INSPECTION REPORT

Marshall of Cambridge Aerospace Ltd

24 November 2005

ADULT LEARNING

INSPECTORATE

Adult Learning Inspectorate

The Adult Learning Inspectorate (ALI) was established under the provisions of the *Learning and Skills Act 2000* to bring the inspection of all aspects of adult learning and work-based learning within the remit of a single inspectorate. The ALI is responsible for inspecting a wide range of government-funded learning, including:

- work-based learning for all people aged over 16
- provision in further education colleges for people aged 19 and over
- **learndirect** provision
- Adult and Community Learning
- training funded by Jobcentre Plus
- education and training in prisons, at the invitation of Her Majesty's Chief Inspector of Prisons.
- adult information, advice and guidance services (**nextstep**)

Inspections are carried out in accordance with the Common Inspection Framework by teams of full-time inspectors and part-time associate inspectors who have knowledge of, and experience in, the work which they inspect. All providers are invited to nominate a senior member of their staff to participate in the inspection as a team member.

Pre-inspection analysis

The resources allocated to a cycle 2 inspection are primarily determined by the findings from the previous inspection. Account is also taken of information about achievement and retention obtained from the funding body, and any significant changes in the size or scope of the provision.

Where a provider has received good grades in cycle 1, the cycle 2 inspection is relatively light. If the provider offers a number of areas of learning, a restricted sample is inspected.

Where a provider has received satisfactory grades in cycle 1, the cycle 2 inspection is less intensive and it is possible that not all areas of learning are included.

Where there are significant unsatisfactory grades from cycle 1, the intensity of the cycle 2 inspection is broadly the same as cycle 1, and all significant areas of learning are inspected.

Providers that have not previously been inspected will receive a full inspection.

Overall effectiveness

The grades given for areas of learning and leadership and management will be used to arrive at a judgement about the overall effectiveness of the provider.

An **outstanding** provider should typically have leadership and management and at least half of the areas of learning judged to be a grade 1. All area of learning grades will be graded 1 or 2.

A **good** provider should have leadership and management and at least half of the area of learning grades judged to be a grade 2 or better. A good training provider should not have any grade 4s, and few grade 3s in the areas of learning.

A **satisfactory** provider should have adequate or better grades in leadership and management and in at least two thirds of the area of learning grades. An adequate provider might have a range of grades across areas of learning, some of which might be graded 4.

Provision will normally be deemed to be **inadequate** where more than one third of the area of learning grades and/or leadership and management are judged to be inadequate.

The final decision as to whether the provision is inadequate rests with the Chief Inspector of Adult Learning.

Grading

Inspectors use a four-point scale to summarise their judgements about the quality of provision in occupational/curriculum areas and Jobcentre Plus programmes, as well as to summarise their judgements about the quality of learning sessions. The same scale is used to describe the quality of leadership and management, which includes equality of opportunity and quality assurance. The descriptors for the four grades are:

- *grade 1 - outstanding*
- *grade 2 - good*
- *grade 3 - satisfactory*
- *grade 4 - inadequate*

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INSPECTION REPORT

DESCRIPTION OF THE PROVIDER

1. Marshall of Cambridge Aerospace Limited (Marshall) is based at Cambridge Airport. It is part of Marshall Group, a private family-owned business working in aerospace engineering, specialist vehicle design and manufacture, motor vehicle sales and service, and property management. It contracts with Cambridgeshire Learning and Skills Council (LSC) to provide advanced apprenticeships in aerospace engineering, including airframe mechanical and avionics/electrical fitting and mechanical manufacturing. In addition, it provides national vocational qualification (NVQ) training for adults employed in the company. There are currently 51 advanced apprentices in training. A further 26 adults are sponsored by the company and are not part of the inspection.

2. The training centre was opened in 1965 and moved to its current location in 2003. Four full-time members of staff provide initial training in the training centre, on-the-job support, portfolio-building and administration. On-the-job training is co-ordinated by the departmental managers. Most assessments are carried out by part-time assessors who work in the hangars and have other roles. Technical certificates and key skills are delivered by two local colleges of further education, Bedford College for technical certificates and Cambridge Regional College for key skills.

OVERALL EFFECTIVENESS Grade 2

3. **The overall effectiveness of the provision is good.** Marshall's leadership and management are good, as are its arrangements for equality of opportunity. The arrangements for quality improvement are satisfactory. The provision in engineering and manufacturing technologies is good.

4. **The inspection team had little confidence in the reliability of the self-assessment process.** Instructors, assessors, departmental staff and learners are not included in the development of the self-assessment report. The report is insufficiently critical and is based mainly on findings from the previous inspection. The grades given by inspectors matched most of those in the self-assessment report. However, the strengths and weaknesses identified were different to those identified by inspectors.

5. **The provider has demonstrated that it is in a good position to make improvements.** The retention and achievement rates have improved since the previous inspection. Training instructors continue to review and improve the initial workshop training. Some of the weaknesses identified at the previous inspection have been resolved.

KEY CHALLENGES FOR MARSHALL OF CAMBRIDGE AEROSPACE LTD:

- improve the self-assessment process
- develop quality improvement practices and measures

- maintain good retention and achievement rates
- improve co-ordination of learners' progress reviews
- develop a skills for life strategy

GRADES

grade 1 = outstanding, grade 2 = good, grade 3 = satisfactory, grade 4 = inadequate

Leadership and management	2
Contributory grades:	
Equality of opportunity	2
Quality improvement	3

Engineering and manufacturing technologies		2
Contributory areas:	**Number of learners**	**Contributory grade**
Engineering		***2***
Apprenticeships for young people	51	2

ABOUT THE INSPECTION

6. Inspectors did not visit the subcontracted colleges that provide training for keys skills and technical certificates. The inspection team interviewed staff and learners in the workshop and workplace and reviewed a range of documents.

Number of inspectors	2
Number of inspection days	6
Number of learners interviewed	12
Number of staff interviewed	10
Number of employers interviewed	2
Number of locations/sites/learning centres visited	1

KEY FINDINGS

Achievements and standards

7. **The standard of learners' work in the workshop and workplace is good.** Learners develop progressively more complex and diverse skills as they progress through the programme. They develop good technical skills and make a valuable contribution to their team.

8. **Learners complete a wide range of additional units for their NVQ.** Many continue in training after their apprenticeship and some have gone on to complete university degrees.

9. **Retention rates are high, with few learners leaving the programme early.** Many apprentices remain employed with Marshall for a considerable length of time. Most complete the apprenticeship framework within the expected timescales.

The quality of provision

10. **The initial workshop training is good.** The carefully designed activities become more complex, which allows learners to develop a good range of practical competences. Learners experience some of the pressures of work in a safe and secure environment.

11. **In the departments, learners are trained by experienced technicians to a high standard.** Learners work in a prestigious environment on military, commercial and corporate aircraft or produce a wide range of components. Learners are moved to different jobs so they develop a wide range of knowledge and skills.

12. **The training instructors provide good support for learners** in the workshop and during portfolio-building sessions. Learners are allocated mentors in the departments, who support their development on the job.

13. **Resources are good.** The training workshop is well equipped and the training materials are well designed. Staff have extensive and appropriate experience. However, some assessors do not have sufficient time to carry out the assessments.

14. **Insufficient assessments of learners' competence are carried out in the workplace.** Assessments are carried out on written work with the assessor questioning the learner. There is no assessment by observation.

15. **The reviews of progress are poorly co-ordinated.** Separate reviews are carried out by the workshop instructors, departmental managers and college tutors. Some supervisors use the information they have available to encourage the learners to complete their framework. There is no overview of learners' progress through all parts of the framework.

Leadership and management

16. **The training is clearly and carefully focused on meeting the needs of the business.** Additional NVQ units are selected to ensure the learners develop the additional skills needed in the different departments. The movement of learners around different jobs is carefully managed and adjusted as appropriate.

17. **Good use is made of the company's own specialist** to train learners where appropriate. External specialists are used effectively to deliver training in equal opportunities and parts of the framework. The training manager has established good links with the subcontracting colleges. There is good promotion of the aerospace sector to local schools. The training manager takes an active role in sector-based organisations and agencies.

18. **There is a clear commitment to equality of opportunity.** The policies and procedures are comprehensive and effectively managed by a company committee. Specialist training

is provided to all employees. There are confidential advisers in most departments.

19. The training instructors continue to review and develop the initial workshop training. Special job cards have been designed to closely reflect those used in the workplace, to familiarise learners with working practices. Feedback from learners and departmental managers is reviewed, and suggestions for improvement are considered.

20. **There is insufficient awareness of learners' literacy, numeracy and language needs.** No skills for life strategy has been developed. Skills for life is the government's strategy on training in literacy, numeracy and the use of language.

21. **There are incomplete practices for continuous improvement.** Information is analysed but is not used to make comparisons or to identify areas for development. Training is not sufficiently monitored. Internal verification has not identified problems with assessment practices. The self-assessment is not an inclusive or critical process.

Leadership and management

Strengths

- good focus on meeting business and sector needs
- good development of initial workshop training
- clear commitment to equal opportunities

Weaknesses

- incomplete quality improvement practices
- insufficient awareness of skills for life strategy

Engineering and manufacturing technologies

Engineering *Grade 2*

Strengths

- good standard of learners' work
- good retention and progression within employment
- good training and support for learners

Weaknesses

- poor co-ordination of progress reviews
- insufficient assessment of learners' competence in the workplace

WHAT LEARNERS LIKE ABOUT MARSHALL OF CAMBRIDGE AEROSPACE LTD:

- good training - well prepared for the job
- good friendly helpful staff, especially other apprentices
- 'good and interesting range of work'
- good support
- 'I like working on aircraft'

WHAT LEARNERS THINK MARSHALL OF CAMBRIDGE AEROSPACE LTD COULD IMPROVE:

- the NVQ paperwork - 'it is difficult to understand'
- key skills - 'I don't understand what they're all about'
- more support for NVQ on the shop floor
- 'the amount of NVQ assessments'
- 'too many units in the NVQ'

DETAILED INSPECTION FINDINGS

LEADERSHIP AND MANAGEMENT Grade 2

Strengths

- good focus on meeting business and sector needs
- good development of initial workshop training
- clear commitment to equal opportunities

Weaknesses

- incomplete quality improvement practices
- insufficient awareness of skills for life strategy

22. The training is clearly focused on meeting business needs and developing skilled employees to work in the manufacturing support area and aircraft hangars. The facilities and resources in the training workshop were improved when the training centre moved to its current site in 2003. The materials used reflect those used in the hangars and manufacturing support area. The NVQ units are selected through discussion between the departmental managers and the training manager. Additional units are selected to develop multi-skilled apprentices and to meet the varied needs of the different departments. The learners' training is closely managed through the initial workshop training and in the departments. Learners are moved to different jobs to cover all the NVQ units selected and to develop a wide range of knowledge and skills.

23. Good use is made of the company's own specialists during the initial workshop training for topics such as health and safety and electrical training. If the company does not have the required expertise, effective use is made of external specialists. The equal opportunities sessions are carried out by a consultant and key skills are delivered by specialists from Cambridge Regional College. The key skills sessions are timetabled into the second year with many of the sessions taking place in Marshall's training rooms. Training for the technical certificates is mainly subcontracted to Bedford College. Good links have been established with both colleges, and the training manager takes an active part in some of the meetings held by the colleges. Each term the colleges provide reports on the learners' progress and these are shared with the training manager and departmental managers.

24. The training manager has established close links with sector-specific organisations and has participated in the development of new national standards for the aerospace sector. There is good promotion of the sector to local schools. The training manager makes presentations and two one-week courses are held in the summer to give school pupils an insight into aerospace.

25. There is insufficient awareness of the skills for life strategy and the need to identify and support learners who may have literacy, numeracy or language needs. There is no strategy in place and there is a reliance on learners to declare their own additional support needs. The training manager is unaware of whether learners are screened or assessed as part of the technical certificate or key skills training carried out by the colleges. There are no routine assessments, but the results of those that do take place are not shared with

Marshall.

Equality of opportunity

Contributory grade 2

26. Marshall demonstrates a clear commitment to equality of opportunity. The comprehensive policy and procedures reviewed at the previous inspection are still in place. They form part of the detailed employee handbook which is given to all staff and effectively reviewed as part of the learners' induction. The policy is in the process of being updated and is awaiting approval from the broad. The company has an equal opportunities committee which reviews all the company processes and procedures to ensure applicants, learners and employees are treated fairly. Many departments have a nominated confidential adviser whom employees can approach if they have concerns or problems. The advisers' names and photographs are clearly displayed on noticeboards, including those in the workshop.

27. All employees attend a training course delivered by an external specialist provider, where they explore and discuss a range of issues relating to equal opportunities, including bullying and harassment. Learners' awareness of equality is satisfactory and they know about the complaints procedure.

28. Information on the gender and ethnicity of all applicants and learners is recorded and reviewed. The proportion of learners from minority ethnic groups is higher than the local population. Although women remain under-represented in engineering, the proportion of female engineers is good at 8 per cent.

Quality improvement

Contributory grade 3

29. The training centre instructors informally review the programme and continue to make improvements. The initial workshop training is a well-defined training scheme with detailed lesson plans which are reviewed and updated regularly. Electrical training is now part of the initial workshop training and has been increased to a two-week period. A new job card system has been introduced in the workshop to more closely reflect the systems used in the hangars. Learners are well prepared for work in the departments. Other good improvements and developments include better recording of on-the-job training in the manufacturing support area.

30. Feedback is gathered from learners at the end of their initial workshop training and at the end of the apprenticeship. Feedback is also sought from heads of department each year. The information is summarised and discussed at the quarterly quality meetings and suggestions for improvement are considered. However, there has been no comparison of feedback between different groups of learners to establish trends over time. Insufficient analysis is carried out to measure the impact of changes and the effectiveness of development to the programmes.

31. The training centre's quality assurance system that was in place during the inspection in February 2002 is being incorporated into the company-wide quality system. The policies and procedures are being modified and updated. The processes generally focus on compliance-related issues rather than on continuous improvement.

32. The arrangements for internal verification are satisfactory and comply with the awarding body requirements. The internal verifier works part time and attends when there are sufficient completed portfolios to verify. The verification plan is reactive and attempts

to cover all learners and all units and assessors. Four of the five assessors have been sampled in the past 12 months. Internal verification has not recognised the lack of workplace assessment, nor is there any evidence of improvements in assessment process.

33. The inspection in February 2002 identified insufficient monitoring of training. This has still not been resolved. There are no observations or reviews of the quality of the training carried out by instructors, internal specialists, external specialists, subcontractors or workplace trainers.

34. The self-assessment process is not inclusive. Instructors, assessors, departmental staff, subcontractors and learners are not consulted and their views are not sought. The current strengths and weaknesses are based on the previous inspection report, with some amendments by the training manager. The report is insufficiently critical and does not reflect the strengths and weaknesses of the provision. Some of the weaknesses identified during inspection were not included in the self-assessment report. The self-assessment process is not part of a continuous improvement cycle. The development plans are not used to manage and monitor improvements to the programme.

AREAS OF LEARNING

Engineering and manufacturing technologies — Grade 2

Contributory areas:	Number of learners	Contributory grade
Engineering		***2***
Apprenticeships for young people	51	2

35. Marshall provides programmes in engineering and manufacturing technologies for 50 advanced apprentices. The programme is planned to last for four years. All learners are employed and are recruited as airframe fitters, and electrical avionics or manufacturing support learners. All learners carry out a period of initial off-the-job training, usually 20 weeks, in basic engineering fabrication skills before entering the workplace. Training is provided on the job by skilled technicians. Learners work towards an NVQ at level 3 in engineering installation and commissioning, or aeronautical engineering or engineering production. All learners who need to work towards key skills, attend one day each week at Cambridge Regional College in their second year. Additional vocational training for an appropriate technical certificate is provided mostly by Bedford College and a few learners attend Cambridge Regional College. Learners attend a wide range of additional training and gain qualifications beyond the scope of their apprenticeship framework.

Engineering — *Grade 2*

Strengths

- good standard of learners' work
- good retention and progression within employment
- good training and support for learners

Weaknesses

- poor co-ordination of progress reviews
- insufficient assessment of learners' competence in the workplace

Achievement and standards

36. Learners gain good vocational skills during their initial training in the workshop, and produce accurate and quality items. The skills gained enable them to move easily into the workplace and make valuable contributions to the team. In the workplace, technical staff support the learners well and they quickly gain additional skills that allows them to produce work that meets the stringent quality requirements of the Civil Aviation Authority. Learners enjoy their job roles and work with confidence and competence.

37. Learners receive a wide range of additional training and skills. They complete an extensive range of additional units from the NVQ at level 3. They are also trained in equality, environmental impact and human factors for which there is company certification as well as a range of health and safety training. Many learners continue to complete additional qualifications beyond the requirements of their apprenticeship framework, with

significant numbers of learners going on to complete higher national certificates and university degrees. Additionally, company policy is to support all employees with costs towards additional education and training. This comprises full course fees for work-related courses and half the cost of course fees for any vocational or recreational course. Several apprentices are being supported by this scheme. For example, one learner is current studying for A level qualifications as well as the initial phase of a pilot licence.

38. Retention rates are high and are consistently above 80 per cent. However, 2002-03 was an exception when it dropped to 55 per cent. This was based on a small intake with an unusual number of learners leaving for good reasons, one with serious medical condition, two for higher-level programmes and one moved abroad. In the past two years the number remaining in learning has been 93 per cent and 100 per cent respectively. Most retained learners successfully complete their apprenticeship framework within the anticipated timescale. All learners who successfully complete their apprenticeship transfer to permanent positions within the company. Many learners remain with the company for considerable periods. Of the 129 learners who have started an apprenticeship between 1993 and 2001, 96 are still with the company.

The following tables show the achievement and retention rates available up to the time of the inspection.

LSC funded work-based learning																
Advanced apprenticeships	**2005-06**		**2004-05**		**2003-04**		**2002-03**		**2001-02**		**2000-01**		**1999-00**			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Number of starts	21		16		14		11		18	100	15	100	16	100		
Retained*	0		0		1		2		15	83	12	80	13	81		
Successfully completed	0		0		1		2		15	83	10	67	13	81		
Still in learning	21		14		12		4		0	0	0	0	0	0		

*retained learners are those who have stayed in learning for at least the planned duration of their training programmes, or have successfully completed their programme within the time allowed

The quality of provision

39. Marshall provides good training and support for its learners. In the initial basic skills phases the training is well planned and the tasks are suitably challenging and increasing in complexity to develop and extend the learners' practical competences. Group exercises are creatively planned to build confidence and trust. Learners are encouraged to develop the good team working skills necessary in the workplace. Many activities, for example wiring electrical looms, enable them to contribute and support group activities and to take a leading role when necessary. The workshop allows learners to experience some of the pressures of real work in a safe, secure and developmental environment. There is very good support for learners, from the instructors during their initial training and portfolio-building sessions, from their technical supervisors in the workplace, and colleagues, who mostly are ex-apprentices and are familiar with the work the learners are carrying out.

40. In the workplace, learners work in a prestigious and technical environment. Airframe and avionics learners work on military, commercial and corporate aircraft. Manufacturing support learners work on a wide range of components, using a variety of manufacturing processes, including manual and computer-controlled machining, fitting and hand skills. When transferring to the workplace, learners are allocated to skilled, technically competent

mentors, who provide ongoing support and instruction to further develop learners' practical skills. In the manufacturing support area these mentors and the head of department work closely with the learners, reviewing their action plans and college reports, and develop a range of working activities and tasks for multi-skilling. For airframe and avionics apprentices, similar arrangements are in place for the allocation of mentors. However, they are less robust and contact between mentor and apprentice is disrupted when learners and mentor are allocated to different hangars or aircraft.

41. Resources at Marshall are good. The training workshop is spacious and well planned, with a good range of industry-standard equipment and tools. Teaching materials are well produced and the teaching accommodation is comfortable and well maintained with an appropriate range of support equipment. Staff have extensive and appropriate experience of working in the aircraft industry. However, although there is a sufficient number of assessors, there is insufficient time to carry out assessments.

42. The arrangements for supporting learners who have literacy, numeracy and language needs are unclear. Most of the learners have achieved satisfactory grades at school in English, mathematics and sciences. Learners take aptitude tests during the interview phase as part of the selection process. Key skills are delivered by Cambridge Regional College staff during the second year of the apprenticeship programme. Learners do not routinely receive screening or diagnostic assessment to identify additional learning needs.

43. There is poor co-ordination between progress reviews and appraisal reviews. Learners meet with the workshop instructors regularly every two months to review their progress and the evidence collected during their day-to-day activities. Further activities and actions are recorded on an action plan. A copy of the plan is retained by the instructors and learners and a further copy is forwarded to the learners' workplace supervisor. Some supervisors use this information well to plan the learners' work pattern. The workshop tutors oversee the learners' progress towards achievement of their NVQ, and provide suitably challenging targets to ensure the timescale is adhered to. Learners also have an appraisal review with their allocated technical mentor five times a year and these focus on the learners' performance in the workplace, including their attitude and ability. These two processes operate independently of each other and do not form a coherent review process. The learners' progress with the technical certificate at college is not always considered and information about progress on key skills is not included. Individual learning plans are completed at the start of the training programme and end dates are routinely recorded as four years from the start date. Many learners complete in a shorter timescale, but the plans are not reviewed or amended to reflect individual progress.

44. There is insufficient assessment of learners' competence in the workplace. Evidence portfolios are entirely paper-based, consisting of job cards, job descriptions and supporting technical documents. Confirmation of competence is inferred from the quality stamp and signature of the technician who is responsible for the learner. Learners are encouraged to write up the job during their regular bimonthly sessions with the workshop tutors, but this often takes place several months after completion of the tasks. When sufficient evidence has been collected and several units are ready for assessment, an appointment is made for an interview with an assessor who will then question the learner on the technical aspects of their evidence. This questioning is frequently many months after the learner has completed the tasks and does not relate to any specific issues that may have arisen during the task. Some assessments are delayed as assessors have other work commitments. There is no

assessment by observation of learners' performance in the workplace.

Leadership and management

45. The training in engineering is clearly and carefully focused on meeting the needs of the business. The initial training is well managed and the workshops are well resourced. The learners are well prepared for their training in the different departments. The company is clearly committed to equality of opportunity and learners have a good understanding of the issues. The training instructors continue to review and improve the initial workshop training. The training in the workshops, departments and colleges is not sufficiently monitored. Internal verification has not identified the insufficient assessment by observation.