



MINISTRY OF DEFENCE

**JSP 886
DEFENCE LOGISTICS SUPPORT CHAIN MANUAL**

**VOLUME 7
SUPPORTABILITY ENGINEERING**

**PART 8.06
TEST EQUIPMENT**

**THE MASTER VERSION OF JSP 886 IS PUBLISHED
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THIS INTERNET VERSION HAVE BEEN REMOVED**

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CHAPTER 1: TEST EQUIPMENT

CONTEXT

1. This part of JSP 886 Volume 7 provides key points of policy and guidance, in respect of Test Equipment (TE) required for the effective Through Life Support (TLS) of equipment, in accordance with MOD Integrated Logistic Support (ILS) policy.
2. Within JSP 886 Volume 7 the policy requirements for Support and Test Equipment (S&TE) are covered in two parts, this part which relates to TE including Automatic Test Systems (ATS), and Part 8.07 which relates to Support Equipment (SE).
3. Support and Test Equipment (S&TE), as defined in DEFSTAN 00-600, is all equipment (mobile or fixed), required to support the operation and maintenance of a product. TE is part of the ILS element of S&TE and can be classed as:
 - a. General Purpose Test and Measurement Equipment (GPTME) - those items that are common to more than one product, platform or system, and is further defined within JSP 509: The Management of Test Equipment.
 - b. Special Purpose Test and Measurement Equipment (SPTME) - those items which are designed, developed, produced and used solely for one product, platform or system.
4. Test Equipment can be further defined as:
 - a. Test Equipment (TE) within the MOD is defined as those items which are used to provide an indication of system, equipment or component serviceability, and / or evaluate the ability of the system or equipment to meet precisely defined performance or measurement standards; this is further defined within JSP 509. It also includes simulators, where they are used to provide a standard against which performance or measurements are evaluated.
 - b. Automatic Test System (ATS) is defined as a system which includes Automatic Test Equipment (ATE) and all associated items (e.g. test fixtures, test software etc), required to test a Unit Under Test (UUT). ATE is usually a computer-driven approach to testing in which the computer is used to control, via test software or firmware, complex test instruments to provide stimuli to, and measure, the response from a UUT.

POLICY

5. It is MOD Policy that for Test Equipment (TE), a centralised procurement and re-provisioning strategy will be adopted to enable maximum use and interoperability of TE within the MOD, thus providing the most cost effective and efficient solution to meet Platform, Project or Equipment requirements. This is managed by the Deployable Infrastructure Project Team (DIPT).
 - a. Project Teams (PTs) are to engage with the GPTME gatekeeper¹ before commencing the selection, procurement or modification of TE within the MOD.

¹ JSP 886 Volume 7 Part 8.15 refers

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b. Before commencement of all TE selection or procurement, existing MOD test solutions and TE shall be considered as part of the Supportability Analysis process.

c. If existing solutions from the MOD inventory are not viable, procurement of COTS TE shall be considered initially. SPTME shall only be procured after proving that this is the most cost effective solution.

d. To assist in driving an Open System Architecture philosophy, before commencement of ATS selection or procurement, existing MOD ATS test solutions shall be considered and if found unsuitable, then DEFSTAN 66-31 Part 8 shall be invoked.

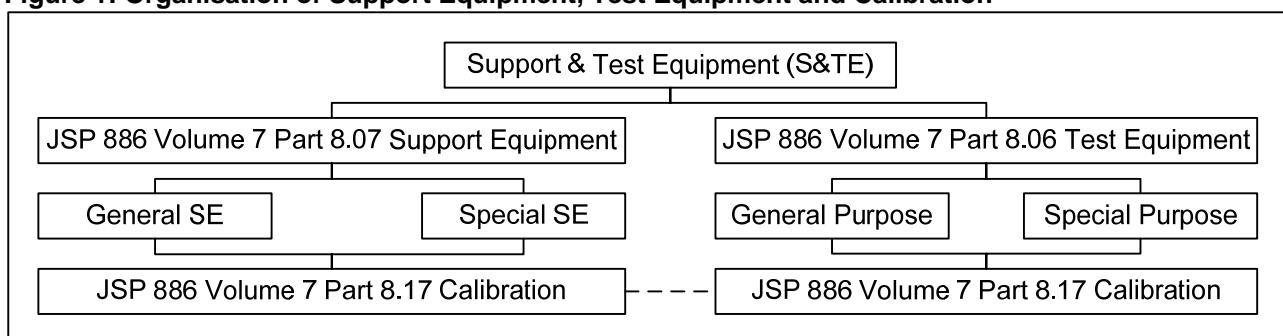
e. Calibration of TE must comply with MOD Calibration policy outlined in JSP 886 Volume 7 Part 8.17: Calibration.

f. It is MoD Policy to reduce the proliferation of User Access Devices (UAD's) therefore for all TE or SE incorporating a UAD, chapter 2 must be considered.

6. PTs will provide a Support & Test Equipment (S&TE) Plan to the GPTME Gatekeeper, as an ILS element, which will include details of the selection and in-service support requirements of the TE.

7. To reduce proliferation of non standard TE, which is expensive to support or calibrate, MOD units are not permitted to procure TE using local purchase budgets, unless in exceptional circumstances (refer to JSP 509).

Figure 1: Organisation of Support Equipment, Test Equipment and Calibration



PRECEDENCE AND AUTHORITY

8. The authority to carry out Test and Measurement is promulgated from Defence Equipment and Support- [DE&S Corporate Governance Portal](#) – Support Solutions Envelope.

MANDATED REQUIREMENTS

9. MOD TE is supplied to ensure that the material state of those equipments being tested can be verified. In order to meet the MOD's legal duty of care obligations, it is a requirement that all MOD TE must comply with all statutory European and UK Health and Safety legislation for the environment in which they are to be used or operated. This is substantiated within the Secretary of State's Policy Statement contained in JSP 815: Defence Environment and Safety Management, Annex A.

10. It is the responsibility of the PT to compile and maintain a Safety Case and Hazard Log through all stages of the life cycle of equipments and systems. The Safety case for

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Test Equipment must demonstrate that the safety risk from the TE is ALARP (As Low As Reasonably Practicable). This assessment is to consider the actual TE, its impact on the item being tested, and the wider environmental area

11. All equipment purchased within the UK shall be CE marked in accordance with the European Directive. Any equipment purchased outside the UK should be CE marked by the importer of the equipment. This does not necessarily mean the physical attachment of the mark, but rather that there is a suitable and sufficient technical construction pack supporting the equipment. It should also be noted that the creation of a system from multiple pieces of test equipment will require the system to be self certified by the PT, which should take the form of a technical construction pack.

12. All Electronic and Electrical TE procured by the MOD must adhere to the requirements of DEFSTAN 66-31.

13. To reduce Whole Life Costs and Intellectual Property Right (IPR) issues, test software signal requirements shall be defined using IEEE 1641 Signal Test Definition (STD).

PROCESS

14. To ensure compliance to [DEFSTAN 00-600](#), at the commencement of all procurements, PTs are required to produce an S&TE Plan detailing all TE technical and calibration requirements. Information on the TE procurement process, technical, and mandatory requirements are detailed in DEFSTAN 66-31 and JSP 509.

KEY PRINCIPLES

15. The GPTME gatekeeper will advise on the availability of equipment or instrumentation. This will ensure maximum interoperability and commonality whilst maintaining economy of scale. Where it can be demonstrated that this is not feasible, PTs are not to refer to specific equipment models; they are to use generic terminology which refers to the measurement requirement.

16. In the event that SPTME is essential, it is to be procured and supported by the PT. The PT must ensure that the S&TE Plan reflects the reasoning for SPTME.

17. In order that the MOD is not constrained by Intellectual Property Right (IPR) issues and therefore dependant on proprietary solutions, existing MOD ATS test solutions shall be considered in the first instance, and if found unsuitable, an Open System Architecture approach (DEFSTAN 66-31 Part 8 refers) must be utilized with all Test Program Set source documentation for hardware and software, along with user rights (IPR) being owned by the MOD. This will have the benefit of reducing whole life costs.

18. To ensure value for money, a cost based analysis shall be carried out on a case by case basis when determining if a Test Program Set (TPS) shall be migrated or rewritten. If found feasible, the migration² of existing in-service TPSs in their original format or the migration onto an existing in-service ATS will not contravene this policy.

19. Evidence of compliance to the relevant European Directives, UK Legislation and Regulations, shall be provided. This is particularly pertinent to complex weapon testing

² Migration – the transfer of the test program from one ATE to another

and safety under test, as it will assist in the assurance that the weapon is in a known safe state, fit for purpose and that the TE will not hazard the weapon or vice versa.

20. Calibration of TE is to conform to MOD policy (JSP 886 Volume 7 Part 8.17) to provide MOD customers and TE users with confidence in the quality of calibration provided, thus ensuring that all TE is capable of fulfilling its intended role, taking into account product safety and fitness for purpose. This is achieved by calibrating TE at prescribed time intervals, to a specified requirement, against Measurement Standards which have accuracy traceable to the UK National Measurement Standards, or similar National Measurement Standards held by countries which are signatories of the same Mutual Recognition Arrangement as the UK.

ASSOCIATED STANDARDS AND GUIDANCE

21. Guidance:

- a. DES JSC SCM-EngTLS-TM will provide advice and guidance on the requirements for ATS, Safety Under Test requirements for complex weapon testing and suitable Safety Cases for ATS.
- b. DI PT will provide advice and guidance on TE requirements for GPTME and SPTME.
- c. DES JSC SCM-EngTLS-TM will provide advice on all calibration requirements.
- d. Support Solutions Envelope (SSE) - Key Support Area (KSA) 2 – Supportability Engineering.

22. Associated Standards:

- a. JSP 430: MOD Ship Safety Management.
- b. JSP 440: Defence Manual of Security.
- c. JSP 454: Land Systems Safety and Environmental Protection.
- d. JSP 482: MOD Explosive Regulations. Chapter 8.
- e. JSP 509: The Management of Test Equipment.
- f. JSP 553: Military Airworthiness Regulations.
- g. JSP 815: Defence Environment and Safety Management.
- h. JSP 886: Defence Logistic Support Chain Manual:
 - (1) Volume 3 Part 2: Contractor Logistic Support (CLS). Chapter 2: GPTME³.
 - (2) Volume 7 Part 15: Gatekeeper.
 - (3) Volume 7 Part 17: Calibration.
- i. DEFSTAN 00-56: Safety Management Requirements for Defence Systems.

³ Policy refers only to repairable GPTME

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- j. DEFSTAN 00-600: Integrated Logistic Support. Requirements for MOD Projects
- k. DEFSTAN 02-43: Ancillary Support Equipment. Test Equipment and Tools (Cat2)
- l. DEFSTAN 05-57: Configuration Management of Defence Materiel.
- m. DEFSTAN 66-31: Basic Requirements & Tests for Electronic & Electrical Test & Measurement Equipment.
- n. BS EN ISO / IEC 9001:2008: Quality Management Systems – Requirements.
- o. IEEE 1641: IEEE Standard for Signal and Test Definition.
- p. IEEE 488: IEEE Standard for Digital Interface for Programmable Instrumentation.

OWNERSHIP AND POINT OF CONTACT

23. The policy for Test Equipment is sponsored by DES JSC SCM-EngTLS-PEng.

- a. Contact Details

[DES JSC SCM EngTLS-TM](#)

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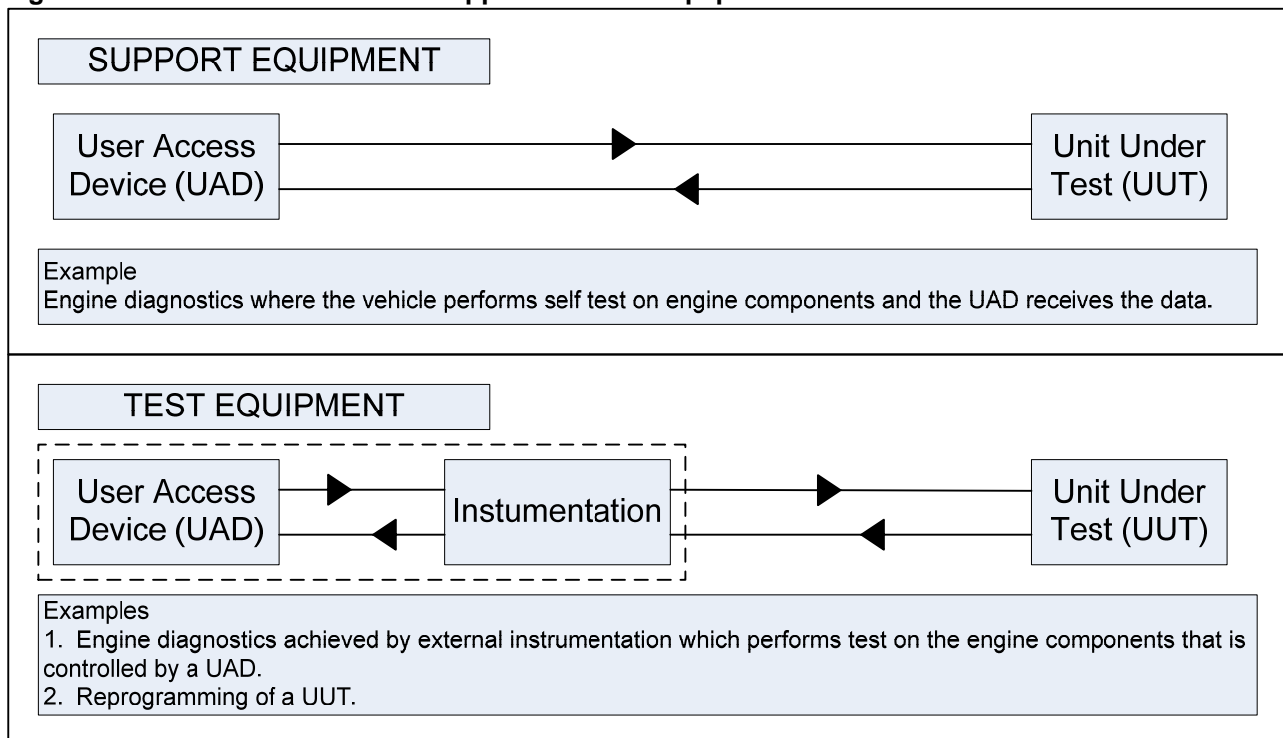
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CHAPTER 2: USER ACCESS DEVICE (UAD)

BACKGROUND

1. User Access Device (UAD) in this document is a programmable computer designed to interface with other systems, accept data, execute a programmed list of actions and is able to display the results of these operations. The device is multifunctional / portable taking a number of forms including laptops, handhelds and tablets.
2. UADs can be utilised as Support Equipment (SE) or Test Equipment (TE) or both.

Figure 2: User Access Devices in Support and Test Equipment Roles



REQUIREMENTS

3. The drive within Defence is for the rationalisation of the MOD's information infrastructure. This involves the consolidation of information infrastructure, networked and non-networked, across Defence. Accordingly, DII is the infrastructure of choice for core information services supporting the MOD's operation as an organisation.
4. Due to the increased technological advances in UADs with multifunctional capabilities that can be utilised over a wide range of applications, this provides an opportunity for rationalisation and consolidation across a number of capability domains. Thereby PTs can benefit from the economies of scale, in terms of procurement and through life costs, which the MOD can bring to bear. When procuring a UAD as part of their SE or ATS solution PTs should:
 - a. In the first instance, seek a DII provided solution.
 - b. If a DII solution is not available or appropriate PTs should apply for DII exemption in accordance with the DII Exemption Policy (DIN 2011DIN05-028).

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c. PTs with a valid DII exemption certificate should engage with Log NEC, the support UAD Gatekeeper, for the provision of a generic support UAD solution which meets both their needs and the MOD's drive towards a centralised procurement system for provisioning and through life support.

5. As part of the Supportability Analysis process an existing MOD, DII provided, UAD solution shall be considered. If a DII solution is not available the analysis process will be managed by LogNEC who will act as the Gatekeeper within the requirements of JSP886 Volume 7 Part 8.15: Gatekeeper Role in Utilisation of Common Defence Materiel.

6. Cognisance should also be taken of the information provided in JSP509 as detailed in Chapter 1.

UAD PROCUREMENT POINT OF CONTACT

7. The respective points of contacts for UAD procurement in priority order are:

- a. DII POC: Local ISS representative.
- b. Log NEC POC: [DES Log NEC Front Door](#).