

FEDERAL SPECIFICATION

WATCH, WRIST

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE

1.1 This specification covers one type of general purpose wristwatch having an accuracy rate of 30 seconds, a minimum of fifteen jewels, luminous dial and hands, sweep second hand, second hand stop mechanism, and strap.

2. APPLICABLE DOCUMENTS

2.1 Specifications and standards. The following specifications and standards, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specification:

PPP-T-360 - Time Measuring Instruments: Packaging of.

Federal Standard:

Fed. Std. No. 595 - Colors.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, and Auburn, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specifications:

MIL-I-45607 - Inspection Equipment, Supply and Maintenance of.

MIL-S-46383 - Strap, Wrist: Instruments.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-109 - Quality Assurance Terms and Definitions.

Military Drawings:

Munitions Command:

B8289351 - Crystal.

B8289357 - Crown and Stem Assembly.

B8289358 - Stem, Male.

C8289362 - Case Assembly, Wrist Watch.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

Code of Federal Regulations:

Title 10, Atomic Energy, Chapter 1 Atomic Energy Commission.

Part 30 - Rules of General Applicability to Licensing of Byproduct Material.

Part 32 - Specific Licenses to Manufacture, Distribute, or Import Exempted and General Licensed Items Containing Byproduct Material.

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C., 20402.)

3. REQUIREMENTS

3.1 Qualification. The watch furnished under this specification shall be a product which has been tested and has passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable qualified products list.

3.2 Design. The watch shall have a corrosion-resisting steel case with plastic crystal and a strap of woven nylon tape with metal buckle. A stem wound and stem set movement containing a second hand stop mechanism shall drive the concentrically mounted luminous hour, minute, and second hands around a 12 hour dial having luminescent markings. The design shall assure that the watch is waterproof, shock resistant, and antimagnetic under normal service conditions, and will withstand the normal hazards incident to shipping, storage, and general use.

3.3 Materials. All materials shall be of uniform quality and free of defects which might impair the functioning or accuracy of the watch. Material which is not specified by a definite material specification shall be of a composition and quality that will enable the watch to meet all applicable requirements of this specification.

3.3.1 Luminous material. The luminous material for dial and hand markings shall contain Tritium (hydrogen 3), applied in accordance with the requirements and regulations as specified in part 30, section 30.15 (1), and part 32, section 32.14 of the documents referred in 2.2 (see 6.2).

3.4 Movement. The movement shall be stem wound and stem set, with the stem located at the 3 o'clock position of the dial. The size of the movement shall be not less than 0.933 inch or greater than 1.025 inches.

3.4.1 Mainspring. The mainspring, when fully wound, shall drive the complete movement a minimum of 36 hours without rewinding. The material for the mainspring shall be a corrosion-resistant cobalt base alloy.

3.4.2 Second hand stop mechanism. Pulling the stem to the setting position shall result in stopping of the movement. Rotation of the stem shall permit the minute and hour hand to be advanced without any movement of the second hand. The depressing of the stem shall result in complete operation of the movement and hands.

3.4.3 Escapement. The pallet and escape wheel shall be steel. The pallet shall contain jewels.

3.4.4 Hairspring and balance wheel assembly. The movement shall have a temperature compensating hairspring and a solid monometallic, nonmagnetic balance wheel. The hairspring and balance wheel assembly shall be materials that, in combination, will not be affected functionally in the presence of the magnetic field specified in 4.7.8.

3.4.5 Jewel bearings. The movement shall have a minimum of fifteen functional jewel bearings located at bearing points most essential to reduce friction and wear of the train and escapement parts. Jewels shall be solidly secured in the plate or bridge by friction fit. The jewel bearing material shall be of synthetic sapphire or equal.

3.4.6 Regulator. The movement shall be provided with a regulator. The regulator shall be at the midpoint of adjustment (within plus or minus twenty percent of its total range of adjustment), when the watch is subjected to the accuracy tests specified in 4.7.6.

3.4.7 Male stem and crown. The male stem and crown shall be fabricated in accordance with Drawing B8289357.

3.4.7.1 Female stem. The female stem shall be fabricated of steel conforming to requirements for steel specified for the male stem on Drawing B8289358. The female stem shall, when joined with the male stem, result in the complete stem functioning as an assembly. It shall be dimensioned so that the face of the female section will be outside of the case sleeve when the stem is in the winding position, and locked with the male stem inside of the case sleeve (for the full length of motion from winding to setting), when in the setting position (see 6.5).

3.5 Dial. The dial shall be of nonferrous metal and shall be marked in accordance with figure 1.

3.6 Hands. There shall be three hands; one each to indicate the hour, minute, and second. The tips of the minute and sweep second hands shall be curved downward to reduce parallax to a minimum. The hands shall be dimensioned in accordance with figure 2.

3.7 Case assembly.

3.7.1 Case. The watchcase shall be fabricated in accordance with Drawing C8289362. The suspension ring shall be as required by the applicable movement.

3.7.2 Crystal. The crystal shall be fabricated in accordance with Drawing B8289351. It shall be clear, uncolored, free from bubbles, scratches, or other imperfections which may interfere with the reading of the watch.

3.8 Strap. The strap shall be type II as specified in MIL-S-46383. Unless otherwise specified, the color of the strap shall be black (see 6.1).

3.9 Performance.

3.9.1 Accuracy. Watches shall meet the accuracy requirements in the dial-up position and crown-down position. When tested in accordance with 4.7.6, the mean daily rate (see 6.4.5), shall not exceed plus or minus 30 seconds, when tested at $75^{\circ} + 3^{\circ}\text{F}$. and shall not exceed plus or minus 60 seconds, when tested at $40^{\circ} + 2^{\circ}\text{F}$. and at $125^{\circ} + 2^{\circ}$.

3.9.2 Isochronism. Watches shall pass the test for isochronism specified in 4.7.7, in a dial-up position at $75^{\circ} + 3^{\circ}$. The variation in rate (see 6.4.3), shall be recorded every 6 hours for a period of 24 hours and shall not exceed 5 seconds from the rate recorded in the previous 6 hour period. The watches shall be fully wound prior to testing and shall not be wound during the test.

3.9.3 Winding torque. When fully wound, the watch shall not be damaged when a torque of $6 + 1/2$ ounce inch is applied to the crown.

3.9.4 Magnetism. While running, the watch shall not be adversely affected when subjected to a 14.5 to 15.5 oersted magnetic field, as specified in 4.7.8, and shall subsequently meet the requirements of 3.9.10.

3.9.5 Vibration. The watch shall be vibrated to a simple harmonic motion having an amplitude of 0.03 inch (0.06 in. maximum total excursion). The frequency shall be varied uniformly between the approximate limits of 10 and 55 cycles per second (c.p.s.). The entire frequency range, from 10 to 55 c.p.s. and return to 10 c.p.s., shall be traversed in approximately 1 minute. The vibrations shall be applied as specified in 4.7.9. The watch shall operate during the test, and after the test, shall meet the requirements of 3.9.10.

3.9.6 Shock. The watch shall show no evidence of damage affecting serviceability after an uncontrolled drop from a height of 4 feet on to a hard wood block. The watch shall subsequently meet the requirements of 3.9.10.

3.9.7 Storage. The watch shall show no evidence of damage affecting serviceability when subjected to the storage temperatures of minus 65°F . and plus 155°F ., in accordance with the storage test specified in 4.7.11. The watch shall subsequently meet the requirements of 3.9.10.

3.9.8 Waterproofness. The watch shall show no evidence of leakage and shall meet the requirements of 3.9.10, after being subjected to the test specified in 4.7.12.

3.9.9 Brightness. The watch shall be capable of being distinctly read in darkness at a minimum of 12 inches from the eyes of a dark adapted observer having normal vision.

3.9.10 Final accuracy. Watches that have been subjected to the requirements of 3.9.1 to 3.9.9, inclusive, shall meet the requirements of 3.9.1 at 75° 30' F.

3.10 Identification. The back of each case shall be permanently marked as specified in figure 3. The date (month and year) to be included in the identification shall be the date of acceptance of the watch by the Government. The marking for the month shall be the first three letters of the month and the marking for the year shall be the year in full, e.g., December 1965 is DEC 1965. The serial numbers will be assigned by the contracting officer (see 6.1). Serial numbers of rejected watches shall not be repeated. The manufacturer's name and model or grade number shall be marked on the movement (barrel bridge, train bridge, or both).

3.11 Workmanship. All parts shall be finished in a thoroughly workmanlike manner. All lugs from tip of lug to body of bezel shall have sharp edges and corners rounded to avoid skin abrasion. Rounded edges and corners shall be reasonably uniform in appearance.

3.12 Interchangeability. All like parts shall be interchangeable in all watches of one type furnished by one manufacturer, and shall not adversely affect timekeeping exclusive of minor adjustments. The hairspring and balance wheel assembly shall be interchangeable as a unit.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.1.1 General provisions. The quality assurance provisions of this specification and of other documents referenced herein form the basis for inspection to be performed by the supplier. Definition of inspection terms not otherwise defined herein shall be as listed in MIL-STD-109.

4.2 Qualification test samples. Ten watches shall be submitted for qualification testing in compliance with 3.1. After obtaining authorization for submittal from the activity responsible for qualification, each watch submitted (see 6.7), shall be identified by a securely attached durable tag marked with the following information:

Sample for Qualification Tests.

Submitted by (name) (date) for qualification tests in accordance with the requirements of GG-W-133 under authorization (reference letter authorizing test).

Manufacturer's model, grade, or part number.

Name of manufacture.

4.2.1 Production. After approval for inclusion on the Qualified Products List (see 6.7), the manufacturing processes, techniques, and materials used to produce the approved qualification test samples shall be identical to those used to produce the production watches under order or contract. Any alterations in the production manufacturing processes, techniques, or materials; or any change, as determined by the contracting officer that indicates a change in performance capability or adversely affects the reliability of the watch shall require the contractor to resubmit the watch, with changes, for re-examination and retest as a qualified product. Acceptance inspection of the production watch shall cease until the re-examination and retests for qualification are acceptable.

4.3 Inspection provisions.

4.3.1 Inspection lot. Unless otherwise specified by the contracting officer, inspection lot size, formation, and presentation of lots shall be in accordance with "Submission of Product" as specified in MIL-STD-105.

4.3.2 Examination and tests. Examination and tests related to section 3 herein, shall be performed on a defect (individual characteristic) basis in accordance with MIL-STD-105, and the inspection level and sampling plans specified in tables I and II. Examination and tests for packaging, packing, and marking shall be in accordance with PPP-T-360. The tabulated classification of defects shall constitute the minimum inspection to be performed by the supplier prior to Government acceptance or rejection by lot. The Government reserves the right to inspect for any applicable requirement, and to reject individual nonconforming items.

TABLE I. Classification of defects

Use inspection level II of MIL-STD-105		
	Req't. par.	Test method
Critical: None defined		
Major: AQL 2.5 percent	3.4.1	4.7.6
(101) Mainspring	3.4.1	4.7.6
(102) Hour-minute setting	3.4	4.7.3
(103) Second hand stop mechanism	3.4.2	4.7.1
(104) Regulator	3.4.6	4.5.4
(105) Dial	3.5	4.5.5
(106) Hands	3.6	4.5.6
(107) Case	3.7.1	4.5.7
(108) Crystal	3.7.2	4.5.8
(109) Identification	3.10	4.5.10
Minor: AQL 4.0 percent defective		
(201) Strap	3.8	4.5.9
(202) Workmanship	3.11	4.5.11

TABLE II. Classification of defects

Use inspection level S-4		
	Req't. par.	Test method
Critical: None defined		
Major: AQL 4.0 percent defective		
(101) Accuracy	3.9.1	4.7.6
(102) Isochronism	3.9.2	4.7.7
(103) Winding torque	3.9.3	4.7.4.1
(104) Magnetism	3.9.4	4.7.8
(105) Vibration	3.9.5	4.7.9
(106) Shock	3.9.6	4.7.10
(107) Storage	3.9.7	4.7.11
(108) Waterproofness	3.9.8	4.7.12
(109) Brightness	3.9.9	4.7.5
(110) Final accuracy	3.9.10	4.7.13
Minor: None defined		

4.3.2.1 Disposition of nonconforming product. Rejected lots shall be screened for all defective characteristics. Removal or correction of defective units and resubmittance of rejected lots shall be in accordance with "Acceptance and Rejection" as specified in MIL-STD-105.

4.4 Inspection equipment. Except as otherwise provided for by the contract, the contractor shall furnish and maintain all required measuring and testing equipment in accordance with the applicable requirements specified in MIL-I-45607. The Government reserves the right to use the test equipment for its own independent inspections to the extent that such use will not unduly interfere with the contractor's delivery schedule.

4.5 Acceptance inspection.

4.5.1 Material. A visual inspection of component parts and assemblies shall be made to determine compliance with 3.3. Where defects or inferior quality is evident and the Government deems a material analysis necessary, the contractor will be requested to submit samples or specimens to the contracting officer for analysis and approval.

4.5.1.1 Luminous material. The luminous material shall be tested as specified in 32.14 of the documents referenced in 2.2 (see 3.3.1, 4.5.5, and 4.5.6).

4.5.2 Movement. A visual and dimensional inspection shall be made to determine compliance with the size of the movement, and proper fit of movement in the case. This inspection may be conducted during interim phases of production as deemed necessary by the Government.

4.5.3 Jewel bearings. One percent of the watches under contract, but not less than three watches, shall be examined to insure the watch contains the appropriate number of jewels placed at the most critical friction points, and are in compliance with 3.4.5.

4.5.4 Regulator. The regulator setting shall be checked after meeting the accuracy requirement of 3.9.1, to determine compliance with 3.4.6.

4.5.5 Dial. The dial shall be inspected for size markings and legibility in accordance with the respective requirements of 3.5. Luminous coating shall also be inspected for adequacy of coverage and compliance with 3.3.1 and figure 1.

4.5.6 Hands. The hour, minute, and second hands shall be inspected for style, length, and shape, in compliance with 3.6. Luminous coating shall be inspected for adequacy of coverage and compliance with 3.3.1 and figure 2.

4.5.7 Case. Inspection for design and workmanship of case assembly and the suspension ring shall be in conformance with 3.7.1.

4.5.8 Crystal. Crystals shall be examined before and after assembly to the case and after the storage temperature test of 4.7.11, to determine compliance with 3.7.2.

4.5.9 Strap. The strap shall be as specified in 3.8 and, in addition, visual examination shall be made for workmanship.

4.5.10 Identification. All numbers and names shall be inspected for correctness, legibility, and application in accordance with 3.10.

4.5.11 Workmanship. Quality of workmanship in conjunction with standard practices shall be inspected at the discretion of the Government during inprocess and on the completed watch to insure that watches are continually produced in accordance with 3.11.

4.6 Qualification tests. The qualification tests shall consist of all the acceptance tests, as specified in 4.7, and the following test. The tests shall be conducted without the strap.

4.6.1 Complete watches. After completion of all tests, the watches shall be run for a period of 7 days (168 hrs.), 84 hours with dial-up and 84 hours with crown-down. At the conclusion of this period all watches shall meet the requirements of 3.9.10.

4.7 Acceptance tests. Acceptance tests shall be made on individual lots submitted for inspection, in accordance with 4.3.1. The tests shall be conducted without the strap.

4.7.1 Second hand stop mechanism. The second setting mechanism shall be activated for at least five different settings, at each testing temperature, to insure that a precise stop and start action can be obtained without adverse effect on the hands or movement, in accordance with 3.4.2.

4.7.2 Hairspring and balance wheel assembly. The hairspring and balance wheel unit shall be considered acceptable for compliance with 3.4.4, if the watch is capable of meeting the requirements of 3.9.1 and 4.7.8.

4.7.3 Hour-minute setting. Six settings shall be made in 2 hour increments at each testing temperature to insure compliance with 3.4 and 3.4.7.1.

4.7.4 Winding test. The winding operation shall be smooth without excessive torque. Continuous winding shall not adversely affect the timekeeping qualities of the watch.

4.7.4.1 Winding torque. The winding torque will be applied and measured with a torque gauge. When the watch is fully wound, the maximum torque specified in 3.9.3 shall be applied without any damaging effect to the watch.

4.7.5 Brightness. Brightness shall be tested in a totally darkened area by an observer who has been dark adapted. With the watch held at the distance as specified in 3.9.9, the observer shall be able to read the time. The watch tested shall have been kept in total darkness for at least 8 hours prior to this test.

4.7.6 Accuracy. Prior to the accuracy tests, watches shall be conditioned by being fully wound and shall have run a minimum of 36 hours without rewinding, to determine compliance with 3.4.1. During the conditioning period, the watches shall be subjected to the

test temperature for at least 4 hours prior to the test. The watches shall be wound at the beginning of each test and each 24 hours thereafter for the duration of the tests. Daily rates (see 6.4.4), shall be recorded for a period of three days in each position and the mean daily rate (see 6.4.5), determined therefrom. The watches shall be rejected if the mean daily rate (see 6.4.5), exceeds the requirements of 3.9.1.

4.7.7 Isochronism. This test shall be conducted concurrently with 4.7.6, except that the error shall be determined at 6 hour intervals. The difference of error recorded between each 6 hour period shall not exceed 5 seconds. A master timepiece accurate to within 2 seconds a day, or an electronic device, either of which shall be suitable to the contracting officer, shall be used in the performance of this test.

4.7.8 Magnetism. The watch shall be subjected to a magnetic field strength of $15 + 0.5$ oersteds, on for 3 seconds, off for 3 seconds, repeated ten times. The watch shall be oriented so the stem is parallel to the direction of the field, after which the watch shall meet the requirements of 3.9.10.

4.7.9 Vibration. The watch shall be vibrated in accordance with 3.9.5 as follows:

- 30 minutes with vibration perpendicular to dial.
- 30 minutes with vibration in plane of dial and in direction from 12 to 6.
- 30 minutes with vibration in plane of dial and in direction from 9 to 3.

At the conclusion of the vibration, the watch shall be subjected to a visual and tactile examination for loose, missing, or damaged parts. If there is no evidence of loose, missing, or damaged parts, then the watch shall be tested for and meet the requirements of 3.9.10.

4.7.10 Shock. The watch shall be dropped from a height of 4 feet on to the end grain of a hardwood block of beech, oak, or hard maple the size of which shall be a minimum of 5 inches square by 4 inches thick. The block shall be placed on a rigid surface for this test. At the conclusion of this test, the watch shall be subjected to a visual and tactile examination. Any evidence of loose, missing, or damaged parts or failure of the watch to meet the requirements of 3.9.10, shall constitute failure of this test.

4.7.11 Storage. In compliance with 3.9.7, subject the watches to ambient temperatures as follows:

- Store at minus $65^{\circ} + 2^{\circ}$ F. for 24 hours.
- Store at room temperature $75^{\circ} + 3^{\circ}$ F. for 24 hours.
- Store at plus $155^{\circ} + 2^{\circ}$ F. with at least 50 percent relative humidity for 24 hours.
- Store at room temperature for 24 hours.

After exposure, the watch shall be examined for physical defects or damage. The crystal shall be free from imperfections which may interfere with normal watch reading. If there is no evidence of physical defects, damage of watch, or imperfections of crystal, then the watch shall be subjected to and shall meet the requirements of 3.9.10.

Note: Watches shall not be run during storage tests. Temperature changes in the watch may be gradual to avoid thermal shock.

4.7.12 Waterproofness. The watches shall be subjected to one of the following test methods to determine compliance with 3.9.8. With the exception of the requirements of 3.9.10, the waterproofness test shall be the last test to which the watches shall be subjected before delivery.

4.7.12.1 Method I. The watch shall be suspended in a vessel of water containing approximately one percent of aerosol by weight, and placed in a chamber which shall be evacuated to a negative pressure of 5-1/2 inches of mercury for a period of 15 seconds. Watches showing evidence of air leakage during the test period shall be rejected.

4.7.12.2 Method II. The watch shall be suspended in a pressure vessel above water containing approximately one percent of aerosol by weight, and subjected to an air pressure of 5-1/2 inches of mercury for a period of 45 seconds minimum. The watch shall be then submersed in the water with the subsequent release of air pressure. Watches showing any evidence of air leakage for a period of 15 seconds or less after release of the air pressure shall be rejected.

Note: In either method, leakage will appear as bubbles emanating from the crystal or stem of the watch. Bubbles which are the result of entrapped air on the various exterior parts of the case shall not be considered as a leak. The watches being tested and the water used shall be at room temperature. Distilled water shall be used.

4.7.13 Final accuracy. On the completion of the tests in 4.7.6 to 4.7.12, inclusive, the watch shall meet the $75^{\circ} \pm 3^{\circ}$ F. accuracy requirement of 3.9.1.

4.8 Control test. The Government reserves the right to subject a sample lot of watches furnished under this specification to the tests specified in 4.6, to insure continued compliance with 3.1. Failure of the sample to meet the tests of 4.6 shall be cause for removal of the watch from the qualified products list.

5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. Packaging and packing shall be as specified for packaging group 1 in PPP-T-360. The level of protection shall be as specified in the procurement document.

5.2 Marking. In addition to the marking requirements specified in PPP-T-360, the unit package, intermediate package, and shipping container shall be marked with the date of acceptance by the Government.

6. NOTES

6.1 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Selection of applicable levels of preservation, packaging, and packing.
- (c) Applicable stock number.
- (d) The color of the strap, if other than black.
- (e) List of serial numbers to be assigned (see 3.10).

6.2 Luminous material. Prospective bidders shall be cognizant of the need for a license in the application of Tritium as required in sections 30.15 (1) and 32.14, as referenced in 2.2.

6.3 Guarantee. Watches shall be guaranteed to perform in accordance with the requirements of this specification for a period of 2 years after acceptance by the Government. The guarantee shall not be binding on watches which have been subjected to conditions in excess of the requirements of this specification or have been adjusted or repaired by persons other than employees of the contractor. Within the guarantee period, the necessary repairs to or replacement of a watch satisfying the guarantee requirements shall be accomplished by the contractor at no cost to the Government, except that the Government shall bear the expense of shipping watches to the contractor and of their return to the Government.

6.4 Definitions.

6.4.1 Error. Algebraic time difference in seconds between the watch being tested and the master timepiece.

6.4.2 Starting error. Error at start of test period.

6.4.3 Rate. Difference between the starting error and error at the end of a given time interval.

6.4.4 Daily rate. Rate in a 24 hour period.

6.4.5 Mean daily rate. Sum of daily rates (with proper regard to algebraic signs) divided by number of daily rates.

6.5 Female stem. The female stem should be so dimensioned as to locate the joint between the male and female stems inside of the sleeve when the stem is in the setting position. It will also enable the movement to drop out of the watchcase when the female stem is in the winding position (see 3.4.7.1).

6.6 Qualification. With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in the applicable qualified products list whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government, tested for qualification, in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the qualified products list is Frankford Arsenal, Philadelphia, Pa., 19137, and information pertaining to qualification of products may be obtained from that activity.

MILITARY INTEREST:

CIVIL AGENCY INTEREST:

GSA-FSS

Custodians:

Army - MU
Navy - SH
Air Force - 67

Review activities:

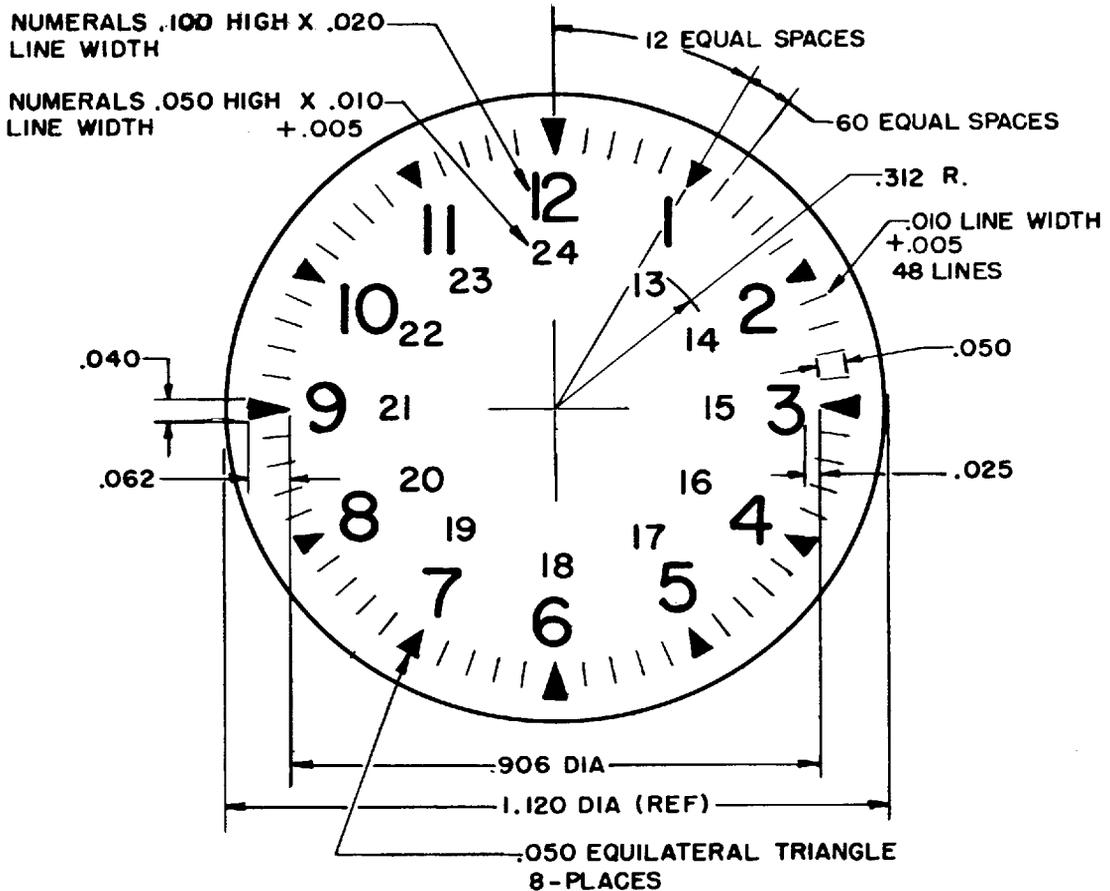
Army - MU
Navy - SH
Air Force - 67

User activities:

Army - MO
Navy - WP, MC

Preparing activity:

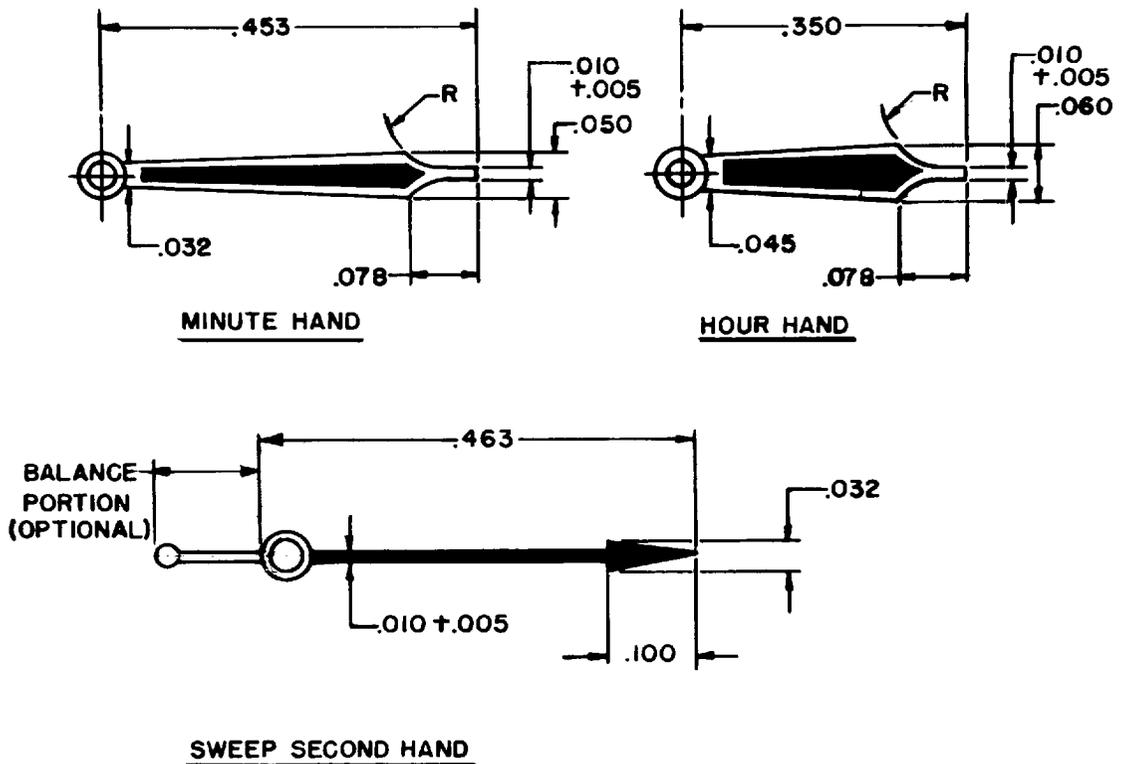
Army - MU

**NOTES:**

1. DIAL FACE BACKGROUND IN ACCORDANCE WITH FED-STD-595 COLOR BLACK NO. 37038
2. NUMBERS AND GRADUATIONS IN ACCORDANCE WITH FED-STD-595 COLOR WHITE NO. 37875
3. ALL TRIANGLES TO BE LUMINESCENT GREEN

DIMENSIONS IN INCHES
UNLESS OTHERWISE
SPECIFIED
TOLERANCES
DECIMALS $\pm .010$

FIGURE 1

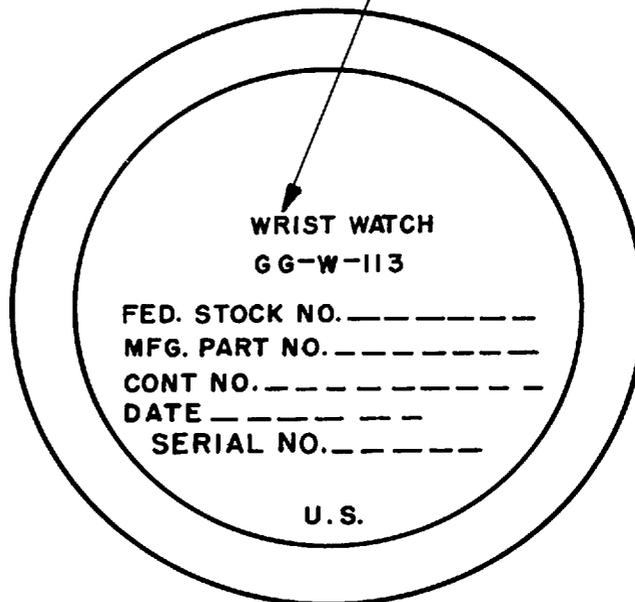
**NOTES**

1. SHADED AREAS OF HANDS TO BE LUMINESCENT GREEN
2. HOUR AND MINUTE HAND SKELETONS TO BE IN ACCORDANCE WITH FED-STD-595, COLOR WHITE NO. 37875
3. THICKNESS OF SKELETONS .008
4. UNSHADED AREAS TO BE IN ACCORDANCE WITH FED-STD-595, COLOR WHITE NO. 37875

DIMENSIONS IN INCHES
UNLESS OTHERWISE
SPECIFIED
TOLERANCES
DECIMALS $\pm .010$

FIGURE 2

LETTERS AND NUMERALS TO BE .035
HIGH X .010 DEEP CENTRALLY LOCATED
OR MAY BE POSITIONED AROUND THE
BEVELED PORTION.



BACK OF CASE

DIMENSIONS IN INCHES
TOLERANCES \pm .010

FIGURE 3

U.S. Government Printing Office: 1967

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain copies and other documents referenced herein. Price 10 cents each.