

कार्यालय परिवहन आयुक्त, उत्तराखण्ड,
कुल्हान, सहस्त्रधारा रोड़, देहरादून।
संख्या- 1579/TR/23-9(i)/सी0एन0जी0किट/2022

दिनांक 2 अप्रैल, 2022

आदेश

केन्द्रीय मोटरयान नियमावली, 1989 के नियम 115 बी में in use वाहनों में सी0एन0जी0 किट लगाये जाने की व्यवस्था की गयी है। इस सम्बन्ध में कार्यालय ज्ञाप संख्या-3460/टी0आर0/5/CNGKIT/2019-2020 दिनांक 04-11-2019 के द्वारा सी0एन0जी0 किट के रिट्रोफिटमेंट हेतु अनुमोदन की प्रक्रिया निर्धारित की गयी है, जिसके अन्तर्गत M/s Lovato Gas S.p.A Italy C/0 Eco Fuel System (I) Pvt. Ltd. द्वारा केन्द्रीय मोटरयान नियमावली 1989 के नियम 126 में वर्णित टेस्टिंग एजेंसी ICAT, Manesar द्वारा नार्म्स के अनुरूप होने के प्रमाण संख्या- CAMA-0041 R01 Dated 18th February, 2020, CAMA-0041 Dated 15th February, 2017, CAMA-0041L01 Dated 06th March, 2017, CAMA-0041L03 Dated 29th March, 2018 प्राप्त कर लिये गये हैं। उक्त प्रमाण पत्र के आधार पर M/s Lovato Gas S.p.A Italy C/0 Eco Fuel System (I) Pvt. Ltd. द्वारा निर्मित CNG KIT Identification- LOVATO Autogas EXR OBDII (Engine cm³ Range-748.5 to 1247.5) को in use पेट्रोल चालित वाहन मॉडल Maruti Swift Dzire में रिट्रोफिटमेंट कर प्रस्तुत की गयी, जिसका संयुक्त निरीक्षण उप परिवहन आयुक्त (प्रथम) एवं सम्भागीय निरीक्षण (प्राविधिक) देहरादून द्वारा किया गया। उक्त सी0एन0जी0 किट एवं सिलेण्डर/वाल्व का संक्षिप्त विवरण निम्नानुसार है:-

- 1. Detail of Kit Manufacturer/ Supplier/ Installer-** M/s Lovato Gas S.P.A Italy C/0 Eco Fuel System (I) Pvt. Ltd. Bellona Building no.1, 90ft Rd, Ghatkopar (East) Mumbai-75 Maharashtra
- 2. CNG Kit Identification no-** LOVATO Autogas EXR OBDII (Engine cm³ Range-748.5 to 1247.5)
- 3. CNG Cylinder (PESO Approved/Endorsed):**

Name of Manufacturer	Confidence Petroleum India Ltd.	Lizer Cylinders Ltd.	Associate High Pressure	Everest kanto cylinder Ltd.	Maruti Katsu Cylinder Ltd.	Euro India Cylinder Ltd.	Sahuwala High pressure Cylinder (P) Ltd.
Identification no	CPIL	LIZER	Associate	EKC	MKC	EICL	CPIL
Type	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder
Max test Pressure (kg/cm ²)/	340bar	340bar	340bar	340bar	340bar	340bar	340bar
Working Pressure (KG/cm ²)	200 bar	200 bar	200 bar	200 bar	200 bar	200 bar	200 bar
Cylinder Capacity (water Equivalent) and Dia in mm	60/65 Lit, 356mm/ 325mm dia	55/58/60/65/70L it 317 mm/ 356 mm dia	60/65 Lit, 316/356 mm dia	55/58/60/65 Lit, 317/356 mm dia	60/65 Lit, 356mm	55/57/60/65/70 Lit, 316mm/356mm	60/65 Lit, 325 mm
Approval Reference from DOE	G3(42)554 Dt 24-09-2009 for 60/65 lit, 356 mm Dia & G3(42) 554 Dt 11-12-2009 for 60/65 lit, 325 dia	G3(42)536/II Dt:14-08-2008 for 317mm Dia & G3(42)536/ I Dt:10-12-2008 356 mm Dia	G3(42)552/I Dt:31-10-2011 for 60/65 lit 316 Dia. G3(42)552/II Dt 04-08-2011 for 60/65 lit 356 Dia	G3(42)573/I Dt:24-11-2016 316 Dia & G3(42)573/II Dt:22-12-2016 356 Dia	G3(42)277/VII Dt:21-01-2010 for 60/65 lit 356Dia	G3(42)572/I Dt:14-10-2011 for 55 lit 316 Dia 57/60/65/70 Lit 316/356 mm dia	G3(42)544/I Dt:17-07-2008 for 60/65 lit 325Dia

Name of Manufacturer	Rama Cylinder Pvt. Ltd.	Sarju Impex Limited	Jay Fe cylinders Ltd.	Nitin Cylinders Limited
Identification no	RAMA	SIL	JAYFE/TLM 11467	NCL
Type	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder	Seamless Stell Cylinder
Max test Pressure (kg/cm ²)	340bar	340bar	340bar	340bar
Working Pressure (KG/cm ²)	200 bar	200 bar	200 bar	200 bar
Cylinder Capacity (water Equivalent) and Dia in mm	60/65/70Lit, 317/356 mm	60/65 Lit, 316/356 mm	55/58/60/65/70 Lit, 317/356 mm	60/65 Lit, 316/356 mm
Approval Reference from DOE	G3(42)553/I Dt-11-11-2020 for 317 mm Dia & G3(42)553/I Dt-23-04-2012 for 356 mm Dia	G3(42)562/I Dt-24-04-2012 for 60/65 Ltr 316/356 mm Dia	G3(42)557/I Dt-22-12-2009 For 317/356 mm Dia G.3(42)557/P/2017/195/1 Dated 19/06/2017	G3(42)530/II Dt-29-10-2009 For 60/65 Ltr 316/356 mm Dia

iv- Cylinder Valve (S) / Shutoff Valve (PESO approved/endorsed):

Name of manufacturer	Emer S.R.L	Tekno Valve, India	H.M Plastic, India	OMB Seleri SpA, Italy	Batra Valves, India
Model name/Identification no	119 Type- Tipovalve DGM 51684 GM	Tekno	HMP CNG	ALFA/OMB	BV
Type	Quarter Tum Shut off Valve	Quarter Tum Shut off Valve	Quarter Tum Shut off Valve	Quarter Tum Shut off Valve	Quarter Tum Shut off Valve
Working pressure (KG/Cm ²)	200 Bar	200 Bar	200 Bar	200 bar	200 bar
Max Test pressure (kg/cm ²)	335 Bar	335 Bar	335 Bar	335 Bar	335 Bar
Approval reference form DOE	G-3(40)225 Dt 04/04/2001	G-3(40)27/91 Dt 03/11/2006	G-3(40)225/ Dt 15/04/2014	G-3(40)166 Dt 03/06/2009	G-3(40)87 Dt 17/04/2007

5. ICAT, Manesar द्वारा प्रदत्त Layout plan Approval certificate no- CAMA-0041 R01 Dated 18th February, 2020, CAMA-0041 Dated 15th February, 2017, CAMA-0041L01 Dated 06th March, 2017, CAMA-0041L03 Dated 29th March, 2018 में उक्त सी0एन0जी0 किट एवं सलेन्डर/वाल्व को निम्न मॉडल वाहन पर लगाये जाने के उल्लेख किया गया है:-

Sl. No.	Approved Vehicle Model	Engine CC	ICAT Certificate No.	Vintage of Vehicles
1	Maruti Wagon R Stingray	998	CAMA-0041 Dated 15 th February, 2017	1 st April 2013 till the validity of Bharat Stage IV Norms
2	Chevrolet Beat	1199	CAMA-0041 L01 Dated 06 th March 2018	
3	Chevrolet Sail	1199		
4	Chevrolet Sail UVA	1199		
5	Datsun Go	1198		
6	Datsun Go Plus 7 Seater	1198		
7	Datsun Redi Go	799		
8	Fiat Grand Punto EVO	1172		
9	Ford Figo	1196		
10	Ford Figo Aspire	1196		
11	Honda Amaze	1198		
12	Honda Brio	1198		
13	Honda Jazz	1198		
14	Hyundai Eon	814		
15	Hyundai Eon	998		
16	Hyundai Ion 1.1	1086		
17	Hyundai Grand i10	1197		
18	Hyundai i20	1197		
19	Hyundai Xcent	1197		
20	Mahindra KUV 100	1198		


21	Maruti Alto 800	796	CAMA-0041 L01 Dated 06 th March 2018	1 st April 2013 till the validity of Bharat Stage IV Norms
22	Maruti Alto K10	998		
23	Maruti Astar	998		
24	Maruti Baleno	1197		
25	Maruti Celerio	998		
26	Maruti Eeco (5 Seater)	1196		
27	Maruti Eeco (7 Seater)	1196		
28	Maruti Eeco Ambulance	1196		
29	Maruti Eeco Cargo	1196		
30	Maruti Ignis	1197		
31	Maruti Omni (5 Seater)	796		
32	Maruti Omni (8 Seater)	796		
33	Maruti Omni Ambulance	796		
34	Maruti Omni Cargo	796		
35	Maruti Ritz	1197		
36	Maruti Swift	1197		
37	Maruti Swift Dzire	1197		
38	Maruti Wagon R	998		
39	Maruti Wagon R MPV	1197		
40	Nissan Micra	1198		
41	Renault Kwid	799		
42	Renault Kwid 1.0	999		
43	Renault Pulse	1198		
44	Skoda Fabia	1198		
45	Tata Bolt	1193		
46	Tata Indica eV2	1193		
47	Tata eCs	1193		
48	Tata Tiago	1199		
49	Tata Zest	1193		
50	Toyota Etios Liva	1197		
51	Volkswagen Ameo	1198		
52	Volkswagen Polo	1198		
53	Volkswagen Vento	1197		
54	Datsun Redi Go	999		
55	Honda WR-V	1199		
56	Maruti Dzire	1197		
57	Maruti Dzire Tour	1197		
58	Maruti swift Dzire Tour	1197		
59	Maruti Tour S Petrol	1197		
60	Tata Nexon	1198		
61	Tata Tigor	1199		
62	Hyundia Santro	1086		
63	Hyundai Xcent Prime	1197		
			CAMA-0041L03 Dated 29 th March, 2018	

अतः उक्त सी०एन०जी० किट/सिलेंडर/वाल्व को प्रोटोटाईप एजेन्सी द्वारा अनुमोदित विशिष्टताओं के अनुसार उपरोक्त 63 मॉडल वाहनों पर रिट्रोफिटमेंट निम्नलिखित प्रतिबन्धों एवं शर्तों के अधीन किये जाने की अनुमति प्रदान की जाती है:-

1. किट रिट्रोफिटमेंट के साथ वाहन में लगाये जाने वाले ऑटो सीएनजी टैंक एवं मल्टीफंक्शन वाल्व के सुरक्षित होने के सम्बन्ध में सीसीओई के प्रमाण-पत्र की प्रति विक्रय के समय क्रेता को उपलब्ध करायी जाएगी, जिसे क्रेता द्वारा पंजीयन अधिकारी के समक्ष प्रस्तुत किया जाएगा।

2. वाहन में किट रिट्रोफिटमेंट किट निर्माता की अधिकृत कार्यशाला अथवा वाहन विनिर्माता द्वारा ही लगायी जायेगी। इस प्रकार की कार्यशालाओं को जी0एस0टी0 प्रमाण-पत्र उपलब्ध कराना अनिवार्य होगा।
3. किट के स्पेसिफिकेशन अथवा ले आउट में किसी प्रकार का परिवर्तन हाने पर इसकी सूचना सम्बन्धित प्रोटोटाइप एजेन्सी को तत्काल देनी होगी और पुनः टाइप एप्रूवल प्राप्त कर प्रस्तुत करना होगा।
4. किट के सम्बन्ध में सुरक्षा प्राविधान केन्द्रीय मोटरयान नियमावली, 1989 के नियम 115ख के बिन्दु (ड) के एनेक्जर IX एआईएस024 और एआईएस028 (आरईवी-1) में समय-समय पर यथा संशोधित -विनिर्धारित सुरक्षा सम्बन्धी अपेक्षाओं का अनुपालन किया जायेगा।
5. प्रत्येक किट स्थापित करने वाला (kit installer) यह सुनिश्चित करेगा कि लगायी जाने वाली किट सुरक्षित है तथा लगाये गये फ्यूज टैंक एवं मल्टीफंक्शन वाल्व के सम्बन्ध में सीसीओई प्रमाण-पत्र प्राप्त कर लिया गया है।
6. ऑटो सीएनजी टैंक वाहन में स्थायी रूप से स्थापित किया जायेगा।
7. ऑटो सीएनजी टैंक निर्माता के स्पेसिफिकेशन के अनुरूप ही लगाया जायेगा।
8. प्रोटोटाइप एजेन्सी से अनुमोदित किट का वाहन में रिट्रोफिटमेंट के पश्चात् विनिर्माता द्वारा वाहन स्वामी को सर्विस मैनुअल आर्वातक निरीक्षण और अनुरक्षण की निर्देशिका, सर्विस, मरम्मत अनुरक्षण हेतु पर्याप्त बुनियादी संरचना प्रदान की जायेगी।
9. किट निर्माता द्वारा किट उपयोगकर्ताओं का समुचित प्रशिक्षण देने की व्यवस्था की जायेगी।
10. किट निर्माता द्वारा केन्द्रीय मोटरयान नियमावली, 1989 के नियम 115ख के बिन्दु (च) के एनेक्जर X के उपबन्धों का अनुपालन सुनिश्चित किया जायेगा।
11. किट निर्माता द्वारा सीएनजी किट के रिट्रोफिटमेंट के समय मोटरयान अधिनियम, 1988 केन्द्रीय मोटरयान नियमावली, 1989 एवं उत्तराखण्ड मोटरयान नियमावली, 2011 की व्यवस्थाओं का अनुपालन करना होगा।
12. किट निर्माता द्वारा मोटर वाहन में विधिमान्य तरीके से किट रिट्रोफिटमेंट न किये जाने और या विधि की व्यवस्थाओं का अनुपालन सुनिश्चित न करने की दशा में अनुमोदन रद्द कर दिया जायेगा।
13. मोटर वाहनों में किट रिट्रोफिटमेंट के सम्बन्ध में किट निर्माता द्वारा परिवहन विभाग के सक्षम अधिकारी द्वारा अपेक्षित सूचनाओं को निर्धारित समय के भीतर उपलब्ध कराना होगा। साथ ही इस विषय में परिवहन आयुक्त द्वारा समय-समय पर जारी आदेशों का अनुपालन सुनिश्चित किया जाएगा।
14. किट निर्माताओं द्वारा अनुमोदन प्राप्त किट ही वाहनों में फिट की जाएगी और ऐसी किट का विवरण सम्बन्धित पंजीयन अधिकारी द्वारा पंजीयन प्रमाण पत्र में प्रविष्ट किया जाएगा।


संलग्न:- प्रोटोटाइप प्रमाण पत्र की प्रति।


 (एस0के0सिंह)
 उप परिवहन आयुक्त,
 9 उत्तराखण्ड।

संख्या-1570/TR/CNG/2022 तददिनांकित।

प्रतिलिपि:- निम्नलिखित को अनुपालनार्थ हेतु प्रेषित।

- 1-समस्त सम्भागीय/सहायक संभागीय परिवहन अधिकारी, उत्तराखण्ड।
- 2-समस्त संभागीय निरीक्षक (प्राविधिक) उत्तराखण्ड।
- 3-सम्बन्धित पत्रावली।
- 4- M/s Lovato Gas S.P.A Italy C/0 Eco Fuel System (I) Pvt. Ltd. Bellona Building no.1, 90ft Rd, Ghatkopar (East) Mumbai-75 Maharashtra


(एस0के0सिंह)
उप परिवहन आयुक्त,
उत्तराखण्ड।





INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

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

C A M A 0041 R01

Date : 18th February 2020

EXTENSION OF VALIDITY

Cert	Brief	Dwg	Total
01	06	05	12 pgs

1. This is in continuation to certificate referred below, issued to CNG Kit manufacturer in respect of retrofitment on the model specified therein.

Reference TA Certificate	CNG Kit Manufacturer
Refer Annexure "A"	M/s. Lovato Gas S.p.A Italy C/o M/s. Eco Fuel System (I) Pvt.Ltd, B-101, Bellona Building no.1, 90ft Road, Ghatkopar(East), Mumbai-400 075, Maharashtra, India.

2. All conditions and compliance requirement, in respect retrofitment of CNG Kit, given in the certificate referred below, remain unchanged. Brief & CNG Kit Specification (No. LOV/ICAT/CNG/BS-IV-OBDDII-VehivcleSPEC-WagonR Stingray_R1 dt. 11/01/2020 & LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R1 dt. 11/01/2020) of the in-Use vehicle model, as decalred by the CNG Kit installer, are additionally enclosed with this certificate.

MPPFI, "In-Use" Base Model	Year of Manufacture	Engine cm ³	Engine CC Range
Maruti Wagon R Stingray	Aug-13	998	748.5 to 1247.5

ANNEXURE A

Sr. No.	Reference of TA/ Extension/ Layout & Revalidation Certificate	Validity of Certificate			
		Earlier		Revalidated	
		From	To	From	To
1	C A M A 0041	15.02.2017	14.02.2020	15.02.2020	14.02.2023
2	C A M A 0041 L01	06.03.2017			
3	C A M A 0041 L03	29.03.2018			
4	C A M A 0041 E01	06.08.2018			

Compliance of Mass Emission Standards & Validity : Ref. 115B(1) A.(II) Clause (iv), as per GSR 84(E) dt. 09.02.2009 & Compliance of safety components as per GSR 643(E) dt. 27.06.2017 & GSR 490(E) dt. 24.05.2018.



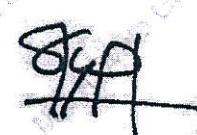

The CNG Converted "In-Use" base model meets the Bharat Stage - IV norms, manufactured/ registered from 01st April 2013 till the validity of Bharat Stage IV norms, subject to specific approval, for layout plan by ICAT, for retrofitment of CNG Kit in each vehicle model.


Emission Test report : CTOPP 0618 Dated 08.02.2020
(Jay Fe Cylinder - Suzuki Cat Con - NGK Spark Plug)

ICAT Ref No. : 2019-2357; IOCS No. 77194

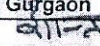

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AUTHORISED SIGNATORY

 ICAT PRASHANT VIJAY DEPUTY GENERAL MANAGER		 ICAT DINESH TYAGI DIRECTOR	 Page 1 of 1
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Annexure I			
TECHNICAL SPECIFICATION OF CNG CONVERSION KIT			
1 Details of Kit Manufacturer / Supplier / Installer			
a. Name of the Manufacturer	LOVATO GAS SpA, ITALY.		
b. Address	Eco Fuel System (I) Pvt Ltd., B-101, Bellona Building no.1, 90ft Rd, Ghatkopar (East), Mumbai-75, Maharashtra, India.		
c. Telephone No. & Fax No.	022-61359500		
d. Contact person	Mr. P.P.Kulkarni (GM)		
2. CNG Kit Identification			
a. Identification No.	LOVATO Autogas EXR OBDII		
b. Variants, if any	NIL		
3 CNG Cylinder (DOE approved/endorsed)			
a. Name of manufacturer	Confidence Petroleum India Ltd	Lizer Cylinders Ltd.	Associate High Pressure
b. Identification No.	CPIL	LIZER	ASSOCIATE
c. Type	Seamless steel Cylinder	Seamless steel Cylinder	Seamless steel Cylinder
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max. test pressure (kg/cm ²)	340 Bar	340 Bar	340 Bar
f. Cylinder capacity (water equivalent)	60/65 Liters	55/58/60/65/70 Liters	60/65 Liters
g. Approval reference from DOE	G.3(42)554. Dt 24.09.2009 For 60/65 ltr 356mm Dia & G.3(42)554 Dt 11.12.2009 for 60/65 ltr 325dia	G.3(42)536 Dt.18/03/2008 for. 317mm Dia & G.3(42)536/ Dt. 10/12/2008 356 mm dia	G.3(42)552/ Dt.31/10/2011 for 60,65 ltr 316 Dia, G.3(42)552/ Dt 04/08/2011 for 60/65 ltr 356 Dia
3a CNG Cylinder (DOE approved/endorsed)			
a. Name of manufacturer	Everest Kanto Cylinder Ltd.	Maruti Kotsu Cylinder Ltd.	Euro India Cylinders Ltd.
b. Identification No.	EKC	MKC	EICL
c. Type	Seamless steel Cylinder	Seamless steel Cylinder	Seamless steel Cylinder
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max. test pressure (kg/cm ²)	340 Bar	340 Bar	340 Bar
f. Cylinder capacity (water equivalent)	55 / 58 / 60 / 65 / 70 Liters	60/65 Liters	55/57/60/65/70 Liters
g. Approval reference from DOE	G.3(42) 573 / I DT: 24/11/2016 317 mm Dia & G.3(42) 573 / I DT: 22/12/2016 356 mm dia.	G.3(42)277/III Dt.21.01.2010 For 60/65 ltr 356 mm Dia	G.3(42)572/ Dt.14.10.2011 for 55ltr 316mm Dia 57/60/65/70 ltr 316/356mm dia
3b CNG Cylinder (DOE approved/endorsed)			
a. Name of manufacturer	Sahuwala High Pressure Cylinder (P) Ltd.	Rama Cylinders (P) Ltd.	Sarju Impex Limited
b. Identification No.	CPIL	RAMA	SIL
c. Type	Seamless steel Cylinder	Seamless steel Cylinder	Seamless steel Cylinder
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max. test pressure (kg/cm ²)	340 Bar	340 Bar	340 Bar
f. Cylinder capacity (water equivalent)	60/65 Liters	60/65/70 Liters	60/65 Liters
g. Approval reference from DOE	G.3(42)544/ Dt.17.07.2008 for 60/65ltr 325 Dia	G.3(42)553/ Dt 11,11.2010 for 317mm Dia & G.3(42)553/ Dt 23/04/2012 356 mm Dia	G.3(42)562/ Dt 24.04.2012 For 60/65 Ltr 316/356mm Dia
3c CNG Cylinder (DOE approved/endorsed)			
a. Name of manufacturer	Jay Fe Cylinders Ltd	Nitin Cylinders Limited	
b. Identification No.	JFC / TLM 11467	NCL	
c. Type	Seamless steel Cylinder	Seamless steel Cylinder	
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	
e. Max. test pressure (kg/cm ²)	340 Bar	340 Bar	
f. Cylinder capacity (water equivalent)	55/58/60/65/70 Liters	60/65 Liters	
g. Approval reference from DOE	G.3(42)557/ Dt 22.12.2009 For 317/356mm Dia. G3(42)557/P/2017/195/ Dt.19.06.2017	G.3(42)530/II Dt 29.10.2009 for 60/65 Ltr 316/356 mm Dia.	

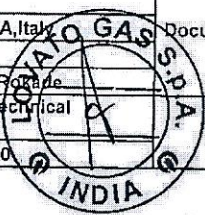
International Centre for Automotive Technology

ICAT, Manesar, Gurgaon Signature:  Name: Prashant Vijay DGM Certification Business Unit Designation: Date	Manufacturer: Lovato Gas SpA, India Signature:  Name : Satish Fokade Designation: Technical Manager Date: 11/01/2020	Document No: LOV/ICAT/CNG/BS-IV-OBDII-KITSPEC- GurgaonR Stingray_R1. Dt:11/01/2020 Sheet No.: 1 of 6
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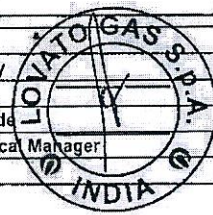
4a) Cylinder Valve(s) (DOE approved/endorsed)			
a. Name of manufacturer	Emer S.r.l. Italy	Tekno Valve, India	H.M.Plastic, India
b. Model name/identification No.	119 Type- Tipovalve DGM 51684 GM	Tekno	HMP CNG
c. Type	Quarter Turn Shut off Valve	Quarter Turn Shut off Valve	Quarter Turn Shut off Valve
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max. test pressure (kg/cm ²)	335 Bar	335 Bar	335 Bar
f. Approval reference from DOE	G.3(40)225 Dt.04.04.2001	G.3(40)27/91 Dt.03.11.2006	G.3(40)225 Dt.15.04.2014
4b) Cylinder Valve(s) (DOE approved/endorsed)			
a. Name of manufacturer	OMB Saleri SpA, Italy	Batra Valves, India	
b. Model name/identification No.	ALFA/OMB	BV	
c. Type	Quarter Turn Shut off Valve	Quarter Turn Shut off Valve	
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	
e. Max. test pressure (kg/cm ²)	335 Bar	335 Bar	
f. Approval reference from DOE	G.3(40)166 Dt.03.06.2009	G.3(40)87 Dt.17.04.2007	
5) CNG Solenoid Valve			
a. Name of manufacturer	Lovato Gas S.p.A Italy.		
b. Model Name/identification No.	LOVATO/ RMJ 3		
c. Type	Pilot Operated; Part of Regulator		
d. Working pressure (kg/cm ²)	200 Bar		
e. Max test pressure (kg/cm ²)	300 Bar		
6) Petrol Solenoid Valve			
a. Name of manufacturer	NA (MPFI)		
b. Model Name/identification No.	NA		
c. Type	NA		
d. Working pressure (kg/cm ²)	NA		
e. Max test pressure (kg/cm ²)	NA		
7a) Refilling valve			
a. Name of the manufacturer	Emer S.r.l. Italy	OMB Saleri SpA	Ningbo Realstar Valve Co.Ltd.
b. Model name/identification No.	Emer/ DGM 41037 GM	OMB	EFS
c. Type	NZS	NZS	NZS
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max test pressure (kg/cm ²)	300 Bar	300 Bar	300 Bar
7b) Refilling valve			
a. Name of the manufacturer	H.M.Plastic, India		
b. Model name/identification No.	HMP		
c. Type	NZS		
d. Working pressure (kg/cm ²)	200 bar		
e. Max test pressure (kg/cm ²)	300 bar		
8) Pressure Regulator			
a. Name of manufacturer	Lovato Gas S.p.A Italy.		
b. Model name/identification No.	RMJ 3/ TAC No- AA1062		
c. Type	CNG Electronic Reducer		
d. Inlet pressure (kg/cm ²)	200 Bar		
e. Outlet pressure (kg/cm ²)	Sub Atmospheric Pressure		
f. No. of stages	2 (TWO)		
g. Approval reference no.	SHL/239/2009-2010/7433/1062 DT:01/04/2010		
9) CNG Filter			
a. Name of manufacturer	Lovato Gas S.p.A Italy.		
b. Model name/identification No.	LOVATO		
c. Type	Wire Mesh Type		
d. Inlet pressure (kg/cm ²)	200 Bar		
e. Outlet pressure (kg/cm ²)	200 Bar		



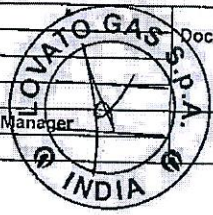
Test Agency: ICAT, Manesar, Gurgaon	Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OBDI-KITSPEC-WagonR Stingray_R1. Dt:11/01/2020
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	
Name: Prashant Vijay	Name: Satish Konde	
Designation: DGM Certification Business Unit	Designation: Technical Manager	
Date	Date: 11/01/2020	Sheet No.: 2 of 6



10 Oil Pump or Lubrication System, if any		
a. Name of manufacturer	NA	
b. Type	NA	
11 High Pressure Tubing		
a. Name of manufacturer	Emer S.r.l. Italy	Chengdu Chaoyi New Energy Equipment Co.Ltd
b. Model name/Identification No.	DG 32/98-CNG	LOVATO/STP/01
c. Type	Seamless Steel	Seamless Steel
d. Working pressure (kg/cm ²)	200 Bar	200 bar
e. Max. test pressure (kg/cm ²)	700 Bar	700bar
f. Outer diameter/Inner Diameter	6/4 mm	6/4mm
g. Test Report No.	SHL/OTC/10-2001/016/1298/0542 Dt.01.10.2001	SHL/239/2016-2017/2935/2962 29.11.2016
12 Low Pressure Tubing		
a. Name of manufacturer	Parker Hannifin India Pvt Ltd	
b. Model name/Identification No.	SAE J 30 R6 1/2" & 5/16"	
c. Type	CNG Rubber hose; Nylon braided	
d. Working pressure (kg/cm ²)	Sub-Atmosphere Pressure	
e. Max test pressure (kg/cm ²)	17.5 Bar	
f. Outer diameter/Inner Diameter	14.29 mm/ 7.94mm & 19.84mm/12.7mm	
g. Protection quality (material used)	SHL/239/2014-2015/2543/2124 Dt 12.09.2014 SHL/239/2014-2015/2543/2123 Dt 12.09.2014	
13 Injector		
a. Name of manufacturer	LOVATO	
b. Model name/Identification No	LOVATO / EP	
c. Type & drawing	Injector	
d. Venturi Size	NA	
14 ON/OFF Switch		
a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
b. Model name/Identification No	NA	
c. Type	On-Off Type With Content gauge	
15 Ignition System & Wiring Harness (for CNG system) (Ref. Clause A11 of Table 2 of AIS 007)		
a. Name of manufacturer	OE Fitted Petrol, LOVATO Gas S.p.A, Italy For CNG	
a. Type of Ignition System	NA	
b. Spark plug gap, mm	0.8mm	
c. Electrical circuit diagram /Detail layout	Separately enclosed	
d. Test Report No.	For CNG AML/2007-09/NK/CM/2682/403 Dt.04.10.2007	
16 Interfacing Unit (for closed loop engines)		
a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
b. Model name/Identification No.	LOVATO EXR / 67 R- 010249	
c. Type	Electronic Type	
17 Ignition Timing Advancer		
a. Name of manufacturer	NA	
b. Type	NA	
c. Timing on CNG mode	NA	
d. Timing on baseline fuel.	As Per OE Specs.	
18 Brief Description of System Including Dimensional Layout for Cylinder and other kit components installation, ventilation details etc.		
	LOVATO CNG Sequential, System Drawing Enclosed	
19 Catalytic Converter		
	Primary	Secondary
Make & Model	OE fitted (M/s Suzuki)	Nil
Identification No.	67L C01	Nil
Test Agency: In-CAT, Manesar, Gurgaon Signature: Name: Prashant Vijay Designation: DGM Certification Business Unit Date:	Manufacturer: Lovato Gas SpA, Italy Signature: Name: Satish Rokade Designation: Technical Manager Date: 11/01/2020	Document No: LOV/CAT/CNG/BS-IV- OBDII-KITSPEC-WagonR Stingray_R1. Dt:11/01/2020 Sheet No.: 3 of 6



20 Refilling valve interlocking switch		
a. Name of manufacturer	Toneluck, Italy	Wanwoo Korea, Italy
b. Identification No.	Nil	Nil
c. Type	Three Way Connectivity	Three Way Connectivity
21 Current limiting Device (Fuse)		
a. Name of manufacturer	MTA Electrical System, Italy	
b. Identification No.	5 & 7.5 A	
c. Voltage/current rating	12 V / 5 and 7.5 Amps	
d. Type	Blade Type	
e. Test Report No.	SHL/016/2001-02/2330B Dt.31.01.2002	
22 a Pressure Indicator		
a. Name of manufacturer	Wika, Italy	Minda Industries Ltd
b. Identification No.	Wika	Minda Impco
c. Type	Analogue Type	Analogue Type
22 b Pressure Indicator		
a. Name of manufacturer	LOVATO Italy	Gauge, Poland
b. Identification No.	Lovato	CNGAUGE
c. Type	Analogue Type	Analogue Type
23 Service shut off valve		
a. Name of manufacturer	Emer S.r.l / OMB Saleri SpA	Nigbo Realstar / HM,Plastic.
b. Identification No.	Nil	Nil
c. Type	Quarter Turn Shut Off Valve	Quarter Turn Shut Off Valve
24 Compartment/Sub-compartment/Gas tight housing		
a. Name of manufacturer	Nil	
b. Identification No.	Nil	
c. Type	Nil	
25 Conduit		
a. Name of manufacturer	Lovato Gas SpA, Italy	TUBICOR
b. Identification No.	82001	VDH/3036, VDH/2939
c. Inner & outer diameter	29mm ID	30/36mm
d. Type	Plastic Ventilation Hose	Plastic Ventilation Hose
d. Test Report No.	AML/2002-01/NK/CM/2436/7406 Dt.05.02.2002	SHL/239/2005-06/5096/1374 Dt.05.12.2005, SHL/239/2005-06/5257/1376 Dt.06/12/2005
26 Details of Seat/Upholstery/roof and side lining		
a. Name of manufacturer	NA	
b. Model name/Identification No.	NA	
c. Type	NA	
27 Details of non-moisture retaining hard rubber/ equivalent material padding/lining provided for inner side of the cylinder mounting band(s)		
a. Name of manufacturer	SHINDE Sales Corporation	
b. Identification No.	Nil	
c. Type	EPDM Rubber	
c. Test Report No.	AML/2007-04/RT/PT/385/62 Dt.17.05.2007	
28 Battery cut off switch(if applicable)		
a. Name of manufacturer	NA	
b. Identification No.	NA	
c. Type	NA	
29 a Any other information		
a. Petrol ECU Make	Denso (OE Fitted).	
b. Identification No.	33920M67LD	
29 b Spark Plug		
Make	NGK	
ID	KR6A10	
29 c Idling RPM(Petrol/CNG)		
	800 Rpm (+100/-100)	
Test Agency:	Manufacturer:	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R1.
ICAT, Manesar, Gurgaon	Lovato Gas SpA, Italy	Dt: 11/01/2020
Signature:	Signature:	
Name: Prashant Vijay	Name: Satish Rokade	
Designation:	Designation: Technical Manager	
Date: 11/01/2020	Date: 11/01/2020	Sheet No.: 4 of 6

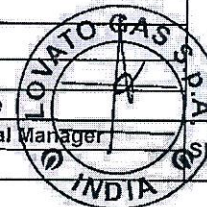


DGM Certification Business Unit

<i>Annexure II</i>	
TECHNICAL SPECIFICATIONS OF VEHICLES	
Manufacturer's Name and Address	MARUTI SUZUKI
Vehicle Data	
Model	WagonR Stingray
Type	Passenger Car
Year and Month of Manufacturer	August-13
Engine No.	K10BN7279019
Chassis No.	MA3EWDE1S00610224
Engine	
Type	K10 B MPFI
Bore x Stroke, mm	73mm X 79.5mm
No. of Cylinders	Three Cylinder in line
Displacement	998 cc.
Compression Ratio	09:01
Max Engine Output	47 KW @ 5900 rpm
Max Torque	85 Nm @ 3500 rpm
Air Cleaner	Dry, Paper Type
Oil Filter	Cartridge Type
Fuel Filter	Conventional Paper Type
Capacity of Cooling System	Liters, Water Cooling-System
Oil Sump Capacity	Liters
Weight of Engine (Complete)	kgs
Radiator Frontal Area (Core Area)	(IRL)
Clutch	
Type	DSD(Dry Single Disc)
Outside Diameter	NA
Gear Box	
Model	Drive 5MT
Type	Manually Operated / Synchromesh
No. of Gears	Five Forward & One Reverse
Gear Ratio	
	1 st 3.545
	2 nd 1.904
	3 rd 1.28
	4 th 0.914
	5 th 0.757
	Reverse 3.272
Steering	
Type	Pinion with Power assist(Electronic)
Ratio	Turn radius (m)4,6



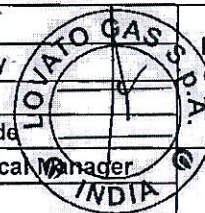
Test Agency: International Centre for Automotive Technology ICAT, Manesar, Gurgaon	Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/CAT/CNG/BS-IV- OBDII-VehicleSPEC- WagonR Stingray_R1 Dt:11/01/2020
Signature: 	Signature: 	Sheet No.: 5 of 6
Name: Prashant Vijay	Name : Satish Rokade	
Designation: DGM Certification Business Unit	Designation: Technical Manager	
Date	Date: 11/01/2020	



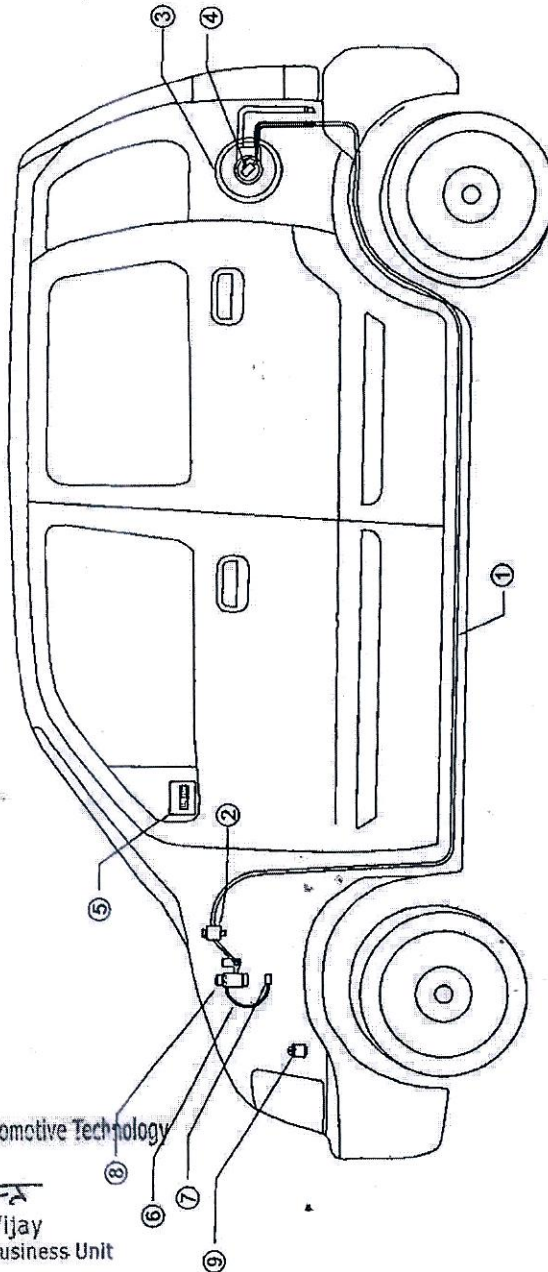
SUSPENSION	
Front	McPherson Strut with Coil Spring
Rear :	Isolated trailing link with Coil Spring
SPARK PLUGS	
O.E Fitted	NGK / KR6A10
CARBURETOR	
Make / ID	NA
BRAKES	
Front	Ventilated Disc
Rear	Drum
WHEELS & TYRES	
Wheel rim size	14" Steel wheel
Tyre Size designation including ply rating / load index / speed rating	155/65 R14
DIMENSIONS	
Wheel base (mm)	2400 mm
Over all width (mm)	1475 mm
Over all length (mm)	3636 mm
Front track (mm)	1295 mm
Rear track (mm)	1290 mm
Min. Ground Clearance (mm)	165 mm
FUEL TANK	
35 liters (Petrol), 60 Liters Water Capacity (CNG)	
WEIGHT	
Max. GVW (kgs)	1350
Max. Permissible FAW (kgs)	702
Max. Permissible RAW (kgs)	648
Kerb weight with 90% fuel (with spare wheel, tools etc) (kgs)	942 kgs
Max Greadibility In 1st gear	7°
Seating Capacity	5 Person



Test Agency:	Manufacturer:	Document No:
ICAT Manesar Centre for Automotive Technology	Lovato Gas SpA, Italy	LOV/ICAT/CNG/BS-IV- OBDII-VehivcleSPEC- WagonR Stingray_R1
Signature:	Signature:	Dt:11/01/2020
Name: Prashant Vijay	Name : Satish Rokade	
Designation: Prashant Vijay ICAT Certification Business Unit	Designation: Technical Manager	Sheet No.: 6 of 6
Date	Date: 11/01/2020	



CNG OBDII LAYOUT PLAN FOR MARUTI WAGONR STINGRAY



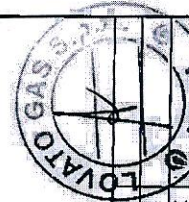
International Centre for Automotive Technology

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- 1 - HIGH PRESSURE TUBE.
- 2 - CNG FILLING VALVE
- 3 - CNG CYLINDER
- 4 - VALVE
- 5 - FUEL SELECTOR SWITCH
- 6 - LOW PRESSURE HOSE
- 7 - RAIL
- 8 - C.N.G. REDUCER
- 9 - ECU

MAKE & MODEL	MARUTI WAGONR STINGRAY	Drawn By :	SR
ENGINE CAPACITY	998 CC	Checked By :	SR
VARIANTS	All the variants of the WAGONR	Approved By :	PPK
Drawing No: BSIVE-OBDD/001 (SHEET 1 OF 3)		SCALE: NTS DATE: 01/01/2020	

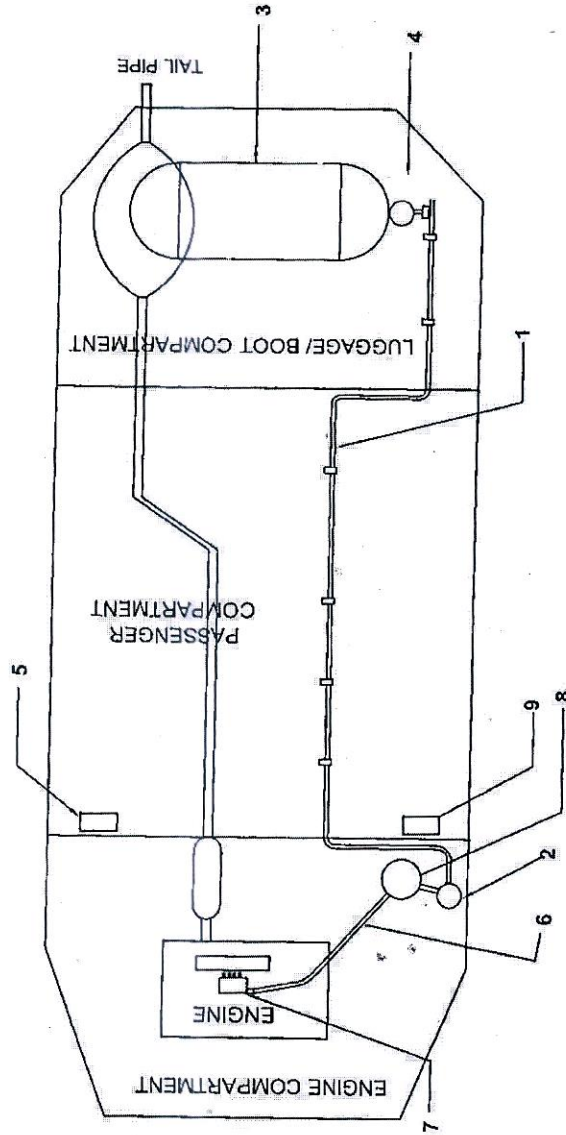


DESCRIPTION
CNG OBDII KIT LAYOUT PLAN - MARUTI WAGONR STINGRAY

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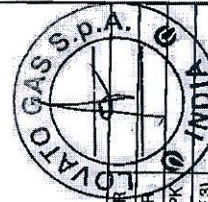
CNG OBDII LAYOUT PLAN FOR MARUTI WAGONR STINGRAY



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Prashant Vijay
DGM Certification Business Unit

- 1 - HIGH PRESSURE TUBE.
- 2 - CNG FILLING VALVE
- 3 - CNG CYLINDER
- 4 - VALVE
- 5 - FUEL SELECTOR SWITCH
- 6 - LOW PRESSURE HOSE
- 7 - RAIL
- 8 - C.N.G. REDUCER
- 9 - ECU

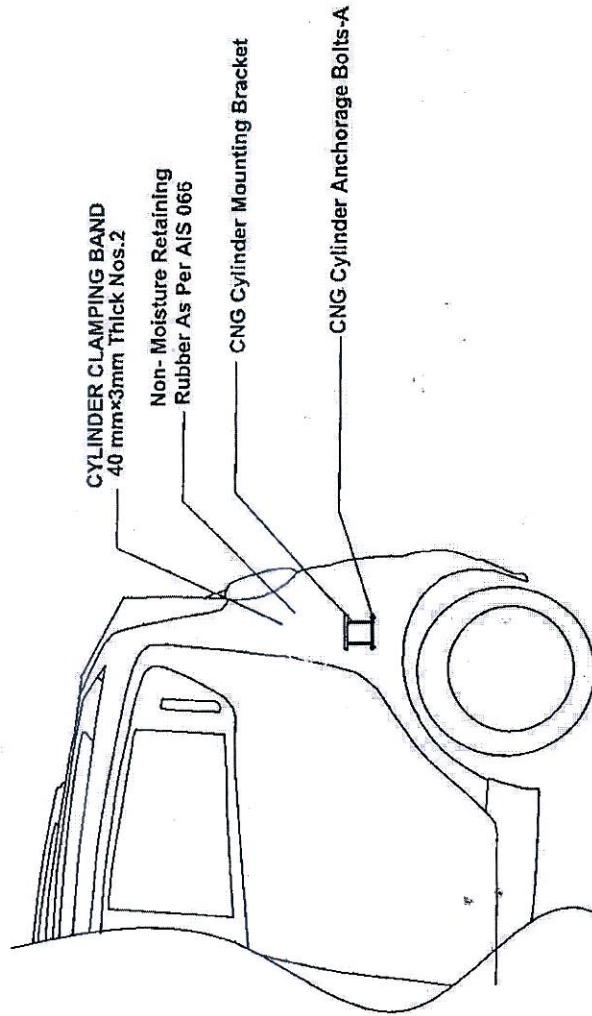


MAKE & MODEL	MARUTI WAGONR STINGRAY	Drawn By:	SR
ENGINE CAPACITY	998 CC	Checked By:	SR
VARIANTS	All the variants of MARUTI WAGONR	Approved By:	PPK
Drawing No: BSIVIE-OBDII/001 (SHEET 2 OF 3)			
DESCRIPTION			SCALE: NTS DATE: 01/01/2020
CNG OBDII KIT LAYOUT PLAN - MARUTI WAGONR STINGRAY			



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CNG OBDII LAYOUT PLAN FOR MARUTI WAGONR STINGRAY

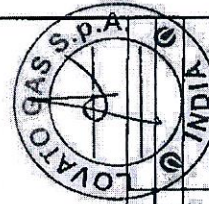


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DETAIL 'A'

- ANCHORAGE BOLTS- 4 POINT LOCATION
M10x1.5x50MM LONG
- CLAMPING BAND FASTENERS:M10x1.5x50MM LONG
- FASTNER PROP. CLASS- 8.8
- TIGHTENING TORQUE (ALL FASTNERS)- 50 ± 5Nm



MAKE & MODEL	MARUTI WAGONR STINGRAY	Drawn By:	SR
ENGINE CAPACITY	998 CC	Checked By:	SR
VARIANTS	All the variants of M. WagonR	Approved By:	PPK

Drawing No: BSV/E-OBDII/001 (SHEET 3 OF 3)
 SCALE: NTS DATE: 01/01/2020

DESCRIPTION

CNG OBDII LAYOUT PLAN - MARUTI WAGONR STINGRAY.

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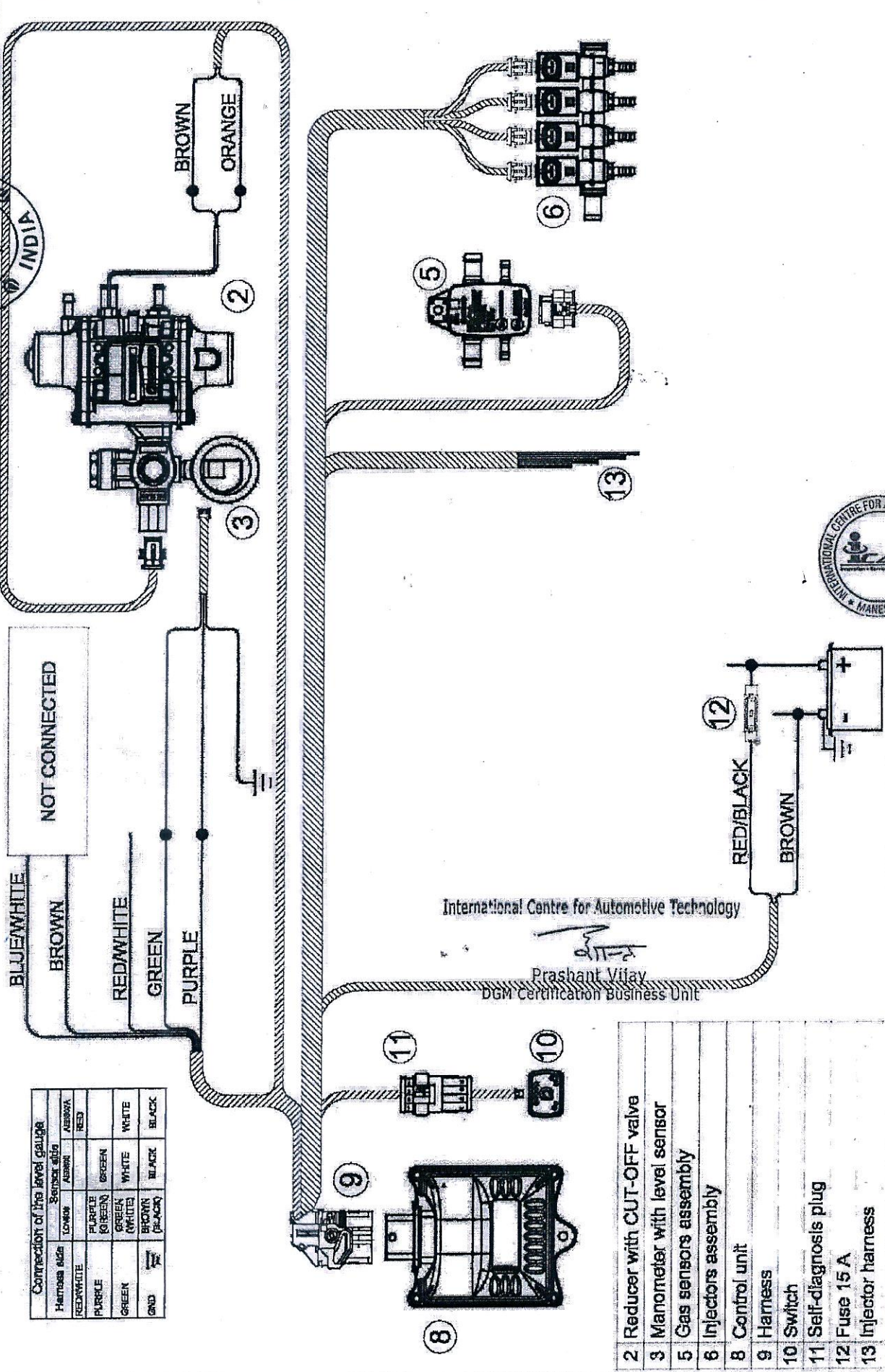


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 THE MANUFACTURER OF THE FUTURE
 2019-2357

LOVATO GAS S.P.A.
 INDIA

CNG 3.4 CYLINDER
 WIRING DIAGRAM

001
 Pag. 1/1



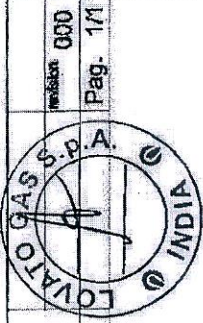
Connection of the level gauge

Harness side	Sensor side	ASBWA	ASBWA
RED/WHITE	LOW	PURPLE	RED
PURPLE	PURPLE (GREEN)	GREEN	
GREEN	GREEN (WHITE)	WHITE	WHITE
GN2	BROWN (BLACK)	BLACK	BLACK

- 2 Reducer with CUT-OFF valve
- 3 Manometer with level sensor
- 5 Gas sensors assembly
- 6 Injectors assembly
- 8 Control unit
- 9 Harness
- 10 Switch
- 11 Self-diagnosis plug
- 12 Fuse 15 A
- 13 Injector harness

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 DGM Certification Business Unit

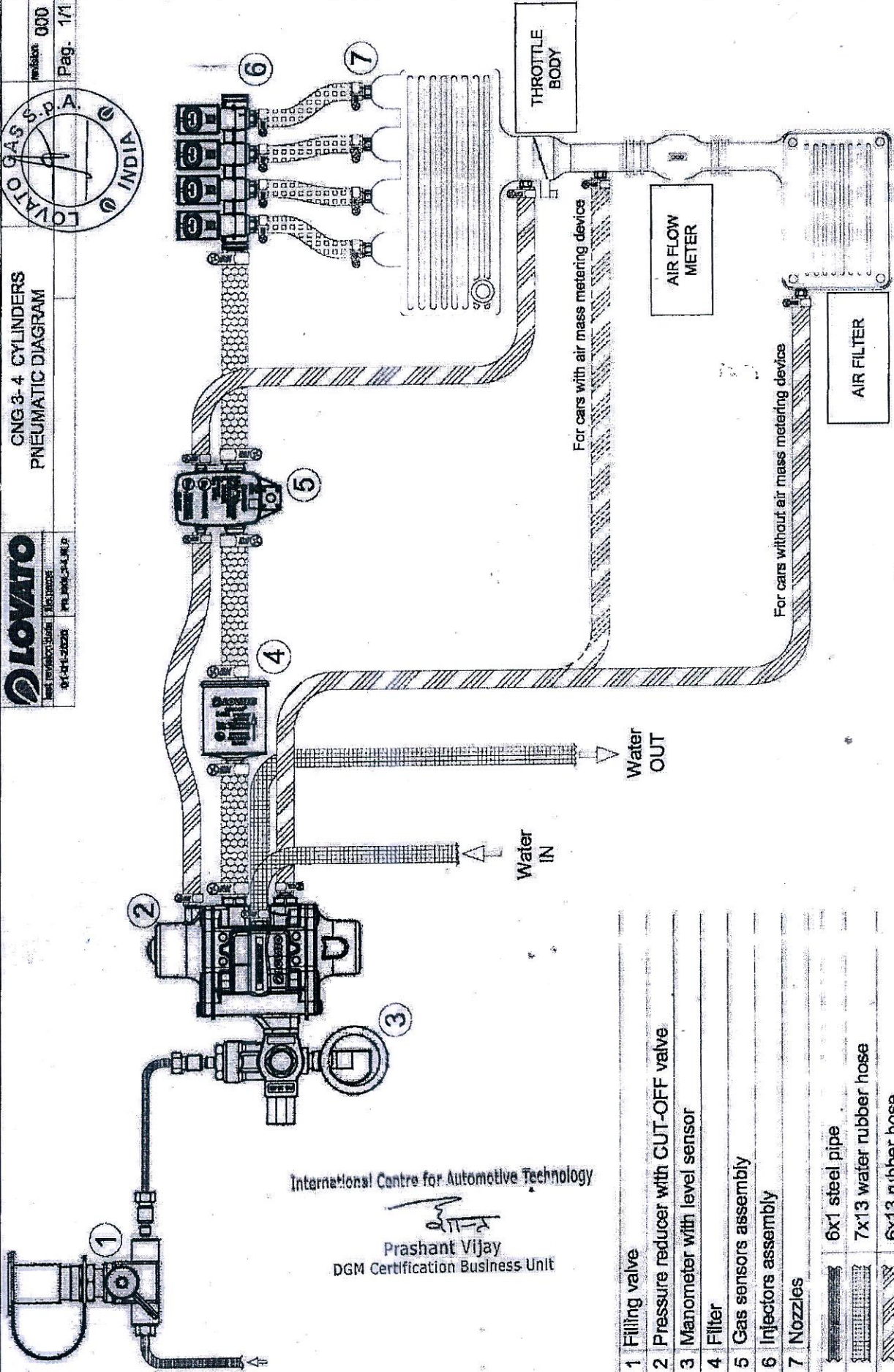




CNG 3-4 CYLINDERS
PNEUMATIC DIAGRAM



Revision 000
Pag. 1/1



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1	Filling valve	
2	Pressure reducer with CUT-OFF valve	
3	Manometer with level sensor	
4	Filter	
5	Gas sensors assembly	
6	Injectors assembly	
7	Nozzles	
		6x1 steel pipe
		7x13 water rubber hose
		6x13 rubber hose
		6x13 gas rubber hose
		12x19 gas rubber hose

