POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS Front Door L.H.

System: 1 - Automobile
Subsystem: 2 - Body Closures
X Component: 3 - Front Door L.H.
Design Responsibility: Body Engineering
Model Year(s)/Program(s): 199X/Lion 4dr/Wagon
Key Date: 3/3/2003
Core Team: T. Fender - Car Product Dev., C. Childers - Manufacturing, J. Ford - Assy Ops (Dalton, Fraser, Henley Assembly Plants)

FMEA Number: 1234

Prepared By: A. Tate - X6412 - Body Engr
FMEA Date (Orig.): 2/28/2003 (Rev) 3/3/2003

Item / Function	Potential Failure Mode	Potential Effect(s) of Failure	Sev	Class	Potential Cause(s)/Mechanism(s) of Failure	Occur	Current Design Controls	Detec	RPN	Recommended Action(s)	Responsibility & Target Completion Date	Action Results: Actions Taken	Sev	Occ	Det	RPN
3 - Front Door L.H.																
- Ingress to and egress from vehicle. - Occupant protection from weather, noise, and side impact. - Support anchorage for door hardware including mirror, hinges, latch and window regulator. - Provide proper surface for appearance items - paint and soft trim.	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time. - Impaired function of interior door hardware.	7		Upper edge of protective wax application specified for inner door panels is too low.	6	Vehicle general durability test veh. T-118 T-109 T-301	7	294	Add laboratory accelerated corrosion testing.	A. Tate Body Engrg - 2/25/2003	Based on test results (Test No. 1481) upper edge spec raised 125 mm.	7	2	2	28
					Insufficient wax thickness specified.	4	Vehicle general durability testing - as above. - Detection	7	196	Add laboratory accelerated corrosion testing.	A. Tate Body Engrg - 3/28/2003	Test results (Test No. 1481) show specified thickness is adequate.	7	2	2	28
										Conduct Design of Experiments (DOE) on wax thickness.	A. Tate Body Engrg - 3/28/2003	DOE shows 25% variation in specified thickness is acceptable.				
					Inappropriate wax formulation specified.	2	Physical and Chem Lab test - Report No. 1265. - Detection	2	28				7	2	2	28
					Entrapped air prevents wax from entering corner/edge access.	5	Design aid investigation with nonfunctioning spray head. - Detection	8	280	Add team evaluation using production spray equipment and specified wax.	Body Engrg & Assy Ops - 3/28/2003	Based on test, addition vent holes will be provided in affected areas.	7	1	3	21
					Wax application plugs door drain holes.	3	Laboratory test using "worst case" wax application and hole size. - Detection	1	21				7	3	1	21
					Insufficient room between panels for spray head access.	4	Drawing evaluation of spray head access. - Detection	4	112	Add team evaluation using design aid buck and spray head.	Body Engrg & Assy Ops - 3/28/2003	Evaluation showed adequate access.	7	1	1	7

#	Recommended Action(s)	Target Completion Date	Responsibility	Actions Taken	Item	Potential Cause(s)/Mechanism(s) of Failure	Priority
1	Add laboratory accelerated corrosion testing.	2/25/2003	A. Tate Body Engrg	Based on test results (Test No. 1481) upper edge spec raised 125 mm.	Front Door L.H.	Upper edge of protective wax application specified for inner door panels is too low.	
2	Add laboratory accelerated corrosion testing.	3/28/2003	A. Tate Body Engrg	Test results (Test No. 1481) show specified thickness is adequate.	Front Door L.H.	Insufficient wax thickness specified.	
3	Conduct Design of Experiments (DOE) on wax thickness.	3/28/2003	A. Tate Body Engrg	DOE shows 25% variation in specified thickness is acceptable.	Front Door L.H.	Insufficient wax thickness specified.	
4	Add team evaluation using production spray equipment and specified wax.	3/28/2003	Body Engrg & Assy Ops	Based on test, addition vent holes will be provided in affected areas.	Front Door L.H.	Entrapped air prevents wax from entering corner/edge access.	
5	Add team evaluation using design aid buck and spray head.	3/28/2003	Body Engrg & Assy Ops	Evaluation showed adequate access.	Front Door L.H.	Insufficient room between panels for spray head access.	

#	Current Design Controls	Control Type	Item	Function	Potential Failure Mode	Potential Effect(s) of Failure	Potential Cause(s)/Mechanism(s) of Failure
1	Vehicle general durability test veh. T-118 T-109 T-301	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Upper edge of protective wax application specified for inner door panels is too low.
2	Vehicle general durability testing - as above.	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Insufficient wax thickness specified.
3	Physical and Chem Lab test - Report No. 1265.	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Inappropriate wax formulation specified.
4	Design aid investigation with nonfunctioning spray head.	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Entrapped air prevents wax from entering corner/edge access.
5	Laboratory test using "worst case" wax application and hole size.	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Wax application plugs door drain holes.
6	Drawing evaluation of spray head access.	Detection	Front Door L.H.	- Ingress to and egress from vehicle - Occupant protection from weather, noise, and side impact - Support anchorage for door hardware including mirror, hinges, latch and window regulator - Provide proper surface for appearance items - paint and soft trim	Corroded interior lower door panels	Deteriorated life of door leading to: - Unsatisfactory appearance due to rust through paint over time - Impaired function of interior door hardware	Insufficient room between panels for spray head access.