

# 7 Views of the Vehicle Inspectorate, the National Measurement Accreditation Service and Sira Test & Certification Limited

7.1. As indicated earlier (paragraph 2.4), the VI was responsible for organizing the introduction of tests on vehicle exhaust emissions into the MOT test. The VI consulted NAMAS on arrangements for the pattern approval of EGAs to be used in MOT emission tests (paragraph 2.6) and on the calibration of these instruments (paragraphs 2.7 and 2.8). As a number of EGA manufacturers and service companies were unable in the time available to set up arrangements for obtaining NAMAS approval for their staff, who were to carry out EGA calibrations, a scheme for this purpose was set up by SIRA which had obtained NAMAS accreditation as a laboratory for this purpose. This chapter summarizes the views of each of these organizations on their respective roles in establishing and operating the current system for EGA calibration and servicing (calibration only in the case of NAMAS and SIRA) and on a number of specific issues put to each of them by the MMC in the course of our inquiry. The MMC also wrote to 200 individual MOT stations as well as 23 MOT chains, six Government departments, the Confederation of British Industry, the Trades Union Congress, trade and consumer organizations, filter suppliers and a number of other likely users of EGAs (including car manufacturers, petrol forecourt companies, car fleet operators and other major UK companies).

## **Vehicle Inspectorate**

7.2. The VI attended a meeting with MMC staff and provided a written submission of its views as well as written answers to a number of questions put to it by the MMC.

### **Introduction of emission tests**

7.3. The VI described its role as manager of the MOT testing scheme on behalf of the DOT. As such it had laid down its requirements for the calibration of EGAs used in the MOT tests and for the calibrators to carry them out.

7.4. These requirements were also subject to the DOT's objective that MOT tests be available nationwide at a fee which was seen as good value for money by the motoring public. Part of this objective, the VI told us, could be met by ensuring that EGA calibration was also available nationally at the lowest possible cost, but the VI had never seen this as a separate objective. In the VI's view it was necessary to allow market forces to dictate demand and price.

7.5. Against this background the VI's basic aim in setting calibration procedures for EGAs had been to ensure that the accuracy of the equipment was maintained at an acceptable level without incurring undue costs. Because of the need to keep the MOT test fee to a minimum the VI regarded costs as crucial. The fee had had to be increased to enable garages to recover the cost of calibrating and servicing EGAs. As the fee was fixed nationally the ability of garages to recover these additional costs would depend on the number of tests carried out. In the case of garages with a low testing throughput it would be for them to decide whether continued testing was viable.

7.6. The VI had examined practices in other countries and had considered their application to the MOT scheme. Many other countries had centralized testing schemes under direct government control so that equipment and procedures were not always comparable. While regular inspection and calibration of EGAs was clearly necessary the VI took the view that it should not stipulate exactly who should carry out these checks. The VI was, however, concerned that those involved should be competent to carry out the work. With the agreement of all the interested parties the VI had approached NAMAS to devise arrangements to ensure that EGA calibrators were properly qualified.

## **Current operation of the scheme**

7.7. The VI told us that EGA models submitted for approval for use in MOT tests were independently tested by the laboratories accredited by NAMAS to determine whether they met the specification set by the DOT (paragraph 2.5). The VI saw the test reports before recognizing compliance with the requirements and issuing an approval certificate. The VI issued a list of approved equipment which was updated periodically (Appendix 3.2). At times when enquiries were likely to be more frequent-such as on the introduction of the smoke meter test on diesel exhausts on 1 January 1993-the approved list would be updated and issued monthly. At other times the issue of an updated list might only be done annually but the VI's local District Offices always had an up-to-date list from which to advise garages.

7.8. The VI had also issued a list of approved calibrators when emission testing was introduced (Appendix 5.1). This was based on advice from NAMAS and the four NAMAS-accredited calibration laboratories (paragraph 2.8). The VI planned to issue an updated list in the near future.

7.9. The four NAMAS-accredited laboratories also accumulated data on EGA calibrations so that the VI could objectively review calibration requirements. The VI had recently agreed to relax the frequency of calibration for two EGAs based on data provided by SIRA.

## **Future trends**

7.10. We asked the VI about likely future developments on the vehicle emission test. We were told that the DOT proposed to revise the test in 1996 to accommodate vehicles equipped with exhaust catalytic converters to reduce emissions. The TRL had been commissioned to carry out research on the most appropriate test procedure. The trade associations would be consulted about the test and specifications for the equipment when the TRL had completed its research around the middle of 1994. The VI said that it was in regular contact with the garage equipment manufacturers and the garage trade to keep them in touch with developments.

7.11. In this context we also asked the VI how many of the EGAs currently listed by it as approved for MOT tests, and purchased by MOT stations, were likely to need replacing in 1996. We were told that it would not be possible to say which of the present day EGAs would still be acceptable until the TRL had completed its research. But in the VI's view, because the emissions from vehicles equipped with catalytic converters were of an order of magnitude lower than those from conventionally tuned engines the accuracy requirements of the EGAs were likely to be tightened significantly. It was also likely that the EGAs would be required to measure four gases, oxygen and carbon dioxide in addition to CO and HC, plus lambda. The VI said that it had stressed to MOT stations many times that some of the equipment currently in use would need to be changed in 1996.

7.12. Some four gas/lambda instruments were already on the market but we put to the VI the suggestion made to us that the current emission test had been rather hurriedly introduced on 1 November 1991 (see paragraph 7.48). The VI told us that it had received no complaints to the effect that the garages or their representatives had been pressurized into accepting the change. In its view it was unlikely that a longer lead time would have resulted in any significant difference to the test introduced. Nor, with the benefit of hindsight, did the VI consider that any aspects of the current approval and calibration requirements would have been different if more time had been available. The VI was working to a similar lead time for the introduction of the 1996 changes.

7.13. We asked the VI about possible further changes to the required frequency of calibration of EGAs in the light of experience. The Inspectorate told us that it had hitherto relied on approaches from individual EGA manufacturers to prompt a review of calibration frequency. It now considered that it would soon have access to sufficient accumulated data to consider a relaxation for all EGAs approved under the OIML Class I specification. Resources permitting, the VI hoped to start such an exercise later this year. The VI also pointed out that, in its view, not all EGA manufacturers or calibrating companies would necessarily welcome a reduction in calibration frequency as it would also result in reduced revenue.

7.14. We also put to the VI the possibility that the frequency of EGA calibration should relate more to the volume of gas throughput rather than a fixed time interval. It had been pointed out to us that it was difficult to justify the same calibration frequency for EGAs used in urban MOT stations carrying out thousands of MOT tests a year as for those in rural locations where the number of tests might be as few as 100 a year. The VI's view was that it would be very difficult to develop an effective calibration system based on the amount of use of an EGA. This might, however, be possible for instruments controlled by a microprocessor and it was something worth considering for the new equipment to be introduced in 1996.

7.15. We enquired whether the VI was considering extending to other MOT testing equipment the independent NAMAS-accredited calibration procedures it had introduced for EGAs. The VI said that it was examining how NAMAS might be able to help with this but no specific proposals were currently in the pipeline.

## **Complaints**

7.16. We raised with the VI a number of complaints we had received in evidence about the functioning of the EGA calibration and servicing system. In particular, on servicing we understood that the OFT had included this in the reference on the VI's recommendation. We asked the reason for this recommendation. The VI told us that it had become aware of pressure being exerted on MOT stations to use only spare parts for an EGA supplied by the manufacturer. The GEA had, in fact, asked the VI to write to MOT stations to tell them that only manufacturers' spare parts were acceptable for EGAs. The VI considered this issue to be relevant if the matter were referred to the MMC.

7.17. Asked for its own view on the spare parts issue, the VI said that as long as the accuracy of the equipment were not jeopardized the source of replacement parts should be open. This should help to keep costs down so helping to minimize the overall MOT scheme costs. In the VI's view the calibration procedure would ensure that the performance of EGAs was maintained so that only spare parts that did not adversely affect performance could, in practice, be fitted. The VI was, consequently, of the opinion that pressure on MOT stations to use only EGA manufacturers' spare parts had been unwarranted.

7.18. In this context we put to the VI the possible remedy (paragraph 10.8) of encouraging competition in spare parts while maintaining the integrity of the instruments if specifications for spares such as filters were published and a procedure established through which suppliers could have their products independently certified as meeting the required standard. In the light of its approach set out above (paragraph 7.17), the VI considered such a proposal unnecessary. In its view the EGA should be specified in terms of performance to be achieved and not in terms of its design and construction.

7.19. On the associated issue of the alleged use by some manufacturers of the terms of their warranties to prevent the use of spares other than their own, the VI told us that it would deplore any move by manufacturers to restrict the supply of spares. This would, in its view, unnecessarily increase the costs incurred by MOT stations. The VI did not, however, have any remit or powers to intervene in practices such as this.

7.20. We also raised with the VI a number of aspects of the apparent unwillingness of some EGA manufacturers to release their calibration/service manuals to third parties, so preventing them from obtaining NAMAS approval to calibrate the manufacturer's EGAs. The VI saw the restriction of calibration of their EGAs by some manufacturers to their own employees as another measure that unnecessarily increased the costs borne by MOT stations. The VI considered the opening up of the market as necessary to introduce an element of competition which it believed could be provided by a number of independent

calibrators whom it considered capable of carrying out the work to the standard set by the NAMAS accreditation system.

7.21. We also asked the VI about a proposal it had referred to in its discussions with the OFT to make approval of smoke meters for use in MOT emission tests on diesel engines subject to the condition that manufacturers' calibration manuals should be made available to third parties. This was apparently dropped subsequently because of objections by the GEA. The VI told us that this condition was originally accepted in principle by the GEA at a meeting held on 9 April 1992, but it subsequently made strong representations that it be dropped. The VI had in consequence reconsidered the issue and concluded that the proposal was perhaps outside its mandate to keep MOT testing costs to a minimum. The VI did not believe that it was within its remit to intervene in commercial practices. The proposal was replaced by a clause making availability of third party calibration an option.

7.22. We also referred in this context to charges on a per capita basis proposed by the VI for the making available by manufacturers to third parties of copies of their smoke meter calibration manuals or controlling software. We were interested in the method used to calculate the charges and whether the VI considered that similar charges would be reasonable if, on an entirely hypothetical basis, the MMC were to recommend the future application of such a condition to the continued approval of EGAs currently in use as well as new ones. The VI said that the proposed fees were very much 'top of the head' figures although they had been agreed with key equipment manufacturers. Its discussions at that stage had been concentrating more on policy than on detail. The VI would wish to see the level of such fees negotiated with the GEA within reasonable guidelines but would prefer that the trade came to its own conclusions on the actual figures. It was not something the VI would wish to set or to police.

7.23. We drew the VI's attention to its Special Notice 9/92 issued to MOT stations in September 1992 in connection with the tests on diesel-engined vehicles due to commence on 1 January 1993. This had listed approved smoke meters and subdivided these between manufacturers which had indicated that calibration of their meters would be open to third parties and those that had not. We enquired why similar guidance had not apparently been given on the introduction of emission tests by EGAs. The VI told us that it did not have a record of those companies that allowed third party calibration because permitting such calibration was not a condition of approval for EGAs. The VI believed there might be a case for changing the conditions of approval for new EGAs so that the manufacturer was required to make clear whether or not third party calibration was acceptable. This too was something the VI was willing to consider when changes were made to the test requirement in 1996.

7.24. On another aspect of the attitude of EGA manufacturers to calibration of their instruments by third parties, we asked the VI for its views on some conflicting evidence we had received. This concerned the discussion in June 1991 of the draft scheme drawn up by SIRA (paragraph 2.10). It had been suggested to us that a number of manufacturers had indicated, at that time, a willingness to allow calibration by third parties but had subsequently gone back on that undertaking. The VI told us that statements had been made by representatives of several of the major manufacturers to the effect that they would make calibration information available to third parties. With hindsight, however, the VI was unsure whether this commitment applied to any third party or simply to the manufacturers' appointed agents.

7.25. We also put to the VI concerns expressed to us about the level of fees charged for EGA calibration, the increases in 1993 as compared with 1992 and the growing practice of some manufacturers of promoting annual calibration/service contracts payable in advance. The VI told us that it regretted such practices but it had no power to intervene.

7.26. We drew the VI's attention to a specific complaint against one manufacturer which in promoting an annual calibration contract had suggested that this was mandatory under Appendix D to the MOT Instruction Manual (paragraph 2.12). This appendix does require a written contract where an MOT station employs either the manufacturer or a calibration specialist to calibrate a test instrument. A certificate for each calibration is also required. The VI told us that this requirement was first set out in a Special Notice sent to all MOT stations in December 1983. Its extension to EGAs had been automatic. The requirement helped to ensure not only that equipment was within the calibration requirements when the VI made its annual inspection of the test station but also that calibration was maintained throughout the year. In line with this aim the VI normally expected such contracts to run for a year.

7.27. We sought the VI's views on one of the arguments advanced by some manufacturers against allowing unrestricted access to their calibration manuals by third parties. These manufacturers told us that they operated a national calibration service charging uniform fees. They feared that access by third parties to their manuals would result in 'cherry-picking' of the more concentrated and profitable urban test stations leaving them with the less profitable outlying areas. The VI told us that the DOT would not wish to see any reduction in the number of test stations in remote areas. This might be the effect of any significant increase in calibration costs. On the other hand it might be possible for local technicians in remote areas to secure NAMAS approval if manuals were more freely available. The VI was aware that in Scotland, for example, technicians involved in calibrating equipment for the oil and gas industry had shown interest in EGA calibration.

7.28. We enquired of the VI about special arrangements for the more remote test stations with a very limited throughput of tests per year. The VI told us that these arrangements applied to smoke meters only where a simple eye test for the worst polluters had been substituted. This applied to test stations testing fewer than 350 vehicles a year and 15 miles or more from the nearest station with a smoke meter. Something less than a dozen stations qualified for this exemption. Such an exemption could not be granted for EGA tests as CO and HC content could not be assessed from a visual inspection of petrol engine exhaust emissions.

## **The National Measurement Accreditation Service**

7.29. NAMAS provided a written submission of its views on this reference, attended a hearing with the members of the MMC conducting the inquiry and answered in writing some specific points about its role raised by other parties in their evidence to the MMC.

### **NAMAS's role**

7.30. NAMAS told us that its involvement in the subject of this reference was restricted solely to the accreditation of the site calibration of the EGAs by approved operators. It did not extend to approval of the competence of the operators to service the equipment.

7.31. NAMAS said that it had been formed in 1985 by the amalgamation of the activities of the British Calibration Service (BCS) and the National Testing Laboratory Accreditation Scheme (NATLAS), the two former laboratory accreditation services of the National Physical Laboratory (NPL), which was itself an Executive Agency in the Department of Trade and Industry. NAMAS-accredited laboratories were part of the UK National Measurement System constituting a major channel for the dissemination of measurement standards and the provision of authenticated calibration and testing services. In NAMAS's view these measurements were essential to underpin manufacturing industry, to ensure that goods and services purchased were reliable, and in the support of regulatory activities.

7.32. NAMAS said that its accreditation was granted to laboratories only after a rigorous assessment against stringent criteria detailed in the NAMAS accreditation standard, which is aligned with the European standard EN45001 and the International ISO Guide 25. This document contained the requirements relating to management, quality system, staff, facilities, equipment and procedures that all laboratories had to satisfy. Laboratories were required to maintain compliance with the Accreditation Standard at all times and NAMAS carried out regular surveillance to ensure that standards were being maintained.

7.33. NAMAS told us that its first involvement in the MOT exhaust emission scheme concerned the pattern approval of instruments to be used for measuring vehicle emissions. The VI acted as the pattern approval authority and required instruments to meet the requirements of the OIML international recommendation 'Instruments for measuring vehicle exhaust emissions', OIML R 99. Several UK manufacturers had complained of being seriously disadvantaged as there were no accredited laboratories in the UK capable of performing tests to ensure compliance with the OIML specification. In early 1991 the VI sought the assistance of NAMAS in accrediting UK facilities. The testing requirements covered the

analytical performance of the instrument and its performance characteristics when subjected to influence factors such as temperature, pressure, humidity, electrical power variations and electromagnetic radiation. Two laboratories (GEC Avionics Ltd and SIRA) subsequently received NAMAS accreditation for testing to the OIML specification. NAMAS said that it had followed its prescribed procedures in accrediting despite a tight time schedule set by the DOT. Both organizations had to demonstrate their ability to generate and measure the appropriate influence factors and to operate the gas analysers according to the manufacturer's instructions; performance of the tests required by the OIML specification were actually witnessed by NAMAS staff at both laboratories.

7.34. The VI had also sought NAMAS advice on the site calibration of instruments at MOT testing stations to ensure their ongoing satisfactory performance. In collaboration with the GEA and NAMAS the VI drew up EGA calibration requirements which were formally published as document V14/07/20/CAL/EM (Appendix 2.2). These requirements consisted of initial readings of the composition of a calibrant gas mixture, certain simple functional tests such as the examination of the hose and filters, the integrity of internal pipework, voltage of the gas bench and electrical safety of the input socket, and then adjustment of the instrument using the calibrant gas mixture to bring its readings within the permitted tolerance. Except for certain Class I instruments this calibration procedure was to be carried out at MOT stations every three months by designated approved operators from NAMAS-accredited laboratories. NAMAS reiterated that its accreditation covered only the calibration of the instruments and not their servicing.

7.35. NAMAS said that many instrument manufacturers were concerned that they did not possess the knowledge or the resources necessary to prepare for NAMAS accreditation, especially within a tight time schedule. In the circumstances it was agreed that SIRA would formally contract the staff of these manufacturing organizations and independents to operate from within the SIRA aegis with some 250 individuals having approved operator status. Three other organizations (Hermann, Sun and Tecalemit) achieved NAMAS accreditation for performing site calibrations under their own name and these organizations covered some 70 to 80 approved operators in total. NAMAS told us that in its assessment procedure it looked at the calibration competence of individual approved operators and the capability of the laboratory as a whole to control the work of its personnel. In NAMAS's view calibration competence was not a preserve of the market leaders in the supply of equipment but without a detailed knowledge of the operation of specific types of analysers—passwords, adjustable potentiometers, etc—personnel could not be granted NAMAS-approved operator status.

7.36. NAMAS also told us that during its initial assessment of laboratories NAMAS staff had observed a third of the calibration staff performing calibrations in a simulated MOT station in accordance with their documented procedure and it was planned to observe the performance of each approved operator at least once in every three-year period. As part of the laboratory quality system each NAMAS-approved operator was also monitored in an MOT station by trained auditors of the accredited laboratory every six months.

7.37. In this context we asked NAMAS about evidence from Sun to the effect that NAMAS requirements prevented it from training anyone other than its own employees in its NAMAS accredited laboratory. NAMAS told us that it saw no problem if Sun wished to enable others to seek NAMAS calibration approval through its accredited laboratory. It would be possible for third parties to operate under the Sun aegis; this already happened in the SIRA scheme.

7.38. NAMAS's role also extended to the accreditation of laboratories supplying cylinders of the standard gas mix used in the calibration of EGAs. NAMAS told us that it had accredited two such laboratories, the British Oxygen Company at Deer Park and Gas and Equipment Limited at Aberdeen. This enabled these companies, and others which might subsequently qualify, to supply the cylinders carrying a NAMAS certificate of accreditation declaring the composition of the gas. This was a mixture consisting nominally of 6 per cent CO, 15 per cent CO<sub>2</sub>, 2,400 parts per million of propane and the balance nitrogen.

7.39. In the light of the general concern expressed by the VI and EGA users about costs we asked NAMAS about the charges for its services in this field. NAMAS said that its fees consisted of an applicant fee, an initial assessment fee and an annual subscription. These fees covered the cost of surveillance, reassessment and audit surveys. The fees varied with the size of the operation and the range of measurement or tests for which accreditation was sought. (Examples of fees charged by NAMAS for the accreditation of testing associated with EGA approval are shown in Appendix 3.1.)

## **Operation of the EGA calibration system**

7.40. We put to NAMAS a number of points about the operation of the EGA calibration system including some criticisms we had received in evidence.

7.41. We asked NAMAS about the knowledge and experience required to carry out an EGA calibration and whether in its view the procedure could be described as highly technical. For example, was previous employment or training by the manufacturer essential in seeking NAMAS approval as the calibrator of a particular model of EGA? NAMAS thought not. In its view the requirements did not rest in the knowledge of one particular manufacturer's products but more in the knowledge of the principles on which the instrument operated and on which the calibration procedure rested. The procedure was not highly technical but it did require some level of technical competence which varied widely from instrument to instrument. With some, a fair degree of experience in electronics was needed; connection of meters to correct terminals, adjusting for certain voltage readings, adjusting gas regulators etc. In some the operation was simplified to connecting the gas supply and pushing a button. There were no hard and fast requirements; each applicant for approval was individually assessed.

7.42. We put to NAMAS allegations made by some EGA manufacturers that the standards and checks it had introduced at the start of the accreditation process had subsequently been eroded; for example, by the approval of some insufficiently experienced or qualified operators as calibrators. NAMAS said that it was particularly concerned to maintain its standards. There was regular monitoring of each approved operator twice a year by each of the four accredited laboratories; NAMAS would also have monitored each of them over a three-year period.

7.43. We further put to NAMAS the case of a particular operator who, it was alleged, had been accepted as an approved EGA calibrator through SIRA for another employer only a few weeks after being made redundant by a major EGA manufacturer because he had no electronics experience and was judged unsuitable for retraining. The same manufacturer said that in this NAMAS had broken its own requirements of a history of electronics employment and experience in calibrating equipment of the EGA type. NAMAS was also alleged to have told this manufacturer that new engineers joining the company had to be employed for a minimum period of four months before approval could be considered. NAMAS denied making the stipulations of four months' experience and a history of electronics employment. It reiterated the emphasis it placed on individual assessment and said that it would not rule a candidate out solely on the basis of his past experience. The candidate concerned had no experience in either electronics servicing or precise measurement and so NAMAS placed particular importance on his record during training for calibration and on its direct assessment of the candidate carrying out the calibration procedure. This engineer had demonstrated his ability to perform required calibrations at the time he was first assessed and during subsequent audits.

7.44. We sought NAMAS's views on the belief of some EGA manufacturers that they should be able to control or at least influence the selection of those approved to calibrate their instruments. NAMAS said that it considered it an unnecessary requirement that to calibrate EGAs adequately one had to be employed by a manufacturer.

7.45. We asked NAMAS why it was necessary, under the present approval procedure, that an operator was withdrawn from the list of approved calibrators if he changed his employment. NAMAS said that an approved calibrator worked to the quality system of an accredited laboratory. If he changed his employment NAMAS had no knowledge of the quality system in which he was working and whether it met NAMAS's requirements. Even if he moved to another accredited laboratory NAMAS would have to re-examine him to ensure he was working correctly to the quality system of the new company. On the case

of an employee seeking to set up on his own as a calibrator he could apply in the normal way, through SIRA or any other accredited laboratory, and NAMAS would assess the quality system to which he was proposing to work. This was not, NAMAS pointed out, simply a question of the candidate's own competence. Adequate back-up from the management organization was an integral part of the calibration capability.

7.46. Although servicing of EGAs was outside NAMAS's remit we sought its views on the possible effect of inadequate spare parts, particularly filters, on an instrument's performance and, possibly, on its pattern approval. NAMAS agreed that poor-quality spares, such as filters with too large a pore size, could degrade performance of an EGA. In its view the only aspect over which NAMAS had any control was the calibration. If this were correctly carried out and the instrument calibrated satisfactorily that was the limit of NAMAS's interest.

7.47. We asked NAMAS's opinion of a suggestion made to us that problems over EGA spares could be avoided if pattern approval of the instruments included specifications for the components that might be fitted as spares. Alternatively spares might be submitted directly by their suppliers to a pattern approval laboratory for certification as meeting the required standard. NAMAS considered that this would be a helpful procedure but felt that it was a matter for those who set the pattern approval standard, ie the VI.

7.48. We drew NAMAS's attention to its remarks about the tight time-scale for the introduction of the EGA approval scheme (paragraph 7.35). We asked if in retrospect there were any aspects that might have been treated differently if there had been more time. NAMAS told us that it had been put under particular pressure with staff having to work over evenings and weekends. It was particularly important that corners were not cut when seeking to work to an international standard. NAMAS thought that the lesson for the changes to be introduced in 1996 should be that the DOT and the VI should give it more notice than on the previous occasion. So far NAMAS had not been approached by the VI about 1996 and was not aware of the changes that might be necessary.

7.49. We sought NAMAS's views, on an entirely hypothetical basis, about the possibility that the MMC might wish to recommend that manufacturers be required to release copies of their calibration manuals and controlling software on a royalty basis to competent third parties who wished to become calibrators. NAMAS considered that such an approach would not be unreasonable, but in the extreme where a third party acquired documentation for a large number of different instruments, and wished to calibrate them all correctly, the accreditation or approval would be extremely complicated for NAMAS and expensive for the third party concerned.

## **Complaints**

7.50. We put to NAMAS the complaints made by Mr Addison (paragraphs 5.2 to 5.7) and Mr Whittaker (paragraphs 5.24 to 5.26). In the case of Mr Addison, NAMAS commented that it was not the case that repairs to MOT gas analysers could be undertaken only by engineers affiliated to NAMAS. NAMAS only accredited organizations in respect of calibration and this did not require the express permission of the manufacturer or his agent. Any organization or individual could apply for accreditation provided they could demonstrate to NAMAS their technical competence to carry out the calibration (which might require access to a manufacturer's information and instructions) and that they operated a quality system in accordance with NAMAS requirements. NAMAS also told us that Mr Addison was now a NAMAS-approved operator for gas analyser calibration through the SIRA scheme; he had been registered with SIRA on 16 March 1993 and approved by NAMAS on 30 March 1993.

7.51. On the case of Mr Whittaker, NAMAS commented that it was not clear whether he (or his current employers) had made a formal request to SIRA for him to become an approved operator, nor if SIRA had specifically declined to contract him (or his current employer). NAMAS said that it was for SIRA to decide who they would accept as subcontractors. NAMAS was only concerned that all approved operators could demonstrate their technical competence and were contracted to work within a quality system meeting NAMAS requirements. Mr Whittaker (or his current employer) was free to apply directly to NAMAS for accreditation if he so wished.

## **Sira Test & Certification Limited**

7.52. SIRA made a written submission of its views and answered a number of written questions from the MMC. Members of the MMC made a visit to SIRA's laboratory during which they were given a presentation covering SIRA's role in the current arrangements for the calibration of EGAs and a demonstration of the EGA calibration procedure.

### **SIRA's role**

7.53. SIRA told us that its laboratory was accredited by NAMAS both for the pattern approval of EGAs to be used in the MOT test and for the assessment of engineers seeking NAMAS-approved signatory status for calibrating EGAs.

### **Pattern approval**

7.54. SIRA said that as one of the two NAMAS-accredited laboratories for the pattern approval testing of analysers to VI requirements, it was concerned that there was no control of the modification of instruments in use by, for example, the fitting of inappropriate spares, and that such modifications might affect the performance of the EGA and therefore the validity of its certification by the VI. SIRA confirmed that filters and probes were the most frequently replaced items that might possibly affect an instrument's performance but, in its view, if any electronic components were replaced with other than identical items significant and unpredictable effects on performance could result.

7.55. SIRA considered that manufacturers should be able to protect the integrity of their products and suggested that an appropriate solution on the supply of spare parts, which might avoid accusations of monopoly practices, would be for product certification of spare parts to be carried out under the aegis of the NACCB (National Accreditation Council for Certification Bodies). This could protect the integrity of the product in use.

### **Calibration**

7.56. SIRA said that under its calibration scheme (paragraph 2.9) it was unlikely that a typical individual seeking NAMAS-approved signatory status could achieve a technical standard of competence to satisfy either NAMAS or SIRA (and both organizations had to be satisfied) without receiving training either from the manufacturer or from a service company. Nevertheless, employment or training by a manufacturer was not a precondition for achieving NAMAS-approved signatory status.

7.57. SIRA told us that its assessment of applicants was typically of one or two hours' duration for each model of EGA that it was proposed they be approved to calibrate. The time depended partly on the competence of the applicant. During the assessment each applicant would undertake a full NAMAS calibration including the issue of a certificate, and give the assessor a spoken explanation of what he was doing and why. SIRA said that it could not comment precisely on the duration of training provided by the manufacturer or service company prior to the applicant attending SIRA for assessment (or being assessed on his employer's premises). SIRA believed that it was usually a minimum of two or three days depending on the knowledge and experience of the applicant.

7.58. SIRA said that in assessing the applicant's competence it did not consult anyone other than the individual and his employer; it made no difference whether the employer was a manufacturer or a service company. An individual's approved signatory status was maintained as long as he demonstrated competence. This was likely to improve with experience. Competence was assessed and guidance offered at the routine twice-yearly audits of performance carried out by SIRA of each of the around 250 calibration engineers approved through its laboratory. Additional audits were organized by SIRA if any engineer's performance caused SIRA concern. In addition NAMAS would conduct audits of each signatory at approximately three-yearly intervals. SIRA had also undertaken surprise audits to ensure that standards were being maintained. SIRA considered that with these provisions for monitoring performance complete

reassessment should not be necessary, except when an extension to an approved signatory's scope to cover additional EGAs was sought.

7.59. SIRA explained that every calibration engineer operating under its calibration scheme had to operate within the terms of a contract between his employer and SIRA. This provided, amongst other things, that NAMAS-approved signatory status was valid only while the employee was operating under that contract. SIRA said that it was for this reason that when a calibration engineer ceased to be an employee of a company operating under the SIRA scheme he lost his NAMAS approval. If such an employee joined another company having a current contract with SIRA he might have to requalify for approval to calibrate different EGA models. If he became self-employed constraints might be imposed by his former employer on his freedom to calibrate that employer's products. In such situations SIRA believed this was clearly a matter to be settled between employee and former employer. SIRA had to be assured in such situations that the employee was able to continue with calibration work and the former employer was the obvious source of information on that point. (A list of those companies within the SIRA scheme is at Appendix 3.3.)

7.60. We questioned SIRA about evidence we received from some EGA manufacturers which believed that their endorsement was required by SIRA for every applicant for NAMAS approval by way of a letter providing evidence of his technical competence. This had been one of the provisions of the original draft of the SIRA scheme discussed with it (paragraph 2.10). SIRA explained that it had originally envisaged that only manufacturers would join its scheme as access to calibration instructions was unlikely from any other source. SIRA learned at the meeting at which its draft scheme was discussed that some of these instructions were in the public domain and so it dropped the requirement. It was in SIRA's view unnecessary as each applicant for NAMAS approval was required to demonstrate his competence on the EGA model for which he sought approved signatory status. SIRA told us that it understood no special steps were taken to inform everyone attending the June 1991 meeting at which its scheme was discussed of subsequent changes.

7.61. We also asked SIRA about the status of the calibration procedure document it drew up for those manufacturers and service companies operating under its scheme. These documents were copyright to SIRA and this had led to the belief that a manufacturer was accordingly prevented from agreeing to release his calibration manual to a third party. SIRA explained that the information on which the calibration procedure document was based was supplied by the company with which SIRA had a contract. The document was copyright to SIRA to prevent its release to any other company. This was in any event prohibited by the terms of the contract without the consent of the company concerned. SIRA also told us that when another company requested a copy of an existing calibration procedure document it was advised to contact SIRA's original customer. SIRA told us that it was in the process of revising the wording of its copyright on the front of its calibration procedure documents to make this position clear.

7.62. SIRA said that, in its view, the current calibration frequency of four times a year for most instruments was appropriate. SIRA believed that as more data became available trends would become more apparent and sensible predictions could be made. Responsibility for defining the calibration interval rested with the VI and not the calibration laboratory. In SIRA's view more frequent calibration than four times a year might be justified for some instruments.

7.63. SIRA carried out an analysis on behalf of the MMC of the calibration data it had so far collected. This was derived from some 58,800 individual calibrations covering the range of EGA models calibrated by the NAMAS-approved engineers operating under the SIRA scheme. The analysis showed that the different EGA models varied widely in the extent to which they drifted out of calibration between calibration visits. Those models showing the least drift between calibrations, and these included one of the market leaders, had only 4 to 10 per cent of their readings outside the permitted  $\pm 3$  per cent tolerance in the VI's calibration requirements (Appendix 2.2). Other models had over 50 per cent of their calibration readings outside the  $\pm 3$  per cent limit.

## **SIRA's charges**

7.64. SIRA told us that its charges for the pattern approval testing of an instrument were typically £8,650 for a four-gas analyser and £8,250 for a two-gas analyser. SIRA said that its calibration scheme was financed mainly from the charge for calibration certificates and there was no annual charge for membership. The initial charge for assessing an applicant for approved signatory status was typically £250, but this depended on where the applicant was assessed and whether overnight accommodation was necessary. If two applicants were assessed on the same day at the same site the charge per applicant was usually reduced by about 30 per cent. The charges were based on the actual costs incurred. There was an annual charge of £445 per approved signatory. This fee included the cost of a minimum of two audit visits per year and all supporting quality assurance services such as updating procedures manuals, etc. SIRA also provided details of the fees for calibration certificates, labels, etc (Appendix 7.1).