

कार्यालय परिवहन आयुक्त, उत्तराखण्ड,
कुल्हान, सहस्त्रधारा रोड़, देहरादून।

संख्या-924 / TR / 23-9/सी0एन0जी0किट/2022

दिनांक 15 मार्च, 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 नामर्स के अनुरूप होने के प्रमाण संख्या- CAJA-0107 R02 Dated 04th December, 2020, CAJA-0107L01 Dated 14th October, 2014, CAJA-0107L02 Dated 14th October, 2014, CAJA-0107L03 Dated 20th July, 2015 & CAJA-0107L04 Dated 27th May, 2016 प्राप्त कर लिये गये है। 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 C- OBDII (Engine cm³ Range-899.25 to 1498.75) को in use पेट्रोल चालित वाहन मॉडल Hyundai i20 में रिट्रोफिटमेंट कर प्रस्तुत की गयी, जिसका संयुक्त निरीक्षण उप परिवहन आयुक्त (प्रथम) एवं सम्भागीय निरीक्षण (प्राविधिक) देहरादून द्वारा किया गया। उक्त सी0एन0जी 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 C- OBDII
- 3. CNG Cylinder (PESO Approved/Endorsed):**

Name of Manufacturer	Confidence Petroleum India Ltd.	Lizer Cylinders Ltd.	Associate High Pressure	Everest kanto cylinder Ltd.	Maruti Koatsu 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	60/65 Lit, 355.6 mm	60/65 Lit, 316/356 mm	60/65 Lit, 316/323.8mm	60/65 Lit, 356mm	60/65 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 ltr 325 Dia	G3(42)536/1 Dt:14-08-2008, 355 Dia	G3(42)552/1 Dt:31-10-2011 for 60.65 lts 316 Dia, G3(42)552/1 Dt 04-08-2011 for 60/65 ltr 356 Dia	G3(42)312/V Dt:02-06-2005 for 60/65 ltr 316/323.8/356 Dia	G3(42)277/ VII Dt:21-01-2010 for 60/65 ltr 356Dia	G3(42)572/1 Dt:14-10-2011 for 60/65 ltr 316/356Dia	G3(42)544/1 Dt:17-07-2008 for 60/65 ltr 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 Lit, 317/356 mm	60/65 Lit, 316/356 mm	60/65 Lit, 317/356 mm	60/65 Lit, 316/356 mm
Approval Reference from DOE	G3(42)515/II Dt-18-07-2006 for 60/65 Ltr 317/356 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 60/65 Ltr 317/356 mm Dia G.3(42)557/P/20 17/195/1 Dated 19/06/2017	G3(42)530/II Dt-29-10-2009 For 60/65 Ltr 316/356 mm Dia

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

Name of manufacturer	Emer S.r.L Italy	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 refernce 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 ceritficate no- CAJA-0107L01 Dated 14th October, 2014, CAJA-0107L02 Dated 14th October, 2014, CAJA-0107L03 Dated 20th July, 2015 & CAJA-0107L04 Dated 27th May, 2016 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	Chevrolet Beat	1199 *	CAJA-0107R02 Dated 04 th Dec, 2020	01 st January 2014 till the validity of Bharat State IV Norms
2	Maruti Wagon R	998	CAJA-0107 L01 Dated 14 Oct 2014	
3	Maruti Astar	998		
4	Maruti Ritz	1197		
5	Chevrolet Spark	995		
6	Honda Jazz	1198		
7	Hyundai i10 1.2	1197		
8	Hyundai i20 1.2	1197		
9	Hyundai Santro	1086		
10	Maruti Eeco (5seater)	1196		
11	Ford Figo	1196		
12	Maruti EECO (7 Seater)	1196		
13	Maruti Swift	1197		
14	Maruti Swift Dzire	1197		
15	Hyundai i10 1.1	1086		
16	Maruti Alto K10	998		

17	Nissan Micra	1198		
18	Honda Brio	1198		
19	Toyota Etios Liva	1198		
20	Maruti Wagon R Stingray	998		
21	Hyundai i10 Grand	1197		
22	Chevrolet Salt	1199		
23	Maruti Zen Estilo	998		
24	Chevrolet Sall U-VA	1198		
25	Datsun Go	1198		
26	Fait Grand Punto	1172		
27	Honda Amaze	1198		
28	Hyundai Eon	998		
29	Hyundai Xcent	1197		
30	Maruti Cilerio	998	CAJA-0107 L02	01 st January 2014
31	Premier Rio	1173	Dated 14 October	till the validity of
32	Renault Pulse	1198	2014	Bharat State IV
33	Skoda Fabia	1198		Norms
34	Tata Indica V2	1193		
35	Tata Indica Vista	1172		
36	Tata Indigo CS	1193		
37	Tata Zest	1193		
38	Tata Bolt	1193		
39	Volkswagen Polo	1198		
40	Volkswagen Vento	1197		
41	Datsun Go Plus (5 Seater)	1198	CAJA-0107 L03	
42	Datsun Go Plus 7 Seater)	1198	Dated 20 July 2015	
43	Volkswagen Ameo	1197		
44	Tata Tiago	1199	CAJA-0107 L04	
45	Maruti Wagon R MPV	1197	Dated 27 May 2016	
46	Maruti Baleno	1197		
47	Mahindra KUV 100	1198		


अतः उक्त सी०एन०जी० किट/सिलेंडर/वाल्ब को प्रोटोटाइप एजेन्सी द्वारा अनुमोदित विशिष्टताओं के अनुसार उपरोक्त 47 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 जायगी। इस प्रकार की कार्यशालाओं को जी०एस०टी० 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 फ्यूल 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 आर्वतक 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,
उत्तराखण्ड।

संख्या-924 /TR/CNG/2021 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


15-Mar-22


(एस0के0सिंह)
उप परिवहन आयुक्त,
उत्तराखण्ड।

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INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY

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

C A J A 0107 R02

Date : 04th December 2020

Cert	Brief	Dwg	Total
02	07	05	14 Pgs

EXTENSION OF VALIDITY

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. Eco Fuel System (I) Pvt Ltd., B-101, Bellona Building no.1, 90ft Rd, Ghatkopar (East), Mumbai-75, 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-KITSPEC-WAGONR STINGRAY_R2 dt. 01.09.2020) of the in-Use vehicle model, as decalred by the CNG Kit installer, are enclosed with this certificate.

MPFI, "In-Use" Base Model	Year of Manufacture	Engine cm ³	Engine CC Range
Chevrolet Beat	Feb-14	1199	899.25 to 1498.75 cm ³

ANNEXURE A

Sr. No.	Reference of TA/ Extension/ Layout / Revalidation Certificate	Validity of Certificate					
		Earlier		Revalidated			
		From	To	From	To	From	To

ANNEXURE-I

Compliance of Mass Emission Standards & Validity:Ref. 115-B (1) A(ii) Clause (a) (iv), Explanatons (d) as per GSR 84(E).

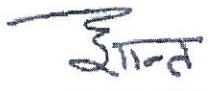

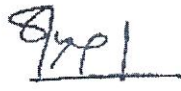

The CNG Converted "In-Use" base model meets the Bharat Stage - IV norms, manufactured/ registered from 01st January 2014 to 31st March 2020, subject to specific approval, for layout plan by ICAT, for retrofitment of CNG Kit in each vehicle model.

Emission Test report CT0PP1032 Dated 19.10.2020 -Wagon R Stingray (Jay Fe Cylinder- SUZUKI (67LC01) Cat Con - NGK(KR6A10) Spark Plug -Interfacing Unit :M/s. Lovato Gas S p A, Italy (LOVATO C-OBDDII/67 R-010249))

ICAT Ref No. 2020-0596 (IOCS Ref. : 116396)

Please turn over for Disclaimer

AUTHORISED SIGNATORY

 PRASHANT VIJAY DEPUTY GENERAL MANAGER		 DINESH TYAGI DIRECTOR	 Page 1 of 2
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Office Address : Centre-I : Plot No.-26, Sector-3, HSIIDC, IMT-Manesar, Gurugram-122050. Haryana (India)
 Centre-II : Plot No.-01, Sector-M-11, HSIIDC, IMT-Manesar, Gurugram-122051. 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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C A J A 0107 R02





Date : 04th December 2020

ANNEXURE - I

Sr. No.	Reference of TA/ Extension/ Layout & Revalidation Certificate	Validity of Certificate					
		Earlier		Revalidated			
		From	To	From	To	From	To
1	C A J A 0107	14.10.2014	13.10.2017	14.10.2017	13.10.2020	14.10.2020	13.10.2023
2	C A J A 0107 L01	14.10.2014					
3	C A J A 0107 L02	14.10.2014					
4	C A J A 0107 L03	20.07.2015					
5	C A J A 0107 L04	27.05.2016					
6	C A J A 0107 E01	05.01.2017					
7	C A J A 0107 F01	29.03.2018					
8	C A J A 0107 * 01	04.12.2020	-	-	-	-	-

*** END OF DOCUMENT ***

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AUTHORISED SIGNATORY	
 ICAT PRASHANT VIJAY DEPUTY GENERAL MANAGER	 INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY MANESAR • 1500 INDIA
 ICAT DINESH TYAGI DIRECTOR	 Innovation • Service • Excellence Page 2 of 2

Annexure I

TECHNICAL SPECIFICATION OF GASEOUS FUELLED VEHICLES KIT (DEDICATED / BI-FUEL / DUAL FUEL / DEDICATED DUAL FUEL AS APPLICABLE)

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 C-OBDDII
b. Variants, if any	NIL
c. Fuel System (Dedicated/Bi-Fuel/Dual Fuel/Dedicated Dual Fuel)	Bi-Fuel
d. Type of Dual- fuel system (Type 1A / 1B / 2A / 2B / 3B)	NA
e. Fuel (Gas Fuel (Specify Name of fuel) & Gasoline/ Diesel)	Petrol & CNG

3 CNG Cylinder (PESO 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) & Diameter (mm)	60/65 Liters, 356mm/325mm	60/65 Liters, 355.6mm	60/65 Liters, 316mm/356mm
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/I Dt.14.08.2008 355.6dia	G.3(42)552/I Dt.31/10/2011 for 60.65 ltr 316 Dia, G.3(42)552/I Dt 04/08/2011 for 60/65 ltr 356 Dia
h. Number of Cylinders fitted (schematic drawing)	Attached with Technical Specification		

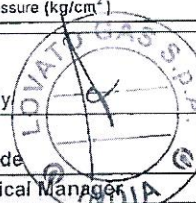
3a CNG Cylinder (PESO approved/endorsed)			
a. Name of manufacturer	Everest Kanto Cylinder Ltd,	Maruti Koatsu Cylinder Ltd.	Euro India Cylinders Ltd.
b. Identification No.	EKC	MKC	EICL
c. Type	Seamless steel Cylinder	Seamless steel Cylinder	Seamless steel Cylinder
d. Working pressure (kg/cm ²)	200 Bar	200 Bar	200 Bar
e. Max. test pressure (kg/cm ²)	340 Bar	340 Bar	340 Bar
f. Cylinder capacity (water equivalent) & Diameter (mm)	60/65 Liters, 316mm/323.8mm/356mm	60/65 Liters, 356mm	60/65 Liters, 316mm/356mm
g. Approval reference from DOE	G.3(42)312/V Dt.02.06.2005 for 60/65 ltr 316/323.8/356 Dia.	G.3(42)277/VII Dt.21.01.2010 For 60/65 ltr 356 mm Dia	G.3(42)572/I Dt.14.10.2011 for 60/65 ltr 316/356mm dia
h. Number of Cylinders fitted (schematic drawing)	Attached with Technical Specification		

3b CNG Cylinder (PESO 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) & Diameter (mm)	60/65 Liters, 325mm	60/65 Liters, 317mm/356mm	60/65 Liters, 316mm/356mm
g. Approval reference from DOE	G.3(42)544/I Dt.17.07.2008 for 60/65ltr 325 Dia	G.3(42)515/II Dt18.07.2006 for 60/65 Ltr 317/356 mm Dia	G.3(42)562/I Dt 24.04.2012 For 60/65 Ltr 316/356mm Dia
h. Number of Cylinders fitted (schematic drawing)	Attached with Technical Specification		

Manufacturer:	Document No:	Test Agency: ICAT, Manesar,	Cert No:
Lovato Gas SpA, Italy	LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R2	Gurgaon International Centre for Automotive Technology	
Signature:	Dt: 01/09/2020	Signature:	
Name : Satish Rokade	Sheet No.: 1 of 5	Name: Prashant Vijay	
Designation: Technical Manager	Date: 01/09/2020	Designation: DGM Certification Business Unit	
		Date of Issue	Page No. 1 of 5



3c) CNG Cylinder (PESO approved/endorsed)			
a. Name of manufacturer	Jay Fe Cylinders Ltd	Nitin Cylinders Limited	
b. Identification No.	JAYFE / 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) & Diameter (mm)	60/65 Liters, 317mm/356mm	60/65 Liters, 316mm/356mm	
g. Approval reference from DOE	G.3(42)557/II Dt.22.12.2009 For 60/65 Ltr 317/356mm Dia. G.3(42)557/P/2017/195/II Dt:19/06/2017	G.3(42)530/II Dt.29.10.2009 for 60/65 Ltr 316/356 mm Dia.	
h. Number of Cylinders fitted (schematic drawing)	Attached with Technical Specification		
4a) Cylinder Valve (s) / Shutoff valve (PESO 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 PESO (PESO compliance with Date)	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) / Shutoff valve (PESO 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 PESO (PESO compliance with Date)	G.3(40)166 Dt.03.06.2009	G.3(40)87 Dt.17.04.2007	
5) Solenoid Valve / Automatic shutoff valve			
a. Name of manufacturer	Lovato Gas S.p.A Italy.		
b. Model Name/Identification No.	LOVATO/ RMJ 3.2		
c. Type	Pilot Operated; Part of Regulator		
d. Working pressure (kg/cm ²)	200 Bar		
e. Max test pressure (kg/cm ²)	300 Bar		
f. Approval reference (Test Report / Approval Number)	Part Of reducer - SHL/239/2009-2010/7433/1062 DT:01/04/2010		
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 / Refilling Receptacle			
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 / Refilling Receptacle			
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		
Manufacturer:	Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R2 Dt: 01/09/2020	Test Agency: ICAT, Manesar, Gurgaon Signature: _____ Name: _____ Designation: _____ Date of Issue: _____
Signature:	_____	Sheet No.: 2 of 5	Cert No: _____ International Centre for Automotive Technology Signature: _____ Name: _____ Designation: _____ Date of Issue: _____
Name : Satish Rokade	_____	Date: 01/09/2020	Prashant Vijay DGM Certification Business Unit Page No. 2 of 5
Designation: Technical Manager	_____		



8 Pressure Regulator		
a. Name of manufacturer	Lovato Gas S.p.A Italy.	
b. Model name/identification No	RMJ 3.2 / TAC No- AA1062	
c. Type	CNG Electronic Reducer	
d. Inlet pressure (kg/cm ²)	200 Bar	
e. Outlet pressure (kg/cm ²)	2 kg/Cm ²	
f. No. of stages	2 (TWO)	
g. Approval reference no	SHL/239/2009-2010/7433/1062 DT:01/04/2010. TAC No-AA1062	
9 Vaporizer / Heat exchanger (for LNG)		
a. Name of manufacturer	NA	
10 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	
11 Oil Pump or Lubrication System, if any		
a. Name of manufacturer	NA	
b. Type	NA	
12 High Pressure Tubing		
a. Name of manufacturer	Chengdu Chaoyi New Energy Equipment Co.Ltd	
b. Model name/identification No.	LOVATO/STP/01	
c. Type	Seamless Steel	
d. Working pressure (kg/cm ²)	200 bar	
e. Max. test pressure (kg/cm ²)	700bar	
f. Outer diameter/Inner Diameter	6/4mm	
g. Approval (Test Report / Approval Number)	SHL/239/2016-2017/2935/2962 29.11.2016	
13 Low Pressure Tubing		
a. Name of manufacturer	Parker Hannifin India Pvt Ltd	Super Seal Flexible Hose Limited
b. Model name/identification No.	SAE J 30 R6 1/2" & 5/16"	Super Seal Flexible Hose I.D 5/16"
c. Type	CNG Rubber hose; Nylon braided	CNG Rubber hose; Nylon braided
d. Working pressure (kg/cm ²)	Sub-Atmosphere Pressure	Sub-Atmosphere Pressure
e. Max test pressure (kg/cm ²)	48 Bar	48 Bar
f. Outer diameter/Inner Diameter	14.29 mm/ 7.94mm & 19.84mm/12.7mm	14.29 mm/ 7.94mm & 19.84mm/12.7mm
g. Material	Rubber hose; Nylon braided	Rubber hose; Nylon braided
h. Approval reference (Test Report / Approval Number)	SHL/239/2014-2015/2543/2124 Dt 12.09.2014 SHL/239/2014-2015/2543/2123 Dt 12.09.2014	SHL/239/2014-2015/369/1578 Dt 20.06.2014 SHL/239/2014-2015/369/1577 Dt 20.06.2014
14 Gas Air Mixer		
a. Name of manufacturer	NA	
b. Model name/identification No	NA	
c. Type & drawing	NA	
d. Venturi Size	NA	
e. Approval reference (Test Report / Approval Number)	NA	
15 Gas Injector		
a. Name of manufacturer	LOVATO	
b. Model name/identification No	LOVATO (KP)	
c. Type & drawing	Injector	
d. Injector Flow Specs	4 bar	
e. Approval reference (Test Report / Approval Number)	CTOBN5078 Dt: 26/03/2018	
16 ON/OFF Switch (Fuel selector switch)		
a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
b. Model name/identification No	Lovato	
c. Type	On-Off Type With Content gauge	



Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R2 Dt: 01/09/2020	Test Agency: ICAT, Manesar International Centre for Automotive Technology Gurgaon
Signature: Name : Satish Rokade	Sheet No.: 3 of 5	Signature: Name: Prashant Vijay
Designation: Technical Manager	Date: 01/09/2020	Date of Issuance: 01/09/2020 Page No. 3 of 5

17 Ignition System	a. Name of manufacturer	OE Fitted Petrol,	
	a. Type of Ignition System	Spark Ignition	
	b. Spark plug gap, mm	0.8mm	
	c. Make	NGK	
	d. Identification	KR6A10	
18 Wiring Harness	a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
	b. Electrical circuit diagram / Detail layout	Attached With Specification	
	c. Approval reference (Test Report / Approval Number)	CTOGP8033 Dt: 04/03/2020	
19 Interfacing Unit (ECU)	a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
	b. Identification No.	LOVATO C-OBDII / 67 R- 010249	
	c. Type	Electronic Type	
20 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	
21 Fuel selector switch	a. Name of manufacturer	As Per Point No. 16.	
22 Fuel flow actuation mechanism (Mechanical / Electronic)		Electronic	
	a. Brief description of system (Attach Annexure)	Attached With Specification	
	b. Schematic layout (Attach Drawing)	Attached With Specification	
	c. Identification of critical components of Kit, including ECU, Lambda sensor, Pressure sensor, temperature Sensor etc with Make and Identification number) (attach Annexure)	Attached With Specification	
23 Brief Description of System Including Dimensional Layout for Cylinder and other kit components Installation ventilation details etc.		Attached With Specification	
24 Joints and connection	a. Name of manufacturer	LOVATO Gas S.p.A, Italy	
	b. Type	Ferul Nut & T Joints	
	c. Number of Joints and connections represented on Drawing (Attach Drawing)	Drawing Attached	
25 Catalytic Converter O.E		Primary	Secondary
	Make & Model	OE fitted (M/s Suzuki)	Nil
	Identification No.	67L C01	Nil
26 Refilling valve interlocking switch (NA for LNG)	a. Name of manufacturer	Toneluck, Italy	Wanwoo Korea, Italy
	b. Identification No.	Nil	Nil
	c. Type	Three Way Connectivity	Three Way Connectivity
27 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. Approval reference (Test Report / Approval Number)	SHL/016/2001-02/2330B Dt.31.01.2002	



Manufacturer: Lovato Gas SpA, Italy Signature: Name : Satish Rokade Designation: Technical Manager	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R2 Dt: 01/09/2020 Sheet No.: 4 of 5 Date: 01/09/2020	Test Agency: ICAT International Centre for Automotive Technology, Manesar, Gurgaon Signature: Name: Designation: Prashant Vijay Date of Issue: 01/09/2020	Cert No: Automotive Technology Page No: 4 of 5
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28	Indicator		
(A)	a. Name of manufacturer	Wika, Italy	
	b. Identification No.	Wika	
	c. Type	Analogue Type	
29	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
30	Comapartment/Sub-comapartment/Gas tight housing		
	a. Name of manufacturer	NA	
	b. Identification No.	NA	
	c. Type	NA	
	d. Material used	NA	
	e. Approval reference (Test Report / Approval Number)	NA	
31	Conduit		
	a. Name of manufacturer	TUBICOR	
	b. Identification No.	VDH/2939	
	c. Inner & outer diameter	30/36mm	
	d. Type	Plastic Ventilation Hose	
	e. Approval reference (Test Report / Approval Number)	SHL/239/2014-2015/9044/390 Dt;20/02/2015	
32	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	M/s Knewtech Sales Pvt Ltd.	
	b. Identification No.	Nil	
	c. Type	EPDM Rubber	
	d. Number of bands / cylinder (Should be part of layout)	Drawing attached	
	e. Approval reference (Test Report / Approval Number)	AML/2007-04/RT/PT/385/62 Dt.17.05.2007	
33	Battery cut-off switch(if applicable)		
	a. Name of manufacturer	NA	
	b. Identification No.	NA	
	c. Type	NA	
34	Labels - Number and position		
		2 Label, Front and rear windshield	
35	First Aid Box		
		In Dashboard	
36	Fire Extinguisher (Number and Type)		
		1no., Chemical Powder Type	
37	Idle rpm		
		700 Rpm (+100/-100)	
38	Brief Description of System Including Dimensional Layout for Cylinder and other kit components installation ventilation-details etc.		
		Brief Description and Drawing attached	
39	Any other information		
	a. Petrol ECU Make	Denso (OE Fitted).	
	b. Identification No.	33920M67LD	



Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC-WagonR Stingray_R2 Dt: 01/09/2020	Test Agency: ICAT, Manesar, Gurgaon	Cert No: International Centre for Automotive Technology
Signature: Name : Satish Rokade	Sheet No.: 5 of 5	Signature: [Signature]	Name: Prashant Vijay
Designation: Technical Manager	Date: 01/09/2020	Designation: BGM Certification Business Unit	Date of Issue: Page No. 5 of 5



Annexure II		
TECHNICAL SPECIFICATIONS OF IN-USE VEHICLES		
1	Manufacturer's Name and Address	MARUTI SUZUKI
2	Vehicle Data	
	a) Model	Wagonr Stingray
	b) Category of Vehicle	M1
	c) Year and Month of Manufacturer	August-13
	d) Engine No.	K10BN7279019
	e) Chassis No.	MA3EWDE1S00610224
	f) Registration number (Enclose RC copy)	DL-9-CAG-8105
	g) Application	Gasoline
3	Engine	
	a) Make	MARUTI SUZUKI
	b) Model	K10 B
	c) Type	MPEFI
	d) Bore x Stroke, mm	73mm X 79.5mm
	e) No. of Cylinders	Three Cylinder in line
	f) Displacement	998 cc.
	g) Compression Ratio	09:01
	h) Max Engine Output	47 KW @ 5900 rpm
	i) Max Torque	85 Nm @ 3500 rpm
4	Frame	
	a) Long Member Size (mm)	As per O.E Spec
	b) Number of Cross member	As per O.E Spec
5	SUSPENSION	
	a) Front	McPherson Strut with Coil Spring
	b) Rear :	Isolated trailing link with Coil Spring
6	WHEELS & TYRES	
	a) Wheel rim size	14" Steel wheel
	b) Tyre Size designation including ply rating	155/65 R14
	c) Speed Index	75 T
	d) Load index / Load rating	387 Kg
	e) Tyre Type (Radial / Cross / Tube / Tubeless)	Radial
	f) Laden Tyre pressure (front & rear) (kg/cm2)	36 PSI
7	Electrical System	
	a) Type	DSD(Dry Single Disc)
	b) Outside Diameter	NA



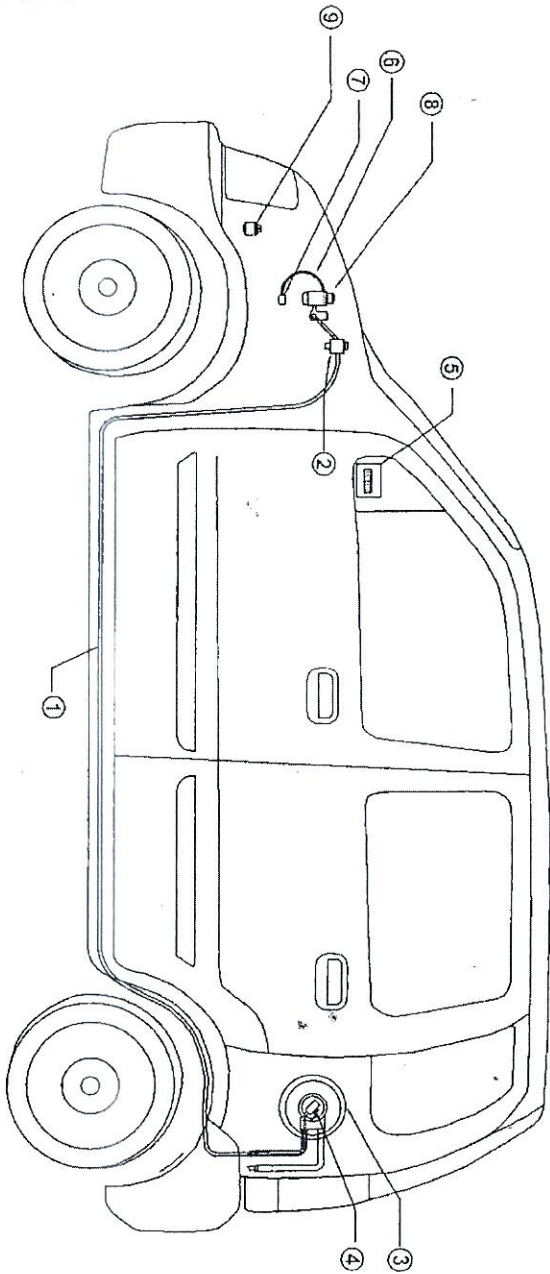
Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OBDDII-KITSPEC- WagonR Stingray_R2 Dt: 01/09/2020	Test Agency: ICAT, Manesar, Gurgaon International Centre for Automotive Technology	Cert No:
Signature: Name : Satish Rokade	Sheet No.: 1 of 2	Signature: Name: Designation: Prashant Vijay	
Designation: Technical Manager	Date: 01/09/2020	Date of Issue	Page No. 1 of 2

8	FUEL TANK	
	a) Material	Sheemless Steel Tube
	b) Capacity	35 liters (Petrol), 60 Liters Water Capacity (CNG)
9	DIMENSIONS	
	a) Wheel base (mm)	2400 mm
	b) Over all width (mm)	1475 mm
	c) Over all length (mm)	3636 mm
	d) Over all height (mm)	1650mm
	e) Front track (mm)	1295 mm
	f) Rear track (mm)	1290 mm
	g) Min. Ground Clearance (mm)	165 mm
	h) Cargo box dimensions (mm)	Nil
	i) Load body platform area	Nil
10	WEIGHT	
	a) Max. GVW (kgs)	1350
	b) Max. Permissible FAW (kgs)	702
	c) Max. Permissible RAW (kgs)	648
	d) Kerb weight with 90% fuel (with spare wheel, tools etc) (kgs)	942 kgs
	e) Max Greadibility In 1st gear	7°
11	Seating	
	a) Seating Capacity	1+4 Person
	b) Sketch Showing seating layout with dimensions	as per O.E



Manufacturer: Lovato Gas SpA, Italy	Document No: LOV/ICAT/CNG/BS-IV-OB DII-KITSPEC-WagonR Stingray_R2 Dt: 01/09/2020	Test Agency: ICAT, Manesar, Gurgaon International Centre for Automotive Technology	Cert No:
Signature: Name : Satish Rokada	Sheet No.: 2 of 2	Signature: Name: Prashant Vijay	
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CNG OBDII LAYOUT PLAN FOR MARUTI WAGONR STINGRAY



- 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

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 DGM Certification Business Unit

International Centre for Automotive Technology



MAKE & MODEL	MARUTI WAGONR STINGRAY	Drawn By :	SBC
ENGINE CAPACITY	998 CC	Checked By :	SP
VARIANTS	All the variants of the WAGONR	Approved By :	PK
Drawing No. BSIV/C-OBDII/001 (SHEET 1 OF 2)		DATE	13/11/2020
DESCRIPTION		SCALE	NTS
CNG OBDII KIT LAYOUT PLAN - MARUTI WAGONR STINGRAY			

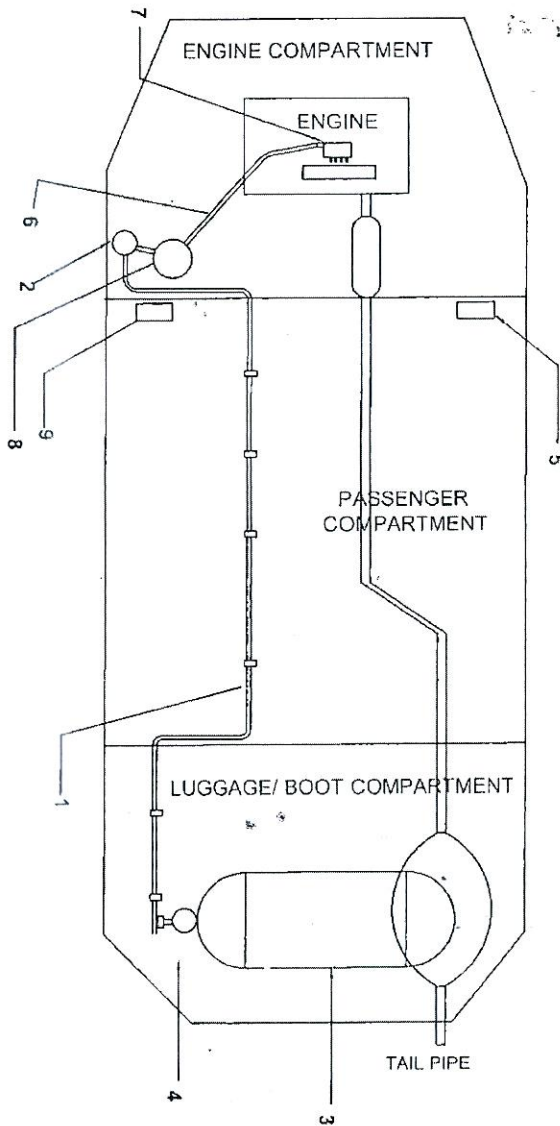


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04 DECEMBER 2020

CAJA 0107 R02

CNG OBDII LAYOUT PLAN FOR MARUTI WAGONR STINGRAY



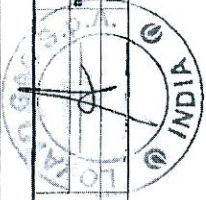
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2/11-2
DGM Certification Business Unit

- 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

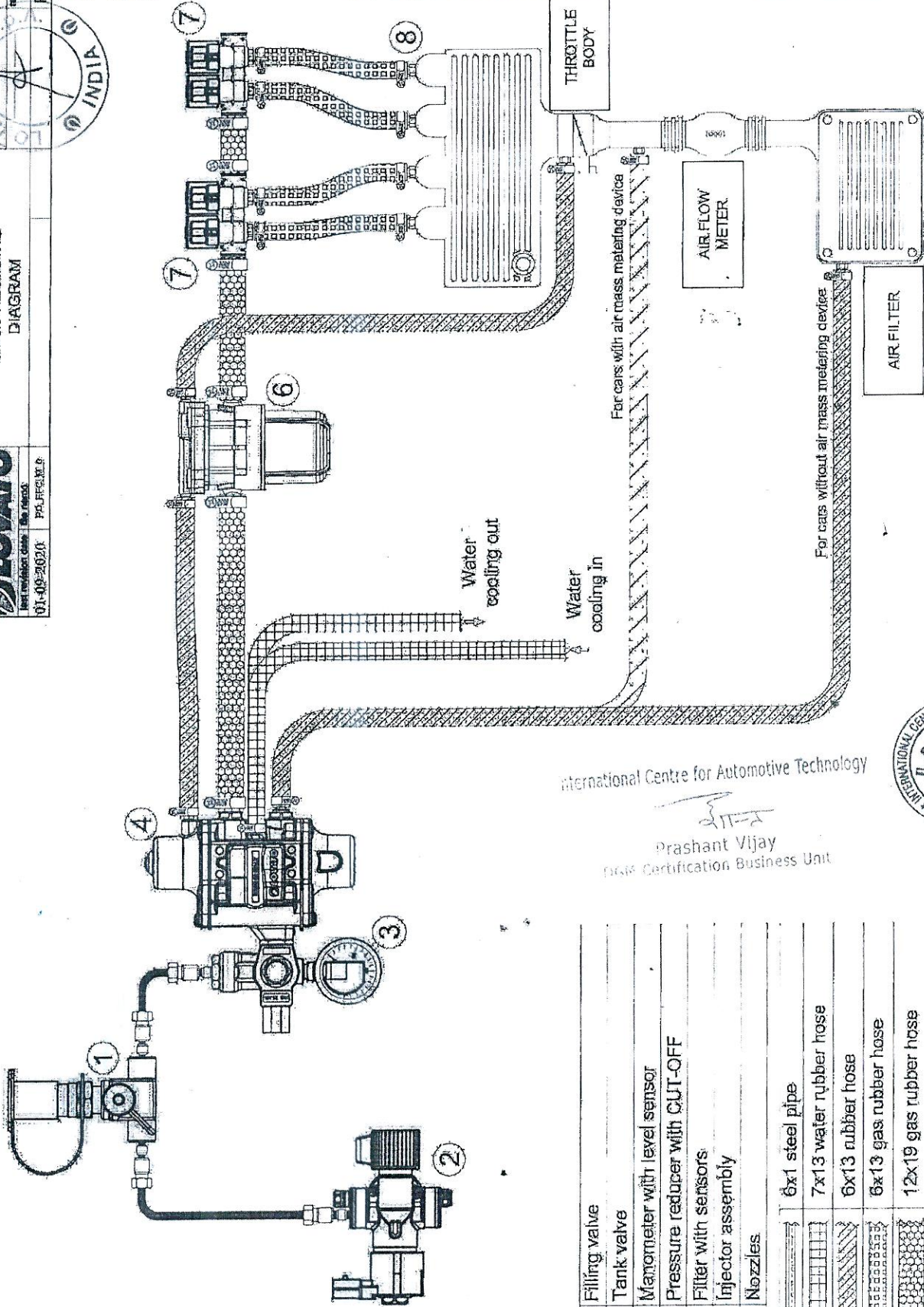
MAKE & MODEL	MARUTI WAGONR STINGRAY	Drawn By:	SR
ENGINE CAPACITY	998 CC	Checked By:	SR
VARIANTS	All the variants of MARUTI WAGONR	Approved By:	PPK
Drawing No.: BSIV/C-OBDII/001 (SHEET 2 OF 2)		SCALE: NTS	
DESCRIPTION CNG OBDII KIT LAYOUT PLAN - MARUTI WAGONR STINGRAY			

This Drawing/Component is a registered & secured IP of LOVATO SpA. It shall not be copied, stored or used.





CNG PNEUMATIC
DIAGRAM



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ICAT Certification Business Unit



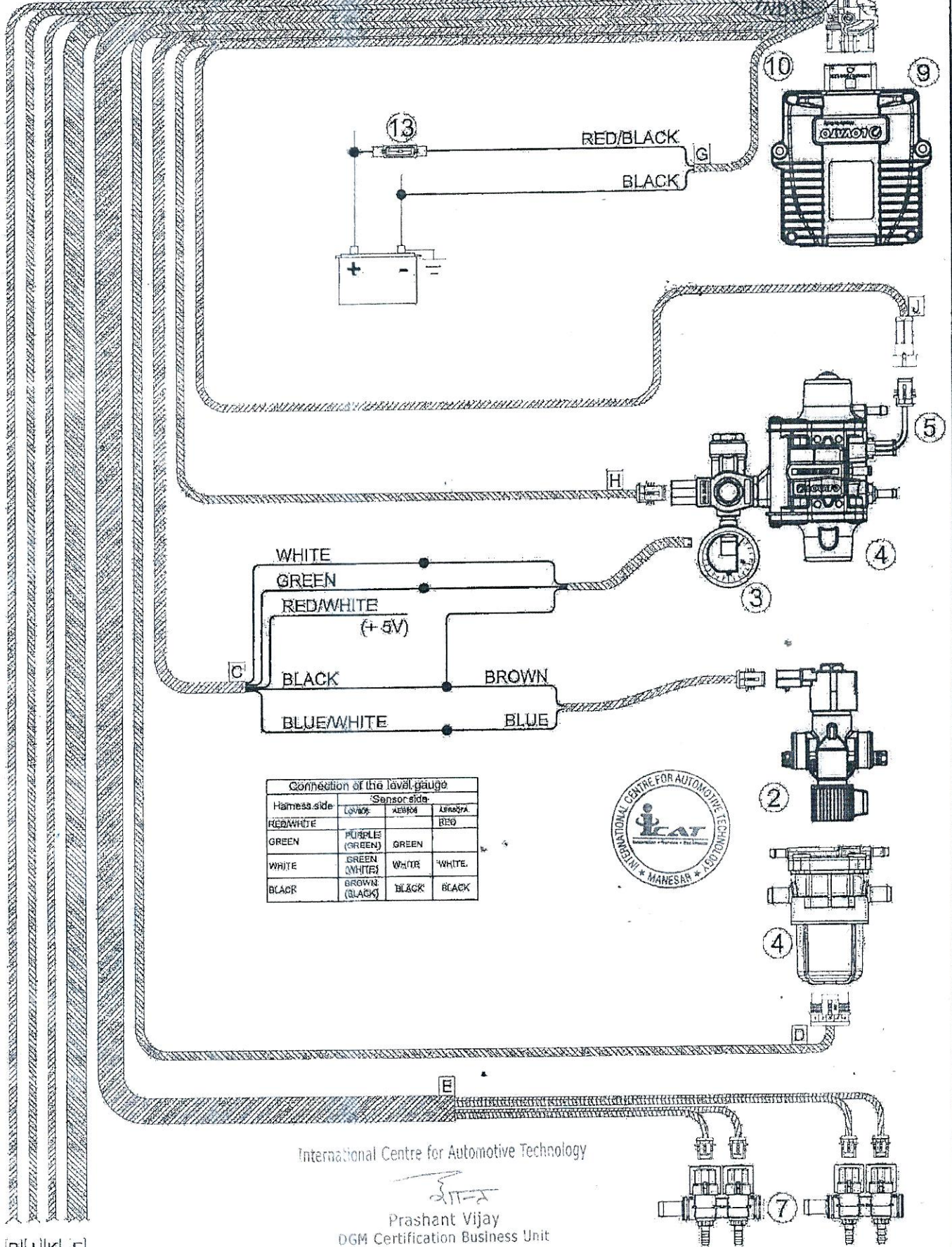
1	Filling valve	
2	Tank valve	
3	Manometer with level sensor	
4	Pressure reducer with CUT-OFF	
5	Filter with sensors	
6	Injector assembly	
7	Nozzles	



CAJA 0107 R02

04 DECEMBER 2020

2020 0596



Connection of the level gauge

Harness side	Sensor side		
	LOVATO	AEH304	AEH304A
RED/WHITE		BRO	BRO
GREEN	PURPLE (GREEN)	GREEN	
WHITE	GREEN (WHITE)	WHITE	WHITE
BLACK	BROWN (BLACK)	BLACK	BLACK



International Centre for Automotive Technology

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[B][I][K][F]

B L K F

CAJA 07 R02

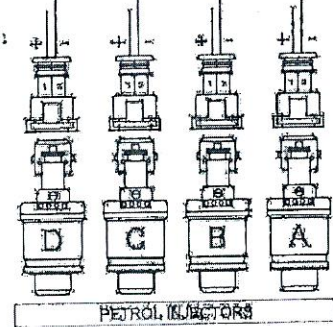
04 DECEMBER 2020

20200596
 INDIA

- BLUE/BLACK
- BLUE
- RED/BLACK
- RED
- GREEN/BLACK
- GREEN
- YELLOW/BLACK
- YELLOW

RED/WHITE

12 V Key on  + 12V

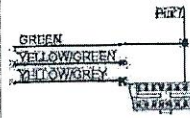


- GREEN
- K YELLOW/GREEN
- YELLOW/GREY

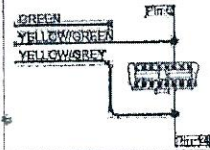
OBD connections



K-LINE
 (pin 7 external OBD connector)

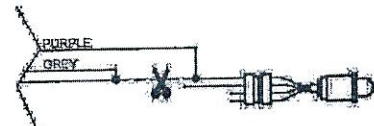


CAN-H (pin 14 external OBD)
 CAN-L (pin 15 external OBD)



- PURPLE
- L GREY

Oxygen sensor signal



L BROWN

RPM signal



International Centre for Automotive Technology

Prashant Vijay
 OGM Certification Business Unit

2	Multivalve	6	Filter with sensors	11	Switch
3	Level sensor	7	Injectors assembly	12	Self-diagnosis plug
4	Reducer vaporizer	9	EASY FAST 4C control unit	13	Fuse 15 A
5	Reducer temperature sensor	10	Harness		