1995 / 99 Explorer/Mountaineer P255/70R16 Tire Separation in GCC Countries

PROBLEM DESCRIPTION

WDMO reported from GCC countries that while driving vehicle, the tire tread separated (belt edge separation) from the main carcass of the tire. The tire failure is discovered when the driver hears the tire tread hitting the wheel house or the tire goes flat.

ROOT CAUSE

The investigation identified a combination of the following five (5) root causes for tread separation:
1) Low inflation operating situation - causing internal tire damage resulting in tread separation
2) Extended / repeated use at extremely high speed in high ambient temperatures
3) Extended / repeated use at overloaded conditions in high ambient temperatures
4) Fatigue failure accelerated by high ambient temperatures
5) Fatigue failure accelerated by ozone exposure (in areas near oil fields)

PROBLEM INVESTIGATION

WDMO reported that 19 incidences of tread separation have occurred in the GCC region. These failures have been on '96 and '97 vehicles, all at mileage's between 9,500 - 34,000 miles. The tire in question is the Firestone P255/70R16 A/T ROWL tire, part # F57A-1508-JA, construction code ST369J.

It has been noted that vehicles in this region drive at extremely high speed (100-106mph) for extended periods of time, many times a year. It has also been noted that ambient temperature in this region of the world exceed 135F with unofficial temperatures as high as 150F. With ambient temperature this high, the road surface that the tire sees can reach in excess of 200F. These high temperatures can degrade the tire structure.

Conducted special high speed tire tests at reduced pressures (20psi) on several different tire constructions to see if any competitive tires held up better at extended high speed at reduced pressure. It was found that the tires tended to follow the tire speed rating on the tire. This Firestone tire has only a 2mph speed cushion between the speed capability of the tire and the speed capability of the vehicle, less than any other Ford vehicle exported to this region.

ACTIONS TAKEN

Conducted a owner notification in the GCC region for 6755 '95 thru '99 Explorer and Mountaineer vehicles to replace the tires with a Goodyear tire that was used on F150 and Expedition vehicles sold in the region in '96 and '97 with no reported incidences of tread separation. Also, the maximum speed of the vehicles are being reduced from 106mph to 99mph (via a new E-PROM) to give the tires a larger speed cushion between the tire and vehicle maximum speed capability.

The 2000 Explorer's will not be exported into GCC because of late introduction of the model into the market because of tire availability and the early cancellation of the UN150 vehicle so that there are no vehicles on hand when the U152 model arrives.

Explorer Chassis OPD department is going into the southwest and request 500 tires be returned to Firestone for a statistical analysis of tire failures in this area of the country that is similar to the temperatures experienced in GCC region. This analysis will take several months to get tires off of vehicles that are returning from leases and turn-ins, and analyze them at Firestone in Akron.

Firestone is developing a test procedure that duplicates the failure mode in GCC region, so that we can test future tire designs to prove they won't have this same problem. Timing for this test procedure is 3-1-00.

Firestone is working on a new "rest of world tire" for U152 which will be more puncture resistant and have excess speed capability than the truck requires to give the vehicle a greater speed cushion for GCC.

RECOMMENDATION

Explorer Chassis OPD Engineering recommends closure of this concern based on the following:
. OPD engineering has taken short term and long term corrective action.
. WDMO / OPD engineering has performed a owners notification in the region that has the problem.
. Root cause identified and permanent corrective actions are in place.
. OPD engineering has implemented a plan to visit the southwest to determine if the problem exists in the U.S.

9-7-99

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