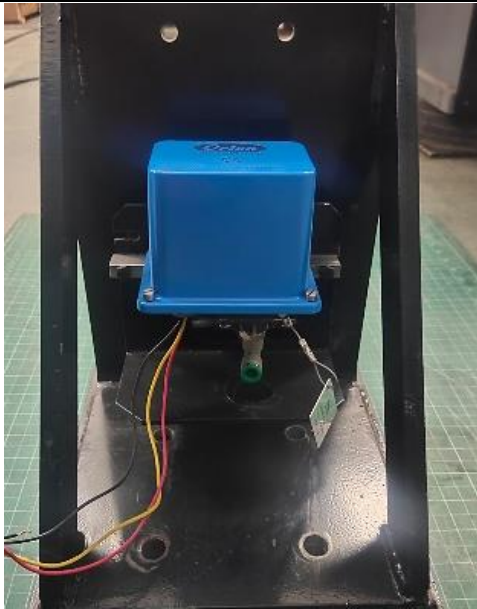


DEVELOPMENT TEST REPORT

Report No. ARAI/AED/20242025/3100022814/DT/2185
Date of Issue:

Page 1 of 2
CONFIDENTIAL

1.0	Name and Address of the Customer	KAUSTUBHA UDYOG (BRAND NAME - ORION INSTRUMENTS) S. No.36/1/1, Sinhgad Road, Vadgaon Khurd, Pune-411041 State code: 27 Maharashtra	
2.0	Test Location	Location 1: The Automotive Research Association of India S.No. 102, Vetel Hill Off Paud Road, Kothrud, Pune 411038 (India)	
3.0	Customer Letter Reference	PO No. PO24/0722 Dated: 01 Jan 2025	
4.0	Description of Test Component	DUT Name	MZ Series Pressure Switch
		Model No.	MZ Series
		Serial No.	A24124334
		Quantity	01
5.0	Test Objective	Refer clause 7.0 for Test Details.	
6.0	Details of the Device Under Test	The test component was received in good condition 	

		
H. R. TADSARE Technical Assistant	S. H. JANAGOND Manager	A. A. PAPADE Dy. General Manager
Prepared By	Reviewed By	Approved By

7.0	Test Details:				
Sr. No	Test	Annexure	Acceptance Criteria	Test Observation	Result
1.	Vibration Test	I	Refer Clause 1.4 of Annexure I	Refer Clause 1.5 of Annexure I	Refer Clause 1.5 of Annexure I

8.0	Functional Verification
	The Device Under Test (DUT) is a Pressure Switch and is being pressurized using a jig, and a pressure gauge on the jig is monitoring the pressure. The DUT is designed to trigger a green light on glow box when the pressure drops to a certain predefined level, indicating that the pressure switch has activated properly.

9.0	List of Equipment Used:		
Test Name	Equipment Used	Make / Model No.	Calibration Validity
Vibration Test	Electrodynamic Vibration Shaker	Aron Hurley Koncepts Pvt. Ltd. AED/EDVS/02	15-Jul-2025
	Accelerometer	Dytran Instruments Inc AED/ACCR/39	18-Jan-2025


This test report pertains only to the components / parts / assemblies / vehicles etc., actually tested at ARAI in the presented condition based on the documents / information produced / submitted by the customer. The issuance of this test report alone does not indicate any measure of approval, certification, supervision, control of quality surveillance by ARAI of the product. No extract, abridgement or abstraction from this test report shall be published or used to advertise the product without the written consent of the Director, ARAI, who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought. ARAI is in no way responsible for any misuse of copying of any design / type / system in connection with entire vehicle/components /parts and assemblies. Breach of any statutory provision of Indian laws or laws of other countries, will be the sole responsibility of the customer and ARAI shall not be liable for any claims or damages, made by the party, whatsoever. The customer shall alone be liable for the same and undertakes to indemnify ARAI in this regard. Further, the ARAI has the right to initiate cancellation / withdrawal of the certificate / report issued, in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ARAI. The appropriate local courts at Pune shall have the jurisdiction in respect of any dispute, claim or liability arising out of this report.

Place of Issue: Pune

End of Test Report

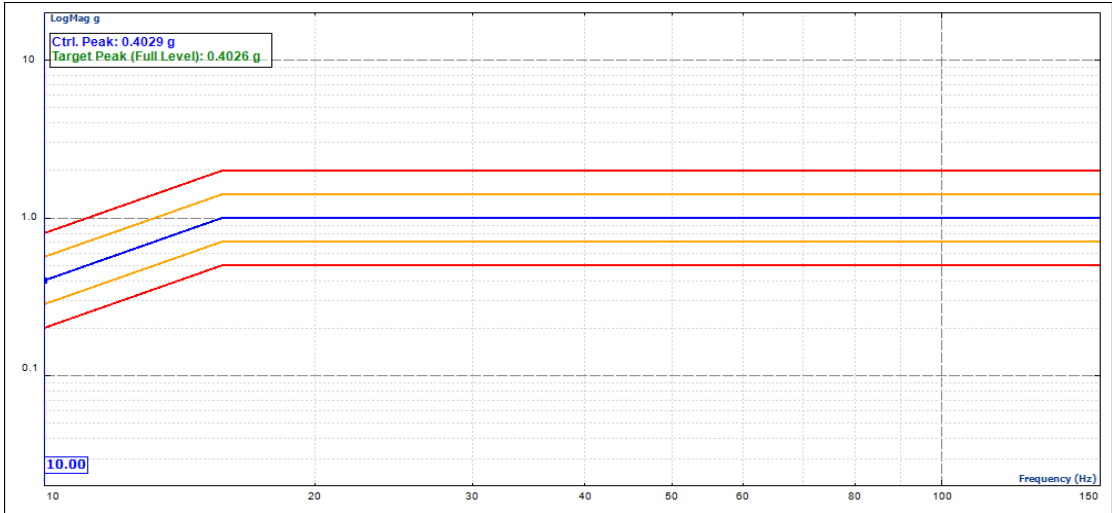
		
H. R. TADSARE Technical Assistant	S. H. JANAGOND Manager	A. A. PAPADE Dy. General Manager
Prepared By	Reviewed By	Approved By


<u>ANNEXURE I</u>		
Vibration Test		
1.1	Reference Standard: BS 6134: 1991 Clause No. 9.3.16	
1.2	Test Procedure:	
	The DUT was mounted on the vibration table by means of fixture and subjected to vibration test as per the specifications mentioned below:	
1.3	Test Specifications:	
1.3.1	Vibration Type	Sinusoidal
1.3.1.1	Frequency Range	10 Hz – 150 Hz
1.3.1.2	Frequency	10 Hz – 15.7 Hz
1.3.1.3	Displacement	1 mm
1.3.1.4	Frequency	15.7 Hz – 150 Hz
1.3.1.5	Amplitude	1.00 g
1.3.1.6	Sweep Rate	1 Octave/min
1.3.1.7	No of sweep cycle	01 per axis
1.3.1.8	Duration per sweep	08 min.
1.3.2	No. of Axis	X, Y and Z Axis
1.3.3	Ambient Temperature	23.7°C
1.3.3.1	Relative Humidity	57.3%
1.3.3.2	Air Pressure	939.59 mbar
1.3.4	Test Condition	Powered ON
1.3.5	Test Start Date	08-Jan-2025
1.3.6	Test End Date	08-Jan-2025

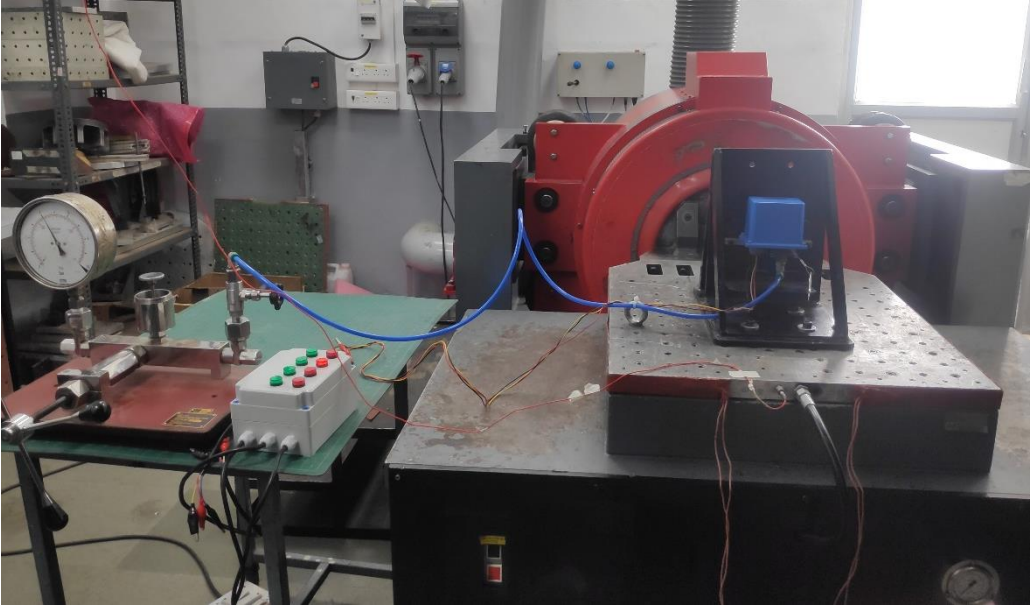
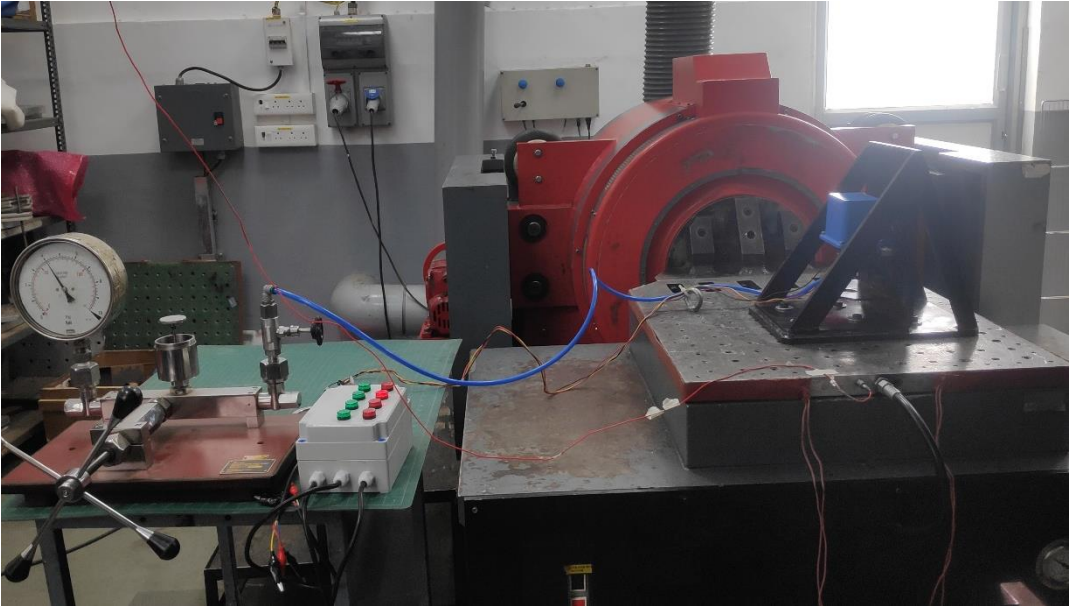

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1.4	Acceptance Criteria:
1.4.1	No visual and mechanical damage must be observed after the test.
1.4.2	There should not be switching ON or OFF of the pressure switch electrical contacts.
1.4.3	No deviation in functionality will be observed after the test

1.5	Test Observation:
1.5.1	No mechanical or visual damage observed on the DUT at the end of the test.
1.5.2	During test no switching ON or OFF was observed on electrical contacts of pressure switch.
1.5.3	No deviation in functionality was observed after the test.
1.5.4	Before and after test functionality verification readings of pressure switch.
1.5.4.1	Before test
	ON - 3.20 Bar OFF - 3.50 Bar
1.5.4.2	After test
	ON - 3.20 Bar OFF - 3.50 Bar

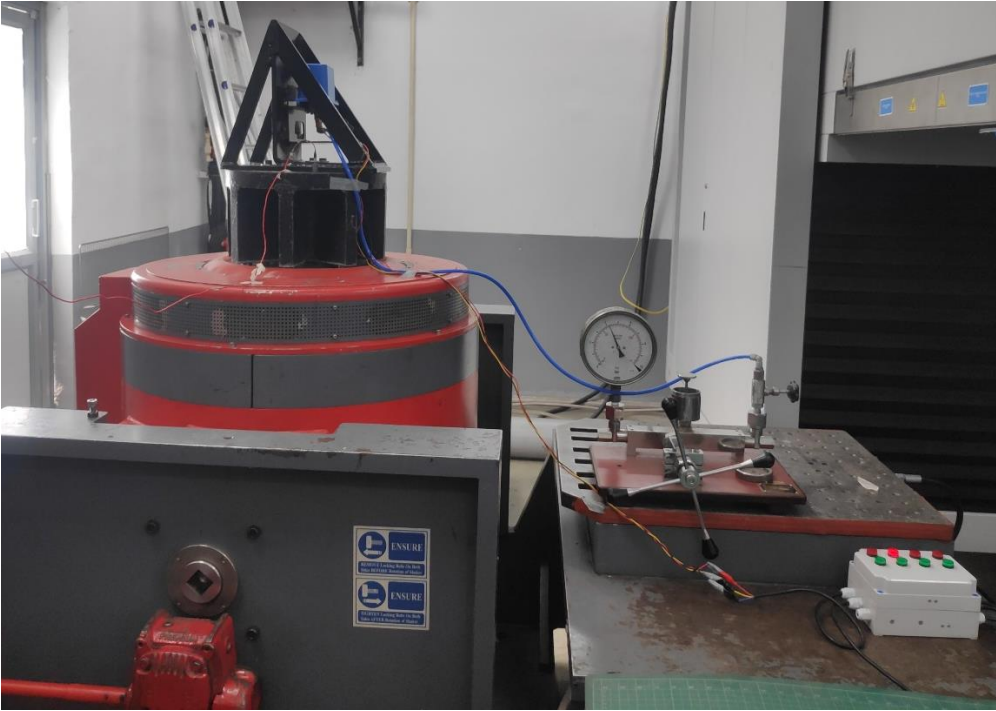
1.6	Vibration Test Profile:
	 <p>The graph shows the Vibration Test Profile with LogMag g on the Y-axis (0.1 to 10) and Frequency (Hz) on the X-axis (10 to 150). It displays four test profiles (two red, two blue) that increase from 10 Hz to 20 Hz and then level off. A legend indicates: Ctrl. Peak: 0.4029 g, Target Peak (Full Level): 0.4026 g. A box at the bottom left shows 10.00.</p>


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1.7	Test Setup Photographs:
1.7.1	X Axis
	
1.7.2	Y Axis
	

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1.7.3	Z Axis
	

End of Annexure I

	
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