PE04-003 04V-042

NEW FLYER

Customer Services Head Office: 25 DeBaets Street, Winnipeg, Manitoba, Canada R2J 4G5, Phone: 204-982-8400, Fax: 204-224-0248

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OFFICE OF
DEFECTS INVESTIGATION

February 20, 2004

Sonny Murianka
Senior Investigator
US Department of Transportation
National Highway Traffic Safety Administration
Office of Defects Investigations
400 7th Streets SW room 5326
Washington, DC 20590

RE: Update on New Flyer D60HF Center Axle Lockup Issue

Dear Sonny,

This letter is sent to familiarize the National Highway Traffic Safety Administration with the steps being taken with respect to the center axle lock-up issue recognized on New Flyer D60HF transit vehicles. In January of 2004, this issue was filed by New Flyer to NHTSA and assigned recall number 04V-042.

New Flyer 'NF' and ArvinMeritor 'ARM' initiated weekly meetings to discuss the center axle lock-up issue on New Flyer D60HF's. The meeting was designed to discuss the technical issues related to the center axle lockup, assign tasks and action items appropriately, and continuously report on observations. New York City Transit Authority 'NY' is now involved in the weekly meeting and engaged with some of the testing and required monitoring. The following is a list of actions taken by the members of the resolution team:

New Flyer

Item	Problem	Task
1	Drivers pulling out before full system pressure is met (see also Item 16)	Design system that detects air pressure within system and inhibits gear shift until a specific system pressure set point is met – continuing to debug
2	Alternate Lining Supplier	Arrangements have been made to test 12 center axle BrakePro linings in Minneapolis; BrakePro has added a corrosion inhibitor to their linings in attempt to resolve

3	Wheel Lock Indicator	NF currently developing system, on test basis, to detect wheel lock and potentially engaging interlocks if detection occurs (only available on ABS equipped vehicles) – MeritorWabco has stated, if wheel sensors are properly maintained, 5mph is the lowest readable speed by software, otherwise false signals and error codes will occur, ultimately causing buses to be out of service because of incorrectly seen wheel lock; i.e. wheel lock will only be detectable above 5mph
4	Remove center axle park brakes (see also Item 12 & 19)	NF is adamantly opposed to this suggestion and has stated they will not be involved with any testing in this regard - concerns of jack-knifing down a grade when parked uphill have been brought forth
5	Improve parking brake release times	NF has stated there is no specification on time to meet nor did ARM give NF a specification to meet during design phase, although continuing to investigate to support ARM's belief of spragging due to park brake release times
6	Lining adhesion testing	In an attempt to accelerate testing with alternate linings, NF suggested spraying down wheelends and simply visually inspecting for lining adhesion. 16 bus sets were sprayed on Feb 13 with different solutions and inspection for lining adhesion was organized for Feb 17 with NF/NY/ARM present; results forthcoming
7	Minneapolis Testing	NF has made recommendation of testing 10-20 buses with all potential fixes to see if centre axle wheel lockup occurs: non-vented drums, stronger return springs, BrakePro linings, dust shields

ArvinMeritor

Item	Problem	Task
8	Lining Trials – ABEX MA614 and 1182-95	Wheel locks have been seen on buses with 1182-95 linings installed, but MA614 linings are still being pursued; NY is monitoring
9	Lining Trials – BrakePro	121 dyno tests are being completed, and testing will be organized in NY, parts due in late February; NY will be monitoring; these are the same linings that will be tested in Minneapolis

10	Drum corrosion reduction	ARM is running tests in Ottawa with dust shields and non-vented drums, although Ottawa is a different vehicle model and axle model
11	Competitor axle analysis	ARM is doing a competitive analysis in an attempt to reduce spragging condition
12	Remove center axle park brakes (see also Item 4 &19)	NF understands that NY and ARM are still pursuing this on their own
13	Stronger Return Springs	ARM is investigating space availability, NF has discussed with Minneapolis who have stated the stronger return springs did not make a difference with center axle wheel lock condition
14	121 Vehicle Compliance test with prototype MA614 Linings installed	ARM has decided to do a full FMVSS 121 vehicle compliance test on a D60HF that is outfitted with new test linings (MA614), NF is currently organizing logistics to obtain vehicle

New York City Transit Authority

Item	Problem	Task
15	Slack adjuster procedures	Concerns were brought forth of adjustment procedures, NF review of NY procedure revealed no provision for indexing the slack; NF/Haldex/ARM will be discussing with NY; results forthcoming
16	Drivers pulling away before system pressure is met (see also Item 1)	ARM believes this is contributing; NF believes NY is not following standard pre-trip inspections per the NY State DOT and not allowing bus to go to full system pressure, NF is attempting to develop program to guard against this
17	Corrosion on anchor pins, s-cams, non-OEM parts usage	ARM has stated the lock-up issue is not related to non-OEM parts, lockups have been seen on new vehicles, but this is a maintenance procedure that needs to be adjusted
18	Shoes too close to drum	NF offered clinic to provide training specifically directed at correctly adjusting the automatic slack adjuster,
19	Remove center axle park brakes (see also 4 & 12)	NF understands that NY and ARM are still pursuing this on their own – initial testing revealed bus would not hold on a 14% grade with only rear park brakes applied

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The above items are a brief summary of the current actions taken to resolve the issue of center axle lockup on New Flyer D60HF transit vehicles. If desired, any reports or observations, as a result of the above, can be forwarded to yourself.

If you have any additional questions regarding the above tasks, please contact me by phone at (204) 934-4882 or through email at scott_halbesma@newflyer.com.

Sincerely,

Scott Halbesma
Safety and Compliance Manager
New Flyer

cc: Hans Peper (NFIL), Cliff Murray (NFIL); Don Bean (NFIL); Alan Farrant (NFIL); Karl Robinson (NFIL); Niran Audimoolan (ArvinMeritor); Douglas Roy (ArvinMeritor); Alex Neyman (NYCTA)

PE04-003

04V-042

NEW FLYER

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March 16, 2004

Sonny Murianka
Senior Investigator
US Department of Transportation
National Highway Traffic Safety Administration
Office of Defects Investigations
400 7th Streets SW room 5326
Washington, DC 20590

RE: Update on New Flyer D60HF Center Axle Lockup Issue – March 16

Dear Sonny,

This letter is sent to update the National Highway Traffic Safety Administration with the recent steps being initiated with respect to the center axle lock-up recognized on New Flyer D60HF transit vehicles. In January of 2004, this issue was filed by New Flyer to NHTSA and assigned recall number 04V-042.

ArvinMeritor and New Flyer organized a technical meeting in Winnipeg, on March 4, 2004, to specifically discuss current resolution progress with respect to the centre axle wheels locking up on New Flyer D60HF's. The meeting had good representation from both New Flyer and ArvinMeritor, and a commitment to a resolution was definitely evident.

At this point in time it is believed the following four modifications, installed simultaneously, need to be tested in an effort to resolve the issue:

1. Firstly, non-vented drums will be installed on the centre axle. This is arguably the major factor in the problem, as it will significantly reduce the introduction of corrosion-promoting soap into the brake, which was determined to be a necessary component in causing either brake sprag or stiction. This change has been implemented into future ArvinMeritor production of this axle. For test purposes we will be mechanically plugging the vent holes on the drums.

2. Secondly, Brake Pro lining trials are occurring in order to establish if there is any significant gain over the original equipment ABEX lining in terms of adhesion with the drums. Two alternate linings, from the original equipment lining manufacturer, have already been tested but adhesion was recognized during the trials. It has been decided that these two alternate linings will not be pursued any further.

3. Thirdly, the vehicle's programming will be altered to require 105 psi in the service brake reservoir in order to allow the transmission to be shifted out of neutral. This will be included in part of the sequence of events required to allow the vehicle transmission to be taken out of neutral, refer to 4 below.

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4. Fourthly, a new bus program (through the vehicle's Programmable Logic Controller) that would require the following sequence prior to allowing the transmission to be shifted out of neutral:
    1. Ensure the service brake reservoirs are above 105 psi
    2. Depress and hold the service brake pedal to achieve an apply pressure of 85 psi. When the 85psi apply pressure is achieved, it will be indicated to the driver by a flashing amber telltale on the dash
    3. While holding the 85psi service brake application, release the park brake by depressing the park control valve on the side console
    4. While still holding the 85psi service brake application, place the transmission into gear using the shift selector
    5. Release the service brake, allowing the vehicle to move.

    NOTE:
    - making and holding the 85psi service brake application prior to releasing the park brake will ensure a fast and full release of the park brake by utilizing the speed of the service brake relay via the anti-compounding feature
    - the driver will not be able to engage the transmission until the wet tank reaches 105psi
    - the driver will not be able to engage the transmission until 85psi is applied to the park brake side of the chambers, thereby not allowing the driver to 'drive through' the park brake
    - the 85psi service brake requirement will be "latched out" following a 30 minute period after the engine is started, and will not be re-initiated until the vehicle's electrical system goes into sleep mode

    New Flyer has been informed that New Jersey Transit has implemented a similar procedure for their drivers prior to pull away.

New Flyer and ArvinMeritor are continuing with weekly meetings, of which New York City Transit Authority is also involved. The above testing actions are being organized with New York City Transit Authority involvement.

If you have any additional questions regarding the above testing, please contact me by phone at (204) 934-4882 or through email at scott_halbesma@newflyer.com.

Sincerely,

Scott Halbesma
Safety and Compliance Manager
New Flyer

cc: Hans Peper (NFIL), Cliff Murray (NFIL); Don Bean (NFIL); Alan Farrant (NFIL); Karl Robinson (NFIL); Niran Audimoolan (ArvinMeritor); Douglas Roy (ArvinMeritor)