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MILITARY STANDARD

WORK MEASUREMENT

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DEPARTMENT OF DEFENSE

WASHINGTON DC 20301

WORK MEASUREMENT

MIL-STD-1567A

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Recommended corrections, additions, or deletions should be addressed to Commander, Air Force Systems Command, ATTN: ALX, Command Standardization Office, Andrews AFB DC 20334.

FOREWORD

The purpose of this standard is to assist in achieving increased discipline in contractors' work measurement programs with the objective of improved productivity and efficiency in contractor industrial operations. Experience has shown that excess manpower and lost time can be identified, reduced, and continued method improvements made regularly where work measurement programs have been implemented and conscientiously pursued.

Active support of the program by all affected levels of management, based on an appreciation of work measurement and its objectives, is vitally important. Work Measurement and the reporting of labor performance is not considered an end in itself but a means to more effective management. Understanding the implication inherent in the objectives of the work measurement program will promote realization of its full value. It is important that objectives be presented and clearly demonstrated to all personnel who will be closely associated with the program.

The following are benefits which can accrue as a result of the employment of a work measurement program.

(a) Achieving greater output from a given amount of resources.

(b) Obtaining lower unit cost at all levels of production because production is more efficient.

(c) Reducing the amount of waste time in performing operations.

(d) Reducing extra operations and the extra equipment needed to perform these operations.

(e) Encouraging continued attention to methods and process analysis because of the necessity for achieving improved performance.

(f) Improving the budgeting process and providing a basis for price estimating, including the development of Government Cost Estimates and should cost analyses.

(g) Acting as a basis for planning for long-term manpower, equipment, and capital requirements.

(h) Improving production control activities and delivery time estimation.

(i) Focusing continual attention on cost reduction and cost control.

(j) Helping in the solution of layout and materials handling problems by providing accurate figures for planning and utilization of such equipment.

(k) Providing an objective and measured base from which management and labor can project piecework requirements, earnings and performance incentives.

While recognizing the benefits that may normally be expected from the requirement for a work measurement system, it is DOD policy to selectively apply and tailor standardization documents to ensure their cost-effective use in the acquisition process. Each program office should carefully consider, within DOD and Service guidelines, benefits and costs of imposing MIL-STD-1567 on each specific acquisition. Contractors may propose document application and tailoring modifications with supporting rationale for such modifications.

The DOD is committed to development and coordination with industry of detailed application guidance to accompany MIL-STD-1567. The purpose of this guidance is to provide non-contractual information on when and how to use the document, the source of and flexibility inherent within specific document requirements, information on what is required to satisfy document requirements, and the extent of Government review and approval. The guidance is intended to promote consistency in application and interpretation of MIL-STD-1567 requirements. Until this guidance can be issued in the form of an "Application Guidance" appendix to MIL-STD-1567, or in a separate Military Handbook, the following applies:

(a) Use and correct application of appropriate predetermined time systems can be assumed to satisfy Government requirements for system accuracy.

(b) The contractor and the Government are encouraged to come to an early agreement (possibly in the form of a Memorandum of Understanding) of what constitutes an acceptable system satisfying the intent of this standard.

(c) Care should be exercised in the use of a work measurement system to ensure that the overall intent is not lost. Management understanding and attention to the manufacturing process is necessary for increased productivity. Work measurement provides one of the tools; however, misuse could result in reduced workforce motivation and productivity.

Feedback on the success or difficulties encountered (benefits and costs) in the application of this standard on specific contracts is encouraged. Contractor/industry and Government experience should be forwarded to the address indicated on page ii.

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MILITARY STANDARD

WORK MEASUREMENT

1. SCOPE

1.1 Purpose. This standard requires the application of a disciplined work measurement program as a management tool to improve productivity on those contracts to which it is applied. It establishes criteria which must be met by the contractor's work measurement programs and provides guidance for implementation of these techniques and their use in assuring cost effective development and production of systems and equipment.

1.2 Applicability. This standard is applicable to new/follow-on contracts, including modifications, as shown in paragraphs 1.2a, 1.2b, 1.2c and 1.2.1 below. The dollar thresholds indicated are to be based on the current Five Year Defense Program (FYDP) budget submissions.

a. Full-scale acquisition program developments which exceed $100 million.

b. Production, which may include some types of depot level maintenance repair or overhaul, that exceeds $20 million annually or $100 million cumulatively. It shall not be applied to contracts or subcontracts for construction, facilities, off-the-shelf commodities, time and materials, research, study, or developments which are not connected with an acquisition program.

c. This standard is not applicable to ship construction, ship system contracts which have low volume non-repetitive production runs, or service-type contracts.

1.2.1 Subcontracting. When this standard is applied to prime development or production contracts, it shall also be applied to related subcontracts and/or modifications which exceed $5 million annually or $25 million cumulatively. If it is determined by the prime contractor that such application is not cost effective or inappropriate for other reasons, the prime contractor may request the Government to waive the specific application. Requests for waivers shall be supported with the data used to make the determination.

1.3 Contractual Intent. This standard requires the application of a documented work measurement system. This standard further requires that the contractor apply procedures to maintain and audit the work measurement system. It is not the intent of this standard to prescribe or imply organization structure, management methodology, or the details of implementation procedures.

1.4 Corrective Actions. When surveillance by the contractor or the Government discloses that the work measurement program does not meet the requirements of this standard, a plan shall be initiated to expeditiously assure that corrective measures shall be implemented, demonstrated and documented. The contractor's system is subject to disapproval by the Government whenever it does not meet the requirements of this standard.

1.5 Documentation. The work measurement program shall include sufficient documentation to assure effective operation of the program and to provide for internal audits as required by paragraph 5.14. Documentation shall specify organizational responsibilities, state policies, and provide operational procedures and instructions. The results of contractor system audits and plans for corrective actions shall be made readily available to the Government for review.

2. REFERENCED DOCUMENTS.

Not Applicable

3. DEFINITIONS.

3.1 Actual Hours. An amount determined on the basis of time incurred as distinguished from forecasted time. Includes standard time properly adjusted for applicable variance.

3.2 Earned Hours. The time in standard hours credited to a worker or group of workers as the result of successfully completing a given task or group of tasks: usually calculated by summing the products of applicable standard times multiplied by the completed work units.

3.3 Labor Efficiency. The ratio of earned hours to actual hours spent on same increments of work during a reporting period. When earned hours equal actual hours, the efficiency equals 100%.

3.4 Methods Engineering. The analyses and design of work methods and systems, including technological selection of operations or processes, specification of equipment type, and location.

3.5 Operation Analysis. A study which encompases all those procedures concerned with the design or improvement of production, the purpose of the operation or other operations, inspection requirements, materials used and the manner of handling material, setup, tool equipment, working conditions, and methods used.

3.6 Predetermined Time System. An organized body of information, procedures and techniques employed in the study and evaluation of manual work elements. The system is expressed in terms of the motions used, their general and specific nature, the conditions under which they occur, and their previously determined performance times.

3.7 Realization Factor.

(a) A ratio of total actual labor hours to the standard earned hours.

(b) A factor by which labor standards are multiplied when developing actual/projected manhour requirements.

3.8 Subcontract. A contract between the prime contractor and a third party to produce parts, components, or assemblies in accordance with the prime contractor's designs, specifications or directions and applicable only to the prime contract.

3.9 Touch Labor. Production labor which can be reasonably and consistently related directly to a unit of work being manufactured, processed, or tested. It involves work affecting the composition, condition, or production of a product; it may also be referred to as "hands-on labor" or "factory labor."

NOTE: As used in this standard, touch labor includes such functions as machining, welding, fabricating, setup, cleaning, painting, assembling, functional testing of production articles and that labor required to complete the manually-controlled process portion of the work cycle.

3.10 Touch Labor Standard. A standard time set on a touch labor operation.

3.11 Type I Engineered Labor Standards. These are standards established using a recognized technique such as time study, standard data, a recognized predetermined time system or a combination thereof to derive at least 90% of the normal time associated with the labor effort covered by the standard and meeting requirements of paragraph 5.1. Work sampling may be used to supplement or as a check on other more definitive techniques.

3.12 Type II Labor Standard. All labor standards not meeting the criteria established in paragraph 5.1.

3.13 Standard Time Data. A compilation of all elements that are used for performing a given class of work with normal elemental time values for each element. The data are used as a basis for determining time standards on work similar to that from which the data were determined.

3.14 Touch Labor Normal/Standard Time. Normal time is the time required by a qualified worker, to perform a task at a normal pace, to complete an element, cycle or operation, using a prescribed method. The personal, fatique and unavoidable delay allowance added to this normal time results in the standard time.

3.15 Operation. (1) A job or task consisting of one or more work elements, normally done essentially in one location; (2) The lowest level grouping of elemental times at which PF&D allowances are applied.

3.16 Element. A subdivision of the operation composed of a sequence of one or several basic motions and/or machine or process activities which is distinct, describable and measurable.

4. GENERAL REQUIREMENTS.

4.1 General. Minimum requirements which must be met in the implementation of an acceptable work measurement program are:

a. An explicit definition of standard time that shall apply throughout the jurisdiction of work measurement.

b. A work measurement plan and supporting procedures.

c. A clear designation of the organization and personnel responsible for the execution of the system.

d. A plan to establish and maintain engineered labor standards to known accuracy.

e. A plan to conduct methods engineering studies to improve operations and to upgrade Type II labor standards to Type I Engineered Labor Standards in accordance with requirement of paragraph 5.4.

f. A defined plan for the use of labor standards as an input to budgeting, estimating, production planning, and "touch labor" performance evaluation.

g. A plan to ensure that system data is corrected when labor standards are revised according to paragraph 5.11 below.

5. SPECIFIC REQUIREMENTS.

5.1 Type I Engineered Labor Standards. All Type I standards must reflect an accuracy of ±10% with a 90% or greater confidence at the operation level. For short operations, the accuracy requirement may be better met by accumulating small operations into super operations whose times are approximately one-half hour. Type I standards must include:

a. Documentation of an operations analysis.

b. A record of standard practice or method followed when the standard was developed.

c. A record of rating or leveling.

d. A record of the standard time computation including allowances.

e. A record of observed or predetermined time system time values used in determining the final standard time.

5.1.1 Predetermined Time Systems. It is not the intent of this Military Standard to challenge the accuracy of those predetermined time systems whose inherent accuracy meets the requirements of paragraph 5.1. However, when a predetermined time system is used, it shall be incumbent on the contractor to demonstrate to the Government that the accuracy of the original data base has not been compromised in application or standards development.

5.2. Operations Analysis. Operations analysis is considered an integral part of the development of a Type I Engineered Labor Standard. An operations analysis shall be accomplished and recorded prior to the determination of a Type I standard; and in the improvement of established labor standards.

5.3 Standard Data. The contractor shall take full advantage of available standard time data of known accuracy and traceability.

5.4 Labor Standards Coverage. The contractor shall develop and implement a Work Measurement Coverage Plan which provides a time-phased schedule for achieving 80% coverage of all categories of touch labor hours with Type I standards. (See 3.9, Touch Labor.)

5.4.1 Cost Trade-off Analysis. The Work Measurement Coverage Plan shall be based on cost trade-off analyses which consider the status and effectiveness of the contractor's existing work measurement program.

5.4.2 Initial Coverage. Type II Standards are acceptable for initial coverage. All Type II standards shall be approved by the organization(s) responsible for establishing and implementing work measurement standards and estimating when Type I Standards have not yet been developed.

5.4.3 Upgrading. The Work Measurement Touch Labor Coverage Plan shall provide a schedule for upgrading Type II to Type I Standards.

5.5 Leveling/Performance Rating. All time studies shall be rated using recognized techniques.

5.6 Allowances. Allowances for personal, fatigue, and unavoidable delays shall be developed and included as part of the labor standard. Allowances should not be excessive or inconsistent with those normally allowed for like work and conditions.

5.7 Estimating. The contractor's procedures shall describe how touch labor standards are utilized to develop price proposals.

5.8 Use of Labor Standards. Labor standards shall be used:

5.8.1 Budgets, Plans, and Schedules. As an input to developing budgets, plans and schedules, when available.

5.8.2 Touch Labor Hours. As a basis for estimating touch labor hours when issuing changes to contracts and as a basis for estimating the prices of initial spares, replenishment spares and follow-on production buys, when available.

5.8.3 Measuring Performance. As a basis for measuring touch labor performance.

5.9 Realization Factor. When labor standards have been modified by realization factors, major elements which contribute to the total factor shall be identified. The analysis supporting each element shall be available to the Government for review.

5.10 Labor Efficiency. A forecast of anticipated touch labor efficiency shall be used in manpower planning, both on a long-range and current scheduling basis.

5.11 Revisions. Labor standards shall be reviewed for accuracy and appropriate system data revision made when changes occur to:

a. Methods or procedures

b. Tools, jigs, and fixtures

c. Work place and work layout

d. Specified materials

e. Work content of the job

5.12 Production Count. Work units shall be clearly and discretely defined so as to cause accurate measurement of the work completed and shall be expressed in terms of completed:

a. End items

b. Operations

c. Lots or batches of end items

5.12.1 Partial Credit. In those cases where partial production credit is appropriate, the work measurement procedures shall define the method to be used to permit a timely and current production measure.

5.13 Labor Performance Reporting. The contractor's work measurement program shall provide for periodic reporting of labor performance. The report shall be prepared at least weekly for each work center and be summarized at each appropriate management level; it shall indicate labor efficiency and compare current results with pre-established contractor goals.

5.13.1 Variance Analysis. Labor performance reports shall be reviewed by supervisory and staff support functions. When a significant departure from projected performance goals occurs, a formal written analysis which addresses causes and corrective actions shall be prepared.

5.13.2 Report Retention. Performance reports and related variance trend analyses shall be retained for a six-month period.

5.14 System Audit. The contractor shall use an internal review process to monitor the work measurement system. This process shall be so designed that weaknesses or failures of the system are identified and brought to the attention of management to enable timely corrective action. Written procedures shall describe the audit techniques to be used in evaluating system compliance.

5.14.1 Scope of Audit. The audit shall cover compliance with the requirements of this standard at least annually. The audit, based upon a representative sample of all active labor standards and work measurement activities, shall determine:

a. The validity of the prescribed method and the accuracy of the labor standard time values as validated against the data baseline.

b. Percent of coverage by Type I and Type II labor standards.

c. Effectiveness of the use of labor standards for planning, estimating, budgeting, and scheduling.

d. The timeliness, accuracy and traceability of production count reporting.

e. The accuracy of labor performance reports.

f. The reasonableness and attainment of efficiency goals established.

g. The effectiveness of corrective actions resulting from variance analyses.

5.14.2 Audit Reports. A copy of the audit finding shall be retained in company files for at least a two-year period and shall be made available to the Government designated representative for review upon request.

Custodians:

Army - MI
Navy - AS
Air Force - 10
Defense Logistics Agency - SE

Preparing Activity:

Air Force - 10

Review Activities:

Army - AL, AR, AT, AV, CE, CR, EA, ER, GL, ME, MR

Navy - EC, SH, YD

Air Force - 01, 11, 13, 14, 16, 18, 19

(Project MISC-0007)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-STD-1567A	WORK MEASUREMENT

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*