

OSV-471 (895)

October 11, 2005



Les Entreprises Michel Corbeil Inc.

573 Defect and Noncompliance Report (School bus roof joints strength)

On October 6 2005, Les Entreprises Michel Corbeil Inc. (Corbeil) decided that the roof joint on school buses which relate to motor vehicle safety could have a noncompliance with Federal Motor Vehicle Safety Standard FMVSS221 in the buses listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Manufacturer

Les Entreprises Michel Corbeil Inc.
830, 12^e Avenue
St-Lin-Laurentides, QC, Canada, J5M 2V9
Phone : 450-439-3577, fax : 450-439-6852
Contact Person; Mr. Christian Thibault, Engineering Department.

Buses involved in Notification

School Buses (295) manufactured between May 3, 2004 and June 4, 2004 could potentially contain the noncompliance :

Models	Qty
F138DWS4	3
F138DWS4UD	25
F138DWS5	24
F138SWS324UD	73
F138SWS5	42
F158DWS5CD	3
F158DWS5UD	99
F158DWS6UD	12
G139D3M4	1
G139D3M5	4
G139S3S5	9

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Description of Noncompliance

Corbeil received test reports from NHTSA on August 1, 2005 explaining that the roof joints failed on one (1) school bus presently in testing in reference with FMVSS221. On the roof, Corbeil use white urethane glue to reinforce the joints. During the test, one joint (longitudinal) failed and the other (transversal) succeeded. To date, no accidents or injuries have occurred as a result of this situation.

Approximate percentage of buses involved in notification

We estimate that 61 buses on the 295 buses involved in this report could be affected.

History : During a period of time in May 2004, the production used expired glue until June 4, 2004. Corbeil Quality Department found a total of $192+180=372$ cartridges expired but only 190 were finally returned to the supplier. The average consumption on each bus is 3 x 600ml cartridges. We assume that $372-190 = 182$ cartridges expired glue were used. We assume that $182/3 = 61$ buses were affected (182 expired cartridges / 3 cartridges per bus). During this period of production (May 3 to June 4), 295 school buses was manufactured.

Description the noncompliance

RE : FMVSS221. This standard establishes requirements for the strength of the body panel joints in school bus bodies. Each body panel joint shall hold the body panel to the member to which it is joined when subjected to a force of 60 percent of the tensile strength of the weakest joined body panel.

During the test, Corbeil bus failed on joint #3 (longitudinal roof joint)

Joint #3--C2SRLRE382BAV (Data revised by Corbeil)

Aluminum is 3003H14 (20 000 Psi)

Maximum test load = 3263.3 lbf

Required minimum load = **3588 lbf**

Compliance Test Failure

@ 91% from the required minimum load



Joint #3 Corbeil longitudinal roof joint



Joint #3 Corbeil longitudinal roof joint
(@ 91% from the required minimum load)

Describe the consequence(s) of the noncompliance condition.

Only if the bus has an accident, the longitudinal roof joint could have less strength as required by the FMVSS221.

Provide the Chronology in Determining the Noncompliance

July 8, 2005 : MGA test Laboratory finalized FMVSS221 tests on one (1) Corbeil school bus. One report is sent to NHTSA.

August 1, 2005 : Corbeil is informed by NHTSA that they failed on roof panels joints strength.

August 9, 2005 : Corbeil informed NHTSA that they will need three weeks to do their own tests to understand the results of MGA report.

August 24, 2005 : Corbeil Engineering and production department decided to modify glue application on the production line (glue overapplication and glue replacement) until the Corbeil's Engineering department found the reason of the MGA test failure.

September 12, 2005 : Telephone conference between Corbeil and NHTSA. Update concerning the type of aluminum used on the roof panels.

September 21-22, 2005 : Sebastien Dionne (Corbeil Engineer) went to MGA to look at the test samples. On Sept 22, Nicolas Choquet (Adchem white glue representative) looked with Sebastien Dionne at the samples.

September 27, 2005 : Test failed Study of hypothesis (Adchem) Report sent to Adchem.

September 29, 2005 : Telephone conference between Corbeil and NHTSA. Explanations on Study of hypothesis about urethane white glue. Reasons failure joint #3.

September 30, 2005 : Test failed Study of hypothesis (Adchem) Report sent to NHTSA.

October 3, 2005 : More info on failure joint #3 sent to NHTSA.

October 6, 2005 : Telephone conference between Corbeil and NHTSA. Explanations on Study of hypothesis about Adchem white glue (joints #3 & #4). Reasons failure joint #3 and success joint #4. Corbeil submit improvement points presently in study to be integrated to the production line as soon as possible to increase our quality in the adhesive application. Corbeil agrees to report this noncompliance (Report 573) by October 11, 2005.

Test results & other data

FMVSS221-Detail on our Joints, Sebastien Dionne, Sept 12, 2005

Test failed Study of hypothesis, Adhesive Adchem, Sebastien Dionne, Sept 26, 2005

Test failed Study of hypothesis, Adhesive Magnolia, Sebastien Dionne, rev: Oct. 11, 2005

NCP-04-341 ; NCP 04-429

Purchase History 16211030 (1&2)

16211030 Information

16211030 Expired glue & production May 2004

Magnolia 6375 AB (1-2)

M0469ag ; M0469bag ; M0416ag ; M0425ag : M0436ag : M0447aag ; M0447bag

101-8917 ; 101-0086 ; 101-3195 ; 101-8156

Remedy Program

The solution is presently under study but we presently suspect that a retrofit could affect/damage the roof rather to reinforce the joint. In fact, each joints roof are covered by a MS polymere scellant, to do a retrofit we should remove this scellant/glue and the work could affect the integrity of the joint. We will possibly decide to keep the longitudinal joint just at it is.

Vehicles possibly affected by this 573 report

Mfg Date	Veh #	Model			
05-03-04	55801	F158DWS5UD	05-03-04	55826	F158DWS5UD
05-03-04	56317	F138DWS5	05-03-04	56232	F138SWS324UD
05-03-04	55802	F158DWS5UD	05-03-04	55827	F158DWS5UD
05-03-04	56250	F138DWS4UD	05-03-04	56233	F138SWS324UD
05-03-04	55803	F158DWS5UD	05-03-04	55828	F158DWS5UD
05-03-04	56251	F138DWS4UD	05-03-04	56235	F138SWS324UD
05-03-04	55804	F158DWS5UD	05-03-04	55829	F158DWS5UD
05-03-04	56252	F138DWS4UD	05-03-04	56236	F138SWS324UD
05-03-04	55805	F158DWS5UD	05-03-04	55830	F158DWS5UD
05-03-04	56253	F138DWS4UD	05-03-04	56237	F138SWS324UD
05-03-04	55806	F158DWS5UD	05-03-04	55831	F158DWS5UD
05-03-04	56254	F138DWS4UD	05-03-04	56238	F138SWS324UD
05-03-04	55807	F158DWS5UD	05-03-04	55832	F158DWS5UD
05-03-04	56255	F138DWS4UD	05-03-04	56239	F138SWS324UD
05-03-04	55808	F158DWS5UD	05-03-04	55833	F158DWS5UD
05-03-04	56256	F138DWS4UD	05-03-04	56240	F138SWS324UD
05-03-04	55809	F158DWS5UD	05-10-04	56343	F138SWS324UD
05-03-04	56257	F138DWS4UD	05-10-04	56340	F158DWS5UD
05-03-04	55810	F158DWS5UD	05-10-04	56344	F138SWS324UD
05-03-04	56258	F138DWS4UD	05-10-04	56391	F138DWS5
05-03-04	55811	F158DWS5UD	05-10-04	56387	F138DWS5
05-03-04	56259	F138DWS4UD	05-10-04	56345	F138SWS324UD
05-03-04	55812	F158DWS5UD	05-10-04	56388	F138DWS5
05-03-04	56260	F138DWS4UD	05-10-04	56389	F138DWS5
05-03-04	55813	F158DWS5UD	05-10-04	56341	F158DWS5UD
05-03-04	56261	F138DWS4UD	05-10-04	56346	F138SWS324UD
05-03-04	55814	F158DWS5UD	05-10-04	56379	G139S3S5
05-03-04	56263	F138DWS4UD	05-10-04	56339	F158DWS5UD
05-03-04	55815	F158DWS5UD	05-10-04	56347	F138SWS324UD
05-03-04	56264	F138DWS4UD	05-10-04	56393	F138DWS5
05-03-04	55816	F158DWS5UD	05-10-04	56342	F158DWS5UD
05-03-04	56265	F138DWS4UD	05-10-04	56348	F138SWS324UD
05-03-04	55817	F158DWS5UD	05-10-04	56460	F138SWS5
05-03-04	56266	F138DWS4UD	05-10-04	56461	F138SWS5
05-03-04	55818	F158DWS5UD	05-10-04	56349	F138SWS324UD
05-03-04	56267	F138DWS4UD	05-10-04	55834	F158DWS5UD
05-03-04	55819	F158DWS5UD	05-10-04	55835	F158DWS5UD
05-03-04	56269	F138DWS4UD	05-10-04	56454	F138SWS5
05-03-04	55820	F158DWS5UD	05-10-04	56040	F138SWS5
05-03-04	56272	F138DWS4UD	05-10-04	55836	F158DWS5UD
05-03-04	55821	F158DWS5UD	05-10-04	56350	F138SWS324UD
05-03-04	56273	F138DWS4UD	05-10-04	55837	F158DWS5UD
05-03-04	55822	F158DWS5UD	05-10-04	56351	F138SWS324UD
05-03-04	56274	F138DWS4UD	05-10-04	56380	G139S3S5
05-03-04	55823	F158DWS5UD	05-10-04	56381	G139S3S5
05-03-04	56230	F138SWS324UD	05-10-04	55838	F158DWS5UD
05-03-04	55825	F158DWS5UD	05-10-04	56352	F138SWS324UD
05-03-04	56231	F138SWS324UD	05-10-04	56455	F138SWS5

05-10-04	56041	F138SWS5	05-17-04	56282	F158DWS5UD
05-10-04	55839	F158DWS5UD	05-17-04	56374	F138SWS324UD
05-10-04	56353	F138SWS324UD	05-17-04	56375	F138SWS324UD
05-10-04	55840	F158DWS5UD	05-17-04	56376	F138SWS324UD
05-10-04	56354	F138SWS324UD	05-17-04	56289	F138SWS324UD
05-10-04	56382	G139S3S5	05-17-04	56280	F158DWS5UD
05-10-04	56383	G139S3S5	05-17-04	56671	F138SWS5
05-10-04	55841	F158DWS5UD	05-17-04	56600	F158DWS5UD
05-10-04	56355	F138SWS324UD	05-17-04	56672	F138SWS5
05-10-04	56456	F138SWS5	05-17-04	56283	F158DWS5UD
05-10-04	56042	F138SWS5	05-17-04	56462	F138SWS5
05-10-04	55842	F158DWS5UD	05-17-04	56601	F158DWS5UD
05-10-04	56356	F138SWS324UD	05-17-04	56463	F138SWS5
05-10-04	55843	F158DWS5UD	05-17-04	56394	F138DWS5
05-10-04	56357	F138SWS324UD	05-17-04	56674	F138SWS5
05-10-04	56458	F138SWS5	05-17-04	56284	F158DWS5UD
05-10-04	56043	F138SWS5	05-17-04	56390	F138DWS5
05-10-04	55844	F158DWS5UD	05-17-04	56386	F138DWS5
05-10-04	56358	F138SWS324UD	05-17-04	56290	F138SWS324UD
05-10-04	55845	F158DWS5UD	05-17-04	56675	F138SWS5
05-10-04	56262	F138DWS4UD	05-17-04	56445	F158DWS5UD
05-10-04	56384	G139S3S5	05-17-04	56676	F138SWS5
05-10-04	56385	G139S3S5	05-17-04	56285	F158DWS5UD
05-10-04	55846	F158DWS5UD	05-17-04	56677	F138SWS5
05-10-04	56268	F138DWS4UD	05-17-04	56395	F138DWS5
05-10-04	56459	F138SWS5	05-17-04	56559	G139D3M5
05-10-04	56044	F138SWS5	05-17-04	56560	G139D3M5
05-10-04	55847	F158DWS5UD	05-17-04	56673	G139S3S5
05-10-04	56270	F138DWS4UD	05-17-04	56444	F158DWS5UD
05-17-04	56271	F138DWS4UD	05-17-04	56678	F138SWS5
05-17-04	55860	F158DWS5UD	05-17-04	56286	F158DWS5UD
05-17-04	56359	F138SWS324UD	05-17-04	56679	F138SWS5
05-17-04	56059	F158DWS5CD	05-17-04	56448	F158DWS5UD
05-17-04	56360	F138SWS324UD	05-17-04	56680	F138SWS5
05-17-04	56361	F138SWS324UD	05-17-04	56338	F158DWS5UD
05-17-04	56362	F138SWS324UD	05-17-04	56822	F138SWS324UD
05-17-04	56363	F138SWS324UD	05-17-04	56457	F138SWS5
05-17-04	56277	F158DWS5UD	05-24-04	56681	F138SWS5
05-17-04	56364	F138SWS324UD	05-24-04	56682	F138SWS5
05-17-04	55848	F158DWS5UD	05-24-04	56683	F138SWS5
05-17-04	56365	F138SWS324UD	05-24-04	56447	F158DWS5UD
05-17-04	56281	F158DWS5UD	05-24-04	56522	F158DWS5UD
05-17-04	56366	F138SWS324UD	05-24-04	56889	F138SWS5
05-17-04	56060	F158DWS5CD	05-24-04	56684	F138SWS5
05-17-04	56367	F138SWS324UD	05-24-04	56890	F138SWS5
05-17-04	56278	F158DWS6UD	05-24-04	56641	F158DWS6UD
05-17-04	56368	F138SWS324UD	05-24-04	56823	F138SWS324UD
05-17-04	56061	F158DWS5CD	05-24-04	56642	F158DWS6UD
05-17-04	56369	F138SWS324UD	05-24-04	56824	F138SWS324UD
05-17-04	56370	F138SWS324UD	05-24-04	56643	F158DWS6UD
05-17-04	56446	F158DWS5UD	05-24-04	56891	F138SWS5
05-17-04	56371	F138SWS324UD	05-24-04	56453	F158DWS5UD
05-17-04	56279	F158DWS5UD	05-24-04	56825	F138SWS324UD
05-17-04	56372	F138SWS324UD	05-24-04	56644	F158DWS6UD
05-17-04	56599	F158DWS5UD	05-24-04	56892	F138SWS5
05-17-04	56373	F138SWS324UD	05-24-04	56451	F158DWS5UD

05-24-04	56826	F138SWS324UD	06-01-04	56687	F138DWS5
05-24-04	56645	F158DWS6UD	06-01-04	56833	F138SWS324UD
05-24-04	56893	F138SWS5	06-01-04	56654	F158DWS5UD
05-24-04	56452	F158DWS5UD	06-01-04	56292	F138SWS324UD
05-24-04	56894	F138SWS5	06-01-04	56655	F158DWS5UD
05-24-04	56523	F158DWS5UD	06-01-04	56762	F158DWS5UD
05-24-04	56895	F138SWS5	06-01-04	56293	F138SWS324UD
05-24-04	56602	F158DWS5UD	06-01-04	56837	F138SWS324UD
05-24-04	56827	F138SWS324UD	06-01-04	56688	F138DWS5
05-24-04	56646	F158DWS6UD	06-01-04	56658	F158DWS5UD
05-24-04	56896	F138SWS5	06-01-04	56838	F138SWS324UD
05-24-04	56603	F158DWS5UD	06-02-04	56761	F158DWS5UD
05-24-04	56828	F138SWS324UD	06-02-04	56689	F138DWS5
05-24-04	56647	F158DWS6UD	06-02-04	56839	F138SWS324UD
05-24-04	56291	F138SWS324UD	06-02-04	56330	G139D3M5
05-24-04	56897	F138SWS5	06-02-04	56836	F138SWS324UD
05-24-04	56604	F158DWS5UD	06-02-04	56834	F138SWS324UD
05-24-04	56898	F138SWS5	06-02-04	56835	F138SWS324UD
05-24-04	56605	F158DWS5UD	06-02-04	56763	F158DWS5UD
05-24-04	56670	G139D3M4	06-02-04	56690	F138DWS5
05-24-04	56649	F158DWS6UD	06-02-04	56840	F138SWS324UD
05-24-04	56392	F138DWS5	06-03-04	56764	F158DWS5UD
05-24-04	56606	F158DWS5UD	06-03-04	56691	F138DWS5
05-24-04	56696	F138DWS5	06-03-04	56841	F138SWS324UD
05-24-04	56650	F158DWS6UD	06-03-04	56765	F158DWS5UD
05-24-04	56697	F138DWS5	06-03-04	56842	F138SWS324UD
05-24-04	56698	F138DWS5	06-03-04	56753	F158DWS5UD
05-24-04	56699	F138DWS5	06-03-04	56812	G139S3S5
05-24-04	56337	F158DWS5UD	06-03-04	56331	G139D3M5
05-24-04	56685	F138SWS5	06-03-04	56766	F158DWS5UD
05-24-04	56651	F158DWS5UD	06-03-04	56692	F138DWS5
05-24-04	56829	F138SWS324UD	06-03-04	56843	F138SWS324UD
05-24-04	56648	F158DWS6UD	06-04-04	56767	F158DWS5UD
05-31-04	56638	F138DWS4	06-04-04	56464	F138DWS5
05-31-04	56653	F158DWS5UD	06-04-04	56844	F138SWS324UD
05-31-04	56757	F138DWS4	06-04-04	56768	F158DWS5UD
05-31-04	56758	F138DWS4	06-04-04	56234	F138SWS324UD
05-31-04	56032	F176DWH6	06-04-04	56810	F158DWS5UD
05-31-04	56830	F138SWS324UD	06-04-04	56909	F138SWS5
05-31-04	56652	F158DWS5UD	06-04-04	56776	F138SWS5
05-31-04	56686	F138DWS5	06-04-04	56770	F158DWS5UD
05-31-04	56754	F158DWS6UD	06-04-04	56693	F138DWS5
05-31-04	56831	F138SWS324UD	06-04-04	56771	F158DWS5UD
06-01-04	56832	F138SWS324UD	06-04-04	56777	F138SWS5