TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

INDUSTRIAL RADIOGRAPHIC X-RAY APPARATUS

FSN 6635-179-4322

AND

X-RAY SUPPORT KIT

FSN 6635-179-4321

HEADQUARTERS, DEPARTMENT OF THE ARMY

SEPTEMBER 1972

WARNING

RADIATION HAZARD RADIOLOGICAL SAFETY PRECAUTIONS

All personnel must wear a film badge and a pocket dosimeter (IM-9/PD or equal) when operating the X-ray system. Film badge service should be requested from the nearest medical unit.

The maximum permissible exposure to radiation is 100 milliroentgens (mr.) per week. Personnel receiving a dosage of more than 100 mr. in a week must be kept from further exposure until cleared by medical authorities.

While the X-ray apparatus is in operation in an open field, personnel should be kept out of the radiation pattern shown by the area outlined below. When the X-ray apparatus is used in other than an open field, the exclusion zone must be established at the 20 mr./hr exposure rate level using a Victoreen Model 440 RF Ionization Rate Meter (FSN 6665-780-5507) or equivalent. An open field is defined as an area that has no obstructions. Whenever approaching the X-ray head, use the radiac to verify that the X-ray head has turned off. The exclusion area perimeter must be roped off and posted with radiation warning signs.

HIGH VOLTAGE (300,000 VOLTS)

High voltage is used in the operation of this equipment. Death on contact may result if personnel fail to observe safety precautions.

EXTREMELY DANGEROUS POTENTIALS

Do not be misled by the term, "low voltage." Under adverse conditions, potentials as low as 50 volts may cause death. For artificial respiration, refer to FM 21-11, First Aid for Soldiers.

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 1 February 1994

OPERATOR'S, UNIT, AND DIRECT SUPPORT MAINTENANCE

FOR

INDUSTRIAL RADIOGRAPHIC X-RAY APPARATUS
(NSN 6635-00-179-4322)
AND
X-RAY SUPPORT KIT
(NSN 6635-00-179-4321)

TM 9-6635-385-13, dated 26 September 1972, is changed as follows:

1. The purpose of this change notice is to provide notification under Section 326 of Public Law 102-484, FY 93 National Defense Authorization Act, that Ozone Depleting Chemicals may no longer be used on Army equipment.

2. On page 3-2, paragraph 3-8.b, delete "Use cleaning compound (MIL-C-81302 Freon PCA) only to clean rubber components."

3. File this change notice in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
05911

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25-E, block 5064 requirements for TM 9-6635-385-13.

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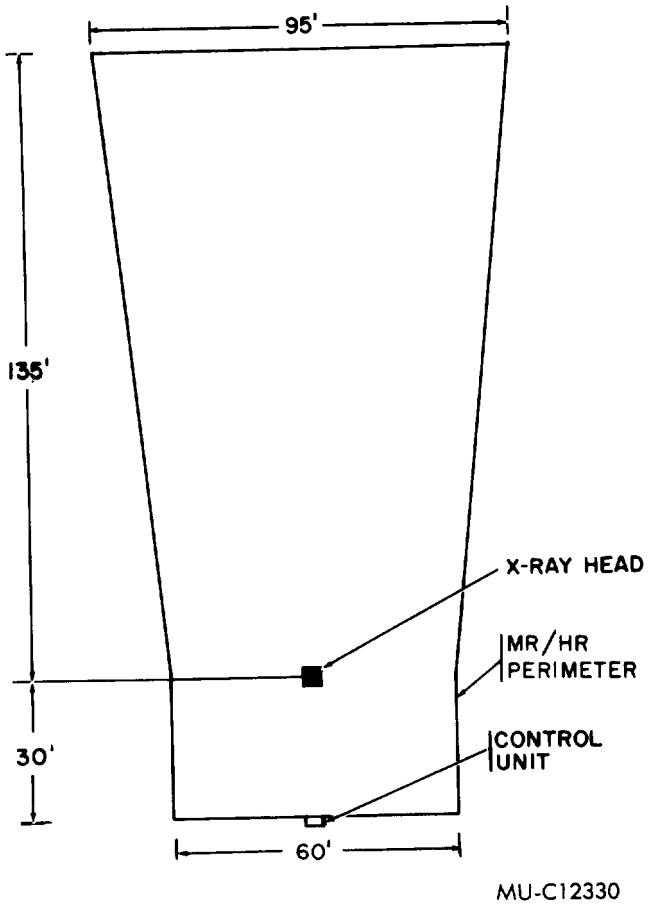

Radiation pattern.

TECHNICAL MANUAL
No. 9-6635-385-13

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 26 September 1972

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL
Including Repair Parts and Special Tools Lists
Industrial Radiographic X-ray Apparatus FSN 6635-179-4322
and
X-Ray Support Kit FSN 6635-179-4321

Current as of 4 September 1972

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual contains instructions for operation, organizational maintenance, and direct support maintenance of Industrial Radiographic X-ray Apparatus FSN 6635-197-4322 and X-ray Support Kit FSN 6635-197-4321.

b. Procedures in this manual are for trained personnel only.

1-2. Forms, Records, and Reports

a. Reports, Records, and Forms for Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions given in TM 38-750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58.

c. Reporting of Equipment Publication Improvements. The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to: Commanding Officer, Picatinny Arsenal, ATTN: SMUPA-EO-D-B, Dover, NJ 07801.

Section II. DESCRIPTION AND DATA

1-3. General

The X-ray apparatus and X-ray support kit make up a compact system designed to be transported and used in the field by EOD Detachments to determine the condition of fuzes and other critical components of munitions.

1-4. Description of X-ray Apparatus

Fig. 1-1, 1-2, and 1-3

The X-ray apparatus has a power rating of 300 kilovolts (KV) (300,000 volts) at 3.0 milliamperes (ma.) and can penetrate a maximum of approximately 2 inches of steel or equivalent in other mediums (table 1-1). The complete apparatus (including packing cases) weighs approximately 350 pounds. The major units of the apparatus are an X-ray head assembly, an X-ray apparatus case and control unit, line electrical power cable assembly, connecting electrical power cable assembly, and a centering and measuring device.

a. X-ray Head Assembly. The X-ray head assembly is a sealed, pressurized tank which weighs 145 pounds and contains the X-ray tube, various components, and lead shielding. Pressure is indicated by a gage. The X-ray head assembly is shipped and stored in a fiberboard packing case.

b. X-ray Apparatus Case and Control Unit. The control unit consists of a KILOVOLTAGE SELECTOR, KILOVOLT METER, MA CONTROL, EXPOSURE TIMER, DUTY CYCLE TIMER, LINE ON-OFF switch, pilot lights, and connectors for cable assemblies to the X-ray head assembly and the power supply. The case is made of steel. During storage and shipment, the

Table 1-1. Steel Equivalent Thickness

Material	Equivalent thickness	Approximate maximum penetration (inches)
Steel	1.00	2.00
Aluminum	0.08	25.00
Brass	1.40	1.43
Cooper-Nickel-Monel	1.50	1.34
Lead	12.00	0.17
Magnesium	0.05	40.00
TNT	0.11	18.19
Zinc	1.40	1.43

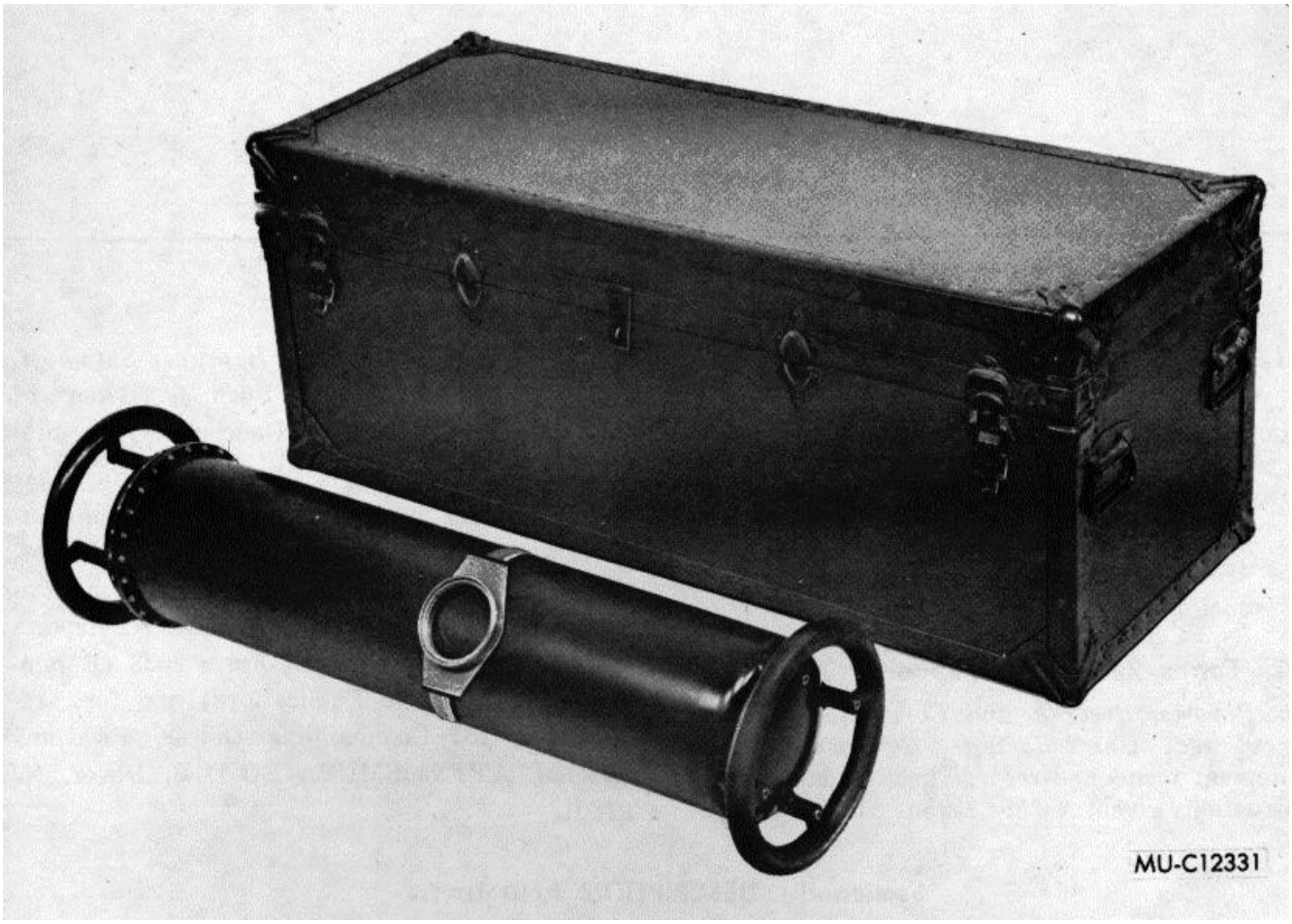

Figure 1-1. X-ray head packing cased - unpacked.

case and control unit, centering the measuring device, and the cable assemblies are inclosed in a fiberboard packing case.

c. Line Electrical Power Cable Assembly. This cable assembly is 25 feet long and connects the control unit to the power supply.

d. Connecting Electrical Power Cable Assembly. This cable assembly is 60 feet long and connects the control unit to the X-ray head assembly. Two of these assemblies are provided to allow for additional separation of the unit from the head assembly. The second cable assembly is packaged with the X-ray support kit.

e. Centering and Measuring Device (fig. 1-4). This device consists of a telescoping leg, adapter assembly, and centering ring. A measuring tape is part of the adapter assembly. The first 8 1/2 inches of tape has been removed to compensate for the distance between the centering and measuring device and the center of the X-ray head. In operation, the device is attached to the centering device holder which is strapped to the X-ray head assembly.

1-5. Technical Data

Technical data for the X-ray apparatus is given in table 1-2.

1-6. Description of X-ray Support Kit
Fig. 1-5

A separately-furnished support kit, packed in a plywood chest, provides additional equipment to complete the system. Components of the kit are the radiographic paper and developer assembly processing machine, two industrial X-ray apparatus cassettes, a connecting electrical power cable assembly, two X-ray support tripods, two lead sheets, and radiographic paper and developer assemblies (requisitioned separately).

a. Radiographic Paper and Developer Assembly Processing Machine (fig. 1-6). The machine is a manually-operated, portable processing unit for Polaroid X-ray film. The machine is packed

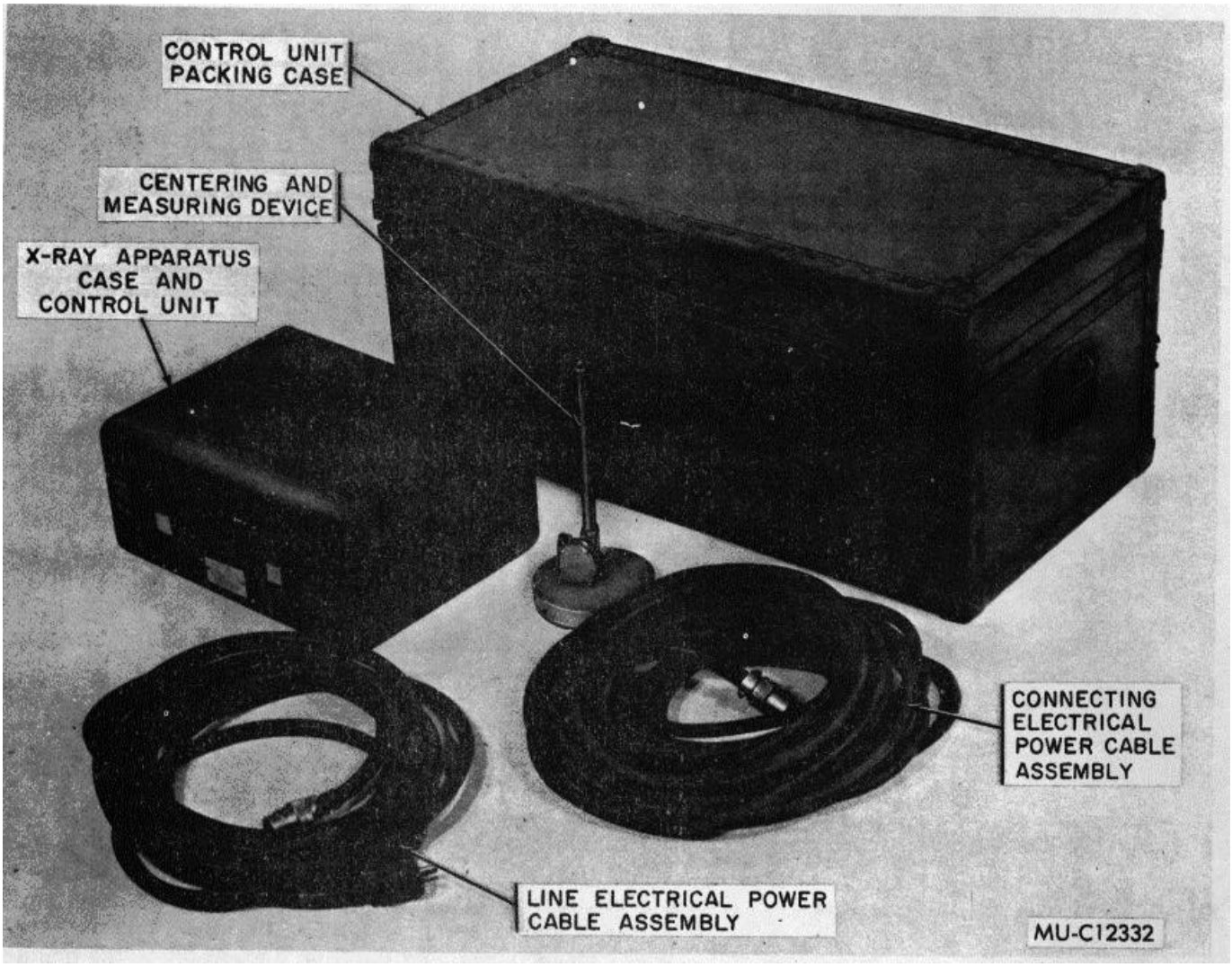

Figure 1-2. Control unit packing case - unpacked.

Table 1-2. Technical Data-X-ray Apparatus

Power supply	105 to 130 V AC, 60-cycle, single-phase, 15 amps
Focal spot size	3.0x3.0 mm
Shielding	5 mm lead in all directions except at port area
Output	300 KV at 3.0 ma., continuously variable KV and automatically set ma.
Timer	0-5 minutes, automatic reset
X-ray head assembly size	46 1/4-in. long x 12 1/4-in. diameter
X-ray head assembly weight	145 pounds
X-ray apparatus case and control unit size	15 in. x 12 in. x 7 in.
X-ray apparatus case and control unit weight	42 pounds
X-ray head packing case size	54 in. x 20 in. x 21 in.
Control unit packing case size	32 in. x 14 in. x 16 in.
X-ray field coverage	44°

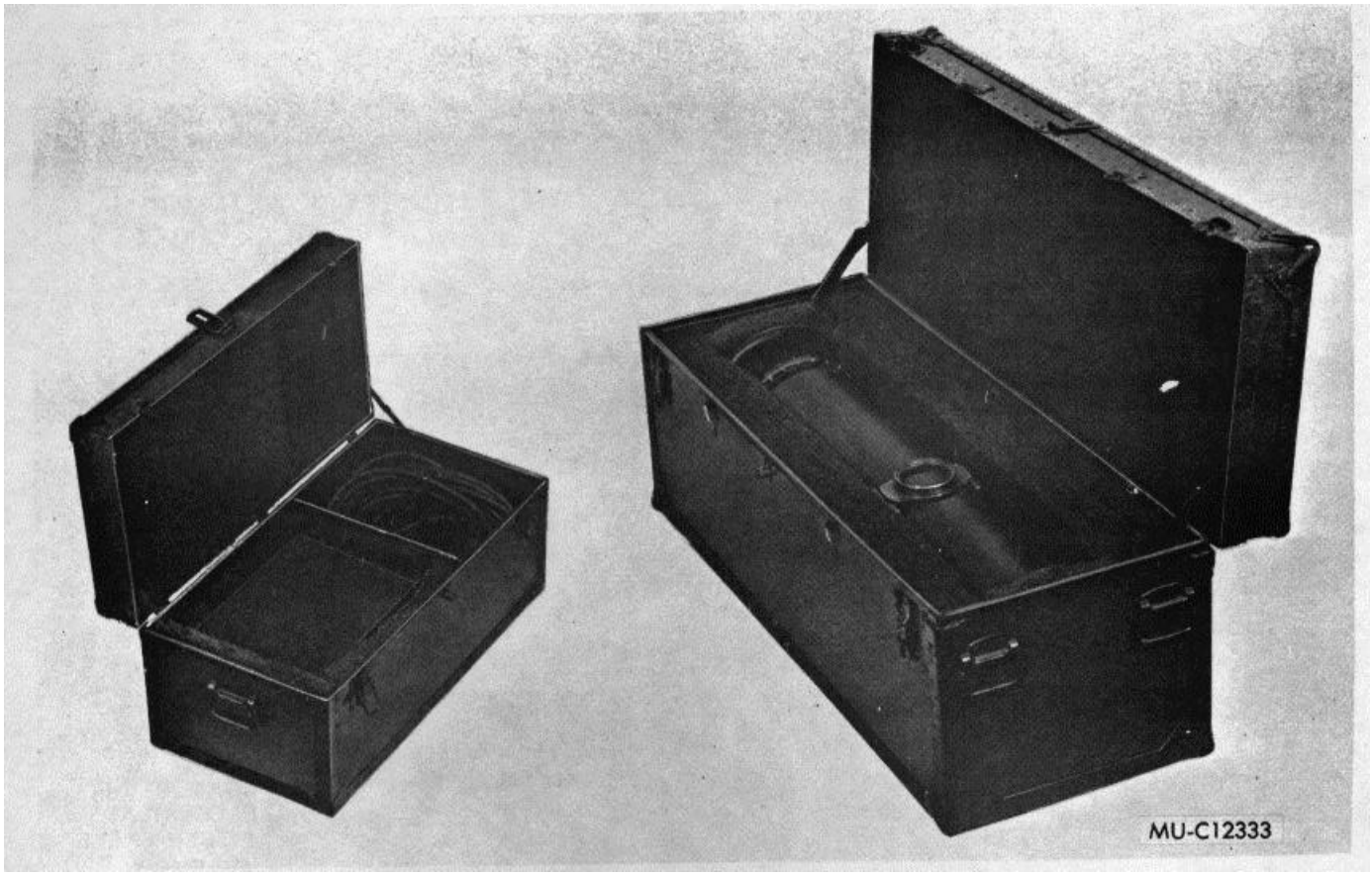

Figure 1-3. Industrial radiographic X-ray apparatus - packed.

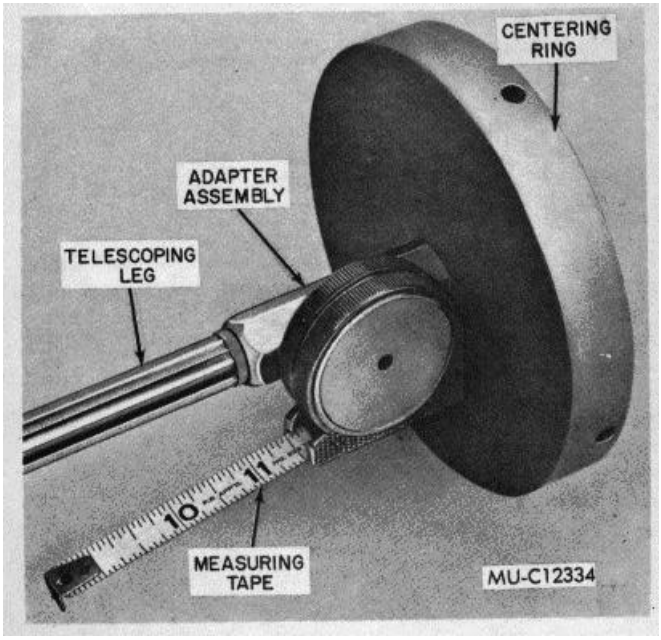

Figure 1-4. Centering and measuring device.

in a carrying case. Another carrying case (fig. 1-5) is supplied which contains the cassettes, lead sheets, and Polaroid film. Refer to the manufacturer's manual (packed with the machine) for instructions on the machine.

b. Industrial X-ray Apparatus Cassette (fig. 1-7). The cassette is used with a radiographic paper and developer assembly (Polaroid X-ray film packet). One side of the stainless steel cassette has a window of opaque, X-ray penetrable material. The other side contains two spring-type straps .which are rotated counterclockwise to unlock and clockwise to lock their ends in grooves in the cassette frame. A pressure lever is located between the spring straps. When it is raised to a perpendicular position, this lever releases pressure on the film packet. A screen, located between the back and front of the cassette, is used to separate portions of the film packet. This is a modified Picker-Polaroid cassette. The modification consists of adding lead to the rear of the opaque side and one side of the screen.

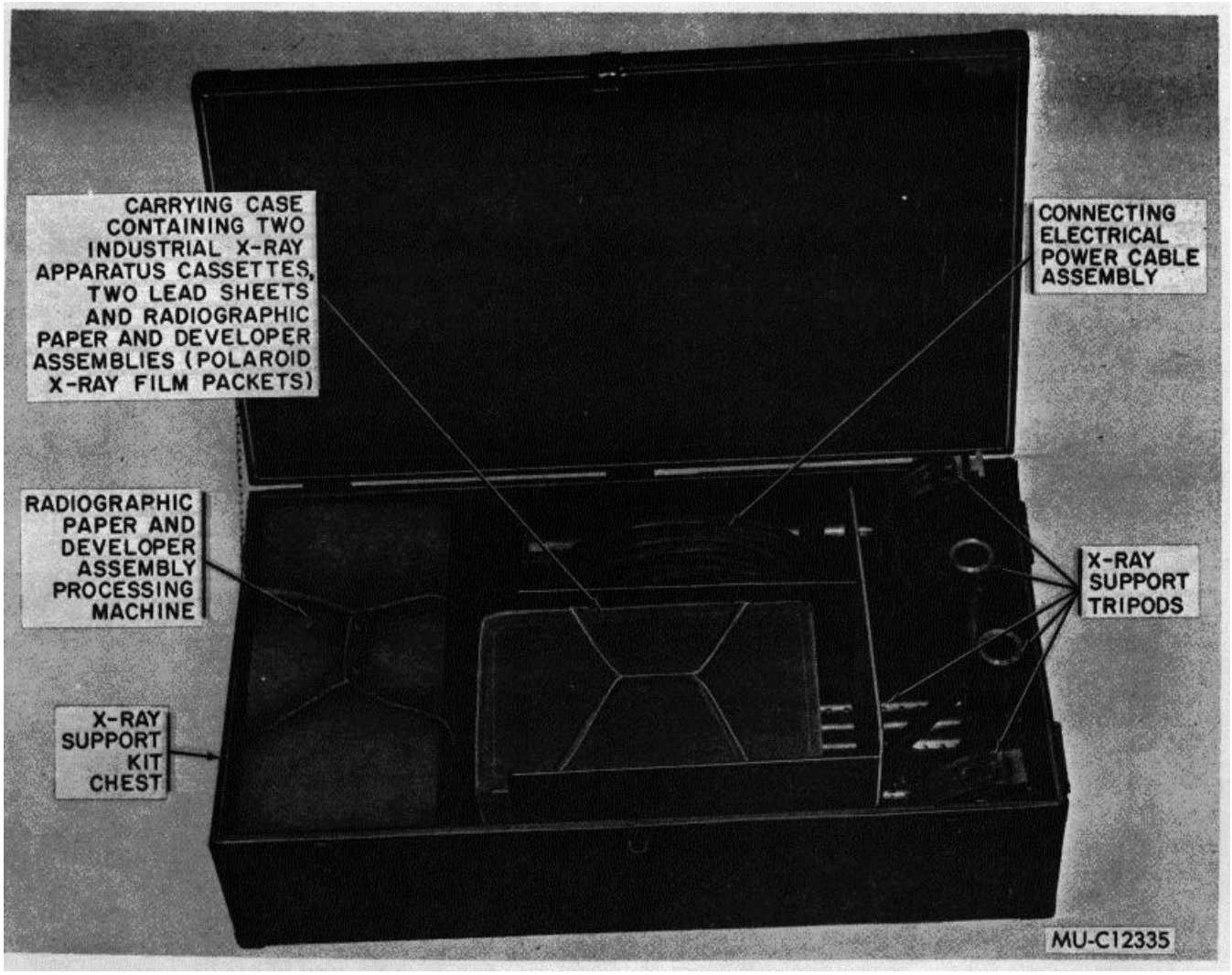

Figure 1-5. X-ray support kit.

c. Connecting Electrical Power Cable Assembly. This cable assembly is identical to the one provided with the X-ray apparatus. Refer to par 1-4d. above.

d. X-ray Support Tripod (fig. 1-8). Two tripods are supplied for use in supporting the X-ray head assembly. The parts are made of stainless steel. The top half clamp is secured to the bottom half clamp by a hook latch. The clamp is adjustable in the tripod anchor and is held in place by a quick-release pin assembly. Each of the three tripod adjustable legs is secured to the tripod anchor by a quick-release pin assembly. Each of the three tripod feet is also adjustable and each is held in place by a quick-release pin assembly.

e. Lead Sheets. Two lead sheets, 12 inches by 13 inches by 1/8 inch, are provided for use in reducing X-ray scatter.

f. Radiographic Paper and Developer Assemblies (Polaroid X-ray Film Packets) (fig. 1-7). These assemblies, FSN 6525-930-0575, should be requisitioned through normal supply channels and are listed in Appendix I of SC 138-94-CL-P01. When received, they should be packed in the carrying case along with the cassettes and lead sheets. They are supplied 26 to a package, and two packages are authorized for issue to each unit.

Figure 1-6. Radiographic paper and developer assembly processing machine.

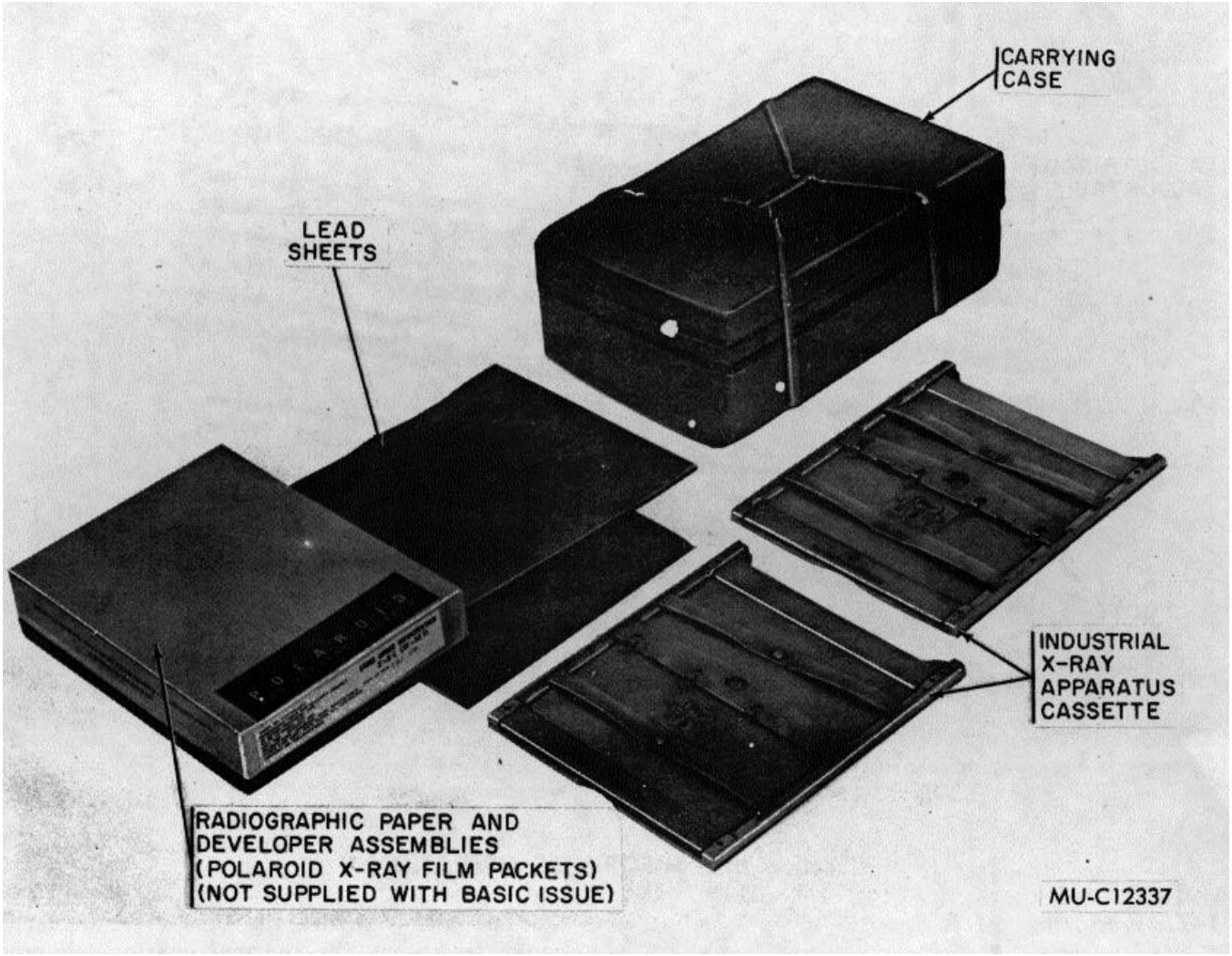

Figure 1-7. Carrying case and components.

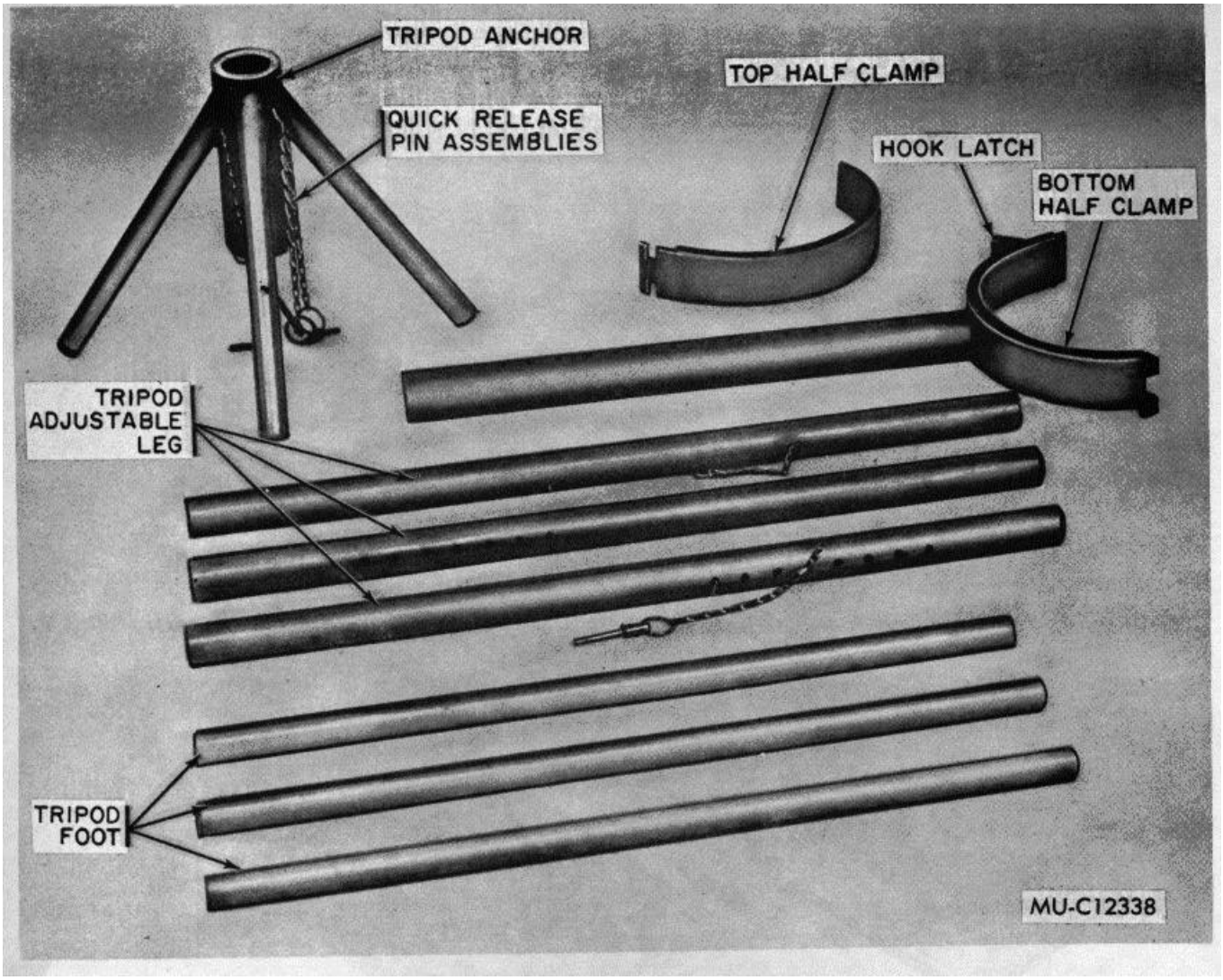

Figure 1-8. X-ray support tripod components.

Section III. THEORY OF OPERATION

1-7. Production of X-rays

a. In an X-ray vacuum tube, a metal target (usually tungsten) is bombarded with a stream of electrons accelerated to high energy. The target emits X-rays when struck. The energy of the X-ray is determined by the energy of the electrons, which, in turn, is determined by the voltage applied across the tube. As X-rays are emitted in all directions, the safety of the operator requires that the tube be surrounded by shielding at all points except the emission port located on the side of the tube. The leakage radiation is less than 0.02 roentgen per hour when measured at a distance of 25 feet from the tube head.

b. The target within the tube must be large enough to absorb the thermal energy delivered by the electron beam without melting, yet small enough to come close in behavior to a point source of X-rays. The X-ray apparatus has a very small target made possible by its cooling system.

1-8. Making the Radiograph

Some of the X-rays are absorbed as they pass through the object being radiographed. The percentage of the X-rays absorbed is determined by the thickness, density, and atomic number of the materials through which the X-rays pass. The unabsorbed X-rays strike the film producing a

physical change in the emulsion coating the film. Changes in film emulsion cause film lightening on areas of the film surface exposed to the X-rays The lightness of an area is determined by the amount of radiation received. The developed film is thus a projection of the internal structure of the object.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT

2-1. General

When a new or reconditioned X-ray apparatus and/or support kit is received by the using personnel, it is the responsibility of the officer in charge to determine whether the materiel has been properly prepared for service by the supplying organization and to make sure it is in condition to perform its assigned mission when placed in service. For this purpose, inspect all major components, assemblies, and subassemblies to make sure that they are properly assembled, secured, cleaned, and correctly adjusted. Check all equipment to be sure every item is present, in good condition, clean, properly mounted, and stowed.

2-2. Unpacking

a. Remove the X-ray head assembly, X-ray apparatus case and control unit and other components from their packing cases and the X-ray support kit from its chest.

b. Store cases and chest in suitable area for reuse.

2-3. Inspection

Perform the appropriate procedures provided in chapter 3 to correct deficiencies uncovered during the following inspection.

a. Completeness. Inspect the X-ray apparatus and X-ray support kit to insure that all components are present. Insure that no hardware (such as nuts, bolts, or screws) is loose or missing.

b. Appearance. The overall appearance will indicate its general condition and previous handling. Inspect for dented surfaces, bent or broken parts, fungus growth, moisture, and corrosion. Carefully examine for evidence of damage which might require correction or repair. Nuts, screws, and lockwashers must appear sufficiently secure. Inspect all components for evidence of abuse.

c. Cables and Receptacles. Insure that cables are free from kinks and worn or frayed insulation. Insure that cable plugs and receptacles are clean and intact.

d. Functioning of Mechanical Components. Mechanical components must operate smoothly without binding or rough motion. Parts must be free from grit. Insure that switch knobs, meter windows, hardware; etc., are not cracked or missing. Insure that switches, knobs, and/or controls are functioning normally.

e. Name Plates, Scales, and Indexes. Inspect scale numbers, divisions and indexes, and lettering on name and direction plates, to insure that they are clearly defined and easily read.

f. Paint and Finish. Inspect for bare spots or damaged finish.

Section II. OPERATOR CONTROLS AND INDICATORS

2-4. General

This section describes, locates, and illustrates the controls and indicators provided for proper operation of the equipment.

2-5. Controls and Indicators

The controls and indicators are listed in table 2-1 and illustrated in figures 2-1 and 2-2.

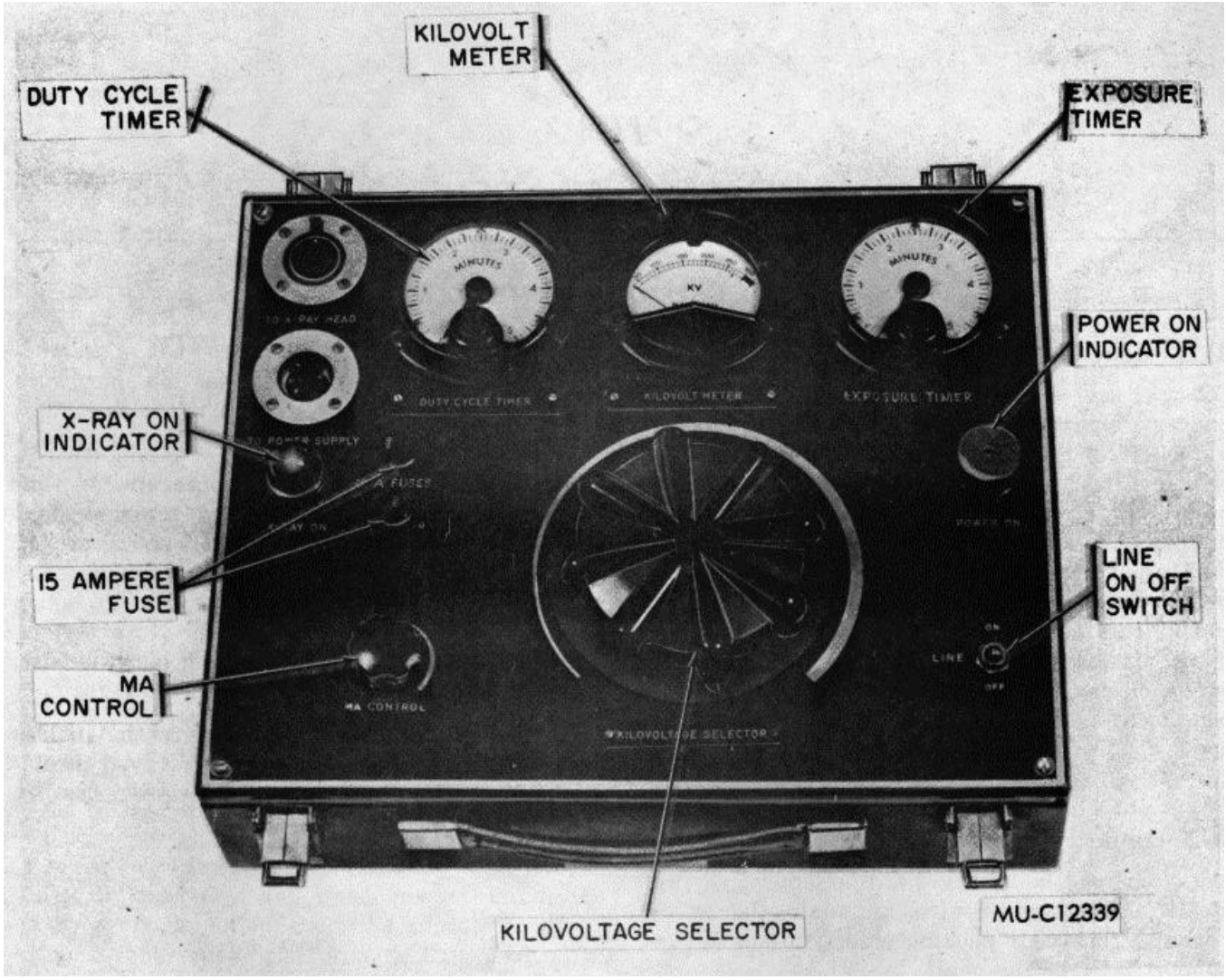

Figure 2-1. Operator controls and indicators-control unit.

Table 2-1. Control/Indicator Functions

Control or indictor	*Function*
CONTROL UNIT:	
KILOVOLT METER	Indicates setting of MA CONTROL prior to taking radiograph; indicates KILOVOLTAGE SELECTOR position while taking radiograph.
KILOVOLTAGE SELECTOR	Adjusts voltage supplied to X-ray tube; value is shown on KILOVOLT METER.
EXPOSURE TIMER	Initiates exposure and shuts X-ray tube off after preset time has expired. Can be set in 5-second increments.
DUTY CYCLE TIMER	Times off-time of X-ray tube when depressed. Starts when exposure is completed and can be set to same time as exposure time. Prevents X-ray from being started when energized.
MA CONTROL	When properly adjusted, needle on KILOVOLT METER is on green line.
LINE ON-OFF switch	Applies power to control unit and X-ray head. Energizes X-ray tube filament.
X-RAY	ON indicator Is lit when EXPOSURE TIMER button is depressed.
POWER	ON indicator Is lit when LINE ON-OFF switch is in the ON position.
X-RAY HEAD ASSEMBLY:	
Pressure gage	Indicates sulfur hexafluoride (SFI) gas pressure in the X-ray head. Pressure of the cooling, insulating gas should be 25 psi minimum and 45 psi maximum.

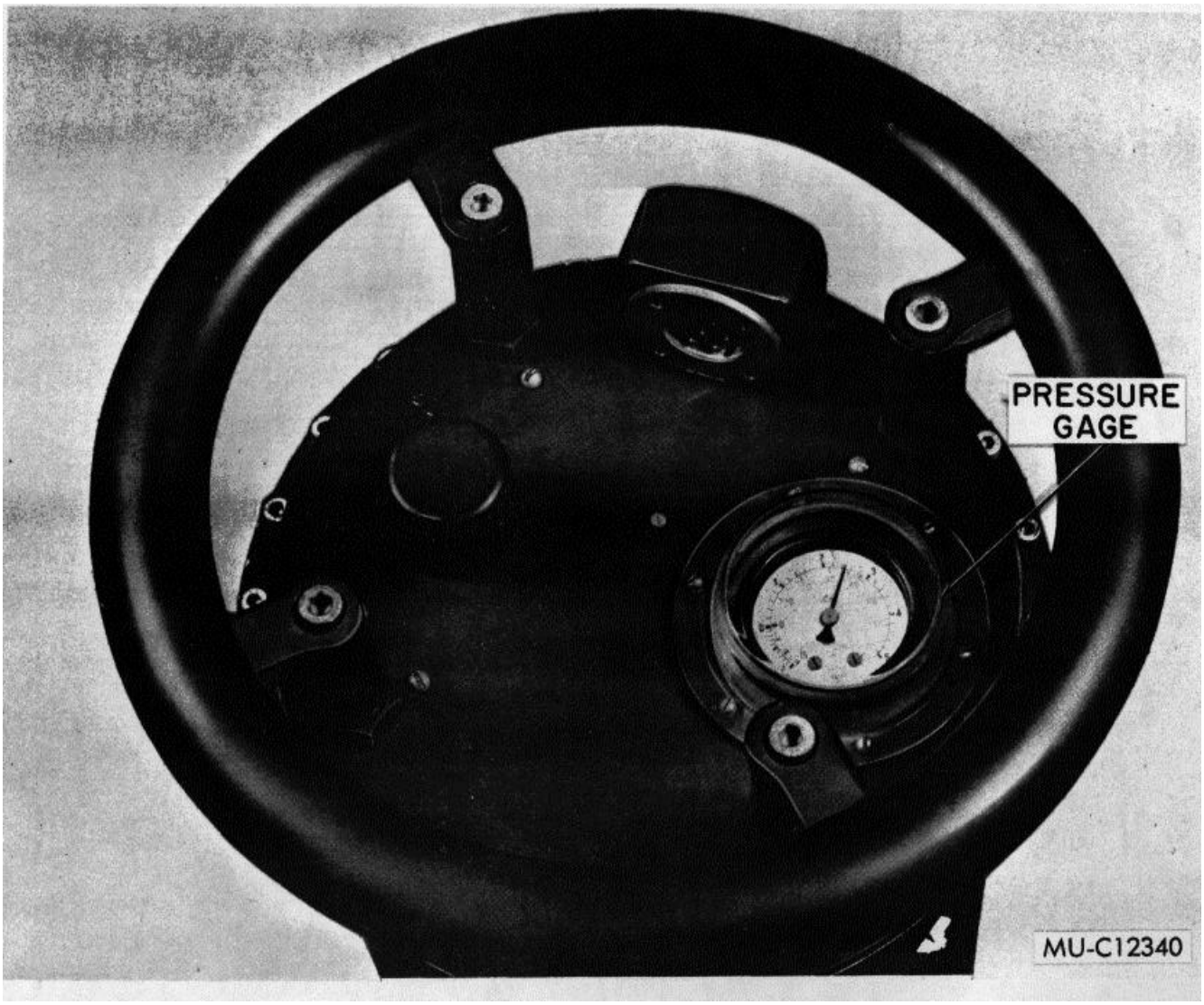

Figure 2-2. Operator controls and indicators--X-ray head.

Section III. DETERMINATION OF EXPOSURE TIME AND KILOVOLTAGE SETTING

2-6. Radiograph Exposure Chart

The proper exposure time and kilovoltage setting for radiographs using Polaroid film can be selected by using the chart shown in figure 2-3. The chart was developed using a focus-film distance of 36 inches for rolled steel. It is provided as a guide to enable the operator to establish approximate settings. Use the chart as follows:

a. Find the steel thickness on the bottom scale.

b. Follow the thickness line vertically until it intersects a KV setting line.

c. Find the nearest horizontal intersection line and follow it to the scale on the left side to find the exposure time. If the thickness line intercepts a number of different KV setting lines, any one may be used, thereby providing different exposure times to obtain the same results.

2-7. Sample' Problem

a. A fuse to be X-rayed has a body wall thickness of 1/4 inch. Therefore, the X-rays must pass through both the front and back of the body, totaling 1/2 inch. Assume that its interior has a steel equivalent thickness of 1/2 inch. Therefore, the X-rays would be required to penetrate a total distance of 1 inch.

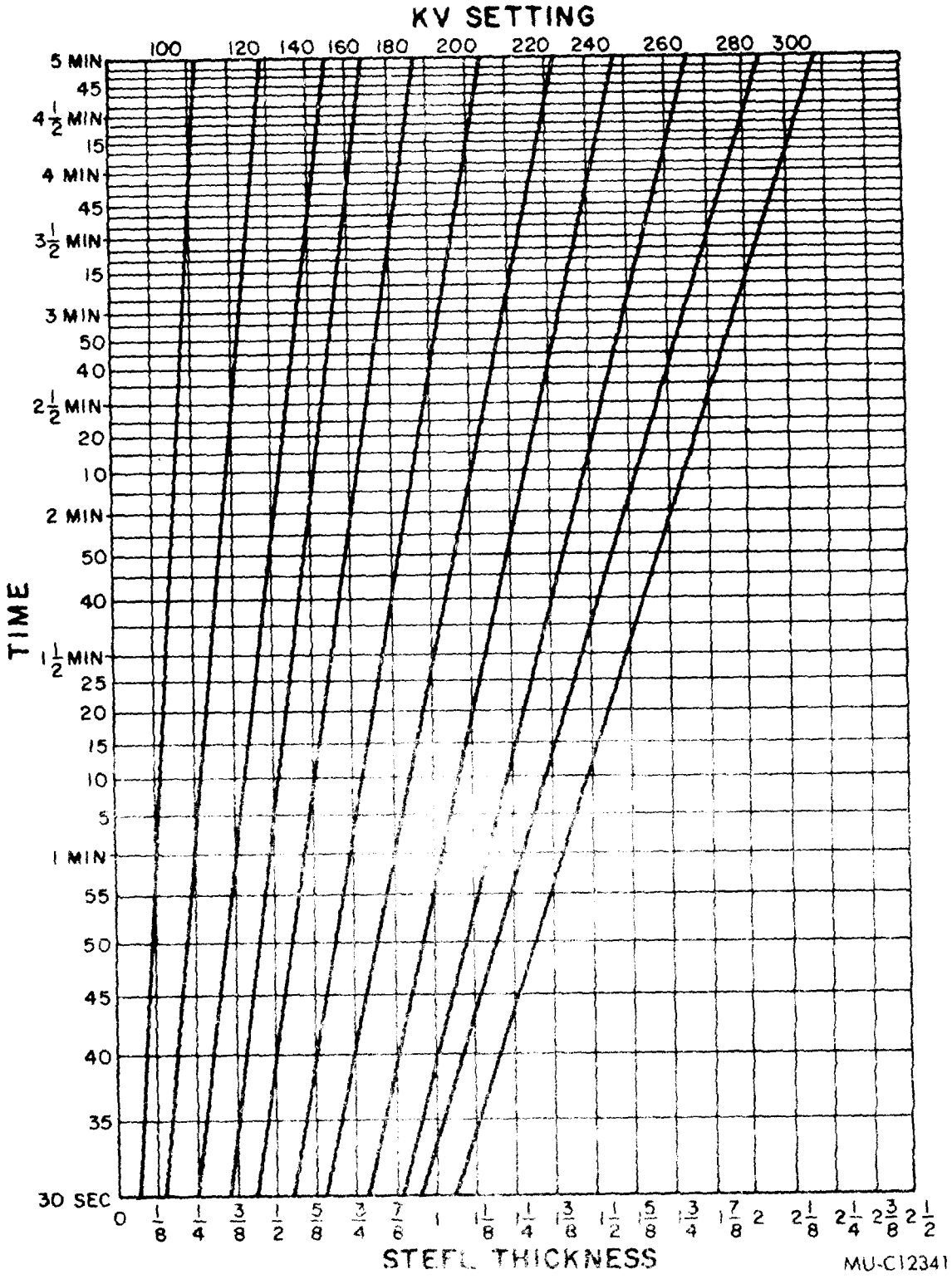

Figure 2-3. KV settings for various times and steel thicknesses.

b. A 1- to 2-minute exposure time is a convenient one to use, although any time setting up to 5 minutes, in 5-second increments, may be used. Using the procedures in paragraph 2-6 above and figure 2-3 for a thickness of 1 inch, a KV range of 235 to 210 may be used for time settings between 1 and 2 minutes.

2-8. Focus-film Distances

a. Focus-film distance is defined as the distance the X-rays travel from their source to the film. Since it would be difficult to measure the distance from the X-ray head center, the tape in the centering and measuring device (fig. 1-4) has been modified by removing the first 8 ½ inches of tape. This allows the user to read the focus-film distance directly from the tape without calculating the distance from the tape to the X-ray source.

b. The focus-film distance of 36 inches is considered standard and should be used if possible. If other than the standard distance is used, use the following formula to determine the proper exposure time:

$$E2=E1\ (D2/D1)^2$$

Where: E1 is the exposure time for the standard distance (36 inches)
E2 is the exposure time for the distance to be used
D1 is the standard distance in inches (36 inches)
D2 is the distance, in inches to be used

Using the above formula, a radiograph requiring an exposure of 9 minutes at the standard distance of 36 inches would require an exposure of 4 minutes at a distance of 24 inches and 1 minute at a distance of 12 inches.

c. In addition to the exposure being different for different focus-film distances, the area of coverage changes. Figure 2-4 shows the area or cone of coverage for different focus-film distances. For example, at 36 inches the field of coverage is approximately 28 1/2 inches. It should be remembered, however, that the further away from the center of the beam, the greater the angle at which the X-rays penetrate the object, effectively increasing the thickness of the object. It is advisable, when possible, to use only the central portion of the beam, 1/2 to 2/3 of the total coverage.

2-9. Estimation Of Steel Equivalent Thicknesses

Objects to be radiographed often contain substances other than steel. Table 1-1 provides the equivalent thickness factors for some common metals. Use the table as follows: If the object to be radiographed is brass and its total thickness is 2 inches, then its steel equivalent thickness is 1.4 times 2 inches, or 2.8 inches. A magnesium object 2 inches thick would be equivalent to 0.05 times 2 or 0.1-inch equivalent thickness of steel.

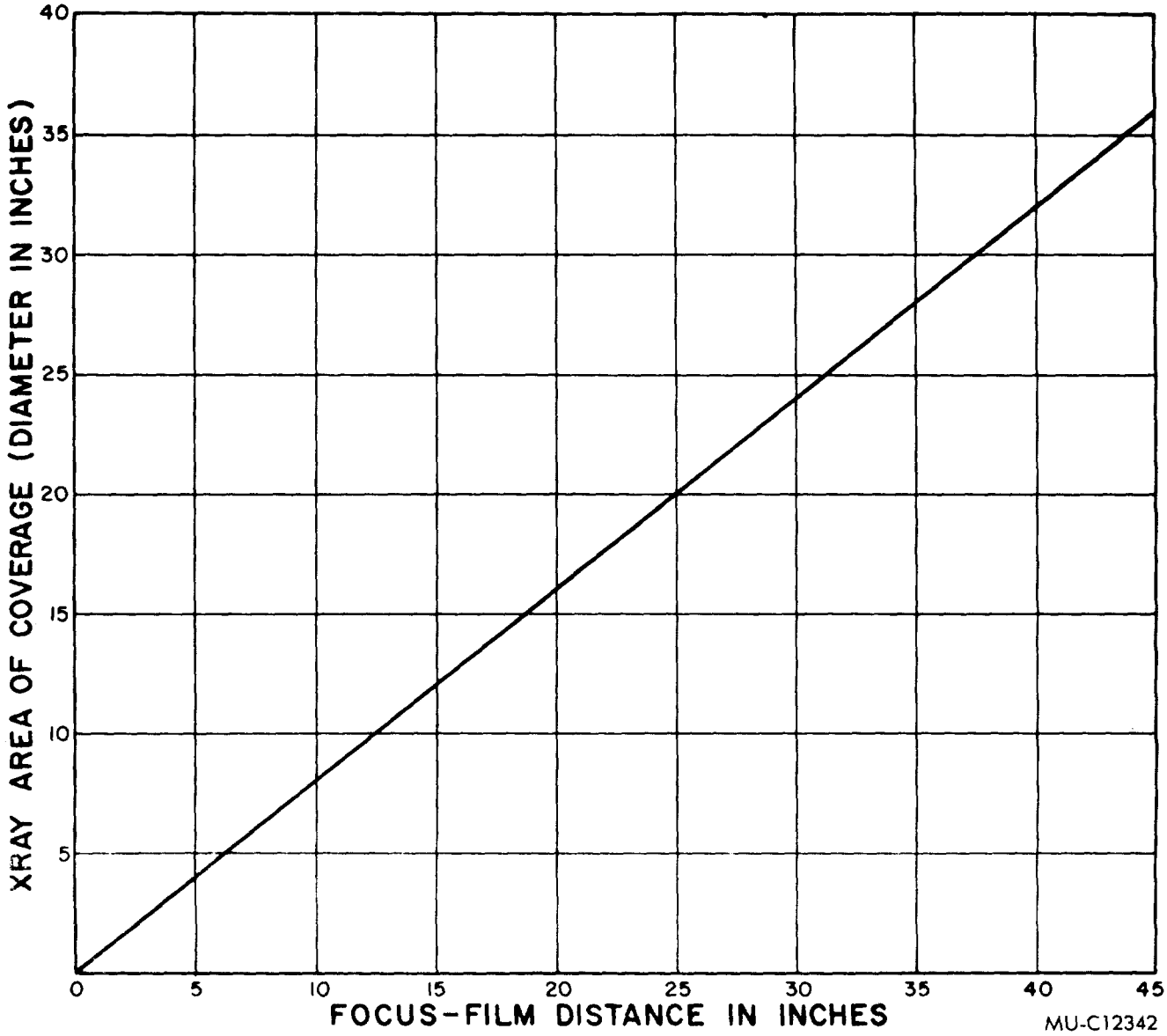

Figure 2-4. Area (diameter) of coverage.

Section IV. OPERATION OF THE INDUSTRIAL X-RAY APPARATUS CASSETTE

2-10. General

a. Light streaks may appear on the radiograph if the cassette is aimed directly at the sun, at a highly reflected surface, or at a lamp. Do not allow direct bright light to strike the end of the cassette from which the black envelope is withdrawn.

b. There are soft springs at either end of the back pressure plate of the cassette. These springs serve to deflect the felt cushions which act as light seals. Do not place items on the cassettes since the cushions may be damaged, causing light streaks in the radiographs.

c. Handle the radiographic paper and developer assemblies carefully so that the developing pods are not activated prior to processing. If the cassette is opened after the black envelope has been removed, the film will be exposed.

d. After the black envelope is removed, store the cassette in a dark place and protect it from

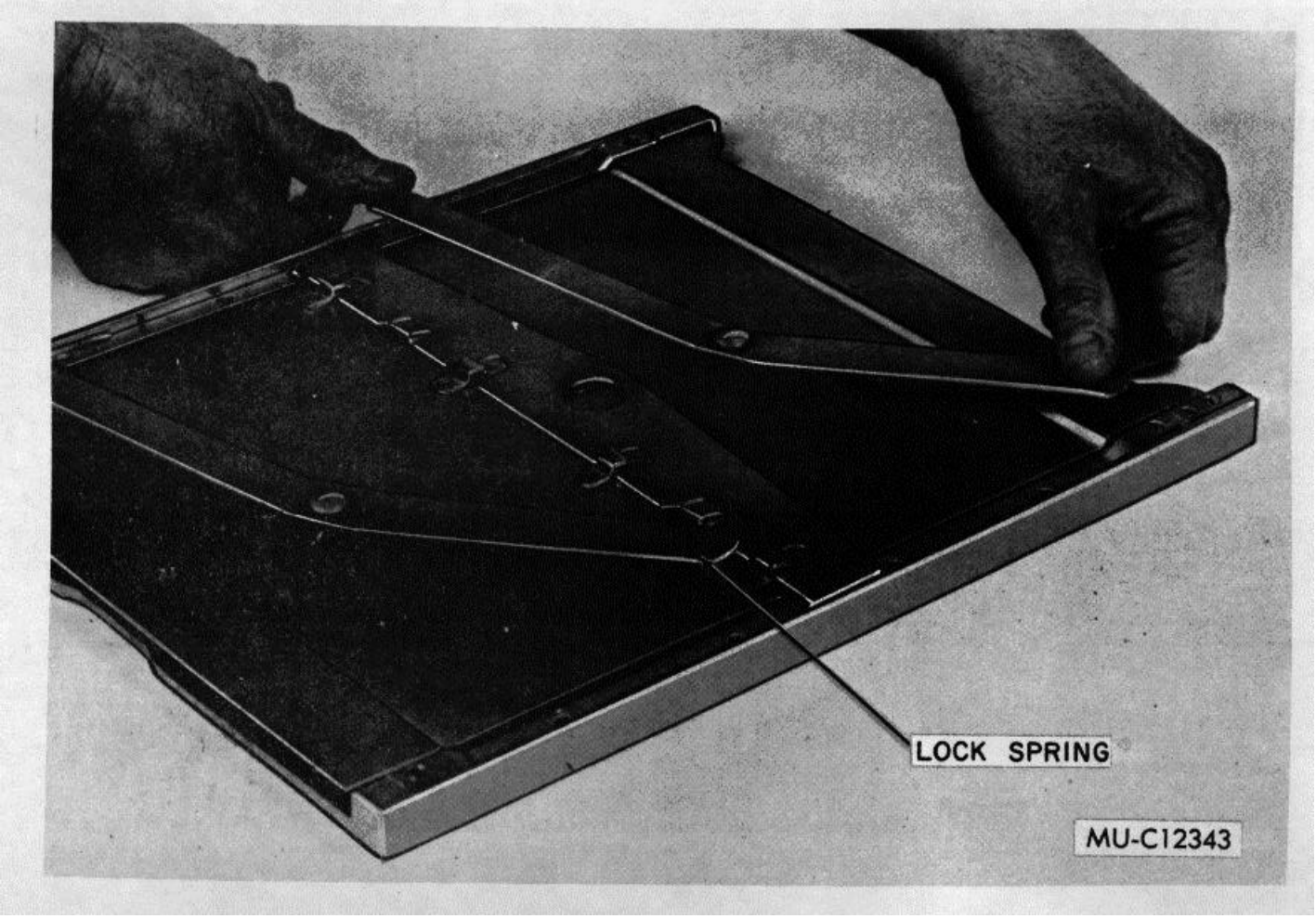

Figure 2-5. Area (diameter) of coverage.

light until immediately prior to use to prevent fogging of the film.

2-11. Loading Instructions

a. Place the cassette (fig. 2-5) on a flat surface with the window face down. Pivot and release lock springs.

b. Raise the back of the cassette (fig. 2-6) and then lift the screen.

c. Place the black envelope portion of the radiographic paper and developer assembly on the end of the cassette so that it is directly under the end of the screen (fig. 2-7).

d. Drop the screen; the end should cover the black envelope but not touch the brown paper (fig. 2-8). Adjust as necessary.

e. Slide the assembly into the cassette (fig. 2-9). The brown and white paper must go on top of the screen. If the assembly catches on anything, wiggle the assembly slightly to get it past the obstruction.

f. Slide the assembly into the cassette until the end of the assembly is flush with the end of the cassette. Lower the back of the cassette (fig. 2-10); do not lock at this time.

g. Fold the white tab over the end of the cassette and fasten the tab to the button (fig. 2-11). Insure that the pressure lever is fiat (fig. 2-12); pivot and lock the lock springs.

h. Raise the pressure lever as far as it will go (fig. 2-13). While holding the lever, pull out the black envelope. Pull the envelope out straight, not at an angle or to one side. Release the lever. The cassette is ready for use.

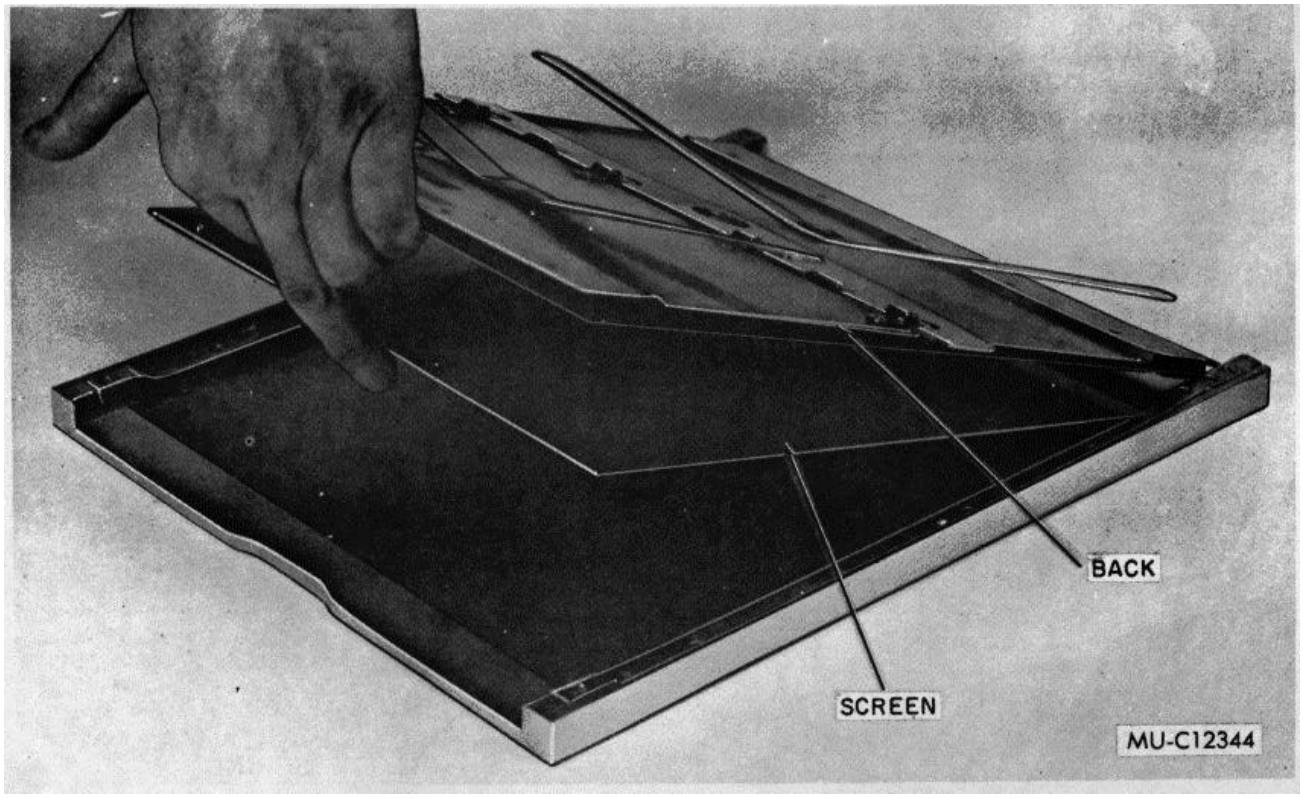

Figure 2-6. Raising back and screen of cassette.

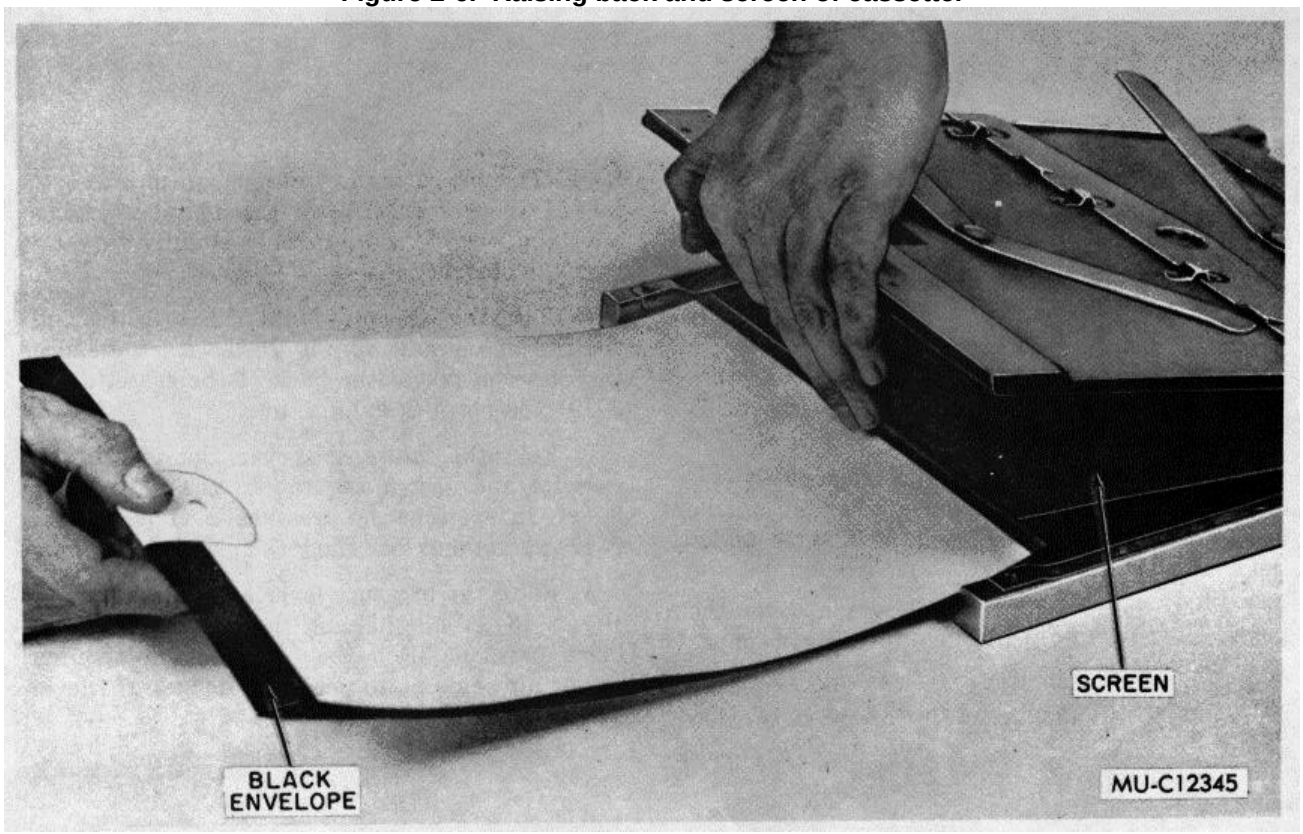

Figure 2-7. Initial placement of radiographic paper and developer assembly in cassette.

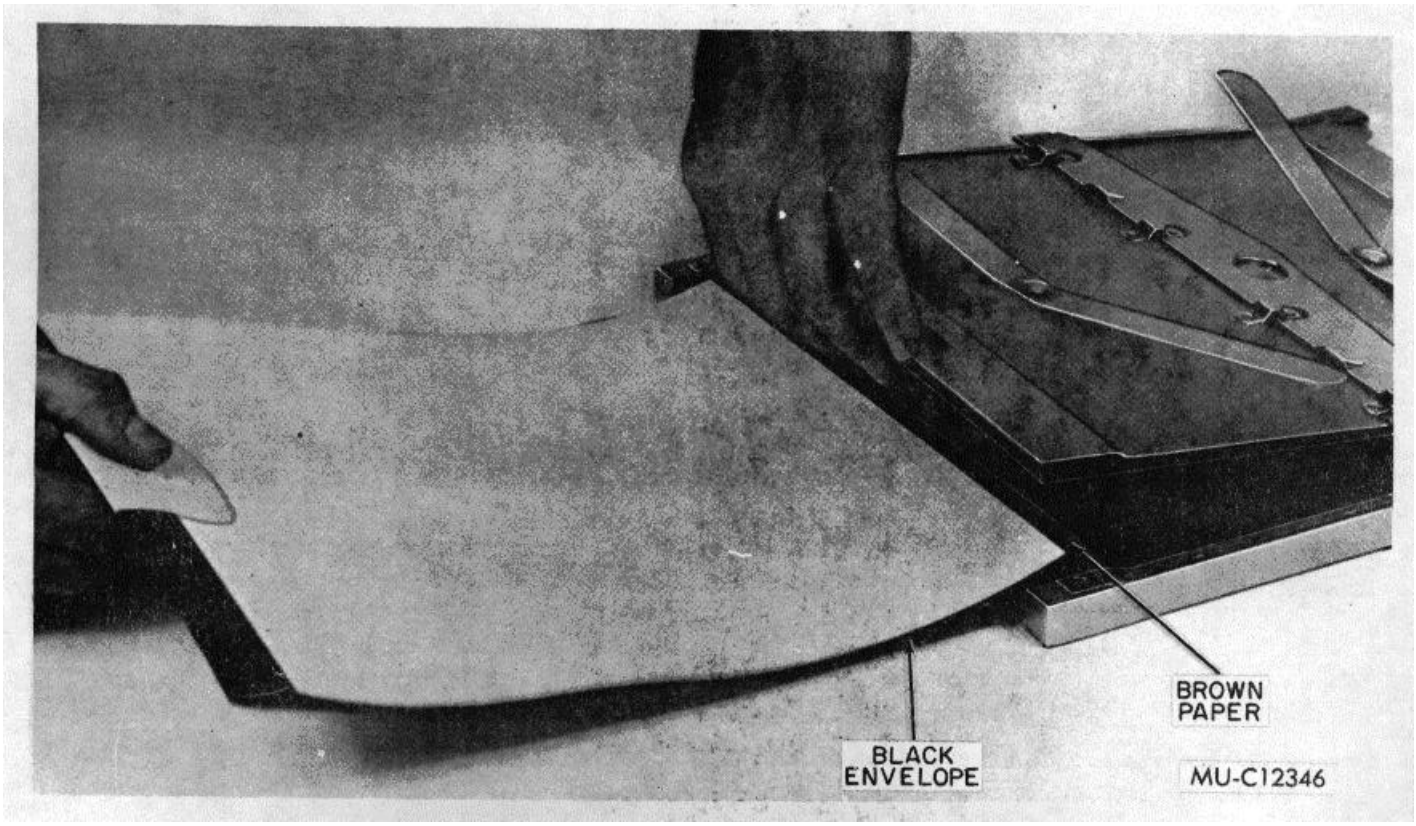

Figure 2-8. Positioning screen and assembly.

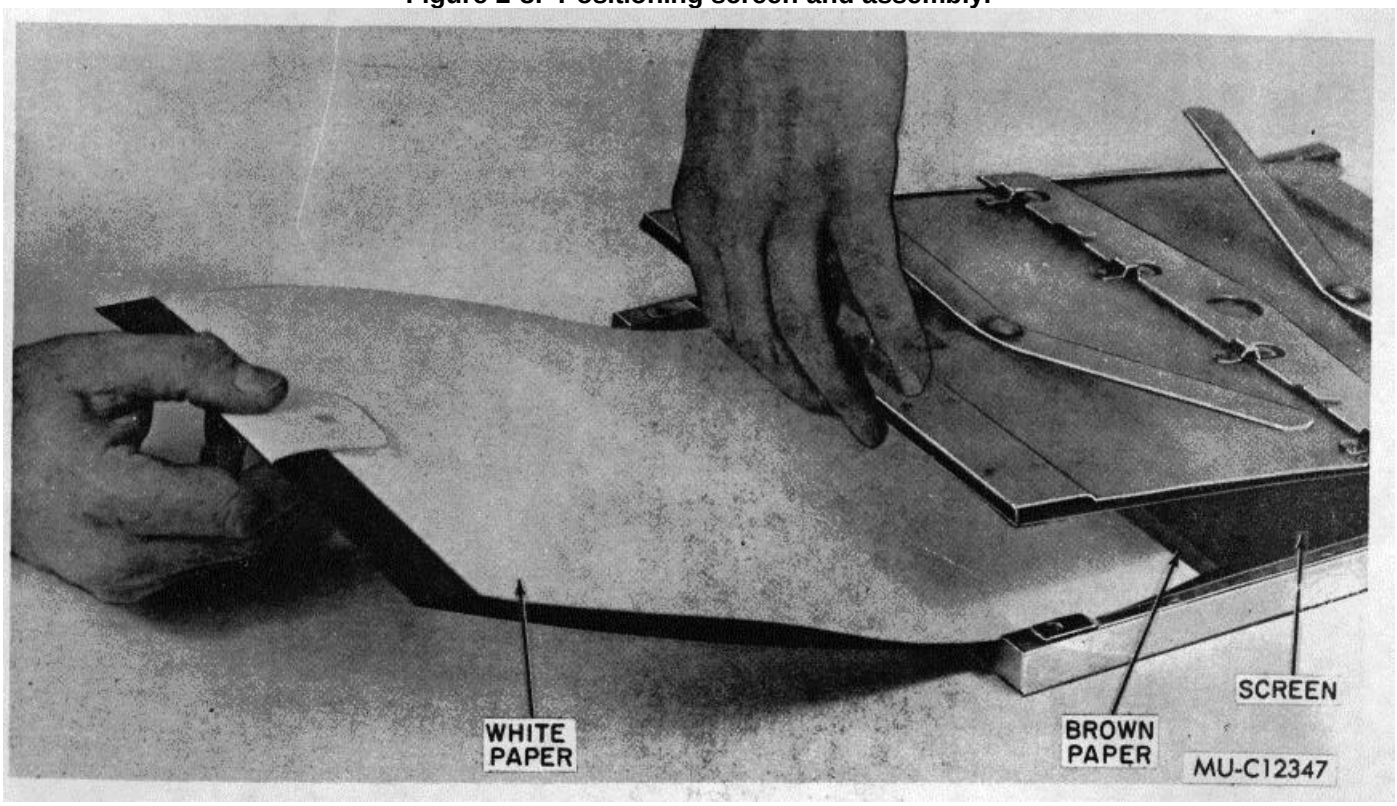

Figure 2-9. Sliding assembly into cassette.

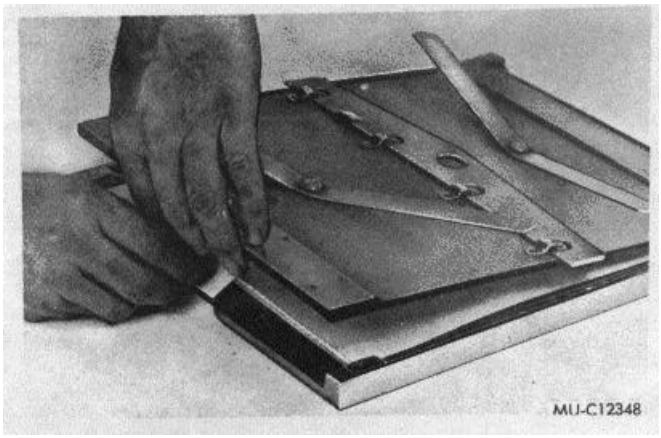

Figure 2-10. Assembly completely inserted into cassette.

Figure 2-11. Fastening table to button.

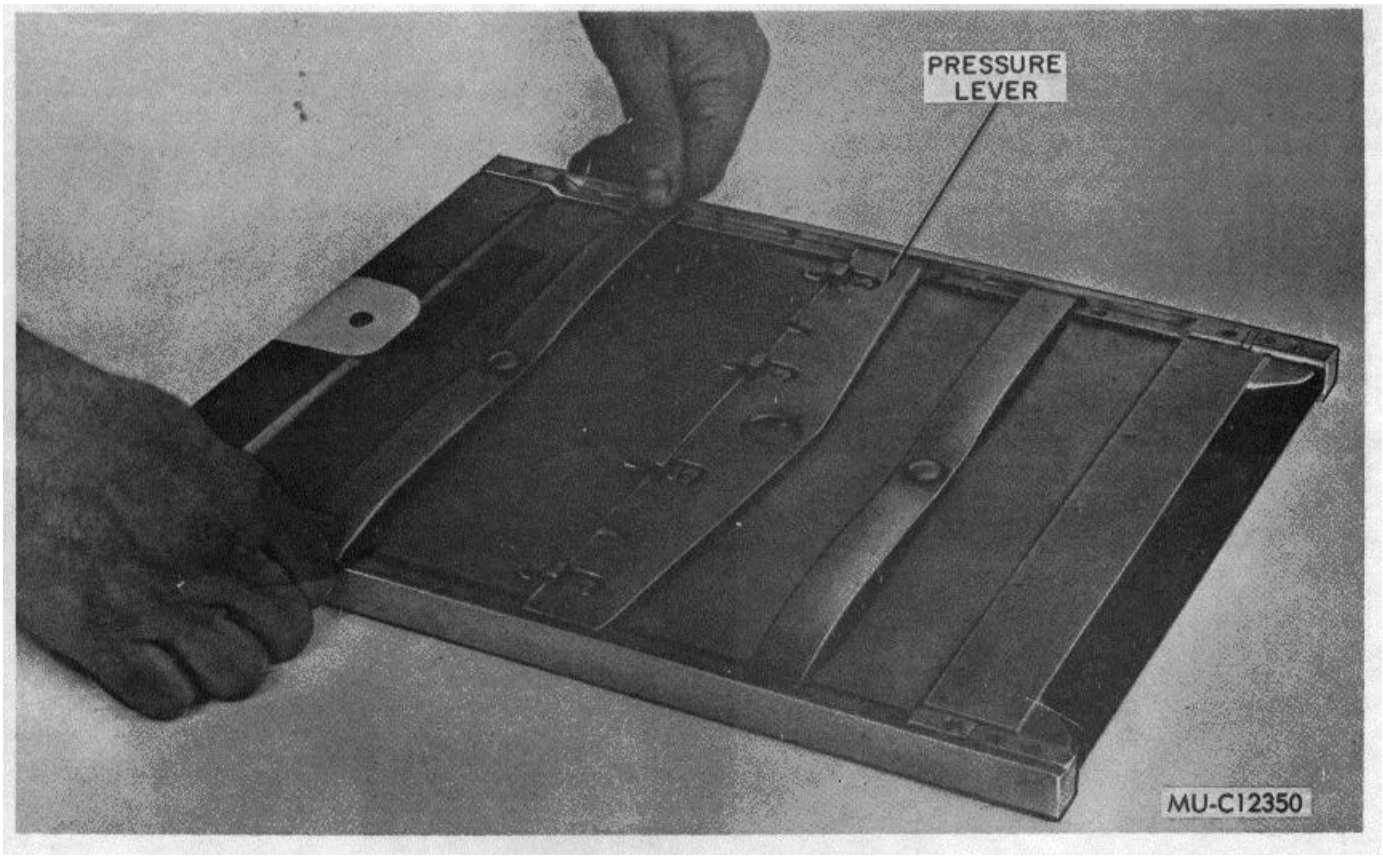

Figure 2-12. Locking cassette.

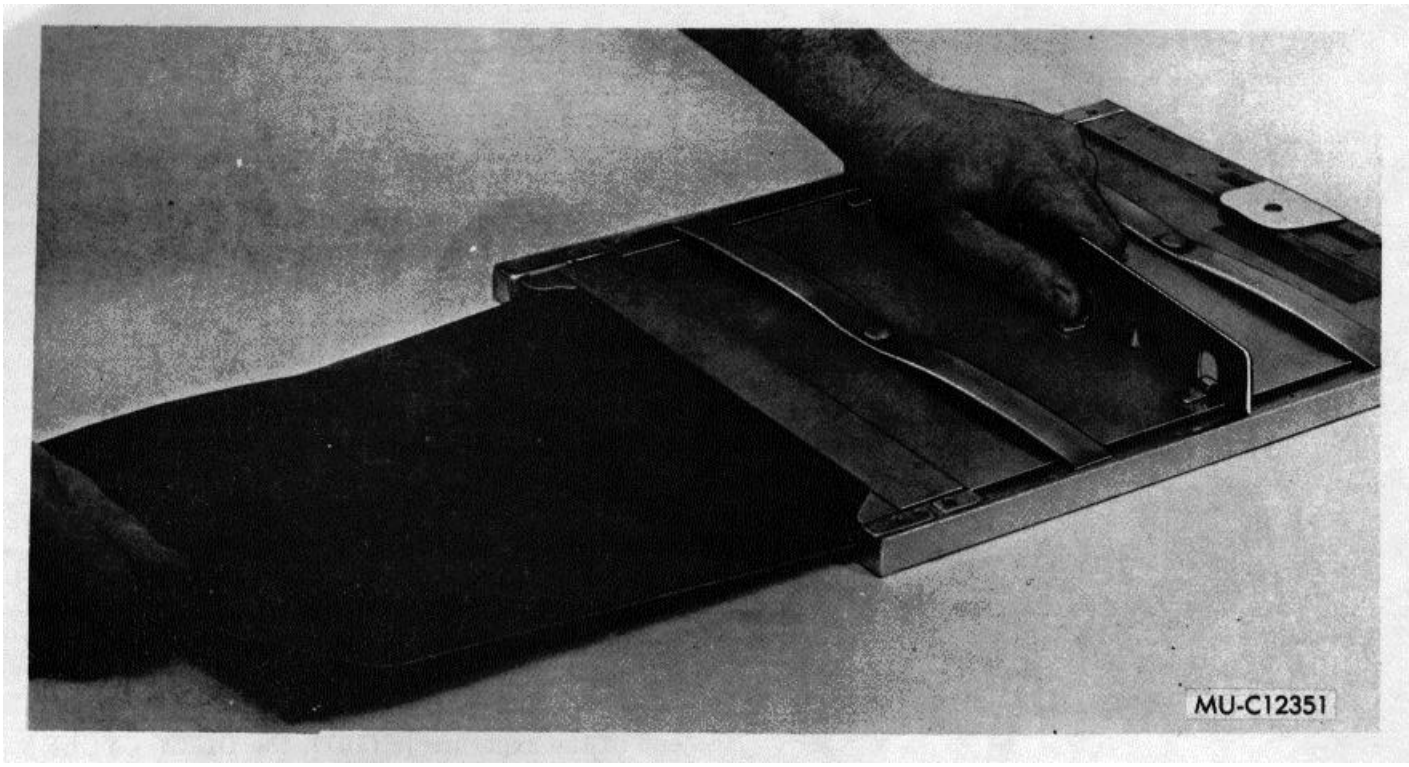

Figure 2-13. Removing black envelope.

Section V. OPERATION UNDER USUAL CONDITIONS

2-12. General

This section describes the procedure for normal operation of the X-ray system. It is assumed that the system is free from maintenance problems.

2-13. Preparation for Use

a. Assembling Tripod (fig. 2-14).

(1) Open the chest and remove the components as required.

(2) Slide the top of a tripod adjustable leg over a tripod anchor extension.

(3) Match the hole in the leg with the hole in the extension.

(4) Insert the pin of the quick release pin assembly through both holes, locking the leg in place.

(5) Repeat steps (2), (3), and (4) for the remaining two legs.

(6) Insert the tripod foot into the leg.

(7) Extend the foot to the desired length. Match the hole in the foot with a suitable hole in the leg.

(8) Insert the pin (attached to leg) through both holes locking the foot in place.

(9) Repeat steps (6), (7), and (8) above using the other two tripod feet.

(10) Slide the bottom half clamp assembly into the tripod anchor.

(11) Match a hole in the clamp with the hole in the tripod anchor so that the clamp is in the desired position.

(12) Insert the quick release pin assembly (chain mounted on tripod anchor above hole) through both holes locking the bottom half clamp in place.

(13) Assemble the second tripod in accordance with steps (1) through (12) above.

b. Installing X-ray Head on Tripods.

(1) Remove X-ray head assembly (fig. 1-1) from its packing case.

(2) Insure that the pressure gage located on the X-ray head assembly (fig. 2-2) registers within the operating range of 25 psi minimum to 45 psi maximum. If the gage does not register within these limits, replace the head assembly.

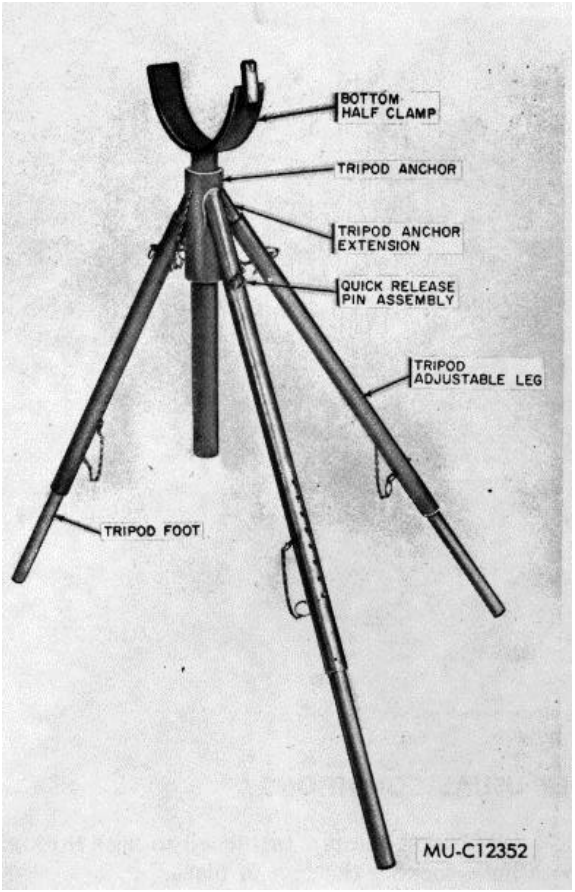

Figure 2-14. Assembling X-ray support tripod.

(3) Position the X-ray head on the bottom half clamp (fig. 2-15) of both tripods.

(4) Attach the top half clamp to the bottom half clamp of each tripod. Insure that each hook latch is tightly closed.

2-14. Operation

CAUTION

Become familiar with this section, especially the precautions and preheating information, before operating X-ray apparatus.

CAUTION

Use only 60-cycle power. Do not use 50-cycle power.

NOTE

Follow the sequence of operation as given to insure proper functioning of the X-ray apparatus.

a. Precautions.

(1) Do not permit unqualified personnel to operate the X-ray apparatus.

(2) The radiation pattern from the X-ray apparatus, as shown in the radiological safety precautions on the inside of the front cover, remains constant whenever the X-ray apparatus is activated. Respect the exclusion area during warm-up as well as when making a radiograph. Shielding materials such as earth, water, and concrete reduce the boundary of the exclusion area. The exclusion area perimeter must be roped off and posted with radiation warning signs.

CAUTION

Except during preheating, after each exposure allow a time off equal to the time on before the X-ray apparatus is operated again.

(3) Use the DUTY CYCLE TIMER to measure the off time. Set this timer to a time equal to the exposure time. After the exposure has been started (c.(9) below), push the red button of the DUTY CYCLE TIMER. At the end of the exposure (c.(10)), the DUTY CYCLE TIMER will start measuring the OFF time. Once the DUTY CYCLE TIMER is energized, it will prevent another exposure from being initiated. When the DUTY CYCLE TIMER is energized, do not push the red button of the EXPOSURE TIMER. If you do so accidentally, immediately set the EXPOSURE TIMER to zero.

NOTE

The X-ray apparatus does not have to be given periods of rest during preheating since the MA CONTROL knob is in the fully counterclockwise position.

(4) Never bring the needle of the KILOVOLT METER into the red zone.

(5) Always watch the KILOVOLT METER during the exposures; use the KILOVOLT SELECTOR to compensate for any minor fluctuations. When a large fluctuation occurs, turn the X-ray apparatus off by means of the LINE switch; wait one second, then turn the apparatus on. Adjust the needle of the KILOVOLT METER so that it is on the green line with the MA CONTROL knob; turn the KILOVOLTAGE SELECTOR fully counterclockwise; set the selector to the desired kilovoltage setting.

(6) The normal operating limits of the pressure in the X-ray head are 25 psi to 45 psi. If the pressure falls below 25 psi or rises above 45 psi, do not use the X-ray apparatus. Return X-ray apparatus for servicing. The X-ray head pressure gage is shown in figure 2-2.

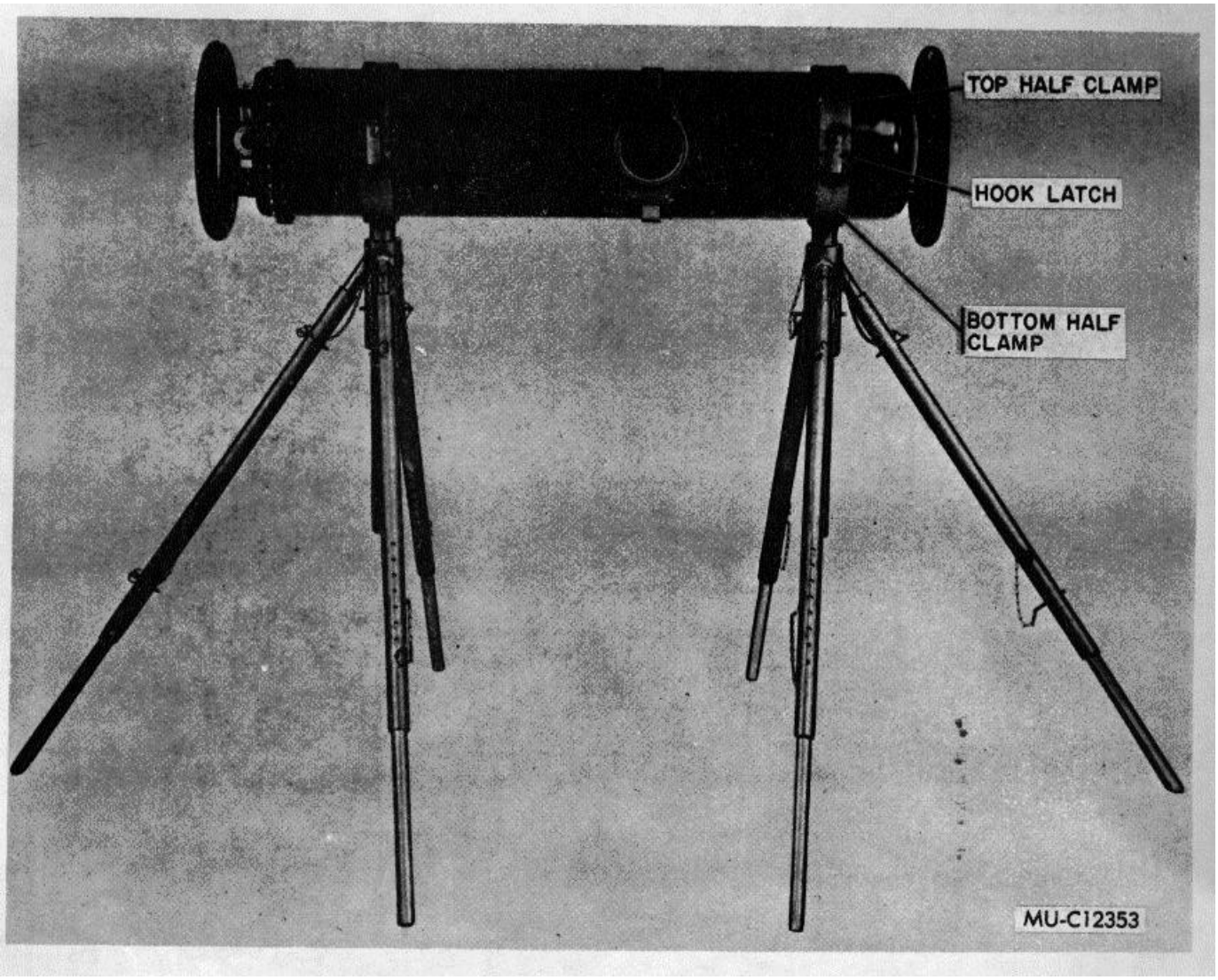

Figure 2-15. X-ray head installed on tripods.

b. Preheating. If the X-ray apparatus has not been used recently or is below normal room temperature, warm the apparatus as follows before taking a radiograph.

(1) Remove the cable assemblies from the packing cases.

(2) Prepare the control unit (fig. 2-16). Place the LINE switch in the OFF position; turn the KILOVOLTAGE SELECTOR and MA CONTROL fully counterclockwise; set the EXPOSURE TIMER on zero; and set the DUTY CYCLE timer on zero.

CAUTION

Do not move the MA CONTROL knob from its fully counterclockwise position at any time during preheating.

(3) Place the control unit at least 30 feet away from the X-ray head assembly. Connect the X-ray head assembly to the control unit with one or two connecting electrical power cable assemblies, and connect the control unit to a 110-volt alternating current outlet with the line electrical power cable assembly.

WARNING

If the X-ray beam is pointing toward the ground, insure that no one is within 30 feet of the X-ray head assembly in any direction. If the X-ray beam is aimed horizontally, aim it away from the control panel. Insure that no one is within 125 feet to the front of the X-ray head or 30 feet to its rear. The exclusion area perimeter must be roped off and posted with radiation warning

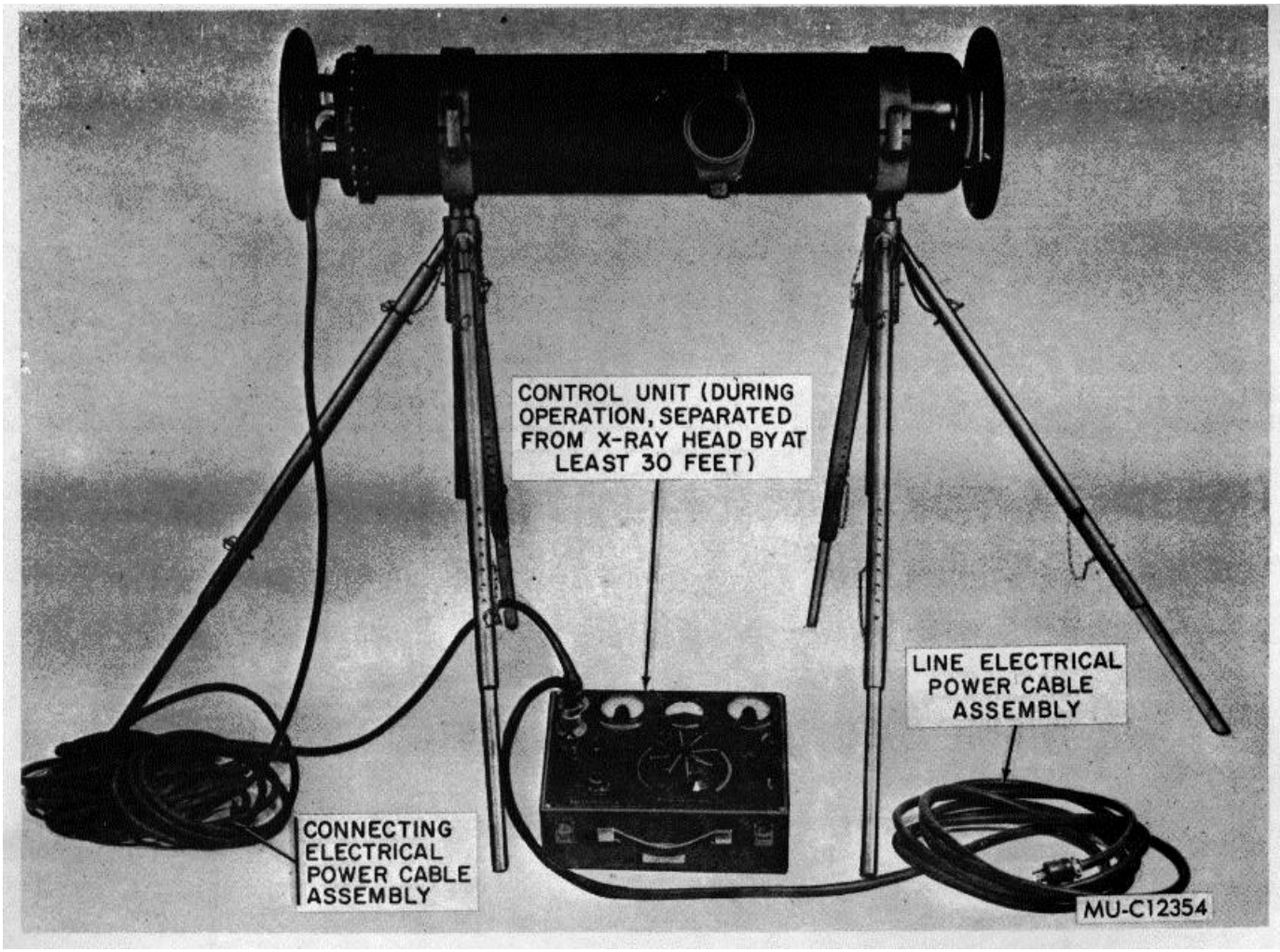

Figure 2-16. X-ray apparatus - cable connections.

signs. (See the radiological precautions inside the front cover.)

(4) Turn the LINE switch to the ON position. The POWER ON indicator will light.

(5) Set the EXPOSURE TIMER to its maximum time by turning the timer knob located at bottom of timer. While setting timer both black and red pointers will move simultaneously.

(6) Push and release the red button on the timer to start exposure. The X-RAY ON indicator will light.

(7) Slowly turn the KILOVOLTAGE SELECTOR until the needle on the KILOVOLT METER reaches 150 KV. Allow 5 to 10 seconds to bring the X-ray apparatus to this point.

NOTE

If the X-ray apparatus is below normal room temperature, let it warm up at 150 KV for 5 minutes before proceeding with paragraph (8) below.

(8) Turn the KILOVOLTAGE SELECTOR to the desired kilovoltage setting in steps of 10 KV. At each step allow the preheating time shown for the idle period in table 2-2 below:

Table 2-2. Preheating Time8

Idle period	*Up to 30 min.*	*Over 30 min. to 4 hrs.*	*Over 4 hrs. to 24 hrs.*	*Over 1 day to 7 days*	*Over 1 week to 4 weeks*	*Over 4 weeks*
Preheating Time	1 sec.	6 sec.	20 sec.	30 sec.	1 min.	2 min.

(9) The timer will terminate the exposure at the end of 5 minutes. If preheating is required for longer than 5 minutes, reset the timer after each 5-minute interval until the desired kilovoltage setting is reached.

(10) When preheating is completed, turn the KILOVOLTAGE SELECTOR fully counterclockwise, set the timer on zero, and turn the LINE switch to the OFF position.

c. Taking the Radiograph.

(1) Determine or estimate the type and thickness of material to be radiographed. Remember that the X-rays must penetrate not only the component (or area) of interest but also the front and back of its housing.

(2) Snap the centering and measuring device onto the centering device holder attached to the X-ray head. Using the centering and measuring device, position the X-ray head assembly as shown in figure 2-17 and measure the focus-film distance. Insure that the X-ray beam is properly centered. Determine the exposure time and kilovoltage setting in accordance with paragraphs 2-6 through 2-9.

(3) Load and operate the cassette in accordance with paragraphs 2-10 and 2-11.

(4) Place the cassette behind or beneath the object. Remove the centering and measuring device. Make certain that the cassette is as close as possible to the object and that the object and cassette are in line with, and perpendicular to, the path of the X-rays. Improper placement causes distortion of the image. Place lead plates directly behind the cassette. Brace or tape the lead plate and cassette in place to prevent

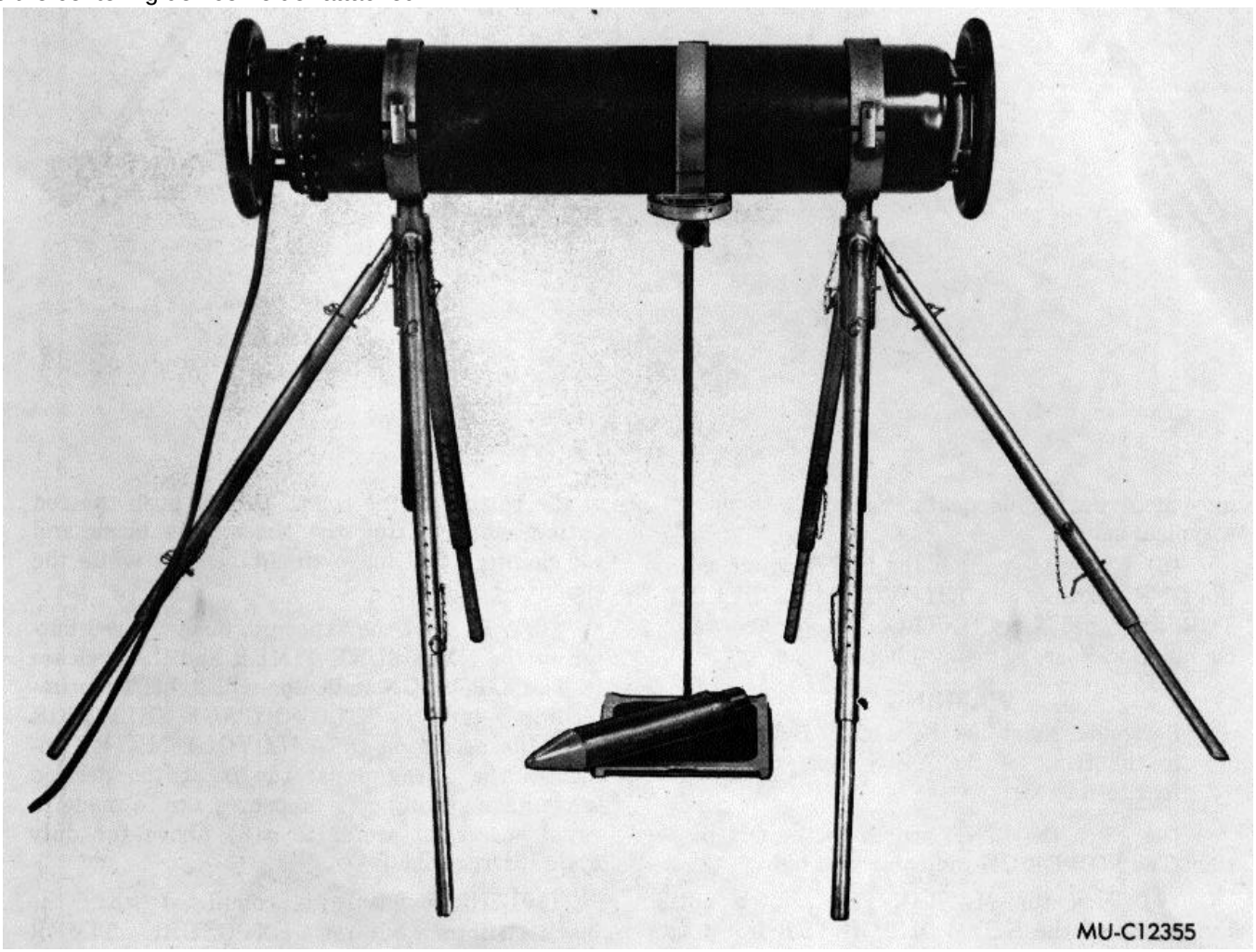

Figure 2-17. Using the centering and measuring device.

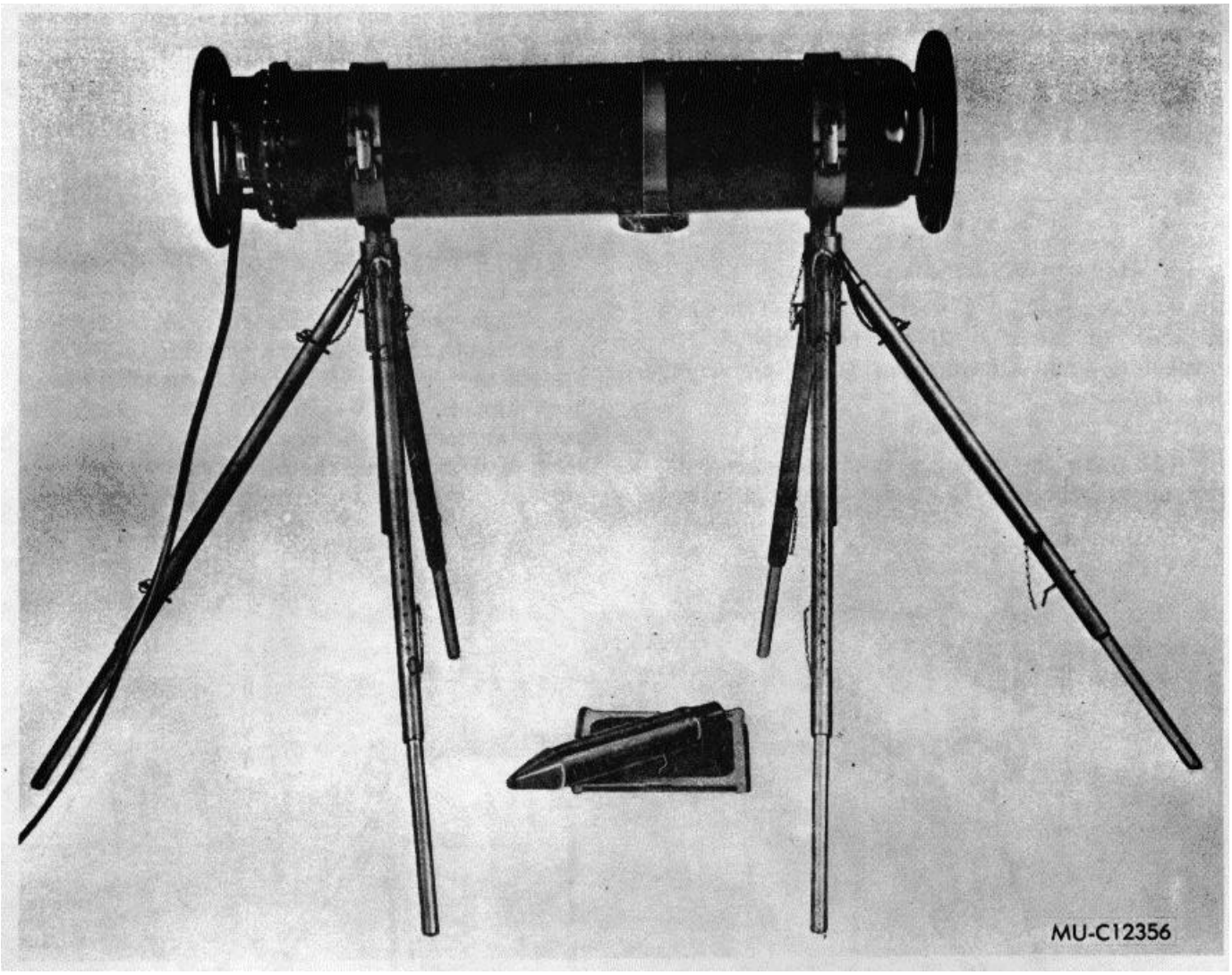

Figure 2-18. Typical X-ray setup.

movement during exposure. Figure 2-18 shows a typical setup.

(5) Check to see that the LINE switch is in the OFF position, the KILOVOLTAGE SELECTOR and the MA CONTROL knobs are fully counterclockwise, and the timers are set on zero.

WARNING Personnel must not be within 125 feet to the front of the X-ray head or 30 feet to its rear.

(6) Turn the LINE switch to the ON position. The POWER ON indicator will light.

(7) Turn the MA CONTROL knob until the needle of the KILOVOLT METER is set on the green line near the kilovoltage setting of 270.

(8) Set the EXPOSURE TIMER to the chosen time by turning the black knob located at the bottom of the timer. Do not push the red button while setting the timer. The black and red pointers will move simultaneously while the timer is being set.

(9) To start the exposure, push the red button of the EXPOSURE TIMER and then release it. The X-RAY ON indicator will light. Then immediately turn the KILOVOLTAGE SELECTOR until the needle on the KILOVOLT METER indicates the X-ray apparatus is at the desired kilovoltage setting. (If exposures are to made in rapid succession, refer to a(3) above for duty cycle instructions.)

(10) The exposure is completed when the black pointer of the EXPOSURE TIMER reaches zero, at which time the timer resets automatically to the position indicated by the red pointer. Simultaneously, the red X-RAY ON indicator will go off and the needle

of the KILOVOLT METER will return to the area of the green line.

(11) After the exposure, turn the KILOVOLTAGE SELECTOR fully counterclockwise to permit starting another exposure. Before starting the next exposure, if necessary, adjust the needle of the KILOVOLT METER with MA CONTROL knob so that the needle is exactly on the green line.

(12) Process the X-ray film in the radiographic paper and developer assembly processing machine in accordance with the instructions contained in the manufacturer's manual supplied with the machine.

(13) If the film density of the radiograph is not as desired, retake the radiograph, adjusting the kilovoltage and/or exposure time setting as required.

Section VI. OPERATION UNDER UNUSUAL CONDITIONS

2-15. Operation in Arctic Areas

Although this equipment is designed to operate under adverse temperature and humidity conditions, operation of the equipment may be difficult in regions where extreme cold prevails. Subzero temperatures and climatic conditions associated with cold weather may cause unsatisfactory operation. Observe the following precautions:

a. Keep equipment which is to be operated at low temperatures indoors until it is to be used. Low temperatures could lower the X-ray head assembly pressure.

b. Movement of cables should be kept to a minimum to prevent cracking of cable insulation.

c. When equipment has been exposed to the cold and is brought into a warm area, condensation will form until it reaches ambient temperature. Thoroughly dry equipment. To avoid condensation, transfer the equipment from the cold to the warmer temperatures in gradual stages.

d. The amplification factor of the lead screen in the cassette increases rapidly as the temperature decreases. At very cold temperatures, (below 10° F.) this could cause overexposure of the radiograph. Exposure time should be adjusted to compensate for these low temperatures.

2-16. Operation in Desert and Tropical Areas

When the equipment is used under conditions of extreme heat and humidity, such as desert and tropical regions, observe the following precautions:

a. Desert Regions. The principal problems arising in connection with equipment operation in these areas are sand, dust, and dirt. Observe the following precautions to minimize these conditions:

(1) Protect the equipment with suitable coverings. If condensation forms, dry equipment thoroughly.

(2) Before using the equipment in desert regions, use a soft-bristled brush to remove sand or other foreign matter.

(3) Do not expose equipment to direct sunlight for extended periods since this could overheat the equipment and increase the X-ray head assembly pressure.

b. Tropical Regions. In climates with high humidity, inspect the equipment daily for traces of fungus, mold, mites, and corrosion. Remove all deposits immediately.

2-17. Operation in Maritime, High Altitude, Low Temperature, or Rainy Areas

The X-ray apparatus is weather-and-dust-resistant and may be operated in a moderate rain with satisfactory results, but the control unit should be protected from heavy precipitation. Neither the control unit nor the X-ray head should be submerged in water. To prevent corrosion during storage, wipe all exposed metal parts with a soft cloth moistened with an approved preservative lubricating oil. After the equipment has been used under rainy, dusty, or dirty conditions, clean all parts as soon as possible.

CHAPTER 3
MAINTENANCE AND TROUBLESHOOTING

Section I. PREVENTIVE MAINTENANCE

3-1. General
Preventive maintenance services are a function of using personnel. They consist of services required before and after operation or once daily under continued operation. Table 3-1 includes the scheduled services to be performed at designated intervals.

3-2. Intervals
The scheduled intervals for periodic maintenance procedures are based upon normal operating conditions. When operating under abnormal or severe conditions, reduce the time intervals. Time intervals during inactive periods may be extended accordingly.

Table 3-1. Operator/Organizational Preventive Maintenance Checks and Services

B - Before Operation Time Required: 1.3 | **A - After Operation** Time Required: 1.2 | **W - Weekly** Time Required: 1.7

Interval and Sequence No.			Item to be inspected and procedure	Work time (M/H)
B	A	W		
1	1		COMPLETE ITEM Clean and remove all grease and dirt.	0.3
2		1	CONTROLS AND SWITCHES Inspect for ease of operation.	0.1
3	2		SCREWS AND NUTS Check all external screws and nuts for tightness.	0.3
4	3	2	INDICATOR LIGHTS Cheek for cracked or broken lenses and/or defective lamps.	0.2
5	4	3	CONNECTORS Inspect connectors to see that they are free of all foreign material.	0.4
		4	PREHEATING APPARATUS Perform the preheating procedures (para 2-14b), bringing the apparatus to full power when the apparatus is not in frequent use.	1.0

Section II. MAINTENANCE PRECAUTIONS

3-3. General
Refer to RADIOLOGICAL SAFETY PRECAUTIONS on the WARNING page inside the front cover. The X-ray head assembly is sealed and pressurized and contains precision high-voltage elements. Do not open the X-ray head assembly.

3-4. Handling
The X-ray apparatus contains a tube and other delicate components and should be handled with care. Place the X-ray apparatus in the packing cases for transporting. The cases are padded with hair locked in latex which protects the equipment during all normal handling.

3-5. Preheating
Preheat the X-ray apparatus (para 2-14b.) weekly to full power when not in frequent use. Not only does this serve as a check on the condition of the X-ray apparatus, but it also reduces the required preheating time when the X-ray apparatus is needed. This practice will extend the X-ray tube life.

3-6. Fuses
Use only 15-ampere fuses in the control panel.

Section III. ORGANIZATIONAL MAINTENANCE

3-7. General

a. Maintenance functions on this equipment are limited to replacement of common hardware and other easy-to-replace parts. For maintenance beyond the authorized scope of organizational maintenance personnel, notify the support unit.

b. Do not use the equipment for purposes other than prescribed; store it properly when not in use.

3-8. Cleaning

a. Remove foreign material as follows:

CAUTION

When abrading or brushing, do not allow particles to enter the equipment.

(1) Abrade surfaces with abrasive cloth or paper. Abrade only to the extent required to remove material from metal surfaces.

(2) Wipe surfaces with a clean cloth.

b. Use cleaning compound (MILC-81302, FREON PCA) only to clean rubber components.

c. Remove any dirt, grease, or oil spots on non-electrical components (except rubber) using hot water and detergent followed by a clear-water wash. Toluene (technical) may also be used.

d. Use a small diameter stick (toothpick; etc.) wrapped with cotton or a clean cloth saturated with solvent (trichloroethylene or toluene) to clean connectors with plastic inserts.

e. For cleaning male connectors, use an artist's brush as required.

3-9. Painting

a. Painting is limited to touching up markings and touching up scrapes and abrasions which expose bare metal.

b. Perform touchup on markings, using enamel of the same color and specification number as the original material. However, the shade of the touchup enamel need not be the exact shade of the original.

c. Touch up exposed wood surfaces. Disregard partially scraped surfaces if wood is not exposed.

3-10. Replacement

Replace missing or defective components, common hardware (nuts, bolts, screws, washers, dust caps; etc.), and common electrical items (lamps, knobs, fuses; etc.), as required, with repair parts allocated in appendix D. Refer to the applicable illustration listed below for replacement of parts:

a. X-ray head assembly (fig. D-8).

b. X-ray support tripod (fig. D-12).

c. X-ray apparatus case and control unit (fig. D-1 and D-2).

d. Centering and measuring device (fig. D-6 and D-7).

e. Line electrical power cable assembly (fig. D-4).

i. Connecting electrical power cable assembly (fig. D-5).

g. X-ray support kit chest (fig. D-14 through D-17).

Section IV. DIRECT SUPPORT MAINTENANCE

3-11. Scope

a. In addition to the maintenance functions authorized to personnel performing organizational maintenance, direct support maintenance of the X-ray apparatus includes replacement of plug connectors and cables for the line electrical power cable assembly and connecting electrical power cable assembly.

b. Report maintenance beyond the authorized scope of direct support personnel to the appropriate inventory control office for disposition instructions.

3-12. Replacement

a. Line Electrical Power Cable Assembly. Replace defective connector or cable in accordance with figure D-4.

b. Connecting Electrical Power Cable Assembly. Replace defective connectors or cable in accordance with figure D-5.

3-13. Final Inspection

Note finish and those areas in which repairs or replacements have been made. Examine all component parts for any evidence of defect or damage.

Section V. TROUBLESHOOTING

3-14. Purposes

Troubleshooting is a systematic isolation and remedy of malfunctions and defective components by observation of symptoms and tests.

3-15. Troubleshooting Chart

The principal aid to troubleshooting is given in the troubleshooting chart (table 3-2). The troubleshooting chart indicates methods for identifying and correcting malfunctions which may be encountered in the X-ray apparatus.

Table 3-2. Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
1.	POWER ON indicator does not light.	*a.* Control unit not connected to voltage source	Connect
		b. Line electrical power cable assembly defective	Replace cable assembly
		c. Fuses blown	Replace fuses (15-ampere)
		d. Incandescent lamp defective	Replace lamp
		e. Control unit defective	Replace unit
2.	X-RAY ON indicator does not light.	*a.* X-ray head assembly not connected to control unit	Connect
		b. Connecting electrical power cable assembly defective	Replace cable assembly
		c. Incandescent lamp defective	Replace lamp
		d. Control unit defective	Replace unit
3.	X-RAY ON indicator lights but KILOVOLT METER does not move.	Meter or control unit defective	Replace unit
4.	X-RAY ON indicator lights only when KILOVOLTAGE SELECTOR is at a minimum.	Control unit defective	Replace unit
5.	KILOVOLT METER cannot be adjusted to green line.	*a.* Control unit not connected to head assembly	Connect
		b. Unit taking a radiograph	Upon completion of radiograph, adjust.
		c. Connecting electrical power cable assembly defective	Replace cable
		d. X-ray head assembly defective	Replace head
		e. Control unit defective	Replace unit
6.	No radiation is emitted	*a.* Connecting electrical power cable assembly defective	Replace cable
		b. X-ray head assembly defective	Replace head
		c. Control unit defective	Replace unit **CAUTION** **Use only 15-ampere fuses in the control panel.**
7.	Fuse blowing	*a.* Defective unit or cable	
		(1) Disconnect X-ray Head Assembly. If fuses do not blow, X-ray head assembly is defective. If fuses blown proceed to next step.	Head
		(2) Disconnect connecting electrical power cable assembly. If fuses do not blow, cable is defective. If fuses blow, proceed to next step.	Cable
		(3) Defective control unit.	Unit
		b. Preheating done too quickly (kilovoltage increased too fast).	Slow down preheating, increasing the time to 5 minutes.

CHAPTER 4

SHIPMENT, STORAGE, AND DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

Section I. SHIPMENT AND STORAGE

4-1. General

Commanders are responsible for insuring that the X-ray apparatus issued or assigned to their command is maintained in a serviceable condition and properly cared for and that personnel under their command comply with technical instructions. Lack of time, lack of trained personnel, or lack of proper tools may result in a unit being incapable of performing maintenance for which it is responsible. In such cases, unit commanders, with the approval of major commanders, may return it to supply agencies. When preparing the equipment for shipment, the unit commander will be responsible for packing it in its respective shipping containers for protection.

4-2. Packing

a. Disconnect cable assemblies.

b. Remove X-ray head assembly from tripod assemblies.

c. Dismantle tripod assemblies.

d. Pack X-ray head assembly, control unit, and cables in their packing cases (fig. 1-1, 1-2, and 1-3).

e. Pack the support kit as follows:

(1) Place the film packets, cassettes, and lead sheets in the carrying case.

(2) Place the processing machine in its carrying case.

(3) Nest a foot in each leg and place them in the bottom of the packing case (fig. 4-1).

(4) Place the tripod anchors in the case as shown in figure 4-1.

(5) Insert the two center partitions in the case.

(6) Position the two bottom half clamps in the case as shown in figure 4-2.

(7) Insert the end partition in the case with the cutout towards the back.

(8) Place the connecting electrical cable assembly in the rear compartment, the carrying case in the center compartment, and the processing machine in the left compartment. Upon completion, the case should be packed as shown in figure 1-5.

4-3. Shipping Instructions

a. Preparation for Shipment. Insure that preservation and other protective measures are sufficient to protect against deterioration and physical damage during shipment. Shipping must be in the best commercial practice. Adequately mark all material prior to shipment.

b. Army Shipping Documents. Prepare all Army shipping documents accompanying freight in accordance with AR 725-50.

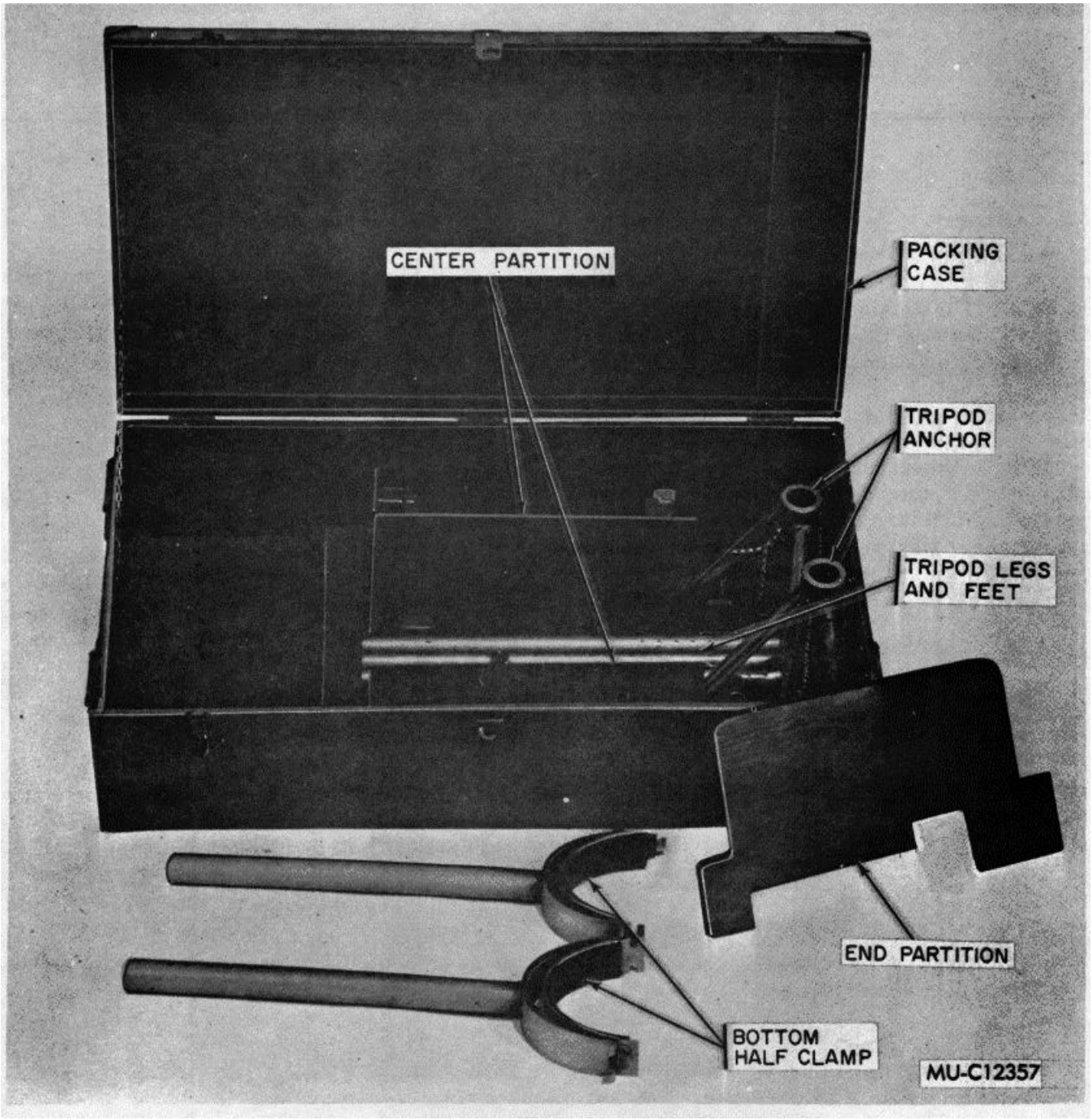

Figure 4-1. Support kit-initial packing.

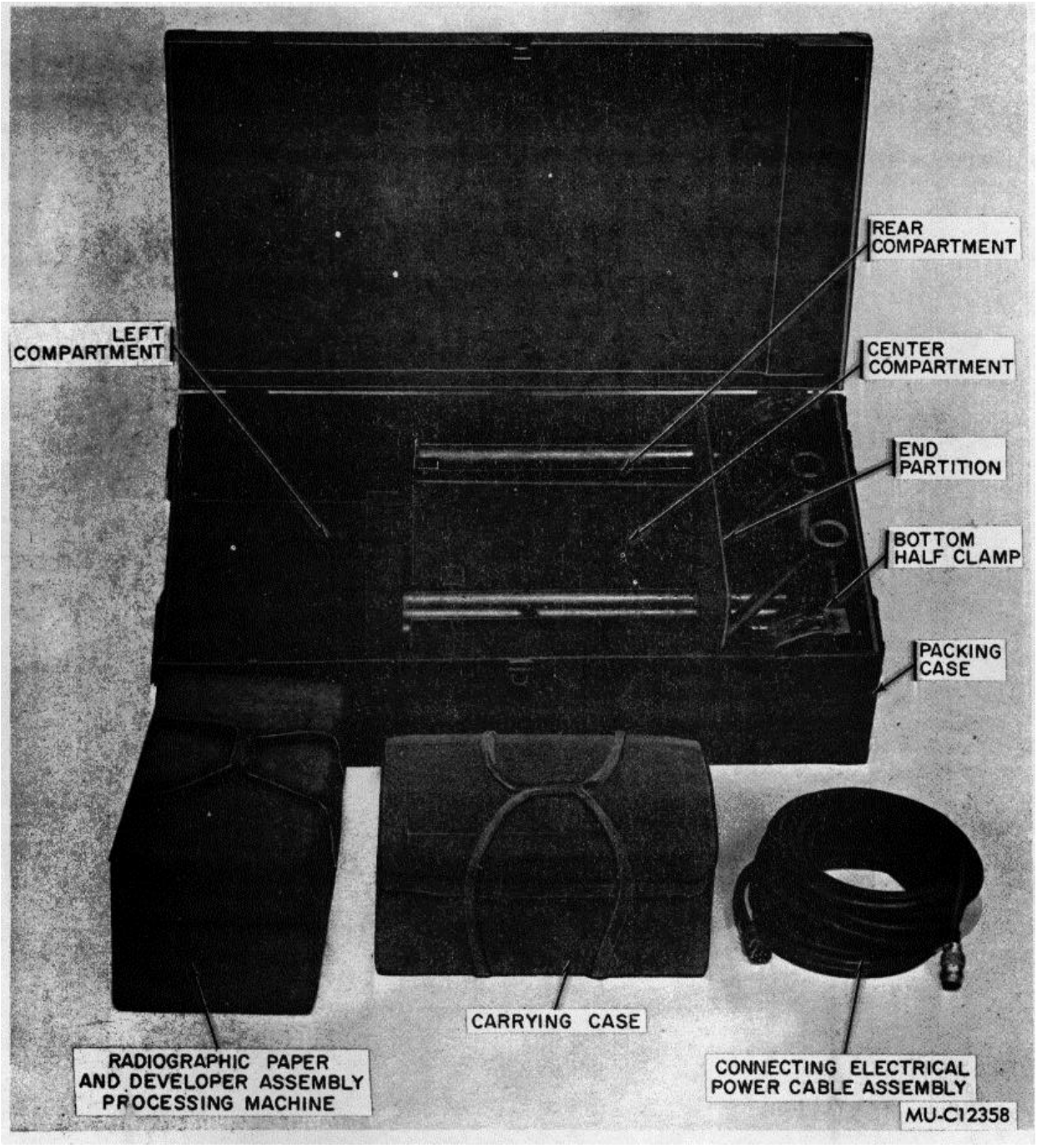

Figure 4-2. Support kit-final packing.

Section II. DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

4-4. Authority for Destruction

Destruction of equipment will be accomplished only upon the order of the commander. Use the destruction procedures outlined in paragraph 4-5 to prevent further use of the equipment.

4-5. Methods of Destruction

Use the following methods to destroy the equipment.

a. Smash. Smash the controls and meter; use sledges, axes, handaxes, or machetes.

b. Cut. Cut the line electrical power cable assembly and connecting electrical power cable assemblies; use axes, handaxes, or machetes.

c. Burn. Burn technical manuals; use gasoline, kerosene, oil, flame throwers, or incendiary grenades.

d. Demolition. Use grenades or bulk high explosives in sufficient quantities.

e. Dispose. Bury or scatter the destroyed parts in slit trenches, foxholes, or throw then into streams.

APPENDIX A

REFERENCES

A-1. Army Regulations (ARs)

310-25	Dictionary of United States Army Terms
310-50	Authorized Abbreviations and Brevity Codes
385-40	Accident Reporting and Records
710-1	Centralized Inventory Management of the Army Supply System
725-50	Requisitioning, Receipt and Issue System

A-2. DA Pamphlets (DA Pam)

310-1	Index of Administrative Publications
310-2	Military Publications Index of Blank Forms
310-3	Index of Doctrinal, Training, and Organizational Publications
310-4	Military Publications Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.

A-3. Technical Manuals (TM)

38750	The Army Maintenance Management System (TAMMS)

APPENDIX B

BASIC ISSUE ITEMS LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST

B-1. Scope
This appendix lists items which accompany the X-ray apparatus or are required for installation, operation, or operator's maintenance.

B-2. General
The basic issue items list and the items troop installed or authorized list are divided into the following sections:

a. Basic Issue Items-Section II. Not applicable.

b. Items Troop Installed or Authorized-Section III. Not applicable.

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

The maintenance allocation chart (MAC) (section II) lists the authorized maintenance functions assigned the maintenance categories for maintenance support of the X-ray apparatus and X-ray support kit. This chart is to be used by all levels of maintenance to insure complete support of the equipment.

C-2. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine serviceablity of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. Test. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

c. Service. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Aline. To adjust specified variable elements of an item to bring to optimum performance.

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. Install. To set up for use in an operational environment, such as an emplacement, site, or vehicle.

h. Replace. To replace unserviceable items with serviceable like items.

i. Repair. Those maintenance operations necessary to restore an item to a serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each category of maintenance.

j. Overhaul. Normally, the highest degree of maintenance performed by the Army in order to minimize timework and is in process consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like-new, zero-mileage, or zero-hour condition.

k. Rebuild. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

j. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

C-3. Explanation of Format

The purpose and use of the format are as follows:

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Functional Group. Column 2 lists the noun names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Column 3. Maintenance Function. Column 3 lists the maintenance categories, designated by a single letter entered under the maintenance function subcolumn heading, authorized to perform the indicated function.

d. Use of Symbols. Single letters (symbols) used in column 3 are maintenance function number codes.

C-Operator/Crew
O-Organizational maintenance
F--Direct support maintenance
H-General support maintenance
D-Depot maintenance

e. Column 4, Tools and Equipment. Column 4 lists the special tools and test equipment, if required, used in performing the authorized maintenance function.

f. Column 5, Remarks. Column 5 explains and identifies the specific operation to be performed in brief language, such as clean, lubricate, straighten, weld; etc.

Section II. MAINTENANCE ALLOCATION CHART FOR Industrial Radiographic X-ray Apparatus, FSN 6635-197-4322, and X-ray Support Kit, FSN 6635-197-4321

(1) GROUP NUMBER	(2) Functional group component assembly nomenclature	(3) Maintenance functions											(4) Tools and equipment	(5) Remarks
		A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD		
	INDUSTRIAL RADIOGRAPHIC X-RAY APPARATUS													
	X-ray Apparatus Case and Control-Unit.	C 0.2		C 0.1				C 0.1	O 0.4	0 2.1				
	X-ray Head Assembly	C 0.2		C 0.2				C 0.2	0 0.4	0 2.3				
	Line Electrical Power Cable Assembly.	C 0.1		C 0.3				C 0.2	0 0.3	F 1.0				
	Connecting Electrical Power Cable Assembly.	C 0.1		C 0.1				C 0.2	O 0.3	O 1.0				
	Centering and Measuring Device	C 0.1		C 0.1				C 0.1	0 0.1	0 0.4				
	Control Unit Packing Case	C 0.1		C 0.2				C 0.1	0 0.1					
	X-ray Head Packing Case	C 0.1		C 0.2				C 0.1	0 0.1					
	X-RAY SUPPORT KIT													
	Radiographic Paper and Developer Assembly Processing Machine.	C 0.2		C 0.3				C 0.2	0 0.2	0 0.2				
	Industrial X-ray Apparatus Cassette.	C 0.1		C 0.1				C 0.2	O 0.1					
	Connecting Electrical Power Cable Assembly.	C 0.1		C 0.3				C 0.2	O 0.3	F 1.0				
	X-ray Support Tripod	C 0.3		C 0.4				C 0.4	O 0.2	O 0.3				
	X-ray Support Kit Chest	C 0.2		C 0.3				C 0.1	O 0.2	0 0.1				

APPENDIX D

COMBINED ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LISTS

Section I. INTRODUCTION

D-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational and direct support maintenance of the Industrial Radiographic X-ray Apparatus and X-ray Support Kit.

D-2. General

This appendix is divided into the following sections:

a. Prescribed Load Allowance (PLA)-Section II. A composite listing of repair parts, special tools, test and support equipment having quantitative allowances for initial stockage at the organization level. (Not applicable.)

b. Repair Parts-Section III. A list of repair parts authorized for the performance of maintenance at the organizational level in figure and item number sequence.

c. Special Tools List-Section IV. A list of special tools, test and support equipment authorized for the performance of maintenance at the organizational level. (Not applicable.)

d. Repair Parts-Section V. A list of repair parts authorized for the performance of maintenance at the direct support level.

e. Special Tools List-Section VI. A list of special tools, test and support equipment authorized for the performance of maintenance at the direct support level. (Not applicable.)

f. Federal Stock Number and Reference Number Index-Section VII. A list of Federal stock numbers in ascending numerical sequence followed by a list of reference numbers in ascending alphanumeric sequence, cross-referenced to the illustration figure numbers and item numbers.

D-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists in sections II and V.

a. Source, Maintenance and Recoverability Codes (SMR).

(1) *Source code*. This code indicates the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes entered in the first and second column positions are:

Code	*Definition*
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply system.
PC	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at direct support level.
MH	Item to be manufactured or fabricated at general support level.
MD	Item to be manufactured or fabricated at depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support level.

Code	*Definition*
AH	Item to be assembled at general support level.
AD	Item to be assembled at depot maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. if not available through salvage, requisition.
XC	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

(2) *Maintenance code*. This code indicates the levels of maintenance authorized to use and repair support items. Maintenance codes entered in the third and fourth column positions are:

(a) Use (third position). The maintenance code entered in the third column position indicates the lowest maintenance level authorized to remove, replace, and use the support item.

Code	*Definition*
O	Support item is removed, replaced, and used at the organizational level of maintenance.
F	Support item is removed, replaced, and used at the direct support level.
H	Support item is removed, replaced, and used at the general support level.
D	Support items that are removed, replaced, and used at the depot only.

(b) Repair (fourth position). The maintenance code entered in the fourth column position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions).

Code	*Definition*
O	The lowest maintenance capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.
H	The lowest maintenance level capable of complete repair of tie support item is the general support level.
D	The lowest maintenance level capable of complete repair of the support item is the depot level.
L	Repair restricted to a designated specialized repair activity.
Z	Nonreparable. No repair is authorized.
B	No repair is authorized. The item may be reconditioned by adjusting, lubricating; etc., at the user level. No parts or special tools are procured for the maintenance of this item.

(3) *Recoverability code*. This code indicates the disposition action on unserviceable items. Recoverability codes entered in the fifth column position are:

Code	*Definition*
Z	Nonreparable item. When unserviceable, condemn, and dispose of at the level indicated in column position 3.
O	Reparable item. When uneconomically reparable, condemn, and dispose of at organizational level.
F	Reparable item. When uneconomically reparable, condemn, and dispose of at the direct support level.
H	Reparable item. When uneconomically reparable, condemn, and dispose of at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal are not authorized below depot level.
L	Reparable item. Repair, condemnation, and disposal are not authorized below depot/specialized repair activity level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high-dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

b. Federal Stock Number. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based; e.g., ft, ea; etc.

e. Quantity Incorporated in Unit. This column indicates the quantity of the item used in the assembly group. A V appearing in this column in lieu of a (quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers; etc.).

f. 15-Day Organizational Maintenance Allowance, Column (6) of Section III.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represent one initial

prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the density column applicable to the number of items supported to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 of these equipments will determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths and multiplying the decimal factor by the parts quantity authorized in 51-100 allowance column. Example: Authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50; the result indicates 60 parts are required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, a recommendation should be forwarded to the US Army Ammunition Procurement and Supply Agency (APSA) for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the above agency based upon engineering experience, demand data, or TAMMS information.

g. 30-Day DS/GS Maintenance Allowances, Columns (6) and (7) of Section V.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example: Authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50; the result indicates 60 parts required.

h. 1-Year Allowances Per 100 Equipment/Contingency Planning Purposes. This column indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

i. Depot Maintenance Allowance Per 100 Equipments. This column indicates opposite the first appearance of each item the total quantity authorized for depot maintenance of 100 equipments. Items authorized for use but not for initial stockage are identified with an asterisk in the allowance column.

j. Illustration.

(1) *Figure number*. Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* Indicates the callout number used to reference the item on the illustration.

D-4. Special Information

The following publication pertains to the X-ray apparatus and its components:

Operator and Maintenance Service Manual Radiographic Paper and Developer Assembly Processing Machine (Portable Rapid X-ray Film Processing Unit), FSN 6625-930-3274.

D-5. How to Locate Repair Parts

a. When the Federal stock number or reference number is not known:

(1) *First*. Find the illustration to which the repair part belongs.

(2) *Second*. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(3) *Third*. Using the repair parts listing, find the assembly group to which the repair part belongs and locate the illustration figure and item number noted on the illustration.

b. When the Federal stock number or reference number is known:

(1) *First*. Using the index of Federal stock numbers and reference numbers find the pertinent

Federal stock number or reference number. This index is in ascending FSN sequence followed by a list of reference numbers in ascending alphanumeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. Using the Repair Parts Listing, find the assembly group of the repair part and the illustration figure number and item number referenced in the index of Federal stock numbers and reference numbers.

D-6. Abbreviations

See Federal Supply Catalog C5305-ILA for abbreviations used in this appendix.

D-7. Federal Supply Codes for Manufacturers

Code	*Agency*
19203	Picatinny Arsenal
96906	Military Standard Promulgated by Standardization Division Directorate of Logistic Services, DSA.
81348	Federal Specification Promulgated by GSA
81349	Military Specification Promulgated by Standardization, Division Directorate of Logistic Services, DSA.

Section III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
	6635-179-4322	X-RAY APPARATUS, RADIOGRAPH, INDUSTRIAL: 9221452 (19203).								
PBOOD	6635-407-5142	CASE AND CONTROL UNIT, X-RAY APPARATUS: 9251701 (19203).	ea	1	*	*	*	*	D-1, D-2	
PBOOD	6635-450-9694	X-RAY HEAD ASSEMBLY: 9221442 (19203).	ea	1	*	*	*	*	D-3	
PBOFF	6150-439-6101	CABLE ASSEMBLY, POWER, ELECTRICAL: Line 9221480 (19203).	ea	1	*	*	*	*	D4	
PBOFF	6150-439-6102	CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting- 9221481 (19203).	ea	1	*	*	*	*	D-5	
PBOFF	6635-439-6103	CENTERING AND MEASURING DEVICE: 9234900 (19203).	ea	1	*	*	*	*	D-6, D-7	
PBOZZ	6635-439-6119	PACKING CASE, CONTROL UNIT: 9221443 (19203).	ea	1	*	*	*	*	D-8	
PBOZZ	6635-439-6120	PACKING CASE, X-RAY HEAD: 9221444 (19203).	ea	1	*	*	*	*	D-9	
		CASE AND CONTROL UNIT, X-RAY APPARATUS: 9251701 (19203).							D-1 D-2	
PBOZZ	5305-984-6191	SCREW, MACHINE: Carbon s, cd-pltd, pan-hd, cross-recessed, 8-32x0.375" lg MS35206-243 (96906).	ea	4	*	*	*	*	D-1	1
PBOZZ	5310-809-8544	WASHER, FLAT: s, cd-pltd, general purpose, 3/8" dia MS27183-7 (96906).	ea	4	*	*	*	*	D-1	2
XALLL	6635-441-8857	CASE ASSEMBLY, CONTROL UNIT: 9235831 (19203).		1	*	*	*	*	D-1	3
XALLL	6635-439-6099	CONTROL UNIT, X-RAY APPARATUS: 9221441 (19203).		1	*	*	*	*	D-2	1
PBOOF	6635-441-8853	COVER ASSEMBLY, CONTROL CASE: 9235832 (19203).	ea	1	*	*	*	*	D-1	4
		CASE ASSEMBLY, CONTROL UNIT: 9235831 (19203).							D-1	3
PBOZZ	5340-151-7002	CATCH, CLAMPING: 9221477-2 (19203).	ea	4	*	*	*	*	D-1	5
PBOZZ	5305-984-4988	SCREW, MACHINE: Carbon s, cd-pltd pan-hd, cross-recessed, 6-32x0.375" lg MS35206-228 (96906).	ea	8	*	*	*	*	D-1	6

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
		CONTROL UNIT, X-RAY APPARATUS: 9221441 (19203).							D-2	1
PBOZZ	5950-629-4400	HANDWHEEL: 9244058 (19203).	ea	1	*	*	*	*	D-2	2
PBOZZ	5305-723-9385	SETSCREW: Steel, cd-pltd, socket drive, 1/4-20x0.375" lg MS51963-65 (96906).	ea	2	*	*	*	*	D-2	3
PBOZZ	5305-957-6264	SCREW, MACHINE: Carbon s, cd-pltd fl-ck-hd, cross-recessed, 4-48x0.188" lg MS35190-225 (96906).	ea	8	*	*	*	*	D-2	4
PBOZZ	5305-889-3000	SCREW, MACHINE: Carbon s, cd-pltd pan-hd, cross-recessed, 6-32x0.5" lg MS35206-230 (96906).	ea	6	*	*	*	*	D-2	5
PBOZZ	5310-045-4007	WASHER, LOCK: Split, helical, steel,cd-pltd, 0.25" dia MS35338-41 (96906).	ea	9	*	*	*	*	D-2	6
PBOZZ	5305-984-4992	SCREW, MACHINE: Carbon s, cd-pltd pan-hd, cross-recessed 6-32x0.750" lg MS35206-232 (96906).	ea	3	*	*	*	*	D-2	7
PBOZZ	5920-875-4100	FUSEHOLDER: Type FHN 26G2, plastic 1.25" lg x 0.25" dia (no soldering) MIL-F-19207/16 (81349).	ea	2	*	*	*	*	D-2	8
PBOZZ	5920-199-9502	FUSE, CARTRIDGE: MIL-F-15160/03 (81349).	ea	2	*	*	*	*	D-2	9
PBOZZ	6210-946-9647	LIGHT, INDICATOR: Plastic lens, brass lens holder, neoprene gasket, neon screw base (no soldering) 9221455 (19203).	ea	1	*	*	*	*	D-2	10
PBOZZ	6210-192-9560	LIGHT, PANEL: Brass cap assembly incandescent screw base (no soldering) 9221454 (19203).	ea	1	*	*	*	*	D-2	12
PBOZZ	6240-797-600	LAMP, INCANDESCENT: Screw base, 115 V, 6 W MS15579-1 (96906).	ea	2	*	*	*	*	D-2	11
		COVER ASSEMBLY, CONTROL CASE: 9235832 (19203).							D-1	4
PBOZZ	5340-480-5664	STRIKE, CATCH: 9221477-1 (19203).	ea	4	*	*	*	*	D-1	7
PBOZZ	5305-889-2997	SCREW, MACHINE: Pan-hd, steel, cd-pltd, 4-40x0.375" lg MS35206-215 (96906).	ea	8	*	*	*	*	D-1	8
PBOZZ	5330-194-2769	STRIP, RUBBER: Sponge rubber, 11 inches long 9221462-1 (19203).	ea	2	*	*	*	*	D-1	9

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
PBOZZ	5330-477-9918	STRIP, RUBBER: Sponge rubber, 17 3/8 inches long 9221462-2 (19203).	ea	2	*	*	*	*	D-1	10
		X-RAY HEAD ASSEMBLY: 9221442 (19203).							D-3	
PBOZZ	6635-439-6104	HANDLE, X-RAY: 9234972 (19203).	ea	2	*	*	*	*	D-3	1
PBOZZ	5305-460-3960	SCREW, MACHINE: Steel cd-pltd, hex, socket-hd cap screw, metric, 8-mm. dia x 125-mmnun. pitch x 6-mm. lg 9234969 (19203).	ea	8	*	*	*	*	D-3	2
PBOZZ	5310-407-9566	WASHER, LOCK: Helical spring, steel, cd-pltd, 0.586 dia MS35338-45 (96906).	ea	8	*	*	*	*	D-3	3
PBOZZ	6635-407-5139	HOLDER, CENTERING DEVICE: 9251647 (19203).	ea	1	*	*	*	*	D-3	4
PBOZZ	5305-983-6654	SCREW, CAP, SOCKET HEAD: Steel, cd-pltd, 10-32x1" lg MS16998-31 (19203).	ea	4	*	*	*	*	D-3	5
PBOZZ	6635-407-5134	PIN, CENTERING DEVICE: 9251645 (19203).	ea	2	*	*	*	*	D-3	6
PBOZZ	6635-407-5136	STRAP, CENTERING DEVICE: 9251646 (19203).	ea	1	*	*	*	*	D-3	7
XALLL		HEAD, X-RAY: 9251648 (19203).	ea	1	*	*	*	*	D-3	8
		HEAD, X-RAY: 9251648 (19203).							D-3	8
PBOZZ	5305-022-6783	SCREW, MACHINE: Steel, cd-pltd, slotted, 5-40x 0.625" lg Spec FF-S-92 type 1, style 2S (81348) when exhausted use 5305-156-2847.	ea	4	*	*	*	*	D-3	9
PBOZZ	5305-156-2847	SCREW, MACHINE: Steel, cd-pltd, cross-recessed, 5-40x0.625" lg Spec FF-S-92 type III, style 2c (81348) use when 5305-022-6783 is exhausted.	ea	4	*	*	*	*	D-3	9
PBOZZ	5340-151-5865	COVER, ACCESS: 9234896 (19203).	ea	1	*	*	*	*	D-3	10
PBOZZ	5330-936-8279	GASKET: 9234899 (19203).	ea	1	*	*	*	*	D-3	11
PBOZZ	5305-889-3000	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.5" lg MS35206-230 (96906).	ea	6	*	*	*	*	D-3	12
PBOZZ	5310-274-8702	WASHER, LOCK: Steel, helical ring, 0.25"od, for No. 6 screw MS35338-60 (96906).	ea	6	*	*	*	*	D-3	13

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
PBOZZ	5310-983-8483	WASHER, FLAT. Steel, cd-p!o', 5/16" od, for No. 6 screw MS27183-5 (96906).	ea	6	*	*	*	*	D-3	14
PBOZZ	5305-494-6612	SCREW, CAP, SOCKET HEAD: Steel, cd-pltd, 10-32 NF-2Ax7/8" long 9234985 (19203).	ea	24	*	*	*	*	D-3	15
PBOZZ	5310-274-8710	WASHER, LOCK: Steel, 0.334" od, 0.202" id MS35338-62 (96906).	ea	24	*	*	*	*	D3	16
PBOZZ	5310-934-9751	NUT, PLAIN, HEXAGON: Steel, cd-pltd, 10-32 size MS35650-302 (96906).	ea	24	*	*	*	*	D-3	17
		CABLE ASSEMBLY, POWER, ELECTRICAL: Line 9221180 (19203).							D-4	
PBOZZ	5935-781-3331	CONNECTOR, PLUG, ELECTRICAL: 9221484 (19203).	ea	1	*	*	*	*	D-4	1
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	1	*	*	*	*	D-4	2
PBOZZ	5305-1516898	SCREW, MACHINE: 9244067 (19203).	ea	2	*	*	*	*	D-4	3
		CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting:- 9221481 (19203).							D-5	
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	2	*	*	*	*	D-5	1
PBOZZ	5305-151-6898	SCREW, MACHINE: 9244067 (19203).	ea	4	*	*	*	*	D-5	2
		CENTERING AND MEASURING DEVICE: 9234900 (19203).							D-6 D-7	
PBOZZ	6635-439-6107	RING, CENTERING: 9234893 (19203).	ea	1	*	*	*	*	D-6	1
PBOZZ	6635-439-6106	LEG, CENTERING AND MEASURING DEVICE: 9234898 (19203).	ea	1	*	*	*	*	D-6	2
PBOZZ	6635-439-6108	ADAPTER ASSEMBLY: 9244057 (19203).	ea	1	*	*	*	*	D-6	3
		ADAPTER ASSEMBLY 9244057 (19203).							D-6	3
PBOZZ	5210-449-0543	TAPE, MEASURING, REPLACEMENT: 9234892 (19203).	ea	1	*	*	*	*	D-7	1

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
	6635-179-4321	X-RAY SUPPORT KIT: 9235660 (19203).								
PBOOD	6525-930-3274	PROCESSING MACHINE, RADIOGRAPHIC PAPER AND DEVELOPER ASSEMBLY: MIL-P-36541 (81349).	ea	1	*	*	*	*	D-10	
PBOOF	6635-405-4462	CASSETTE, X-RAY APPARATUS, INDUSTRIAL: 9225946 (19203).	ea	2	*	*	*	*	D-11	
PBOFF	6150-439-6102	CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).	ea	1	*	*	*	*	D-5	
PBOFF	6635-470-7518	TRIPOD, X-RAY SUPPORT: 9223387 (19203).	ea	2	*	*	*	*	D-12	
PBOZZ	9535-439-6109	LEAD SHEET: 12x13x1/8" 9229032 (19203).	ea	2	*	*	*	*	D-13	
PBOOF	6635-439-6110	CHEST, X-RAY SUPPORT KIT: 9225535 (19203). CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).	ea	1	*	*	*	*	D-14 through D-17 D-5	
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	2	*	*	*	*	D-5	1
PBOZZ	5305-151-6898	SCREW, MACHINE: 9244067 (19203).	ea	4	*	*	*	*	D-5	2
		TRIPOD, X-RAY SUPPORT: 9223387 (19203).							D-12	
PBOZZ	6635-439-6111	CLAMP, TOP HALF: 9223390 (19203).	ea	1	*	*	*	*	D-12	1
PBOZZ	6635-439-6112	CLAMP, BOTTOM HALF: 9223389 (19203).	ea	1	*	*	*	*	D-12	2
PBOZZ	6635-439-6118	ANCHOR TRIPOD: 9223388 (19203).	ea	1	*	*	*	*	D-12	3
PBOZZ	6635-439-6117	LEG, ADJUSTABLE, TRIPOD: 9223391 (19203).	ea	3	*	*	*	*	D-12	4
PBOZZ	6635-439-6116	FOOT, TRIPOD: 9223392 (19203).	ea	3	*	*	*	*	D-12	5
PBOZZ	6635-439-6113	PIN ASSEMBLY, QUICK RELEASE: Chain 8" lg; pin 2.5" lg 9235643-1 (19203).	ea	1	*	*	*	*	D-12	6
PBOZZ	6635-439-6114	PIN ASSEMBLY, QUICK RELEASE: Chain 8" lg, pin 1.5" lg. 9235643-2 (19203).	ea	3	*	*	*	*	D-12	7
PBOZZ	6635-439-6115	PIN ASSEMBLY, QUICK RELEASE: Chain 16" lg, pin 1.5" lg. 9235643-3 (19203).	ea	3	*	*	*	*	D-12	8

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15 DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATION (a) FIGURE NO.	(b) ITEM NO.
		CHEST, X-RAY SUPPORT KIT: 9225535 (19203).							D-14 through D-17	
PBOZZ	5340-838-0199	CATCH, CLAMPING: 9219226 (19203).	ea	2	*	*	*	*	D-14	1
PBOZZ	5305-984-6194	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.625" lg, cross-recess panhead MS35206-246 (96906).	ea	12	*	*	*	*	D-14	2
PBOZZ	5310-465-8922	NUT, PLAIN, PLATE: Steel, cd-pltd, 8-32 size MS51941-2 (96906).	ea	30	*	*	*	*	D-14 D-16	3 3
PBOZZ	5340-234-8424	HASP, HINGED: Steel, zinc pltd MS27965-14 (96906).	ea	1	*	*	*	*	D-14	4
PBOZZ	5305-9585451	SCREW, MACHINE: Steel, cd-pltd, 6-32x0.625" lg MS35190-239 (96906).	ea	7	*	*	*	*	D-14	5
PBOZZ	5310-492-6078	NUT, PLAIN, PLATE: Steel, cd-pltd, 6-32 size MS51941-1 (96906).	ea	7	*	*	*	*	D-14	6
PBOZZ	5340-251-7971	HANDLE, BAIL: Steel, cd-pltd MS35791-1 (96906).	ea	8	*	*	*	*	D-15	1
PBOZZ	5305-088-8332	SCREW, MACHINE: Steel, cd-pltd 10-24x0.625" lg MS35190-272 (96906).	ea	32	*	*	*	*	D-15	2
PBOZZ	5310-492-6079	NUT, PLAIN, PLATE: Steel, cd-pltd, 10-24 size MS51941-5 (96906).	ea	32	*	*	*	*	D-15	3
PBOZZ	5340-482-6072	HINGE, BUTT: MS27968 (96906).	ea	3	*	*	*	*	D-16	1
PBOZZ	5305-958-5477	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.625" lg MS35190-254 (96906).	ea	18	*	*	*	*	D-16	2
PBOZZ	5340-412-2014	CORNER, CASE: Steel, cd-pltd MS35254-21 (96906).	ea	8	*	*	*	*	D-16	4
PBOZZ	5305-900-2545	SCREW, WOOD: Steel, cd-pltd No. 6 MS35492-27 (96906).	ea	24	*	*	*	*	D-17	5
PBOZZ	4030-780-9350	HOOK, CHAIN, S: Steel, cd-pltd MS87006-13 (96906).	ea	2	*	*	*	*	D-17	1
PBOZZ	5305-954-8370	SCREW, EYE: Steel, cd or zinc pltd MS35646-42 (96906).	ea	2	*	*	*	*	D-17	2
PBOZZ	4010-186-9412	CHAIN, WELDLESS: (approx 23" lg w/hooks-MS87006-13), steel Spec RR-C-271 (81348).	ea	1	*	*	*	*	D-17	3

Section V. REPAIR PARTS FOR DIRECT SUPPORT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 1-YR PER 100 EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (A) FIG NO	(B) ITEM NO
	6635-179-4322	X-RAY APPARATUS, RADIOGRAPHIC, INDUSTRIAL: 9224152 (19203).												
PBOOD	6635-407-5142	CASE AND CONTROL UNIT, X-RAY APPARATUS: 9251701 (19203).	ea	1	*	*	*				*		D-1, D-2	
PBOOD	6635-450-9694	X-RAY HEAD ASSEMBLY: 9221442 (19203).	ea	1	*	*	*				*		D-3	
PBOFF	6150-439-6101	CABLE ASSEMBLY, POWER, ELECTRICAL: Line 9221480 (19203).	ea	1	*	*	*				*		D-4	
PBOFF	6150-439-6102	CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).	ea	1	*	*	*				*		D-5	
PBOOF	6635-439-6103	CENTERING AND MEASURING DEVICE: 9234900 (19203).	ea	1	*	*	*				*		D-6, D-7	
PBOZZ	6635-439-6119	PACKING CASE, CONTROL UNIT: 9221443 (19203).	ea	1	*	*	*				*		D-8	
PBOZZ	6635-439-6120	PACKING CASE, X-RAY HEAD: 9221444 (19203).	ea	1	*	*	*				*		D-9	
		CASE AND CONTROL UNIT, X-RAY APPARATUS: 9251701 (19203).											D-1, D-2	
PBOZZ	5305-984-6191	SCREW, MACHINE: Carbon S, cd-pltd, pan-hd, cross-recessed, 8-32x0.375" lg MS35206-243 (96906).	ea	4	*	*	*				*		D-1	1
PBOZZ	5310-809-8544	WASHER, FLAT: S, cd-pltd, general purpose, 3/8" dia MS27183-7 (96906).	ea	4	*	*	*				*		D-1	2
XALLL	6635-441-8857	CASE ASSEMBLY, CONTROL UNIT: 9235831 (19203).	-	1	*	*	*				*		D-1	3
XALLL	6635-439-099	CONTROL UNIT, X-RAY APPARATUS: 9221441 (19203).	-	1	*	*	*				*		D-2	1
PBOOF	6635-441-8853	COVER ASSEMBLY, CONTROL CASE: 9235832 (19203).	ea	1	*	*	*				*		D-1	4
		CASE ASSEMBLY, CONTROL UNIT: 9235831 (19203).											D-1	3
PBOZZ	5340-151-7002	CATCH, CLAMPING: 9221477-2 (19203).	ea	4	*	*	*				*		D-1	5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(9) 1-YR PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUS-TRATION (A) FIG NO	(B) ITEM NO
PBOZZ	5305-984-4988	SCREW, MACHINE: Carbon S, cd-pltd, pan-hd, cross-recessed, 6-32x0.375" lg MS35206-228 (96906).	ea	8	*	*	*				*		D-1	6
		CONTROL UNIT, X-RAY APPARATUS: 9221441 (19203).	D-2	1										
PBOZZ	5950-629-4400	HANDWHEEL: 9244058 (19203).	ea	1	*	*	*				*		D-2	2
PBOZZ	5305-723-9385	SETSCREW: Steel, cd-pltd, socket drive, ¼-20x0.375” lg MS51963-65 (96906).	ea	2	*	*	*				*		D-2	3
PBOZZ	5305-957-6264	SCREW, MACHINE: Carbon S, cd-pltd, fl-ck-hd, cross-recessed 4-48x0.188" lg MS35190-225 (96906).	ea	8	*	*	*				*		D-2	4
PBOZZ	5305-889-3000	SCREW, MACHINE: Carbon S, cd-pltd, pan-hd, cross-recessed, 6-32x0.5" lg MS35206-230 (96906).	ea	6	*	*	*				*		D-2	5
PBOZZ	5310-045-4007	WASHER, LOCK: Split, helical, steel,cd-pltd, 0.25” dia MS35338-41 (96906).	ea	9	*	*	*				*		D-2	6
PBOZZ	5305-984-4992	SCREW, MACHINE: Carbon S, cd-pltd, pan-hd, cross-recessed, 6-32x0.750" lg MS35206-232 (96906).	ea	3	*	*	*				*		D-2	7
PBOZZ	5920-875-4100	FUSEHOLDER: Type FHN 26G2, plastic, 1.25” lg x 0.25" dia (no soldering) MIL-F-19207/16 (81349).	ea	2	*	*	*				*		D-2	8
PBOZZ	5920-199-9502	FUSE, CARTRIDGE: MIL-F-15160/03 (81349).	ea	2	*	*	*				*		D-2	9
PBOZZ	6210-946-9647	LIGHT, INDICATOR: Plastic lens, brass lens holder, neoprene gasket, neon screw base (no soldering) 9221455 (19203).	ea	1	*	*	*				*		D-2	10
PBOZZ	6210-192-9560	LIGHT, PANEL: Brass cap assembly, incandescent screw base (no soldering) 9221454 (19203).	ea	1	*	*	*				*		D-2	12
PBOZZ	6240-797-8600	LAMP, INCANDESCENT: Screw base, 115 V, 6W MS155579-1 (96906).	ea	2	*	*	*				*		D-2	11
		COVER ASSEMBLY, CONTROL CASE: 9235832 (19203).											D-1	4
PBOZZ	5340-480-664	STRIKE, CATCH: 9221477-1 (19203).	ea	4	*	*	*				*		D-1	7

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(9) 1-YR PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUS-TRATION (A) FIG NO	(B) ITEM NO
PBOZZ	5305-889-2997	SCREW, MACHINE: Pan-hd, steel, cd-plt.d, 4-40x 0.375"lg MS35206-215 (96906).	ea	8	*	*	*				*		D-1	8
PBOZZ	5330-194-2769	STRIP, RUBBER: Sponge rubber, 11 inches long 9221462-1 (19203).	ea	2	*	*	*				*		D-1	9
PBOZZ	5330-477-9918	STRIP, RUBBER: Sponge rubber, 17"% inches long 9221462-2 (19203).	ea	2	*	*	*				*		D-1	10
		X-RAY HEAD ASSEMBLY: 9221442 (19203).											D-3	
PBOZZ	6635-439-104	HANDLE, X-RAY: 9234972 (19203).	ea	2	*	*	*				*		D-3	1
PBOZZ	5305-460-3960	SCREW, MACHINE: Steel cd-pltd, hex, socket-hd cap screw, metric 8-mm, diaxl.25-mm. pitcll x 6-mm. lg 9234969 (19203).	ea	8	'	*	*				*		D-3	2
PBOZZ	5310-407-9566	WASHER, LOCK: Helical spring, steel, cd-pltd, 0.586" dia MS35338-45 (96906).	ea	8	*	*	*				*		D-3	3
PBOZZ	6635-407-5139	HOLDER, CENTERING DEVICE: 9251647 (19203).	ea	1	*	*	*				*		D-3	4
PBOZZ	5305-983-6654	SCREW, CAP, SOCKET HEAD: Steel, cd-pltd, 10-32x1" lg MS16998-31 (96906).	ea	4	*	*	*				*		D-3	5
PBOZZ	6635-407-5134	PIN, CENTERING DEVICE: 9251645 (19203).	ea	2	*	*	*				*		D-3	6
PBOZZ	6635-407-5136	STRAP, CENTERING DEVICE: 9251646 (19203).	ea	1	*	*	*				*		D-3	7
XALLL		HEAD, X-RAY: 9251648 (19203).	ea	1	*	*	*				*		D-3	8
		HEAD, X-RAY: 9251648 (19203).											D-3	8
PBOZZ	5305-022-6783	SCREW, MACHINE: Steel, cd-pltd, slotted, 5-40x 0.625"lg Spec FF-S-92 type 1, style 2S (81348), when exhausted use 5305-156-2847.	ea	4	*	*	*				*		D-3	9
PBOZZ	5305-156-2847	SCREW, MACHINE: Steel, cd-pltd, cross-recessed, 5-40x0.625" lg Spec FF-S-92 type III, Style 2C (81348), use when 5305-022-6783 is exhausted.	ea	*	*	*					*		D-3	9
PBOZZ	5340-151-5865	COVER ACCESS: 9234896 (19203).	ea	1	*	*	*				*		D-3	10
PBOZZ	5330-936-8279	GASKET: 9234899 (19203).	ea	1	*	*	*				*		D-3	11
PBOZZ	5305-889-3000	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.5" lg MS 35206-230 (96906).	ea	6	*	*	*				*		D-3	12

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(9) 1-YR PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUS-TRATION (A) FIG NO	(B) ITEM NO
PBOZZ	5310-274-8702	WASHER, LOCK: Steel, helical ring, 0.25"od, for No. 6 screw MS35338-60 (96906).	ea	6	*	*	*				*		D-3	13
PBOZZ	5310-983-8483	WASHER, FLAT: Steel, cd-pltd, 5/16" od, for No. 6 screw MS27183-5 (96906).	ea	6	*	*	*				*		D-3	14
PBOZZ	5305-494-6612	SCREW, CAP, SOCKET HEAD: Steel, cd-pltd, 10-32 NF-2Ax7/8 " lg 9234985 (19203).	ea	24	*	*	*				*		D-3	15
PBOZZ	5310-274-8710	WASHER, LOCK: Steel, 0.334" od, 0.202" id MS35338-62 (96906).	ea	24	*	*	*				*		D-3	16
PBOZZ	5310-934-9751	NUT, PLAIN, HEXAGON: Steel, cd-pltd, 10-32 size MS35650-302 (96906).	ea	24	*	*	*				*		D-3	17
		CABLE ASSEMBLY, POWER, ELECTRICAL: Line 9221480 (19203).	D-4											
PBOZZ	5935-781-3331	CONNECTOR, PLUG, ELECTRICAL: 9221484 (19203).	ea	1	*	*	*				*		D-4	1
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	1	*	*	*				*		D-4	2
PBOZZ	5305-151-6898	SCREW, MACHINE: 9244067 (19203).	ea	2	*	*	*				*		D-4	3
PBFFF	5935-936-8380	CONNECTOR, PLUG, ELECTRICAL: 9221485 (19203).	ea	1	*	*	*				*		D-4	4
PBFFF	6145-450-6732	CABLE, POWER, ELECTRICAL: 9221482 (19202)	ea	1	*	*	*						D-6	
		CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).											D-5	
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	2	*	*	*				*		D-5	1
PBOZZ	5305-151-6898	SCREW, MACHINE: 9244067 (19203).	ea	4	*	*	*				*		D-5	2
PBFFF	5935-936-8292	CONNECTOR, PLUG, ELECTRICAL: 9221486 (19203).	ea	1	*	*	*				*		D-5	3
PBFFF	5935-201-7066	CONNECTOR, PLUG, ELECTRICAL: 9221487 (19203).	ea	1	*	*	*				*		D-5	4
PBFFF	6145-439-6105	CABLE, POWER ELECTRICAL: 9221483 (19203).	ea	1	*	*	*				*		D-5	5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(9) 1-YR PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUS-TRATION (A) FIG NO	(B) ITEM NO
		9234900 (19203).											D-7	
PBOZZ	6635-439-6107	RING, CENTERING: 9234893 (19203).	ea	1	*	*	*				*		D-6	1
PBOZZ	6635-439-6106	LEG, CENTERING AND MEASURING DEVICE: 9234898 (19203).	ea	1	*	*	*				*		D-6	2
PBOZZ	6635-439-6108	ADAPTER ASSEMBLY: 9244057 (19203).	ea	1	*	*	*				*		D-6	3
		ADAPTER ASSEMBLY: 9244057 (19203).	ea	1	*	*	*				*		D-6	3
PBOZZ	5210-449-0543	TAPE, MEASURING, REPLACEMENT: 9234892 (19203).	ea	1	*	*	*				*		D-7	1
	6635-179-4321	X-RAY SUPPORT KIT: 9235660 (19203).												
PBOOD	6525-930-3274	PROCESSING MACHINE, RADIOGRAPHIC PAPER AND DEVELOPER ASSEMBLY: MIL-P-36541 (81349).	ea	1	*	*	*				*		D-10	
PPOOF	6635-405-4462	CASSETTE, X-RAY APPARATUS, INDUSTRIAL: 9225946 (19203).	ea	2	*	*	*				*		D-11	
PBOFF	6150-439-6102	CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).	ea	1	*	*	*				*		D-5	
PBOOF	6635-470-7518	TRIPOD, X-RAY SUPPORT: 9223387 (19203).	ea	2	*	*	*				*		D-12	
PBOZZ	9535-439-6109	LEAD SHEET: 12x13x" 9229032 (19203).	ea	2	*	*	*				*		D-13	
PBOOF	6635-439-6110	CHEST X-RAY SUPPORT KIT: 9225535 (19203).	ea	1	*	*	*				*		D-14 through D-17	
		CABLE ASSEMBLY, POWER, ELECTRICAL: Connecting 9221481 (19203).											D-5	
PBOZZ	5305-151-6897	SCREW, MACHINE: 9244066 (19203).	ea	2	*	*	*				*		D-5	1
PBOZZ	5305-151-6898	SCREW, MACHINE: 9244067 (19203).	ea	4	*	*	*				*		D-5	2
PBFFF	5935-936-8292	CONNECTOR, PLUG, ELECTRICAL: 9221486 (19203).	ea	1	*	*	*				*		D-5	3
PBFFF	5935-201-7066	CONNECTOR, PLUG, ELECTRICAL: 9221487 (19203).	ea	1	*	*	*				*		D-5	4
PBFFF	6145-439-6105	CABLE, POWER, ELECTRICAL: 9221483 (19203).	ea	1	*	*	*				*		D-5	5
		TRIPOD, X-RAY SUPPORT: 9223387 (19203).											D-12	
PBOZZ	6635-439-6111	CLAMP, TOP HALF: 9223390 (19203).	ea	1	*	*	*				*		D-12	1

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NO. & MFR CODE USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (A) 1-20	(B) 21-50	(C) 51-100	(9) 1-YR PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUS-TRATION (A) FIG NO	(B) ITEM NO
PBOZZ	6635-439-6112	CLAMP, BOTTOM HALF: 9223389 (19203).	ea	1	*	*	*				*		D-12	2
PBOZZ	6631-439-6118	ANCHOR, TRIPOD: 9223388 (19203).	ea	1	*	*	*				*		D-12	3
PBOZZ	6635-439-6117	LEG, ADJUSTABLE, TRIPOD: 9223391 (19203).	ea	3	*	*	*				*		D-12	4
PBOZZ	6635-439-6116	FOOT, TRIPOD: 9223392 (19203).	ea	3	*	*	*				*		D-12	5
PBOZZ	6635-439-6113	PIN ASSEMBLY, QUICK RELEASE: Chain 8" lg, pin 2.5" lg 9235643-1 (19203).	ea	1	*	*	*				*		D-12	6
PBOZZ	6635-439-6114	PIN ASSEMBLY, QUICK RELEASE: Chain 8" lg, pin 1.5" lg 9235643-2 (19203).	ea	3	*	*	*				*		D-12	7
PBOZZ	6635-439-6115	PIN ASSEMBLY, QUICK RELEASE: Chain 16" lg, pin 1.5" lg 9235643-3 (19203).	ea	3	*	*	*				*		D-12	8
		CHEST, X-RAY SUPPORT KIT: 9225535 (19203).											D-14 through D-17	
PBOZZ	5340-838-0199	CATCH, CLAMPING: 9219226 (19203).	ea	2	*	*	*				*		D-14	1
PBOZZ	5305-984-6194	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.625" lg, cross-recessed panhead MS35206-246 (96906).	ea	12	*	*	*				*		D-14	2
PBOZZ	5310-465-8922	NUT, PLAIN, PLATE: Steel, cd-pltd, 8-32 size MS51941-2 (96906).	ea	30	*	*	*				*		D-14 D-16	3 3
PBOZZ	534-234-8424	HASP, HINGED: Steel, zinc pltd MS27965-14 (96906).	ea	1	*	*	*				*		D-14	4
PBOZZ	5305-958-5451	SCREW, MACHINE: Steel, cd-pltd, 6-32x0.625" lg MS351090-239 (96906).	ea	7	*	*	*				*		D-14	5
PBOZZ	5310-492-6078	NUT, PLAIN, PLATE: Steel, cd-pltd, 6-32 size MS51941-1 (96906).	ea	7	*	*	*				*		D-14	6
PBOZZ	5340-251-7971	HANDLE, BAIL: Steel, cd-pltd MS35791-1 (96906).	ea	8	*	*	*				*		D-15	1
PBOZZ	5305-088-8332	SCREW, MACHINE: Steel, cd-pltd, 10-24x0.625" lg MS35190-272 (96906).	ea	32	*	*	*				*		D-15	2
PBOZZ	5310-492-6079	NUT, PLAIN, PLATE: Steel, cd-pltd, 10-24 size MS51941-5 (96906).	ea	32	*	*	*				*		D-15	3
PBOZZ	5340-482-6072	HINGE, BUTT: MS27968-6 (96906).	ea	3	*	*	*				*		D-16	1

PBOZZ	5305-958-5477	SCREW, MACHINE: Steel, cd-pltd, 8-32x0.625" lg MS35190-254 (96906).	ea	18	*	*	*				*	D-16	2
PBOZZ	5340-412-2014	CORNER, CASE: Steel, cd-pltd MS35254-21 (96906).	ea	8	*	*	*				*	D-16	4
PBOZZ	5305-900-2545	SCREW, WOOD: Steel, cd-pltd, No. 6 MS35492-27 (96906).	ea	24	*	*	*				*	D-16	5
PBOZZ	4030-780-9350	HOOK, CHAIN, S: Steel, cd-pltd MS87006-13 (96906).	ea	2	*	*	*				*	D-17	1
PBOZZ	5305-954-8370	SCREW, EYE: Steel, cd or zinc pltd MS35646-42 (96906).	ea	2	*	*	*				*	D-17	2
PBOZZ	4010-1869412	CHAIN, WELDLESS: approx. 23" lg w/hooks MS87006-13, Steel Spec RR-C-271 (81348).	ea	1	*	*	*				*	D-17	3

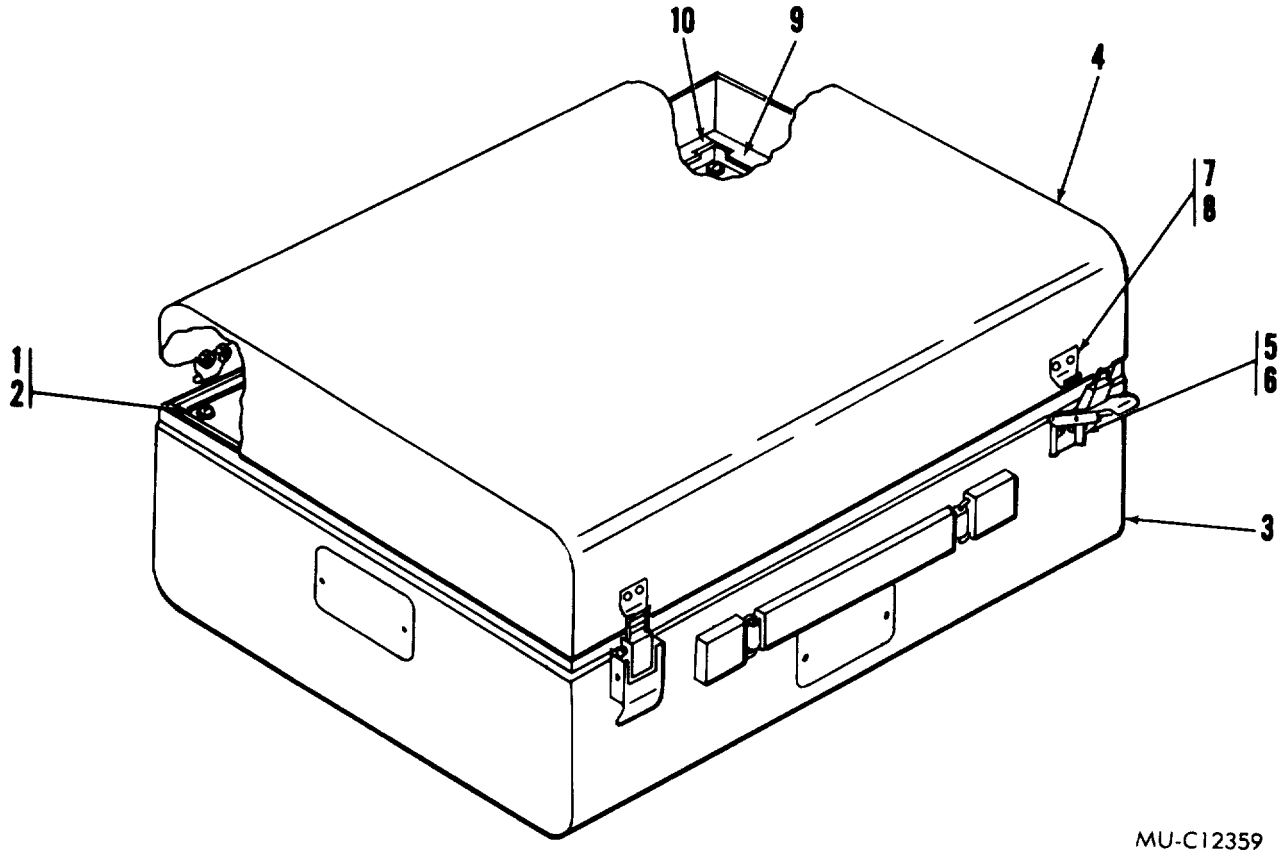

Figure D-1. Case and control unit-case assembly.

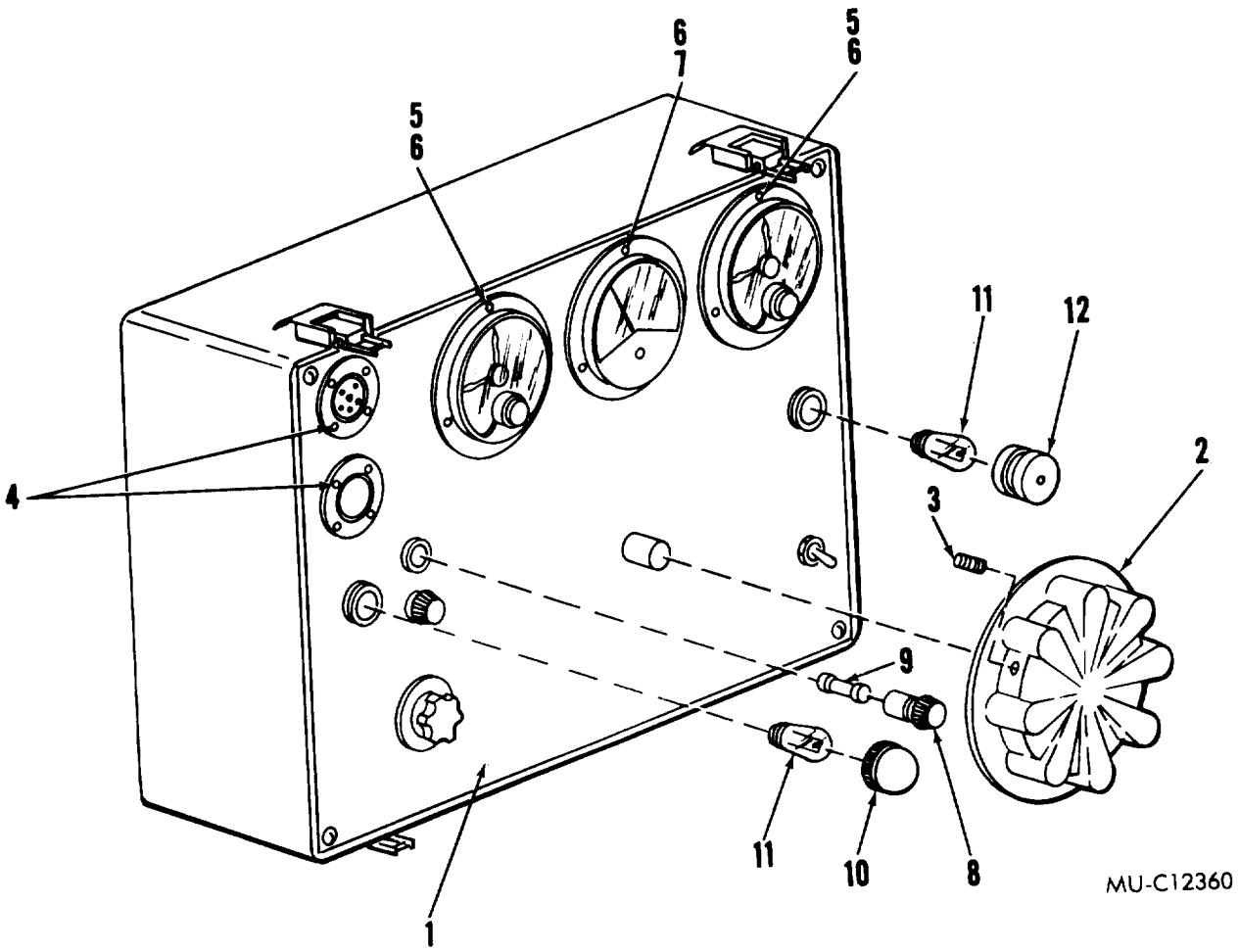

Figure D-2. Case and control unit-front panel.

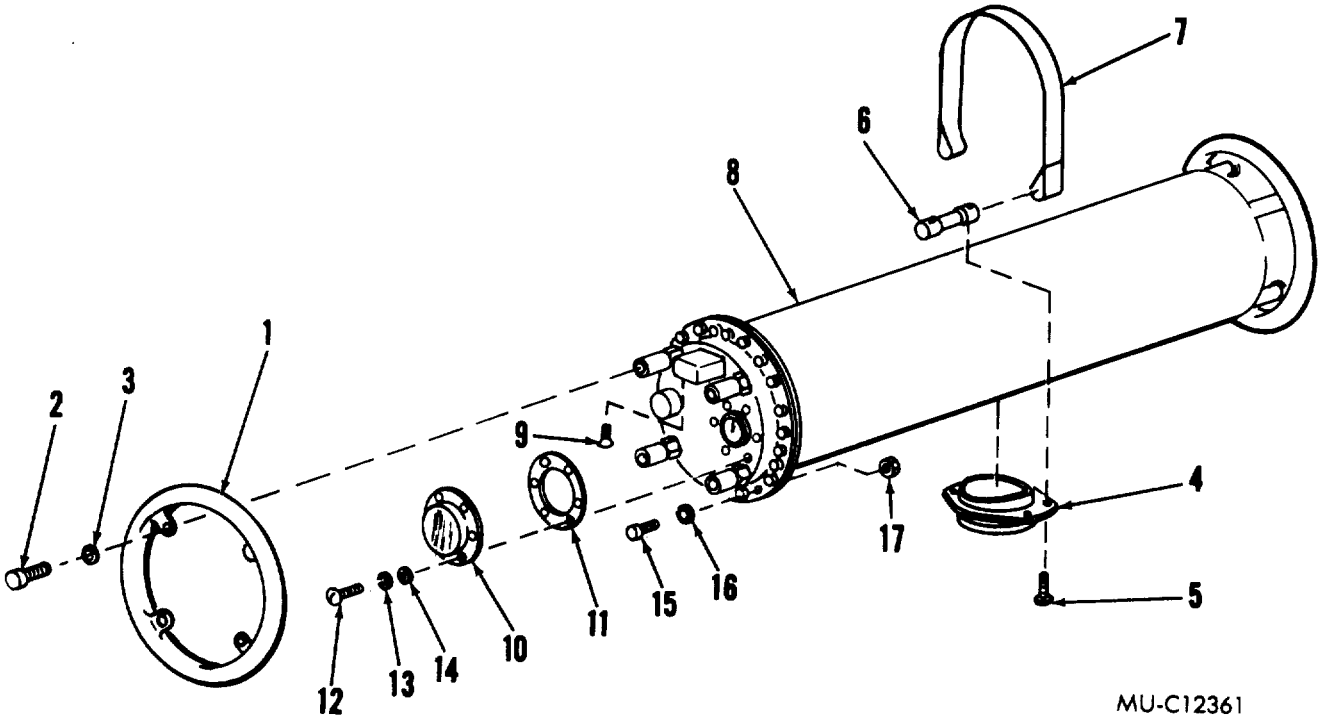

Figure D-3. X-ray head assembly.

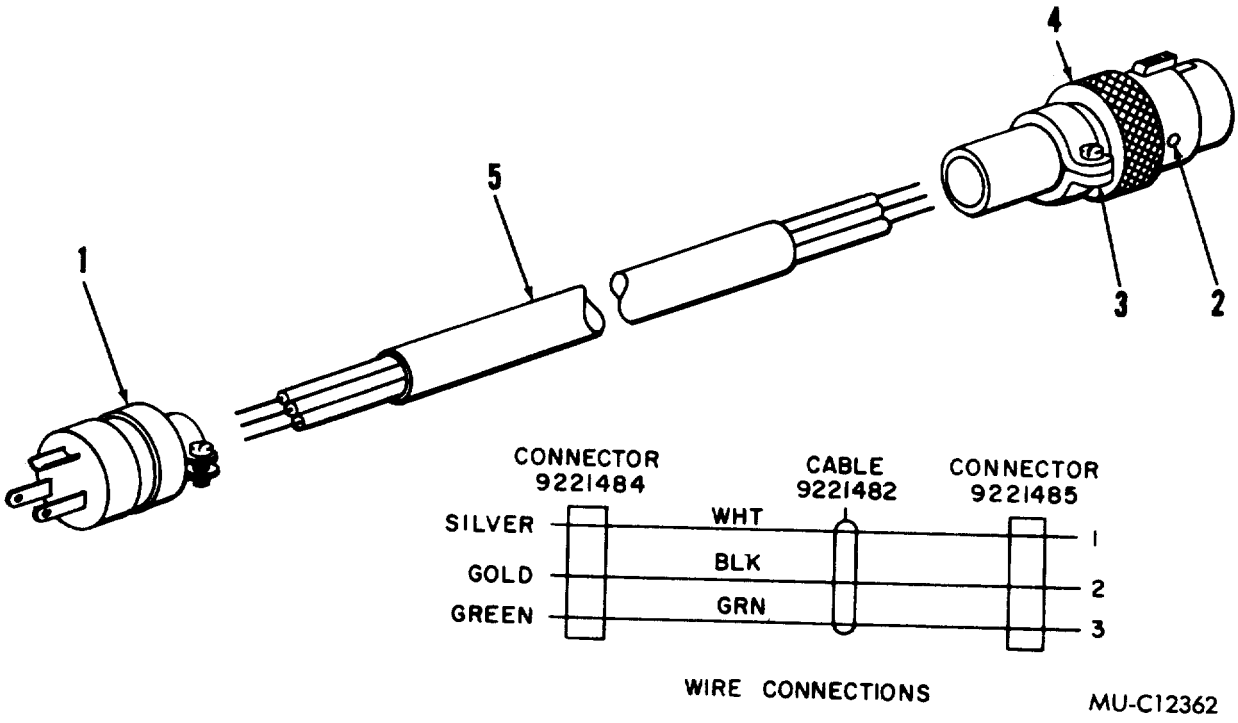

Figure D-4. Line electrical power cable assembly.

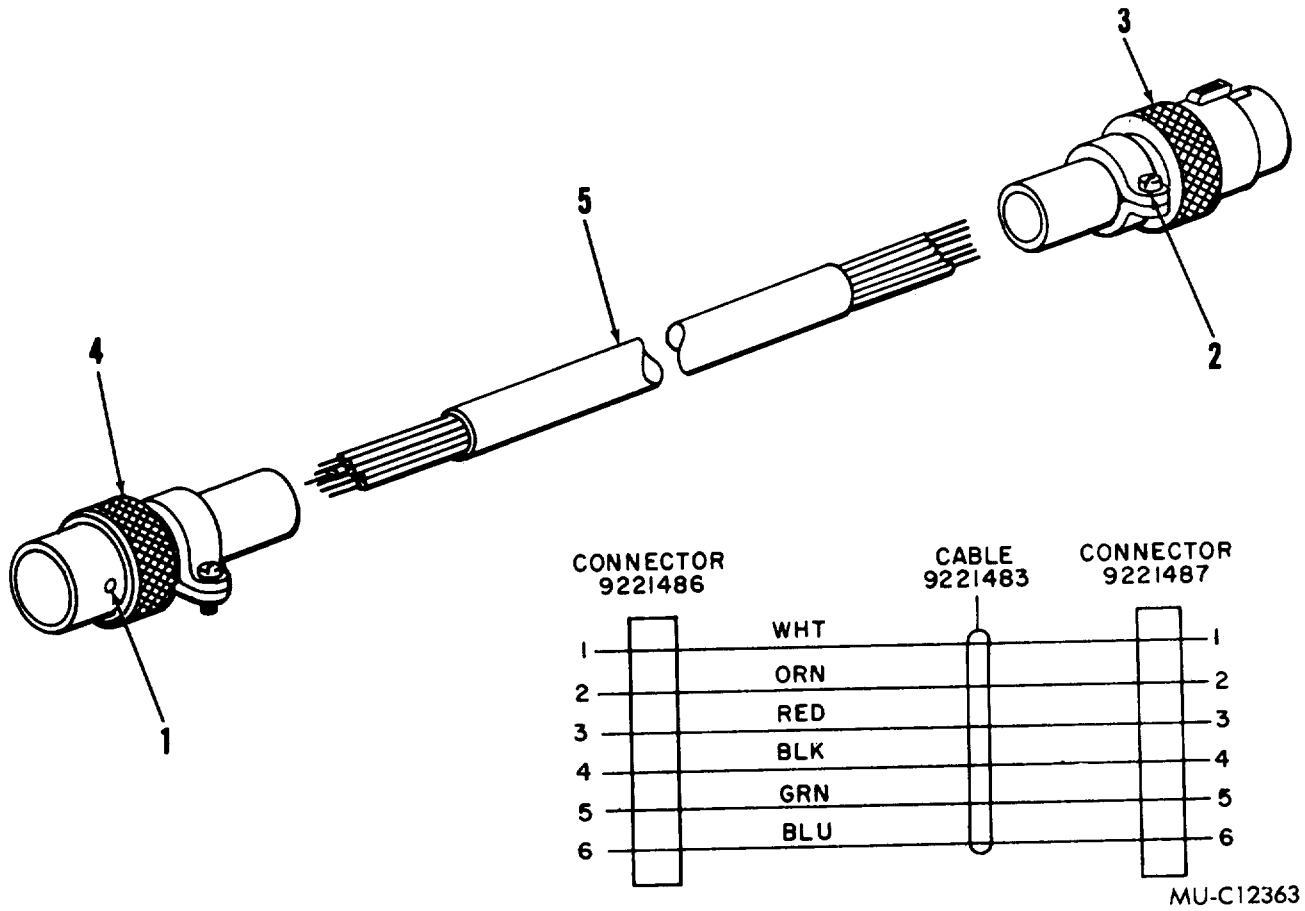

Figure D-5. Connecting electrical, power cable assembly.

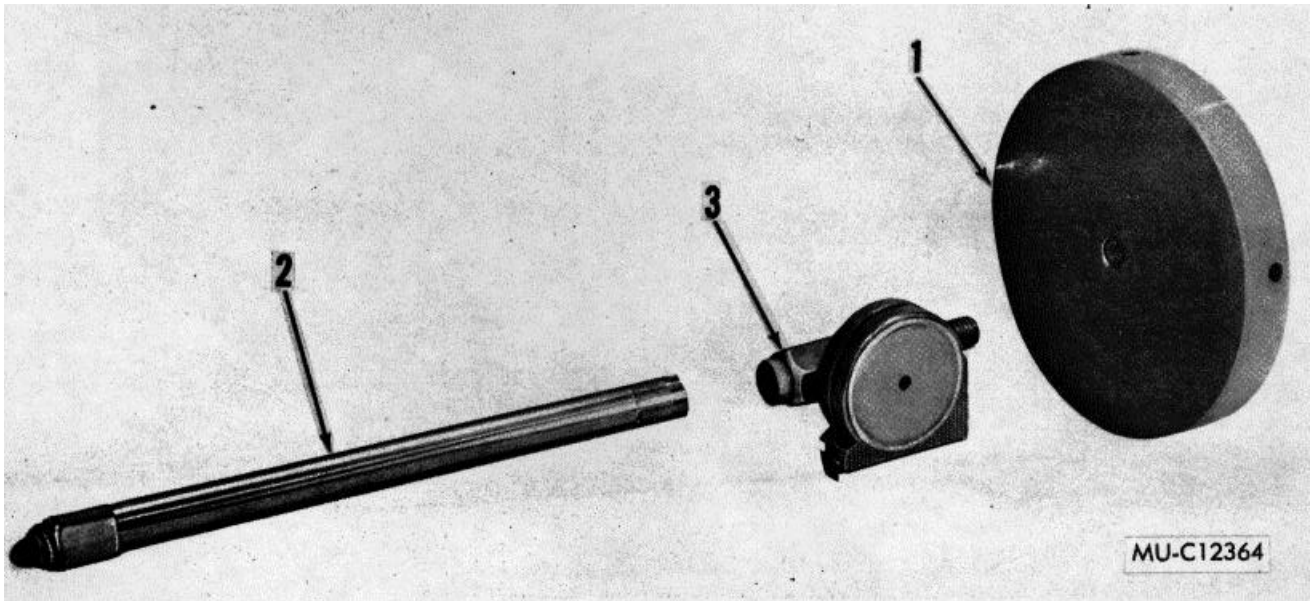

Figure D-6. Centering and measuring device.

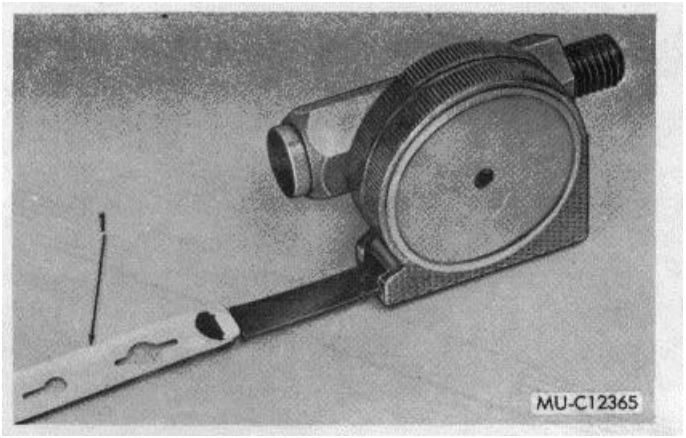

Figure D-7. Adapter assembly.

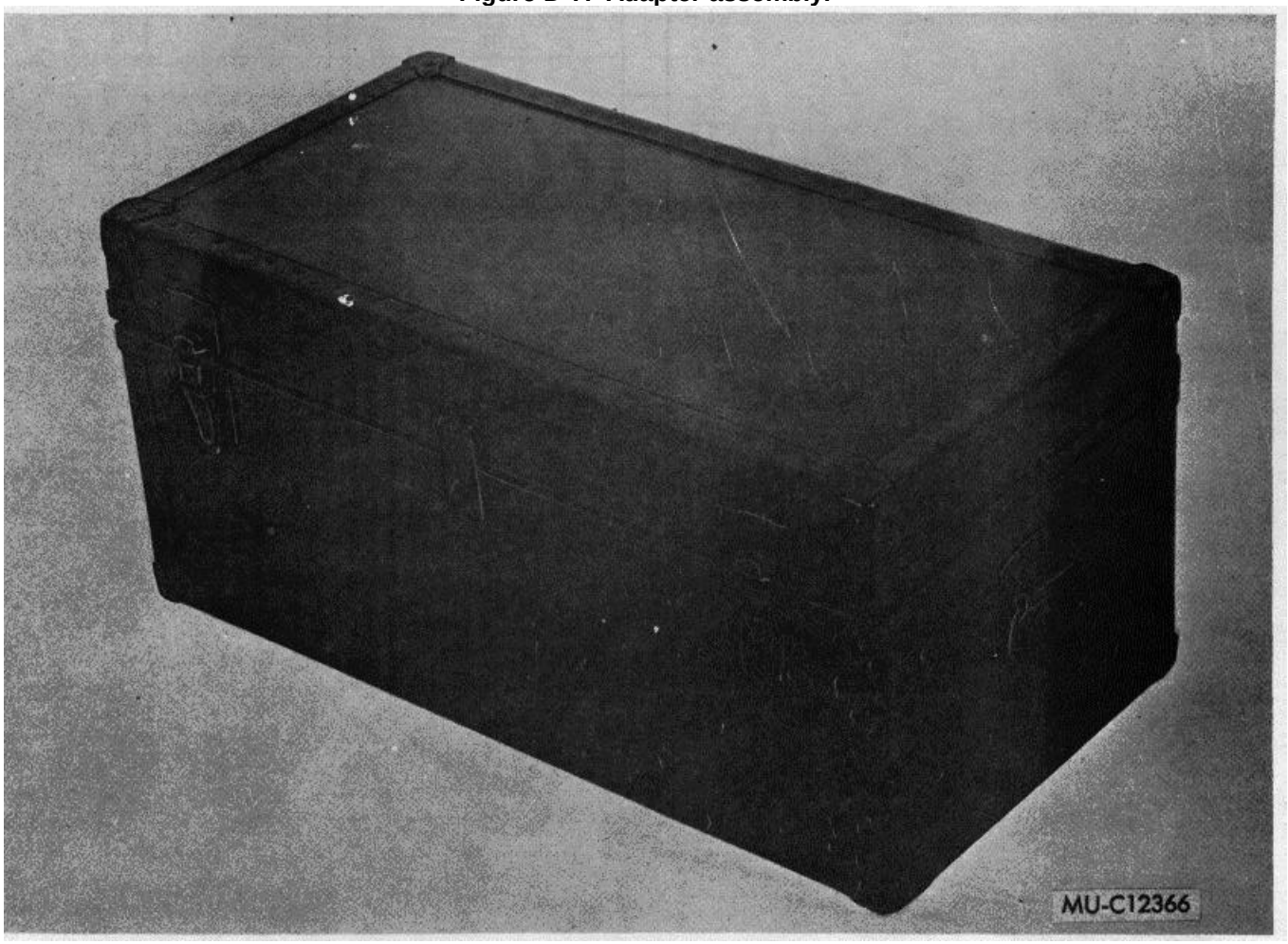

Figure D-8. Control unit packing case.

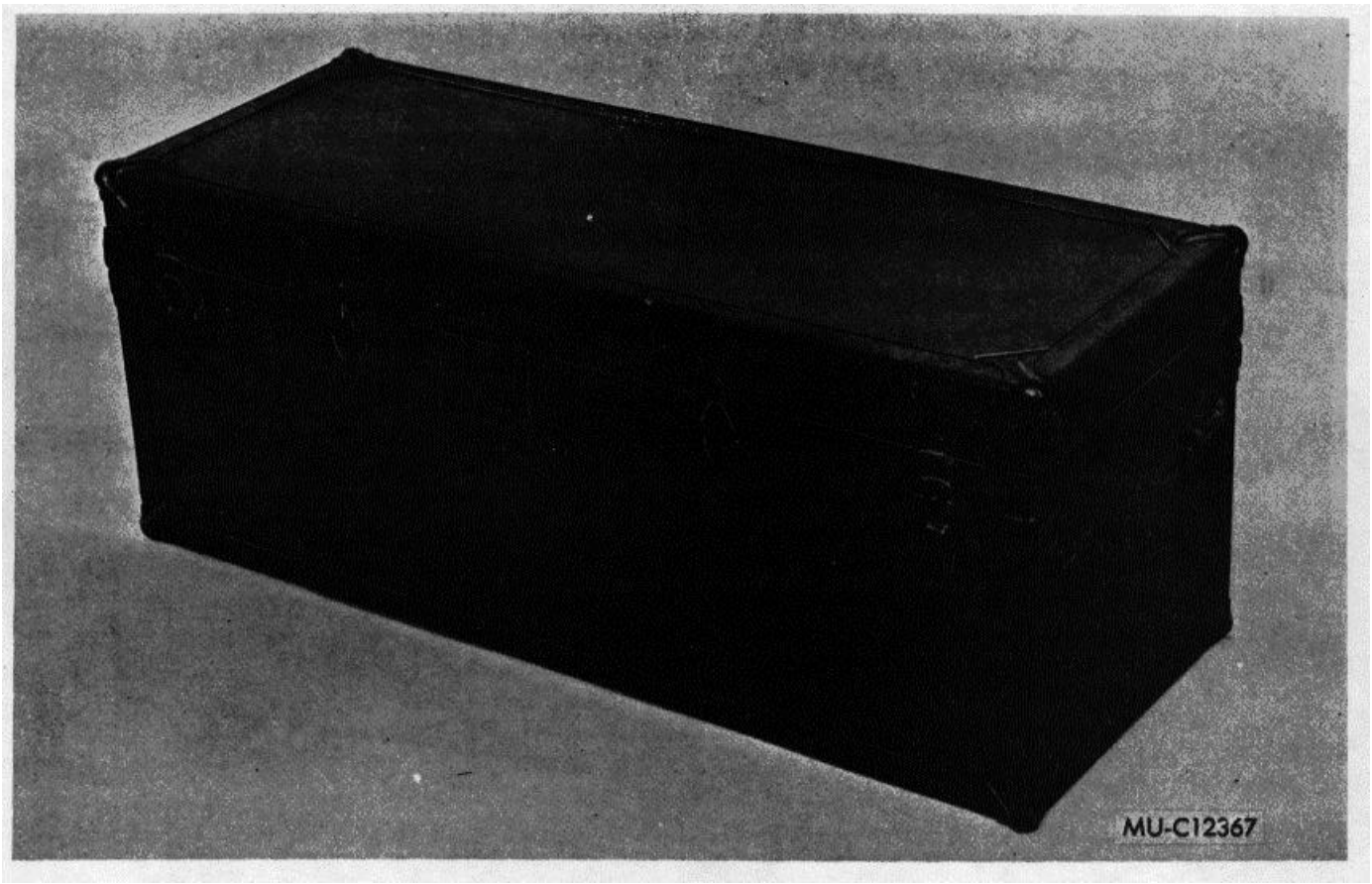

Figure D-9. X-ray head packing case.

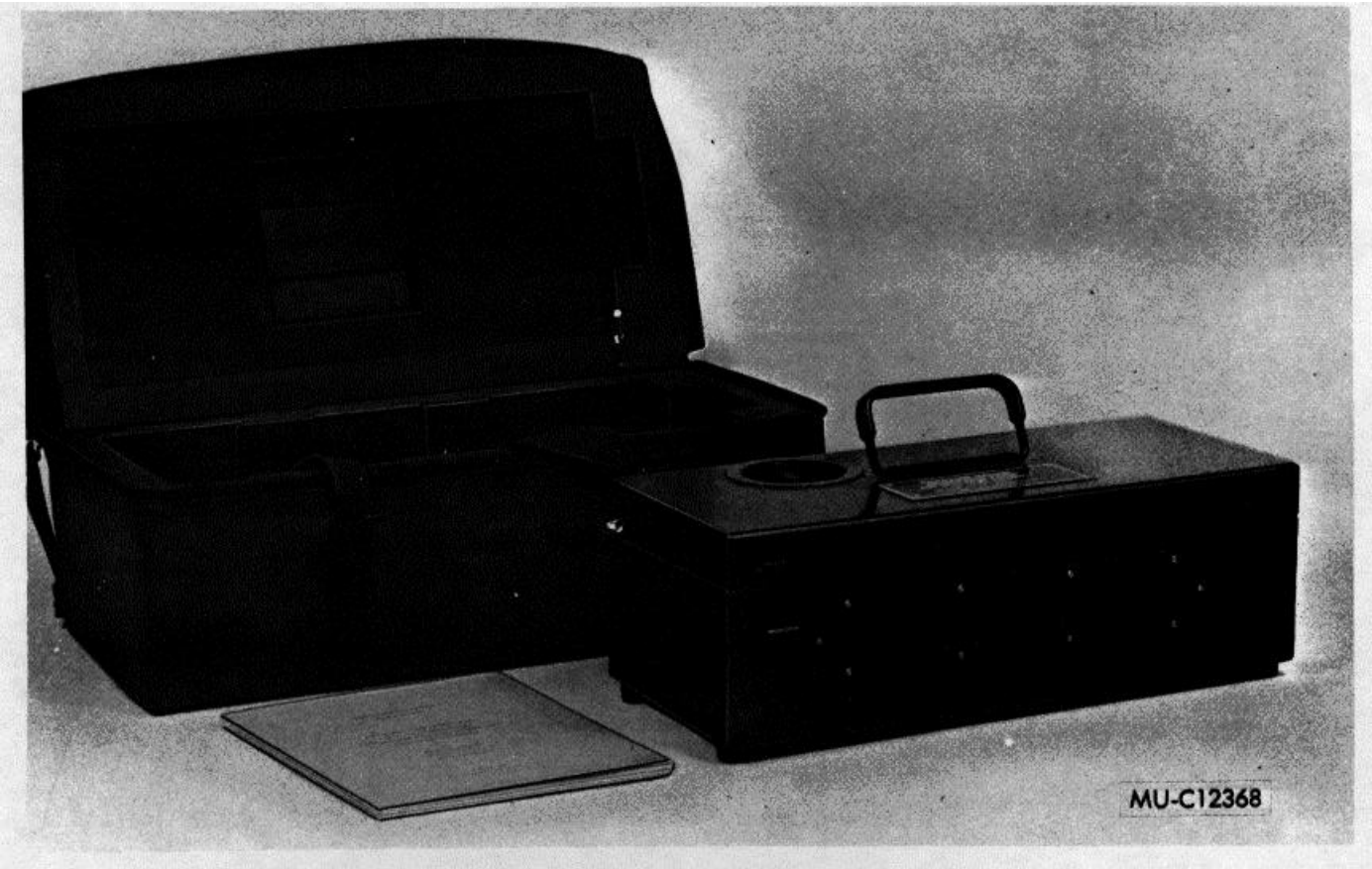

Figure D-10. Radiographic Paper and Developer Assembly Processing Machine.

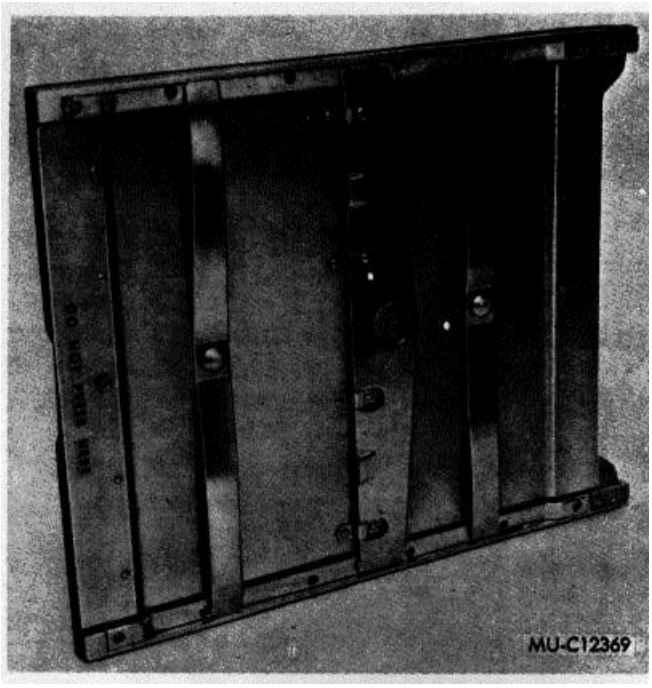

Figure D-11. Industrial X-ray apparatus cassette

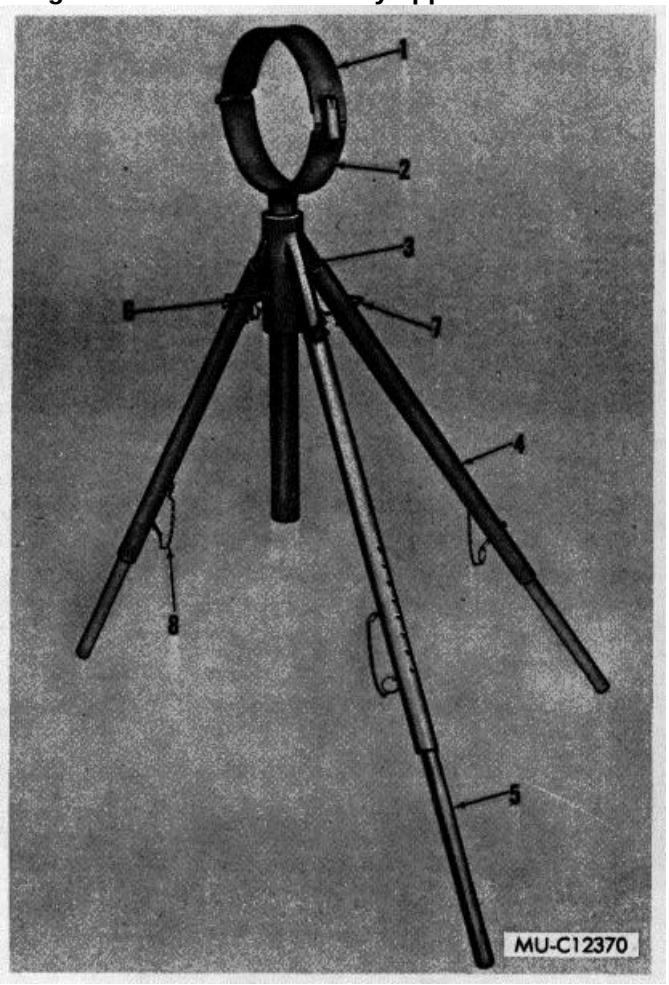

Figure D-12. X-ray support tripod.

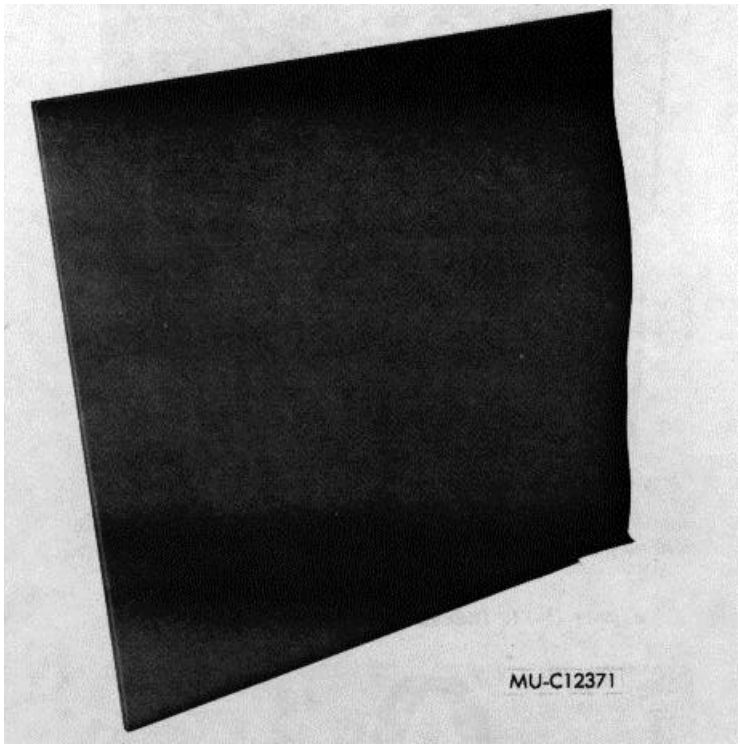

Figure D-13. Lead sheet.

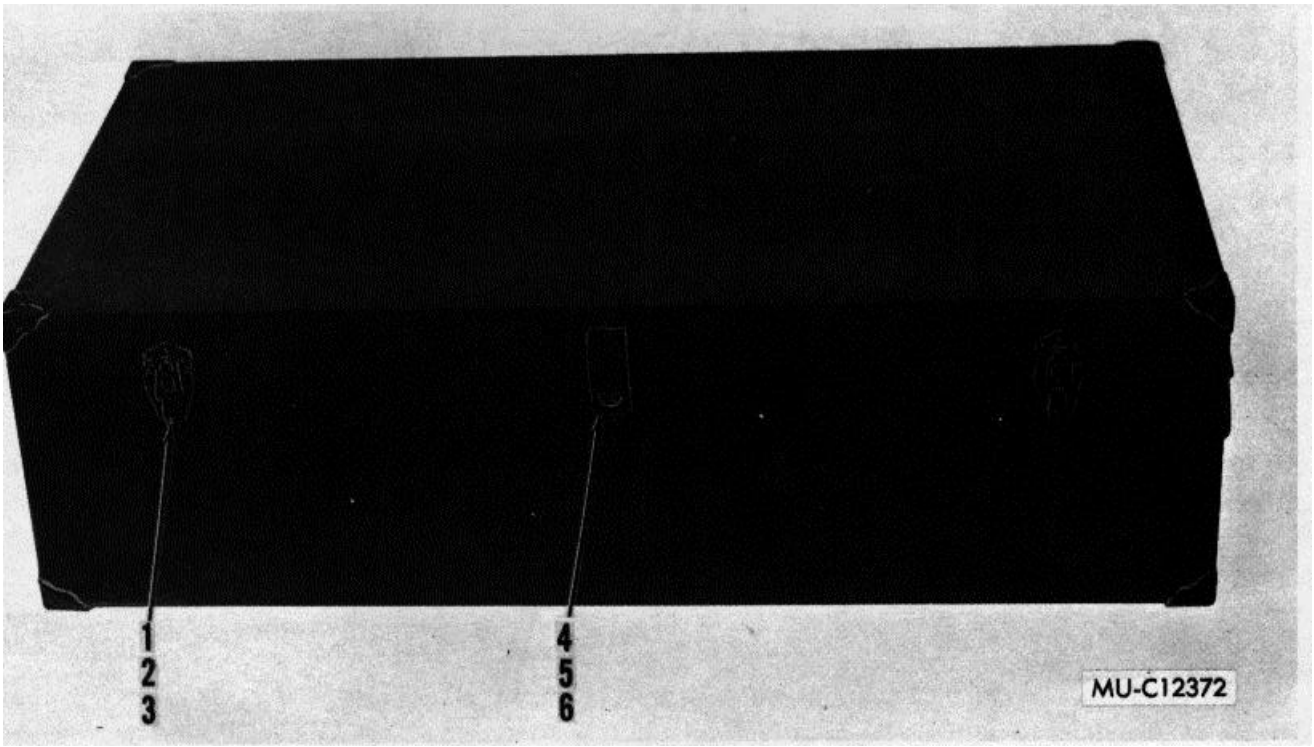

Figure D-14. X-ray support kit chest – front view.

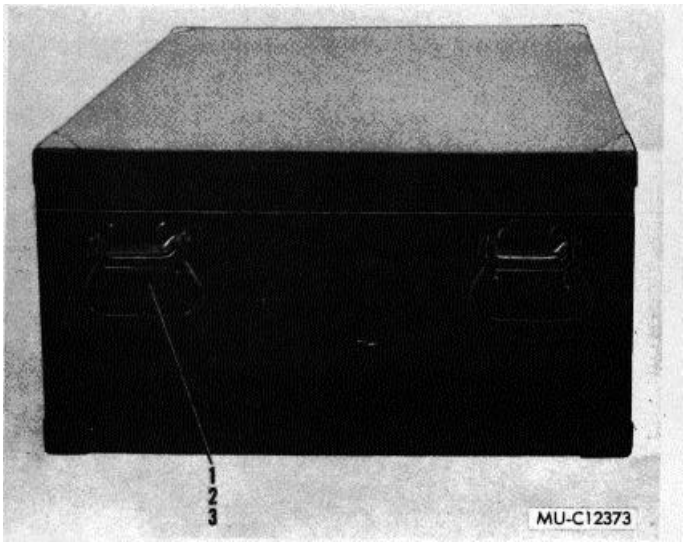

Figure D-15. X-ray support kit chest – side view.

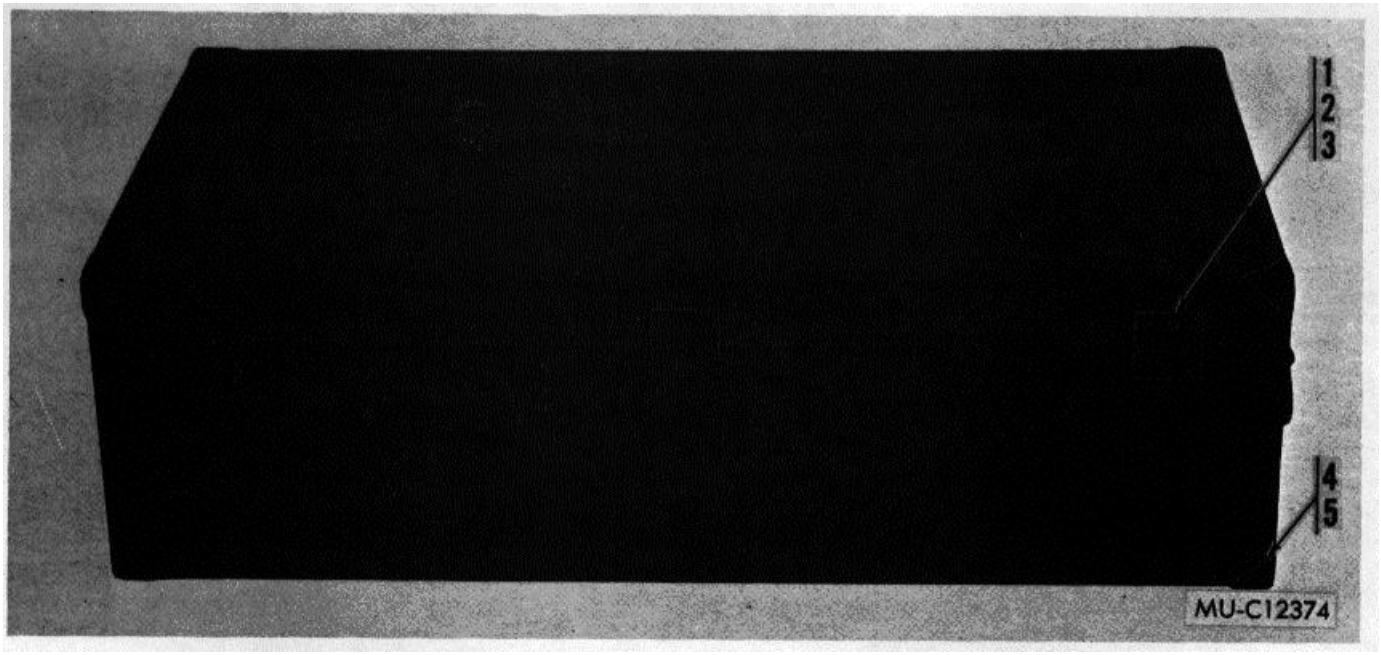

Figure D-16. X-ray support kit chest – rear view.

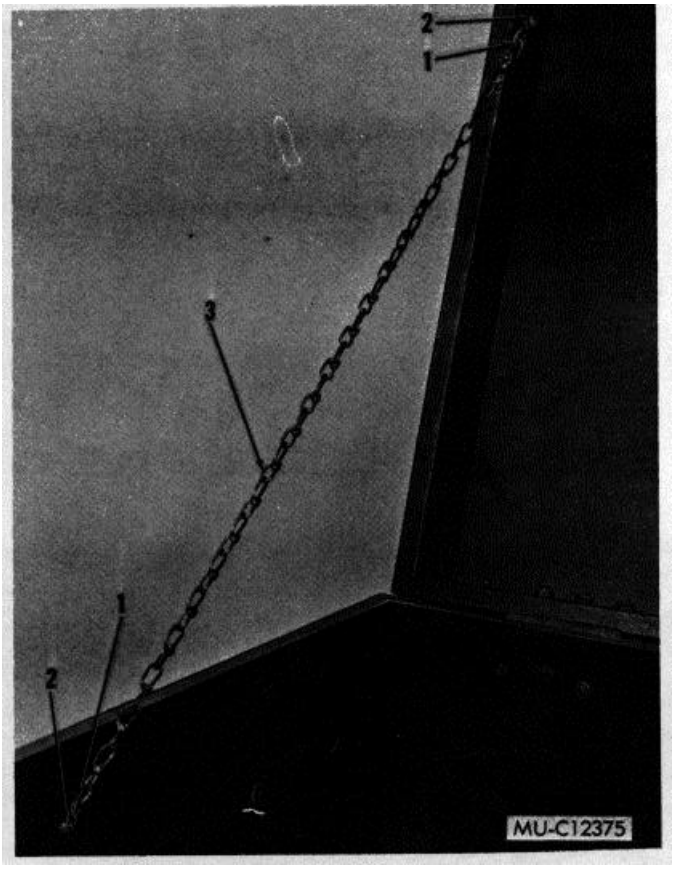

Figure D-17. C-ray support kit chest - lid open.

Section VII. FEDERAL STOCK NUMBER AND REFERENCE NUMBER INDEX

Federal stock number cross-reference to figure number and item number

Federal stock number	*Figure No.*	*Item No.*
4010-186-9412	D-17	3
4030-780-9350	D-17	1
5305-022-6783	D-3	9
5305-088-8332	D-15	2
5305-151-6897	D-4; D-5	2; 1
5305-151-6898	D-4; D-5	3; 2
5305-156-2847	D-3	9
5305-460-3960	D-3	2
5305-494-6612	D-3	15
5305-723-9385	D-2	3
5305-889-2997	D-1	8
5305-889-3000	D-2; D-3	5; 12
5305-900-2545	D-16	5
5305-954-8370	D-17	2
5305-957-6264	D-2	4
5305-958-5477	D-16	2
5305-958-5451	D-14	5
5305-983-6654	D-3	5
5305-984-4988	D-1	6
5305-984-4992	D-2	7
5305-984-6191	D-1	1
5305-984-6194	D-14	2
5210-449-0543	D-7	1
5310-045-4007	D-2	6
5310-274-8702	D-3	13
5310-274-8710	D-3	16
5310-407-9566	D-3	3
5310-465-8922	D-14; D-16	3
5310-492-6078	D-13	6
5310-492-6079	D-15	3
5310-809-8544	D-I	2
5310-934-9751	D-3	17
5310-983-8483	D-3	14
5330-194-2769	D-1	9
5330-477-9918	D-1	10
5330-936-8279	D-3	11
5340-151-5865	D-3	10
5340-151-7002	D-1	5
5340-234-8424	D-14	4
5340-251-7971	D-15	1
5340-412-2014	D-16	4
5340-480-5664	D-1	7
5340-482-6072	D-16	1
5340-838-0199	D-14	1
5920-199-9502	D-2	9
5920-875-4100	D-2	8
5935-201-7066	D-5	4
5935-781-3331	D-4	1
5935-936-8280	D-4	4
5935-936-8292	D-5	3
5950-629-4400	D-2	2
6145-439-6105	D-5	5
6145-450-6732	D-4	5
6150-439-6101	D-4	
6150-439-6102	D-5	
6210-192-9560	D-2	12
6210-946-9647	D-2	10
6240-797-8600	D-2	11
6525-930-3274	D-10	
6635-405-4462	D-11	
6635-407-5134	D-3	6
6635-407-5136	D-3	7
6635-407-5139	D-3	4
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6635-439-6103	D-6	
6635-439-6104	D-3	1
6635-439-6106	D-6	2
6635-439-6107	D-6	1
6635-439-6108	D-6	3
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6635-439-6111	D-12	1
6635-439-6112	D-12	2
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6635-439-6120	D-9	
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6635-441-8857	D-1	3
6635-450-9694	D-3	
6635-470-7518	D-12	
9535-439-6109	D-13	

Reference number cross-reference to manufacturer's code, figure number, and item number

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9221441	19203	D-2	1
9221442	19203	D-3	
9221443	19203	D-8	
9221444	19203	D-9	
9221454	19203	D-2	12
9221455	19203	D-2	10
9221462-1	19203	D-1	9
9221462-2	19203	D-1	10
9221477-1	19203	D-1	7
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9221481	19203	D-5	
9221482	19203	D-4	5
9221483	19203	D-5	5
9221484	19203	D-4	1
9221485	19203	D-4	4
9221486	19203	D-5	3
9221487	19203	D-5	4
9223387	19203	D-12	
9223388	19203	D-12	3
9223389	19203	D-12	2
9223390	19203	D-12	1
9223391	19203	D-12	4
9223392	19203	D-12	5
9225535	19203	D-14 - D-17	
9225946	19203	D-11	
9229032	19203	D-13	
9234892	19203	D-7	1
9234893	19203	D-6	1
9234896	19203	D-3	10
9234898	19203	D-6	2

Reference number cross-reference to manufacturer's code, figure number, and item number

Reference No.	Mfr. code	Figure No.	Item No.
9234899	19203	D-3	11
9234900	19203	D-6	
9234969	19203	D-3	2
9234972	19203	D-3	1
9234985	19203	D-3	15
9235643-1	19203	D-12	6
9235643-2	19203	D-12	7
9235643-3	19203	D-12	8
9235831	19203	D-1	3
9235832	19203	D-1	4
9244057	19203	D-6	3
9244058	19203	D-2	2
9244066	19203	D-4; D-5	2; 1
9244067	19203	D-4; D-5	3; 2
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9251646	19203	D-3	7
9251647	19203	D-3	4
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MS15579-1	96906	D-2	11
MS16998-31	96906	D-3	5
MS27183-5	96906	D-3	14
MS27183-7	96906	D-1	2
MS27965-14	96906	D-14	4
MS27968-6	96906	D-16	1
MS35190-225	96906	D-2	4
MS35190-239	96906	D-14	5
MS35190-254	96906	D-16	2
Reference No.	Mfr. code	Figure No.	Item No.
MS35190-272	96906	D-15	2
MS35206-215	96906	D-1	8
MS35206-228	96906	D-1	6
MS35206-230	96906	D-2; D-3	5; 12
MS35206-232	96906	D-2	7
MS35206-243	96906	D-1	1
MS35206-246	96906	D-14	2
MS35254-21	96906	D-16	4
MS3533841	96906	D-2	6
MS35338-45	96906	D-3	3
MS35338-60	96906	D-3	13
MS35338-62	96906	D-3	16
MS35492-27	96906	D-16	5
MS35646-42	96906	D-17	2
MS35650-302	96906	D-3	17
MS35791-1	96906	D-15	1
MS51941-1	96906	D-14	6
MS5194-2	96906	D-14	3
MS51941-5	96906	D-15	3
MS51963-65	96906	D-2	3
MS87006-13	96906	D-17	1
MILF-15160/03	81349	D-2	9
MILF-19207/16	81349	D-2	8
MIL-P-36541	81349	D-10	
Spec FF-S92 Type 1, Style 2S or Type III, Style 2C.	81348	D-3	9
Spec RR-C-271	81348	D-17	3

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THE METRIC SYSTEM AND EQUIVALENTS

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3.2808.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu in.
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Square measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. in.
1 sq. decimeter = 100 sq. centimeters = 15.5 inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 feet
1 sq. dekameter (are) = 100 sq. meters = 1.076.4 sq. ft.
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 hectometers = .386 sq. miles

Liquid Measure

1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons
1 liter = 10 deciliters = 33.81 fl. ounces
1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3 38 fl. ounces
1 metric ton = 10 quintals = 1.1 short tons

Approximate Conversion Factors

To change	To	Multiply by
inches	centimeters	2.540
feet	meters	.305
yards	meters	.914
miles	kilometers	1.609
sq. inches	sq. centimeters	6.451
sq. feet	sq. meters	.093
sq. yards	sq. meters	.836
sq. miles	sq. kilometers	2.590
acres	sq. hectometers	.405
cubic feet	cubic meters	.028
cubic yards	cubic meters	.765
fluid ounces	milliliters	29.573
pints	liters	.472
quarts	liters	.946
gallons	liters	3.785
ounces	grams	28.349
pounds	kilograms	.454
short tons	metric tons	.907
pound inches	newton-meters	.11296

To change	To	Multiply by
ounce inches	newton-meters	.0070062
centimeters	inches	.394
meters	feet	3.280
meters	yards	1.094
kilometers	miles	.621
sq. centimeters	sq. inches	.155
sq. meters	sq. yards	10.764
sq. kilometers	sq. miles	1.196
sq. hectometers	acres	2.471
cubic meters	cubic feet	35.315
milliliters	fluid ounces	.034
liters	pints	2.113
liters	quarts	1.057
grams	ounces	.035
kilograms	pounds	2.205
metric tons	short tons	1.102
pound-feet	newton-meters	1.356

Temperature (Exact)

°F Fahrenheit temperature — 5/9 (after subtracting 32) — Celsius Temperature °C

PIN: 028023