National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :	MAHINDRA RESEARCH VALLEY (MRV) TESTING LABORATORIES, MAHINDRA & MAHINDRA LTD., PLOT NO: 41/1 ANJUR PO, CHENGALPATTU, TAMIL NADU, INDIA
Accreditation Standard	ISO/IEC 17025:2017
Certificate Number	TC-5333
Validity	17/08/2021 to 16/08/2023

Last Amended on -

S.No	Discipline / Group	Materials or Products tested	Component, parameter or characteristic tested / Specific Test Performed / Tests or type of tests performed	Test Method Specification against which tests are performed and / or the techniques / equipment used
Permanent Facility				
1	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Crankcase emissions	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
2	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Emission of pollutant from Positive & compression engine powered vehicle Tail pipe emissions, Free acceleration smoke , Temp	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019 6) AIS 137 Part 5 & GSR 881 (E) ,BSVI: 2019

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3	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Emission of pollutant from Positive & compression engine powered vehicle Tail pipe emissions, Particulate Mass	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
4	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions CH4	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
5	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail Pipe emissions CO	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019

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6	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions CO2	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
7	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions NOx	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
8	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions Particulate Number	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019

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9	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions Total hydro Carbon (THC)	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019
10	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions, Free acceleration smoke	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019 6) AIS 137 Part 5 & GSR 881 (E) ,BSVI: 2019

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11	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions, Idling CO	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019 6) AIS 137 Part 5 & GSR 881 (E) ,BSVI: 2019
12	CHEMICAL- ATMOSPHERIC POLLUTION	Test on vehicles	Tail pipe emissions, idling HC	1)MORTH/CMVR/TAP/ 115-116 Issue4, Part XI, Part XIII, Part XIV, Part XVIII, (Except Type IV & Type V test) GSR 686 (E), GSR 284 (E),GSR 788 (E), GSR 84 (E), GSR 277 (E), GSR 103 (E): 2009 2)R83, Revision 5, 07 series of amendments , 715/2007 & 692/2008 (Except Type IV, V & VI tests) : 2015 3)R-101 Rev 3 : 2013 4)EEC 70/220 as amended by 98/69/EC and 2003/76/EC (Except Type IV, V & VI tests) : 2003 5) AIS 137 Part 3 & GSR 889 (E) ,BSVI : 2019 6) AIS 137 Part 5 & GSR 881 (E) ,BSVI: 2019
13	CHEMICAL- LUBRICANTS	Brake Fluid	Equilibrium Reflux Boiling Point	IS 8654
14	CHEMICAL- LUBRICANTS	Brake Fluid	Moisture Content	ASTM D 6304
15	CHEMICAL- LUBRICANTS	Brake Fluid	pH	IS 8654
16	CHEMICAL- LUBRICANTS	Coolant	Chloride Content	ASTM D 3634
17	CHEMICAL- LUBRICANTS	Coolant	Density @ 20 Deg. C	ASTM D 1298
18	CHEMICAL- LUBRICANTS	Coolant	Ethylene Glycol Concentration	MRV/FL/SOP/5.4/022 Rev.0
19	CHEMICAL- LUBRICANTS	Coolant	Foaming	IS 5759
20	CHEMICAL- LUBRICANTS	Coolant	pH	ASTM D 1287

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21	CHEMICAL- LUBRICANTS	Coolant	Reserve Alkalinity	ASTM D 1121
22	CHEMICAL- LUBRICANTS	Lubricants	Acid Number	ASTM D 974
23	CHEMICAL- LUBRICANTS	Lubricants	Base Number	ASTM D 4739
24	CHEMICAL- LUBRICANTS	Lubricants	Density @ 29.5 Deg. C	ASTM D 7042
25	CHEMICAL- LUBRICANTS	Lubricants	Density @ 29.5 °C	ASTM D 1298
26	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Aluminium	ASTM D5185
27	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Copper	ASTM D5185
28	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Iron	ASTM D 5185
29	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Lead	ASTM D 5185
30	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Manganese	ASTM D5185
31	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Molybdenum	ASTM D5185
32	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Nickel	ASTM D5185
33	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Silicon	ASTM D5185
34	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Tin	ASTM D5185
35	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) -Phosphorus	ASTM D 5185
36	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) -Zinc	ASTM D 5185
37	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous)-Chromium	ASTM D 5185
38	CHEMICAL- LUBRICANTS	Lubricants	Elemental analysis (Non-Aqueous)-Calcium	ASTM D5185
39	CHEMICAL- LUBRICANTS	Lubricants	Elemental Analysis (Non Aqueous) - Magnesium	ASTM D5185
40	CHEMICAL- LUBRICANTS	Lubricants	Flash point, COC	ASTM D 92
41	CHEMICAL- LUBRICANTS	Lubricants	Kinematic Viscosity at 100 deg C	ASTM D 445

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42	CHEMICAL- LUBRICANTS	Lubricants	Kinematic Viscosity at 100 Deg. C	ASTM D 7042
43	CHEMICAL- LUBRICANTS	Lubricants	Kinematic Viscosity at 40 deg C	ASTM D 445
44	CHEMICAL- LUBRICANTS	Lubricants	Kinematic Viscosity at 40 deg C	ASTM D 7042
45	CHEMICAL- LUBRICANTS	Lubricants	Moisture Content	ASTM D 6304
46	CHEMICAL- LUBRICANTS	Lubricants	Pour point	ASTM D 97
47	CHEMICAL- LUBRICANTS	Lubricants	Soot	ASTM D 7686
48	CHEMICAL- LUBRICANTS	Lubricants	Sulphur Content	ASTM D 4294
49	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Bi	ASTM E 1251
50	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Co	ASTM E 1251
51	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Cr	ASTM E 1251
52	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Cu	ASTM E 1251
53	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Fe	ASTM E 1251
54	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Mg	ASTM E 1251
55	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Mn	ASTM E 1251
56	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Ni	ASTM E 1251
57	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Si	ASTM E 1251
58	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Ti	ASTM E 1251
59	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	V	ASTM E 1251
60	CHEMICAL- METALS & ALLOYS	Aluminum & Aluminum Alloys	Zn	ASTM E 1251
61	CHEMICAL- METALS & ALLOYS	Cast Iron	C	ASTM E 1999
62	CHEMICAL- METALS & ALLOYS	Cast Iron	Cu	ASTM E 1999

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63	CHEMICAL- METALS & ALLOYS	Cast Iron	Mg	ASTM E 1999
64	CHEMICAL- METALS & ALLOYS	Cast Iron	Mn	ASTM E 1999
65	CHEMICAL- METALS & ALLOYS	Cast Iron	Mo	ASTM E 1999
66	CHEMICAL- METALS & ALLOYS	Cast Iron	Ni	ASTM E 1999
67	CHEMICAL- METALS & ALLOYS	Cast Iron	P	ASTM E 1999
68	CHEMICAL- METALS & ALLOYS	Cast Iron	S	ASTM E 1999
69	CHEMICAL- METALS & ALLOYS	Cast Iron	Si	ASTM E 1999
70	CHEMICAL- METALS & ALLOYS	Cast Iron	Ti	ASTM E 1999
71	CHEMICAL- METALS & ALLOYS	Cast Iron	V	ASTM E 1999
72	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Cu	ASTM E 415
73	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Al	ASTM E 415
74	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	C	ASTM E 415
75	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Co	ASTM E 415
76	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Cr	ASTM E 415
77	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Mn	ASTM E 415
78	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Mo	ASTM E 415
79	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	N	ASTM E 415
80	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Ni	ASTM E 415
81	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	P	ASTM E 415

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82	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	S	ASTM E 415
83	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	Si	ASTM E 415
84	CHEMICAL- METALS & ALLOYS	Low Alloy Steel	V	ASTM E 415
85	CHEMICAL- METALS & ALLOYS	Stainless Steel	C	ASTM E 1086
86	CHEMICAL- METALS & ALLOYS	Stainless Steel	Cr	ASTM E 1086
87	CHEMICAL- METALS & ALLOYS	Stainless Steel	Cu	ASTM E 1086
88	CHEMICAL- METALS & ALLOYS	Stainless Steel	Mn	ASTM E 1086
89	CHEMICAL- METALS & ALLOYS	Stainless Steel	Mo	ASTM E 1086
90	CHEMICAL- METALS & ALLOYS	Stainless Steel	Ni	ASTM E 1086
91	CHEMICAL- METALS & ALLOYS	Stainless Steel	P	ASTM E 1086
92	CHEMICAL- METALS & ALLOYS	Stainless Steel	S	ASTM E 1086
93	CHEMICAL- METALS & ALLOYS	Stainless Steel	Si	ASTM E1086
94	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Acid Number	ASTM D974
95	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Kinematic Viscosity @ 40 °C	ASTM D445
96	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Abel Flash Point	IS 1448 (P20)
97	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Cold Filter Plugging Point (CFPP)	ASTM D 6371
98	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Density @ 15 °C	ASTM D 1298
99	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Density @ 15 °C	ASTM D 7042
100	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Distillation, 95 % v/v, recovery	ASTM D86

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101	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Final Boiling point	ASTM D86
102	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Kinematic Viscosity @ 40 °C	ASTM D7042
103	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Moisture Content	ASTM D6304
104	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Percent evaporated at 100 °C	ASTM D86
105	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Percent evaporated at 150 °C	ASTM D86
106	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Percent evaporated at 70 °C	ASTM D86
107	CHEMICAL- PETROLEUM AND PRODUCTS	Fuels	Pour point	ASTM D97
108	MECHANICAL- AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	OECD- Code 4 (Including clause 1.0 to 3.10)
109	MECHANICAL- AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	SAEJ2194 (Including Clause 1.0 to 6.8 , 7.0 to 7.5 &11.2)
110	MECHANICAL- AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	EU 1322/2014 (Annexure 8- Excluding clause 3.11)

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111	MECHANICAL-AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	IS 11821 - Method of Tests and Acceptance Conditions for Protective Structures of Agricultural Tractors (1.0 to 7.4)
112	MECHANICAL-AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	ISO 12003-2 : Agricultural and forestry tractors — Roll-over protective structures on narrow-track wheeled tractors (Including clause 1.0 to 7.6):
113	MECHANICAL-AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	ISO 5700 -Tractors for agriculture and forestry — Roll-over protective structures — Static test method and acceptance conditions (1.0 to 7.4)
114	MECHANICAL-AUTOMOTIVE COMPONENTS	Agricultural Tractor ROPS: Rollover Protective Structure	On roll-over protection structures of wheeled agricultural or forestry tractors (static testing Test Parameter: Lateral / Longitudinal / Vertical Load : 10 to 130 kN Lateral / Longitudinal / Vertical Displacement : 0 to 680 mm	OECD- Code 7 2021 OECD STANDARD CODE FOR THE OFFICIAL TESTING OF REAR MOUNTED ROLL-OVER PROTECTIVE STRUCTURE ON NARROW-TRACK AGRICULTURAL AND FORESTRY TRACTORS (Including clause 1.0 to 3.2)
115	MECHANICAL-AUTOMOTIVE COMPONENTS	Agricultural Tractor Seat	Tractors and machinery for agriculture — Seat belts — - Anchorage strength requirements Input Test Parameter: Load 1kN to 10 kN - Anchorage strength requirements	ISO3776-2:2013(E) (Excluding Cl No 3.5)

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116	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle and its subsystems	Full vehicle structural durability evaluation on 4 – post laboratory vertical road simulation Input Test Parameter: Max Displacement : ±125 mm Max Velocity : 3 m/sec Frequency : 2 to 50 Hz Vehicle Weight : 0.5 to 4 Ton Wheel base: 1.5 to 4.2 m Wheel track: 1.3 to 2.5 m Acceleration: 0.5 to 50 g Vertical Spindle Acceleration correlation with Accelerated durability Test Track: Range:75 - 95%	GMW14045
117	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle and its subsystems	Full vehicle structural durability evaluation on 4 – post laboratory vertical road simulation Input Test Parameter: Max Displacement : ±125 mm Max Velocity : 3 m/sec Frequency : 2 to 50 Hz Vehicle Weight : 0.5 to 4 Ton Wheel base: 1.5 to 4.2 m Wheel track: 1.3 to 2.5 m Acceleration: 0.5 to 50 g Vertical Spindle Acceleration correlation with Accelerated durability Test Track: Range:75 - 95%	GMW14045 Excluding Clause 3.2.2, 4.1.1, 4.1.2
118	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive components	Vibration Testing for automobile parts Test Input: 1.Resonance Frequency Detection Test - 5 Hz to 2000 Hz Max 2. Vibration Function Test 3.Vibration Endurance Test (Discrete Mode) 4.Sweep Vibration Endurance Test (Sine Sweep Vibration) - Up to 75 g Max.	JIS D-1601-1995

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119	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive components	Vibration Testing methods for automobile parts Test Input: 1.Resonance Frequency Detection Test - 5 Hz to 2000 Hz Max 2. Vibration Function Test 3.Vibration Endurance Test (Discrete Mode) 4.Sweep Vibration Endurance Test (Sine Sweep Vibration) - Up to 75 g Max.	JIS D-1601-1995
120	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Flushness	M&M standard C-01-0100
121	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Gap	M&M standard C-01-0100
122	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Height	M&M standard C-01-0100
123	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Load	M&M standard C-01-0100
124	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Load	M&M standard C-01-0100
125	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Load	M&M standard C-01-0100
126	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Push Pull	M&M standard C-01-0100
127	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Torque	M&M standard C-01-0100
128	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Door system – Slam durability test	Door system - Slam Durability test-Velocity	M&M standard C-01-0100
129	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Efficiency Measurement	C-07-1468
130	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Efficiency Measurement	C-07-1468

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131	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Efficiency Measurement	C-07-1468
132	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Efficiency measurement	C-07-1468
133	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Efficiency Measurement	C-07-1468
134	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Maximum Load test	C-07-1470
135	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Transmission Transaxle, Axle	Maximum Speed Test	C-07-1469
136	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages- Lateral Load	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
137	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages- Lateral Load	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
138	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages.	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
139	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages.	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
140	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages.	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
141	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages.	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
142	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages.	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03

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143	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages-Angle	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
144	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages-Load	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
145	MECHANICAL-AUTOMOTIVE COMPONENTS	Automotive Vehicle Body, Seat	Automotive vehicles – Safety belt anchorages – Specifications – Strength of anchorages-Load	IS15139:2002-Reaffirmed 2018 Clause No. 4.5,5 & SOP:MRV/SEL/SOP/01- 2020-Rev-03
146	MECHANICAL-AUTOMOTIVE COMPONENTS	Body Panels	Performance test – Oil cunning-Distance	MRV/SEL/SOP/03(External Ref.: Pininfarina Test Procedure: 9T0066EN Dt.: 03/04/13))
147	MECHANICAL-AUTOMOTIVE COMPONENTS	Body Panels	Performance test – Oil cunning-Length	MRV/SEL/SOP/03(External Ref.: Pininfarina Test Procedure: 9T0066EN Dt.: 03/04/13))
148	MECHANICAL-AUTOMOTIVE COMPONENTS	Body Panels	Performance test – Oil cunning-Load	MRV/SEL/SOP/03(External Ref.: Pininfarina Test Procedure: 9T0066EN Dt.: 03/04/13))
149	MECHANICAL-AUTOMOTIVE COMPONENTS	Body Panels	Performance test – Oil cunning-Thickness	MRV/SEL/SOP/03(External Ref.: Pininfarina Test Procedure: 9T0066EN Dt.: 03/04/13))
150	MECHANICAL-AUTOMOTIVE COMPONENTS	Connecting Rod	Connecting Rod Fatigue Test Test Type: 1. Performance Test - Buckling or Yield test 2. Endurance Test With SN Curve Input Test Parameter: Load : +/- 250 kN Disp : +/- 125 mm	C 03 0642
151	MECHANICAL-AUTOMOTIVE COMPONENTS	Connecting Rod	Connecting Rod Fatigue Test Test Type: 1. Performance Test - Buckling or Yield test 2. Endurance Test With SN Curve Input Test Parameter: Load : +/- 250 kN Disp : +/- 125 mm	AVL- F01 N 0020
152	MECHANICAL-AUTOMOTIVE COMPONENTS	Crank Shaft	Crank Shaft Fatigue Test Bending Test With SN Curve Input Test Parameter: Load : +/- 250 kN Displacement : +/- 140 mm SN Curve X Axis :10 to 100 lacs Y Axis : 5 to 100 kN Factor of Safety for Fatigue Strength 1.0 to 2.0	AVL: F 01 N 0030 Excluding 2.2 (Torsional Test)

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153	MECHANICAL-AUTOMOTIVE COMPONENTS	Crank Shaft	Crank Shaft Fatigue Test: Bending Test Input Test Parameter: Load : +/- 250 kN Displacement: +/- 140 mm	C 03 2177
154	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door Sag-Angle	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN 01/12/2015
155	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door sag-Deflection	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
156	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door sag-Deflection	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
157	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door sag-Distance	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
158	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door Sag-Load	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
159	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door Sag-Thickness(Micrometer)	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
160	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door Sag-Time	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
161	MECHANICAL-AUTOMOTIVE COMPONENTS	Door	Door Sag-Torque	MRV/SEL/SOP/17 (Pininfarina test standard 9T0068EN,01/12/2015
162	MECHANICAL-AUTOMOTIVE COMPONENTS	Fuel tank (Metal & Plastic)	Technical Requirements of fuel tank for Agricultural tractors – Performance test 2) Pressure test-Pressure	AIS 104 test standard (Feb 2012) Clause 4.1, 4.1.3. ,4.2.1 & Directive 74 / 151 / EEC /2006/26/EC- Consolidated - Annex 3 (July 2009) - MRV/SEL/SOP/14-
163	MECHANICAL-AUTOMOTIVE COMPONENTS	Fuel tank (Metal & Plastic)	Technical Requirements of fuel tank for Agricultural tractors – Performance test 1) Leakage test-Volume 1	AIS 104 test standard (Feb 2012) Clause 4.1, 4.1.3. ,4.2.1 & Directive 74 / 151 / EEC /2006/26/EC- Consolidated - Annex 3 (July 2009) - MRV/SEL/SOP/14-

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164	MECHANICAL-AUTOMOTIVE COMPONENTS	Fuel tank (Metal & Plastic)	Technical Requirements of fuel tank for Agricultural tractors – Performance test 1) Leakage test-Volume 1	AIS 104 test standard (Feb 2012) Clause 4.1, 4.1.3. ,4.2.1 & Directive 74 / 151 / EEC /2006/26/EC- Consolidated - Annex 3 (July 2009) - MRV/SEL/SOP/14-
165	MECHANICAL-AUTOMOTIVE COMPONENTS	Fuel tank (Metal & Plastic)	Technical Requirements of fuel tank for Agricultural tractors – Performance test 1) Leakage test-Time	AIS 104 test standard (Feb 2012) Clause 4.1, 4.1.3. ,4.2.1 & Directive 74 / 151 / EEC /2006/26/EC- Consolidated - Annex 3 (July 2009) - MRV/SEL/SOP/14-
166	MECHANICAL-AUTOMOTIVE COMPONENTS	Fuel tank (Metal & Plastic)	Technical Requirements of fuel tank for Agricultural tractors – Performance test-1) 1.Leakage test-Angle	AIS 104 test standard (Feb 2012) Clause 4.1, 4.1.3. ,4.2.1 & Directive 74 / 151 / EEC /2006/26/EC- Consolidated - Annex 3 (July 2009) - MRV/SEL/SOP/14-
167	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Angle	IS12224
168	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Distance	IS12224
169	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Flow	IS12224
170	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Load	IS12224
171	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Pressure	IS12224
172	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-RPM	IS12224
173	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Temperature	IS12224
174	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Time	IS12224

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175	MECHANICAL-AUTOMOTIVE COMPONENTS	Hydraulic Lift Unit	Method of test for Hydraulic Power & lifting capacity of Agricultural Tractors-Load-5T	IS12224
176	MECHANICAL-AUTOMOTIVE COMPONENTS	Organic coated panels/components	Weathering	SAE J2527
177	MECHANICAL-AUTOMOTIVE COMPONENTS	Organic coating panels/componenst	Gloss	ASTM 523-2014
178	MECHANICAL-AUTOMOTIVE COMPONENTS	Overall Tractor	Drawbar Performance Test	IS 12226
179	MECHANICAL-AUTOMOTIVE COMPONENTS	Overall Tractor	Drawbar Performance Test	ISO 789-9
180	MECHANICAL-AUTOMOTIVE COMPONENTS	Overall Tractor	Nominal/ Theoretical Speed Test	FE C 00 0640
181	MECHANICAL-AUTOMOTIVE COMPONENTS	Painted and cured panels/Components	Color	SAE J1545
182	MECHANICAL-AUTOMOTIVE COMPONENTS	Painted Metallic Sheet (Templates/ Components)	Paint film thickness	ASTM D 7091
183	MECHANICAL-AUTOMOTIVE COMPONENTS	Test on Engines	Smoke	1) Regulation (EC) number 2017/1151 ANNEX IV(Appendix 2) as per UNECE R24.03 2)72/306/EE C - Annex III & IV
184	MECHANICAL-AUTOMOTIVE COMPONENTS	Test on Engines	Power	1) MORTH/CMVR/TAP/ 115-116 Issue4, Part IV: APRIL 1991 2) AIS 137 Part 5
185	MECHANICAL-AUTOMOTIVE COMPONENTS	Test on Engines	Power	1)Regulation (EC) Number 2017/1151 ANNEX XX as per UNECE R85 2)80/1269/EEC
186	MECHANICAL-AUTOMOTIVE COMPONENTS	Test on Engines	Smoke	1) MORTH/CMVR/TAP/ 115-116 Issue4, Part IV: APRIL 1991 2) AIS 137 Part 5
187	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	2 Hours Max Power performance test at High ambient, Engine oil Temperature	IS 12036

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188	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	2 Hours Max. Power Test at Natural ambient condition, Power	IS 12036
189	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	PTO Performance at High ambient condition, Water Out let temperature	IS 12036
190	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	PTO Performance at Natural ambient condition, Specific Fuel Consumption	IS 12036
191	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	PTO Performance at Natural ambient condition, Specific Fuel Consumption	ISO 789-1
192	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	PTO Performance at natural ambient condition, Power	IS 12036
193	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor	PTO Performance at Natural Ambient condition, Power	ISO 789-1
194	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Drawbar	Tractor Draw bar Dynamic test Agricultural vehicles Input Test Parameter: Load: 1 to 45 kN Displacement : ± 75 mm Target Cycle: 20,00,000 Cycles	2015/208/EU- Annexure XXXIV - Appendix II
195	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Performance & Endurance of Transmission Rear Axle LH Torque	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
196	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Performance of Transmission /Front Axle: Input shaft speed	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
197	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Performance of Transmission Rear Axle /Front Axle speed	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
198	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle a) Performance Tests 1)Efficiency - Input Torque	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
199	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle a) Performance Tests 1)Efficiency -Temperature	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
200	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle a) Performance Tests 2)Frictional Horse Power-Temperature:	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07

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201	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle- b) Endurance test	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
202	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle b) Endurance test -4-WD Torque	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
203	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle b) Endurance test-Input Torque:	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
204	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle b) Endurance test-Output LH Axle RPM	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
205	MECHANICAL-AUTOMOTIVE COMPONENTS	Tractor Transmission (2WD/ 4WD) & 4-WD Front Axle	Tractor Transmission & Front axle b) Endurance test-Temperature:	(Internal Ref.: M&M Standard R 02001 Dt.: 10/03/2001) MRV/SEL/SOP/07
206	MECHANICAL-AUTOMOTIVE COMPONENTS	Window Regulator	Performance of Power Window Operating & Stall Current	MRV/SEL/SOP/16 (GMW test standard 15080 -Reaffirmed Feb2017 - Power window)
207	MECHANICAL-AUTOMOTIVE COMPONENTS	Window Regulator	Performance of Power window Operating /Stall Time	MRV/SEL/SOP/16 (GMW test standard 15080 -Reaffirmed Feb2017 - Power window)
208	MECHANICAL-AUTOMOTIVE COMPONENTS	Window Regulator	Performance of Power Window Operating DC Voltage	MRV/SEL/SOP/16 (GMW test standard 15080 -Reaffirmed Feb2017 - Power window)
209	MECHANICAL-AUTOMOTIVE COMPONENTS	Window Regulator	Power Window regulator test - Endurance test	MRV/SEL/SOP/16 (GMW test standard 15080 -Reaffirmed Feb2017 - Power window)
210	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper counter	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
211	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating test Time	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
212	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating Angle	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
213	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating Current	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
214	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating DC voltage	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)

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215	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating Hrs	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
216	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating motor Temperature	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
217	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating Pull force	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
218	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating Torque	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
219	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper Operating water Temperature	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
220	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Performance of Wiper water flow	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
221	MECHANICAL-AUTOMOTIVE COMPONENTS	Wiper system	Wiper Endurance test	MRV/SEL/SOP/15 IS:7827 test standard (Part I), Clause 4.3,4.4 & 4.5)
222	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV 0.2	IS 6416
223	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV 0.2	SAE J423
224	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV0.5	IS 6416
225	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV0.5	SAE J423
226	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferrous Metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV1	IS 6416
227	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Ferroys metals & Alloys (Raw Material & Components)	Case Depth Measurement by Hardness Traverse Method in HV1	SAE J423
228	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metal & Alloys - Raw Materials & Components	Rockwell Hardness Testing	ASTM E-18

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229	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys - Raw material & Components	Rockwell hardness testing	ASTM E-18
230	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	ASTM E10
231	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	ASTM E10
232	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	ASTM E10
233	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	IS 1500 PART 1
234	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	IS 1500 PART 1
235	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Brinell Hardness Testing	IS 1500 PART 1
236	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	ASTM E384
237	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	ASTM E384
238	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	ASTM E384
239	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	IS 1501 PART 1
240	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	IS 1501 PART 1
241	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Micro Vickers Hardness Testing	IS 1501 PART 1
242	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Rockwell Hardness Testing	ASTM E-18

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243	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Rockwell Hardness Testing	IS 1586 PART 1
244	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Rockwell Hardness Testing	IS 1586 PART 1
245	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Rockwell Hardness Testing	IS 1586 PART 1
246	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Strain hardening exponent	ASTM E646
247	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Strain hardening exponent	IS 15756
248	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT d) % of Elongation	IS 1608-Part 1
249	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. a) Tensile Strength	ASTM E8/E8M:16a
250	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. a) Tensile Strength	IS 1608-Part 1
251	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. b) Yield Strength	ASTM E8/E8M:16a
252	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. b) Yield Strength	IS 1608-Part 1
253	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. c)0.2%Proof Stress	ASTM E8/E8M:16a
254	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. c)0.2%Proof Stress	IS 1608-Part 1
255	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Tensile Testing at RT. d) % Elongation	ASTM E8/E8M:16a
256	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Vickers Hardness Testing	ASTM E92

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257	MECHANICAL-MECHANICAL PROPERTIES OF METALS	Metals & Alloys – Raw Material & Components	Vickers Hardness Testing	IS 1501 PART 1
258	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Element Analysis using SEM – Energy Dispersive Spectroscopy (EDS)	ASTM E1508:12a
259	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Macro Etch Testing using Stereo Zoom Microscope	ASTM E340
260	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Macro Etch Testing using Stereo Zoom Microscope	ASTM E381
261	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Macro Etch Testing using Stereo Zoom Microscope	IS 11371
262	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Macro Etch Testing using Stereo Zoom Microscope	IS 13015
263	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Microstructure Analysis & Fractrography using Scanning Electron Microscope (SEM)	ASM Metals Hand Book Vol.12 Fractrography
264	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Microstructure Analysis using Optical Metallurgical Microscope	ASM Metals Hand Book Vol.9 Metallography & Microstructures
265	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope	ASTM B487
266	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope	ASTM B487
267	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope	ASTM B487
268	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope	ASTM B487
269	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope.	IS 3203
270	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope.	IS 3203
271	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope.	IS 3203
272	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components	Plating Thickness Using Metallurgical Microscope.	IS 3203
273	MECHANICAL-METALLOGRAPHY TEST	Metals & Alloys – Raw Material & Components,	Element Analysis using SEM – Energy Dispersive Spectroscopy (EDS)	ISO 15632

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274	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Painted /Unpainted Plastic & Painted Metallic (Components & Templates)	Xenon-Arc Weatherability	SAE J 2412
275	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Painted /Unpainted Plastic & Painted Metallic (Components & Templates)	Xenon-Arc Weatherability	SAE J 2527
276	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Painted/ Unpainted Plastic & Painted Metallic sheet (Components/ Templates)	Color Test	SAE J 1545
277	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic (Components/ Specimen)	Specific Gravity	ASTM D 792
278	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic	Melting point	ASTM D 3418
279	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic	Polymer components identification	ASTM E 1252- 98 (E1)
280	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic / Painted Metallic sheet (Templates/ Components)	Gloss	ASTM D 523
281	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic & Rubber	Filler & Ash % by Thermogravimetry (TGA)	ASTM E 1131
282	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic (Components/ Specimen)	Ash Content/Filler Content	ASTM D 5630
283	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic (Components/Samples)	Density	ASTM D 792
284	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic (Specimen)	Heat Deflection Temperature	ASTM D 648
285	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic (Specimen)	Izod Impact strength	ASTM D 256
286	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Density	ISO 1183
287	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Elongation at yield	ASTM D638
288	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Elongation at yield	ISO 527
289	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Flexural strength and modulus	ASTM D790
290	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Flexural strength and modulus	ISO 178
291	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Heat deflection temperature	ISO 75
292	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Izod impact test	ISO 180

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293	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Tensile strength	ASTM D638
294	MECHANICAL- PLASTICS AND PLASTIC PRODUCTS	Plastic molded specimens	Tensile strength	ISO 527
295	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Natural and synthetic products	%Elongation at break	ASTM D412
296	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Natural and Synthetic rubber poroducts	Tensile strength	ASTM D412
297	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Natural rubber and synthetic rubber products	Ash % by Thermogravimetry (TGA)	ASTM D6370
298	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Natural rubber and synthetic rubber products	Rubber components identification by Infra Red Spectrometer (FT-IR)	ASTM D3677
299	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Natural rubber and synthetic rubber products	Specific Gravity	ASTM D297
300	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Plastic & Rubber	Rubber components identity by Infra Red Spectrometer (FT-IR)	ASTM D 3677
301	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Rubber / Rubber Components	Hardness Shore A	ASTM D 2240
302	MECHANICAL- RUBBER AND RUBBER PRODUCTS	Rubber and rubber products	Ash content	ASTM D297