

FIELD REVIEW COMMITTEE

To:

Secretary, FRC
Suite 785
Diagnostic Service Center II
Ford Customer Service Division – North America

The attached Evaluation Paper is being forwarded for review by the Field Review Committee. Copies have been submitted for review to:

Office of the General Counsel:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Vehicle Environmental Engineering:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Automotive Safety Office:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
VC Purchasing Director:	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>

Subject: Firestone Wilderness AT tire / Venezuela/Colombia/Ecuador – loss of tire tread.

Concur: _____
Vehicle Line Director

Date

Concur: _____
Vehicle Center Engineering Director

Date

Concur: _____
FCSD Vehicle & Service Programs Director

Date

Approve: _____
Vice Center Vice President

Date

Approve: _____
FSCD Vice President

Date

1. PROBLEM DESCRIPTION

A. While driving a vehicle, the tire tread may get separated (belt edge separation) from the main carcass of the tire. Some tires throw the tread but remain inflated. Customers report that they heard a sound similar to an "explosion". The tire failure is discovered when the driver hears the tire tread hitting the wheel housing under the fender. Some rollovers have been attributed to tire separation by the media. As of 05/16/00, 50 alleged accidents attributed to tire tread separation. Tires involved show high mileage (from 80,000 km to 160,000 Km). Vehicles involved have been '96, '97, '98 and '99 MY. FOV have reports of incidents involving both tires, locally manufactured and USA manufactured. Venezuela, Colombia and Ecuador have unique customer usage patterns and conditions as compared to other markets.

B. Firestone P255/70R16 Wilderness AT 109S Tire:

Engineering part #: F57A1508-JA (Black letters)
 F85A1508N -1A (White letters)

P235/75 R15 Wilderness AT 109S Tire:

Engineering part #: 987K1508-BA (Black letters)
 987k1508- AA (White letters)

Service part: P255/70R16 Wilderness AT Tire (Black letters)
 P255/70R16 Wilderness AT Tire (White letters)
 P235/75 R15 Wilderness AT Tire (Black letters)
 P235/75 R15 Wilderness AT Tire (White letters)

C. Vehicles Affected:

- **Part name: P255/70R16 Wilderness AT 109S: Explorer 4x4 and F-150**
P235/75 R15 Wilderness AT 109S: Explorer 4x2

Model Year(s)	Vehicle Line	Vehicle volume	Variants	Other Limiting Factors
1996	Explorer	1,680	4x4, Manual, Automatic, 4.0L.	255/70 R16 AT
1997	Explorer	9,031	4x4, Manual, Automatic, 4.0L.	"
1998	Explorer	8,543	4x4, Manual, Automatic, 4.0L.	"
1999	Explorer	3,702	4x4, Manual, Automatic, 4.0L.	"
1996	Explorer	505	4x2 Manual, Automatic, 4.0L.	235/75 R15 AT
1997	Explorer	3,137	4x2 Manual, Automatic, 4.0L.	"
1998	Explorer	5,734	4x2 Manual, Automatic, 4.0L.	"
1999	Explorer	2,536	4x2 Manual, Automatic, 4.0L.	"
1998	F-150	2,965	4x4, 4x2, Manual, Automatic.	255/70 R16 AT
1999	F-150	1,491	4x4, 4x2, Manual, Automatic.	"
1998/99	Imported Explorer	488	4x4, 4x2, Manual, Automatic.	255/70 R16 AT

D. Markets Affected: Venezuela. Even though there are few reports to date, FOX will also include in the program Venezuelan F-150 vehicles, and Explorer and F-150 vehicles in the Colombia and Ecuador markets because reputation is being affected.

E. CPSC: 04.04.02

2. DEFINE ROOT CAUSE

The root cause of the tire failures was determined to be tread separation from the tire carcass caused by a combination of the following contributing factors which are unique to customers usage and conditions in Venezuela.

A. Low inflation operating situation – causing internal tire damage resulting in tread separation caused by the following issues.

Improper repair:

Tire repairs being done using unapproved rope type plugs. This type of repairs may leak air, potentially unbeknown to the customer.

Unintentional under-inflation condition (puncture, other leak). Customer gets slow leak from puncture and drives on under-inflated tire.

Valve stem leakage due to customer not replacing cap, resulting in the allowance of external objects getting into the valve.

Continue/ Repeated use while under-inflated

Customers who do not realize that he/she is driving under inflated, may drive at extremely high speeds for prolonged periods of time.

B. Extended / Repeated use at high speed in high ambient temperatures

For the P235/75 R15 and P255/70 R16 (locally sourced) tires are non speed rated, per DOT 571-109 requires 30 min. at 160 KPH, and COVENIN 663-96 to run at a rated speed of 136 KPH for a period of time of 30 min., and 10 min. at 160 KPH before the tire starts to fail internally (under lab testing conditions and specific procedures).

For the P255/70 R16 (North American sourced) tires are "S" speed rated per SAE procedure J1561 to run at rated speed (i.e., 180 KPH) for only a short period of time (10 min steps at 38 psi) before the tire starts to fail internally (under lab testing conditions and specific procedures). Customers in Venezuela are driving the Explorer and F-150 as fast as 160 KPH –100MPH- for hours, possibly several times a week, possibly every week of the year, for 3-4 years. Running the tires for long periods at high speeds have an accumulative effect on destroying the tire.

Firestone experts indicated that more samples to be tested at their laboratories were not required.

B. Vehicle tests:

In our (FOV, Firestone) field evaluation a total of 37 Explorers were examined without locating a sample that could reproduce the exact failure. There were damages done to the tires such as: superficial or on the steel belt punctures, under inflated tires, bad repairs, damage on the side walls etc, but not tread separation.

C. Plant / Supplier reports:

Supplier (Bridgestone / Firestone of Venezuela) has been contacted in Venezuela and U.S. about Venezuelan incidents. A team was formed in order to perform a field survey, this team involved Firestone Venezuela/ USA and Ford representatives. The conclusions from Firestone USA are:

- It was not detected any defect with the tire.
- Low inflation operating conditions caused by any of the following can cause damage to the tire when it continues to be run with inadequate pressure:
 - Punctures, cuts which cause slow leaks and tire continues to be used with low inflation
 - Poor tire maintenance
 - Improper repairs.

They inspect 56 P255/70 R16 Wilderness AT and 76 P235/75 R15 Wilderness ATX tires.

D. Quality Indicators System: None.

E. Field reports: an approximate of 50 from Venezuela. All the reported cases have occurred in Venezuela.

F. Parts sales: Service changes are handled through Firestone dealers through Job 1 to March/2000. They are presently handled through Goodyear & Ford dealers.

G. Number of accidents/fines and injuries: There have been an estimated of fifty accidents. The Venezuelan media has attributed a number of fatalities and injuries to tire tread separation. We have not confirmed the cause of any of these accidents.

4. ACTIONS TAKEN IN PRODUCTION; INTERIM (CONTAINMENT) AND/OR PERMANENT

Interim corrective actions:

A modified Firestone tire Venezuelan made with a higher speed rating (S), cap-ply reinforcement and polyester materials for construction was developed. The use of the new tire in production was on the 06/15/99 (DOT-259). Additionally, the tire inflation pressure was recommended to be of 30-32 psi as of 5/01/99 (previously set to 26 front - 28 rear psi for FOV vehicles only).

FOV Engineering Department released on September/99 for the 2000 MY Explorers and F-150 a Goodyear Wrangler RTS tire in order to improve our image and customer satisfaction. All the technical requirements and tests were completed successfully.

A. Notification: **Release number:** 98-229-2, 98-228-2, 98-050-6, 96-023-9 of 06/01/99 for the Wilderness Firestone tire.
99-209, 98-122-5, 99-208, 99-001-4 for the Goodyear Wrangler RTS tire on 08/25/99.

B. **WERS alert number:** None.

C. **Component batch issues:** None

5. VERIFY EFFECTIVENESS OF CORRECTIVE ACTIONS

A. The interim corrective tires were bench tested by Firestone at 160 KPH (100 MPH) for a period of four continuous hours without failure.

6. ESTIMATED PRODUCTION AND PROBLEM STATISTICS (MAGNITUDE OF CONCERN) Venezuela/Colombia & Ecuador

VEHICLES AFFECTED	ASSEMBLY PLANTS	VEHICLE PRODUCTION DATES	POTENTIALLY NUMBER OF UNITS	AFFECTED UNITS ESTIMATED PERCENTAGE OF VEHICLES THAT CONTAIN THE CONDITION
Explorer	FOV	Job 1 96MY through 99MY	34,868	unknown
F-150	FOV	98 MY through some 99MY	4,456	unknown
BU/ Imported	USA	98 MY through some 99MY	488	unknown

7. AFTERMARKET PARTS

A. The Firestone tire was released on October 1995 until 06/15/99. Ford Motor de Venezuela, S.A. does not stock tires for service. Firestone dealers actual stock is unknown.

B. Currently FOV Dealers are selling Goodyear tires.

Firestone must determine whether they want to purge their inventory of tires at their distributor and tire stores in Venezuela.

8. ASSESMENT OF EFFECT ON VEHICLE OPERATION

In the event that a tire tread separates while the vehicle is travelling at extremely high rates of speed, driver may have reduced or complete loss of steering control.

9. DESCRIPTION OF CONCERN SOLUTION AND PARTS REQUIREMENTS (FIELD SERVICE ACTIONS)

Short term actions:

The Engineering Department released a Goodyear tire in order to improve our image and customer satisfaction. All the technical requirements and tests are completed successfully.

Vehicles sold between job#1 '96 and '98 will be replacing the five (5) tires. Four of them a full size tire and the spare for another Goodyear but R15. On '98 and '99 MY vehicles we will be replacing all five (5) tires because the spare tire is the same size and construction as the four road tires. FOV will not be changing tires on any vehicle that comes in to our Dealers and has had the tires changed from Firestone to some other brand tire.

2000 MY Explorer produced in Venezuela and exported to Colombia and Ecuador are fitted with the Goodyear tires.

Long term actions:

- A. No long term prime actions has been assessed yet.
- B. Test processes, plant capacity, market wants and other factors will be thoroughly considered in developing a long term action.

10. PROGRAM PARTS SIGN OFF/AVAILABILITY

The Goodyear 255/70 R16 (black letters) part number 985K-1508-AA, 255/70 R16 (white letters) part number 995K-1508-BA, 235/75 R15 (white letter) part number F87A-1508-K3B and 235/75 R15 (black letters) part number 995K-1508-AA was released on 08/24/99. These tires were fully approved and PPAP released on the 10/22/99 and 11/11/99 respectively. No tooling is needed for this part number. Part availability schedule: In-production.

11. SUPPLIER INVOLVEMENT

- A. The name of the causal part supplier:
Bridgestone/Firestone Venezolana, C.A.
Carretera Nacional Valencia Los Guayos,
Valencia-Edo. Carabobo.
Venezuela.
Pedro Martinez, Sales Manager for Original parts 011-58-41-407777
- B. This condition is component-related, and is specifically related to the tire usage in the Venezuelan market.
- C. Percentage of the root cause contributed by the supplied component: TBD.
- D. Deliver copy of this paper to tire buyer Martin Cadena when completed and approved.
- E. Bridgestone / Firestone: LF177 , Prefit code: 6062
GOODYEAR: LG214, Prefit code: 6066
- F. Miguel Ruiz MRUIZ2 (Manager) / Martin Cadena MCADENA (Buyer).

12. FINANCIAL IMPLICATIONS

Explorer	1996	1997	1998	1999	Total
	Units	Units	Units	Units	
Venezuela	1,094	7,394	10,531	5244	24,263
Colombia	1,091	3,762	2,612	609	8,074
Ecuador	0	1,012	1,134	385	2,531
Total	2,185	12,168	14,277	6,238	34,868

PN 96	1996	1997	1998	1999	Total
Venezuela			2,441	1,325	3,766
Colombia			418	70	488
Ecuador			106	96	202
Explorer Imp.			135	353	488
Total	2,185	*12,168	17,377	8,082	39,812

Estimated Percentage Change 80%

Tires R15
Tires R16
Total Tires

Metric
Units
Units
Units

31,850 Veh.

63,451
95,797
159,248

Tire Cost-R15	US\$	52
Tire Cost-R16(Avg Nat./Imp)	US\$	65
Total Tire Cost -R15	US\$(000)	3,300
Total Tire Cost -R16	US\$(000)	<u>6,227</u>
Tire Cost	US\$(000)	9,527
Mark-Up	US\$(000)	1,429
Total Tire Cost	US\$(000)	10,956
<u>Return and Disposal of Used Tires</u>		
Freight & Handling Serteca GY To FOV Dealer and Adm Exp.	US\$(000)	372
Freight & Handling FOV Dealer to FOV Plant.	US\$(000)	349
Disposal Cost	US\$(000)	149
Total Return and Disp.of Used Tires	US\$(000)	870
Administrative, Marketing & Legal Exp.		1,500
TOTAL TIRES	US\$(000)	13,326

Purchasing, Engineering, and other appropriate activities will jointly determine the extent of supplier financial responsibility. If supplier reimbursement is warranted in the field service action, purchasing will negotiate cost recovery.

13. PREVENT ACTIONS

Low inflation operating situation:

- Firestone and Hayes Wheels performed an instructive field trip all around Ford dealers in order to teach how to evaluate tires conditions, how to inspect a tire repairation, etc.

Extended / repeated use at extremely high speed:

- Tire SDS, ES, spec and WDMO Regulations to be modified to include the following for all vehicles going to Andina markets:

- Use tire with speed rating at least one (1) level higher than the vehicle max speed when adjusted for vehicle recommended tire pressure. If this tire construction does not exist, then speed limit the vehicle to one speed level (10KPH) below the tires speed capability when adjusted for vehicle recommended tire pressure.
- Tire should have a minimum of a "A" temperature rating by the UTQG system.
- Tire should be of a "special service" construction for extreme puncture resistance.

Overall the tire carcass useful life should be designed to last the useful life of tread wear), as a measured at TWI (tread wear indicator), (i.e. tread should be fuse to indicate when the tire should be changed).

14. REFERENCE DATA

Edivia Caballero, ECABALL1, Service Engineer, 011-58-41-406189, Ford Motor of Venezuela.