

EPCA report no 17 (November 2005)
In the matter of W.P.(C) No.13029 of 1985; M.C. Mehta v/s UOI &
others

Supplementary submission on the safety issues in CNG buses

1. This report is in addition to EPCA report no 15 on Assessment and prevention of gas leakage from CNG buses (July 2005).
2. It takes into account the affidavit on behalf of the Transport Department GNCT of Delhi, October 2005 and Delhi Transport Corporation, October 2005
3. In addition, it reviews the recently reported incidents of CNG bus fires to examine the weaknesses and problems

**Environment Pollution (Prevention & Control) Authority
for the National Capital Region**

1. CNG bus safety

In February 2005, the Delhi Transport Corporation (DTC) carried out checks in two depots of DTC. 200 vehicles were checked out of which 149 (74.5%) buses were found to have leakage. Hon'ble court intervened and in its order dated March 11, 2005 it stated, "EPCA. is directed to look into the concerns, which have recently been expressed in the media regarding the aspect of leakage of gas and other related safety issues, and suggest safeguards, if necessary, after examining the matter. The Report of the EPCA be submitted within five weeks."

2. EPCA report- Assessment and prevention of gas leakage (July 2005)

Given the mandate from Hon'ble court EPCA submitted its report, "Assessment and prevention of gas leakage from CNG buses" in July 2005. EPCA initiated a technical assessment of the problem of CNG leakage in Delhi Transport Corporation (DTC) buses. EPCA experts met with all the concerned target groups including the bus manufacturers, officials of the DTC, Indraprastha Gas Ltd (IGL), and personnel involved with the third party safety inspection of CNG buses in Burari. The experts also made field visits to the central workshop of the DTC at Okhla on April 4, 2005, to Burari vehicle inspection centre on April 5, 2005, and to IGL refuelling station on April 6, 2005. At the Burari inspection centre experts also made note of the safety related concerns in the Road Trusted Vehicle (RTVs).

EPCA has also discussed its preliminary findings with the concerned stakeholders in a meeting held on April 16, 2005. The meeting had representatives from the Society of Indian Automobile Manufacturers (SIAM), Tata Motors, Ashok Leyland, Hindustan Motors, Swaraj Mazda, Delhi Transport Corporation (DTC) and the Ministry of Shipping, Road Transport and Highways (MoSRTTH). Before finalising the report EPCA again called a meeting on July 7, 2005 with all the stakeholders. The report was discussed and based on the deliberations, EPCA finalised its recommendations.

The matter was discussed by the Hon'ble court in its hearing on August 12, 2005. Based on the report and the discussion, the court stated, "For the present, notice of the report shall issue to Delhi Transport Corporation (DTC) and Transport Department of Delhi government who are directed to file their response to the recommendations so made by EPCA. Response shall be filed within three weeks."

3. Submissions on EPCA report (October 2005)

Based on the Hon'ble court's order, the DTC and the Delhi transport department filed their affidavit in October 2005. In its affidavit DTC has pointed out that DTC Board has already approved the proposal of commissioning of six CNG cum pollution checking centres in DTC. The DTC has agreed to most of the recommendations of the EPCA report and thus there are no conflicting views with DTC on the issue of CNG leakage from buses. DTC has already processed the various actions towards procurement of plants and machinery items etc, required for the six centres.

Transport department's affidavit of October 20, 2005, also broadly agrees with the recommendations of the EPCA report. The necessary approval of the Chairman, State Transport Authority (STA) for amending the permit conditions for mandatory quarterly safety checks at the DTC centres in addition to the annual fitness and third party inspection, has been obtained. The Delhi government also has accorded the approval for setting up of CNG

leakage cum pollution checking centre to the DTC. Similarly the affidavit points out that the re-introduction of pre-registration third party inspection could be immediately implemented.

Thus there is no conflict of views as far as solutions to the problem of leakage from CNG buses are concerned, between EPCA, the DTC and the transport department.

4. Current status- the CNG bus safety

On November 26, 2005, EPCA convened a meeting with all relevant parties to discuss the progress made on the issues listed in its report on safety. EPCA was also concerned by the recent incidents of bus fires.

Recent fires in CNG buses

In the last fortnight 4 separate incidents of buses catching fire have been reported in the media. 3 buses belong to DTC and 1 to a private operator and all have been manufactured by Tata Motors.

At the review meeting, DTC deputy chief general manager informed EPCA that a detailed technical study was being undertaken to assess the causes and remedial action.

However preliminary investigation by both the DTC and the bus manufacturer showed the following:

1. There was no evidence of leakage of gas in the bus
2. The manufacturer had recertified one of the buses only on November 16, 2005 and that another had been certified on October 24, 2005 and had undergone repairs. In other words, the buses had been recently maintained and checked for leakage and maintenance
3. Preliminary findings are that the fire has been caused by an electric short circuit in the cabin
4. DTC and the manufacturers are assessing the problem which led to the electric short circuiting and will get back to EPCA with a detailed report within a fortnight

5. Directions sought from Hon'ble court

Based on the above assessment, and the fact that both the DTC and the transport department are in consonance with the EPCA report number 15, EPCA would like to seek the following directions:

Delhi Transport Corporation

1. Delhi Transport Corporation, as stated in their proposal to EPCA, should set up 6 leakage cum pollution checking centres within 2 months for testing of the private buses including RTVs. DTC will issue a certificate for these tests
2. The protocol for safety tests should strictly follow all the leakage tests included in the checklist prepared as per the Annexure VIII of AIS 024
3. For their own buses DTC should conduct leak tests from each bus before it moves out of the depot everyday as prescribed in Annexure VIII of AIS 024

Delhi transport department

1. The transport department will make it mandatory for the private bus operators to undertake quarterly safety checks at the DTC centers in addition to the annual fitness and third party inspection. This mandatory check at DTC centers should be linked with the permit condition of the private buses. This should be enforced in next 2 months
2. The transport department should reinstate immediately pre-registration third party inspection of CNG buses
3. Third party inspection should be further strengthened by directing ARAI to audit the system every 6 months
4. The transport department should set up fully equipped mobile testing diagnostic facility to conduct surprise CNG leakage checks on CNG buses within 1 month
5. With regard to the lapses in the converted buses the transport department should coordinate with conversion agencies and bus operators to correct them. Within three months conversion agencies should be directed to retrofit venting pipes in converted buses
6. Authorise a network of repair workshops in the city to undertake repair works related to safety and emissions related components in CNG buses within three months
7. With immediate effect, the compliance plates on the CNG cylinders should be checked in all the vehicles at the time of annual fitness

Bus manufacturers

1. In view of the information that the cylinder heads in Ashok Leyland buses fail frequently, even during the warranty period indicates that there is an inherent technical flaw in them for which customers cannot be held responsible. Therefore Ashok Leyland be directed to submit to EPCA within three months the engineering modifications made to improve their durability and also inform if the old cylinder heads in the on road fleet have been replaced with the improved version
2. Many CNG buses in Delhi still do not have venting pipes, both Tata Motors and Ashok Leyland, should retrofit all in-use CNG buses which still do not have proper venting pipes at their own costs, and submit a compliance report to EPCA within 1 months
3. To prevent monopolistic control over the supply of spare parts, essential components and sub-components, aimed at profiteering, the manufactures should submit a pricing policy and practices on supply of spare parts to rationalise the prevailing price structure. This should be submitted to EPCA within two-weeks for necessary steps

Indraprashta Gas Limited

1. Before dispensing gas, IGL should check the dust caps in buses and dust plugs in RTVs. Refueling should be refused to those vehicles, which do not have the dust caps/plugs. This should be enforced with immediate effect

Ministry of Shipping, Road Transport & Highways (MoSRTTH)

To address the fundamental engineering issues related to safety, Bharat III standards for CNG buses should be amended to include the following:

1. As detailed out in the report, Bharat III standards and test procedures for CNG buses have not been fully aligned with the Euro III standards of Europe for CNG buses. For instance, Euro III norms for CNG buses are tested on a transient driving cycle (that simulates driving pattern on road) that is more difficult to meet than the steady state cycle that is currently followed in India. This softens the impact of the norms. Since the MoSRTTH through its notification GSR 686 (E) of October 20, 2004, on Bharat Stage III norms has already adopted the European Transient Cycle (ETC) for heavy-duty diesel vehicles if they are fitted with particulate traps and DeNOx catalyst, this provision should be immediately extended to include the Euro III CNG buses as well
2. Durability requirements for the catalytic converters in CNG buses should be increased from the current 80,000 km to at least 150,000 km. These amendments to the current notification should be implemented within three months

Ministry of Petroleum and Natural Gas

1. For better performance and durability of CNG engine components CNG fuel specifications should be finalised within the next 3 months and submitted to the Hon'ble Supreme Court