

## Exhaust emissions

## Europe's fiercest battle yet?

Brussels

THE political agreement to clean up car pollution in Europe reached by European governments in the long night of 20/21 March may yet be regarded as one of Europe's fiercest battles. The upshot is that there will be obligatory lead-free motor fuel throughout the Community by 1 October 1989 and, the calculation goes, a 60 per cent reduction of exhaust emissions against the yardstick of 1985. The surprise is that this solution, very much a compromise, was reached without loss of face for any member government.

The need for an agreement of some kind stems from the determination of West Germany to reduce exhaust emissions quickly, and in particular from the West German threat (uttered last year) of a unilateral introduction this July of lead-free motor fuel. In the event, West Germany went along with a package of proposals that will allow different categories of cars (classified by engine capacity) to be dealt with differently. The United Kingdom seems especially proud of having won this concession and, in particular, agreement that engines of medium capacity (between 1.4 and 2 litres) may be dealt with not by catalytic converters but by the application of novel technology as represented by "lean-burn" engines (see below).

The new standards will first make their impact generally in 1988, when new models of cars with engines above 2 litres capacity will have to conform with the new emissions standards. By 1 October of the following year, all new cars sold will have to conform. In the intermediate range, new emissions standards will apply to new models from 1 October 1991 and to new cars appearing on the roads from 1 October 1993. For smaller cars, with a capacity of

less than 1.4 litres, the emissions standards are to be introduced in two stages, with a provisional standard coming into force in 1990 (for new models) and a more rigorous standard three or four years later.

Part of the uncertainty remaining about emissions standards arises because of the difficulty in defining the permissible limits of exhaust emissions from engines of different sizes. The intention, however, is that the European testing procedures will progressively be made to conform with US standards within the next few years.

One reason why last week's negotiation was successful is that West Germany eventually won the blessing of its partners for its scheme to offer financial incentives to owners of vehicles conforming with improved emissions standards. These incentives will apply from 1 July this year, but it has now been agreed that, to qualify, the exhaust emissions of small cars must be at least 15 per cent less than the transitional standards set for 1990. Moreover, the financial incentive must not exceed DM750 over a three-year period rather than the DM1,700 originally proposed by West Germany.

The underlying issue here, to which the French environment minister Huguette Bouchardeau paid most attention at last week's meeting, is that financial compensation should be "significantly less" than the cost of clean technology if it is not to contravene the Community's rules on the provision of direct subsidies for manufactured products, not to mention the environmental doctrine of "polluter pays".

The financial incentives to be offered by West Germany will include a DM0.04 per litre subsidy on lead-free motor fuel, to be introduced next week and a ten-year exemption from road-fund tax for drivers

## Catalytic converters or lean-burn?

Brussels

THE British arguments against catalytic converters for smaller engines are both economic and technical. It has been estimated that a catalytic converter would cost £500 at the outset, and would involve a maintenance outlay of £90 with possible replacement after four years costing £150. Allowing for fuel penalty, the cost at Community level would be 15,000 million ECU a year if catalytic converters were the only means of conforming with emissions standards.

The United Kingdom argues that a universal requirement of catalytic converters would further open up the European market to the Japanese, whose products already conform with US standards. The investment needed for the two production lines would be a burden on ailing European car industries, while the cost of catalytic

converters would depress demand.

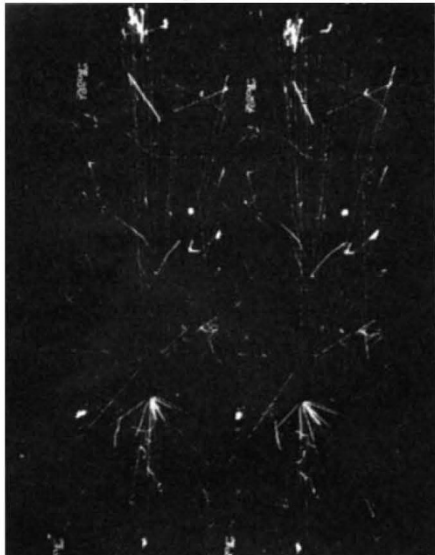
Rather than forcing the car industry down this cul de sac, the British have been arguing for time in which to develop lean-burn engines, working on the principle of altering the fuel/air ratio, thus provoking earlier combustion. The result is a fuel saving of about 15 per cent as opposed to the 5 per cent fuel penalty with catalytic converters. A prototype by Ford UK is to be demonstrated in June and could be on sale in September. The added cost to the consumer of the lean-burn engine is estimated at between £50 and £70.

The high air/fuel ratio of the lean-burn engine lowers both carbon monoxide and nitrous oxide emissions, but increases hydrocarbon emissions, for which reason an oxidation catalyst costing up to £50 would still have to be fitted.

Anna Lubinska

## CERN collision

ONE of the first events taken in a streamer chamber at the European Organisation for Nuclear Research, CERN, last week, showing a proton colliding with an antiproton at 900 GeV in the centre of mass, the highest energy for such controlled collisions yet observed. Despite the complicated manoeuvres required to reach such



energies, the collider is working well, with beam lifetimes of seven hours, double what was expected, and luminosities of  $3 \times 10^{26} \text{ cm}^{-2} \text{ s}^{-1}$ . The plans were to introduce a gamma-ray converter around the beam pipe on Friday, to seek high multiplicity events without gamma ray production, first detected in cosmic ray observations — the Centauro events (see *Nature* 21 March, p.221).

Robert Walgate

equipped for clean driving from 1 July. Friedrich Zimmermann, West German minister for the interior, admitted after the negotiating session last week that "going it alone would have meant chaos".

The United Kingdom, at the outset one of the strongest opponents of the West German initiative, also seemed content with the outcome. For cars above 2 litres engine capacity, British manufacturers seem already to have accepted that catalytic converters will be necessary. Indeed, most car models in this range depend for their economic success on export sales, for which purpose catalytic converters may already be fitted. But the United Kingdom is also pleased with the concession that lean-burn engines may be fitted to smaller vehicles as an alternative to catalytic converters.

The Community's agreement on vehicle emissions will be promulgated by means of a directive from the Commission, due to be agreed on 30 June. For the time being, diesel-powered engines and vehicles weighing more than 3.7 tonnes are not covered by emission standards, but proposals are expected by the end of the year.

Anna Lubinska