TM 11-6730-201-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

DS, GS, AND DEPOT MAINTENANCE

MANUAL

PROJECTION SET, MOTION PICTURE, SOUND AS-2(1) INCLUDING PROJECTORS, MOTION PICTURE SOUND AQ-2A(1), AND AQ-2A(2), AQ-2A(3)

HEADQUARTERS, DEPARTMENT OF THE ARMY

4 MAY 1965

WARNING

HIGH VOLTAGE

is used in this equipment.

DEATH ON CONTACT

may result if safety precautions are not observed.

DON'T TAKE CHANCES!

Be careful not to come in contact with high-voltage or power connections on this equipment. Turn off the power and discharge all high-voltage capacitors before making any connections or doing any work inside the equipment. Be extremely careful when working on the projector amplifier; voltages as high as 280 volts exist in this circuit.

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 5 April 1968

DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tool Lists

PROJECTION SET, MOTION PICTURE, SOUND AS-2(1);

INCLUDING PROJECTORS, MOTION PICTURE SOUND AQ-2A(1),

AND AQ-2A(2), AND AQ-2A(3)

TM 11-6730-201-35, 4 May 1965, is changed as follows:

1. The title is changed as shown above.

2. Remove and insert pages as indicated below.

Remove—	*Insert-*
3 and 4	3 and 4
105	105 through 106.39

3. File this transmittal sheet in the front of the manual.

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* This change supersedes TM 11-6730-201-35P, 17 December 1964.

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NG: State AG (3); units—same as active Army except allowances of one copy per unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50,

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *23 November 1965*

DS, GS, and Depot Maintenance Manual

PROJECTION SET, MOTION PICTURE, SOUND AS–2(1), INCLUDING PROJECTORS, MOTION PICTURE, SOUND AQ–2A(1), AQ–2A(2), AND AQ–2A(3)

TM 11–6730–201–35, 4 May 1965, is changed as follows:

1. This change provides information covering the use of new special projector tools placed in Tool Kit 116/GF.

2. New or changed material will be indicated by a vertical bar.

3. Remove old pages and insert new pages as indicated below.

Remove pages—	Insert pages—
19, 20	19, 20, and 20.1
47, 48	47, 48
55 through 58	55 through 58
79 through 83	79 through 83.1
84 through 93	84 through 93.1
94 through 98	94 through 98

4. This transmittal sheet will be filed in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
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USATC (2)
WRAMC (1)
USA Pic Cen (2)
BAMC (5)
USA Avn Comm Cen (5)
USAPA (5)
Instl (2) except
  Ft Monmouth (70)
  Ft Gordon (10)
  Ft Huachuca (10)
  Ft Carson (21)
  Ft Knox (12)
WSMR (5)
Gen Dep (2)
Sig Sec, Gen Dep (5)
Sig Dep (12)
Army Dep (2) except
  SAAD (30)
  TOAD (14)
  FTWOAD (10)
  LEAD (7)
  LBAD (14)
  SHAD (3)
  NAAD (5)
  SVAD (5)
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11–216
11–337
11–500 (Tms AA–AC)
11–587
11–592

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320–50.

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TECHNICAL MANUAL
NO. 11–6730–201–35

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 20315, *4 MAY 1965*

PROJECTION SET, MOTION PICTURE, SOUND AS-2(1); INCLUDING PROJECTORS, MOTION PICTURE SOUND AQ-2A(1), AQ-2A(2), AND AQ-2A(3)

*This manual supersedes TM 11-6730-201–50, 10 December 1964; and together with TM 11–6730–201–10, 7 June 1960, including C4, 13 May 1963, and TM 11-6730–201–20, 31 July 1961, including C1, 15 May 1963, supersedes so much of TM 11-2331A, 29 December 1954, including C1, 13 July 1956; C2, 19 June 1957; C3, 1 August 1957; C4, 14 October 1958; C5, 9 April 1959; and C6, 26 June 1961 as pertains to Projection Set, Motion Picture, Sound AS-2(1). (TM 11–2331A, including all changes, is superseded in its entirety.) In addition, this manual replaces Signal Corps Repair Standard No. REP-1185, Issue No. l, 5 January 1956.

CHAPTER 1

INTRODUCTION

1-1. Scope

a. This manual covers general support, direct support, and depot maintenance for Projection Set, Motion Picture, Sound AS-2 (1). It includes instructions for troubleshooting, testing, aligning, and repairing the equipment, replacing maintenance parts, and repairing specified maintenance parts. It also lists tools materials, and test equipment. Detailed functions of the equipment are covered in paragraphs 2-14 through 2-20.

b. The complete technical manual for this equipment includes TM 11-6730-201-10, TM 11-6730-201-20.

c. Refer to the latest issue of DA PAM 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

d. Appendix B is current as of 7 August 1967.

1-2. Report of Equipment Manual Improvements

Report 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 DA Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N. J., 07703.

1-3. Differences in Models

The following chart lists the differences among Projectors, Motion Picture, Sound AQ-2A(1), AQ-2A (2), and AQ-2A (3).

Item	AQ-2A(1)	AQ-2A(2)	AQ-2A(3)
Access hole for lower drive motor brush.	No	No	Yes.
Amplifier fuse	1.5 amp on Orders No. AF-33 (600) 9092 and AF-33 (600) 9093. 1 amp on Order No. AF-33 (600) 30564.	0.8 amp	0.8 amp.
Amplifier power	8 watts	8 watts	7.5 watts.
Belts	Spring	Spring	Fabric.
Clutch	Cam	Cam	Spring-loaded cam.
Leg assemblies	cast	Cast	Forged.
Lubrication of intermittent mechanism.	One-point feed system	One-point feed system.	Felt pad and wicks.
Photoelectric cell	Lead sulfide	Lead sulfide	Germanium diode.
Photoelectric cell plug	Two-pin connector	Eight-pin connector	Eight-pin connector.
Power cable connector plug.	Two-bladed lug on third wire for grounding.	Three-bladed, grounding type.	Three-bladed, grounding type.
Projector fuse	One side of ac line	One side of ac line	Both sides of ac line.
Suited for conversion to magnetic sound reproduction.	No	Yes	Yes.
Transit cases	2 transit cases	2 transit cases	None.

CHAPTER 2

FUNCTIONING OF PROJECTION SET, MOTION PICTURE, SOUND AS-2(1)

Section I. GENERAL PROJECTOR FUNCTIONING

2–1. Continuity

A motion picture projector is actually a high-speed still picture projector. The illusion of continuity (continuous motion) is produced by the eye because of *persistence of vision.*

a. If the eye is permitted to see an object for an instant, after which the object is removed or obscured, the image of the object will persist in the eye for approximately one-sixteenth of a second. If a series of identical still pictures is projected on a screen at a rate of speed greater than 16 picutres (frames) per second, the projected picture will appear continuous because the eye will not detect that the screen goes dark between pictures.

b. If a series of still pictures is projected at a rate of 24 frames per second (sound speed), and if in each frame some object is in a slightly different position, the eye will merge the sequence into one continuous motion. If the speed of projection is less than 24 frames per second, some smoothness is lost; if the speed is less than 16 frames per second, the illusion of continuous motion begins to disappear, and a flicker is seen on the screen.

2-2. Shutter

The *motion* of a motion picture must be confined to the eye (para 2–1). If any motion of the screen image occurs, visual defects of the motion picture will result. If the frequency of the screen periods of light and dark is too low, smoothness is lost. A shutter cuts off the projection light each time the film is advanced to the next frame; this cutoff prevents moving images from being projected *(a* below). The shutter also promotes smoothness *(b* below).

a. Preventing Moving Images (fig. 2-1). The shutter operates in synchronization with the shuttle to cut off the light from the projection lamp and make the screen dark each time the film is advanced to the next frame. This action prevents a blurred image of the moving frame from being projected on the screen. The periodically darkened screen is not observed by the eye because of persistence of vision (para 2–1).

b. Promoting Smoothness (fig. 2–2). In addition to cutting off the light between the successive projection of frames *(a* above), the shutter interrupts the light once while each frame is being projected. This action promotes smoothness of the projected image by increasing the frequency of the periods of light and dark on the screen.

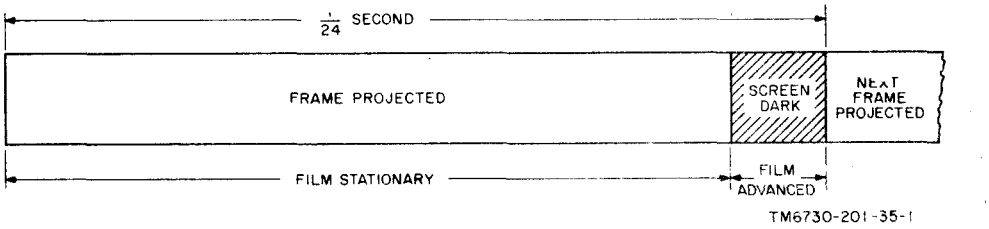


Figure 2–I. Shutter action io prevent moving images.

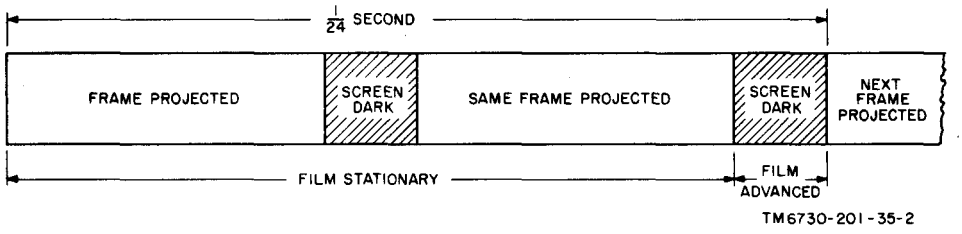


Figure 2–2. Shutter action to promote smoothness.

2-3. Intermittent Action

(fig. 2-3)

The motion picture projector must accomplish high-speed substitution of frames, yet hold each frame exactly positioned and perfectly steady during the period it is projected. This condition is accomplished by the shuttle portion *(a* below) of the intermittent mechanism *(b* below). Since the film moves intermittently in one area and continuously in other areas, loops *(c* below) are required.

a. Shuttle. Shuttle 0248 is driven by both the front and the rear cams. The shuttle teeth engage the film sprocket holes, pull down and position the next frame, and then release the film while the frame is projected, The front and the rear cams rotate at different speeds to produce the necessary harmonic motion of the shuttle, The shuttle with its actuating cams is known as the intermittent mechanism *(b* below).

b. Intermittent Mechanism. The intermittent mechanism consists of shuttle 0248, the front cam, and the rear cam. The rear cam moves the shuttle toward the film and causes the three shuttle teeth to engage the film sprocket holes. The front cam then moves the shuttle down to advance the film one frame; next, the rear cam moves the shuttle away from the film to disengage the shuttle teeth from the film sprocket holes. The vertical motion of the shuttle advances the film and is provided by the front cam. The horizontal motion of the shuttle causes the engagement and disengagement of the shuttle teeth in the film sprocket holes and is provided by the rear cam.

c. Loops. When the projector is threaded (TM 11-6730-201-10), a loop of slack film is formed above the intermittent mechanism (upper loop), and another is formed below the intermittent mechanism (lower loop). The upper and lower loops operate together to permit a portion of the film to be stopped for projecting *(b* above) while the remainder of the film moves at a constant rate through the projector. The lower loop is sized so that 26 frames exist between the frame being projected and the frame at the scanning lens at any given instant for sound synchronization (para 2–5c).

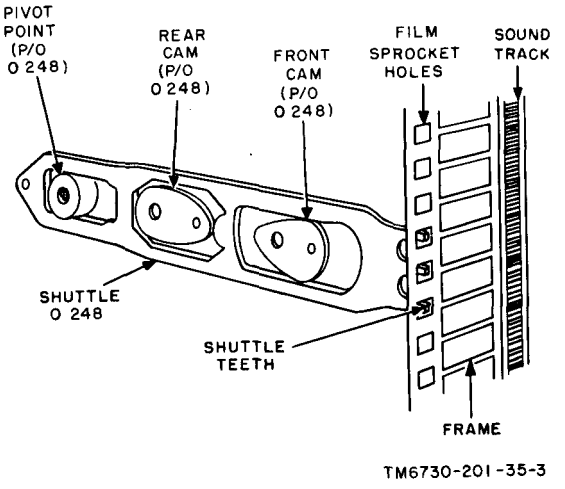


Figure 2-3. Shuttle teeth engaged in film sprocket holes.

Section II. OPTICAL FUNCTIONING

2-4. Projection Optical System

(fig. 2-4)

The projection optical system utilizes a high-wattage, concentrated filament projector lamp (750 or 1,000 watts). The projector lamp is located behind the film and lenses to provide the light beam for projecting the film image onto the screen. Correct orientation of the projector lamp is assured by a prefocused base. Lenses 1103 and 1113 concentrate (condense) the light from the filament of the projection lamp on the film frame. Reflector 0191 is placed behind the lamp to recover the light that radiates to the rear of the lamp (which otherwise would be lost) and to redirect it forward to the film frame. An aperture plate (not shown) masks the beam of light from all areas except the film frame being projected. Lens 1102 is placed in front of the film to focus (project) the image of the film frame on the screen. The size of the projected image is determined by the distance of the screen from the projector and by the focal length of lens 1102; a longer screen distance or a shorter focal length lens gives a larger projected image.

2-5. Proiector Optical Portion of Sound System

(fig. 2-5)

Optical components of the projector scan the density variations in the film sound track and, with photocell V101 or Y101, produce an electrical input signal for the amplifier. The loudspeaker at the output of the amplifier reproduces the signal as audible sound waves.

a. Optical Components. The light from the exciter lamp (E106 is AQ-2A(1) and AQ-2A(2); DS104 in AQ–2A(3) is focused into a tiny beam by optical system 0166 (scanning lens) and directed onto a portion of the sound track that is passing around the sound drum. The beam of light is modulated by the varying density of the sound track and then is conducted by the lucite light pipe to photoelectric cell V101 or Y101. The output of photoelectric cell V101 or Y101 is an audio signal.

b. Reproduction of Volume, Pitch, and Tone. The modulated beam of light *(a* above) transmitted to the photoelectric cell contains intensity variations as well as variations in the frequency at which the intensity

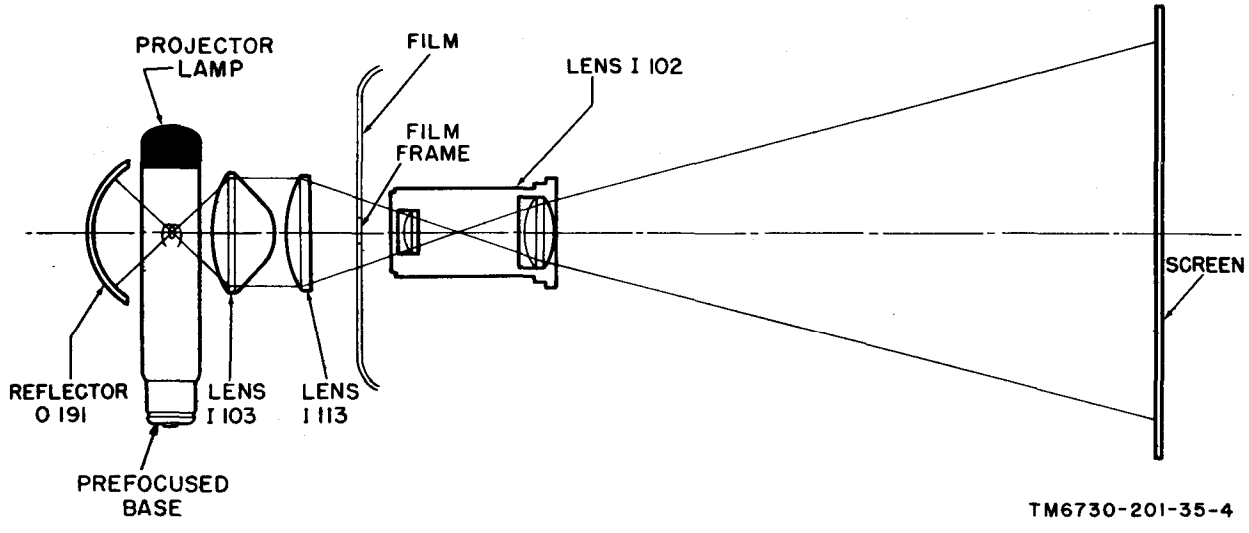


Figure 2-4. Projection optical system, schematic diagram.

variations occur. The intensity variations control the volume of electrical input signals; the frequency of the intensity variations produces the pitch and tone, and creates sound, music, or speech through the amplifier and loudspeaker.

c. Sound Synchronization. The sound associated with an individual picture or frame is not recorded on the sound track directly opposite that frame, but at a point 26 frames ahead. In projection, this displacement of the sound track relative to the picture is required for proper synchronization of the sound and picture. To attain synchronization, the sound track must pass the scanning beam *(b* above) when the related picture is at the aperture (para 2-4).

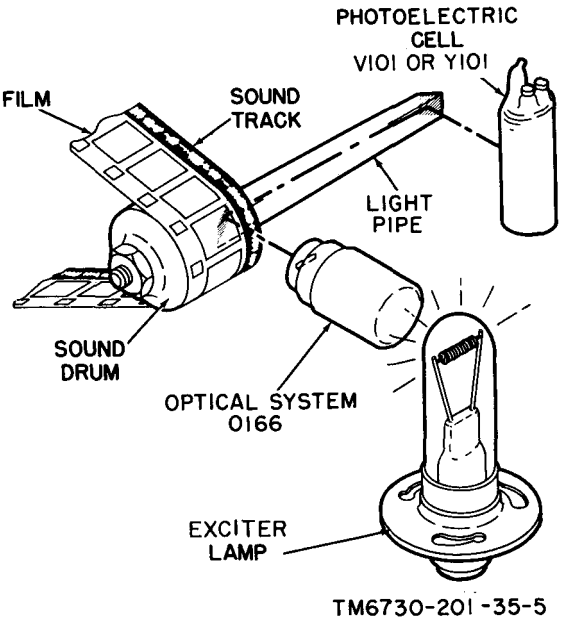


Figure 2–5. Projector sound optical system, schematic diagram.

Section III. PROJECTOR MECHANICAL COMPONENTS, BLOCK DIAGRAM FUNCTIONING

2-6. Proiector Main Drive Power

(fig. 2-6)

a. Main drive power, which is furnished by projector motor B101 (or knob E124 through projector motor B101), drives all the mechanical components of the projector except the cooling components.

b. Mechanical power from projector motor B101 is applied through chain sprocket 0274 to silent chain H106. Silent chain H106 supplies the mechanical power through chain sprocket 0301 to main drive gear 0153. Main drive gear 0153 supplies mechanical power to the intermittent film advance mechanism (para 2–7), the continuous film advance mechanism (para 2-8), and the HOURS counter, takeup, and rewind mechanisms (para 2–9).

2-7. Proiector Intermittent Film Advance

(fig. 2-7)

Mechanical power from main drive gear 0153 (para 2–6) is applied through shutter gear 0154 to drive shutter 0120. Mechanical power is also applied through main drive gear 0153 to rear camshaft gear 0152 to drive the

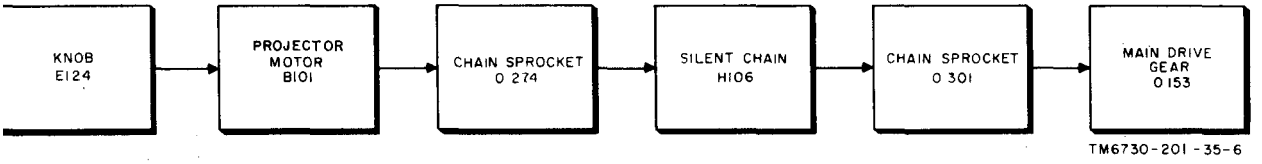


Figure 2–6. Projector main drive power, block diagram,

shuttle rear cam (para 2–3). The shuttle rear cam provides horizontal motion to cause shuttle 0248 to engage or disengage the film at precise intervals. Rear camshaft gear 0152 also applies power to front camshaft gear 0151 to drive the shuttle front cam (para 2–3). The shuttle front cam provides vertical motion to cause shuttle 0248 to pull down the film each time a new frame is to be positioned.

2-8. Proiector Continuous Film Advance

(fig. 2-8).

a. The film must be moved intermittently for projection (para 2-3); at the same time, in order to produce sound without distortion, the film must be made to move continuously as it passes around sound drum A128 and the scanning lens (not shown). Second film sprocket 0190 mechanically removes most of the intermittent motion, and the flywheel (attached to the shaft of sound drum A128) causes the sound drum and the film to move smoothly.

b. Mechanical power from main drive gear 0153 (para 2–6) is applied to rear camshaft gear 0152, Rear camshaft gear 0152 applies power through double idler gear 0146 to drive single idler gear 0147. Single idler gear 0147 applies the mechanical power through spur gear and shaft 0149 to drive first film sprocket 0189, and through spur gear and shaft 0150 to drive second film sprocket 0190. Power from spur gear and shaft 0150 is applied through spur gear and shaft 0148 to drive third film sprocket 0278. The three film sprockets run at a continuous speed to advance the film at a constant rate while mechanically isolating the intermittent motion between first film sprocket 0189 and second film sprocket 0190. Second film sprocket 0190 and third film sprocket 0278 apply mechanical power, through the film, to drive sound drum A128. The flywheel is driven by and stabilizes sound drum A128 to provide good sound reproduction.

2–9. Proiector HOURS Counter, Takeup, and Rewind Mechanisms

(fig. 2-9)

Mechanical power from main drive gear 0153 (para 2–7) is applied through spur gear

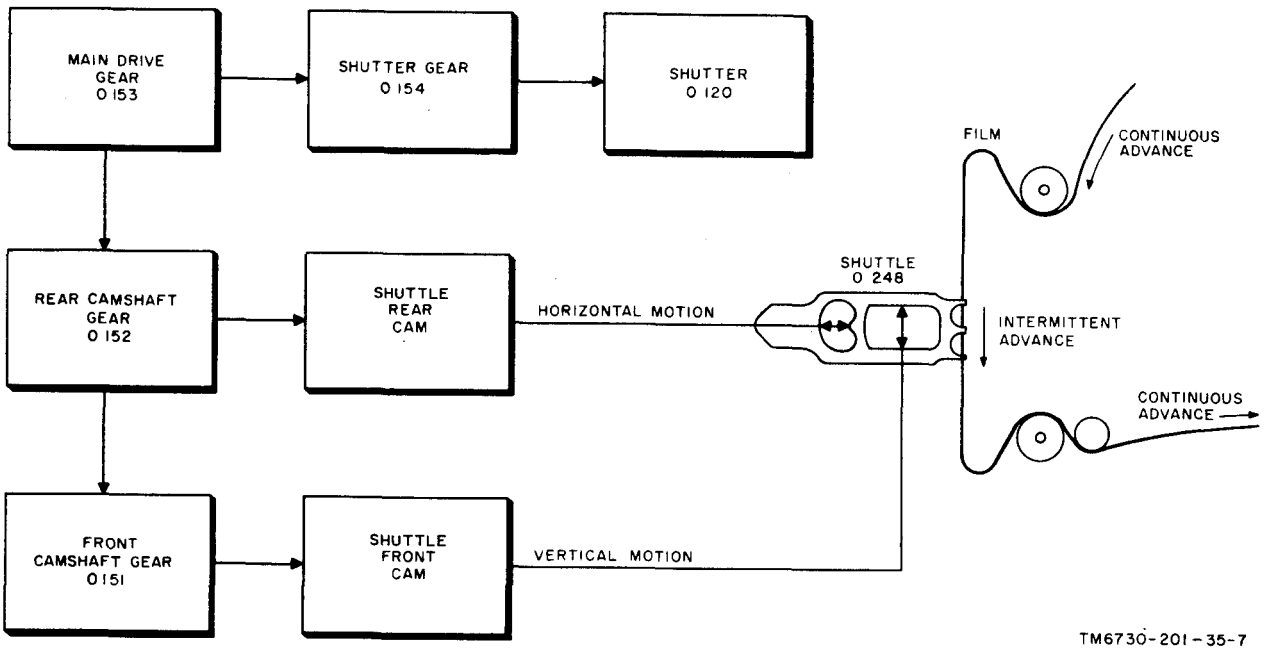


Figure 2-7. Projector intermittent film advance mechanism, block diagram.

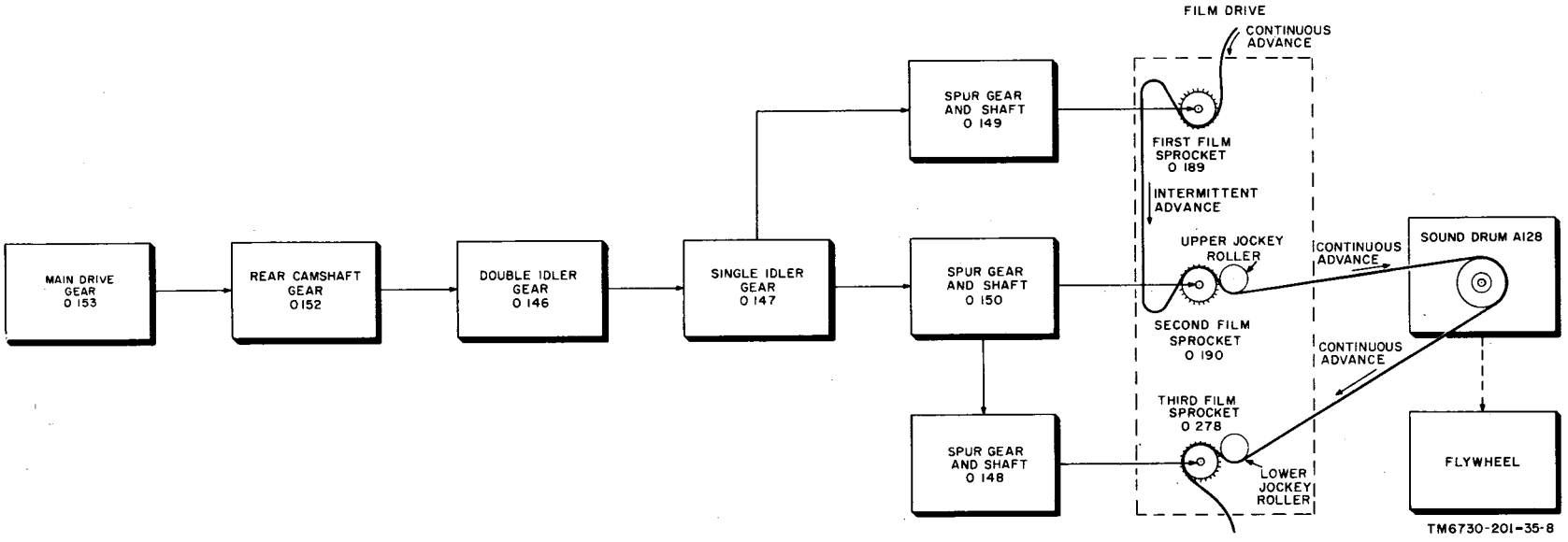


Figure 2–8. Projector continuous film advance mechanism, block diagram.

and shaft 0149 to takeup and rewind chain sprocket 0277. Takeup and rewind chain sprocket 0277 applies power directly to the counter mechanism to drive HOURS counter 1111. Takeup and rewind chain sprocket 0277 also applies power through silent chain H107 to takeup drive pulley 0184 and rewind drive pulley 0185. Takeup drive pulley 0184 applies power through takeup belt 0118 for film takeup. Rewind drive pulley 0185 applies power through rewind belt 0119 for film rewind.

2-10. Proiector Ventilation

(fig. 2-10)

Cooling air is drawn in through vents near the film aperture, past condensing lenses 1103 and 1113 and projection lamp E105, by blower 0160. The air is then discharged through the exhaust grill at the rear of the projector. Blower 0160 is driven by ventilation motor B102.

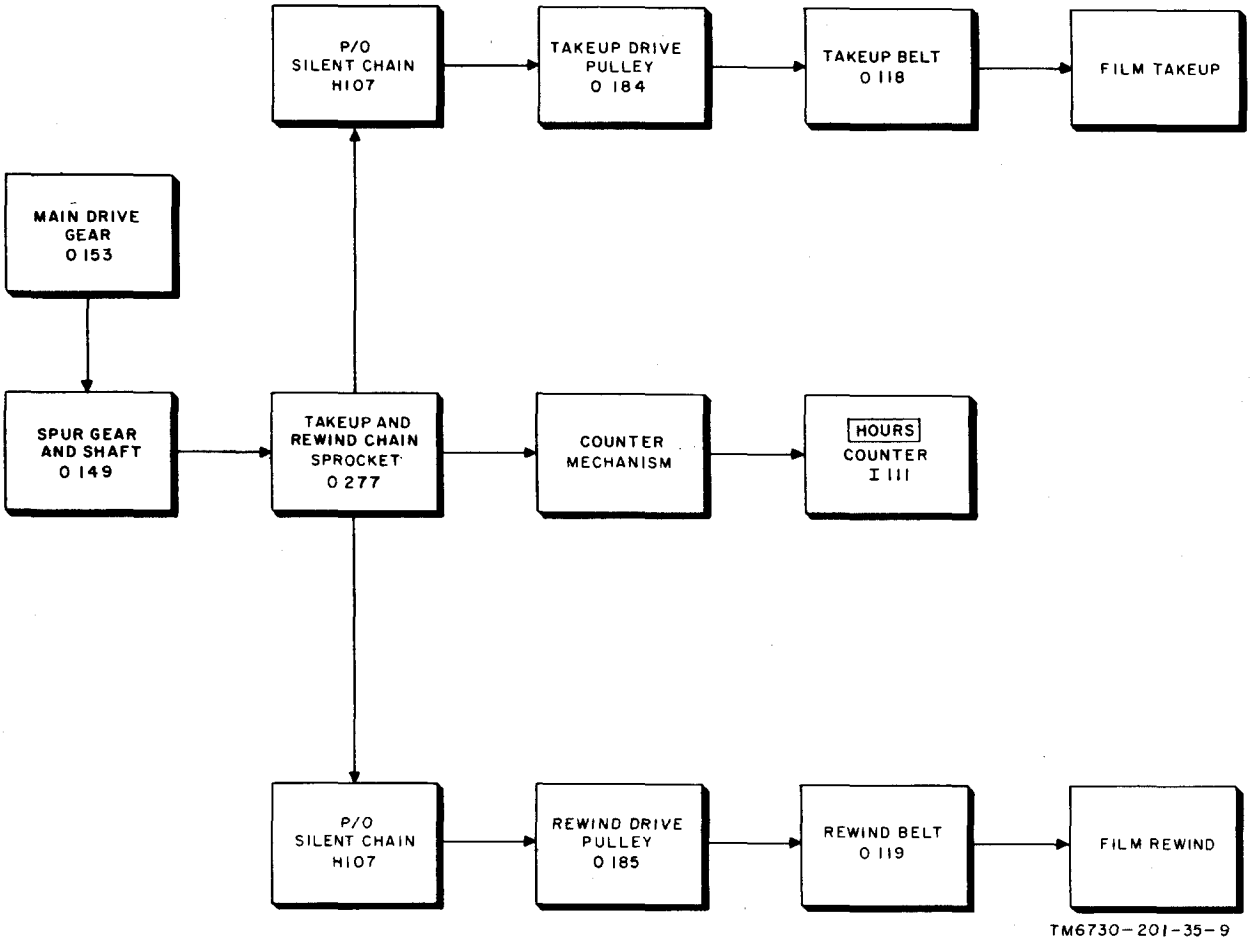


Figure 2-9, Projector HOURS counter, takeup, and rewind mechanisms, block diagram.

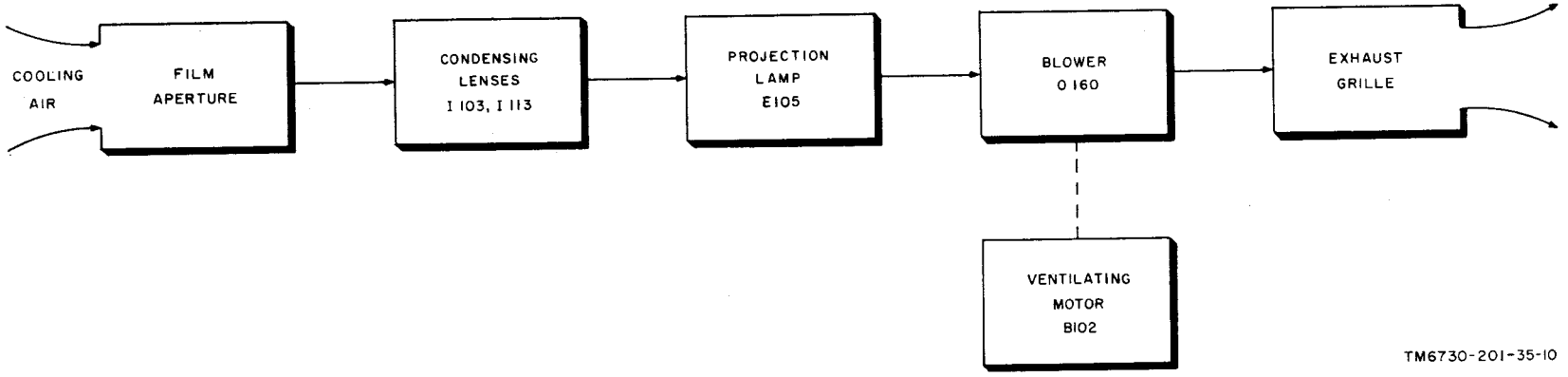


Figure 2–10. Projector ventilation, block diagram.

Section IV. PROJECTOR ELECTRICAL COMPONENTS, BLOCK DIAGRAM FUNCTIONING

2-11. Projector Electrical System

The projector electrical system reproduces sound and picture from a film. The projector electrical system contains two sections: the projector power circuit (para 2–12) and the projector amplifier (para 2–13).

2-12. Proiector Power Circuit (fig. 2-11)

a. Power is applied to the projector power circuit through connector J103, fuses F101 and F102, and filter FL101 or E102. Power is applied to the panel lamps through THREADING LAMP switch S102.

b. Power is applied to projector motor B101 through either OFF-MOTOR-LAMP switch S103 or REWIND switch S105. When OFF-MOTOR-LAMP switch S103 is set to MOTOR and REWIND switch S105 is set to OFF, projector motor B101 operates in the forward direction. When REWIND switch S105 is set to ON, projector motor B101 is reversed, independently of the position of OFF-MOTOR-LAMP switch S103, in order to rewind the film. When OFF-MOTOR-LAMP switch S103 is set to MOTOR, power is also applied to ventilating motor B102.

c. Power from radio frequency (rf) oscillator V205 (para 2–13) is applied to the exciter lamp through OFF-MOTOR-LAMP switch S103 when the switch is set to MOTOR. The light from the exciter lamp is focused on the film sound track. The varying density of the film sound track audio modulates the light. Thus, the light passing through the film sound track contains both rf and audio modulation.

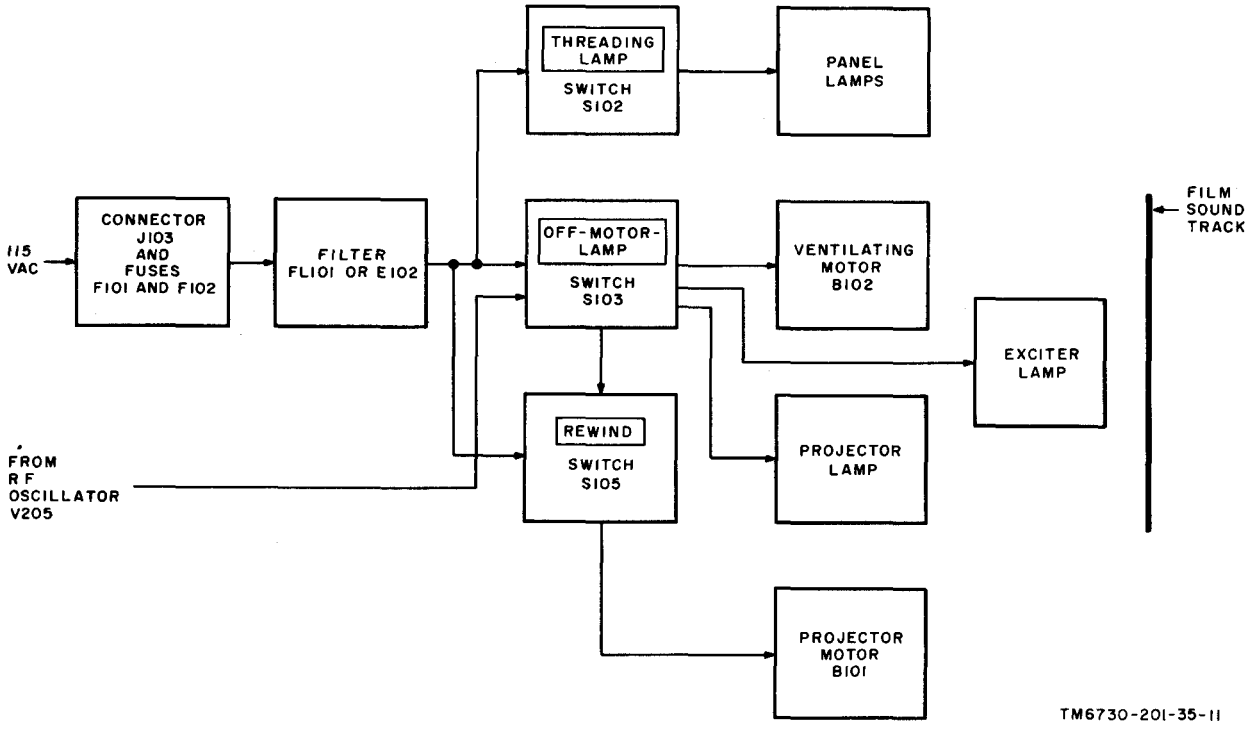


Figure 2–11. Proqector power circuit, block diagram.

2-13. Proiector Amplifier

(fig. 2-12)

a. Photocell Y101 or V101 receives modulated light from the exciter lamp (para 2-12) and changes the light into an rf signal modulated by audio signal voltages. The rf signal voltages are filtered and the audio signal voltages are applied to audi of requenc y (af) gain and tone amplifier V201.

b. Af gain and tone amplifier V201 amplifies the audio signal voltages and applies them to af driver and phase inverter V202. Af driver and phase inverter V202 amplifies the signal and provides two outputs 180° out-of-phase with each other. Power output tubes V203 and V204 amplify the signal and provide a push-pull output which is applied to either the local or remote loudspeaker.

c. Rf oscillator V205 is a Hartley oscillator circuit. The power generated by this circuit is applied to the exciter lamp in the projector power circuit (para 2–12).

d. Power transformer T202 and rectifiers V206 and V207 provide the direct current (dc) and alternating current (ac) power required for the operation of the projector amplifier. The dc power, 260 volts, is filtered by filter capacitor C216 and resistors R228 and R229 and applied to tubes V201 through V205. The ac power, 6.3 volts, is applied to the filament circuits of tubes V201 through V205.

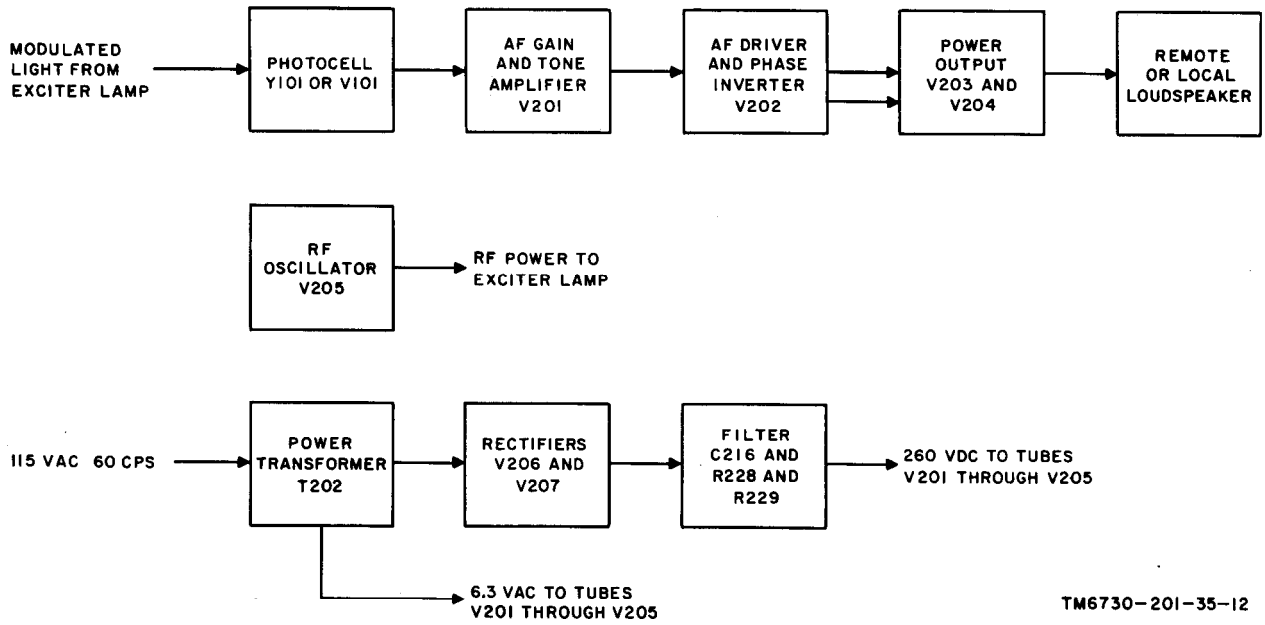


Figure 2-12. Projector amplifier, block diagram.

Section V. PROJECTOR CIRCUIT DETAILED FUNCTIONING

Note. The following discussion, based upon AQ–2A (1) also applies to AQ-2A (2) and AQ2A (3) except for minor circuit differences, Refer to the schematic diagrams of the equipment being used (fig. 6-7 and 6-12 for AQ-2A (2) and fig. 6-8 and 6–13 for AQ-2A (3)) for detailed circuit differences.

2-14. Proiector Power Circuit Functioning

(fig. 6-7)

The projector power circuit consists of two basic circuit elements: one is an audiofre-

quency channel containing a photocell and exciter lamp. The second is the power supply for projector motor and projection lamp.

a. An audiofrequency signal is generated by the photocell and the exciter lamp. Dc voltage for the photocell is supplied by the amplifier through the photocell cable. The exciter lamp scans the sound track and the light, modulated by the varying density of the sound track, is applied to the photocell. Power is supplied to the exciter lamp through switch S103. All exciter lamp circuit wiring is shielded to prevent radiation of the 112,000-cycle exciter supply frequency into the projector power supply and audio frequency circuit wiring.

b. The projector motor, ventilating motor, and projector lamp receive power through receptacle J103. The entire projector power circuit is fused. Radio frequency radiation is prevented by an rf filter (noise suppressor E102 or FL101) in the power feed to the projector motor, ventilating motor, and threading and pilot lamps. In AQ–2A (1) and AQ-2A (2), power for the projector lamp is not applied through the filter because of the high power required. Shielded wire is utilized wherever practical to reduce inner rf radiation from the motor circuits. The threading and pilot lamps are connected through S102 to the rf filter. The ventilating motor receives its power through contacts 11 and 12 of switch S103. Capacitors C104 and C105 are connected between the motor armature brushes and ground as an rf radiation preventive measure. The ventilating motor is energized simultaneously with the projector motor on projection operation only. During rewind operation, it is cut out of the circuit.

2-15. Proiector Amplifier Detailed Functioning

(fig. 6-11)

a. The amplifier is a six-stage electron tube audio amplifier used to amplify the audio signals from the projector power circuit and apply this amplified signal to the loudspeaker. The sound signal is received from the projector through a shielded interconnecting cable.

b. The amplifier operates from an input signal of 0.006 volt. From this signal level, the amplifier delivers 20 watts into the speaker load with a 20-decibel reserve.

2–16. Alternating Current Power Stage

(fig. 6-11)

The 115-volt ac power is applied to the amplifier through the projector power circuit. A single-pole, single-throw switch (S202) is connected in series with one side of the ac line. This switch applies power to the primary of power transformer T202 through fuse F201, Power transformer T202 has two secondary windings; the first winding (3 and 5, center tap 4), supplies 265 volts (each side of center tap) to the plates of the rectifier tubes. The second winding (6 and 8, center tap 7), supplies 6.3 volts at 4 amperes to the panel lamp and the f ilaments of all tubes.

2–17. Direct Current Power Supply

(fig. 6-11)

a. The dc required by the amplifier is supplied by a secondary winding, terminals 3, 4, and 5 of power transformer T202. Rectification of the ac is accomplished by the 6X4 rectifier tubes V206 and V207.

b. The dc required for the various tubes is filtered and distributed in the following manner. The positive polarity dc is supplied from the cathodes of rectifiers V206 and V207. In AQ-2A (1) and AQ-2A (2), center tap terminal 4 is grounded through resistor R229, thus providing a negative bias for the power output stage of –21 volts. In AQ–2A (3), the power output stage is cathode biased.

c. The positive polarity connection is terminated in capacitor C216A and resistor R228, which two elements comprise the input of a pi-section filter; the terminal filter is capacitor C216B. The center tap of output transformer T201 is connected to the junction of capacitor C216B and resistor R228 to supply plate voltage for the 6AQ5 power stages. Power for the exciter supply (rf oscillator V205) is obtained at the junction of resistor R228 and capacitor C216B. Capacitor C220 is

used as a filter, preventing the 112,000-cycle signal, developed by the rf oscillator, from feeding back into the dc power supply circuit. Direct current for the rest of the amplifier circuit is obtained at the junction of R226, C216B, and R228.

2-18. Rf Power Stage

(fig. 6-11)

a. The exciter lamp in the projector power circuit requires a 6-volt, 1-ampere dc power supply or its power equivalent in alternating current, at a frequency high enough to be inaudible to the human ear. This power is used as modulation for the exciter lamp filament. This supply is furnished by Hartley oscillator V205, in conjunction with the stepdown winding of the oscillator coil (L201 in AQ-2A (1) AQ-2A (2), and T203 in AQ-2A(3)). The plate supply for tube V205 is obtained from the output of the rectifier stage through resistor R230. The oscillator coil (powedered iron core) is connected across cathode and grid of tube V205. Grid bias is provided by resistor R231 in parallel with bypass capacitor C217. The output voltage of the oscillator stage is stepped down through the stepdown winding of the oscillator coil to obtain the high output current needed for the exciter lamp.

b. Capacitors C221 and C222 are both filament bypass capacitors. The output of the oscillator is applied through a double shielded cable to the projector receptacle; the outer shield terminates in a button plug that grounds at the chassis.

2-19. Audiofrequency Signal Circuit

(fig. 6-11)

a. *Audio frequency (Af) Gain Stage.*

(1) The audio signal voltages generated by the photocell are applied to audio gain tube V201A. A microphone may also be used to apply audio voltages to the amplifier circuit. In AQ–2A(2) and AQ–2A (3), facilities are provided to connect the amplifiers to a magnetic sound device.

(2) The input signal is coupled through capacitor C202, developed across input level control R203 and applied to the grid of V201A. The input level control is used to control the amplitude of the input signal. Tube V201A, a conventional voltage amplifier stage, amplifies the signal and applies it to tone stage V201B through capacitor C203.

b. Tone Control Stage. High- and low-frequency attenuation is obtained by varying the frequency characteristics at the output of tone stage V201B. Capacitors C208, C209, and C210 and resistor R212 are used to control the tone of the audio signal voltages applied to audiofrequency driver V202A. Simultaneously the feedback to audio frequency gain stage V201A is tone controlled by capacitors C204, C205, and C206, and resistors R211, R232, and R233. Since the feedback is positive, the selected frequencies are emphasized by the feedback. The tone desired is selected with TONE control S201. The output of the tone stage is applied to audio frequency driver V202A through VOLUME control R213.

c. Audio frequency Driver Stage. Negative feedback of 12 decibels is applied to audiofrequency driver stage V202A through coupling resistor R222. No tone control function is accomplished in this voltage amplification-power stage feedback loop. In this manner, phase shift difficulties are reduced to a minimum, with a highly stable power amplifier stage resulting. The stage has a flat frequency response between 50 cycles and 10,000 cycles. Therefore, the stage performs two functions: it provides a limited amount of voltage amplification, and furnishes a correctly phased negative feedback termination for the power amplifier stage. Capacitor C21O is the grid coupling capacitor to the preceding tone control stage; resistor R214 is the cathode bias resistor, and R215 is the plate load resistor. Capacitor C211 is a coupling capacitor.

d. Phase Inverter Stage. The purpose of the phase inverter stage is to change the single-ended signal from the previous stages of the amplifier to a push-pull signal for the grids of the output tubes. This is done by using one-half of twin triode tube V202 in a

phase inverter circuit. Two outputs, 180° out-of-phase, are derived from V202B and applied to the power output stage: one from the plate to the grid of tube V203, and one from the cathode of the grid of tube V204. Resistor R219 is the plate load. Resistor R217 is the cathode bias resistor; resistor R216 is the grid load; capacitor C214C is a bypass. Resistor R218 is the cathode load resistor.

e. Output Stage. The output stage delivers a normal rated output power of 20 watts at 100 to 7,000 cycles (2 percent distortion). It consists of two beam power pentode tubes V203 and V204, connected in class AB, push-pull. The output impedance is matched to the loudspeaker by output transformer T201. The secondary of transformer T201 has two windings: one of 500-ohm impedance, the other of 8-ohm impedance. Resistor R222 provides inverse feedback from the secondary of the output transformer to audiofrequency driver stage V202. Fixed negative grid bias for the push-pull stage is supplied from the rectifier stage and developed across resistor R229 in AQ–2A (1) and AQ–2A (2). In AQ–2A (3), bias is provided by cathode resistor R241. Resistors R220 and R221 are grid loads; capacitors C212 and C213 are dc blocking capacitors that couple the signal to the grid circuits of the push-pull stage.

2-20. Loudspeaker Unit

The loudspeakers supplied with the equipment are permanent magnet types. Each loudspeaker has a voice coil impedance of 16 ohms, a power-handling capacity of 25 watts, and a frequency response of 100 to 7,000 cycles. The loudspeaker parts are housed in a cabinet that provides proper acoustic sound. A receptacle is built into the remote speaker cabinet for connection of the speaker cable.

CHAPTER 3

TROUBLESHOOTING

Section I. GENERAL TROUBLESHOOTING INFORMATION

Warning: Be extremely careful when troubleshooting or making repairs in this equipment. Potentials as high as 900 volts are present internally. Use insulated test probes when making the required measurements. Always disconnect the power cord from the equipment before touching any of the internal parts.

3-1. General Instructions

The direct and general support and depot maintenance procedures are not complete in themselves, but are part of a systematic procedure which begins with operator and organizational maintenance. The troubleshooting procedures (para 3-4 to 3-10) include instructions for localizing and isolating a defective part after operator and organizational maintenance has been performed. Follow the systematic troubleshooting procedure described in paragraph 3-2. When the trouble has been isolated, refer to paragraphs 4-1 through 4-23 for direct support repair instructions, or paragraphs 5-1 through 5-6 for general support repair instructions.

3-2. Organization of Troubleshooting Procedures

The troubleshooting procedures are divided into three steps: sectionalization *(a* below), localization *(b* below), and isolation *(c* below).

a. Sectionalization. The first step is to trace the trouble to a major unit (the projector, the amplifier, or the speaker). To sectionalize the trouble, use the following methods:

(1) Refer to the equipment performance checklist (TM 11–6730-201-10) and the organizational troubleshooting chart (TM .1–6730–201–20).
(2) Substitute the suspected unit with a unit known to be good.
(3) Refer to the troubleshooting chart in paragraph 3-5.

b. Localization. The second step is to trace the trouble to a mechanical assembly or a functional circuit. To localize the trouble, use the following methods:

(1) Check the equipment to be sure that the controls are at the proper settings, the cables are connected firmly, the electron tubes are properly seated, and the fuses are good.
(2) Perform the preliminary checks (para 3-4).
(3) Remove and test all electron tubes and other pluckout parts suspected of being faulty. Replace each defective part with an identical part known to be good.
(4 Refer to the troubleshooting chart in paragraph 3–5:
(5 Follow either the procedure for localizing projector troubles (para 3-6) or the procedure for localizing amplifier troubles (para 3-9).

c. Isolation. The third step is to trace the trouble to a defective part. To isolate the trouble, use the following methods:

(1) Follow the isolating procedure for the projector electrical troubles (para 3-7), the projector mechanical t (para 3-8), or the amplifier troubles (para 3-10).

(2) Prevent damage to the equipment by insulating the meter test probes with tape or sleeving. Leave only the extreme tip exposed.

(3) When no symptom appears, try to expose the intermittent trouble symptoms by tapping or jarring the equipment.

3-3. Equipment Required for Troubleshooting, Repair, and Alignment

The tools, special gages, test films, test equipment, and materials required for troubleshooting, repair, and alignment of the AS–2 (1) are listed below.

a. Tools.

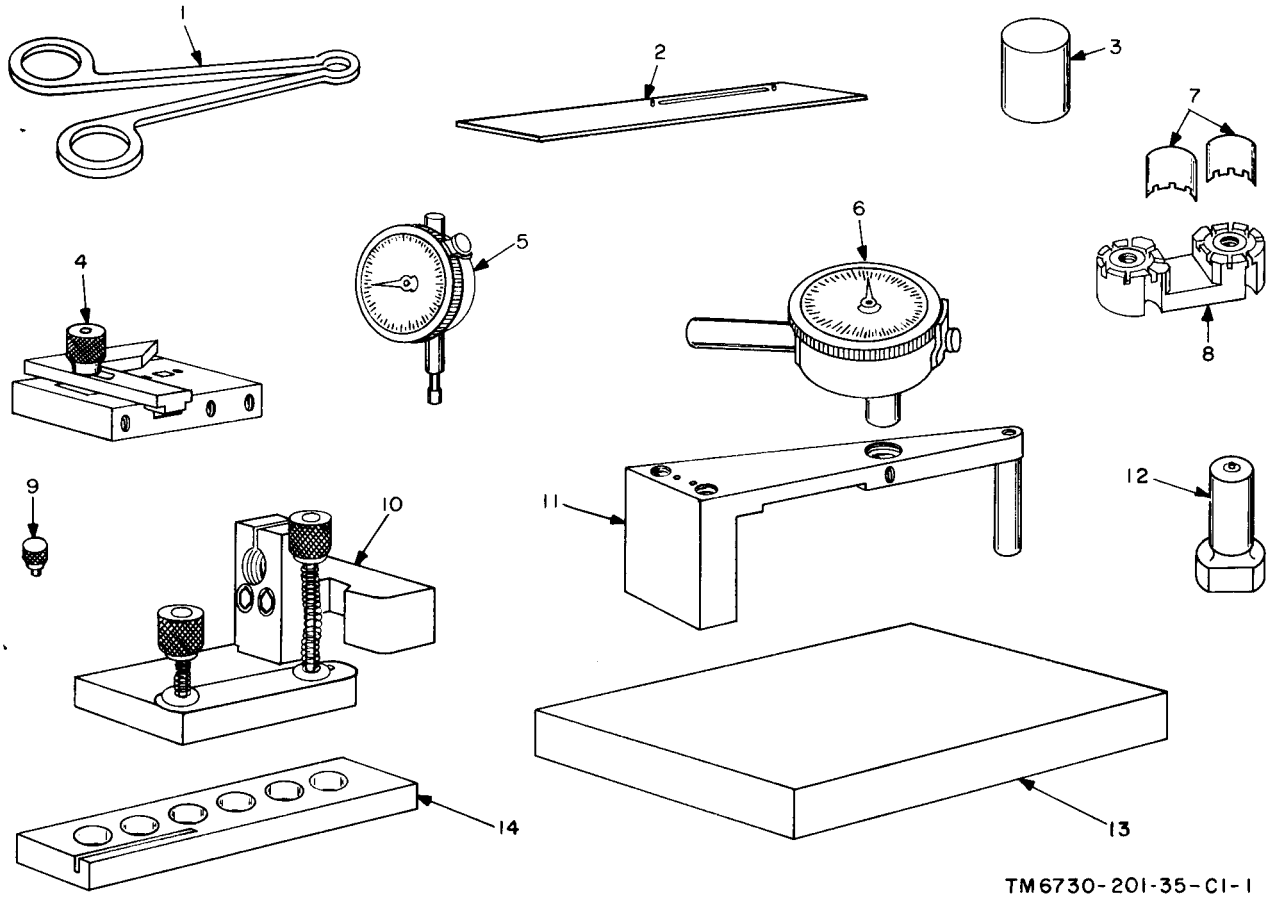
(1) Tool Kit, Photographic Repair TK-109/GF.

(2) Tool Kit, Photographic Repair- TK-116/GF.

(3) Tool Kit, Photographic Repair TK-77/GF.

b. Special Gages (fig. 3–1). The following special gages are required for aligning the AS-2 (1) and are included in the TK-116/GF.

Gage	Function
Sound track gage	Adjusts scanning lens for maximum sound output and minimum distortion.
Aperture and shuttle tooth gage	Sets fixed film guide rail and checks side alignment of shuttle.
Master height gage and surface plate	Zeroes camshaft height gage meter.
Intermittent synchronizing gage and locking nut	Synchronizes shuttle and shutter.
Shuttle tooth protrusion test fixture and meter	Sets shuttle tooth to proper protrusion and aligns aperture plate mounting bracket in a perpendicular plane with shuttle.
Shuttle tooth protrusion gage	Sets shuttle tooth to proper protrusion.
Camshaft height gage bridge and meter	Sets front camshaft to proper height.
Film clearance gage	Sets film clearance between film shoe and sprocket.



1 Sound track gage
2 Aperture and shuttle tooth gage
3 Master height gage
4 Intermittent synchronizing gage
5 Shuttle tooth protrusion meter
6 Camshaft height gage meter
7 Film clearance gage
8 Sprocket and shuttle synchronizer gage
9 Intermittent synchronizing gage locking nut
10 Shuttle tooth protrusion test fixture
11 Camshaft height gage bridge
12 Soundhead gage
13 Surface plate
14 Shuttle tooth protrusion gage

Figure 3-1. Special gages.

c. Test Films. The following test films are required for aligning the AS–2 (1):

(1) Test film, buzz track (FSN 6770-248–9262).

(2) Test film, 7,000-cycle sound-focusing (FSN 6770-286-7873).

d. Test Equipment. The following test equipment is required for troubleshooting the AS-2(1):

Test equipment	Federal stock No.	Reference
Electronic Multimeter TS-505(*)/Ua	6625–243-0562	TM 11-6625–239–12
Multimeter TS-352(*)/Ub	6625,–242–5023	TM 11–5527
Test Set, Electron Tube TV-7(*)/Uc	6625–376-4939	TM 11–6625–274–12

[a] Indicates Electronic Multimeter TS-505/U, TS–505A/U,or TS–505B/U, or MuItimeter TS–505C/U, TS–505D/U,or TS-505E/U.

[b] Indicates Multimeter TS-352/U, TS-352A/U, or TS-352B/U.

[c] Indicates Test set, Electron Tube TV-7/U, TV–7A/U, TV–7B/U, or TV–7D/U.

e. Materials. The following materials are required for lubrication of the AS–2 (1):

(1) Lubricating Oil, General Purpose (2135) (FSN 9150-262-7164).

(2) Grease, Automotive and Artillery (GAA) (FSN 9150-248-3476).

(3) Grease, Aircraft and Instrument (GL) (FSN 9150-576-4262).

Section II. TROUBLE LOCATION

3-4. Preliminary Checks

To prevent defective components from causing additional damage to equipment that has been received for repair, set up the equipment for operation (TM 11–6730–201–10) and proceed as follows:

a. Projector. Turn the THREADING KNOB (fig. 4–1) several times. If binding of the projector mechanism occurs, perform the procedures outlined in paragraph 3–8 to eliminate the binding; then proceed as follows:

(1) Watch the projector carefully, and operate the OFF-MOTOR-LAMP switch to MOTOR. If any of the following malfunctions occur, immediately operate the OFF-MOTOR-LAMP switch to OFF, and locate and eliminate the cause of the malfunction before proceeding:

(a) Binding or jamming of the projector mechanism.

(b) Smoke rising from the projector.

(c) Unusual sounds, such as squeaks, chatters, and rattles.

(d) Sound of arcing or burning.

(2) If none of the malfunctions ((1) above) are noted, operate the OFF-MOTOR-LAMP switch to OFF, and proceed as outlined in *b* below.

b. Amplifier. Watch the amplifier carefully, and operate the amplifier ON-OFF switch to ON. If any of the following malfunctions occur, immediately operate the amplifier ON-OFF ,switch to OFF, and locate and eliminate the cause of the malfunction before proceeding:

(1) Smoke rising from the amplifier.

(2) Plates glowing red or arcing in tube V206 or V207 (6X4).

(3) Excessive heating of the power cables, connectors, receptacles, transformers, or filter capacitors.

(4) Sound of arcing or burning in the amplifier.

(5) If none of the malfunctions ((1) above) are noted, operate the amplifier ON-OFF switch to OFF and proceed as outlined in *c* below.

c. Projector Set.

(1) Operate the OFF-MOTOR-LAMP switch to LAMP and the amplifier ON-OFF switch to ON, and again check for the malfunctions listed in a (1) and b (1) above. If any of the above danger signals are noted, immediately operate the OFF-MOTOR-LAMP switch to OFF and the ON-OFF switch to OFF, and locate and eliminate the cause of the malfunction.

(2) If none of the above danger signals are noted, operate the OFF-MOTOR-LAMP switch to OFF and the ON-OFF switch to OFF, and proceed to localize the trouble.

3-5. Troubleshooting Chart

a. General. The troubleshooting chart supplements the equipment performance checklist (TM 11–6730-201-10) and the organizational troubleshooting chart (TM 11-6730-201-20). If trouble symptoms are not known, begin at item 1 of the equipment performance checklist and proceed as directed. The procedures referenced in paragraphs 5-1 through 5–6 must be performed by general support maintenance personnel.

b. Use of Chart. Locate the applicable symptom in the *Symptom* column on the chart. Check the items listed in the *Probable cause* column. While checking the components listed in the *Probable cause* column, be sure to check for continuity and shorts in the wiring associated with the components. When the defective component has been isolated, perform the corrective measure indicated in the *Corrective measure* column.

c. Chart.

	Probable cause	Correctives measure
A light pressure causes takeup drive to turn to the left.	Defective takeup drive pulley clutch.	Repair defective takeup drive pulley (para 4-12a).
Takeup drive pulley does not turn freely to the right.	Defective takeup drive pulley clutch.	Repair defective takeup drive pulley clutch.
A light pressure causes rewind drive pulley to turn to the right.	Defective rewind drive pulley clutch.	Repair defective rewind drive pulley clutch (para 4-12).
Rewind drive pulley does not turn freely to the left.	Defective rewind drive pulley clutch.	Repair defective rewind drive pulley clutch.
Panel lamps do not light when THREADING LAMP switch is operated to ON. Lamps and power cable are not defective.	Defective THREADING LAMP switch.	Replace defective THREADING LAMP switch S102 (para 4-16c).
One panel lamp does not light when THREADING LAMP switch is operated to ON. Lamp is not defective.	Defective lampholder J108 or wiring.	Repair or replace defective Iampholder J108 or wiring.
THREADING KNOB does not turn smoothly.	Projector mechanism binding.	Locate and correct cause of binding (para 3-8).
Projector mechanism and blower fan do not operate when OFF-MOTOR-LAMP switch S103 is set to MOTOR; fuse F101 is not defective.	Defective switch.	Replace switch S103 (para 4-16d).

Symptom	Probable cause	Correctives measure
Ventilating motor operates but projector mechanism does not when OFF-MOTOR-LAMP switch S103 is set to MOTOR.	Defective switch.	Check switching circuit.
	Worn brushes on motor B101.	Replace brushes on motor B101 (para 4-17).
	Dirty commutator on motor B101.	Clean commutator on motor B101 (para 4-17).
	Dirty governor points.	Clean governor points (para 4-17).
	Worn governor brushes.	Replace governor brushes.
	Defective governor.	Replace defective governor.
	Defective motor B101.	Replace defective motor B101 (para 4-17).
Projector mechanism operates but ventilating motor does not when OFF-MOTOR-LAMP switch S103 is set to MOTOR.	Worn brushes on motor B102.	Replace worn brushes on motor B102 (para 4-18).
	Dirty commutator on motor B102.	Clean commuator on motor B102.
	Defective motor B102.	Replace defective motor B102.
Ventilating motor and projector motor operate but projector mechanism does not when OFF-MOTOR-LAMP switch S103 is set to MOTOR.	Main drive sprocket on main drive shaft loose or defective.	Tighten or replace loose or defective main drive sprocket.
	Drive chain disengaged.	Engage drive chain.
Projection lamp does not light when OFF-MOTOR-LAMP switch S103 is set to LAMP.	Defective lamp circuit.	Check lamp circuit (para 4-8).
Projector runs too fast or too slow.	Governor contacts pitted or making poor contact.	clean governor points (para 4-17).
	Improperly adjusted or defective governor.	Adjust or replace defective governor (para 4–17).
Elevation knob does not raise or lower projected image; elevation knob or pin is not defective.	Defective elevation mechanism.	Repair or replace defective elevation mechanism (para 4-5).
Lens does not slide back and forth freely for focusing when lens-locking screw is loosened.	Defective lens carriage assembly,	Replace defective lens carriage assembly (para 4-14).
Impossible to focus all four edges of projected image simultaneously; lens axis is perpendicular to screen.	Defective aperture plate or mounting.	Repair or replace defective aperture plate or mounting (para 4-13).
Projection lamp, ventilating motor, or projector mechanism continues to operate after OFF-MOTOR-LAMP switch is set to OFF.	Defective OFF-MOTOR-LAMP switch.	Replace defective OFF-MOTOR-LAMP switch (para 4-16).
Automatic loopsetter does not automatically restore picture clarity; adjustment of automatic loop setter roller does not help.	Defective automatic loopsetter.	Repair or replace defective automatic loopsetter (para 4-15).

Symptom	Probable cause	Correctives measure
Picture unsteady - - - - - - - - -	Loose film sprocket setscrews.	Tighten film sprocket setscrews (para 4-9).
	Improper film clearance at sprockets.	Adjust film shoes for proper clearance (para 4-9).
	Worn sprockets.	Replace worn sprockets (para 4-9).
	Improper shuttle tooth protrusion.	Adjust shuttle tooth protrusion (para 5-5).
	Defective aperture plate.	Repair or replace defective aperture plate (para 4–13).
	Worn intermittent mechanism.	Replace worn intermittent mechanism (para 5-4).
	Worn sprocket gears.	Replace worn sprocket gears (para 5-4).
Picture not sharp - - - - - - - - - - - - - -	Defective aperture plate or pressure plate.	Repair or replace defective aperture plate or pressure plate (para 4–13).
	Defective lens.	Replace defective lens.
Travel ghost present; projection lamp properly adjusted.	Shuttle and intermittennt mechanism not synchronized.	Synchronize shutter and intermittent mechanism (para 5-5).
Focusing knob does not focus projected image; focusing knob not loose.	Defective focusing mechanism.	Repair defective focusing mechanism (para 4-14).
FRAMER knob does not frame projected image; FRAMER knob not loose.	Defective pivot block 0121.	Repair defective pivot block 0121 (para 5-5).
Projector does not takeup film properly; takeup belt not defective.	Improper takeup reel arm tension.	Adjust takeup reel arm tension (para 4-11).
	Defective takeup drive pulley clutch.	Repair defective takeup drive pulley clutch (para 4-12).
Amplifier indicator does not glow when ON-OFF switch S1 is set to ON; tube filaments do not glow; amplifier power cable not defective.	Defective amplifier ac power circuit.	Check amplifier ac power circuit (para 3-9).
Exciter lamp indicator does not glow after amplifier is warmed UP; exciter lamp, electron tubes V6 and V7, and amplifier input cable not defective.	Defective exciter lamp power supply.	Check exciter lamp power supply (para 4-23).
	Defective amplifier dc power circuit.	Check amplifier dc power circuit (para 3-9).
	Defective projector exciter lamp circuit.	Check projector exciter lamp circuit (para 5-6).
No sound; picture satisfactory; exciter lamp indicator glows.	Defective speaker.	Replace defective speaker.
	Defective amplifier audio circuit.	Check amplifier audio circuit (para 3-9).
	Defective amplifier dc power circuit.	Check amplifier dc power circuit (para 3-9).
	Defective projector photo-electric cell circuit.	Check projector photoelectric cell circuit (para 5-6).
	Defective sound optical system.	Check sound optical system.
	Improper adjustment of projector and sound system.	Adjust projector sound system.

Symptom	Probable cause	Correctives measure
Sound weak; picture satisfactory.	Dirty sound optical system.	Clean sound optical system.
	Optical system 0166 improperly focused.	Focus optical system 0166 (para 5-6).
	Defective amplifier audio circuit.	Check amplifier audio circuit (para 3-9).
	Defective speaker.	Replace defective speaker.
Sound distorted; picture satisfactory.	Improper adjustment of projector sound system.	Adjust projector sound system (para 5-6).
	Worn sprockets.	Replace worn sprockets (para 4-9).
	Defective speaker.	Replace defective speaker.
Sound wavy (flutter); picture satisfactory.	Dirty sound drum and rollers.	Clean sound drum and rollers.
	Improper impedance roller tension.	Adjust impedance roller tension (para 5-6).
	Binding sound drum.	Check sound drum shaft bearings and repair (para 5–6).
	Bent sound drum shaft.	Replace sound drum shaft (para 5–6).
	Defective flywheel.	Replace defective flywheel (para 5-6).
	Unsteady projector motor speed.	Check motor speed (para 5–1).
Continuous bell or ringing noise in speaker.	Defective exciter lamp.	Replace defective exciter lamp.
Excessive hum in speaker _ _ _ _ _	Strap light on light pipe prism.	Eliminate stray light.
Crackling or frying noise in speaker.	Pitted governor contacts.	Clean governor contacts (para 4-17).
	Arcing governor brushes	Replace worn or defective governor brushes (para 4–17).
	Defective motor brushes.	Replace defective motor brushes (para 4-17).
	Defective governor bypass capacitor.	Replace defective capacitor (para 5-1).
	Defective VOLUME or input level control on TONE switch.	Replace defective VOLUME or input level control or TONE switch (para 4-22).
Popping noise in speaker -------	Dirt on back edge of sound drum.	Clean sound drum.
Excessive hum in loudspeaker; electron tubes not defective.	Defective amplifier audio circuit.	Check amplifier audio circuit (para 3-9).
VOLUME control does not adjust volume; knob is not loose or defective.	Defective VOLUME control.	Replace defective VOLUME control (para 4–22).
Projector motor does not operate when REWIND switch S105 is set to ON.	Defective switching circuit.	Check switching circuit (para 3-7).
Improper rewind action --------	Improper feed reel arm tension.	Adjust feed reel arm tension (para 4-10).
	Defective rewind drive pulley clutch.	Repair defective rewind drive pulley clutch (para 4–12).
	Defective feed reel pulley assembly.	Repair defective feed reel pulley assembly (para 4–11).

Symptom	Probable cause	Correctives measure
HOURS counter does not correctly indicate projector operating time.	Counter drive arm improperly installed.	Install counter drive arm properlv (para 5–3).
	Defective HOURS counter or linkage.	Replaced defective HOURS counter or linkage (para 5–3).
Excessive film wear; damaged perforations.	Improper film clearance of sprockets.	Adjust film shoes for proper clearance (para 4-9).
	Worn sprockets.	Replace worn sprockets.
	Worn or damaged shuttle teeth.	Replace worn or damaged shuttle (para 5-5).
Noisy operation ----------	Worn sprockets.	Replace worn sprockets (para 4-9).
	Defective aperture plate.	Replace defective aperture plate (para 4-13).
	Defective intermittent mechanism.	Replace defective intermittent mechanism (para 5-5).

3-6. Localizing Proiector Troubles

Perform the following procedures to localize mechanical trouble *(a* below) or electrical trouble *(b* below):

a. Mechanical Troubles.

(1) Refer to the applicable symptom in the troubleshooting chart (para 3–5). Refer also to the mechanical block diagram (fig. 2-6 through 2–10) to determine which components could be producing the trouble symptoms.

(2) Turn the THREADING KNOB by hand and check for binding in the projector mechanism. If the mechanism is binding, follow the procedures outlined in paragraph 3–8.

(3) Check for film picking and film scratching by performing the film transport check (para 3–8h).

b. Electriccd Troubles.

(1) Refer to the applicable symptom in the troubleshooting chart (para 3–5).

(2) If the troubIe affects sound reproduction, check the photoelectric cell circuit (para 4-21) and the exciter lamp circuit (para 3–9d); also check for cleanliness and proper adjustment of the sound optical system (para 5-6).

(3) If the trouble affects the operation of the projector motor, the ventilation motor, the threading lamps, or the projection lamp, follow the procedures outlined in paragraph 3–7a.

3-7. Isolating Proiector Electrical Troubles

When an electrical trouble has been, localized to a functional circuit, disconnect the projector power cable from the power source, Refer to the schematic diagram (fig. 6–7 or 6–11) to determine the resistance measurements that must be made in order to isolate the defective part. Refer to figures 6–9 and 6–10 for resistor and capacitor values. The parts locations are shown in figures 3-2 and 3–3. Use the schematic diagram to trace the power and signal connections and to isolate faulty wiring.

3-8. Isolating Proiector Mechanical Troubles

a. General. When mechanical trouble has been localized to a functional assembly or a component part, follow the procedures listed below:

Warning: **Disconnect the projector from the power source before performing the following procedures.**

(1) Isolate and eliminate the causes of binding *(b* through *f* below), film picking *(h* below), and film scratching *(i* below).

(2) Refer to the repair procedures (para 4-5 through 4-23) and repair or replace the defective parts, as necessary.

b. Checking Silent Chain ***H106*** *Adjustment* (fig. 3–2). If silent chain H106 is too tight, it can cause binding of the mechanism. Proceed as follows:

(1) Check the sideplay of silent chain H106. It should be one-eighth to one-fourth inch. If the sideplay is correct, check projector motor B101 for binding *(c* below).

(2) If silent chain H106 is too tight, adjust it as follows:

(a) Loosen the two screws that mount the idler wheel.

(b) Slide the idler wheel sideways to obtain correct chain sideplay.

(c) Tighten the two screws that were loosened.

(d) Turn the THREADING KNOB and check for binding. If binding is still present, perform the procedures outlined in *c* below.

c. Checking Projector Motor B101. To check projector motor B101, proceed as follows:

(1) Loosen the two screws that mount the idler wheel (fig. 3–3), and move the idler wheel all the way to the right.

(2) Slip the silent chain off main drive shaft 0240.

(3) Turn the THREADING KNOB by hand; if binding persists, repair projector motor B101 (para 4–17); if not, perform the procedures outlined in *d* below.

d. Checking Main Drive Bearing.

(1) Turn chain sprocket 0301 (fig. 3-3) by hand (silent chain H106 removed). If binding is present, perform the procedures outlined in (2) through (5) below.

(2) Loosen two setscrews H262 and remove chain sprocket 0301.

(3) Remove shaft support A140 with the main drive bearing by removing two screws and lockwashers.

(4) Turn main drive shaft 0240 by hand. If binding is not present, remove the main drive bearing and press a new bearing into the shaft support; then replace the shaft support and main drive bearing.

(5) If binding is still present, replace the shaft support and main drive bearing; then perform the procedures outlined in *e* below.

e. Checking Intermittent Mechanism.

(1) Remove the screws to free housing A134 (fig. 5-9).

(2) Pull housing A134 out from the projector casting.

(3) Remove screws H246 and cover A121 (fig. 5-5).

(4) Remove hexagonal nut H120 and the two spacers from the pivot block 0121 shaft.

(5) Remove locknut H131 and spacing collar 0133 from shaft assembly 0241.

(6) Remove locknut H133 (thumb nut), counter weight 0134, anld retainer disk 0139 from the shaft.

(7) Turn main drive shaft 0240 (fig. 3–3) by hand and check for binding.

(8) If the binding has been corrected, the intermittent mechanism components that were removed ((4) through (6) above) are defective and must be replaced with a new shuttle and cam kit (para 5–5).

(9) If the binding has not been corrected, the intermittent mechanism components were not defective. Proceed as follows:

(a) Replace the intermittent mechanism components by reversing the procedures outlined in (1) through (6) above.

(b) Perform the procedures outlined in *f* below.

f. Checking Rewind and Takeup Mechanism.

(1) *Removing loopsetter rod* (fig. 3-3).

(a) Remove the two screws to free the mounting bracket of loopsetter rod 0208.

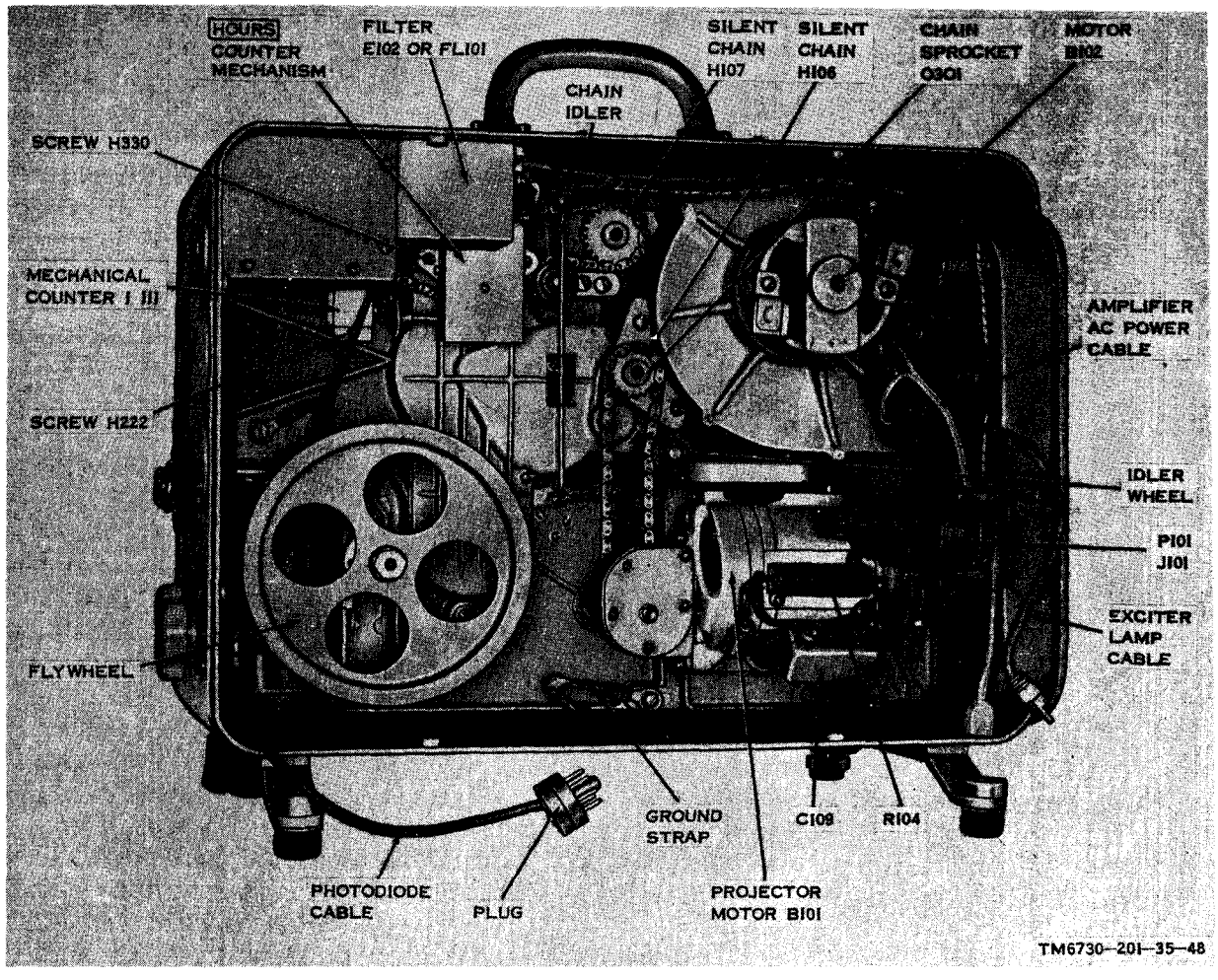


Figure 3–2.. Projector, rear cover removed.

(b) Pull out the lower end of loopsetter rod 0208 to disengage it from the lever.

(c) Lift the loopsetter rod assembly out through the loopsetter pushbutton hole.

(2) Removing *HOURS counter mechanism (fig.* 3–2).

(a) Remove screws H330.

(b) Disengage the HOURS counter mechanism from mechanical counter I111.

(c) Remove the HOURS counter mechanism.

(3) Silent chain *H107* (fig. 3-2 and 3-3).

(a) Loosen the two screws that mount the chain idler.

(b) Move the chain idler all the way to the right.

(c) Slip the chain off the sprockets.

g. Film. Use a reel of 16-millimeter (mm) sound or silent film to check the projector for film picking *(h* below) and film scratching *(i* below). The film to be used must be free of scratches, torn sprocket holes, and other de fects, and must have the following dimensions:

(1) The width must by 0.630 inch (+0.000, -0.002in.).

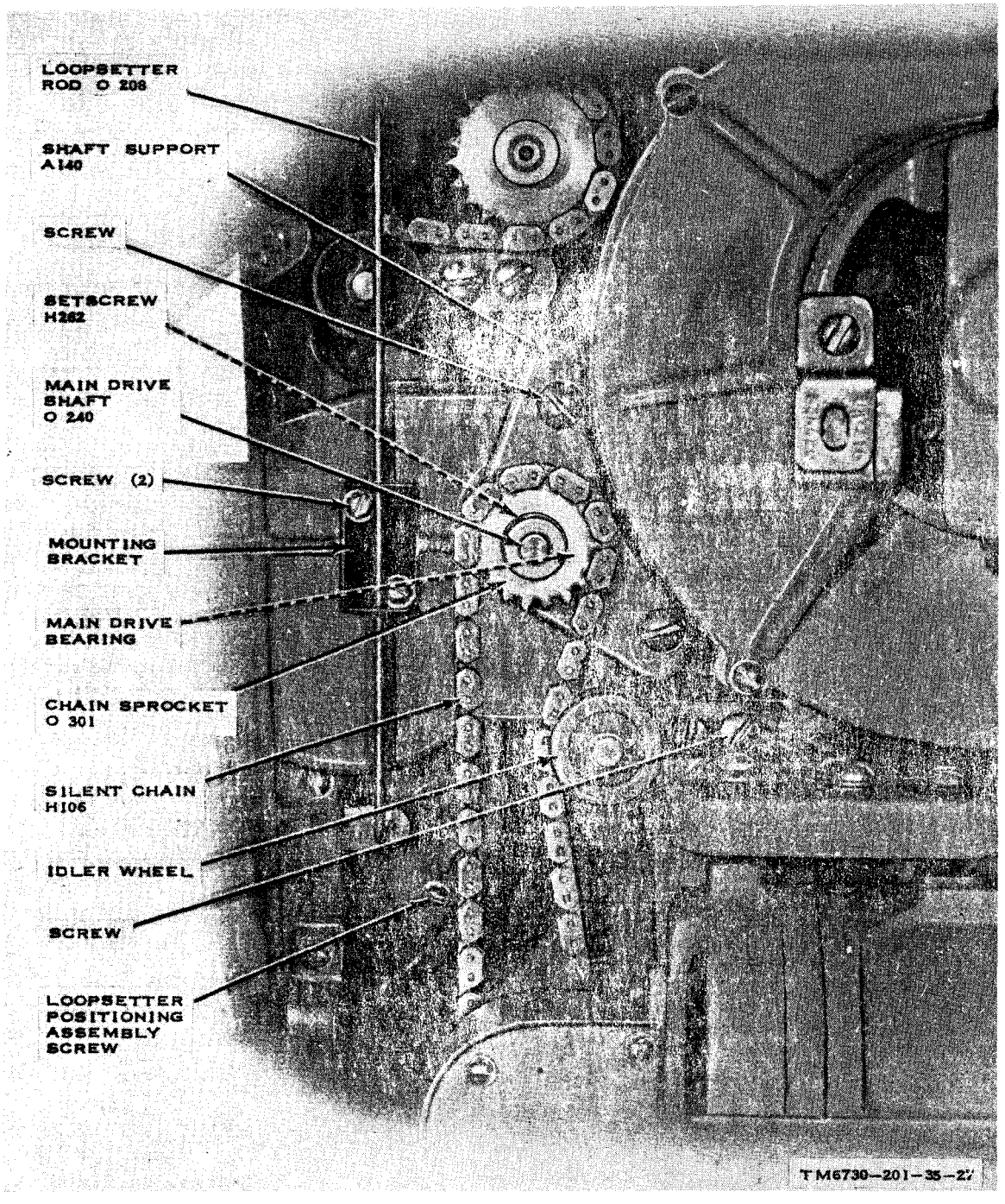


Figure 3–3. Projector, main drive.

(2) The length of any 100 consecutive sprocket holes must be 30 inches ± 0.3

h. Test for Film Picking. Thread and operate the projector (TM 11–6730–201–10) and test for film picking as follows:

(1) Hold the film between the thumb and finger at a point just before the film reaches the first sprocket, and apply a slight pressure to impede the motion of the film.

(2) If the above procedure produces a loud clicking noise, stop the projector and examine the sprocket teeth. If burrs are present, remove them with crocus cloth. If the sprocket teeth are undercut from wear, or otherwise defective, replace the sprocket (para 4–9).

(3) Repeat the above procedures for the second and third sprockets.

(4) Hold the film between the thumb and finger at a point above the aperture plate, and apply a slight pressure to impede the motion of the film.

(5) If the procedure given in (4) above produces a loud clicking noise, stop the projector and examine the shuttle teeth. If the shuttle teeth are undercut, the shuttle is worn and must be replaced (para 5–5).

(6) Stop the projector and remove the film (TM 11-6730-201-10).

i. Test for Film Scratching. To test the projector for film scratching, make a loop by splicing the ends of a piece of film approximately 18 to 24 inches long, and proceed as follows:

(1) Thread the loop around the first sprocket and operate the projector for approximately 1 minute.

(2) Remove the loop and inspect it for scratches. If any scratches are found, inspect the film shoe and remove any burrs with crocus cloth. If the film shoe is defective, replace it (para 4–9).

(3) Repeat the procedures outlined in (1) and (2) above for the second and third sprockets.

(4) Thread the loop through the film aperture and operate the projector for approximately 1 minute.

(5) Remove the loop and inspect it for scratches. If any scratches are found, inspect the aperture plate and the pressure plate and remove any burrs with crocus cloth. If the aperture plate is defective, repair it (para 4–13). If the pressure plate is defective, replace it.

3-9. Localizing Amplifier Troubles

Troubles in the amplifier can usually be localized to one of the four functional circuits: the ac power circuit *(a* below), the dc power circuit *(b* below), the audio circuit *(c* below), or the exciter lamp power supply *(d* below). Use the troubleshooting chart (para 3–5) as an aid. In most cases the trouble can be localized to a functional circuit before the amplifier chassis is removed from the amplifier cabinet.

a. Ac Power Circuit. To localize trouble to the ac power circuit, check to see whether or not the amplifier indicator and the electron tube filaments glow when power is applied to the amplifier.

(1) If *all* of the filaments glow, check the dc power circuit *(b* below).

(2) If none of the filaments glow, refer to the schematic diagram (fig. 6–11) and make appropriate voltage and resistance measurements.

(3) If some of the filaments glow, refer to the schematic diagrams (fig. 6-11) to determine what voltage and resistance measurements must be made in order to isolate the defective component. Refer to the tube socket voltage and resistance diagrams (fig. 3-4 and 3–5).

b. Dc Power Circuit. To localize trouble to the dc power circuit, proceed as follows:

(1) Check to see whether or not the amplifier indicator and the electron tube filaments glow when power is applied to the amplifier, If they fail to glow, check the ac power circuit *(a* above).

(2) If the indication given in (1) above is normal, measure the dc voltage between pin 7 and ground of tubes V206 and V207. If the voltage is not approximately 280 volts dc, refer to the schematic diagrams (fig. 6-11) to determine what voltage and resistance measurements must be made in order to isolate the defective component. Refer to the tube socket voltage and resistance diagrams (fig. 3-4 and 3-5) for normal readings.

c. Audio Circuit. To localize trouble in the audio circuit, proceed as follows:

(1) Determine the symptoms by performing as many of the amplifier tests *(a* and *b* above) as necessary. If the amplifier has no output, check the dc power circuit by measuring the dc voltage between pin 7 and ground of tubes V206 and V207. If the voltage is not approximately 280 volts dc, check the dc power circuit *(b* above).

(2) If other abnormal indications appear, refer to the schematic diagram (fig. 6-11) to determine what voltage and resistance measurements must be made in order to isolate the defective component. Refer to the tube socket voltage and resistance diagrams (fig. 3-4 and 3–5) for normal readings.

d. Exciter Lamp Power Supply. To localize trouble to the exciter lamp power supply, proceed as follows:

(1) Connect the projector to a 117-volt ac power source.

(2) Set the amplifier ON-OFF switch to ON and allow 3 minutes for the amplifier to warm up; then set the OFF-MOTOR-LAMP switch to MOTOR.

(3) Measure the ac voltage at receptacle J204. The voltage should be approximately 5 volts ac. If the voltage is present, check the projector exciter lamp circuit.

(4) If the voltage measured ((3) above) is less than 4.5 volts ac, check the dc power circuit *(b* above).

(5) If the voltage measured ((4) above) is approximately 280 volts dc, refer to the schematic diagram (fig. 6-11) to determine what voltage and resistance measurements must be made in order to isolate the defective component. Refer to the tube socket voltage and resistance diagrams (fig. 3-4 and 3-5) for normal readin'gs.

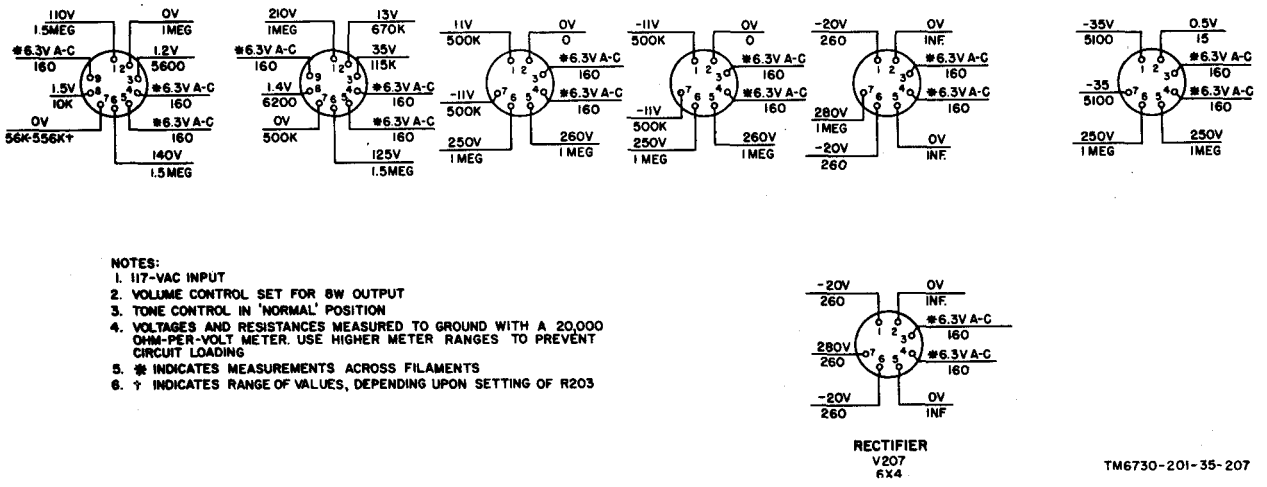
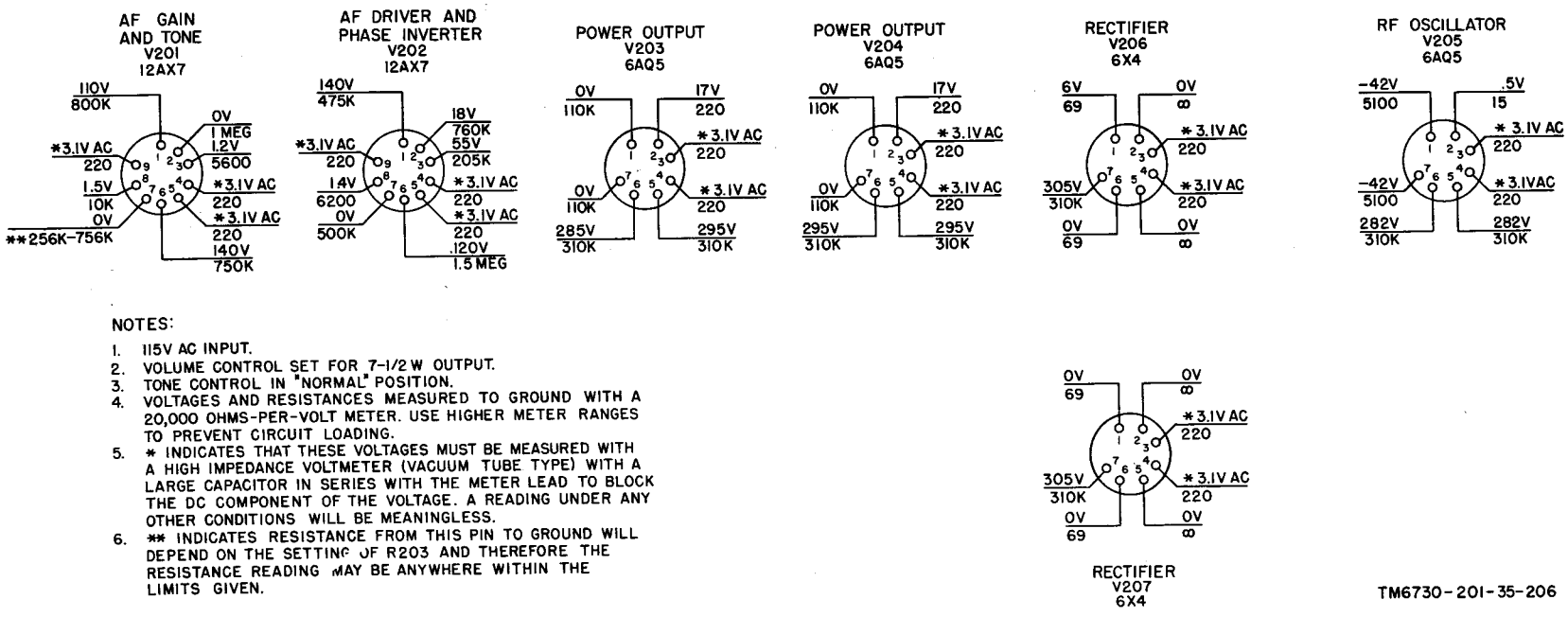


Figure 3-4. Projectors AQ–2A (1) and AQ–2A (2), amplifier tube socket voltage and resistance diagram.



NOTES:

1. 115V AC INPUT.
2. VOLUME CONTROL SET FOR 7-1/2 W OUTPUT.
3. TONE CONTROL IN "NORMAL" POSITION.
4. VOLTAGES AND RESISTANCES MEASURED TO GROUND WITH A 20,000 OHMS-PER-VOLT METER. USE HIGHER METER RANGES TO PREVENT CIRCUIT LOADING.
5. * INDICATES THAT THESE VOLTAGES MUST BE MEASURED WITH A HIGH IMPEDANCE VOLTMETER (VACUUM TUBE TYPE) WITH A LARGE CAPACITOR IN SERIES WITH THE METER LEAD TO BLOCK THE DC COMPONENT OF THE VOLTAGE. A READING UNDER ANY OTHER CONDITIONS WILL BE MEANINGLESS.
6. ** INDICATES RESISTANCE FROM THIS PIN TO GROUND WILL DEPEND ON THE SETTING OF R203 AND THEREFORE THE RESISTANCE READING MAY BE ANYWHERE WITHIN THE LIMITS GIVEN.

Figure 3-5. Projector AQ-2A(3), amplifier tube socket voltage and resistance diagram.

3-10. Isolating Amplifier Troubles

When trouble has been localized to a functional circuit (para 3–5), disconnect the power from the amplifier and remove the chassis from the cabinet. Refer to the schematic diagram (fig. 6-11) to determine what voltage and resistance measurements must be made in order to isolate the defective part. The parts locations are shown in figures 3-6 through 3–11. Refer to figures 6–9 and 6-10 for resistor and capacitor values.

a. Make voltage measurements at the terminals of the terminal boards and at the pins of the tube sockets (fig. 3-5).

b. If the voltage measurements are abnormal, turn off all power and make resistance measurements to isolate open and short circuits.

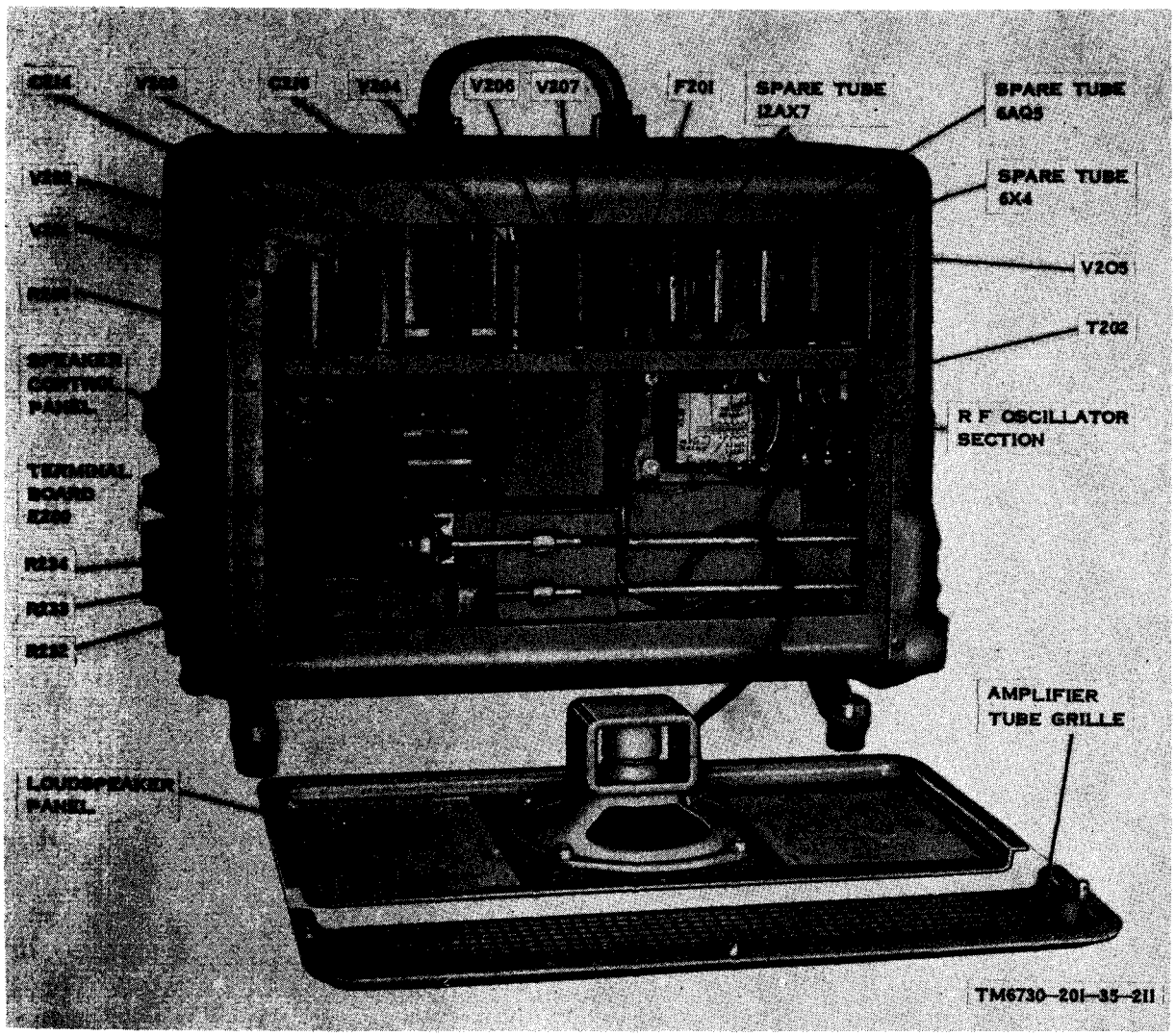


Figure 3-6. Projector AQ–2A (3), front view of amplifier loudspeaker panel removed.

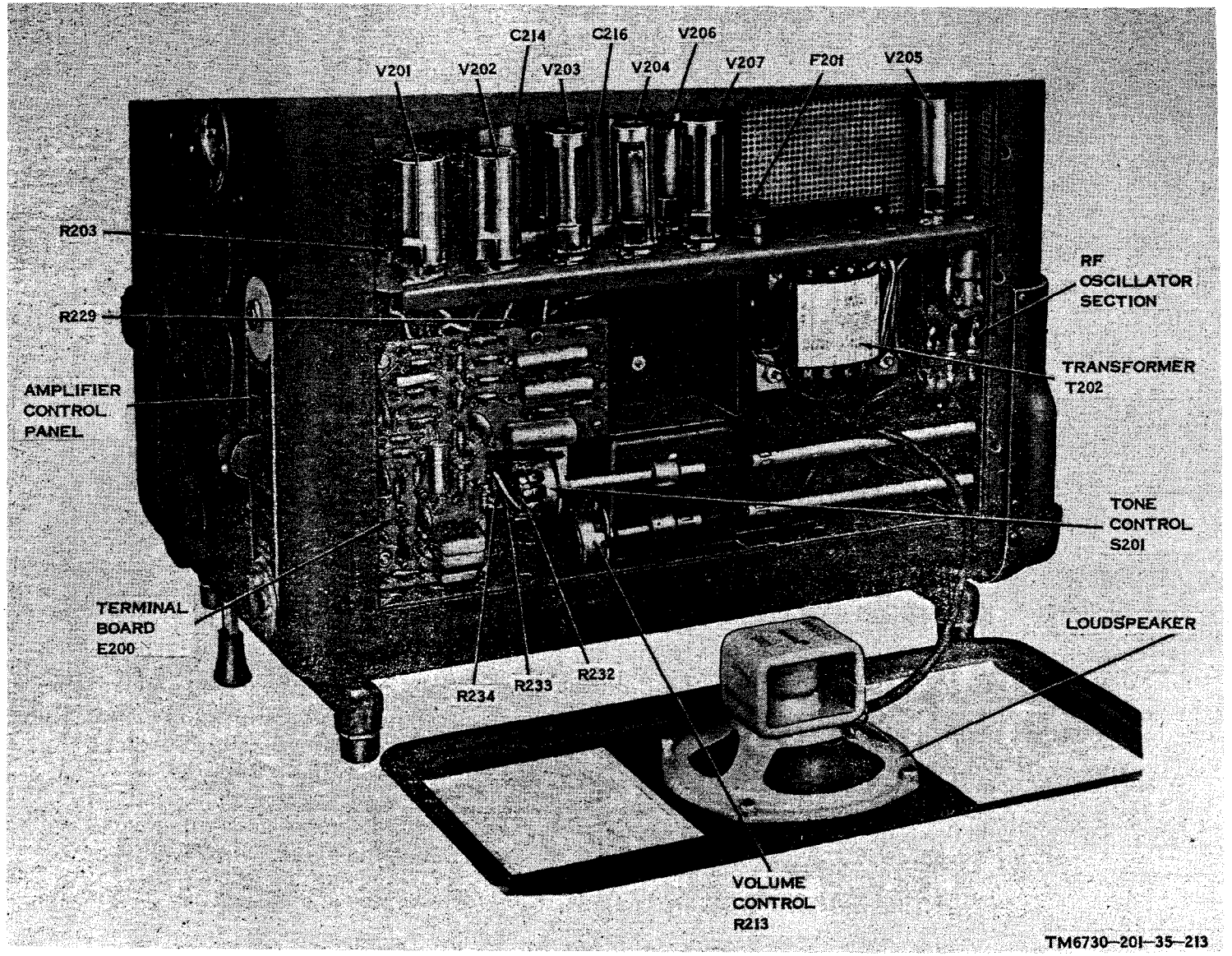


Figure 3-7. Projectors AQ-2A(1) and AQ2A(2), front view of amplifier, loudspeaker panel removed.

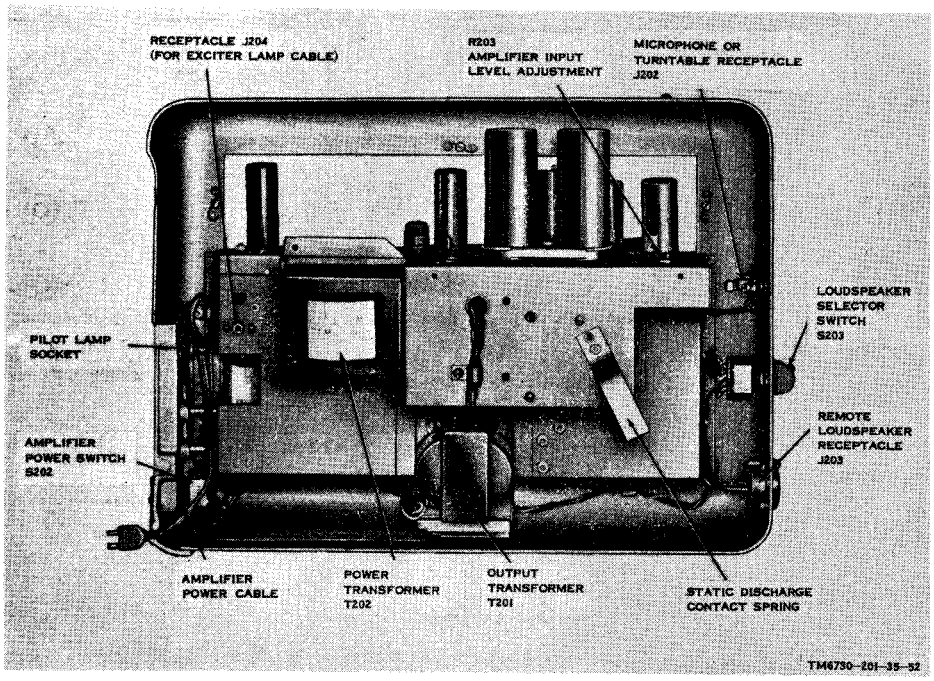


Figure 3–8. Projector AQ-2A(1), AQ-2A(2), and AQ–2A(3), rear view of amplifier.

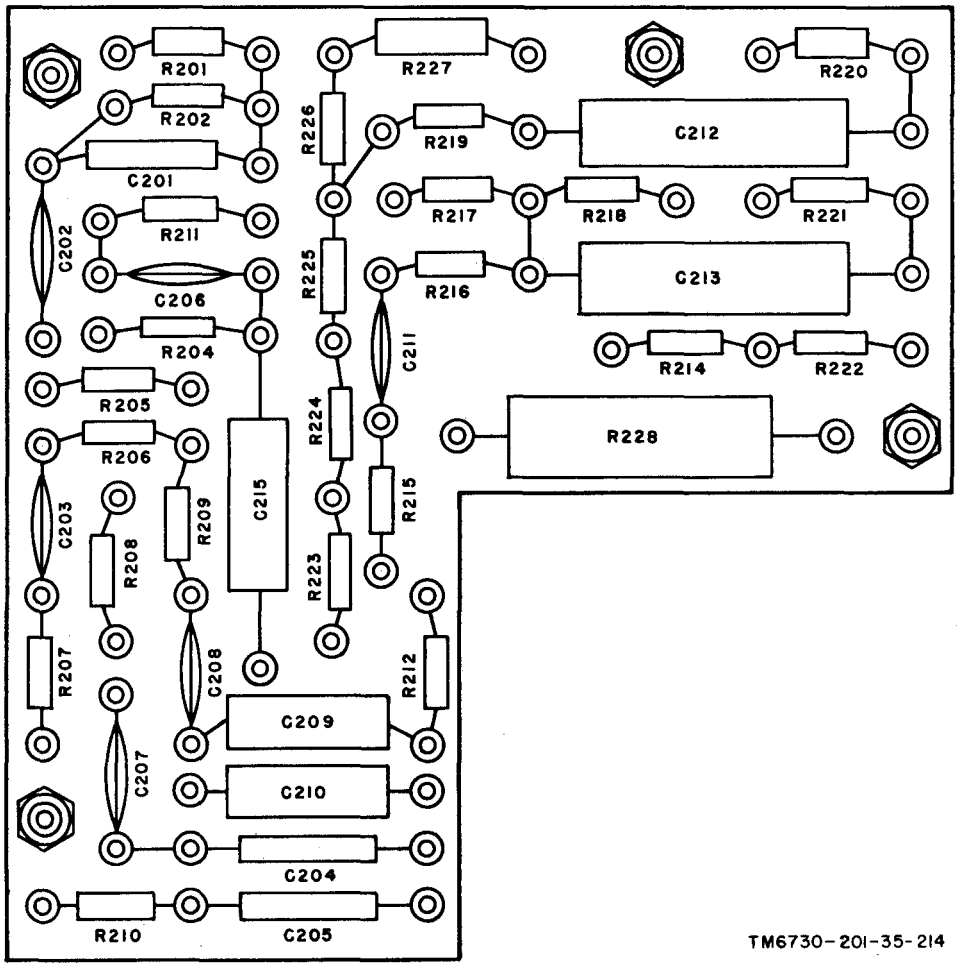


Figure 3-9. Projectors AQ–2A(1) and AQ–2A(2), terminal board E200.

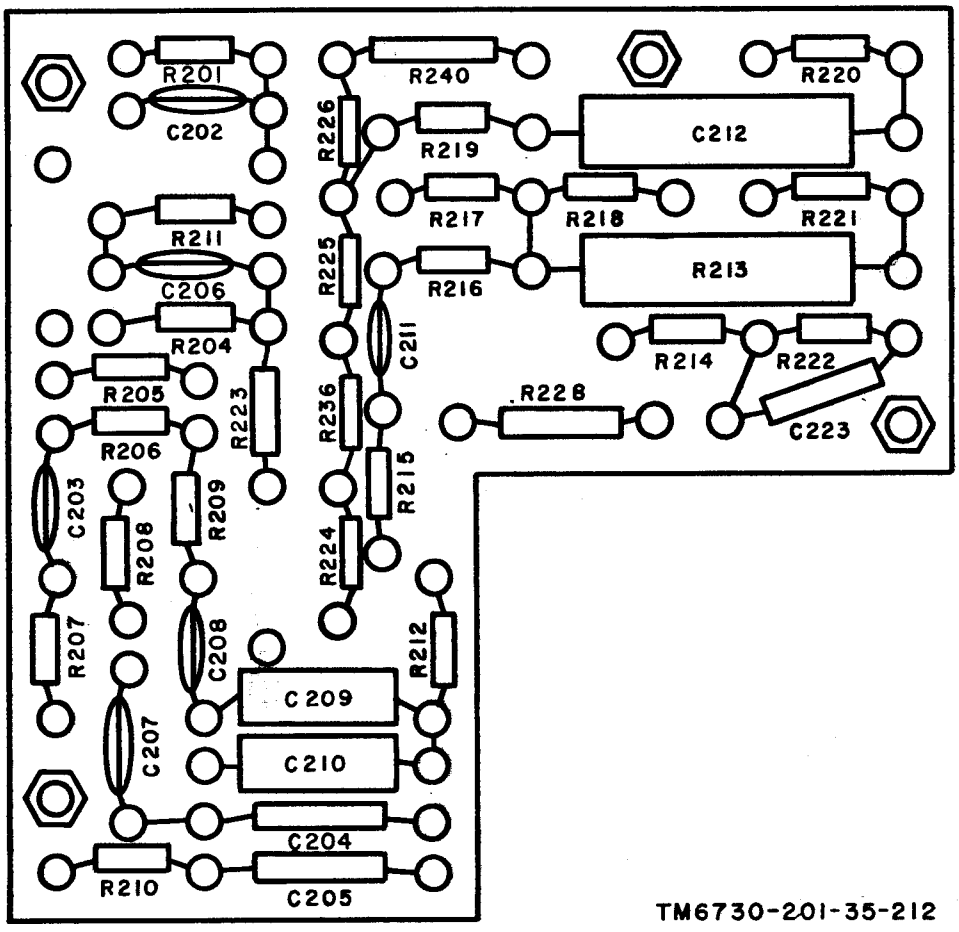


Figure 3-10. Projector AQ-2A (3), temninal board E2oo.

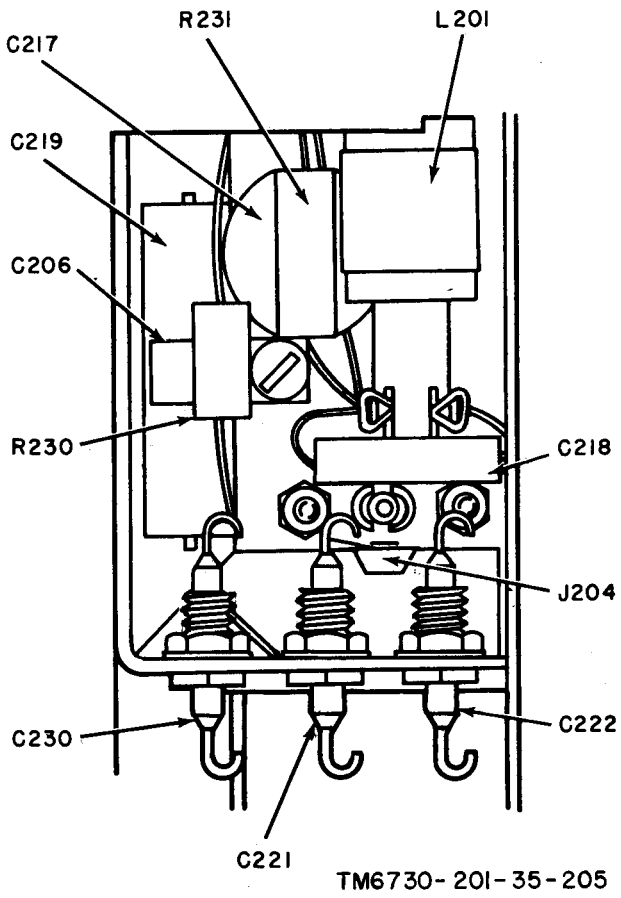


Figure 3-11. Rf oscillator, parts location.

CHAPTER 4

DIRECT SUPPORT REPAIR

Section I. INSPECTING, STRIPPING, CLEANING, AND LUBRICATING

4-1. Inspecting

Inspect Projector Set, Motion Picture, Sound AS–2 (1) to determine its general condition. In addition to the inspecting procedure below, repair personnel should use visual and any other sensory inspection necessary to determine the extent of the repair required. Refer to TM 11-6730-201–10 for the location of items.

a. Cabinet and Exterior Mechanism.

(1) Examine the entire cabinet for dents, holes, or cracks.

(2) Check all rollers to see that they turn freely.

(3) Examine the feed, takeup, and sound sprockets for nicks or other damage.

(4) Open and close the film shoes to see that they operate properly.

(5) Operate the tilt mechanism to observe that it works properly.

(6) Turn the sound drum gently with the fingers to see that it, rotates freely and quietly.

(7) Examine the reel arms to see that they are not damaged; make sure that the knurled locking screw holds them firmly in place.

(8) Rotate the takeup reel spindle and the feed reel spindle. Both spindles should turn freely.

(9) Examine the connector receptacles on the cabinet for damage.

b. Projection and Sound Optical Systems.

(1) Examine the projection lens for cracks, scratches, and chipping.

(2) Open the lamp housing cover and examine the reflector for cracks or other damage; check the projection, lamp for broken filaments or excessive discoloration.

(3) Examine both the exciter lamp and the scanning lens assemblies for damage.

c. *Inside Cabinet and Back of Mechanism Panel.*

(1) Remove the access panel from the cabinet. Examine the inside of the cabinet for damage. Remove any dust or dirt from the air intake and exhaust holes.

(2) Check for broken, burned, or damaged wires and insulation.

(3) Examine all wiring for loose or poorly soldered connections.

(4) Check all mechanical parts, such as gears, chains, shafts, cams, and springs. Look for scoring, abrasion, bending, nicks, chipping, breaks, and other evidence of mechanical damage.

(5) Turn the threading knob to see that the mechanism turns freely.

d. Amplifier.

(1) Check the amplifier for visible damage.

(2) Check the front panel controls to see that they turn easily.

(3) Examine the receptacles for damage.

e. Speaker.

(1) Remove the speaker chassis from the cabinet and check the speaker cone for holes or cracks.

(2) Examine the cable bracket for damage.

(3) Inspect the cabinet for cracks, breaks, holes, and loose parts.

(4) Examine all wiring for deterioration and broken connections.

f. Power and Interconnecting Cables.

(1) Check all cables for damage, such as cuts or bad kinks.

(2) Check all connectors for damage.

4-2. Stripping

Projector Set, Motion Picture, Sound AS-2(1) is composed of three functional components. Listed below are the instructions for removing and replacing parts in two of these components (projector and amplifier) which can be removed, repaired, and replaced easily. The speaker component is replaced as a unit.

a. Projector (fig. 4-1).

(1) *Projection lamp.* Open the hinged lamp housing door by firmly grasping the right side of the door and pulling. Lift the opened door to remove it at the hinges. Press down on the projector lamp and rotate the lamp counterclockwise. Lift out the lamp.

(2) *Condensing lens assembly.* To reach the condensing lens assembly, remove the projection lamp as described in (1) above. Apply pressure downward to depress lever 0164, and pull the entire assembly out from the casting. If necessary to separate the condensing lens assembly, turn the smaller part of the assembly clockwise.

(3) *Fuses F101 or F102. Use* a screwdriver and remove the FUSE cap and fuse. Separate the fuse from the fuse cap by pulling them apart.

b. Amplifier (fig. 3-6 and 3-7).

(1) *Tubes.* The amplifier tubes can be reached by removing the amplifier tube grill. Remove the tube shields; then remove the tubes by a direct upward pull. Label each tube as soon as it is removed so that it will be replaced later in the same socket.

(2) *Fuse F201.* To remove fuse F201, twist the cap counterclockwise (as the arrow indicates) one-half turn and remove it. Separate the fuse from its holding sleeve by pulling the two apart.

(3) *Pilot lamp.* To remove the pilot lamp, unscrew the indicator lamp shield on the control panel, and then remove the pilot lamp from the indicator lamp shield.

4-3. Cleaning

Caution: Use lens cleaner sparingly. Avoid getting foreign material on the light pipe prism, the sound optical lens, and other parts of the projector.

a. Projection Lens. Remove the projection lens by loosening the lens-locking screw and withdrawing the lens from its carriage (TM 11-6730-201-10).

(1) Remove loose dust with a camel's-hair brush or by blowing across the surface.

(2) If fingerprints, oil, grease or other accumulations of dirt are present, place 1 or 2 drops of lens cleaner on the glass surface and polish with lens cleaning tissue. Fingerprints should be removed at once, otherwise they may become etched in the lens. Wipe the cleaned surface dry. Do not take the lens apart; clean only the external surfaces.

Caution: The projection lens is coated to improve its light transmission quality. Be careful not to damage the coating because the efficiency of the lens will be impaired.

b. Reflector Assembly (fig. 4-1). The reflector is accessible for cleaning without removal from the projector. To reach the reflector, open the Iamp housing cover. Remove dust or dirt on the reflector by using a camel's-hair brush or by blowing air across its surface. Remove stains with lens cleaning tissue. If required, use 1 or 2 drops of lens cleaner. Wipe the reflector surface dry with lens cleaning tissue.

c. Condensing Lens Assembly. To clean the condensing lens assembly, remove it (para *4-2a)* and proceed as follows:

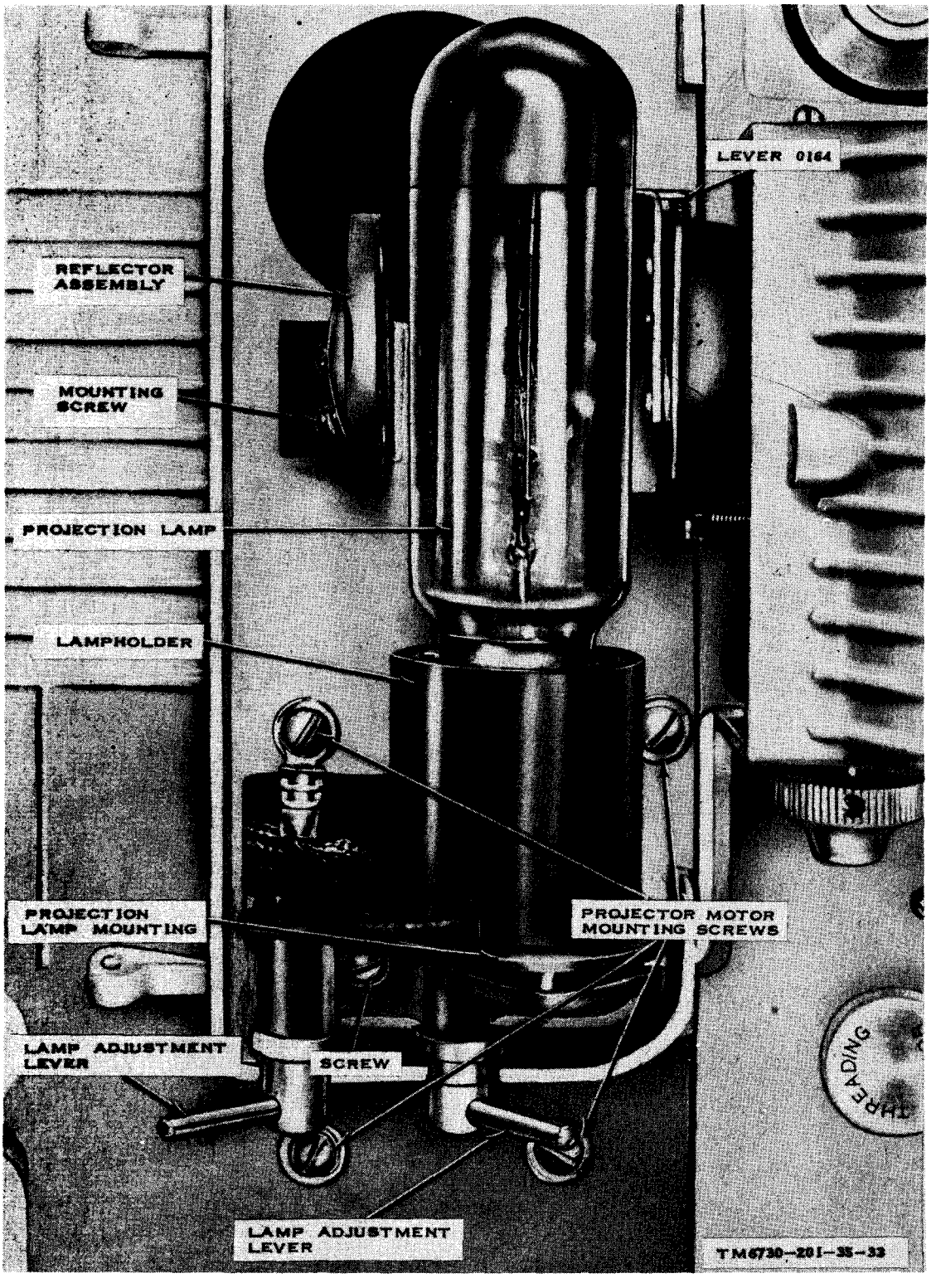


Figure 4-1.. Projector lamp housing, cover removed.

(1) Turn the smaller portion of the condensing lens assembly counterclockwise until the assembly separates into two parts.

Caution: **The condensing lenses are chemically coated to improve their light transmission capability. Rough treatment will damage the coating and reduce the condensing lens efficiency.**

(2) Clean the inner glass surfaces of the two condensing lenses with a camel's-hair brush.

(3) If necessary, place 1 or 2 drops of lens cleaner on the lenses and then clean and wipe dry with lens cleaning tissue.

(4) Screw the two parts of the condensing lens assembly together.

(5) Place the condensing lens assembly in position on the mechanism plate; press the catch down and align the mounting holes in the condensing lens housing over their respective pins; release the catch to secure the assembly in place.

d. ***Sound Drum.***

(1) Rotate the sound drum by pushing it with the forefinger.

Caution: Be very careful in this operation; the bearings are delicate and any damage to them will resu[t in poor sound quality.

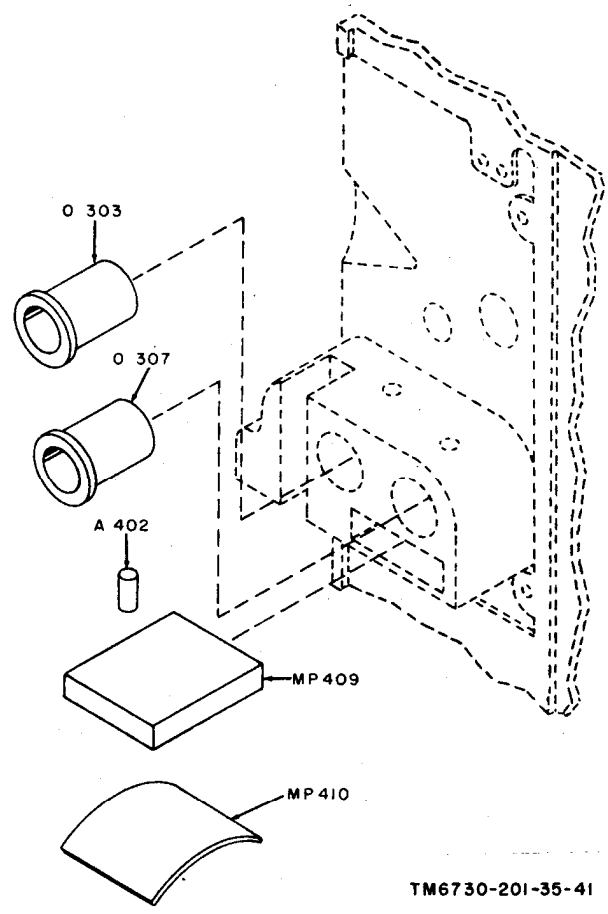
(2) While the drum is rotating, remove all dirt and lint from its surface with a clean, soft, lint-free cloth. If any foreign substances remain on the drum, remove them by rubbing with a cloth dampened with lens cleaner.

(3) Be sure to remove any trace of lint **on** the inner edge of the drum; a regular popping noise from the speaker will result each time a piece of lint or dirt passes the scanning beam.

4-4. Lubrication

All the lubrication that is required during the normal life of the projector, except for the intermittent mechanism (fig. 5–5), shaft 0240, and gear 0153, is performed at the time of assembly. It is recommended, however, that.. the following parts *(a* throngh *e* below) be lubricated at the time of reassembly after repair. After the equipment has he operated for 500 hours, examine the oil wick for signs of dryness or clogging; if dryness or clogging is present, lubricate the oil wick by saturating felt MP409 (fig. 4-2) with oil. Perform the operator's lubrication procedures (TM 11–6730-201–10).

Note: On the AQ-2A(3), all rollers (except for the belt idler pulleys) are equipped with oilite bearings and should be lubricated only every 500 hours unless removed for cleaning or overhaul. Use Lubricating Oil, Hydraulic, MIL-L-15017.



A402	Camshaft wick (part of oil wick kit MP456)
MP409	Felt (part of oil wick kit MP456)
MP410	Leaf spring
0303	Sleeve bearing
0307	Sleeve bearing

Figure 4–2. Projector, Motion Picture, Sound AQ–2A (3), oiling system.

a. Film Drive Mechanism.

Item	Ref symbol	Lubricant
Double idler gear (fig. 5-4)	0146	Grease, Automotive and Artillery (GAA).
Single idler gear	0147	Grease, Automotive and Artillery (GAA).
Spur gear and shaft	0148	Grease, Automotive and Artillery (GAA).
Spur gear and shaft	0149	Grease, Automotive and Artillery (GAA).
Rod, locking (fig. 4-6)	0204	Lubricating Oil, General Purpose (2135).
Rod, locking	0205	Lubricating Oil, General Purpose (2135).
Rod, locking	0206	Lubricating Oil, General Purpose (2135).
Shaft (fig. 5-4)	0238	Lubricating Oil, General Purpose (2135).

b. Intermittent Mechanism (fig. 5-5).

Item	Ref symbol	Lubricant
Block, pivot	0121	Grease, Aircraft and Instrument (GL).
Gear, helical	0151	Grease, Aircraft and Instrument (GL).
Gear, helical	0152	Grease, Aircraft and Instrument (GL).
Gear, assembly	0153	Grease, Aircraft and Instrument (GL).

c. Sound Mechanism (fig. 5-11).

Item	Ref symbol	Lubricant
Housing (shoulders)	A129 or MP411	Grease, Aircraft and Instrument (GL).
Bearing, ball	0116 or MP415	Grease, Aircraft and Instrument (GL),
Bearing, ball	0117 or MP416	Grease, Aircraft and Instrument (GL).
Roller, film	0217	Lubricating (Jil, General Purpose (2135).
Shaft	0225 or MP414	Grease, Aircraft and Instrument (GL).
Shaft	0226	Grease, Aircraft and Instrument (GL),

d. Feed and Takeup Mechanism Assemblies.

Item	Ref symbol	Lubricant
Arm	0113	Lubricating (Oil, General Purpose (2135).
Bearing (fig. 4–9)	0293	Grease, Aircraft and Instrument (GL).
Bearing	0294	Grease, Aircraft and Instrument (GL).
Bearing	0295	Grease, Aircraft and Instrument (GL).
Bearing	0296	Grease, Aircraft and Instrument (GL).
Bearing (fig. 4-11)	0299	Grease, Aircraft and Instrument (GL).
Bearing	0300	Grease, Aircraft and Instrument (GL).

e. Projector Motor (fig. 5-l).

Item	Ref symbol	Lubricant
Gear, shaft	0145	Grease, Automotive and Artillery (GAA).
Bearing, ball	0309	Grease, Automotive and Artillery (GAA).
Bearing, ball	0310	Grease, Automotive and Artillery (GAA).
Gear worm	0322	Grease, Automotive and Artillery (GAA).

f. Ventilation Motor.

Item	Ref symbol	Lubricant
Bearing, ball	0311	Grease, Automotive and Artillery (GAA).

Section II. DIRECT SUPPORT PROJECTOR REPAIRS

4-5. Elevation Mechanism

(fig. 4-3)

a. Disassembly To disassemble the elevation mechanism, proceed as follows:

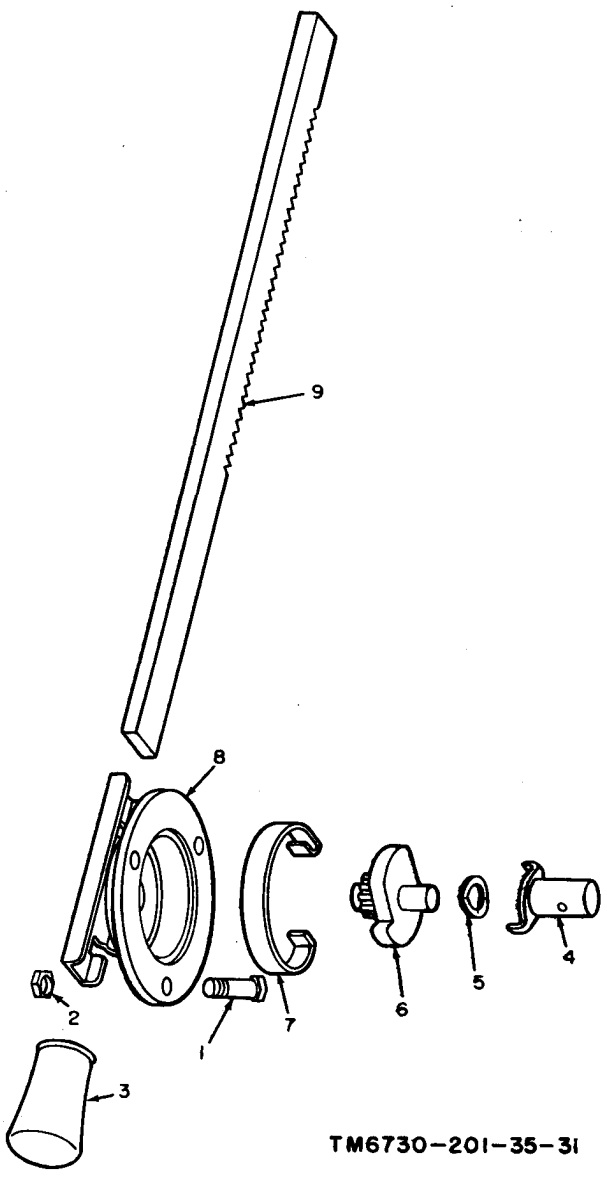
(1) Remove the knob (TM 11-6730-201-20).
(2) Remove the screws (1) from the outside of the projector case and the nuts (2) from the inside of the projector case.
(3) Remove the leg tip (3); then remove the elevation mechanism from the inside of the projector case.
(4) Remove the lever (4) and the curved washer (5).
(5) Remove the pinion (6) and the spring (7) from the mounting (8).
(6) Remove the rack (9) from the mounting (8).

b. Inspection. Clean and inspect the disassembled elevation mechanism. Replace or repair the defective parts. Proceed as follows:

(1) Inspect the cork lining in the mounting (8). It should be smooth and not saturated with oil or grease.
(2) Check the spring (7) for breaks or damage.
(3) Inspect the pinion (6) and the rack (9) for worn or broken teeth.
(4) Inspect the leg tip (3) for tears or breaks.

c. Reassembly. To reassemble the elevation mechanism, apply a light coating of Grease (GL) to the teeth of the rack (9) and the pinion (6), and proceed as follows:

(1) Place the rack (9) in the mounting (8).
(2) Place the spring (7) and the pinion (6) in the mounting (8).
(3) Place the curved washer (5) and the lever (4) on the shaft of the pinion (6).
(4) Position the elevation mechanism inside the projector case and replace the leg tip (3).
(5) Replace the screws (1) and the nuts (2) to secure the elevation mechanism to the projector case.
(6) Replace the knob (TM 11–6730-201-20).



1 Screw
2 Nut
3 Leg tip (H167)
4 Lever (0105)
5 Curved washer (H188)
6 Pinion (0144)
7 Spring (0255)
8 Mounting (A126)
9 Rack (0142)

Figure 4-3. Elevation mechanism, exploded view.

4-6. Lamp Housing Cover

(fig. 4-4)

a. Disassembly.

(1) To remove the lamp housing cover from the projector, pull it open and lift it from its hinges.

(2) Remove the assembled heat shield (1); remove the four speednuts (2) from the mounting pins inside the lamp housing (3) by inserting a screwdriver under the gripping lip of each speed nut and then lifting the speednut off the pin. This permits the first heat shield to be withdrawn. Removal of the heat shield spacers (4) permits the second heat shield to be removed.

(3) Remove the upper light baffle (5) and the lower light baffle (6) by removing the speednuts (7) and the light baffle spacers (8) in the same manner.

b. Inspection.

(1) Clean the heat shields (1) thoroughly.

(2) Inspect the light baffles. Remove any accumulated dirt, dust, and foreign substances lodged between the slots.

c. Reassembly. Reverse the disassembly procedure. Be sure to place the heat shield and light baffle spacers ((4) and (8), respectively) on the mounting pins, between the two heat shields (1) and between the two light baffles (5) and (6).

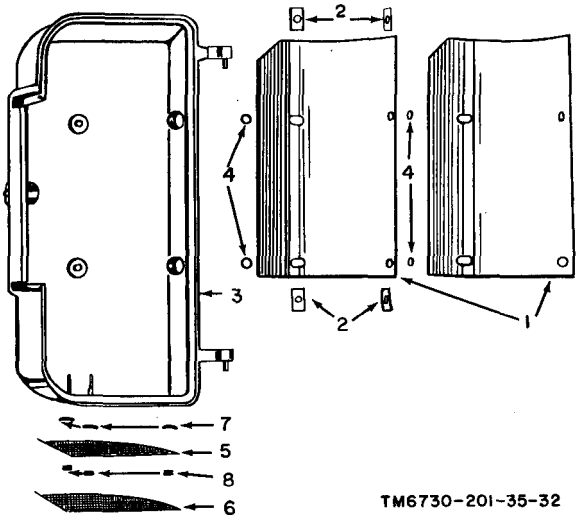
4-7. Reflector Assembly

a. Disassembly

(1) Remove the reflector assembly mounting screws (fig. 4–1) and the lockwashers; then remove the reflector assembly from the projector mechanism plate.

(2) Use a small screwdriver and carefully pry out the lockring (fig. 4–5) from the rear of the bracket.

(3) Remove the reflector from the bracket.



1 Heat shield
2 Speednut
3 Lamp housing
4 Heat shield spacer
5 Six-slot light baffle (upper light baffle)
6 Five-slot baffle (lower light baffle)
7 Speednut
8 Light baffle spacer

Figure 4-4. Projector lamp housing cover, exploded view.

b. Inspection.

(1) Carefully clean the reflector with lens tissue.

(2) Inspect the reflecting surface. If it is chipped, cracked, tarnished, or scratched excessively, replace it.

c. Reassembly

(1) Insert the reflector into the bracket with the convex side (rear) of the reflector protruding from the rear of the bracket.

(2) To secure the reflector, compress the lockring and insert it in place behind the reflector.

(3) Position the reflector assembly (fig. 4–1) on the projector mechanism plate and secure it with the reflector assembly mounting screws and lockwashers.

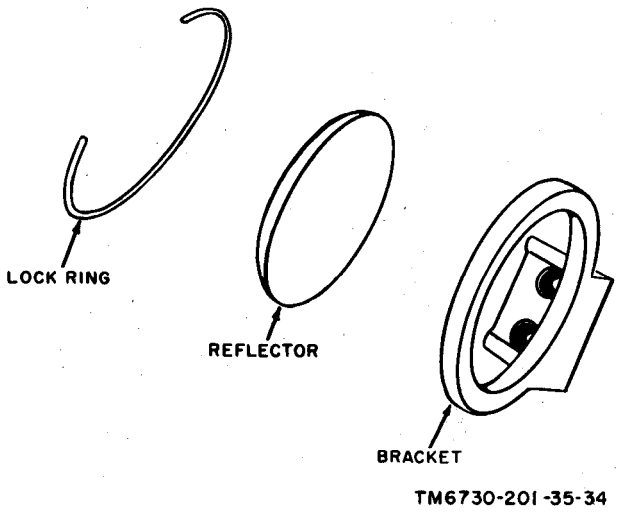


Figure 4-5. Reflector assembly, exploded view.

4-8. Projection Lampholder and Lampholder Mounting

(fig. 4-1)

To repair the lampholder and lampholder mounting, proceed as follows:

a. Disassembly.

(1) Open the lamp housing cover and remove it by lifting to disengage the hinges.

(2) To remove the projection lamp, press it down, turn it counterclockwise, and then lift it out of the lampholder.

(3) Remove the lampholder screws and the lampholder mounting from the projector mechanism plate.

(4) To remove the lampholder from the lampholder mounting, proceed as follows:

(a) Look at the underside of the mounting and move the lamp adjustment levers to align the access holes (not shown) with the lampholder retaining screwheads.

(b) Remove the screws through the access holes and separate the lampholder from the mounting.

(c) Mark and disconnect the leads from the lampholder.

b. Reassembly.

(1) Connect the leads to the replacement lampholder.

(2) Position the lampholder on the mounting so that the lampholder screw holes, the mounting screw holes, and the access holes are aligned.

(3) Insert the screws through the access holes into the lampholder and tighten to secure the lampholder to the mounting.

(4) Position the projection lamp mounting on the projector mechanism plate and secure it with the screws.

(5) Insert the projection lamp in the lampholder and secure it by pressing it down and turning clockwise until it clicks into place.

(6) Engage the hinges and close the lamp housing cover.

4-9. Film Sprockets and Associated Items

(fig. 4-6)

To replace or repair the film strippers *(a* below), the film shoes *(b* below), the film sprockets (c below), or the stop plates *(d* below), perform the following procedures:

a. Film Strippers. To remove and replace film stripper H161, H270, or H271, proceed as follows:

(1) *Removal.*

(a) Remove machine screw H234 and lockwasher H273 from the film stripper to be removed.

(b) Remove the film stripper from plate A160.

(2) *Replacement.*

(a) Position the film stripper on plate A160 so that the protrusion on the bottom of the film stripper is in the registration hole.

(b) Secure the film stripper in position with machine screw H234 and lockwasher H273. No adjustment of the film stripper is necessary.

b. Film Shoes. To repair, replace, and adjust film shoe 0246, 0286, or 0287, proceed as follows:

(1) *Removal.*

(a) Remove machine screws A146 and lockwashers H277 from the film shoe to be removed.

(b) Remove the film shoe from plate A160.

(2) *Disassembly.*

(a) Remove pivot screws H155 and separate the film shoe from mounting A149.

(b) Remove locking rod 0204 and spring 0263 from the film shoe.

(3) *Reassembly.*

(a) Apply a light coating of grease (GL) to locking rod 0204, compression spring 0263, pivot screws H155, and the inner face of mounting A149. Do not get any grease on the film shoe.

(b) Insert spring 0263 in the hollow side of locking rod 0204.

(c) Insert the spring and locking rod, spring first, into the hollow portion of the film shoe.

(d) Note the two grooves on the inner face of mounting A149. Hold the mounting with the grooves up and the film shoe with the face up; then position the film shoe on mounting A149 and press the two together to align the screw holes.

(e) Insert and tighten pivot screws H155.

(4) *Replacement.* The film shoe must be positioned at the correct distance from the sprocket. Proceed as follows:

(a) Position the film shoe on plate A160 and replace machine screws H146 and lockwashers H277. Do not tighten the screws.

(b) Place the film clearance gage (7, fig. 3-1) between the film shoe and the sprocket so that the teeth of the sprocket engage the grooves of the gage (fig. 4–7).

(c) Press the film shoe against the film clearance gage.

(d) Tighten machine screws H146 (fig. 4-6).

(e) Remove the film clearance gage.

Note: If the film clearance gage is not available, a double thickness of motion picture film may be used.

c. Film Sprockets (fig. 4-6). To replace film sprocket 0278, perform the procedure in (1) below. To replace film sprocket 0189 or 0190, perform the procedures outlined in (2) and (3) below.

(1) *Replacement of film sprocket* 0278.

(a) Remove film stripper H161 *(a(1)* above).

(b) Loosen setscrews H262 and remove film sprocket 0278 from the shaft.

(c) Install the replacement sprocket on the shaft and tighten the setscrews.

(d) Check the endplay. It should not exceed 0.0005 inch.

(e) Replace film stripper H161 *(a(2)* above).

(2) *Replacement of film sprocket 0189 or 0190.*

(a) Remove film strippers H270 and H271 *(a(1)* above).

(b) Remove film shoes 0286 and 0287 *(b(1)* above).

(c) Loosen setscrews H262 in film sprockets 0189 and 0190.

(d) Remove the defective sprocket and install the replacement film sprocket on the shaft, but do not tighten the setscrews.

(e) Synchronize the sprockets with the shuttle ((3) below).

(3) *Synchronizing sprockets with shuttle.* To synchronize the sprockets with the shuttle, proceed as follows:

(a) Turn the THREADING KNOB to place the shuttle at the point of maximum protrusion.

(b) Turn film sprockets 0189 and 0190 so that one setscrew in each sprocket is in the 3 o'clock position.

(c) Place the sprocket and shuttle synchronizer gage (fig. 4–8) on the sprockets so that the teeth of each

sprocket enter the grooves in the gage.

(d) Tighten the exposed setscrew in each sprocket.

(e) Remove the sprocket, and shuttle synchronizer gage and tighten the second setscrew in each sprocket.

(f) Check the endplay. It should not exceed 0.0005 inch.

(g) Replace the film shoes *(b(4)* above).

(h) Replace the film strippers *(a(2)* above).

d. Stop Plates. A stop plate is mounted on the protruding end of each sprocket shaft sleeve bearing.

(1) *Removal.* To remove stop plate 0179, 0290, or 0291, (fig. 4-6) proceed as follows:

(a) Remove the film stripper *(a(1)* above.

(b) Remove the film sprocket *(c* above).

(c) Remove the stop plate by carefully pulling it from its mounting on sleeve bearing 0292.

(2) *Replacement.*

(a) Position the replacement stop plate with the protruding ears on either side of the film shoe.

(b) Press the stop plate in place on the sleeve bearing.

(c) Replace the film sprocket *(c* above).

(d) Replace the film stripper *(a(2)* above).

4-10. Feed Reel Arm

(fig. 4-9)

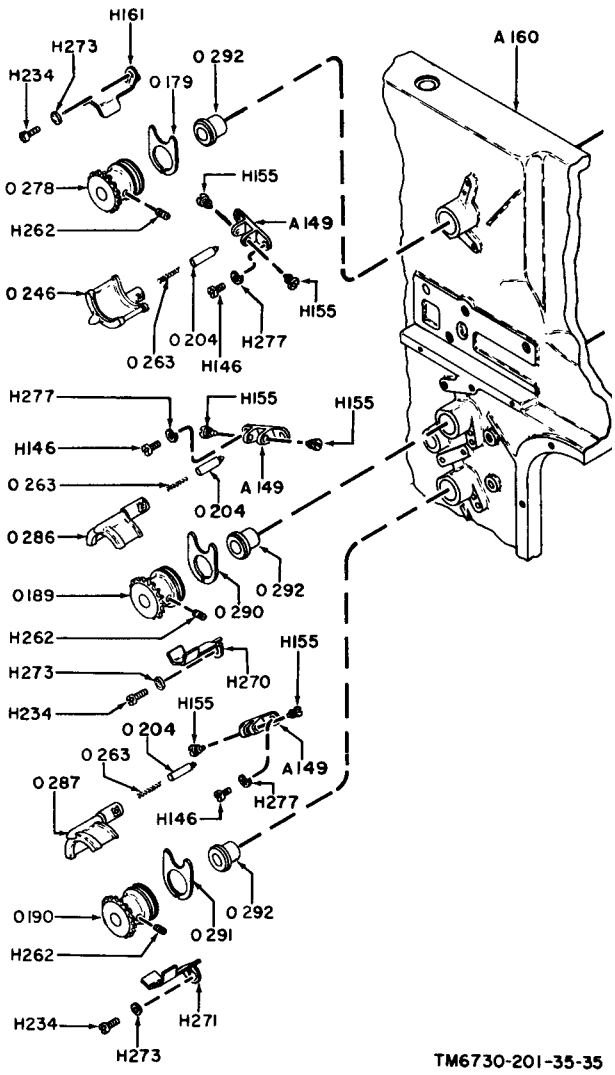
To disassemble *(a* below), reassemble *(b* below) and adjust *(c* below) the feed reel arm, proceed as follows:

a. Disassembly.

(1) Remove spring belt 0119 from pulley 0183 of arm 0103.

(2) Remove thumbscrew H158.

(3) Remove capnut H119, hexagonal nut H124, and spring 0261.



A149 Mounting
H146 Machine screw
H155 Pivot screw
H161 Film stripper
H234 Machine screw
H262 Setscrew
H270 Film stripper
H271 Film stripper
H273 Lockwasher
H277 Lockwasher
0179 Stop plate
0189 Film sprocket
0190 Film sprocket
0204 Locking rod
0246 Film shoe

Figure 4-6. Film sprockets and associated items, exploded view.

0263 Spring
0278 Film sprocket
0286 Film shoe
0287 Film shoe
0290 Stop plate
0291 Stop plate
0292 Sleeve bearing

Figure 4-6—Continued.

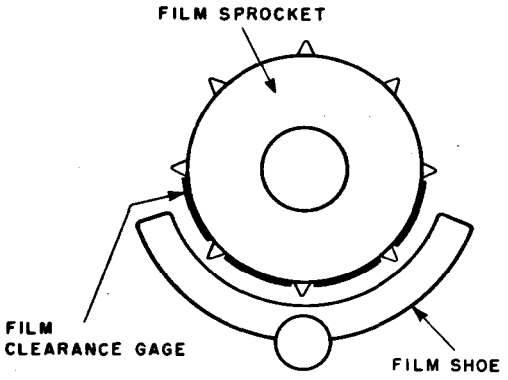


Figure 4-7. Film clearance gage position.

(4) Use a small pin punch to remove pin H139.
(5) Remove clutch 0137 and clutch plate 0173.
(6) Remove washer H193.

Note: Bearings 0293 and 0295 are press fitted and should not be removed unless defective.

(7) Remove pulley 0183 from arm 0103.
(8) Remove washer H193 from pulley 0183.
(9) Separate pulley 0183 from spindle 0254 and remove washer H172.

b. Reassembly. Refer to paragraph *4-4d* for information on parts to be lubricated during reassembly; then proceed as follows:

(1) Place washer H172 around the outer portion of spindle 0254.
(2) Place the shaft of spindle 0254 through pulley 0183.
(3) Place washer H193 on pulley 0183.

Figure 4–8. Sprocket and shuttle synchronize gage in position.

(4) Insert pulley 0183 through bearings 0293 on arm 0103.
(5) Place washer H193 and clutch plate 0173 on the portion of pulley 0183 that is protruding through arm 0103. Rotate clutch plate 0173 slightly to seat it on the spindle.
(6) Place clutch 0254 on the spindle and secure it by replacing pin H139 through the slot in the clutch and the hole in the spindle.
(7) Replace spring 0261 and hexagonal nut H124. Do not tighten the hexagonal nut.
(8) Replace capnut H119. Do not tighten the capnut.
(9) Replace thumbscrew H158 and remount the feed reel arm in position on the projector.
(l0) Replace spring belt 0119 on pulley 0183.
(11) Adjust the friction clutch (c below).

c. Adjustment (fig. 4–10). The feed reel arm friction clutch should be adjusted to prevent the feed reel overrunning during projection. Proceed as follows:

(1) Make sure that the rewind knob is out (disengaged).
(2) Place an empty reel on the feed reel arm. Wind approximately 10 feet of film on the reel.
(3) Use a 0– to 2–pound weighing scale hooked to a film sprocket hole, and measure the pull required to pull the film off the reel.
(4) Loosen the capnut.
(5) Adjust the hexagonal nut to obtain a 1-to 3-ounce pull.
(6) Tighten the capnut.

4-11. Takeup Reel Arm

(fig. 4-9)

To disassemble *(a* below), reassemble *(b* below), and adjust *(c* below) the takeup reel arm, proceed as follows:

a. Disassembly.

(1) Remove spring belt 0118 from pulley 0182 of arm 0102.
(2) Remove thumbscrew H157.
(3) Remove capnut H118.
(4) Remove hexagonal nut H123 with spring 0260.
(5) Use a small pin punch to remove pin H228.
(6) Remove thrust plate 0180.

Note: Bearings 0294 and 0296 are press fitted and should not be removed unless defective.

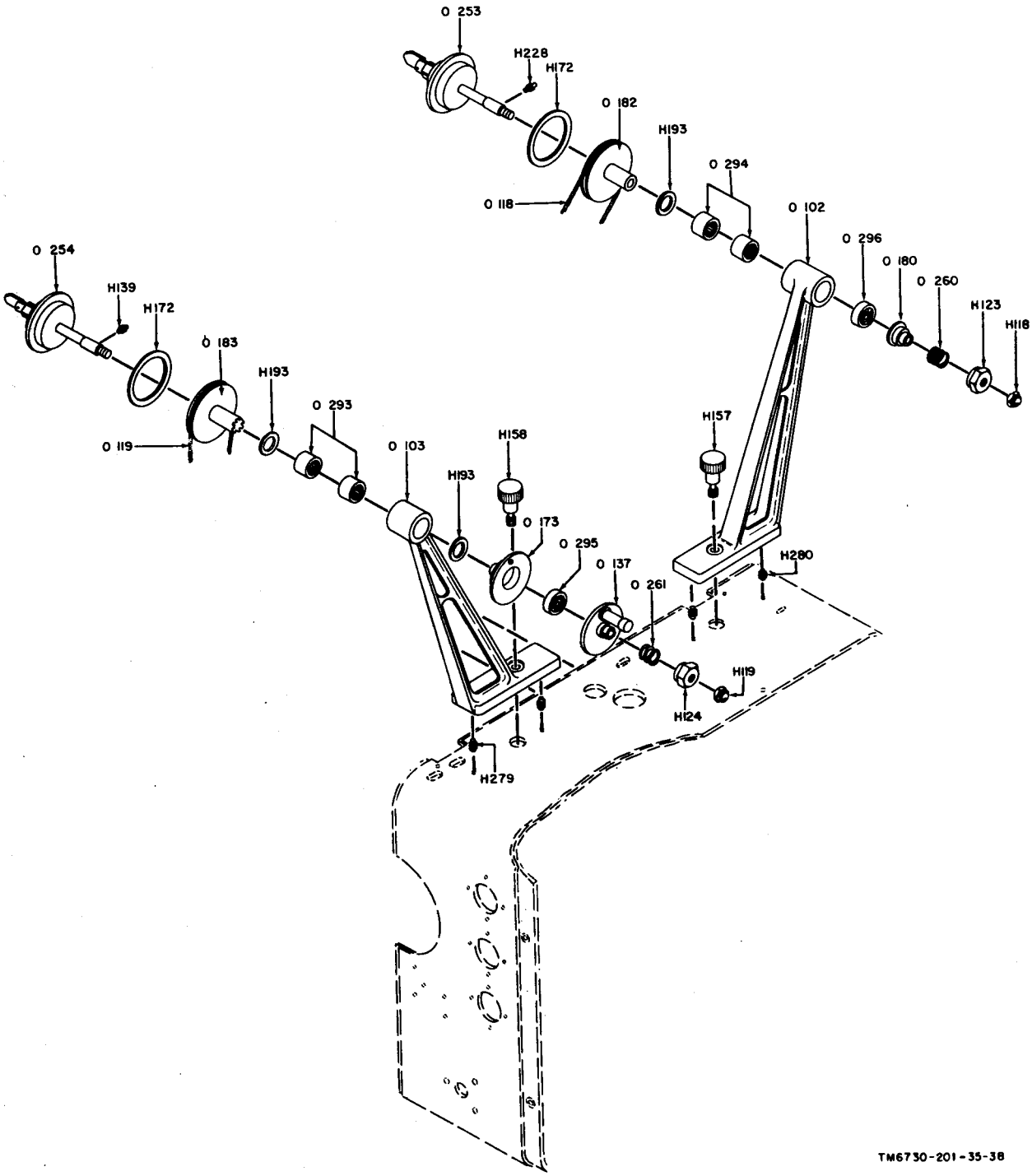
(7) Remove pulley 0182 from arm 0102.
(8) Remove washer H193 from pulley 0182.
(9) Separate pulley 0182 from spindle 0253 and remove washer H172.

b. Reassembly. Refer to paragraph *4-4d* for information on the parts to be lubricated during reassembly; then proceed as follows:

(1) Place washer H172 around outer portion of spindle 0253.
(2) Place shaft of spindle 0253 through pulley 0182.
(3) Place washer H193 on pulley 0182.
(4) Insert pulley 0182 through bearings 0294 in arm 0102.
(5) Place thrust plate 0180 on the portion of spindle 0253 protruding from arm 0102, and secure it by replacing pin H228 through the slot in the thrust plate and the hole in the spindle.
(6) Replace spring 0260 and hexagonal nut H123. Do not tighten the hexagonal nut.
(7) Replace capnut H118. Do not tighten the capnut.
(8) Replace thumbscrew H157 and remount the takeup reel arm in position on the projector.
(9) Replace spring belt 0118 on pulley 0182.
(l0) Adjust the friction clutch *(c* below).

c. Adjustment (fig. 4–10). The takeup reel arm friction clutch should be adjusted to take up film without forcing. Proceed as follows:

(1) Place an empty reel on the takeup reel arm. Wind approximately 10 feet of film on the reel.



H118 Capnut	H124 Hexagonal nut	H158 Thumbscrew
H119 Capnut	H139 Pin	H172 Washer
H123 Hexagonal nut	H157 Thumbscrew	H193 Washer

Figure 4-9. Feed reel arm and takeup reel arm, exploded view.

H228 Pin
0102 Arm
0103 Arm
0137 Clutch
0173 Clutch
0180 Thrust plate
0182 Pulley
0183 Pulley
0253 Spindle
0254 Spindle
0260 Spring
0261 Spring
0293 Bearing
0294 Bearing
0295 Bearing
0296 Bearing

Figure 4-9-Continued.

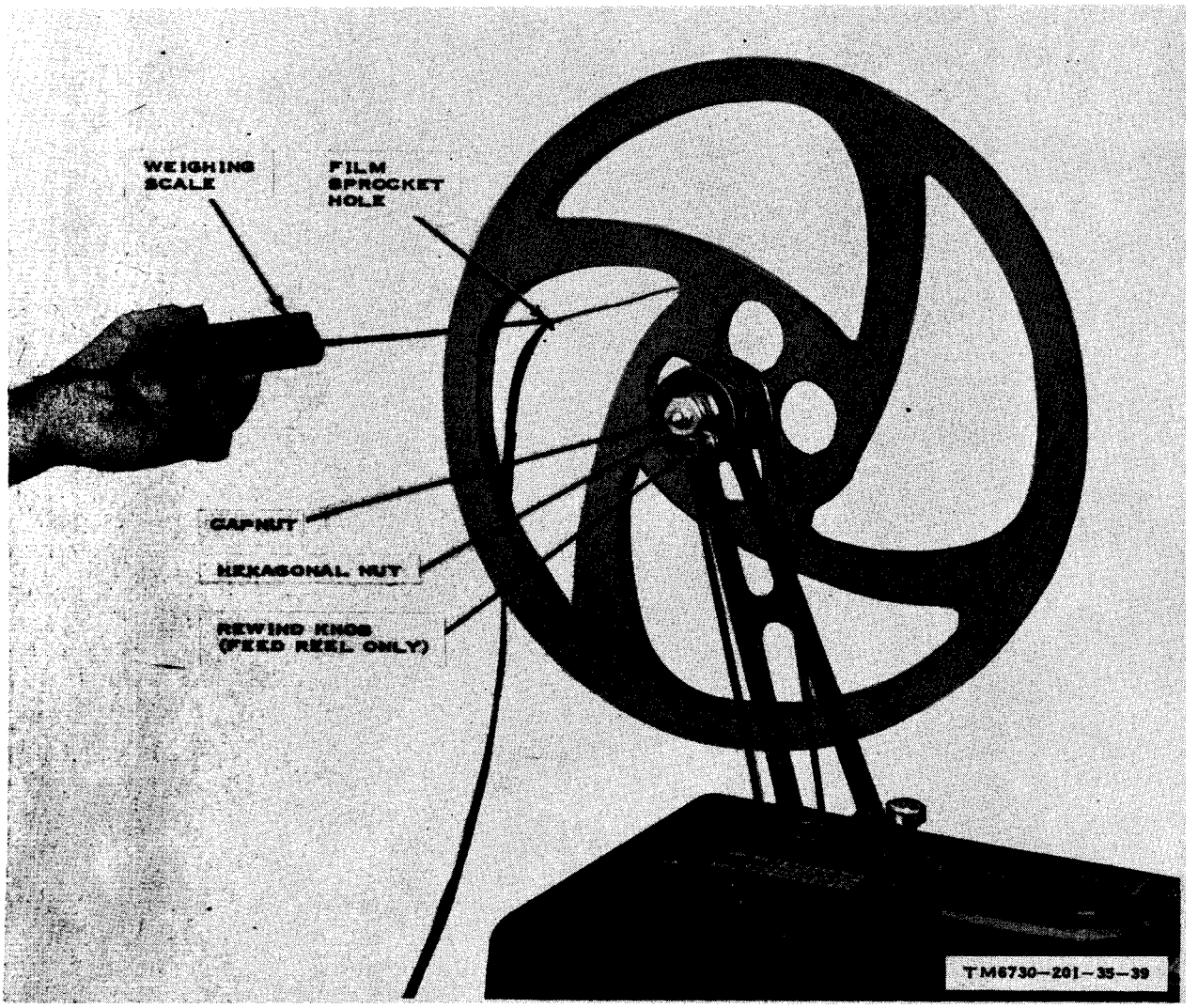


Figure 4-10. Adjustment talceup or feed reel arm friction clutch.

(2) Use a 0- to 2-pound weighing scale hooked to a film sprocket hole, and measure the pull required to pull the film off the reel.

(3) Loosen the capnut.

(4) Adjust the hexagonal nut to obtain a 3- to 5-ounce pull.

(5) Tighten the capnut.

4-12. Takeup and Rewind Drive Pulleys (fig. 4-11)

To repair the takeup drive pulley *(a* below) or the rewind drive pulley *(b* below), proceed as follows:

a. Takeup Drive Pulley.

(1) *Disassembly.*

(a) Remove locknut H129 and thrust washer H194.

(b) Place hand over pulley 0184, tip the projector, and remove pulley 0184 from the bottom while keeping it horizontal to avoid losing the clutch balls.

(c) Remove balls, 0115 and clutch plate 0174 from the recessed portion of pulley 0184.

Note: Bearing 0300 is press fitted and should not be removed unless defective.

(2) *Reassembly.*

(a) Place clutch plate 0174 in the recessed portion of pulley 0184. The bent portions (ears) of clutch plate 0174 should face down.

(b) Place one ball 0115 in each of the three openings at the bent portion of clutch plate 0174.

(c) Note the position of the pin on the flange of shaft 0230. The pin must engage the hole in clutch plate 0174 when pulley 0184 is replaced on shaft 0230.

(d) Hold pulley 0184 in an approximately horizontal position, tip the projector, and then place pulley 0184 on shaft 0230.

(e) Replace thrust washer H194 and locknut H129.

(f) Turn pulley 0184 with the finger to check the clutch action. The pulley should turn clockwise freely, but shoulld bind when turned counterclockwise.

b. Rewind Drive Pulley.

(1) *Disassembly.*

(a) Remove locknut H130 and thrust washer H195.

(b) Place hand over pulley 0185, tip the projector, and remove pulley 0185 from the bottom while keeping it horizontal to avoid losing the clutch balls.

(c) Remove balls 0114 and clutch plate 0175 (AQ-2A(1) and AQ-2A(2) only) from the recessed portion of pulley 0185.

Note: Bearing 0299 is press fitted and should not be removed unless defective.

(2) *Reassembly.*

(a) Place clutch plate 0175 in the recessed portion of pulley 0185.

(b) Place one ball 0114 in each of the openings at the bent portion of clutch plate 0175.

(c) Note the position of the pin on the flange of shaft 0231. The pin must engage the hole in clutch plate 0175 when pulley 0185 is replaced on shaft 0231.

(d) Hold pulley 0185 in an approximately horizontal position, tip the projector, and then place pulley 0185 on shaft 0231.

(e) Replace thrust washer H195 and locknut H130.

(f) Turn pulley 0185 with the finger to check the clutch action. It should turn counterclockwise freely, but should bind when turned clockwise.

4-13. Aperture Plate

To repair the aperture plate assembly, proceed as follows:

a. Removal.

(1) Turn the film gate lever (TM 11-6730-201–10) fully counterclockwise.

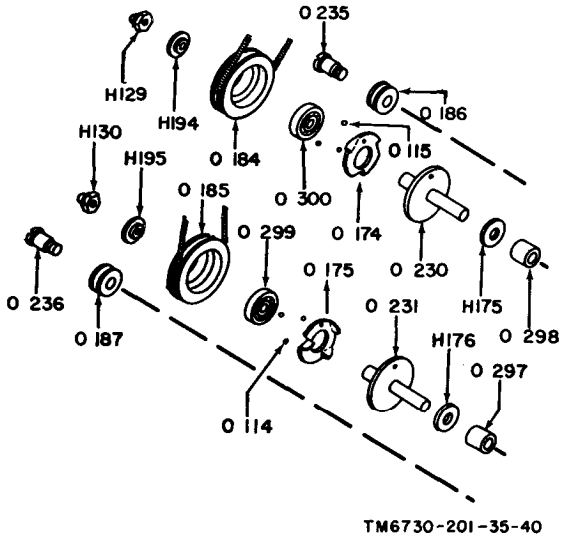
(2) Remove the pressure plate by grasping the handle and pulling straight out.

(3) Remove the aperture plate by grasping the handle and pulling up and to the right.

b. Disassembly (fig. 4-12).

(1) Remove screws H148.

(2) Be careful not to lose spring 0264; remove guide rail A170, spring 0264, and washers H174.



H129 Locknut
H130 Locknut
H194 Thrust washer
H195 Thrust washer
0114 Ball
0115 Ball
0174 Clutch plate
0175 Clutch plate (clutch plate MP401, spring MP402, and clutch cam MP403 on AQ–2A(3))
0184 Pulley
0185 Pulley
0187 Pulley (pulley MP404, bearing MP405, and screw H400 on AQ–2A(3))
0230 Shaft
0231 Shaft
0236 Shaft (AQ–2A(1) and AQ–2A(2) only)
0299 Bearing
0300 Bearing

Figure 4-11. Takeup and rewind drive pulleys, exploded view.

(3) Remove screws H147 and guide rail A163.

c. Inspection and Repair.

(1) Inspect the sapphire inserts in guide rail A170 and guide rail A163. Replace the guide rail having rough or chipped sapphire inserts.

(2) Inspect aperture plate A114 for scratches or nicks on the film travel surface. Remove minor defects with crocus cloth. Replace aperture plate if major defects exist.

(3) Inspect spring 0264 for distortion. The shape should be as shown in figure 4-12. Replace if defective.

d. Reassembly.

(1) Replace guide rail A163 and replace, but do not tighten screws H147.

(2) Place the aperture and shuttle tooth gage on aperture plate A114 (fig. 4–13),

(3) Press and hold guide rail A163 against the aperture and shuttle tooth gage, and then tighten screws H147.

(4) Insert screws H148 (fig. 4-12) through the holes in guide rail A170, and then place washers H174 on screws H148.

(5) Position the guide rail, washers, and screws ((4) above) on aperture plate A114 and secure them by tightening screws H148. Guide rail A170 should move sideways freely after screws H148 are tightened.

(6) To replace spring 0264, proceed as follows:

(a) Turn aperture plate A114 over to expose the underside.

(b) Press the ends of spring 0264 together to spread the center portion, and slip the center portion over the stud on the underside of guide rail A170.

(c) Rotate the spring on the stud until the spring ends point outward; then hook each spring end into its slot on the underside of aperture plate A114.

(d) Check the action of guide rail A170. It should move sideways freely with the spring tension exerting pressure toward the film travel surface.

4-14. Projection Lens Assembly

(fig. 4-14)

a. Disassembly.

(1) Remove two H231 mounting screws that secure stop plate A227 to lens holder mounting A219, and lift off the stop plate.

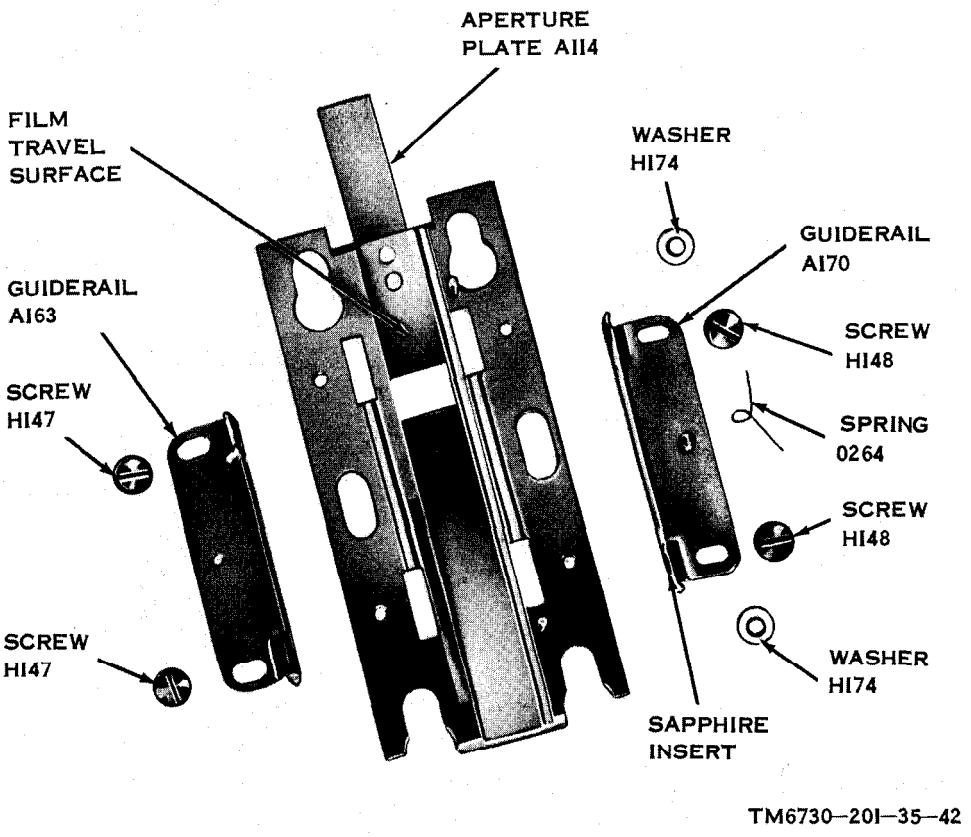


Figure 4-12. Aperture plate, disassembled

(2) the lens carriage slowly off the lens holder mounting. Be careful not to lose friction button H102 and spring 0270 located in a recess in the mounting.

(3) Remove three H318 screws that mount the projection lens assembly to the projector casting, and remove the entire assembly from the projector.

(4) To remove pressure plate holder assembly 0347, first unscrew hexagon nut H118 and remove arm H312, collar 0344, and spring 0356 from lens holder mounting H219.

(5) Remove focusing knob E122 by loosening setscrew H260, located in the milled portion of the knob. Slide curved washer H190 off the end of focusing pinion 0228. Unscrew knob E210 from rod 0353. Unscrew two machine screws H221 and lockwashers H274 from the projection lens assembly housing, and remove side rail A224. Carefully remove spring 0355, rod 0353, and focusing pinion 0228 from the lens holder mounting.

(6) Unscrew two machine screws H221 and lockwashers H274 from the bottom of the lens holder mounting; remove plate H313 and spring 0352.

(7) Remove two mounting screws H319 from the projection lens housing, and remove rack 0381.

b. Inspection.

(1) Clean all parts thoroughly; remove all traces of oil or grease deposits.

(2) Inspect lens lockscrew H105; the fiber button must be in good condition.

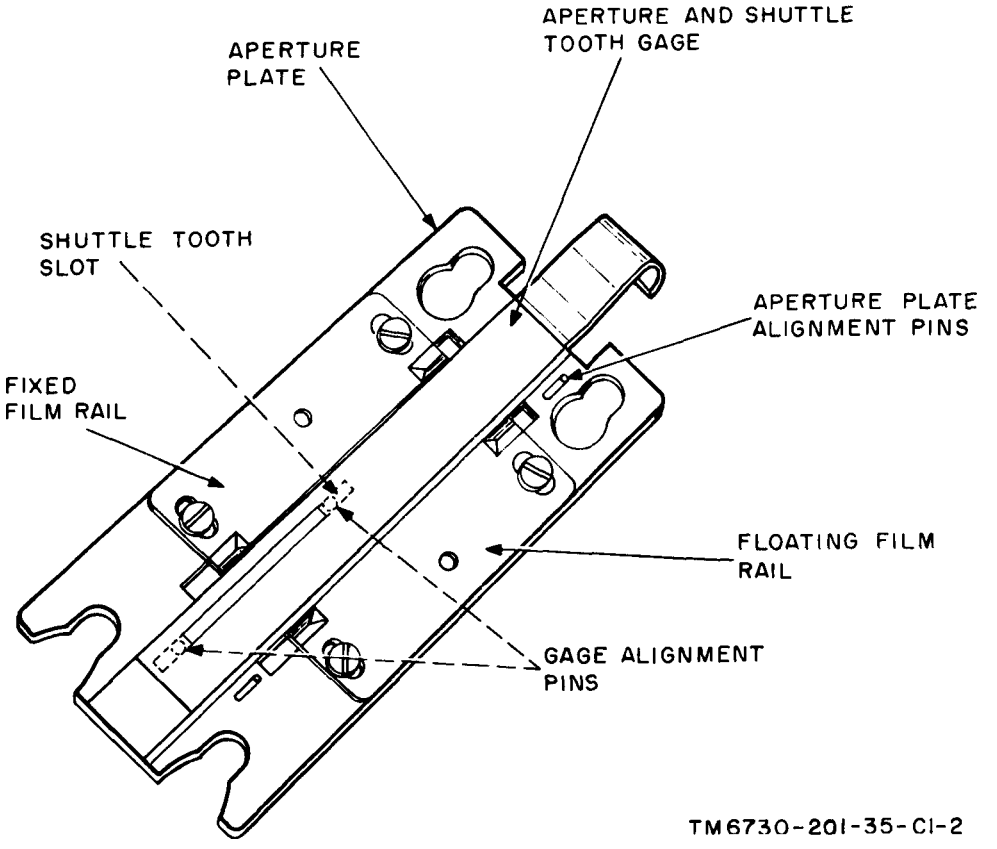


Figure 4-13. Aperture and shuttle tooth gage in position.

(3) Inspect focusing rack 0381 for broken teeth. If any teeth are broken, replace with a new focusing rack.
(4) Check the machined surface of lens carriage A155 for excessive wear. If worn unevenly, replace.
(5) Inspect the focusing pinion 0228 for worn or broken teeth. Replace if any teeth are excessively worn or broken.
(6) Inspect the projection lens assembly for uneven surfaces. File rough surfaces to smooth level.
(7) Inspect machine screws H231; these must fit tightly.

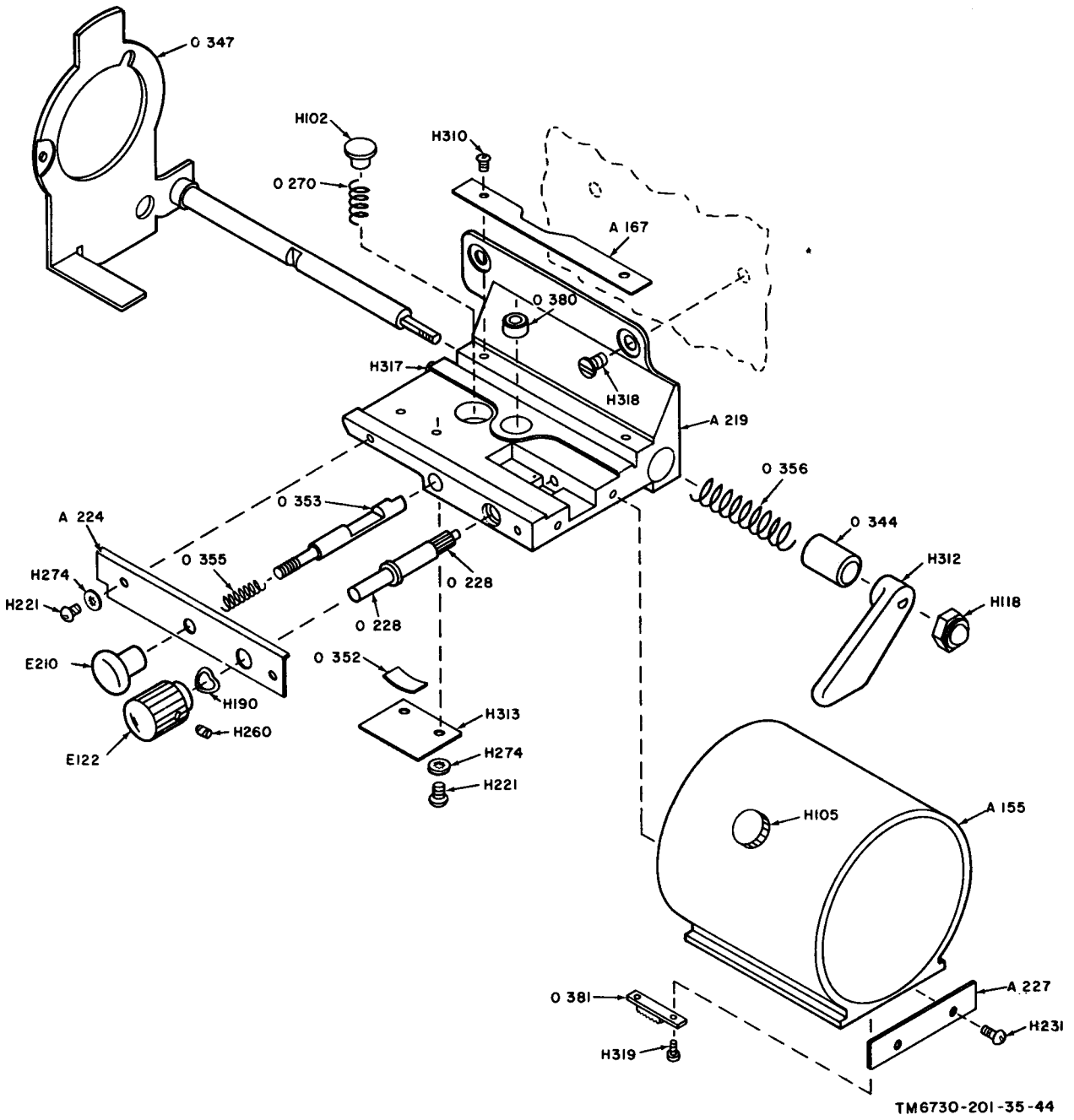
c. Reassembly. Reverse the disassembly procedure *(a* above).

4-15. Loopsetter

To disassemble, repair, and reassemble the loopsetter positioning assembly *(a* below) and the loopsetter roller assembly *(b* below), proceed as follows:

a. Loopsetter Positioning Assembly.

(1) Remove the loopsetter positioning assembly from the projector by removing the screws that mount it (fig. 3-3).
(2) Loosen the setscrew ((1), fig. 4–15).
(3) Remove the screw (2) from the collar (3) to free the lever (4), the plunger (5), and the spring (6).
(4) Pull the adjustment rod (7) and the spring (8) from the housing (9).



A155	Lens carriage	H105	Lens lockscrew	H312	Arm	0352	Spring
A167	Rail	H118	Nut, hexagon	H313	Plate	0353	Rod
A219	Mounting, lens holder	H190	Washer, curved	H317	Pin, drive	0355	Spring
A224	Rail	H221	Screw, machine	H318	Screw, machine	0356	Spring
A227	Plate, stop	H231	Screw, machine	0228	Pinion, focusing	0381	Rack
E122	Knob, focusing	H260	Screw, set	0270	Spring		
E210	Knob	H274	Lockwasher	0344	Collar		
H102	Friction button	H310	Screw, machine	0347	Plate, pressure		

Figure 4-14. Projection lens assembly, exploded view.

(5) Clean and inspect all the removed parts. Replace the defective parts. Apply a light coating of grease (GL) to all parts to be reassembled.

(6) Reassemble the loopsetter positioning assembly by reversing the procedures in (1) through (4) above.

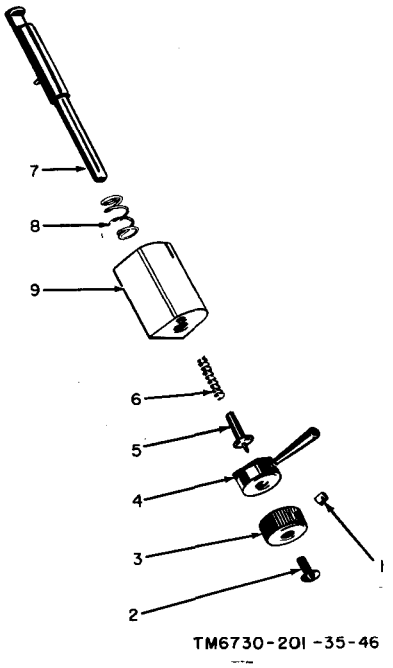
b. Loopsetter Roller Assembly.

(1) Unscrew knurled knob H159 (fig. 4-16).

(2) Remove roller 0223 from the shaft.

(3) Clean and inspect the parts. Apply 1 drop of oil (2135) to the shaft.

(4) Replace roller 0223 on the shaft and secure it with knurled knob H159.



1 Setscrew
2 Screw
3 Collar
4 Lever
5 Plunger
6 Spring
7 Adjustment rod
8 Spring
9 Housing

Figure 4-15. Loopsetter positioning assembly, exploded view.

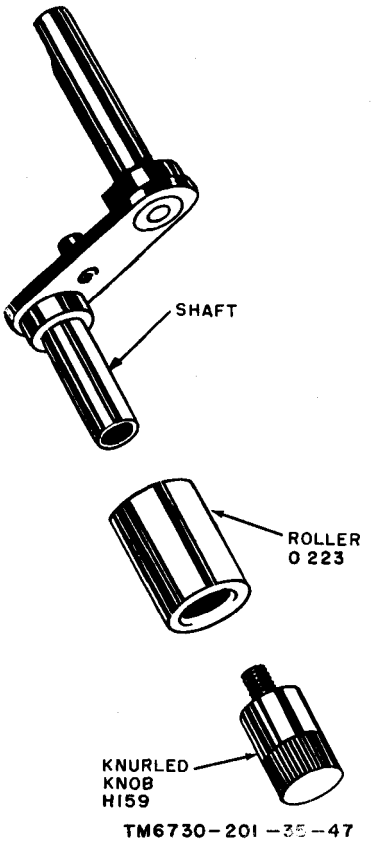


Figure 4-16. Loopsetter roller assembly, exploded view.

4-16. Switch Panel Assembly

Before replacing switch S102, switch S103, or switch S105 *(c* through *e* below), remove the switch panel assembly (a(1). through (4) below). Before replacing lampholder J108 or socket J104 *(f* and *g* below), remove the switch panel assembly *(a(* 1) through (4)) and plate E126 *(b(1)* through (5) below).

a. Switch Panel Assembly. Remove the switch panel assembly to provide better access to the components to be replaced. Proceed as follows :

(1) Remove the screws, the lockwashers, and the rear cover from the projector.

(2) Remove the remaining screws that hold the switch panel assembly.

(3) Disconnect connector P101 from socket J104.

(4) Pull the switch panel assembly away from the projector cabinet.

(5) After repairs are completed (c through *g* below), replace the switch panel assembly by reversing the procedures in (1) through (4) above.

b. Plate E126 (fig. 4-17). Remove plate E126 before performing the procedures outlined in *f* and *g* below. Proceed as follows:

(1) Unscrew and remove the lampshade (part of J108).

(2) Remove nut H326 from switch S102.

(3) Loosen setscrew H327 (AQ-2A(1) and AQ–2A (2) only) and remove knob. E119. On AQ–2A (3), remove screw in center of knob. Remove nut H329 from switch S103.

(4) Remove nut H328 from switch S105.

(5) Remove plate E126.

(6) After repairs are completed *(f* and *g* below), replace plate E126 by reversing the procedures in (1) through (5) above.

c. Switch S1 02. To replace switch S102, proceed as follows:

(1) Remove nut H326.

(2) Remove switch S102. and lockwasher H275 from the switch panel assembly.

(3) Mark and disconnect the leads from switch S102.

(4) Connect the leads to replacement switch S102.

(5) Install replacement switch S102 by reversing the procedures in (1) and (2) above.

d. Switch S103. To replace switch S103, proceed as follows:

(1) Loosen setscrew H327 and remove knob E119.

(2) Remove nut H329.

(3) Pull out switch S103 and lockwasher H275 from the switch panel assembly.

(4) Mark and disconnect the leads from switch S103.

(5) Connect the leads to replacement switch S103.

(6) Install replacement switch S103 by reversing the procedures in (1)

e. Switch S105. To replace switch S105, proceed as follows:

(1) Remove nut H328.

(2) Remove switch S105.

(3) Mark and disconnect the leads from switch S105.

(4) Connect the leads to replacement switch S105.

(5) Install replacement switch S105 by reversing the procedures in (1) and (2) above.

f. Lampholder *JI08.* To replace lampholder J108 proceed as follows:

(1) Remove lamp E104 from lampholder J108.

(2) Remove nuts H21, washers H274, and bracket A108; then pull lamp holder J108 from the switch panel assembly.

(3) Mark and disconnect the leads from lampholder J108.

(4) Connect the leads to replacement Iampholder J108.

(5) Install replacement lampholder J108 by reversing the procedure in (1) through (4) above.

g. Socket JI04. To replace socket J104, proceed as follows:

(1) Remove nuts H197 and lockwasher H267.

(2) Remove screws H217 and spacers 0131.

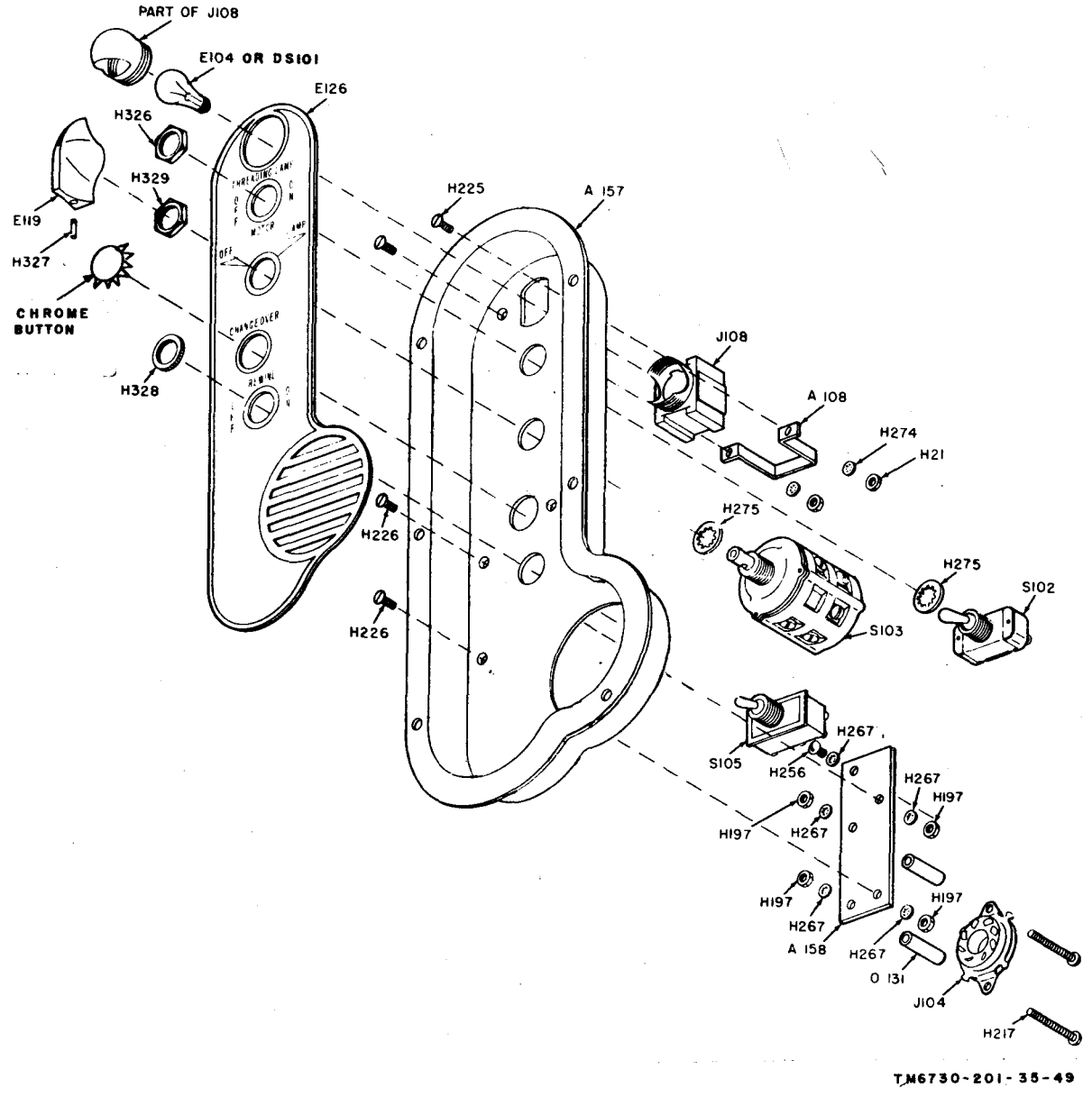
(3) Remove screw H226, nut H197, and lockwasher H267.

(4) Remove socket J104.

(5) Mark and disconnect the leads from socket J104.

(6) Connect the leads to replacement socket J104.

(7) Install replacement socket J104 by reversing the procedures in (1) through (4) above.



A108 Bracket	H197 Nut	H328 Nut
A157 Plate	H217 Screw	H329 Nut
A158 Plate	H225 Screw	J104 Socket
E104 Lamp	H226 Screw	J108 Lampholder
or	H267 Lockwasher	0131 Spacer
DS101	H274 Lockwasher	S102 Switch
E119 Knob	H275 Lockwasher	S103 Switch
E126 Plate	H326 Nut	S105 Switch
H21 Nut	H327 Setscrew	

Figure 4-17. Projector switch panel *assembly, exploded view.*

4-17. Proiector Motor Repairs

Direct support maintenance of motor B101 consists of replacement of the motor and motor brushes *(a* below), and the governor and governor brushes *(b* below). Complete disassembly of motor B101 is performed at the general support maintenance level.

a. Motor and *Motor Brushes.* To remove and replace motor B101 or brushes E111, proceed as follows:

(1) *Removal.*

(a) Remove the screws and the rear cover.

(b) Disconnect connector P101 from receptacle J104 (fig. 3–2).

(c) Loosen the setscrew and remove the THREADING KNOB (fig. 4-1).

(d) Open the lamp housing cover; support motor B101 (fig. 3–2) with one hand and remove the projector motor mounting screws (fig. 4-1) with the other.

(e) Lift motor B101 slightly, disengage silent chain H106 (fig. 3–2), and remove motor B101.

(f) Remove electrical caps 0122 and brushes E111 (fig. 5–1).

(2) *Inspection.* Inspect brushes E111 for broken springs or excessive wear. Replace brushes that are less than three-eighths of an inch long.

(3) *Replacement.*

(a) Replace brushes E111 so that the concave side of the brush matches the curve of the armature.

(b) Compress the brush springs and secure with caps 0122.

(c) Place the motor with the THREADING KNOB shaft through the hole and engage the sprocket with the drive chain.

(d) Align the screw holes and replace the projector motor mounting screws.

Note: The threading knob should be replaced so that the words are right side up when the shuttle teeth are at the point of maximum protrusion.

(e) Replace the THREADING KNOB and tighten the setscrews.

(f) Connect P101 to receptacle J104.

(g) Replace the rear cover and secure it with the screws.

b. Governor and Governor Brushes. To remove and replace governor 0156 or brushes E117, proceed as fofiows:

(1) *Removal.*

(a) Remove the motor *(a(1) (a)* through *a(1) (e)* above).

(b) Loosen the setscrews (fig. 4-18) and remove the governor.

(c) Carefully remove the brushes and springs from the brush holders.

(2) *Inspection.*

(a) Check the governor sliprings for excessive wear, pitting, or evidence of shorting. Replace the governor if defective.

(b) Check the brushes for broken springs, broken pigtails, and excessive wear. Replace brushes that are defective or are less than three-sixteenths of an inch long.

(3) *Replacement.*

(a) Replace the governor brushes, spring first, into the brush holders.

(b) Place the governor on the shaft, position it one-sixteenth of an inch from the brush holders, and tighten the setscrews.

(c) Replace the motor *(a(3)(c)* through *a(3) (g)* above).

4-18. Ventilation Motor Brushes

(fig. 3-2)

Direct support maintenance of motor B102 (ventilation motor) consists of replacement of the brushes. Complete disassembly of motor B102 is performed at the general support maintenance level. To replace the brushes, proceed as follows:

a. Remove the screws and the rear cover.

b. Unscrew and remove the brush caps from motor B102.

c. Remove the brushes and springs.

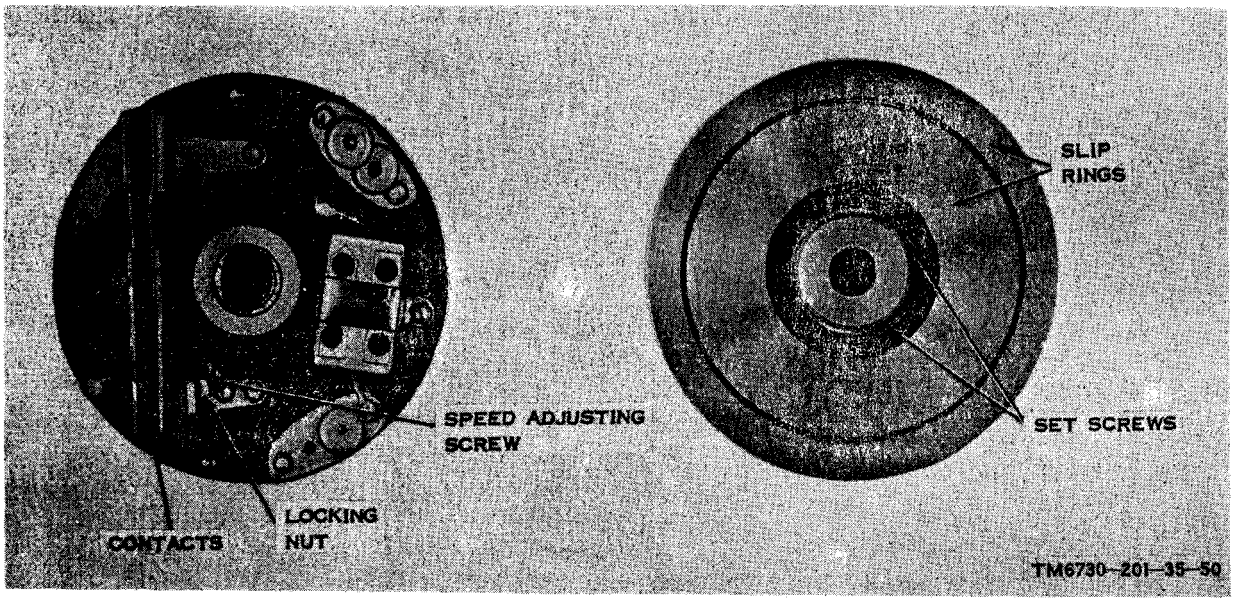


Figure 4–18. Drive motor governor.

d. Install the replacement brushes and springs so that the concave side of the brush matches the curve of the armature.

e. Compress the springs and replace the brush caps.

4-19. Fuseholder

To replace projector fuseholder E101, proceed as follows:

a. Remove the screws and the rear cover.

b. Remove the screws, the lockwashers, and the fuse compartment cover.

c. Mark and disconnect the lead from the fuseholder.

d. Remove the hexagonal nut and the lockwasher, and remove the fuseholder from the top of the projector case.

e. Install the replacement fuseholder through the top of the projector case and secure it with the lockwasher and the hexagonal nut.

f. Connect the leads to the replacement fuseholder.

g. Replace the fuse compartment cover and secure it with the screws and the lockwashers.

h. Replace the rear cover and secure it with the screws.

4-20. Power Connector

To replace connector J103, proceed as follows:

a. Remove the screws and the rear cover.

b. Remove the screws, the lockwashers, and the fuse compartment cover.

c. Remove the nuts and the lockwashers, and pull the defective connector from the projector.

d. Slide the insulating sleeves up each lead of the receptacle.

e. Mark and disconnect the leads from the core.

f. To install the replacement connector, reverse the procedures in *a* through *e* above.

4-21. Photoelectric Cell

Direct support maintenance of the projector soundhead consists of replacement of the photoelectric cell. Complete disassembly of the soundhead is performed at general support maintenance level. To remove *(a* below) and replace *(b* below) photoelectric cell V101 or Y101 (fig. 4–19), proceed as follows:

a. Removal.

(1) Remove the screws and the ear cover.

(2) Remove the flywheel nut (fig. 3-2).
(3) Remove the screws from plate A162 (fig. 4-19).

Note: Before removing the flywheel, make pencil index marks on the flywheel hub and shaft so that the flywheel may be replaced in the same position on the shaft when reassembled.

(4) Carefully slip the flywheel off its shaft and pull plate A162 out of the projector.
(5) Loosen the thumbscrew and remove cover A119 (not shown) from terminal board E109.
(6) Disconnect the leads of photoelectric cell V101 or Y101 from terminal board E109.
(7) Remove machine screws H221 and remove the photoelectric cell and the bracket.

b. Replacement.

(1) Position the replacement photoelectric cell with the rectangular opening of the bracket down, and secure it with machine screws H221.
(2) Connect the leads to terminal board E109.
(3) Replace cover A119 on terminal E109, and secure it with the thumbscrew.
(4) Carefully position plate A162, and replace the flywheel on the shaft so that the index marks line up.
(5) Replace the screws to secure plate A162.
(6) Replace the flywheel nut.
(7) Check to be sure that the flat surface of the grounding spring is against the raised tip of the flywheel nut.
(8) Replace the rear cover and secure it with the screws.

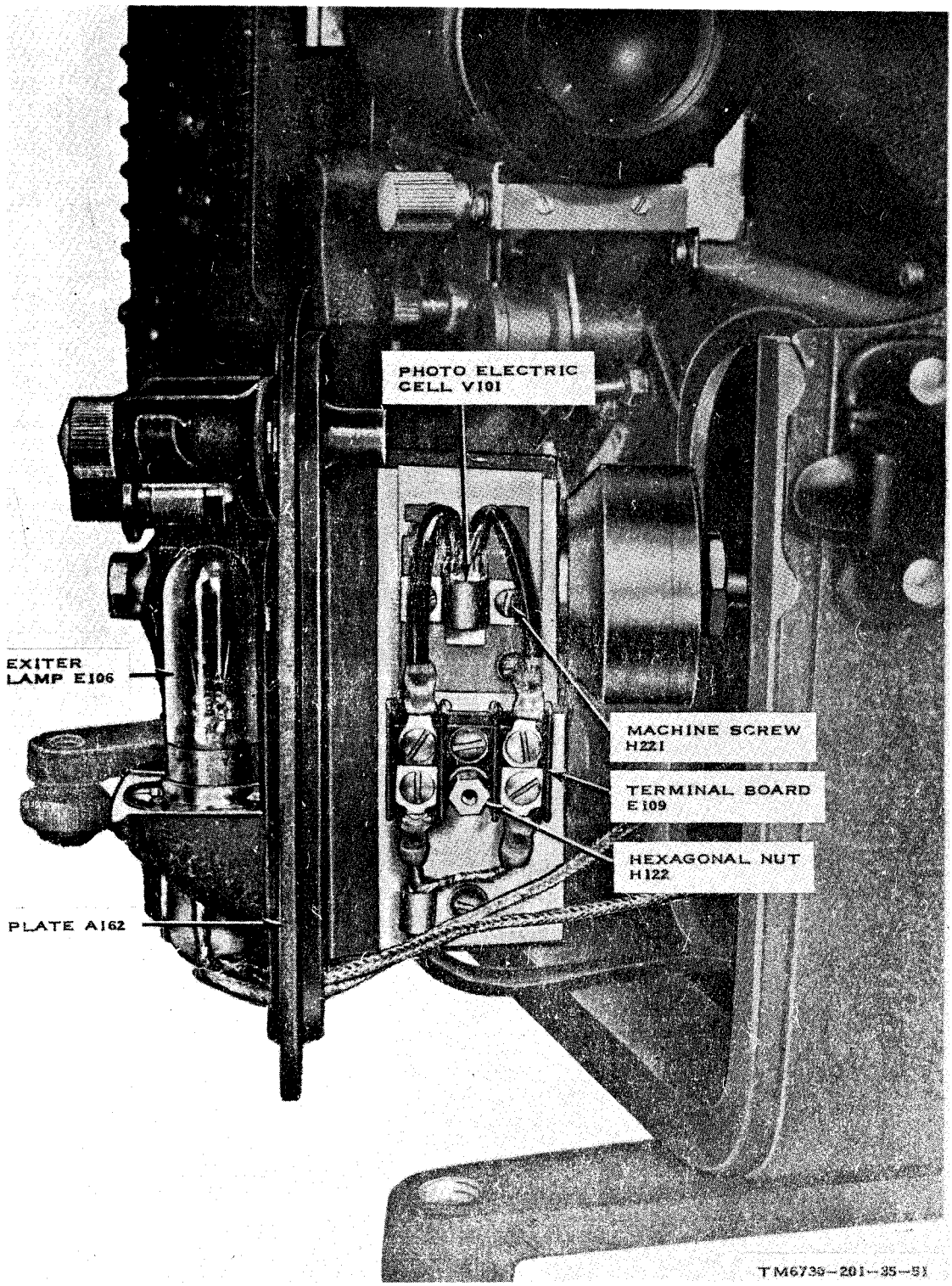


Figure 4-19. Plate A119 removed, showing photoelectric cell.

Section III. PROJECTOR AMPLIFIER REPAIRS

Warning: Be extremely careful when working on the projector amplifier; voltages as high as 280 volts exist in this circuit.

4-22. General Parts Replacement Techniques

Most of the components of the amplifier can be reached by removing the amplifier tube grill and loudspeaker panel (fig. 3–6) and do not require special procedures; however, the following precaution should be observed:

a. When soldering or unsoldering resistors, use a heat, sink (such as long-nosed pliers) between the resistor and the solder joint.

b. When replacing components in the exciter lamp power supply, refer to the procedures in paragraph 4-23.

4-23. Exciter Lamp Power Supply Repair

To replace the components in the exciter lamp power supply, proceed as follows:

a. Remove the loudspeaker panel and the amplifier tube grill (fig. 3–6) from the projector housing.

b. Unsolder defective component and remove it from the rf oscillator section.

c. Remount and solder replacement component.

d. Check operation of rf oscillator circuit.

e. Replace loudspeaker panel and amplifier tube grill.

CHAPTER 5

GENERAL SUPPORT REPAIR

5-1. Proiector Motor

To remove *(a* below), disassemble *(b* below), inspect and repair *(c* below), reassemble *(d* below), replace *(e* below), and adjust *(f* below) projector motor B101, proceed as follows:

a. Removal. To remove the projector motor, perform the procedures outlined in paragraph 4-17a(1) *(a)* through *(e).*

b. Disassembly (fig. 5-1).

(1) Loosen the setscrew and remove flexible coupling 0135 with chain sprocket 0274.

(2) Loosen the setscrew and remove chain sprocket 0274 from flexible coupling 0135.

(3) Remove machine screws H222, lockwashers H274, and cover A120.

(4) Sleeve bearing 0318 is press fitted; remove only if defective.

(5) Remove gear 0145.

(6) Sleeve bearing 0317 is press fitted; remove only if defective.

(7) Note the position of machine screws H223, which are binder head screws. These screws are used because of the chain clearance required, Remove all machine screws H223, lockwashers H254, and housing A131.

(8) Remove machine screws H224, lockwashers H265, machine screws H253, lockwashers H265, and mounting A146.

(9) Remove machine screw H210, lockwasher H268, and wiring assembly W108.

(l0) Remove electrical caps 0122 and lift out brushes E111.

(11) Loosen setscrews H261 and remove motor governor 0156 and brushes E117.

(12) Remove machine screws H241 and lockwashers H283 from housing A133. Carefully pull housing A133 straight out to remove it.

(13) Pull motor assembly armature E114 straight out to remove it. Be careful not to lose spring tension washers H189.

(14) Ball bearings 0309 and 0310 are press fitted; remove only if defective.

(15) Remove machine screws H145 and lockwashers H254, and carefully pull out motor stator 0279 from housing A132. Mark and unsolder the connections, and then remove motor stator 0279.

(16) Remove stove bolt H196, locknut H128, extruded washers H169, and resistor R104.

(17) Remove machine screws H117, lockwashers H267, and capacitor C109.

(18) Remove machine screws H207, lockwashers H108, and bracket A104.

a. Inspection and Repair.

(1) *Housings.* Examine housings A131, A132, and A133 for defects. Check the seating of ball bearings 0309 and 0310 in the recesses at the ends of housings A132 and A133. A loose or sloppy fit at these points will cause noise and harmful vibration in the motor.

(2) *Stator.* Use Electronic Multimeter TS–505A/U to check motor stator 0279 coils for continuity.

(3) *Armature.* Check the armature for short circuits; inspect the winding of the armature for signs of burning, charring, or serious nicks and breaks. Check the commutator for excessive

wear. A badly worn commutator can cause excessive sparking at the brushes and loss of output power.

(4) *Brushes.* Check brushes E111. Replace brushes that are shorter than three-eighths of an inch long. Replace brushes that have broken or frayed pigtails.

(5) *Governor.* Check the sliprings on the back of motor governor 0156 for indication of a permanent open or short. The resistance on the meter should read 0. Open the contacts of the motor governor with the finger; the resistance now should be infinite. Examine the sliprings for nicks or dents. Check the motor governor brushes for broken springs, broken pigtails, and excessive wear. If any springs or pigtails are broken, or if the brushes are less than three-sixteenths of an inch long, replace the brushes.

(6) *Capacitor and resistor.* Check capacitor C109 with Voltmeter, Meter ME-30A/U for leaks and shorts. Use Electronic Multimeter TS-505 A/U to check resistor R104 for proper resistance value.

d. Reassembly.

(1) Replace bracket A104 anld secure it with machine screws H207 and lockwashers H108.

(2) Replace capacitor C109 and secure it with screws H117 and lockwashers H267.

(3) Replace resistor R104 and washers H169 and secure with stove bolt H196 and locknut H128.

(4) Resolder the leads to resistor R104; then position motor stator 0279 in housing A132 and secure with machine screws H145 and lockwashers H254.

(5) Place the two spring tension washers H189 together, and position them with the prongs facing outward on the bearing recess inside housing A132.

(6) Apply a light coating of grease (GAA) to the outside of ball bearings 0309 and 0310 on motor assembly armature E114. Insert armature E114 into housing A132 so that bearing 0310 presses against spring washers H189.

(7) Place housing A133 over ball bearing 0309 and against housing A132. Turn housing A133 to align the screw holes, and then secure with machine screws H241 and lockwashers H283.

(8) Turn the armature shaft. It must turn freely with an endplay not exceeding 0.008 inch.

(9) Replace mounting A146 and secure it with machine screws H224, lockwashers H265, machine screws H253, and lockwashers H265.

(l0) Fill housing A131 approximately one-third with grease (GAA). Place 4 drops of oil (2135) on sleeve bearing 0317 and 4 drops on sleeve bearing 0318.

(11) Position housing A131 on housing A133 and secure with machine screws H223 and lockwashers H254.

(12) Place gear 0145 inside housing A131 with its longer shaft through sleeve bearing 0317. Mesh gear 0145 with worn gear 0322.

(13) Position cover A120 on housing A131 and secure it with machine screws H222 and lockwashers H274.

(14) Insert the hub of chain sprocket 0274 in the larger hole of flexible coupling 0135. Turn chain sprocket 0274 to place the flat portion of the hub under the setscrew.

(15) place flexible coupling 0135 with chain sprocket 0274 on the shaft of gear 0145 so that chain sprocket 0274 is next to housing A131 and the setscrew is over the flat part of the shaft. Tighten the setscrew.

(16) Replace brushes E111 so that the brush curve matches the armature curve. Secure brushes E111 with electrical caps 0122.

(17) Place brushes E117 (spring end first) into brush holders H114.

(18) Position motor governor 0156 on the shaft of armature E114 with 1/16-inch clearance between the motor governor sliprings and brush holder H114; then tighten the setscrews.

(19) To check the projector motor speed, proceed as follows:

(a) Connect P101 to receptacle J104.

(b) Connect the projector to the power source (TM 11-6730–201–10).

(c) Operate the OFF-MOTOR-LAMP switch to MOTOR.

(d) Use a tachometer to check the speed of the shaft of motor assembly armature E114. The speed should be approximately 5,554 revolutions per minute (rpm).

e. Replacement. To replace the projector motor, perform the procedures outlined in paragraph 4–17a(3).

f. Adjustment. To adjust motor governor 0156, connect the projector to the power source (TM 11-6730-201-10) and proceed as follows:

(1) Turn the THREADING KNOB manually to be sure that the projector mechanism is not binding. Correct any binding (para 3-8).

(2) Operate the OFF-MOTOR-LAMP switch to MOTOR.

(3) Use a tachometer to check the speed of the THREADING KNOB. The tachometer should indicate 1,440 revolutions per minute (rpm).

(4) If the THREADING KNOB does not indicate 1,440 rpm, proceed as follows:

(a) Loosen the locking nut (fig. 4–18) on the motor governor speed adjusting screw.

(b) Turn the speed adjusting screw clockwise to increase speed and counterclockwise to decrease speed, until the correct speed ((3) above) is obtained at the THREADING KNOB.

(c) Tighten the locking nut.

5-2. Ventilating Motor

To remove *(a* below), disassemble *(b* below), inspect and repair *(c* below), reassemble *(d* below), and replace *(e* below) ventilating motor B102, proceed as follows:

a. Removal.

(1) Remove the projector rear cover.

(2) Disconnect connector P101 from receptacle J104.

(3) Remove the screws and lockwashers that hold the switch panel assembly, and pull the switch panel assembly away from the projector.

(4) Mark and disconnect the ventilating motor leads from terminal No. 11 of rotary switch S103 and the rf filter output terminals (fig. 6–7 and 6–8).

(5) Remove the mounting screws and lockwashers, and remove ventilating motor B102.

b. Disassembly (fig. 5–2).

(1) Loosen the setscrew (not shown) and remove the impeller (1).

(2) Remove the brush caps (2) and the brushes (3).

(3) Remove the screws (4) and the lockwashers (5), and separate the blower housing cover (6) from the motor housing (7).

(4) Carefully pull the armature assembly (8) from the motor housing. Be careful not to lose the spring washer (9).

c. Inspection and Repair.

(1) Check the motor brushes for wear and for broken springs. Replace brushes that are excessively worn or have broken springs.

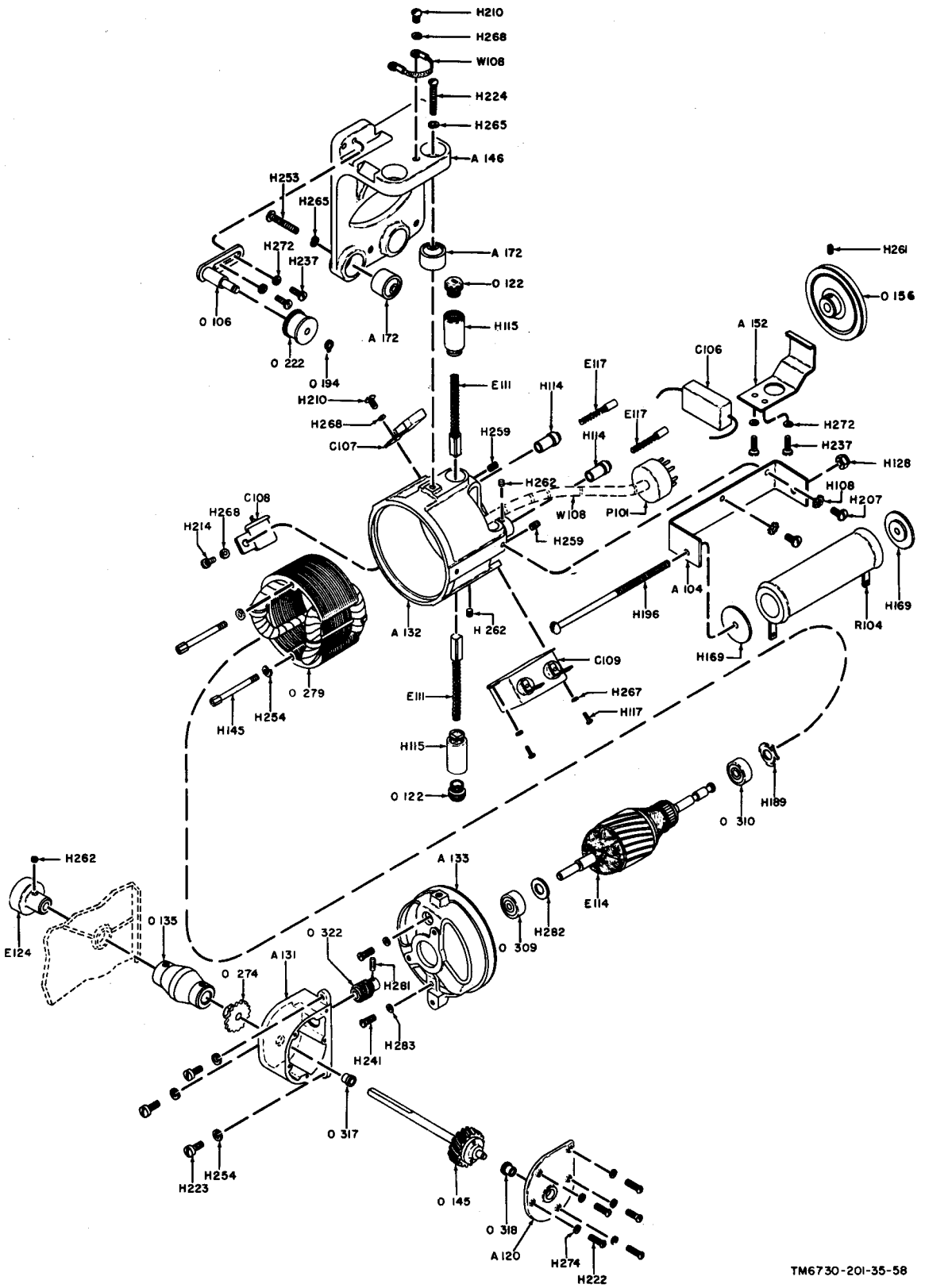


Figure 5-1. Projector motor assembly, exploded view.

A104 Bracket
A120 Cover
A131 Housing
A132 Housing
A133 Housing
A146 Mounting
A152 Bracket
A172 Mounting, vibration
C106 Capacitor
C107 Capacitor
C108 Capacitor
C109 Capacitor
E111 Brush, electrical contact
E114 Armature, motor assembly
E117 Brush
E124 Knob
H108 LockWasher
H114 Holder, brush
H115 Holder, brush
H117 Screw, machine
H128 Locknut
H145 Screw, machine
H169 Washer, extruded
H189 Washer, spring, tension
H196 Bolt, stove
H207 Screw, machine
H210 Screw, machine
H214 Screw, machine
H222 Screw, machine
H223 Screw, machine
H221 Screw,machine
H237 Screw, machine
H241 Screw. machine
H253 Screw;machine
H254 Lockwasher
H259 Setscrew
H261 Setscrew
H262 Setscrew
H265 Lockwasher
H267 Lockwasher
H268 Lockwasher
H272 Lockwasher
H274 Lockwasher
H281 Pin, grooved
H282 Washer, flat
H283 LockWasher
0106 Arm
0122 Cap, electrical
0135 Coupling, flexible
0145 Gear
0156 Governor, motor
0194 Ring, retaining
0222 Roller, idler
0274 Sprocket, chain
0279 Stator, motor
0309 Bearing, ball
0310 Bearing, ball
0317 Bearing, sleeve
0318 Bearing, sleeve
0322 Gear, worm
P101 Connector
R104 Resistor
W108 Wiring assembly

Figure 5–1—Continued.

(2) Check the armature for short circuits; inspect the winding for serious nicks and breaks. Check the bearings on the armature; they should rotate freely. Check the commutator (10); if dirty, clean with crocus cloth; if worn excessively, replace the armature.

(3) Inspect impeller 0160 for broken or bent blades. Repair or replace if necessary.

(4) Check the capacitors (11) for shorts. Replace as necessary.

d. Reassembly.

(1) Apply a light coating of grease (GAA) to the outside of the ball bearing assemblies on the armature shaft.

(2) Place the spring washer (9) on the armature shaft so that the prongs face the ball bearing, and position the armature assembly (8) in the motor housing (7).

(3) Position the blower housing cover (6) on the motor housing so that the wires extend to the right, and secure with the lockwashers (5) and screws (4). The armature must turn freely with an endplay of approximately 0.01 inch.

(4) Replace the brushes (3) so that the curved ends match the curve of the armature, and secure with the brush caps (2).

(5) Place impeller (1) on the shaft with the setscrew over the flat portion of the shaft.

(6) Adjust impeller for 0.047-inch clearance from the blower housing cover (6), and tighten the setscrew.

e. Replacement.

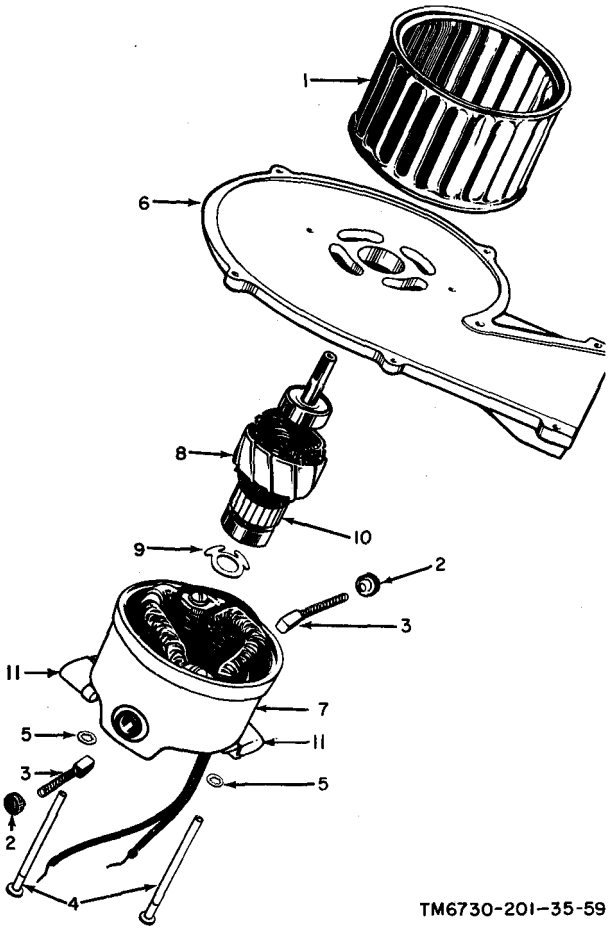
(1) Position ventilating motor B102 and secure it with the mounting screws and lockwashers.

(2) Connect the motor leads to the rf filter output terminals and terminal 11 of rotary switch S103 (fig. 6-7 and 6-8).

(3) Position the switch panel assembly on the projector and secure with the screws and lockwashers.

(4) Connect P101 to receptacle J104.

(5) Replace the projector rear cover and secure it with the screws.



1 Impeller 0160
2 Brush cap 0188
3 Brush E112
4 Screw
5 Lockwasher
6 Blower housing cover
7 Motor housing A127
8 Armature assembly E115
9 Spring washer H191
10 Commutator
11 Capacitor C104, C105

Figure 5-2. Ventilation motor, exploded view.

5-3. HOURS Counter

To remove *(a* below), disassemble *(b* below), and reassemble and replace *(c* below) the HOURS counter, proceed as follows:

a. Removal.

(1) Remove the projector rear cover.

(2) Remove machine screws H330 (fig. 5-3), lockwashers H331, and the HOURS counter mechanism.

(3) Remove machine screws H222, lockwashers H324, and mechanical counter I111.

b. Disassembly (fig. 5–3).

(1) Remove machine screw H320, lockwasher H273, and cover A206.

(2) Remove bolt H307, lockwashers H269, and plate A229 and the parts mounted on the plate.

(3) Remove retainer ring 0369 from shaft 0384 and remove gear 0383.

(4) Remove gear 0379, extruded washer H325, and collar 0382 from pinion 0367.

(5) Remove snapring 0197 from the shaft on the inside of mounting A228.

(6) Remove flat washer H177, ratchet wheel 0375, flat washers H323 and H321, and spring 0374,

(7) Remove spring 0374 from arm 0361 and remove rear flat washer H321.

(8) Remove retainer ring 0370 from rod 0371.

(9) Loosen setscrew H260 to free gear 0366, and slide rod 0371 out of mounting A228.

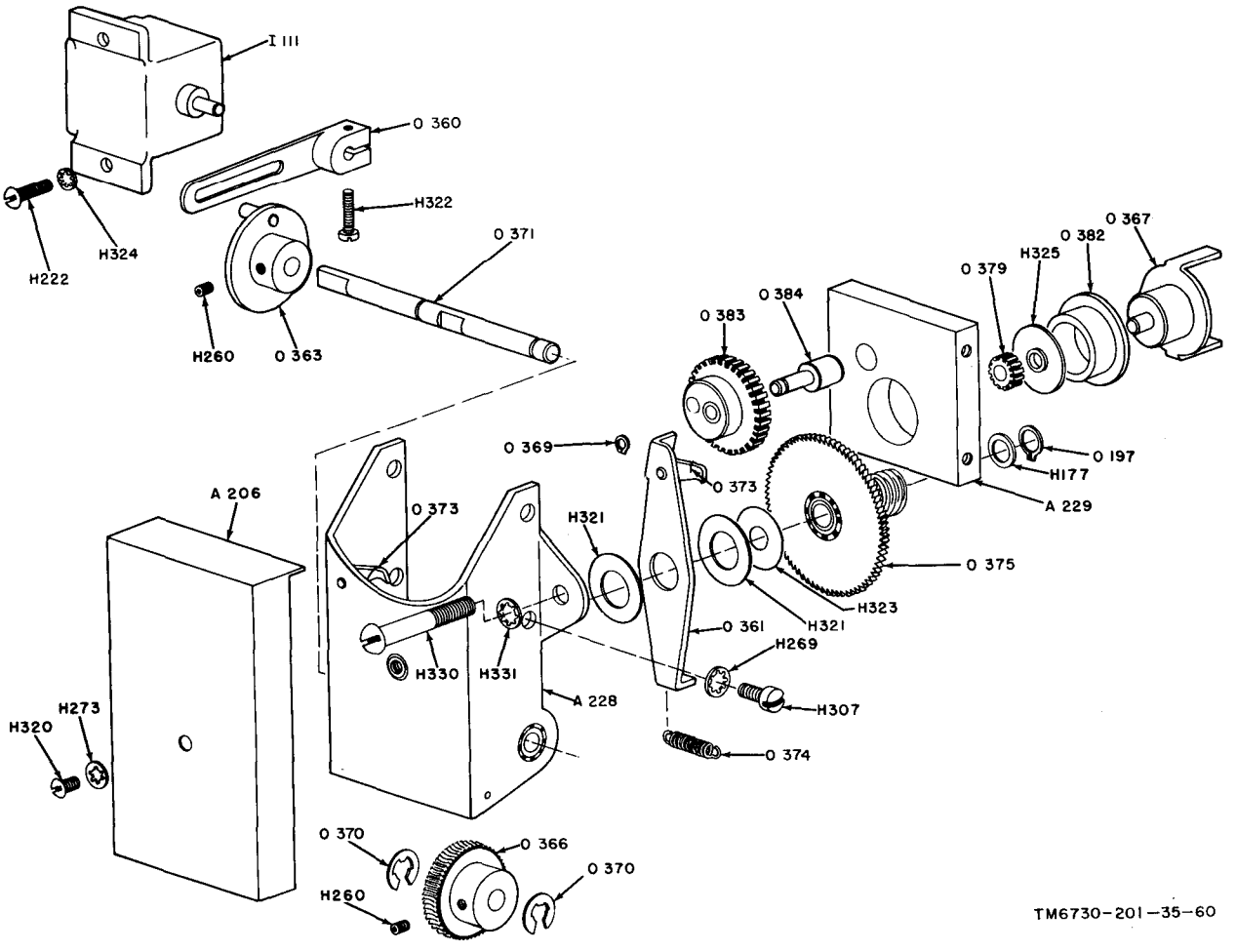
(10) Loosen setscrew H260 and remove 0371 from driving disk 0363. Remove driving disk 0363 from arm 0360.

(11) Loosen machine screw H322 and remove arm 0360 from mechanical counter I111.

c. Reassembly and Replacement. To reassemble the HOURS counter, reverse the procedures outlined in *b* above; to replace the HOURS counter, reverse the procedures outlined. in *a* above.

5-4. Gears

Disassembly and reassembly of the gearcase components is covered in a, *b,* and c below. Clean and inspect all disassembled parts and



A206	Cover	H322	Screw, machine	0366	Gear
A228	Mounting	H323	Washer, flat	0367	Pinion
A229	Plate	H324	Lockwasher	0369	Ring, retainer
H177	Washer, flat	H325	Washer, extruded	0370	Ring, retainer
H222	Screw, machine	H330	Screw, machine	0371	Rod
H260	Setscrew	H331	Lockwasher	0374	Spring
H269	Lockwasher	I111	Counter, mechanical	0375	Wheel, ratchet
H273	Lockwasher	0197	Snapring	0379	Gear
H307	Bolt	0360	Arm	0382	Collar
H320	Screw, machine	0361	Arm	0383	Gear
H321	Washer, flat	0363	Disk, driving	0384	Shaft

Figure 5-3. HOURS counter, exploded view.

substitute new parts for any that appear to be worn or defective.

a. Gearcase Cover. To remove and replace the gearcase cover, proceed as follows:

(1) Remove the projector rear cover.

(2) Remove screws H330 (fig. 5–3), lockwashers H331, and the HOURS counter mechanism.

(3) Remove the screws from the loop-setter rod mounting bracket and free

the loopsetter rod (para 4-15) from the lever.

(4) List the loopsetter rod and the mounting bracket out through the loopsetter pushbutton hole.

(5) Loosen setscrew H262 (fig. 5-4) and remove wheel sprocket 0277 and spacing collar 0132.

(6) Remove the screws and carefully remove cover A123 with gasket H110.

(7) To replace the gearcase cover, reverse the procedures outlined in (1) through (6) above.

b. Continuous Film Advance Gears (fig. 5-4). To remove and replace the continuous film advance gears, proceed as follows:

(1) Remove the gearcase cover *(a* above).

(2) Remove retaining ring 0197 and flat washer H177.

(3) Remove gear assembly 0146 from shaft 0239. To remove shaft 0239, unscrew it from the plate.

(4) Remove retaining ring 0194 and gear 0147 from shaft 0238. To remove shaft 0238, unscrew it from the plate.

(5) If gear 0148, spur gear 0149, or spur gear 0150 is to be removed, the corresponding sprocket must first be removed (para 4-9c).

(6) Sleeve bearings 0292 are press fitted; do not remove unless defective.

(7) If bearings 0292 are removed, the replacement bearings must be pressed into place.

(8) If gear 0148, spur gear 0149, or spur gear 0150 was removed, replace the gear and the corresponding sprocket (para 4-9c).

(9) Screw shaft 0238 into the plate and tighten.

(l0) Place helical gear 0147 on shaft 0238 and secure it with retaining ring 0194.

(11) Screw shaft 0239 into the plate and tighten.

(12) Place gear assembly 0146 on shaft 0239 and secure it with flat washer H177 and retaining ring 0197.

(13) Replace the gearcase cover *(a* above).

c. Intermittent Film Advance Gears (fig. 5–5). To remove and replace the intermittent film advance gears, proceed as follows:

(1) Remove the gearcase cover *(a* above).

(2) Loosen setscrews H262 and remove chain sprocket 0301.

(3) Remove the loosened screws and remove shaft support A140.

(4) Loosen setscrews H262 and remove shaft collar 0126.

(5) Loosen setscrews H261 and remove helical gear 0152.

(6) Loosen setscrews H261 and remove helical gear 0154.

(7) Loosen setscrews H261 and remove gear assembly 0153 and flat washer H182.

(8) Remove shaft 0240 from the rear of the plate.

(9) Remove machine screw H227, lockwasher H264, retaining ring 0202, and helical gear 0151.

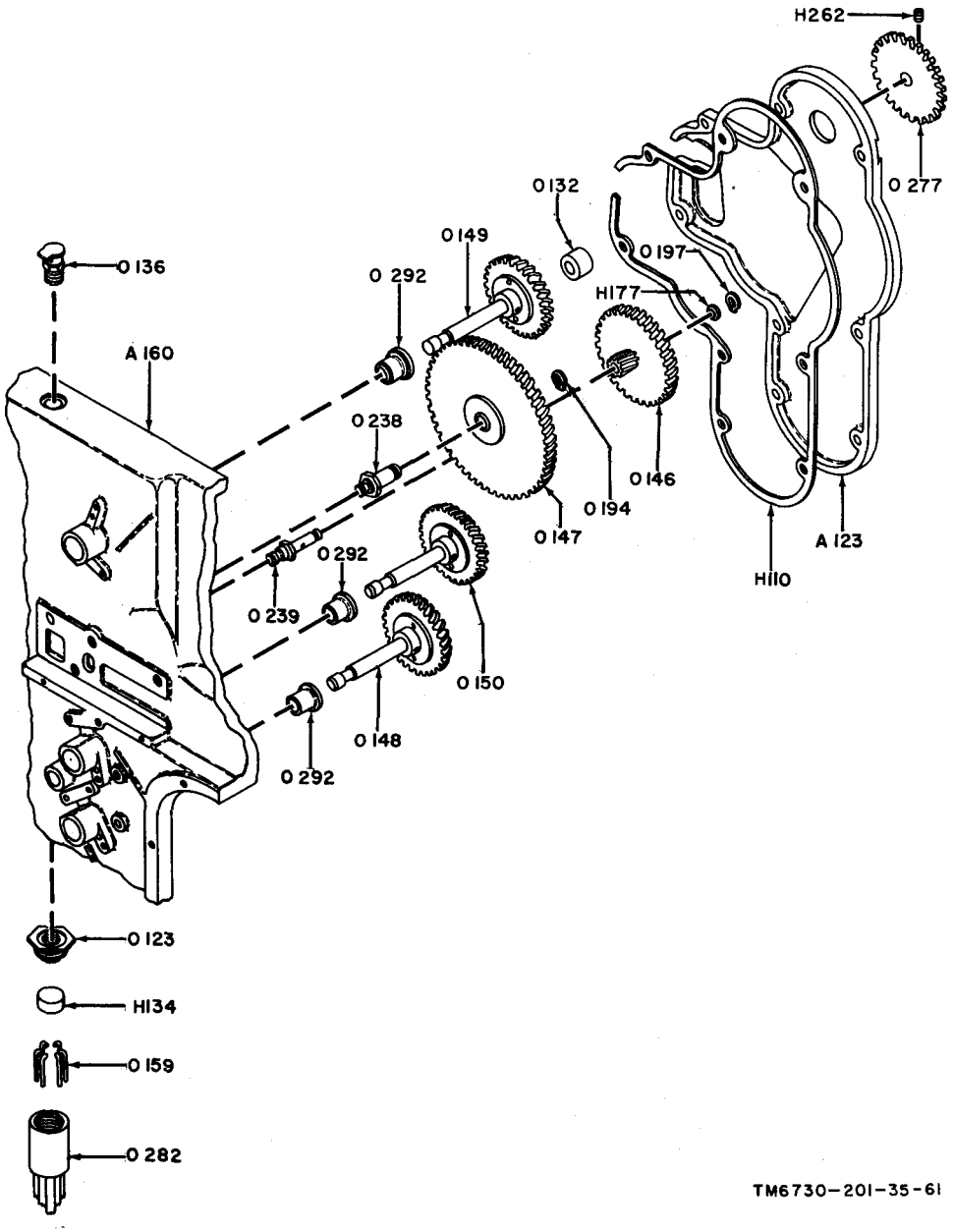
(l0) Remove flat washer H181 and shims 0243 and 0244.

Note: Record the number and thickness of the shims removed. The same number and thickness of shims must be replaced during reassembly.

(11) Sleeve bearings 0304, 0305,, 0306, and 0308 are press fitted; do not remove unless defective.

(12) Unscrew reservoir 0193 and carefully remove reservoir 0193 with wick MS101 (AQ-2A(1) and AQ-2A(2) only).

(13) Unscrew and remove connector adapter E108 (AQ-2A (1) and AQ-2A(2) only). In the AQ-2A(3) (fig. 4-2), remove leaf spring MP410, felt MP409, and camshaft wick A402.



A123	Cover	0147	Gear, helical	0238	Shaft
H110	Gasket	0148	Gear	0239	Shaft
H177	Washer, flat	0149	Gear, spur	0277	Sprocket, wheel
H262	Setscrew	0150	Gear, spur	0292	Bearing, sleeve
0132	Collar, spacing	0194	Ring, retaining		
0146	Gear assembly	0197	Ring, retaining		

Figure 5-4. Continuous film advance gears, exploded view.

(14) If a sleeve bearing, 0304, 0305, 0306, or 0308, is removed, the replacement bearings must be pressed into place.

(15) Replace flat washer H181 and shims 0243 and 0244 on shaft 0234.

(16) Replace helical gear 0151, align the slot in helical gear 0151 with the slot

in shaft 0234, and then replace retaining ring 0202, lockwasher H264, and machine screw H227. Tighten machine screw H227. Check shaft 0234; it should turn freely with no appreciable endplay.

(17) Place gear assembly 0153 and flat washer H182 on shaft 0240.

(18) Place the end of shaft 0240 into sleeve bearing 0305, position gear assembly 0153 against flat washer H182, and tighten setscrew H261.

(19) Position helical gear 0154 on shaft 0233 and tighten setscrew H262.

(20) Position helical gear 0152 on shaft assembly 0241 and tighten setscrews H261.

(21) Screw connector adapter E108 (AQ-2A(1) and AQ–2A(2) only) in the tapped hole under shaft 0234 and shaft assembly 0241.

(22) Insert wick MS101 through connector adapter E108 into the hole, (AQ-2A(1) and AQ–2A(2) only).

(23) Place one-half cubic centimeter (CC) of oil in reservoir 0193, then screw reservoir 0193 on connector adapter E108 (AQ-2A(1) and AQ–2A(2) only).

(24) Position shaft collar 0126 on shaft 0240 and tighten setscrews H262.

(25) Replace shaft support A140 and- secure it.

(26) Replace the end of chain H106 on chain sprocket 0301; replace chain sprocket 0301 on shaft collar 0126 and secure it with setscrews H262.

(27) Replace the gearcase cover *(a* above).

5-5. Shuttle, Shutter, and Pivot Block

To repair *(a* below) the shuttle, the shutter, and the pivot block, and to adjust *(b* below) the shuttle and the shutter, proceed as follows:

a. Repair.

(1) *Disassembly.*

(a) Remove the front projector door by opening it and lifting it off its hinges.

(b) Remove the lamp housing cover in the same manner.

(c) Remove housing A134 (fig. 5-9).

(d) Remove machine screws H246, lockwashers H255, and cover A121 (fig. 5–5).

(e) Remove helical spring 0269 from the top of mounting plate A165.

(f) Remove locknut H133 and counter weight 0134. Remove retainer disk 0139.

(g) Remove hexagonal nut H120, the washer, and the outer spacer.

(h) Remove shuttle 0248, locknut H131, and spacing collar 0133. Disengage helical spring 0269 from the shuttle.

(i) Gently pry the front and rear cams from shaft 0234 and shaft assembly 0241; use fingernails or any sharp instrument available. Avoid using undue pressure during removal.

(j) Sleeve bearings 0303 are press fitted. Do not remove unless defective.

(k) Shaft 0234 requires precise adjustment (b(1) below) if removed. Do not remove unless defective. If shaft 0234 must be removed, proceed as follows:

1. Remove the applicable intermittent film advance gears (para 5-4).

2. Remove shaft 0234, and flat washers H183, H184, H185, and H186 (fig. 5-5).

Note: Record the number and thickness of the washers removed. The washers determine the height of shaft 0234. The height of shaft 0234. determines the horizontal positioning of the shuttle. The same number and thickness of washers must be replaced when shaft is reassembled.

(l) Loosen setscrews H259 and remove knob E123.

(m) Remove machine screws H234 and Iockwashers H273 to loosen bracket A111.

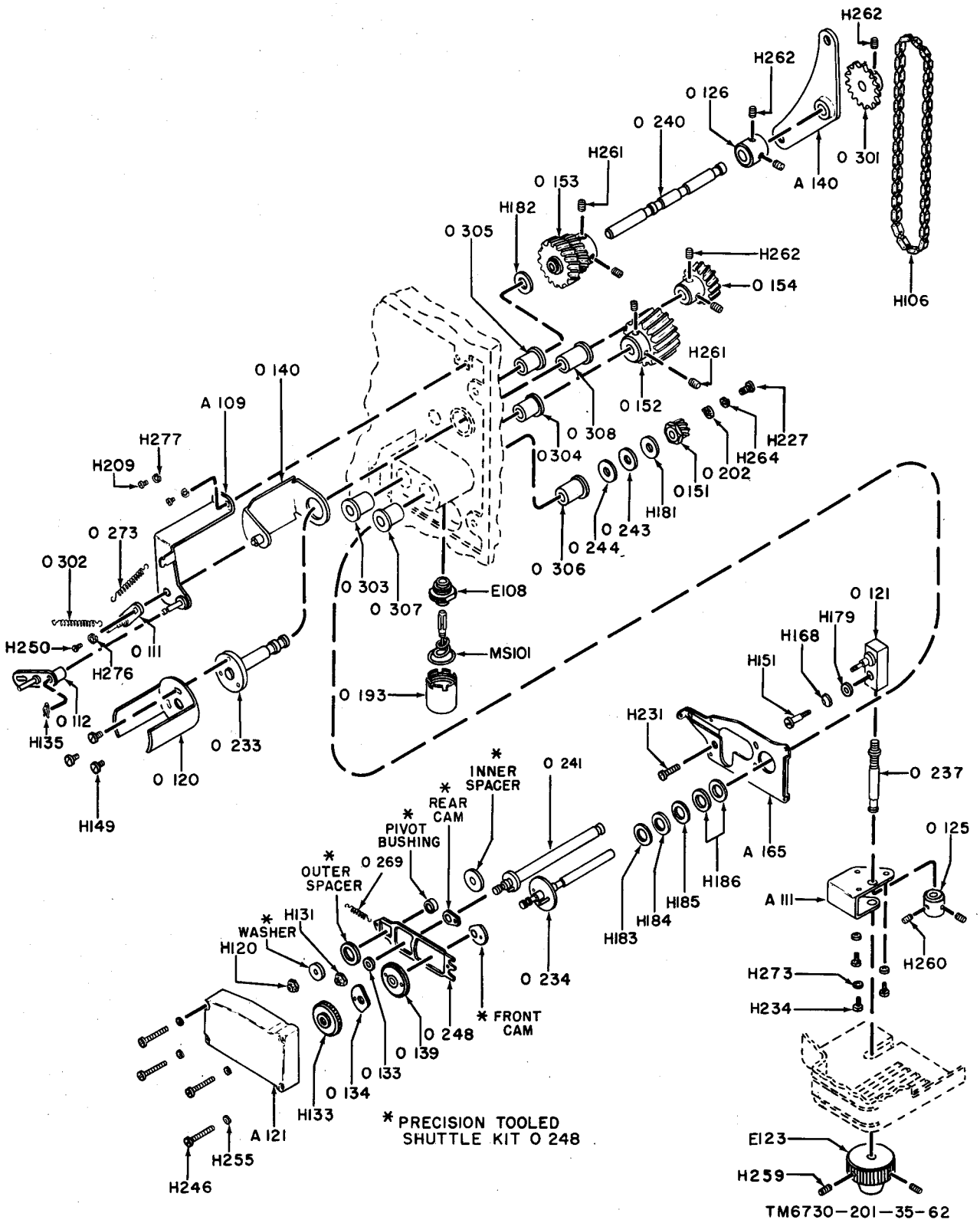


Figure 5-5. Intermittent mechanism, exploded view.

A109 Bracket
A111 Bracket
A121 Cover
A140 Support, shaft
A165 Plate, mounting
E108 Adapter, connector
E123 Knob
H106 Chain
H120 Nut, hexagonal
H131 Locknut
H133 Locknut
H135 Pin, cotter
H149 Screw, machine
H151 Screw, machine
H168 Washer, curved
H179 Washer, flat
H181 Washer, flat
H182 Washer, flat
H183 Washer, flat
H184 Washer, flat
H185 Washer, flat
H186 Washer, flat
H209 Screw, machine
H227 Screw, machine
H231 Screw, machine
H234 Screw, machine
H246 Screw, machine
H250 Screw, machine
H255 Lockwasher
H259 Setscrew
H260 Setscrew
H261 Setscrew
H262 Setscrew
H264 Lockwasher
H273 Lockwasher
H276 Lockwasher
H277 Lockwasher
MS- 101 Wick
0111 Arm
0112 Arm
0120 Shutter
0121 Block, pivot
0125 Collar, locking
0126 Collar, shaft
0133 Collar, spacing
0134 Counter weight
0139 Retainer, disk
0140 Douser, projector
0151 Gear, helical
0152 Gear, helical
0153 Gear assembly
0154 Gear, helical
0193 Reservoir
0202 Ring, retaining
0233 shaft
0234 Shaft
0237 Shaft
0240 Shaft
0241 Shaft assembly
0243 Shim
0244 Shim
0248 Shuttle kit
0269 Spring, helical
0273 Spring, helical
0301 Sprocket, chain
0302 Spring, helical
0303 Bearing, sleeve
0304 Bearing, sleeve
0305 Bearing, sleeve
0306 Bearing, sleeve
0307 Bearing, sleeve
0308 Bearing, sleeve

Figure 5-5 —Continued.

(n) Loosen setscrews H260 and remove locking collar 0125 with bracket A111.

(o) Unscrew and remove shaft 0237.

(p) Remove machine screw H151, curved washer H168, flat washer H179, and pivot block 0121.

(g) Remove cotter pin H135. Carefully disengage helical spring 0302 and remove arm 0112.

(r) Remove machine screw H250 and lockwasher H276. Remove arm 0111 with helical springs 0273 and 0302 attached.

(s) Remove machine screws H209, lockwashers H277, and bracket A109.

(t) If the shutter is removed, it must be synchronized with the shuttle during replacement. If the shuttle is defective, remove machine screws H149 and projection shutter 0120.

(u) If projector douser 0140 and shaft 0233 are to be removed, first remove the applicable intermittent film advance gears (para 5-4), and then remove shaft 0233 with douser 0140.

(2) *Inspection.*

(a) Check the shuttle to be sure that it is not bent.

(b) Inspect the Carboloy insert in the center tooth of the shuttle to be sure that it is not loose or broken.

(c) Examine the mating surfaces between the shuttle and its cams. If there is any evidence of wear, replace the entire assembly with a new shuttle kit (asterisked items, fig. 5-5).

(d) Inspect shutter 0120 and projector douser 0140 for bends, breaks, or deformity. Replace if defective.

(e) Inspect helical springs 0273 and 0302 for kinks or weak places. Replace if defective.

(3) *Reassembly* (fig. 5-5).

(a) If shaft 0234 was removed, replace the same flat washers, H183, H184, H185, and H186, on the shaft and replace the shaft, Check

the shaft height *(b(1)* below) and adjust, if necessary; then replace the removed intermittent film advance gears (para 5-4).

(b) If shaft assembly 0241 was removed, replace the shaft assembly.

(c) Replace pivot block 0121 and secure it with flat washer H179, curved washer H168, and machine screw H151. Screw in shaft 0237, and tighten it.

(d) Place locking collar 0125 in bracket A111. Place bracket A111 and locking collar 0125 on shaft 0237.

(e) Position bracket A111 and secure it with machine screws H234 and lockwashers H273.

(f) Tighten setscrews H260 to secure locking collar 0125 to shaft 0237.

(g) Replace knob E123 on shaft 0237 and secure it by tightening setscrews H259.

(h) Replace shaft 0233 and the intermittent film advance gears (para 5-4). Replace shutter 0120 and secure it with screws H149.

(i) Synchronize the shutter with the shuttle (b(2) below).

(j) Place the front cam on shaft 0234. Be sure that the cam is completely seated.

(k) Place the rear cam on shaft assembly 0241. Be sure that the cam is completely seated. Place spacing collar 0133 on shaft assembly 0241 and against the rear cam. Mount locknut H131 on shaft assembly 0241 and tighten it securely against the spacing collar.

(l) Place the inner spacer on the shaft of pivot block 0121. Place the pivot bushing on the shaft of pivot block 0121 and against the inner spacer.

(m) Attach helical spring 0269 to the hole in shuttle 0248. Note that the spring has hooked ends. Secure the hooked end that faces inward to the shuttle.

(n) Mount the shuttle with the spring attached to the cams.

(o) Place the outer spacer, the washer, and hexagonal nut H120 on the shaft of pivot block 0121, Tighten hexagonal nut H120 securely.

(p) Place retainer disk 0139 on shaft 0234 against the cam. Be sure that the pin on the shaft fits into the small hole in retainer disk 0139.

(g) Place counter weight 0134 on shaft 0234 and against retainer disk 0139. Be sure that the pin on counter weight 0134 fits into the large hole in disk 0139.

(r) Screw locknut H133 on shaft 0234 against counter weight 0134. Tighten the nut securely, *by hand only.*

(s) Hook the loose end of helical spring 0269 to the hole in mounting plate A165. Place 1 drop of oil on the front cam, 1 drop of oil on pivot block 0121, and 1 drop of oil on the rear cam.

(t) Turn the THREADING KNOB several revolutions clockwise; watch the action of the shuttle. The shuttle should move freely, and the spring should keep the shuttle constantly on the rear (small) cam.

(u) Replace cover A121 and secure it with machine screws H246 and lockwashers H255.

(v) Mount housing A134 (fig. 5-9) to the mechanism plate and secure it in position, making sure that the shaft of the douser arm engages with the opening in the solenoid plunger rod. Check by moving the douser knob up and down; it should move freely and stay in the OPEN position when placed in this position. Secure housing A134 in position with the screws and lockwashers.

(w) Replace bracket A109 (fig. 5-5) and secure it with lockwashers H277 and machine screws H209.

(x) Replace arm 0111 with helical springs 0273 and 0302 attached. Secure arm 0111 with lockwasher H276 and machine screw H250.

(Y) Hook the loose end of helical spring 0302 to the recessed portion of arm 0112; then replace arm 0112 on bracket A109 and secure it with cotter pin H135.

b. Adjusting Shuttle and Shutter,

(1) *Checking and adjusting shaft 0234.* To check and adjust shaft 0234, use the master height gage (3, fig. 3-1), the camshaft height gage meter and bridge (6 and 11), and the surface plate (13); proceed as follows:

(a) Set up the gages as shown in figure 5–6.

(b) Zero the camshaft height gage meter. The gage is now zero adjusted for 1.099 inches, which is the distance at which shaft 0234 should be positioned from the bearing plate.

(c) Place the projector on its side with shaft 0234 facing up. Set up the gages as shown in figure 5–7.

(d) The camshaft height gage meter should indicate 0. If the indication is plus or minus by more than 0.0005 inch, remove or add enough washers (H183 through H186, fig.

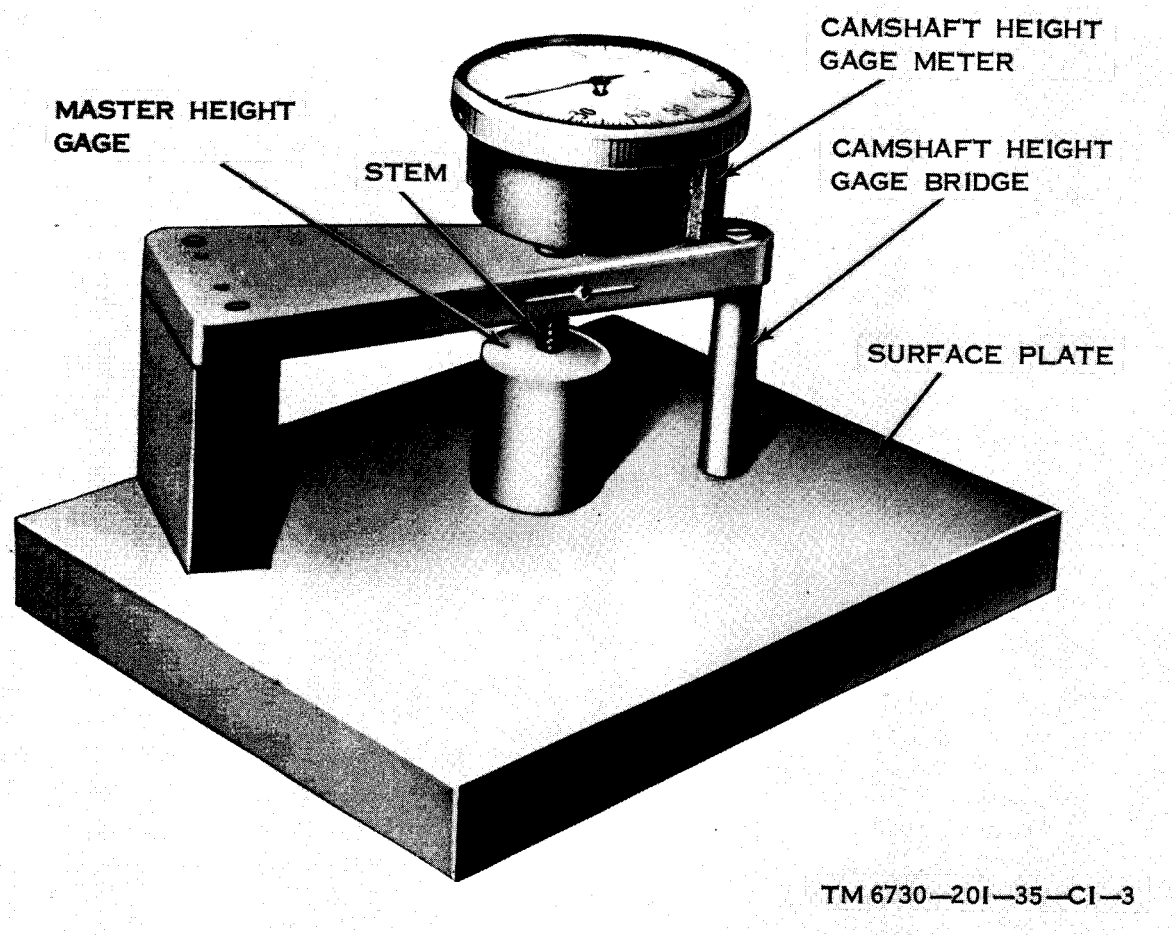


Figure 5–6. Zeroing camshaft height gage meter.

5-5) to bring the meter indication within tolerance.

(2) *Synchronizing shuttle and shutter* (fig. 5-5 and 5-8).

(a) Turn shaft 0234 and shaft assembly 0241 so that their registration pins are to the right (3 o'clock position).

(b) Turn the shutter so that its blades are parallel to the registration pins.

(c) Loosen the large knurled nut on the intermittent synchronizing gage.

(d) Place the intermittent synchronizing gage on shaft 0234 and shaft assembly 0241 so that the shaft registration pins enter the holes in the gage.

(e) Use the small knurled nut (9, fig. 3–1) to lock the gage to shaft 0234.

(f) Position the gage bar flush against the two shuttle blades and tighten the large knurled nut.

(g) Tighten setscrews H261 on helical gear 0152, and setscrew H262 on gear 0154. The shuttle and shutter are now synchronized.

(h) Loosen the large knurled nut and lower the gage bar. Remove the small knurled nut and remove the gage.

(i) Check shaft assembly 0241 and shaft 0234 for endplay. The endplay should not exceed 0.005 inch.

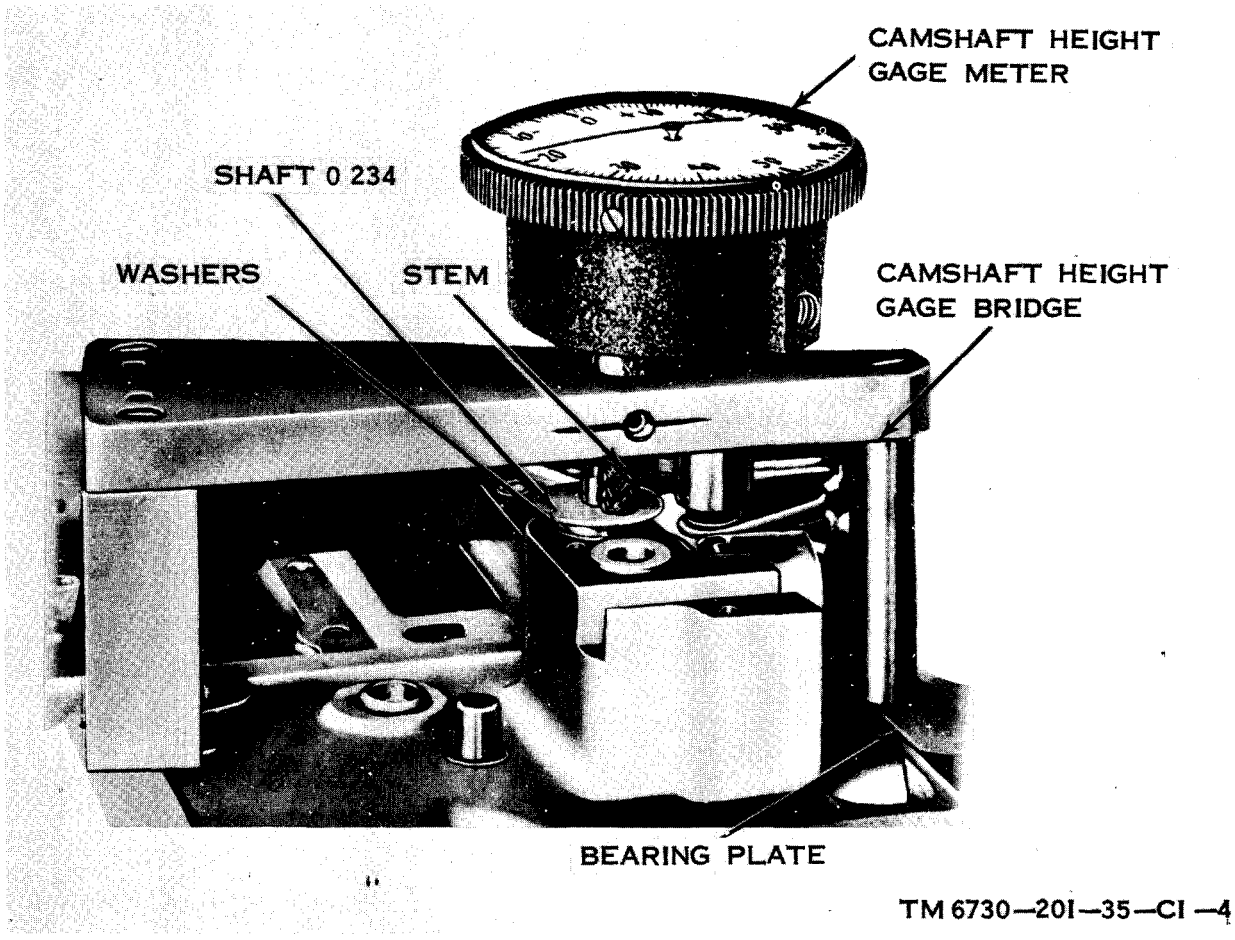


Figure 5-7. Checking shaft 0234.

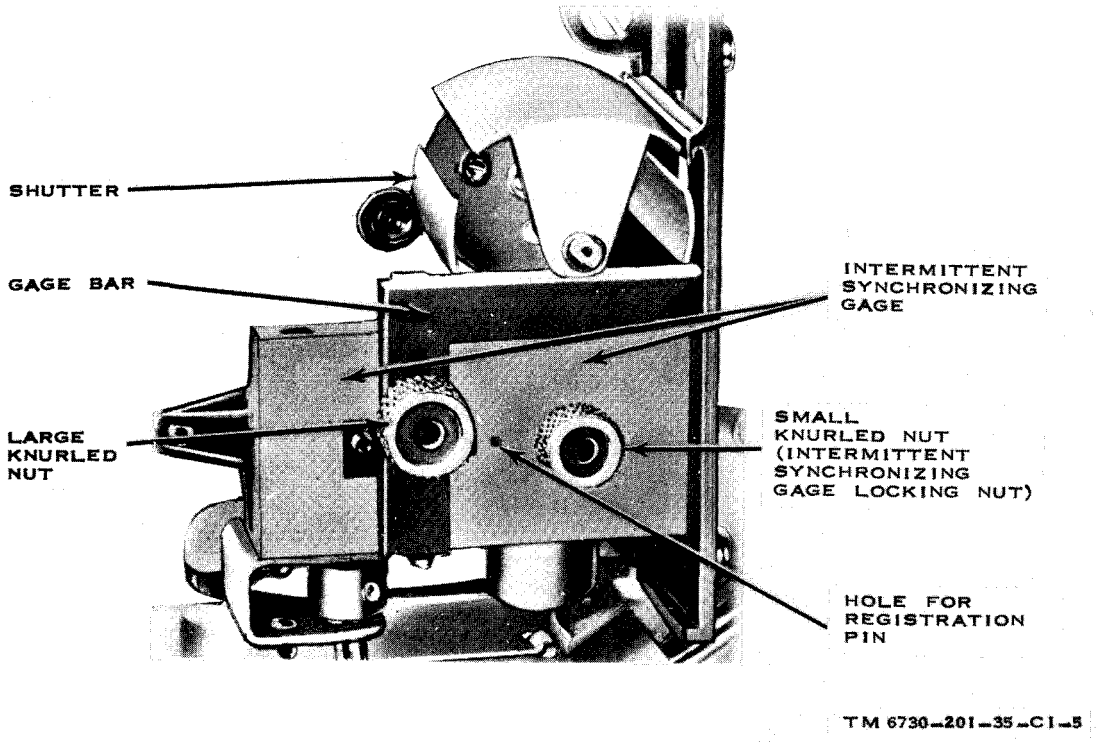


Figure 5–8. Synchronizing shuttle and shutter.

(3) *Checking lateral position of shuttle.* To check the laternal position of the shuttle, use the aperture and shuttle tooth gage (2, fig. 3–1) and proceed as follows:

(a) Turn the film gate knob (TM 11-6730–201–10) fully counterclockwise to open the film gate.

(b) Place the aperture and shuttle tooth gage in the aperture plate film channel.

(c) Turn the THREADING KNOB. The shuttle teeth should enter the slot in the gage without touching either side.

(d) If the shuttle teeth touch either side of the aperture and shuttle tooth gage, check the position of guide rail A163 (para. 4–13) and repeat the procedure outlined in *(c)* above. If the shuttle teeth still touch either side of the aperture and shuttle tooth gage, readjust shaft 0234 ((1) above).

(4) *Adjusting shuttle protrusion with shuttle tooth protrusion gage.* To check and adjust the shuttle protrusion, use the shuttle tooth protrusion gage (14, fig. 3–1) and proceed as follows:

(a) Turn the THREADING KNOB to obtain maximum shuttle protrusion.

(b) Turn the film gate knob (fig: 5-10) fully counterclockwise to open the film gate. Remove the pressure plate.

(c) Place the shuttle tooth protrusion gage against the aperture plate so that the cutout in the gage is down, and faces the aperture plate.

(d) Move the film gate lever down to press the pressure plate holder against the gage.

(e) Loosen the two bracket mounting

screws enough to allow the aperture plate mounting bracket to be moved.

(f) Move the bracket to cause the center tooth of the shuttle to touch the cutout portion of the gage; then tighten the bracket mounting screws,

(g) The shuttle is adjusted so that the center tooth protrudes 0.031 inch beyond the aperture plate surface.

(5) *Adjusting shuttle protrusion with indicator type gage.*

(a) Remove the pressure plate, the lens holder, and the lens mounting from the projector.

(b) Swing open the lamp house cover and lift it from its hinges.

(c) Turn the THREADING KNOB until the shuttle tooth is at its maximum protrusion through the aperture plate slot.

(d) Set the shuttle tooth protrusion meter (5, fig. 3-1) in the shuttle tooth protrusion test fixture (10); place the test fixture on a flat surface (surface plate, 13). Secure the meter in the test fixture.

(e) Loosen the setscrew on the meter and zero the meter. Tighten the setscrew.

(f) Mount the meter and test fixture on the projector in place of the lens holder and lens mounting; secure it with the two thumbscrews.

(g) Hold the vertical portion of the test fixture flush against the aperture plate and note the meter indication. The meter should indicate a shuttle protrusion of 0.031 inch (+0.002 inch –0.001 inch).

(h) If the shuttle protrusion is not within tolerance, loosen the aperture plate mounting bracket screws, and slide the aperture plate forward or backward to obtain the correct meter indication. Be sure to keep the aperture plate flush against the test fixture. When the correct meter indication is obtained, secure the aperture plate by tightening the aperture plate mounting bracket screws.

(i) Loosen the two thumbscrews on the test fixture and remove the test fixture from the projector.

(j) Replace the lamp house cover.

(k) Replace the lens holder, the lens mounting, and the pressure plate.

5-6. Soundhead

To disassemble *(a* below), inspect *(b* below), reassemble *(c* below), and align *(d* below) the soundhead, proceed as follows:

a. Disassembly.

(1) Remove the screws and the rear cover.

(2) Remove the flywheel nut (fig. 3-2).

(3) Remove the screws from mounting plate A162 (fig. 5–11).

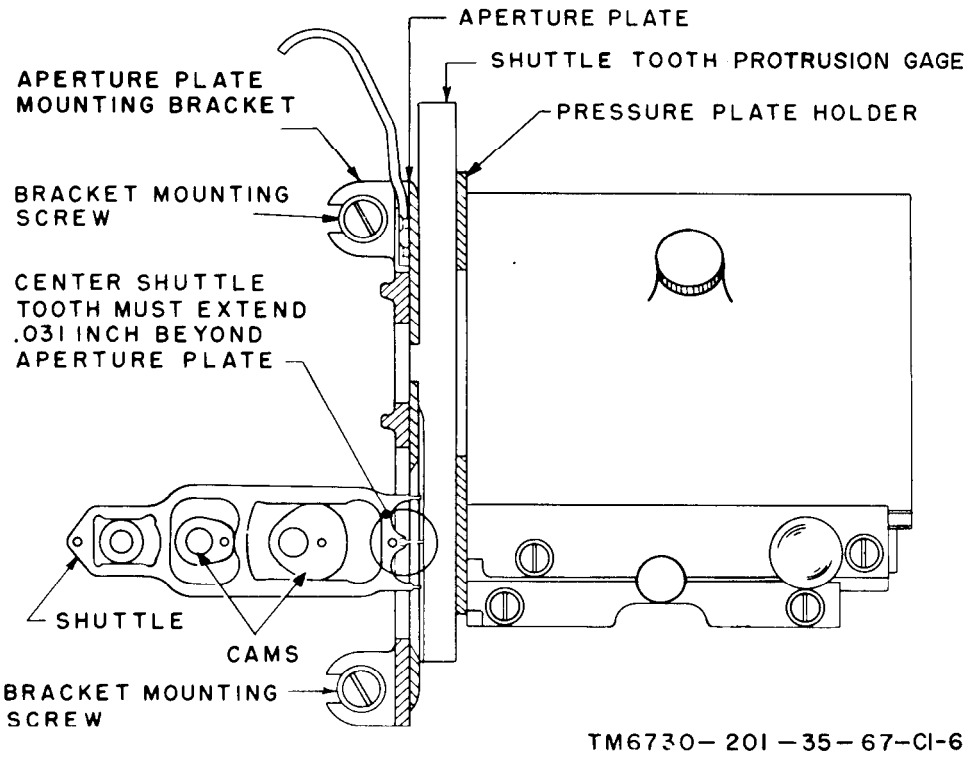
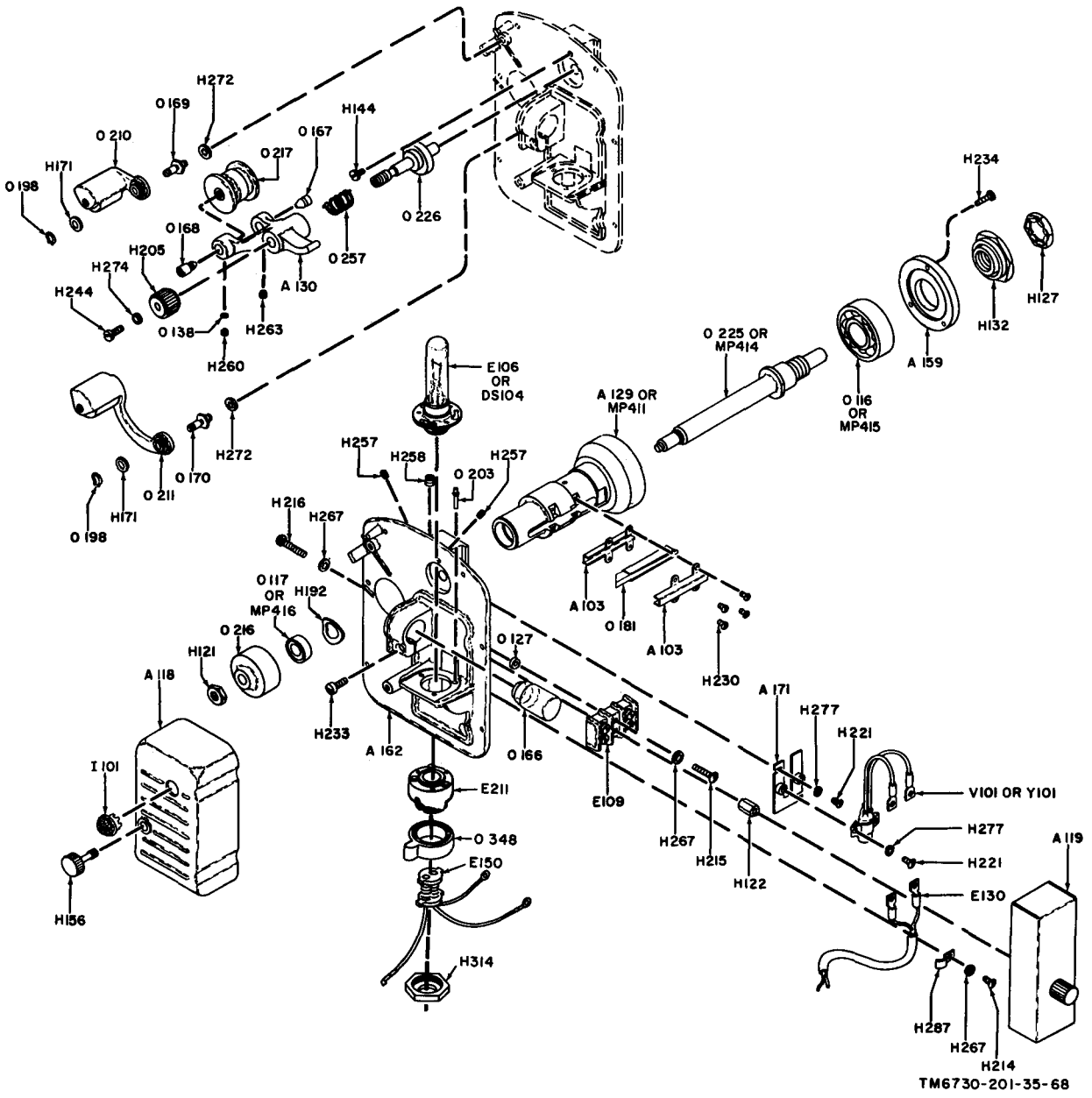


Figure 5-10. Shuttle tooth protrusion gage imposition.

(13) Remove machine screw H244, lockwasher H274, thumb nut H205, and housing A130.
(14) Remove setscrews H260 and H263, retainer disks 0138, roller pins 0167 and 0168, and film roller 0217.
(15) Remove spring 0257, machine screw H144, and shaft 0226.
(16) Loosen machine screw H233 and remove optical system 0166.
(17) Remove hexagonal nut H122, machine screw H216, lockwasher H267, machine screw H215, lockwasher H267, terminal board E109, and spacing collar 0127.
(18) Remove hexagonal nut H121, film roller 0216, ball bearing 0117, and thrust washer H192.
(19) Remove setscrews H257 and H258, and carefully slide housing A129 out of mounting plate A162.
(20) Remove machine screws H230, and the first half of bracket A103, prism 0181. and the second half of bracket A103 from housing A129.
(21) Remove shaft 0225 from housing A129. Remove locknuts H127 and H132, machine screws H234, bearing plate A159, and ball bearing 0116 from shaft 0225.

b. Inspection of Parts. Thoroughly clean all parts. Inspect each part for wear or defects, including the following:

(1) Examine roller pins 0167 and 0168. If the tapered end of the pin is worn where it rides in the bearing, replace it with a new roller pin.
(2) Examine the bearings in film roller 0217. Be sure that the bearings are free from dirt, dust, or other foreign substances.
(3) Check spring 0257 for broken ends. Replace if necessary.
(4) If prism 0181 is chipped, scratched, or discolored, replace it with a new one.
(5) Inspect film roller 0216. If nicked excessively, replace it with a new sound drum.



A103	Bracket	E106		H132	Locknut
A118	Cover	or		H144	Screw, machine
A119	Cover	DS104	Lamp, incandescent	H156	Thumbscrew
A129		E109	Board, terminal	H166	Tack
or		E118	Insulator, disk	H171	Washer, flat
MP411	Housing	E130	Terminal lug	H192	Washer, thrust
A130	Housing	H104	Burr, rivet	H205	Nut, thumb
A159	Plate, bearing	H121	Nut, hexagonal	H214	Screw, machine
A162	Plate, mounting	H122	Nut, hexagonal	H215	Screw, machine
A171	Plate, adjusting	H127	Locknut	H216	Screw, machine

Figure 5-11. Projector sound mechanism, exploded view.

H221	Screw, machine	O116		0210	Roller assembly, film
H230	Screw, machine			0211	Roller assembly, film
H233	Screw, machine	MP415	Bearing, ball	0216	Roller, film
H234	Screw, machine	O117		0217	Roller, film
H244	Screw machine	**or**		0225	
H257	**Setscrew**	MP416	Bearing, ball	**or**	
H258	Setscrew	O127	Collar, spacing	MP414	Shaft
H260	Setscrew	O138	Disk, retainer	**O226**	Shaft
H263	Setscrew	O166	Optical system	0257	Spring
H267	Lockwasher	O167	Pin, roller	0258	Spring
H272	Lockwasher	O168	Pin, roller	0259	Spring
H274	Lockwasher	O169	**Pivot**	V101	
H277	Lockwasher	O170	Pivot	**or**	
H287	Clamp	O181	Prism	**Y101**	Photoelectric cell
I101	Lens, indicator light	O198	Ring, retaining		
J106	Lampholder	O203	Rod, lamp release		

Figure 5–11. Continued.

(6) Check shaft 0225 to be sure that it is perfectly straight; if bent in any way, replace it with a new shaft.

(7) Inspect ball bearing 0116. The bearing should turn freely. Replace bearings that do not turn freely.

(8) Inspect ball bearing 0117. The bearing should turn freely; if it does not, replace it.

c. Reassembly.

(1) Replace ball bearing 0116, bearing plate A159, machine screws H234, locknut H132, and locknut H127 on shaft 0225. Replace shaft 0225 in housing A129.

(2) Replace half of bracket A103, prism 0181, the other half of bracket A103, and machine screws H230.

(3) Carefully insert housing A129 in mounting plate A162 and replace thrust washer H192, ball bearing 0117, film roller 0216, and, hexagonal nut H121.

(4) Replace, but do not tighten, setscrew H258 and setscrews H257.

(5) Housing A129 must be aligned so that the inner edge of the sound drum extends 0.044 inch ±0.002 from the centerline of optical system 0166. Turn housing A129 so that prism 0181 faces the bracket for optical system 0166; then align housing A129 as follows:

(a) Insert the soundhead gage ((9), fig. 3–1) in the bracket for optical system 0166.

(b) Adjust housing A129 so that the inner edge of film roller 0216 (fig. 5–12) touches the small projection on the end of the gage.

(c) Check to see that prism 0181 (fig. 5–11) is facing the bracket for optical system 0166; then tighten setscrews H258 and H257 to complete the alignment of housing A129.

(6) Replace spacing collar 0127 and terminal board E109, and secure with machine screw H215, lockwasher H267, machine screw H216, lockwasher H267, and hexagonal nut H122.

(7) Replace optical system 0166. (Alignment of optical system 0166 (d(3) below) must be accomplished after complete reassembly of the sounld-head.)

(8) Replace shaft 0226, machine screw H144, and spring 0257.

(9) Insert retainer disks 0138 and start setscrews H260 and H263. Position film roller 0217 in housing A130, replace and adjust roller pins 0167 and 0168 so that film roller 0217 turns freely with no appreciable endplay; then tighten setscrews H260 and H263.

(10) Place housing A130 on shaft 0226. Position spring 0257 so that its protruding ends engage the hole in mounting plate A162 and the hole in housing A130. The tension of film

roller 0217 must be adjusted (d(1) below) after the soundhead has been replaced.

(11) Replace thumb nut H205, lockwasher H274, and machine screw H244.

(12) Press housing A130 toward mounting plate A162. There should be a spring action of approximately 0.015 inch. Thumb nut H205 must be used to position film roller 0217 (d(2) below) after complete reassembly of the soundhead.

(13 Replace pivot 0170 and lockwasher H272. Tighten pivot 0170, and then replace film roller assembly 0211, flat washer H171, and retaining ring 0198.

(14) Replace pivot 0169 and lockwasher H272. Tighten pivot 0169, and then replace film roller assembly 0210, flat washer H171, and retaining ring 0198.

(15) Press the lampholder up, and then replace lamp E106 or DS104; turn it clockwise to secure it in place.

(16) Replace cover A118 and secure it with thumbscrew H156.

(17) Replace photoelectric cell V101 or Y101 on adjusting plate A171 and secure it with lockwashers H277 and machine screws H221.

(18) Replace adjusting plate A171 and secure it with machine screws H221 and lockwashers H277,

(19) Connect the leads of photoelectric cell V101 and terminal lugs E130 to terminal board E109. Replace clamp H287 and secure with machine screws H214 and lockwashers H267.

(20) Replace cover A119 on terminal board E109 and secure it with the thumbscrew.

(21) Position mounting plate A162 on the projector and position the flywheel on shaft 0225 so that the pencil marks (a(3) above) are aligned.

(22) Replace the screws to secure mounting plate A162 to the projector.

(23) Replace the flywheel nut (fig. 3-2).

(24) Replace the screws and the rear cover.

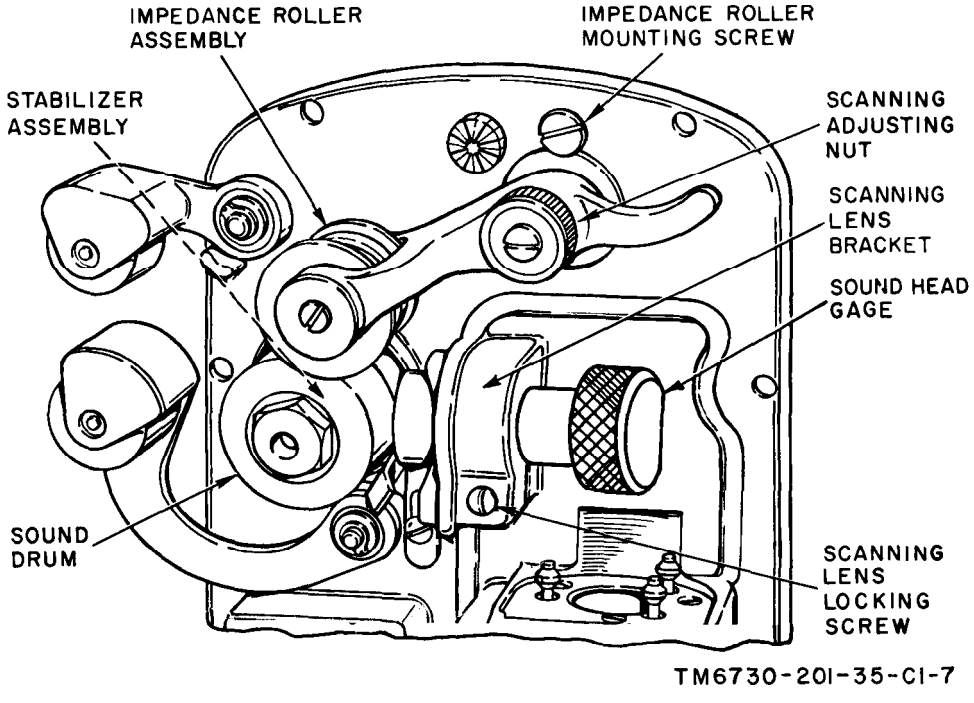


Figure 5-12. Adjusting position of sound drum. (roller 0216) with soundhead gage.

d. Alignment. After the soundhead has been reassembled, adjust film roller 0217 tension ((1) below) and lateral position ((2) below), and focus opticai system 0166 ((3) below).

(1) *Film roller 0217 tension* (fig. 5-11). To adjust the tension of film roller 0217, use a 0- to 2-pound weighing scale and proceed as follows:

(a) Loosen machine screw H144.

(b) Hook the end of the weighing scale in the recess of housing A130.

(c) Lift up on the weighing scale enough to cause film roller 0217 to just clear film roller 0216.

(d) Observe the reading on the scale and turn the hexagonal portion of shaft 0226 to obtain a reading of 5 to 6 ounces.

(e) Tighten machine screw H144.

(2) *Film roller 0217 lateral position* (fig. 5–11). To adjust the lateral position of film roller 0217, use the buzz track test film (para 3–3c) and proceed as follows:

(a) Connect the projector cables and the amplifier and speaker cables, and thread the projector with the buzz track test film (TM 11-6730-201-10).

(b) Loosen machine screw H244. Operate the projector. Turn the VOLUME control fully clockwise. Note whether a 1,000-cycle hum or a 300-cycle hum is heard.

(c) If a 1,000-cycle hum is heard, turn thumb nut H205 clockwise until no hum is heard. If a 300-cycle hum is heard, turn thumb nut H205 counterclockwise until no hum is heard. Tighten machine screw H244 to lock the lateral position adjustment.

(3) *Optical system 0166.* To adjust optical system 0166, use the 7,000-cycle sound-focusing test film (para 3–3c) and the sound track gage (1, fig. 3–1), and proceed as follows:

(a) Connect the projector cables and the amplifier cables, and thread the projector with the 7,000-cycle sound-focusing test film. Set the speaker selector switch to REMOTE SPEAKER ON.

(b) Connect an 8-ohm, 38-watt resistor across pins 1 and 3 of the amplifier remote speaker receptacle.

(c) Connect two leads from pins 1 and 3 of the remote speaker receptacle to the input of Voltmeter, Meter ME–30A/U (para 3-3d).

(d) Adjust the TONE controls to NOR. Loosen thumbscrew H156 and remove cover A118 (fig. 5–11).

(e) Operate the projector. Adjust the VOLUME control until an indication of approximately 12.6 volts is obtained on the ME–30A/U, indicating the rated amplifier output of 20 watts.

(f) Place the sound track gage on optical system 0166 (fig. 5–13). Slowly shift the optical system until the maximum indication is obtained on the ME–30A/U.

(g) Tighten machine screw H233 to lock optical system 0166 in the adjusted position.

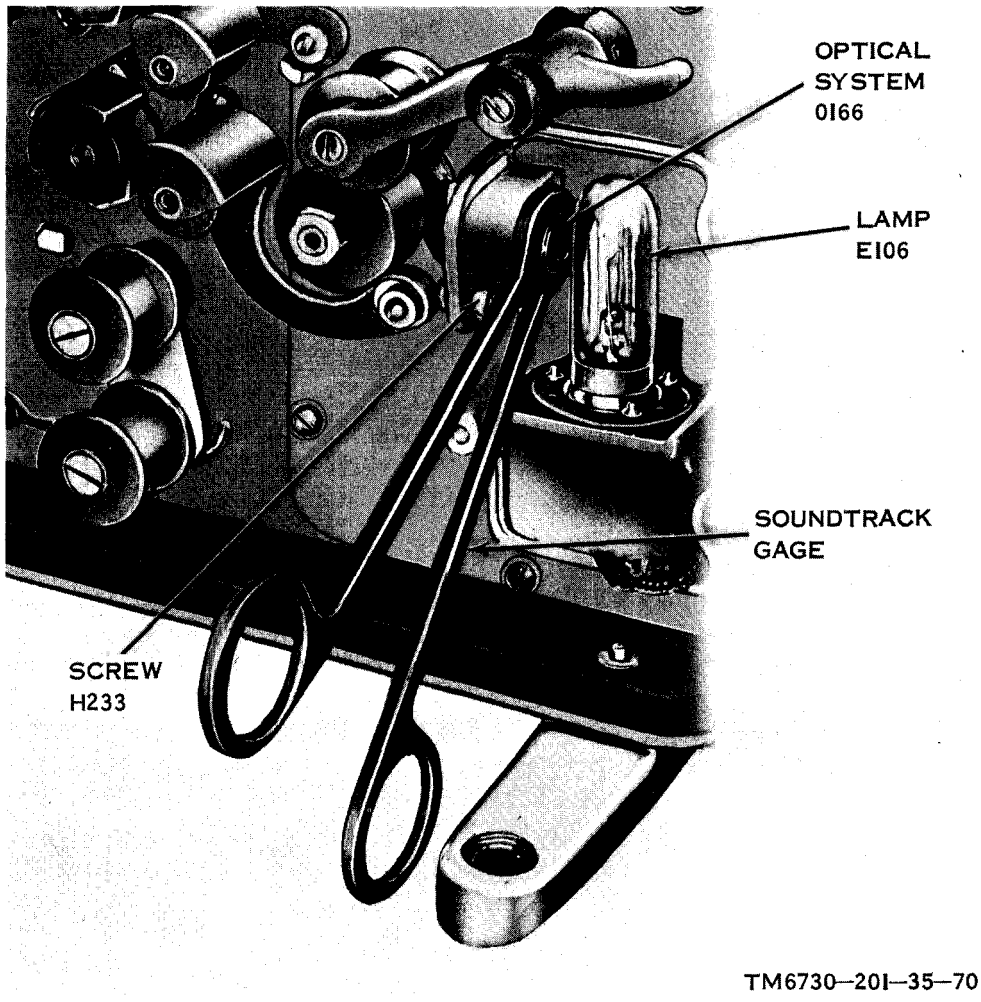


Figure 5-13. Adjusting optica1 system 0166.

Note: Before removing the flywheel, make pencil marks on the flywheel hub and shaft so that the flywheel may be replaced in the same position when reassembled.

(4) Carefully slip the flywheel off shaft 0225 and pull mounting plate A162 out of the projector.

(5) Loosen the thumbscrew and remove cover A119 from terminal board E109.

(6) Disconnect the leads of photoelectric cell V101 or Y101 and terminal lugs E130 from terminal board E109. Remove machine screws H214, lockwashers H267, and clamp H287.

(7) Remove machine screws H221, lockwashers H277, and photoelectric cell V101 or Y101.

(8) Remove machine screws H221, lockwashers H277, and adjusting plate A171.

(9) Loosen thumbscrew H156 and remove cover A118.

(10) Press the lampholder up to release pressure on lamp E106 or DS104, and then turn the lamp counterclockwise and remove it.

(11) Remove retaining ring 0198, flat washer H171., and film roller assembly 0210. Unscrew and remove pivot 0169 md lockwasher H272.

(12) Remove retaining ring 0198, flat washer H171, and film roller assembly 0211. Unscrew and remove pivot 0170 and lockwasher H272.

CHAPTER 6

DEPOT INSPECTION STANDARDS

6-1. Applicability of Depot Inspection Standards

Projection Set, Motion Picture, Sound AS–2(1) must be tested thoroughly after rebuild or repair to insure that it meets adequate perfognance requirements for return to stock and reissue. Use the tests described in this chapter to measure performance of the repaired equipment. It is mandatory that repaired equipment that is to be reissued, or returned to stock for reissue, meet all of the performance standards given in this chapter.

6-2. Applicable References

a. Repair Standards. Applicable procedures of the U. S. Army depot performing this test and general standards for repaired equipment form a part of the requirements for testing the projector set.

b. Technical Publications. The technical publications applicable to testing of the projector set are listed below:

Equipment	Publication
Spectrum Analyzer TS–723 (*)/U	TM 11–5097
Audio Oscillator TS-382A/U	TM 11-6625–261-12
Frequency Meter FR-114/U (part of Frequency Meter AN/TSM-16)	TM 11-6625-218–12
Flutter Indicator ID-851/U	TM 11-6760-212-12
Multimeter TS-352 (*)/U	TM 11-5527
Electronic Voltmeter ME-30 (*)/U	TM 11–6625-320-12

c. Modification Work Orders. Perform all applicable modification work orders (MWO's) pertaining to the projector set *before* conducting the test specified. DA Pam 310–4 lists all available MWO's.

6-3. Test Facllities Required

The following equipments, or suitable equivalents, will be used in determining compliance with the requirements of these inspection standards. Conduct all tests at room temperature.

a. Equipment.

Item	Federal stock No.	Qty reqd	Technical manual
Spectrum Analyzer TS-723(*)/U	6625-668-9418	1	TM 11-5097
Audio Oscillator TS-382A/U	6625-192-5094	1	TM 11–6625-261-12
Frequency Meter FR-114/U (part of Frequency Meter AN/TSM–16).	6625–542–1677	1	TM 11-6625-218-12
Flutter indicator ID-851/U	6760–776-6979	1	TM 11-6760–212-12
Meter, Foot Candle, Photoelectric ME–86/U	6695-641-5083	1	None
Multimeter TS-352(*)/U	6625–242–5023	1	TM 11-5527
Test Lead Set CX–1331A/U	6625-395-9313	1	None
Transformer, Variable Power CN-16(*)/U	5950-503-0632	1	None
Electronic Voltmeter ME–30(*)/U	6625–669-0742	2	TM 11-6625-320–12
Adapter, 3-way cube, plug-in-tap	5935–553–2793		
Resistor, 16 ohms	5905-539-4984	1	None
Screen, Projection BM–1 (1)	6730–224–9818	1	None
Rule, steel 6-inch	5210-273-1965	1	None
Scale, weighing 0- to 2-lb	6670-291-8721	1	None
Wire, hookup, No. 20 AWG or larger	N/A	6 ft	None

b. Facilities

Item	Federal stock No.	Qty reqd	Technical manual
Power source capable of supplying 117 volts ac ± 3---	N/A	1	N/A
Test films:			
Academy	6770–290-6449	1	None
Buzz track	6770–248-9262	1	None
400-cycle	6770-297-1615	1	None
3,000-cycle	6770-298-1994	1	None
Picture unsteadiness	6770–290-6450	1	None
Travel ghost	6770–290-6447	1	None
Newly processed 16-mm film ----------	N/A	8 ft	N/A

6-4. Projector Mechanical Tests

a. Tilt Mechanism. Check the projector tilt mechanisms follows:

(1) Place the projector on a flat surface having a convenient height.

(2) Prepare the projector for operation; load a full 2,000-foot reel of film on the feed reel arm and an empty reel on the takeup reel arm.

Note. If a full 2,000-foot reel of film is not available, place a weight (approximately 20 pounds) on the top forward part of the projector.

(3) Rotate the elevation knob to raise and lower the projector; check to see that the tilt mechanism holds the projector securely at any angle of tilt. Remove both reels from the projector.

b. Film Tension.

(1) Place an empty 400-foot reel on the takeup reel arm and wrap several turns of film around the reel hub.

(2) Test film tension by hooking a scale to a film sprocket hole and pulling slowly on the scale; the reel should turn before the scale reading reaches 5 ounces.

(3) Remove the 400-foot reel from the takeup reel arm, rewrap the film around its hub, and place the reel on the feed reel arm.

(4) Disengage the rewind knob, hook a scale to a film sprocket hole, and pull slowly on the scale. Check to see that the reel rotates before the scale indication reaches 3 ounces. Remove the reel.

c. Fixed Film Rail and Shuttle Tooth Lateral Alignment.

(1) Remove the aperture plate and position the aperture and shuttle tooth gage as shown in A, figure 6-0.

(2) The fixed film rail must be flush against the gage when the gage pins are in the aperture plate shuttle tooth slot.

(3) Place the aperture plate with the gage installed back into the projector and rotate the THREADING KNOB.

(4) The shuttle tooth should not touch the sides of the slot on the gage.

d. Shuttle Tooth Protrusion.

(1) Place the shuttle tooth protrusion gage in the projector as shown in B, figure 6-0.

(2) Rotate the THREADING KNOB and observe the shuttle tooth and gage.

(3) The center shuttle tooth must touch the cutout surface of the gage without moving the gage.

e. Film Life.

(1) Form a loop of newly processed and lubricated sound film by splicing the ends of an 8-foot filmstrip together.

(2) Remove the takeup belt from the takeup reel pulley, place an empty reel on the takeup reel arm, and thread the film loop in the projector as shown in E, figure 6-0.

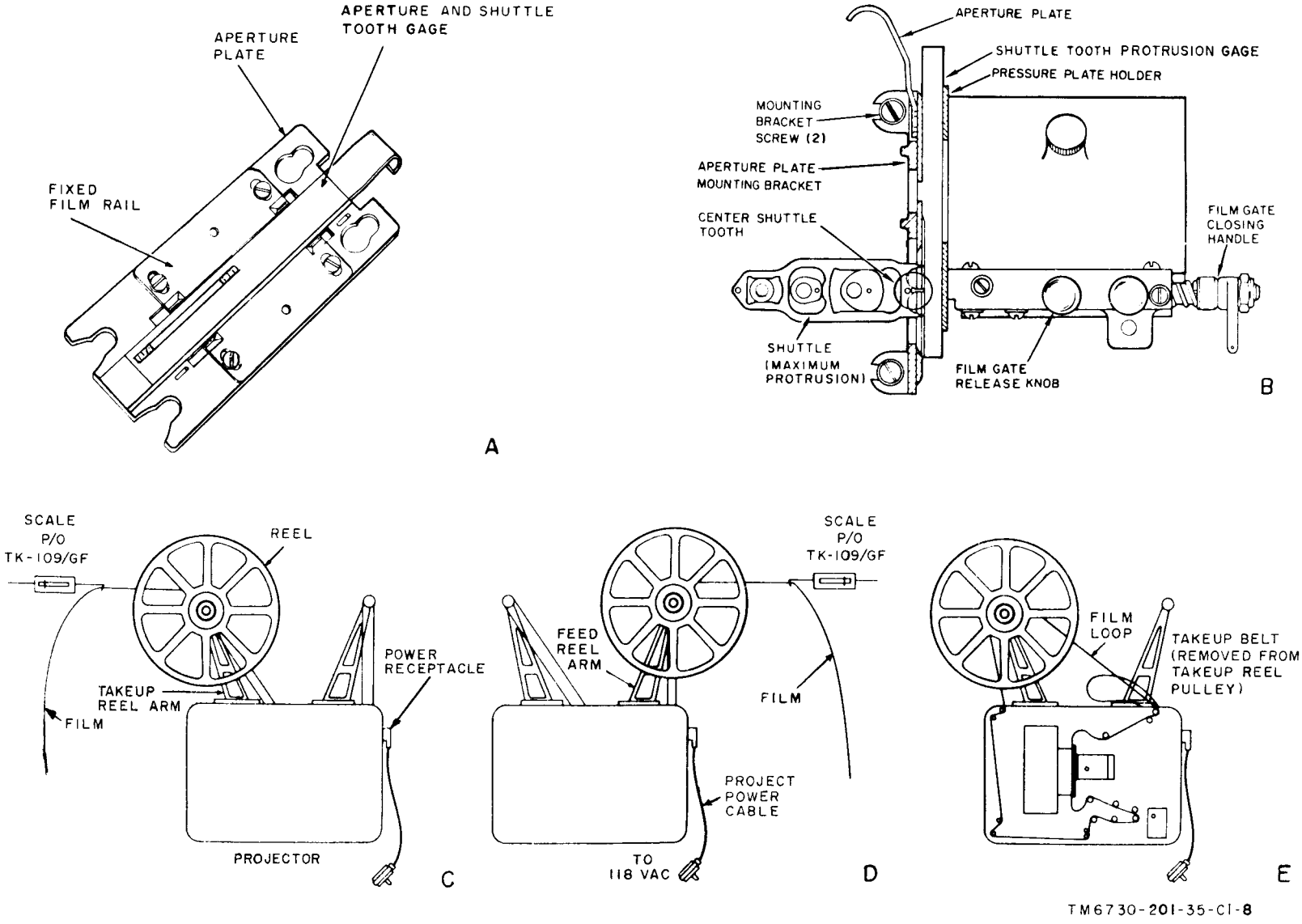


Figure 6–0. Mechanical tests.

(3) Check to see that the rewind knob is disengaged and that power is being applied to the projector.

(4) Operate the projector, allow it to project the film for 20 minutes, and then stop the projector and examine the film.

(5) Check that the film shows no signs of wear or damage; no frayed edges, scratches, or torn sprocket holes should be evident.

(6) Reposition the takeup belt on the takeup reel pulley.

6-5. Proiector Optical Tests

Set up screen, Projection BM–1 (1) to obtain a 40-inch wide projected image. Test the optical performance of the projector as follows:

a. Focus.

(1) Thread the projector with the academy test film; check to see that the rewind knob is disengaged.

(2) Project the film; if necessary, focus the projector to obtain sharp images.

(3) Examine the projected images for sharpness of detail.

(4) Check to see that the projector focuses easily and retains its focus.

(5) Stop the projector and remove the academy test film.

b. Steadiness.

(1) Thread the projector with the picture unsteadiness test film; check to see that the rewind knob is disengaged.

(2) Project the film; check to see that the vertical and horizontal displacements of the projected image do not exceed three thirty-seconds of an inch.

(3) During projection of the film, check to see that the FRAMER operates smoothly and retains its setting.

(4) Stop the projector and remove the picture unsteadiness test film.

c. Shutter Synchronization.

(1) Thread the projector with the travel ghost test film; check to see that the rewind knob is disengaged.

(2) Project the film; check to see that the projected image does not contain light streaks or tails.

(3) Stop the projector and remove the travel ghost test film.

d. Screen Illumination.

(1) Operate the projector without film; examine the area illuminated by the projector (fig. 6–1) for lines, spots, light or dark areas, and color rings or bands.

(2) Use Meter, Foot Candle Photoelectric ME–86/U to measure the light intensity; check to see that the light sensing probe is held at the center of the area illuminated by the projector. Note and record the reading obtained.

(3) Measure the light intensity of the remaining portions of the area illuminated by the projector; check to see that no measurement is less than 65 percent of that noted in (2) above.

(4) Stop the projector.

6-6. Proiector Sound System Tests

a. Volume Control Operation.

(1) Set the amplifier ON-OFF switch to ON; allow 5 minutes for warmup.

(2) Rotate the VOLUME control to 10 and back to 0 three times; check to see that no static can be heard from the speaker during rotation.

b. Tone Control Operation.

(1) Set the VOLUME control to 10 and rotate the TONE control to each of its positions. Check to see the TONE control to each of its positions. Check to see that neither fast nor slow rotation of the TONE control causes static to be heard from the speaker.

(2) Set the TONE control to NOR and the VOLUME control to 0.

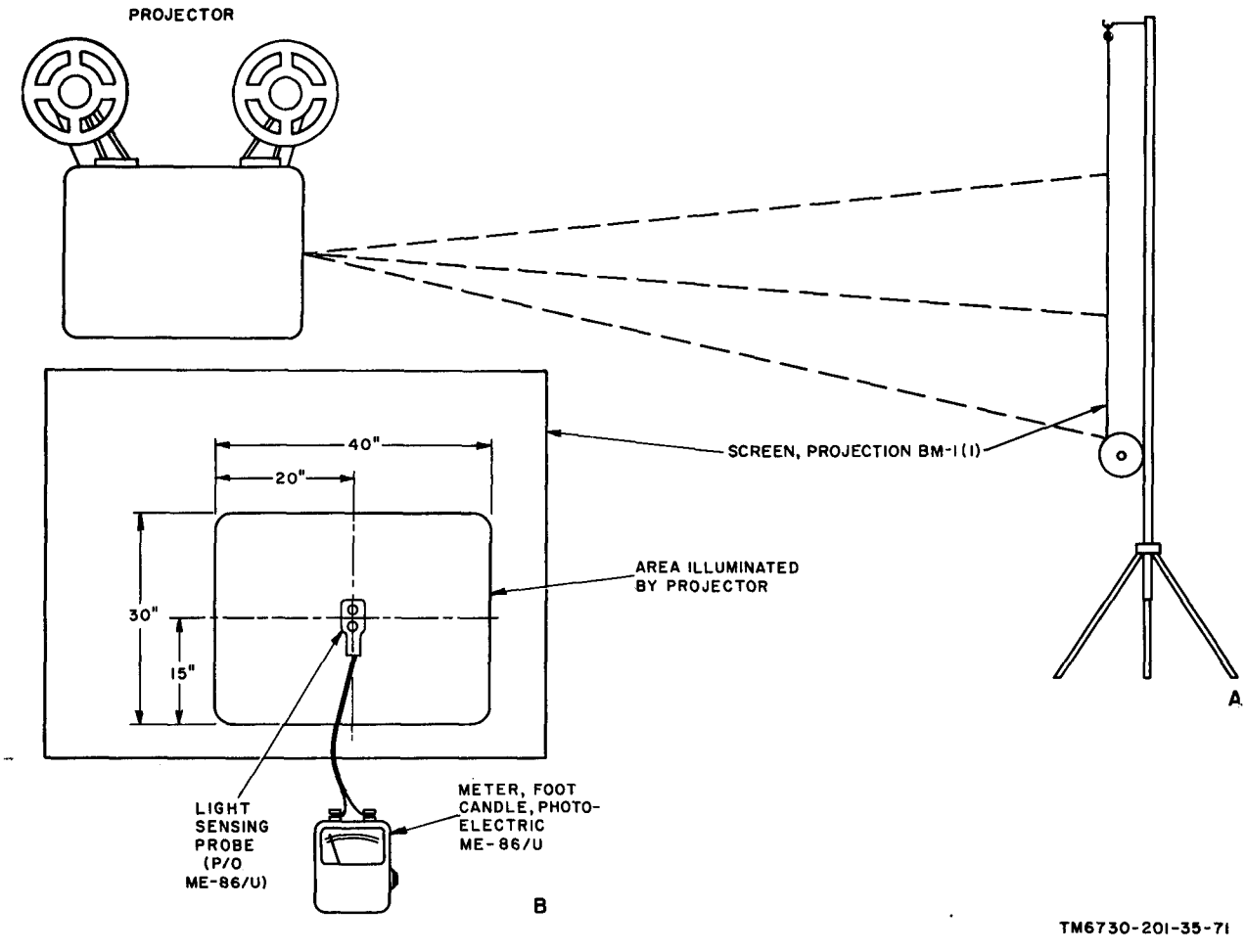


Figure 6-1. Screen illumination, test setup.

C. Optical Sound System Operation.

(1) Set the speaker selector switch to REMOTE SPEAKER ON and connect a 16-ohm, 38-watt resistor across terminals 1 and 3 of the REMOTE SPEAKER receptacle (fig. 6-3).

(2) Adjust Electronic Voltmeter ME-30(*)/U to read 10 volts and connect the meter INPUT across the 16-ohm, 38-watt resistor.

(3) Thread the projector with the 400-cycle test film and operate the projector.

(4) Rotate the projector VOLUME control to obtain an ME–30 (*)/U reading of 8 volts.

(5) Stop the projector without disturbing the VOLUME control setting, remove the 400-cycle test film, and thread the projector with the buzz track test film.

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(6) Adjust the ME–30(*)/U to read 0.1 volt and operate the projector; check to see that the ME-30(*)/U reading does not exceed 0.05 volt.
(7) Stop the projector and remove the buzz track test film and the ME-30(*)/U.

d. Power Output and Distortion.

(1) If necessary, connect a 16-ohm, 38-watt resistor across terminals 1 and 3 of the REMOTE SPEAKER receptacle (fig. 6-4).
(2) Set Spectrum Analyzer TS-723 (*)/U to measure 100 cps at 30 volts; check to see that the METER receptacle is connected to the AF INPUT receptacle.
(3) Connect the AF INPUT of the TS-723 (*)/U across the 16-ohm, 38-watt resistor.
(4) Set Audio Oscillator TS-382A/U to provide 100 cps without attenuation; use Dummy Load DA–35/U and Adapter, Test MX-1572/U to connect the TS-382A/U to the projector MICROPHONE receptacle.
(5) Set Electronic Voltmeter ME-30(*)/U to read 0.3 volt and connect its INPUT across Dummy Load DA-35/U.
(6) Adjust the projector VOLUME control to obtain a TS-723 (*)/U meter reading of 11 volts.
(7) Set the TS-723(*)/U function switch to SET LEVEL, set the meter range switch to 100%, and adjust the signal INPUT control to obtain a reading of 1.0 on the upper scale of R. M. S. VOLTS DECIBELS meter.
(8) Set the TS–723(*)/U function switch to DISTORTION, the meter range switch to 10%, and alternately adjust the fine FREQUENCY tuning control and the BALANCE control to obtain minimum R. M. S. VOLTS DECIBELS meter reading.
(9) Note and record the distortion present at 100, 1,000, 2,000, 4,000, and

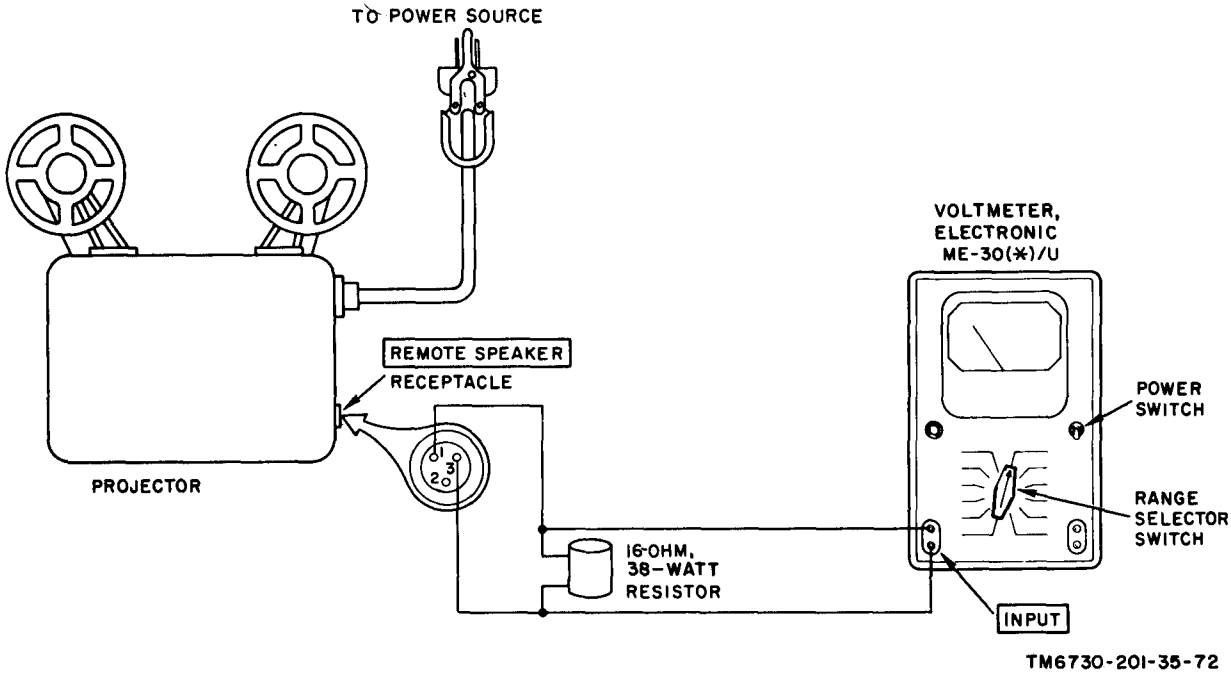


Figure 6-3. Optical alignment, test setup.

7,000 cycles per second (cps); check to see that the distortions indicated by Spectrum Analyzer TS-723(*)/U do not exceed 2 percent.

(10) Remove the TS-723(*)/U from the 16-ohm, 38-watt resistor.

e. Frequency Response and Noise.

(1) Designate Electronic Voltmeter ME-30(*)/U, which has its INPUT connected to Dummy Load DA-35/U (fig. 6-5), as No. 1.

(2) Connect the INPUT of a second Electronic Voltmeter ME-30(*)/U across the 16-ohm, 38-watt resistor; check to see that the resistor is across terminals 1 and 3 of the projector REMOTE SPEAKER receptacle.

(3) Designate the ME-30(*)/U, which has its INPUT connected across the 16-ohm, 38-watt resistor, as No. 2.

(4) Adjust ME-30(*)/U No. 1 to read 0.03 volt.

(5) Adjust ME-30(*)/U No, 2 to read 10 volts.

(6) Adjust Audio Oscillator TS-382A/U to provide 400 cps; position its ATTENUATOR switch to X1; check to see that its output is connected to Dummy Load DA-35/U. Set the OUTPUT LEVEL control to obtain an ME-30(*)/U No. 1 reading of 0.018 volt.

(7) Adjust the projector TONE control to NOR and the VOLUME control to obtain an ME-30(*)/U No. 2 reading of 7.7 volts; do not change the VOLUME control setting during the remainder of the frequency response test.

(8) Adjust the TS-382A/U to provide frequencies of 70, 100, 200, 400, 500, 1,000, 2,000 3,000, 4,000, 5,000, 6,000, and 7,000 cps; if necessary, readjust the TS-382A/U OUTPUT LEVEL control to maintain an ME-30(*)/U No. 1 reading of 0.018 volt.

(9) Note and record the reading of ME-30(*)/U No. 2 at each frequency from the reference level ((7) above). Check to see that the deviation at any frequency does not exceed 2 decibels (db).

(l0) Readjust the TS-382A/U to provide 100 cps at 0.018 volt, position the projector TONE control in each of its positions, and note and record the readings of ME-30(*)/U No. 2.

(11) Perform the procedure given in (10) above for 3,500 cps and 5,000 cps; check to see that the readings of ME-30(*)/U No. 2 do not deviate more than 2 db from those values listed in the following chart:

TONE control position	ME-30(*)/U No. 2 reading (db)		
	100 cps	3,500 cps	5,000 cps
LO (-1)	0	-7	-10
LO (-2)	0	4	-6
NOR	0	0	0
HI (-2)	-5	0	
HI (-i)	-12	+6	+5

(12) Adjust the TS-382A/U to provide 400 cps at 0.018 volt,

(13) Adjust ME-30(*)/U No. 2 to read 30 volts.

(14) Operate the projector and adjust the VOLUME control to obtain an ME-30(*)/U No. 2 reading of 11.3 volts.

(15) Remove Adapter, Test MX-1572/U from the projector MICROPHONE receptacle.

(16) Adjust ME-30 (*)/U No. 2 to read 0.3 volt; check to see that the reading does not exceed 0.12 volt.

(17) Stop the projector, remove ME-30 (*)/U No. 2, and remove power from the projector.

6-7. Projector Electrical Tests

a. Projector Speed.

(1) Connect the COUNTER INPUT of Frequency Meter FR-114/U (fig. 6-6) to terminal 1 of the projector REMOTE SPEAKER receptacle.

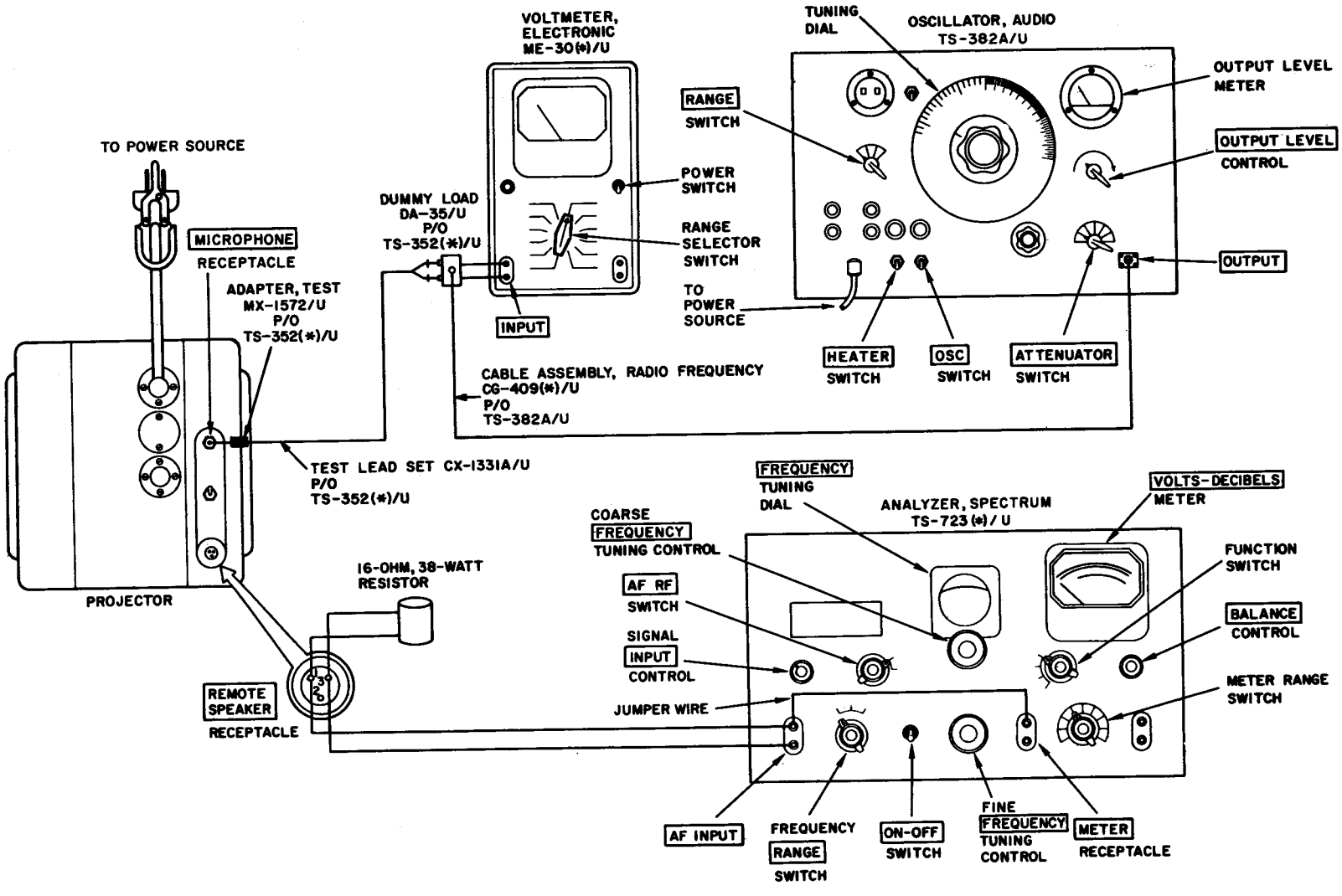


Figure 6–4. Power output and distortion, test setup.

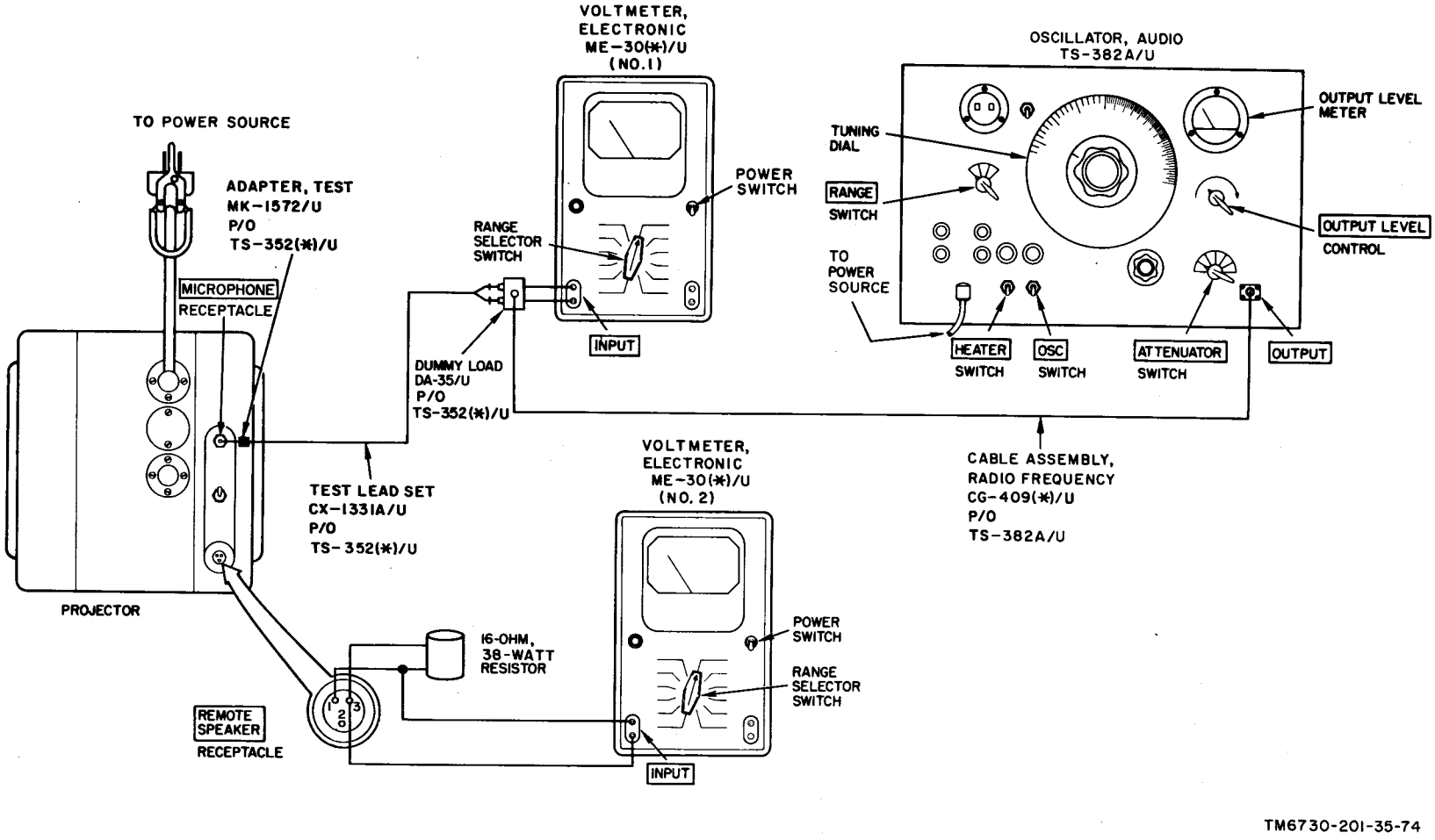


Figure 6–5. Frequency response and noise, test setup.

(2) Connect the GND terminal of the FR-114/U to terminal 3 of the projector REMOTE SPEAKER receptacle; check to see that the 16-ohm, 38-watt resistor is also across terminals 1 and 3.

(3) Adjust the FR-114/U to count a frequency of 400 cps.

(4) Connect the projector power cable male plug to Transformer, Variable Power (3N-16 (*)/U.

(5) Adjust the CN-16(*)/U to provide 115 volts; monitor the voltage with Electronic Voltmeter ME-30(*)/U,

(6) Thread the projector with the 400-cycle test film; check to see that the projector amplifier ON-OFF switch is ON and the VOLUME control is set to its minimum position.

Caution: **Do not set the projector OFF-MOTOR-LAMP switch to LAMP; the CN-16(*)/U could be damaged.**

(7) Set the projector OFF-MOTOR-LAMP switch to MOTOR; rotate the projector VOLUME control and the FR-114/U SENSITIVITY control to obtain an INPUT LEVEL meter indication in the green part of the scale.

(8) Make at least three readings of the projector output, average the reading, and check to see that the averaged frequency does not deviate by more than 4 cps from the 400-cycle test film frequency.

(9) Stop the projector and remove the FR-114/U.

b. Low-Voltage Start.

(1) Adjust Transformer, Variable Power CN-16 (*)/U to provide the projector with 105 volts; monitor the voltage with Electronic Voltmeter ME-30(*)/u.

Caution: **Do not set the projector OFF-MOTOR-LAMP switch to LAMP; the CN-16(*)/U could be damaged.**

(2) Set the projector OFF-MOTOR-LAMP switch to MOTOR then back to OFF at least three times; check to see that the projector starts easily and operates properly.

(3) Set the projector OFF-MOTOR-LAMP switch to MOTOR and allow the 400-cycle test film to run through the projector.

(4) Stop the projector, adjust the CN-16(*)/U to provide 115 volts, and rewind the 400-cycle test film.

(5) Stop the projector, remove the take-up and feed reels, and disconnect the, projector from the CN-16(*)/U.

c. Insulation Resistance.

(1) Set the projector OFF-MOTOR-LAMP switch to LAMP.

(2) Adjust Multimeter TS-352(*)/U to read its highest ohmmage scale; connect one test lead to the projector frame and the remaining test lead to either flat blade of the power connector. The TS-352 (*)/U should not indicate less than 5 megohms.

(3) Remove the test lead connected to the flat blade of the power connector and connect it to the grounding blade or the grounding wire; check to see that the TS-352 (*)/U indicates 0 ohm.

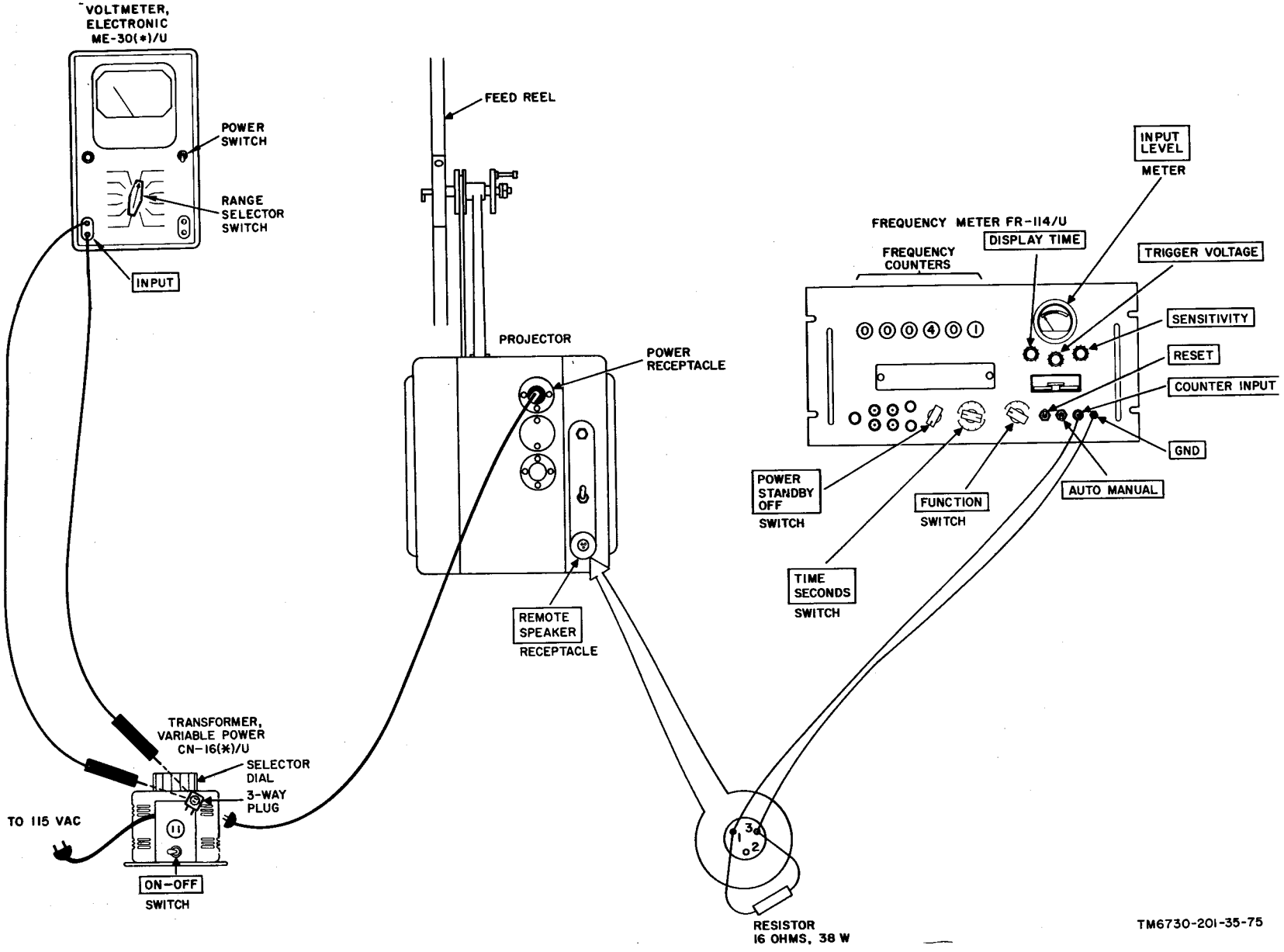


Figure 6-6. Projector speed and low-voltage operation, test setup.

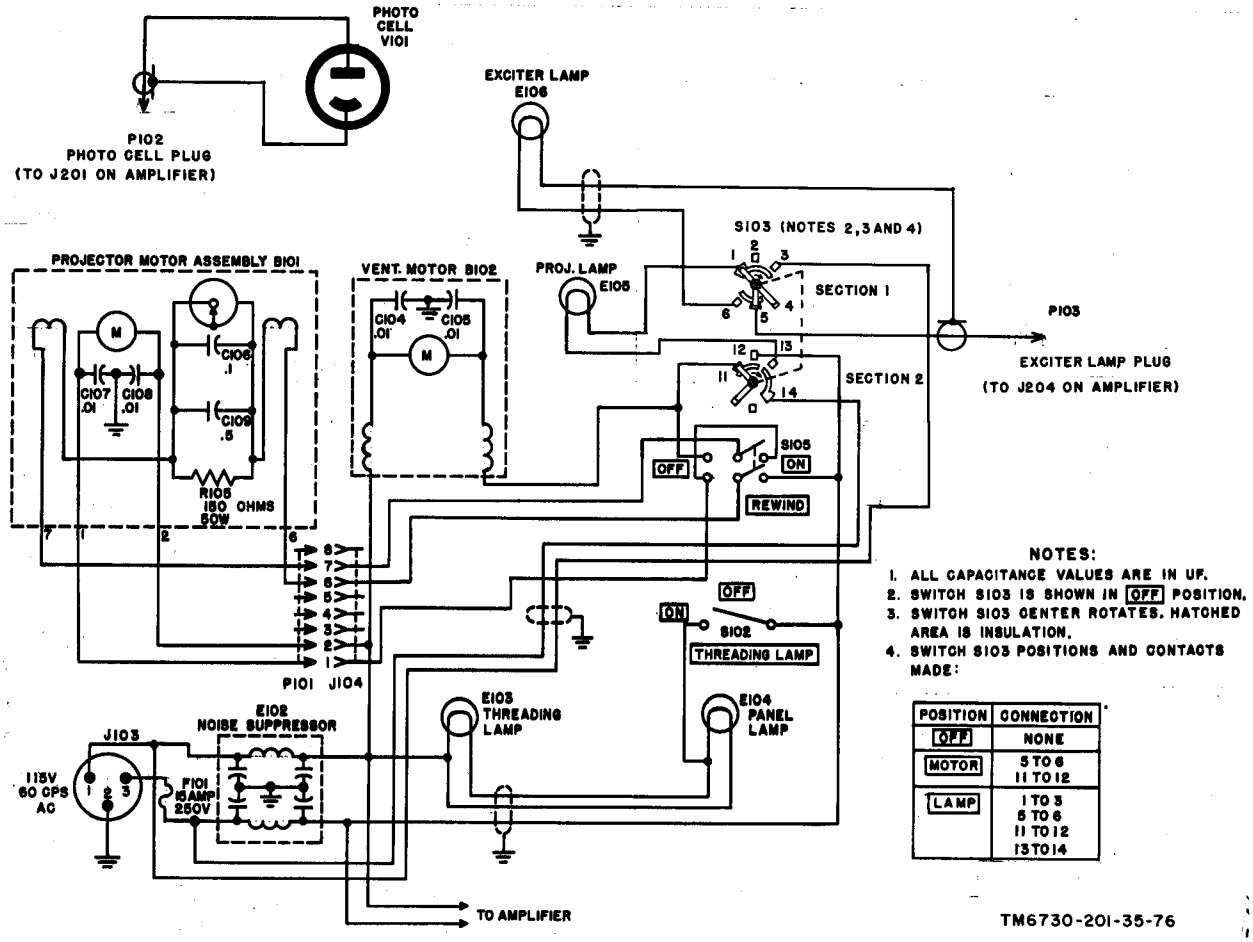
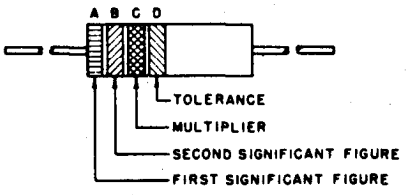


Figure 6-7. Projector AQ-2A (1) and AQ-2A (2), projector power schematic diagram.

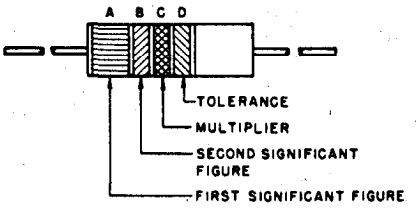
COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS

COMPOSITION-TYPE RESISTORS



BAND A— Equal Width Band Signifies Composition-Type

WIREWOUND-TYPE RESISTORS

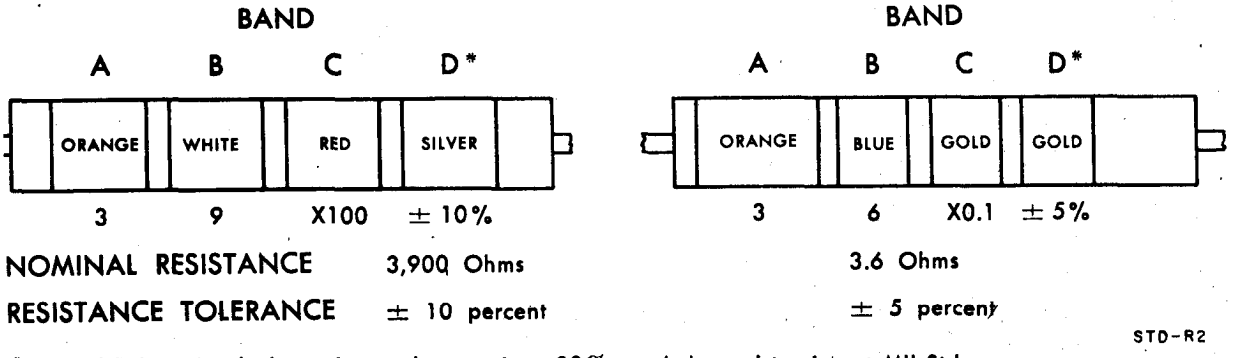


BAND A— Double Width Signifies Wire-wound Resistor

COLOR CODE TABLE

BAND A		BAND B		BAND C		BAND D*	
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)
BLACK	0	BLACK	0	BLACK	1		
BROWN	1	BROWN	1	BROWN	10		
RED	2	RED	2	RED	100		
ORANGE	3	ORANGE	3	ORANGE	1,000		
YELLOW	4	YELLOW	4	YELLOW	10,000	SILVER	± 10
GREEN	5	GREEN	5	GREEN	100,000	GOLD	± 5
BLUE	6	BLUE	6	BLUE	1,000,000		
PURPLE (VIOLET)	7	PURPLE (VIOLET)	7				
GRAY	8	GRAY	8	SILVER	0.01		
WHITE	9	WHITE	9	GOLD	0.1		

EXAMPLES OF COLOR CODING



*If Band D is omitted, the resistor tolerance is ±20%, and the resistor is not Mil-Std.

Figure 6-9. Color code marking for MIL-STD resistors.

APPENDIX A

REFERENCES

The following is a list of applicable references available to the repairman of Projection Set, Motion Picture, Sound AS-2(1):

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Catalogs (type CL), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders.
TM 11-6730-201-10	Operator's Manual: Projection Set, Motion Picture, Sound AS-2(1); Including Projectors, Motion Picture Sound AQ-2A (1), AS-2A(2), and AQ-2A(3).
TA 11-17	Signal Field Maintenance Shops
TA 11-100 (11-17)	Allowances of Signal Corps Expendable Supplies for Signal Field Maintenance Shops.
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Treatment.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 9-213	Painting Instructions for Field Use.
TM 11-5097	Spectrum Analyzers TS-723A/U, TS-723B/U, TS-723C/U, and TS-723D/U.
TM 11-5965-229-15P	Organizational, DS, GS, and Depot Maintenance Repair Parts, Loudspeaker, Permanent Magnet LS-170/PFP-1, LS-170A/PFP-1.
TM 11-6625-366-15	Organizational, DS, GS, and Depot Maintenance Manual Multimeter TS-352B/U.
TM 11-6625-218-12	Operation and Organizational Maintenance: Frequency Meter AN/TSM-16.
TM 11-6625-239-12	Operator's and Organizational Maintenance Manual: Electronic Multimeters TS-505A/U, TS-505B/U; Multimeters TS-505C/U and TS-505D/U.
TM 11-6625-261-12	Operator's and Organizational Maintenance Manual: Audio Oscillators TS-382A/U, TS-382B/U, TS-382D/U, TS-382E/U, and TS-382F/U.
TM 11-6625-274-12	Operator's and Organizational Maintenance Manual: Test Sets Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.
TM 11-6625-320-12	Operator's and Organizational Maintenance Manual: Voltmeter, Meter ME-30A/U and Voltmeters, Electronic ME-30B/U and ME-30C/U.
TM 11-6730-201-20	Organizational Maintenance Manual: Projection Set, Motion Picture, Sound AS-2 (1); Including Projectors, Motion Picture Sound AQ-2A(1); AQ-2A(2), and AQ-2A(3).
TM 11-6760-212-12	Operational and Organizational Maintenance Manual: Flutter Indicator ID-851/U.

APPENDIX B

DS, GS, AND DEPOT REPAIR PARTS

Section I. INTRODUCTION

B-1. Scope

This appendix contains a list of repair parts required for the performance of direct support, general support, and depot maintenance for Projection Set, Motion Picture, Sound AS-2(1).

Note. No special tools, test, and support equipment are required.

B-2. General

The repair parts list is divided into the following sections:

a. Repair Parts for Direct Support, General Support, and Depot Maintenance, Section II. Repair parts authorized for direct support, general support, and depot maintenance are included in this section.

Note. All indexes noted below are cross-referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list (para 3b). The index number for the particular item will be the same for the item in all sections of this publication.

b. Federal Stock Number Cross-Reference to Index Number, Section III. This is a cross-reference index of Federal stock numbers to index numbers.

c. Figure and Item Number Cross-Reference to Index Number, Section IV. This is a cross-reference index of figure number and item number (or reference designation) to index number. The figure numbers are listed in numerical sequence; item numbers and/or reference designations are listed for each figure.

B-3. Explanation of Columns

An explanation of the columns is given below.

a. Source, Maintenance, and Recoverability Codes (SMR) and Index Numbers Column. The first line in this column lists the applicable SMR codes for the part. Listed in ascending order directly below the SMR codes is the index number assigned to the repair part.

(1) *Source Code (S).* The selection status and source for the listed item is noted here. Source codes and their explanations are as follows:

Code	*Explanation*
P	. . . Applies to repair parts that are stocked in or supplied from the GSA/DSA, or Army Supply system, and authorized for use at indicated maintenance categories.
M	. . . . Applies to repair parts that are not procured or stocked but are to be manufactured at indicated maintenance categories.
A	. . . . Applies to assemblies that are not procured or stocked as such but are made up of two or more units, each of which carries an individual stock number and description and is procured and stocked and can be assembled by units at indicated maintenance categories.
X1	. . . Applies to repair parts that are not procured or stocked, the requirement for which will be supplied by the use of next higher assembly or component.
X2	. . .Applies to repair parts that are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
C	... Applies to repair parts authorized for local procurement. If not obtainable from local procurement, such repair parts will be requisitioned through normal supply channels with a supporting statement of nonavailability from local procurement,

(2) *Maintenance code (M).* The lowest category of maintenance authorized to install the listed item is noted here.

Code	*Explanation*
O	. . . . . Organizational maintenance
F	. . . . . Direct support maintenance
H	. . . . . General support maintenance
D	. . . . . Depot maintenance

(3) *Recoverability code (R).* The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability code and its explanation is as follows:

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

Code	*Explanation*
R	. . . . Applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number Column. The Federal stock number for the item is listed in this column.

c. Description Column. This column includes the Federal item name and any additional description of the item required, the manufacturer's part number (reference number), and the applicable five-digit Federal Supply Code for Manufacturers (para B-5). Also included in this column are the designators 1, 2, 3, 4, etc. listed under the heading Usable on Code. The designators, which are explained at the beginning of the description column in the repair parts list, indicate that the part is used on the model or serially numbered groups so identified.

d. Unit of Issue Column. The unit used as a basis of issue (e.g., ae, pr, ft, yd, etc.) is indicated in this column.

e. Quantity Incorporated in. Unit Pack Column.. Not used.

f. Quantity Incorporated in Unit Column. The quantity of repair parts in an assembly is indicated in this column. An asterisk (*) indicates that an item may be requisitioned "as required."

g. Maintenance Allowances Column.

(1) The maintenance columns are divided into subcolumns. Indicated in each subcolumn 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 categories of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

h. One-Year Allowances Per 100 Equipments /Contingency Plaining Purposes, Column. Opposite eaeh item, the total quantity required for distribution and contingency planning purposes is indicated. 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 Column. This column indicates the total quantity of each item authorized depot maintenance for 100 equipments.

j. Illustrations Column.

(1) *Figure number (a).* The number of the illustration in which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* The callout number or reference designation used to reference the item in the illustration appears in this column.

B-4. Location of Repair Parts

a. This manual contains two cross-reference indexes (see III and IV), to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), and figure number is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alphanumerical sequence. The last column of each cross-reference index lists the index number assigned to the part.

b. Refer to the appropriate cross-reference index (para *2b, c)* and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

B-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code	*Manufacturer*
06650	Bell & Howell Co.
30684	Industrial Products Co.
71468	ITT Cannon Electric Inc.
71590	Centralab Div of Globe-Union Inc.
72928v	Gudeman Co.
80063	Army Electronics Command
81349	Military Specifications
81350	Joint Army-Navy Specifications
88044	Aeronautical Standards Group
96906	Military Standards

(1) SMR :ODE / IDEX 10.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	i) IIT)F UE	Y IN T :K	Y II T	(7) 0-DAY DS MAINT ALLOWANCE) 20	b) -5C	:) 10(	(8) 0-DAY GS MAINT ALLOWANCE a) 20	i) -5(	:) 10	3) YR PEI UIF GCY	0) OT NT PE O IP	(11) USTRATIONS i) G).	(b) TEM NO. OR REFERENCE DESIGNATION
---I)01	;0-663-9813	PROJECTION SET, MOTI ON PI CTURE, SOUND AS-2(1) : 16 mm; w/internal speaker (This item is nonexpendab le)														
		GROUP I AMPLIFIER														
		Usable on code 1 refersto AQ-2A(1); code 2 refers to AQ-2A(2); code 3 refers to AQ-2A(3); code 4 refers to AQ-2A(4).														
-H 002		AMPLIFIER ASSEMBLY : SM-D-338876; 80063	1,2,3,4	ea		]									-6	
-F 003	30-729-9400	CABLE ASSEMBLY, SMPLIFIER LINE: (With male connector) SM-B-338964; 80063	1,2,3,4	ea		:	*	2	2	*	2	2	12	5	-8	
-F .004	10-950-8633	CAPACITOR, FIXED : DD103 ; 71590	1,2	ea		:	*	*	2	*	)	2	5	3	-9 -1	206 208 217
-F 1005	10-666-6787	CAPACITOR, DISC: .002 mf d ; ±10%; p/o switch assy, tone control, 6760-345-0549; SM-B -338877-3 ; 80063	1,2,3,4	ea		:	*	*	2	*	)	2	5	3		
-F 1006	10-823-1068	CAPACITOR, FIXED, CERAMIC : CK62AW472M; 81349	3,4	ea		.	*	*	2	*	.	2	16	8	;-1	:202, C203, :207, C211
-F 1009	10-950-8633	CAPACITOR, FIXED: DD103 ; 71590	3,4	ea			*	*	2	*	.	2	5	3	3-1 3-:	:206, C208 :217
-F 1010	10-194-7431	CAPACITOR, FIXED: X5-2632; 72928	1,2	ea			*	*	2	*	.	2	5	3	3-9	:215
-F 1011	10-101-4887	CAPACITOR, FIXED, MICA: CM20C510J; 81349	1,2	ea			*	*	2	)	.	2	5	3	3-9	:204
P-F A012	10-892-7875	CAPACITOR, FIXED : CP04A1KE104K1 ; 81349	1	ea			*	*	2	)		2	5	3	3-9	:213
P-F A01:	10-892-7875	CAPACITOR, FIXED: CP04A1KE104K1; 81349	2,3,4	ea			*	*	2	)		2	10	6	3-9 3-	:212 :213
P-F A01	10-855-3725	CAPACITOR, FIXED : CP12A1KE104K3 ; 81349	1,2,3,4	ea			*	*	*	:		*	5	5	3-	:219
P-F A01'	910-228-5953	CAPACITOR, FIXED, CERAMIC DIELECTRIC : SM-B-338979; 80063	1,2,3,4	ea			*	2	2	:		2	13	9	3-	:221, C222, :230
P-F A01	910-823-1068	CAPACITOR, FIXED, CERAMIC DIELECTRIC : CK62AW472M ; 81349	1,2	ea			*	2	2	.		2	16	8	3-	C202, C203, C207, C211
P-F A01	910-577-3064	CAPACITOR, ELECTROLYTIC : CE53C200Q; 81349	1,2,3,4	ea			*	*	2	.		*	10	(	3-	C214, C216
P-F A01	910-769-5130	CAPACITOR, FIXED, ELECTROLYTIC : SM-B-338980 ; 80063	1,2,3,4	ea			*	*	*	.		*	5	:		
P-F A01	910-615-9735	CAPACITOR, FIXED, GLASS DIELECTRIC: CY15C511J; 81349	1,2,3,4	ea			*	*	2			2	5	:	3-	C218
P-F A02	910-101-4023	CAPACITOR, FIXED, MICA DIELECTRIC : CM30B102K; 81349	1,2,3,4	ea			)	*	*			*		:	3- 3-	C209
P-F A02	910-100-8049	CAPACITOR, FIXED, MICA DIELECTRIC : CM30B222K; 81349	1,2,3,4	ea				)	*			)			3- 3-	C210
P-F A02	910-101-5573	CAPACITOR, FIXED, MICA DIELECTRIC : CM20B201J ; 81349	1,2	ea				)							3-	C201
P-F A02	910-101-4887	CAPACITOR, FIXED, MICA DIELECTRIC : CM20C510J ; 81349	3,4	ea									1(		3-	C204, C223
P-F A02	910-983-7295	CAPACITOR, FIXED, MICA DIELECTRIC : CM20B101M; 81350	1,2,3,4	ea					)						3- 3-	C205

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR, CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	30-DAY DS MAINT ALLOWANCE (a) -20	(b) 21-50	(c) -10	30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 1-50	(c) -10	(9) 1 YR W PE QUIP ITGC	(10) EPOT AINT W PER 100 QUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A025	6760-345-0521	COIL, ASSEMBLY, OSCILLATOR : SM-B-338885 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	3-1	
P-F A026	5950-244-8420	COIL, OSCILLATOR: SM-B-338886; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	3-1	201
P-F A028	5935-259-2034	CONNECTOR, RECEPTACLE, ELECTRICAL : SM-B-338971 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	8	5	3-8	204
P-F A029	5935-257-8698	CONNECTOR, RECEPTACLE, ELECTRICAL: Remote speaker; 612955; 06650	1,2	ea		1	*	*	2	*	*	2	5	3	3-8	203
P-F A030	5935-552-1766	CONNECTOR, RECEPTACLE, ELECTRICAL: Remot e speaker; SM-B-446866; 80063	3,4	ea		1	*	*	2	*	*	2	8	5	3-8	203
P-F A031	5935-539-0368	CONNECTOR, RECEPTACLE, ELECTRICAL: P/n MC-20; 30684	1	ea		1	*	*	2	*	*	2	5	3		201
P-O A032	5960-827-8724	ELECTRON TUBE: Jan type 12AX7; SM-D-338876-6; 80063	1,2,3,4	ea		2	2	4	8	2	2	2	95	25	3-6	201, V202
P-O A033	5960-669-6861	ELECTRON TUBE: Jan type 6AQ5W; SM-D-338876-7; 80063	1,2,3,4	ea		3	2	4	8	2	2	2	95	25	3-6	203, V204, 205
P-O A034	5960-2 62-9182	ELECTRON TUBE: MIL-E-IB; type no. 6X4WA; SM-D-338876-8; 80063	1,2,3,4	ea		2	2	4	8	2	2	2	95	25	3-6	206, V207
P-O A035	5920-284-6733	FUSE: .8 amp; SM-B-338972; 80063	1,2,3,4	ea		1	2	6	11	2	2	3	30	00	3-6	201
P-F A036	5920 -556-0144	FUSEHOLDER: SM-D-338876-3; 80063	1,2,3,4	ea		1	*	*	*	*	*	*	5	3	3-6	
X2-D A037		GRILL ASSEMBLY, TUBE VENT: SM-C-338927; 80063	1,2,3,4	ea		1									3-6	
X2 -D A038		GRILL: SM-C-338928; 80063	1,2,3,4	ea		1									3-6	
M-D A039		GUARD, SWITCH: SM-B-338958; 80063	1,2,3,4	ea		1									3-7	
P-F A040	5935-950-9817	JACK, MICROPHONE: SM-B-338970; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	8	3	3-8	202
P-O A041	5355-284-5131	KNOB, CONTROL: (Volume and tone) SM-B-338951; 80063	1,2,3,4	ea		2	*	2	2	*	2	2	13	8		203
P-O A042	6240-155-7857	LAMP, INCANDESCENT: (Amplifier indicator) AN3140-328; 81349	1,2,3,4	ea		1	*	2	2	*	2	2	12	5	3-8	201
P-F A043	5965 -284 -6708	LOUD SPEAKER: 5 inch; SM-C-338955 ; 80063	1,2,3,4	ea		1	*	2	2	*	2	2	12	5	3-7	
P-F A044	5310-523-2031	NUT : SM-D-338876-11; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	8	3		
P-F A045	5310-176-8133	NUT, HEXAGONAL : AN340-6; 81349	1,2,3,4	ea		13	2	2	3	2	2	2	40	39		
P-F A046	5310-176-8135	NUT, HEXAGONAL : AN340-8; 81349	1,2,3,4	ea		7	*	2	2	*	2	2	27	21		
X2-D A047		PANEL , INPUT -OUTPUT : SM-B-338960; 80063	3,4	ea		1									3-7	
X2 -D A048		PANEL, SPEAKER : SM-C-338961; 80063	1,2,3,4	ea		1									3-6	
P-F A049	5905-174-7047	RESISTOR : RU3B2R7K; 81350	1,2,3,4	ea		2	*	*	2	*	*	2	10	6		
P-F A050	5905-192-3982	RESISTOR, FIXED, COMPOSITION : RC20GF105K; 81349	1,2	ea		3	*	*	2	*	*	2	5	3	3-9	201, R207. 210
P-F A051	5905-192-3982	RESISTOR, FIXED, COMPOSITION: RC20GF105J; 81349	3,4	ea		2	*	*	2	*	*	2	8	5	3-1	207, R210
P-F A053	5905-279-1759	RESISTOR, FIXED, COMPOSITION: RC20GF754J; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	202

(1) SMR CODE / NDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR . CODE	USABLE ON CODE	4) NIT OF SUE	5) TY IC IN NIT ACK	6) TY C IN NIT	30-DAY DS MAINT ALLOWANCE (a) -20	(b) 1-50	(c) -100	30-DAY GS MAINT ALLOWANCE (a) -20	(b) -50	(c) -100	(9) YR N PER QUIP TGCY	10) POT INT V PER 00 UIP	(11) LUSTRATIONS (a) IG O.	(b) ITEM NO. OR REFERENCE DESIGNATION
-F 054	905-171-1986	RESISTOR, FIXED, COMPOSITION : RC20GF563J; 81349	1,2,3,4	ea		1									-9 -10	:204
'-F 055	905-185-8510	RESISTOR, FIXED, COMPOSITION : MIL RC20GF103J; 96906	1,2	ea		3	*	*	2	*	*	2	8	5	-9	:205, R225, :226
-F 056	905-185-8510	RESISTOR, FIXED, COMPOSITION: MIL RC20GF103J; 96906	3,4	ea		4	*	2	2	*	2	2	16	12	;-10	:205 , R225, :226, R236
-F 057	905-279-2514	RESISTOR, FIXED, COMPOSITION : RC20GF564J; 81349	1,2,3,4	ea		4	*	*	2	*	*	2	16	12	;-10	:206, R209, :215, R216
-F 058	905-195 -6453	RESISTOR, FIXED, COMPOSITION : RC20GF562J; 81349	1,2,3,4	ea		2	*	*	2	*	*	2	5	3	3-9 3-10	:208, :217
-F 059	905-299-1971	RESISTOR , FIXED, COMPOSITION : RC20GF822J; 81349	1,2,3,4	ea		1									3-9 3-10	:211
-F 060	905-156-5921	RESISTOR, FIXED, COMPOSITION : RW55G501; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	:228
-F 061	905-299 -2046	RESISTOR, FIXED, COMPOSITION : RC32GF152J; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	:227
-F 062	905-192-0667	RESI STOR , FIXED , COMPOSI TI ON : RC20GF224J; 96906	3,4	ea		1	*	*	2	*	*	2	5	3	3-10	:224
P-F A063	5905-279-1867	RESISTOR, FIXED, COMPOSITION : RC20GF114J; 96906	2,3,4	ea		2									3-9 3-10	R220, R221
P-F A064	5905-279-3503	RESISTOR, FIXED, COMPOSITION : RC20GF682J; 96906	1,2,3,4	ea		1	*	*	*	*	*	*	5	3	3-9 3-10	R222
P-F A065	5905-190-8865	RESISTOR, FIXED, COMPOSITION: RC20GF274J; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	R223
P-F A066	5905-254-9201	RESISTOR, FIXED, COMPOSITION : RC20GF473J; 96906	3,4	ea		1									3-10	R223
P-F A067	5905-279-2515	RESISTOR, FIXED, COMPOSITION : RC20GF474J; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	R224
P-F A068	5905-171-2003	RESISTOR , FIXED, COMPOSITION : RC20GF204J; 81349	1	ea		2	*	*	2	*	*	2	5	3	3-9	R220 , R221
P-F A069	5905 -171-2003	RESISTOR , FIXED, COMPOSITION : RC20GF204J; 81349	2	ea		2	*	*	2	*	*	2	5	3	3-9	R218 , R219
P-F A070	5905-279-1866	RESISTOR, FIXED, COMPOSITION : 10 megohm; MS35043-37; 81349	1,2,3,4	ea			*	*	2	*	*	2	5	3	3-7	R232, R233, R234
P-F A071	5905-279-2591	RESISTOR, FIXED, COMPOSITION : RC20GF241J; 81349	1,2,3,4	ea			*	*	2	*	*	2	5	3	3-11	R231
P-F A072	5905-252-4018	RESISTOR, FIXED, COMPOSITION: RC20GF470J ; 81349	1,2,3,4	ea			*	*	*	*		*	5	3	3-11	R230
P-F A073	5905-279-1867	RESISTOR , FIXED , COMPOSITION : RC20GF114J; 96906	1	ea											3-9	R218, R219
P-F A074	5905-279-350	RESISTOR, FIXED, COMPOSITION RC20GF682J; 81349	1,2,3, 4	ea			*	*	2	*	*	2	5	3	3-9 3-10	R214
P-F A075	5905-279-1881	RESISTOR, FIXED, COMPOSITION : RC20GF335J; 81349	1,2,3,4	ea			*	*	2	*		2	5	3	3-9 3-10	R212
P-F A076	5905-577-9415	RESISTOR, FIXED, WI REWOUND : RW59V351; 81349	3,4	ea		2									3-10	R228 , R240
P-F A077	5905 -192-0174	RESISTOR, FIXED, WIREWOUND : RW29G161; 81349	1,2	ea		1	*	*	*	*	*	*	5	3	3-7	R229
P-F A078	5905-752-3260	RESISTOR, FIXED, WIREWOUND : RW29G221; 81349	3,4	ea		1	*	*	*	*	*	*	5	3	3-7	R229
P-F A079	5905-174-2182	RESISTOR, VARIABLE: MIL RV4NAXS3504C ; 81349	1,2,3,4	ea		1	*	*	2	*	*	2	8	3	3-8	
P-F A080	5905-980-5251	RESISTOR , ASSEMBLY, VARIABLE: SM-B-338911; 80063	1,2,3, 4	ea			*	*	*	*	*	*	5	3	3-8	R203
P-F A081	5905-056-3771	RESISTOR, ASSEMBLY, VARIABLE: SM-B-338893 ; 80063	1,2,3,4	ea			*	*	2	*	*	2	5	3	3-7	R213

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT/PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a)	(b)	(c)	30-DAY GS MAINT ALLOWANCE (a)	(b)	(c)	(9) UNIT WT OR CUBIC VOLUME	(10) UNIT PACK WT OR CUBE	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A082	5905-052-91	RESISTOR, VARIABLE: SM-B-338894; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	3-7	
M-D A083		SCREEN, REAR PROTECTIVE: SM-C-338963; 80063	1,2,3,4	ea		1									3-6	
M-D A084		SHAFT ASSEMBLY, CONTROL: SM-B-338956; 80063	1,2,3,4	ea		2									3-7	
P-F A085	5960-683-80	SHIELD, TUBE: MS24233-5; 81349	1,2,3,4	ea		2	*	*	*	*	*	*	5	2		
P-F A086	5960-729-81	SHIELD, TUBE: MS24233-3; 81349	1,2,3,4	ea		5	*	2	2	*	2	2	12	5		
P-F A087	5935-129-93	SOCKET, OCTAL (For photocell plug) SM-B-446715-1; 80063	2,3,4	ea		2	*	*	2	*	*	2	10	4		
P-F A088	5935-260-05	SOCKET, ELECTRON TUBE: Jan type TS101P01; 81350	1,2,3,4	ea		3	*	2	2	*		2	13	18		
P-F A089	5935-260-05	SOCKET, ELECTRON TUBE: Jan type TS102P01; 81350	1,2,3,4	ea		5	*	2	2	*	2	2	19	15		
P-F A090	5935-160-13	SOCKET, ELECTRON TUBE: Jan type TS103P01; 81350	1,2,3,4	ea		2	*	*	2	*	*	2	8	6		
X2-F A091		STRIP ASSEMBLY: Resistor and capacitor; 067350; 06650	1,2	ea		1									-9	
P-F A092	6730-724-27	STRIP ASSEMBLY, RESISTOR AND CAPACITOR: SM-B-338934; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	-1	00
C-F A093		STRIP, MOUNTING: SM-B-338943; 80063	3,4	ea		1									-1	
P-F A094	6760-345-05	SWITCH ASSEMBLY, TONE CONTROL: SM-B-338877; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-7	01
P-F A095	5930-642-92	SWITCH, ROTARY: Tone control; SM-B-338878; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-7	
P-F A096	5930-050-26	SWITCH, TOGGLE: Amplifier power; MS35058-9; 81349	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-8	02
P-F A097	5930-65 5-15	SWITCH, TOGGLE: Loudspeaker; MS35058-15; 81349	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-8	03
M-H A098		TRANSFORMER ASSEMBLY: SM-C-338899; 80063	1,2,3,4	ea		1									-8	
P-F A099	5950-569-01	TRANSFORMER, AUDIO FREQUENCY: SM-C-338900; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-8	01
P-F A100	5950-648-17	TRANSFORMER, POWER, STEP-UP AND STEP-DOWN: SM-D-338945; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-6	02
P-F A101	5310-832-81	WASHER: SM-B-339098; 80063	1,2,3,4	ea		*	*	2	*	*	2	8	6			
		GROUP II PROJECTOR														
----R A102		PROJECTOR, MOTION PICTURE SOUND AQ-2(1); AQ-2(2); AQ-2(3); AQ-2(4)														
P-O A103	5730-356-68	APERTURE PLATE ASSEMBLY: SM-C-338527; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-1	
P-F A104	5780-768-03	APERTURE PLATE KIT: Consists of 2 ea screw (4-147) and 1 ea guiderail (A-163) 067395; 06650	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-1	
P-F A105	5780-652-56	APERTURE PLATE KIT: Consists of 1 ea guiderail A-170; 1 ea spring (O-264) 2 ea washer (H-174) 2 ea screw (H-148) 067394; 06650	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-1	

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN	(7) 30-DAY DS MAINT ALLOWANCE (a)	(b)	(c)	30-DAY GS MAINT ALLOWANCE (a)	(b)	(c)	(9)	(10)	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X2-D A106		ARM : SM-C-339039 ; 80063	3,4	ea											4-9	0103
X2-H A107		ARM ASSEMBLY : SM-B-338730 ; 80063	1,2,3,4	ea											5-1	0106
P-O A108	6730-629-0971	ARM ASSEMBLY, FEED REEL: SM-D-339038; 80063	3,4	ea			*	*	2	*		2	5	3	4-9	
P-O A109	6730-567-3001	ARM ASSEMBLY, FEED REEL: SC-D-77684; 80063	1,2	ea			*	*	2	*		2	5	3	4-9	
P-O A110	6730-392-8970	ARM ASSEMBLY, TAKE-UP REEL : SC-D-77710; 80063	1,2	ea			*	*	2	*		2	5	3	4-9	
P-O A111	6730-629-0972	ARM ASSEMBLY, TAKE-UP : (Spindle assy, FSN 6760-392-8974 indicate additional parts for this assy) SM-D-339064; 80063	3,4	ea			*	*	2	*		2	5	3	4-9	
P-F A112	6730-356-6879	ARM ASSEMBLY, TILT JACK: SM-B-338833 ; 80063	1,2,3,4	ea			*	*	2	*		2	5	3	4-3	0105
P-F A113	6760-392-9869	ARM: Counter drive; SM-B-338619; 80063	1,2,3,4	ea			*	*	2	*		2	5	3	5-3	0360
X2-F A114		ARM, HOLDER ROD PUSH : SM-B-338510 ; 80063	1,2,3,4	ea											4-14	0312
P-F A115	6730-768-0309	ARM, TAKE-UP REEL: SM-C-339067 ; 80063	1,2,3,4	ea			*	*	2	*		2	5	3	4-9	0102
P-H A116	6105-811-1101	ARMATURE: SM-C-338721; 80063	1,2,3	ea						*		2	5	3	5-1	0114
P-H A117	6105-635-3295	ARMATURE, MOTOR: SM-B-77627; 80063	1,2	ea						*		2	5	3	5-2	3
P-H A118	6105-635-3297	ARMATURE , MOTOR ASSEMBLY : SM-B-338720 ; 80063	1,2,3	ea						*		2	5	3	5-1	
X2-H A119		BAFFLE : SM-B-338651; 80063	1,2,3,4	ea											4-4	5
X2-H A120		BAFFLE: SM-B-338652 ; 80063	1,2,3,4	ea											4-4	
P-F A121	6730-570-6127	BAR ASSEMBLY, FRAMER PIVOT : SM-B-338445; 80063	1,2,3,4	ea			*	*	2	*		2	5	3	5-5	0121
P-F A122	6730-356-7344	BEARING : SM-B-338717; 80063	1,2,3,4	ea			*	*	2	*		2	5	3	5-1	0317, 0318
P-H A123	3110-144-8850	BEARING, BALL : Norma-Hoffman C-97-PP; p/n 611970; SM-D-338664-2; 06650	1,2,3	ea						*		2	13	6	5-2	
P-H A124	3110-155-9639	BEARING, BALL, ANNULAR: SM-B-338720-3 ; 80063	1,2,3	ea						*		2	5	3	5-1	0310
X2-F A125		BEARING: SM-B-338469; 80063	3,4	ea											5-3	0382
P-H A126	3110-112-5769	BEARING, ROLLER, NEEDLE : SM-B-338575 ; 80063	1,2,3,4	ea						*		2	19	18	4-11	0297, 0298
P-F A127	3120-287-9084	BEARING: P/o roller assembly 6730-356-6956 and roller assembly 6730-356-6955 ; SM-B-338770; 80063	1,2,3,4	ea			*	2	2	*		2	13	6	5-5 511	
P-F A128	3110-156-4278	BEARING, BALL, ANNULAR: SM-D-339038-5 ; 80063	1,2,3,4	ea			*	2	2	*		2	13	6	4-9	0295, 0296
P-F A129	3110-144-8858	BEARING, BALL, ANNULAR: MIL STD 102A; Norma-Hoffman C-98-PP : SM-B-338720-2 ; 80063	1,2,3	ea			*	*	2	*		2	5	3	5-1	0309
P-H A130	3110-144-8841	BEARING, BALL: SM-C-33855 4-3 ; 80063	1,2,3,4	ea						*		2	13	6	4-11	0299, 0300
P-H A131	6730-585-9517	BEARING, BALL : SM-D-338744-3; 80063	3,4	ea						*		2	5	3	5-11	P415

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1-H A132		BEARING, BALL: P/o drum, sound head; FSN 6730-537-9460; 611508; 06650	1,2	ea		1									5-11	0116
-H A133	6730-580-2651	BEARING, BALL : SM-D-338744-4; 80063	3,4	ea		1				*	*	2	5	3	5-11	MP416
2-H A134	3110-183-5759	BEARING, BALL: 611509; 06650	1,2	ea		1									5-11	0117
-F A135	3110-151-9132	BEARING, BALL, THRUST : SM-B-338560 ; 80063	1,2,3,4	ea		6	2	2	3	2	2	2	27	18	4-11	0114, 0115
-H A136	3120-287-9077	BEARING, SLEEVE: Drive shaft ; SM-B-338580 ; 80063	1,2,3,4	ea		1				*	*	2	5	3		
-F A137	6730-618-2479	BEARING, ECCENTRIC: Belt adjustment; SM-B-338621; 80063	3,4	ea		2	*	*	2	*	*	2	8	4		
-F A138	3110-120-3083	BEARING, ROLLER ,NEEDLE: SM-D-339038-1; 80063	1,2,3,4	ea		4	*	*	2	*	*	2	8	5	4-9	0293, 0294
-H A139	3120-489-3937	BEARING, SLEEVE : SM-B-338576; 80063	1,2,3,4	ea		8				*	*	2	5	3	5-4	0292
-H A140	6730-973-2590	BEARING, SLEEVE : SM-B-446724 ; 80063	3,4	ea		1				*	*	2	5	3	5-5	0307
-H A141	6730-356-7350	BEARING, SLEEVE: SM-B-77342; 80063	1,2	ea		1				*	*	2	5	3	5-5	0307
-H A142	6730-356-7349	BEARING, SLEEVE: Front camshaft, rear; SC-B-77341; 80063	1,2	ea		1				*	*	2	5	3	5-5	0306
-H A143	3120-072-8299	BEARING, SLEEVE: Front camshaft, rear; SM-B-338584; 80063	3,4	ea		1				*	*	2	5	3	5-5	0306
-H A144	6730-356-7346	BEARING, SLEEVE: Rear camshaft; front and back; SM-B-338577; 80063	1,2,3,4	ea		2				*	*	2	8	5	5-5	0303, 0304
-H A145		BEARING, SLEEVE: SM-B-338581; 80063	1,2,3,4	ea		2				*	*	2	5	3		
-H A146	3120-516-9937	BEARING,SLEEVE: Shutter shaft ; SM-B-338583; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0308
-O A147	3030-629-0969	BELT, FRONT, FEED: SM-B-339106; 80063	3,4	ea		1	2	3	5	2	2	2	59	40	4-9	0119
P-O A148	3030-629-0970	BELT, REAR, TAKE-UP: SM-B-339105 ; 80063	3,4	ea		1	2	3	5	2	2	2	59	40	4-9	0118
P-O A149	6760-598-9268	BELT , SPRING, FRONT , FEED : SC-B-77141; 80063	1,2	ea		1	2	3	5	2	2	2	59	40	4-9	0119
P-O A150	6760-598-9267	BELT, SPRING, REAR, TAKE-UP: SC-B-77142; 80063	1,2	ea		1	2	3	5	2	2	2	59	40	4-9	0118
P-F A151	6730-242-5647	BRACKET: P/o reflector assembly; FSN 6730-562-1279; SM-C-338806; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	4-5	
X2-D A152		BRACKET ASSEMBLY, FUSE HOLDER: SM-B-359125 ; 80063	1,2,3,4	ea		2										
X2 -F A153		BRACKET, FILM SHOE: SM-B-338441; 80063	1,2,3,4	ea		3									4-6	A149
M-D A154		BRACKET , FLOATING IDLER SPRING : SM-B-338603 ; 80063	1,2,3,4	ea		1										
M-D A155		BRACKET, FRAMER SHAFT: SM-B-338605 ; 80063	3,4	ea		1									5-5	A111
P-F A156	6730-356-6885	BRACKET, FRAMER SHAFT: 611864; 06650	1,2	ea		1	*	*	2	*	*	2	5	3	5-5	A111
P-H A157	6730-356-6883	BRACKET, LIGHT PIPE: SM-B-338748; 80063	1,2,3,4	ea		2				*	*	2	8	4	5-11	A103

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	DESCRIPTION — REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) JNIT OF ISSUE	5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	30-DAY DS MAINT ALLOWANCE (a) -20	30-DAY DS MAINT ALLOWANCE (b) 21-50	30-DAY DS MAINT ALLOWANCE (c) -10	30-DAY GS MAINT ALLOWANCE (a) 1-20	30-DAY GS MAINT ALLOWANCE (b) 1-5	30-DAY GS MAINT ALLOWANCE (c) 1-10	(9) 1 YR W PE QUI TGC	10) DEPOT MAINT W PER 00 EQUIP	ILLUSTRATIONS (a) FIG NO.	ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
P-F A158	:730-356-6884	BRACKET, LOOPSETTER: SM-B-338604; 80063	3,4	ea		1	*	*	2			2	5	3		
M-D A159		BRACKET, PILOT LIGHT: SM-B-339011; 80063	1,2,3,4	ea		2									4-1	A108
P-F A160	'920-35 6-4694	BRUSH, CLEANING: SM-D-338340-2; 80063	1,2,3, 4	ea		1	*	*	2	*		2	5	3		
P-F A161	977-63 6-4604	BRUSH, ELECTRICAL CONTACT: SIG Dwg SC-D-61023-3; SM-B-338695; 80063	1,2,3,4	ea		2	2	2	3	2		2	33	20	5-1	E117
P-F A162	977-249-4303	BRUSH, ELECTRICAL CONTACT: SIG Dwg SC-D-106749 -15; SM-B-338697; 80063	1,2,3,4	ea		2	2	2	3	2	2	2	33	20	5-1	E111
P-F A163	977-284-9325	BRUSH, ELECTRICAL CONTACT: SM-B-338673; 80063	1,2,3,4	ea		2	2	2	3	2	2	2	33	20	5-2	3
C-F A164		BUMPER , RUBBER : P/o bumper assy FSN 6730-356-6913; SM-B-338868; 80063	1,2,3,4	ea		4										
P-O A165	340-356-4695	BUMPER, TILT JACK LEG : SM -B-338830 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-3	H167
P-H A166	730-936-5464	BUSHING: P/o center plate assy; SM-B-338586; 80063	1,2,3,4	ea		1				*	*	2	5	3		
X1-F A167		BUSHING, PIVOT: P/o shuttle kit 0248; SM-B-338567; 80063	1,2,3,4	ea		1									5-5	
P-F A168	730-078-4555	BUTTON, LENS HOLDER FRICTION: SM-B-338612 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-11	H102
P-F A169	730-936-5463	CABLE ASSEMBLY: Amplifier line (with female connector) SM-B-338992; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	3-2	
M -D A170		CABLE ASSEMBLY: (Ground strap) SM-B-338678 ; 80063	1,2,3,4	ea		3									3-2	
		CABLE ASSEMBLY: (Ground strap) SM-B-338723 ; 80063	1,2,3,4	ea		1									5-1	W108
	730-673 -6190	CABLE ASSEMBLY: Exciter lamp; SM-B-338791; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	5-1:	E150
A173	730-629-7443	CABLE ASSEMBLY: Photocell; SM-B-338798 ; 80063	2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1:	E130
M-H A174		CABLE ASSEMBLY: Photocell; 063190 ; 06650	1	ea		1									5-1:	E130
P-O A175	145-186-1493	CABLE, POWER , ELECTRI CAL: SM-B-339151; 80063	1,2,3,4	ft		16	*	2	2	*	2	2	12	10		
P-F A176	760-392 -9874	CAM AND GEAR ASSEMBLY : SM-B-338473 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-3	0383
P-H A177	730-652-5647	CAM, CLUTCH: SM-B-338556; 80063	3,4	ea		2				*	*	2	6	4	4-1	0174, 0175
P-F A178	760-392-9880	CAM, PIN RELEASE : SM-B-338735 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	0348
P-O A179	977-222-0092	CAP, ELECTRICAL: GE Part /Dwg K5863338AB1; SM-B-338698; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	10	4	5-1	0122
P -F A180	977-221-6465	CAP, ELECTRICAL: B&H Code No. 06650; 611677; SM-B-338671; 80063	1,2,3	ea		2	*	*	2	*	*	2	10	4	5-2	2
P-F A181	730-570-6128	CAP: Oil Reservior; SC-B-77345; 80063	1,2	ea		1	*	*	2	*	*	2	5	3	5-4	0123
P-F A182	910-101-4887	CAPACITOR, FIXED, MICA : CM20C510J; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	3-9	C204
P-F A183	910-270-5350	CAPACITOR , FIXED , PAPER DIELECTRIC : CN43EE104M; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	5-1	C106

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION — REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(7)(b) 21-50	(7)(c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(8)(b)	(8)(c)	(9) 1 YR ALW PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(11)(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A184	5910-112-7408	CAPACITOR, FIXED, PAPER DIELECTRIC: 615506; 06650	3,4	ea		1	*	*	2	*			5	3	5-1	C109
P-F A186	5910-577-7798	CAPACITOR, FIXED, PAPER DIELECTRIC: SM-B-338704; 80063	3	ea		2	*	*	2	*			6	4	5-1	C107
P-F A187	5910-160-4803	CAPACITOR, FIXED, PAPER: 10,000 uuf; +0 -30%; 250v AC DC; CA47BFU103; p/n 611925; SM-B-338675; 06650	1,2,3	ea		4	*	*	2	*			27	12	5-2 5-1	11 C108
P-H A188	3020-288-3557	CHAIN, DRIVE: Take-up and rewind; SM-B-338642; 80063	1,2,3,4	ea		1				*			5	3	3-2	H107
P-H A189	5730-682-4741	CHAIN, SILENT, DRIVE: SM-B-338647; 80063	1,2,3,4	ea		1				*			5	3	5-5	H106
P-F A190	5940-177-1694	CLIP, FUSE: SM-D-339020; 80063	1,2,3,4	ea		2	*	*	2	*			6	4		
P-H A191	5730-341-7799	CLUTCH, FRICTION, FEED SPINDLE: SM-C-339053; 80063	1,2,3,4	ea		1				*			5	3	4-9	0137
P-F A192	5730-341-7844	CLUTCH PLATE SUBASSEMBLY: SM-B-339061; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	4-9	0173
P-F A193	6730-356-6890	COLLAR, LOCKING: SM-B-338435; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	4-1	3
P-F A194	5730-356-6893	COLLAR, SPACING: SM-B-338661; 80063	1,2,3,4	ea		3	*	*	2	*			8	3	4-4	8
P-F A195	6730-356-6892	COLLAR, DRIVE SHAFT THRUST: SM-B-338606; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	5-5	0126
P-F A196	6730-356-6891	COLLAR, LOCKING: SM-B-338607; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	5-5	0125
P-F A197	6760 -287-6907	COLLAR, SHAFT : SM-B-338509; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	4-1	0344
P-F A198	6730-294-0216	COLLAR, SPACING : SM-B-338629; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	5-5	0133
A-H A199		CONDENSOR LENS ASSEMBLY : SM-C-338488; 80063	1,2,3,4	ea		1									2-4	
P-0 A200	5935 -283 -8303	CONNECTOR, PLUG, ELECTRICAL : 8 pin; SM-B-338699; 80063	1,2,3,4	ea		2	*	*	2	*			10	4	3-2 5-1	P101
P-0 A201	5935-201-7902	CONNECTOR , PLUG, ELECTRICAL: p/o AC Power Cable; SM-B-339152 ; 80063	1,2,3,4	ea		1	*	*	2	*			8	5		P503
P-0 A202	5935-808-5163	CONNECTOR, PLUG, ELECTRICAL : SM-B-339153 ; 80063	1,2,3,4	ea		1	*	*	2	*			5	3		P501
P-F A203	5935-257-8698	CONNECTOR, RECEPTACLE, ELECTRICAL: Remote speaker; 612955 ; 06650	1,2	ea		1	*	*	2	*			5	3	3-8	J203
P-F A204	5935-552-1766	CONNECTOR, RECEPTACLE, ELECTRICAL : SM-C-338967; 80063	3,4	ea		1	*	*	2	*			5	3	3-8	J203
P-F A205	5935-498-0781	CONNECTOR , RECEPTACLE, ELECTRICAL: AC Power; SM-B-339090; 80063	1,2,3,4	ea		1	*	*	2	*			5	3		
P-H A206	6680-290-0223	COUNTER : SM-B-338618; 80063	1,2,3,4	ea		1				*			5	3	5-3	I111
P-F A207	6730-356-6900	COUNTERWEIGHT: Front cam; SM-B-338616; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	5-5	0134
P-F A208	6730-288-5096	COUPLING, FLEXIBLE: Derry part/DWG No. 11405-M; SM-B-338706; 80063	1,2,3,4	ea		1	*	*	2	*			5	3	5-1	0135
X2 -F A209		COVER : SM-B-338452 ; 80063	1,2,3,4	ea		1									5-3	A206
X2-D A210		COVER : SM-D-338635; 80063	1,2,3,4	ea		1									5-4	A123

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X2-H A211		COVER ASSEMBLY: Shuttle; SM-B-338718; 80063	3,4	ea		1									5-1	A120
X2-H A212		COVER ASSEMBLY: Shuttle; 061114; 06650	1,2	ea		1									5-5	
P-F A213	730-356-6908	COVER ASSEMBLY, EXCITER LAMP: Incl items 533 thru 535; SM-B-338775; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	A118
X2-F A214		COVER ASSEMBLY, SHUTTLE: SM-B-338547; 80063	3,4	ea		1									5-5	A121
X2-H A215		COVER, BLOWER HOUSING: (casting) SM-D-339010; 80063	1,2,3	ea		1									5-2	6
X2-H A216		COVER: Stabilizer housing; SM-B-338751; 80063	3,4	ea		1									5-1	A159
X2-F A217		DISC ASSEMBLY, DRIVE: SM-B-338485; 80063	1,2,3,4	ea		1									5-3	0363
M-D A218		DISC: Release rod guide; SM-B-338620; 80063	1,2,3,4	ea		1									4-1	0380
P-F A219	580-392-5781	DRIVE, COUNTER MECHANISM: (Shaft) SM-D-338448; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-3	0384
P-H A220	730-537-9460	DRUM, SOUND HEAD: 061155; 06650	1,2	ea		1				*	*	2	5	3	5-1	
P-H A221	730-671-8121	DRUM, SOUND HEAD: SM-D-338744; 80063	3,4	ea		1				*	*	2	5	3	5-1	
C-H A222		FIELD: SM-C-338693; 80063	1,2,3	ea		1									5-1	0279
A-H A223		FILM SLACK ASSEMBLY: SM-C-338431; 80063	1,2,3,4	ea		1									4-1	
P-F A224	915-351-9012	FILTER, RADIO INTERFERENCE: 063113; 06650	1,2	ea		1	*	*	2	*	*	2	5	3	3-2	F102
P-F A225	730-671-5850	FILTER, RADIO INTERFERENCE: SM-C-339012; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	3-2	FL101
X2-D A226		FLYWHEEL: SM-C-339096; 80063	1,2,3,4	ea		1									3-2	
P-O A227	730-356-6913	FOOT, ASSEMBLY, MOUNTING: SM-B-338865; 80063	1,2,3,4	ea		3	*	*	2	*	*	2	8	6		
P-O A228	730-356-6914	FOOT ASSEMBLY, MOUNTING: (Adjustable) SM-B-338869; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3		
P-O A229	920-199-9502	FUSE, CARTRIDGE: 15 amp; SM-D-338340-13; 80063	1,2,3,4	ea		1	2	3	6	2	2	2	71	50		F101
P-F A230	920-568-0926	FUSEHOLDER: SM-D-338340-3; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	10	4		
P-F A231	730-672-0032	GASKET: Shuttle cover; SM-B-338543; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	5-5	
P-F A232	730-351-4148	GASKET: SM-C-338634; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-4	H110
X2-F A233		GEAR: SM-B-338450; 80063	1,2,3,4	ea		1									5-3	0366
P-H A235	730-356-6917	GEAR ASSEMBLY, MECHANISM DRIVE: SM-C-338405; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0153
P-H A236	730-351-8995	GEAR, SPUR: SM-B-338364; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0152
P-H A237	730-356-6916	GEAR ASSEMBLY: Sig dwg SC-B-77469; SM-C-338346; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-4	0146
P-H A238	730-251-0951	GEAR, HELICAL, TAKE-UP: SM-B-338355; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-1	0150

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P-H A239	730-351-8994	GEAR ASSEMBLY: Sound sprocket; SM-B-338350; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-4	0148
P-F A240	730-356-6915	GEAR, HELICAL: Single idler; SM-C-338342; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-4	0147
P-H A241	730-391-5312	GEAR, HELICAL: CAM; SM-B-338399; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0151
P-H A242	730-251-0952	GEAR, HELICAL, SHUTTER: SM-B-338402 ; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0154
P-H A243	730-141-8188	GEAR, RACK: SM-B-338372 ; 80063	1,2,3,4	ea		1				*	*	2	5	3	4-1	0381
P-F A244	730-294-6878	GEAR, RACK: SM-B-338814; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-3	0142
P-H A245	730-341-7818	GEAR, SHAFT: SM-B-338710; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-1	0145
P-F A246	730-309-5735	GEAR, SPUR : SM-B-338842 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-3	0144
P-H A247	730-351-8993	GEAR, SPUR: SM-B-338357; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-4	0149
P-H A248	730-141-8488	GEAR, WORM : SM-B-338722; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-1	0322
P-F A249	110-351-8996	GOVERNOR, MOTER : Incl setscrew H-261; SM-C-338700; 80063	1,2,3	ea		1	*	*	2	*	*	2	5	3	5-1	0156
P-F A250	730-677-0318	GRILLE, AIR VENT: Blower; SM-B-338851; 80063	1,2,3	ea		1	*	*	2	*	*	2	5	3		
P-H A251	760-392-9877	HOLDER ASSEMBLY: (Pressure plate) SM-C-338514; 80063	1,2,3,4	ea		1				*	*	2	5	3	4-1	0347
P-H A252	977-237-4944	HOLDER , ELECTRICAL CONTACT BRUSH : SM-B -338672; 80063	1,2,3	ea		2				*	*	2	5	3	5-2	
P-F A253	977 -240-149[illegible]	HOLDER , ELECTRICAL CONTACT BRUSH : GE Dwg K5855143AC2 ; SM-B-338694 ; 80063	3,4	ea		2	*	*	2	*	*	2	5	3	5-1	H114
P-F A254	977-296-504[illegible]	HOLDER ,ELECTRICAL CONTACT BRUSH: GE P/n K5863333AT5; SM-B-338696; 80063	3,4	ea		2	*	*	2	*	*	2	5	3	5-1	H115
X2-H A255		HOUSING: Motor field; SM-C-338682 ; 80063	3	ea		1									5-1	A132
X2-H A256		HOUSING: Motor cap; SM-C -338683 ; 80063	3,4	ea		1									5-1	A133
X1-F A257		HOUSING: Roller; SM-C-338755 ; 80063	3,4	ea		1									5-1	A130
X2-H A258		HOUSING: Loopsetter; SM-C-338432 ; 80063	1,2,3,4	ea		1									4-1	9
X2-H A259		HOUSING : Lamp; SM-D-338650 ; 80063	1,2,3,4	ea		1									4-4	3
X2-H A260		HOUSING: Blower motor; SM-C-338667 ; 80063	1,2,3	ea		1									5-2	7
X2-F A261		HOUSING ASSEMBLY, COUNTER DRIVE : SM-C-338457; 80063	1,2,3,4	ea		1									5-3	A228
P-F A262	730-356-6919	HOUSING ASSEMBLY, TILT JACK: SM-C-338836; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-3	A126
X1-H A263		HOUSING, STABILIZER BEARING : P/o housing assy; stabilizer bearing; 6730-671-8121; SM-D-338745 ; 80063	3,4	ea		1									5-1	A129
X1-H A264		HOUSING, STABILIZER BEARING: P/o housing assy, stabilizer bearing FSN 6730 -537 -9460; 611524 ; 06650	1,2	ea		1									5-1	MP411

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	) IT E JE	Y IN T CK	(IN T	(7) 10-DAY DS MAINT ALLOWANCE a) 20	) 50	) 10(	(8))-DAY GS MAINT ALLOWANCE) 20	) 50	(c) -10(	) YR PES IIF SCY	) IT PE P	(11) ILLUSTRATIONS (.	(b) ITEM NO. OR REFERENCE DESIGNATION
X2-F A265		USING, SWITCH PLATE: -D-339005; 80063	3,4	a		1									1'	\157
X2-F A266		USING, SWITCH PLATE: 1890; 06650	1,2	a		1									1'	\157
P-F A267	6760-392-9878	B, PINION GEAR: -B-338470; 80063	1,2,3,4	a		1	*		2	*	*	2	5	3	3	167
F 268	6730-356-6997	NSION UNIT: Idler sembly (chain) SM-B-338359; 063	1,2,3,4	a		1	*	*	2	*	*	2	5	3	2	
-F 269	6730-356-6996	LER ASSEMBLY (CHAIN): cludes 0106; 0222 and 94; SM-B-338729; 80063	1,2,3,4	a		1	*	*	2	*	*	2	5	3	1	
-H 270	0-202-3361	PELIER, BLOWER, CENTRIFUGAL: -C-338674; 80063	1,2,3,4	a		1				*	*	2	5	3	2	
-0 271	5-092-1032	SERT, ELECTRICAL: P/o nnect or, receptacle, lectrical; FSN 5935-498-0781; AC power) 20493; 71468	1,2,3,4	a		1	*	*	2	*	*	2	5	3		103
-0 272	5-092-1033	SERT, ELECTRICAL: P/o nnect or, plug, electrical; SN 5935-201-7902; 20494; 1468	1,2,3,4	a		1	*	*	2	*	*	2	5	3		
-F 273	0-040 -2231	IT, MODIFICATION: For olorization of power onnectors; 20493 and 0494; 71468	1,2,3	a		1	*	*	2	*	*	2	5	3		
-F 274	0-629-4425	IT, EXCITER LAMP, CONTACT SSEMBLY: 063176; 06650	1,2	a		1	*	*	2	*	*	2	5	3	-1	150
-F 275	30-768-0303	IT, EXCITER LAMP, HOUSING: 67393; 06650	1,2	a			*	*	2	*	*	2	5	3	-1	
-F 276	30-7 68-0308	IT, FRONT CAM SHAFT GEAR: ncl items H-181; 243 and 0244 of fig 5-5; 67397; 06650	1,2,3,4	a			*	*	2			2	5	3	-1	181, 0243, 0244
-F 277	80-646-7362	IT, FRONT CAMSHAFT SPACER: ncl items H183 thru H186 of ig 5-5; 067396; 06650	1,2,3,4	ea				*	2			2	5		-1	
-F 278	80-652-5640	IT, PRISM: (Includes item 103 and D181 of fig 5-11) 67398; 06650	1,2,3,4	ea				*	2			2	5		-1	181
X2 -F A279		NOB: SM-B-338379; 80063	1,2,3,4	ea											-1	H159
P-F A280	355-667-939	NOB, FOCUSING: SM-B-338504; 30063	1,2,3,4	ea				*	*			*	5		-1	E122
X2-F A281	355-667-930	NOB, FRAMER: SM-B-338614; 30063	1,2,3,4	ea											5-1	E123
X2-F A282		KNOB, LOOP SETTER ROD: SM-B-339097; 80063	1,2,3,4	ea												
P-F A283	355-323 -609	KNOB , RELEASE ROD: SM-B-338503 ; 80063	1,2,3,4	ea					2						4-1	E210
P-0 A284	355-545-757	KNOB : Rotary switch; SC-D-77231-14 ; 80063	1,2	ea					2						4-1	E119
P-0 A285	355-667-549	KNOB: Rotary switch; SM-B-339007; 80063	3,4	ea					2						4-1	E119
P-F A286	355-351-441	KNOB, THREADING : SM-B-338646; 80063	1,2,3,4	e					1							
P-F A287	355-667-939	KNOB, TILT JACK: SM-B-338822 ; 80063	1,2,3,4	e												
P-0 A288	240-186-659	LAMP, INCANDESCENT : (Threading) 6w; 120v; SM-B-339009; 80063	1,2,3,4	e									7		4	E104
P-0 A289	240-243-83	LAMP, INCANDESCENT: (Exciter) SM-B-339110; 80063	1,2,3,4	e									13	10	5	E106

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P-O A290	6240-156-1568	LAMP, INCANDESCENT, PROJECTION: 750w ; MS35404-4 ; 81349	1,2,3,4	ea					6			2	30	100	4-1	E105
P-O A291	6240-155-8018	LAMP, INCANDESCENT, PROJECTION : 1000 w; MS35404-5; 81349		ea												
P-H A292	6210-228-0419	LAMPHOLDER : SM-D-338645 -4; 80063	1,2,3,4	ea									5	3	4-1	J108
P-F A293	6250-299-7013	LAMPHOLDER , PROJECTION : SM-B-446656; 80063	1,2,3,4	ea			*	*	2			2	5	3	4-1	
X2-H A294		LAMPHOUSE ASSEMBLY : SM-D-338649; 80063	1,2,3,4	ea											4-4	
C -F A295	6730-955-2845	LEG ASSEMBLY, FRONT : SM-C-338873 ; 80063	3,4	ea												
P-F A296	6730-396-3515	LEG, PROJECTOR, FRONT : SC -C-77202; 80063	1,2	ea			*	*	2			2	5	3		
P-F A297	6730-396-3514	LEG, PROJECTOR, REAR : SC-C-77207; 80063	1,2	ea			*	*	2			2	5	3		
P-F A298	6730-671-8122	LEG, PROJECTOR , REAR ASSEMBLY : SM-C-338859; 80063	3,4	ea			*	*	2			2	5	3		
P-F A299	6760-351-8998	LENS, CONDENSER, PHOTO-GRAPHIC : SM-B-338493 ; 80063	1,2,3,4	ea			*	*	2			2	10	6	2-4	I103
P-F A300	6760-598-8364	LENS, CONDENSER, PHOTO-GRAPHIC : SM-B-338494 ; 80063	1,2,3,4	ea			*	*	2			2	10	6	2-4	I113
X2-H A301		LENS , HOLDER ASSEMBLY: SM-B-338370 ; 80063	1,2,3,4	ea											4-1	
P-O A302	6210-500-3980	LENS , INDICATOR LIGHT: SM-B-338788 ; 80063	1,2,3,4	ea			*	*	2			2	5	3	5-1	I101
P-O A303	6760-223-3441	LENS, PROJECTION: Viewing; SM-B-339085 ; 80063	1,2,3,4	ea			*	*	2			2	5	3		
P-F A304	6730-356-6923	LEVER, ADJUSTMENT: SM-B-338434; 80063	1,2,3,4	ea			*	*	2			2	5	3	4-1[illegible]	[illegible]
X2-F A305	6730 -356- 6924	LEVER, FLOATING IDLER TENSION : SM-B-338611; 80063	1,2,3,4	ea												
P -F A306	6730-356-6925	LINK, LEVER (Loops etter rod) SM-B-338613; 80063	1,2,3,4	ea			*	*	2			2	5	3	3-3	D208
P -H A307	6730-341 -7782	MOTOR , BLOWER ASSEMBLY : SM-D-338664 ; 80063	1,2,3,4	ea								2	5	3	5-2	
P -F A308	6105 -265-0488	MOTOR, UNIVERSAL: p/n 061099; 06650	1,2	ea			*	*	2			2	5	3		
P-F A309	6105-670-0 174	MOTOR, UNIVERSAL: SM-D-338681; 80063	1,2	ea			*	*	2			2	5	3	5-1	
P-H A310	6730-356-6930	MOUNT, INSULATING: SM-D-338643 80063	1,2,3,4	ea								2	5	3		
P-H A311	6730-356-6931	MOUNT, LIGHT PIPE PRISM: SM-B-338750; 80063	1,2,3,4	ea								2	5	3	5-11	
P-H A312	5340-355-9772	MOUNT , VIBRATION, MOTOR : SM-B-338728 ; 80063	1,2,3,4	ea								2	10	4	5-1	A172
P-H A313	6760-392-9881	MOUNTING : (Lens carriage) SM-C-338371; 80063	1,2,3,4	ea								2	5	3	4-14	A155
X2 -H A314		MOUNTING, LENS HOLDER : SM-D-338498; 80063	1,2,3,4	ea											4-14	A219
P-H A315	6730 -356 -6934	MOUNTING ASSEMBLY, APERTURE : SM-B-338394 ; 80063	1,2,3,4	ea								2	5	3	5-10	
P-F A316	6730-356-6936	MOUNTING ASSEMBLY: Douser pivot; SM-B-338779; 80063	1,2,3,4	ea			*	*	2			2	5	3	5-11	A119
P-H A317	6730-356-6932	MOUNTING ASSEMBLY, PROJECTION LAMP: SM-C-339069; 80063	1,2,3,4	ea								2	5	3	4-1	

(1) SMR :ODE / IDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / EFERENCE NUMBER & MFR. CODE	USABLE ON CODE	4) NIT OF SUE	5) TY : II IIT ICK	6) TY II IT	30-DAY DS MAINT ALLOWANCE a) -20	(b) 1-5(	:) -10	30-DAY GS MAINT ALLOWANCE a) -20	›) -50	(c) -10	9) YR I PE)UII TGC'	0) › OT NT PEI IO JIP	(11) USTRATIONS 1) IG O.	(b) ITEM NO. OR REFERENCE DESIGNATION
-H 318		)UNTING ASSEMBLY, PROJECTION ENS: SM-D-338497; 80063	1,2,3,4	:a		1									-14	
2 -H 319	10-639-6755	JT: SM-B-338752; 80063	1,2,3,4	:a		1									-11	H121
2 -F 320	10-346-9956	JT: SM-B-338736; 80063	1,2,3,4	:a		1									-11	H314
-F 321	10-638-4172	JT, SELF LOCKING, KNURLED: M-B-338633; 80063	1,2,3,4	:a		1	*	*	2	*	*	2	5	3	-5	H133
-F 322	10-545-8456	JT, ADJUSTING: SM-B-338759; 0063	1,2,3,4	:a		1	*	*	2	*	*	2	5	3	-11	H205
-F 323	10-524-0171	UT, SELF LOCKING, HEXAGON: M-D-338341-7; 80063	1,2,3,4	:a		1	*	*	2	*	*	2	5	3	-3 -5	2 H120
2 -F 324	10-176-8133	UT, HEXAGONAL: AN340-6; 1349	1,2,3,4	:a		1									-1:	H197
2 -F 325	10-208-5351	UT, HEXAGONAL:4/32 thd; M-C-338845-1; 80063	1,2,3,4	:a											-1:	H21
2 -F 326	310-596-7957	UT, HEXAGONAL : D-1032A ; S20364 ; 96906	1,2,3,4	:a											-1:	H118
-F 327	310-639-5381	UT, HEXAGONAL, SPECIAL : /o loopsetter rod assembly; M-B-339114; 80063	1,2,3,4	:a			*	*	2	*	*	2	5	3		
-H 328	310-523-2179	UT, LOCK: SM-C-338554-4; 0063	1,2,3,4	ea						*	*	2	10	4	-1:	H129, H130
2 -F 329	310-197-6313	UT, PLAIN, HEXAGONAL : Spacer); SM-B-338739; 80063	1,2,3,4	ea											-1	H122
2 -F 330	310-537-8412	IUT, SPINDLE TENSION : M-B-339040 ; 80063	1,2,3,4	ea											-9	H123, H124
-F 331	310-537-8156	IUT, STOP CAP : SM-D-339034-1; 30063	1,2,3,4	ea			*	*	2	*	*	2	5	3	-9	H118 , H119
-F 332	780-671-5852	)IL WICK SERVICE KIT :)67482; 06650	3,4	ea			*	*	2	*	*	2	5	3		
-H 333	730-393-3983	)PTICAL SYSTEM:SM-B-338734; 30063	1,2,3,4	ea						*	*	2	5	3	;-1	0166
P-F A334	960-565-5411	PHOTODIODE ASSEMBLY : 3C-B-77 614; 80063	1,2	ea			*	*	2	*	*	2	5	3	;-1	Y101
P-F A335	730-671-5853	PHOTODIODE ASSEMBLY: SM-B-338809; 80063	3	ea			*	*	2	*	*	2	5	3	;-1	V10 1
P-F A336	961-938-3067	PHOTODIODE ASSEMBLY: P/n 21-1044; 82394	4	ea			*	*	2	*	*	2	5	3	;-1	V101
C -H A337		PIN, DRIVE MOTOR SHAFT : Drive lok co. type A; 5/64 dia x 1/2; SM-B-338710 -1; 80063	1,2,3,4	ea											5-1	
P-F A338	315-832-8297	PIN: Drive lok type A; 3/32 dia x 3/8; SM-B-338720-1; 80063	1,2,3,4	ea			*	*	*	·		2	5	3	5-1	H281
P-F A339	315-832-808(	PIN: Front cam drive; SM-B-338430; 80063	1,2,3,4	ea			*	*	2	·		2	5	3	5-5	
X1-F A340		PIN : SM-B-338563 ; 80063	1,2,3,4	ea											4-1	
P-F A341	5730-351-900	PIN: Adjusting, pivot; SM-B-338757; 80063	1,2;3,4	ea			*	*	2	·		2	5	3	5-1	0168
P-H A342	5315-889-277	PIN, DOWEL: P/o center plate assy; SM-B-338578; 80063	1,2,3,4	ea								2	5	3		
P-F A343	5730-351-900	PIN, DOWEL: Plunger; SM-B-338438; 80063	1,2,3,4	ea			*	*	2			2	5	3	4-:	5
X2-H A344	5315-234-705	PIN: (Handle assy); SM-B-338815 ; 80063	3,4	ea												

(1) SMR COD. INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC UNIT PAC	(6) QTY INC UNIT	30-DAY DS MAINT ALLOWANCE (a)	(b)	(c)	30-DAY GS MAINT ALLOWANCE (a)	(b)	(c)	(9) UNIT PRICE	(10) DEPOT MAINT WORK PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A345	5315-832-8090	PIN, REEL ARM: SM-D-339038-3; 80063	1,2,3,4	ea		1	*	*	2			2	10	8	4-9	H279, H280
P-F A346	315-843-7988	PIN, ROLL: P/o loopsetter assy; SM-C-338431-2; 80063	1,2,3,4	ea		1	*	*	2			2	5	3	4-1	
P-F A347	315-351-9004	PIN, ROLLER: Pivot; SM-B-338758; 80063	1,2,3,4	ea		1	*	*	2			2	5	3	5-1	0167
P-F A348	730-791-5438	PIN, STRAIGHT, HEADLESS: Film shoe locking; SM-B-338442; 80063	1,2,3,4	ea			*	*	2			2	10	6	4-6	0204
P-H A349	315-243-1188	PIN, GROOVED, HEADLESS: 611229; 06650	1,2	ea		2						2	10	6	4-9	H139, H228
X2-H A350	315-292-8246	PIN: Tilt jack knob; SM-D-338812-4; 80063	1,2,3,4	ea		1										
P-H A351	315-832-8091	PIN, GROOVED, HEADLESS: SM-D-339038-2; 80063	3,4	ea		2						2	10	6	4-9	H139, H228
M-D A352		PLATE: SM-B-338501; 80063	1,2,3,4	ea		1									4-1	H313
X2-F A353		PLATE: P/o plate aperture; subassy 6730-671-5854; SM-D-338528; 80063	1,2,3,4	ea		1									4-1	
X2-H A354		PLATE: SM-D-338733; 80063	1,2,3,4	ea		1									5-1	A162
X2-F A355		PLATE: SM-B-338466; 80063	3,4	ea		1									5-3	A229
X2-H A356		PLATE: SM-D-338587; 80063	3,4	ea		1									5-4	A160
P-F A357	5730-671-585	PLATE, APERTURE, SUBASSEMBLY: P/o aperture plate assy; 5730-356-6867; SM-C-351467; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	1-1	A114
P-F A358	5730-356-693	PLATE ASSEMBLY: (For photo-electric cell) SM-B-338783; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	1-11	A171
P-F A359	5760-392-988	PLATE ASSEMBLY, GEAR TRAIN: SM-C-338465; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-3	
K2-D A360		PLATE ASSEMBLY, SWITCH: 067268; 06650	1,2	ea		1									-17	
K2-D A361		PLATE ASSEMBLY, SWITCH: SM-D-338987; 80063	3,4	ea		1									-17	
K2-H A362		PLATE, BEARING: SC-D-77334; 80063	1,2	ea		1									-4	A160
P-H A363	5730-341-785	PLATE, CLUTCH: SC-B-77513; 80063	1,2	ea		2				*	*	2	5	3	-11	0174, 0175
P-F A364	5730-938-169	PLATE, FILM STOP: SM-B-338615; 80063	1,2,3,4	ea		3	*	*	2	*	*	2	5	3	-6	0179, 0290, 0291
M-D A365		PLATE, LENS HOLDER STOP: SM-B-338610; 80063	1,2,3,4	ea		1									-14	A227
P-F A366	5730-393-397	PLATE, MOUNTING: 061021; 06650	1,2	ea		1	*	*	2	*	*	2	5	3	-5	A165
P-F A367	5730-671-584	PLATE, MOUNTING: Shuttle cover; SM-C-338540; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	-5	A165
P-H A368	5730-356-694	PLATE: Stabilizer bearing lock; 611527; 06650	1,2	ea		1				*	*	2	5	3	-11	A159
K2-F A369		PLATE, SWITCH: SM-C-338998; 80063	1,2,3,4	ea		1									-17	A126
M-D A370		PLATE, SWITCH MOUNTING: SM-B-339001; 80063	1,2,3,4	ea		1									-17	A158
P-F A371	5730-356-6944	PLATE, THRUST: SM-B-339066; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	-9	A180

(1) SMR COD INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE O CODE	(4) UNIT OF ISSUE	(5) QTY INC IN PAC	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) -2	(b) !!-5	(c) 1-1	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-2(	(b) 1.	(c) -1(	(9) MAINT EQUIP NTG	(10) DEPOT MAINT WKR CODE QUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-H A372	6730-936-2328	PLUG: Used on center plate assy; SM-B-338585; 80063	1,2,3,4	ea		1				*		2	5	3		
X2-F A373		PLUG, BUTTON: SM-D-338987-3; 80063	1,2,3,4	ea		1									4-1	
P-O A374	6730-763-2164	PRESSURE PLATE ASSEMBLY: SM-C-338518 ; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	4-1	
P-H A375	6730-356-6945	PRISM, LIGHT PIPE: SM-B-338749 ; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-1	
P-F A376	6730-594-6279	PULLEY: SC-C-77516; 80063	1,2	ea		2	*	*	2	*		2	5	3	4-1	0184
P-F A377	6730-647-1675	PULLEY ASSEMBLY, TAKE-UP : SM-C-338554 ; GR1; 80063	3,4	ea		1	*	*	2	*		2	5	3	4-1	
P-F A378	6730-955-2835	PULLEY ASSEMBLY, REWIND : SM-C-338554 ; GR II; 80063	3,4	ea		1	*	*	2	*		2	5	3	4-1	
P-F A379	6730-570-6129	PULLEY ASSEMBLY, REWIND : All piece parts in this assy are the same as item 369A; 061093 ; 06650	1,2	ea		1	*	*	2	*		2	5	3	4-1	
P-F A380	6730-356-6947	PULLEY ASSEMBLY, TAKE-UP : Sig dwg SC -C -77512 ; 80063	1,2	ea		1	*	*	2	*		2	5	3	4-1	
P-F A381	6730-288-2395	PULLEY, BELT ADJUSTMENT: 611352 ; 06650	1,2	ea		2	*	*	2	*		2	8	4	4-1	0186, 0187
P-F A382	6730-618-6465	PULLEY GROOVE: Belt adjustment; SM-B-338622; 80063	3,4	ea		2	*	*	2	*		2	8	4	4-1	0186, 0187
P-F A383	6730-351-9008	PULLEY, FEED SPINDLE: SC-C-77691; 80063	1,2	ea		1	*	*	2	*		2	5	3	4-9	0183
P-F A384	6730-542-1181	PULLEY, FEED SPINDLE: SM-C-339041; 80063	3,4	ea		1	*	*	2	*		2	5	3	4-9	0183
P-F A385	6730-671-8123	PULLEY, GROOVE : SM-B-338555; 80063	3,4	ea		2	*	*	2	*		2	10	6	4-1	0184
P-F A386	6730-542-1085	PULLEY GROOVE : Take-up spindle; SM-C-339065; 80063	3,4	ea		1	*	*	2	*		2	5	3	4-9	0182
M-D A387		RAIL : SM-B-338499; 80063	1,2,3,4	ea		1									4-1	A224
M-D A388		RAIL : SM-B-338500; 80063	1,2,3,4	ea		1									4-1	A167
P-F A389	6730-537-9461	RAIL, GUIDE: P/o Aperture plate assy 6730-356-6867; SM-C-338537; 80063	1,2,3,4	ea		2	*	*	2	*		2	5	3	4-1	
X2-F A390		RATCHET ARM ASSEMBLY : SM-B-338476; 80063	1,2,3,4	ea		1									5-3	0361
P-F A391	6760-392-9893	WHEEL, RATCHET: SM-B-338480; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-3	0375
P-O A392	6760-282-7988	REEL, PHOTOGRAPHIC FILM : (stored in loudspeaker LS-170) MI L-R-214B; 81349	1,2,3,4	ea		1	*	*	*	*		*	5	3		
P-F A393	6730-351-9009	REFLECTOR, LIGHT : P/o 6730-562-1279; SM-B-338807; 80063	3,4	ea		1	*	*	2	*		2	5	3	4-5	
P-F A394	6730-562-1279	REFLECTOR ASSEMBLY, LI GHT : SM-C-338805; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	4-5	
P-F A395	5905-171-2003	RESISTOR, FIXED, COMPOSITION: MS35043-142 ; 81349	1	ea		2	*	*	2	*		2	5	3	3-9	R220, R221
P-F A396	5905-171-2003	RESISTOR, FIXED, COMPOSITION: MS35043-142 ; 81349	2	ea		2	*	*	2	*		2	5	3	3-9	R218 , R219
P-F A397	5905-190-8865	RESISTOR, FIXED, COMPOSITION : RC20GF274J; 96906	1,2	ea		1	*	*	2	*		2	5	3	3-9	R223

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(7) (b) 21-50	(7) (c) 51-100	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(8) (b) 21-50	(8) (c) 51-100	(9) 1 YR ALW PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(11) (b) ITEM NO. OR REFERENCE DESIGNATION
P-F A398	5905-192-3982	RESISTOR, FIXED, COMPOSITION: 1 megohm; MS35043-31; 96906	1,2,3,4	ea		1	*	2	2	*	2	2	13	6	6-1	R237
P-F A399	5905-185-8518	RESISTOR, FIXED, COMPOSITION: MIL RC20GF103K; 96906	1,2	ea		3	*	2	2	*	2	2	13	9	3-9	R205, R225, R226
P-F A400	5905-234-5727	RESISTOR, FIXED, WIREWOUND: RW36G161; 81349	1,2	ea		1	*	*	2	*	*	2	5	3	5-1	R104
P-F A401	5905-666-2576	RESISTOR, FIXED, WIREWOUND : SM-B-338703 ; 80063	3	ea		1	*	*	2	*	*	2	5	3	5-1	R104
P-F A402	6730-955-2839	RETAINER , CLUTCH BALL: SM-B-338557; 80063	3,4	ea		2	*	*	2	*	*	2	5	3	4-1	
P-F A403	6730 -356-4859	RETAINER, DISC: SM-B-338617 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0139
P-F A404	6730-356-6953	RETAINER, DISC: SM-B-338761; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	0138
X2-H A405		RING, RETAINING: SM-D-338744-1; 80063	3,4	ea		1									5-1	
X2-H A406	5340-832-8256	RING,RETAINING: P/o drum; sound head 6730-537-9460; SM-D-338744-2 ; 80063	3,4	ea		1									5-1	
P-F A407	5340 -286-9459	RING RETAINING: (P/o pressure plate assy 6730-763-21 64) SM-C-338518-1; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3		
P-F A408	6730 -306-2348	RING, RETAINING: SM-B-338454; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0202
X2-F A409		RING RETAINING : SM-D-338448-1; 80063	1,2,3,4	ea		2									5-3	0370
P-F A410	5340-282-0782	RING, RETAINING: SM-B-338729-1; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3	5-1	0194
X2-F A411	5340-282-0784	RING, RETAINING: SM-D-338448-3 ; 80063	1,2,3,4	ea		1									5-3	0197
X2-F A412		RING, RETAINING: SM-D-338448-4 ; 80063	1,2,3,4	ea		1									5-3	0369
P-H A413	5340-958-0426	RING, RETAINING: P/o housing assy, stabilizer 6730-671-8121; SM-D-338744-5 ; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	5-1	
X2-F A414	5340-282-0764	RING, RETAINING : SM-D-338732-2 ; 80063	1,2,3,4	ea		2									5-1	0198
X2 -F A415	5340-351-8635	RING, RETAINING, REFLECTOR : P/o FSN 6730-562-1279; SM-B-338808 ; 80063	1,2,3,4	ea		1									4-5	
X2-H A416		ROD : SM-B-338433; 80063	1,2,3,4	ea		1									4-1	7
P-F A417	6760-392 -9889	ROD, LOCKING, PRESSURE, PLATE RELEASE : SM-B-338506; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-1	0353
X2 -H A418		ROLLER : SM-B-338378 ; 80063	1,2,3,4	ea		1									4-1	0223
P-F A419	6730 -356 -6962	ROLLER ASSEMBLY, GUIDE: SM-C-338754 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	
X1-F A420		ROLLER ASSEMBLY: SM-B-338762; 80063	1,2,3,4	ea		1									5-1	0217
P-F A421	6730 -356-6960	ROLLER ASSEMBLY, FILM: Floating idler; SM-B-338385; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	
P-F A422	6730-356-6959	ROLLER ASSEMBLY, FILM GUIDE : SM-B-338848; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3		
P-F A423	6730-356-6955	ROLLER ASSEMBLY, JOCKEY, LOWER : SM-C-338772; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	0211
P-F A424	6730 -356-6956	ROLLER ASSEMBLY, JOCKEY, UPPER : SM-B-338766; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	0210

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY CDN UNIT PACK	(6) QTY CDN UNIT	(7) 30-DAY DS MAINT ALLOWANCE a) -20	b) 1-50	c) -10(	(8) 30-DAY GS MAINT ALLOWANCE a) -20	b) -5(	c) -10(	(9) YR PER QUIP TGCY	(10) POINT PER UIP	(a) FIG NO.	(11) USTRATIONS (b) TEM NO. OR REFERENCE DESIGNATION
P-F A425	730-356-6957	ROLLER ASSEMBLY, LOOPSETTER: SM-C-338377; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-16	
P-F A426	730-356-6958	ROLLER, FILM: SM-B-338391; 80063	1,2,3,4	ea		4	*	*	2	*	*	2	5	3	5-13	
X1-H A427		ROLLER, FILM: Scanning drum; SM-B-338747; 80063	1,2,3,4	ea		1									5-11	0216
P-F A428	730-356-6963	ROLLER, IDLER: SM-B-338360; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3	5-1	0222
X2-F A429		SCREW: AN500-8-6; 81349	1,2,3,4	ea		2									5-1	H223
X2-F A430	305-579-5025	SCREW: MS35224-64; 81349	1,2,3,4	ea		3										
X2-H A431		SCREW: AN515C2-2; 81349	1,2,3,4	ea		3									5-11	H230
X2-F A432	305-543-435(	SCREW: MS35234-64; 96906	1,2,3,4	ea		2										
P-F A433	305-660-241(	SCREW, ADJUSTING: Rear leg; SC-B-77208; 80063	1,2	ea		1	*	*	2	*	*	2	5	3		
P-F A434	305-638-497(	SCREW, FRAMER BAR MOUNTING: SM-B-338638; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	H151
X2-F A435		SCREW, MACHINE: 3-48 x 1/4; SM-C-338431-1; 80063	1,2,3,4	ea		1									4-15	
X2-F A436		SCREW, MACHINE: SM-B-338444; 80063	1,2,3,4	ea		6									4-6	H155
X2-F A437		SCREW, MACHINE: AN515-3-3; 81349	1,2,3,4	ea		1									5-3	H320
X2-H A438	305-545-842(	SCREW, MACHINE: SM-B-338412; 80063	1,2,3,4	ea		3									5-5	H149
P-F A439	305-638-212:	SCREW, MACHINE: SM-B-338386; 80063	1,2,3,4	ea		6	*	2	2	*	2	2	15	6	5-13 5-11	
X2-H A440		SCREW, MACHINE: SM-B-338373; 80063	1,2,3,4	ea		2									4-14	H319
X2-F A441	305-637-707(	SCREW, MACHINE: Pan head; MS35223-26; 81349	1,2,3,4	ea		12									5-1	H117
X2-F A442	305-889-300(	SCREW, MACHINE: MS35206-230; 81349	1,2,3,4	ea		2									5-1	H241
X2-F A443	5305-558-736:	SCREW, MACHINE: MS35223-42; 81349	1,2,3,4	ea		1									5-1	
X2-F A444	5305-676-920(	SCREW, MACHINE: MS35224-59; 81349	3,4	ea		6									5-1	H210
X2-F A446	5305-543-222:	SCREW, MACHINE: MS35224-68; 81349	3,4	ea		2									5-1	H224
X2-F A448		SCREW, MACHINE: SM-B-338684; 80063	3,4	ea		2									5-1	H145
X2-F A449		SCREW, MACHINE: Binding head #8-32 x 1/2 lg; SM-B-338726-1; 80063	3,4	ea		2									5-1	H237
X2-F A450		SCREW, MACHINE, ROUND HEAD: 4-36 x 3/16 lg; SM-D-338705-1; 80063	1,2,3,4	ea		5									5-1	H222
X2-F A451		SCREW, MACHINE: AN500-5-4; 81349	1,2,3,4	ea		4									5-3	H307
P-F A452	5305-322-457(	SCREW, MACHINE: P/o condenser lens assy; SM-B-338496; 80063	1,2,3,4	ea		2	*	*	2	*	:	2	5	3	2-4	
X2-F A453	5305-639-222	SCREW, MACHINE: SM-B-338639; 80063	1,2,3,4	ea		23									4-6	H146
X2-F A454	5305-725-191	SCREW, MACHINE: 8-32 x 3/8; Phillips Head; AN526-832R6; 81349	1,2,3,4	ea		14										

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-1	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) 1 YR ALW PER EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X2-F A455	5305-680-7264	SCREW, MACHINE: 8-32 x 3/4 inch RHMS; AN515-8-12; 88044	1,2,3,4	ea		6										
X2-F A456		SCREW, MACHINE: SM-D-3388 12-2; 80063	1,2,3,4	ea		3									4-3	
X2-F A457	5305-638-2845	SCREW, MACHINE: SM-B-338534; 80063	1,2,3,4	ea		2									4-12	H147
X2-F A458	5305-545-0305	SCREW, MACHINE: SM-B-338532; 80063	1,2,3,4	ea		2									4-12	H148
X2-F A459		SCREW, MACHINE: 4-36x 1/8; SM-B-338513; 80063	1,2,3,4	ea		2									4-14	H310
X2-F A460		SCREW, MACHINE: 4-36 x .187; SM-B-338513-1; 80063	1,2,3,4			4									4-14	H221
X2-F A461	5305-525-1627	SCREW, MACHINE: For loop setter bracket; special 6-32 x 7/32 in. SM-B-338640; 80063	1,2,3,4			2										
X2-F A462	5305-523-2226	SCREW, MACHINE: 8-32x 7/16; SM-B-338641; 80063	1,2,3,4	ea		2										
X2-F A463	5305-637-8249	SCREW, MACHINE: MS35223-43; 96906	1,2,3,4	ea		7										
X2-F A464		SCREW, MACHINE: 4-36 x 3/16 round head; SM-D-338732-1; 80063	1,2,3,4	ea		2										H221
X2-F A465	5305-207-2942	SCREW, MACHINE: AN500-6-6; 88044	1,2,3,4	ea		1										H233
X2-F A466		SCREW, MACHINE: AN500C3-4; 88044	1,2,3,4	ea		3										H234
X2-F A467	5305-622-1509	SCREW, MACHINE: MS35224-63; 96906	1,2,3,4	ea		3										
X2-F A469	5305-543-2223	SCREW, MACHINE: MS35224-67; 96906	1,2,3,4	ea		4										H253
X2-F A470	5305-543-4358	SCREW, MACHINE: MS35234-64;	3,4	ea		4										
X2-F A471		SCREW, MACHINE: 4-36x 3/8 inch round head; SM-D-338645-2; 80063	1,2,3,4	ea		8										H222
X2-F A472		SCREW, MACHINE: Binding head; 4-40 x 3/8 st; SM-C-338754-1; 80063	1,2,3,4	ea		1										H244
X2-F A473	5305-543-2188	SCREW, MACHINE: MS35223-32; 96906	1,2,3,4	ea		3										
X2-F A474		SCREW, MACHINE: SM-D-338341-1 80063	1,2,3,4	ea		1										H227
X2-F A475		SCREW, MACHINE: SM-D-338987-6; 80063	1,2,3,4	ea		2										H225
X2-F A477		SCREW, MACHINE: Round head 5-40 x 5/16 lg; (use with knob, amp control) AN515-5-5; 81349	3,4	ea		1										
X2-F A478		SCREW, MACHINE: AN505-6-8; 81349	1,2,3,4	ea		1										H226
X2-F A479		SCREW, MACHINE: MS35223-35; 96906	1,2,3,4	ea		2										H217
X2-F A480	5305-576-7521	SCREW, MACHINE: MS35224-61; 96906	1,2,3,4	ea		1										
X2-F A481	5305-175-3223	SCREW, MACHINE: AN535-00-2; 88044	1,2,3,4	ea		2										
X2-F A482	5305-345-3200	SCREW, MACHINE, FLYWHEEL RETAINING: SM-B-339111; 80063	1,2,3,4	ea		1										

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY AC UNIT PACI	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) -20	(b) 21-5	(c) 1-10	(8) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-5	(c) 1-10	(9) YR PE QUI ITGC	(10) EPOT AINT W PER 100 QUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A483	5305-660-241	SCREW, MACHINE: Leg adjusting; SM-B-338860 ; 80063	3,4	ea		1	*	*	2	*		2	5	3		
P-F A484	5305-639-122	SCREW, SHOULDER: Film guide roller; SM-B-338847; 80063	3,4	ea		2	*	*	2	*	*	2	8	4		
X2-F A485	5305-407-983	SETSCREW : AN565A8L3 ; 81349	3	ea		10									5-1 5-5	H262 H262
X2-F A486		SETSCREW: AN565D8L4 ; 81349	3	ea		2									5-1	H259
X2-F A487		SETSCREW: 5-40; cue point; fluted; 1/8 lg; SM-C-338431 -3; 80063	1,2,3,4	ea		1									4-15	1
X2-F A488		SETSCREW: SM-D-338341-2 ; 60063	1,2,3,4	ea		3									5-11	H263
X2-F A489		SETSCREW: AN565D8L3 ; 81349	1,2,3,4	ea		8									5-5	H261
X2-F A490		SETSCREW: 5/40 x 1/8 in; SM-C-338754-2; 80063	1,2,3,4	ea		1									5-11	H260
X2-F A491		SETSCREW : AN565D6L2 ; 88044	1,2,3,4	ea		6									5-11	H257
X2-F A492		SETSCREW: AN565D1032L3; 88044	1,2,3,4	ea		1									5-11	H258
X1-F A494	6730-356-697	SHAFT: P/o pulley assy; take-up; 6730-647-1675; 80063	1,2	ea		2									4-11	0235, 0236
X1-F A495		SHAFT: P/o pulley assy, take-up 6730-647-1675; 80063	3,4	ea		2									4-11	0230, 0231
P-F A496	6730 -356-696	SHAFT: SM-C-338756; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-11	0226
P-H A497	6730-356-697	SHAFT : SM-B-338411; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0233
X2-F A498		SHAFT : SM-B-338451; 80063	1,2,3,4	ea		1									5-3	0371
P-F A499	6730-356-697	SHAFT : SM-B-338596; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0240
P-F A500	6730-356-697	SHAFT ASSEMBLY : Sig dwg SC-B-77440; SM-B-338367; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0241
P-F A501	6730-341-786	SHAFT ASSEMBLY, FRONT CAM: SM-B-338428; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0234
P-F A502	6730-356-697	SHAFT , FILM IDLER: SM-B-338804 ; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	8	4		
P-F A503	6730-356-697	SHAFT, FRAMER: SM-B-338597; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0237
X1-H A504		SHAFT, STABILIZER : P/o 6730 -537 -9460 ; 611525 ; 06650	1,2	ea		1									5-11	MP414
P-H A505	6730-652-564	SHAFT , STABILIZER : SM-C-338746; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	5-11	0225
X2-H A506		SHIELD: SM-B-338653; 80063	1,2,3,4	ea		2									4-4	1
X2-F A507		SHOE : (casting) SM-C-339159; 80063	1,2,3,4	ea		3									4-6	0246
P-F A508	6730-356-697	SHOE , FILM , ASSEMBLY : SM-C-338439; 80063	1,2,3,4	ea		3	*	*	2	*	*	2	13	6	4-6	
A-H A509		SHUTTER ASSEMBLY, 48 FREQUENCY: SM-B-338409; 80063	1,2,3,4	ea		1									5-5	
P-H A510	6730-356-698	SHUTTER, PROJECTION: SM-B-338410; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	0120

SMR CODE / INDEX NO.		DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	UNIT OF ISSUE	QTY INC IN UNIT PACK	QTY INC IN UNIT	30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	1 YR ALW PER EQUIP CNTGCY	DEPOT MAINT ALW PER 100 EQUIP	ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A511		SHUTTLE, CAM AND PIVOT ASSEMBLY: SM-C-338564 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0248
P-F A512		SLEEVE, FEED SPROCKET SHAFT : SM-B-338608; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-4	0132
P-F A513		SOCKET ASSEMBLY, EXCITER LAMP : SM-B-338786; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-11	E211
P-F A514		SOCKET, ELECTRON TUBE: TS101P01; 81349	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-17	
A-H-R A515		SOUND HEAD ASSEMBLY : 061082; 06650	1	ea		1									5-11	
A-H-R A516		SOUND HEAD ASSEMBLY : 067348 ; 06650	2	ea		1									5-11	
A-H-R A517		SOUND HEAD ASSEMBLY : SM-D-338732 ; 80063	3,4	ea		1									5-11	
X2-F A518		SPACER : SM-B-338660; 80063	1,2,3,4	ea		4									4-4	4
X2-H A519		SPACER : SM-B-338644 ; 80063	1,2,3,4	ea		4										
M-D A520		SPACER: Motor lead socket; SM-B-339004; 80063	1,2,3,4	ea		2									4-17	0131
X2-H A521		SPACER , PROJECTOR LEG: SM-B-338826; 80063	3,4	ea		2										
X1-F A522		SPACER , SHUTTLE PIVOT , INNER : P/o shuttle kit 0248; SM-B-338566; 80063	1,2,3,4	ea		1									5-5	
X1-F A523		SPACER, SHUTTLE PIVOT , OUTER : P/o shuttle kit 0248; SM-B-338568; 80063	1,2,3,4	ea		1									5-5	
X2-F A524		SPEEDNUT : SM-D-338 649-3 ; 80063	1,2,3,4	ea		4									4-4	7
X2-F A525		SPEEDNUT : P/n 614396; 06650; SM-D-338649-2; 80063	1,2,3,4	ea		3									4-4	2
P-F A526		SPINDLE ASSEMBLY, TAKE-UP AND FEED : SM-C-339046; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3	4-9	0253, 0254
P-F A528		SPRING, FLAT , HOLDER: SM-B-338511; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-14	0352
P-F A529		SPRING, HELICAL, COMPRESSION : SM-B-338508; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-14	0356
X2-F A530		SPRING, HELICAL, EXTENSION : SM-B-338453 ; 80063	1,2,3,4	ea		1									5-3	0374
X2-F A531		SPRING, HELICAL, COMPRESSION: SM-B-338443 ; 80063	1,2,3,4	ea		3									4-6	0263
P-F A532		SPRING, HELICAL, TORSION: SM-B-338760; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-11	0257
X2-F A533		SPRING: SM-B-338531; 80063	1,2,3,4	ea		1									4-12	0264
P-F A534		SPRING, T ORSION: P/o case handle assy; SM-B-338818; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	8	4		
X2-H A535		SPRING, COMPRESSION : SM-B-338559; 80063	3,4	ea		2									4-11	0175
P-F A536		SPRING, COMPRESSION : SM-B-338507; 80063	1,2,3, 4	ea		1	*	*	2	*	*	2	5	3	4-14	0355
P-F A537		SPRING. HELICAL , EXTENSION : SM-B-338601; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3		
P-F A538	6730-265-6282	SPRING, HELICAL COMPRESSION : Film slack adj. SM-B-338437; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-15	8

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) 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 ALW PER 100 EQUIP CNTGCY	(10) DEPOT MAINT ALW PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A539	6730-265-6283	SPRING, HELICAL, COMPRESSION: SM-B-339045; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	5	3	4-9	0260, 0261
P-F A540	6730-597-8282	SPRING, HELICAL COMPRESSION: Stop pin; SM-B-338436; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-15	6
P-F A541	6730-597-8284	SPRING, HELICAL, COMPRESSION: Lens holder friction; SM-B-338600; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-11	0270
P-F A542	6730-205-4613	SPRING, HELICAL EXTENSION: Loopsetter tension; SM-B-338599; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3		
P-F A543	6730-341-7882	SPRING, HELICAL EXTENSION: Oil bottle retaining; SM-B-339108; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3		
P-F A544	6730-351-4897	SPRING, HELICAL EXTENS ION: Shuttle SM-B-338598; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-5	0269
P-F A545	6760-355-9860	SPRING, FLAT: Tilt jack friction; SM-B-338817; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-3	0255
C-F A546		SPRING, STABILIZER: P/o sound head assy; SM-D-338744-6; 80063	3,4	ea		1										
P-F A547	6730-356-6989	SPROCKET, CHAIN: SM-B-338707; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	0274
P-H A548	6730-356-6988	SPROCKET, CHAIN: Rewind; SM-B-338592 ; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	8	5	5-5	0301
P-H A549	6730-341-7886	SPROCKET, FILM: SM-C-338595; 80063	1,2,3,4	ea		3				*	*	2	10	6	4-6	0189, 0190, 0278
P-F A550	6730-204-4513	SPROCKET, WHEEL: Take-up and rewind drive; SM-B-338593; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-4	0277
P-H A551	6730-356-6986	SPROCKET, WHEEL: Take-up chain; SM-B-338594 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3		
P-F A552	6730-356-6991	STRIPPER, FILM : SM-B-338609; 80063	1,2,3,4	ea		3	*	*	2	*	*	2	10	6	4-6	H161, H270, H271
X2-F A554	6730-356-6969	STUD: Double idler gear; p/o stud assy, double idler gear 6730-671-5851; 611203; 06650	1,2	ea		1									5-4	0239
P-F A555	6730-671-5851	STUD: Double idler gear; SM-B-338551; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	5-4	0239
X2-F A556		STUD : SM-B-338467 ; 80063	3,4	ea		1									5-3	
P-H A557	6730-356-6992	STUD, JOCKEY ROLLER STOP : SM-B-338588 ; 80063	1,2,3,4	ea		2				*	*	2	5	3		
P-H A558	6730-709-6028	STUD, JOCKEY ROLLER PIVOT: SM-B-338737; 80063	1,2,3,4	ea		2				*	*	2	5	3	5-11	0169
X2-H A559		STUD, LENS HOLDER STOP: SM-B-338502 ; 80063	1,2,3,4	ea		1									4-11	H317
P-H A560	6730-356-6994	STUD: Loops etter tension spring; SM-B-338589 ; 80063	1,2,3,4	ea		1				*	*	2	5	3		
P-F A561	5305-604-6800	STUD, MOUNTING: For mounting hours counter assy; SM-B-338590; 80063	1,2,3,4	ea		2	*	*	2	*	*	2	8	4		
P-H A562	6730-356-6968	STUD: Single idler gear; SM-B-338591; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-4	0238
P-H A563	6730-356-6995	SUPPORT, SHAFT: Mechani sm drive; SM-B-338422; 80063	1,2,3,4	ea		1				*	*	2	5	3	5-5	A140
P-F A564	5930-301-5824	SWITCH , ROTARY : SC-B-77238 ; 80063	1,2	ea		1	*	*	2	*	*	2	5	3	4-1[illegible]	S103
P-F A565	5930-823-2101	SWITCH, ROTARY : SM-C-339006; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	4-1[illegible]	S103

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) -20	(b) 21-50	(c) 51-100	30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(9) UNIT WT PER EQUIP NTGC	(10) DEPOT MAINT HR PER 100 EQUIP	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-F A566	5930-655-151	SWITCH, TOGGLE: DPST; SM-D-338987-2; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	4-1	S102
P-F A567	5930-655-158	SWITCH, TOGGLE : Rewind; SM-B-359093; 80063	3,4	ea		1	*	*	2	*	*	2	5	3	4-1	S105
X2-F A568		TERMINAL BLOCK: SM-B-338742; 80063	1,2,3,4	ea		1									5-1	E109
C-D A569	5940-504-587	TERMINAL LUG: SM-B-338678-1; 80063	1,2,3,4	ea		2									3-2	E127
P-O A570	5305-341-786	THUMBSCREW: Lens lock; SM-B-338374; 80063	1,2,3,4	ea		1	*	2	2	*	2	2	10	6	4-1	H105
P-F A571	5305-695-453	THUMBSCREW : SM-B-339044 ; 80063	1,2,3,4	ea		2	*	2	2	*	2	2	10	6	4-9	H157, H158
P-F A572	5305-639-112	THUMBSCREW: Exciter lamp cover; SM-B-338377; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	H156
P-F A573	5310-193-757	WASHER : MS35333-36; 96906	1,2,3,4	ea		83	2	5	10	2	2	3	209	70	5-1	H274
X2-F A574	5310-167-087	WASHER : AN936A10; 81349	3,4	ea		3									5-1	H268
X2-F A575	5310-045-329	WASHER: AN935-10; 81349	1,2,3,4	ea		4									5-1	H265
X2-F A576	5310-167-087	WASHER : AN936A6; 81349	1,2,3,4	ea		3									5-1	H254
X2-F A577	5310-595-723	WASHER : AN936A616; 81349	1,2,3,4	ea		2									5-1	H267
X2-F A578	5310-011-460	WASHER: MS35335-30; 81349	1,2,3,4	ea		2									5-1	H283
X2-F A579	5310-550-350	WASHER: MS35335-36; 81349	3,4	ea		2									5-1	
X2-F A580		WASHER: SM-B-338468; 80063	3,4	ea		1									5-3	H325
X2-F A581		WASHER: SM-D-338448-5 ; 80063	1,2,3,4	ea		4									5-3	H269
P-F A582	5310-167-082	WASHER: AN960-516; 81349	1,2,3,4	ea		4	*	2	2	*	2	2	10	8	5-3	H321
X2-F A583		WASHER : SM-B-338456; 80063	1,2,3,4	ea		2									5-3	H177
X2-F A584	5310-167-087	WASHER : AN936A3; 88044	1,2,3,4	ea		7										
X2-F A585		WASHER : SM-B-338533 ; 80063	1,2,3,4	ea		2									4-1	H174
P-F A586	5310-832-814	WASHER: Used in drive motor gear housing assy; 1/2" dia x .0030 thk; .250 in dia hole; SM-B-338709; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	
P-F A587	5310-832-813	WASHER: Used in drive motor gear housing assy; 1/2" dia x.0040 thk;.250 in dia hole; SM-B-338708 ; 80063	1,2,3,4	ea		1	*	*	2	*	*	2	5	3	5-1	
X2-F A589		WASHER:P/o shuttle kit 0248; SM-B-338569; 80063	1,2,3,4	ea		1									5-5	
X2-F A590	5310-579-555	WASHER: MS35333-35; 81349	1,2,3,4	ea		3										
X2-F A592	5310-551-777	WASHER: MS35337-40; 81349	1,2,3,4	ea		18										
X2-F A593	5310-579-007	WASHER: MS35333-37, 81349	3,4	ea		74										
X2-F A594	5310-167-066	WASHER: MS35337-43; 81349	1,2,3,4	ea		4										

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF ISSUE	(5) QTY INCL IN UNIT PACK	(6) QTY INCL IN UNIT	(7) 30-DAY DS MAINT ALLOWANCE (a) -20	(b) -50	(c) -100	(8) 30-DAY GS MAINT ALLOWANCE (a) -20	(b) -5	(c) -100	(9) UNIT PRICE AGCY	(10) UNIT PRICE DOD	(11) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
X2-F A595	310-576-5752	WASHER: MS35333-39; 81349	1,2,3,4	ea		11										
X2-H A596		WASHER: P/o 6730-671-8121; SM-B-339157; 80063	3,4	ea		1									5-11	
2-F 597	310-194-2779	WASHER: AN936A5; 88044	1,2,3,4	ea		2									5-5	H264
2-F 598	310-045-3296	WASHER: MS353[illegible] 8-43; 96906	1,2,3,4	ea		1										
-F 599	330-832-8068	WASHER, FIBE[illegible]: SM-B-338636; 80063	1,2,3,4	ea		4	*	*	*	*		*	12	8		
-F 600	330-292-3442	WASHER, FIBER: SM-B-338627; 80063	1,2,3,4	ea		4	*	*	2	*		2	8	4	4-11	H176, H175
2-F 601	310-285-1564	WASHER, FLAT: SM-B-338740; 80063	1,2,3,4	ea		2									5-11	H171
-F 602	310-63[illegible]7-3948	WASHER, FLAT: 0.010 in thk; SM-B-338624-4; 80063	1,2,3,4	ea		2	*	*	2	*		2	5	3	5-5	H186
-F 603	310-189-5199	WASHER, FLAT: 0.005 in thk; SM-B-338624-3; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-5	H185
-F 604	310-596-9415	WASHER, FLAT: 0.003 in thk; SM-B-338624-2; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-5	H184
-F 605	310-63[illegible]7-9639	WASHER, FLAT: 0.002 in thk; SM-B-338624-1; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-5	H183
-F 606	5730-662-6029	WASHER, FLAT: SM-B-339042; 80063	1,2,3,4	ea		2	*	*	2	*		2	5	3	4-9	H172
2-H 607		WASHER, FLAT: SM-B-338632; 80063	1,2,3,4	ea		2										
2-F 609		WASHER, FRAMER BAR FRICTION: SM-B-338628; 80063	1,2,3,4	ea		1									5-5	H179
2-H 610		WASHER, FRAMER BAR SPRING: SM-B-338631; 80063	1,2,3,4	ea		1									5-5	H168
X2-F 611	5310-559-0070	WASHER, LOCK: MS35333-38; 81349	1,2,3	ea		34									5-2 5-1	5 H272
X2-F 612	5310-550-1130	WASHER, LOCK: NO 12; MS35333-40; 96906	1,2,3,4	ea		8										
P-F A613	5330-291-4526	WASHER, NON-METALLIC: SM-B-339043; 80063	3,4	ea		3	*	*	2	*		2	5	3	4-9	H193
X2-F A615		WASHER, SHIM: SM-B-338623-3; PIC #33-6; 80063	1,2,3,4	ea		*									5-3	H323
P-F A616	5310-285-1487	WASHER, SHUTTLE GEAR HUB: SM-B-338630; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	5-5	H182
X2-F A617	5310-322-4530	WASHER, SPRING TENSION: SM-B-338670; 80063	1,2,3	ea		1									5-2	9
X2-H A618	5310-322-4529	WASHER, SPRING TENSION: SM-B-338692; 80063	1,2,3,4	ea		2									5-1	H189
P-F A619	5310-524-5681	WASHER, SPRING: SM-B-339074; 80063	1,2,3,4	ea		5	*	*	*	*		*	15	10	4-1[illegible]	H190
-F 620	5730-356-6898	WASHER, THRUST: SM-B-338558; 80063	1,2,3,4	ea		2	*	2	2	*		2	8	4	4-1	H194, H195
-F 621	5310-595-5515	WASHER, THRUST: SM-B-338832; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3	4-3	H188
-F 622	6730-729-5123	WICK: P/o stud 0239; SM-B-338533; 80063	3,4	ea		1	*	*	2	*		2	5	3	5-4	
P-F 623	6730-950-7556	WICK: SM-B-446718; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3		
P-F 624	6730-950-7546	WICK: Used on center plate assy; SM-B-446719; 80063	1,2,3,4	ea		1	*	*	2	*		2	5	3		
X2-F A625		WORM, RATCHET: SM-B-338481; 80063	1,2,3,4	ea											5-3	0373

SECTION III INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER

FEDERAL STOCK NUMBER	INDEX NO.
3020-280-3557	A188
3030-629-0969	A147
3030-629-0970	A148
3110-112-3769	A126
3110-120-3083	A138
3110-144-6841	A130
3110-144-8850	A123
3110-144-8856	A129
3110-151-9132	A135
3110-155-9639	A124
3110-156-4278	A128
3110-183-5756	A134
3120-072-8293	A143
3120-287-9077	A136
3120-287-9084	A127
3120-489-3937	A139
3120-516-9937	A146
4140-202-3361	A270
5305-175-3223	A481
5305-207-2542	A465
5305-322-4578	A452
5305-341-7865	A570
5305-345-3200	A482
5305-407-9834	A485
5305-523-2226	A462
5305-525-1627	A461
5305-543-2188	A473
5305-543-2222	A446
5305-543-2223	A445
5305-543-4358	A432
5305-545-0305	A458
5305-545-8426	A438
5305-558-7361	A443
5305-576-7521	A480
5305-579-5025	A430
5305-604-6800	A561
5305-622-1509	A467
5305-637-7079	A441
5305-637-8249	A463
5305-638-2125	A439
5305-638-2845	A457
5305-638-4970	A434
5305-639-1120	A572
5305-639-1223	A464
5305-639-2224	A453
5305-660-2418	A455
5305-676-9204	A444
5305-680-7264	A455
5305-695-4536	A571
5305-725-1916	A454
5305-869-3000	A442
5310-011-4601	A578
5310-045-3296	A575
5310-167-0662	A594
5310-167-0820	A582
5310-167-0874	A584
5310-167-0876	A176
5310-167-0878	A574
5310-176-8133	A045
5310-176-8135	A046
5310-189-5199	A603
5310-193-7577	A573
5310-194-2779	A597
5310-197-6313	A329
5310-208-5351	A325
5310-285-1487	A616
5310-285-1564	A601
5310-322-4529	A618
5310-523-2031	A044
5310-524-0171	A323
5310-524-9661	A619
5310-537-8412	A330
5310-543-8456	A322
5310-550-1130	A612
5310-550-3503	A579
5310-551-7770	A592
5310-559-0070	A611
5310-579-0079	A593
5310-576-5752	A595
5310-579-5554	A590
5310-595-5515	A568
5310-595-7237	A577
5310-596-7957	A326
5310-637-3948	A602
5310-637-9639	A605
5310-638-4172	A321
5310-639-5381	A327
5310-639-6755	A319
5310-832-8139	A587
5310-832-8140	A101
5310-832-8141	A586
5315-243-1188	A349
5315-234-7052	A344
5315-292-8246	A350
5315-351-9004	A347
5315-832-8089	A339
5315-832-8090	A345
5315-832-8091	A351
5315-832-8297	A338
5315-843-7988	A346
5315-889-2774	A342
5330-291-4526	A613

SECTION III INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER (CONTINUED)

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
5330-292-3442	A600	5905-192-3982	A050	5910-666-6787	A005
5330-832-8068	A599	5905-195-6453	A058	5910-769-5130	A018
5340-199-7018	A519	5905-234-5727	A400	5910-823-1068	A016
5340-282-0764	A414	5905-252-4018	A072	5910-855-3725	A014
5340-282-0782	A410	5905-254-9201	A066	5910-892-7875	A012
5340-282-0784	A411	5905-279-1759	A053	5910-950-8633	A004
5340-286-9459	A407	5905-279-1866	A070	5910-983-7295	A024
5340-340-2160	A534	5905-279-1867	A063	5915-351-9012	A224
5340-351-8635	A415	5905-279-1883	A075	5920-199-9502	A229
5340-355-9772	A312	5905-279-2514	A057	5920-284-6733	A035
5340-356-4695	A165	5905-279-2515	A067	5920-556-0144	A036
5340-533-6215	A530	5905-279-2591	A071	5920-568-0926	A230
5340-832-8256	A406	5905-279-3503	A064	5930-050-2680	A096
5340-956-0426	A413	5905-299-1971	A059	5930-301-5824	A564
5355-284-5131	A041	5905-299-2046	A061	5930-642-9292	A095
5355-323-6091	A283	5905-577-9415	A076	5930-655-1514	A566
5355-351-4448	A286	5905-666-2576	A401	5930-655-1515	A097
5355-545-7572	A284	5905-752-3260	A078	5930-655-1582	A567
5355-667-5496	A285	5905-980-5253	A080	5930-823-2101	A565
5355-667-9309	A281	5910-100-8049	A021	5935-092-1032	A271
5355-667-9398	A287	5910-101-4023	A020	5935-092-1033	A272
5355-667-9399	A280	5910-101-4887	A011	5935-129-9358	A087
5905-052-9151	A082	5910-101-5573	A022	5935-160-1365	A090
5905-056-3774	A081	5910-112-7408	A184	5935-201-7902	A201
5905-156-5921	A060	5910-160-4803	A187	5935-257-8698	A029
5905-171-1986	A054	5910-194-7431	A010	5935-259-2034	A028
5905-171-2003	A068	5910-228-5953	A015	5935-260-0516	A089
5905-174-2182	A079	5910-270-5350	A183	5935-260-0517	A088
5905-174-7047	A049	5310-322-4530	A617	5935-263-8303	A200
5905-185-8510	A055	5310-346-9956	A320	5935-498-0781	A205
5905-185-8518	A399	5310-523-2179	A328	5935-539-0368	A031
5905-190-8865	A065	5310-537-8156	A331	5935-808-5163	A202
5905-192-0174	A077	5910-577-3064	A017	5935-950-9817	A040
5905-192-0390	A051	5910-577-7798	A186	5940-177-1694	A190
5905-192-0667	A062	5910-615-9735	A019	5940-504-5871	A569

FEDERAL STOCK NUMBER	INDEX NO.
5950-244-8420	A026
5950-569-0169	A099
5950-648-1734	A100
5960-262901[illegible]82	A034
5960-365-5411	A334
5960-669-6861	A033
5960-683-8087	A085
5960-729-8150	A086
5960-827-8724	A032
5961-938-3067	A336
5965-284-6708	A043
5977-221-6465	A180
5977-222-0092	A179
5977-237-4644	A252
5977-240-1452	A253
5977-245-4303	A162
5977-284-[illegible]325	A163
5977-296-5043	A254
5977-636-4604	A161
6105-265-0488	A308
6105-635-3295	A117
6105-635-3297	A118
6105-670-0174	A309
6105-811-1101	A116
6110-351-8996	A249
6145-186-1493	A175
6210-228-0419	A292
6210-500-3980	A302
6240-155-7857	A042
6240-155-8018	A291
6240-156-1568	A290
6240-186-6594	A288
6240-243-8336	A289
6240-629-4425	A274
6250-299-7013	A293
6680-290-0223	A206
6680-302-5701	A210
6730-040-2231	A273
6730-078-4555	A168
6730-141-8188	A243
6730-141-8488	A248
6730-204-4513	A550
6730-205-4613	A542
6730-242-5647	A151
6730-251-0951	A230
6730-251-0952	A242
6730-265-6281	A531
6730-265-6282	A538
6730-265-6283	A530
6730-288-2395	A381
6730-288-5096	A208
6730-294-0216	A198
6730-294-6878	A244
6730-306-2348	A408
6730-309-5735	A246
6730-341-7782	A507
6730-341-7799	A191
6730-341-7818	A245
6730-341-7844	A192
6730-341-7856	A363
6730-341-7868	A501
6730-341-7874	A511
6730-341-7879	A528
6730-341-7882	A543
6730-341-7885	A533
6730-341-7886	A549
6730-351-4148	A232
6730-351-4697	A544
6730-351-8993	A247
6730-351-8995	A236
6730-351-9003	A543
6730-351-9005	A341
6730-351-9008	A383
6730-351-9009	A393
6730-356-4859	A403
6730-356-6867	A103
6730-356-6879	A112
6730-356-6883	A157
6730-356-6884	A158
6730-356-6885	A156
6730-356-6891	A196
6730-356-6892	A195
6730-356-6893	A194
6730-356-6897	A512
6730-356-6898	A620
6730-356-6900	A207
6730-356-6908	A213
6730-356-6913	A227
6730-356-6914	A228
6730-356-6915	A240
6730-356-6916	A237
6730-356-6917	A235
6730-356-6919	A262
6730-356-6923	A304
6730-356-6924	A305
6730-356-6925	A306
6730-356-6930	A310
6730-356-6931	A311
6730-356-6932	A317

TO INDEX NUMBER (CONTINUED)

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
6730-356-6934	A315	6730-356-6996	A269	6730-629-0972	A111
6730-356-6936	A316	6730-356-6997	A268	6730-629-7443	A173
6730-356-6939	A358	6730-3 56-7344	A122	6730 -647-1675	A377
6730-356-6940	A368	6730-356 -734 6	A144	6730-652-5647	A177
6730-356-6944	A371	6730-356-7349	A142	6730-652-5649	A505
6730-356-6945	A375	6730-356-7350	A141	6730-662-6029	A606
6730-356-6947	A380	6730-391-5312	A241	6730-671-5848	A367
6730-356-6953	A404	6730-392-8970	A110	6730-671-5850	A225
6730-356-6955	A423	6730-393-3974	A366	6730-671-5851	A555
6730-356-6956	A424	6730-393-3983	A333	6730-671-5853	A335
6730-356-6957	A425	6730-396-3514	A297	6730 -671 -5854	A357
6730-356-6958	A426	6730 -396-3515	A296	6730 -671 -8121	A221
6730-356-6959	A422	6730-537-9460	A220	6730-671-8122	A298
6730-356-6960	A421	6730 -537 -9461	A369	6730 -671-8123	A385
6730-356-6962	A419	6730-542-1085	A386	6730-672-0032	A231
6730-356-6963	A428	6730-542-1181	A384	6730 -673 -6190	A172
6730-356-6966	A496	6730-543-3544	A535	6730 -6 77-0318	A250
6730-356-6968	A562	6730-562-1279	A394	6730-682-4741	A189
6730-356-6969	A554	6730-567-3001	A109	6730 -709 -6028	A558
6730-356-6970	A497	6730 -570-6127	A121	6730-724 -2793	A092
6730-356-6971	A502	6730-570-6128	A161	673 0-72 9-5123	A622
6730-356-6972	A494	6730 -570-6129	A379	6730-729-9400	A003
6730-356-6973	A499	6730-580-2651	A133	6730-76 3 -2164	A374
6730-356-6974	A503	6730-585-9 517	A131	6730-768-0308	A276
6730-356-6977	A500	6730 -5 4-6279	A376	6730 -768 -0309	A115
6730-356-6979	A508	6730-597 -8282	A540	67 30-791-5438	A3 48
6730-356-6981	A510	6730 -5 97 -8284	A541	6730 -936-2328	A372
6730-356-6986	A551	673 0-59 7-948	A537	6730-9 36-5463	A169
6730-356-6988	A548	6730 -597 -9831	A529	6730-9 36- 5464	A166
6730-356-6989	A547	6730-597 -9834	A536	6730-938-1694	A364
6730-356-6991	A555	6730 -598-9057	A532	6730-9 50-7546	A624
6730-356-6992	A557	6730-61 8- 6465	A382	6730- 50-7556	A623
6730-356-6994	A560	6730 -61 8-2479	A137	6730-955-2835	A378
6730-356-6995	A563	6730 -629-0971	A108	6730-955-2836	A402

SECTION III INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER (CONTINUED)

FEDERAL STOCK NUMBER	INDEX NO.
6730-955-2845	A295
6730-973-2590	A140
6760-223-3441	A303
6760-282-7588	A392
6760-287-6907	A107
6760-345-0521	A025
6760-345-0543	A094
6760-351-8998	A299
6760-355-[illegible]060	A545
6760-392-[illegible]869	A113
6760-392-9874	A176
6760-392-[illegible]877	A251
6760-392-[illegible]878	A267
6760-392-[illegible]879	A513
6760-392-[illegible]880	A178
6760-392-[illegible]881	A313
6760-392-9885	A359
6760-392-[illegible]889	A417
6760-392-[illegible]893	A391
6760-518-8364	A300
6760-518-9257	A150
6760-518-9260	A149
6780-646-7361	A277
6780-652-5645	A105
6780-652-5646	A278
6780-671-5852	A332
6780-768-0302	A104
6780-768-0303	A275
7920-356-4694	A160

REF NO.	INDEX NO.
AN500C3-4	A466
AN500-5-4	A451
AN500-8-6	A429
AN505-6-8	A478
AN515C2-2	A431

REFERENCE NUMBER	INDEX NO.
AN515-3-3	A437
AN515-5-5	A477
AN565D1032L8	A492
AN565D6L2	A491
AN565D8L3	A489
AN565D8L4	A486
MS35223-35	A479
SC-D-77334	A362
SM-B-338370	A301
SM-B-338373	A440
SM-B-338378	A418
SM-B-338379	A279
SM-B-338409	A509
SM-B-338433	A416
SM-B-338441	A153
SM-B-338444	A436
SM-B-338450	A233
SM-B-338451	A498
SM-B-338452	A209
SM-B-338456	A503
SM-B-338466	A355
SM-B-338467	A556
SM-B-338468	A580
SM-B-338469	A125
SM-B-338476	A390
SM-B-338481	A625
SM-B-338485	A217
SM-B-338499	A387
SM-B-338500	A388
SM-B-338501	A352
SM-B-338502	A559
SM-B-338510	A114
SM-B-338513	A459
SM-B-338513-1	A460
SM-B-338533	A585

FEDERAL STOCK NUMBER	INDEX NO.
SM-B-338554	A214
SM-B-338562	A495
SM-B-338563	A340
SM-B-338566	A522
SM-B-338567	A167
SM-B-338568	A523
SM-B-338569	A589
SM-B-338603	A154
SM-B -338605	A155
SM-B-338610	A365
SM-B-338620	A218
SM-B-338623-3	A615
SM-B-338628	A609
SM-B-338631	A610
SM-B-338632	A607
SM-B-338651	A119
SM-B-338652	A120
SM-B-338653	A506
SM-B-338660	A518
SM-B-338670	A170
SM-B-338684	A440
SM-B-338710-1	A337
SM-B-338718	A211
SM-B-338723	A171
SM-B-338726-1	A449
SM-B-338730	A107
SM-B-338742	A568
SM-B-338747	A427
SM-B-338751	A216
SM-B-338762	A420
SM-B-338826	A521
SM-B-338868	A164
SM-B-338943	A093
SM-B-338956	A084
SM-B-338958	A039

REFERENCE NUMBER	INDEX NO.	REFERENCE NUMBER	INDEX NO.	REFERENCE NUMBER	INDEX NO.
SM-B-338960	A047	SM-D-338448-5	A581	611525	A504
SM-B-339001	A370	SM-D-338497	A318	611890	A266
SM-B-339004	A520	SM-D-338498	A314		
SM-B-339011	A159	SM-D-338528	A353		
SM-B-339097	A282	SM-D-338587	A356		
SM-B-339125	A152	SM-D-338635	A210		
SM-B-339157	A596	SM-D-338645-2	A471		
SM-C-338431	A223	SM-D-338649	A294		
SM-C-338431-1	A435	SM-D-3386 49-2	A525		
SM-C-338431-3	A487	SM-D-338649 -3	A524		
SM-C-338432	A258	SM-D-338650	A259		
SM-C-338457	A261	SM-D-338681-1	A 447		
SM-C-338488	A199	SM-D-338705 -1	A450		
SM-C-338667	A260	SM-D-338732	A517		
SM-C-338682	A255	SM-D-338732-1	A464		
SM- C-338683	A256	SM-D-338733	A354		
SM- C -338693	A222	SM-D-338744-1	A 405		
SM-C-338754 -1	A472	SM-D-338744-6	A 546		
SM-C-338754-2	A490	SM-D-338745	A263		
SM-C-338755	A257	SM-D-338812-2	A456		
SM-C-338899	A098	S M- D-338876	A002		
SM-C-338927	A037	SM-D-338987	A361		
SM-C -338928	A038	SM-D-338987-3	A3 73		
SM-C-338961	A048	SM-D-338987-6	A475		
SM- C-338963	A083	SM-D-339005	A265		
SM-C-338998	A369	SM-D-33 9010	A215		
SM-C-339 039	A106	061082	A515		
SM-C-339096	A226	061114	A212		
SM-C-339159	A507	067268	A360		
SM-D-338341 -1	A474	067348	A516		
SM-D-338341 -2	A488	063190	A1 74		
SM-D-338341-10	A591	067350	A091		
SM-D-338448-1	A409	611508	A132		
SM-D-338 448 -4	A412	611524	A264		

SECTION IV INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
	GROUP I	
3-6	C214	A017
	C216	A017
	F201	A035
	T202	A100
	V201	A032
	V202	
	V203	A033
	V204	
	V205	
	V206	A034
3-7	R213	A081
	R229 -- 1, 2	A077
	R229 -- 3, 4	A078
	R232	A070
	R233	A070
	R234	A070
	S201	A094
3-8	E201	A042
	J202	A040
	J203 -- 1, 2	A029
	J203 -- 3, 4	A030
	J204	A028
	R203	A080
	S202	A096
	S203	A097
	T201	A099
3-9	C201	A022
	C202 -- 1, 2	A016
	C203 -- 1, 2	
	C204 -- 1, 2	A011
	C205	A024
	C-206 -- 1, 2	A004
	C207 -- 1, 2	A016
	C-208 -- 1, 2	A004
	C209	A020
	C210	A021
	C211 -- 1, 2	A016
	C212	A013
	C213 -- 1	A012
	C215 -- 1, 2	A010
	R201 -- 1, 2	A050
	R202	A053
	R204	A054
	R205 -- 1, 2	A055
	R207 -- 1, 2	A050
	R208	A058
	R210 -- 1, 2	A050
	R211	A059
	R212	A075
	R214	A074
	R218 -- 1	A073
	R218 -- 2	A069
	R219 -- 1	A073
	R219 -- 2	A069
	R220 -- 1	A068
	R220 -- 2, 3, 4	A063
	R221 -- 1	A068
	R222	A064
	R223 -- 1, 2	A065
	R224 -- 1, 2	A067
	R225 -- 1, 2	A055
	R226 -- 1, 2	A055
	R227	A061
	R-228 -- 1, 2	A060
3-10	C-202 -- 3, 4	A006
	C-203 -- 3, 4	
	C204 -- 3, 4	A023
	C205	A024
	C206 -- 3, 4	A009
	C-207 -- 3, 4	A006
	C208 -- 3, 4	A009
	C209	A020
	C210	A021
	C-211 -- 3, 4	A006
	C213 -- 2, 3, 4	A013
	C223 -- 3, 4	A023
	E200	A092
	R204	A054
	R205 -- 3, 4	A056
	R206	A057
	R207 -- 3, 4	A051
	R209	A057
	R210 -- 3, 4	A051
	R211	A059
	R212	A075
	R214	A074
	R215	A057
	R216	A057
	R217	A058
	R218 -- 3, 4	A052
	R219 -- 3, 4	A052
	R221 -- 2, 3, 4	A063
	R222	A064
	R223 -- 3, 4	A066
	R224 -- 3, 4	A062
	R225 -- 3, 4	A056
	R226 -- 3, 4	A056
	R228 -- 3, 4	A076
	R236	A056
	R240	A076
3-11	C-217 -- 3, 4	A009
	C218	A019
	C219	A014
	C-221	A015
	C222	A015
	C230	A015
	L201	A026
	R230	A072
	R231	A071
	GROUP II	
2-4	I103	A299
	I-113	A300
3-2	E102	A224
	E127	A569
	FL-101	A225
	H107	A188
3-3	0208	A306

SECTION IV. INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER (CONTINUED)

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
3-8	J203 -- 1, 2	A203
	J203 -- 3, 4	A204
3-9	C202	A185
	C203	A185
	C204	A182
	C207	A185
	C208	A185
	C211	A185
	R205	A399
	R218	A396
	R219	A396
	R220	A395
	R221	A395
	R223	A397
	R225	A399
	R226	A399
4-1	E105	A290
4-3		A456
	2	A323
	A126	A262
	H167	A165
	H188	A621
	0105	A112
	0142	A244
	0144	A246
	0255	A545
4-4	1	A506
	2	A525
	3	A259
	4	A518
	5	A119
	6	A120
	7	A524
	8	A194
4-6	A149	A153
	H146	A453
	H155	A436
	H161	A553
	H270	A553
	H271	A553
	0179	A364
	0189	A549
	0190	A549
	0204	A348
	0246	A507
	0263	A531
	0278	A549
	0290	A364
	0291	A364
4-9	H118	A331
	H119	A331
	H123	A330
	H124	A330
	H139 -- 1, 2	A349
	H139 -- 3, 4	A351
	H157	A571
	H158	A571
	H172	A606
	H193	A613
	H228 -- 1, 2	A349
	H228 -- 3, 4	A351
	H279	A345
	H280	A345
	0102	A115
	0103	A106
	0118 -- 1, 2	A150
	0118 -- 3, 4	A148
	0119 -- 1, 2	A149
	0119 -- 3, 4	A147
	0137	A191
	0173	A192
	0180	A371
	0182	A386
	0183 -- 1, 2	A383
	0183 -- 3, 4	A384
	0253	A526
	0254	A526
	0260	A539
	0261	A539
	0293	A138
	0294	A138
	0295	A128
	0296	A128
4-11	H129	A328
	H130	A328
	H175	A600
	H176	A600
	H194	A620
	H195	A620
	0114	A135
	0115	A135
	0174 -- 1, 2	A363
	0174 -- 3, 4	A177
	0175 -- 1, 2	A363
	0175 -- 3, 4	A535
	0175 -- 3, 4	A177
	0184 -- 1, 2	A376
	0184 -- 3, 4	A385
	0186 -- 1, 2	A381
	0186 -- 3, 4	A382
	0187 -- 1, 2	A381
	0187 -- 3, 4	A382
	0203 -- 3, 4	A495
	0231 -- 3, 4	A495
	0235	A494
	0236	A494
	0297	A126
	0298	
	0299	A130
	0300	A130
4-12	A114	A357
	A170	A105
	H147	A457
	H148	A458
	H174	A585
	0264	A533
4-14	A155	A313
	A167	A388
	A219	A314
	A224	A387
	A227	A365

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
4-14	E122	A280
	E210	A283
	H102	A168
	H105	A570
	H118	A326
	H190	A619
	H221	A460
	H310	A459
	H312	A114
	H313	A352
	H317	A559
	H319	A440
	0270	A541
	0344	A197
	0347	A251
	0352	A528
	0353	A417
	0355	A536
	0356	A529
	0380	A218
	0381	A243
4-15	1	A487
	2	A435
	3	A193
	4	A304
	5	A343
	6	A540
	7	A416
	8	A538
	9	A258
4-16	H159	A279
	0223	A418
4-17	A108	A108
	A157 -- 1, 2	A266
	A157 -- 3, 4	A265
	A158	A370
	E104	A288
	E119 -- 1, 2	A284
	E119 -- 3, 4	A285
	E126	A369
	H21	A325
	H197	A324
	H217	A479
	H225	A475
	H226	A478
	J104	A514
	J108	A292
	0131	A520
	S102	A566
	S103 -- 1, 2	A564
	S103 -- 3, 4	A565
	S105	A567
5-1	A120	A211
	A132	A255
	A133	A256
	A172	A312
	C106	A183
	C107	A186
	C108	A187
	C109	A184
	E111	A162
	E114	A116
	E117	A161
	H114	A253
	H115	A254
	H117	A441
	H145 -- 3, 4	A448
	H189	A618
	H210	A444
	H222	A450
	H223	A429
	H224	A446
	H237	A449
	H241	A442
	H253	A469
	H254	A576
	H259	A486
	H262	A485
	H265	A575
	H267	A577
	H268	A574
	H272	A611
	H274	A573
	H281	A338
	H283	A578
	0106	A107
	0122	A179
	0135	A208
	0145	A245
	0156	A249
	0194	A410
	0222	A428
	0274	A547
	0279	A222
	0309	A129
	0310	A124
	0317	A122
	0318	A122
	0322	A248
	P101	A200
	R104 -- 1, 2	A400
	R104 -- 3	A401
	W108	A171
5-2	1	A270
	2	A180
	3	A163
	5	A611
	6	A215
	7	A260
	8	A117
	9	A617
	11	A187
5-3	A206	A209
	A228	A261
	A229	A355
	H177	A583
	H222	A471
	H269	A581
	H307	A451
	H320	A437
	H321	A582
	H323	A615
	H325	A580
	I111	A206

SECTION IV. INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER (CONTINUED)

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
5-3	0197	A411
	0360	A113
	0361	A390
	0363	A217
	0366	A233
	0367	A267
	0369	A412
	0370	A409
	0371	A498
	0373	A625
	0374	A530
	0375	A391
	0382	A125
	0383	A176
	0384	A219
5-4	A123	A210
	A160 -- 1, 2	A362
	A160 -- 3, 4	A356
	H110	A232
	0123	A181
	0132	A512
	0146	A237
	0147	A240
	0148	A239
	0149	A247
	0150	A238
	0238	A562
	0239 -- 1, 2	A554
	0239 -- 3, 4	A555
	0277	A550
	0292	A139
5-5	A111 -- 1,2	A156
	A111 -- 3, 4	A155
	A121 -- 1, 2	A212
	A121 -- 3, 4	A214
	A140	A563
	A165 -- 1, 2	A366
	A165 -- 3, 4	A367
	E123	A281
	H106	A189
	H120	A323
	H133	A321
	H149	A438
	H151	A434
	H168	A610
	H179	A609
	H181	A276
	H182	A616
	H183	A605
	H184	A604
	H185	A603
	H186	A602
	H227	A474
	H261	A489
	H262	A485
	H264	A597
	0120	A510
	0121	A121
	0125	A196
	0126	A195
	0133	A198
	0134	A207
	0139	A403
	0151	A241
	0152	A236
	0153	A235
	0154	A242
	0202	A408
	0233	A497
	0234	A501
	0237	A503
	0240	A499
	0241	A500
	0243	A276
	0244	A276
	0248	A511
	0269	A544
	0301	A548
	0303	A144
	0304	A144
	0306 -- 1, 2	A142
	0306 -- 3, 4	A143
	0307 -- 1,2	A141
	0307 -- 3, 4	A140
	0308	A146
5-11	A103	A157
	A118	A213
	A119	A316
	A129	A263
	A130	A257
	A159 -- 1, 2	A368
	A159 -- 3, 4	A216
	A162	A354
	A171	A358
	E106	A289
	E109	A568
	E130 -- 1	A174
	E130 -- 2, 3, 4	A173
	E150 -- 1, 2	A274
	E150 -- 3, 4	A172
	E211	A513
	H121	A319
	H122	A329
	H156	A572
	H171	A601
	H205	A322
	H221	A464
	H230	A431
	H233	A465
	H234	A466
	H244	A472
	H257	A491
	H258	A492
	H260	A490
	H314	A320
	I101	A302
	MP411	A264
	MP414	A504
	MP415	A131
	MP416	A133
	0116	A132
	0117	A134
	0138	A404
	0166	A333
	0167	A347
	0168	A341
	0169	A558

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
5-11	0181	A278
	0198	A414
	0210	A424
	0211	A423
	0216	A427
	0217	A420
	0225	A505
	0226	A496
	0257	A532
	0348	A178
	V101 -- 3	A335
	V101 -- 4	A336
	Y101	A334
6-12	R237	A398

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.

INDEX

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:
USASA (2)
CNGB (1)
OCC-E (7)
Dir of Trans (1)
CofEngrs (1)
TSG (1)
CofSptS (1)
USACDC Agencies (1)
USAMC (5)
USCONARC (6)
ARADCOM (5)
ARADCOM Rgn (2)
OS Maj Cored (4)
LOGCOMD (2)
USAMICOM (4)
USASMC (2)
USASCC (4)
MDW (1)
Armies (2)
corps (2)
USAC (3)
11th Air Assault Div (3)
Svc Colleges (2)
Br Svc Sch (2) except USASCS (40)
USA Tml Cored (1)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
USASTC (2)
WRAMC (1)
USA Pic Cen (2)
USA Avn Comm Cen (5)
USAPA (5)
USARMIS, Ecuador (5)
USMTMSA (5)
BAMC (6)
Instl (2) except Ft Monmouth (70)
Ft Gordon, Ft Huachuca (10)
WSMR (5) Ft Carson (21)
MAAG: Mali, Norway, Republic of China (5)
Army Dep (2) except SAAD (30)
LXAD, TOAD (14) FTWOAD, ATAD (10)
LEAD, NAAD, SVAD (5) SHAD, CHAD (3)
GENDEP (2)
Sig Sec, GENDEP (5)
Sig Dep (12)
Army Tml (1) except OART (5)
Sig Fld Maint Shops (2)
AMS (1)
USAERDAA (2)
USAERDAW (13)
Units org under fol TOE: (2 each UNOINDC)
11-16
11-57
11-97
11-98
11-117
11-155
11-157
11-337
11-500 AA-AE (4)
11-557
11-587
11-592
11-597
11-5
11-6
11-15
11-35
11-36
11-56
11-56
11-95
11-96
11-116
11-215
11-216
11-608

NG: State AG (3) Units same as active Army except allowance is one copy each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

* U.S. GOVERNMENT PRINTING OFFICE: 1966—764446/139

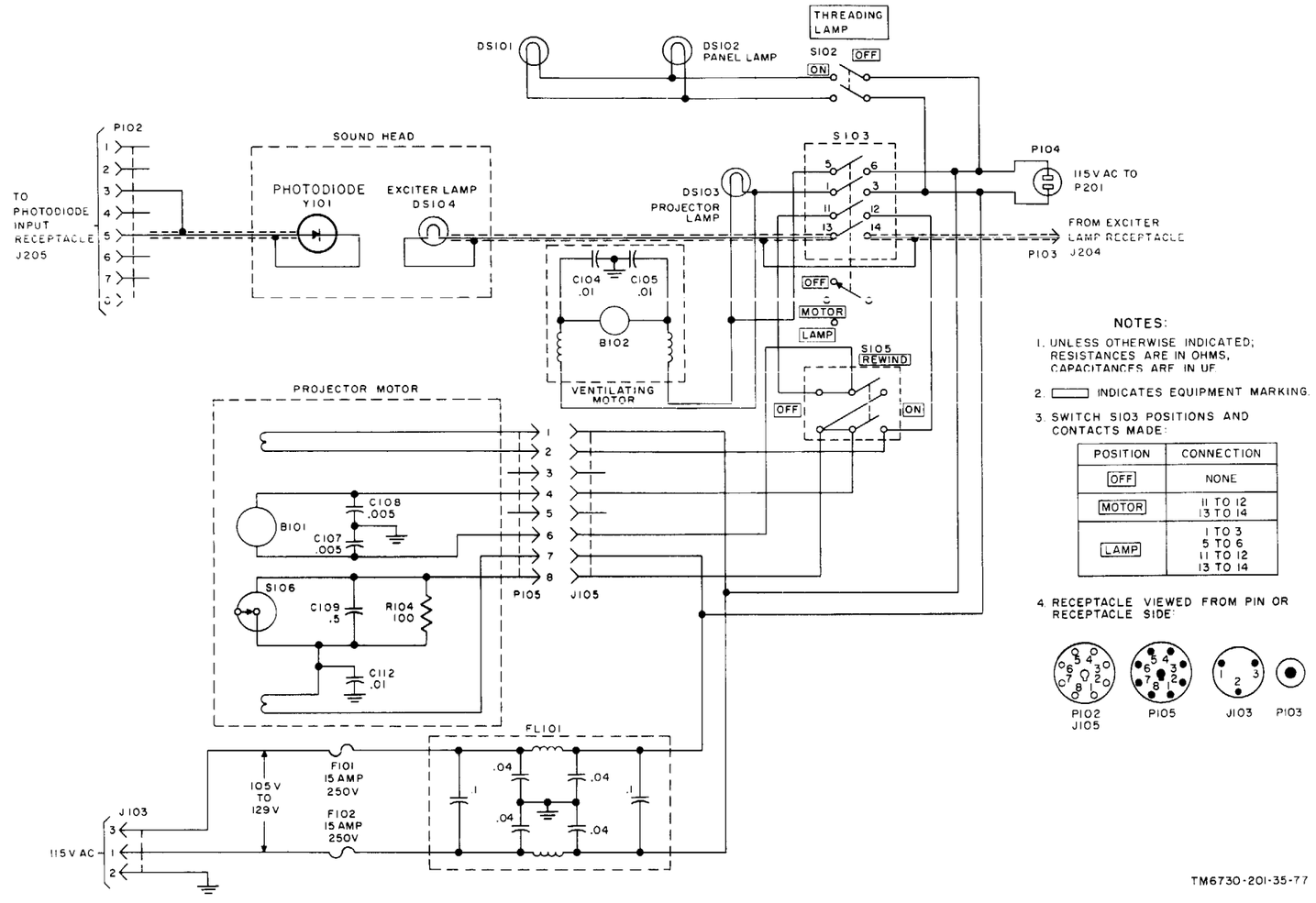
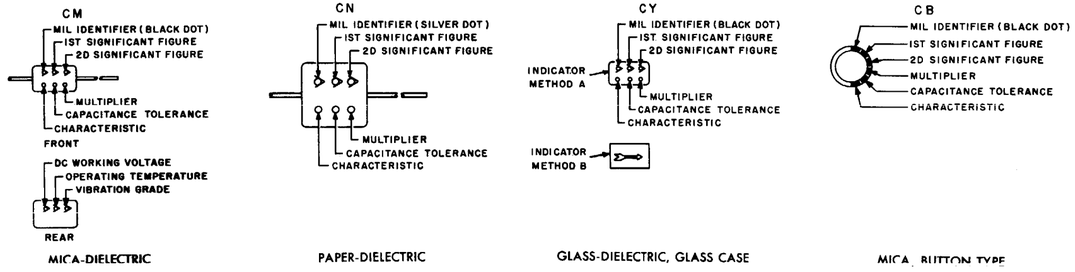


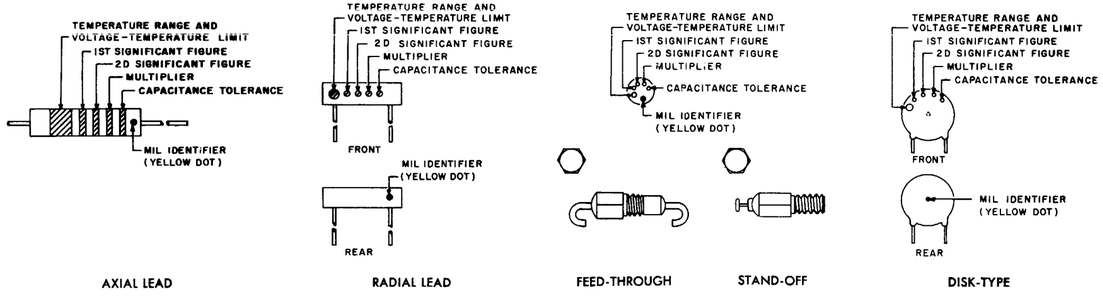
Figure 6–8. Projector AQ–2A(3), projector power circuit, schematic diagram.

COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

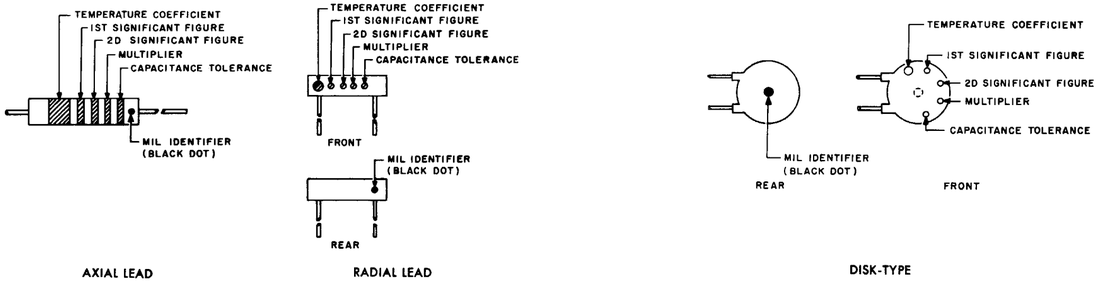
GROUP I Capacitors, Fixed, Various-Dielectrics, Styles CM, CN, CY, and CB



GROUP II Capacitors, Fixed Ceramic-Dielectric (General Purpose) Style CK



GROUP III Capacitors, Fixed, Ceramic-Dieletric (Temperature Compensating) Style CC



COLOR CODE TABLES

TABLE I – For use with Group I, Styles CM, CN, CY and CB

COLOR	MIL ID	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE				CHARACTERISTIC[2]				DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN	CY	CB	CM	CM	CM
BLACK	CM, CY CB	0	0	1			± 20%	± 20%		A				−55° to +70°C	10–55 cps
BROWN		1	1	10					B	E		B			
RED		2	2	100	± 2%		± 2%	± 2%	C		C			−55° to +85°C	
ORANGE		3	3	1,000		± 30%			D			D	300		
YELLOW		4	4	10,000					E					−55° to +125°C	10–2,000 cps
GREEN		5	5		± 5%				F				500		
BLUE		6	6											−55° to +150°C	
PURPLE (VIOLET)		7	7												
GREY		8	8												
WHITE		9	9												
GOLD				0.1			± 5%	± 5%							
SILVER	CN				± 10%	± 10%	± 10%	± 10%							

TABLE II – For use with Group II, General Purpose, Style CK

COLOR	TEMP. RANGE AND VOLTAGE – TEMP. LIMITS[3]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE	MIL ID
BLACK		0	0	1	± 20%	
BROWN	AW	1	1	10	± 10%	
RED	AX	2	2	100		
ORANGE	BX	3	3	1,000		
YELLOW	AV	4	4	10,000		CK
GREEN	CZ	5	5			
BLUE	BV	6	6			
PURPLE (VIOLET)		7	7			
GREY		8	8			
WHITE		9	9			
GOLD						
SILVER						

TABLE III – For use with Group III, Temperature Compensating, Style CC

COLOR	TEMPERATURE COEFFICIENT[4]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE		MIL ID
					Capacitances over 10uuf	Capacitances 10uuf or less	
BLACK	0	0	0	1		± 2.0uuf	CC
BROWN	−30	1	1	10	± 1%		
RED	−80	2	2	100	± 2%	± 0.25uuf	
ORANGE	−150	3	3	1,000			
YELLOW	−220	4	4				
GREEN	−330	5	5		± 5%	± 0.5uuf	
BLUE	−470	6	6				
PURPLE (VIOLET)	−750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	± 10%		
GOLD	+100					± 1.0uuf	
SILVER							

1. The multiplier is the number by which the two significant (SIG) figures are multiplied to obtain the capacitance in uuf.
2. Letters indicate the Characteristics designated in applicable specifications: MIL–C–5, MIL–C–91, MIL–C–11272, and MIL–C–10950 respectively.
3. Letters indicate the temperature range and voltage-temperature limits designated in MIL–C–11015.
4. Temperature coefficient in parts per million per degree centigrade.

Figure 6–10. Color code marking for MIL-STD capacitors.

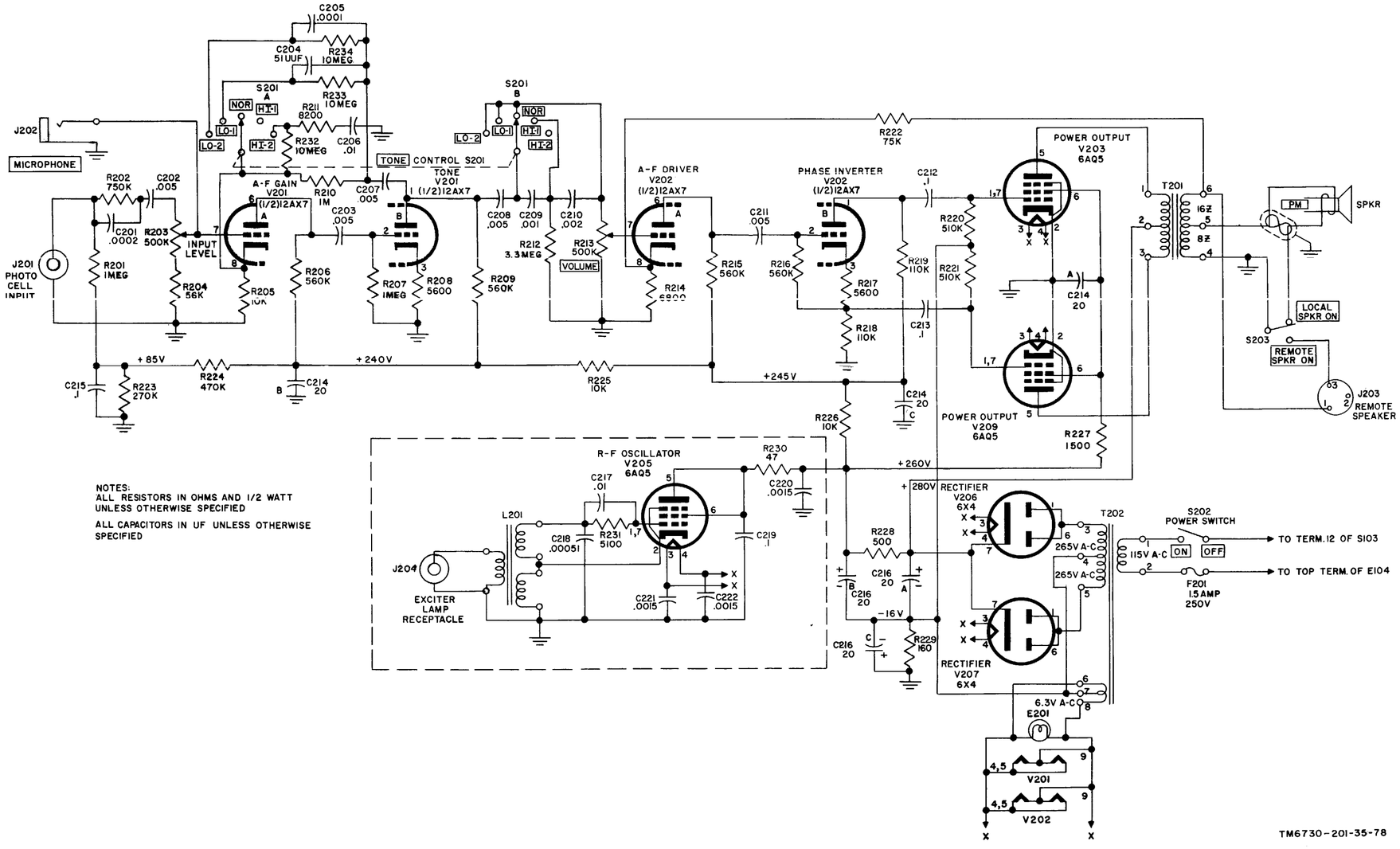


Figure 6–11. Projector AQ–2A(1), amplifier schematic diagram.

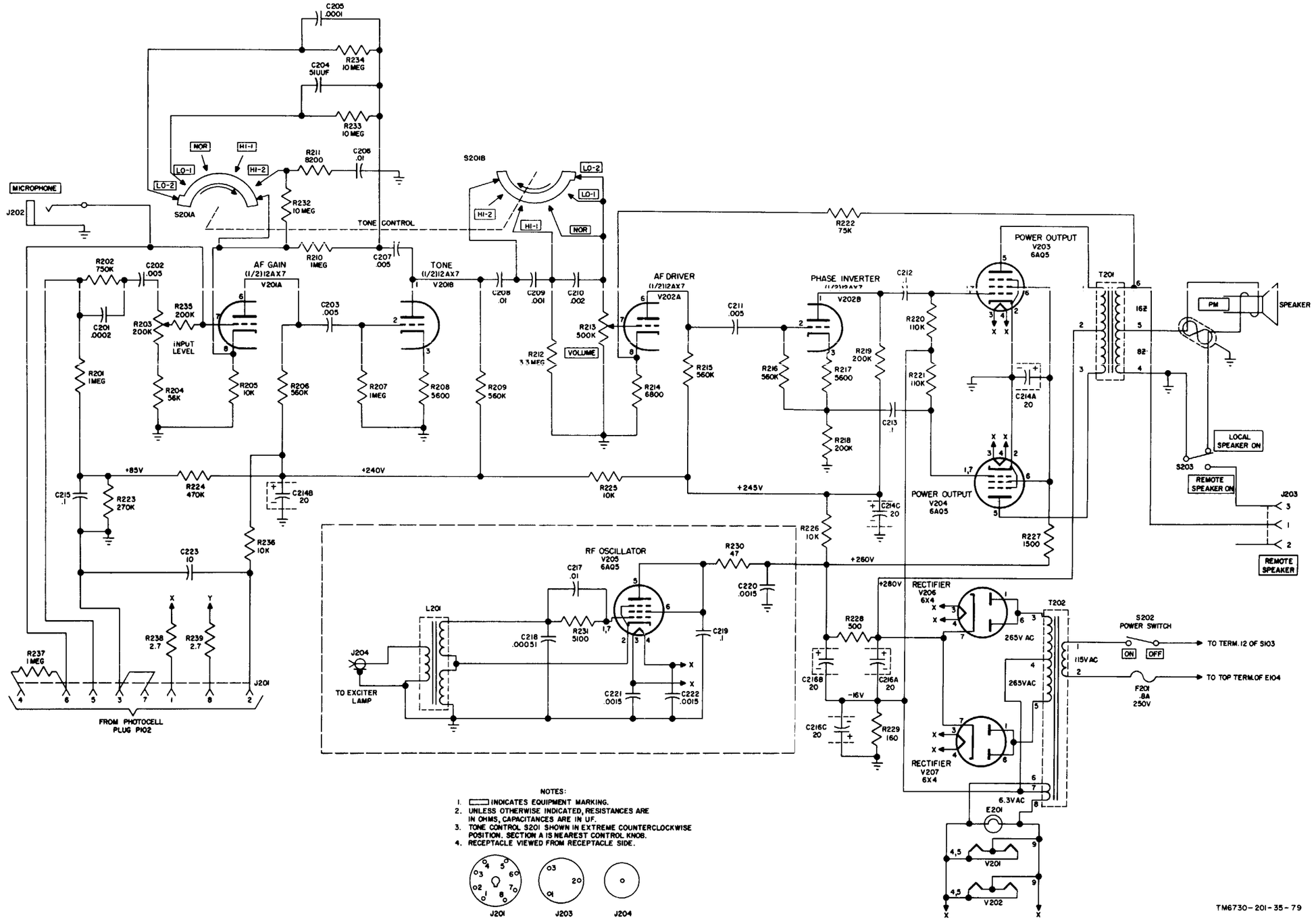
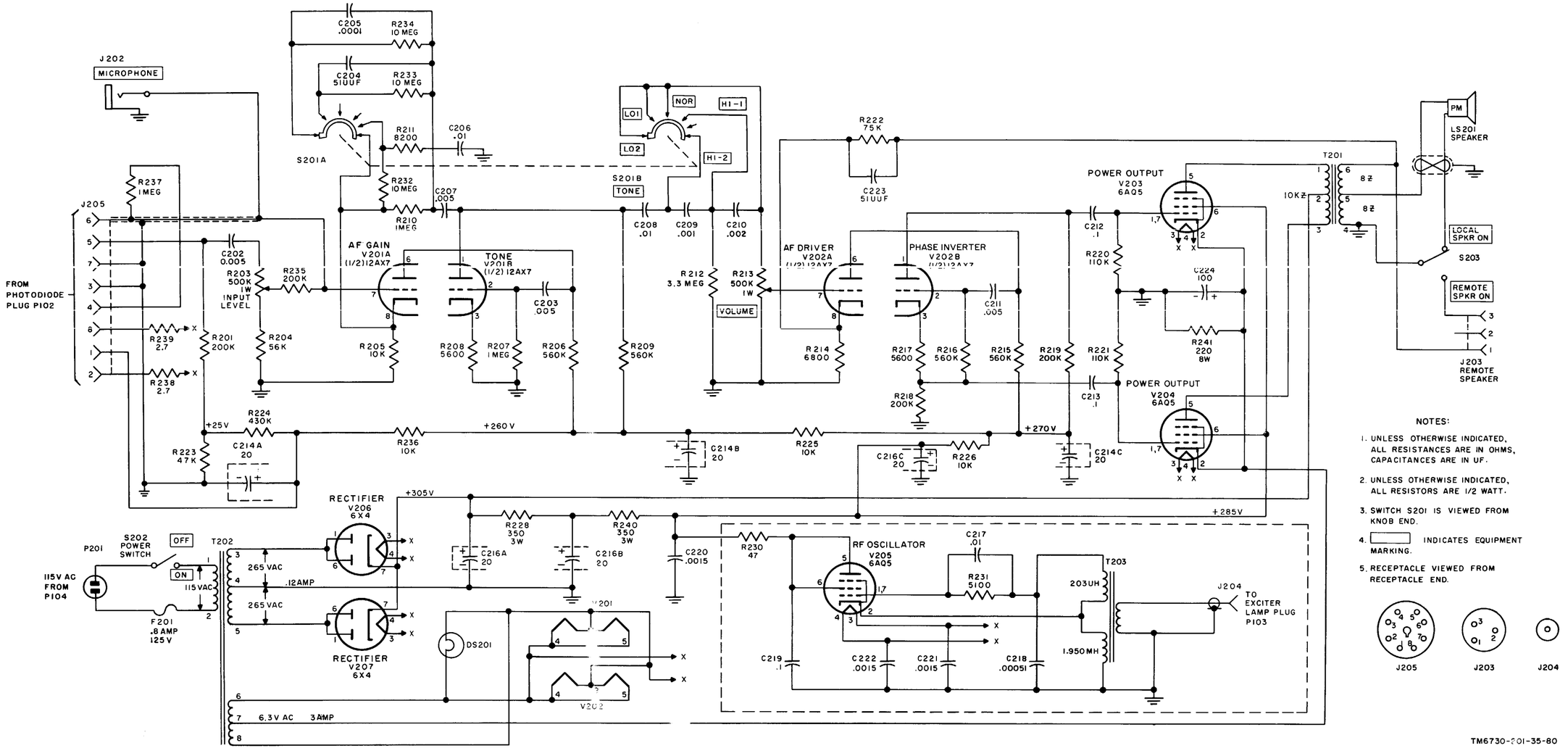


Figure 6–12. Projector AQ–2A(2), amplifier schematic diagram.

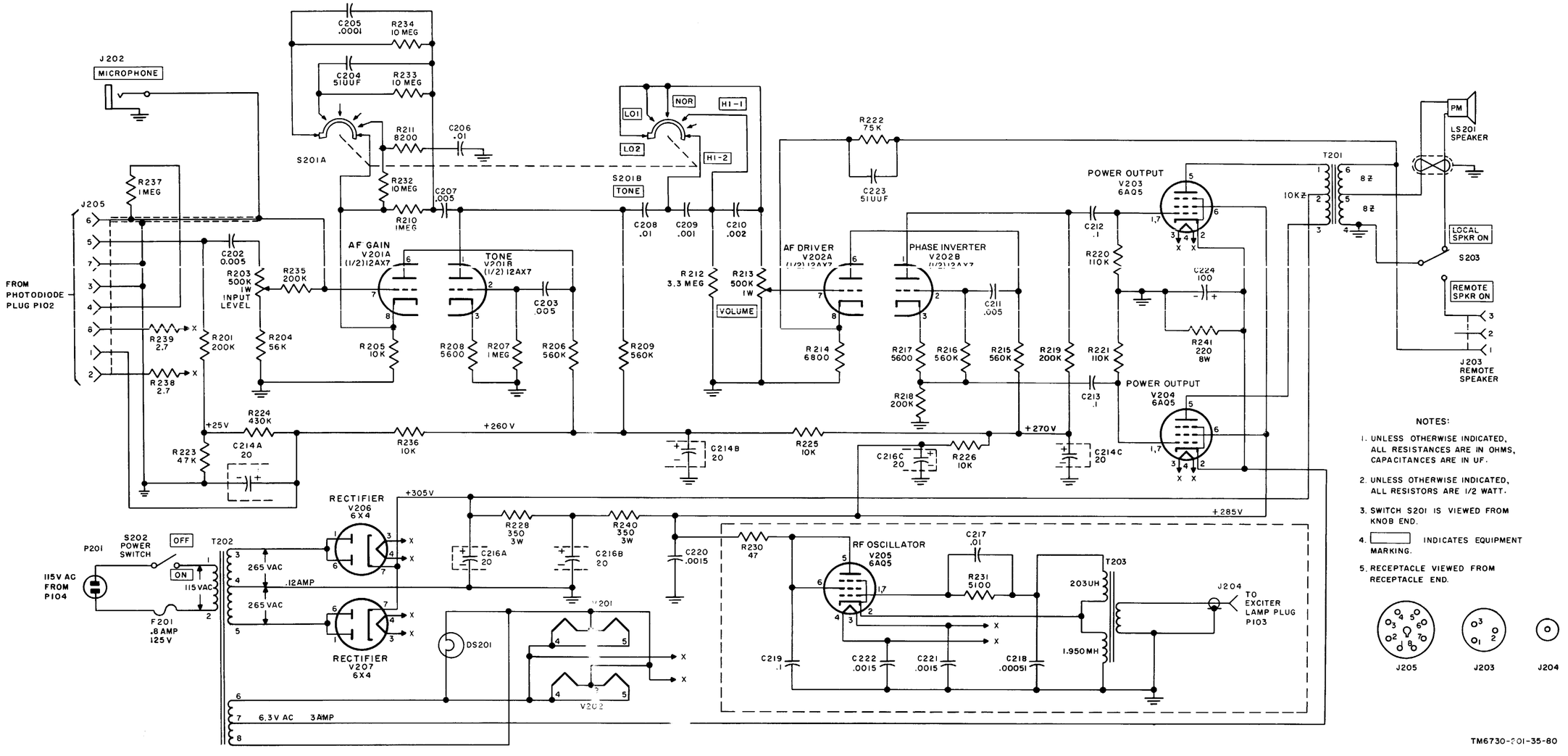


NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
2. UNLESS OTHERWISE INDICATED, ALL RESISTORS ARE 1/2 WATT.
3. SWITCH S201 IS VIEWED FROM KNOB END.
4. ▭ INDICATES EQUIPMENT MARKING.
5. RECEPTACLE VIEWED FROM RECEPTACLE END.

TM6730-201-35-80

Figure 6-13. Projector AQ-2A(3), amplifier schematic diagram.



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
2. UNLESS OTHERWISE INDICATED, ALL RESISTORS ARE 1/2 WATT.
3. SWITCH S201 IS VIEWED FROM KNOB END.
4. ▭ INDICATES EQUIPMENT MARKING.
5. RECEPTACLE VIEWED FROM RECEPTACLE END.

TM6730-201-35-80

Figure 6-13. Projector AQ-2A(3), amplifier schematic diagram.

TM 11-6730-201-35 PROJECTION SET, MOTION PICTURE, SOUND AS-2(1); INCLUDING PROJECTORS, MOTION PICTURE SOUND AQ-2A(1), AQ-2A(2), AND AQ-2A(3)—1965