ISUZU ENGINEERING TEST REPORT ET5 - 1093

CERTIFICATION TEST REPORT

FMVSS 301

FUEL SYSTEM INTEGRITY

REAR MOVING BARRIER IMPACT

1998 ISUZU RODEO

ISUZU MODEL NO. UES 25F
TAIL GATE MOUNTING SPARE TIRE
TEST NO. A7204

ISUZU MOTORS LIMITED

VEHICLE SAFETY ENGINEERING DEPT.

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1. SELECTION OF TEST VEHICLE

O: TEST

-: Substitute by other vehicle

		UER/S		
Test Item		UES25F UER25F		UER30F
Perpendi Frontal I		O Attachment B	– (byUES25F)	O Attachment C
Right sid	le Oblique Barrier	(ET5-1085) O Attachment D	- (byUES25F)	(ET5-1086) O Attachment E
Left Side Oblique Frontal Barrier Left-hand Side Lateral Moving Barrier Right-hand Side Lateral Moving Barrier		(ET5-1087) O Attachment F	(byUES25F)	(ET5-1088) O Attachment G
		(ET5-1089) O Attachment H	- (byUES25F)	(ET5-1090) — (byUES25F)
		(ET5-1091) *) NO TEST	(byUES25F)	(byUES25F)
Rear	Tail Gate MTG Spare Tire	O Attachment J (ET5-1093)	(byUES25F)	(byUES25F)
Moving Barrier	Under Floor MTG Spare Tire	O Attachment K (ET5-1094)	- (byUES25F)	(byUES25F)

^{*):1).}All vehicle models of UES25F,UER25F,UER30F are identical design concerning the side body structure and side fuel system(fuel tank & fuel line).

^{2).} Fuel tank & fuel line are located only left side body.

2. SUMMARY DATA

SUMMARY OF TEST CONDITION (1)

TYPE	C OF TEST
	FRONTAL () IMPACT
	OBLIQUE () IMPACT ON LEFT(DRIVER'S)SIDE
	RIGHT SIDE
	LATERAL OR SIDE IMPACT ONLEFT(DRIVER'S)SIDE
	× REAR IMPACT
TEST	r CONDITIONS
	DATE OF TEST: Feb. 4, 1997 TIME OF TEST: 11.42
	AMBIENT TEMPERATURE AT IMPACT AREA: 5°C TEMPERATURE IN OCCUPANT COMPARTMENT: 5°C
	TEMPERATURE IN OCCUPANT COMPARTMENT: 5°C
TEST	<u>r vehicle information</u>
	MANUFACTURER : <u>ISUZU MOTORS LIMITED</u>
	MAKE / MODEL : ISUZU/UES25F
	BODY STYLE : MPV 4-DOOR MODEL YEAR: 1998
	VIN. : JACCM58W8W7C00021 TEST NO : A-7204 BODY COLOR: RED
	TEST NO : A-7204 BODY COLOR: RED
	ENGINE DATA : 6 CYLINDERS ; 3.2 ; liters
	× GASOLINE; — DIESEL; — TURBOCHARGED
	× LONGITUDINAL; — TRANSVERSE;
	TRANSMISSION DATA: 4 SPEED, - MANUAL, × AUTOMATIC,
	FINAL DRIVE DATA : - FWD , - RWD , × 4WD
	FINAL DRIVE DATA : — FWD , — RWD , X 4WD MAJOR OPTIONS : X A/C , X P/S , — P/B , X P/wdo ,
	× TILT WHEEL, - P/seats. × CRUISE CONTROL
	TYPE OF OCCUPANT RESTRAINT: Driver and passenger airbag with type II belt
TES'	T FLUID DATA
	TEST FLUID TYPE : RED STODDARD SOLVENT SPECIFIC GRAVITY : 0.777
	KINEMATIC VISODSITY : 1.39CST
	NOMINAL FUEL CAPACITY: 83 Liters (NFC)
•	TEST VOLUME : 78 Liters (94% of NFC)
1	FIFCTRICE FIFT POMP X VES - NO FUEL INJECTION: X YES - NO

SAMMARY OF TEST CONDITION (2)

VEHICLE TIRE DATA
COLD TIRE PRESSIRE : FRONT <u>196</u> KPa REAR <u>196</u> KPa
TIRES SIZE ON VEHICLE : 235/75 R15
IS SPARE TIRE A "SPACE SAVER" ; NO
IS SPARE TIRE STANDARD EQUIPMENT : YES
VEHICLE CAPACITY
NUMBER OF OCCUPANTS : 2 FRONT; 3 REAR; — 3rd seat
TYPE OF FRONT SEATS : × BUCKET; — BENCH; — SPLIT BENCH
TYPE OF FRONT SEAT BACK : - FIXED × Adj.with × LEVER - Rot.knob
RATED CARGO AND LUGGAGE
WEIGHT (RCLW) = 136 kg
GVWR: <u>2223</u> kg
CALCULATION FOR TARGET TEST WEIGHT IJW = Unloaded Weight (Including OW) (1696 kg)
011
DSC = Designated Seating Capacity (5) RCLW= 136 kg
TARGET TEST WEIGHT = UW + OW + RCLW + (2 dummies * 80.0kg/dummy)
TARGET TEST WEIGHT = 1993 kg
IMMORI IEDI WEIGILI
WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO
RIGHT FRONT = 466 kg RIGHT REAR = 505 kg
LEFT FRONT = 504 kg LEFT REAR = 518 kg
TOTAL FRONT WEIGHT = 970 kg (47 % of Total vehicle weight)
TOTAL REAR WEIGHT = 1023 kg (53 % of Total vehicle weight)
TOTAL TEST WEIGHT = <u>1993</u> kg

3.Test Data

(1) POST IMPACT SUMMARY

Vehicle: UES25F (JACCM58W8W7C00021)				
Test No. : Feb. 4, 1997				
Date : A-7204				
IMPACT VELOCITY : PRIMARY =	49.0 km/h (30.4 MPH)			
VEHICLE STATIC CRUSH : D	river Side : 271 mm	L		
\mathbf{P}_{i}	assenger's Side : 199 mm verage : 235 mm			
FUEL SYSTEM INTEGRITY - FMVSS	301-75 Actual	Max. Allow.		
Fuel spillage impact until vehicle motion ceases.	0	1 ounce		
Fuel spillage for 5 minute period following cessation of vehicle motion after impact.	0	5 ounce		
Fuel spillage for next 25 minute period	0	lounce 1 minute		
FUEL SPILLAGE LOCATION : NONE				

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (1 st. Roll; Clockwise)

Vehicle:_

A-7204

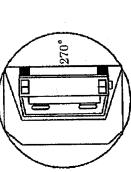
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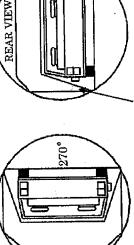
(VIN. JACCM58W8W7C00021) 180° UES25F 90°

REAR VIEW

FILLER CAP 0/360

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Fuel spillage during 7 minute period from onset of rotation	1	_	1		1 ounce
Fuel spillage during 6 minute period from onset of rotation	0 onnce	eouno 0.	onno 0	onno 0	1 ounce
Fuel spillage during 5 minute period from onset of rotation	0 onnce	0 onnce	0 onnce	0 ounce	5 ounce
Rotation Time	60 seconds	60 seconds	spuose 09	spuoses 09	1-3 minutes
Rotation Angle	06 - 0	90 - 180	180 - 270	270 – 360	Max. allowed

FUEL SPILLAGE LOCATION

1 ounce

1 ounce

5 ounce

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (2 nd. Roll; Clockwise)

Test No.

(VIN. JACCM58W8W7C00021) UES25F

Vehicle:

REAR VIEW

REAR VIEW

	1
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 180°

	35	
7	270°	

270°	

3	
270.	

°06

270.

FILL

)	FILLER CAP 0/360	

FILLER CAP 0/360

Rotation Angle

90

0

Fuel spillage during 7 minute period from onset of rotation	•				
Fuel spillage during 6 minute period from onset of rotation	0 ounce	0 ounce	0 ounce	0 ounce	
Fuel spillage during 5 minute period from onset of rotation	0 onnce	onno 0	onno 0	0 onnce	
Rotation Time	60 seconds	60 seconds	60 seconds	60 seconds	

1-3 minutes

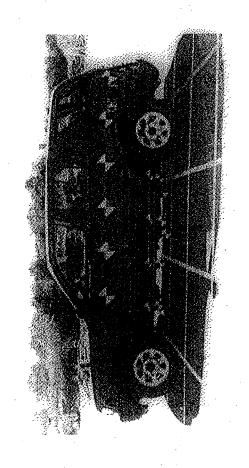
Max. allowed

270 - 360

FUEL SPILLAGE LOCATION

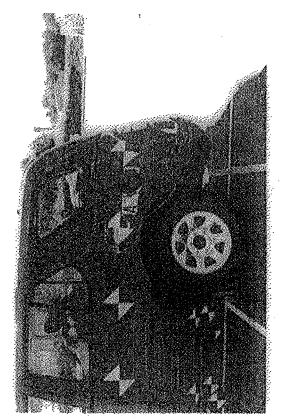
NONE

4. PHOTOGRAPHS

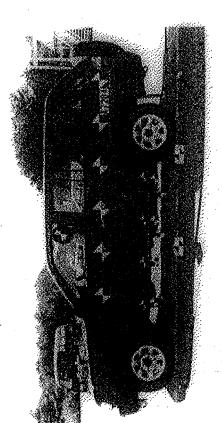


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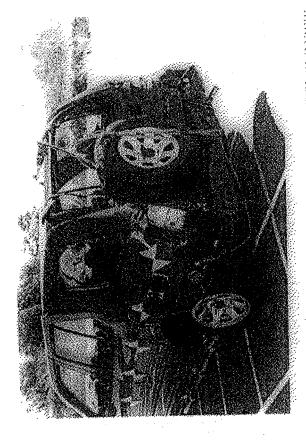
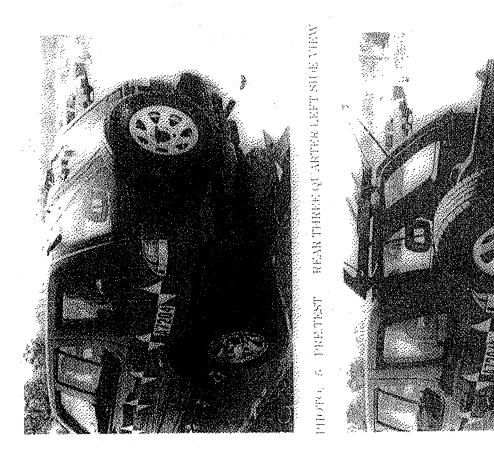
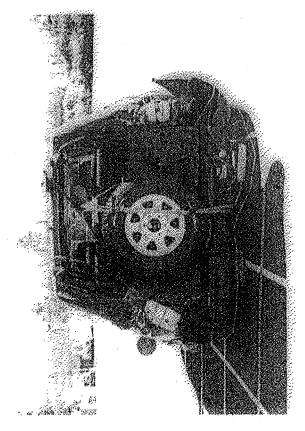


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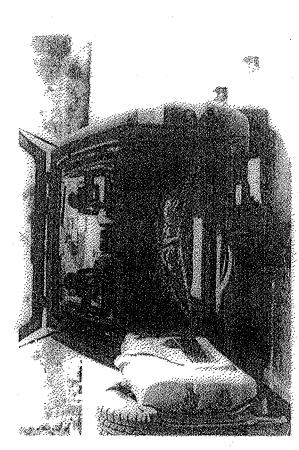
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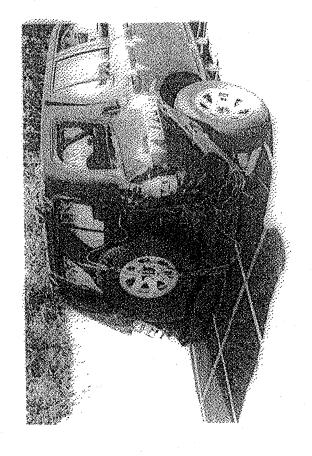
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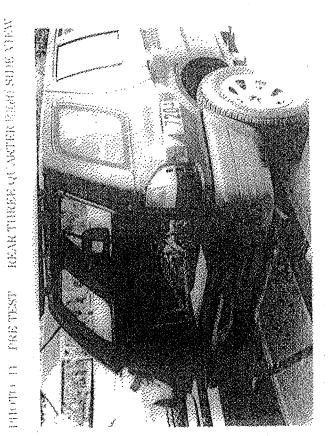
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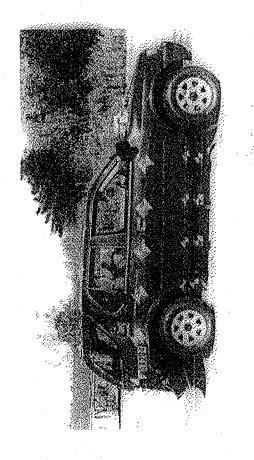
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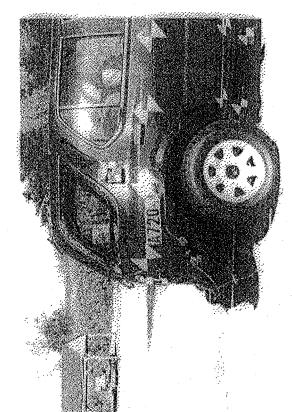
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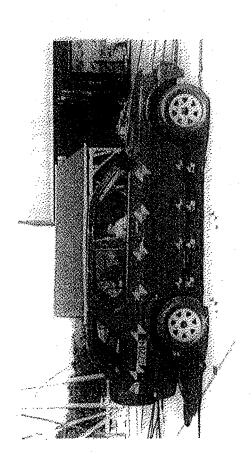
PROPOURS POSTUEST REMETHER QUANCER OVER SIDE VIEW REVOLDEN.



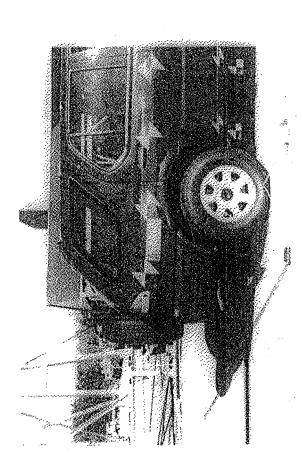
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PRODUCTION TO THE STREET

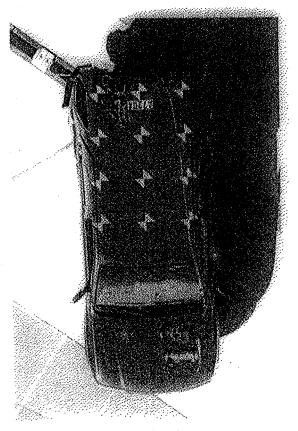
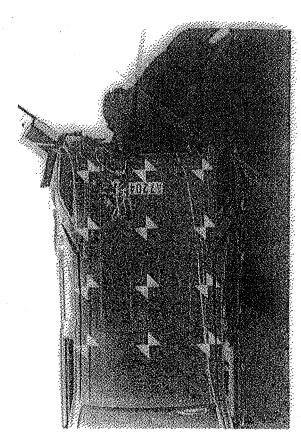
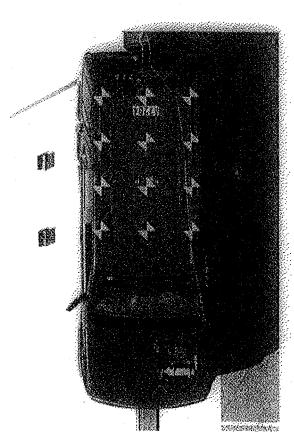
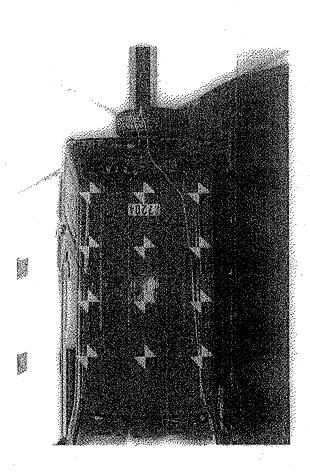


PHOTO B. POSTITEST OVERHEAD VIEW





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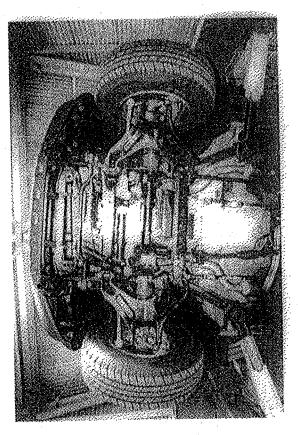


PHOTO 23 POSTJEST PRONT UDBERNODY VIEW

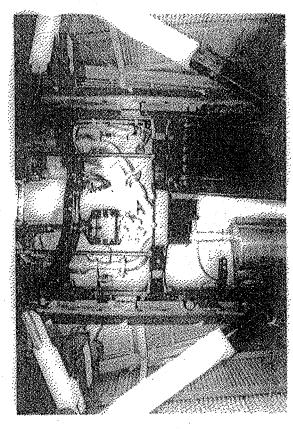
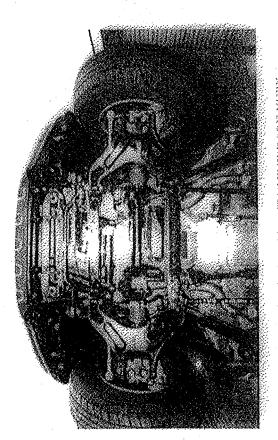
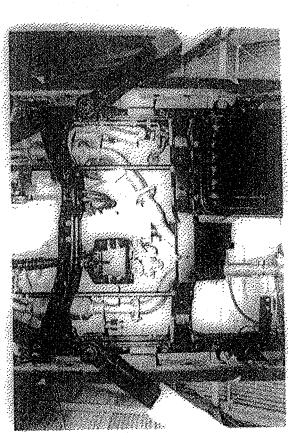
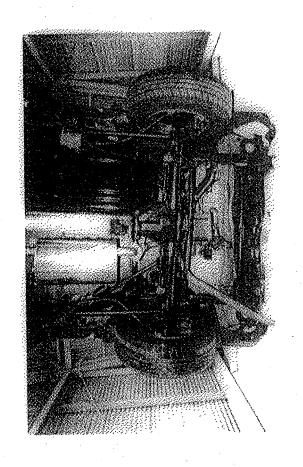


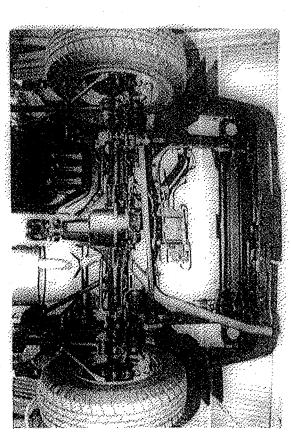
PHOTO 22 PRETENT FRONT UNDERBODY VIEW





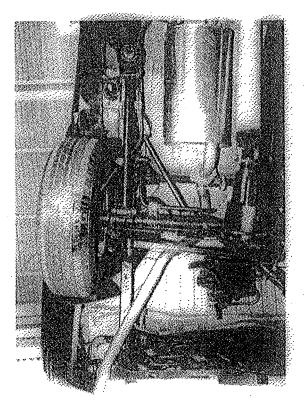


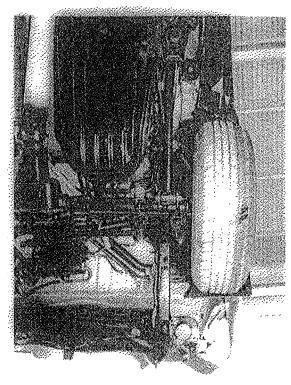
PROPERTY OF THEST RECARD CONTRACTOR



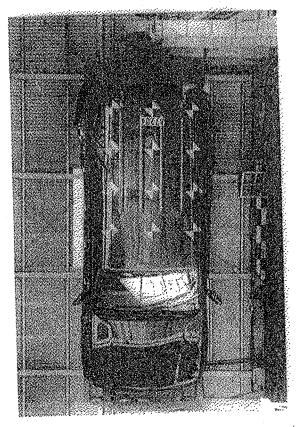
MENTAL SO THEFTEST REAR UNDERGROUP VIEW



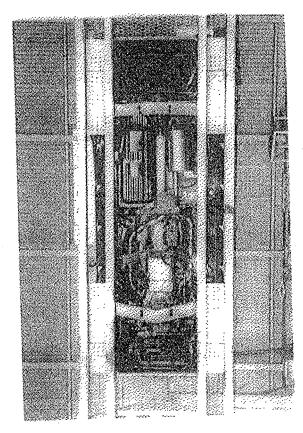


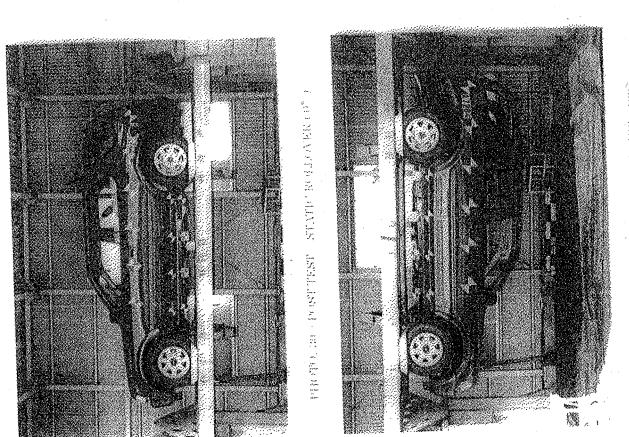


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ISUZU ENGINEERING TEST REPORT ET5 - 1094

CERTIFICATION TEST REPORT

FMVSS 301

FUEL SYSTEM INTEGRITY

REAR MOVING BARRIER IMPACT

1998 ISUZU RODEO

ISUZU MODEL NO. UES 25F
UNDERFLOOR MOUNTING SPARE TIRE
TEST NO. A6D25

ISUZU MOTORS LIMITED

VEHICLE SAFETY ENGINEERING DEPT.

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1. SELECTION OF TEST VEHICLE

O: TEST

-: Substitute by other vehicle

		UER/S		
Test Item		UES25F	UER25F	UER30F
Perpendi Frontal I		O Attachment B (ET5-1085)	– (byUES25F)	O Attachment C (ET5-1086)
Right sid Frontal I	e Oblique Barrier	O Attachment D (ET5-1087)	(byUES25F)	O Attachment E (ET5-1088)
Left Side Frontal I		O Attachment F (ET5-1089)	(byUES25F)	O Attachment G (ET5-1090)
Left-han Lateral I	d Side Moving Barrier	O Attachment H (ET5-1091)	- (byUES25F)	(byUES25F)
Right-ha Lateral I	nd Side Moving Barrier	*) NO TEST	(byUES25F)	(byUES25F)
Rear	Tail Gate MTG Spare Tire	O Attachment J (ET5-1093)	(byUES25F)	(byUES25F)
Moving Barrier	Under Floor MTG Spare Tire	O Attachment K (ET5-1094)	- (byUES25F)	(byUES25F)

^{*):1).}All vehicle models of UES25F,UER25F,UER30F are identical design concerning the side body structure and side fuel system(fuel tank & fuel line).

2). Fuel tank & fuel line are located only left side body.

2. SUMMARY DATA

SUMMARY OF TEST CONDITION (1)

TYPE OF TEST	
FRONTAL) IMPACT
OBLIQUE () IMPACT ON LEFT(DRIVER'S)SIDE
	RIGHT SIDE
LATERAL OI	R SIDE IMPACT ONLEFT(DRIVER'S)SIDE
× REAR IMPAC	
TEST CONDITIONS	
DATE OF TEST: Dec	25. 96 TIME OF TEST: 15:13
AMBIENT TEMPERA	TURE AT IMPACT AREA: 10°C
TEMPERATURE IN (OCCUPANT COMPARTMENT: 10°C
TEST VEHICLE INFORMA	TION
MANUFACTURER:	ISUZU MOTORS LIMITED
MAKE / MODEL :_	ISUZU/UES25F
BODY STYLE :_	MPV 4-DOOR MODEL YEAR: 1998
VIN. :_	JACCM58W7W7E00002
	A ATSOF
ENGINE DATA :_	6 CYLINDERS; 3.2 liters
_	6 CYLINDERS; 3.2 ; liters × GASOLINE; DIESEL; TURBOCHARGED
	Y I ONGITIDINAL: TRANSVERSE;
TRANSMISSION DA	TA: 4 SPEED, — MANUAL, × AUTOMATIC,
FINAL DRIVE DATA	$:$ - FWD , - RWD , \times 4WD
MAJOR OPTIONS	$\cdot \cdot $
	y THE WHEEL - P/seats. X CRUISE CONTROL
TYPE OF OCCUPAN	TRESTRAINT: Driver and passenger airbag with type II belt
•	
•	
TEST FLUID DATA	CONTROL OF A LITTLY A CONTROL OF THE
TEST FLUID TYPE	: RED STODDARD SOLVENT SPECIFIC GRAVITY : 0.777
KINEMATIC VISODSI	TY : 1.39CST
NOMENTAL PLIES CAP	ACITY · 83 Liters (NFC)
TEST VOLUME	: 78 Liters (94% of NFC) OMP : X YES — NO FUEL INJECTION : X YES — NO
ELECTRICE FUEL PO	OMP : X YES - NO FUEL INJECTION : X YES - NO

VEHICLE TIRE DATA
COLD TIRE PRESSIRE : FRONT 196 KPa
REAR 196 KPa
TIRES SIZE ON VEHICLE : 235/75 R15
IS SPARE TIRE A STACE STABLE
IS SPARE TIRE STANDARD EQUIPMENT : YES
AMAZINA EL CIADA CIMV
VEHICLE CAPACITY NUMBER OF OCCUPANTS : 2 FRONT; 3 REAR; — 3rd seat
PROPERTY - BENCH: - SPLIT BENCH
TYPE OF FRONT SEATS X BOOKEN, TYPE OF FRONT SEAT BACK: — FIXED X Adj.with X LEVER — Rot.kno
RATED CARGO AND LUGGAGE
WEIGHT (RCLW) = 136 kg
GVWR : 2223 kg
WY 1134 1
CALCULATION FOR TARGET TEST WEIGHT
UW = Unloaded Weight (Including OW) (1696 kg)
OW = Option Weight (- kg)
DSC = Designated Seating Capacity (5)
RCLW= 136 kg
TARGET TEST WEIGHT = UW + OW + RCLW + (2 dummies * 80.0kg/dummy)
TARGET TEST WEIGHT = 1993 kg
WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO
RIGHT FRONT = 471 kg REGHT REAR = 511 kg
$\frac{1}{10000000000000000000000000000000000$
monal appointment of the second of the secon
TOTAL REAR WEIGHT = 1025 kg (51 % of Total vehicle weight)
TOTAL TEST WEIGHT = 1993 kg
A V acces to the second

3.Test Data

(1) POST IMPACT SUMMARY

Vehicle: UES25F (JACCM58W7W7E00002)				
Test No. : Dec. 25, 1997				
Date : <u>A-6D25</u>				
IMPACT VELOCITY: PRIMARY = 48.6 km/h (30.3 MPH)				
VEHICLE STATIC CRUSH: Driver Side : 295 mm Passenger's Side : 280 mm Average : 287. 5 mm				
FUEL SYSTEM INTEGRITY - FMVSS	301-75 Actual	Max. Allow.		
Fuel spillage impact until vehicle motion ceases.	0	1 ounce		
Fuel spillage for 5 minute period following cessation of vehicle motion after impact.	. 0	5 ounce		
Fuel spillage for next 25 minute period	0	1ounce 1 minute		
FUEL SPILLAGE LOCATION: NONE				

5-1094. ET

NONE

FUEL SPILLAGE LOCATION

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (1 st. Roll; Clockwise)

(VIN, JACCM58W7W7E00002)

UES25F

Vehicle:

A-6D25

Test No.

Fuel spillage during 7 minute period from onset of rotation onnce ı 1 REAR VIEW FILLER CAP 0/360 Fuel spillage during 6 minute period from onset of rotation onnce ounce ounce onnce ounce 0 0 5 minute period from Fuel spillage during onnce onnce onset of rotation ounce 0 ounce oance 180°. 0 S 1-3 minutes Rotation Time 60 seconds 60 seconds 60 seconds 60 seconds 。 6 REAR VIEW Rotation Angle Max. allowed FILLER CAP 0/360 180 360 8 -270180 270 0 8

FUEL SYSTEM INTEGRITY - FMVSS 301-75

Test No. _ STATIC ROLLOVER (2 nd. Roll ;Clockwise)

(VIN. JACCM58W7W7E00002)

UES25F

Vehicle:

REAR VIEW PILLER CAP 0/360
270.
180°
06
FILER CAP 0/360

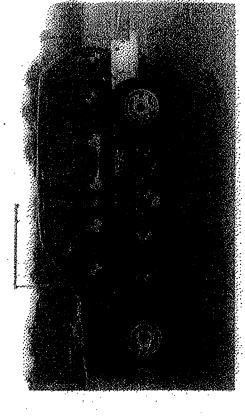
		Fire snillage during	Fuel spillage during	Fuel spillage during
Rotation Angle	Rotation Time	5 minute period from onset of rotation	6 minute period from onset of rotation	7 minute period from onset of rotation
	20 coonde	0 ounce	oomoo 0	1
0.00	on seconds			_
90 - 180	spuose 09	0 onuce	O ounce	
207			O	ı
180 - 270	spuoses 09	O onuce	Some o	
Coo one	spuoses 09	0 onuce	0 ounce	1
2.70 - 360				
Max. allowed	1—3 minutes	5 ounce	1 ounce	1 ounce

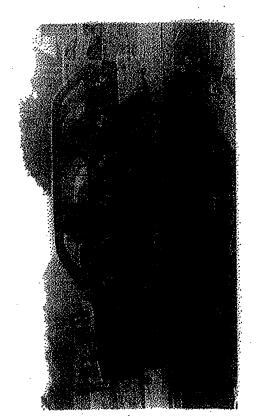
FUEL SPILLAGE LOCATION:

4. PHOTOGRAPHS



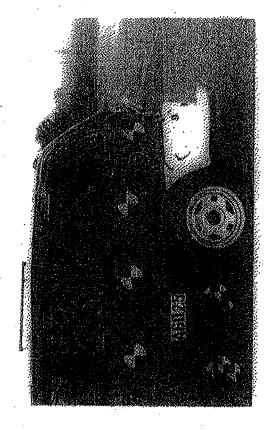
PROTE IN POSTURIST LEFT SIDE VIEW





REAR THREE QUARTER LEFT SHAEATEN A PEN RATK (800 M) TANTER! 14814

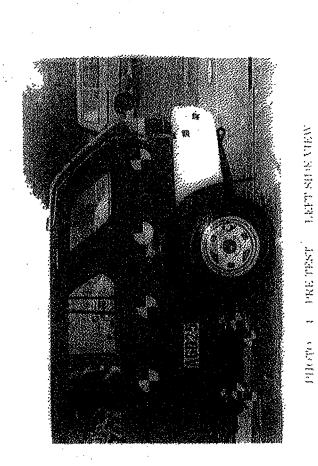
PROTO 2 PRETEST LESTSHIKVIKW



WHORE S POSTPRIS LEFT SIDE CREW



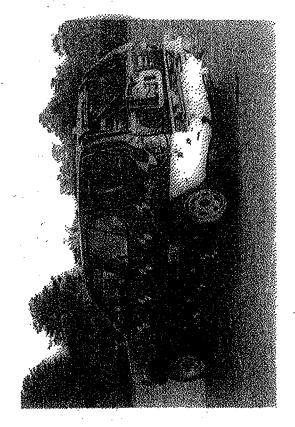
THEORY TO COSTORING PRONT THREE GOARTHY LEFT SHIEVIEW



PROTO A PRETEST FRONTTURED OF ARTER LEFT SIDE VIEW



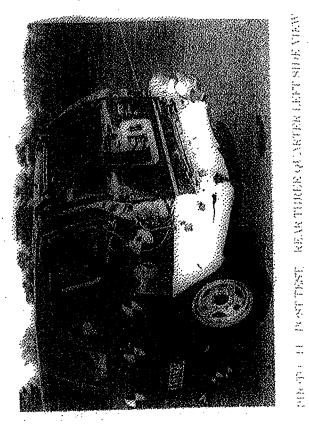
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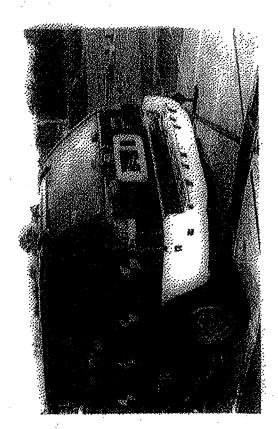
PROPERTY OF POSTTEST REARTHERS QUARTER LEFT SHOKNIEW

REAR THREE QUARTER LEFT SIDE VIEW

PHETO, S. PERTEST



KINK THERE OF NOTH LEFT SHIE STEW



HIPPING HE DRUTEST

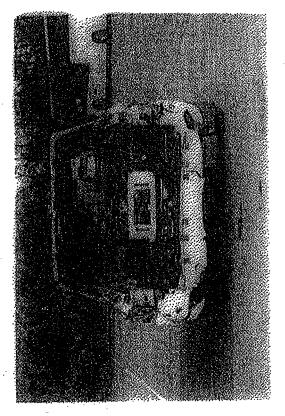


PHOTO IN : POST TEST REAR VIEW

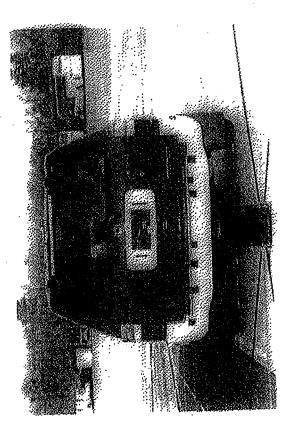
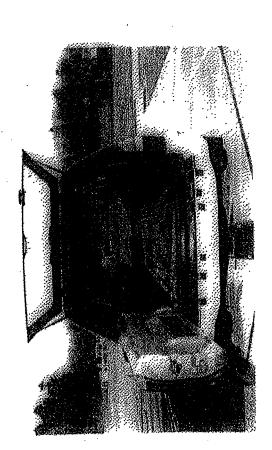
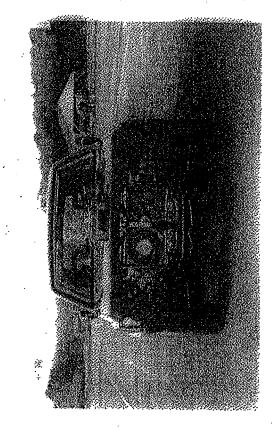


PHOTO IS PRETEST REARVIEW



POPOTO OF PRETEST MEAN VIEW

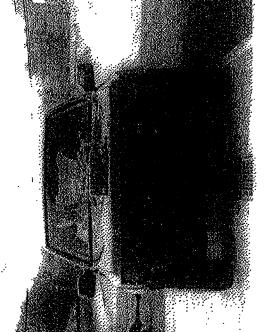


PROTO B. POSTATSAT FRONT MEN

FROM VIEW

PHEATER IN PREPERTY



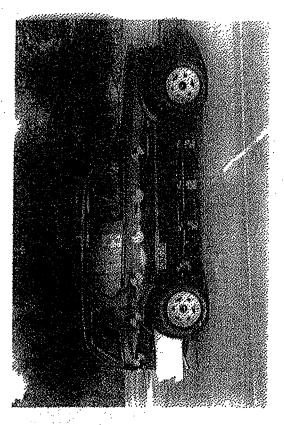


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FRONT THREE QUANTER NEST SHOEVEN PREPARED TO COMPANY



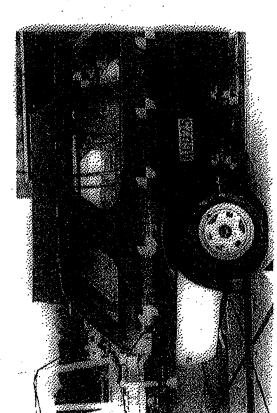
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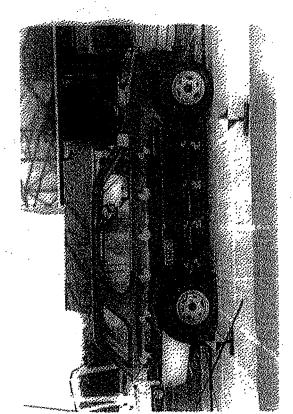
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MEGHT SHIE VIEW TRATE BY PRETEST



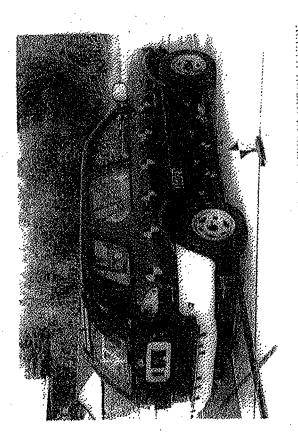
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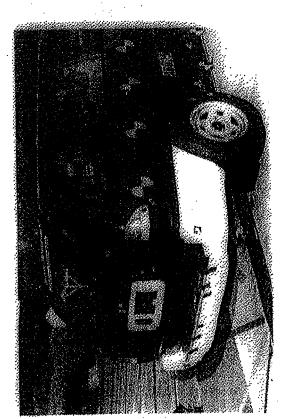




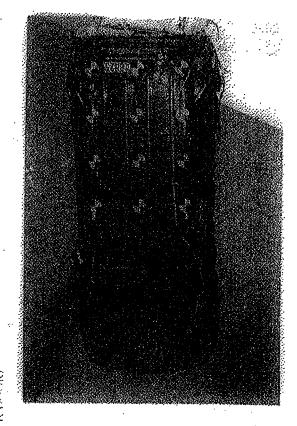
PROPERTY OF THE STATEST FRANCISHER QUARTED REQUIREMENTS

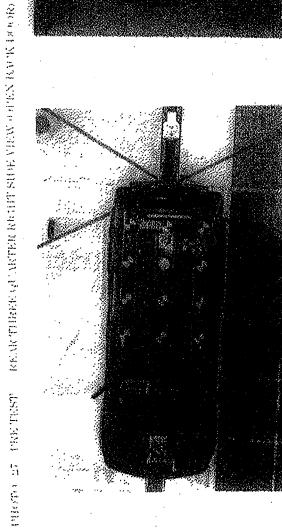


PHOPO 23 PUBLICSF REASTHURBEOLARTER WOULT SHOKATEN

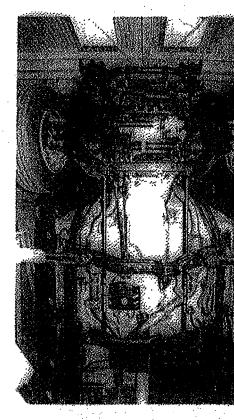


REAR THREEASTARTPR RESTRICTION VIEW PREATED TO THE TEST

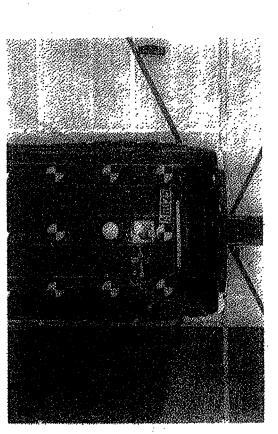




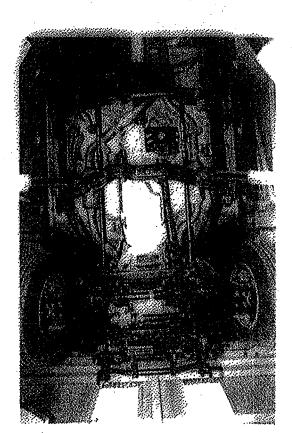




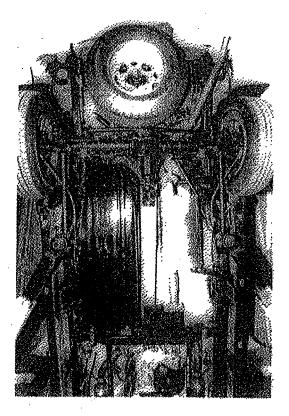
PROTEST FEST TEST CATABLEAU VIEW



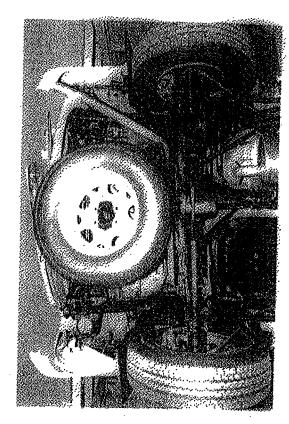
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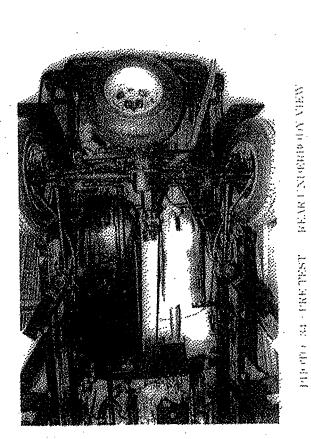
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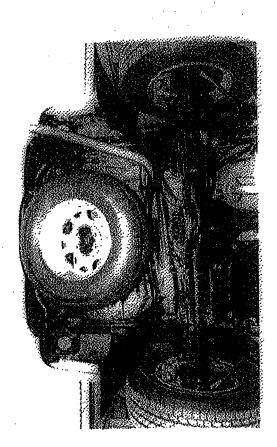


PROTO 35 POST TEST REAR UNDERBOON VIEW

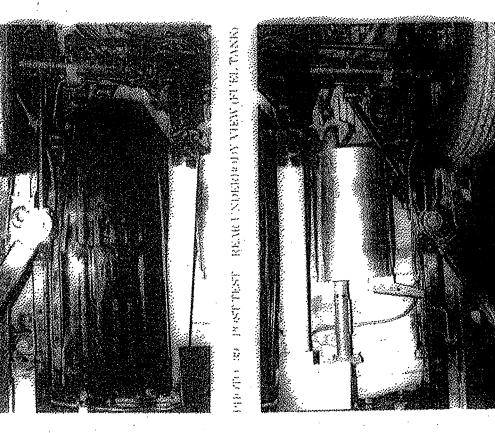


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PHY ON THE PROPERTY OF THE STATE OF THE WAY OF THE STATE OF THE STATE



PROTO H. POST TEST REAR CADEND ON VIEW SELECTION.



PHOTO, AS THE TEST - NEART NIGHTON VIEW OF BLANKO



OROGER TO THE TEST READ TRUBBLES OF VIEW SHEET REC

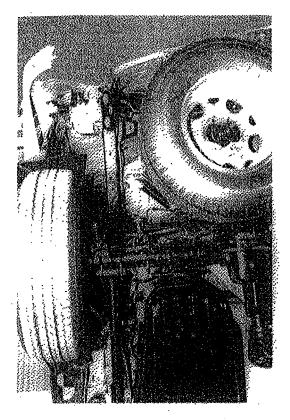
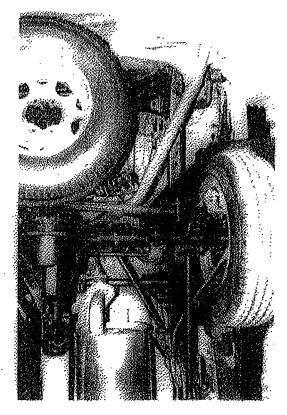
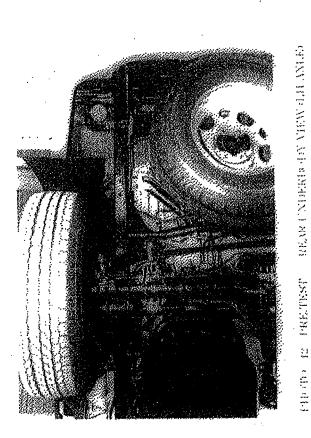
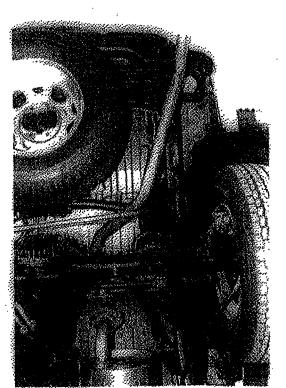


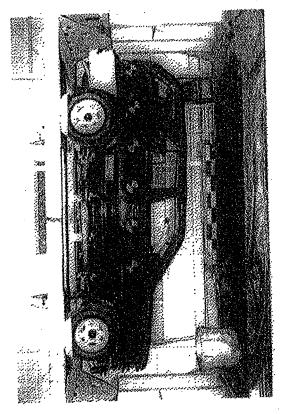
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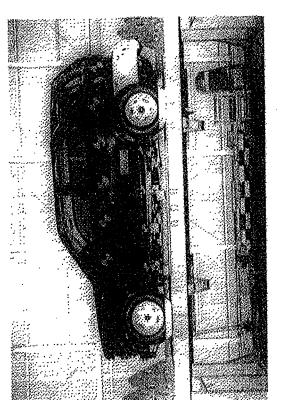


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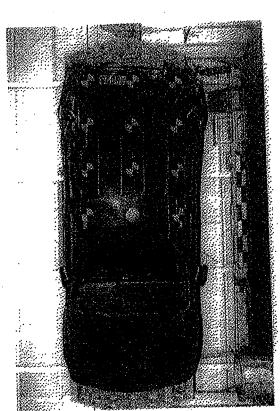




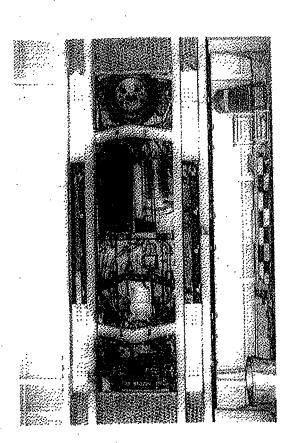
PHOPO (7 POST TEST STATIC ROLLOVER (1887)



PARTORIORALIANA ANTARA CAPADA



PHORY BY PUST STATE WILDWISK ORP



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CONFIDENTIAL INFORMATION REDACTED

CERTIFICATION TEST REPORT

FMVSS 301

FUEL SYSTEM INTEGRITY

REAR MOVING BARRIER IMPACT

2000 ISUZU RODEO

ISUZU MODEL NO.UES25F
UNDERFLOOR MOUNTING SPARE TIRE
TEST NO. A-9423

ISUZU MOTORS LIMITED

VEHICLE SAFETY ENGINEERING DEPT.

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	DESCRIPTION		PAGES
1.	SUMMARY DATA (TEST CONDITION)		4-5
2.	TEST DATA (POST IMPACT SUMMARY)	······································	6-8
3.	PHOTOGRAGHS		9- 14

SUMMARY OF TEST CONDITION (1)

TYPI	E OF TEST		
	FRONTAL () IMPACT	
	OBLIQUE () IMPACT ON	LEFT(DRIVER'S)SIDE
			RIGHTSIDE
	LATERAL OI	R SIDE IMPACT ON	LEFT(DRIVER'S)SIDE
	× REAR IMPA	יוכ	
	· '		
	·	•	
TECT	T CONDITIONS		
IEO	DATE OF TEST Apr	il 23. 1999	TIME OF TEST: 14:20
	AMDIDATE TEMPERA	TURE AT IMPACT	AREA: <u>17.5℃</u>
,	AMBIENT TEMEDICE	CCLIPANT COMPA	RTMENT: <u>17.5℃</u>
	I EMIL ENVIOUR IN)000111111 0011 1 111	
			·
m n	n vintilai ei indoodnaa	TION	•
TES	<u>r vehicle informa</u> 	TGUZU MOTORS	LIMITED
	3 5 1 7777 1 3 5 O TO TOT	TOTIVITATION TO COED	
	MAKE / MODEL :_	18UZUIUESZUE	MODEL YEAR: 2000
	BODY STYLE :_	MPV 4-DOOR	MODIU I DIM.
	VIN.	N148DOM-16	BODY COLOR: RED
	TEST NO :_ ENGINE DATA :_	A-9423	BODY COLOR. RED
	ENGINE DATA :_	6 CYLINDERS;	3,2 (liters
		× GASOLINE ;	
		× LONGITUDINA	L: TRANSVERSE;
	TRANSMISSION DAT	ra: <u>4</u> speed , <u> </u>	- MANUAL, × AUTOMATIC.
	FINAL DRIVE DATA	:FWD	- RWD , × 4WD
	MAJOR OPTIONS	: <u> </u>	P/S, P/B , X $P/W00$,
		× TILT WHE	- RWD , × 4WD P/S, - P/B, × P/wdo, EL, - P/seats. × CRUISE CONTROL Priver and passenger airbag with type II belt
	TYPE OF OCCUPANT	RESTRAINT:	Driver and passenger airbag with type II belt
	•		
TES	T FLUID DATA		•
1110	TECTE LIID TYPE	· RED STODDARD	SPECIFIC GRAVITY: 0.777
	KINEMATIC VISODSI'	ry 139CST	•
	NOMINAL FUEL CAPA	CITY · 80 Liters ()	NFC)
	NOMINAL FUEL CAFA TEST VOLUME	75.91 jtore	(94% of NFC)
	TEST VOLUME	MD . V VPC .	- NO FUEL INJECTION: X YES - NO
	ELECTRICE FUEL PO	ML TES_	TAO TONDINGROUND TO

VEHICLE TIRE DATA	
COLD TIRE PRESSIRE : FRONT 17	
REAR 17	
TIRES SIZE ON VEHICLE : 235/70 R1	
IS SPARE TIRE A "SPACE SAVER"	NO
IS SPARE TIRE STANDARD EQUIPMENT :	YES
	•
VEHICLE CAPACITY	
NUMBER OF OCCUPANTS : 2 FRONT; _	
TYPE OF FRONT SEATS : \times BUCKET;	- BENCH; - SPLIT BENCH
TYPE OF FRONT SEAT BACK : FIXED	× Adj.with × LEVER - Rot.knol
RATED CARGO AND LUGGAGE	
$WEIGHT (RCLW) = \underline{136} kg$	
GVWR : <u>2359</u> kg	•
	·
•	
CALCULATION FOR TARGET TEST WEIGHT	
UW = Unloaded Weight (Including OW)	(1876 kg)
OW = Option Weight	(– kg)
DSC = Designated Seating Capacity	(5)
$RCLW = \underline{136} kg$	
· · · · · · · · · · · · · · · · · · ·	CLW + (2 dummies * 75.0kg/dummy)
TARGET TEST WEIGHT = 2162 kg	
*Hybrid - II	
	•
WEIGHT OF TEST VEHICLE WITH REQUIRED DU	MMIES AND CARGO
IWAIII I IVO	HT REAR = 517 kg
1701 1 1 10011	$\Gamma REAR = 517 \text{ kg}$
TOTAL FRONT WEIGHT = 1131 kg	
TOTAL REAR WEIGHT = 1034 kg	
TOTAL TEST WEIGHT = 2165 kg	

2.Test Data

(1) POST IMPACT SUMMARY

Vehicle : UES25F (N	N148DOM-16)	
Test No. : April 23, 19	999	٠.
Date : <u>A-9423</u>		
IMPACT VELOCITY : PRIMARY =	55.4 km/h (34.4 MPH)	
Pas	river Side :mm assenger's Side :65mm verage :263mm	
FUEL SYSTEM INTEGRITY - FMVSS	301-75	
	Actual Max.	Allow.
Fuel spillage impact until vehicle motion ceases.	0 10	unce
Fuel spillage for 5 minute period following cessation of vehicle motion after impact.	0 50	unce
Fuel spillage for next 25 minute period	1	unce inute

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (1 st. Roll; Clockwise)

Test No.

(VIN. N148DOM-16)

Vehicle:_

REAR VIEW FILLER CAP 0/360 180° REAR VIEW FILLER CAP 0/360

·		<u>.</u>	ST —	_ ' ,	-124
Fuel spillage during 7 minute period from onset of rotation	1		1		1 ounce
Fuel spillage during 6 minute period from onset of rotation	0 onnce	0 onnce	onnce 0	0 onnce	1 ounce
Fuel spillage during 5 minute period from onset of rotation	0 onuce	0 onnce	0 onnce	oonno 0	5 ounce
Rotation Time	60 seconds	epoconds 09	spuoses 09	60 seconds	1-3 minutes
Rotation Angle	06 - 0	90 - 180	180 - 270	270 - 360	Max. allowed

FUEL SPILLAGE LOCATION : .

NONE

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (2 nd. Roll; Clockwise)

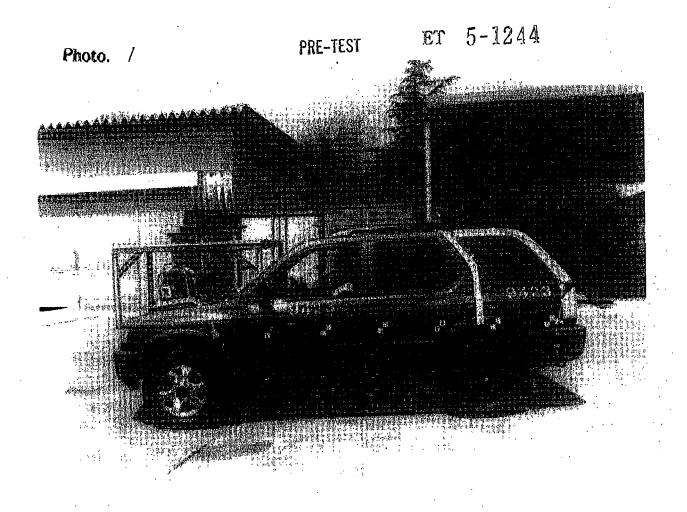
Test No. A-9423	ETO REAR VIEW FILLER CAP 0/360
Vehicle: UES25F (VIN. N148DOM-16)	FILLER CAP 0/360

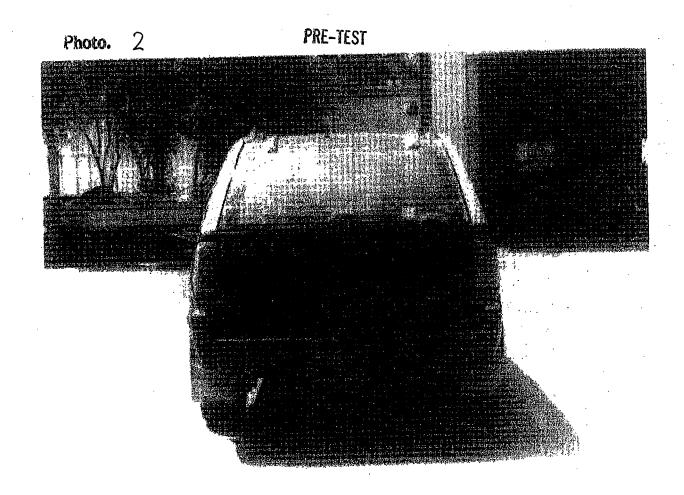
		т	—т		
Fuel spillage during 7 minute period from onset of rotation	1	1	1	1	1 ounce
Fuel spillage during 6 minute period from onset of rotation	O onuce	0 onnce	oouno 0	oouno 0	1 ounce
Fuel spillage during 5 minute period from onset of rotation	0 ounce	0 onuce	0 onnce	onnce 0	5 ounce
Rotation Time	epuose 09	60 seconds	60 seconds	et seconds	1-3 minutes
Rotation Angle	06 - 0	90 - 180	180 - 270	270 - 360	Max. allowed

FUEL SPILLAGE LOCATION:

3. PHOTOGRAGHS

PAGES		PHOTO.No
10		РНОТО. 1
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14	•••••	PHOTO.10





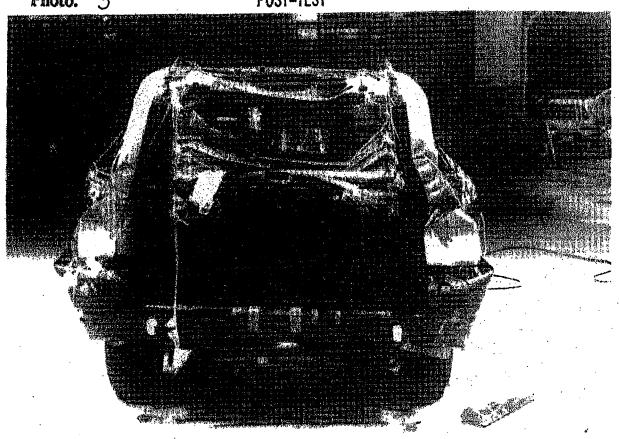
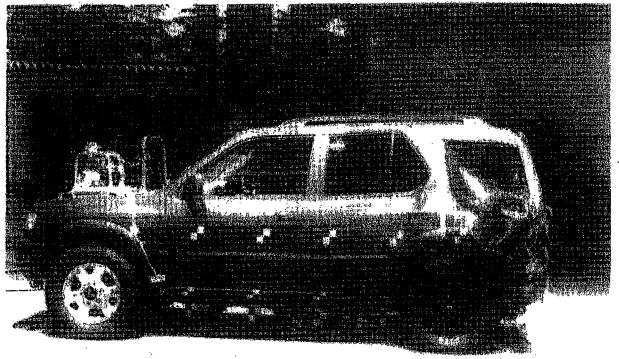
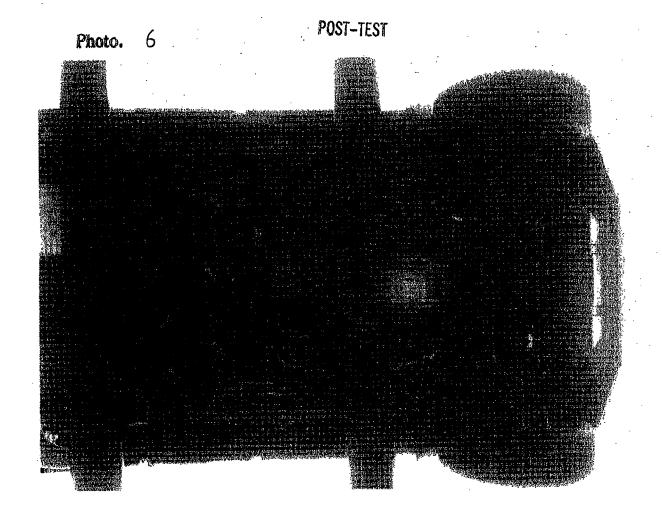


Photo. 4

POST-TEST





STATIC ROLL OVER TEST

Photo. 7

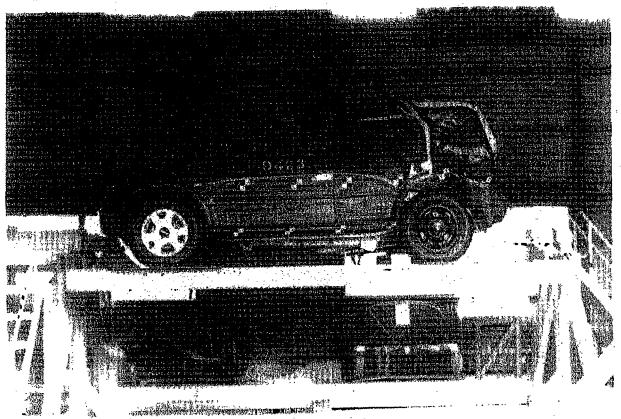
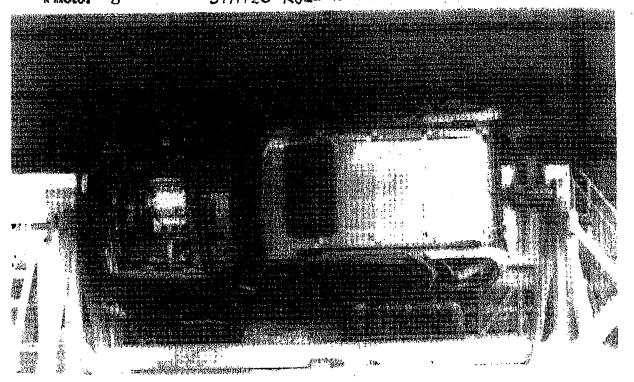


Photo. 8 STATIC ROLL OVER TEST



ET 5-1244

Photo. 9

STATIC ROLL OVER TEST

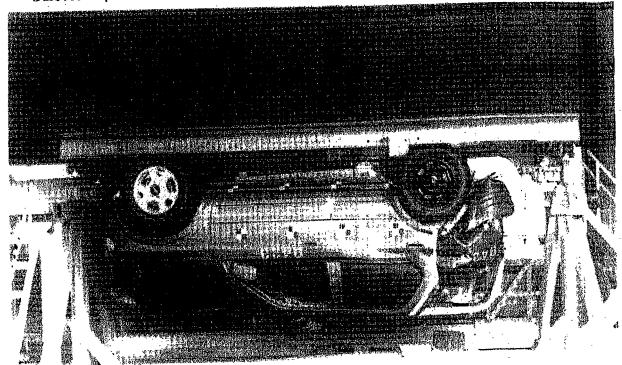


Photo. 10

STATIC ROLL OVER TEST



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ISUZU ENGINEERING TEST REPORT ET5 - 1309

FMVSS 301

FUEL SYSTEM INTEGRITY

REAR MOVING BARRIER IMPACT

2001 ISUZU RODEO

ISUZU MODEL NO.UES25F

TEST NO. A 0608P

ISUZU MOTORS LIMITED

VEHICLE SAFETY ENGINEERING DEPT

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DESCRIPTION

PAGES .

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2.	TEST DATA (POST IMPACT SUMMARY)	annia dan baharah mawaya (112 113 kata)	6 - 8
3	PHOTOGRAGHS		9 - 15

1. SUMMARY DATA

ET5-1309

SUMMARY OF TEST CONDITION (1)

TYPE OF TEST
FRONTAL () IMPACT
OBLIQUE () IMPACT ON LEFT(DRIVER'S)SIDE
RIGHT SIDE
LATERAL OR SIDE IMPACT ON LEFT(DRIVER'S)SIDE
× REAR IMPACT
TEST CONDITIONS
DATE OF TEST: June 8, 2000 TIME OF TEST: 13:30
AMBIENT TEMPERATURE AT IMPACT AREA: 26°C
TEMPERATURE IN OCCUPANT COMPARTMENT: 26°C
TEST VEHICLE INFORMATION
MANUFACTURER: ISUZU MOTORS LIMITED
MAKE / MODEL : ISUZU/UES25F BODY STYLE : MPV 4 DOOR MODEL YEAR: 2001
BODY STYLE : <u>MPV 4 DOOR</u> MODEL YEAR: <u>2001</u> VIN. : 4S2DM58W714300001
TEST NO : A0608P BODY COLOR: RED
ENGINE DATA : 6 CYLINDERS ; 3.2 ; liters
× GASOLINE: DIESEL;TURBO CHARGED
TRANSMISSION DATA: 4 SPEED MANUAL, × AUTOMATIC,
FINAL DRIVE DATA : FWD RWD X4WD
MAJOR OPTIONS : \times A/C, \times P/S, $-$ P/B, \times P/wdo,
× TILT WHEEL, × P/seats. × CRUISE CONTROL
TYPE OF OCCUPANT RESTRAINT: Driver and passenger airbag with type II belt
TEST FLUID DATA TEST FLUID TYPE RED STODDARD SOLVENT SPECIFIC GRAVITY: 0.777
TEST FLUID TYPE : RED STODDARD SOLVENT SPECIFIC GRAVITY : 0.777 KINEMATIC VISODSITY : 1.39CST
NOMINAL FUEL CAPACITY: 74 Liters (NFC)
TEST VOLUME : 70 Liters (94% of NFC)
ELECTRICE FUEL POMP : × YES - NO FUEL INJECTION : × YES - NO

SAMMARY OF TEST CONDITION (2)

ET5-1309

COLD TREE RESSILE . FROM II a
REAR 177 KPa
TIRES SIZE ON VEHICLE : P245/70R16
IS SPARE TIRE A "SPACE SAVER" : NO
IS SPARE TIRE STANDARD EQUIPMENT : YES
VEHICLE CAPACITY
NUMBER OF OCCUPANTS : 2 FRONT; 3 REAR; - 3rd seat
NUMBER OF OCCUPANTS 2 PROMI, ord scar
TANDE OF THOME OF AND A PRIORED - DENION - SDI IT RENOU
TYPE OF FRONT SEATS : X BUCKET; — BENCH; — SPLIT BENCH
TITLE OF THE COMMENT OF THE PARTY OF THE PAR
TYPE OF FRONT SEAT BACK: - FIXED × Adj.with × LEVER - Rot.knob
RATED CARGO AND LUGGAGE
WEIGHT (RCLW) = 136 kg
GVWR: 2359 kg GAWR: FRONT 1134 kg REAR 1315 kg
(1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
CALCULATION FOR TARGET TEST WEIGHT
UW = Unloaded Weight (Including OW) (1879 kg)
OW = Option Weight (- kg)
DSC = Designated Seating Capacity (5)
DDO 2001677777777777777777777777777777777777
RCLW= <u>136</u> kg
TARGET TEST WEIGHT = UW + OW + RCLW + (2 dummies* × 75.0kg/dummy)
TARGET TEST WEIGHT = 2165 kg
*Hybrid-II
Tryonto II
WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO
RIGHT FRONT = 531 kg REGHT REAR = 549 kg
LEFT FRONT = 569 kg LEFT REAR = 526 kg
TOTAL FRONT WEIGHT = 1100 kg (50.6 % of Total vehicle weight)
TOTAL REAR WEIGHT = 1075 kg (49.4% of Total vehicle weight)
TOTAL TEST WEIGHT = 2175 kg

2.Test Data

	ET5-	1309
-		-00

(1) POST IMPACT SUMMARY

Vehicle : UES25F (4	1S2DM58W714300001)			
Test No. : <u>A0608P</u>	A0608P			
Date : June 8, 20	June 8. 2000			
Pa	48.6 km/h (30.2 MPH) river Side : 292 ussenger's Side : 288 verage : 290	mm mm mm		
FUEL SYSTEM INTEGRITY - FMVSS	301-75 Actual	Max, Allow.		
Fuel spillage impact until vehicle motion ceases.	0	1 ounce		
Fuel spillage for 5 minute period following cessation of vehicle motion after impact.	0	5 ounce		
Fuel spillage for next 25 minute period	0	lounce 1 minute		
FUEL SPILLAGE LOCATION :	NONE			

FUEL SYSTEM INTEGRITY - PMYSS 301-75

STATIC ROLLOVER_ (1 st. Roll:Clockwise)

A0608P FILLER CAP 0/360 Test No. (VIN. 4S2DM58W714300001) UES25F 90 Vehicle: REAR VIEW FILLER CAP 0/360

_						
	Fuel spillage during 7 minute period from onset of rotation		-	1	-	1 ounce
	Fuel spillage during 6 minute period from onset of rotation	0 ounce	0 ounce	0 onnce	0 ounce	1 ounce
	Fuel spillage during 5 minute period from onset of rotation	0 onuce	0 ounce	0 onnce	oonoce (eouno g
	Rotation Time	60 seconds	60 seconds	60 seconds	epuose 09	1—3 minutes
CIPPED CAL OF 300	Rotation Angle	06 - 0	90 - 180	180 - 270	270 - 360	Max. allowed
	L	1	ــــــــــــــــــــــــــــــــــــــ	٠		J

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NONE

NONE

FUEL SPILLAGE LOCATION

FUEL SYSTEM INTEGRITY · FMVSS 301-75

STATIC ROLLOVER (2 nd. Roll; Clockwise)

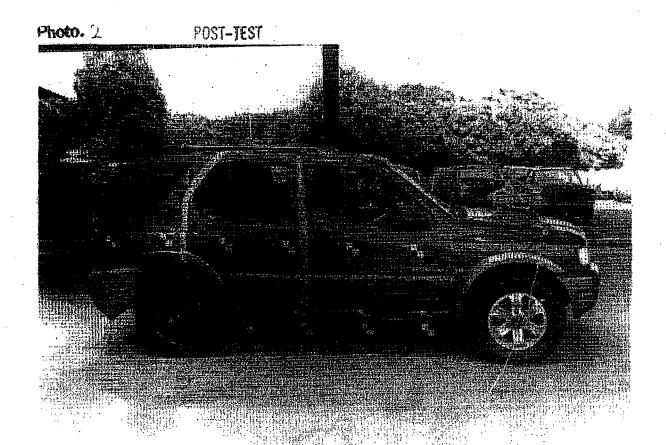
Test No. A0608P	FILLER CAP. 0/360	
	°00.	
(VIN. 4S2DM58W714300001)	1800	
JES25F (VIN 4S2DA	06	
Vehicle:U	REAR VIEW	FILLER CAP 0/360

tion AngleRotation TimeFuel spillage during 5 minute period from onset of rotationFuel spillage during 6 minute period from onset of rotationFuel spillage during 6 minute period from onset of rotationFuel spillage during 7 minute period from onset of rotation1 - 3060 seconds0 ounce0 ounce2 - 27060 seconds0 ounce0 ounce1 - 36060 seconds0 ounce0 ounce2 - 3601 ounce1 ounce1 ounce					·	
Rotation Time 5 minute period from onset of rotation 60 seconds 0 ounce 60 seconds 0 ounce 60 seconds 0 ounce 1-3 minutes 5 ounce	Fuel spillage during 7 minute period from onset of rotation	1	-	1	1.	1 ounce
Rotation Time 60 seconds 60 seconds 60 seconds 1-3 minutes	Fuel spillage during 6 minute period from onset of rotation	0 ounce	onnce 0	0 onnce	0 ounce	1 ounce
	Fuel spillage during 5 minute period from onset of rotation	0 onuce	0 onnce	0 ounce	onno 0	5 ounce
tion Angle 1 - 90 1 - 180 2 - 270 3 - 360 x. allowed	Rotation Time	60 seconds	spuoses 09	60 seconds	spuose 09	1-3 minutes
Rota () 90 90 2710 Ma	Rotation Angle	06 - 0	90 - 180	180 - 270	270 - 360	Max. allowed

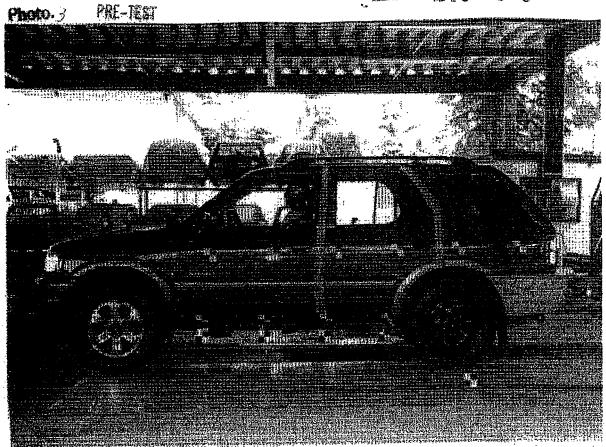
3. PHOTOGRAGHS

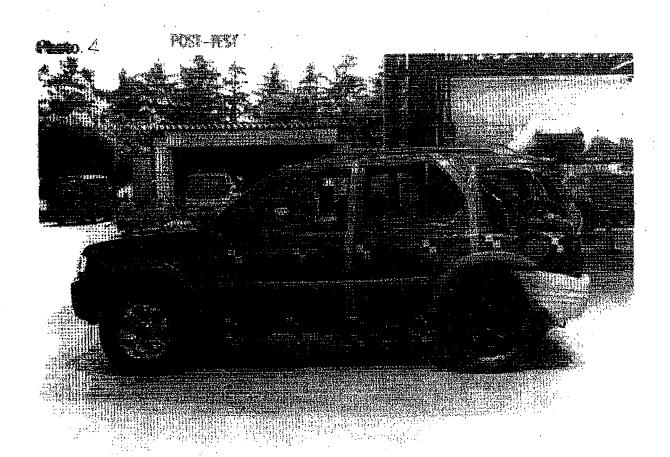
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1 5		PHOTO.12



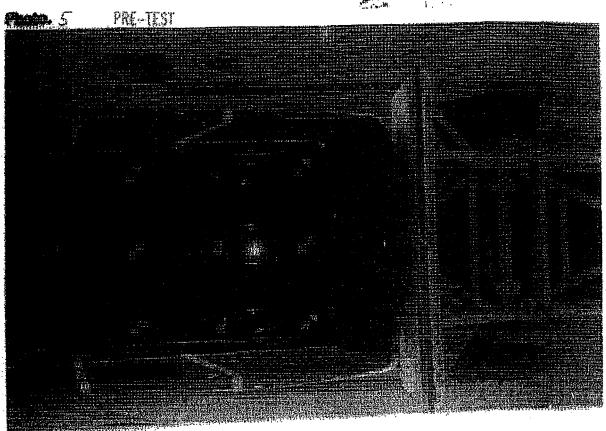


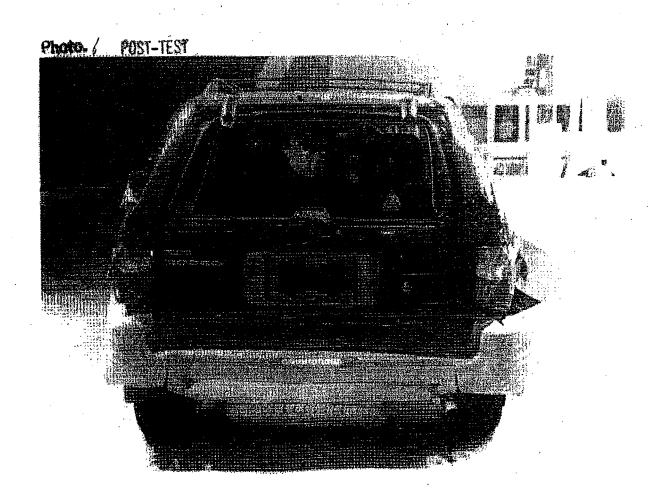
ET5-1369

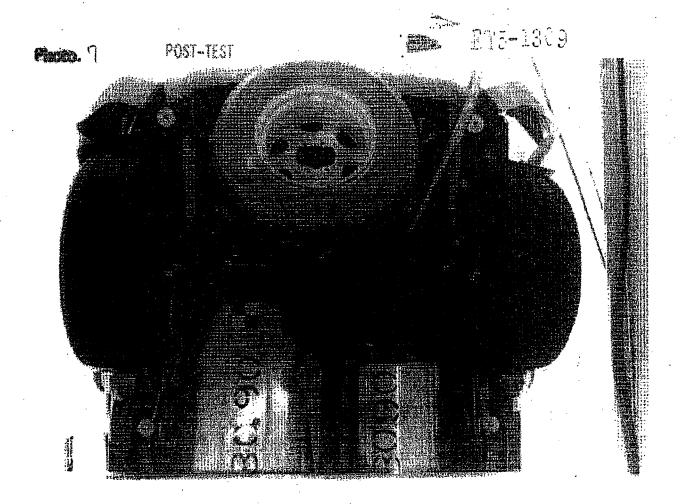


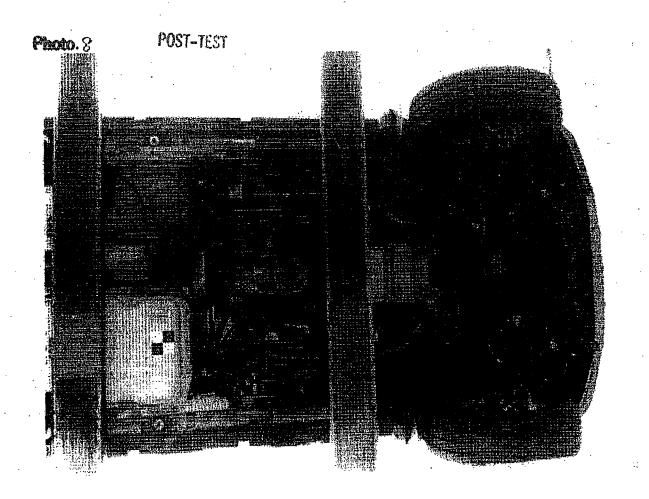


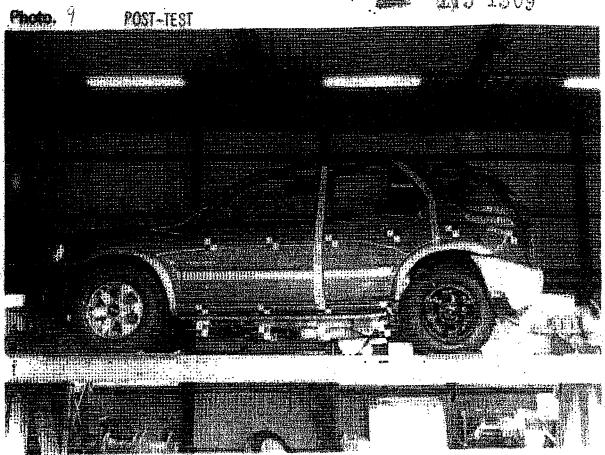






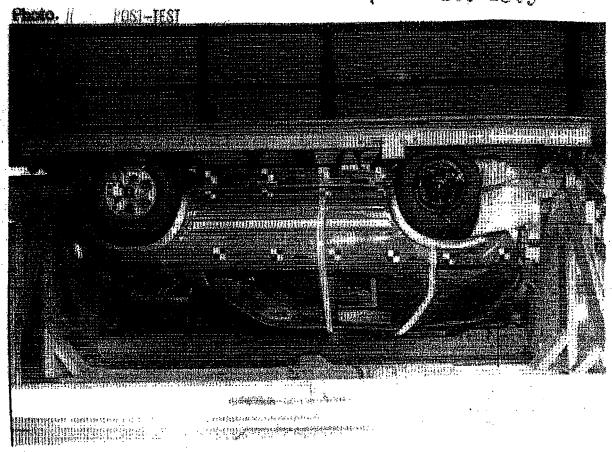








, **3** 275-1309





CONFIDENTIAL INFORMATION REDACTED

ISUZU ENGINEERING TEST REPORT ET5 - 1310

CERTIFICATION TEST REPORT

FMVSS 301

FUEL SYSTEM INTEGRITY

REAR MOVING BARRIER IMPACT

2001 ISUZU RODEO

ISUZU MODEL NO.UER30F

TEST NO. A 0705

ISUZU MOTORS LIMITED

VEHICLE SAFETY ENGINEERING DEPT.

DESCRIPTION

PAGES

1.	SUMMARY DATA (TEST CONDITION)	4 - 5
2.	TEST DATA (POST IMPACT SUMMARY)	6 8
٥	DUOTOCDACUS	 9 - 14

SUMMARY OF TEST CONDITION (1)

TYPE OF TEST
FRONTAL () IMPACT
OBLIQUE () IMPACT ON LEFT(DRIVER'S)SIDE RIGHT SIDE
LATERAL OR SIDE IMPACT ON LEFT(DRIVER'S)SIDE
× REAR IMPACT
TEST CONDITIONS DATE OF TEST: July 5, 2000 TIME OF TEST: 14:30
AMBIENT TEMPERATURE AT IMPACT AREA: 31℃
TEMPERATURE IN OCCUPANT COMPARTMENT: 31°C
TEST VEHICLE INFORMATION
MANUFACTURER: ISUZU MOTORS LIMITED
MAKE / MODEL : ISUZU/UER30F BODY STYLE : MPV 4 DOOR MODEL YEAR: 2001
VIN 4S2CK58D814300010
TEST NO :A0705 BODY COLOR:_ RED
ENGINE DATA : 4 CYLINDERS; 2.2 ; liters
X_GASOLINE ; DIESEL ; TURBO CHARGED
LONGITUDINAL :TRANSVERSE ;
TRANSMISSION DATA: 4_SPEED,MANUAL×_AUTOMATIC,
FINAL DRIVE DATA : FWD , X_RWD 4WD
MAJOR OPTIONS : \times A/C , \times P/S , $-$ P/B , $-$ P/wdo ,
TILT WHEELP/seatsCRUISE CONTROL
TYPE OF OCCUPANT RESTRAINT: Driver and passenger airbag with type II belt
TEST FLUID DATA
TEST FLUID TYPE : RED STODDARD SOLVENT SPECIFIC GRAVITY : 0.777
KINEMATIC VISODSITY : 1.39CST
NOMINAL FUEL CAPACITY: 74 Liters (NFC)
TEST VOLUME : 70 Liters (94% of NFC)
ELECTRICE FUEL POMP : X YES - NO FUEL INJECTION : X YES - NO

SAMMARY OF TEST CONDITION (2)

VEHICLE TIRE DATA

ET5-1310

REAR 196 KPa TIRES SIZE ON VEHICLE : P225/75R16 IS SPARE TIRE A "SPACE SAVER" : NO IS SPARE TIRE STANDARD EQUIPMENT : YES
IS SPARE TIRE A "SPACE SAVER" : NO
TO THE TOTAL PROPERTY OF THE P
IS SPARE TIRE STANDARD EQUIPMENT : YES
VEHICLE CAPACITY
NUMBER OF OCCUPANTS : 2 FRONT; 3 REAR; - 3rd seat
TYPE OF FRONT SEATS : X BUCKET; - BENCH; - SPLIT BENCH
TYPE OF FRONT SEAT BACK:FIXED_ × Adj.with _ × LEVER Rot.knob
RATED CARGO AND LUGGAGE WEIGHT (RCLW) = 126 kg
GVWR: 2155 kg GAWR:FRONT 1134 kg REAR 1315 kg
CALCULATION FOR TARGET TEST WEIGHT
UW = Unloaded Weight (Including OW) (1689 kg)
OW = Option Weight (- kg)
DSC = Designated Seating Capacity (5)
RCLW= 126_kg
TARGET TEST WEIGHT = UW + OW + RCLW + (2 dummies* × 75.0kg/dummy)
TARGET TEST WEIGHT = 1965 kg
and the second s
*Hybrid-II
THE PROPERTY OF THE PARTY OF TH
WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND CARGO RIGHT FRONT = 483 kg REGHT REAR = 510 kg
RIGHT FRONT = 483 kg REGHT REAR = 510 kg LEFT FRONT = 502 kg LEFT REAR = 480 kg
TOTAL FRONT WEIGHT = 985 kg (50 % of Total vehicle weight)
TOTAL REAR WEIGHT = 990 kg (50 % of Total vehicle weight)
TOTAL TEST WEIGHT = 1975 kg

2.Test Data



ET5-1310

(1) POST IMPACT SUMMARY

Vehicle : <u>UER30F (4S2CK58D814300010)</u>					
Test No. : A0705					
Date : July 5, 2000	0				
IMPACT VELOCITY : PRIMARY =					
V DITTORA B TITLE TO	Side : <u>202</u> mm ager Side : <u>-</u> mm				
FUEL SYSTEM INTEGRITY - FMVSS	301-75 Actual	Max. Allow.			
Fuel spillage impact until vehicle motion ceases.	0	1 ounce			
Fuel spillage for 5 minute period following cessation of vehicle motion after impact.	0	5 ounce			
Fuel spillage for next 25 minute period	0	lounce 1 minute			

FUEL SYSTEM INTEGRITY - FMVSS 301-75

STATIC ROLLOVER (1 st. Roll; Clockwise)

(VIN. 4S2CK58D814300010)

Test No.

REAR VIEW	FILLER CAP 0/360
2700	FILLER C.
180.	
06	
REAR VIEW	/ FILLER CAP 0/360

_	T	т				
	Fuel spillage during 7 minute period from onset of rotation	_	1	1	[1 ounce
	Fuel spillage during 6 minute period from onset of rotation	0 ounce	0 ounce	0 ounce	0 ounce	1 ounce
	Fuel spillage during 5 minute period from onset of rotation	0 onuce	0 ounce	0 onnce	0 onuce	5 ounce
	Rotation Time	60 seconds	60 seconds	60 seconds	60 seconds	1—3 minutes
	Rotation Angle	06 - 0	90 - 180	022 - 62	270 - 360	Max. allowed

••
FUEL SPILLAGE LOCATION

NONE

FUEL SYSTEM INTEGRITY - FMVSS 301-75

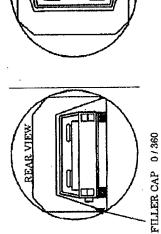
STATIC ROLLOVER (2 nd. Roll; Clockwise)

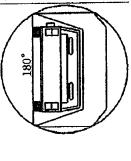
(VIN. 4S2CK58D814300010)

UERSOF

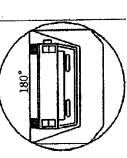
Vehicle:

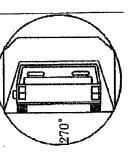
Test No.





.06





1	\Rightarrow	
	270°	

_	
1	0/360
•	CAP

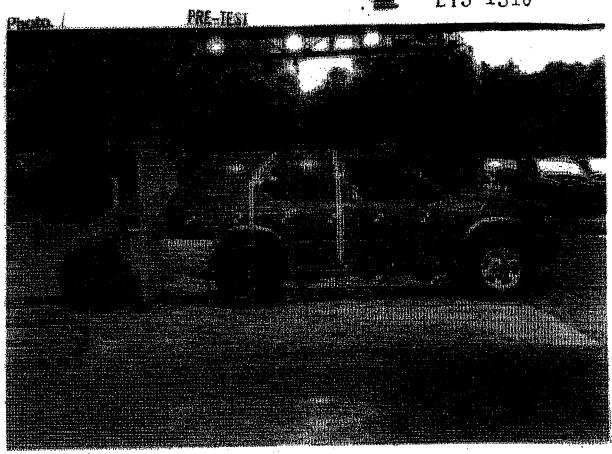
2 4	Rotation Time	Fuel spillage during 5 minute period from onset of rotation	Fuel spillage during 6 minute period from onset of rotation	Fuel spillage during 7 minute period from onset of rotation
	60 seconds	0 onnce	0 ounce	1
9	60 seconds	0 onuce	0 ounce	1
9	60 seconds	0 onnce	0 ounce	1
99	60 seconds	9 onno	0 ounce	I
- - -	1—3 minutes	eouno g	1 ounce	1 ounce

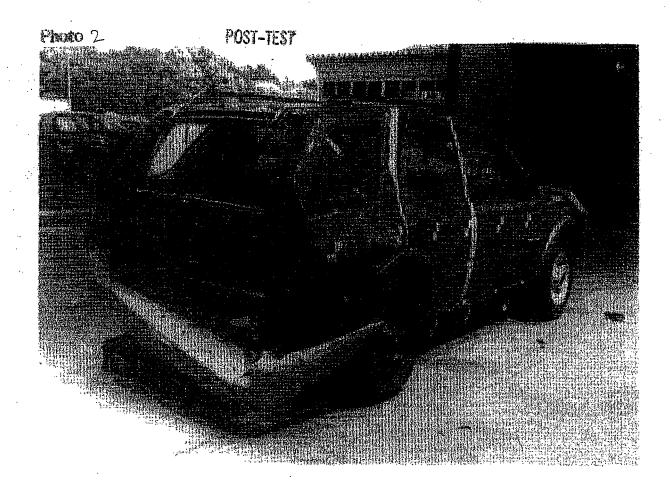
FUEL SPILLAGE LOCATION:

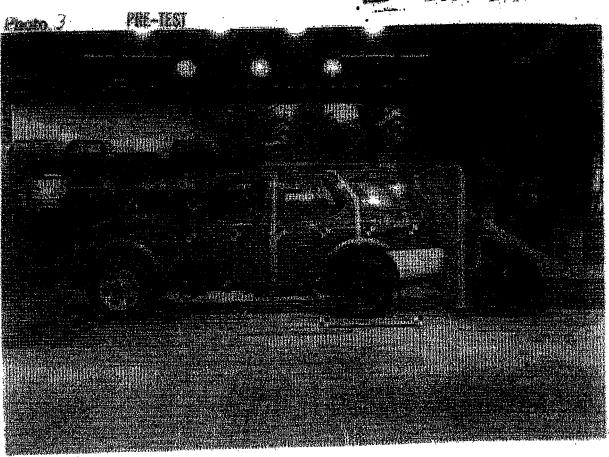
NONE

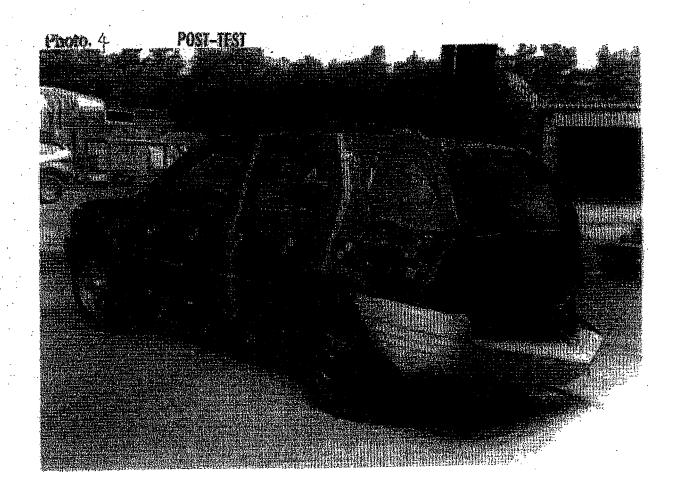
3. PHOTOGRAGHS

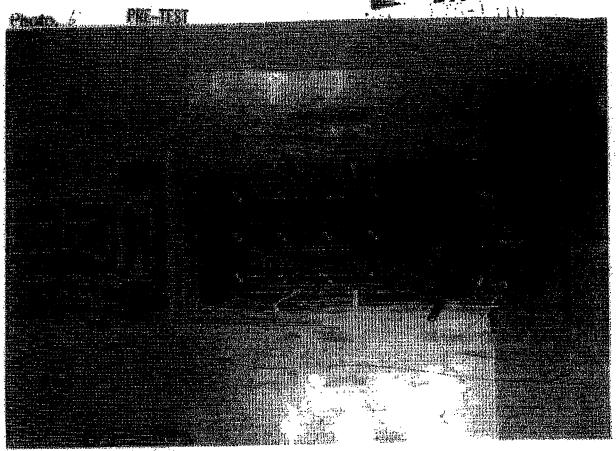
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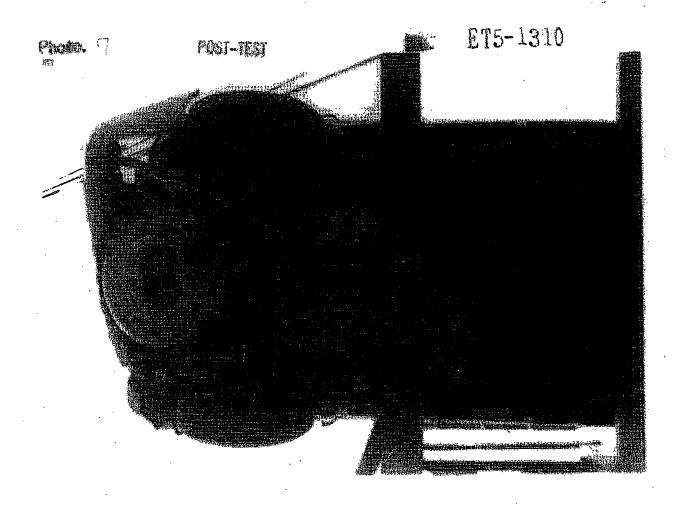


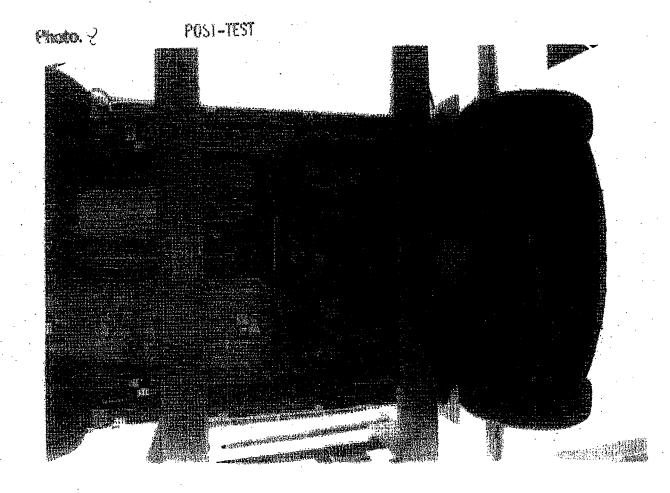




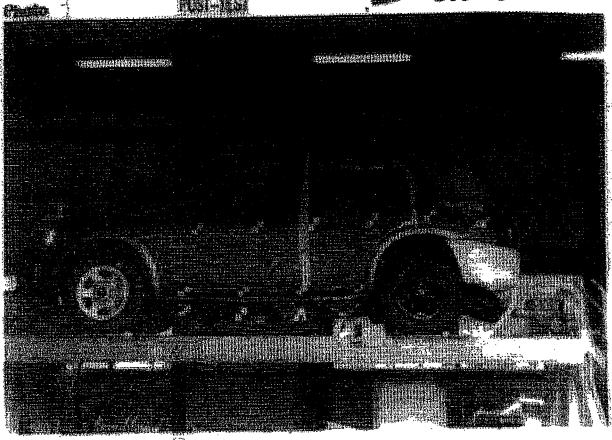


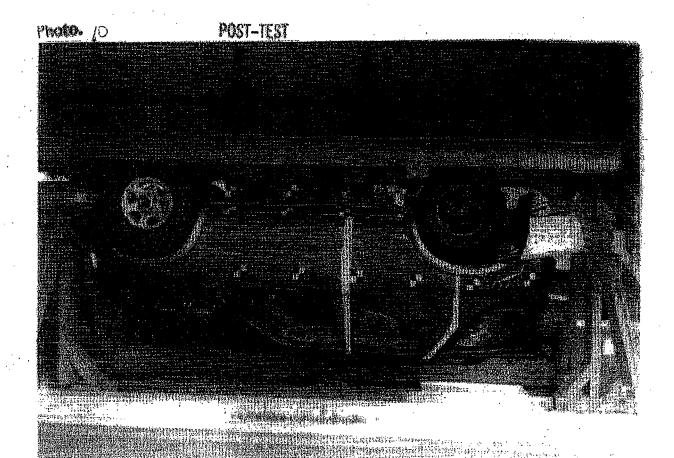












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ISUZU MOTORS LIMITED

DESIGN VALIDATION REPORT

REPORT No. ______V-UE-030

ISSUED DATE July 11 1997

Vehicle Model:

UES25F UER25F UER30F

Model Year

1998

Subject:

FMVSS No.301 Fuel System Integrity

١,

FMVSS

Method of

Section

Validation

Conclusion

S5.5

Barrier Crash

Comply

Fuel Spillage:

<u>ltem</u>

Test

(cf. Attachment B to K)

S5.6

Fuel Spillage:

Rollover

Test

Comply

(cf. Attachment B to K)

This certifies that UES25F, UER25F, UER30F meet the applicable requirements of FMVSS No.301.

Authorized by -

T.YAMADA

General Manager Vehicle Research &

Experiment Dept.

SELECTION OF TEST VEHICLE

O: TEST

-: Substitute by other vehicle

		UER/S		
Test Iter	n	UES25F	UER25F	UER30F
Perpend	icular	0		0
Frontal	Barrier	Attachment B	(byUES25F)	Attachment C
Right sie	de Oblique	0		0
Frontal	Barrier	Attachment D	(byUES25F)	Attachment E
Left Side	e Oblique	0		0
Frontal	Barrier	Attachment F	(byUES25F)	Attachment G
Left-han	d Side	0	-	_
Lateral 1	Moving Barrier	Attachment H	(byUES25F)	(byUES25F)
Right-ha	ınd Side	*)		_
Lateral 1	Moving Barrier	NO TEST	(byUES25F)	(byUES25F)
	Tail Gate MTG	0		
Rear	Spare Tire	Attachment J	(byUES25F)	(byUES25F)
Moving Barrier	Under Floor	0		
barner	MTG Spare Tire	Attachment K	(byUES25F)	(byUES25F)

^{*):1).}All vehicle models of UES25F,UER25F,UER30F are identical design concerning the side body structure and side fuel system(fuel tank & fuel line).

^{2).}Fuel tank & fuel line are located only left side body.

Attachment B (1 of 3)

Vehicle Model:: UES25F (DOHC MODEL) Model Year: 1998 Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity Subject: (Perpendicular Frontal Barrier Crash & Static Rollover) Introduction: To determine if the fuel system of UES25F meets the requirements of S5.5 and S5.6 of FMVSS No. 301. Method of validation: Test Vehicle Identification No.: 4S2CM58W3W4300029 Explanation of reason why the tests was conducted on the vehicle stated above: 1.All vehicle models of UES25F UER25F are identical design concerning the front body structure and fuel system. 2. The test vehicle was set on the weight of not less than the maximum vehicle weight in all vehicle models of UES25F. UER25F. Test Date: Jun. 18, 1997 Test Conditions: 1. Frontal Barrier Crash Test Barrier Face Angle Perpendicular to the line of travel of the vehicle Vehicle Impact Speed 48.6km/h (30.4MPH) Vehicle Weight Less Dummies 1834kg Occupants Driver Hybrid Ⅲ (80kg) Right Front passenger Hybrid II (80kg) Percent of Fuel Teak capacity Used 94 % 2. Rollover Test Is roll duration time at each increment of 90 degrees between 1-3 minutes?

NO

 \times YES_

Attachment B (2 of 3)

Test Results

1.Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	O	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

YES____NO

Attachment B (3 of 3)

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	—
180° ~ 270°	minute	0	0	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?

	÷	

Reference Report: ISUZU Research Engineering Report No. <u>ET5-1085</u>

T.KANEKO

Crash worthiness &

J. Kanepo

Safety Performance Section

Vehicle Research &

Experiment Dept.

J. Okami

Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Attachment C (1 of 3)

Vehicle Model: UER30F

Model Year: 1998

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Perpendicular Frontal Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UER30F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: JACCK58D8W7C00010

Explanation of reason why the tests was conducted on the vehicle stated above;

All vehicle models of UER30F are identical design concerning the front body structure and fuel system.

Test Date: May. 22, 1997

Test Conditions:

1. Frontal Barrier Crash Test

Barrier Face Angle

Perpendicular to the line of travel

of the vehicle

Vehicle Impact Speed

Vehicle Weight Less Dummies

48.6km/h (30.2MPH)

1605kg

Occupants

Driver

Hybrid Ⅲ (80kg)

Right Front passenger

Hybrid Ⅲ (80kg)

Percent of Fuel Teak capacity

Used

94%

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

____× YES____

NO

Test Results

1.Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 , minute

$2. Rollover\ Test\ Results\ (clockwise):$

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Attachment C (3 of 3)

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the require	ements?		
	×	_YES	NO

Reference Report: ISUZU Research Engineering Report No. <u>ET5-1086</u>

T.KANEKO

Crash worthiness &

J. Kaneho

Safety Performance Section

۲,

Vehicle Research &

Experiment Dept

y. Okami Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Attachment D (1 of 3)

Vehicle Model:: UES25F (DOHC MODEL)
Model Year: <u>1998</u>	
(Right side 30° oblique Frontal]	IVSS No.301, Fuel System Integrity Barrier Crash & Static Rollover) m of UES25F meets the requirements of S5.5
Method of validation: Test	
Vehicle Identification No.: (UES25F)	
Explanation of reason why the tests was conc	lucted on the vehicle stated above;
 All vehicle models of UES25F UER25F; body structure and fuel system. The test vehicle was set on the weight weight in all vehicle models of UES25F, UES25F,	of not less than the maximum vehicle
l'est Date:	
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	30degree In the right direction from the Perpendicular to the line of travel of the vehicle
Vehicle Impact Speed Vehicle Weight Less Dummics	48.4km/h (30.1MPH) 1832kg
Occupants Driver Right Front passenger	Hybrid II (80kg) Hybrid II (80kg)
Percent of Fuel Teak capacity Used	94 %
2.Rollover Test Is roll duration time at each increment of	f 90 degrees between 1-3 minutes? XYESNO

Attachment D (2 of 3)

Test Results

1.Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max, Allow (ounce by weight)
During impact	Ō	1.0
During first 5 minutes after impact	Ō	5.0
per minutes for subsequent 25 minutes Period	<u>0</u>	1.0 / 1 .minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	was.
180° ~ 270°	minute	o	0	
270° ~ 360°	minute	0	0	-
Max. Allow	1-3 minute	5.0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	0	0	Annu-
270° ~ 360°	minute	0	0	_
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requi	rements?		
	<u>×</u>	_YES	NO

Reference Report: ISUZU Research Engineering Report No. ET5-1087

Y.ISHIHARA

Crash worthiness &

Safety Performance Section

Vehicle Research &

Experiment Dept

J. akami

Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Attachment E (1 of 3)

Vehicle Model:: UER30F

Model Year: <u>1998</u>				
Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity (Right side 30° oblique Frontal Barrier Crash & Static Rollover) Introduction: To determine if the fuel system of UER30F meets the requirements of S5.5 and S5.6 of FMVSS No. 301.				
Method of validation: Test				
Vehicle Identification No.: JACCK58WDXW7	C00008(UER30F)			
Explanation of reason why the tests was cond	lucted on the vehicle stated above;			
1.All vehicle models of UER30F are idenstructure and fuel system.	ntical design concerning the front body			
Test Date:				
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	30 degree In the right direction from the Perpendicular to the line of travel of the vehicle			
Vehicle Impact Speed Vehicle Weight Less Dummies	48.4km/h (30.1MPH) 1575kg			
Occupants Driver Right Front passenger	Hybrid II (80kg) Hybrid II (80kg)			
Percent of Fuel Teak capacity Used	94 %			
2.Rollover Test Is roll duration time at each increment of	90 degrees between 1-3 minutes? XYESNO			

Test Results

1. Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	Ō	1.0
During first 5 minutes after impact	Ū	5.0
per minutes for subsequent 25 minutes Period	Ō	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	o	_
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Attachment E (3 of 3)

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	o	
90° ~ 180°	minute	0	o	_
180° ~ 270°	minute	o	0	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

To the above results of examination satisfy the	e require	ments?		
	_	×	YES	NO
	*			

Reference Report: ISUZU Research Engineering Report No. ET5-1088

M. Ishihara

Crash worthiness &

Safety Performance Section

Vehicle Research &

Experiment Dept

J. Okam

Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Attachment F (1 of 3)

Vehicle Model:: UES25F (DOHC MODE	EL)
Model Year: 1998	
Subject: Compliance for S5.5 & S5.6 of F (Left side 30° oblique Frontal	FMVSS No.301, Fuel System Integrity Barrier Crash & Static Rollover) stem of UES25F meets the requirements of S5.5
Method of validation: Test	
Vehicle Identification No.: JACCM58W8W	7E00008
Explanation of reason why the tests was co	onducted on the vehicle stated above;
 All vehicle models of UES25F, UE front body structure and fuel system. 	R25F are identical design concerning the
2. The test vehicle was set on the weigh weight In all vehicle models of UER25I	nt of not less than the maximum vehicle F, UER25F.
Test Date; Feb. 24, 1997	
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	30° degrees In the left direction from the Perpendicular to the line of travel of the vehicle
Vehicle Impact Speed Vehicle Weight Less Dummies	48.3km/h (30.0MPH) 1833kg
Occupants Driver Right Front passenger	Hybrid II (80kg) Hybrid II (80kg)
Percent of Fuel Tank capacity Used	94 %
2.Rollover Test Is roll duration time at each increment	t of 90 degrees between 1-3 minutes?

Test Results

1.Left side 30° oblique Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	Ω	1.0
During first 5 minutes after impact	Ō	5.0
per minutes for subsequent 25 minutes Period	Ō	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	o	
180° ~ 270°	minute	0	O	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	О	o	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

	X	YES	NC
	,		
Reference Report:	ISUZU Research Engineering Report No.	ET5-1	1089

Do the above results of examination satisfy the requirements?

S.ITO

Crash worthiness &

Safety Performance Section

Vehicle Research &

Experiment Dept

y, Pkanu Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Attachment G (1 of 3)

Model Year: <u>1998</u>	
(Left side 30° oblique Frontal	FMVSS No.301, Fuel System Integrity l Barrier Crash & Static Rollover) stem of UER30F meets the requirements of S5.5 l.
Method of validation: Test	
Vehicle Identification No.: JACCK58WDIV	W7C00012(UER30F)
Explanation of reason why the tests was c	conducted on the vehicle stated above;
1.All vehicle models of UER30F are i structure and fuel system.	identical design concerning the front body
Test Date: Mar. 7, 1997	
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	30 degree in the left direction from the Perpendicular to the line of travel of the vehicle
Vehicle Impact Speed Vehicle Weight Less Dummies	48.9km/h (30.4MPH) 1576kg
Occupants Driver Right Front passenger	Hybrid II (80kg) Hybrid II (80kg)
Percent of Fuel Teak capacity Used	94 %

Test Results

1. Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	Ō	1.0
During first 5	<u>0</u>	5.0
per minutes for subsequent 25 minutes Period	Ō	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	o	0	_
180° ~ 270°	minute	0	0	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	o	_
90° ~ 180°	minute	O	O	
180° ~ 270°	minute	О	o	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requir	ements?		
	×	_YES	NO
		•	

Reference Report: ISUZU Research Engineering Report No. <u>ET5-1090</u>

y. Ishihama

Y.ISHIHARA

Crash worthiness &

Safety Performance Section

Vehicle Research &

Experiment Dept

J. Okami

Y.OKAMI

Manager

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Safety & Performance Section

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Attachment H (1 of 3)

Vehicle Model: UES25F	
Model Year: 1998	
(Left Side Lateral Impact & Stat	IVSS No.301, Fuel System Integrity ic Rollover) m of UES25F meets the requirements of S5.5
Method of validation: Test	
Vehicle Identification No.: JACCM58W5W70	200011
Explanation of reason why the tests was con- 1. All vehicle models of UES25F UER25F the side body structure and fuel system. 2. The test vehicle was set on the weight weight in all vehicle models of UES25F. UES25	UER30F are identical design concerning t of not less than the maximum vehicle UER25F.UER30F.
Test Date: Jun.16 , 1997	
Test Conditions: 1.LH side Moving Deformable Barrier Cra Moving Barrier Angle Moving Barrier Impact Speed Vehicle Weight Loss Dummies	sh Test 63deg, with the centerline of the vehicle 62.6km/h (38.9MPH) 1833g
Occupants Driver Left Rear passenger	SID (80kg) SID (80kg)
Percent of Fuel Teak capacity Used	94 %
2.Rollover Test Is roll duration time at each increment o	of 90 degrees between 1-3 minutes? × YESNO

Test Results

1. Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	<u></u>
90° ~ 180°	minute	О	0	
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	_
Max. Allow	1-3 minute	5.0	1.0	1.0

YES___NO

Attachment H (3 of 3)

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	О	
270° ~ 360°	minute	0	0	_
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?

Reference Report:	ISUZU Research Engineering Report No	ET5-1091

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Y.OKAM

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Attachment J (1 of 3)

vehicle Model: UES25F(Tail Gate Mounti	ng Spare Tire)
Model Year: <u>1998</u>	
(Rear Moving Barrier Crash & S	MVSS No.301, Fuel System Integrity Static Rollover)
Introduction: To determine if the fuel system and S5.6 of FMVSS No. 301.	em of UES25F meets the requirements of S5.5
Method of validation: Test	
Vehicle Identification No.: JACCM58W8W7	C00021
Explanation of reason why the tests was con	nducted on the vehicle stated above;
the rear body structure and fuel system.	it of not less than the maximum vehicle
Test Date: Feb. 4, 1997 Test Conditions:	
1.Rear Moving Barrier Crash Test	
Moving Barrier Impact Speed Vehicle Weight Less Dummies	49.0km/h (30.4MPH) 1833g
Occupants	
Driver Right Front passenger	Hybrid Ⅲ (80kg) Hybrid Ⅲ (80kg)
Percent of Fuel Teak capacity Used	94 %
2.Rollover Test Is roll duration time at each increment of	of 90 degrees between 1-3 minutes? × YESNO

Test Results

1. Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 .minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	0	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5,0	1.0	1.0

YES

NO

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	o	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?

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n c n	TOTAL TO THE TANK THE TANK	DMC 1000
Keterence Kenort	ISUZU Research Engineering Report No.	BTT5-1093
A TOTAL CARROLL A TOTAL C.		

T.KANEKO

Crash worthiness &

J. Kaneko

Safety Performance Section

Vehicle Research &

Experiment Dept.

J. Okami

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

Vehicle Model: UES25F(Under Floor Mounting Spare Tire)

Model Year: 1998	
Subject: Compliance for S5.5 & S5.6 of FM (Rear Moving Barrier Crash & St. Introduction: To determine if the fuel system and S5.6 of FMVSS No. 301.	VSS No.301, Fuel System Integrity atic Rollover) n of UES25F meets the requirements of S5.5
Method of validation: Test	00000
Vehicle Identification No.: JACCM58W7W7E	00002
Explanation of reason why the tests was cond	ucted on the vehicle stated above;
1.All vehicle models of UES25F UER25F the rear body structure and fuel system.2.The test vehicle was set on the weight weight in all vehicle models of UES25F, UES25F	of not less than the maximum vehicle
Test Date: Dec. 25, 1997	
Test Conditions: 1.Rear Moving Barrier Crash Test	
Moving Barrier Impact Speed Vehicle Weight Less Dummies	48.6km/h (30.3MPH) 1833g
Occupants Driver Right Front passenger	Hybrid Ⅲ (80kg) Hybrid Ⅲ (80kg)
Percent of Fuel Teak capacity Used	94 %
2.Rollover Test Is roll duration time at each increment of	90 degrees between 1-3 minutes? — × YESNO

Attachment K (2 of 3)

Test Results

1.Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 .minute

2. Rollover Test Results (clockwise):

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

YES____NO

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	o	0	
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	0	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?

	•	
Reference Report:	ISUZU Research Engineering Report No.	ET5-1094

T.KANEKO

Crash worthiness &

J. Kuneko.

Safety Performance Section

Vehicle Research &

Experiment Dept.

J. GIUW Y.OKAMI

Manager

Crash worthiness &

Safety & Performance Section

Vehicle Research & Experiment Dept.

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ET 2-1411

ISUZU

ISUZU MOTORS LIMITED

DESIGN VALIDATION REPORT

REPORT No.

V-UE-128

ISSUED DATE September 13th, 1999

Vehicle Model

UES25F, UER25F, UER30F

Model Year

2000

Subject

FMVSS No.301.Fuel System Integrity

FMVSS

Method of

Section

<u>Validation</u>

Conclusion

S5.5

Fuel Spillage:

Barrier Crash

<u>Item</u>

Test

Comply

(cf. Attachment A to D)

S5.6

Fuel Spillage:

Rollover

Test

Comply

(cf. Attachment A to D)

This certifies that UES25F, UER25F and UER30F meet the applicable requirements of FMVSS No.301.

Authorized by _

Y. OKAMI

General Manager

SELECTION OF TEST VEHICLE

O: TEST

-: Substitute by other vehicle

UES25F
0
Attachment B
('99 UES25F)
Attachment D
('99 UES25F)
Attachment D
No Test *
('99 UES25F)
('99 UES25F)
Attachment D
0
Attachment C

^{*}Fuel tank & fuel line are located only left side body.

Vehicle Model: UES25F

Model Year: 2000

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Perpendicular Frontal Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UES25F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W1Y4300005

Explanation of reason why the tests was conducted on the vehicle stated above;

- (1) All vehicle models of UES25F, UER25F and UER30F are identical in design concerning the fuel systems.
- (2) The test vehicle, UES25F is the heaviest model among all vehicle models of UES25F, UER25F and UER30F.

Test Date: August 7th, 1999

Test Conditions:

1. Frontal Barrier Crash Test

Barrier Face Angle

Perpendicular to the line of travel

of the vehicle

Vehicle Impact Speed

Vehicle Weight With Dummies

48.6 km/h (30.2 MPH)

2162 kg

Occupants

Driver

Hybrid Ⅲ (80 kg)

Right Front passenger

Hybrid II (80 kg)

Percent of Fuel Teak capacity

Used

94 %

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

_____X_YES ____NO

Test Results

1. Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
Per minutes for subsequent 25 minutes Period	0	1.0

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time (minutes)	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	1.0	0	0	
90° ~ 180°	1.0	0	0	
180° ~ 270°	1.0	0	О	-
270° ~ 360°	1.0	0	0	
Max. Allow	1.0-3.0	5.0	1.0	1.0

Attachment B (3 of 3)

ET 2-1411

3. Rollover Test Results (counterclockwise)

Rotation angle	Rotation time (minutes)	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	1.0	0	0	-
90° ~ 180°	1.0	О	0	
180° ~ 270°	1.0	0	0	-
270° ~ 360°	1.0	0	0	
Max. Allow	1.0-3.0	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?	
<u>×</u> YES	NO

Reference: ISUZU Research Engineering Report No. <u>ET5-1239</u>

Crashworthiness &

Safety Performance Test Section

jue-Hamiyama. AMIYAMA

Vehicle Safety Engineering Dept.

Manager

Crashworthiness &

Safety Performance Test Section

Vehicle Model: UES25F

Model Year: 2000

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Rear Moving Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UES25F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: N148DOM-16

Explanation of reason why the tests was conducted on the vehicle stated above;

The vehicle used in this test is a Japanese model, so that is a right hand vehicle. However, the rear part of the vehicle is the same as a US model, and also a rear moving barrier test for US is severer than for Japan. Therefore, the above model was examined in order to comply with both Japanese and US regulations.

Test Date: April 23rd, 1999

Test Conditions:

1.Rear Moving Barrier Crash Test

Moving Barrier Impact Speed

55.4 km/h (34.4 MPH)

Vehicle Weight with Dummies

2165 kg

Occupants

Driver

Hybrid II (75 kg)

Right Front Passenger

Hybrid II (75 kg)

Percent of Fuel Teak capacity

Used

94 %

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

___×__YES _____NO

Test Results

1.Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
Per minutes for subsequent 25 minutes Period	0	1.0

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time (minutes)	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	1.0	0	0	_
90° ~ 180°	1.0	0	0	
180° ~ 270°	1.0	0	0	_
270° ~ 360°	1.0	0	0	-
Max. Allow	1.0-3.0	5.0	1.0	1.0

Attachment C (3 of 3)

2-1411 ET

3. Rollover Test Results (counterclockwise)

Rotation angle	Rotation time (minutes)	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight).
0° ~ 90°	1.0	0	0	
90° ~ 180°	1.0	0	0	_
180° ~ 270°	1.0	0	0	
270° ~ 360°	1.0	0	0	_
Max. Allow	1.0-3.0	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?		
<u>×</u>	_YES_	NO

Reference: ISUZU Research Engineering Report No. ET5-1244

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

Crashworthiness &

Safety Performance Test Section

Attachment D

Vehicle Model: UES25F

ET 2-1411

Model Year: 2000

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Left and Right side 30° oblique frontal crash tests & Static Rollover) &

(Left Side Lateral Impact & Static Rollover)

Introduction: To determine if the fuel system of UES25F meets the requirements of

S5.5 & S5.6 of FMVSS No.301.

Basis of validation:

The following design validation report is applicable as following reasons.

These tests were conducted using the 1999 year model of UES25F and the results is shown in the following report. Although passenger compartment frames of a 2000 model of UES25F is slightly different from that of 1999 year's, both models' fuel pipe layout are same. Therefore, the result of 1999 UES25F can substitute for that of 2000 UES25F.

Applicable Design Validation Report No. V-UE-030

References: ISUZU Research Engineering Report No. ET5-1072, 1073, 1091

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

Managar

Crashworthiness &

Safety Performance Test Section

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ISUZU MOTORS LIMITED

DESIGN VALIDATION REPORT

REPORT No. <u>V-UE-184</u>

ISSUED DATE July 30, 2000

Vehicle Model:

UES25F, UER25F, UER30F

Model Year

2001

Subject:

FMVSS No.301 Fuel System Integrity

FMVSS

Method of

Section

Item

Mediod 0.

Conclusion

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пеш

Validation

NOTION OF THE PROPERTY OF

S5.5

Fuel Spillage:

Barrier Crash

Test

Comply (cf. Attachment B to G)

S5.6

Fuel Spillage:

Rollover

Test

Comply

(cf. Attachment B to G)

This certifies that UES25F, UER25F, UER30F meet the applicable requirements of FMVSS No.301.

Authorized by M.YOSHINO

General Manager

SELECTION OF TEST VEHICLE

O: TEST

-: Substitute by other vehicle

	UER/S		
Test Item	UES25F	UER25F	UER30F
Perpendicular	0		0
Frontal Barrier	Attachment B	(byUES25F)	Attachment C
Right side Oblique		*****	_
Frontal Barrier	('00UES25F)	(byUES25F)	('00UER30F)
	Attachment D		Attachment D
Left Side Oblique	_	_	_
Frontal Barrier	('00UES25F)	(byUES25F)	(00UER30F)
· ·	Attachment D		Attachment D
Left-hand Side	0		
Lateral Moving Barrier	Attachment E	(byUES25F)	(byUES25F)
	(FMVSS214)		
Right-hand Side	*)		_
Lateral Moving Barrier	NO TEST	(byUES25F)	(byUES25F)
	0		0
Rear Moving Barrier	Attachment F	(byUES25F)	Attachment G

^{*):1)} All vehicle models of UES25F,UER25F,UER30F are identical design concerning the side body structure and side fuel system(fuel tank & fuel line) .

²⁾ Fuel tank & fuel line are located only left side body.

Attachment B (1 of 3)

ET2-1433

Vehicle Model: UES25F	
Model Year: 2001	
Subject: Compliance for S5.5 & S5.6 of FM (Perpendicular Frontal Barrier C Introduction: To determine if the fuel system and S5.6 of FMVSS No. 301.	
Method of validation: Test	
Vehicle Identification No.: 4S2DM58W114300	0009 (UES25F)
Explanation of reason why the tests was cond	lucted on the vehicle stated above;
 All vehicle models of UES25F,UER25F a body structure and fuel system. The test vehicle was set on the weight weight in all vehicle models of UES25F, UES25F,	of not less than the maximum vehicle
Test Date : June 19, 2000	
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	Perpendicular to the line of travel of the vehicle
Vehicle Impact Speed Vehicle Weight Less Dummies	56.6km/h (35.2MPH) 2015kg
Occupants Driver Right Front passenger	HybridⅢ (80kg) HybridⅢ (80kg)
Percent of Fuel Teak capacity Used	94 %
2.Rollover Test Is roll duration time at each increment of S	00 degrees between 1-3 minutes?



Test Results

1.Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 ,minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	О	0	
180° ~ 270°	minute	О	0	*****
270° ~ 360°	minute	0	0	_
Max. Allow	1-3 minute	5.0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	О	0	_
270° ~ 360°	minute	0	0	-
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requireme	nts?			
		×	_YES	NO
Reference Report: ISUZU Research Engineering Rep	ort No),	ET5-1306	

KKANO

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A.KAWABATA

Manager

Crashworthiness &

Safety Performance Test Section

Vehicle Model: UER30F	
Model Year: 2001	
(Perpendicular Frontal Barrier C	IVSS No.301, Fuel System Integrity Crash & Static Rollover) m of UES25F meets the requirements of S5.5
Method of validation: Test	
Vehicle Identification No.: 4S2CK58D814300	007 (UER30F)
Explanation of reason why the tests was con- 1.All vehicle models of UER30F are ideastructure and fuel system.	
Test Date : June 26, 2000	
Test Conditions: 1.Frontal Barrier Crash Test Barrier Face Angle	Perpendicular to the line of travel of the vehicle
Vehicle Impact Speed Vehicle Weight Less Dummies	56.3km/h (35.0MPH) 1815kg
Occupants Driver Right Front passenger	HybridⅢ (80kg) HybridⅢ (80kg)
Percent of Fuel Teak capacity Used	94 %
3.Rollover Test Is roll duration time at each increment of S	90 degrees between 1-3 minutes? — × YESNO



Test Results

2. Perpendicular Frontal Barrier Crash test results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 ,minute

3. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	-
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5,0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	О	
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements?			
	×	YES	NO

Reference Report: ISUZU Research Engineering Report No. ET5-1307

K.KANO

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K. Kano

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A.KAWABATA

Manager

Crashworthiness &

Safety Performance Test Section

Attachment D (1 of 3)

ET2-1433

Vehicle Model: UES25F, UER30F

Model Year: ____2001

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Right and Left side 30° oblique Frontal Barrier Crash & Static Rollover)
Introduction: To determine if the fuel system of UES25F,UER30F meet the requirements

of S5.5 and S5.6 of FMVSS No. 301.

Method of validation: Basis of Validation

Basis of validation

The body structure and fuel system of 2001 UES25F & UER30F are the same as those of 2000 UES25F & UER30F except material of fuel tank. It is the difference of material between the resin tank and the steel tank.

But, this difference have no influence of the fuel system integrity—in the right and left side 30° oblique frontal barrier crash test.

The Following Design Validation Report is applicable.

Applicable Design Validation Report No. V-UE-128

Reference Report:ISUZU Research Engineering Report No.ET5-1087,1088

ET5-1089,1090

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Attachment E (1 of 3)

ET2-1433

Vehicle Model: UES25F

Model Year: 2001

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Left-hand Side Lateral Moving Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UES25F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W414300005 (UES25F)

Explanation of reason why the tests was conducted on the vehicle stated above;

1.All vehicle models of UES25F UER25F UER30F are identical design concerning the side body structure and fuel system.

2. The test vehicle was set on the weight of not less than the maximum vehicle weight in all vehicle models of UES25F, UER25F, UER30F.

3. Test condition is FMVSS214, because severe than FMVSS301 lateral moving barrier test condition.

Test Date: July 3, 2000

Test Conditions:

1.Left-hand side Moving Deformable Barrier Crash Test

Moving Barrier Angle

63deg, with the centerline of the vehicle

Moving Barrier Impact Speed

62.2km/h (38.7MPH)

Vehicle Weight Less Dummies

2015g

Occupants

Driver

SID (80kg)

Left Rear passenger

SID (80kg)

Percent of Fuel Teak capacity

Used

94 %

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

___×__YES____NO

Test Results

1.Left-hand Side Moving Deformable Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 ,minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	0	0	****
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	- NOIGHU
90° ~ 180°	minute	0	0	_
180° ~ 270°	minute	0	o	_
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination satisfy the requirements	s?		
	×	_YES	NO
•	•		

Reference Report: ISUZU Research Engineering Report No. <u>ET5-1308</u>

K.KANO

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A.KAWABATA

Manager

Crashworthiness &

Safety Performance Test Section

Attachment F (1 of 3)

ET2-1433

Vehicle Model: UES25F

Model Year: 2001

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301, Fuel System Integrity

(Rear Moving Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UES25F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W714300001 (UES25F)

Explanation of reason why the tests was conducted on the vehicle stated above;

1.All vehicle models of UES25F,UER25F are identical design concerning the rear body structure and fuel system.

2. The test vehicle was set on the weight of not less than the maximum vehicle weight in all vehicle models of UES25F, UER25F.

Test Date: June 8, 2000

Test Conditions:

1.Rear Moving Barrier Crash Test

Moving Barrier Impact Speed

48.6km/h (30.2MPH)

Vehicle Weight Less Dummies

2015g

Occupants

Driver

Hybrid II (80kg)

Right Front passenger

Hybrid II (80kg)

Percent of Fuel Teak capacity

Used

94%

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

___×__YES____

NO

Test Results

1. Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 .minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	_
90° ~ 180°	minute	0	0	
180° ~ 270°	minute	О	o	
270° ~ 360°	minute	0	0	_
Max. Allow	1-3 minute	5.0	1.0	1.0

Attachment F (3 of 3)

ET2-1433

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	О	О	
180° ~ 270°	minute	0	0	
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

Do the above results of examination sat	tisfy the requirem	ents?			
	-		×	YES	NO
ı					
Reference Report: ISUZU Researc	h Engineering Re	port N	0	ET5-1309	9

K.KANO

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K. Kane

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A.KAWABATA

Manager

Crashworthiness &

Safety Performance Test Section

Camatata

Attachment G (1 of 3)

ET2-1433

Vehicle Model: UER30F

Model Year: 2001

Subject: Compliance for S5.5 & S5.6 of FMVSS No.301. Fuel System Integrity

(Rear Moving Barrier Crash & Static Rollover)

Introduction: To determine if the fuel system of UER30F meets the requirements of S5.5

and S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2CK58D814300010 (UER30F)

Explanation of reason why the tests was conducted on the vehicle stated above;

1.All vehicle models of UER30F are identical design concerning the rear body structure and fuel system.

Test Date: July 5, 2000

Test Conditions:

1.Rear Moving Barrier Crash Test

Moving Barrier Impact Speed

49.5km/h (30.8MPH)

Vehicle Weight Less Dummies

1815g

Occupants

Driver

Hybrid II (80kg)

Right Front passenger

Hybrid II (80kg)

Percent of Fuel Teak capacity

Used

94 %

2. Rollover Test

Is roll duration time at each increment of 90 degrees between 1-3 minutes?

____×__YES____

_NO

ET2-1433

Test Results

1. Rear Moving Barrier Crash Test Results.

	Results (ounce by weight)	Max. Allow (ounce by weight)
During impact	0	1.0
During first 5 minutes after impact	0	5.0
per minutes for subsequent 25 minutes Period	0	1.0 / 1 ,minute

2. Rollover Test Results (clockwise);

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	О	
90° ~ 180°	minute	О	О	
180° ~ 270°	minute	0	0	- Approximate
270° ~ 360°	minute	0	00	
Max. Allow	1-3 minute	5.0	1.0	1.0

Attachment G (3 of 3)

is.

ET2-1433

3. Rollover Test Results (Counterclockwise)

Rotation angle	Rotation time	During first 5 minutes (ounce by weight)	During any 1 minutes interval (ounce by weight)	During any 1 minutes interval (ounce by weight)
0° ~ 90°	minute	0	0	
90° ~ 180°	minute	0	. 0	-
180° ~ 270°	minute	0	0	-
270° ~ 360°	minute	0	0	
Max. Allow	1-3 minute	5.0	1.0	1.0

טע	the above results of	examination satisfy the requirements?			
			×	_YES	_NO
	•				_
	Reference Report:	ISUZU Research Engineering Report N	n	ET5,1310	
	•		·	11171010	

K.KANO

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A.KAWABATA

Manager

Crashworthiness &

Safety Performance Test Section

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ISUZU

ISUZU MOTORS LIMITED

DESIGN VALIDATION REPORT

REPORT No.

V-UE-243

ISSUED DATE

April 25rd, 2002

Vehicle Model :

UER25F, UES25F, UER30F

UER25E, UES25E, UER30E

Model Year

2003

Subject

FMVSS No. 301 Fuel System Integrity

FMVSS

Method of

Section

Item

Validation

Conclusion

S5.5

Fuel Spillage:

Test

Barrier Crash

Comply

(cf. Attachment A to D)

S5.6

Fuel Spillage:

Test

Comply

Rollover

(cf. Attachment A to D)

This certifies that UER25F, UES25F, UER30F, UER25E, UES25E, and UER30E meet the applicable requirements of FMVSS No. 301.

> Authorized by M. Yoshino

> > General Manager

SELECTION OF TEST VEHICLE

O: Test

-: Substitute by other vehicle

······································	- Substitute by other vehicle						
**	Test items						
Vehicle model	Perpendicular to Frontal	Left 30° Oblique Frontal	Right 30° Oblique Frontal	Left side Moving Barrier	Right side Moving Barrier	Rear Moving Barrier	
UES25F	Attachment B	O	O	-*3	-*3	-*3	
(LWB 4WD)		Attachment C	Attachment D	('01 Model)	('01 Model)	('01 Model)	
UER25F	-*1	-*1	-*1	-*3	-*3	-*3	
(LWB 2WD)	(UES25F)	(UES25F)	(UES25F)	('01 Model)	('01 Model)	('01 Model)	
UER30F	-*2	-*2	- *2	-*2	- *2	*2	
(LWB 2WD)	('01 Model)	('01 Model)	('01 Model)	('01 Model)	('01 Model)	('01 Model)	
UES25E	-*1	-*1	-*1	-*3	*3	-*3	
(SWB 4WD)	(UES25F)	(UES25F)	(UES25F)	('02 Model)	('02 Model)	('02 Model)	
UER25E	-*1	-*1	- *1	-*3	- *3	-*3	
(SWB 2WD)	(UES25F)	(UES25F)	(UES25F)	('02 Model)	('02 Model)	('02 Model)	
UER30E	- *2	-*2	-*2	- *2	-*2	-*2	
(SWB 2WD)	('02 Model)	('02 Model)	('02 Model)	('02 Model)	('02 Model)	('02 Model)	

We substitute the result of these items as the following reasons.

- *1: The vehicles of these models (UES25F, UER25F, UES25E and UER25E) have same front part body structure and fuel systems.

 The vehicle weight of UES25F is the heaviest in these models.
- *2: The modification at the part of the fuel tank of these models(UER30F and UER30E) has no influence for the performance of these items.
- *3: The modification at the fuel line in part of the power train and the part of fuel tank of these models(UES25F, UER25F, UES25E and UER25E) have no influence for the performance of these items

Applied Design Validation Report Numbers:

Vehicle Model Year

Design Validation Report

'01 Model

V-UE-184

'02 Model

V-UE-206

Attachment B (1 of 2)

Vehicle Model: UER25F, UES25F, UER30F UER25E, UES25E, UER30E

Model Year: 2003

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity (Perpendicular to frontal barrier crash test & static rollover test)

Introduction: To determine if the fuel system integrity of UER25F, UES25F, UER30E, UER25E, UES25E and UER30E meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W234300006 (UES25F)

Explanation of reason why the test was conducted on the vehicles stated above; Refer to Attachment A

Test Date: March 19th, 2002

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle

Perpendicular to the line of travel of the vehicle

Vehicle Impact Speed

56.7 km/h

Vehicle Weight with Dummies

2180 kg

Dummies

Driver

Hybrid II

Right Front Passenger

Hybrid II

Percent of Fuel Tank Capacity

Used

94 % (63 L)

Continued

Attachment B (2 of 3)

Test Results

1.Perpendicular to frontal barrier crash test results.

	Results (weight by gram)	Requirements (weight by gram)
During impact	0	Not exceed 28
During first 5 minutes after impact	0	Not exceed 140
Next 25 minutes subsequent to first 5 minutes after impact.	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	1 minute	0	0	_
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	0	0	_
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Attachment B (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	1 minute	0	0	
180° ~ 270°	1 minute	0	0	
270° ~ 360°	1 minute	0	0	
Requirements	1.3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	x	_ YES	NO

Reference: Isuzu Research Engineering Report No. 2002-1458

F. Okada

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A. Kawabata

Manager

Crashworthiness &

Safety Performance Test Section

Attachment C (1 of 3)

Vehicle Model: UER25F, UES25F, UER30F, UER25E, UES25E, UER30E

Model Year: 2003

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity (Left side 30° oblique frontal barrier crash test & static rollover test)

Introduction: To determine if the fuel system integrity of UER25F, UES25F, UER30F, UER25E, UES25E and UER30E meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W134300014 (UES25F)

Explanation of reason why the test was conducted on the vehicles stated above; Refer to Attachment A

Test Date: March 13th, 2002

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle

30 degrees in the left direction from the perpendicular to the line

of travel of the vehicle

Vehicle Impact Speed

48.6 km/h

Vehicle Weight with Dummies

2180 kg

Dummies

Driver

Hybrid III

Right Front Passenger

Hybrid III

Percent of Fuel Tank Capacity

TIYDIA

Used

94 % (63 L)

Attachment C (2 of 3)

Test Results
1.Left side 30° oblique frontal barrier crash test results.

	Results (weight by gram)	Requirements (weight by gram)
During impact	0	Not exceed 28
During first 5 minutes after impact	0	Not exceed 140
Next 25 minutes subsequent to first 5 minutes after impact.	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	0	0	_
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Attachment C (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	l minute	0	0	_
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	0	0	_
270° ~ 360°	1 minute	0	0	-
Requirements	1-3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	×	_YES	NO

Reference: Isuzu Research Engineering Report No. 2002-1456

F Okada

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Vehicle Safety Engineering Dept.

A. Kawabata

Manager

Crashworthiness &

Safety Performance Test Section

Attachment D (1 of 3)

Vehicle Model: UER25F, UES25F, UER30F UER25E, UES25E, UER30E

Model Year: 2003

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity (Right side 30° oblique frontal barrier crash test & static rollover test)

Introduction: To determine if the fuel system integrity of UER25F, UES25F, UER30F, UER25E, UES25E and UER30E meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W834300012 (UES25F)

Explanation of reason why the test was conducted on the vehicles stated above; Refer to Attachment A

Test Date: March 8th, 2002

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle

30 degrees in the right direction from the perpendicular to the line

of travel of the vehicle

Vehicle Impact Speed

48.8 km/h

Vehicle Weight with Dummies

2180 kg

Dummies Driver

T 1 1149

Right Front Passenger

Hybrid II

Percent of Fuel Tank Capacity

 $Hybrid \blacksquare$

Used

94 % (63 L)

Attachment D (2 of 3)

Test Results
1.Right side 30° oblique frontal barrier crash test results.

	Results (weight by gram)	Requirements (weight by gram)
During impact	0	Not exceed 28
During first 5 minutes after impact	0	Not exceed 140
Next 25 minutes subsequent to first 5 minutes after impact.	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	1 minute	0	0	4444
90° ~ 180°	1 minute	0	0	
180° ~ 270°	1 minute	0	0	-
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Attachment D (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation angle	Rotation time	During first 5 minutes (weight by gram)	During any 1 minute interval (weight by gram)	During any 1 minute interval (weight by gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	I minute	0	0	
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minutes	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	x	YES	NO

Reference: Isuzu Research Engineering Report No. 2002-1446

F. Okada

Crashworthiness &

Safety Performance Test Section

Vehicle Safety Engineering Dept.

A. Kawabata

Manager

Crashworthiness &

Safety Performance Test Section

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ISUZU

ISUZU MOTORS LIMITED

DESIGN VALIDATION REPORT

REPORT No.

V-UE-282

ISSUED DATE

June 20, 2003

Vehicle Model

UER25F, UES25F, UER26F, UES26F

Model Year

2004

Subject

FMVSS No. 301 Fuel System Integrity

FMVSS

Method of

Section

Validation

Conclusion

S5.5

Fuel Spillage:

:

<u>Item</u>

Test

Barrier Crash

Comply

(cf. Attachment A to G)

S5.6

Fuel Spillage:

Test

Comply

Rollover

(cf. Attachment A to G)

This certifies that UER25F, UES25F, UER26F and UES26F meet the applicable requirements of FMVSS No. 301.

Authorized by

K. Okame

General Manager

Attachment A

SELECTION OF TEST VEHICLE

O: Test

-: Substitute by other vehicle

J	. Sassage of Cartain Facilities						
		Test items					
vehicle model	Perpendicular to Frontal	Left 30° Oblique Frontal	Right 30° Oblique Frontal	Left side Moving Barrier	Right side Moving Barrier	Rear Moving Barrier	
UES26F (LWB 4WD)	O Attachment B	O Attachment C	O Attachment D	– (UES25F)	– (UES25F)	– (UES25F)	
UER26F (LWB 2WD)	_ (UES26F)	_ (UES26F)	(UES26F)	(UES25F)	— (UES25F)	— (UES25F)	
UES25F (LWB 4WD)	— *1 ('03 Model)	*1 ('03 Model)	- *1 ('03 Model)	O Attachment F	— *1 ('03 Model)	— *1 ('03 Model)	
UER25F (LWB 2WD)	(UES25F)	_ (UES25F)	– (UES25F)	– (UES25F)	— (UES25F)	– (UES25F)	

* 1	: The	result	of the	2003	model is	substituted	this mo	del.
-----	-------	--------	--------	------	----------	-------------	---------	------

 \cdot Perpendicular to Frontal \rightarrow Refer to Attachment E

·Left 30° Oblique Frontal → Refer to Attachment E

·Right 30° Oblique Frontal \rightarrow Refer to Attachment E

·Right side Moving Barrier → Refer to Attachment G

·Rear Moving Barrier → Refer to Attachment H

Attachment B (1 of 3)

Vehicle Model: UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Perpendicular to frontal barrier crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER26F and UES26F meet the

requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58W034300070 (UES26F)

Explanation of reason why the test was conducted on the vehicles stated above; We conducted all of compliance barrier tests by UES26F, since the vehicles of these models(UER26F, UES26F) have same body structure and fuel systems.

Test Date: October 11, 2002

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle

Perpendicular to the line of travel of the vehicle

Vehicle Impact Speed

56.4 km/h

Vehicle Weight with Dummies

2180 kg

Dummies

Driver

Hybrid II

Right Front Passenger

Hybrid III

Percent of Fuel Tank Capacity

Used

94%

Attachment B (2 of 3)

Test Results
1.Perpendicular to frontal barrier crash test results.

	Results (gram)	Requirements (gram)
During impact	0	Not exceed 28
During first 5 Minutes after impact	0	Not exceed 140
Per minutes for Subsequent 25 minutes Period	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation Angle	Rotation time	During first 5 minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	l minute	0	0	-
180° ~ 270°	I minute	0	0	****
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Attachment B (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation Angle	Rotation time	During first 5 Minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	_
90° ~ 180°	1 minute	0	0	
180° ~ 270°	1 minute	О	0	
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	x	_YES	NO

Reference: Isuzu Research Engineering Report No. 2003-1545

Fujio Okcoola. F. Okada

Crashworthiness &
Safety Performance Test Section
Vehicle Research & Experiment Dept.

A. Kawabata

Manager

Crashworthiness &

Safety Performance Test Section

Attachment C (1 of 3)

Vehicle Model: UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Left side 30° oblique frontal barrier crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER26F and UES26F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DF58Y544300018 (UES26F)

Explanation of reason why the test was conducted on the vehicles stated above; We conducted all of compliance barrier tests by UES26F, since the vehicles of these models(UER26F, UES26F) have same body structure and fuel systems.

Test Date: May 22, 2003

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle 30 degrees in the left direction

from the perpendicular to the line

of travel of the vehicle

Vehicle Impact Speed 49.3 km/h

Vehicle Weight with Dummies 2179 kg

Dummies

Driver Hybrid M

Right Front Passenger Hybrid III

Percent of Fuel Tank Capacity

Used 94 %

Attachment C (2 of 3)

Test Results
1.Left side 30° oblique frontal barrier crash test results.

	Results (gram)	Requirements (gram)
During impact	0	Not exceed 28
During first 5 Minutes after impact	0	Not exceed 140
Per minutes for Subsequent 25 minutes Period	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation Angle	Rotation time	During first 5 minutes (gram)	During any 1 minutes interval (gram)	During any 1 minutes interval (gram)
0° ~ 90°	1 minute	0	0	_
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	0	0	_
270° ~ 360°	1 minute	0	0	_
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Attachment C (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation Angle	Rotation time	During first 5 Minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	0	О	_
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	X	_YES	NO

Reference: Isuzu Research Engineering Report No. 2003-1960

Fiej io Okada.

F. Okada

Crashworthiness &
Safety Performance Test Section
Vehicle Research & Experiment Dept.

A. Kawabata

Manager

Crashworthiness &

Safety Performance Test Section

Attachment D (1 of 3)

Vehicle Model: UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Right side 30° oblique frontal barrier crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER26F and UES26F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58Y144300016 (UES26F)

Explanation of reason why the test was conducted on the vehicles stated above; We conducted all of compliance barrier tests by UES26F, since the vehicles of these models(UER26F, UES26F) have same body structure and fuel systems.

Test Date: May 15, 2003

Test Conditions:

Frontal Barrier Crash Test

Barrier Face Angle

30 degrees in the right direction

from the perpendicular to the line

of travel of the vehicle

Vehicle Impact Speed

49.3 km/h

Vehicle Weight with Dummies

2179 kg

Dummies

Driver

Hybrid II

Right Front Passenger

Hybrid III

Percent of Fuel Tank Capacity

Used

94~%

Attachment D (2 of 3)

Test Results
1.Right side 30° oblique frontal barrier crash test results.

	Results (gram)	Requirements (gram)
During impact	0	Not exceed 28
During first 5 Minutes after impact	0	Not exceed 140
Per minutes for Subsequent 25 minutes Period	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation Angle	Rotation time	During first 5 minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	ware.
90° ~ 180°	1 minute	0	0	
180° ~ 270°	1 minute	О	0	
270° ~ 360°	1 minute	0	0	_
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Attachment D (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation Angle	Rotation time	During first 5 Minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	_
90° ~ 180°	1 minute	0	0	_
180° ~ 270°	1 minute	o	0	Arrique -
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	×	YES	NO

Reference: Isuzu Research Engineering Report No. 2003-1863

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Manager

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Attachment E

Vehicle Model: UER25F, UES25F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Frontal barrier crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER25F, UES25F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Basis of validation

Basis of validation

These vehicle models concerning the body structure are the same as that of 2003 year model (UER25F, UES25F) except fuel system.

The modification at the fuel line in fuel tank part of vehicle of these models have no influence for the performance in the Frontal barrier crash test.

Then the following Design Validation Report is applicable.

Applicable Design Validation Report No. <u>V-UE-243</u>

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Attachment F (1 of 3)

Vehicle Model: UER25F, UES25F, UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Left side impact crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER25F, UES25F, UER26F

and UES26F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Test

Vehicle Identification No.: 4S2DM58D744300017 (UES25F)

Explanation of reason why the test was conducted on the vehicles stated above;

The vehicle of these models (UER25F, UES25F, UES26F, UES26F) have same body structure.

UER/S25F and UER/S26F have their own fuel system.

However the deference of their fuel systems in the deformation area during this test is the number of fuel pipe only.

UER25F, UES25F : Delivery + Return

UER26F, UES26F : Delivery

Therefore we selected UES25F.

Test Date: May 29, 2003

*Test Conditions:

Side Impact Test

Moving deformable barrier travering

Angle of 63 degrees with

the longitudinal centerline

of the test vehicle (left side)

Vehicle Impact Speed

60.1 km/h

Vehicle Weight with Dummies

2179 kg

Dummies

Driver

SID

Rear left passenger

SID

Percent of Fuel Tank Capacity

Used

94 %

Continued

^{*:} The body deformation in side impact crash test of FMVSS 214 is larger than that of FMVSS 301. Therefore we conducted left side impact test by FMVSS 214.

Attachment F (2 of 3)

Test Results
1.Left side impact crash test results.

	Results (gram)	Requirements (gram)
During impact	0	Not exceed 28
During first 5 Minutes after impact	0	Not exceed 140
Per minutes for Subsequent 25 minutes Period	0	Not exceed 28 / 1 minute

2. Static rollover test results (Counterclockwise from rear view);

Rotation Angle	Rotation Time	During first 5 Minutes (gram)	During any 1 Minutes interval (gram)	During any 1 Minutes interval (gram)
0° ~ 90°	1 minute	0	0	
90° ~ 180°	1 minute	0	o	
180° ~ 270°	1 minute	О	О	
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Attachment F (3 of 3)

3. Static rollover test results (Clockwise from rear view)

Rotation Angle	Rotation Time	During first 5 Minutes (gram)	During any 1 Minutes interval (gram)	During any 1 minutes interval (gram)
0° ~ 90°	l minute	0	0	_
90° ~ 180°	1 minute	0	0	
180° ~ 270°	1 minute	0	0	_
270° ~ 360°	1 minute	0	0	
Requirements	1-3 minute	Not exceed 140	Not exceed 28	Not exceed 28

Do the above test results satisfy the requirements?			
	×	_YES	NO

Reference: Isuzu Research Engineering Report No. 2003-2102

Fujio Okada.

F. Okada

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Attachment G

Vehicle Model: UER25F, UES25F, UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Right side impact crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER25F, UES25F, UER26F

and UES26F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Basis of Validation

Basis of Validation

These vehicle models concerning the body structure are the same as those of 2003 year model UER25F and UES25F except fuel system.

The modification at the fuel line in left side part of vehicle of these models

have no influence to the performance in the Right side crash test.

The new models UER26F and UES26F are added in 2004.

But all vehicle models of UER25F, UES25F, UER26F and UES26F are identical in design concerning the body structure and fuel line in right side part of vehicle.

Therefore we substitute the result of 2003 model year UES25F.

Then the following Design Validation Report is applicable.

Applicable Design Validation Report No. V-UE-243

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Attachment H

Vehicle Model: UER25F, UES25F, UER26F, UES26F

Model Year: 2004

Subject: Compliance for S5.5 & S5.6 of FMVSS No. 301 Fuel System Integrity

(Rear impact crash test & static rollover test)

Introduction: To determine if fuel system integrity of UER25F, UES25F, UER26F and UES26F meet the requirements of S5.5 & S5.6 of FMVSS No. 301.

Method of validation: Basis of Validation

Basis of Validation

These vehicle models concerning the body structure are the same as those of 2003 year model UER25F,UES25F except fuel system.

The modification at the fuel line in front part of vehicle of these models have no influence to the performance in the Rear crash test..

The new models UER26F and UES26F are added in 2004.

But all vehicle models of UER25F, UES25F, UER26F and UES26F are identical in design concerning the body structure and fuel line in rear part of vehicle.

Therefore we substitute the result of 2003 model year UES25F.

Then the following Design Validation Report is applicable.

Applicable Design Validation Report No. V-UE-243:

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