# INSTRUCTION TO SERVICE

| ITS: 60597 | 12/22/2022 |
|---|---|
| **SECTION:** | 201-Bumpers |
| **WRITTEN BY:** | Kalman Takacs |
| **SUBJECT:** | Inspect welds around the mounting bracket of pulleys inside front bumper and reweld if required |
| **ISSUE:** | Quality of weld may not meet our standards. |
| **SUMMARY:** | Inspect weld and if required repair per this ITS. |

# ITS60597

| Ref. NHTSA Recall No. | Ref. Transport Canada Recall No. |
|---|---|
| Not Applicable | Not Applicable |

**THIS ITS DOCUMENT SHOULD BE RETAINED AND REFERRED TO FOR FUTURE MAINTENANCE UNTIL THE NEW FLYER PARTS AND/OR SERVICE MANUAL IS UPDATED TO REFLECT WORK DONE AS A RESULT OF THIS DOCUMENT. ENSURE THAT THIS DOCUMENT IS AVAILABLE FOR PARTS AND MAINTENANCE STAFF GOING FORWARD.**

**SAFETY PRECAUTIONS MUST BE FOLLOWED ACCORDING TO ACCEPTED INDUSTRY STANDARDS AND LOCAL/PROPERTY REQUIREMENTS.**

**PROCEDURE:**

1. Park bus on a leveled surface and apply parking brake. Place wheel chocks underneath the front wheels.
2. Turn the main battery disconnect switch to the “OFF” position.

***Inspection***

3. Locate the front bumper-door. Refer to Figure 1.


**Figure 1: Front bumper-door**

4. Open the left side front access door. Refer to Figure 2.


**Figure 2: Left side forward access door**

5. Unlock front bumper-door by pulling the handle located inside the left side compartment. Refer to Figure 3

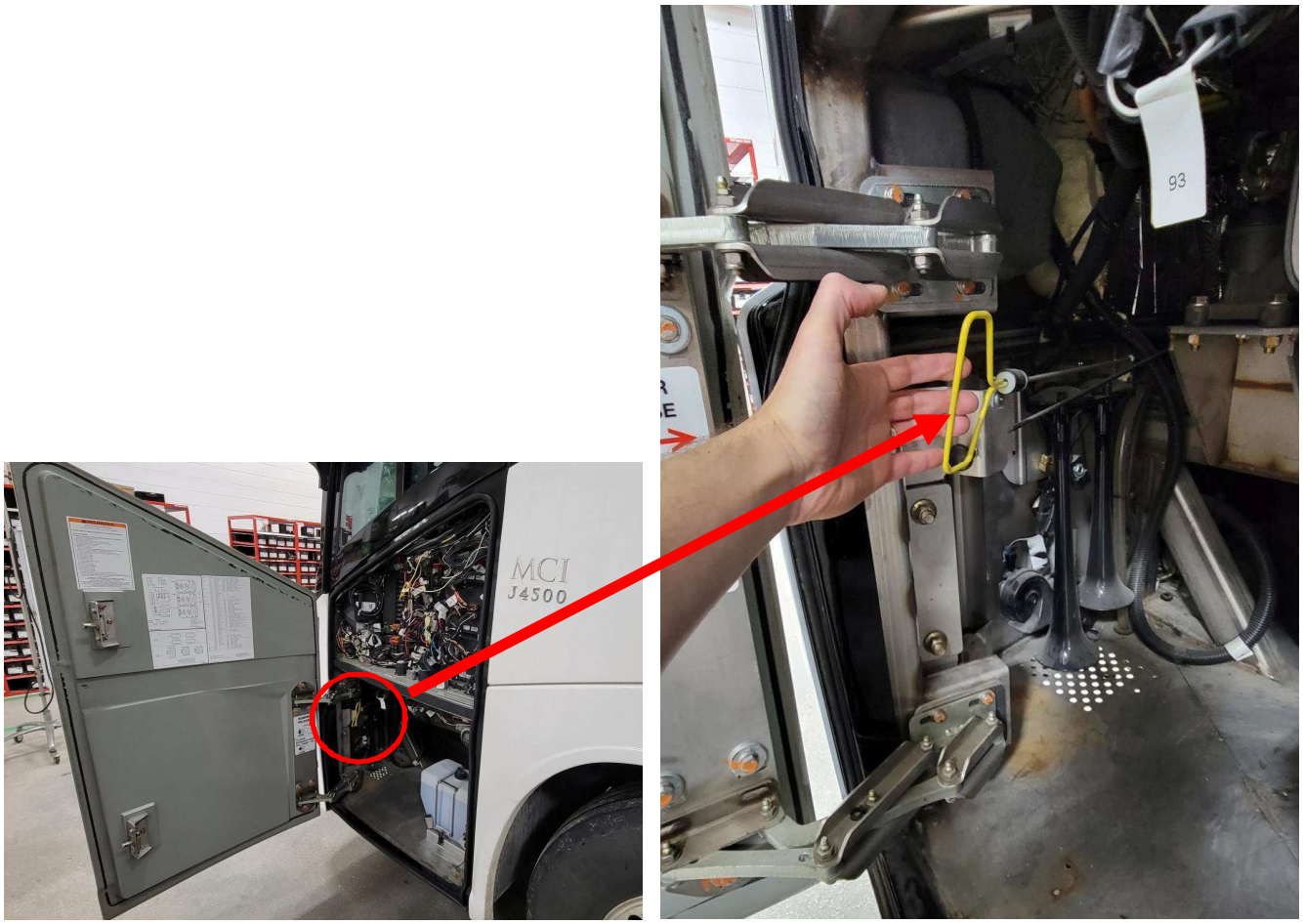



**Figure 3: Unlock front bumper-door**

6. Locate the pulleys bracket at the left side of the door. Refer to Figure 4.

**Figure 4: Pulleys bracket**

7. Visually inspect the welds around the bracket. look for missing welds, inconsistent bead-size, holes on weld bead, asymmetrical weld penetration (weld is attached to one component only). Use magnifying glass, flash light or take photos then zoom in the picture to find flaws if any. Document the condition of the welds (whatever their condition is) by taking photos. Refer to Figures 5a and 5b.

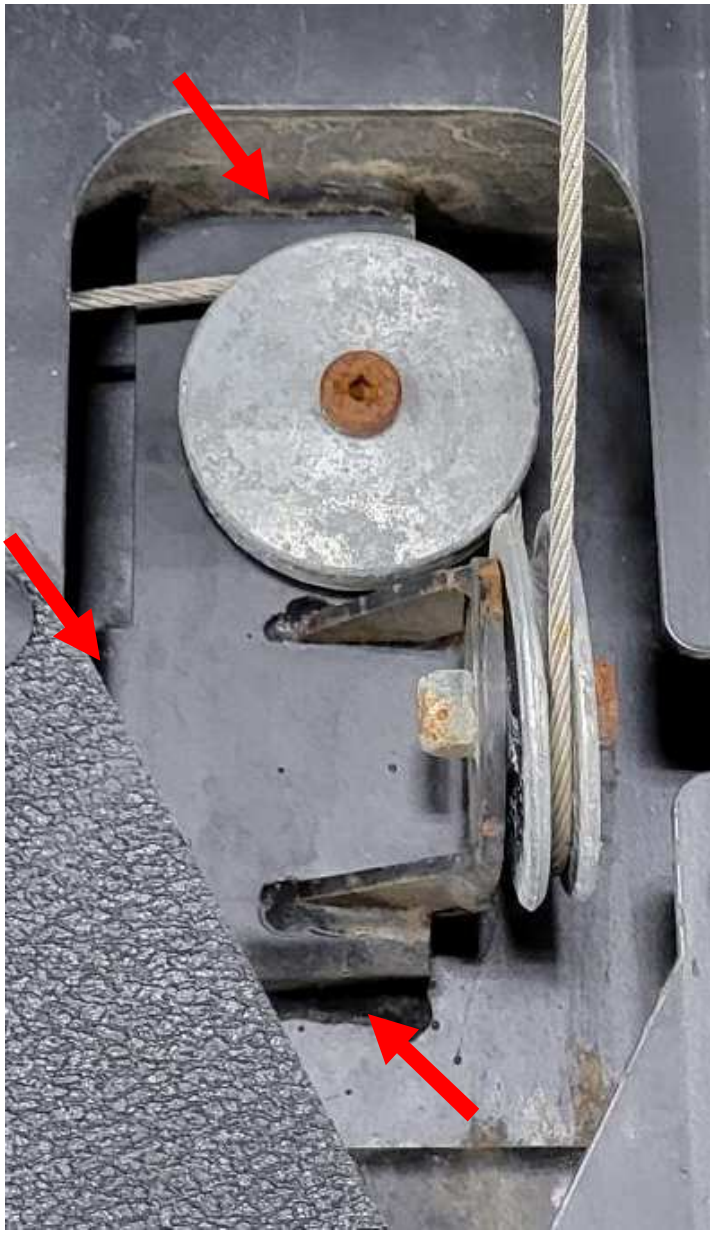


**Figure 5a: Location of the welds that need to be inspected**

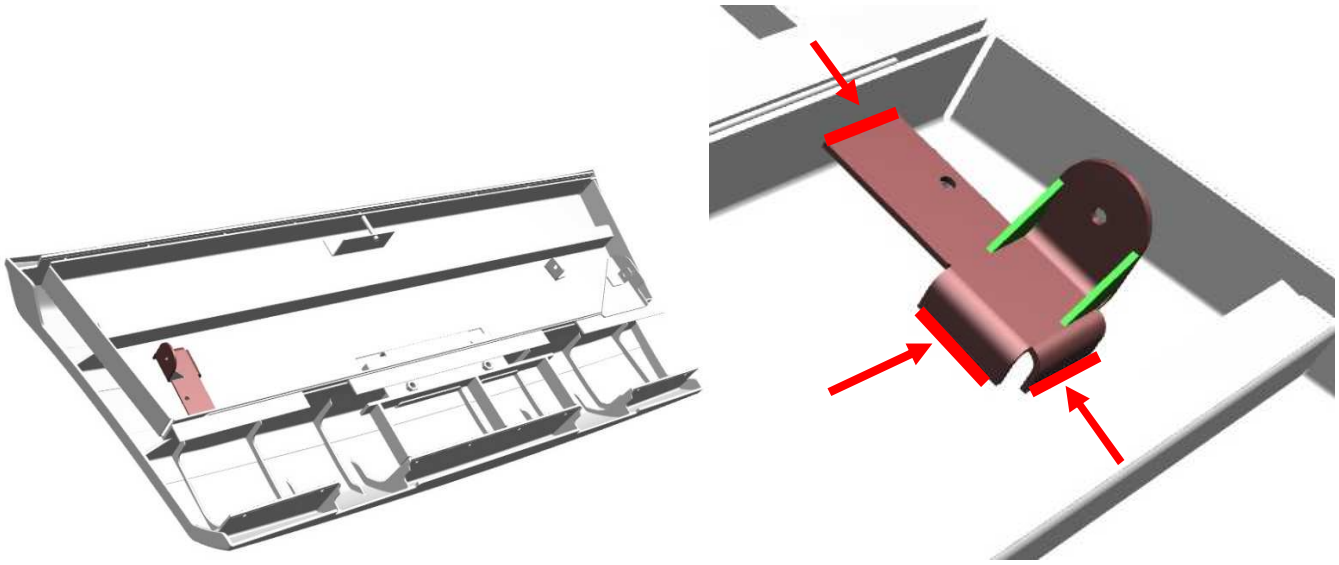


**Figure 5b: Location of the welds that need to be inspected**

8. If the visual inspection reveals questionable weld quality, then use a prybar and see if there is any movement between the bracket and the base of the bumper along the welds that would indicate a weld separation or incomplete weld.
9. If welds pass the inspection, then no further action is required. Close and lock front bumper-door, lock the left side forward access door, remove wheel chocks and turn battery disconnect switch to the “ON” position.
10. If welds failed the inspection, then proceed with the repair as detailed below.

***Weld Repair (only if required)***

11. Close the front bumper-door and ensure it is locked.
12. Disconnect the spring cable from the bus frame by accessing to its mounting bolt through the left side compartment while the bumper-door is closed and locked. Refer to Figure 6a.

**Warning: the spring is stretched (under tension) when the front bumper-door is open and relaxed (less tension) when the door is closed. Do not attempt to unhook the cable while the door is open! If cable is still tight while the bumper-door is closed, then open door, remove liner (refer to Figure 9) to gain access to the spring, then loosen the nut on the spring tensioner bolt to release tension. Refer to Figure 6b and Maintenance Manual for more details. Close the door, ensure it is locked then remove mounting bolt of the cable.**

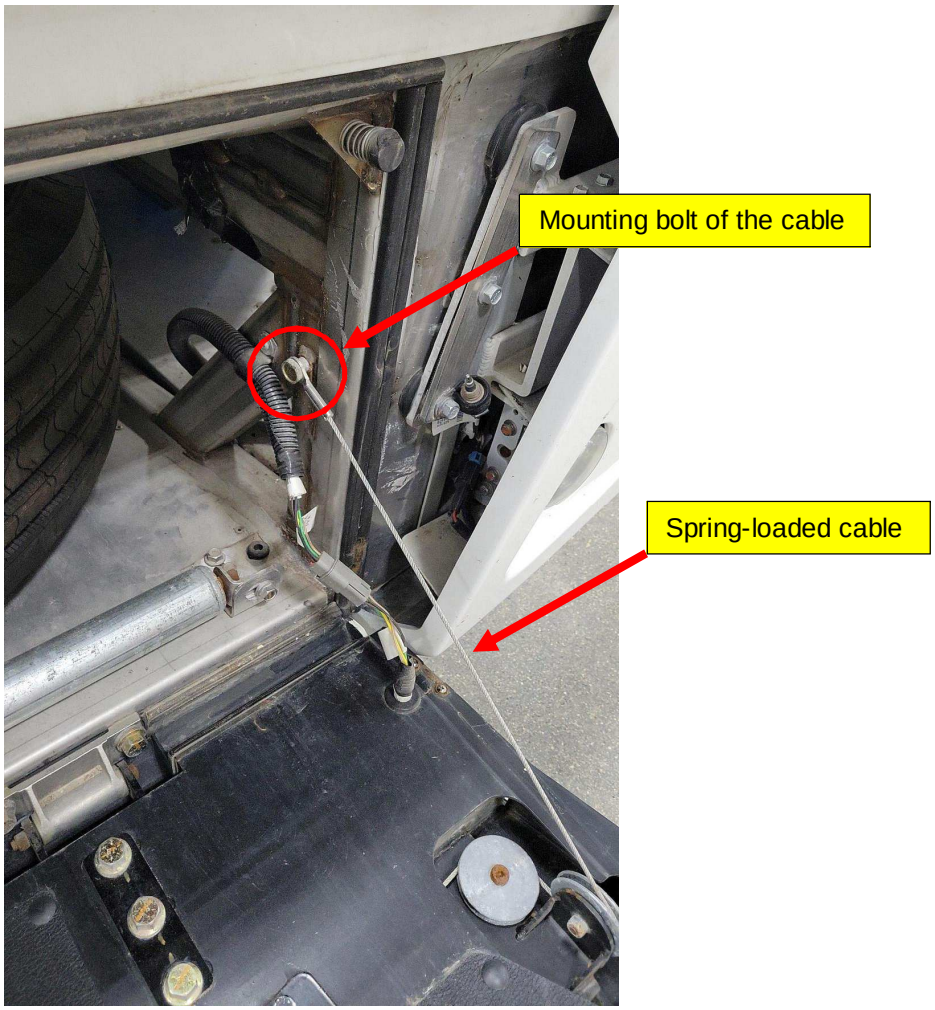



**Figure 6a: Attachment of the spring-loaded cable (door is open just to show the cable and bolt)**

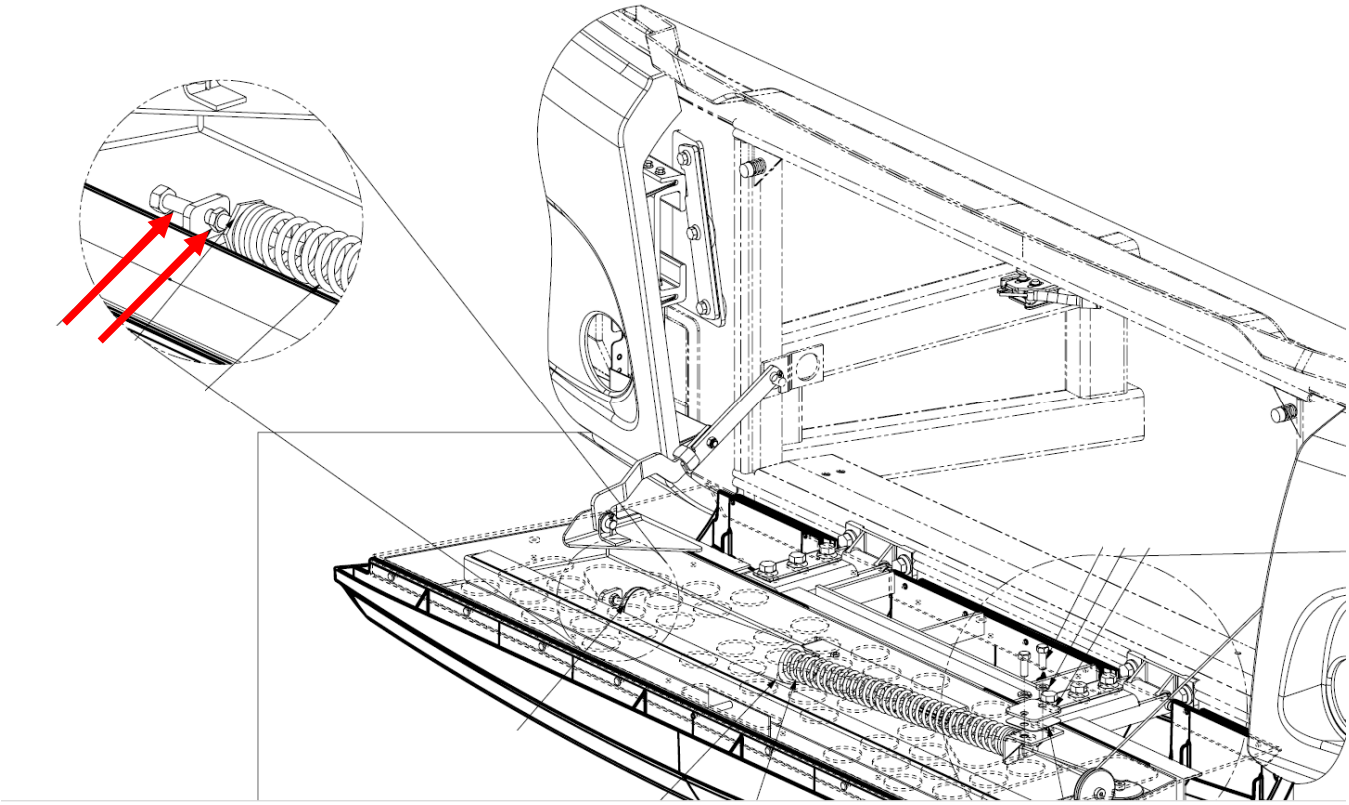


**Figure 6b: Releasing tension of spring**

13. With the helper is holding the front bumper-door, unlock its latch by pulling the handle located inside the left side compartment. Refer to Figure 4.
14. Carefully open bumper-door.
15. Place support underneath the bumper-door ensuring not to damage the paint on the exterior surfaces.

16. Remove link bar assembly from the right side of the bumper-door by removing the pin at the bumper-door side. Refer to Figure 7.

**Figure 7: Remove pin from link bar assembly**

17. Disconnect electrical connector at the left side (if equipped). Refer to Figure 8.

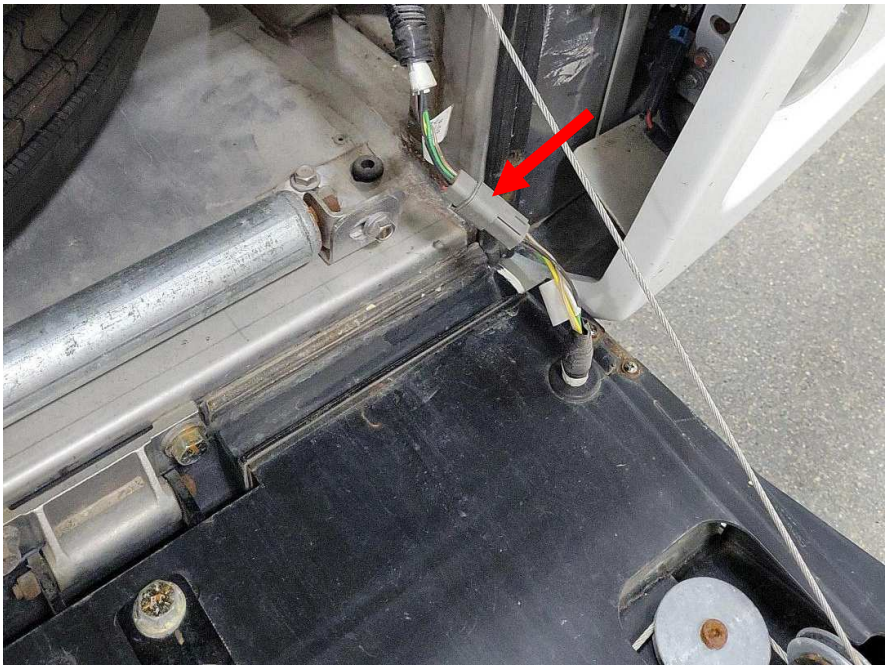


**Figure 8: Disconnect electrical harness**

18. Remove RH and LH hinge-pins then place the door on a suitable work bench.

19. Remove liner by removing the 15 ea. ratchet type fasteners (PN **19-05-0261**). Refer to Figure 9.

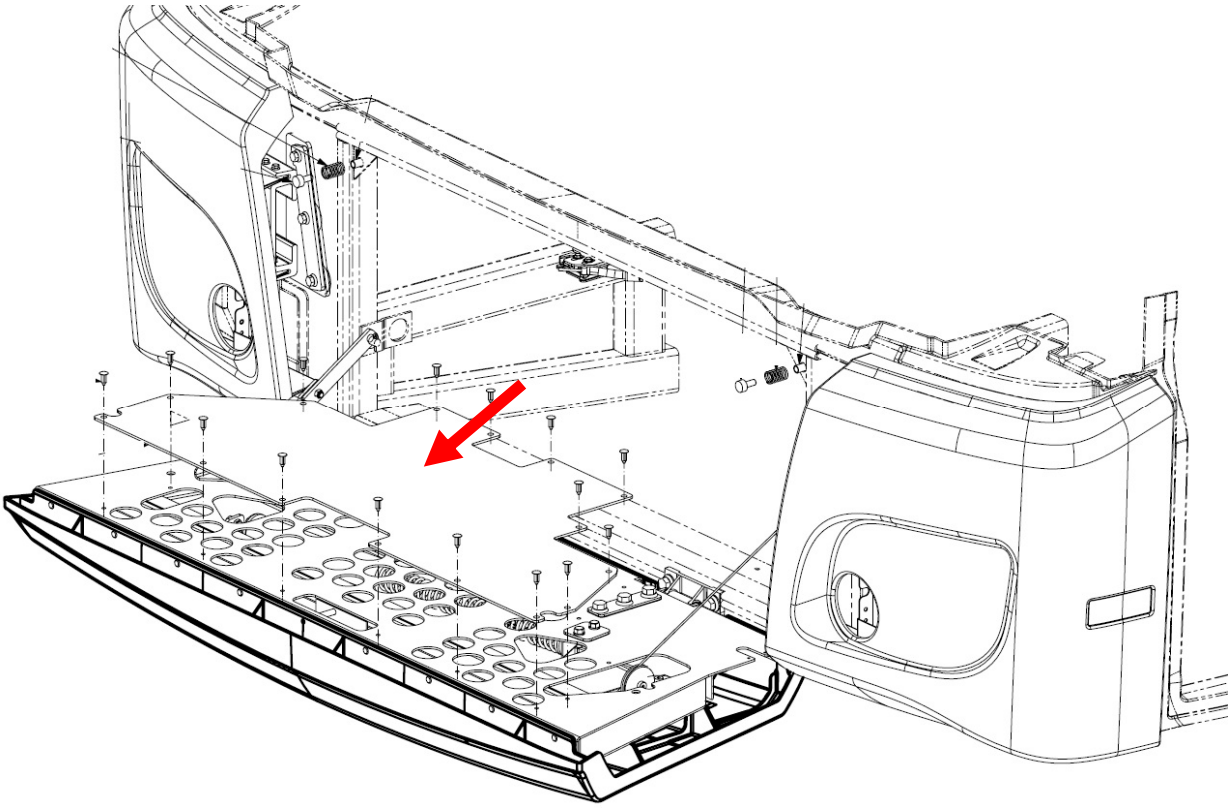


**Figure 9: Remove fasteners and liner**

20. Drill out rivet heads on both sides of the bumper by using a 0.25” drill bit, then use a punch to remove the rivets. Refer to Figure 10.

**Figure 10: Remove rivets from the inner frame of the bumper**

21. Lift up and set aside the inner frame. Refer to Figure 11.

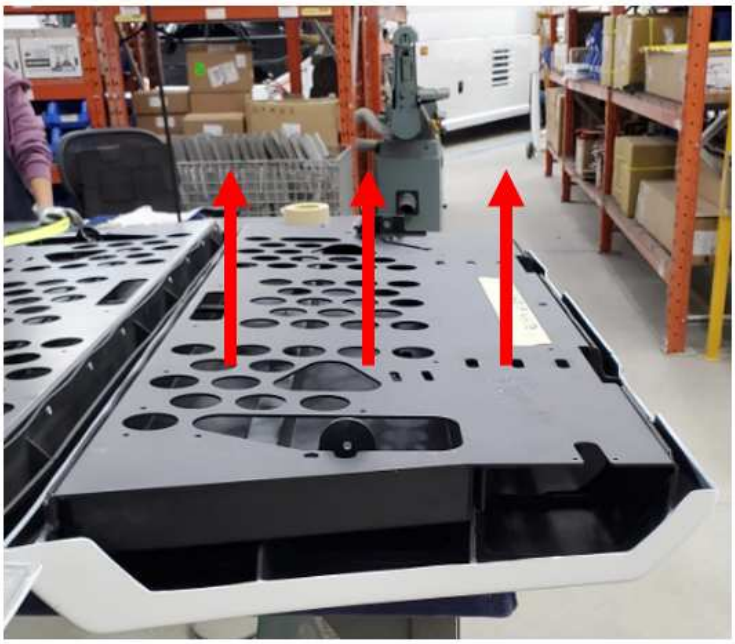


**Figure 11: Remove inner frame**

22. Remove cable pulleys if required to get better access to the affected welds.
23. Remove paint from the affected welds and 1”-1” along both sides of the welds that need to be repaired by using wire wheel. ***Ensure to wear appropriate safety glasses, shield, respirator and gloves.***
24. Carefully grind existing weld along the defect so it can be re-welded.
25. Degrease affected weld and surrounding area with sporophyll alcohol. Flash off 10 minutes.
26. Weld affected weld per the attached Welding Procedure Data Sheet (WPDS) **1-FFa GMAW 045**. Refer to Figure 12 and Appendix. **Wear appropriate welding helmet and gloves. Place wet clothes underneath the bumper to protect / cool the painted exterior surface. Weld only one leg of the bracket at a time and keep checking the temperature of the painted surface. Stop welding and let surface cool down as required before continue welding.**
27. Clean new welds and surrounding area with wire wheels.
28. Inspect new welds and reweld as required.
29. Degrease surfaces with sporophyll alcohol. Flash off 10 minutes.
30. Apply industrial primer then black paint over the repaired area. Follow instructions on the cans.

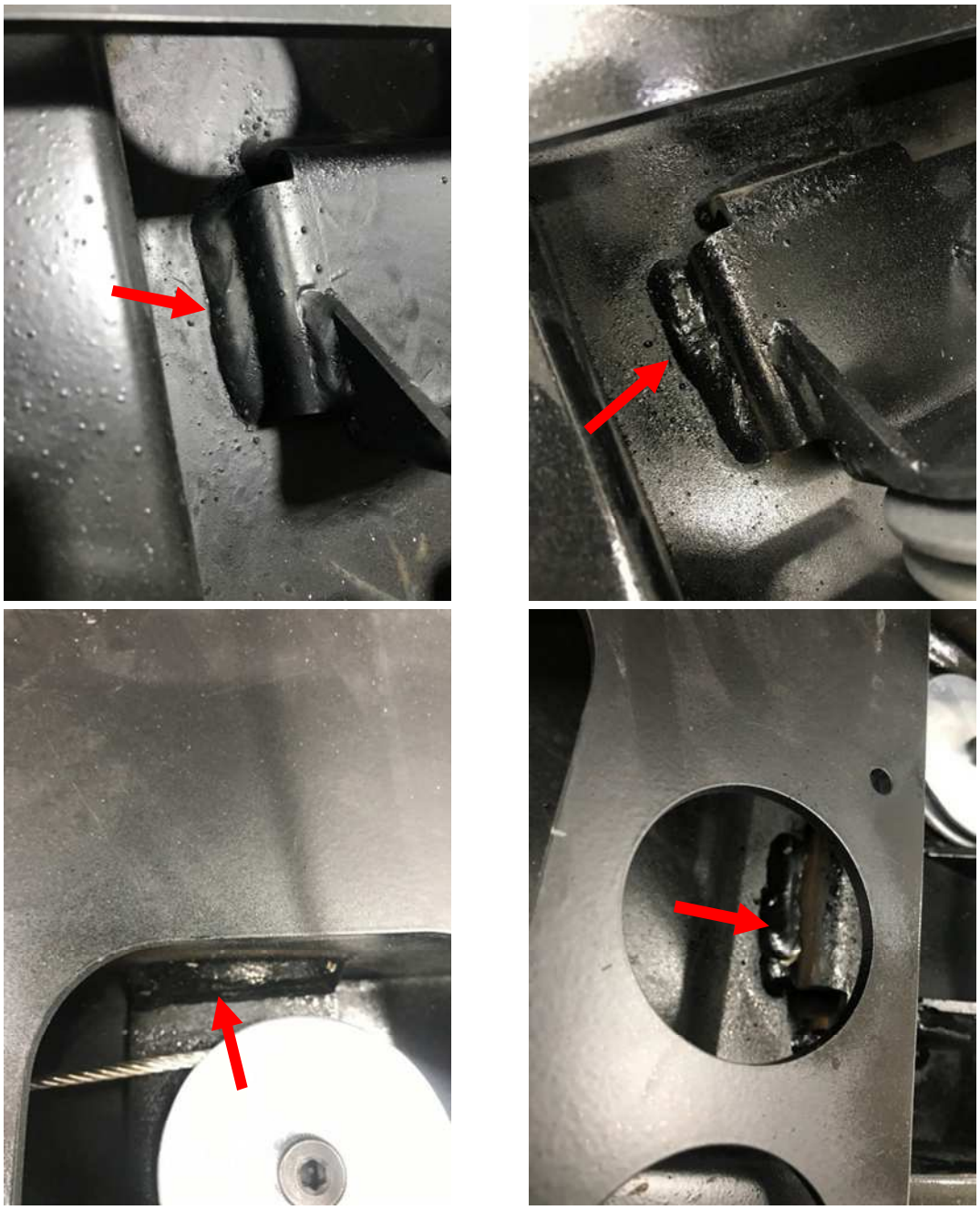


**Figure 12: Example photos of rewelded bracket**

***Final Operation***

31. Reinstall inner frame piece with new rivets (PN **19-13-0338**). Refer to Figure 10.
32. Reinstall pulleys if they were removed. Apply Loctite thread locker adhesive (PN **21-7212-18**) onto the threads of the shoulder bolts. Ensure Loctite does not contaminae the shoulder area of the bolt.
33. Reinstall bumper-door assembly to the bus: reinstall hinge pins, reattach link by using a new cutter pin, reconnect electric harness. Refer to Figures 7, 8 and 13.

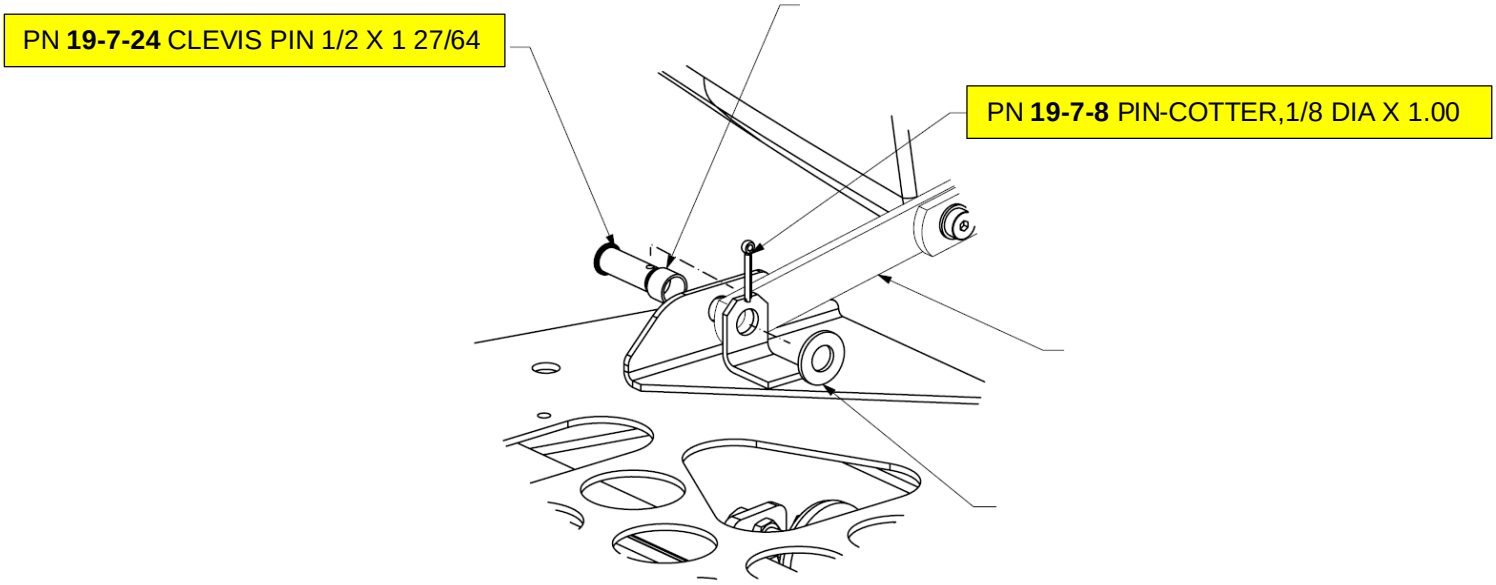



**Figure 13: Reinstall link with new cutter pin**

34. Route spring-cable through pulleys. Refer to Figure 5a.
35. Close the bumper-door and reattach spring cable to the frame with the original shoulder screw. Refer to Figure 6.
36. Adjust spring tension as required. Refer to Figure 6b and Maintenance Manual for more details.
37. Reinstall liner. Replace fasteners (PN **19-05-0261**) as required. Refer to Figure 9.
38. Remove all tools and debris and return the bus to service condition.
39. Turn the main battery disconnect switch to the “ON” position.

| LABOUR ESTIMATE | | | | |
|---|---|---|---|---|
| | Operation | People | Hours | Labor Time |
| 1 | Inspect bracket attachment | 1 | 0.5 | 0.5 |
| 2 | Repair welds per this ITS | 1 | 3.0 | 3.0 |

| PARTS REQUIRED | | | | | |
|---|---|---|---|---|---|
| Item | Part Number | Description | Qty. per Coach | Units | Notes |
| 1 | 19-13-0338 | PLASTIC-RIVET .197 DIA | 16 | EA | |
| 2 | 19-7-8 | PIN-COTTER,1/8 DIA X 1.00 | 1 | EA | |
| 3 | 19-05-0261 | FASTENER-RATCHET TYPE | 15 | EA | Only as required |
| 4 | 21-7212-18 | ADHESIVE-LOCTITE, BLUE | 0.001 | EA | |
| 5 | 134336 | ISOPROPYL-ALCOHOL | 0.02 | EA | |
| 6 | NA | Industrial primer, 16 oz can | 0.5 | EA | Purchased locally |
| 7 | NA | Black paint, flat, 16 oz can | 0.5 | EA | Purchased locally |

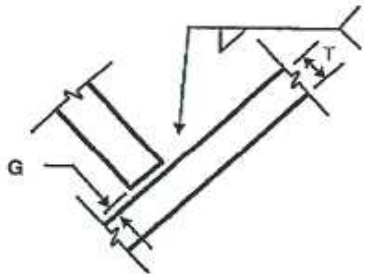
| SPECIAL TOOLS REQUIRED | | | | | |
|---|---|---|---|---|---|
| Item | Part Number | Description | Qty. per Coach | Units | Notes |
| 1 | NA | MIG welding equipment | 1 | | |
| 2 | NA | Grinding tools | 1 | | |
| 3 | NA | Wire wheel, deburr bits | 1 | | |

# Appendix – WPDS

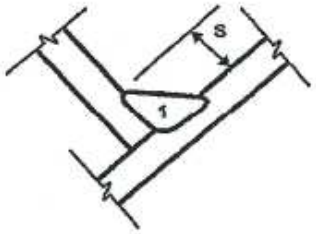
## WELDING PROCEDURE DATA SHEET

| | | | | | |
|---|---|---|---|---|---|
| Company Name: | New Flyer Industries | | | WPDS #: | 1-FFa GMAW 045 |
| Company Address: | 711 Kernaghan Ave; Winnipeg, MB; R2C 3T4 | 6200 Glenn Carlson Dr; St Cloud, MN; 56301 USA | 214 5th Avenue SW; Crookston, MN; 56716 USA | Date: | 26-Aug-2013 |
| | | | | Reference WPS: | NF-1 |
| | | | | Reference Standards: | CSA W47.1, W59 |
| Weld Process: | GMAW - CV | Weld Position: | Flat, Horizontal | Shielding Gas: | 90%Ar-10%$CO_2$ |
| Base Material: | Steel Groups 1, 2, 3 as per CSA W59 Table 12.1 | Process Mode: | Semi-Automatic | Shielding Gas Flow Rate: | 35 CFH |
| Filler Metal: | B-G 49A 2 C G3 (ER49S-3), B-G 49A 3 C G6 (ER49S-6) | Preheat Temperature: | CSA W59 Table 5.3 | Interpass Temperature (min): | 50° F |
| | | | | Interpass Temperature (max): | N/A |

Typical Joint Preparation:




Typical Pass and Layer Sequence:




| Joint Dimensions: | | | | | |
|---|---|---|---|---|---|
| G: | 0-1/16" | Electrode Stickout: | 1/2" ± 1/8" | Weld Type: | Fillet |
| Q: | N/A | Nozzle Diameter: | 5/8" - 3/4" | Joint Type: | Corner / Tee / Lap |
| Root Face (Rf): | N/A | Current Polarity: | DC+ | | |

| Material Thickness (T) (in) | Weld Size S / ETT (in) | Number of Layers | Number of Passes | Electrode Diameter (in) | Root Face (Rf): | Current (A) | Wire Feed Speed (in/min) | Voltage (V) | Travel Speed (in/min) |
|---|---|---|---|---|---|---|---|---|---|
| 0.125+ | 0.125 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 22 - 30 |
| 0.188 | 0.125 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 22 - 30 |
| 0.188+ | 0.188 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 20 - 26 |
| 0.250 | 0.125 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 22 - 30 |
| 0.250+ | 0.250 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 12 - 16 |
| 0.375 | 0.250 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 14 - 20 |
| 0.375+ | 0.375 | 2 | 2 / 3 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.500 | 0.250 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 14 - 20 |
| 0.500 | 0.375 | 2 | 2 / 3 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.500+ | 0.500 | 2 | 4 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.625 | 0.250 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 14 - 20 |
| 0.625 | 0.500 | 2 | 4 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.625+ | 0.625 | 3 | 6 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.750 | 0.250 | 1 | 1 | 0.045 | N/A | 310 | 400 | 29 | 14 - 20 |
| 0.750 | 0.500 | 2 | 4 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |
| 0.750+ | 0.750 | 3 | 6 | 0.045 | N/A | 310 | 400 | 29 | 8 - 16 |

| Revision Date: | Initials: | Explanation: |
|---|---|---|
| 26-Aug-2013 | BSE | Original WPDS |
| 16-Feb-2017 | BSE | Add '+' to thickness |

Prepared by: BSE Welding Engineering Ltd

Company Authorization:


CWB Approval: