NABI: NJT: Front Air Bellow Support Replacement	NEW FLYER

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Property name and Top bus number: NJT 416.15 164200, 164400, 279000, 279500, 289000, 308000

Issue: Front axle air bellow support may deform under certain conditions.

Reason: Support may have corrosion and may have been subjected to high loading conditions.

Solution: Remove original air bellow support bracket and replace per this work instruction.

Effected buses: as required. New Flyer has to approve repair prior starting the work

Estimated repair hours/bus: 6 hours/side, 12 hours/bus.

Engineering documentation:

Necessary parts:

Airbag Bracket, Curb Side,	Part #: **V01-6141-080**,	1 / bus,
Airbag Bracket, Street Side,	Part #: **V01-6141-090**,	1 / bus,
Sikaflex 221, sealer, white,	Part #: **416.00.7311.909**,	1 / 4 buses,
Welding wire, ER309LSi, dia. 0.035”,	Part #: **NPN**,	as required,
Welding wire ER70S, dia. 0.035”,	Part #: **NPN**,	as required,
Acetone,	Part #: **NPN**,	as required,
Industrial primer,	Part #: **NPN**,	1 can / bus,
Rubberized undercoating,	Part #: **NPN**,	1 can / bus,

Necessary tools:

Usual hand tools (wrenches, screwdrivers, hammer, chisel, etc.), angle grinder, GMAW (MIG) Welding machine, plasma cutter, wire wheel, 36G and 60G abrasive discs, de-burr bits, partition/welding curtains, dust collector, Amerex fire suppression system probe.

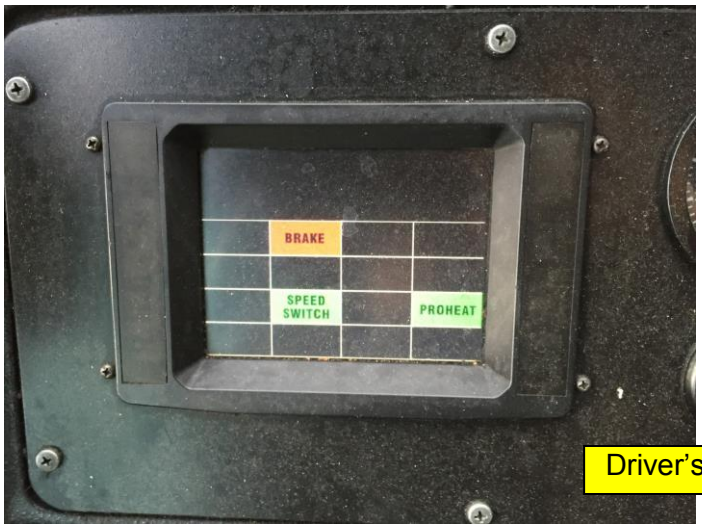
SAFETY PRECAUTIONS MUST BE FOLLOWED ACCORDING TO ACCEPTED INDUSTRY STANDARDS AND LOCAL/PROPERTY REQUIREMENTS.
Stop welding 45 minutes before planning to leave the bus.
Ensure that partitions/welding curtains are placed around the work area.

General Information:

- Read and understand this work instruction before starting the repair.
- Study and familiarize yourself with the work area before starting the repair.
- Before starting the work, make sure that all tools, protective equipment and parts are available.
- Any deviation from this work instruction should be discussed prior to performing any work that does not conform to this work instruction.
- Record bus number, mileage and date of completion and report weekly to Kalman Takacs.

General Preparation before Welding is Performed

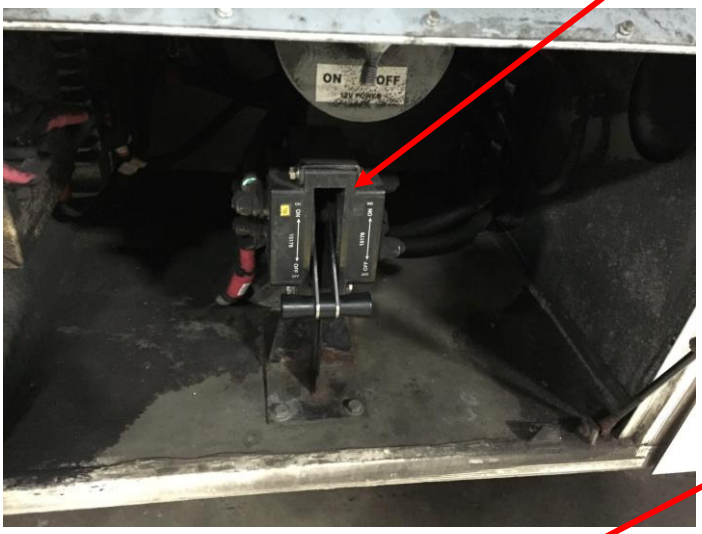
1. Start bus and check driver's dash for warning lights. Record and report any warning lights (for example check engine light) to the garage foreman.

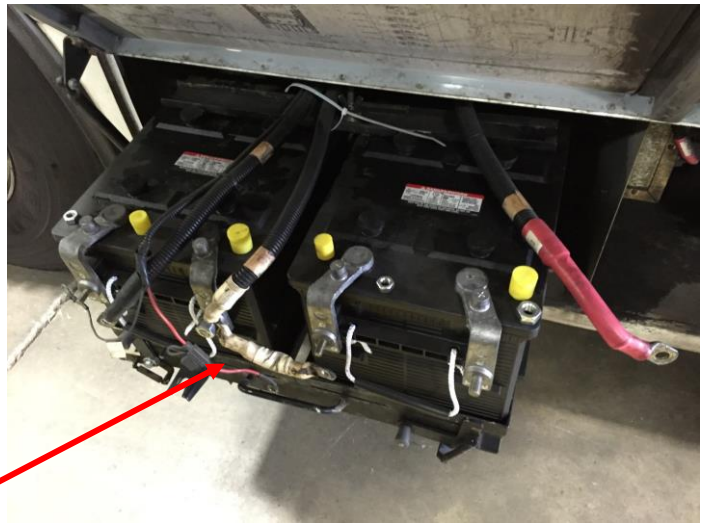


Driver's dash with no issue-lights

2. Take photos of bus number and the issue (dash warning light, etc.) that was found during the inspection.
3. Turn off engine.

4. Turn off the main battery disconnect switch.





5. Tag and disconnect the battery cables.
6. Disconnect the ECU of engine, transmission and ABS. Disconnect the destination signs. Disconnect the Clever device. Open the light panels and disconnect all the IO modules. See some example pictures on the next page.

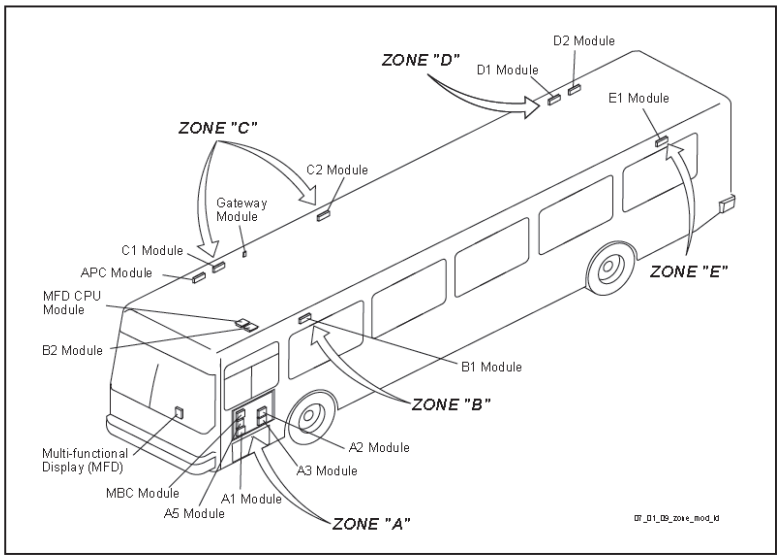
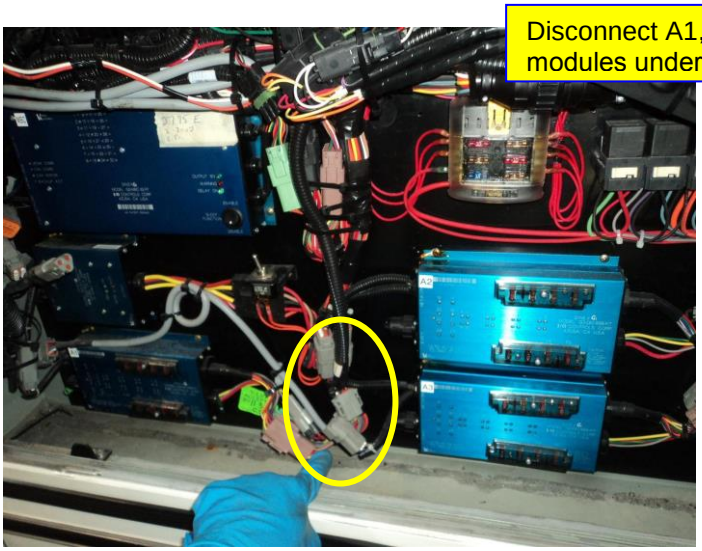
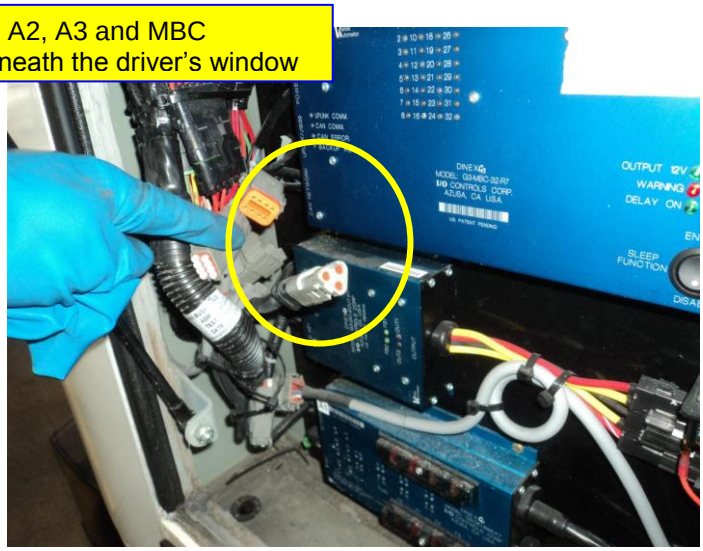
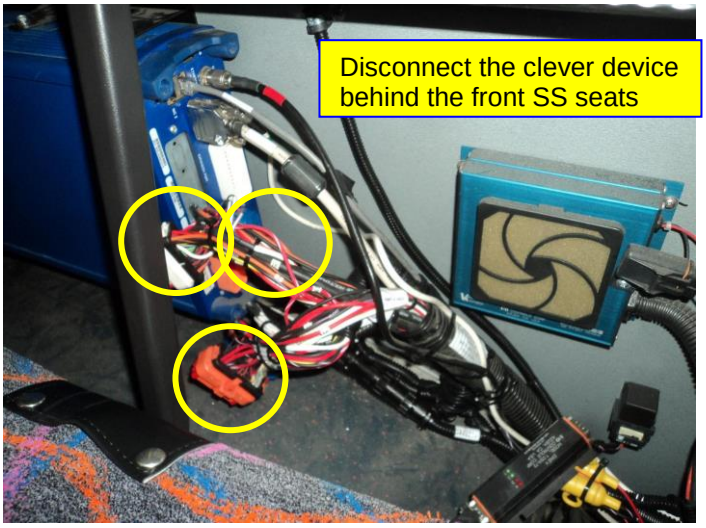


Figure 1- Zone and Module Identification



Disconnect A1, A2, A3 and MBC modules underneath the driver's window

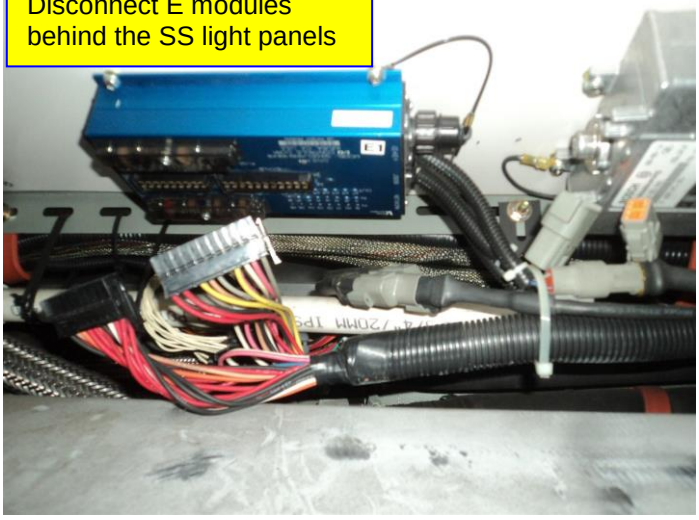


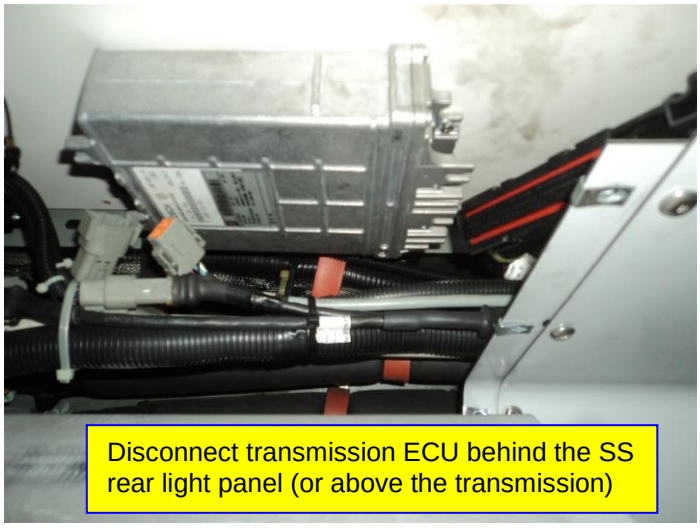


Disconnect the clever device behind the front SS seats

Disconnect C modules behind the CS light panels

Disconnect E modules behind the SS light panels





Disconnect transmission ECU behind the SS rear light panel (or above the transmission)

7. Disconnect the 2-way weather pack connector at the fire suppression bottle, located at the street side compartment in front of the rear axle.

8. Protect repaired area from damage, grinding spark and welding splatter by using fire proof blanket(s).

General Welding Instruction:

1. Remove coating material and primer from surfaces subject to be welded by using grinding tools and wire wheels. Primary condition of good quality weld is a perfectly clean metal surface.
2. Remove dust and degrease cleaned areas with acetone.
3. Weld only a completely clean surface! Grind surfaces with grinding disk suitable for stainless steel material.
4. To prevent gas defects of the weld joints welding should be performed only in closed production area protected from currents of air. Ensure adequate ventilation.
5. Welding parameters must be in accordance with attached Welding Procedure Specification (WPS) **NABI-2014-001 SS, NABI-2014-002 CS-SS** and **NABI-2014-003 CS** sheets.
6. Weld joints should be 100% visually inspected.
7. Protect repaired area from damage during welding.

Make sure that no cracks are present on the structure. If crack was found, then follow the steps below:

- Find the end of the crack (it is recommended to use magnifier or dye penetrate),
- Drill a 1/8” size hole at the end of the crack,
- Bevel the crack profile 2x30° for single “V” butt (groove) weld,
- Clean the surface at the welding area with abrasive disc and/or wire wheel.
- Degrease surface at the welding area by using acetone or denatured alcohol.
- Weld the cracked and bevelled line on the stainless steel structure with continuous weld per WPS **NABI-2014-001 SS**.
- Grind the weld surface until the same height as the parent metal.
- Check the welds by Visual Test and/or Dye Penetrate Test.

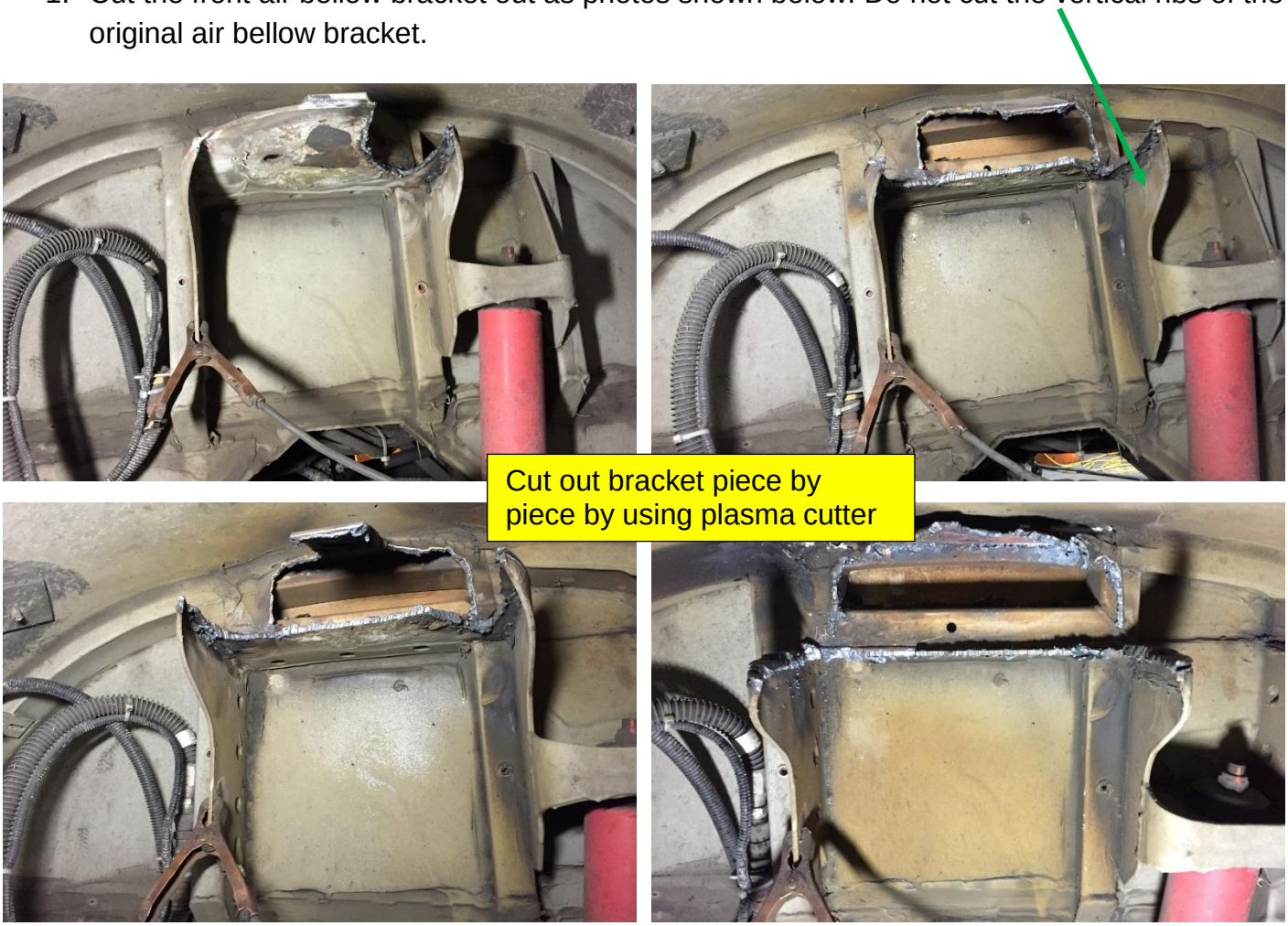
Disassembly

1. Lift bus to the desired height and place jack stands underneath the official jack pads. Only trained person can operate lift. Follow safety instructions written in NABI Maintenance Manual.
2. Remove front wheels.
3. Drain air from the front air bellows:
    a. If four wheel lifts are used then first ensure that the bus body is securely supported with jack stands. Lower only the front two lifts 3 inches (lower the front axle) that will drain the front air bellows.
    b. If central hydraulic lifts are used (one under the rear axle and one under the front axle) then first ensure that the bus body is securely supported with jack stands. Lower only the front lift 3 inches (lower the front axle) that will drain the front air bellows.

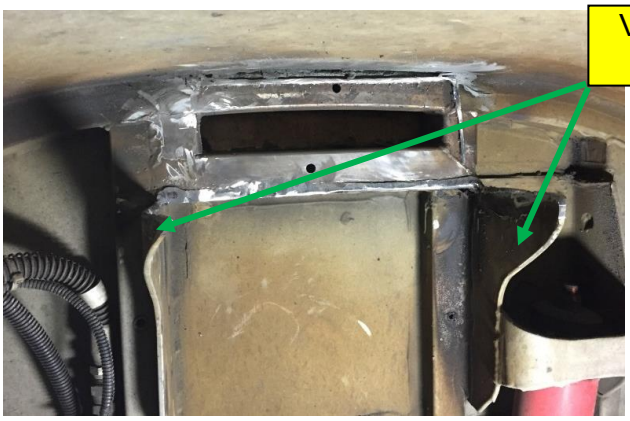
4. Remove air hose from front air bellows.
5. Remove 90-degre air fitting from front air bellows.
6. Remove upper and lower mounting hardware and remove front air bellows.

Bracket Rework

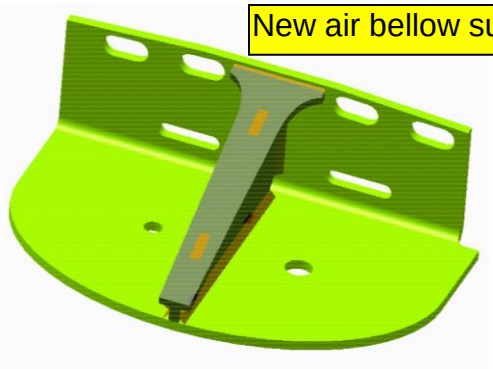
1. Cut the front air bellow bracket out as photos shown below. Do not cut the vertical ribs of the original air bellow bracket.



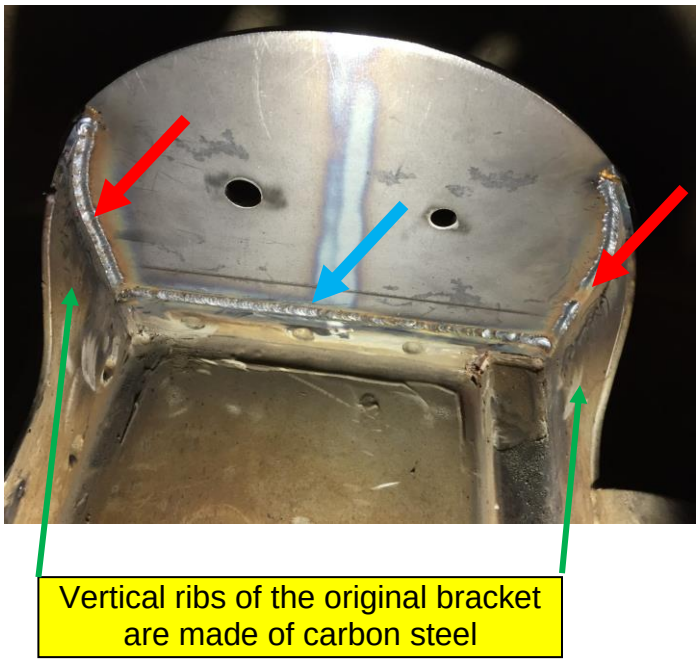
2. Grind bus structure and the vertical ribs of the old air bellow bracket smooth.

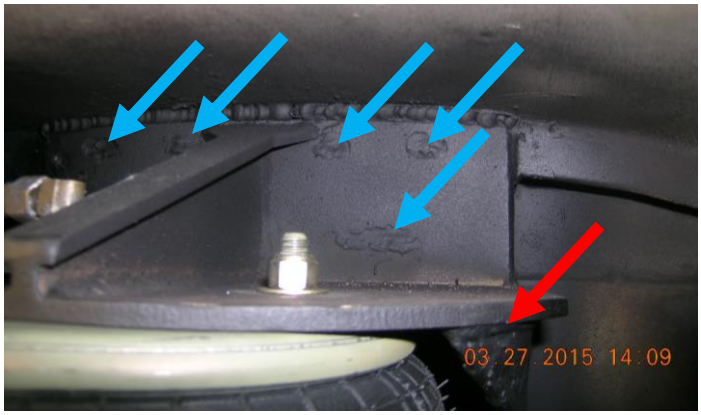


3. Place the new air bellow support between the vertical ribs of the original airbag bracket and tack weld it to the chassis.



4. Weld the new air bellow support to the chassis as photos shown below. Since the bus structure is made of 304 stainless steel and the air bellow support made of AO105 carbon steel use 309LSi welding wire and 98%Ar -2%O_2 shielding gas to weld the bracket to the bus structure (see blue arrows below and next page). Use ER70S welding wire and 75%Ar - 25%CO_2 shielding gas to weld the new air bellow support to the vertical ribs of the original bracket (see red arrows below and next page).

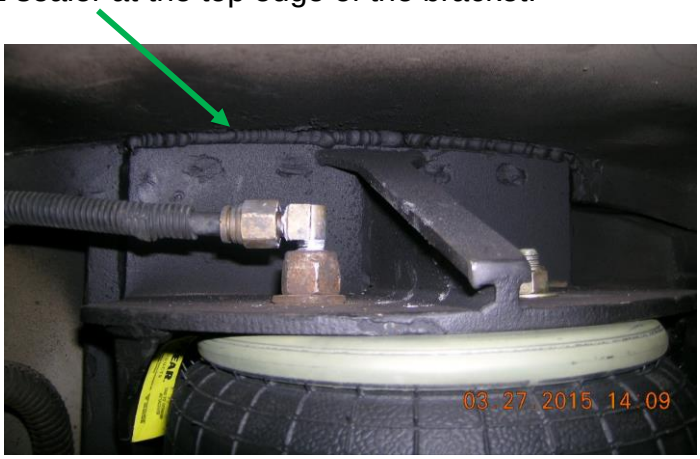




5. Visually inspect every weld and repair as required.

Final Operation

1. Degrease repaired area by using acetone.
2. Apply industrial primer to the repaired area.
3. Apply Sikaflex 221 sealer at the top edge of the bracket.



4. Apply rubberized undercoating to the new parts.
5. Reinstall air bellows.
6. Reinstall air hose to the front air bellows.
7. Reconnect front leveling valve rod (if it was disconnected to drain air bellows).
8. Reinstall front wheels and tighten nuts.
9. Lower the bus and torque nuts per NABI Maintenance Manual.
10. Apply torque seal to the wheel-nuts.
11. Reconnect all ECU-s, modules, etc. that were disconnected before.
12. Reconnect battery cables.
13. Turn battery disconnect switches on.
14. Connect Amerex fire suppression system test tool to the connector at the Amerex bottle.

15. Check the control panel of the Amerex fire suppression system and ensure that a green LED light is on that would indicate that the system is in good operating condition. In this case disconnect test tool and connect harness to the Amerex bottle. If yellow light is on or flashing on the Amerex control panel, then contact to the garage foreman and ask for help with troubleshooting.

Amerex fire suppression system test tool

Amerex fire suppression system control panel located above the driver's seat

16. Start the bus and ensure that no warning lights (check engine, check transmission, etc.) are on.
17. Check front ride height per NABI Maintenance Manual.
18. Clean bus inside and out. Ensure that the driver's area is clean, the driver's seat, front and side control panels are wiped off.
19. Present the repaired bus for inspection to a delegated person.
20. Record bus number, mileage, date of completing and the name of the technician who completed the repair.