bend the cotter pin ends, see Figure 17.



Figure 16: Apply Barium Grease



Figure 17: Install Cotter Pin

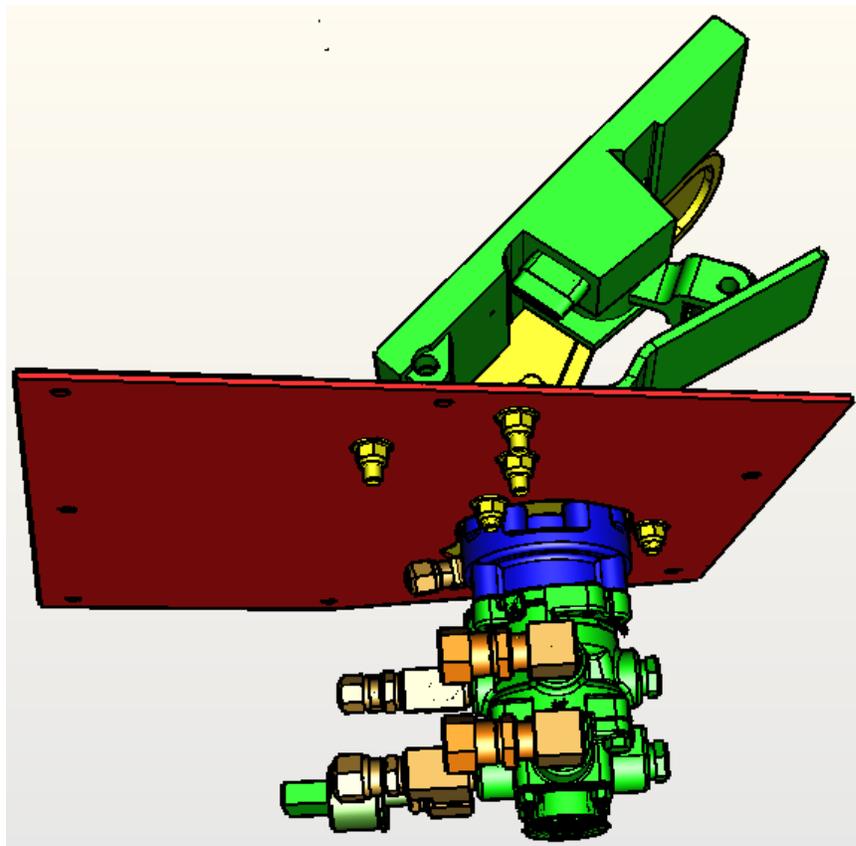


Figure 18: Pedal Assembly

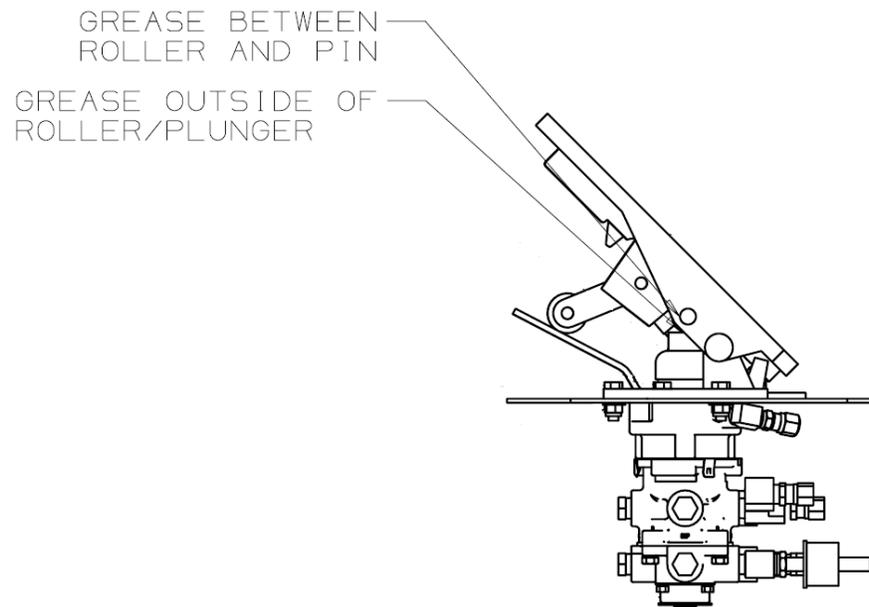


Figure 19: Apply Grease

35. The pedal assembly should look like Figure 18.
36. Apply a thin layer of Barium grease per BW-204-M (PN: 117267) to the roller and the roller pin, see Figure 19.
37. Apply Sika 221 Black (PN: 055700) on plywood to the border of the mounting frame as shown in Figure 20.
38. Re-install the pedal assembly using the 7 screws previously removed in Step 12. See Figure 21.
39. Secure the accelerator harness as it was originally installed using the P-clips and hardware previously removed in Step 10, see Figure 21.



Figure 20: Apply Sika

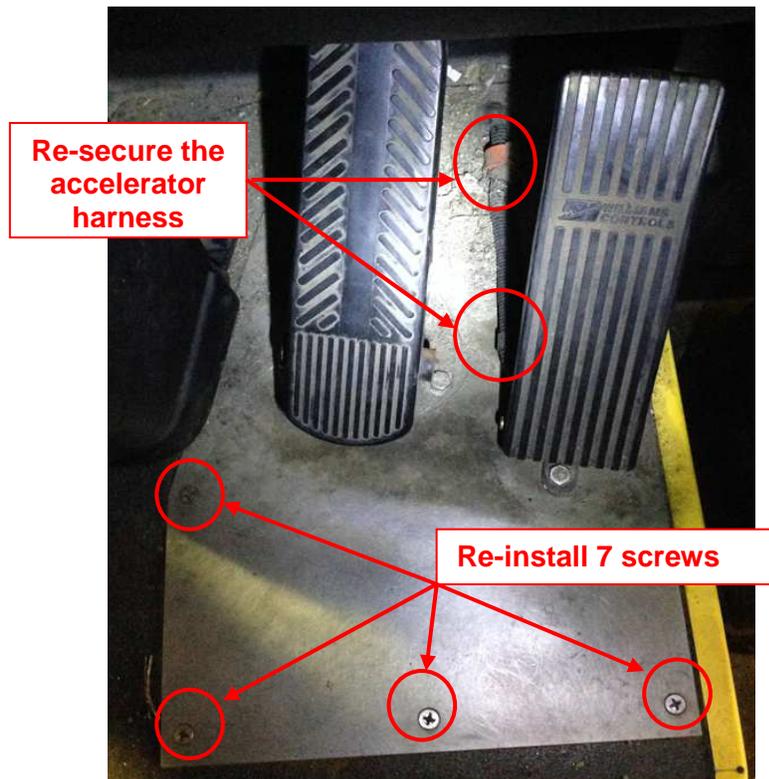


Figure 21: Brake/Accelerator Treadle Assembly

40. Raise coach in accordance with the New Flyer Service Manual.
41. Open the access door for the brake treadle valves under the driver's platform.
42. Re-connect the air lines and the pressure switch harness as per original configuration. Use the marks applied in Step 6 to find the right port for each air line.

NOTE: Double-check the connections with Figure 22.

WARNING: Ensure the airlines are connected to the correct port.

43. For all pipe thread fittings:
 - a. Check that the joint assembly is free of dirt, burrs or excessive nicks.
 - b. Apply thread sealant to male portion only, if fitting does not have pre-applied thread sealant. Do not coat the first one or two threads, to avoid system contamination.
 - c. Screw the fittings into the port finger tight.
 - d. Tighten the connector 2-3 turns from the finger tight.
44. Close the treadle valve access door before lowering the coach.
45. Lower coach in accordance with the New Flyer Service Manual.

WARNING: Ensure the treadle valve access door is closed before lowering the coach.



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46. Turn the main battery disconnect switch to the "ON" position.
47. Close drain valves and bring air system up to full operating pressure (either shop air or running the engine).
48. Actuate pedal and listen for leaks.
49. Apply several brake applications to verify proper function of the brake pedal and accelerator treadle.

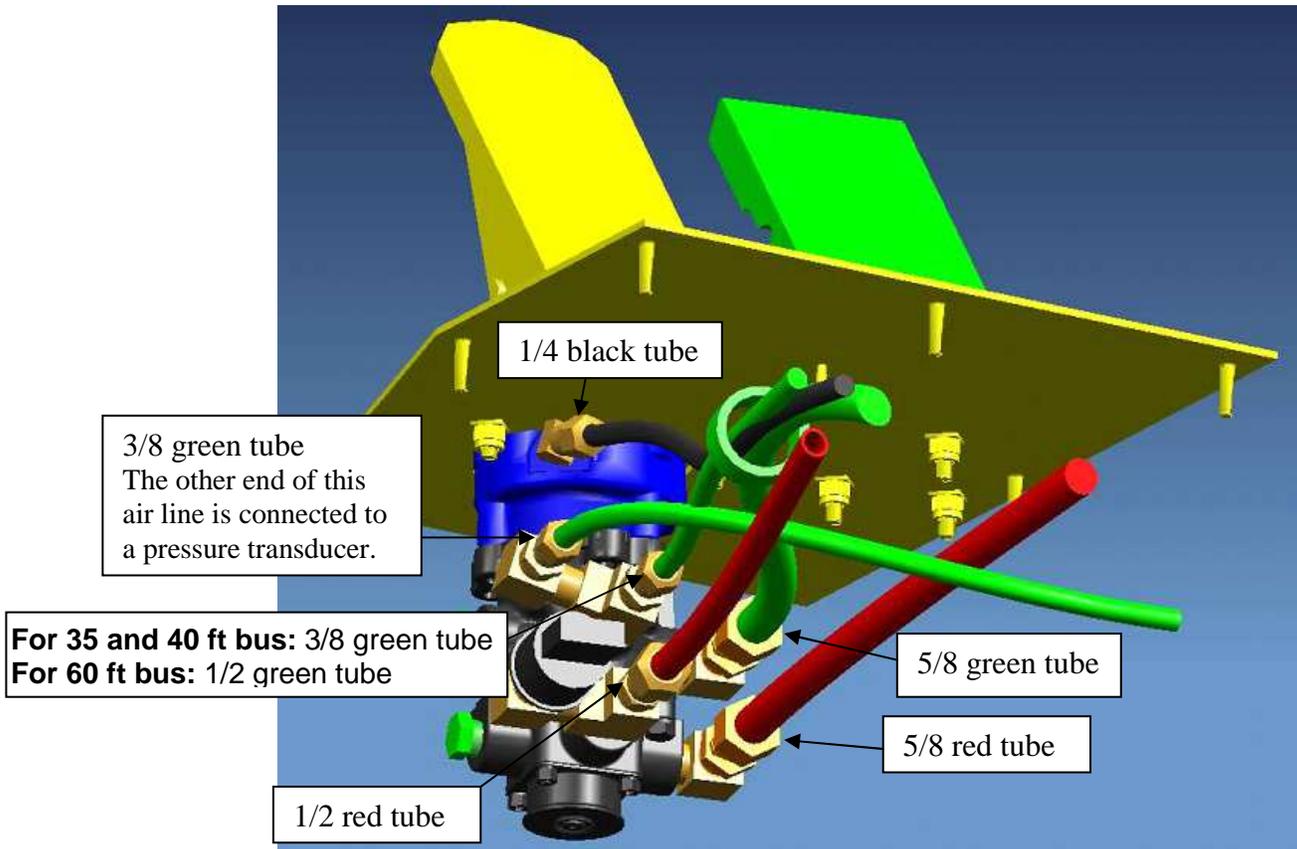


Figure 22: Airline Connections to the E6 and BVA Valves



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LABOUR ESTIMATE

	Operation	Men	Hours	Labour Time M X HR
1	Replace brake pedal mounting plate and BVA valve	1	1.5	1.5

PARTS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
1	553382	PLT – DRIVERS CONTROL	1	EA	
2	477422	VALVE – BRAKE ACTUATOR	1	EA	
3	40N05000	NUT LOCK NYLON 5/16” 18 UNC	6	EA	
4	117267	LUBRICANT – BRAKE TREADLE	0.1	EA	
5	8110442	LOCTITE 567 – THREAD SEALANT	0.01	EA	
6	055700	ADHESIVE – SIKA 221 BLACK	0.01	EA	
7	081034	LOCTITE – 243 MEDIUM 10ML	0.01	EA	
8	6325654	COTTER PIN (7/64 x 1.25)	1	EA	

SPECIAL TOOLS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
		NO SPECIAL TOOLS REQUIRED			

Appendix A

NEW FLYER 24,000 Miles (38,600 km) Preventive Maintenance

2.16. 24,000 Miles (38,600 km) Preventive Maintenance

2.16.1. Brake Treadle Assembly & Brake Valve

- Perform maintenance on the brake treadle assembly and brake valve every 24,000 miles (38,600 km), 900 operating hours or three months, whichever occurs first. Remove any accumulated contamination, such as dirt and gravel, from the heel of the treadle, the plunger, the plunger boot and the mounting plate. See "Fig. PM-28: Brake Valve Inspection" on page 59.
- Clean and inspect the treadle roller, the roller pin, and the hinge pin. Replace any worn, corroded, or damaged parts. Lubricate with Barium grease. Refer to 2.32. "Fluid & Lubrication Guide" on page 85 in this section for lubrication specifications.
- Inspect the plunger boot for cracks, holes or deterioration and replace boot if damaged.
- Inspect the plunger for wear or corrosion. Replace plunger if required.
- Check that the brake treadle mounting plate is securely fastened. Inspect pivot pin holes and plunger bore in mounting plate for wear or corrosion. Replace mounting plate if required.
- Apply a thin layer of Barium grease between the plunger and the mounting plate bore. Do not use excessive amounts of lubricant.
- Perform operation and leakage tests on the brake valve. Refer to Section 8 of this manual for test procedures.

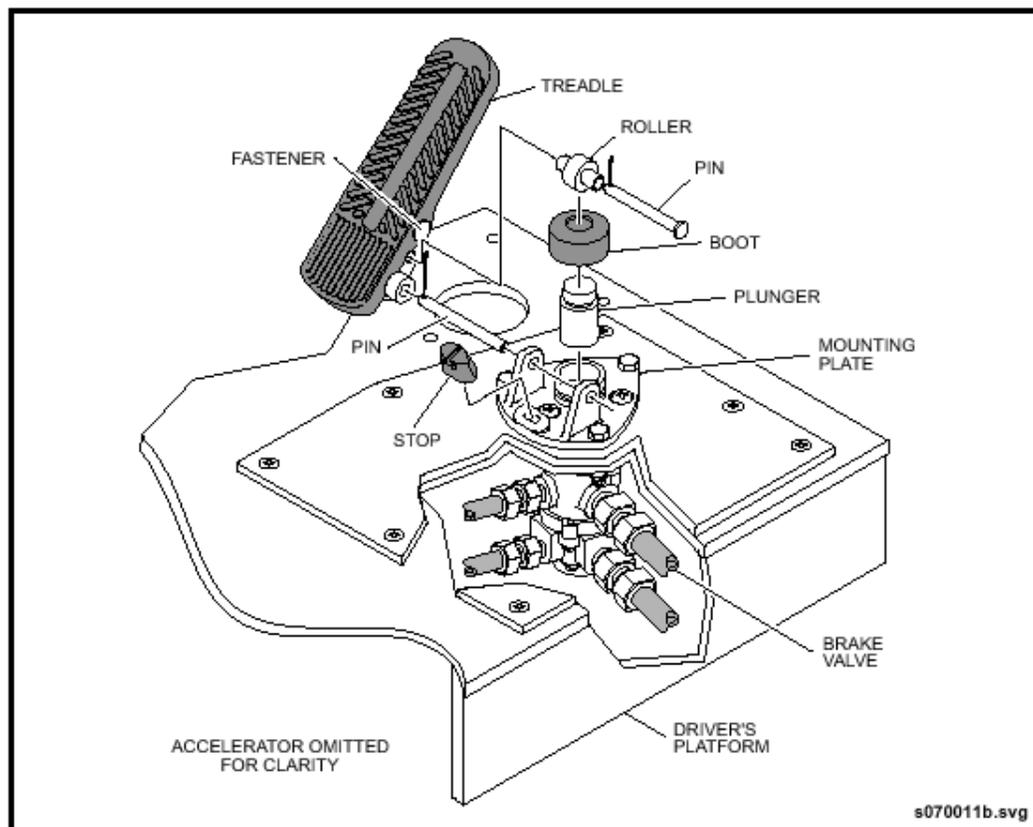


Fig. PM-28: Brake Valve Inspection