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Report following Inspection and Operational Testing of an ESCA 3000 Portable Framed Access Ladder and Platform Assembly at the premises of E A Clayton Transport at Bicester, Oxon, on 27.9.05.

Report prepared for:

ESCA 2000 (UK) Ltd.
"Cornerstones"
25 Grebe Road
Bicester
Oxon OX26 6WG.

Instructed by: Mr Steve Jeffries, Director.

Our ref: 2531

Report prepared following inspection of the equipment, taking measurements, photographs and weights, studying the photographs and site notes and with reference to relevant Statutory Instruments, Standards, Guidance Documents and archive material.

3 November 2005.



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1. AUTHOR'S INTRODUCTION

- 1.1 I am an experienced and qualified "hands-on" engineer with nearly 50 years general engineering, construction site and management experience, with 36 years as proprietor, manager and Safety Officer of my own small companies involved in engineering and construction associated fields. From 1972 until 1998 I was the owner and managing director of a door service company involved in construction site installation and repair work on a wide range of industrial, commercial and garage door equipment and allied steelwork. This work included the specification and use of ladder and scaffold equipment of various types for access to higher levels. I was involved in training personnel in the safe use of scaffolds, safe working practices at heights and implementing and overseeing general Health and Safety Policy on site and in the works.
- 1.2 Since 1984 I have carried out investigations, prepared over 600 reports and undertaken work as an Expert Witness in connection with Personal Injury and Product Liability matters and have dealt with many cases involving ladders and scaffolding, together with the application of Health and Safety Regulations and Guidance.
- 1.3 The details of my professional experience and qualifications are held in the UK Register of Expert Witnesses and at the Academy of Experts, of which I am a practicing member and qualified mediator.
- 1.4 I currently accept approximately 40 new instructions each year and am used to giving evidence in Court as an Expert Witness on behalf of Claimants and Defendants in Criminal and Civil matters.
- 1.5 In this matter I was instructed by letter dated 8.9.05 to inspect the ESCA 3000 equipment and to comment on the present Safety in Use Training CD and working practices from the material made available to me, on safe systems of work and the relevant Health & Safety issues.
- 1.6 I am familiar with the constraints, requirements and application of the relevant Standards, Guidance and Legislative Documentation referred to in the report and set out in the Appendix List herewith.
- 1.7 In March 2000, I tested an earlier version of the ESCA equipment, the ESCA 2000, and have commented on the Safety in Use of various other ladder related forms of access equipment prior to the publication and implementation of the Work at Height Regulations 2005.

2. THE INSPECTION

- 2.1 The inspection was carried out at the premises of E A Clayton Transport at Bicester, Oxon.
- 2.2 The overall dimensions of the equipment were recorded and have been set down in the Site Notes at Appendix 3.
- 2.3 The general appearance of the ESCA 3000 is shown on the photographs at Appendix 2 and on the supplier's leaflet.
- 2.4 I was able to manoeuvre the equipment from ground level without difficulty.
- 2.5 I climbed the inclined steps which were set at 75°-77° up to the working platform.
- 2.6 I carried out an "outreach" manoeuvre to each side and to the front of the platform leaning out and extending one arm to reach a point approximately 4ft. from the guardrail.
- 2.7 It must be appreciated that reaching out should only be undertaken with care. This exercise on my part was simply to verify the stability of the equipment, and, based on my earlier experience, was done without any danger as the equipment showed no signs of instability.
- 2.8 The platform was loaded with 4 x 25 Kg bags of cement, giving a total platform weight of 100 Kg.
- 2.9 I then attached a ½in rope line approximately 17M long to the left hand upright at platform level and applied measured forces of up to 27 Kg (nearly 60 lbs.) which had the effect of merely raising the far right hand main rear axle wheel approximately 2in-3in. (50mm-75mm).
- 2.10 I re-climbed the steps and disconnected the test rope, then engaged the manoeuvring mechanism by applying and maintaining downward pressure on the central pedal mounted at the front of the operator platform.
- 2.11 This had the effect of "jacking-down" the two front wheels and raising the two front lateral props just clear of the ground. Note:- pressure must be maintained on the jacking pedal throughout any manoeuvre. When the pedal is released, the stabilizer feet are immediately lowered onto the ground and further manoeuvring is not possible. (This acts as a safety feature; like a "Dead-Man's" handle, in this case pedal.)

- 2.12 By working the "T"-handle through an arc varying up to 60°-70° from side to side, it was possible to carry out minor manoeuvres to adjust the operating position from side to side or backwards and forwards with complete safety without the operative having to descend to floor level.
- 2.13 These manoeuvres were carried out safely and without difficulty.
- 2.14 Differences between the ESCA 2000 and 3000:-
- The 2000 was fabricated from tubular steel sections, zinc plated or galvanized.
 - The 3000 is of a more sophisticated design, being constructed from precision extruded aluminium tubular sections fastened together with moulded components with brass threaded inserts, so designed to provide complete flexibility of adjustment combined with a rigid clamping facility.
 - The on-site assembly of the units can be carried out largely by one man but two are required to stand the equipment prior to use.
 - The guard rail around the working platform on the 3000 is significantly higher than on the 2000 and conforms to general safety requirements for guard rail height.

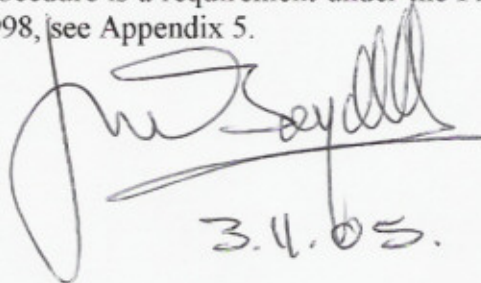
3. COMMENTS AND OBSERVATIONS

- 3.1 On the model I inspected the platform height was approximately 4730mm (15ft.6in.) above floor level, giving a useful working height between 6M-7M above floor level.
- 3.2 The front guard rail is 905mm (nearly 3ft.) above the platform; the side guard rails are 950mm (nearly 37½in.) above platform height and the cushioned back rest cross member is approximately 1M (3ft.3½in.) above the platform floor.
- 3.3 It is important before using the equipment to check all the various fittings which can be hand tightened from ground level. Periodically, it is advisable to tip the unit, pivoting about one axle, with the help of a second person and check the tightness of the fixings which are normally out of reach from floor level when the equipment is standing upright on its wheels.
- 3.4 Operating instructions and guidance on safe usage documentation is available in English with a Safety CD and a Training Programme for employees of each customer purchasing an ESCA 3000 unit.
- 3.5 The rear axle length, which is adjustable, will ensure a ratio to height of 1:3 minimum which conforms with the spirit of the HSE Guidance Note (GS42 Tower Scaffolds, Table 1, page 4), see Appendix 7.
- 3.6 The angle of inclination of the stepped section is approximately that recommended in the various Guideline Documents including HSE Guidance Note GS 31, (Safe Use of Ladders, page 3, para.17), see Appendix 7.
- 3.7 The ESCA 3000 equipment does not yet fall directly into any of the categories of equipment which are covered by the various current Standards, Guidance documentation and items of legislation. However, it demonstrates that the spirit of many aspects of the general requirements of the current documentation have been addressed; specifically stability, the angle of the stepped section and the provision of suitability positioned guard rails and toe boards.
- 3.8 Safety signage, together with a documented training programme will be available in due course for this new model.
- 3.9 The initial "tilt" stability test, carried out during the site inspection, indicates the equipment should be used with care in low to medium wind conditions and not at all in high wind conditions, and that additional appropriate precautions should be taken, such as ballast or guy lines.

- 3.10 Provision should be made by users of the ESCA 3000 equipment for raising small repair and maintenance items, tools and equipment etc. to platform height, as ascending the ladder whilst carrying materials or equipment in one hand is not an acceptable practice.
- 3.11 The ESCA 3000 which I inspected had 18 treads set at 250mm centres measured along the stile, giving a rise of approx. 242mm.(approx.10in.). The steps are made from a substantial aluminium extruded section with a 2in. (50mm) tread face width by approx. 1in. deep having 9 ribbed anti-slip sections on the upper face.
- 3.12 The principle sections and side stiles of the stepped section comprise a twin tubular form of extrusion having overall dimensions of approx. 3.2in. x 1.25in., see sketch at Appendix 9.

4. OPINION

- 4.1 In my opinion the ESCA 3000 equipment is suitable for industrial use on smooth horizontal floors in low wind conditions, for operation by trained personnel only.
- 4.2 Personnel using the equipment must be trained to the manufacturer's recommended programme and assessed to be competent before using the equipment, then assessed at intervals as required as part of the Employer's ongoing Health & Safety training regime.
- 4.3 Users of the equipment and employers of operatives should be conscious of the Risk Assessment requirements called for under the Management of Health & Safety at Work Regulations 1999 and the Work at Height Regulations 2005, see Appendices 4 and 7.
- 4.4 Before use, the equipment should be checked; particularly the tightness of all fittings and the alignment and symmetry of the principal components. If any faults, irregularities or breakages are noted, the equipment must be taken out of service and adjusted, or appropriate remedial work carried out. This procedure is a requirement under the Provision and Use of Work Regulations 1998, see Appendix 5.



3.4.05.

5. APPENDIX LIST

1. J M Boydell resumé.
2. Photographs and photograph list.
3. Verbatim transcript of site notes.
4. Management of Health & Safety at Work Regulations 1999 – abstract.
5. Provision & Use of Work Equipment Regulations 1998 – abstract.
6. For reference only - The Construction (Health Safety & Welfare) Regulations 1996, Schedule 5 – Requirements for Ladders.
7. List of other relevant Standards and Guidance Documentation for reference only.
8. The Work at Height Regulations 2005 – abstract.
9. Sketch of main section extrusions.

This list of appendices is not exhaustive but is submitted to respectfully the attention of those instructing me and their advisors to documents readily available in the public domain which could be considered relevant.

HMSO documents are copies, without infringing copyright, as part of possible judicial proceedings; Copyright Act 1988 (45) refers.

Appendix 7.

Reference documents – for guidance only –

1. Health & Safety Executive Guidance Note GS 42 – Tower Scaffolds, page 4, Table 1 (least base ratio).
2. BS 2037 1994, Portable Aluminium Ladders, Steps, Trestles and Lightweight Stagings, page 21, Table 1 (test loads).
3. DTI leaflet “Ladder User’s Handbook”, page 4, Duty Rating (Class 1).
4. Health & Safety Executive Guidance Note GS 31 - Safe Use of Ladders, Stepladders and Trestles, page 3, para.17 and page 6, para.47.
5. Health & Safety Executive “The Work at Height Regulations 2005” – a brief guide.

Note: the spirit of existing Regulations, Standards and Guidance Documents must be considered when preparing to use equipment which falls outside the more usual established categories.