North American
Bus Industries, Inc.

May 24, 2012

Daniel C. Smith, Esq.
Associate Administrator for Enforcement
National Highway Traffic Safety Administration
Attention: Recall Management Division (NVS-215)
1200 New Jersey Avenue, SE., Washington, DC 20590.

Via: Email *RMD.ODI@dot.gov*

Subject: 12V-118, NVS-215et

Dear Mr. Smith:

The attached Work Instruction, NABI # L3/FSV-094 is being submitted as supplemental information to Recall 12V-118. The Work Instruction is being used by NABI Field Service personnel to remedy buses involved in this Recall.

Please let me know if you need additional information.

Sincerely,

Dan Allen
Chief Engineer
(dan.allen@nabiusa.com)
Ph. 256 453 2242

New Jersey Transit: NJT Pitman Arm / Draglink

Containment Work Plan

Prepared by: Kalman Takacs
Field Service Engineer
256-241-1243

Approved By: David Warren – Senior Vice President

Property and Top Bus Number: New Jersey Transit 416.15, 164200, 164400, 279000, 279500, 289000

Issue: Loose drag link joint at the Pitman arm

Reason/ cause: Under investigation.

Solution: Follow procedure described in this work instruction (SOI).

New Jersey Transit: NJT Pitman Arm / Draglink

Containment Work Plan

Number of affected buses: all

Estimate repair hours/bus: 30 min – 1.5 hour depending of the conditions detailed below

Necessary parts:

Serialized Pitman arm,	Part #: **10A-3507-005**,	as required,
Cotter pin, 5/32x2, Zn,	Part #: **65165400**,	as required,
Torque seal,	Part #: **NPN**,	as required,
Blue die, not drying,	Part #: **NPN**,	as required

Gages to be Used for Containment Plan

Profilometer - A measuring instrument used to measure a surface's profile, in order to quantify its roughness.

Concentricty Tool – A hand tool used to evaluate the concentricity and surface profile of the Draglink ball stud prior to insertion into the Draglink. The Concentricity Tool should not rock when twisted fully about the axis of the Draglink ball stud. If rocking occurs, the Draglink assembly should be rejected.

Depth Gauge – A gauge used to precisely determine if the depth of the tapered hole in the Pitman Arm is within tolerance for the mating Draglink ball stud. If out range of the minimum and maximum indicators, the Pitman Arm should be rejected.

Blueing Stud – Nondrying Prussian Blue light paste is to be evenly distributed onto the taper surface of the Blueing Stud. The Blueing Stud is positioned into the draglink tapered hole by hand pressure and rotated approximately 90 degrees clockwise and 90 degrees counterclockwise. After removing the Bluing Stud, inspect the contact surface in the tapered hole of the Pitman Arm. A minimum of 60% area of contact is required. The pitman arm is to be rejected if either criterion is not met. The method of performing the Blueing test is defined by NABI procedure L3/QUA-050.

Required tools:

1. 1 5/16 short ½ drive socket
2. 2 ¾ socket shallow, ¾ or 1" drive
3. 1 ½ deep or shallow, ¾ or 1" drive
4. ¾ to 1" adapter
5. Pitman arm puller
6. ¾ drive 12" long extension
7. ½ in drive impact
8. ¾" or 1" drive impact
9. ½ torque wrench to torque to 230 ftlbs
10. ¾ torque wrench to torque 516 ftlbs

New Jersey Transit: NJT Pitman Arm / Draglink

Containment Work Plan

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

Containment 3 - For All Buses Delivered to Foley That Have Not Been Placed in Service

1. Remove Draglink pin.
    a. Clean Draglink pin.
2. Replace the Pitman Arm with a QA serialized part.
    a. Install the Pitman Arm on the steering gear output shaft
        i. The Pitman Arm and output shaft have alignment marks for proper indexing of the arm. There is also a mark on the steering gear housing, when aligned with the mark on the output shaft, that indicates the straight-ahead or center position of the gear.
        ii. Torque the nut to 516 lb.-ft.
        iii. Apply torque seal to the fasteners.
    b. Verify the concentricity of the Draglink ball stud -
        i. Insert Concentricity Tool onto drag link ball stud and twist in radial direction – no rocking allowed.
    c. Install Draglink ball stud into the Pitman Arm tapered hole and torque the castle nut to 230 lb.-ft.
        i. Align cross hole with castle nut. Torque the castle nut to align (DO NOT LOOSEN).
        ii. Install a new cotter pin in castle nut.
        iii. Apply torque seal to the fasteners and parts.
3. Inspect the Draglink connection at the Steering Arm on the axle.
    a. Remove the cotter pin.
    b. Check the torque of the Draglink ball stud connection to the Steering Arm at 150 lb.-ft.
    c. If the nut does not rotate to any degree, then install new cotter pin.
    d. If the nut rotates while torqueing (to any degree), remove the nut.
        i. Remove the Draglink ball stud and clean.
        ii. Clean the Steering Arm tapered hole.
        iii. Re-install the Draglink ball stud into the Steering Arm and re-torque to 150 ft.-lb.
        iv. If the hole of the ball joint does not align with the gap of the cotter nut, then tighten the nut (DO NOT LOOSEN) until the cotter pin can be installed.
        v. Install a new cotter pin in the castle nut.
        vi. Apply torque seal to the ball stud fasteners.
4. Installation and inspection information will be recorded on a data collection sheet by NABI Field Service (Ref. Containment #3 – Pre-Delivery dated 03/21/12). The information will be transmitted to NABI Quality (Fax 256-832-0890).

5. NABI Quality will tabulate information by Pitman Arm serial number (Ref. Installation Matrix dated 03-21-12).
6. Release the bus to NJT.
7. NJT to perform inspections at 6,000 mile intervals as defined by the NABI Maintenance Manual (Preventative Maintenance Schedule).

Containment 4 - For Buses Built after 5900 or with Less than 20,000 Miles

1. Remove the cotter pin on the castle nut for the Draglink ball stud on the Pitman Arm, and loosen the nut.
    a. Clean mating surface of the Draglink ball stud and the Pitman Arm tapered hole.
    b. Perform depth test by using QA calibrated Depth Gage.
    c. Perform Blueing test using the QA Certified Blueing Stud. Clean the Pitman Arm hole after the Blueing test.
    d. Verify concentricity of the Draglink ball stud -
        i. Insert Concentricity Tool onto drag link ball stud and twist in radial direction – no rocking allowed.
        ii. Replace the Draglink assembly if required.
    e. If Steps 1b and 1c pass the verification tests,
        i. Install the Draglink ball stud into the Pitman Arm tapered hole and torque the castle nut to 230 lb.-ft.
            1. Align cross hole with castle nut. Torque nut to align (DO NOT LOOSEN).
            2. Install a new cotter pin in castle nut.
            3. Apply torque seal to the fasteners and parts.
    f. Inspect the Draglink connection at the Steering Arm on the axle.
        i. Remove the cotter pin.
        ii. Check the torque of the Draglink to 150 lb.-ft.
        iii. If the nut does not rotate to any degree, then install new cotter pin.
        iv. If the nut rotates while torqueing (to any degree), remove the nut.
            1. Remove the Draglink pin and clean.
            2. Clean the Steering Arm tapered hole.
            3. Re-install the Draglink rod stud into the Steering Arm and re-torque to 150 ft.-lb.
            4. If the hole of the ball joint does not align with the gap of the cotter nut, then tighten the nut (DO NOT LOOSEN) until the cotter pin can be installed.
            5. Install a new cotter pin in the castle nut.
            6. Apply torque seal to the fasteners and parts.

        ii. Return bus to service.
        iii. NJT to perform inspections at 6,000 mile intervals as defined by the NABI Maintenance Manual (Preventative Maintenance Schedule).

g. If either Steps 1b or 1c fail the requirements, the Pitman Arm will need to be replaced with a QA serialized part.
    1. Install the Pitman Arm on the steering gear output shaft.
    2. The Pitman Arm and output shaft have alignment marks for proper indexing of the arm. There is also a mark on the steering gear housing, when aligned with the mark on the output shaft, that indicates the straight-ahead or center position of the gear.
    3. Torque to 516 lb.-ft.
    4. Apply torque seal to the fasteners and parts.

iv. Install Draglink ball stud into the Pitman Arm tapered hole and torque the castle nut to 230 lb.-ft.
    1. Align cross hole with castle nut. Torque nut to align (DO NOT LOOSEN).
    2. Install a new cotter pin in castle nut.
    3. Apply torque seal to the fasteners and parts.

h. Installation and inspection information will be recorded on a data collection sheet by NABI Field Service (Ref. Containment #4 – Bus>5900<20K dated 03/21/12). The information will be transmitted to NABI Quality (Fax 256-832-9890).
i. NABI Quality will tabulate information by Pitman Arm serial number (Ref. Installation Matrix dated 03-21-12).
j. Release the bus to NJT.
k. NJT to perform inspections at 6,000 mile intervals as defined by the NABI Maintenance Manual (Preventative Maintenance Schedule).

Containment 5 - For Buses Built Prior to Bus 5900 and with Greater than 20,000 Miles

1. Using a calibrated torque wrench, apply 220 lb.-ft. torque at the Pitman Arm / Draglink nut.
2. If the nut does not rotate to any degree, then install new cotter pin.
    a. Return bus to service.
    b. NJT to follow maintenance manual procedures (check torque according to maintenance manual instructions).
3. If the nut does rotate to any degree, loosen and remove the Draglink pin.
    a. Clean mating surface of the Draglink pin and the Pitman Arm tapered hole.
    b. Perform depth test by using QA calibrated Depth Gage.
    c. Perform Blueing test using the QA Certified Blueing Stud. Clean the Pitman Arm hole after the Blueing test.
    d. Perform Draglink pin concentricity test
        i. Insert Concentricity Tool onto drag link ball stud and twist in radial direction – no rocking allowed.
    e. If Steps 3b and 3c pass the requirements, reinstall Draglink to 230 lb.-ft. torque.
        i. Install new cotter pin nut.
        ii. Return bus to service.
        iii. NJT to follow maintenance manual procedures (check torque according to maintenance manual instructions).
    f. If either Steps 3b or 3c fail the requirements, replace the Pitman Arm with a QA serialized part.
        i. Install the Pitman Arm on the steering gear output shaft
            1. The Pitman Arm and output shaft have alignment marks for proper indexing of the arm. There is also a mark on the steering gear housing, when aligned with the mark on the output shaft, that indicates the straight-ahead or center position of the gear.
        ii. Torque to 516 lb.-ft.
        iii. Apply torque seal to the fasteners and parts.
    g. Install Draglink ball stud into the Pitman Arm tapered hole and torque the castle nut to 230 lb.-ft.
        i. Align cross hole with castle nut. Torque nut to align (DO NOT LOOSEN).
        ii. Install a new cotter pin in castle nut.
        iii. Apply torque seal to the fasteners and parts.
4. Inspect the Draglink connection at the Steering Arm on the axle.
    a. Remove the cotter pin.
    b. Check the torque of the Draglink to 150 lb.-ft.
    c. If the nut does not rotate to any degree, then install new cotter pin.

d. If the nut rotates while torqueing (to any degree), remove the nut.
   v. Remove the Draglink pin and clean.
   vi. Clean the Steering Arm tapered hole.
   vii. Re-install the Draglink rod stud into the Steering Arm and re-torque to 150 ft.-lb.
   viii. If the hole of the ball joint does not align with the gap of the cotter nut, then tighten the nut (DO NOT LOOSEN) until the cotter pin can be installed.
   ix. Install a new cotter pin in the castle nut.
   x. Apply torque seal to the fasteners and parts.

5. Installation and inspection information will be recorded on a data collection sheet by NABI Field Service (Ref. Containment #5 – Bus<5900>20K dated 03/21/12). The information will be transmitted to NABI Quality (Fax 256-832-0890).
6. NABI Quality will tabulate information by Pitman Arm serial number (Ref. Installation Matrix dated 03-21-12).
7. Release the bus to NJT.
8. NJT to perform inspections at 6,000 mile intervals as defined by the NABI Maintenance Manual (Preventative Maintenance Schedule).