

Presentation

By

Balraj Bhanot

Chairman TEDC(BIS)

&

Adviser DIMTS and PCRA

Former Chairman CMVR – Technical Standing Committee (MoRT&H)
& Director ARAI & DDG (HEAVY INDUSTRY)

23.10.2009

-
- 1. Rule making in India and safety Road map
 - 2. Brief on Emission Regulations in India
 - 3. In Use Vehicle Testing
 - 4. Inspection and Certification
 - 5. Retro-fitment of safety devices in commercial fleet

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- Rule making in India
 - Safety Road map under implementation

Legislation process

MoSRT&H

Chairman
CMVR-TSC

Director (ARAI)
AISC

Members include
Test agencies i.e. ARAI,VRDE,CIRT,IIP,
MoSRT&H , DHI,DC(SSI),BIS
Industry Assn. like SIAM,ACMA,TMA,
Transport Authorities

BIS

B.BHANOT
Chairman
Transport Engineering Divisional Council
(TEDC)

AIS

BIS

MOSRT&H
Notifies
AIS till BIS is formed
for compliance
Under CMVR

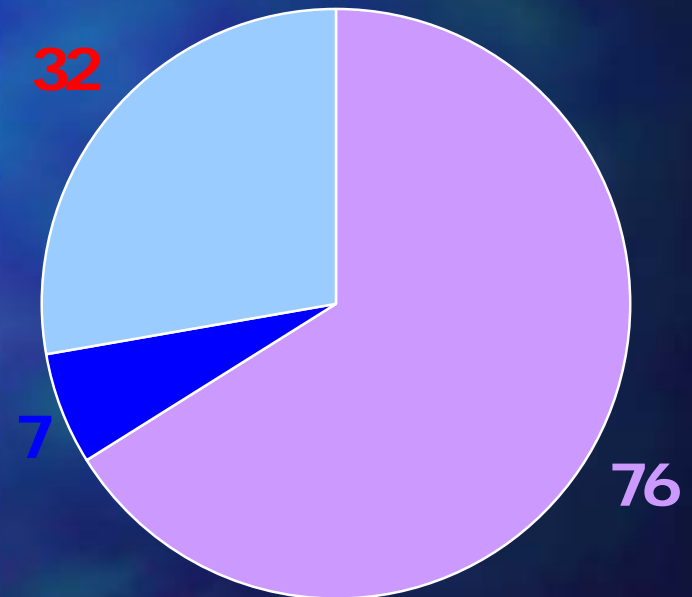
Indian Regulations

- Safety Roadmap is agreed with Industry
- Stage-wise implementation (2004, 2007 and 2010)
- Status of alignment with 115 ECE regulations

Partially/ fully aligned: 76

Work in progress: 7

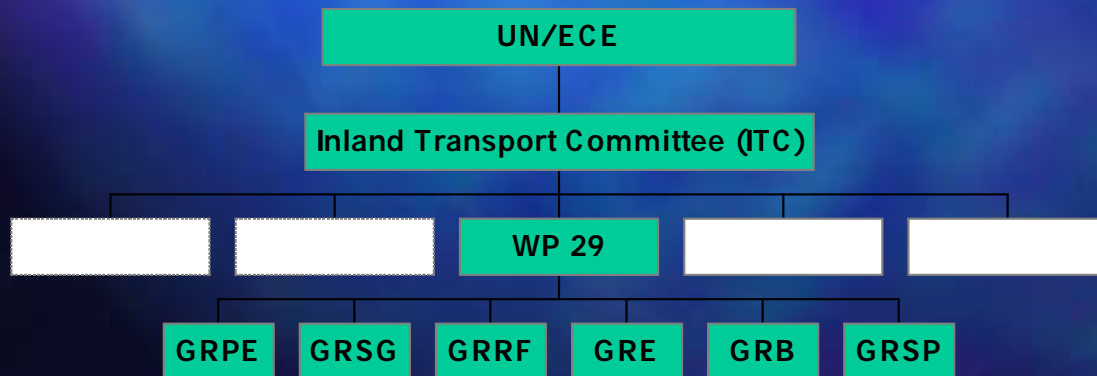
Work yet to be taken up: 32



Harmonization of Automotive Regulations

- Approval of vehicle/ component is required according to the law of nation
- Different countries adopt different technical regulations
- With globalization of trade, efforts are made to harmonize vehicular regulations world-wide
- Major role is played by WP.29 under UNECE

Organization of WP 29



Participation in WP29 Session



Safety Regulation Landmark 1991 to 2001

- Brakes, Steering and Gradeability for vehicles
- Safety Belt, Windshield wiping, Speedometers, Laminated safety Glass, Reflectors, Steering effort, and Pass by noise
- Stricter Braking requirements
- Automotive lamps, Control Cables, Lighting and Signaling devices, Wheel rims, Fuel tanks, Door locks
- Power steering for Heavy Passenger vehicles
- CNG, LPG, new noise regulations, tyre



Safety Regulations Implemented 2003

- Rules for Construction Equipment Vehicles
- Load and Speed rating of tyres
- COP procedure for low volume & imported vehicles.
- Stricter pass by noise limits for motor vehicle
- Noise norms for generator sets
- Rear View Mirror Specifications
- Starting Gradeability Measurement
- EMI Levels and Method of Tests
- Safety Belt Assemblies
- Installation Requirements for Lighting & Light signaling Devices
- Windscreen Wiping System
- Horn Installation Requirements
- Safety Belt Anchorages for M1 category
- Seats, Seat Anchorages and Head Restraints
- Type approval procedure for CMVR compliance



Safety Regulations Implemented

2003

- Speed Limitation Devices
- Advance-Warning Triangles & Bus Body Design code
- Plastic Fuel Tanks for Four Wheelers
- Rear Seat belts for forward facing seats of category
- Steering control systems impact protection
- Pillion Hand Holds for Two Wheeled Vehicles
- Fuel Tanks for Two and Three Wheelers
- Lateral Protection (Side Guards)
- Rear Under run Protective Device requirements
- High Speed braking requirements for M1 Category
- Fuel Tank for 4-Wheelers
- Hydraulic brake hoses
- Automotive Vehicles – Stationary Noise Level
- Steering effort requirements



Safety Roadmap : Stage I

April 2005

AIS 034 Automotive Lamps for 2 & 3-wheelers

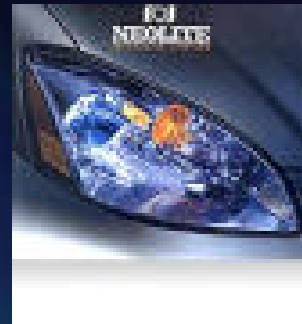
AIS-010 Performance Requirements of lighting & light signalling devices for 2 & 3-wheelers

IS:14681 Permeability test for Plastic Fuel Tanks

AIS-039, 040, 041 & 049 Standards for Battery Operated Vehicles (BOV)

- Fuel Consumption For 2, 3 & 4 wheeled Vehicles up to 3.5 tonnes on Chassis Dynamometer

IS:11921 Fuel Consumption Test for 4-wheeled Vehicle with GVW > 3.5 tonnes



Safety Roadmap : Stage I

April 2005 cont....

AIS-013 Spray Suppression devices for Automotive Vehicles



IS:3028 Stricter pass by noise norms for all vehicles

AIS-045 Requirements for Wind Screen Wiping System for 3-Wheelers



AIS-020 Interior Noise level requirements for the transport vehicles of M2, M3, N2 & N3 category

IS:15223 Interior fittings on automotive vehicles on new models of M1 category



Safety Roadmap : Stage I

October 2005 / April

2006
AIS-034 Automotive lamps for all 4-wheelers

AIS-008 Vertical orientation of dipped beam

AIS-012 Performance requirements for lighting system for 4-wheelers

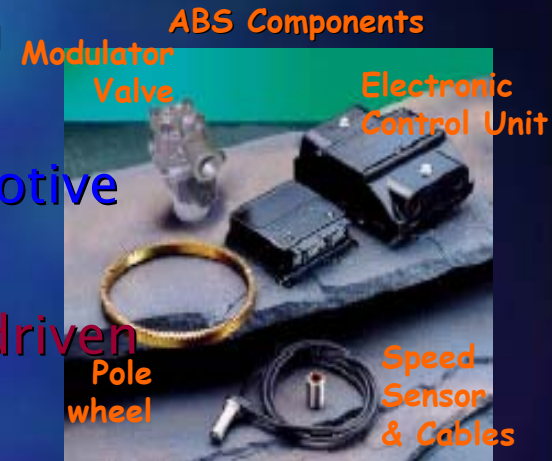
IS:15061 Flammability Requirements for Automotive Vehicles

AIS-057 Retro-Reflecting Devices for Power-driven Vehicles and their Trailers

AIS-044 Part 1, 2, 3 – Pneumatic Tyres for CVs, Cars and 2/3 Wheeled Vehicles.

IS:14664 Braking system of 2 & 3 wheeled motor vehicles

IS : Brakes for 4-wheelers
11852 (without Auto Slack Adjuster),
ABS if fitted



Safety Roadmap : Stage II

April / October 2006

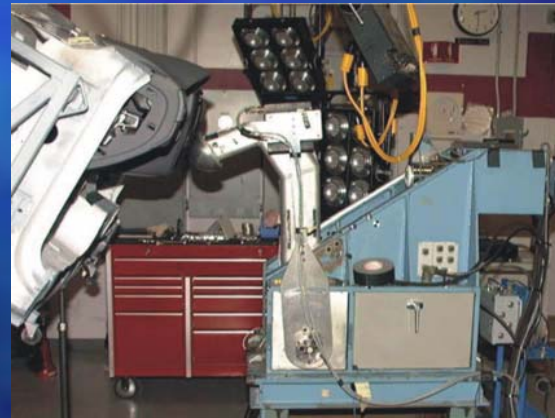
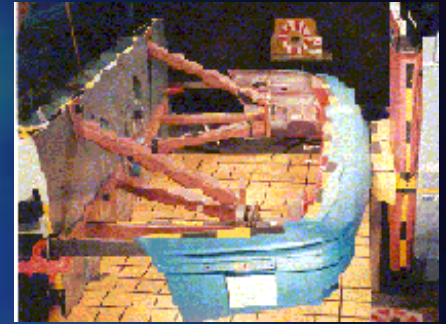
AIS-006 Bumpers for M1 and N1

IS:15223 Interior fittings for M1 category

AIS-065 Vehicle Identification Number

AIS-021 Field of Vision of Motor Vehicle Drivers for M1 category, New Models

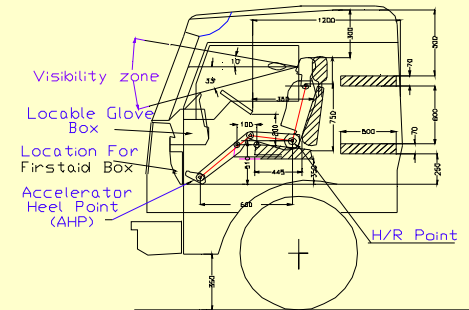
AIS-032 Forward field of vision for vehicles other than M1 category, New Models



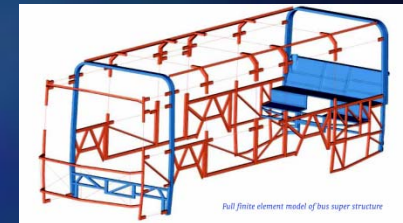
Safety Roadmap : Stage II

AIS-035 Arrangement of foot controls of vehicles, New Models

RECOMMENDED DIMENSIONS FOR CABIN



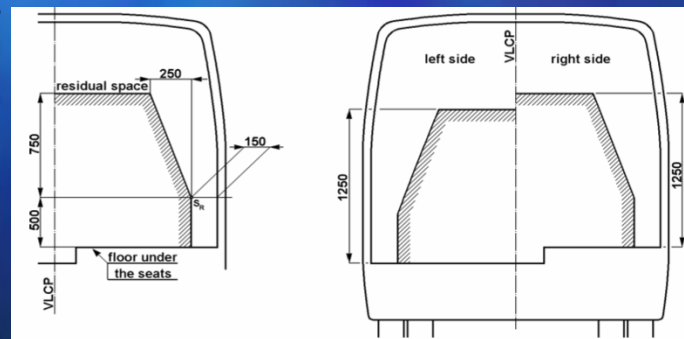
IS : Brakes for 4-wheelers for fitment of
11852 Auto Slack Adjuster & mandatory
Fitment of ABS on Select Categories of
Vehicles



AIS-52 Code of Practice for Bus Body Design and Approval



AIS-063 Additional Requirements for School Buses





Safety Roadmap : Stage II

AIS-074, 075 Protection against unauthorized use,
Anti- Theft Devices

AIS-053 Automotive Vehicles – Types & Terminology

AIS-037 TA and Establishing COP for Safety Critical
Components

AIS-046 Hand-Holds for Three, Four and
more than Four Wheeled Vehicles

AIS-067 Automotive Safety Control Cables

AIS-088 Rear marking plates for slow moving
vehicles

AIS-089 Rear Marking Plates for heavy and long
vehicles

AIS-090 Retro-Reflecting markings for heavy & long
vehicles & trailers

Safety Roadmap : Stage II

AIS-021 Field of Vision of Motor Vehicle Drivers for M1 category, All Models

AIS-032 Forward field of vision for vehicles other than M1 category, All models

AIS-031 Strength of Super Structure of Large P

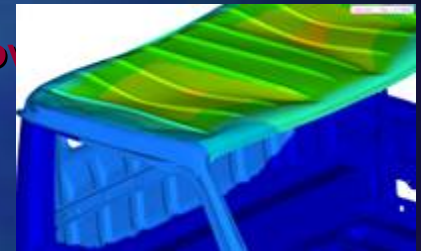
AIS-029 Survival Space for protection of occupants, OE Cab

ECE R10 EMC

AIS 075 Vehicle Alarm System for M1 and N1

ECE R93 Front Under run Protection Device

AIS-072 Child Restraint System



Safety Roadmap : Stage II

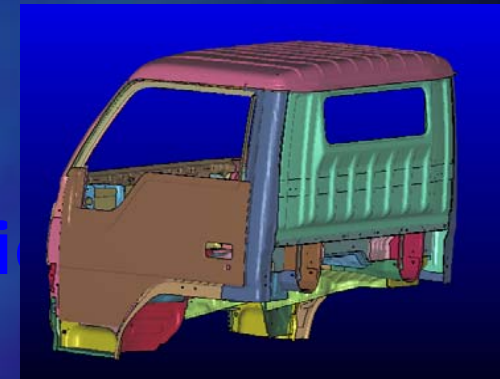
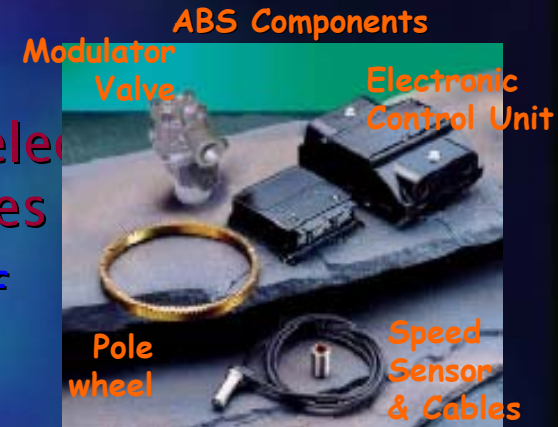
- Mandatory Fitment of ABS on Selected Categories of N3 and N3 Vehicles

AIS-035 Arrangement of foot controls of vehicles, Existing Models

IS : 11852 Brakes for 4-wheelers (Alignment with ECE)

1 Year from implementation of Accreditation System

- Truck body code



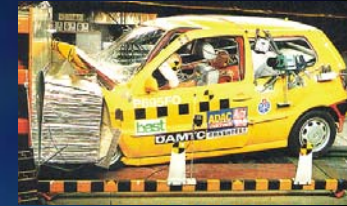
Safety Roadmap : Stage III

- Prevention of Fire Risks
- Head-on and Rear-end Collision
- Protection of the occupant in the event of frontal and lateral collision

AIS-058 Protective Helmets for Motorcycle Riders, Visors of Protective Helmets for Motorcycle Riders

AIS-023 Seats, their anchorages and head restraints for Passenger Vehicles

AIS-061 Replacement Brake Lining Assemblies & Drum Brake Linings



Safety Roadmap : Stage III

- Close coupling devices

AIS-059 Tachograph

AIS-089 Rear marking plates – Heavy and long vehicles

AIS-047 Interior Fittings for other than M1

AIS-083 Head lamp cleaning devices

AIS-056 Heat Level Inside the Cabin of Truck and Buses

AIS-084 Mechanical Couplings

AIS-061 Replacement Brake Lining Assemblies & Drum Brake Linings



HISTORY OF EMISSION REGULATIONS IN INDIA

Yr	2 & 3	4 Wheelers		Com. Veh	CEV	Agri-Tr	Gen-set Eng.	
	Wheeler	Petrol	Diesel	Diesel	Engines		P / Kero.	Diesel
1990	Idle Co	Idle Co	Free Acc In					
1991	Mass Emissions Standards on Indian Driving Cycle (IDC)			13 Mode Cycle				
1992	Tightening in the Limits							
1996		Limit with D.F. for Cat-Con						
1999		India Stage - I				Trem - I For		
2000	India Stg-I	Bharat Stg - II monitored (D.F.) upto 90 km/h		India Stg-I Introduction of Particulate	CEV Eng & mode cycle	Agri. Tractor	Introduced	
2001			D. F. for Cat-Con	Bharat Stage-II			Tighter	
2002	D.F. for Cat-Con							
2003	Cat-Con						Trem - II	
2004								Introduced
'05	Bharat Stg-II	Bharat Stage-III					Trem - III	
'08 / '10	Bharat Stg-III	Bharat Stage-IV					Trem - IV	

Emission
Legislation
Since 1990

Emission Profile

2-Wheeler

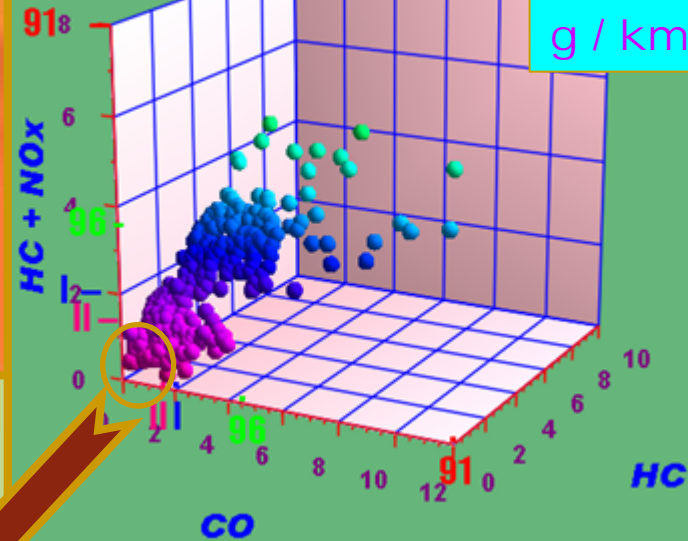
CO - HC+NOX
in g / km



Emission profile

2 Wheelers

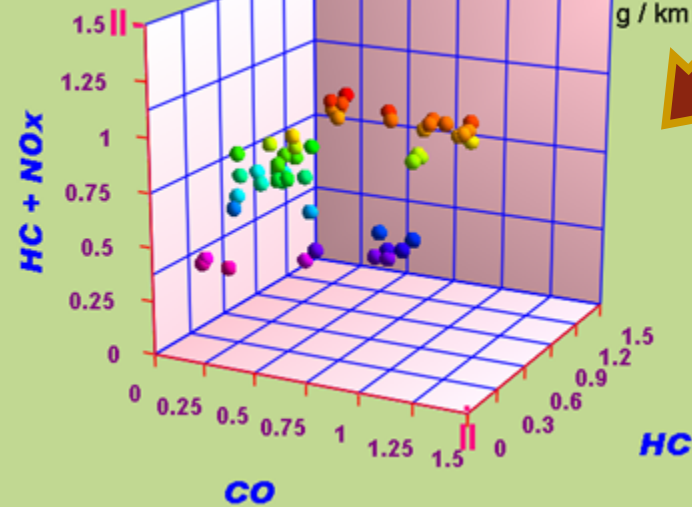
g / km



Bh - II Compliance...

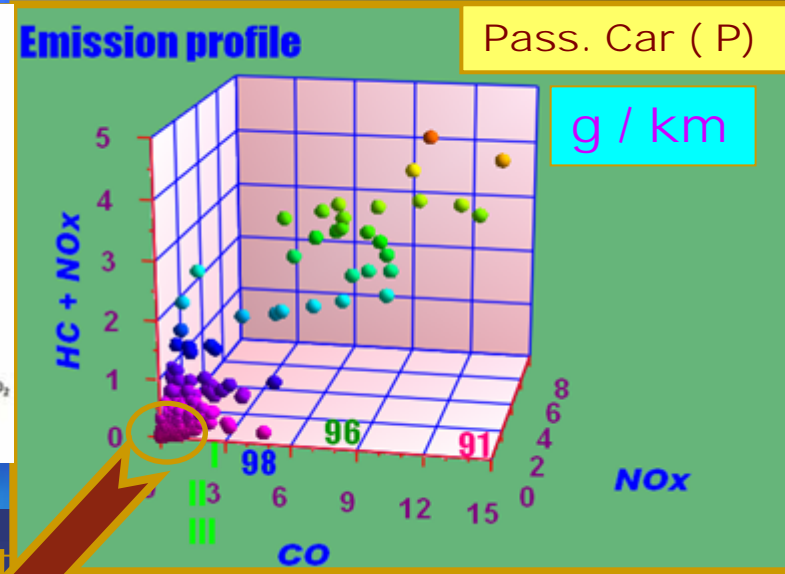
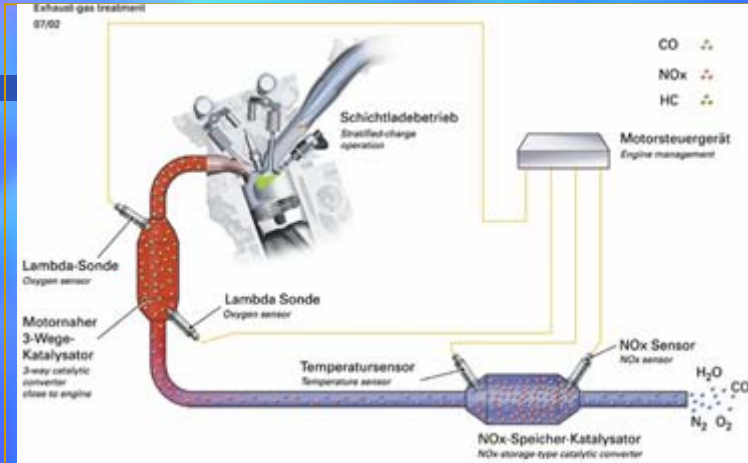
2 Wheelers

g / km

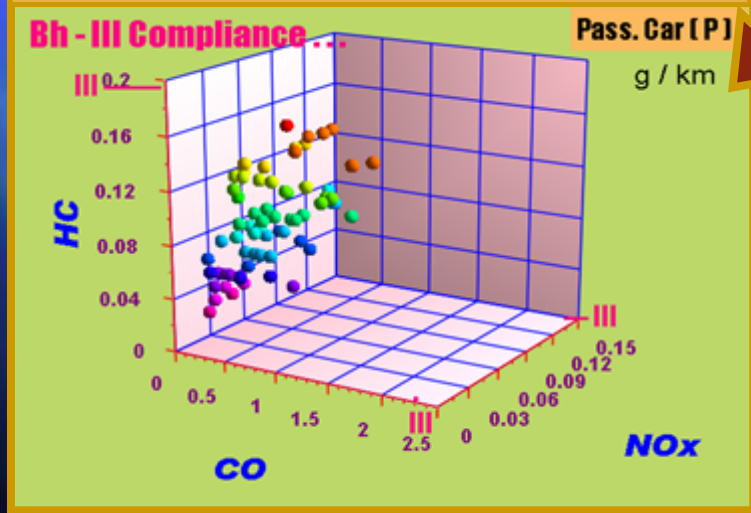


Emission Profile

Passenger Car – Petrol

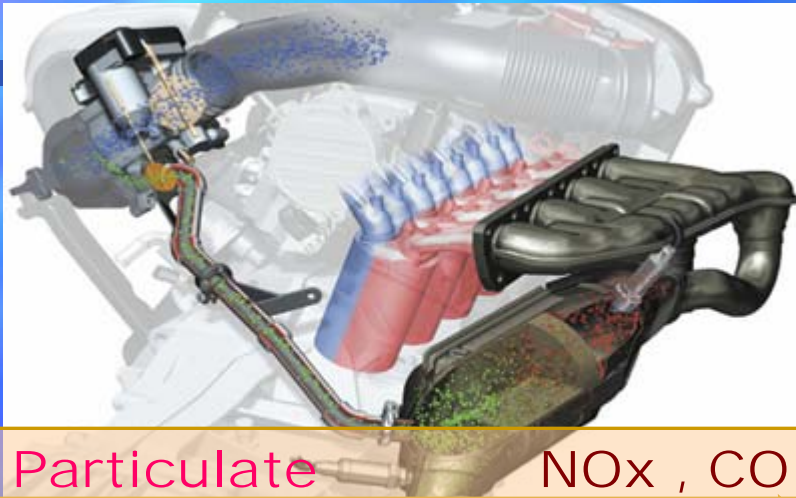


HC, NOx individual limits



Emission Profile

Passenger Car – Diesel

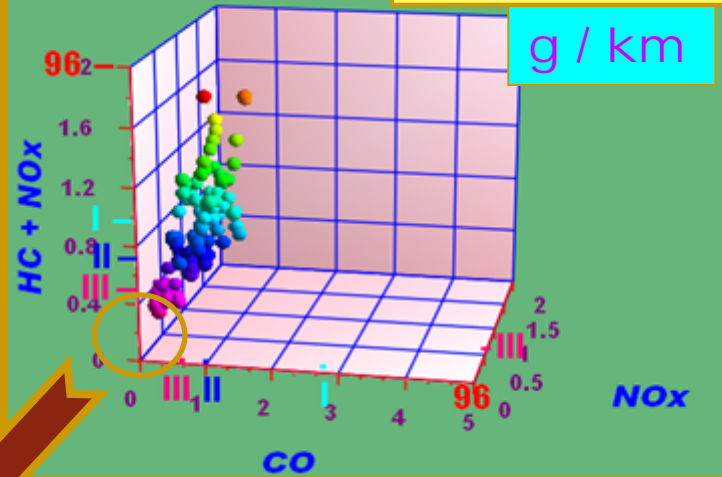


Particulate NO_x, CO

Emission profile

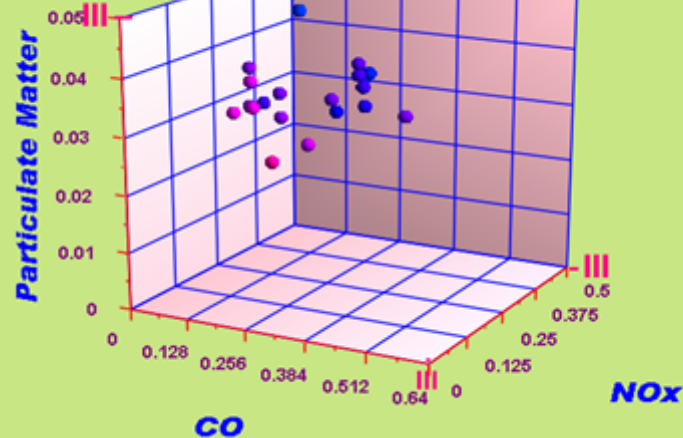
Pass. Car (D)

g / km



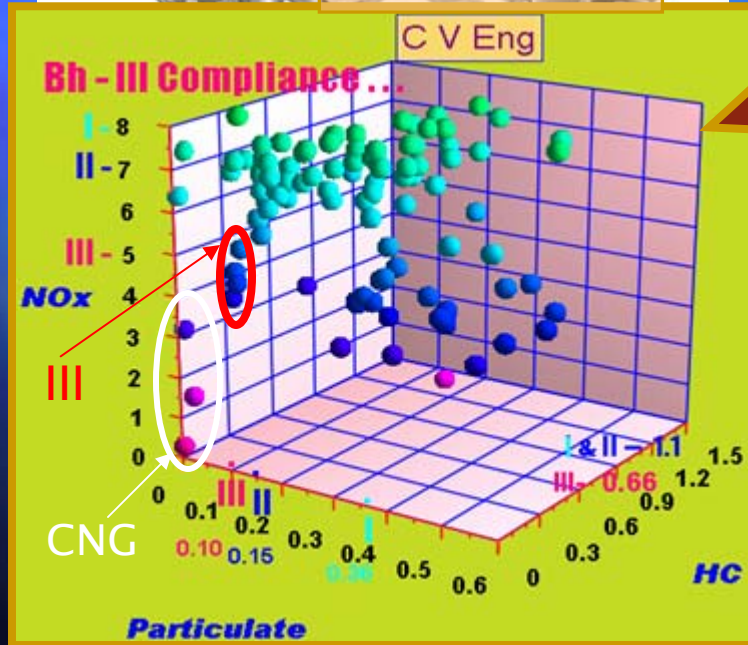
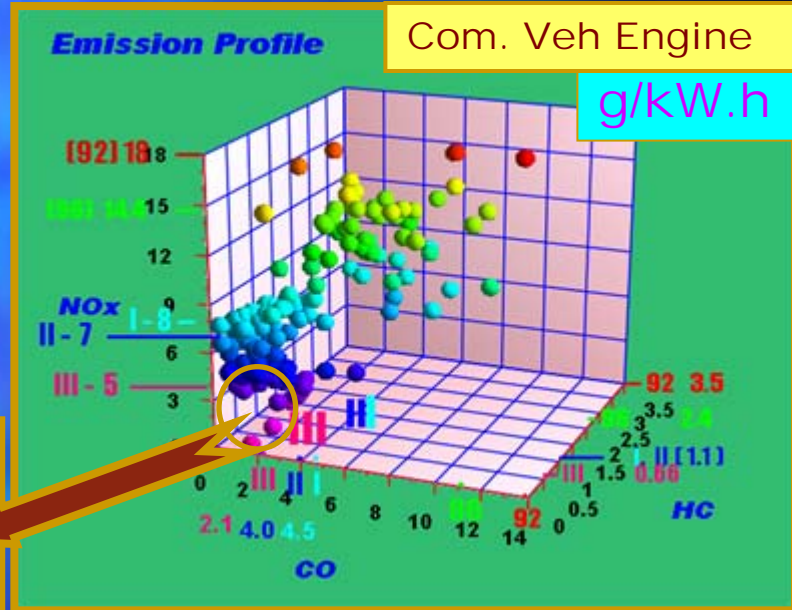
Bh - III Compliance ...

Pass. Car [D]



Emission Profile

CV Engines



In-Use Vehicle Testing



■ Inspection
and
Certification

Automation of Safety & Emissions test for Fitness Certification (Burari, Delhi)

Automation of Safety & Emissions test for Fitness Certification (Burari, Delhi)

Automated Vehicle Inspection Unit at Burari, Delhi



Data
Noise
Emission
Speedometer
Brakes
Side-slip
Suspension
Joint Play
Headlights
CNG Safety

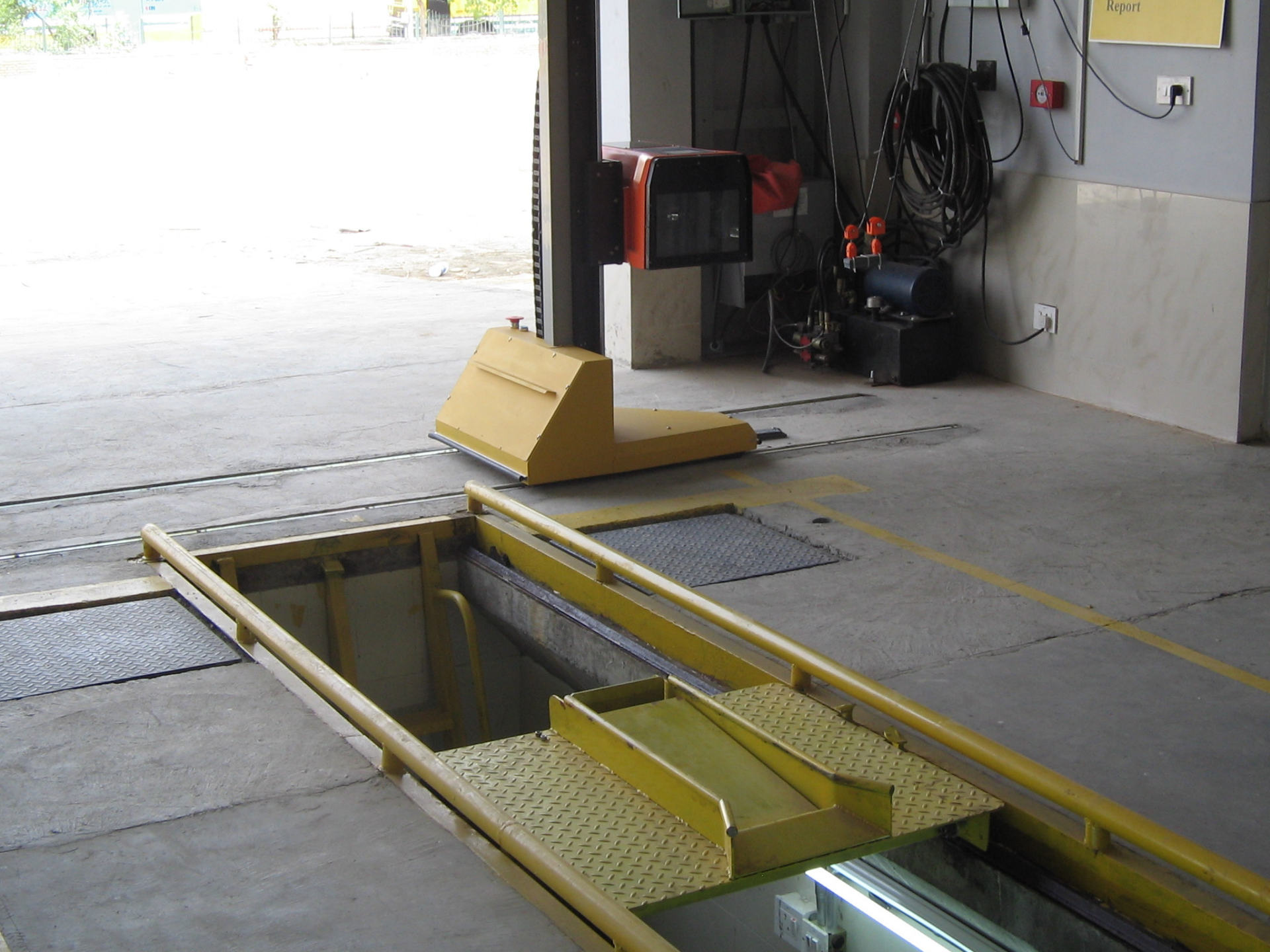
Automation of Safety & Emissions test for Fitness Certification (Burari, Delhi)

Inauguration of the facility by the Honorable Chief Minister & Honorable Transport Minister of Delhi on 1st July 2005

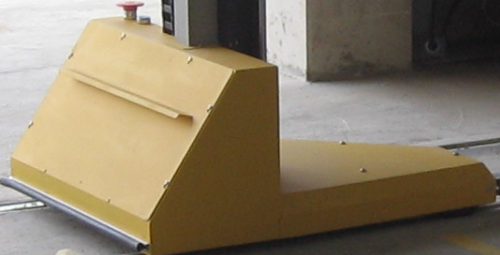








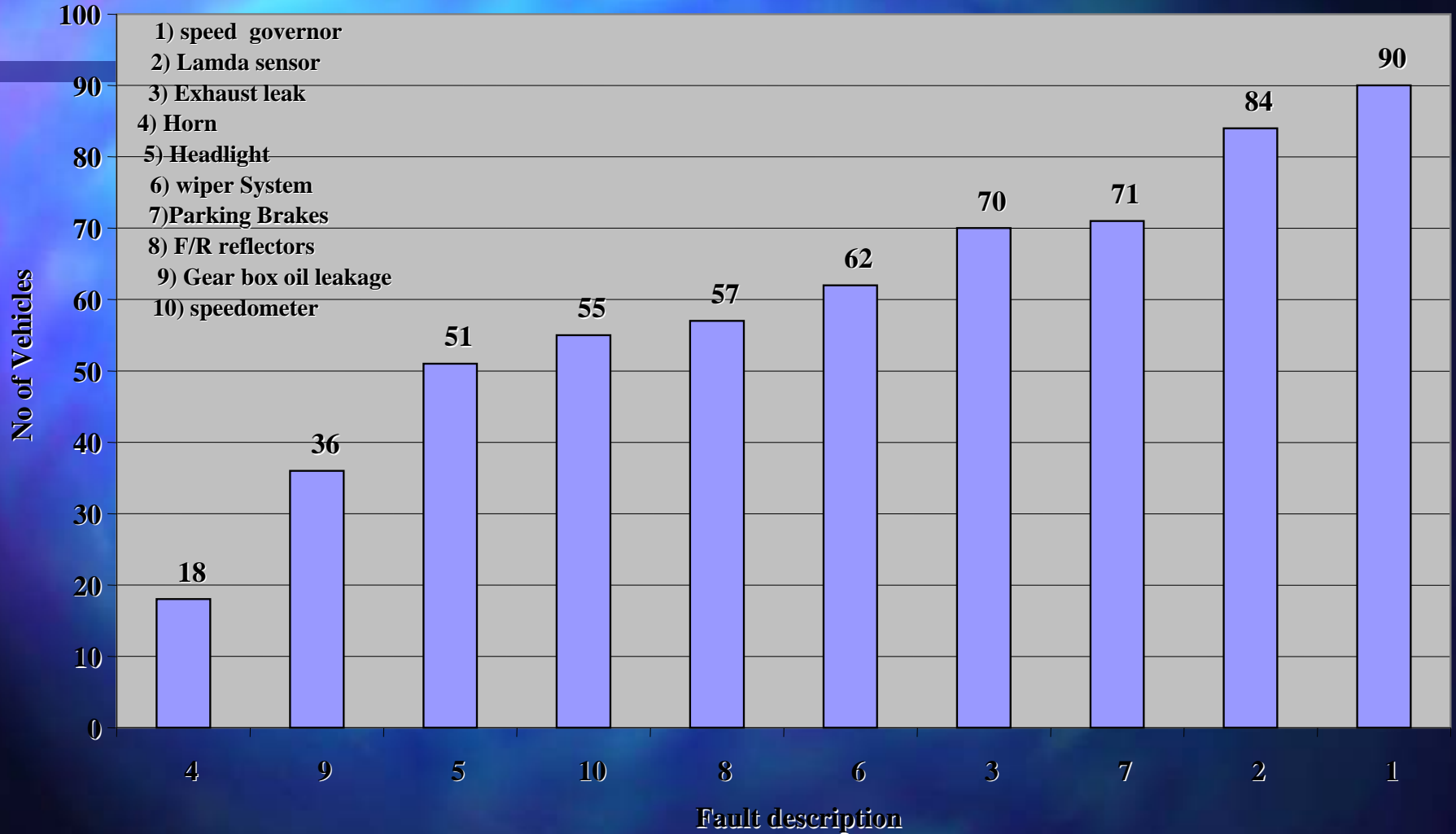
Report



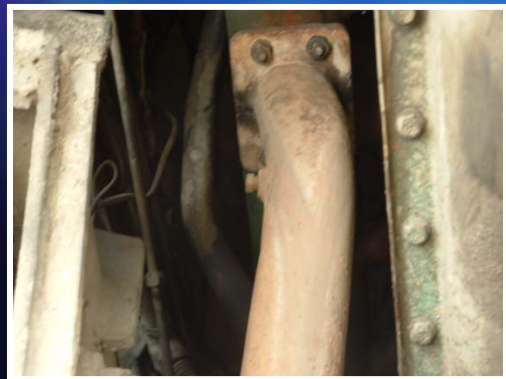
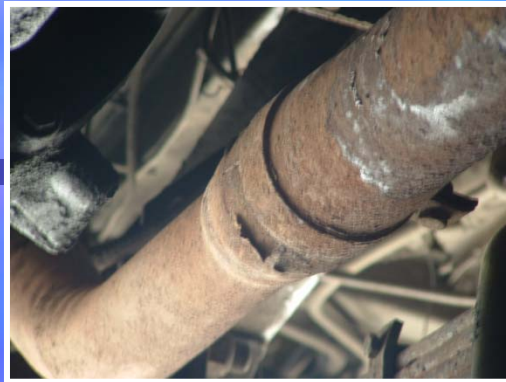




Visual Inspection



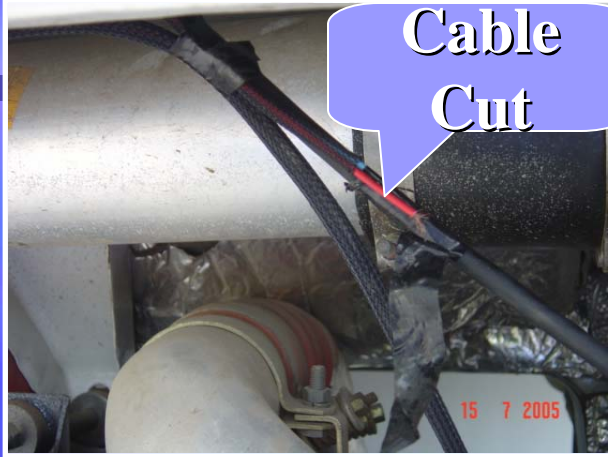
Exhaust System



- Most vehicles did not have lambda sensor. Though cat converters were apparently found to be present in CNG vehicles, no lambda sensors were found. In few vehicles sensor was mounted, but it was not connected.
- Vehicles had severe exhaust leak. Due to the exhaust dilution low emission test results are seen.

Speed Governor

Cable
Cut



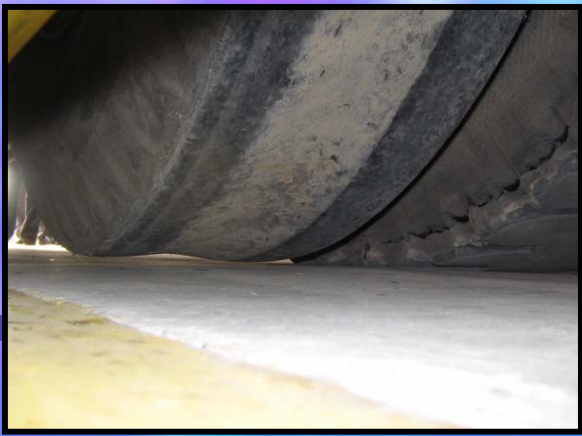
No
Seal



Sensor
Disconnected



- The speed governor was not functioning on most of the vehicles.
- In some vehicles, either speedometer was not present or not functioning







Headlamp and signaling devices

- Vehicles headlamp is not found to be in good mechanical condition
- Front/rear indicator either is not functioning or covered with grill.
- Most of the vehicles are fitted with pressure horns

Others

- Most of the vehicles did not have parking brake functioning properly.
- Vehicles had only one wiper on the driver side.
- Vehicles had improper gearbox mounting and gearbox/differential oil leakage.
- Most of the vehicles have flat, abrasion and worn out tyres
- Wheel nuts were missing
- Warning triangles and reflectors were absent in most of the vehicles
- Shock absorber were either missing or not properly mounted
- Gearbox cover was missing
- Propeller shaft joints to the differential were not proper

Observations on CNG vehicle inspection

- No compliance plate was observed on CNG vehicles
- Vent pipes were either absent or not connected
- Necessary emergency tools like fire extinguishers & first aid kit were absent on CNG vehicles
- Dust caps in the CNG filling valve were either missing or nonfunctional in few vehicles.
- Wiring harness in CNG vehicles were not proper

Retrofitting in existing fleet
To
enhance safety of vehicles on road

-
- All public service vehicles have to under go annual inspection
 - After vehicles are type approved / registered , lot of amendments are carried out
 - At the time of annual inspection all these amendments should be curbed Or checked

■ **Amendments normally done in Three wheelers:**

- ❖ Carry out amendments to allow turning of handle more than 180 degrees.
- ❖ Change position of rear viewing mirrors
- ❖ Hardly have any rear vision in the body structure
- ❖ Carry out amendments in body to carry more passengers or cargo than allowed



➤ **Amendments carried out in light commercial vehicles**

- ❖ **Amendments in body structure to over load the vehicle**
- ❖ **Change mirror and horn locations**
- ❖ **One should retro fit RUPD and LUPD**
- ❖ **Check tyre condition beyond TWI**
- ❖ **Fix retro reflective tape around the body**

ANUP CARGO MOVERS
(INDIA)



ANUP CARGO MOVERS
(INDIA)

PH. 33193780
29821780
No. N. 35364480
9891917980

HR 38
KARNATAKA

DELHI

U.P.

HARYANA

RAJASTHAN

CHANDIGARH

M.P.

MAHARASTRA

ANDRA

KARNATAKA

खरत तेरी देख कर कब तक चुप रहे, ओस तो रक मक दिल का क्या करे।

Tool Box



➤ Amendments in Heavy Commercial vehicles

- ❖ Check for right type of rear view mirrors and insist retro fitment of the same
- ❖ Check for amendments in body structure for carrying over loading
- ❖ Insist fitment of RUPD and LUPD
- ❖ Fix retro reflective tape around the body to increase visibility at night
- ❖ Remove additional suspension springs

यौ
लाभ
y Line
Logistics
Permit
CARRIER
M.P. MAH. A.P. K.R. T.N. - K.L.



INTERNATIONAL
DELHI U.P.
Kikpana
शुद्ध दही से बना

PERMIT
HARVANA
MAHARASTRA M.P.

शुद्ध दही से बना
शुद्ध दही से बना
YATA
लाभ

ROAD

KING

HR-47
6488

ANJEEV
GUPTA
NP
G R L
ROAD
NP





➤ Amendments in trailers

- ❖ Extending the length of long members
- ❖ More length than then allowed
- ❖ Over size for carrying over load
- ❖ Insist on use of retro reflective tapes
- ❖ Use of proper rear view mirrors



RADHA SWAMI
K.R.L.
NATIONAL GOODS CARRIER PERMIT

KSG
KAPS
VNS
GR
DUP
FARIDABAD

Kapoor NP Coach

KAPOOR ROAD LINES SHOP No. 38, 1st FLOOR BATA FLYOVER FARIDABAD

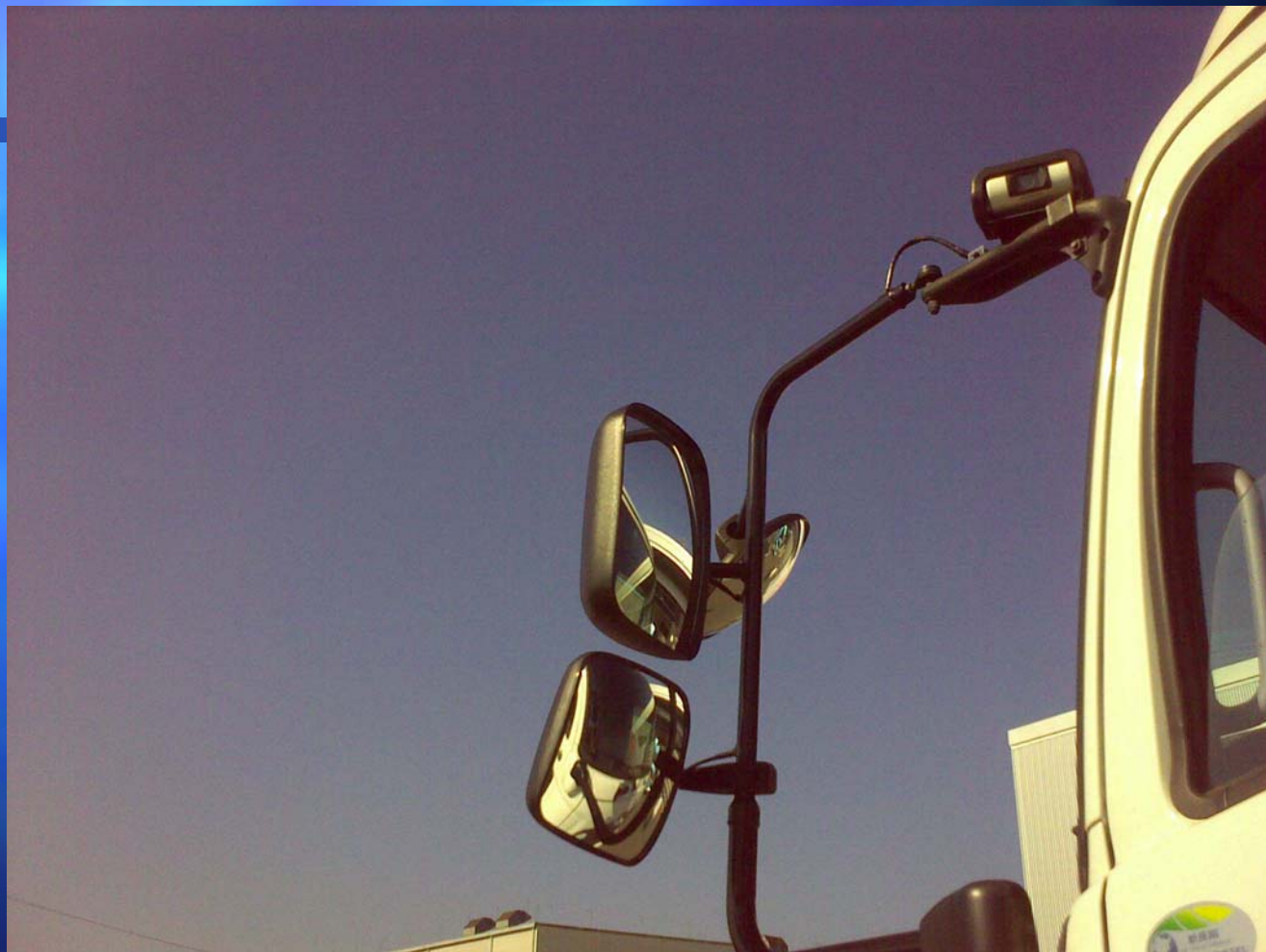
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- Some examples of innovations of the west











Awards - 2005



Barcelona Award for
Automotive Innovation

Golden Peacock National
Award for Quality

SAE Award for
Environmental Excellence



THANK YOU