

INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

[A Division of NATRiP Implementation Society (NATIS), Govt. of India]

NON TRANSFERABLE

TEST REPORT

C	D	O	C	M	1057
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Date	25.05.2017
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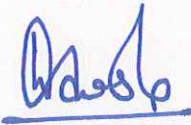
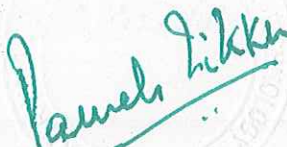
- 1.0 NAME AND ADDRESS OF THE CUSTOMER :** M/s. Polyhose India (Rubber) Pvt. Ltd.,
Plot No.F37 - F42& F50- F55, SIPCOT Industrial Park,
Sriperumpudur Taluk- 602 117, India.
- 2.0 CUSTOMER REFERENCE :** Docket Id : CCDPOIPMCCML50559
- 3.0 DESCRIPTION OF TEST COMPONENT/S :**
- Air Brake Hose Assemblies : 12 Nos. (13/32" AIR BRAKE HOSE)
- Identification on Hose : 11mm AIR BRAKE HOSE AS PER SAE J1402 TYPE "A"
W.P. 10 BAR (145PSI) 
- Hose Internal Diameter : 10.95±0.45 mm
- Hose Outer Diameter : 20.50±0.80 mm
- Identification / Part No. : PH 540
- Drawing No. : PH540-07-WP-12-16-01
- Total Length of Hose : 656 mm
- Free Length of Hose : 600±15 mm
- ICAT Identification No : ICAT/CCL/50559/01-12
- Component manufacturing plant address : M/s. Polyhose India Pvt. Ltd.,
1/119, Kelambakkam – Vandalur Road,
Pudhupakkam Chennai 603103, India.

4.0 TEST REQUIREMENTS, OBSERVATIONS & RESULTS :

To carry out all the tests on the test samples mentioned in **Serial no 3.0** above as per SAE J 1402 Aug. 2010. Test Specifications, Results/Observations are as given at attached **Annexure I**.

DISCLAIMER

This test report pertains only to the test samples / components / parts/ assemblies/ gensets/ materials /fuels/chemicals/engines/vehicles/Agri. Tractors etc. actually tested /witnessed / verified by ICAT 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, COP, control of quality surveillance by ICAT of the test samples / items/ components. No extract, abridgment or abstraction from this test report may be published or used to advertise the product without the written consent of the Director, ICAT, 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. ICAT is in no way responsible for any misuse or copying of any design in connection with entire vehicle / components / systems and assemblies. Breach of any statutory provisions, of Indian laws or laws of other countries, will be sole responsibility of the customer. ICAT shall not be liable for any claims or damages made by the customer, whatsoever. The customer shall alone be liable for the same and undertakes to indemnify ICAT in this regard. Further, ICAT has the right to initiate cancellation / withdrawal of the certificate / report issued, in case of any fraud, misrepresentation, when it comes to the knowledge of ICAT. The appropriate local court at Gurgaon shall have the jurisdiction in respect of any dispute, claim or liability arising out of this report

Prepared By	Checked By	Approved By	
			
HARISH JOSHI	AMIT K. KARWAL	PAMELA TIKKU	Page 1 of 4
ASST. MANAGER	ASST. GEN. MANAGER	SR. GEN. MANAGER	+ Dwg.(1) Sheet [02 Nos.] [50559]

Office Address : Plot No.-26, Sector-3, HSIIDC, IMT-Manesar, Gurugram-122050. Haryana (India)

Site -2 : Plot No.-01, Sector-M-11, HSIIDC, IMT-Manesar, Gurugram-122050. Haryana (India)

Phone : 0124-4586111, Fax : +91-124-2290005. E-mail: team@icat.in, Website : www.icat.in

(An ISO 9001, ISO 14001 and OHSAS 18001 certified, scope wise NABL accredited and BIS recognised Test House)

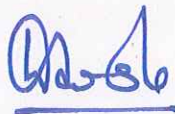
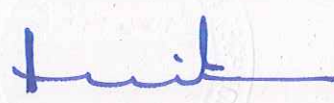
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Date	25.05.2017
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Annexure I

Sr. No.	TESTS [ICAT Identification No.]	REQUIREMENTS	TEST RESULTS / OBSERVATIONS
1	End Fittings Test [Cl. No. 7.1.1] [ICAT/CCL/50559/01-12] Following two tests are conducted:	After assembly of the end fittings to the hose, the minimum I.D. of the end fittings or the hose shall not be less than 66% of the minimum hose I.D. as declared.	Within specified limit
	1. High Temperature Resistance Test [Cl. No. 7.2.1.1] [ICAT/CCL/50559/01]	The hose portion of a hose assembly shall show no cracks, charring or disintegration externally or internally when straighten after being bent at bend radius of 90mm for 70 ± 2 hrs. at $100^\circ\text{C} \pm 2^\circ\text{C}$.	No cracks were observed after completion of 72hrs.
	2. Proof Pressure Test [Cl. No. 7.1.2] [ICAT/CCL/50559/02]	Air brake hose assembly subjected to a pressure using $2\text{MPa} \pm 0.1\text{MPa}$ air or nitrogen under water for a minimum of 30s shall show no leaks.	No leaks observed when air pressure of 2MPa was applied for 30sec. under water
2	End Fittings Test [Cl. No. 7.1.1] [ICAT/CCL/50559/01-12] Following two tests are conducted:	After assembly of the end fittings to the hose, the minimum I.D. of the end fittings or the hose shall not be less than 66% of the minimum hose I.D. as declared.	Within specified limit
	1. Low Temperature Resistance Test [Cl. No. 7.2.1.2] [ICAT/CCL/50559/03]	The hose shall show no externally or internally cracks after being subjected to $-40^\circ\text{C} \pm 2^\circ\text{C}$ for 70 ± 2 hrs. and bent 180 degree over a form having radius 90mm.	No cracks were observed after completion of 72hrs.
	2. Proof Pressure Test [Cl. No. 7.1.2] [ICAT/CCL/50559/04]	Air brake hose assembly subjected to a pressure using $2\text{MPa} \pm 0.1\text{MPa}$ air or nitrogen under water for a minimum of 30s shall show no leaks.	No leaks observed when air pressure of 2MPa was applied for 30sec. under water
3	Resistance to Oil [Cl. No. 7.2.2.1] [ICAT/CCL/50559/05]	Inner & outer cover volume increase shall not be more than 100% after immersion in ASTM IRM 903 oil for $70\text{h} \pm 2\text{h}$ @ $100^\circ\text{C} \pm 2^\circ\text{C}$	Inner tube = 78% Cover tube = 69%
4	End Fittings Test [Cl. No. 7.1.1] [ICAT/CCL/50559/01-12] Following two tests are conducted:	After assembly of the end fittings to the hose, the minimum I.D. of the end fittings or the hose shall not be less than 66% of the minimum hose I.D. as declared.	With in specified limit

Prepared By		Checked By	Page 2 of 4 + Dwg.(1) Sheet [02 Nos.]
			
HARISH JOSHI ASST. MANAGER		AMIT K. KARWAL ASST. GEN. MANAGER	

C	D	O	C	M	1057	Date	25.05.2017
Annexure I (Continued)							
Sr. No.	TESTS [ICAT Identification No.]	REQUIREMENTS	TEST RESULTS / OBSERVATIONS				
4	Water Absorption Test: [CI. No. 7.2.2.2] Following test is conducted:	After conditioning the air brake hose assemblies in distilled water at room temp. for 168 h $\pm$ 2 h, hose shall pass below test.	Air brake hoses 1 no. was conditioned in water at room temp. for 168 hrs & met the requirements				
	1. Tensile Strength Test [CI. No. 7.1.4] [ICAT/CCL/50559/06]	1450 N (min.) (Separation rate 25 $\pm$ 2.5mm/min.)	Breaking Load 1780 N (Separation rate 25 mm/min.)				
5	Ozone Resistance Test [CI. No. 7.2.2.3] [ICAT/CCL/50559/07]	Hose shall form a radius of 90mm while bent & to be exposed to ozone concentration of 100 pphm for 72 hours in ambient temperature of 40 $\pm$ 2°C during test. Hose shall not show any cracks when examined under 7 power magnification.	No cracks were observed on hose when tested at 100pphm for 72 hrs & inspected under 7 power magnification.				
6	Salt Spray Test [CI. No. 7.2.2.4] [ICAT/CCL/50559/08]	After 24 hours to salt spray, air brake hose end fitting shall show no base metal corrosion except red rust is acceptable in areas of identification stamping & crimp distortions.	No corrosion or rust was observed on hose assembly and end fittings after 24 hours of Corrosion Test.				
	Burst Strength Test [CI. No. 7.1.3] [ICAT/CCL/50559/08]	Bursting pressure : 6 MPa minimum. (with hydrostatic pressure)	Bursting pressure : 8.2 Mpa				
7	Length Change Test [CI. No. 7.1.5] [ICAT/CCL/50559/09]	An air brake hose shall not elongate by +5% nor contract by -7% when subjected to air pressure of 1.5 MPa	The length change observed is +1.7 % in elongation				
8	Proof Pressure Test [CI. No. 7.1.2] [ICAT/CCL/50559/10]	Air brake hose assembly subjected to a pressure using 2MPa $\pm$ 0.1MPa air or nitrogen under water for a	No leaks observed when air pressure of 2MPa was applied for 30sec. under water				
	Burst Strength Test [CI. No. 7.1.3] [ICAT/CCL/50559/10]	Bursting pressure : 6 MPa minimum. (with hydrostatic pressure)	Bursting pressure : 9.3 Mpa				
9	Adhesion Test - Fiber Reinforced hose [CI. No. 7.1.6] [ICAT/CCL/50559/11]	The average load required to separate any adjacent layers shall be 1.4N/mm min.	Between cover & reinforced is 2.4 N/mm and between lining & reinforced is 2.7 N/mm				
Prepared By			Checked By	Page 3 of 4 + Dwg.(1) Sheet [02 Nos.]			
							
HARISH JOSHI ASST. MANAGER			AMIT K. KARWAL ASST. GEN. MANAGER				

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Annexure I (Continued)

Sr. No.	TESTS [ICAT Identification No.]	REQUIREMENTS	TEST RESULTS / OBSERVATIONS
10	Flexure Test [Cl. No. 8] [ICAT/CCL/50559/12] Following tests are conducted:-	Preconditioning:- i.) Salt Spray Conditioning ii.) High Temperature Test	Mentioned below
	Salt Spray Conditioning [Cl. No. 7.2.2.4] [ICAT/CCL/50559/12]	Exposer of hose assembly for salt spray for 24 hours	No corrosion was observed
	High Temperature Resistance Test [Cl. No. 7.2.1.1] [ICAT/CCL/50559/12]	The hose portion of a hose assembly shall show no cracks, charring or disintegration externally or internally when straighten after being bent at bend radius of 90mm for 70 ± 2 hrs. at $100^\circ\text{C} \pm 2^\circ\text{C}$.	No cracks were observed after completion of 72hrs.
	Flexure Test [Cl. No. 8] [ICAT/CCL/50559/12]	Flexure Stroke : $150\text{mm} \pm 1.5\text{mm}$ Flexure Stroke frequency : $1.7\text{Hz} \pm 0.1\text{Hz}$ Test Temp.: $26^\circ\text{C} \pm 6^\circ\text{C}$ Air pressure: $1\text{MPa} \pm 0.1\text{MPa}$ Cyclic internal pressure on time: for 60 ± 5 s Cyclic internal pressure off time: 60 ± 5 s No. of cycles = 10,00,000	Completed 10,00,000 cycles without failure

Prepared By		Checked By	
			
HARISH JOSHI ASST. MANAGER		AMIT K. KARWAL ASST. GEN. MANAGER	Page 4 of 4 + Dwg.(1) Sheet [02 Nos.]

OVERALL LENGTH

TOLERANCES (EXCEPT AS NOTED)

TOLERANCES (EXCEPT AS NOTED)

ANGLES

11

1

1

1

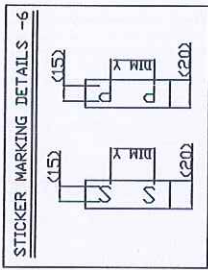
SCH 100

- (C) HOSE CONSTRUCTION AS PER SAE J1402
- (C) INNER CORE : EPDM RUBBER.
- (C) REINFORCEMENT : SINGLE REINFORCEMENT OF SYNTHETIC YARN.
- (C) OUTER COVER : EPDM RUBBER.
- HARDNESS WILL BE 73-79 SHORE A
- (C) NORMAL WORKING PRESSURE : 8 BAR.
- (C) MAX. WORKING PRESSURE : 10 BAR.
- (C) MIN. BURST PRESSURE : 40 BAR.
- (C) MIN. BEND RADIUS : 100 MM.
- (C) TEMPERATURE RANGE : -40°C TO +100°C.
- (C) HOSE WILL BE TESTED AS PER SAE J1402.
- (C) IDENTIFICATION STICKER WILL BE PROVIDED WITH AL PART NO AND SOURCE CODE.
- (C) WORKING MEDIUM : AIR.
- (C) SPRINGS AND SOCKETS ARE ZINC PLATED WITH OLIVE GREEN PASSIVATION.
- (C) FITTINGS AT BOTH ENDS WILL BE PROVIDED WITH PROTECTIVE END CAPS.
- (C) PITCH OF THE SPRING COIL WILL BE 6.5MM AT FREE LENGTH.
- (C) STOCKERS WITH COLLAR CODING TAPE TO BE FIXED AT 150mm FROM FITTING END AS SHOWN IN FIG.
- MULTIPLE INSTANCE OF LETTER WOULD BE VISIBLE IN A SINGLE VIEWING.**
- (C) HOSE PRINTING DETAILS AS FOLLOWS.
- AL LUG
HEIGHT 150mm

MULTI-PARTS

LEAKAGE RATE:
MAXIMUM LEAKAGE 20%

CHECK HD
- (C) PRINTING ON HOSE WILL BE REPEATD EVERY 500mm.
- (C) 100% HOSE ASSY WILL BE TESTED FOR LEAK TEST AT A PRESSURE OF 10 BAR.
- ND FITTINGS :
- STRAIGHT PLUG NG12 SL NV11 AT END A - 0832265000 VOSS PART NO AS APPROVED BY ASHKOK LEYNLD.
- ELBOW PLUG NG12 SL NV11 AT END B - 7000257200 VOSS PART NO AS APPROVED BY ASHKOK LEYNLD.
- ANTI TWIST CONNECTOR-TO SUIT VOSS SYSTEM 230 OF NG12 MALE NUT HFX 2A.



7	HOSE PRINTING DETAILS	-	AS SHOWN IN FIG.
6	STICKER MARKING	-	AS SHOWN IN FIG.
5	ELBOW PLUG NG12 SL. NW11	BRASS	AS SHOWN IN FIG.
4	STRAIGHT PLUG NG12 SL. NW11	BRASS	AS SHOWN IN FIG.
3	LP SOCKET	CARBON STEEL	AS SHOWN IN FIG.
2	SPRING GUARD 22.01Dx4.8THICK	SPRING STEEL	AS SHOWN IN FIG.
1	11MM AIR BRAKE HOSE	REFER NOTES 1	AS SHOWN IN FIG.
SL No.	DESCRIPTION	MATERIAL	QTY

POLYHOSE INDIA PVT. LTD.

CHENNAI - 600 010

CUSTOMER NAME : M/S. ASHOK LEYLAND

TITLE
AIR BRAKE HOSE ASSEMBLY

PART No.

AS ABOVE

SCALE	N.T.S	DATE	THIS DRAWING AND DESIGN IS THE PROPERTY OF POLYHOSE INDIA PVT. LTD. AND MUST NOT BE COPIED OR LENT WITHOUT THEIR PERMISSION IN WRITING.
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APPD. BY	GANESH	30.12.16	
DWG No. PH540-07-VP-12-16-01			SHEET 1 OF 2 REV. No. 00

UWG No.

PH540-07-WP-12-16-01

DVP TEST PLAN

Polyhose®				Customer : AL Doc No:PIRPL/DVP/02	
S No.	Type of test	Test Procedure / Test Conditions	Standard Reference	Acceptance criteria	No. of samples
1	Proof pressure	Check the hose at proof pressure of 20 Bar with 30 sec	SAEJ1402, 7.1.2	No Leakage at 20 bar	6
2	Burst test	Hose needs to meet the minimum burst pressure	SAEJ1402, 7.1.3	Should exceed 40 Bar	6
3	Assembly Tensile strength	450mm long hose assemblies including the fittings shall be subjected to a longitudinal tensile test at a steady rate 25mm/min±2.5mm/min until separation of the hose from the fittings or rupture of the hose occurs.	SAEJ1402, 7.1.4	Hose assembly tensile load should be more than 1450N	6
4	Change in length test	Hose should be pressurized to 1 Bar for 30 sec and then release the pressure. Make initial marking in the hose and then pressurized to 15 bar to check the final measurement	SAEJ1402, 7.1.5	Not to exceed between -7% to +5%	6
5	Adhesion Strength	The layers of the hose should be separated from each other and a test to be carried on that to check the load required to separate the layers	SAEJ1402, 7.1.6.1	Adhesion strength of layers should be more than 1.4N/mm	6
6	High Temperature Resistance	Hose exposure at the temperature of 100° C at 70 Hrs in bend condition and then proof pressure test to be done	SAEJ1402, 7.2.1.1	specimens shall not show evidence of cracking or deterioration or leakage.	6
7	Cold bend test	Hose exposure at the temperature of -40° C at 70 Hrs	SAEJ1402, 7.2.1.2	specimens shall not show evidence of cracking or deterioration or leakage.	6
8	Oil resistance test	Tube & cover samples immersed in RM oil NO:3 for 70 hrs at 100°C	SAEJ1402, 7.2.2.1	Volume Change, Tube & Cover : 0-100%	6
9	Water Resistance	Hose assembly should be immersed in water for 168 hours at room temperature and tensile pull test to be carried out	SAEJ1402, 7.2.2.2	Hose assembly pull load should be more than 1450N	6
10	Ozone resistance test	hose sample subjected to 100 ppim at 40°C for 70 hrs	SAEJ1402, 7.2.2.3	specimens shall not show evidence of cracking after examining under 7X Magnification	6
11	Flexural Resistance test	Hose assembly should be checked as per the standard	SAEJ1402, 8.0	There is no any sign of air leakage after one million flex cycles	6

TR.No. CD0CM1057 dtd. 25/05/2017



POLYHOSE INDIA PVT. LTD.

CHENNAI - 600 010

CUSTOMER NAME : M/s. ASHOK LEYLAND

TITLE AIR BRAKE HOSE ASSEMBLY

PART No.

AS ABOVE

REV. No.	ECN No.	REVISION NOTE			DATE	CHD BY	APPD. BY	SCALE	N.T.S	DATE	THIS DRAWING AND DESIGN IS THE PROPERTY OF POLYHOSE INDIA PVT. LTD. AND MUST NOT BE COPIED OR LENT WITHOUT THEIR PERMISSION IN WRITING.			
ALL DIMENSIONS ARE IN MM								TOLERANCES (EXCEPT AS NOTED)		30.12.16	KISHORE	30.12.16		
								DECIMALS						
								X ±1 .XX ±0.2	ANGLES ±1°					
								.X ±0.5						
							APPD. BY	GANESH	30.12.16	DWG No. PHS40-07-VP-12-16-01	SHEET 2 OF 2		REV. No.	00

