

By Shivakant Kumar

No. RT-25044/01/2017-RS

Government of India

Ministry of Road Transport & Highways

(Road Safety Section)

Transport Bhawan, 1, Parliament Street, New Delhi - 110001

Dated: -11th April, 2018

To,

Principal Secretary/ Secretary, Transport Department of Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Himachal Pradesh, Jharkhand, Manipur, Meghalaya, Tamil Nadu, Tripura, Uttrakhand, Andaman & Nicobar Island, Chandigarh, Dadar Nagar Haveli, Daman & Diu and Lakshadweep.

Subject: Scheme/Guidelines for proposals on setting up of Inspection & Certification (I&C) Centre during 14th Financial Circle.

Sir,

I am directed to forward a copy of the scheme/ guidelines for setting up of Inspection & Certification (I&C) Centre during 14th Financial Circle.

2. All States/ UTs are requested to send their proposal along with following: -
 - i. Certificate that the land is available and title is clear.
 - ii. Site & Building plan including for constructing the facility duly vetted by CPWD/PWD.
 - iii. Total budget cost of the project.
 - iv. Time line of the proposal.
 - v. Details of Nodal officer for the project.
 - vi. An Undertaking that the State will ensure full utilization of the capacity of I&C and it is self sustaining and commercially viable.
3. The scheme/ guidelines for setting up of Inspection & Certification (I&C) Centre can also be downloaded from the Ministry's website www.morth.nic.in
4. During 2017-18 to 2019-20, it has been decided to sanction 10 I&C Centre to those States which have not been sanctioned during 11th and 12th Five year plan.
5. It is therefore required to kindly furnish the proposal according to enclosed guidelines.

Yours faithfully

Shivakant Kumar
(Shivakant Kumar)
Under Secretary to the Govt. of India
Ph. 2335 7125

Encl: As above

**Government of India
Ministry of Road Transport & Highways**



Inspection and Certification (I&C) Centre

Guidelines

(14th Financial Circle)

2017-18 to 2019-2020

1. Introduction

1.1 Each year nearly one million people die worldwide in traffic accidents; approximately 23-24 million people suffer injuries. During period of 1986-1995 the road traffic toll in Asia alone has increased by 40%. The precarious situation of road worthiness also affects. Unfortunately at present, there is no awareness of this problem's size and danger in many countries and thus there is an urgent need to find out sustainable solution to this situation.

1.2 An increasing number of vehicles in developing countries like India are not in a roadworthy state. Poor maintenance and servicing of old in use vehicles not only damages the environment but also poses great safety hazard on road. The compliance with limits or standards of vehicles exhaust emissions for air quality improvement purpose is directly dependent on the implementation and / or enforcement of effective vehicle inspection system. Due to the rapid increase in public means of transportation, the improvement of vehicle performance capability and servicing becomes an ever increasing urgency. An effective air pollution control and thus, a decrease of vehicles emissions, improvement of roadworthiness can be achieved by the implementations of an effective vehicle inspection system.

1.3 The Ministry of Road Transport & Highways therefore proposes to set up one model Inspection & Certification Centre in each State/UT with Central assistance. During 11th Plan, MoRTH sanctioned 10 Centre for setting up one each in the State of Andhra Pradesh, Karnataka, Gujarat, Maharashtra, Rajasthan, Himachal Pradesh, Haryana, Madhya Pradesh, U.P and Delhi.

BACKGROUND

2.1 With the fast growing economy, the vehicle population in India has grown rapidly. The Government of India enforced the motor vehicle emission standards in India from year 1991 and has been since updating the emission and safety norms for new vehicles. Each prototype vehicle is subjected to extensive laboratory testing for the design approval called Type approval, before these are introduced in the market. Thereafter, the vehicles produced by the vehicle manufacturer are randomly selected from the production line and subjected to emission performance test and verified against the type approval, called as 'Conformity of Production'. To meet these stringent emissions standards with respect to Type approval and Conformity of Production, vehicle manufactures have upgraded the technology of the vehicles. Though the Indian safety and emission standards were introduced for the new vehicles, there is no commensurate improvement noted in ambient air quality levels and reduction of road related accidents.

2.2 Even though the new technology vehicles meeting stringent emission and safety standards are introduced in the market, there are still a lot of old vehicles operating on the roads. Various studies indicate that a small quantity of ill maintained vehicles attribute to a great extent in ambient air quality problems and thereby leading to the deterioration of urban air quality. Even new vehicles with the state of the art technologies, deteriorate in

service and need to be maintained properly if they are to continue to operate at the desired emission levels. Any vehicle, which is not maintained well, would be an environmental and safety hazard to the society.

2.3 With the increase in vehicle population, it is essential to ensure that the in use vehicles, which are on road, meet the safety and emission requirements for safe and environmental friendly situation. The vehicle Inspection & Certification program is an effective tool to improve the condition of the in-use vehicle fleet.

PRESENT PRACTICE

3.1 The Central Government lays down the norms and policy guidelines under the Central Motor Vehicle Rules and the State Transport Department performs the functions of testing of the vehicle and issue of the fitness certificate. The implementation of these rules at the state level is to be done by the State Government by creating suitable and adequate infrastructure for carrying out the fitness tests. The details of the requirement of the tests to be conducted for issue of the fitness certificate is given in rule 62 of the Central Motor Vehicle Rules (CMVR), 1989. As per this rule all transport vehicles are required to undergo fitness test every year after two years of initial registration. Besides, as per rule 115(7) of the CMVR, 1989, all vehicles are required to undergo mandatory idle emission test or free acceleration smoke test, as applicable, every six months after one year of initial registration.

3.2 The existing vehicle inspection system in India is inefficient and has several weaknesses. Some major issues are summarized below:-

- At present only visual inspection is carried out by the inspectors.
- The vehicle inspection is mandatory for the transport vehicles only.
- Non transport vehicles do not have to undergo fitness test for the first 15 years of its life.
- Most of the vehicle inspection centers do not have any instrumentation or equipment to carry out proper inspection of the vehicle.
- The inspectors and other staff are not given regular training for skill up-gradation.
- There is no set procedure for inspection and often the decision whether a vehicle is fit or not is left to the discretion of the vehicle inspector.
- The number of vehicles per inspection centre is very high due to centralized nature of inspection, putting further pressure on the limited capacity of these inspection centers.
- There is no mechanism at present for auditing, monitoring performance and capability of these centers.
- Although the present Pollution Under Control (PUC) system is authorized by the State Governments, there is a lack of control mechanisms, like auditing/ inspecting for these PUC Centers. The criteria for authorizing / registering a PUC Centre need to be augmented.
- The data collected in the inspection centre / PUC centre is not analyzed to check the data validity and improvement in the system.
- There is no organized industry for repair and maintenance of vehicles. There are number of roadside mechanics available that may or may not have adequate

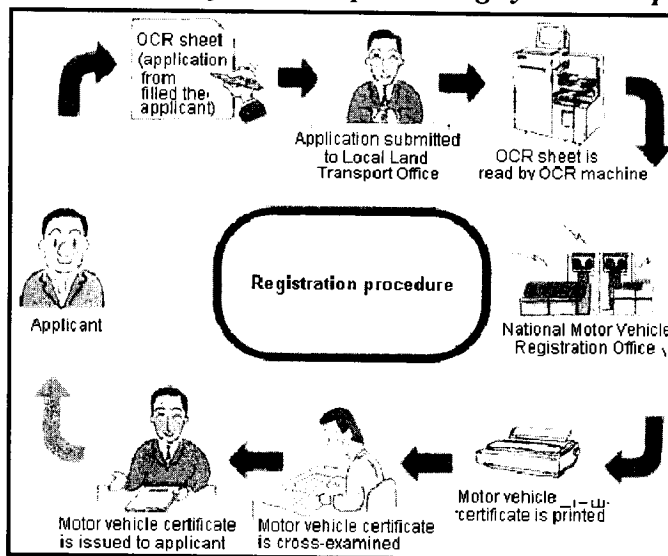
equipment and training for maintenance. As these mechanics offer cheap service, vehicle owners their services.

INTERNATIONAL PRACTICE

4.1 Vehicle inspection has been mandatory for decades in developed countries where motorized vehicles are inspected to ensure not only their road worthiness but also to reduce the pollution from vehicle emissions.

4.2 The "Safety Regulations for Road Vehicles" within the Road Vehicles Act, obligates motor vehicle users to carry out periodical checks and maintenance to meet these safety standards. No motor vehicle that is subject to inspection can be operated unless it has undergone inspection conducted by the authorized agency/ministry and is provided with a motor vehicle inspection certificate and sticker. Besides the motor vehicles that are subject registration, three-wheeled/four wheeled mini-sized motor vehicles and small-motor cycle are obligated to undergo inspection. Motor vehicle users are obligated to undergo periodical checks and maintenance in order to keep their motor vehicles in proper condition at all times. Inspections are carried out at National level or Vehicle Inspection and Registration Offices nationwide. Applications are processed on the on-line and real time basis by an electronic information processing systems that connects local registration offices and the national registration centre.

A typical Electronic Information processing system is depicted below:



Types of Inspections carried out in a typical I&C centre are as follows.

Structure

The condition of the chassis frame (core structure) including the engine number, chassis number and number plate which affects the structural integrity of the vehicle, are checked.

Wheel System

The condition and operation of the tyres, suspension unit, shock absorber, wheel bearing, the alignment of the wheels are checked to ensure that vehicle stability is not compromised.

Braking System

The braking efficiency for both service and parking brakes are machine-tested to ensure that they are fully functional and effective.

Steering System

The steering system affects the directional stability of the vehicle. During the inspection, it is checked if there is excessive free play in joints and linkages.

Body

Checks of the body, which includes seat belts, windscreen, door latch and hinges etc, are conducted to ensure that the various items are in working condition.

Communication

This comprises headlamps, reflectors, rear view mirror, direction indicators, windscreen wipers and horn etc.

Tyres

Tyres & Road wheels for damage and tread depth

Propulsion System

This consists of the exhaust and drive system. The exhaust system is machine-tested to check the smoke and noise emission levels. The emission levels have to meet the standards stipulated by the National Environment Agency. For the drive system, visual checks are made to ensure that there is no abnormality and that the drive shafts are in a good condition.

Summary:

The kind and type of Inspection & maintenance programme to be implemented in a country differs from country to country as vehicle fleet varies. The main aim is to build a sustainable Inspection & certification system to reduce emissions and improve the safety. The vehicle owners are required to inspect and maintain their vehicles as per the national governing laws of each country. The success of the I&C programme in any country depends upon the effective implementation of nationwide awareness programme and law and enforcement effectiveness of concerned authorities.

5. Proposed Roadmap to develop an I&C Regime in India

For effective implementation of an I&C regime in India, the following various aspects should be considered.

- Institutional structure
- Programme content
- Auditing of the Vehicle Inspection Centers
- Enforcement on road
- Data Collection and analysis and Networking of centers
- Human Resource Development
- Public Awareness Programs
- Maintenance Program
- Legislative reform

5.1 INSTITUTIONAL STRUCTURE

5.1.1 A well designed I&C regime, which is properly implemented, regulated and enforced, would provide the desired results in improvement in safety and emission performance of the vehicles running on road. A strong institutional structure is the necessity for implementation of the I&C regime in India and should have following characteristics. .

- The Government should act as a regulator and inspection centers should be run by the private sector.
- The centers should be of the kind of "test only centers" run by single contractor for a given state / region.
- A smaller number of multi lanes, test only centers are far easier for the Government to supervise and allow better technical and administrative control. Having a small number of high volumes, test only centre gives rise to easier adoption of new testing technology and result that is more consistent among centers.
- The Central Government should frame a regulatory structure specifying lists of tests to be conducted, items to be inspected, frequency for conducting these tests, vehicle inspection fees, Phasing of vehicles, defining criteria for selection of private sector for setting up a vehicle inspection centre.
- The State Government should identify private sector to be involved, audit the performance of centers, and should be responsible for on road enforcement. The State Government should estimate the number of test lanes required for various regions (RTO) and private sector should use it as a guide for setting up inspection centers.
- The program should be linked to insurance of vehicles/payment of all taxes to make it more effective.

5.2 Programme Content

5.2.1 The I&C regime should have the tests for both safety and emission parameters. The inspection should be a combination with visual and automated test equipments. Besides, the CNG / LPG safety inspection should also be included in the program, wherever introduced.

5.2.2 For inspection of the vehicles in the automated vehicle inspection centers, detailed vehicle inspection manuals need to be developed. These manuals should prescribe the procedure for testing a vehicle, list of tests to be conducted, methods for conducting the tests. . These manuals would have to be prepared for different categories of vehicles and should be available at all test centers and others concerned with the I&C programme. Different manuals will be required to cover following range of vehicles.

- Public service vehicle
- Heavy goods vehicle
- Car and light commercial vehicle
- Three wheeler and Motor cycle
- Trailers and tractors vehicle

5.2.3 A handbook for administrators would also need to be prepared specifying the role, and responsibility of the inspectors in the vehicle inspection centre and the auditors. A suggested list of items that needs to be included in the centralized test centre is listed below.

Safety Inspection

<i>Visual inspection</i>
Inspection of legal documents, insurance and identification of the vehicle
Steering play
Chassis / frame integrity
CNG / LPG Safety inspections
Fuel tank and piping
Exhaust pipe
Catalytic converter (mounting, heat shield damages, presence)
Engine mountings
Battery (terminals, mounting, etc)
Seatbelts (presence, integrity)
Condition of Tyres including spare tyre
Lighting and signaling devices
Oil leakages (engine, transmission)
Leaf springs integrity, shock absorbers
Wind screen, wipers & doors,
Horn
Availability of Tool Box, First Aid kit, Fire Extinguisher and Warning Triangle
Registration plates

<i>Tests with Automated Equipments</i>		
Test Items	Tests	Equipment
Service brakes	Brake test	Roller Brake tester
Parking brakes		
Speedometer	Speedometer test	Speedometer tester
Headlight	Headlight test	Headlight tester
Side slip	Side slip test	Side slip tester
Suspension Test	Suspension test	Suspension Tester

Emission Inspection

Vehicles	Test	Equipment Required
Diesel	Free Acceleration test	Opacity meter
Petrol / CNG / LPG	Idle Test	Gasoline (4 Gas Analyser)

While the present PUC emission testing will be continued in the vehicle inspection and certification centers with prevailing test procedures and audit systems

5.3 Auditing Vehicle Inspection Centers

5.3.1 The system of testing should itself be such that the tampering of the test results is not possible. A well functioning audit and quality assurance system is crucial for the acceptance and success of any I&C regime. Organizations abroad have such features built in their system. The State Transport Department would have to outsource the auditing to any of the renowned automotive testing centers in the country like ARAI or any of the Centers of excellence under the NATRIP project. The auditing shall be conducted at least once in a year. The auditing should cover the following aspects.

- Presence of necessary equipment and other infrastructure in working condition.
- Proper calibration audits for equipment
- Proper inspection procedures being followed by the centre as detailed in the manual
- Presence of qualified/trained manpower in the inspection centre.

5.3.2 The audit should also cover the authenticity of the certificates given, storage, extraction, traceability and security of the data, operator's validity in terms of training, parking area, and security of the vehicles etc. This well qualified team of auditors would make random checks in the inspection centers to check for proper functioning and operation.

5.3.3 The State Transport Department can design an audit plan for all the fitness centers under their jurisdiction. The fitness centers will have to pay for the cost of the audit. The transport authorities will re-validate the license for the fitness checks based on these audit reports from the independent agencies.

5.3.4 A penalty system should be imposed for auditing the performance of the service centers based on the UK model, where, for every different type of offence committed certain penalty points are awarded and after a centre accumulates a certain number of penalty points, its license is cancelled. This would enable a more transparent form of working. The penalty points could cover offences like:

- Issuing fake/duplicate fitness certificates
- Improper inspection procedure followed
- Inadequate infrastructure, equipment in the vehicles inspection centre
- Lack of well trained and qualified staff

5.4 Enforcement on Road

5.4.1 The traffic authority would be responsible for checking vehicles for the possession of a valid fitness certificate. A legally enforceable sticker that is controlled by the state government, difficult to falsify and that has a highly visual design enabling an officer to identify immediately at 5 meters distance could serve this purpose. The traffic authority would have to be empowered to stop vehicles without such a valid sticker.

5.5 Data collection and analysis

5.5.1 To ensure that the new system responds to improvements in vehicle technology and increasingly stringent emission and safety norms, a centralized data collection and analysis function should be vested with the Nodal agency . Centralized common software is required for data transfer, storage, data analysis and uploading to the website, etc. The development of such software can be done by ARAI as recommended by the Nodal agency. The test centre specifications should also include the software specifications so as to interface with the common software for data analysis.

5.5.2 Also, all the I/C centers in a state should be connected to the State registration authority and in turn all the state transport authorities are to be networked under the Central Government for data sharing and data analysis.

5.6 Human resources development

5.6.1 For effective implementation of the I&C regime, manpower training and capacity building is necessary. Such training programmes and course content have to be centrally developed and the training should be imparted by the independent agencies. The training and refresher training have to be provided for the following target groups:-

- (i) Staff, attendants and motor vehicle inspectors at the vehicle inspection centers.
- (ii) Auditors for auditing performance of inspection centers and staff of state transport departments.

5.6.2 Training modules need to be prepared for the above target groups that specify the contents, schedule and, duration of the programme, and the period for refresher courses. In addition to the training, the manpower also should undergo refreshment courses to update their skills and knowledge. The training calendar have to be developed by the private operators for the personnel who are operating the centers and nominate them to the training courses provided by the appointed centers as designated by the State Transport Department. The state governments can pay the fees for the training

programme, which can be recovered from the vehicle inspection centre in form of fees/taxes.

5.7 Public awareness campaign

5.7.1 A consumer awareness campaign should be launched with the help of schools, NGOs, community-based organizations, automobile associations, and research institutes. The TV / Cable network media can provide a wide coverage of the benefits of the I&C to the individual owners. This mass consumer awareness campaign to be run on a regular basis should focus on making the consumer aware of the following issues:

- Advantages of an inspection and maintenance programme for a vehicle owner.
- The process followed in the inspection of a vehicle.
- How a vehicle owner must maintain the vehicles.
- Frequency of an inspection programme.
- Location of authorized vehicle repair and maintenance centers.
- Roles and duties of a vehicle inspection centre.
- Locations and list of authorized vehicle testing stations.
- Legal status of inspection programme and fines imposed for offences.

5.7.2 The awareness of the public is essential for the success of the program. One option of considering the participation of the general public in identifying the gross polluting vehicles which are visibly emitting higher smoke and provide information of such vehicles to the regulating authorities is through SMS, email and toll free telephone no. A website development and maintenance for the public to post the suggestions and remedial measures could be an added advantage for improving the effectiveness of the system.

5.8 Maintenance programme

5.8.1 Though the Inspection and certification (I/C) centers would identify the grossly polluting and unsafe vehicles, it is necessary that there is an efficient maintenance system in place to rectify the vehicles that have failed in the I/C centers. For ensuring effective maintenance of vehicles, the motor vehicle repair workshops should have trained mechanics, proper equipment and procedure, and quality assurance checks. Also there should be proportionate number of such workshops established in the country to serve the vehicle owners effectively. Currently, in India, the motor vehicle repair workshops are authorised by the vehicle manufactures and many small-scale motor vehicle repair workshops exist in India along the roadside. These roadside repair workshops do not have the necessary equipment, procedures or trained mechanics to carry out proper maintenance of vehicles. As a result, some vehicles continue to pose a major threat and create nuisance with respect to emission and safety even after they have been maintained by such workshops. There is, therefore, an urgent need for motor vehicle repair workshops to upgrade. The certification of motor vehicle repair workshops will allow individual vehicle owners and vehicle fleet owners to make informed choices in engaging certified workshops for maintenance of their vehicles to ensure vehicles remain in good working condition with respect to emission and safety. The certification scheme will also encourage operators of motor vehicle repair workshops to develop and enhance their technical expertise in maintaining vehicles.

5.9 Legislative reforms

5.9.1 The following legislative provisions would need to be changed for successful implementation of the above-mentioned recommendations.

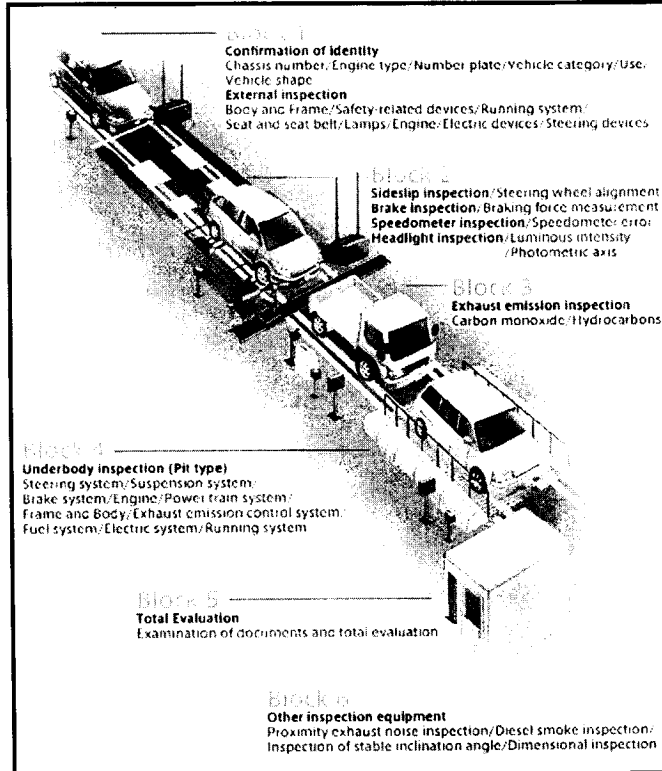
- ◆ The list of parameters to be checked at the time of fitness check, given in Rule 62 of the CMVR, 1989 would need to be modified to include more items concerning safety and environmental parameters requiring regular checks using the automated test equipments in a vehicle inspection center.
- ◆ Valid insurance and payment of all taxes would need to be made a prerequisite for fitness test.
- ◆ A code of practice would need to be prescribed for management of authorized vehicle testing stations under Rule 63 of the CMVR, 1989.
- ◆ State Governments would need to authorize such centres for testing of vehicles under Section 56 of the Act.

6 A Typical I&C Test Centre and capacity building

- ◆ The Inspection and Certification (I&C) centers will be initially set up to inspect and certify the in-use transport vehicles for its safety and emission compliance as per CMVR, 1989.
- ◆ The required number of centers in a given city would depend on the Vehicle-mix of and their active population.
- ◆ A centre would house inspection lanes for testing various categories of vehicles. The inspection lane would have test equipment arranged like a production line through which the vehicles go through for the inspections. A typical test center layout is given in **Annexure- I**. The safety and emission inspection can be conducted in the inspection lane in 3 stages wherein the vehicle is driven through a series of test equipment and the required inspections are conducted. The pass / fail decision on the inspections are entered in the computer network and at the end of the lane, the test report is generated.
- ◆ Based on the capability of the vehicle inspection equipment in terms of maximum axle weight and load / force measuring capacity and the kind of vehicles, the vehicle inspection lanes can be classified into two categories such as Heavy Duty (HD) and Light Duty (LD).
- ◆ I&C centre will consist of Vehicle inspection lanes, Administration Office and Parking space for vehicles waiting for testing.
- The number of inspection lanes and kind/type of inspection lane in a centre will depend on the vehicle population in that city.
- The LD vehicle inspection lane is for testing of transport vehicles (Three Wheelers and Taxis, LCVs) up to 3500 kg Gross Vehicle Weight (GVW). The

HD duty vehicle lane is for testing transport vehicles (Trucks and Busses) above 3500kg GVW up to 12 ton single axle capacity.

- The I&C centre will have sufficient parking space for vehicles waiting for inspection for at least one hour.



A typical layout of a six station I&C center

Inspection lanes

The inspection lane is where the required test equipment are laid out such a way the vehicles are tested one after other. The arrangement of the equipment should be aimed to achieve maximum vehicle test throughput (i.e. More no. of vehicles tested per hour)The inspection centers will be designed to check all Transport Vehicles in a city, between 1,25,000 to 1,35,000 inspection/year with effective management. Basically output through each individual test centre will primarily depend upon the vehicle mix of that particular city.

Types of Tests to be conducted in an I/C centre

Visual Inspections:

<i>Visual inspection</i>
Inspection of legal documents, insurance and identification of the vehicle
Steering play
Chassis / frame integrity

<i>Visual inspection</i>
CNG / LPG Safety inspections
Fuel tank and piping
Exhaust pipe
Catalytic converter (mounting, heat shield damages, presence)
Engine mountings
Battery (terminals, mounting, etc)
Seatbelts (presence, integrity)
Condition of Tyres including spare tyre
Lighting and signaling devices
Oil leakages (engine, transmission)
Leaf springs integrity, shock absorbers
Wind screen, wipers & doors,
Horn
Availability of Tool Box, First Aid kit, Fire Extinguisher and Warning Triangle
Registration plates

Equipment based Inspection:

<i>Tests with Automated Equipments</i>		
Test Items	Tests	Equipment
Service brakes	Brake test	Roller Brake tester
Parking brakes		
Speedometer	Speedometer test	Speedometer tester
Headlight	Headlight test	Headlight tester
Side slip	Side slip test	Side slip tester
Suspension Test	Suspension test	Suspension Tester

Emission Inspection

Vehicles	Test	Equipment Required
Diesel	Free Acceleration test	Opacity meter
Petrol / CNG / LPG	Idle Test	Gasoline (4 Gas Analyser)

Though there are variety of standalone garage type equipment are available in the market for performing the tests described above, it is important to have an integrated lane for effective operation. The lane software which controls the functions of the equipment and

integrates the test information is a critical component in the entire centre. This software needs to be flexible, user friendly and would require up-gradation for addition of new test sequence, change of pass/fail criteria, data analysis, changes in the test report generated and introduction of new tests. Competent operator can operate the lane once the entire lane is installed and commissioned. The calibration, maintenance and auditing of the entire centre can be taken at regular interval by ARAI.

6.1 Inspection process flow

Each test lane should be designed to facilitate 3-4 individual test positions to achieve the maximum test throughput. The following narrative is to describe a typical lane operation.

- Vehicle Reception: The inspector receives the first vehicle at the entrance of the station with related documents. Asks the client to go to the waiting area and positions the vehicle on the lane. Enters the IT system to generate the Work order.
- Position 1: Emissions Test, Speedometer Test, Visual inspection External
- Position 2: Vehicle Weight, Roller brake Test, Visual inspection lighting and indicating devices, Gap test.
- Position 3: Headlamp test, underbody visual inspections
- Generation of test reports & issue of sticker which could be easily located(preferably on front side of wind screen indicating the validity of test certificate)

6.2 Infrastructure Requirements

Approximate Land Requirement:

A typical I/C centre consisting of 4 lanes required a Land area of approximately 3 acre. This covers Lane & control cabin, utilities & stores, admin office, etc. Area required for idle parking for waiting around 20 vehicles at a time with sufficient turning and movement space, has been considered in the present layout. However, if land availability permits, more parking space to cover one hour average waiting period and canteen facilities may be included. A typical layout is enclosed in **Annexure-I**

Utilities Requirement:

Each center would need following broadly described utilities:

- Power supply for general areas
- UPS for data centers
- Ventilation and air conditioning for designated customer area
- Ventilation for Lanes
- Fire safety and first aid station.
- Water
- Security, upkeep, anti-mosquito/pesticide, and anti-rodents measures

6.3 Audit of garages:

An effective maintenance program is also an essential part of the overall strategy. The vehicle manufacturers would need to authorize these repair centers. Less number of well servicing and authorized vehicle repair centres are better and effective than a large number of unauthorized vehicle repair centers. This would ensure that the owners get good repair and maintenance of their +vehicles. Therefore it is necessary to identify the facilities and manpower required for such garages. An auditing agency like ARAI, CIRT, ICAT will audit the garages in a city to verify the suitability for repair and maintenance activity. Suitable assessment system like star rating for garages can be implemented.

6.4 Scope of Central Government

- Funds for construction of building and establishment of utilities.
- Provide grant for capital expenditure for establishing test centers
- Any amendments in CMVR for revision of testing fees and test standards, based on the data collected by different I &C centers

6.5 Scope of State Government

- Provide land at its own cost
- Land Acquisition
- Land development processing
- Certification of fitness certificate by Government Department /Government staff
- Signing of Memorandum of Understanding among the State Government and the private operator after public bidding, after two year operation of center
- Make available vehicles for fitness testing.
- Provide list of garages in the identified city which need to be audited.

6.6 Scope of Centre Operator

- Operations & management of center
- Maintenance of equipment, software and facility
- Collection of Test fees

6.7 Role of ARAI/ICAT,CIRT

- Acts as a facilitator for establishment of capacity building I &C centers in selected cities.
- Master planning and building layout as per experienced consultant
- Bid documentation for construction of building and establishment of utilities
- Preparation of tender document for test equipment, procurement of test equipment, installation and commissioning of test equipment.
- Supervision and construction of building activities
- Automation software for integration and testing.
- Interface between vehicle registration database (if made available) with test lane automation system.
- Calibration and maintenance of the test centre for first two years
- Operate center for two years with assistance from competent contract operator

- Provide test data to the state and centre Government for two year
- To generate operations manual for state government to run the center through the contract operator.
- Audit of the test centre operated by the centre operator.
- Preparation of garage requirement specification documents.
- Audit of DoT identified garages in a city.

6.8 Financial Arrangement

The central Government will provide funding to the State/UT or agency authorized by the State for establishment of I &C centers, which includes planning, equipment procurement, installation, commissioning, construction of building, establishment of utilities and operate the center for two years. The land will be provided by the state government. The cost of the land would also be borne by the state government. After two year of operation by supplier of the equipment, the state government can identify a prospective centre operator through public bidding for establishment of the centers.

6.9 Capital Investment:

The Central Government will provide 100% capital investment towards construction of building, establishment of utilities, the test equipment / lane for the test centre. However, the land for creation of Inspection and Certification Centers has to be provided by the State Governments free from all encumbrances and the title of land will vest with the State Government. The cost of the land would also be borne by the state government. In case of lease holding, the same shall be on a perpetual lease of 99 years.

6.10 Recurring Expenditure:

Two year recurring expenditure will be borne by central government. The recurring costs will include:

- Operations
- Consumables and spares
- Man power costs
- Electricity and Water costs
- Building Depreciation.

After two years, the Centre will be transferred to the concerned State Government for its operation and maintenance.

6.11 Summary

- It shall be obligatory on the part of State Government to implement this scheme on the terms and conditions set out by the Central Government.

- The State Government should submit a proposal for funding from the Central Government.
- ARAI/ICAT/CIRT to provide technical consultancy for establishment of I&C Centers.
- The proposal should envisage self sufficiency in meeting the recurring expenditure as this shall not be provided by the Central Government after initial two years. However, the initial grant, which shall be one time grant for the capital component, shall be provided by the Central Government. Actual procurement should be made by following tender procedure to obtain most competitive priced quality products.

7. Project Approach for a Model City

7.1 One model center would be set up by the Central Government in each state & union territory. A typical model I&C centre should be limited to maximum 4 number of lanes for better management and handling. The selection of city wherein an I&C center to be established will be carried out by state government based on prioritization, vehicle mix, ease of implementation, availability of land etc. This will act as reference centers to develop further I/C regime statewide.

7.2 Number of Test centers required in a state would depend on total number of vehicles in that state and the mix of the vehicles ranging from 3 wheeler public carrier to heavy commercial vehicles. Depending on this data and throughput time of each Test Lane, the number of test centers required for any city can be estimated.

Throughput time of each lane is summarized in table indicated below.

Expected Annual Throughput of each lane:

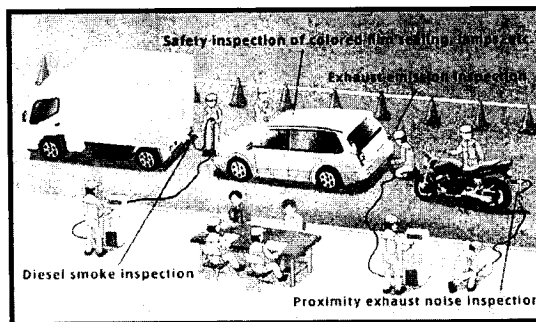
	LD Lane	HD Lane
No. of Vehicles to be checked per hour / day	12	8
No. of Working Hours / day	8	8
No. of working Days / year	300	300
Operating efficiency	75%	75%
Annual inspection capacity of a lane	21600	14400
Indicative Test Cycle time per vehicle (minutes)	15	22

Test Equipment & Establishment of Test Centre

To carry out tests in I&C centres following equipment are required:

Sr. No	Equipment
1	Roller Brake tester
2	Head Lamp Tester
3	Speedometer / Speed Governor Tester
4	Gas Analyzer (CO,HC & CO ₂)
5	Smoke Meter
6	Side Slip Tester
7	Suspension Tester

- All lanes to be integrated and network within I&C centre and will have automation software and a databank for necessary working. This network design implementation and software will be provided by ARAI/ICAT/CIRT.
- ARAI/ICAT/CIRT will also act as a nodal agency for
 - Technical consultation
 - Preparation of tender document for test equipment
 - Support the state government in Tender evaluation and establishment of the centre
 - Commissioning and acceptance Testing of the lanes
 - Training and project management



7.3 Operation of an I&C Centre

Operation of an I& C center will require annual recurring costs associated with manpower, training, travel & transport, stationary, communication, maintenance cost of utilities and equipment including spares and calibration, insurance, admin services and ARAI/ICAT/CIRT technical services such as supervision and auditing of test center. It is proposed that the finance model would be on Build-Own-Operate-Transfer (BOOT).

Government (Central & State) will own the equipment; ARAI/ICAT/CIRT will act as a facilitator and the test centre will be operated by the equipment supplier for initial two years

7.4 Requirements of manpower

The I&C centre will require three operators to drive the vehicle and perform the visual inspection in a lane, and an additional personnel is provided as a standby. Additionally, a supervisor would be required to oversee the operation and assist the vehicle owners for smooth operation of the lanes. The supervisor would perform the duties of the operator when any of the regular operators are not available. The data entry operator would input the vehicle data to the server at the entry of the inspection lane and also generate daily performance reports of the centre. The manager would administer the lane operation and resolve any issues during inspection of vehicles.

A Typical manpower chart for operating a 4 lane I&C centre along with their job profile and qualification is as given below for reference.

Level	No. required	Job profile	Qualification
Operators	23	For inspection of vehicles in lane. One inspector for each station	ITI Motor mechanic
Supervisor	3		ITI Motor mechanic , with 3-5 year experience
Data entry operator	8	To verify documents and feed data. One person for each lane	Bachelor degree with Computer knowledge
Manager	1		Graduate in Engineering / science with 3-5 yrs exp
Stores, Purchase & administration	1		Graduate
Maintenance	3		ITI Refrigeration / Electrical
Security	On contract basis		

7.5 I&C Centre Establishment and Operating Cost

Overall Project Cost for establishing a Four Lane I&C centre including two years operation in Model city is as follows.

Cost Heads	(Rs. in lakh)
Creating suitable building and Infrastructure work for 4 lanes Building, internal RCC roads, parking, firefighting, drainage. (Land development, compound wall etc. not considered in this cost)	700
Equipment for four lanes with two year warranty and 5 years AMC (comprehensive)	360
Utility Cost (DG sets, compressor, furniture, air-condition, etc)	92
Lane management software including connectivity of test centre to department data base	130
Project management fee	75*
Operation Cost	250
Garage auditing (Approx 25 nos around the test centre)	25
Six audit during operation of the centre	18
Total cost	1650

* Rs. 60 lakh if the civil construction is done by the State Government.

The above indicated cost does not include land cost and applicable taxes.

7.6 Maintenance regime for a city

An I&C center will effectively identify the vehicle health in terms of safety & emissions. However, unfit vehicles will require maintenance stations/ garages for appropriate repairs. To address this need, it is proposed to identify the minimum requirements in terms of equipment, tools and manpower expertise for garages. A check list covering the above aspects will be prepared and garages having such capabilities will be audited by ARAI/ICAT/CIRT. Local transport authorities in the city will provide this information and co-ordinate this activity along with auditing agency. A detailed report of audit will be submitted to local transport authorities. Based on this information, qualified maintenance garages will be selected. The list of these qualified service providers will be displayed in each I&C enter with in a city. The list needs to be re-validated annually, by authorized auditing agencies like ARAI/ICAT/CIRT.

In this project scope, maximum numbers of garages that will be audited are limited to 25 numbers per city.

7.7 Deliverables: ARAI/ICAT/CIRT

- Preparation of infrastructure drawing for approval by Central/State government.
- Acceptance of infrastructure facility as per approved drawing.
- Building for I&C lane and utilities
- Supply, installation and commissioning of test equipment.
- Integrate the test equipments and provide test system software / hardware.
- Commissioning and acceptance testing of the lanes.
- Run test centre for two year on BOOT basis trough a competent contractor.
- Calibration and maintenance of the test centre for two years.
- Provide test data to the state and centre Government for two years.
- Finalising the specifications for standard garage & establishing an auditing system for the same
- Auditing of garages selected by local transport authorities.

7.8 Total Cost of the project

Rs.1650 lakhs + taxes. The cost includes the:

- (i) Supply and installation of necessary equipments for the 4 lanes
- (ii) Construction of building and establishment of utilities
- (iii) Technical services,
- (iv) Automation software and networking
- (v) Two years operation on two shift basis
- (vi) Auditing of garages in a city.

7.9 Project Duration

Project duration will depend on the infrastructure set up duration. Expected duration for infrastructure set up is around 4-6 months once the land is made available. Parallely equipment procurement will be processed in first 2 months. Expected time taken in the delivery of equipments is 4-6 months.

(i) Installation and commissioning: 1 lanes/ month. Hence, total 4 months for 4 lanes.

(ii) Total duration expected: 12 months after land is made available and first installment is released.

8. Financial Viability of a Test Centre

A typical established four lanes Test centre in a model city will have 2 HD lanes with annual inspection capacity of 14400 vehicles per lane and 2 LD lanes of annual inspection capacity 21600 vehicles per lane. If the center is run on two shift basis, the coverage of city fleet will be much higher. With 80% occupancy of lanes in two shifts, the vehicle throughput per lane will be 23040 vehicles for HD & 34560 vehicles for LD per year.

Existing Test charges according to CMVR guidelines are indicated in table below.

Yearly Charges for Grant and renewal of fitness certificate.			
Vehicle Category	Existing Test charges for Fitness(Rs.)	Existing Test charges for PUC(Rs.)	Total Test Charges (RS.)
3W - G/LPG/CNG	100	30	130
3W -Diesel	100	80	180
LMV	200	100	300
MMV	300	100	400
HMV	400	100	500

A Typical Two Shift Operation

Expected Revenue generation from of 2 LD lanes=Rs. 2,30,40,000/-

Expected Revenue generation from of 2 HD lanes=Rs. 1,72,80,000/-

Total Expected Revenue of a typical I & C centre = Rs. 4,03,20,000/-

* This is with assumption of 80% of occupancy of lanes in a test centre in a year and test charges based on the above table.

9. Replication of I&C centres

The Central Government would set up one model center only. However, one such centre can not cater to the total vehicle population in a State. State Government would, therefore, need to replicate the model through a Finance model selected by them. In view of the resource constraints, the establishment, operation and maintenance of the centres may be outsourced to private partners. State Governments may act as a regulator.

10. Salient Features of the Project

- ◆ The scheme would be envisaged for setting up 10 such centres, i.e., one model I&C centre each in ten States/UTs.
- ◆ For these projects, the land shall be made available by the concerned States. Cost towards equipments, construction of building and establishment of utilities as well as actual cost of operation for the first two years shall be borne by the Central Government.
- ◆ Total cost for setting up one such centre would be around Rs. 1650 lakhs + taxes which includes cost for supply and installation of necessary equipments for 4 lanes, construction of building and establishment of utilities, technical services,

automation software and networking , two years operation on two shift basis and auditing of garages in a city.

- ◆ The fee for fitness tests would be charged as per the existing rate, as prescribed under the Central Motor Vehicles Rules, 1989 and would go, as per present statutory provisions, in the State Governments account.
- ◆ Necessary amendments in the Central Motor Vehicles Rules, 1989 would be initiated immediately, as may be required, to prescribe the type of tests through visual inspection, equipment based inspection and emission inspection.
- ◆ It would be mandatory for the concerned States to authorize the model centres as “authorized testing station” under Section 56 of the Act.
- ◆ After two years of operation and maintenance of the centres by the executing agencies, the centres would be handed over to the concerned State who would then manage it and could also replicate it.
- ◆ The Project would be executed through ARAI/ICAT/CIRT.

Annexure-I: A Typical Layout of an I & C Center

