

PROBLEM SOLVING WORKSHEET G3D

Customer Symptom				Theory Testing against Facts																								
Problem Description: The 199X - XMY Explorer with ATX P235/75 Firestone tires has tread starting at XXX miles. This is a Special/ common cause type problem?				+ = Theory Holds with Is/Is-Not info - = Theory Fails with Is/Is-Not info ? = Need more Info for Theory compare																								
IS	IS NOT	Need Information	Deductions About Facts and Other Information		Possible Causes	Check Theories against Is/Is Not Facts																						
			Differences	Changes		* List Theories	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
WHAT			Show Color (R,Y,G) & Investigation Priority - 1, 2, 3, R =>		Reproduced in LAB Evidence seen in Field Verified in Field (KEY)																							
Object: P235/75 size Tires ATX (ATX II) Wilderness Tires sourced from the Decatur Plant (all plants ATX) Vehicle(s): Ford vehicles - 93MY, 94MY, 95MY, 96MY, 97MY			P225/70 size, P255/70 size Firestone tires from other plants, Michelin or Goodyear or Continental or Hankook or every other OE Tire Manufacturer? Ford Vehicles - 91MY, 92MY		98MY, 99MY 00MY Other manufactures / Plants? Time line to be done by Decatur ?		ATX vs Wilderness Design (change in 98?) Wedge gauge 02 04 Wedge width 75 1 00 Single extrusion of tread with undertread / Calendered separately Different side wall component Different sub-tread compound?		1 Customer allows Under inflated tires (Less than 26psi) which causes high stress at edge of #2 belt 2 Improperly repaired/slow leak punctures / cuts start BLB at point of puncture/out 3 Hot temperature 4 Extended usage at high speed >70mph 5 Loading 6 Public can not see BLB initial start due to Tread lasting longer than internal carcass, therefore they do not replace tire at appropriate time 7 Degradation due to ozone 8 Firestone tire design process																			
Defect: Tread and number 2 belt separation from the number 1 belt and carcass (BLB)			Just tread separation Tread and both belts separating Localized Puncture/tear/cut Irregular/Excessive wear		Decatur - Wilson - Jollette Banbury steel cord SP Cutters TAM VMI - VMI - M2 1:1 - 1:1 - 1:1 & K9B Curing NAF - BOM - VAF																							
Where Primarily Rear / LH & RH LF 12% RF 7% LR 49% RR 32% BLB Starts at edge of #2 belt either inside or outside (this is one of the high stress points in the tire) Under-cure or rubber reversion were not evident in failures reviewed			Specific to Front or Rear Specific to LH or RH		Goodyear 235/75 R15 Wrangler Wedge gauge is .085" (as measured on one tire) 4 Property damage reports Explorer production volumes: 94 85 96 97 46k 1330k 1024k 470k																							
Predominantly seen in Southern States Texas Arizona - Significantly worse California Nevada Georgia			Consistent in every state		High during May - Sept Not one system																							

