

DEC 05 2006

Closing Report – EA05-011

Front Tire Failures in 1995 - 2000 Model Year
Country Coach Intrigue and 1996 - 2000
Country Coach Allure Model Motorhomes

CONTENTS

- (1) Subject Vehicles
- (2) Failure Mode
- (3) Toyo Tires
- (4) Tires Installed in Motorhomes
- (5) Prior Recalls
- (6) ODI Investigations
- (7) Peer Vehicles
- (8) ODI's Findings and Assessments
- (9) Risk to Safety Assessment
- (10) Country Coach's Response to this Investigation
- (11) Conclusion

(1) Subject Vehicles -

This report addresses the Office of Defects Investigation's (ODI's) investigation of front tire failures in Country Coach 1995 - 2000 model year Intrigue and 1996 - 2000 model year Allure Class A motorhomes. Class A motorhomes are luxury recreational vehicles (RVs), approximately 40 feet in length, and contain living, kitchen, sleeping and bathroom facilities designed for two to six people. These vehicles, which weigh approximately 30 - 35,000 lbs., are equipped with single front tires and dual rear tires. Country Coach manufactured 1785 of the Intrigue and Allure motorhomes from 1995 through 2000. See Table 1 below. Country Coach did not manufacture the Allure in model year 1995.

Table 1 - Production of Model Years 1995 - 2000
Country Coach Allure and Intrigue Model Vehicles

Model	Model Year						Total
	1995	1996	1997	1998	1999	2000	
Allure	0	45	84	132	151	181	593
Intrigue	140	167	179	208	240	258	1192
Total	140	212	263	340	391	439	1785

Source: Summarized from Country Coach Response to Request #1, RQ05-001

Subject Vehicles –

Photograph 1 - Representative Vehicle - Country Coach Intrigue



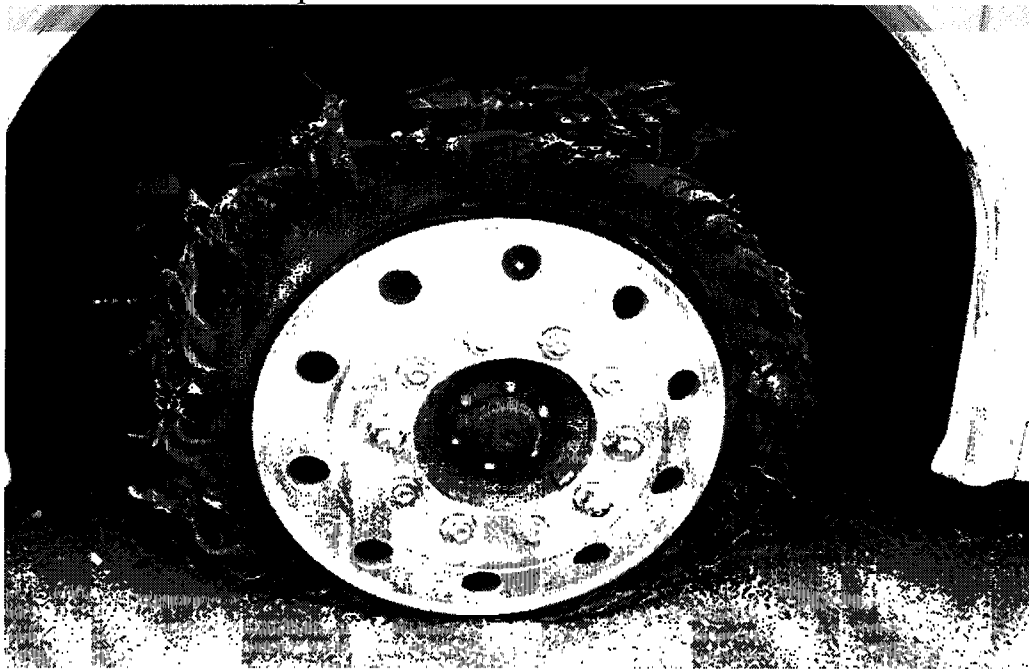
Source: ODI photograph, ODI vehicle survey at Country Coach Western Rally, Palm Desert, CA, November 28 – December 2, 2005.

(2) Failure Mode -

Tire failures on the subject vehicles have typically involved a tread separation such as depicted in Photograph 2, below. Many owners that ODI interviewed after they experienced a front tire failure in their vehicle described hearing a sudden “blowout” sound or the “beating” sound of the separating tread striking the wheel well of their vehicle. Several owners reported an explosive failure that immediately affected the owner’s ability to control the vehicle.

Photograph 2 -

Representative Left Front Tire Failure



Source: Owner of model year 2000 Intrigue that experienced a 12R22.5 front tire failure on June 1, 2006.

There have been 44 reported front tire failures (driver and passenger side combined) in the subject vehicles from October 2001 through June 2006. Ninety-five percent (42 of 44) of the front tire failures involved a Toyo 275/70R22.5 tire installed in the front position. For this reason, ODI's investigation has centered primarily on the Toyo 275/70R22.5 size tire.

Approximately three-quarters (28 to 32 of 44) of the reported incidents occurred on tires installed in the left front position (See Table 2). The left front tire position in the subject vehicles is typically more heavily loaded than the right front tire position.

Table 2 -

Summary of Country Coach Allure and Intrigue Model
Front Tire Failures by Vehicle Position

Source of Report	Driver Side (Left Front) Position	Passenger Side (Right Front) Position	Unknown Front Position	Total
Incidents Reported to Country Coach Between Oct 2001 and March, 2005	17	5	4	26
Incidents reported to ODI through Country Coach Between March 2005 and June 2006	10	2	0	12
ODI - VOQ & DI	5	1	0	6
Total	32	8	4	44
% of Total	73 %	18 %	9 %	100 %

(3) Toyo Tires -

At the time that Country Coach built the subject vehicles, they procured the Toyo M102z 275/70R22.5 tires directly from a local tire dealer. Toyo Tire advised ODI that Country Coach did not make any inquiries with Toyo regarding tire size/model recommendations and/or the appropriateness of the M102z 275/70R22.5 tire for the Country Coach applications. Toyo Tire further asserted that Country Coach did not consult with Toyo Tire prior to conducting the various tire replacement campaigns and Toyo Tire was not aware of the various campaign actions until after Country Coach announced the campaigns.

In response to this investigation, Country Coach filed a defect report pursuant to 49 CFR Part 573, alleging that the Toyo M102z 275/70R22.5 tire is defective. As discussed below, ODI has performed testing on certain Toyo M102z 275/70R22.5 tires and does not agree with Country Coach. Instead, ODI believes that the tire failures resulted from a combination of factors, including design choices and ambiguous and/or ineffective recall notifications made by Country Coach, consumer responses to various recall campaigns pursued by Country Coach, and the particular circumstances of tire maintenance and aging when used in motorhome service.

ODI believes that 42 of the 44 failed front tires are Toyo 275/70R22.5 tires. Toyo Tire manufactured the M102z 275/70R22.5 tire until 2002. Toyo Tire began production of the M140z 275/70R22.5 tire, the successor to the M102z, in 2000. While tire replacement service records generally specify the tire make and size (e.g., "Toyo 275/70R22.5"), these

reports seldom provide detailed information regarding the specific model of tire (e.g., "M102z" or "M140z") being removed or installed. Due to the lack of specificity in the available service records, ODI has not been able to determine specifically which, if any, of the reported tire failures were Toyo M140z 275/70R22.5 tires.

ODI is confident that Toyo 275/70R22.5 tires installed on the subject vehicles by Country Coach prior to 2002 would have been M102z tires. None of the five reports of Toyo 275/70R22.5 tires installed in Allure and Intrigue vehicles that failed in 2002-2003 have specifically identified the model of the tire. ODI has not made any observations or conclusions about the Toyo M140z tire.

As part of this investigation, ODI contracted for selected Toyo M102z 275/70R22.5 tires to be examined; the results of these examinations are summarized in a separate report written by the Akron Rubber Development Laboratory, Inc.

(4) Tires Installed in Motorhomes -

Tire failures in motorhomes are a matter of continuing concern to ODI. It appears that as manufacturers offer, and purchasers of "Class A" motorhome vehicles select, an increasing number of features such as "slide-out" galleys and bedrooms, that the weight of the vehicles increases resulting in higher axle and tire loads. Vehicle manufacturers may address increasing loads by installing larger tires, possibly wheels, and potentially upgrading other load carrying components, or by increasing the specified inflation pressures for the tire without increasing the tire size. Using larger wheels or tires may involve additional expense and require redesign of the vehicle. Increasing inflation pressures allows use of an existing vehicle design but may result in a harsher ride while imposing added tire maintenance responsibilities on vehicle owners.

Proper maintenance is critical to the performance and safety of tires. A tire that is not maintained at appropriate inflation pressures is much more likely to fail. Tires used in motorhomes may also be affected by aging. Because these vehicles are used primarily for vacation and pleasure trips, they may sit in place for long periods without being driven. As the tires installed in motorhomes do not accumulate mileage at the same rate as tires installed in heavy trucks and similar applications, the tires on motor homes may degrade from exposure, oxidation, and age-related factors rather than tread wear. Unlike tread wear, which is visually evident to the vehicle operator, the degradation of tire properties cannot be detected by visual observation. Therefore, a tire installed in a motor home may be five or more years old, still appear to be in "sound" condition, but may be less resistant to stresses imposed by heavy loads and high speeds than a newer tire.

(5) Prior Recalls -

Different sub-groups within the population of the subject vehicles were the subject of various recalls conducted prior to the opening of this investigation. In 1999, Country Coach determined that tire failures were due to an error in the calculation used to determine the tire inflation pressures and, as a consequence, the federal placards in the affected motorhomes displayed incorrect inflation pressure information. This resulted in a noncompliance recall in October 1999 to replace the tire placard in 448 vehicles.

A few months later, after determining that the under inflated tires may have suffered damage, Country Coach provided replacement tires for the affected vehicles. During the ensuing two years, Country Coach conducted a series of noncompliance recalls/safety campaigns involving approximately 1400 of the subject vehicles. These actions were intended to address insufficient tire air pressure and/or an unequal weight distribution on the front axle causing the driver's side front tire to exceed the tire weight rating for the specified pressure. In all, Country Coach conducted five safety recall campaigns and/or service notices. These recalls all reported that the vehicles failed to comply with the requirements of Federal Motor Vehicle Safety Standard No. 120, "Tire Selection and Rims for Motor Vehicles with a GVWR of more than 4,536 kilograms." The remedies applied in these recalls included:

(1) Increasing the front tire inflation pressure to a higher inflation pressure than originally specified on the federal tire placard affixed to the vehicle. These initiatives pertained to the majority (85%) of the subject vehicles; the inflation pressure for approximately 15% of the vehicles was the originally-specified 120-125 p.s.i. and remained there. By increasing the air pressure in the 275/70R22.5 Toyo tire to 125 p.s.i., Country Coach was recommending that the tire be inflated to the maximum allowable air pressure for that size tire. See the tire pressures in Tire and Rim Association Load-Inflation chart.

(2) Reducing the load on the left front tire to reduce the magnitude of the unequal weight distribution on the front axle by reconfiguring the height control valves of the vehicle's air suspension. This was implemented by actions SB00-01 and recall 01V-170. Country Coach provided ODI with vehicle weight information obtained from a reconfigured subject vehicle, a 40' Model 1998 Intrigue, which indicates the potential tire loadings associated with redistributing the vehicle weights by reconfiguring the original suspension.

Table 3 - Comparison of Front Tire Loads for a Representative 1998 Country Coach Intrigue, VIN 4U7B5EK11W1XXXXXX, Prior to and After the Suspension Reconfiguration

	Total Front Axle Load	Left Side Front Tire Load	Right Side Front Tire Load
Original Configuration	9,583 lbs.	6,006 lbs.	3,577 lbs.
Side-to-Side Load Distribution		63%	37 %
Suspension Reconfiguration	9,639 lbs.	5,206 lbs.	4,433 lbs.
Side-to-Side Load Distribution		54%	46 %
Loading Change (**)	+ 56 lbs.	- 800 lbs	+ 856 lbs.

(**) The total side-to-side effect (loading difference) achieved by changing from the original suspension configuration to the suspension reconfiguration in the representative vehicle is 1656 lbs (800 lbs. removed from left front tire and 856 lbs. added to right front tire).

This indicates that the reconfiguration can redistribute the vehicle loads and is capable of effectively unloading the left front tire by approximately 13% (800 lbs difference; from 6006 lbs. to 5206 lbs.). After the reconfiguration, the side-to-side front tire load distribution has improved from a severe left side bias (63% left / 37% right) to more equitable (54% left / 46% right) left side bias. (See shaded boxes in the table above). In this particular vehicle, the left front tire remains more heavily loaded by approximately 17% (5206 lbs / 4433 lbs) than the right front tire.

ODI observes that vehicles whose tire loads are redistributed through ride height adjustments measured when a vehicle is stationary could have loads intermittently re-applied to the critically-loaded tire during vehicle operations when the vehicle responds to normal driving maneuvers such as downhill descents, cornering, severe braking, operation on crowned or sloped roads, etc.

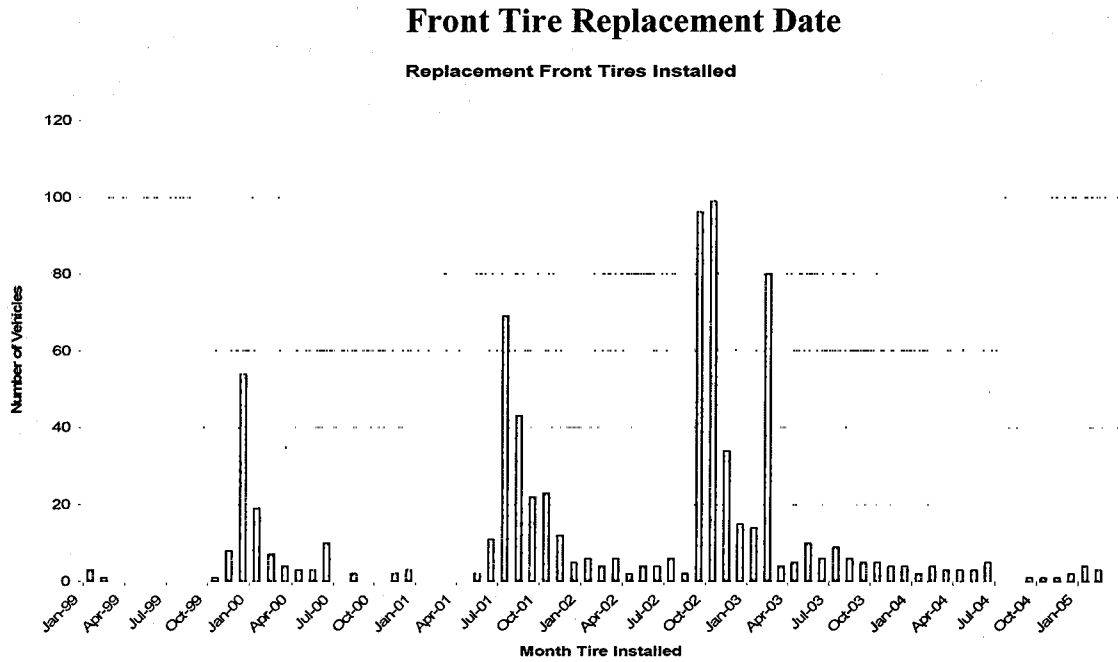
(3) Replacing one or both front tires with new tires typically, but not always, with the same tire size as had been originally installed on the vehicle at a higher-than-originally-specified inflation pressure as described in (1) above.

Front tire replacement activity on the subject vehicles generally closely followed each of the major campaigns announcement dates (1) 99V-288 in October, 1999; (2) 01V-089 and

01V-170 in March-May, 2001, and 02-229 in August, 2002 respectively. See Chart 1 below.

Almost all of the failed front tires had been replaced during one or more of the tire replacement campaigns depicted below.

Chart 1 -



Source: Country Coach's March 10, 2005 Response to Request No.1, RQ05-001

(4) Performing a combination of the above three remedies. See Table 4 below.

Table 4 -

Summary of Country Coach Campaigns Addressing Front Tire Failures

Campaign or Service Program	Date Issued	Targeted Vehicles	Remedy
99V-288	October, 1999	1998-1999 Intrigue and Allure	Modify Tire placard to Increase Cold Pressure
SB00-01	April, 2000	1995-2000 Intrigue and Allure	Reconfigure Air Suspension
01V-089	March 22, 2001	1995-1998 Intrigue Motor Homes (Grandview, Vista, Horizon) 1996-1998 Allure (Rogue, Seneca)	Replace Tires
01V-170	May 21, 2001	1995-2000 Intrigue and Allure	Reconfigure Air Suspension – Replace Tire
02V-229	August 28, 2002	1995 Intrigue Motor Homes VIN Range (1) Gillig – 46GED1813P1052038 – 46GED1810V1043164 (2) Dynamax VIN Range – 4U7B5EH17W1100480 – 4U7A5EJ1XY1101518	Replace Tires

On September 13, 2005, Country Coach announced a sixth Campaign 05V-398 to address 33 model years 1998-1999 Intrigue Country Coach vehicles that Country Coach had intended to address with prior campaign(s) but evidently overlooked. In response to ODI's inquiry at that time, Country Coach advised that they were not aware of any front tire failures reported from this 33 vehicle population. On November 15, 2005, Country Coach informed ODI that a 1998 Intrigue from the 33-vehicle campaigned population had experienced two (i.e., repeat failures) left front tire failures and two inside left rear tire failures prior to receiving the campaign notification.

The recall campaigns initiated by Country Coach resulted in completion rates that are within the normal ranges found for vehicles of this type. See Table 5a and 5b below.

Table 5a- Campaign Completion Status as of March 10, 2005 for Campaigns Intended to Reconfigure the Air Suspension Ride Height Control System in the Subject Vehicles

Campaigns to Reconfigure the Air Suspension System (Ride Height Control Valves)	Vehicles Addressed	Number Addressed	Number Completed	Estimated % Completed
SB00-01	1995-2000 Intrigue and Allure	994	633	67%
01V-170	1995-2000 Intrigue and Allure	389 (*)	239	61%

(*) Campaign 01V-170 addressed vehicles that were not corrected under SB00-01.

Table 5b-

**Campaign Completion Status as of March 10, 2005 for Campaigns
Intended to Replace One or Both Front Tires in the Subject Vehicles**

Campaigns to Replace One or Both Front Tires	Vehicles Addressed	Number Addressed	Number Completed	Estimated % Completed
99V-288	1998-1999 Intrigue	448	410	92%
01V-089	1995-1998 Intrigue 1996-1998 Allure	289	198	69%
Tire replacement under 01V-170	1995 – 2000 Intrigue 1996-2000 Allure	unknown (253 - 389) (**)	253	Unknown
02V-229	1995 – 2001 Intrigue 1996- 2000 Allure	550	414	75%

(**) ODI has estimated the number of vehicles affected. The exact number of vehicles requiring remedy depends on whether, or how long, the left front tire was installed as directed by 99V-288 was in service before the vehicle's ride height control valve reconfiguration was performed. ODI's low end estimate is based on the number of vehicles Country Coach reported as completed and the high end estimate is based on the number of vehicles that are candidates for, but not yet corrected, by SB00-01. The task to identify each remedy that each individual motorhome received has not been undertaken.

Note: ODI derived the affected vehicles population estimates summarized in Table 5a and 5b from individual vehicle specifications that Country Coach provided to ODI in March, 2005 in response to information requested in RQ05-001.

Although the above tables and chart provide useful references for summarizing the scope of the subject vehicles, they do not reflect the overall complexity associated with the 17 combinations of tire replacement/ inflation combinations pertaining to the affected Intrigue vehicles and 16 combinations tire replacement/inflation combinations pertaining to the affected Allure vehicles. At the time of the tire replacement, certain owners opted to upsize their tires and/or selected tires manufactured by companies other than Toyo Tire making it difficult to develop complete and consistent information to derive meaningful comparisons. ODI analyzed the front tire failures according to the various tire size/inflation pressure changes made at the time of the various campaigns. This analysis did not indicate that any particular vehicle sub-population grouping of replacement tires

and range of tire inflation pressures accounted for a greater or less share of the overall failures.

(6) ODI Investigations -

ODI initiated EA05-011 to address concerns that Country Coach's various campaigns appeared to be ineffective because front tire failures had occurred, and were continuing to occur, in vehicles that had reportedly received the prescribed campaign remedies. EA05-011 was preceded by three ODI inquiries: RQ00-002, DI04-094, and RQ05-001.

ODI's first study of this tire overloading situation was prompted by Country Coach's October 1999 recall (99V-288). ODI opened RQ00-002 in January 2000 to evaluate the problem experience, scope, and impact of slide out sections on disproportionate axle loading. The RQ was closed in late 2000. When Country Coach reported a death in August 2004, ODI initiated a Death Inquiry (DI04-094). This death inquiry was followed by RQ05-001 and EA05-011.

(7) Peer Vehicles -

One of the Agency's concerns was assessing the performance of large motorhome tires and the effectiveness of Country Coach's prior campaign remedies. As noted above, the circumstances of motorhome use increases the likelihood that tires will be damaged through exposure to detrimental environmental, usage, and loads during their generally longer time-in-service when compared to like-sized tires installed in cargo-hauling truck applications. Moreover, the tire loads imposed by increasingly feature-laden vehicles can challenge the specified tire size capacity and inflation pressure creating a safety concern for the tire and wheel components. These concerns are magnified where, as is the case with the subject vehicles, non-uniform weight distribution may place severe demands on a particular wheel and tire of the vehicle.

Several peer vehicle manufacturers also faced unequal front axle weight distribution and overloading of front tires of their motorhomes during the same time period as the subject vehicles. Newmar's 1997-2001 model year vehicles and Fleetwood Enterprises, Inc. (Fleetwood) 1996-2000 model year vehicles were campaigned. Both Newmar and Fleetwood replaced the original tires with larger sized-larger capacity tires. Newmar remedied 2426 motor homes out of a population of 3589. In contrast to the Country Coach campaigns which generated 44 reported post-campaign front tire failures, there were no reports of post campaign front tire failures from the Newmar campaign. Fleetwood remedied 3736 vehicles out of 3745 vehicles with 4 post campaign failures. See Table 6.

Table 6 - Campaign Effectiveness for Campaign Conducted by
Manufacturers of Peer Vehicles

Vehicle Mfr	NHTSA Camp. Number	Number of Vehicles	Description of Vehicles Addressed	Number of Front Tire Failures	Description of Campaign Action	Estimated Increase in Front Tire Capacity
Newmar	04V-307	2426 Remedied 3589 Addressed by Campaign	1997-2000 Dutch Star & 2001-2002 Kountry Star	85 prior to campaign none since campaign implemented	Replace 255/80R22.5 XRV tires at 105 psi with 275/70R22.5 XZA1 tires @ 120 psi	13 %
Fleetwood	99V-277	3736 Remedied 3745 Addressed by Campaign	1996-2000 American Eagle, American Dream, American Tradition	41 prior to campaign 4 on remedied vehicles 2 on non-remedied vehicles	Replace 275/70R22.5 @ 115 psi with 275/80R22.5 at 115 psi; replace 245R22.5 @105 psi, 255R22.5 @ 90 psi & 265R22.5 @ 110 psi with 275/70R22.5 @ 110-105 psi	9 % 20 % 22 % 11%
Country Coach	EA05-011		1995-2000 1996- 2000	 44	See Chart —	Various

Upward Trend in Tire Size and Capacity in Country Coach Vehicles -

Over the course of 1995-2000 model year vehicle production, Country Coach increased the size / capacity of the front tires installed as original equipment in the subject vehicles, ostensibly "paralleling" the increasing vehicle loads associated with the evolution of the vehicles' features. Although this investigation addresses all of the tires during the 1995-2000 model year period, to date the 275/70R22.5 tire has been the overwhelmingly predominant tire size to have failed when installed in the front vehicle position.

Table 6 -
**Country Coach's Tire Size Selection for Original Equipment
 Allure and Intrigue Vehicles**

Count of Country Coach Allures summarized by Front Tire Size and Model Year

Model Year	Unknown	10R22.5	275/70R22.5	275/80R22.5	12R22.5	Total
1995	0	0	0	0	0	0
1996	0	45	0	0	0	45
1997	0	84	0	0	0	84
1998	0	86	46	0	0	132
1999	0	0	151	0	0	151
2000	0	0	64	1	116	181
Total Allures	0	215	261	1	116	593

Single Tire Rating @ 100 psi		5320 lbs	5535 lbs	5780 lbs.	6610 lbs.	
------------------------------	--	----------	----------	-----------	-----------	--

Count of Country Coach Intrigues summarized by Front Tire Size and Model Year

Model Year	Unknown	255/80R22.5	265/75R22.5	10R22.5	275/70R22.5	12R22.5	Total
1995	0	138	0	2	0	0	140
1996	0	60	106	1	0	0	167
1997	0	0	81	97	0	0	178
1998	0	0	1	117	90	0	208
1999	0	0	0	0	240	0	240
2000	1	0	0	0	104	153	258
Total Intrigues	1	198	188	217	434	153	1191

Single Tire Rating @ 100 psi		4975 lbs.	4975 lbs.	5320 lbs	5535 lbs	6610 lbs.	
------------------------------	--	-----------	-----------	----------	----------	-----------	--

The Tire Load Ratings were obtained from Toyo Tire literature or The Tire and Rim Association 2005 Yearbook.

The above-listed single tire load rating information illustrates the upward trend in front tire capacity that Country Coach had specified during the subject 1995-2000 model year time period. ODI's comparison of tire ratings is based on the published values for 100 p.s.i. inflation pressure rather than the maximum allowable inflation pressure of 125 p.s.i.

(8) ODI Findings and Assessments -

Although Country Coach's Defect Report stated that Country Coach determined that the Toyo M102z 275/70R22.5 tire is defective, ODI's investigation has determined that the combined effects of the following caused and/or contributed to tire failures: (A) vehicle design; (B) ineffective campaign deployments, including failure to assure that placards that specified corrected tire inflation pressures were appropriately affixed to the vehicle; (C) exposure of the tires to the damaging effects of aging, environment, and oxidation; (D) under-inflated tires, due in large part to poor communication, misinformation and/or lack of owner's interest or motivation, which resulted in inadequate consumer awareness regarding appropriate tire inflation pressures and thereby contributed to tire degradation and/or damage.

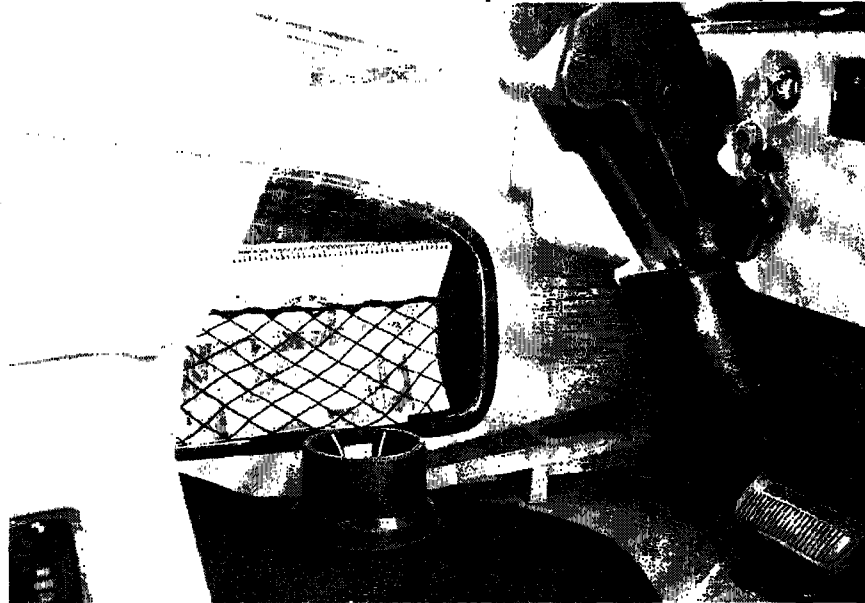
(a) Tire Inflation Information Placard Placement -

An obscurely placed tire information placard on the subject vehicles made it difficult for owners to understand and comply with Country Coach's recommended tire inflation pressures. Country Coach elected to affix the originally installed vehicle certification placard (which includes tire pressure information) below knee level to the left of the driver's seat on the interior vehicle wall. (See Photograph 3, below).

It should be noted that the placard is affixed to a stationary wall of the subject vehicles since these vehicle are not equipped with a driver's side (left side) door. The passenger side (right side) is the sole point of entry and exit for the subject vehicles.

Photograph 3 -

Tire Certification Placard in Interior of Representative Country Coach Vehicle



Affixing the placard in this inconspicuous location (and recognizing that typical owners of luxury motorhomes are older and likely less-agile individuals), compromises the intent of the tire information placard since it is extremely difficult for owners to access and read the recommended tire inflation pressure information. For this reason, some owners kept the corrected placards provided through recall campaigns with their service records rather than install them in the vehicle. In some of these vehicles, subsequent vehicle purchasers, who had no reason to suspect that the placard information had been updated, relied on the incorrect original pre-recall tire inflation pressure information affixed to their vehicle.

(b) Erroneous Owner's Manual -

It is beneficial to weigh recreational vehicles because of the likelihood that these types of vehicles may have unequally distributed (side to side/fore and aft) tire loads and/or limited cargo carrying capability. Owners who measure the actual tire loads can determine if and when vehicle carrying capacities have been reached and/or determine which areas of the vehicle are most appropriate for storing discretionary loads (cargo).

A number of tire and recreational vehicles manufacturers recommend that owners weigh the individual wheels of their fully-loaded vehicle to determine the tire inflation pressure appropriate for their vehicle. Typically, this procedure recommends inflating tires at a nominally higher pressure (approximately 5 p.s.i.) than the recommended inflation pressure (associated with the tire load) published in the Tire and Rim Association Yearbook or in the respective tire manufacturer's published literature.

The likelihood of under inflated tires was exacerbated by incorrect tire inflation pressure recommendations published in Country Coach's owners' manual. Chapter 3, "Steering & Suspension Group," of Country Coach's Owner's Manual lists various tire inflation pressures and describes an incorrect method for determining the individual tire loads and associated tire inflation pressure. The manual states that "... Tires should be inflated to match the weight to be carried. For partial or uneven load distributions (front-to-rear) proper inflation pressure can be determined by following the next procedure." The procedure is to weigh the front axle and divide by two and weigh the rear axle and divide by four (the rear axle has dual tires) and inflate the tires to the proper pressure as determined by the load from a tire loading chart provided.

This method assumes equal weight distribution on the tires. For any unequally loaded front axle, this method will provide incorrect tire loading information. Owners who relied on this information would develop incorrect tire inflation pressure amounts which, if followed, would assure that the more heavily loaded front tire is under-inflated.

One element of Country Coach's Campaign 06V-262 will address this concern.

(c) Recall Campaign Notification Letters -

Country Coach's campaign letters to owners were ambiguous about the importance of maintaining tire pressure and, consequently, were largely ineffective. None of the owner notification letters directly informed the owner that the tire inflation pressures have been increased to a new higher level and that maintaining this revised inflation pressure was essential to the safe performance of the front tires.

The following is an excerpt from the Country Coach Owner Notification Letter for Campaign 99V-288 (owner notification letters pertaining to the other campaign use similar text).

"Country Coach has determined that a defect, which relates to motor vehicle safety, exists in certain MHI (Intrigue) and MHL (Allure) equipped with slide-out galleys. These vehicles have incorrect tire tag specifications. The underinflation of the tires pursuant to the specification's [sic] attached to the vehicle can result in tread separation. Continued use may cause sudden loss of air, which can result in a loss of steering control with potential for a vehicle accident."

"The tire tag specification label next to the driver's seat needs to be removed and replaced with the enclosed corrected label..."

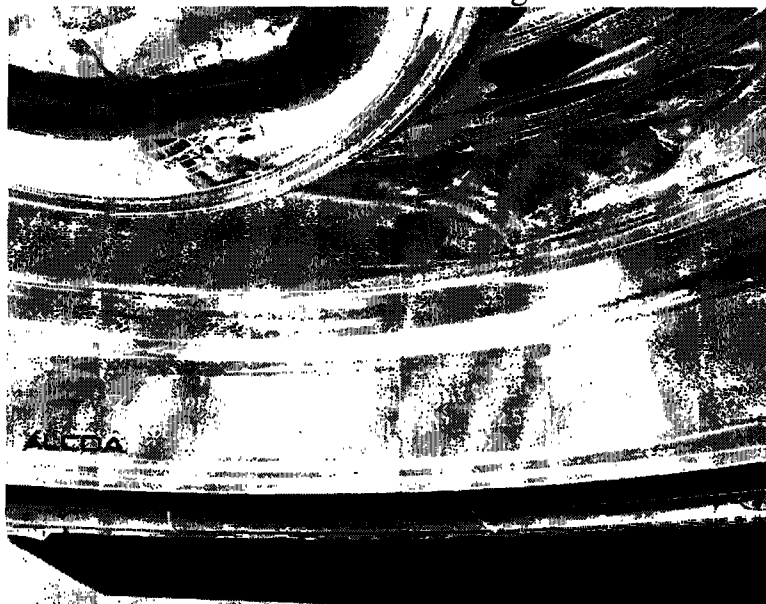
As written, the affected owner would need to read the notification letter and conclude that s/he had been asked to compare the revised Federal tire placard with the originally installed placard, recognize that a change (increase) had occurred in the specified tire inflation pressure, and without elaboration or explanation from Country Coach, understand that s/he were expected to maintain the newly-specified (higher) pressure in the vehicle's tires.

(d) Tire Pressure Information on Rear Wheel -

Another issue related to the difficulty of maintaining proper air pressure is the pressure warning imprinted in the rear wheel (see photograph below) on the subject vehicles. The warning on the Alcoa wheel states not to inflate tires above 120 p.s.i. Alcoa had approved the use of their wheels in conjunction with tires inflated to 125 p.s.i. for the affected 1995-2000 model year Allure and Intrigue vehicles. However, a few of the owners surveyed indicated that although they were aware that Country Coach had recommended 125 p.s.i. inflation for the tires of their vehicle, they were dissuaded from inflating the tires to this pressure when they saw the warning. There is no evidence that Country Coach provided any explanation to affected owners that they could disregard the warning imprinted on the wheel.

Photograph 4 -

Photograph of Representative Rear Wheel Installed
In 1995-2000 Allure and Intrigue Vehicles



(e) Field Examinations of Country Coach Vehicles –

ODI conducted two field surveys to determine the “in use” axle and tire loadings and tire inflation pressures for typical “in-service” vehicles.

The following table, which is based on ODI’s field survey, indicates the individual front tire loads, associated front tire inflation pressure, recommended tire inflation pressure as indicated by the in-cab tire placard, and ODI’s calculated reserve capacity for the tire under the measured loaded conditions at the measured inflation pressure. Note that this table indicates the total variance of the measured air pressure compared to the intended or specified air pressure.

Table 7 -

ODI Field Survey of Front Tire Loads and Measured Air Pressure

ODI Veh Code	MY	Model	Left (Driver's Side) Front Tire Load	Right (Pass Side) Front Tire Load	Left (Driver's Side) Front Tire Inflation Pressure - Measured	Right (Pass. Side) Front Tire Inflation Pressure - Measured	Recommended Front Tire Inflation Pressure (In-Cab placard)	Recommended Original or Post Campaign Front Tire Inflation Pressure (from Country Coach RQ05-001)	ODI calculated % Reserve on Left (Driver's Side)	ODI calculated % Reserve on Right (Pass Side)
G-E	96	Intrigue	5000	4800	120.5	104.5	not recorded	110 psi	4%	2%
P-B	98	Allure	4500	4600	101.2	95	115 psi	115 psi	10%	8%
P-D	99	Allure	5350	4700	90	90.5	85 psi	125 psi	0%	14%
P-E *	99	Intrigue	5400	4550	114	116.5	125 psi	125 psi	11%	31%
G-C	00	Allure	4950	5075	99	98.5	not recorded	120 psi	24%	21%
G-D	00	Allure	7175	5275	111	114	120 psi	120 psi	-5%	29%
P-H	00	Allure	5500	5500	110.5	97	120 psi	120 psi	12%	12%
P-J	00	Intrigue	5650	5250	111.5	109.5	120 psi	120 psi	17%	26%

(*) Only one of the above-listed surveyed vehicles (P-E) had been equipped with Toyo Tires 275/70R22.5 in the front position. The remaining vehicles had either been equipped with other-size tire or replaced their original front tires with larger size/capacity tires and/or tires manufactured by manufacturers other than Toyo Tire. Since few of these surveyed vehicles were equipped with the Toyo tires, the above data is mostly useful for assessing owner inflation practices.

This analysis is based on the tire sizes and pressures that ODI found installed on these vehicles when the inspections were conducted. Specific tire makes and sizes for each vehicle are listed in data that ODI put into the public file shortly after each inspection was conducted.

Based on published load inflation tables, the left front tire in one vehicle (G-D) was overloaded (see shaded cell). The left front tire in one vehicle (P-D) had no reserve capacity (see shaded cell). The remaining six vehicles had left front tires with reserve capacity that ranged from 4% to 24%.

The right front tire in one vehicle (G-E) had a reserve capacity of 2%. The remaining seven vehicles had right front tires with reserve capacity that ranged from 8% to 31%.

(f) Examination and Testing of Tires -

ODI selected nine Toyo M102z 275R/70 tires (one unused tire manufactured in 2002, one tire manufactured in 1999 that had failed in 2004, one tire manufactured in January, 2000 that failed in October, 2005 and its opposite side mate, and five used but unfailed tires manufactured in 1998 through 2000) to be inspected and tested by NHTSA's Vehicle Research Test Center (VRTC). VRTC selected Akron Rubber Development Laboratory, Inc. (ARDL) to perform the contracted services. The results of these examinations are summarized below. A copy of the complete ARDL report has been put into the public file.

ARDL's tire inspections identified a number of serious concerns in the examined tires. Reduced peel strength and modulus changes, which appeared to be related to oxidation, appears to be a factor in the tire failures. The properties of the Toyo M102z 275/70R22.5 tire examined by ARDL appear to diminish with time and exposure (aging) as distinguished from tire usage (tread wear).

Diminished tire properties help to explain the reason why approximately 18% of the front tire failures occurred in the typically-less loaded passenger side front position. ODI's survey revealed that the right front tire of the subject vehicles has typically been less heavily loaded than the left front tire in the subject vehicles. Since both front tires have ostensibly been operated at equivalent inflation pressures and service, failures occurring in the less heavily loaded right front position suggest that factors other than loading, such as the above-referenced changes in tire properties, may have contributed to these right side failures.

ODI's analysis of the inflation pressure and tire loads from several vehicles that experienced failed front tires indicated that certain tires had approximately 10% reserve capacity for the load and inflation parameters and nonetheless failed. Based on this

information, ODI is concerned that the properties of older Toyo M102z 275/70R22.5 tires approach a condition where the tire integrity may be compromised.

Aging is a significant issue for tires installed in RVs because RVs are driven far fewer miles than trucks and are therefore less subject to tread wear over their lifetime. ODI does not have available data for peer tires that would enable a comparison of tire properties after various periods of tire aging. Therefore, we cannot determine if the degradation in tire properties noted in the inspection report is exceptional or unusual compared to peer tires.

Owners are not able to detect age-related degradation by the external appearance of the tire because the degradation occurs in the rubber within the tire. During field and phone interviews, a significant number of owners demonstrated an awareness that tires installed in RVs age and should be replaced for that reason. In many cases these owners expressed a reluctance to replace the tires solely due to age because the tire had a significant amount of remaining tread.

(9) Risk-to-Safety Assessment -

An abrupt front tire failure can affect the control of a vehicle. In the instant case, the risks are exacerbated because the subject motorhomes are frequently operated at high speeds by owners who often lack professional driving experience and who also, due to their age, may lack the physical strength to safely control a vehicle "pull" following a tire failure.

DI04-094 investigated the report of a single vehicle fatality incident that occurred near Mound, Illinois on July 3, 2003, when a 1999 Country Coach Intrigue equipped with Toyo M102z 275/70R22.5 front tires departed a 2 lane highway and crashed into a tree. Post-crash photographic evidence (portion of separated tread on pavement and highway markings indicating wheel rim contact) indicates that the left front tire failed and was a likely causal or contributory factor to the crash.

ODI is not aware of any other fatalities, but is aware of one crash that allegedly resulted in a significant injury and another crash that allegedly resulted in a minor injury. The owner of a 1996 Intrigue that experienced a front tire failure on October 13, 2005, near South Providence, Rhode Island, while traveling at approximately 65 MPH, could not control the vehicle and it veered to the left forcing a passenger car passing on the left into a Jersey barrier, injuring the driver of the passenger car, and "totaling" the passenger car.

Approximately half of the owners who experienced a front tire failure reported encountering some degree of difficulty in maintaining vehicle stability and/or lane control:

- The owner of a 1999 Intrigue reported that on June 23, 2005, while traveling I-40 near Kingman, Arizona, he heard the tire fail and experienced a "locked steering

axle.” The vehicle crossed lanes into the median and came to rest against a small tree, “blowing out” the windshield, with parts of the tree in the [passenger seated] wife’s lap resulting in approximately \$70,000 damage to the vehicle.

- The owner of a 1996 Intrigue reported that on March 31, 2006, the driver’s side front tire failed, pulling the vehicle into approximately 1/3 of the adjacent lane before the driver recovered control.
- The owner of a 1999 Intrigue reported that on March 28, 2006, the driver’s side front tire failed at 70 MPH pulling the vehicle into the divided highway median strip.

There is also a risk that vehicles may be disabled and stranded along the roadside. The subject vehicles are equipped with tires that require heavy duty tools and that are too heavy for ordinary owners to remove and replace. For these reasons, these types of vehicles are frequently not equipped with spare tires and many owners do not carry a spare tire. If a vehicle experiences a front tire failure, owners must frequently request roadside service replace the damaged tire before the motorhome can be moved any significant distance from the roadway. Vehicles that are stranded roadside, possibly for extended periods of time, after dark and/or in remote locations which potentially exposes the vehicle owner and/or servicing personnel to being struck by passing vehicles.

(10) Country Coach’s Response to this Investigation -

Country Coach filed a Defect Notice (04V-129) pursuant to 49 CFR Part 573 (defect report) on June 30, 2006, that described the Toyo M102z 275/70R22.5 tire as defective and proposed a recall campaign (06V-262) to replace the Toyo M102z 275/70R22.5 tires installed in the potentially-affected vehicles at no cost to the owners with the population of vehicles to be determined at a future date.

By letter dated, July 12, 2006, Country Coach advised ODI that it would: (1) replace Toyo M102z 275/70R22.5 tires still in use with the same size tires from a different [unspecified] manufacturer; (2) revise the existing tire placard and install a second placard in a more visible location; (3) provide additional customer education regarding the importance of proper tire maintenance, loading and weight distribution; and (4) update the current owner’s manuals to reflect the most current information regarding tire selection and maintenance.

On October 13, 2006, Country Coach filed an amended defect report stating that 809 vehicles will be recalled. As part of this amendment, Country Coach included "108 model year 2000 - 2002 DynoMax motor home chassis built for National RV and made into Islander motor homes ..." and 54 1995-1999 model year Magna vehicles that were not included in the investigation scope of EA05-011.

The amended report also states that Michelin XZA2 275/70R22.5 tires will be installed on the subject vehicles still equipped with Toyo M102z 275/70R22.5 tires.

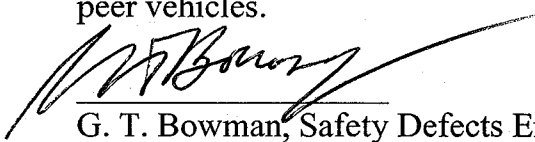
(11) Conclusion -

ODI is closing this investigation because Country Coach has filed a defect report and indicated that it will begin a recall campaign.

Although ODI does not agree with Country Coach's characterization of the alleged defect, Country Coach has proposed a remedy, the effectiveness of which will, in some measure, depend on how well the affected owners understand the need and are able to perform the prescribed tire inflation requirement, which is at or near the maximum recommended pressure for the specified tire size.

Since ODI remains concerned that Country Coach's proposal to replace currently installed M102z 275/70R22.5 tires with an approximately equivalent tire size may --- depending on vehicle loads, inflation practices, and replacement practices for aging tires --- result in additional tire failures, ODI will continue to monitor this situation.

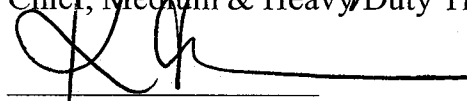
ODI is initiating a surveillance program at both Toyo Tire and Country Coach and requesting regular reports to identify and assess failures of all makes and models of tires installed in Country Coach and peer vehicles to obtain better information regarding the performance of Toyo M140z 275/70R22.5 tires and to better assess the performance of these and other tires manufactured by Toyo Tire and their peers in both Country Coach and peer vehicles.


G. T. Bowman, Safety Defects Engineer

12/5/06
Date

I Concur: 
Chief, Medium & Heavy Duty Truck Division

12/5/06
Date


Director, Office of Defect Investigation

12-5-06
Date