

LegCo Subcommittee on Fixed Penalty for Smoky Vehicles

Submission by Ir Iain Seymour-Hart

I have already submitted a paper, which sought to address / list the main causes of vehicles emitting excessive smoke.

Generally speaking, if a vehicle emits excessive smoke this is an indication that something is wrong. The simple solution would therefore be to have the vehicle repaired. The action taken to correct the problem could possibly be as simple as an adjustment to the fuel injection system, taking only a few minutes. On the other hand, the only effective solution might be to overhaul or completely replace the engine or even renew the whole vehicle.

The application of the system of preventive maintenance, as prescribed by the vehicle manufacturer, would normally ensure a continued high level of efficiency and safety regarding all systems. This should then result in (i) fuel being combusted most efficiently, (ii) minimal toxic exhaust emissions and (iii) savings on overall vehicle operating costs. Apart from continued good maintenance, older [pre Euro-1] vehicles will likely need modifying or 'retro-fitting' with well proven, pollution intervention devices in order to further improve exhaust emission levels and / or reduce fuel consumption.

To be able to properly maintain, test, upgrade or modify a vehicle a number of conditions need to be met. These conditions include, (i) the availability of competent mechanics / technicians, (ii) the creation of properly equipped, safe and environmentally friendly workshops, (iii) access to the right data regarding all settings and adjustments needed for all vehicle types, operated in Hong Kong.

Regarding the training and development of competent mechanics / technicians, the VTC operates a range of full-time, part-time and short courses for mechanics and technicians at all levels.

Full-time courses offered are (i) a 1-year Basic Craft Course (BCC with 200 places), (ii) a 1-year Technician Foundation Course (TFC with 32 places) and (iii) a 2-year Diploma in Automotive Engineering course (DAE with 80 places). Courses (i) and (ii) are operated at the Kwai Chung Training Centre Complex whereas the Department of Automotive Engineering (AE) at the Hong Kong Institute of Vocational Education (Lee Wai Lee) operates course (iii). These full-time courses take in school leavers at post secondary-3 (BCC) and post secondary-5 (FTC & DAE) levels and provide students with a range of generic, technical and practical study units specially designed for the purpose.

Part-time course provision primarily serves young persons who have entered into relevant employment, usually as craft or technician apprentices. These apprentices are normally selected by an employer and then placed on an appropriate part-time, day-release course via an Attendance Order, in accordance with the Apprenticeship Ordinance. A similar range of courses is operated in the evenings for students who are outside the age range of 16 to 19 years or are unable [for other reasons] to attend during the daytime.

Apart from the aforementioned full-time course [DAE], nearly all part-time AE students will be in gainful employment whilst studying. Also, BCC and TFC graduates would normally be placed in employment and would [under an Attendance Order] normally then return to study in the 2nd year of a relevant part-time day-release course, thereby joining other apprentices. As a result of these arrangements the IVE has no job placement officers to serve any of its graduates.

DAE graduates who decide to join the workforce, usually secure employment immediately after completion of the course and thereafter return to continue their study on the part-time Higher Certificate course. During the 99-00 academic year, on a one-off basis only, a full-time Certificate in Automotive Engineers (Heavy / Public Service Vehicle) was operated. This was in response to a request [from above] to improve the employability of a group of S5 graduates who were unable to secure employment during the summer of 1999. Unfortunately, during the following 12-months, the economy continued to deteriorate and a number big stakeholders [Citybus, Dah Chong Hong and others] laid off substantial numbers of mechanics resulting in great difficulty for our full-time graduates securing employment.

Between the years 95/96 and 99/00 some 582 [average = 117 / yr.] of technician level students and some 2099 [average = 420 / yr.] craft level students successfully graduated from the Department of Automotive Engineering. These successful graduates would therefore be both academically qualified [to certificate or higher certificate level] as well as thoroughly trained [with a completion of apprenticeship award]. For apprentices, the practical element of the training would be undertaken at the employers' premises under appropriate supervision. It should be noted that apart from the recent two odd years of economic turbulence our full-time graduates, numbering about 30 per year, would normally have no difficulty securing a relevant job. It should also be noted, that in a free flow market like ours, a small number of graduates go else where or continue with there studies at higher level.

The group of courses offered to craft apprentices, by the Department of Automotive Engineering, all commence with a common year-1 followed by two years of dedicated technical education and training. Years 2 & 3 are streamed especially for (i) vehicle mechanics, (ii) vehicle electricians, (iii) painters and (iv) vehicle body builders / repairers. After completion of the craft certificate course, graduates may continue to study a range of advanced craft modules thereby further specialising in advanced technology and the latest diagnostic aspects. Current advanced craft modules include, (i) Electronic Fuel Injection Systems, (ii) Vehicle Stability Control Systems, (iii) Electronic Controlled Automatic Transmission, (iv) LPG Systems and Engine Control, (v) Electronic Diesel Fuel Injection Control, (vi) Pneumatic Braking Systems and (vii) Motorcycle Engineering. Once having successfully completed three

modules within a period of five years, a participant will receive an 'Advanced Craft Certificate' award. These courses are operated on the module accumulation mode and are also suited to those experienced craftsmen who need to return to learn new technology.

The courses, offered to technician level apprentices, are designed with more academic content and lead directly from Certificate to Higher Certificate and / or Higher Diploma levels of study. However, due to the increase in the number of PF5 full-time study places, over the last several years, as well as other factors, the industry appears to have difficulty attracting technician level apprentices. A lack of technician apprentices has therefore led to the cancellation of the part-time, day-release certificate programme and an increase in numbers of apprentices studying the equivalent part-time evening course. The recent economic downturn has also had a negative effect on employment, in the light and heavy vehicle repair industry, from which strong signs of a recovery are yet to be seen.

All courses include topics related to Health & Safety and Environmental Protection and have a balance of subjects designed to fully develop the individual and not just train a person for a specific task. Problem solving is also addressed in the curriculum with the intention to provide confidence in the individual when faced with challenging workplace scenarios. In addition to the workplace technological situation, the wider developmental needs of the student are also the focus of our mission when designing and executing our curriculum.

Automotive Engineering lecturers carefully design and arrange experiences which are intended to inculcate in students, a strong empathy for the environment. The courses are also intended to develop in students, an appropriate level of technological knowledge and a wide range of relevant / modern skills. This is all done with the main aim of empowering graduates to quickly become competent practitioners having the ability to make a positive contribution to improving our deteriorating air quality.

The Department of Automotive Engineering has recently received clearance from the VTC to set up the Automotive Engineering DataBase Centre. The department should be in a position to provide the first rudimentary service, concentrating on emissions related aspects, commencing from mid-November 2000. The centre is to be located on the LWL campus and a website / portal / search motor will be developed so that all AE data may eventually be accessed via the Internet. Additional Advisory' and 'consultancy' services will be introduced in due course so that any industry members who, after accessing the data, cannot still proceed with the repair, may seek the advice and support of our dedicated team of academic staff. It is intended that the data will be accessed free of charge but the additional services would be charged at an economical fee, respectively. This centre will strongly benefit our local stakeholders and should assist them to become more effective, over time. It is hoped that the centre will become self-financing within about 5-years time.

Continuing Professional Development (CPD) courses and also the Smokey vehicle spotter courses [jointly operated by EPD & AE (LWL)] are operated as and when the need arises. Furthermore, once a year a visiting academic / expert is funded

to come to Hong Kong for a period of 1-week to share his experiences and knowledge with academics, students and our major stakeholders.

I believe that the public at large, and especially vehicle owners and drivers, must be educated regarding the dire need for proper / regular vehicle maintenance. No matter what fuel a vehicle uses, if the vehicle is not properly maintained it will excessively pollute the precious air we all need to breathe. Without such empathy and resultant positive action on maintenance matters, we are quite unlikely to make any significant progress in reducing our vehicular related air pollution problems.

If all else fails, as seems to be the case, it then follows that a mandatory vehicle maintenance system will need to be introduced. Such a mandatory system would then ensure that any vehicle not properly maintained would not be allowed back on the road, at the time of annual licensing.

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11th November 2000