

# Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

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[www.film-tech.com](http://www.film-tech.com)

# INSTRUCTION MANUAL

## BALLANTYNE MODEL VII

35mm Optical Soundhead



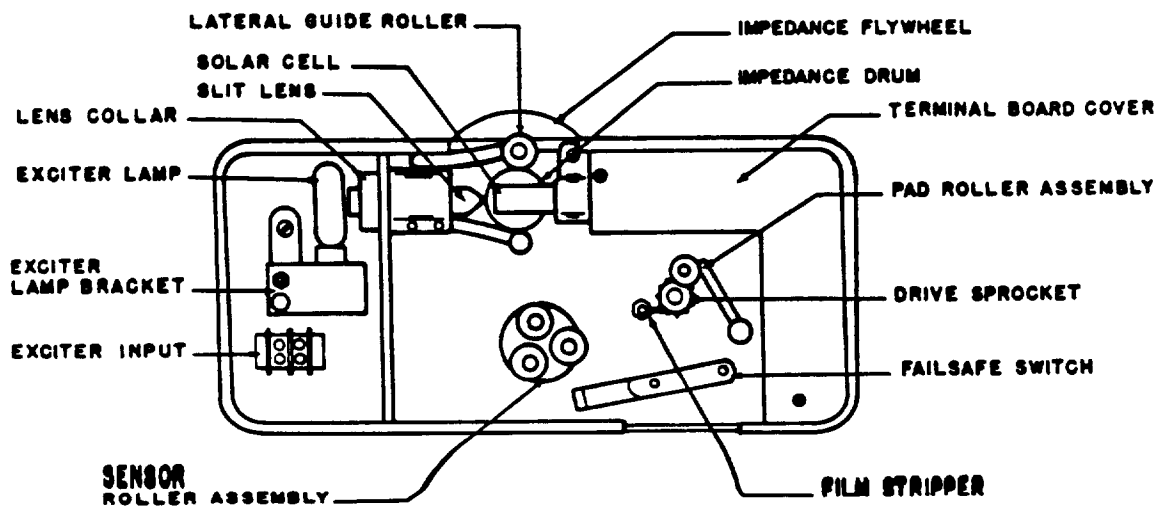
**STRONG INTERNATIONAL, Inc.**  
4350 McKinley Street Omaha, NE 68112  
402/453-4444 FAX 402/453-7238

## PREFACE

THE BALLANTYNE MODEL VII SOUNDHEAD, reflecting the ease of operation and simplicity of design of the PRO-35 Projector, is thoroughly pre-aligned and film tested prior to shipment. Although designed for use with the PRO-35, drive adapter kits are available to permit use of the Model VII with most modern American-made projectors.

ALL SOUNDHEAD COMPONENTS are mounted to a sturdy, one-piece cast main frame. Both the exciter lamp and film compartments are enclosed with doors. The exciter lamp bracket pivots out for ease of relamping, and is spring loaded to return to its pre-aligned position. The roomy film compartment simplifies threading and cleaning.

PRE-FOCUSED, direct scanning optics, and a sensitive solar cell furnish clear soundtrack information. A dampener and two flywheels reduce flutter and "wow" to a minimum.

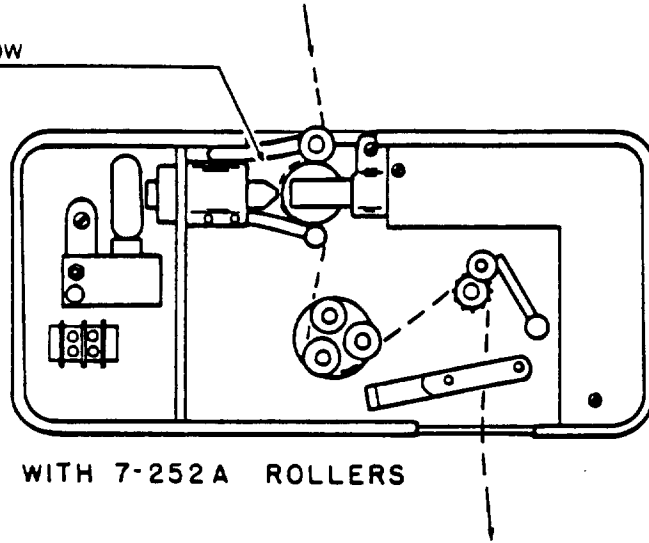


A ONE MIL SLIT LENS is supplied as a standard component, and is ideal for either monophonic or optical stereo operation. The Model VII is easily modified for optical stereo use.

IF AT ANY TIME you have a suggestion, or desire aid in securing anticipated results, feel free to write directly to STRONG INTERNATIONAL, Ballantyne of Omaha, 1712 Jackson Street, Omaha, Nebraska 68102.

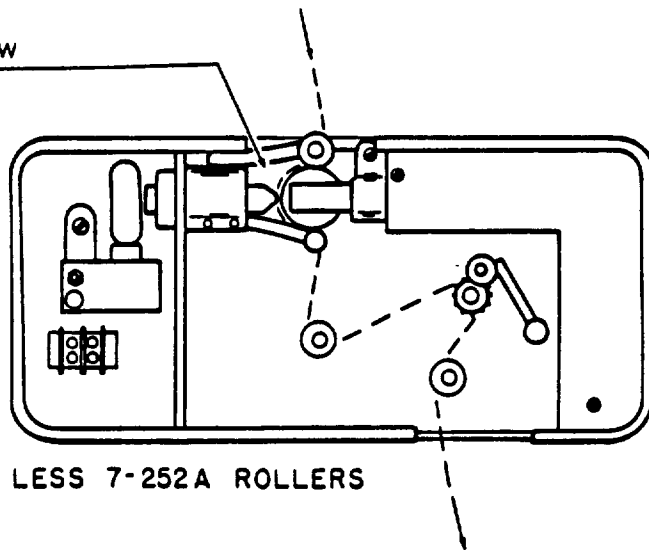
# THREADING DIAGRAM

SEE DETAIL BELOW

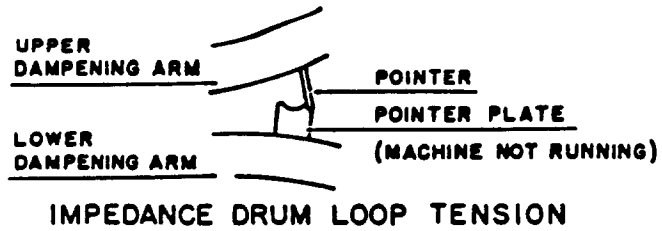


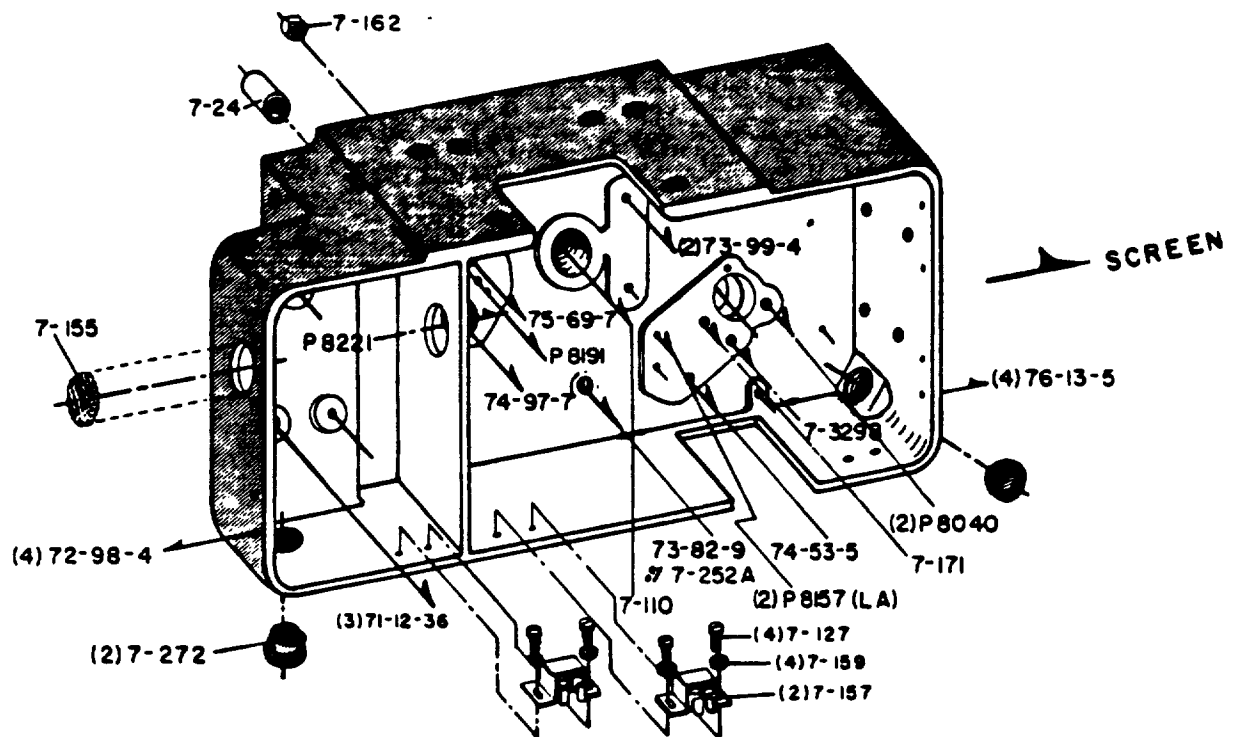
WITH 7-252A ROLLERS

SEE DETAIL BELOW



LESS 7-252A ROLLERS





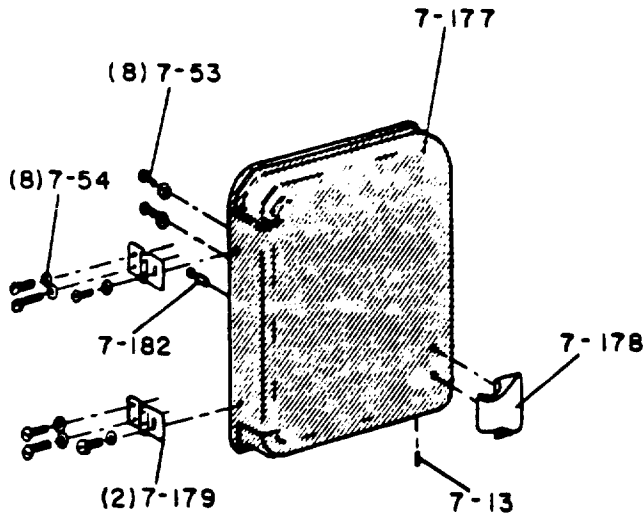
**35 mm MODEL VII  
MAIN FRAME - OPERATOR SIDE  
7-154**

Part No.	Description
71-12-36	Exciter Lamp Bracket Ass'y.
72-98-4	Exciter Lamp Door Ass'y.
73-82-9	Lower Film Roller, Left
73-99-4	Solar Cell Ass'y.
74-53-5	Lower Film Roller, Right
74-97-7	Lower Loop Dampener Arm Ass'y.
75-69-7	Upper Loop Dampener/Lateral Guide Roller Arm Ass'y.
76-13-5	Film Compartment Door Ass'y.
P-8040	Pad Roller Ass'y.
P-8157	LA-100 Sensor Roller (as req'd)
P-8191	Slit Lens Mounting Arm
P-8221	Slit Lens Collar
7-252A	Sensor Roller Ass'y.

Details of above assemblies on following pages.

7-154 MAIN FRAME  
Parts List (con't)

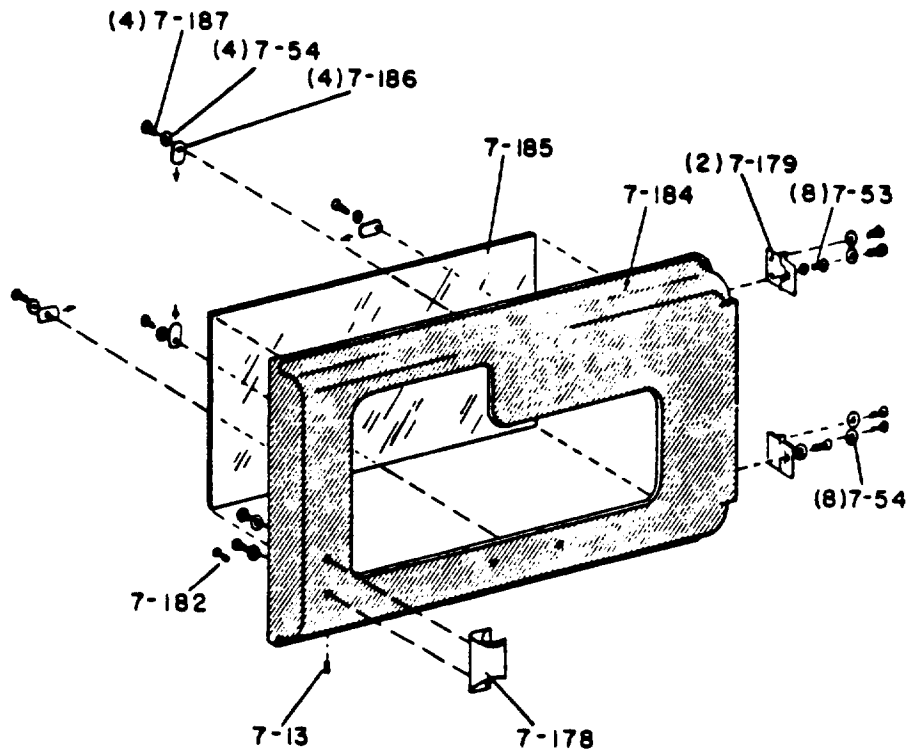
Part No.	Description
7-24	Spacer
7-110	Impedance Drum & Shaft
7-127	Screw
7-155	Perforated Cap
7-157	Door Latch
7-159	Washer
7-162	Stud Nut
7-171	Film Stripper
7-272	Snap Bushing



**72-98-4**

35 mm MODEL VII  
**EXCITER LAMP DOOR**

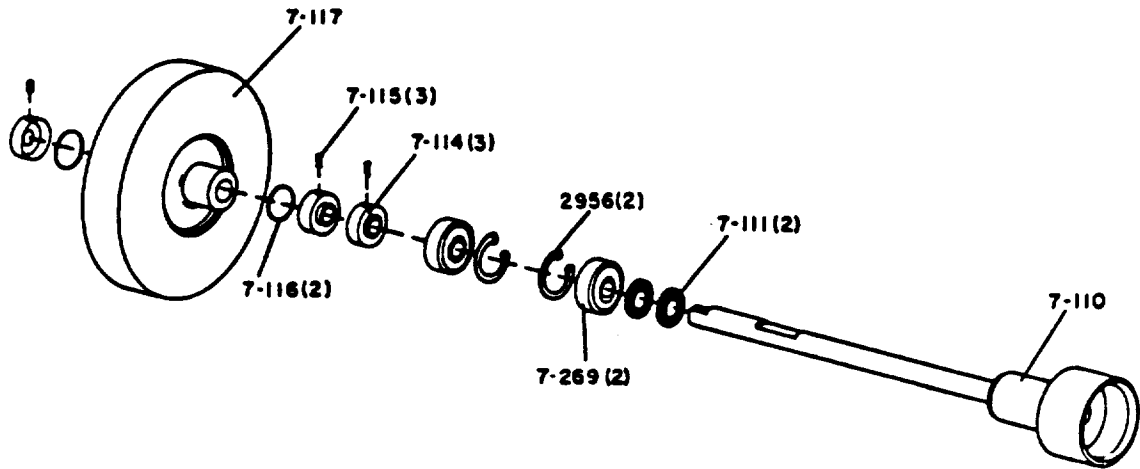
Part No.	Description
7-13	Set Screw
7-53	Screw
7-54	Washer
7-177	Door
7-178	Handle
7-179	Hinge
7-182	Door Catch



## 76-13-5

### 35 mm MODEL VII FILM SIDE DOOR

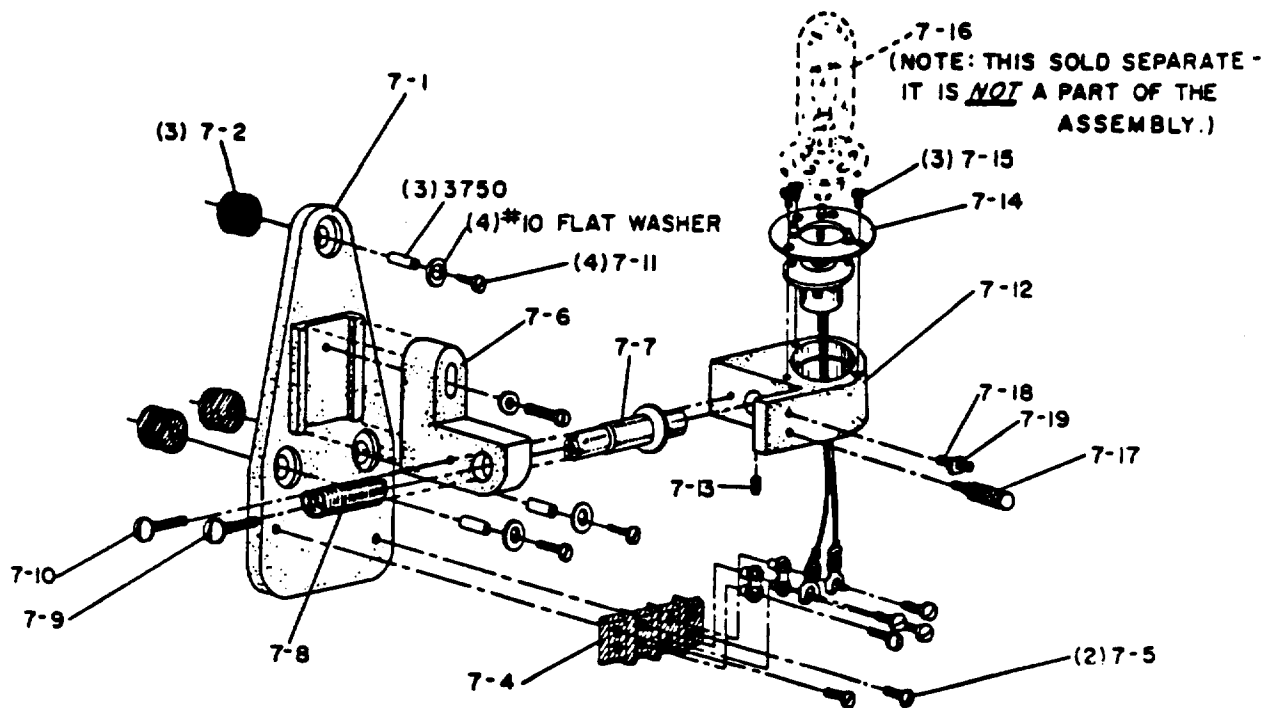
Part No.	Description
7-13	Set Screw
7-53	Screw
7-54	Washer
7-178	Handle
7-179	Hinge
7-182	Door Catch
7-184	Door
7-185	Glass
7-186	Glass Clip
7-187	Screw



**35 mm MODEL VII  
SCANNING DRUM ASSEMBLY**

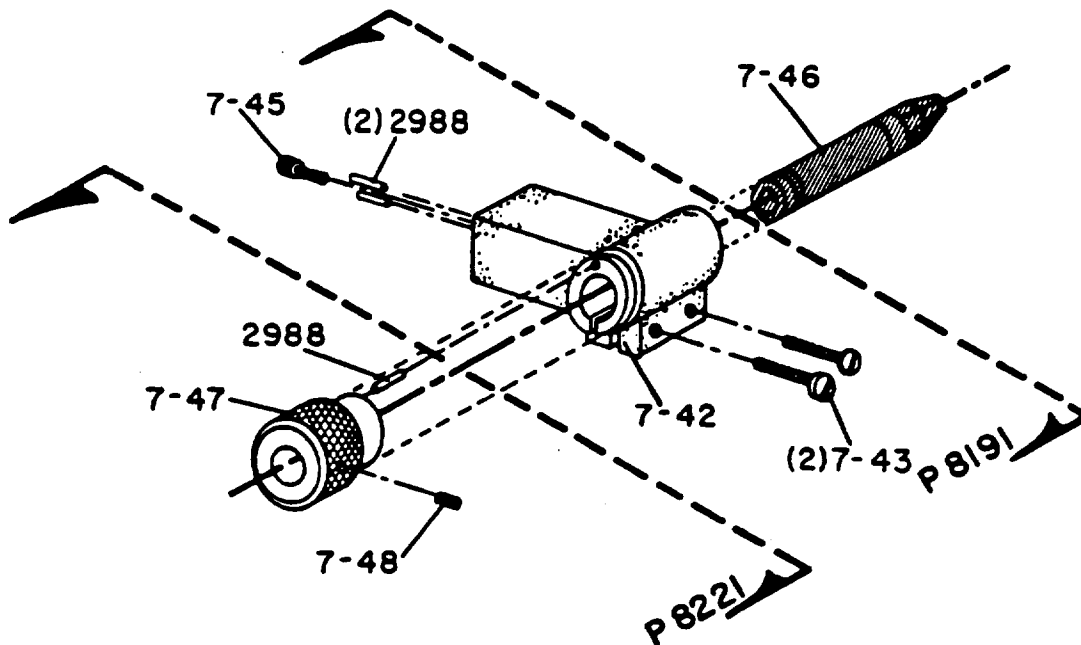
Part No.	Description
7-110	Impedance Drum
7-111	Fibre Washer
7-114	Shaft Collar
7-115	Shaft Collar Set Screw
7-116	O Ring
7-117	Flywheel
7-269	Bearing
2956	Snap Ring





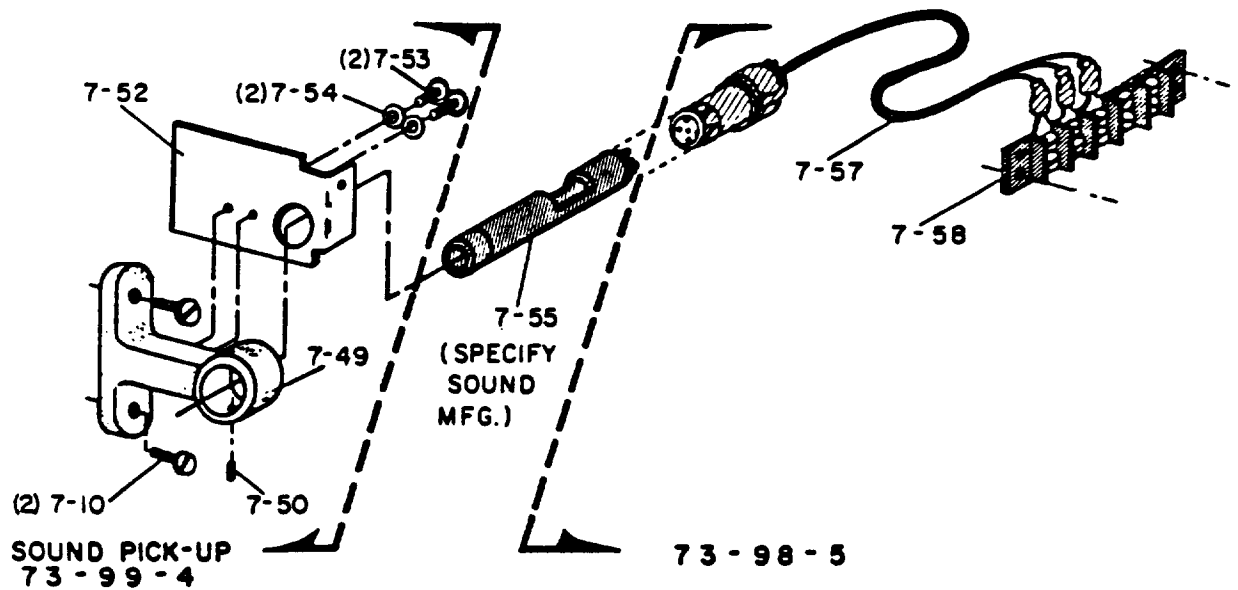
35 mm MODEL VII  
**EXCITER LAMP MOUNTING BRACKET**  
 71 - 12 - 36

Part No.	Description
7-01	Exciter Dampening Plate
7-02	Grommet
7-04	Barrier Strip, 2 Terminal
7-05	Mounting Screw
7-06	Exciter Bracket
7-07	Pivot Shaft
7-08	Pivot Tension Spring
7-09	Pivot Shaft Fastening Screw
7-10	Spring Fastening Screw
7-11	Exciter Bracket Mounting Screw
7-12	Exciter Mounting Bracket
7-13	Exciter Mounting Set Screw
7-14	Exciter Lamp Socket & Leads
7-15	Socket Mounting Screw
7-16	Exciter Lamp, 9 V, 4 A
7-17	Exciter Lamp Tip-out Handle
7-18	Stop Screw
7-19	Lock Nut
3750	Spacer



**35 mm MODEL VII  
OPTICAL LENS ASSEMBLY - P 8191  
LENS FOCUS ASSEMBLY - P 8221**

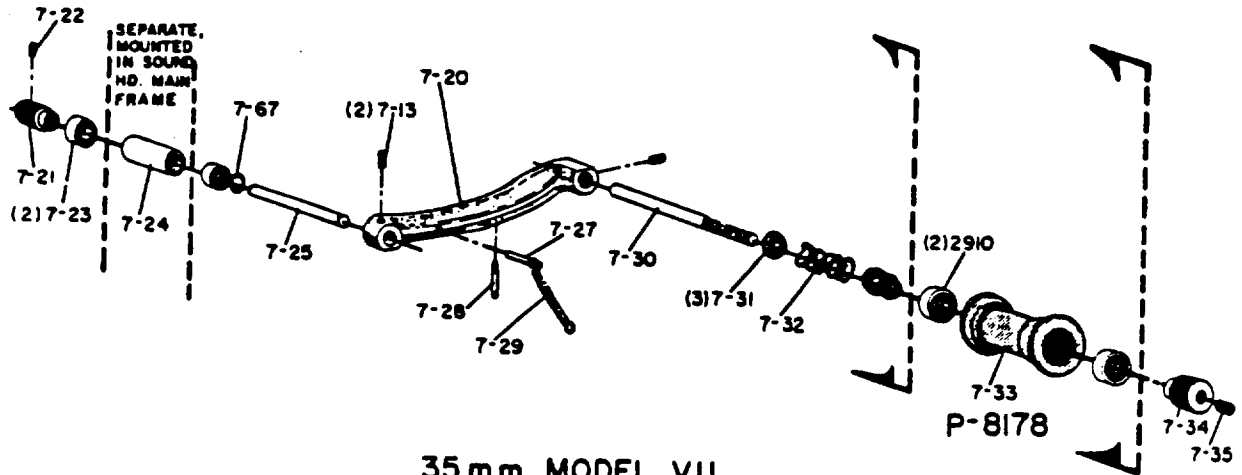
Part No.	Description
7-42	Slit Lens Mounting Casting
7-43	Screw
7-45	Mounting Screw
7-46	Slit Lens
7-47	Slit Lens Focus Ring (Order P 8221)
7-48	Set Screw, 10-32 x 1/4"
2988	Dowel Pin, 1/8" x 1/2"



## 35mm MODEL VII SOUND PICK-UP ASSEMBLY

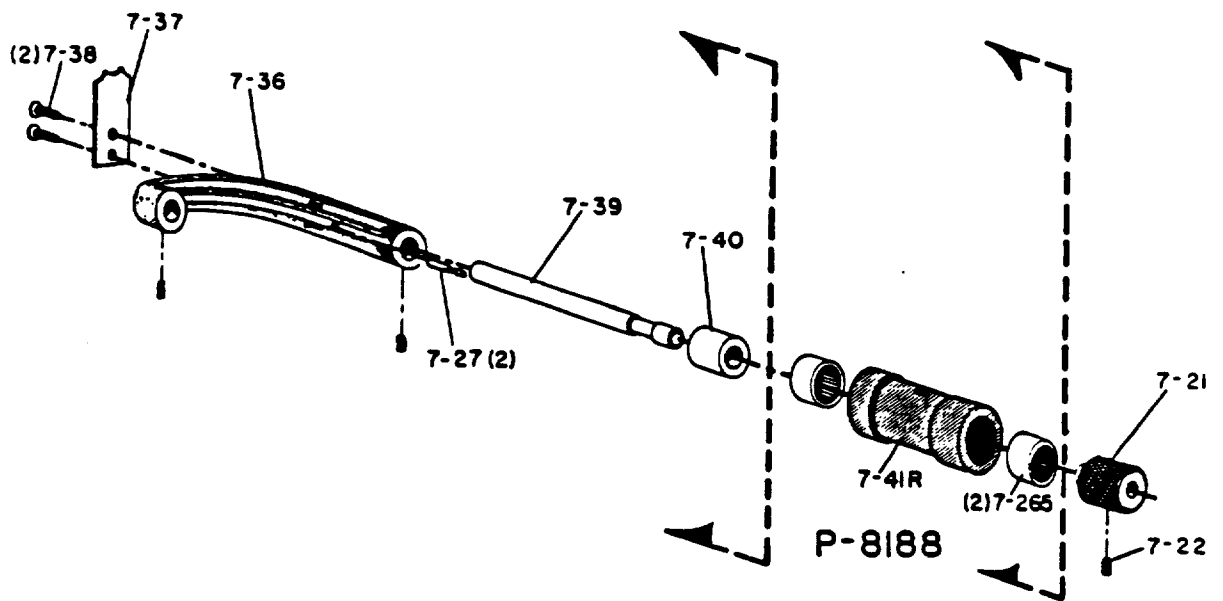
Part No.	Description
73-98-5	Socket Ass'y.
73-99-4	Solar Cell Bracket Ass'y.
7-10	Mounting Screw
7-49	Solar Cell Mounting Casting
7-50	Set Screw, 1/4-20 x 1/4"
7-52	Mounting Bracket Shield
7-53	Screw
7-54	Washer
7-55	Solar Cell & Case
7-57	Cable Ass'y.
7-58	Barrier Strip, 5 Terminal

Order 24-68974 for Stereo Variable Area Split Solar Cell



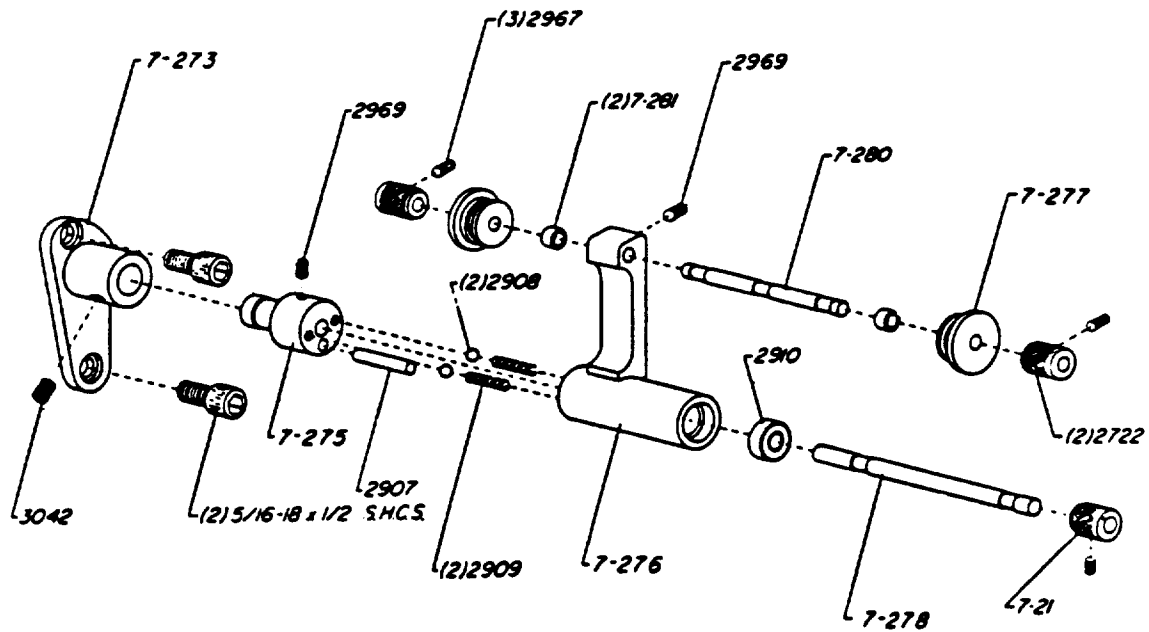
35mm MODEL VII  
**UPPER DAMPENER ARM ASSEMBLY**  
**75-69-07**

Part No.	Description
P 8178	Lateral Guide Roller & Bearing Ass'y.
7-13	Set Screw
7-20	Upper Dampener Arm
7-21	Knurled Collar
7-22	Set Screw, 8-32 x 1/8"
7-23	Bearing
7-24	Spacer
7-25	Dampener Arm Shaft
7-27	Taper Pin, 1/8" x 1/2"
7-28	Pointer Pin, 3/32" x 3/4"
7-29	Dampener Spring
7-30	Lateral Guide Roller Shaft
7-31	Bushing
7-32	Compression Spring
7-33	Lateral Guide Roller (Order P 8178)
7-34	Knurled Collar
7-35	Stop Screw, 1/4-28 x 3/16"
7-67	Fibre Washer (Specify 1/32" or 1/64" thick)
2910	Bearing



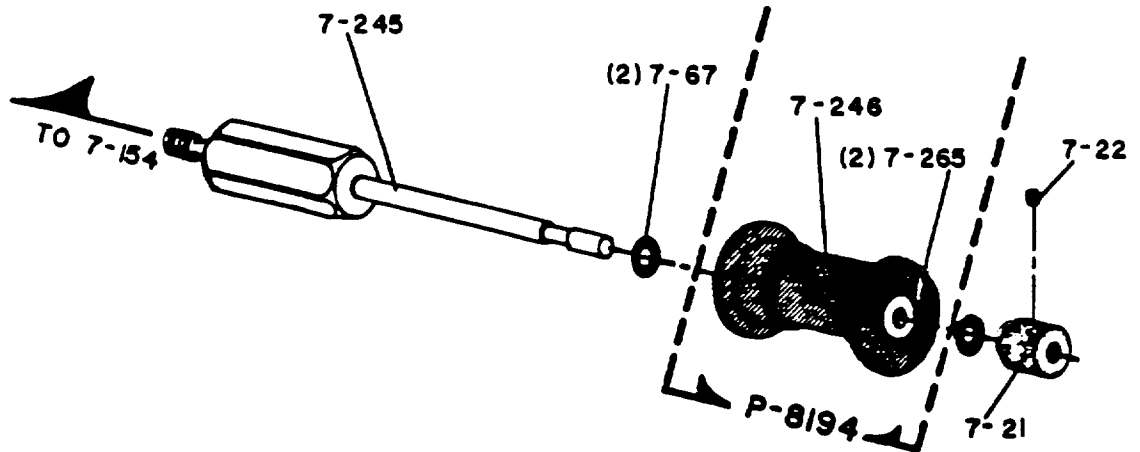
35 mm MODEL VII  
**LOWER DAMPENER ARM ASSEMBLY**  
 74 - 97 - 07

Part No.	Description
7-21	Knurled Collar
7-22	Set Screw, 8-32 x 1/8"
7-27	Taper Pin, 1/8" x 1/2"
7-36	Lower Dampener Arm
7-37	Pointer Plate
7-38	Pointer Plate Fastening Screw
7-39	Lower Dampener Arm Shaft
7-40	Spacer
7-41 R	Roller (Order P 8188)
7-265	Needle Bearing

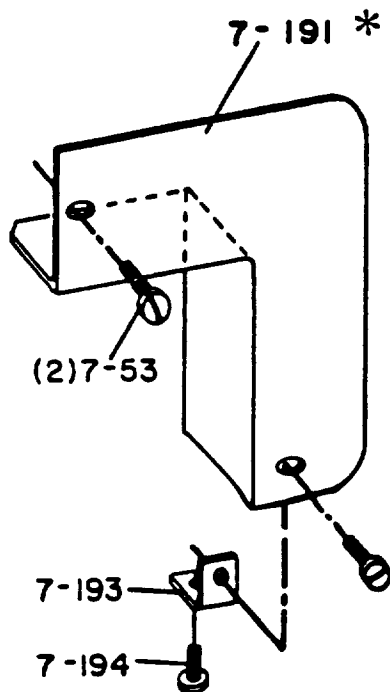


**35mm MODEL VII PAD ROLLER ASSEMBLY  
P 8040**

Part No.	Description
7-21	Knurled Collar
7-273	Detent Mount
7-275	Detent & Stud
7-276	Detent Arm
7-277	Pad Roller
7-278	Detent Arm Shaft
7-280	Pad Roller Shaft
7-281	Spacer
2722	Knurled Collar
2907	Detent Dowel Pin, 3/16" x 7/8"
2908	Ball, 3/16"
2909	Compression Spring
2910	Bearing
2967	Set Screw, 8-32 x 1/8"
2969	Set Screw, 10-32 x 1/4"
3042	Set Screw, 1/4-20 x 3/16"



35 mm MODEL VII  
**RIGHT-LOWER FILM ROLLER**  
**74-53-5**

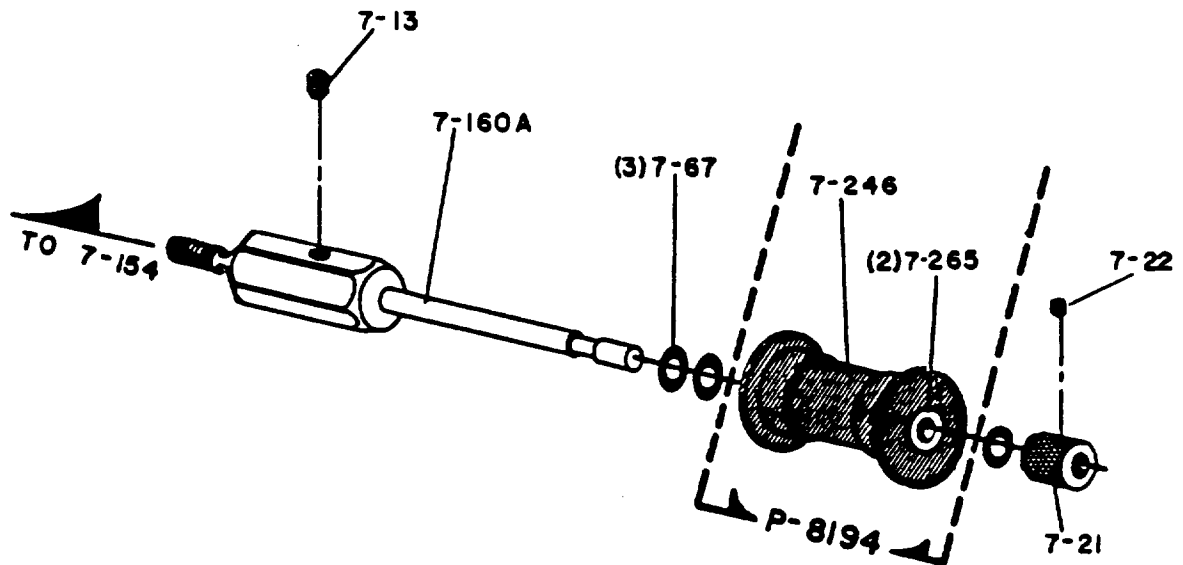


\* 7-213 IF USED WITH P.E. CELL

Part No.	Description
P 8194	Roller Ass'y.
7-21	Knurled Collar
7-22	Set Screw, 8-32 x 1/8"
7-67	Fibre Washer
7-245	Roller Mounting Stud
7-246	Roller (Order P 8194)
7-265	Needle Bearing

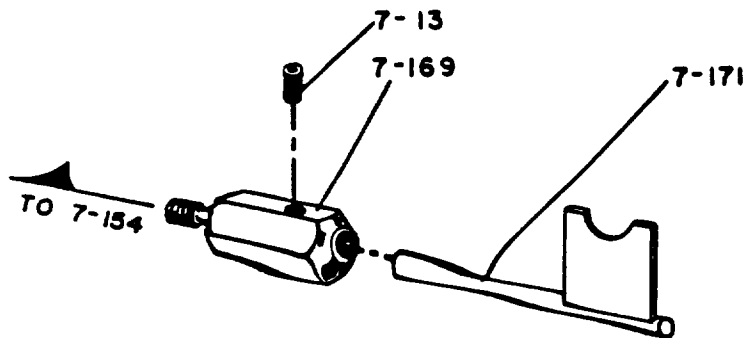
**SOLAR CELL SHIELD**

7-53	Screw
7-191	Cover
7-193	Bracket
7-194	Screw



35 mm MODEL VII  
**LEFT - LOWER FILM ROLLER**  
**73-82-9**

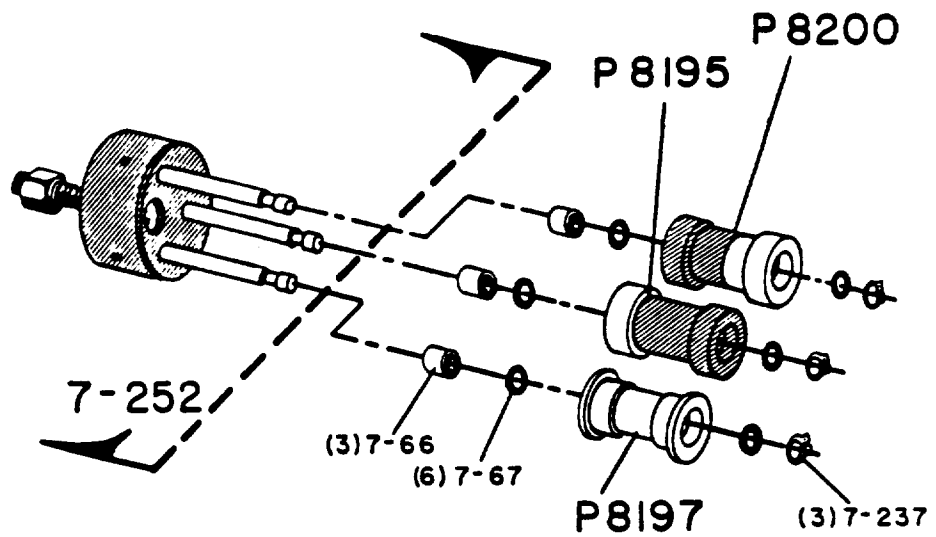
Part No.	Description
P 8194	Roller Ass'y.
7-13	Set Screw
7-21	Knurled Collar
7-22	Set Screw, 8-32 x 1/8"
7-160 A	Roller Mounting Stud
7-246	Roller (Order P 8194)
7-265	Needle Bearing



**FILM STRIPPER**

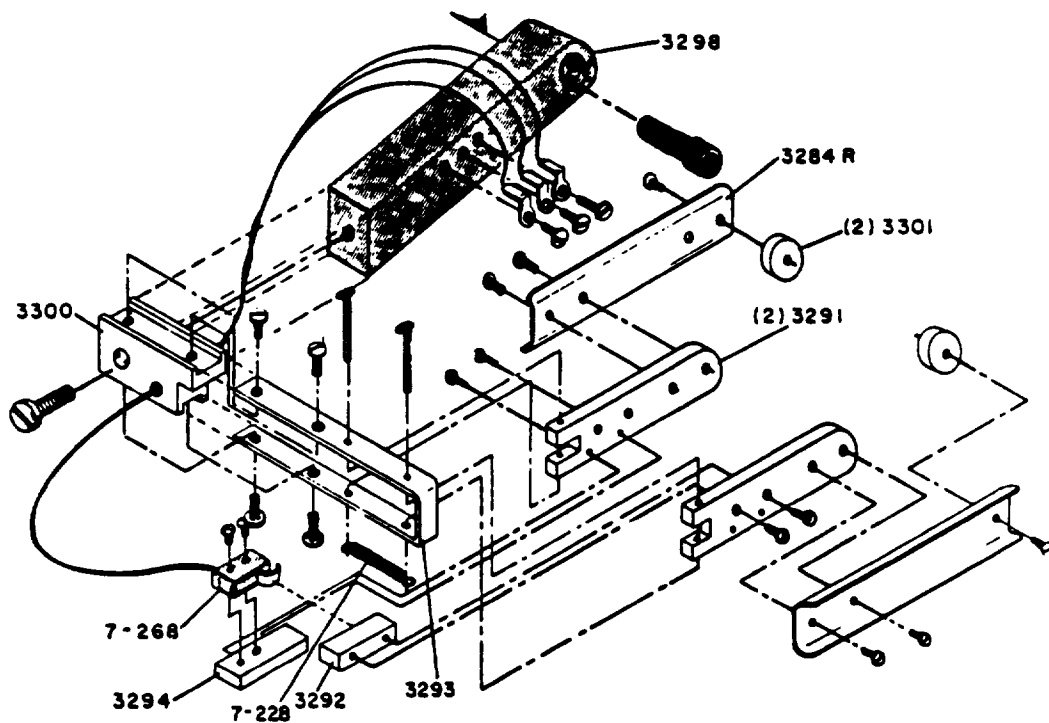
7-13	Set Screw
7-169	Mounting Stud
7-171	Stripper





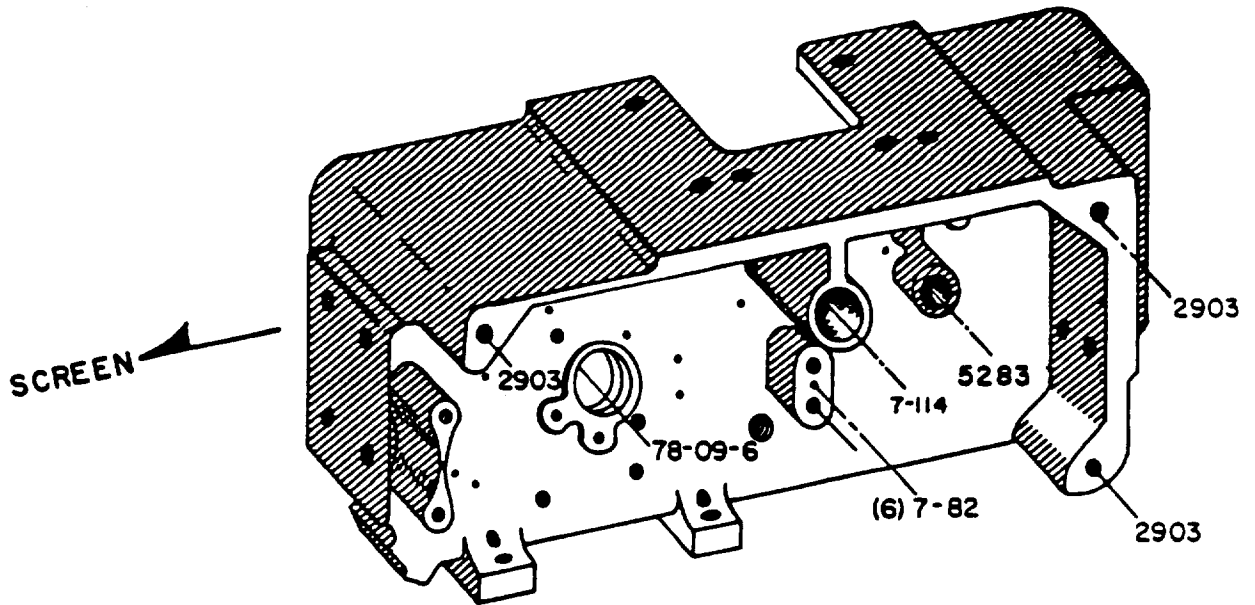
**35 mm MODEL VII  
SENSING SWITCH ASSEMBLY  
7 - 252 A**

Part No.	Description
7-66	Spacer
7-67	Fibre Washer
7-237	Snap Ring
7-252	Shaft & Block Ass'y.
P-8195	Inboard Sensor Roller
P-8197	Common Sensor Roller
P-8200	Outboard Sensor Roller



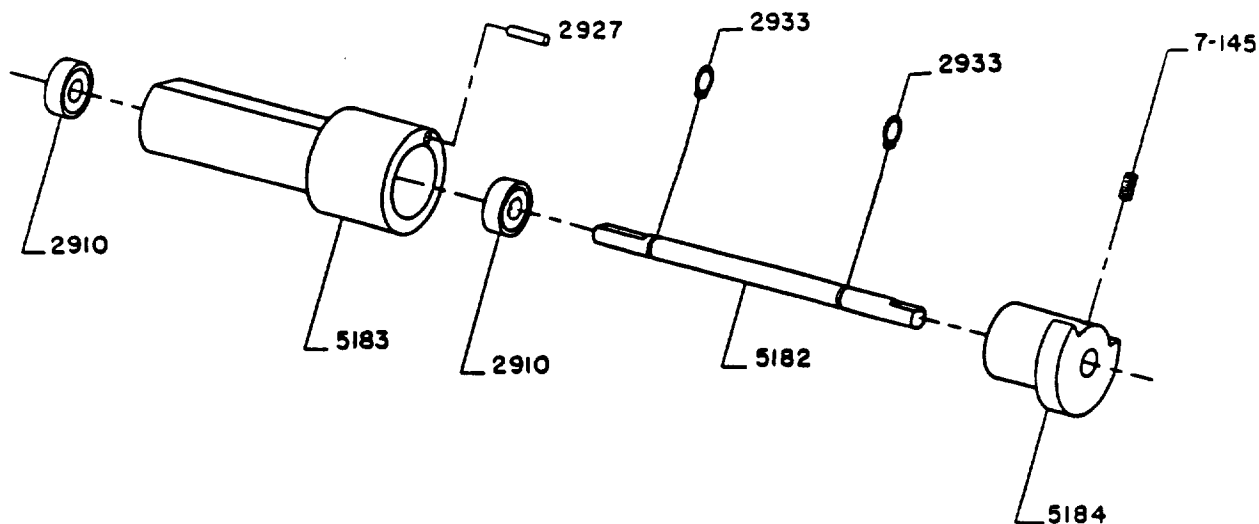
35 mm MODEL VII  
**LOWER RUN-OUT SWITCH ASSEMBLY**  
**7-3298**

Part No.	Description
7-228	Spring
7-268	Micro Switch
3284R	Outer Arm
3291	Inner Arm
3292	Spacer
3293	Bracket
3294	Switch Mounting Block
3298	Mounting Arm
3300	Mounting Block
3301	Weight



**35 mm MODEL VII  
MAIN FRAME - BACK SIDE**

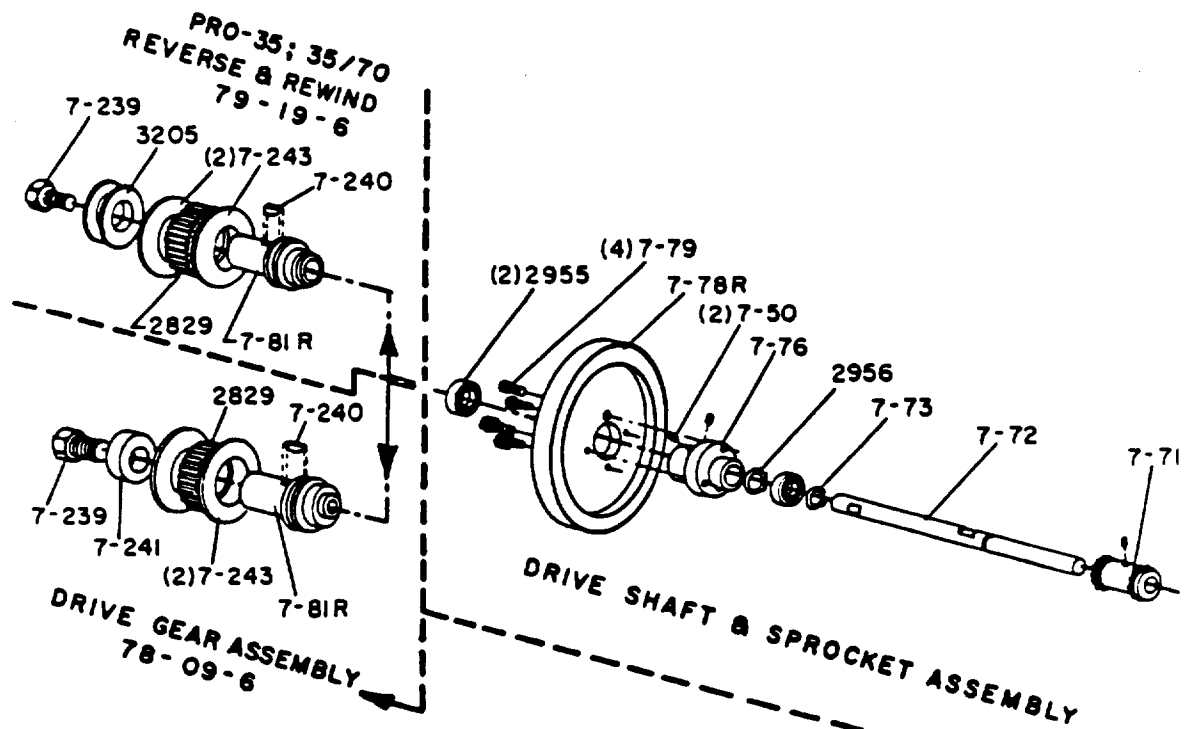
Part No.	Description
78-09-6	Drive Ass'y.
5283	Damper Ass'y.
Details of above assemblies on following pages.	
7-82	Drive Bracket
7-114	Collar (See Scanning Drum Assembly)
2903	Rear Cover (with Pro-35)
7-189	Rear Cover (other projectors)
3069	Rear Cover Mounting Screw, 1/4-20 x 5/8"



**5283 DAMPER ASSEMBLY**

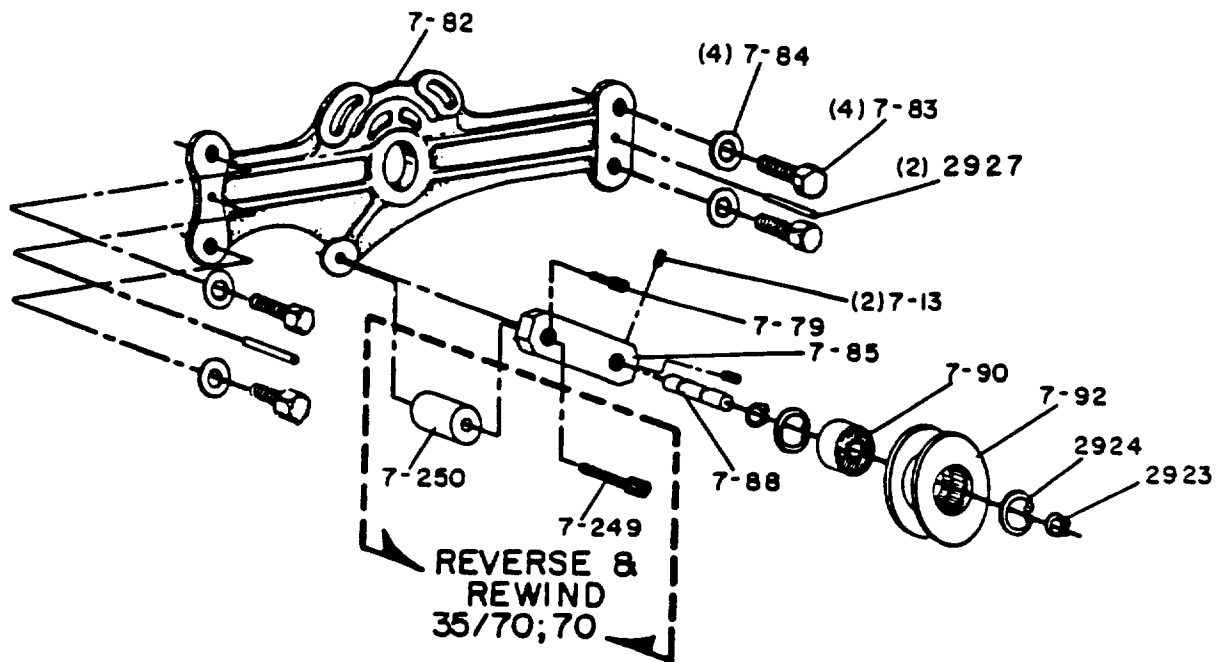
Part No.	Description
7-145	Set Screw
2910	Bearing
2927	Roll Pin, 1/8" x 1/2"
2933	Snap Ring
5182	Damper Shaft
5183	Damper Body
5184	Damper
P4807	Damper Fluid

The 5283 Hydraulic Damper Assembly replaces the P8039 Airpot Assembly. Older Model VII soundheads can be re-fit with the 5283 assembly.



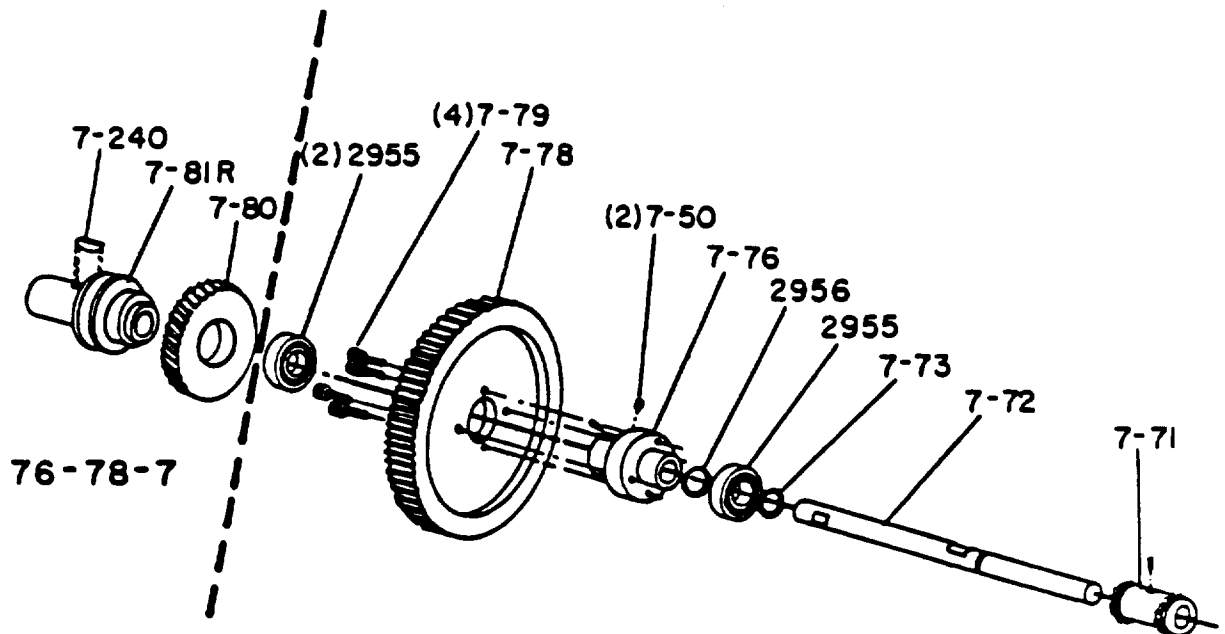
### 35 mm MODEL VII DRIVE ASSEMBLIES

Part No.	Description
7-50	Set Screw, 1/4-20 x 1/4"
7-71	Film Sprocket, Type VKF
7-72 *	Sprocket Shaft
7-73 *	Snap Ring
7-76	Drive Gear Hub
7-78 R	Flywheel
7-79	Screw
7-81 R	Lower Drive Pulley
7-239	Set Screw, 1/2-20 x 3/4"
7-240	Woodruff Key
7-241	Spacer
7-243	Gear Washer
2829	Pulley
2955 *	Bearing
2956	Snap Ring
3205	Pulley
5582 *	Sprocket Shaft Kit, Consisting of
	(1) 7-72 Shaft
	(2) 2955 Bearings
	(1) 7-73 Snap Ring
	Components fitted prior to shipment.



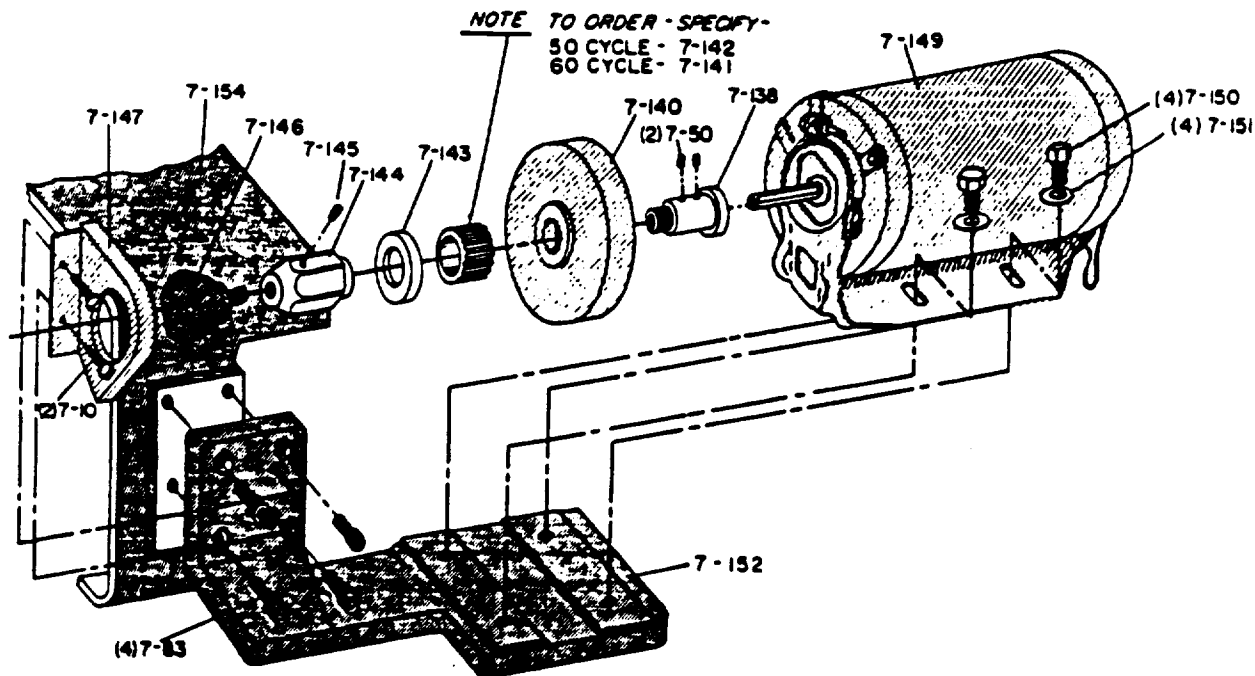
## 35 mm MODEL VII DRIVE MOUNTING BRACKET ASSEMBLY

Part No.	Description
7-13	Set Screw
7-79	Screw
7-82	Drive Mounting Bracket
7-83	Bolt
7-84	Washer
7-85	V-Belt Idler Bracket
7-88	Idler Shaft
7-90	Bearing
7-92	Idler Pulley
7-249	Screw
7-250	Spacer
2923	Snap Ring
2924	Snap Ring
2927	Roll Pin, 1/8" x 1/2"



## OTHER MANUFACTURER'S PROJECTOR DRIVE ASSEMBLY

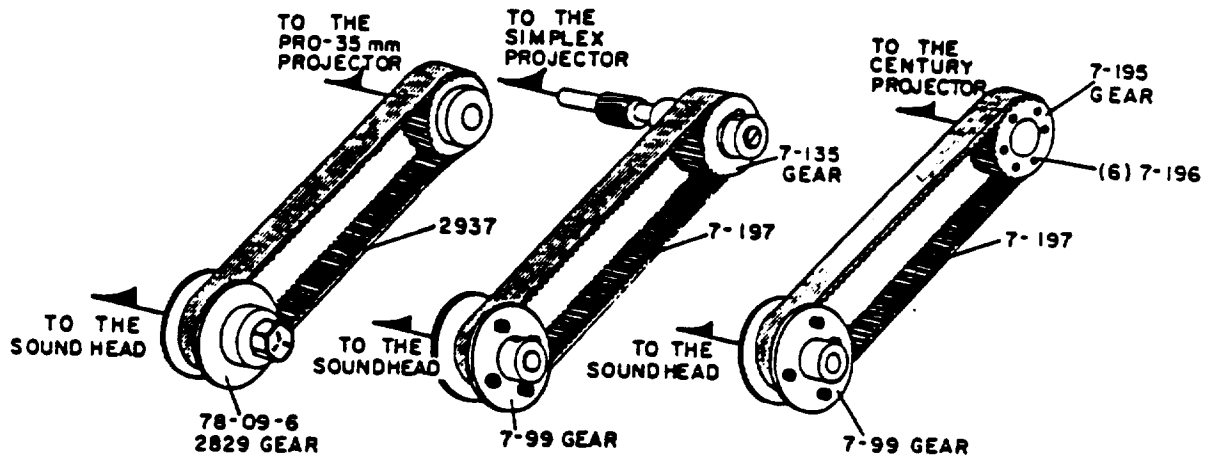
Part No.	Description
76-78-7	Drive Gear Ass'y.
7-50	Set Screw, 1/4-20 x 1/4"
7-71	Film Sprocket, Type VKF
7-72	Sprocket Shaft
7-73	Snap Ring
7-76	Drive Gear Hub
7-78	Drive Gear
7-79	Screw
7-80	Helical Drive Gear
7-81 R	Lower Drive Pulley
7-240	Woodruff Key
2955	Bearing
2956	Snap Ring



**35 mm MODEL VII  
MOTOR, MOUNTING BRACKET, FLYWHEEL, & INCHING KNOB  
ASSEMBLY P- 8182 ( FOR OTHER M'FGS. PROJ. )**

Part No.	Description
7-10	Screw
7-50	Set Screw
7-83	Bolt
7-138	Flywheel Mounting Sleeve
7-140	Flywheel
7-141	Timing Belt Pulley (60 Hz.)
7-142	Timing Belt Pulley (50 Hz.)
7-143	Knob Plate
7-144	Knob Spacer
7-145	Set Screw
7-146	Inching Knob
7-147	Motor Belt Guard
7-149	Motor, 115 V. AC, 50/60 Hz. 1/4 hp
7-150	Bolt
7-151	Washer
7-152	Motor Mounting Arm
7-154	Soundhead Main Frame





### 35mm MODEL VII GEAR AND BELT DRIVE

Part No.	Description
78-09-6	Drive Pulley Ass'y.
7-196	Screw
7-197	Timing Belt
2937	Timing Belt

Ballantyne replacement parts are available through any authorized Strong International equipment dealer.