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PARTS CATALOG

FILMOSOUND PROJECTORS

DESIGNS 302 AND 8302

PHOTO PRODUCTS GROUP



BELL & HOWELL

**GENERAL SERVICE DEPT.
7100 McCORMICK ROAD
CHICAGO, ILLINOIS 60645**

Replacement Parts

The following pages illustrate and list, by part number and part name, all replacement parts for the Bell & Howell Filmosound Projectors, Design 302 and 8302. The exploded view illustrations are indexed in the suggested order of disassembly and will serve as an aid to the serviceman during projector repair.

Six projector models are covered by the following parts lists; 302L, 302M, 8302A, 8302B, 8302C and 8302L. Differences in models are indicated by code letters in the Usable on Code column. Where this column is blank, the listed part is applicable to all projectors. The appearance of a code letter, or letters, in this column indicates that the listed part is applicable only to the projectors so coded. The code system used follows this introduction. It should be noted that some 302M and 8302 projectors are equipped with oil cups installed in the top of the gear case, while others are of the "permanently lubricated" design. Except for the difference in lubricating parts and gear case casting, the "oil cup" projectors and "permanently lubricated" projectors are identical.

Design 302L	Code A
Design 302M	Code B
Design 8302A	Code C
Design 8302B	Code D
Design 8302C	Code E
Design 8302L	Code F

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE		
					1	2
PROJECTOR ASSEMBLY, COMPLETE						
1-1	02040	FOOT ASSEMBLY, Case	4			
-2	8179	WASHER, Lock	4			
-3	040261	PLATE ASSEMBLY, Bottom	1	CDEF		
-4	430748	SCREW, Amplifier mounting	4	ACDEF		
-4	27296	SCREW, Amplifier mounting	4	B		
-5	09431	AMPLIFIER ASSEMBLY (See Figures 15 and 16)	1	AB		
-5	040678	AMPLIFIER ASSEMBLY (See Figures 15 and 17)	1	CE		
-5	040771	AMPLIFIER ASSEMBLY (See Figures 15 and 18)	1	D		
-5	042802	AMPLIFIER ASSEMBLY (See Figures 15A and 18A)	1	F		
-6	17321	SCREW, Projector mounting	4			
-7	13691	WASHER, Flat	4			
-8	17345	CUSHION	8			
-9	17320	SPACER	4			
-10	No Number	PROJECTOR ASSEMBLY (See Figures 2 thru 11 for breakdown)	NP			
-11	040194	CASE ASSEMBLY, Projector (see Figure 12 for breakdown) . .	1	A		
-11	011908	CASE ASSEMBLY, Projector (see Figure 12 for breakdown) . .	1	B		
-11	005014	CASE ASSEMBLY, Projector (see Figure 12 for breakdown) . .	1	CD		
-11	040766	CASE ASSEMBLY, Projector (see Figure 12 for breakdown) . .	1	E		
-11	042801	CASE ASSEMBLY, Projector (see Figure 12 for breakdown) . .	1	F		
-12	21898	BELT, Spring rear reel arm	1			
-13	27947	BELT, Spring, front reel arm	1			
-14	011421	ARM ASSEMBLY, Rear reel (see Figure 13 for breakdown) . .	1	A		
-14	09655	ARM ASSEMBLY, Rear reel (see Figure 13 for breakdown) . .	1	BCDEF		
-15	011422	ARM ASSEMBLY, Front reel (see Figure 14 for breakdown) . .	1	A		
-15	040668	ARM ASSEMBLY, Front reel (see Figure 14 for breakdown) . .	1	BCDEF		
-15	26465	LAMP, Projector (not shown)	1	ABCEF		
-15	430675	LAMP, Projector (not shown)	1	D		

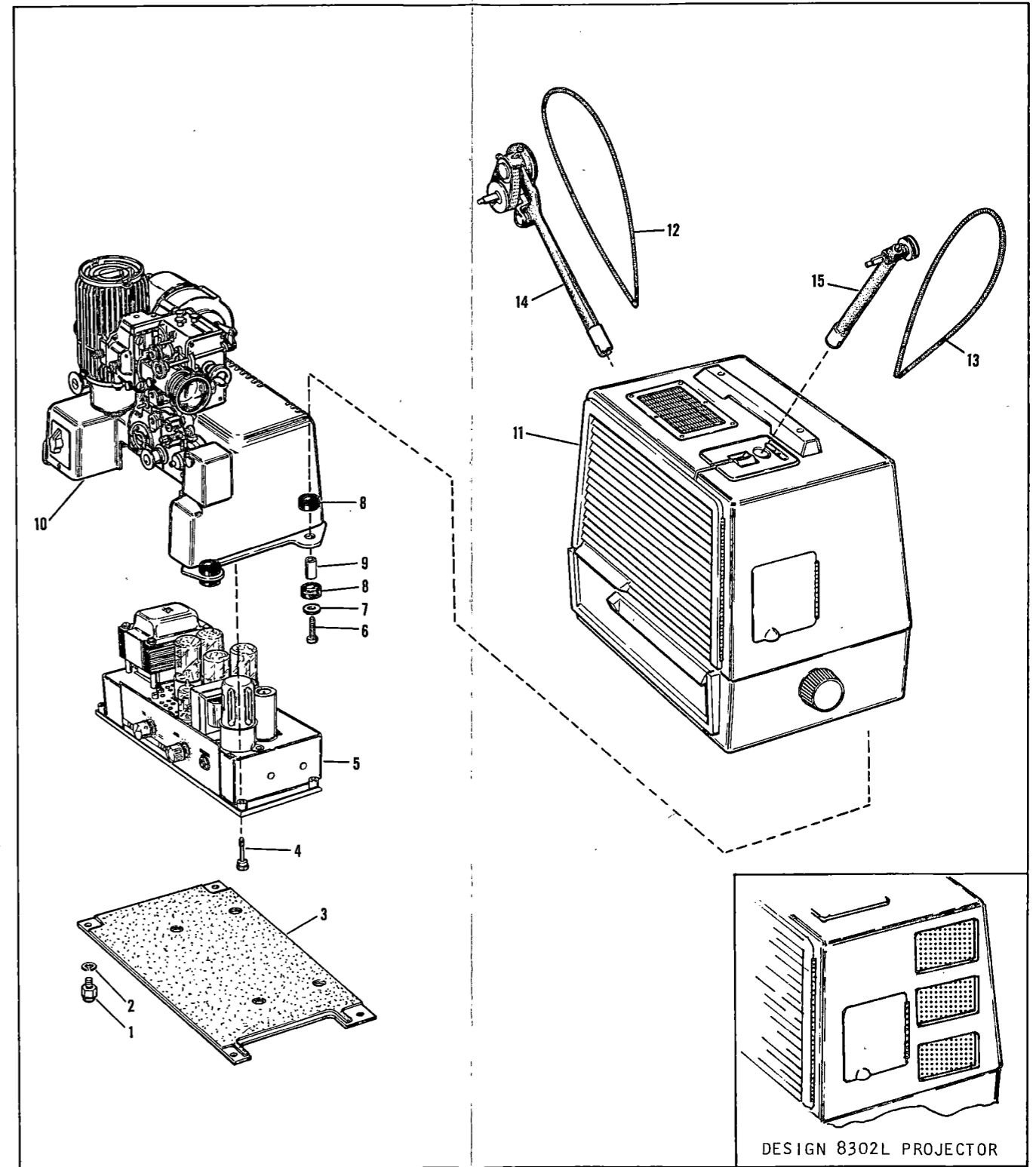


Figure 1. Filmosound Projector, Complete

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE		
					1	2
PROJECTOR ASSEMBLY, MAJOR COMPONENTS						
2-1	07023	CONDENSER ASSEMBLY, Relay (see Figure 6 for breakdown)	1			
-2	07204	CONDENSER ASSEMBLY, 45-50 mm (see Figure 9 for breakdown)	1			
-3	05647	LENS ASSEMBLY, Projection	1			
-4	17313	SCREW, Knurled	1			
-5	35217	COVER, Exciter lamp	1	A		
-5	23106	COVER, Exciter lamp	1	BCDEF		
-6	17327	LAMP, Exciter	1			
-7	17388	SCREW, Sems binding head	2	A		
-7A	32186	SCREW, Round head	2	BCDEF		
-8	21982	SCREW, Sems fillister head	2			
-9	873	SCREW, Fillister head	2	A		
-9	30162	SCREW, Binding head, 5-40 by 3/8 inch	2	B		
-9	30173	SCREW, Fillister head	2	CDEF		
-10	570	SPRING, Clutch linkage	1	A		
-11	30167	SCREW, Fillister head	2			
-12	08338	RAIL ASSEMBLY, Guide	1			
-13	4258	WASHER, Spacer	2			
-14	No Number	GEAR CASE ASSEMBLY (See Figures 3, 4 and 5 for breakdown)	NP			
-15	30177	SCREW, Fillister head	4			
-16	30173	SCREW, Fillister head	2			
-17	No Number	HOUSING ASSEMBLY, Blower (see Figure 6 for breakdown)	NP			
-18	30175	SCREW, Fillister head	2			
-19	No Number	CAP ASSEMBLY, Governor (see Figure 7 for breakdown)	NP			
-19A	11709	PIN, Stop	1			
-20	No Number	LAMPHOUSE AND MOTOR ASSEMBLY (See Figures 8 and 9 for breakdown)	NP			
-21	No Number	SOUNDHEAD ASSEMBLY (See Figures 10 and 11 for breakdown)	NP			
-22	30572	NAMEPLATE, "Sapphire"	1	BCDEF		

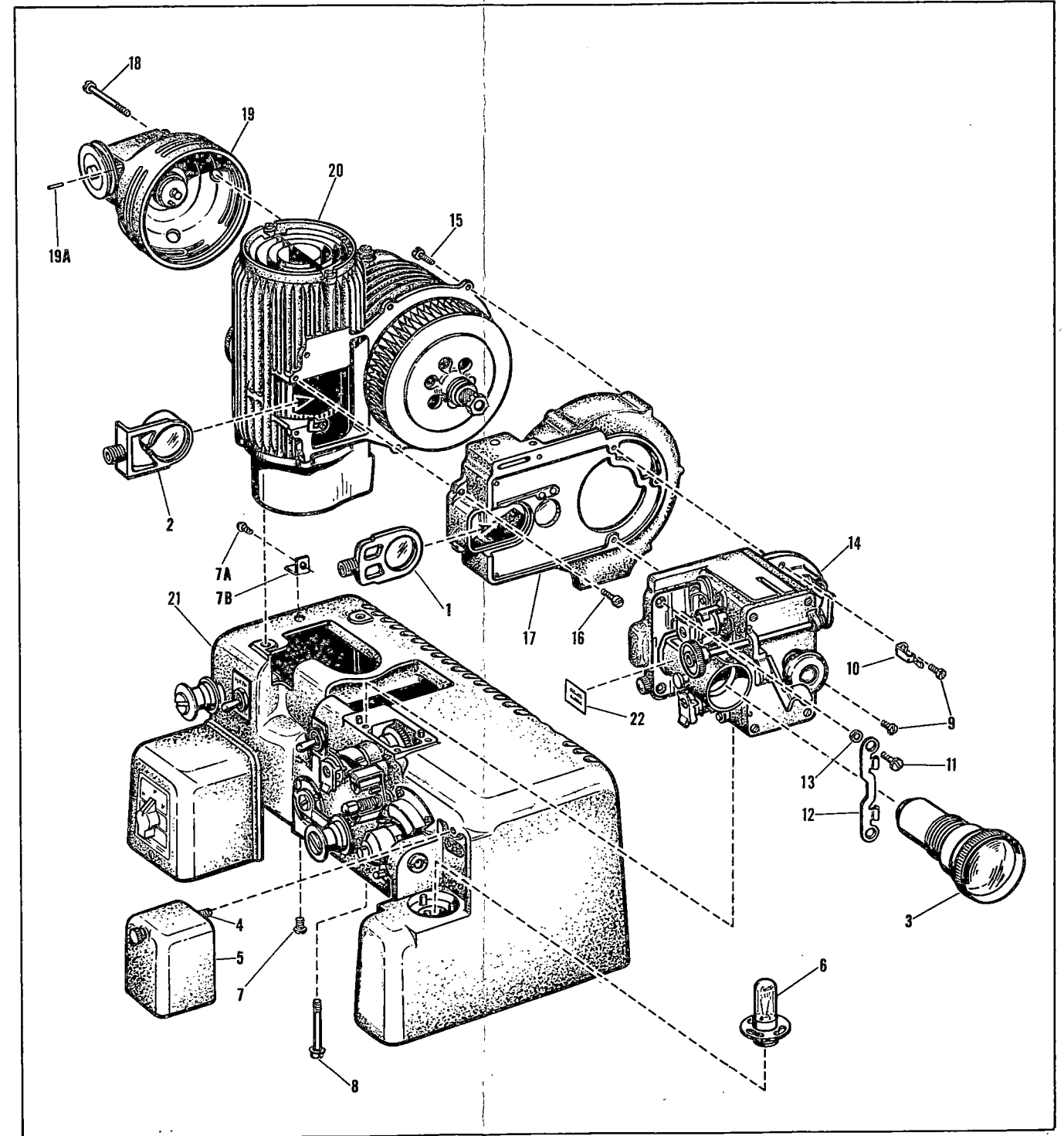


Figure 2. Projector Assembly,
Major Components

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
GEAR CASE ASSEMBLY				
3-1	03788	PRESSURE PLATE ASSEMBLY	1	A
-1	09283	PRESSURE PLATE ASSEMBLY	1	BCDEF
-1A	12776	. CUP, Spring	2	
-1B	12071	. SPRING, Compression	2	
-1C	12778	. SCREW, Fillister head	2	
-1D	16198	. BUSHING, Spacer	2	
-1E	27469	. SPRING, Compression	1	
-1F	16207	. SPACER	2	
-1G	12720	. YOKE, Pressure plate	1	
-1H	11796	. PLATE, Pressure	1	A
-1H	26631	. PLATE, Pressure	1	BCDEF
-2	10565	KNOB, Rubber	1	A
-2	23112	KNOB, Rubber	1	BCDEF
-3	12087	NUT, Hex	1	
-4	M025161	KNOB ASSEMBLY, Clutch	1	A
-4	040674	KNOB ASSEMBLY, Clutch	1	BCDE
-4	041877	KNOB ASSEMBLY, Clutch	1	F
-5	16184	RING, Retaining	1	
-6	15634	SPACER	1	
-7	1587	SCREW, Oval head	4	
-8	04720	COVER ASSEMBLY, Front	1	A
-8	07205	COVER ASSEMBLY, Front	1	BCDEF
-9	5160	BLOCK, Gate operating	1	
-10	30165	SCREW, Truss head, 5-40 by 3/16 inch	1	
-11	965	LEVER, Gate operating (use #32197 lever)	1	A
-11	32197	LEVER, Gate operating	1	BCDEF
-12	80665	SETSCREW, Headless	1	A
-12	22457	SETSCREW, Headless	1	BCDEF
-13	0772	PLATE AND SHAFT ASSEMBLY	1	
-14	966	BUSHING, Eccentric	1	A
-14	32196	BUSHING, Eccentric	1	BCDEF
-15	891	SHAFT, Idler gear	1	
-16	890	GEAR, Idler	1	
-17	6715	BALL, Steel, 1/16 inch	18	
-18	11713	WASHER, Flat	1	
-19	112	SCREW, Fillister head	1	
-20	5639	SCREW, Pilot	1	
-21	5636	STUD, Clutch lever (use #16191 stud)	1	A
-21	16191	STUD, Clutch lever	1	BCDEF
-22	05707	LEVER AND LINKAGE ASSEMBLY, Clutch	1	A
-22	010524	LEVER AND LINKAGE ASSEMBLY, Clutch	1	BCDEF
-23	20717	SPRING, Torsion	1	A
-23	32609	SPRING, Torsion	1	BCDEF
-24	05746	PLUNGER ASSEMBLY, Clutch	1	ABCDE
-24	041270	PLUNGER ASSEMBLY, Clutch	1	F

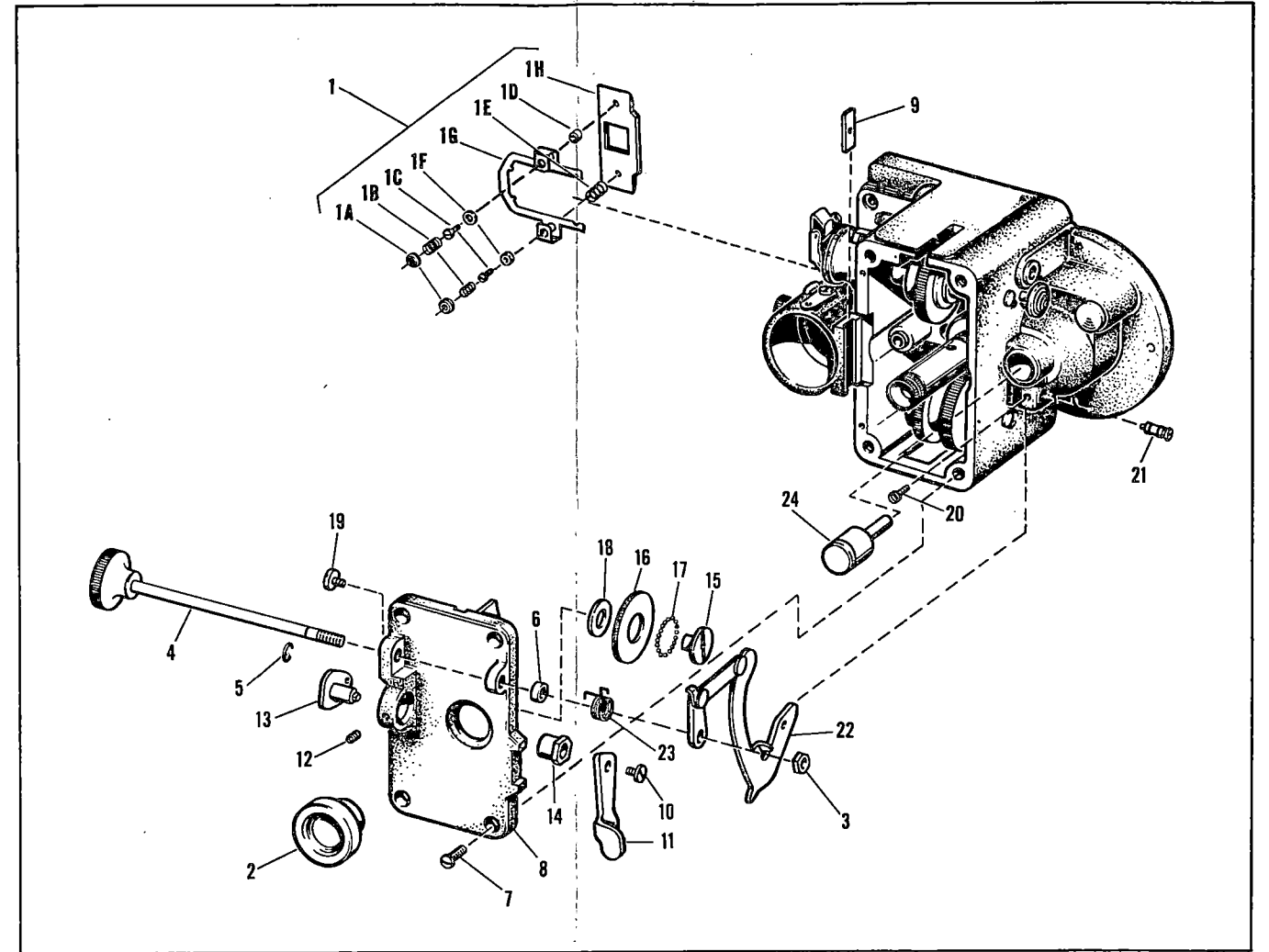


Figure 3. Gear Case Assembly (Sheet 1 of 3)

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
GEAR CASE ASSEMBLY (CONT)				
4-1	30164	SCREW, Binding head, 4-40 by 3/16 inch	2	
-2	11762	STRIPPER, Film	2	
-3	11757	SCREW, Fillister head, special	2	
-3	30390	SCREW, Sprocket guard	2	
-4	04946	GUARD ASSEMBLY, Sprocket	2	A
-4	08990	GUARD ASSEMBLY, Sprocket	2	BCDEF
-5	16243	SPRING, Sprocket guard	2	
-6	16244	WASHER, Tension	2	
-7	11859	SETSCREW, Headless	4	
-8	03461	SPROCKET ASSEMBLY	2	
-9	30164	SCREW, Binding head, 4-40 by 3/16 inch	4	
-10	11761	GUIDE, Film	2	
-11	15203	SCREW, Pilot	4	
-12	11799	RETAINER, Lens carrier	2	
-13	5148	SCREW, Fillister head	1	
-14	5618	SPRING, Ball retaining	1	
-15	145	BALL, Steel	1	
-16	30163	SCREW, Binding head, 5-40 by 3/8 inch	2	ABCDE
-16	433053	SCREW, Special	2	F
-17	11795	NUT, Pressure plate adjustment	2	
-18	12719	CARRIER, Pressure plate	1	
-19	09577	SCREW ASSEMBLY, Lens lock	1	
-20	M56817	CARRIER, Film gate and lens	1	A
-20	30034	CARRIER, Film gate and lens	1	BCDEF
-21	30163	SCREW, Binding head, 5-40 by 3/8 inch	2	
-22	08455	CLIP ASSEMBLY, Film tension (upper)	1	
-22	08456	CLIP ASSEMBLY, Film tension (lower)	1	
-23	4255	SPRING, Thrust	1	
-24	M025986	APERTURE PLATE ASSEMBLY, Variable (see inset)	1	A
-24	11852	PLATE, Aperture	1	BCDEF
-25	03464	SHAFT ASSEMBLY, Framer (use #010097 shaft assembly)	1	A
-25	010097	SHAFT ASSEMBLY, Framer	1	BCDEF
-26	11269	SETSCREW, Headless	2	ABCDE
-26	11268	SETSCREW, Headless	2	F
-27	29590	SHAFT, Sprocket	2	ABCDE
-27	16194	SHAFT, Sprocket	2	F
-27A	29589	LUBRICATOR, Sprocket shaft	2	
-28	11868	GEAR, Upper	1	
-29	03460	WORM WHEEL ASSEMBLY	1	
-30	11147	WASHER, Spacer	1	
-31	040696	LOOPSETTER ASSEMBLY	1	BCDEF
-31A	31550	SCREW, Pan head, 4-40 by 1/4 inch	1	BCDEF
-31B	32953	SPRING, Loopsetter indexing	1	BCDEF
-31C	No Number	CAM, Loopsetter (order p/n 040696 loopsetter assembly)	NP	BCDEF
-31D	No Number	SPINDLE, Loopsetter (order p/n 040696 loopsetter assembly)	NP	BCDEF

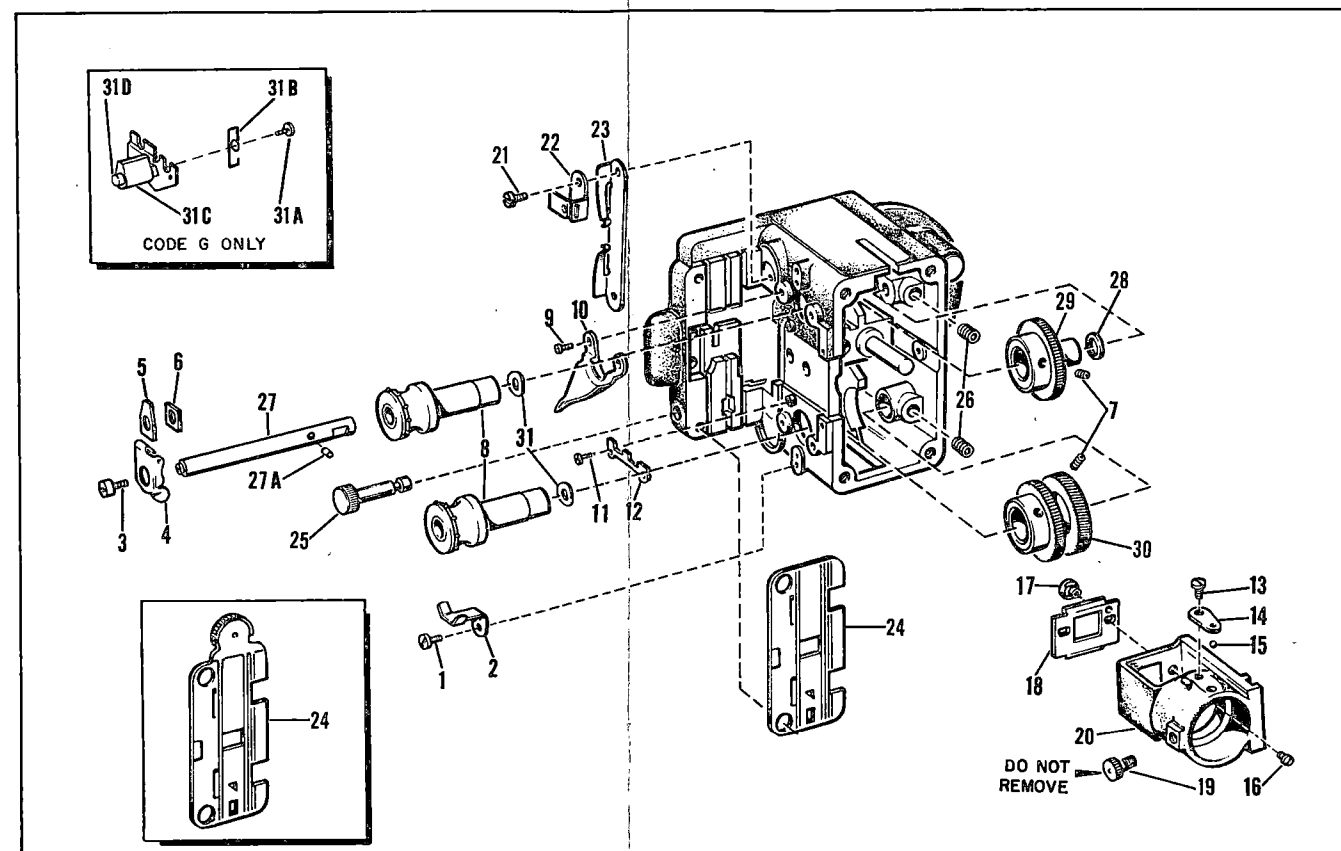


Figure 4. Gear Case Assembly (Sheet 2 of 3)

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
GEAR CASE ASSEMBLY (CONT)				
5-1	5112	NUT, Shutter retaining	1	
-2	5111	SUPPORT, Shutter	2	
-3	5110	SHUTTER	1	
-4	9558	BAFFLE, Oil	1	
-5	M026312	LUBRICATOR ASSEMBLY	1	A
-5	01078	LUBRICATOR ASSEMBLY	1	BCDE
-5	041271	LUBRICATOR ASSEMBLY	1	F
-6	5469	FELT, Lubricator	1	
-7	5123	SCREW, Shuttle pin	2	
-8	09445	SHUTTLE ASSEMBLY	1	
-9	5113	PIN, Shuttle	2	
-10A	8918	SCREW, Shoulder	1	
-10B	11110	SPRING, Compression	1	
-11	11280	COLLAR	1	
-12	9260	BALL, Steel, 1/16 inch diameter	15	
-13	27531	SHAFT, Shuttle (NOTE A)	1	
-14	9260	BALL, Steel, 1/16 inch diameter	15	
-15	9426	FELT, Oiler	1	
-16	11282	SETSCREW, Headless	2	
-17	11279	EXTENSION, Worm drive gear	1	
-18	11282	SETSCREW, Headless	1	
-19	11281	SETSCREW, Headless	1	
-20	11276	WORM, Right-hand	1	
-21	9260	BALL, Steel, 1/16 inch diameter	15	
-22	05799	GEAR ASSEMBLY, Counter (NOTE A)	1	
-23	9260	BALL, Steel, 1/16 inch diameter	15	
-24	9426	FELT, Oiler	1	
-25	11055	SCREW, Flat head	1	
-26	11054	CLAMP, Bearing retaining	1	
-27	29570	FELT, Oiler	1	
-28	5296	BEARING, Shaft	2	
-29	10529 or	SHIM, Bearing	AR	
-29	434382	SHIM, Bearing	AR	
-30	4469	SCREW, Oiler attaching (oil cup models only) (NOTE B)	1	BCDE
-30	38687	SCREW, Oiler attaching	1	F
-31	01477	OILER ASSEMBLY (Oil cup models only) (NOTE B)	1	BCDE
-31	041272	OILER ASSEMBLY	1	F
-32	6093	OILER CUP (Oil cup models only) (NOTE B)	1	BCDEF
-33	5557	OILER CUP (Oil cup models only) (NOTE B)	1	BCDEF
-34	866	OILER CUP (Oil cup models only) (NOTE B)	1	BCDEF
-35	M56773	CASE, Gear	1	A
-35	32595	CASE, Gear (without oil cup drilling)	1	BCDE
-35	430937	CASE, Gear (oil cup models only) (NOTE B)	1	BCDEF

NOTE A: On projectors with two-to-one shuttle movement, use shuttle shaft p/n 10306 and counter gear p/n 03352.

NOTE B: Used only in the oil cup models of the projector; designated by an O suffix after the design number (i.e. 8302AO).

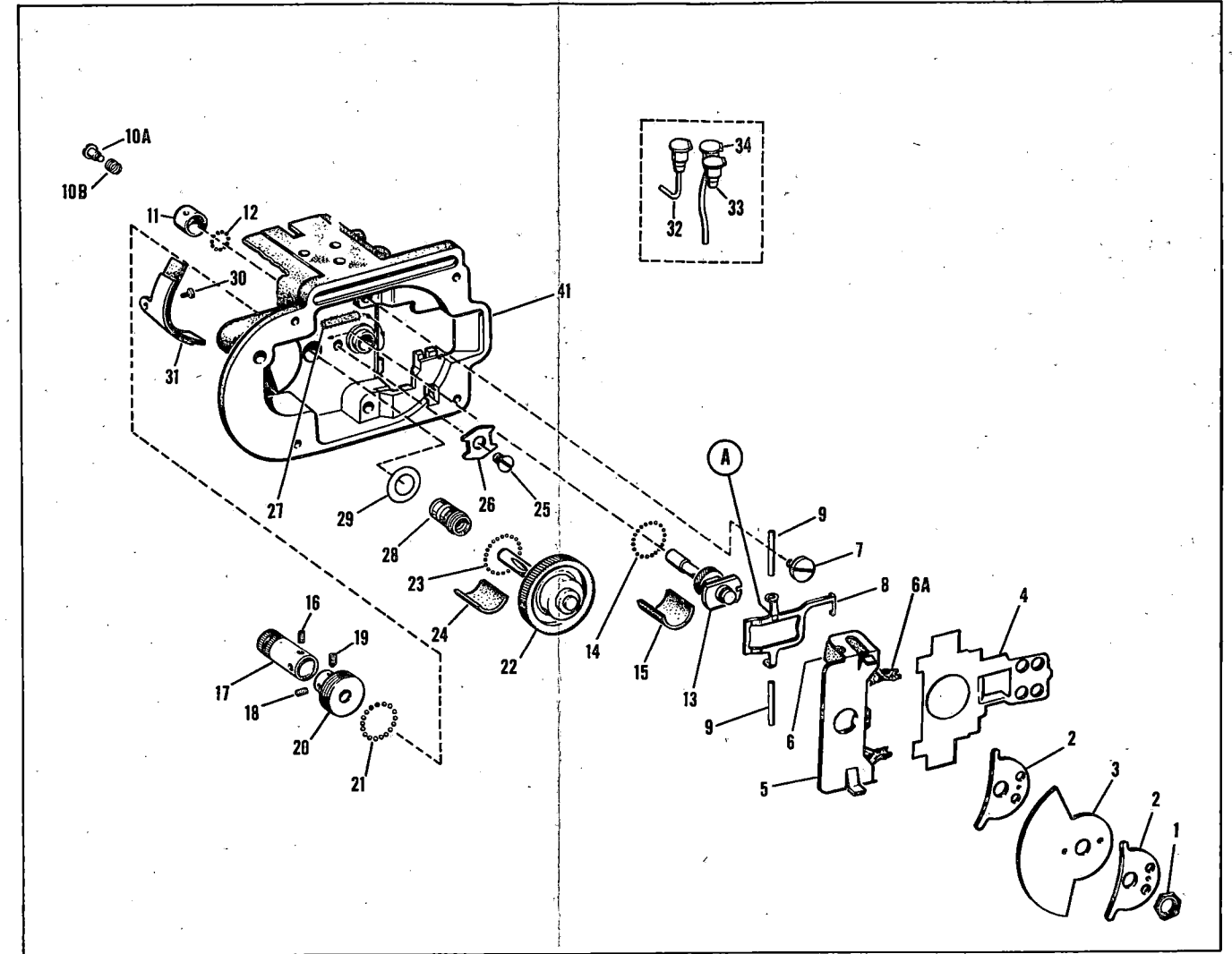


Figure 5. Gear Case Assembly (Sheet 3 of 3)

FIG. & INDEX NO.	PART NO.	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
		1	2	3	4	5	6	7		
BLOWER HOUSING ASSEMBLY										
6-1	03927	FIRE SHUTTER ASSEMBLY							1	A
-2	30134	SCREW, Self-tapping							2	A
-3	5247	GUIDE, Fire shutter							1	A
-4	5893	SETSCREW, Adjusting							1	A
-5	11569	STUD							1	A
-6	6716	SCREW							2	A
-6	25190	RIVET							2	BCDEF
-7	5626	RETAINER, Spring							1	ABCDE
-7	32600	RETAINER, Spring							1	F
-8	011418	HOUSING, Blower							1	A
-8	010522	HOUSING, Blower							1	B
-8	040704	HOUSING, Blower							1	CDEF
-9	07023	CONDENSER ASSEMBLY, Relay							1	
-10	5014	. SPRING, Retaining							1	
-11	8066	. LENS, Auxiliary							1	
-12	16217	. SCREW, Phillips round head							1	BCDEF
-13	23116	. HANDLE, Condenser							1	BCDEF
-14	23111	. HOLDER, Condenser (see NOTE A)							1	
-15	31550	SCREW, Pan head, 4-40 by 1/4 inch							1	BCDEF
-16	32601	PIVOT, Heat filter							1	BCDEF
-17	32606	PLATE, Filter mounting							1	BCDEF
-18	010602	FILTER ASSEMBLY, Heat							1	BCDEF
-19	32602	LINK, Filter actuating							1	BCDEF
-20	32603	CRANK, Filter actuating							1	BCDEF

NOTE A: In some early Model 302L Projectors, the relay condenser handle and holder were a one-piece casting. If this one-piece item requires replacement, order holder (14), handle (13) and screw (12).

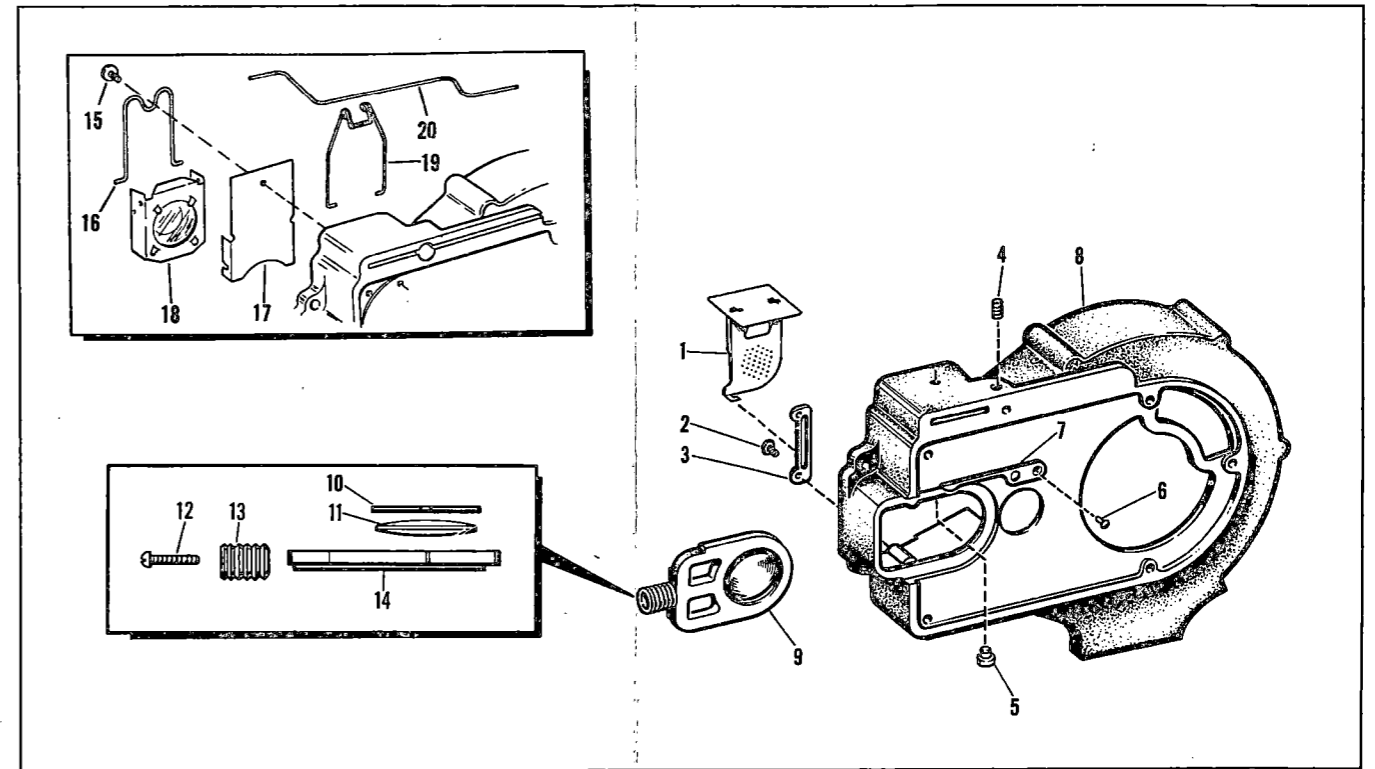


Figure 6. Blower Housing and Relay Condenser

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE						
				1	2	3	4	5	6	7
GOVERNOR CAP ASSEMBLY										
7-1	45722	NUT, Special	1	A						
-1	10554	NUT, Special	1	BCDEF						
-2	6129	SCREW, Fillister head	1							
-3	22717	BEARING, Ball, radial	1	A						
-3	27239	BEARING, Ball, radial	1	BCDEF						
-4	02794	WORM SHAFT ASSEMBLY	1	ABCDE						
-4	041273	WORM SHAFT ASSEMBLY	1	F						
-5	10547	WASHER, Felt	1							
-6	16698	SCREW, Fillister head, special	1	A						
-6	30176	SCREW, Fillister head	1	BCDEF						
-7	12864	COVER, Reel drive clutch	1							
-8	15582	WASHER, Bronze	1							
-9	10750	SPRING, Compression	1							
-10	5514	CAM, Clutch	1							
-11	5238	BALL, Steel	3							
-12	10749	RETAINER, Clutch ball	1							
-13	10540	PULLEY, Rear take-up	1							
-14	5495	ROLLER, Bearing	18							
-15	25984	SCREW, Phillips truss head	1							
-16	20726	WASHER, Retaining	1							
-17	22716	BEARING, Ball, radial	1							
-18	26238	WHEEL, Worm	1							
-19	98798	PIN, Retaining	1	AB						
-19	430613	PIN, Retaining	1	CDEF						
-20	20731	SHAFT, Take-up pulley	1							
-21	20727	RING, Retaining	1							
-22	22716	BEARING, Ball, radial	1							
-23	97510	RING, Retaining	1	A						
-23	30795	RING, Retaining	1	BCDEF						
-24	27706	BUTTON, Plug	1							
-25	20728	CAP, Governor	1	A						
-25	23108	CAP, Governor	1	BCDEF						

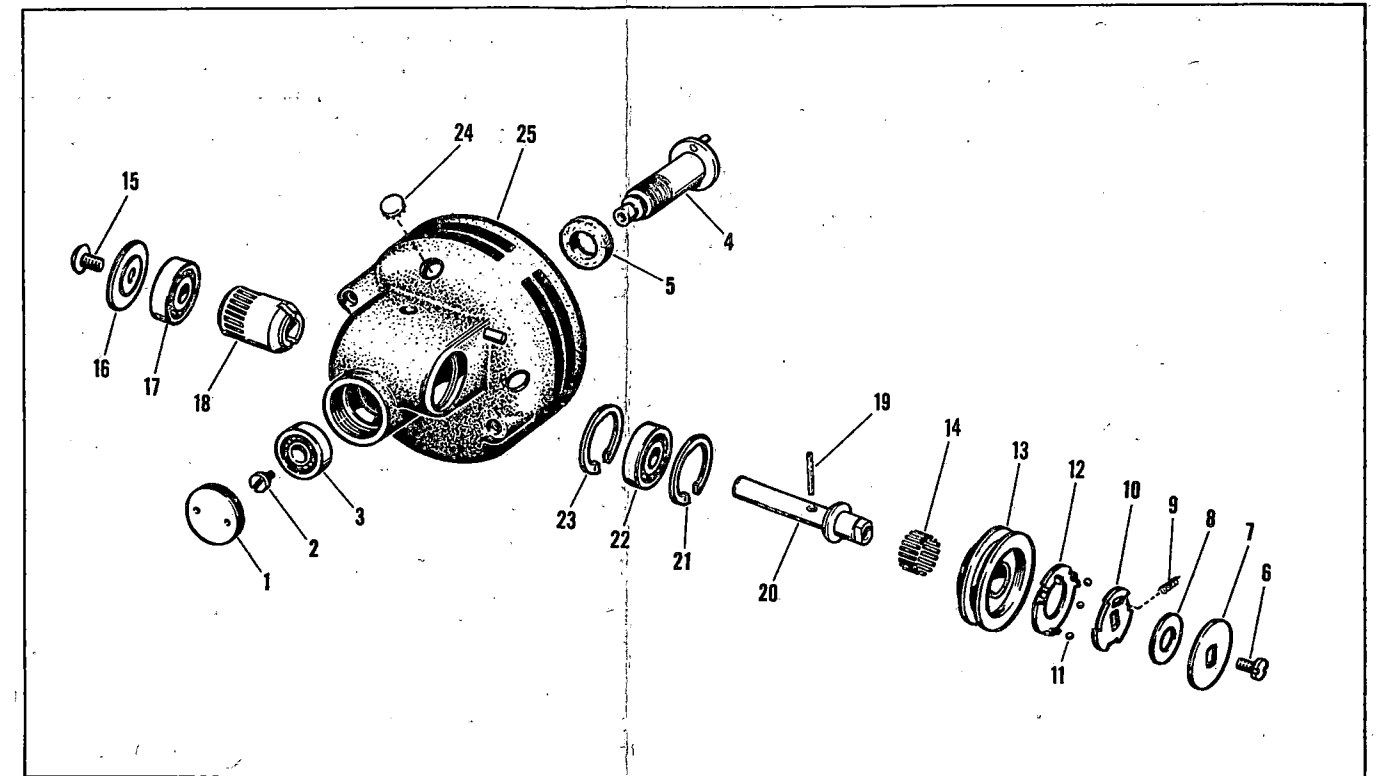


Figure 7. Governor Cap Assembly

FIG. & INDEX NO.	PART NO.	1	2	3	4	5	6	7	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
MOTOR, GOVERNOR AND FAN											
8-1	13586								NUT, Thrust	1	
-2	13587								WASHER, Thrust	1	
-3	9207								PINION, Motor (NOTE A)	1	
-4	9208								ROLLER, Bearing	31	
-5	5193								WASHER, Motor pinion	2	
-6	5343								PIN, Dowel	1	
-7	13581								RETAINER, Spring	1	
-8	M51142								SPRING, Compression	1	A
-8	13589								SPRING, Compression	1	BCDEF
-9	No Number								SETSCREW, Headless (included with item -10)	2	
-10	9428								GOVERNOR, Motor	1	
-11	4664								BRUSH, Governor	3	AB
-11	430747								BRUSH, Governor	3	CDEF
-12	7495								SCREW, Fillister head, 3-48 by 1/8 inch	3	A
-13	10388								CAP, Bearing retaining	1	A
-14	9117								NUT, Hex	1	A
-15	10390								WASHER, Locking	1	A
-15A	26085								WASHER, Shim	1	A
-16	27239								BEARING, Radial	1	
-17	M56274								CAP, Motor brush	2	A
-17	29312								CAP, Motor brush	2	BCDEF
-18	M026319								BRUSH AND SPRING, Motor	2	A
-18	29290								SPRING, Motor brush	2	BCDEF
-19	29313								BRUSH, Motor	2	B
-19	430639								BRUSH, Motor	2	CDEF
-20	9718								SCREW, Brush housing	4	AB
-20	430477								SCREW, Brush housing	4	CDEF
-21	011419								HOUSING ASSEMBLY, Motor brush	1	A
-21	09455								HOUSING ASSEMBLY, Motor brush	1	BCDEF
-22	10350								WASHER, Spacer	1	A
-22	24147								WASHER, Spacer	1	BCDEF
-23	26245								PIN, Spring	1	
-24	M026184								FAN ASSEMBLY, Blower	1	A
-24	005000								FAN ASSEMBLY, Blower	1	BCDE
-24	08076								FAN ASSEMBLY, Blower	1	F
-25	25966								SPRING, Armature	1	BCDE
-25A	5162								WASHER, Spring	1	A
-25B	12762								RING, Bearing	1	A
-25C	5692								SPACER	1	A
-26	30120								BEARING, Ball, radial	1	
-27	M026181								ARMATURE ASSEMBLY	1	A
-27	005006								ARMATURE ASSEMBLY	1	BCEF
-27	040753								ARMATURE ASSEMBLY	1	D
-28	5201								NUT, Stator retaining	4	
-29	5200								STUD, Stator retaining	4	

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY							USABLE ON CODE
			1	2	3	4	5	6	7	
MOTOR, GOVERNOR AND FAN (CONT)										
8-30	M50888	STATOR ASSEMBLY	1							A
-30	005005	STATOR ASSEMBLY	1							BCEF
-30	040752	STATOR ASSEMBLY	1							D
-31A	7591	SCREW, Resistor bracket	1							A
-31B	M50014	WASHER, Resistor bracket	1							A
-31C	M50834	BRACKET, Resistor	1							A
-31D	13982	RESISTOR	1							A
-32A	29561	SPRING, Retaining	3							BCDEF
-32B	28600	RESISTOR, Ring-type	1							BCE
-32B	430676	RESISTOR, Ring-type	1							D
-32B	28587	RESISTOR, Ring-type	1							F
-32C	30785	SLEEVING, Insulating	2							BCDEF
-33	82727	SCREW, Capacitor mounting	2							A
-33	19031	SCREW, Capacitor mounting	1							BCDEF
-33A	26906	NUT, Capacitor mounting	1							A
-34	35214	CAPACITOR	1							A
-34	29282	CAPACITOR	1							BCF
-34	430680	CAPACITOR	1							D
-35	80144	SCREW, Capacitor bracket	1							A
-36	35208	BRACKET, Capacitor	1							A
-37	22464	BUSHING, Strain relief	1							
-38	24599	SHIELD, Motor (outer)	1							
-39	27434	SHIELD, Motor (inner)	1							
-40	No Number	LAMPHOUSE ASSEMBLY (See Figure 9 for breakdown)	NP							BCEF

NOTE A: On projectors with two-to-one shuttle movement use pinion p/n 10324.

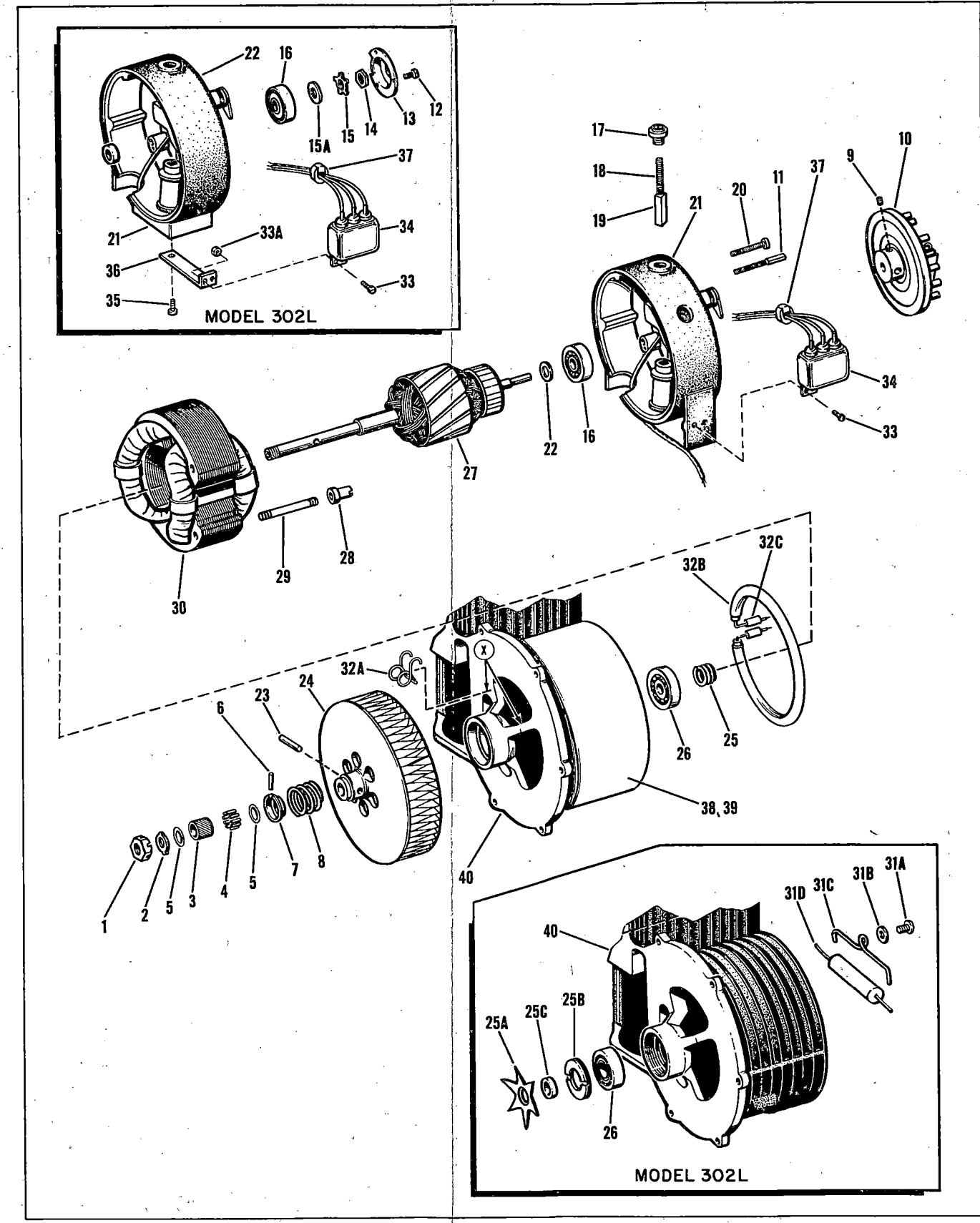


Figure 8. Motor, Governor and Fan

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
LAMPHOUSE ASSEMBLY				
9-1	07544	REFLECTOR ASSEMBLY	1	A
-1	08850	REFLECTOR ASSEMBLY	1	BCDEF
-1A	23565	RING, Snap	1	
-2	30173	SCREW, Fillister head	2	
-3	13387	CAP, Lamphouse	1	A
-3	23101	CAP, Lamphouse	1	BCDEF
-4	08388	TUBE ASSEMBLY, Air circulating	1	
-5	05382SP	SCREW ASSEMBLY, Lamp lock	1	A
-5	07022	SCREW ASSEMBLY, Lamp lock	1	BCDEF
-6	30173	SCREW, Fillister head	3	
-7	05708SP	TERMINAL BOX ASSEMBLY	1	A
-7	07786	TERMINAL BOX ASSEMBLY	1	BCDEF
-8	13366	RING, Heat conducting	1	
-9	6716	SCREW, Fillister head	1	A
-9	29002	SCREW, Fillister head	1	BCDEF
-10	5206	SPRING, Condenser friction	1	A
-10	25243	SPRING, Condenser friction	1	BCDEF
-11	No Number	HOUSING, Motor and lamp	NP	
-12	07204	CONDENSER ASSEMBLY, 45-50 mm	1	
-13	21491	RING, Lens retaining	1	
-14	5306	LENS, Condenser, outer (see NOTE A)	1	
-15	21490	SPACER, Lens	1	
-16	6926	LENS, Condenser, inner (see NOTE A)	1	
-17	23109	HOLDER, Lens (see NOTE B)	1	
-18	15690	RIVET, Handle	1	
-19	23116	HANDLE, Condenser	1	

NOTE A: When either condenser lens (14) or (16) must be replaced in 8300-series projectors, both lenses must be replaced as a set.

NOTE B: In some early Model 302L Projectors, the condenser handle and holder were a one-piece casting. If this one piece item requires replacement, order holder (17), rivet (18) and handle (19).

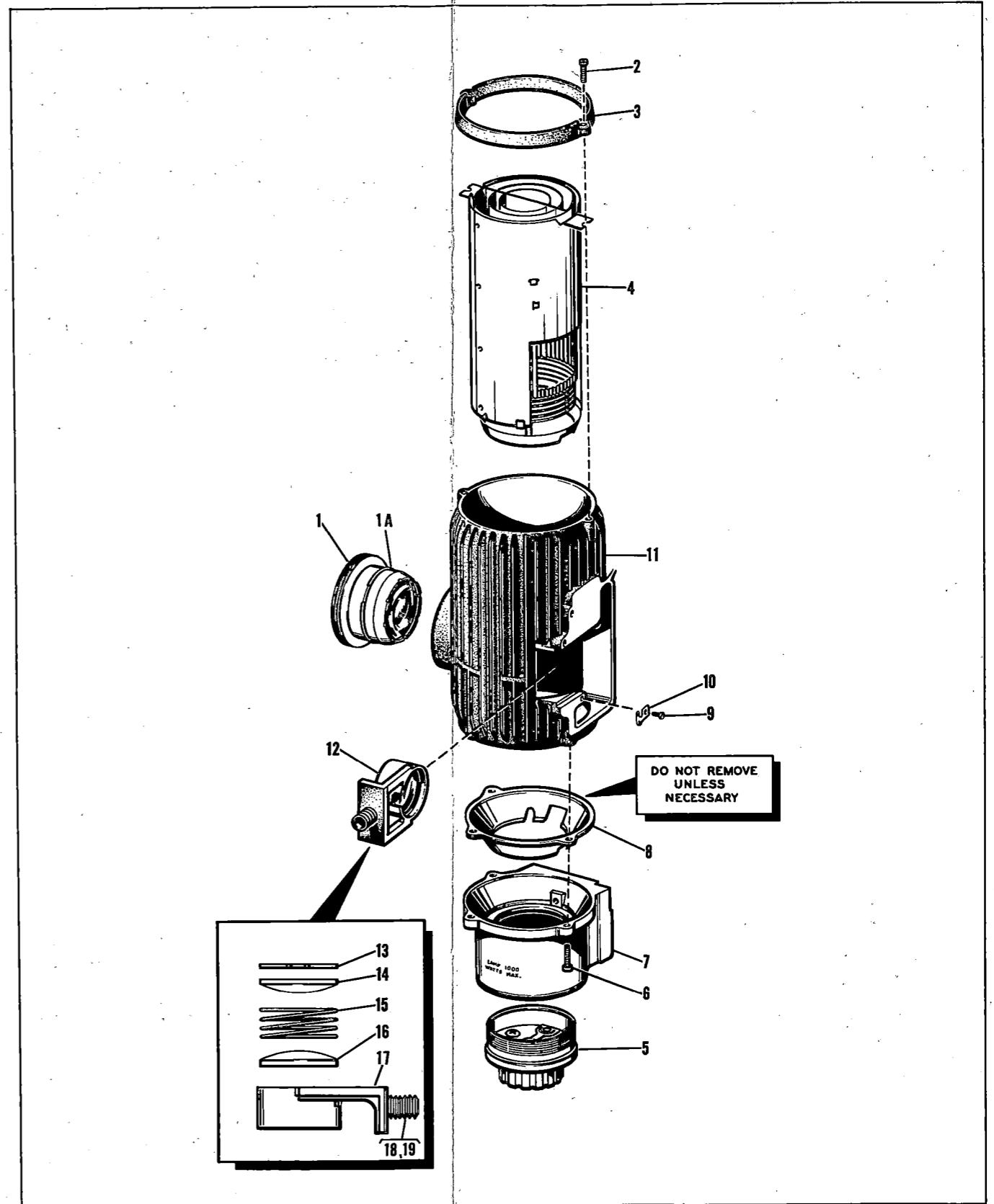


Figure 9. Lamphouse Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY							USABLE ON CODE	
			1	2	3	4	5	6	7		
SOUNDHEAD ASSEMBLY											
10-1	21793	SETSCREW, Fluted socket cone pt., 4-48 by 1/8 inch								1	
-2	21782	CAP								1	
-3	08867	STABILIZER ASSEMBLY								1	ABCDE
-3	041274	STABILIZER ASSEMBLY								1	F
-4	30169	SCREW, Round head, 2-56 by 1/8 inch								1	
-5	26981	SPRING, Torsion								1	ABCDE
-5	434739	SPRING, Torsion								1	F
-6	30163	SCREW, Binding head, 5-40 by 3/8 inch								1	
-7	21780	STUD, Roller								1	
-8	08258	ROLLER ASSEMBLY, Plain								1	
-9	21779	ARM, Stabilizer, lower								1	ABCDE
-9	434738	ARM, Stabilizer, lower								1	F
-10	30163	SCREW, Binding head, 5-40 by 3/8 inch								1	
-11	21780	STUD, Roller								1	
-12	05774	ROLLER ASSEMBLY, Flanged								1	
-13	05775	ARM ASSEMBLY, Stabilizer								1	
-14	21781	STUD, Stabilizer								1	
-15	21821	NUT, Lock								1	
-16	30390	SCREW, Fillister head								1	ABCDE
-16	11757	SCREW								1	F
-17	08990	GUARD ASSEMBLY, Sprocket								1	
-18	16243	SPRING, Sprocket guard								1	
-19	16244	WASHER, Tension								1	
-20	11859	SETSCREW, Headless								1	
-21	03461	SPROCKET ASSEMBLY								1	
-22	11268	SETSCREW, Headless								1	
-23	29590	SHAFT, Sprocket								1	ABCDE
-23	16194	SHAFT, Sprocket								1	F
-23A	29589	LUBRICATOR, Sprocket shaft								1	
-24	11147	WASHER, Spacer								1	
-25	11868	GEAR, Sprocket driving								1	
-26	30164	SCREW, Binding head, 4-40 by 3/16 inch								2	
-27	11761	GUIDE, Film								1	
-28	25108	WASHER, Spacer								2	
-29	30173	SCREW, Fillister head								1	ABCDE
-29	434776	SCREW, Special								1	F
-30	3954	NUT, Plain hex								1	
-31	30171	SCREW, Fillister head, 5-40 by 1/4 inch								2	
10-	07213	SNUBBER ASSEMBLY								1	
-32	21765	SCREW, Fillister head								1	
-33	23255	SHAFT, Snubber								1	
-34	23258	SPRING, Snubber								1	
-35	23256	BEARING, Sleeve								1	
-36	23257	PLATE, Snubber mounting								1	
-37	09282	ROLLER AND BRACKET ASSEMBLY, Snubber								1	ABCDE
-37	041275	ROLLER AND BRACKET ASSEMBLY, Snubber								1	F
-38	22740	STUD, Idler roller								1	
-39	17312	SPACER								1	
-40	07053	ROLLER ASSEMBLY, Idler								1	
-41	27487	SCREW, Soundhead bracket								4	
-42	17317	BRACKET, Soundhead								2	
-43	12641	SETSCREW, Headless								1	ABCDE
-43	11268	SETSCREW, Headless								1	F
-44	17362	SLUG, Locking								1	
-45	02678	OPTICAL SLIT ASSEMBLY								1	

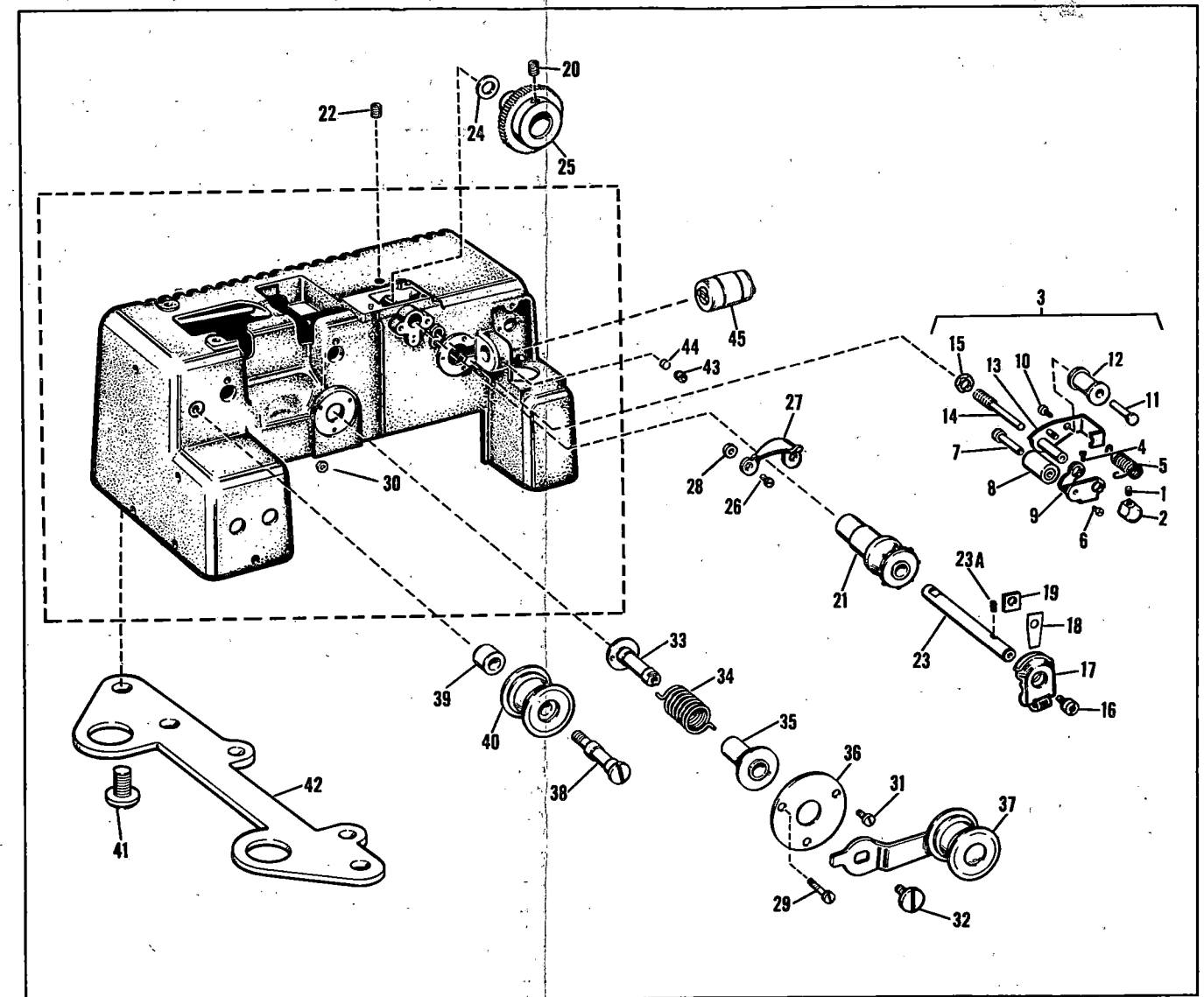


Figure 10. Soundhead Assembly (Sheet 1 of 2)

FIG. & INDEX NO.	PART NO.	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
		1	2	3	4	5	6	7		
SOUNDHEAD ASSEMBLY (CONT)										
11-1	30162	SCREW, Binding head, 5-40 by 3/8 inch							3	
-2	27485	CAP, Bearing							1	
-3	27484	RETAINER, Spring							1	
-4	27483	SPRING, Compression							1	
-5	30163	SCREW, Binding head, 5-40 by 3/8 inch							2	
-6	22685	COVER, Light shield							1	
-7	22639	SCREW, Fillister head							1	
-8	22638	ECCENTRIC							1	
-9	22637	LEVER, Detent							1	
-10	22640	WASHER, Spacer							1	
-11	30230	SPRING, Torsion							1	
-12	25718	SCREW, Special							1	
-13	30157	WASHER, Flat							1	BCDEF
-14	29417	ROLLER, Rubber							1	
-15	20808	RING, Retaining, 0.145 inch ID (IRRC 1000-18)							1	
-16	30158	WASHER, Spring							1	
-17	25716	SPRING, Torsion							1	
-18	30160	SETSCREW, Headless							2	
-19	09469	ARM ASSEMBLY, Roller							1	
-20	30157	WASHER, Thrust							1	
-21	20623	SCREW, Fillister head							2	AB
-21	25742	SCREW, Fillister head							2	CDEF
-22	17620	WASHER, Plain							2	
-23	30159	WASHER, Stop							2	
-24	25713	STUD, Pivot							1	
-25	600986	NUT, Plain hex							1	
-26	24954	WASHER, External tooth							1	
-27	5266	SCREW, Fillister head							1	
-28	4258	WASHER							1	
-29	30194	CLAMP, Quill retaining							1	
-30	27486	RING, Retaining							1	
-31	09251	SOUND DRUM ASSEMBLY, Complete (see Figure 11A for breakdown)							1	ABCDE
-31	041669	SOUND DRUM ASSEMBLY, Complete (see Figure 11A for breakdown)							1	F
-32	23110	SPRING, Retaining							1	
-33	23261	FLYWHEEL							1	
-34	22652	SCREW, Round head							2	
-35	25717	LEVER							1	
-36	27239	BEARING, Ball, radial							1	
-37	29309	SCREW, Binding head							3	
-38	29248	NUT, Speed							3	
-39	29285	BOARD, Terminal							1	
-40	09470	LEAD ASSEMBLY, Soundhead							1	ABCDE
-40	041668	LEAD ASSEMBLY, Soundhead							1	F
-40A	22661	CONNECTOR, Plug							1	
-41	22646	LAMP, Pilot (with push-on nut)							1	ABF
-41	040794	LAMP, Pilot (with push-on nut)							1	CDE
-42	22643	BUSHING, Threaded							1	
-43	7856	SCREW, Round head							1	
-44	9567	WASHER, External tooth							1	

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
SOUNDHEAD ASSEMBLY (CONT)				
11-	09447	RELAY ASSEMBLY, Complete	1	ABCF
11-	040773	RELAY ASSEMBLY, Complete	1	D
11-	040763	RELAY ASSEMBLY, Complete	1	E
-45	22650	. SCREW, Round head	1	ABC
-45	29194	. SCREW, Round head	1	DEF
-46	22642	. BRACKET, Relay	1	ABC
-46	29253	. BRACKET, Relay	1	DEF
-47	25606	. RELAY	1	ABC
-47	430731	. RELAY	1	D
-47	29252	. RELAY	1	EF
-47A	430354	RESISTOR	1	CEF
-47A	430749	RESISTOR	1	D
-48	29287	BUTTON, Relay actuating	1	
-49	22644	SHIELD, Relay	1	
-50	30170	SCREW, Binding head	4	
-51	17315	SOCKET, Exciter lamp	1	
-52	09463	PHASE REACTOR ASSEMBLY	1	
-53	35223	SWITCH, Silent-sound (with mounting nut)	1	A
-53	29560	SWITCH, Silent-sound (with mounting nut)	1	BF
-53	005048	SWITCH, Silent-sound (with mounting nut)	1	CDE
-54	35222	SWITCH, Forward-reverse (with mounting nut)	1	A
-54	29296	SWITCH, Forward-reverse (with mounting nut)	1	BCDEF
-55	9121	DISC, Switch locating	2	
-56	27915	NAMEPLATE, Silent-sound	1	
-57	27914	NAMEPLATE, Forward-reverse	1	
-58	22031	SCREW, Round head	1	
-59	3954	NUT, Plain hex	1	
-60	14175	WASHER, Internal tooth	1	
-61	010324	POWER CORD, Projector	1	AB
-61	005010	POWER CORD, Projector	1	CD
-61	040804	POWER CORD, Projector	1	F
-61A	620760	ADAPTER, 3-wire	1	AB
-62	26379	BUSHING, Strain relief	1	ABF
-62	100018	BUSHING, Strain relief	1	CDE
-63	29194	SCREW, Round head	1	
-64	17351	NUT, Speed	1	
-65	09454	COVER ASSEMBLY, Terminal	1	
-66	17373	SWITCH, Line and lamp (with mounting nuts)	2	
-67	28021	NAMEPLATE, Line and lamp	1	AB
-67	430495	NAMEPLATE, Line and lamp	1	C
-67	430732	NAMEPLATE, Line and lamp	1	DE
-67	435260	NAMEPLATE, Motor and lamp	1	F
-68	09551	POWER CORD, Amplifier	1	ABCD
-69	22464	BUSHING, Strain relief	1	ABCDE
-69	309761	BUSHING, Strain relief	1	F
-70	No Number	CASTING, Soundhead	NP	
PARTS NOT ILLUSTRATED				
	5072	SCREW, Drive	4	
	28020	NAMEPLATE, "Mag-Opt"	1	
	28022	NAMEPLATE, "Record"	1	

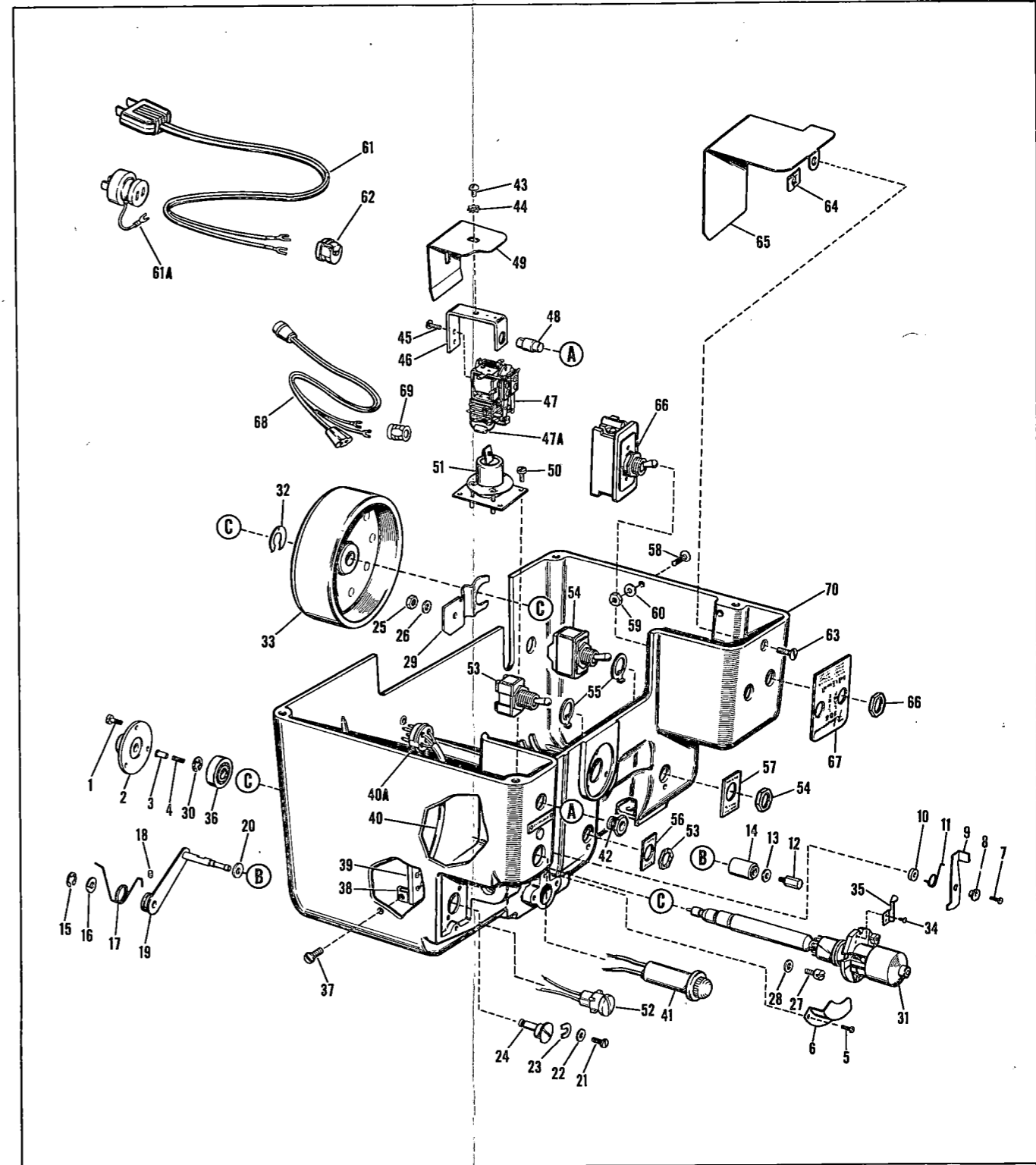


Figure 11. Soundhead Assembly (Sheet 2 of 2)

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
SOUND DRUM BEARING AND SHAFT ASSEMBLY				
11A-1	09251	BEARING AND SHAFT ASSEMBLY, Sound drum	1	ABCDE
-1A	042903	BEARING AND SHAFT ASSEMBLY, Sound drum	1	F
-2	No Number	. TAPE, Adhesive	AR	
-3	22623	. RING, Terminal	1	
-4	22603	. SHIELD	1	
-5	22621	. COVER, Shield	1	
-6	4080	. SCREW, Fillister head	3	
-7	22615	. WASHER	15	
-8	09250	. ARM AND HEAD ASSEMBLY, Record-play	1	
-9	09248	. ARM AND HEAD ASSEMBLY, Erase	1	
-10	15617	. SCREW	12	
-11	09202	. HEAD ASSEMBLY, Pole piece, record-play	1	ABCDE
-11	040779	. HEAD ASSEMBLY, Pole piece, record-play	1	F
-12	09203	. BOBBIN AND COIL ASSEMBLY, Record-play	1	ABCDE
-12	040778	. BOBBIN AND COIL ASSEMBLY, Record-play	1	F
-13	09201	. HEAD ASSEMBLY, Pole piece, erase	1	ABCDE
-13	040780	. HEAD ASSEMBLY, Pole piece, erase	1	F
-14	08252	. BOBBIN AND COIL ASSEMBLY, Erase	1	ABCDE
-14	040778	. BOBBIN AND COIL ASSEMBLY, Erase	1	F
-15	22609	. HUB	4	
-16	25985	. ARM	2	
	22610	. TIE BAR, Bobbin (not illustrated)	2	

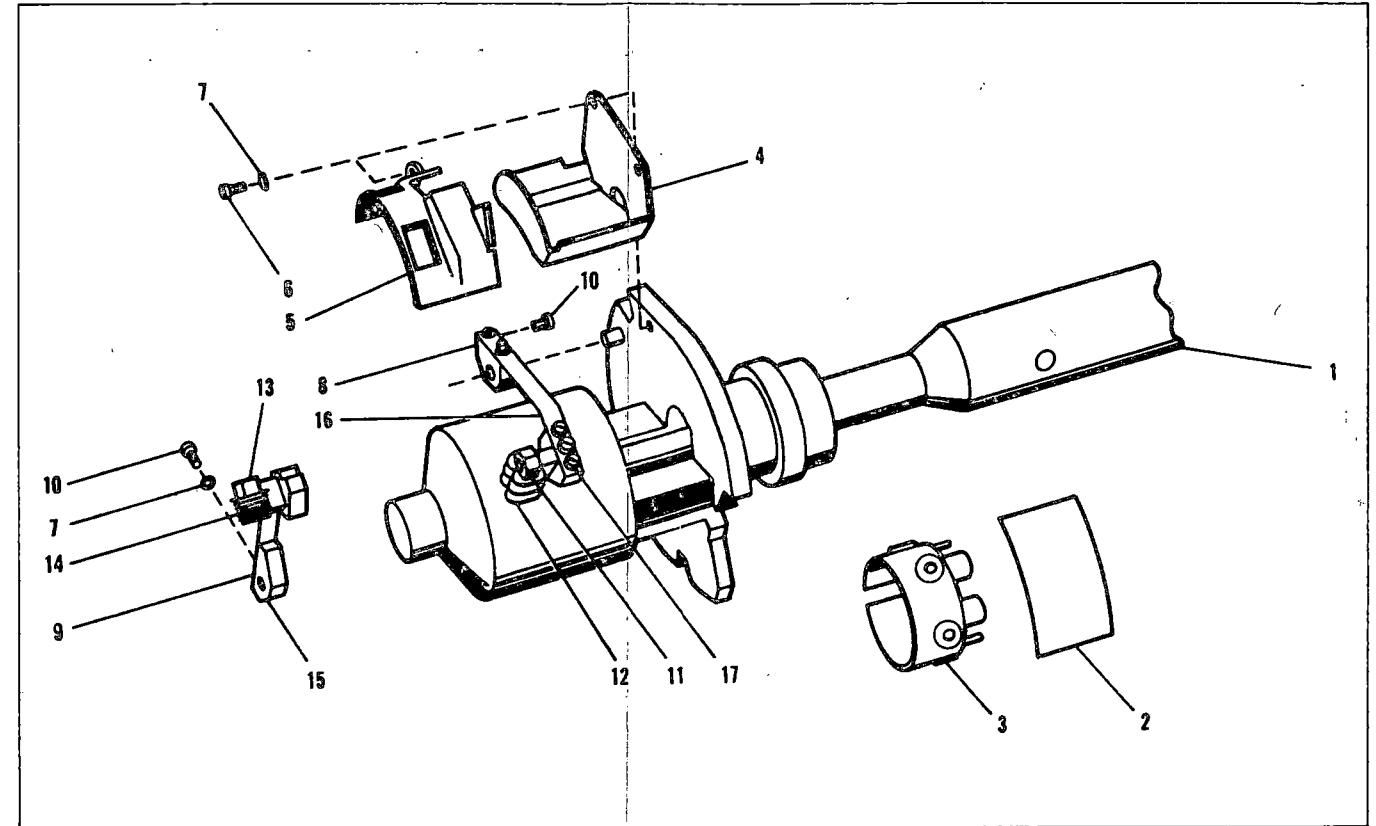


Figure 11A. Sound Drum Bearing and Shaft Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
PROJECTOR CASE ASSEMBLY (CONT)				
12-40	430144	CUSHION, Handle	2	
-41	430193	SPRING, Compression	2	
-42	430097	PIN, Retaining	2	
-43	430189	POST, Handle	2	
-44	430037	BRACKET, Handle	1	
-45	430192	SPACER	2	
-46	100037	SCREW, Wood	4	
-47	430264	PLATE, Handle	2	
-48	430357	SCREW, Upper door hinge	5	
-49	040644	DOOR ASSEMBLY, Upper (includes hinge)	1	
-50	430257	SCREW, Oval speaker	1	AB
-51	430325	SCREW, Oval speaker	3	AB
-52	040165	SPEAKER ASSEMBLY, Complete	1	AB
-52A	28088	. JACK, Speaker	1	AB
-52B	21280	. CLAMP, Cable	1	AB
-53	430253	BAFFLE, Speaker	1	AB
-54	430254	GRILLE, Speaker	1	AB
-55	36051	SCREW	2	F
-56	433249	SCREW	2	F
-57	21238	WASHER	3	F
-58	042807	BAFFLE AND SPEAKER ASSEMBLY	1	F
-58A	435264	. BAFFLE	1	F
-58B	435265	. CUSHION	1	F
-58C	041516	. SPEAKER ASSEMBLY	1	F
-58D	042808	. PLUG AND CORD ASSEMBLY, Speaker	1	F
-58E	19327	. NUT, Hex	2	F
-58F	51316	. GROMMET	2	F
-58G	34590	. SCREW, Flat head, 6-32 by 3/8 inch	4	F
-59	435266	GRILLE, Speaker	1	F
-60	23414	SCREW, Wood, threading lamp socket	2	AB
-60	430690	SCREW, Wood, threading lamp socket	2	CDEF
-61	430076	LAMP, Threading	1	ABCEF
-61	430673	LAMP, Threading	1	D
-62	09252	SOCKET AND COVER, Lamp	1	AB
-62	040643	SOCKET AND COVER, Lamp	1	CDF
-62	040765	SOCKET AND COVER, Lamp	1	E
-62	042809	SOCKET AND COVER, Lamp	1	F
-63	29250	SCREW, Transformer	4	AB
-63	430462	SCREW, Transformer	4	CDEF
-64	29251	WASHER, Flat	4	AB
-64	430482	WASHER, Flat	4	CDEF
-65	32278	TRANSFORMER	1	AB
-65	430493	TRANSFORMER AND CABLE ASSEMBLY	1	CE
-65	430729	TRANSFORMER AND CABLE ASSEMBLY	1	D
-65	435259	TRANSFORMER AND CABLE ASSEMBLY	1	F
12-	400031	DOOR PULL, Lower	1	
12-	400032	DOOR PULL, Upper	1	

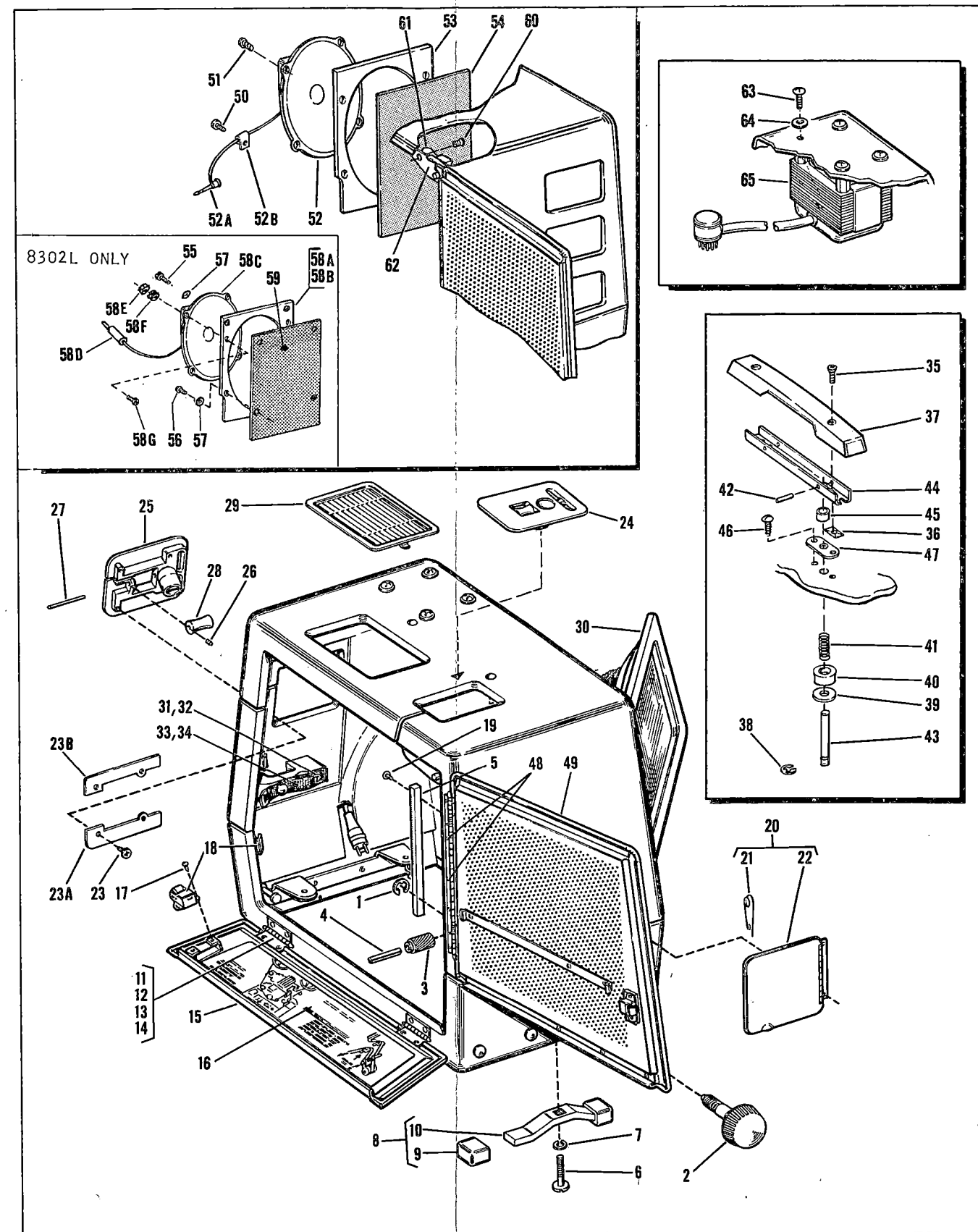


Figure 12. Projector Case Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
REAR REEL ARM ASSEMBLY				
13-1	11478	BELT, Take-up	1	
-2	24947	SHAFT, Take-up arm	1	
	011425	ARM ASSEMBLY, Take-up	1	A
	09654	ARM ASSEMBLY, Take-up	1	BCDEF
-3	30173	. SCREW, Plunger cover	1	
-4	35215	. COVER, Plunger	1	A
-4	30122	. COVER, Plunger	1	BCDEF
-5	25356	. SCREW, Return spring	1	
-6	30108	. SPRING, Plunger return	1	
-7	30772	. SCREW, Plunger guide	1	
-8	30107	. PLUNGER	1	
-9	11463	. GEAR, Rewind	1	
-10	11475	. NUT, Lock	1	
-11	11474	. RING, Bearing retaining	1	
-12	09653	. PULLEY ASSEMBLY, Take-up	1	
-12A	607106	. . PIN, Roll	1	
-12B	607103	. . CLIP, Reel	1	
-13	5238	. BALL, Steel	38	
-14	011426	. ARM ASSEMBLY, Compensator	1	A
-14	09651	. ARM ASSEMBLY, Compensator	1	BCDEF
-14A	30110	. PIN, Lock	1	
	011423	ARM ASSEMBLY, Reel	1	A
	08909	ARM ASSEMBLY, Reel	1	BCDEF
-15	11462	. GEAR, Drive, rewind	1	
-16	04523	. PULLEY, Drive take-up	1	
-17	12129	. PLUNGER	1	
-18	12128	. SPRING, Compression	1	
-19	5893	. SETSCREW, No. 10-32	1	
-20	11470	. SCREW, Lock lever attaching	1	
-21	03446	. LEVER, Rewind lock	1	
-22	11466	. SPRING, Lock lever	1	
-23	11472	. RING, Bearing retainer	1	
-24	11471	. ROLLER, Bearing	16	
-25	011424	. ARM ASSEMBLY, Reel	1	A
-25	08910	. ARM ASSEMBLY, Reel	1	BCDEF

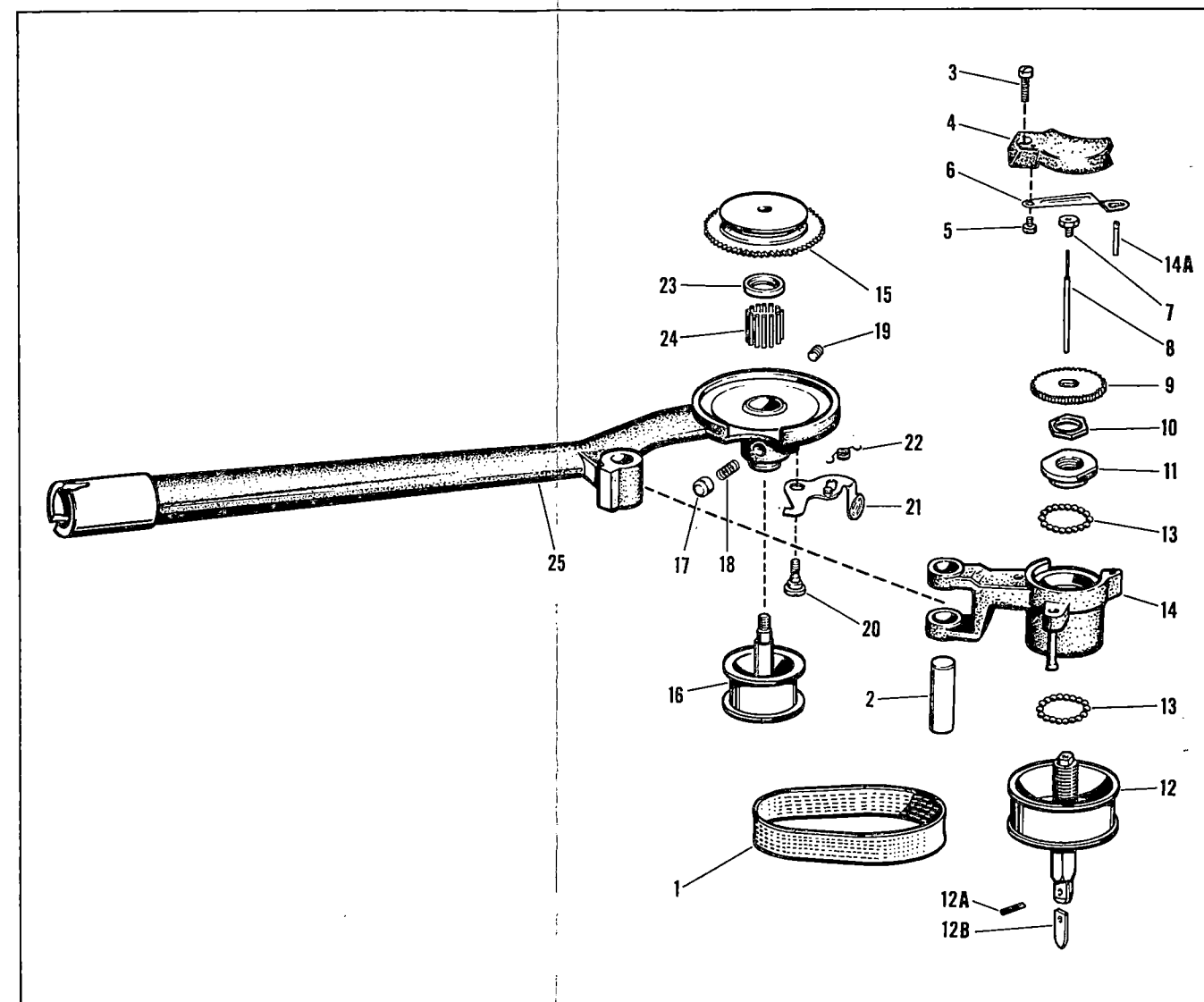


Figure 13. Rear Reel Arm Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
FRONT REEL ARM ASSEMBLY				
14-1	32065	SCREW, Clutch cover	1	
-2	12864	COVER, Clutch	1	
-3	15582	WASHER, Bronze	1	
-4	5238	BALL, Steel	3	
-5	5514	CAM, Clutch	1	
-6	10747	RETAINER, Clutch ball	1	
-7	11036	PULLEY	1	
-8	5495	ROLLER, Bearing	18	
-9	1367	WASHER, Shim	AR	
-10	5629	WASHER, Spindle	1	ABCDE
-10	431145	WASHER, Spindle	1	F
-11	1375	WASHER, Split retaining	1	
-12	17896	WASHER, Flat	1	
-13	040669	SPINDLE ASSEMBLY, Reel	1	
-13A	607106	. PIN, Spring	1	
-13B	607103	. CLIP, Reel	1	
-13C	430466	. PLUNGER	1	
-13D	430465	. SPRING	1	
-14	17896	WASHER, Flat	1	
-15	17182	RETAINER, Bearing	1	
-16	17183	BEARING, Reel arm	1	
-17	35211	ARM, Reel, front	1	A
-17	27938	ARM, Reel, front	1	BCDEF

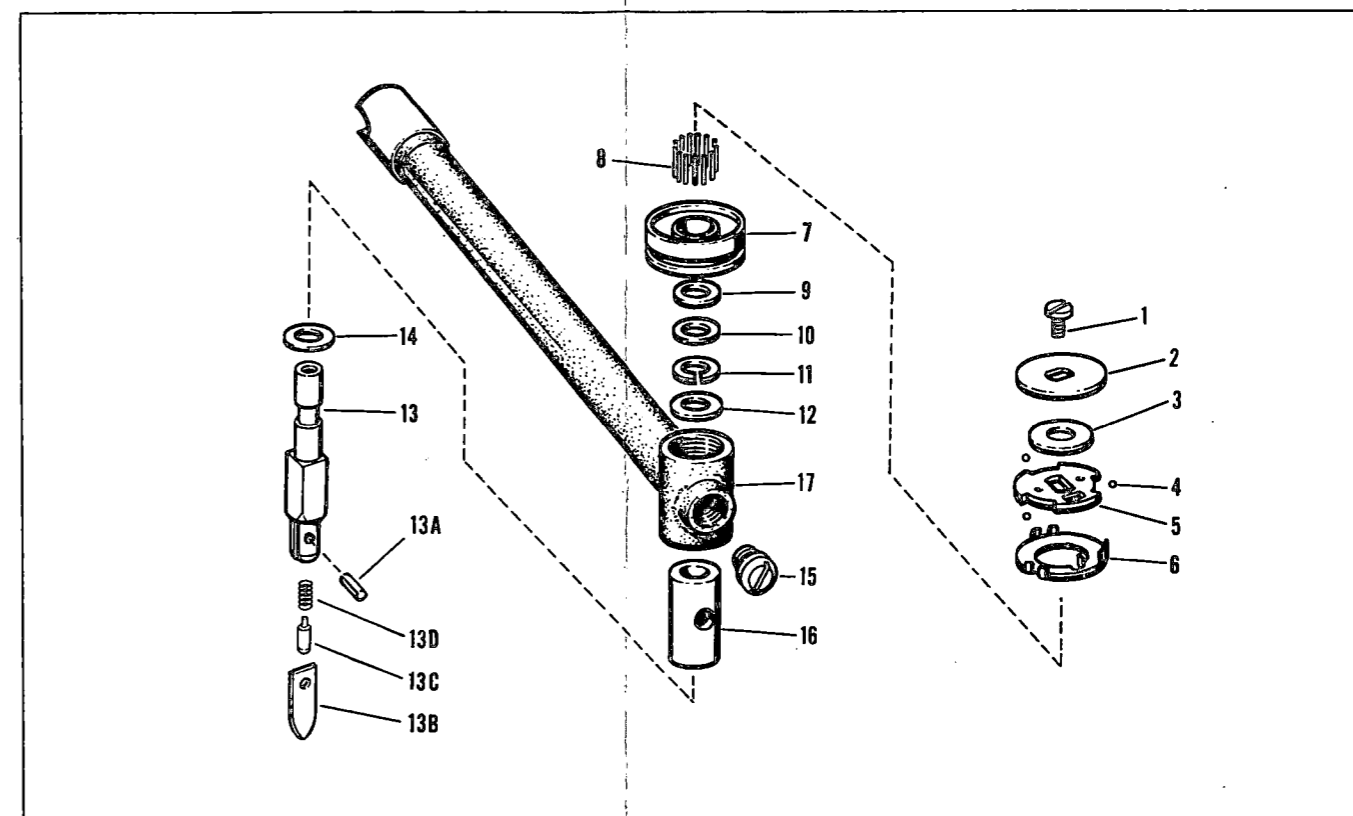


Figure 14. Front Reel Arm Assembly

AMPLIFIER MECHANICAL ASSEMBLY
(See Figures 15A and 15B for 8302L Amplifier)

FIG. & INDEX NO.	PART NO.	DESCRIPTION
	302	8302A,B,C
15-1	32088	430886 TRANSFORMER, Output
-2	22601	430893 CONNECTOR, Receptacle
-3	*	430899 CLAMP, Tube (small)
-4	*	* CAPACITOR, Electrolytic, 40-40-10UF, 450V
-5	28200	430891 JACK, Monitor
-6	*	* ELECTRON TUBE
-7	28059	430413 JACK, Speaker (2 required)
-8	25580	430506 FUSEHOLDER AND CAP
-9	*	* FUSE, Amplifier
-10	*	* ELECTRON TUBE
-11	*	* CAPACITOR, Electrolytic, 15-15-15UF, 450V
-12	*	* ELECTRON TUBE
-13	27651	430895 CONNECTOR, Receptacle
-14	09550	6953 PHOTOCCELL ASSEMBLY
-15	*	* ELECTRON TUBE
-16	9686	430900 KNOB, Function
-17	29687	430903 KNOB, Volume
-18	*	* CAPACITOR, Electrolytic, 1000UF, 15V
-19	29684	430901 KNOB, Treble
-20	29685	430902 KNOB, Bass
-21	*	* ELECTRON TUBE
-22	*	430898 CLAMP, Tube (large)
-23	*	* ELECTRON TUBE
-24	*	* OSCILLATOR COIL
-25	08858	08858 BASE PLATE ASSEMBLY

*For asterisked parts refer to appropriate schematic diagram.

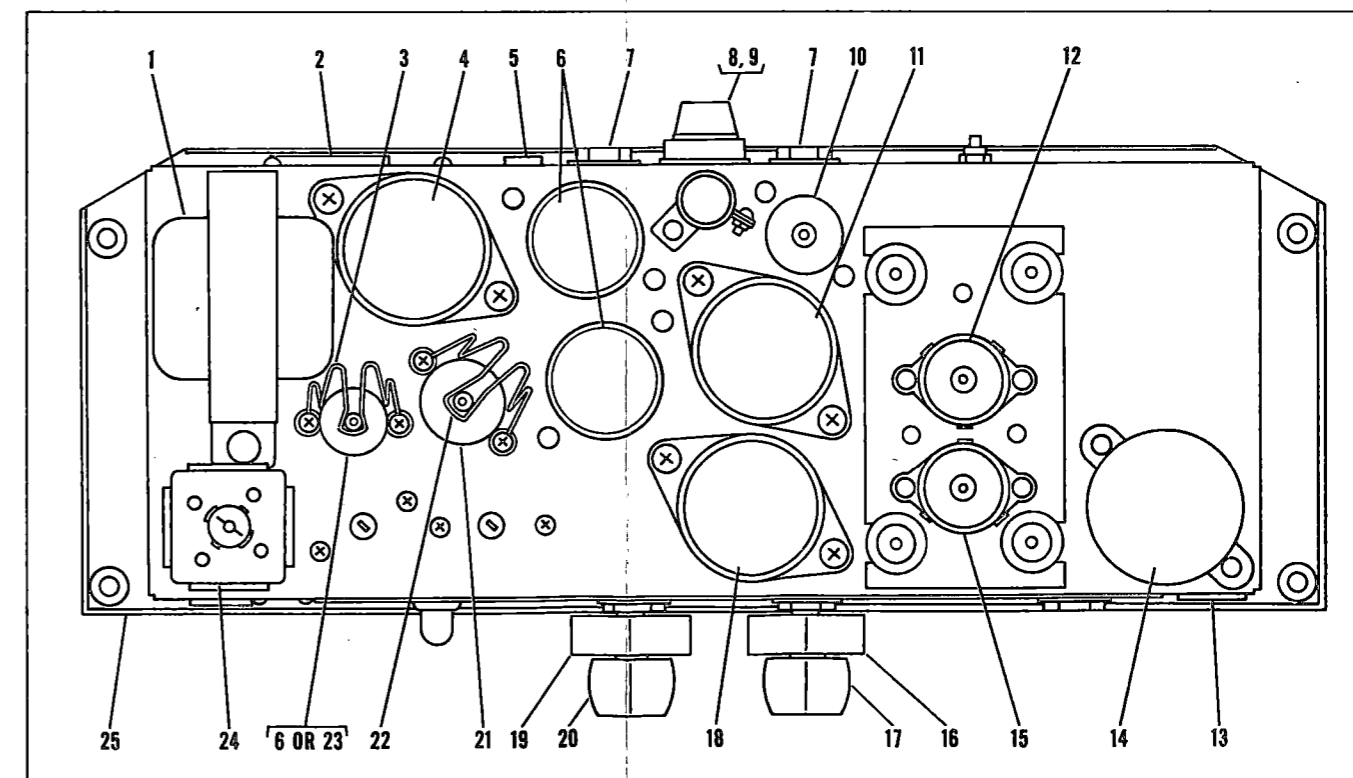


Figure 15. Amplifier Assembly,
Mechanical Parts

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
		1 2 3 4 5 6 7		
AMPLIFIER ASSEMBLY (DESIGN 8302L ONLY)				
15A-	042802	AMPLIFIER ASSEMBLY, Complete	1	F
-1	431311	. RESISTOR, Variable (RV6)	1	F
-2	431562	. RESISTOR, Variable (RV4)	1	F
-3	431041	. COIL AND SHIELD CASE, Oscillator (L2)	1	F
-4	431477	. SOCKET, 7 pins with clamper holder	1	F
-5	431322	. SOCKET, 4 pins with clamper holder	1	F
-6	430886	. TRANSFORMER, Output (L1)	1	F
-7	430556	. ELECTRON TUBE, 6AR5 (V6)	1	F
-8	431480	. CLAMPER, Tube	1	F
-9	432089	. CLAMPER, Tube	1	F
-10	430559	. ELECTRON TUBE, 6CA4/EZ81 (V7)	1	F
-11	430775	. ELECTRON TUBE, 6V6-GT (V4, V5)	2	F
-12	430776	. ELECTRON TUBE, 12AX7/ECC83 (V3)	1	F
-13	432088	. SHIELD CASE	2	F
-14	430777	. ELECTRON TUBE, 12AX7/ECC83 (V1)	1	F
-15	430557	. ELECTRON TUBE, 12AX7/ECC83 (V2)	1	F
-19	431583	. CAPACITOR (C30)	1	F
-20	431488	. SOCKET, Octal	2	F
-21	431585	. CAPACITOR (C40)	1	F
-22	431584	. CAPACITOR (C10)	1	F
-23	431559	. RESISTOR (R63)	1	F
-24	431487	. SOCKET, 9 pins reverse	3	F
-25	431489	. PRONG BASE, Capacitor	3	F
-26	431493	. BRACKET, Shield case	2	F
-27	431728	. PLATFORM, Silk-screened	1	F
-30	431726	. CHASSIS, Silk-screened	1	F
-31	430895	. SOCKET, 5 pin (J6)	1	F
-32	431491	. JACK, Phonograph and microphone (J1, J2)	2	F
-33	430900	. KNOB, Function	1	F
-33	432783	. SCREW, Knob	1	F
-34	430903	. KNOB, Volume	1	F
-35	430901	. KNOB, Treble	1	F
-35	432783	. SCREW, Knob	1	F
-36	430902	. KNOB, Base	1	F
-37	431563	. RESISTOR, Variable (RV5)	1	F
-38	431479	. NEON LAMP AND BRACKET (LP1, LP2)	2	F
-39	430888	. NAMEPLATE, Amplifier	1	F
-40	431490	. SOCKET, 6 pin (J7)	1	F

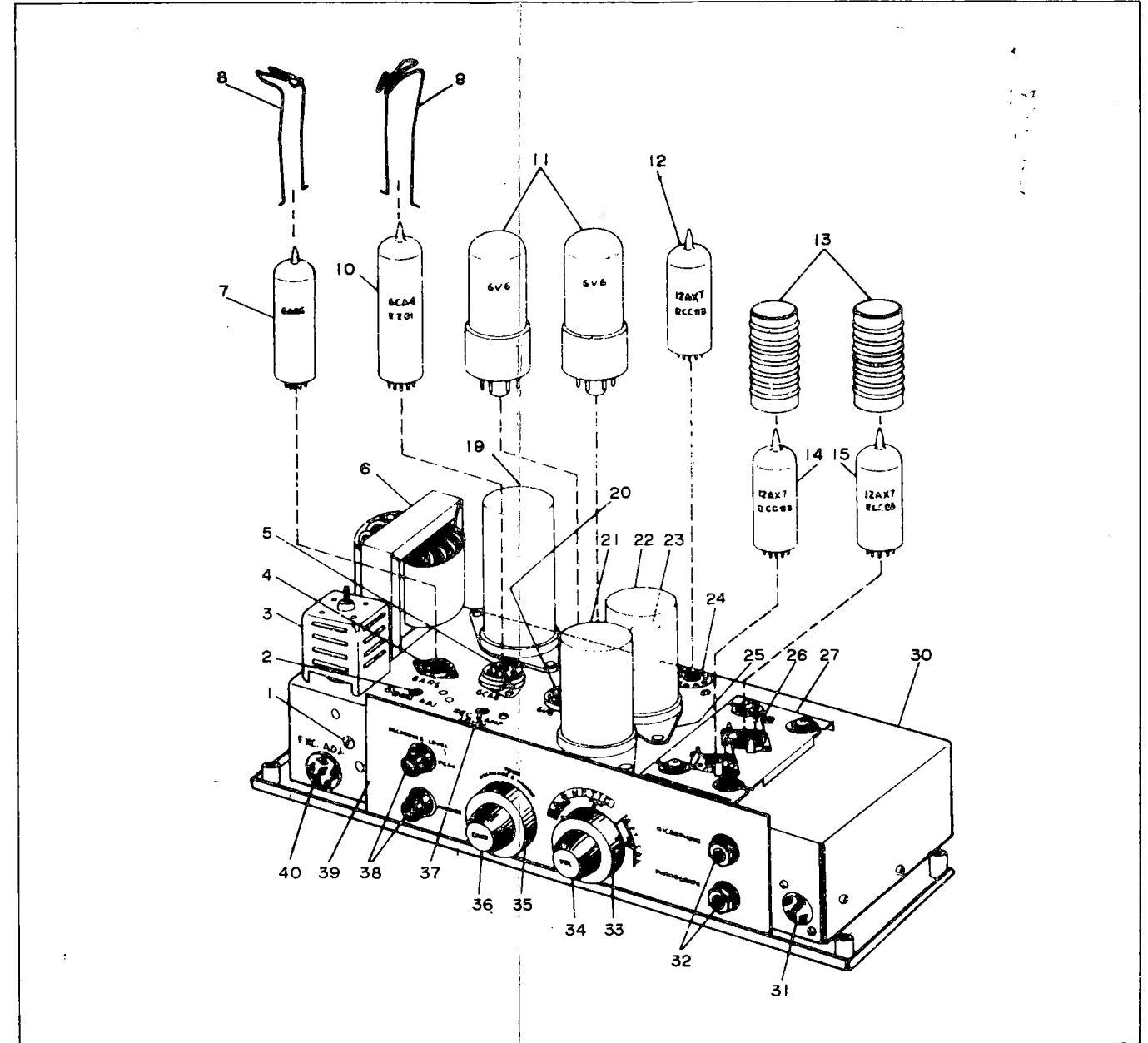


Figure 15A. Amplifier Assembly, Complete
(Design 8302L Only)

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY							USABLE ON CODE
			1	2	3	4	5	6	7	
AMPLIFIER ASSEMBLY (DESIGN 8302L ONLY) (CONT)										
15B-1	430508	SCREW, Self-tapping							4	F
-2	431505	WASHER, Shoulder							4	F
-3	431506	WASHER, Flat							4	F
-4	431504	RUBBER CUSHION							4	F
-5	041177	BASE PLATE, Silk-screened							1	F
-6	29448	U-SPEED NUT							4	F
-7	431045	SELENIUM RECTIFIER (P1)							1	F
-8	431326	TERMINAL BOARD, 3 lugs							1	F
-9	431715	SPEED NUT, Neon bracket							2	F
-10	431495	SHIELD, Switch							1	F
-11	435256	RESISTOR, Variable (RV2)							1	F
-12	431042	FUNCTION SWITCH (With variable resistor) (S1)							1	F
-13	431494	SHIELD CASE, 5 pin socket							1	F
-14	431723	PRINTED CIRCUIT BOARD							1	F
-15	431327	TERMINAL BOARD, 4 lugs							1	F
-17	No Number	JACK, Speaker (J4, J5)							2	F
-18	435255	NAMEPLATE, Rating							1	F
-19	435257	FUSE HOLDER							1	F
-19A	604063	FUSE (F1)							1	F
-20	430891	JACK, Monitor (J3)							1	F
-21	26744	RECEPTACLE, AC input (J9)							1	F
-22	22601	SOCKET, 11 pin (J8)							1	F
-23	433747	NAMEPLATE							1	F

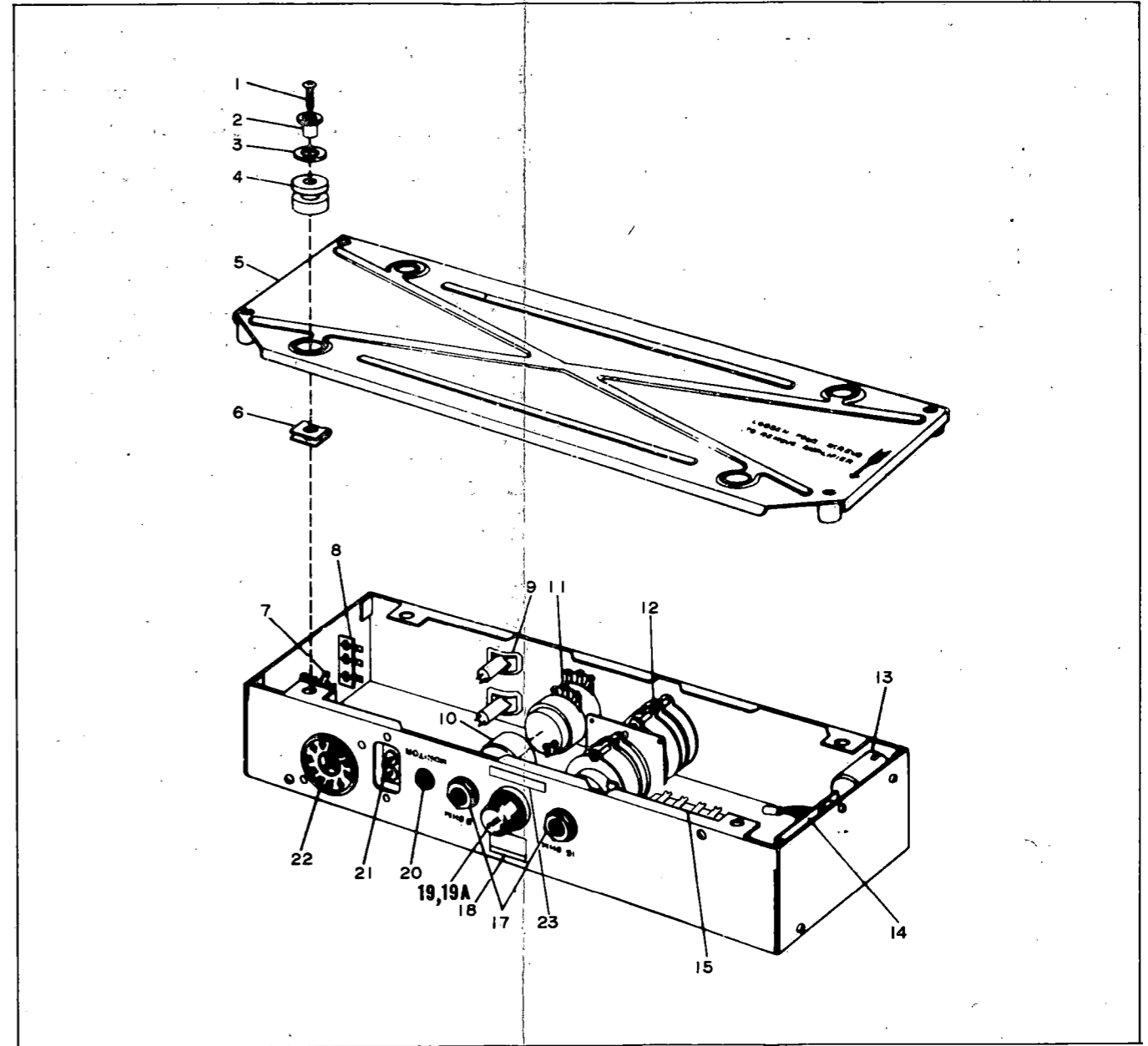


Figure 15B. Amplifier Assembly, Complete
(Design 8302L Only)

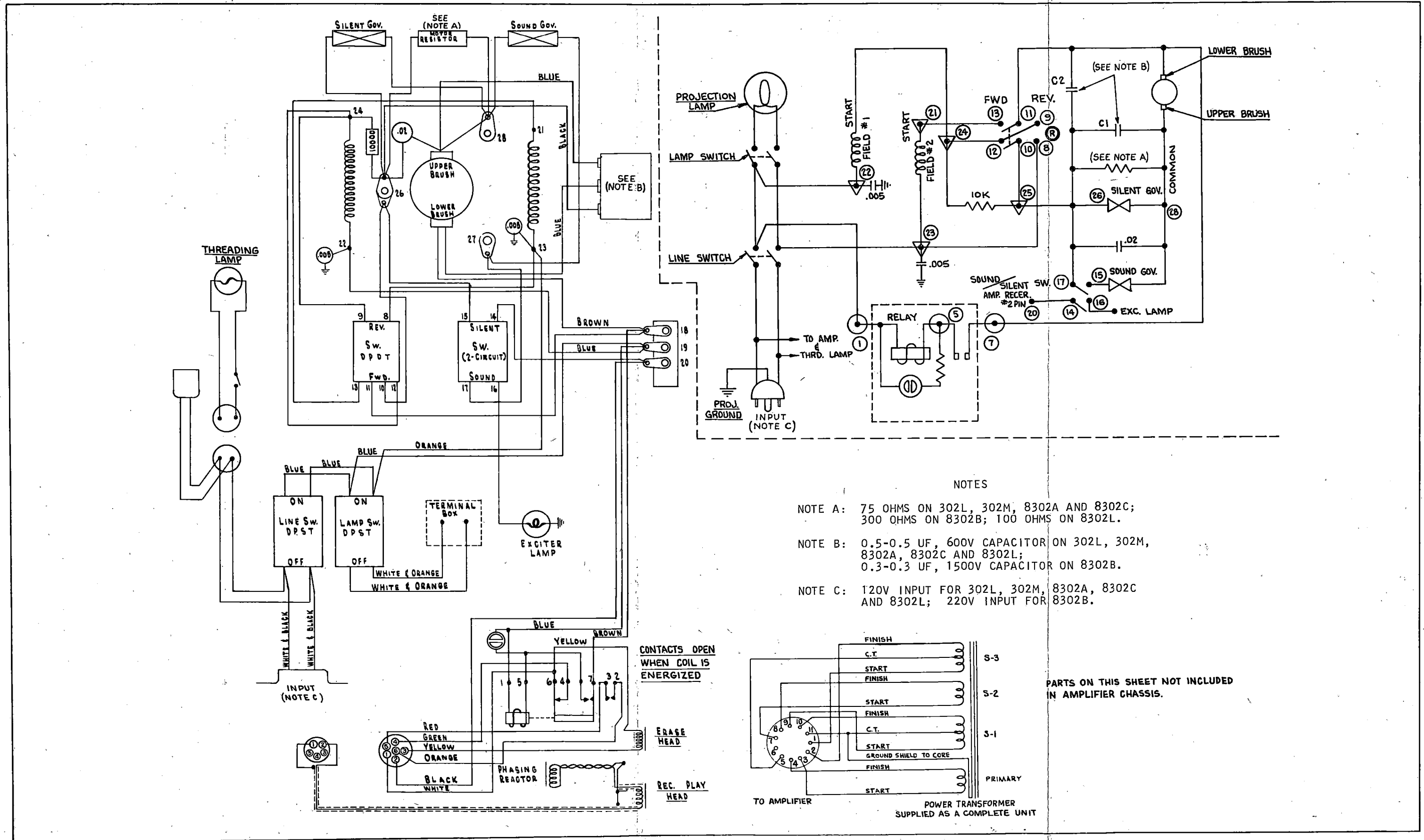


Figure 16. Projector Schematic Wiring Diagram (All Models)

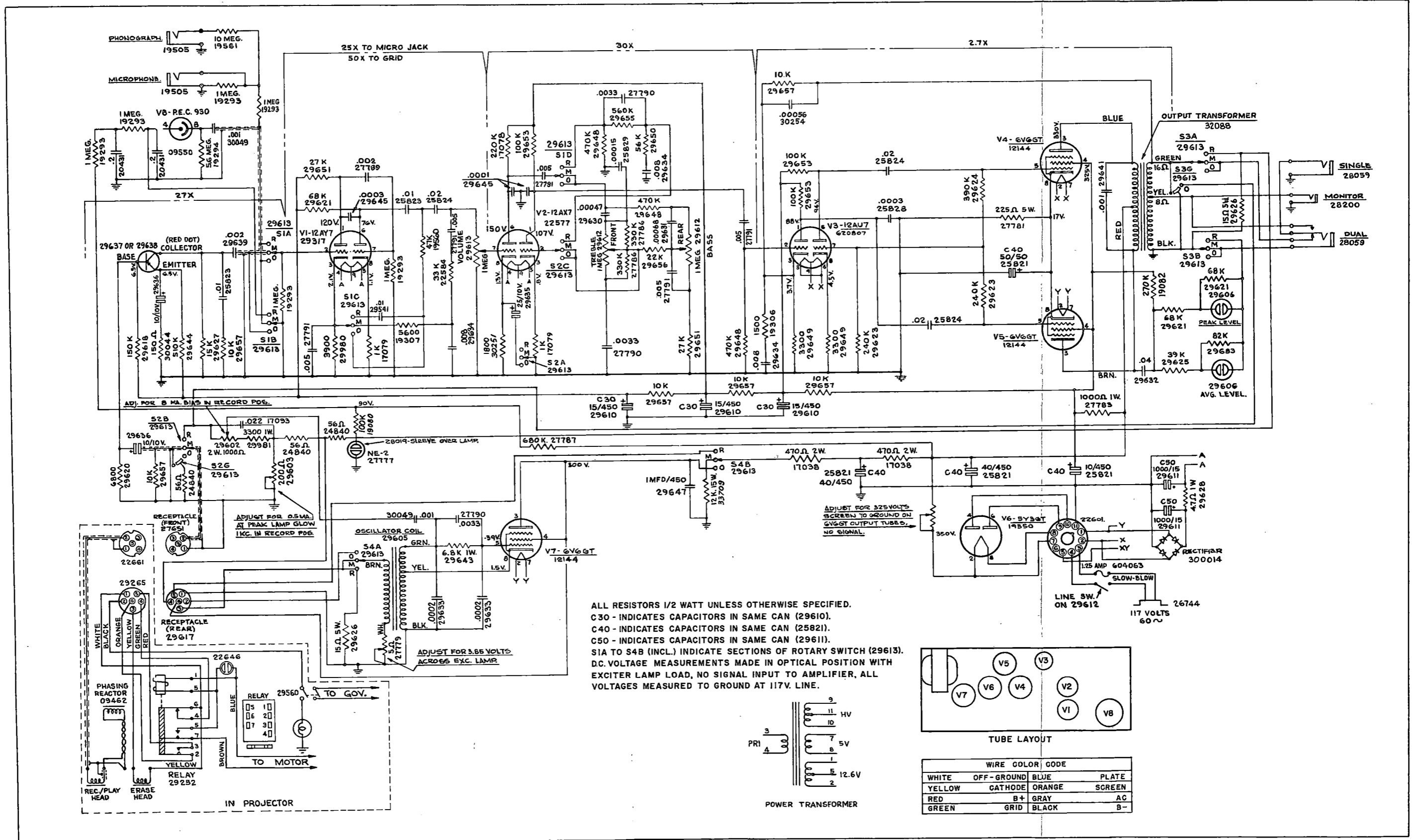
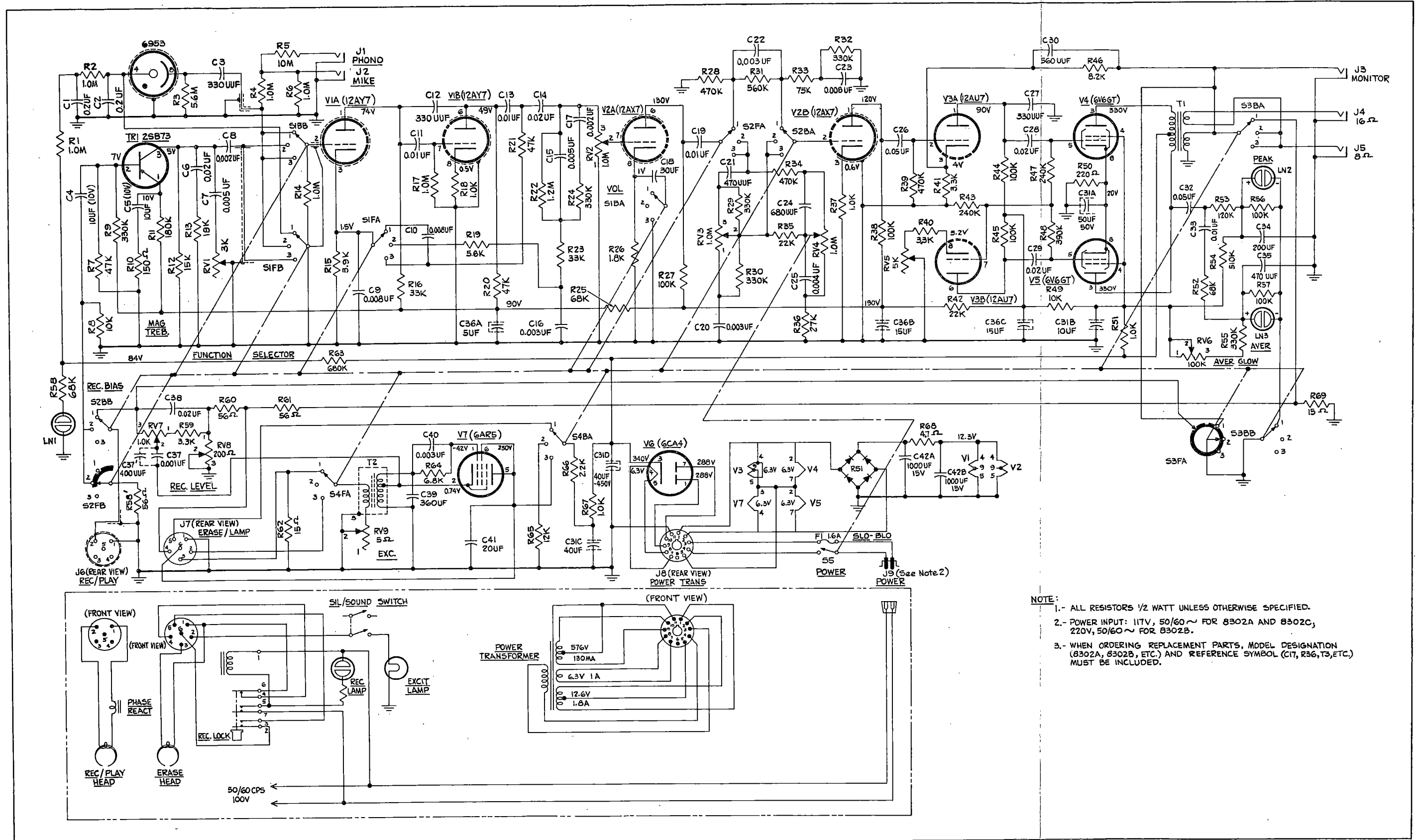


Figure 17. Amplifier Schematic Wiring Diagram (302 Projectors Only)



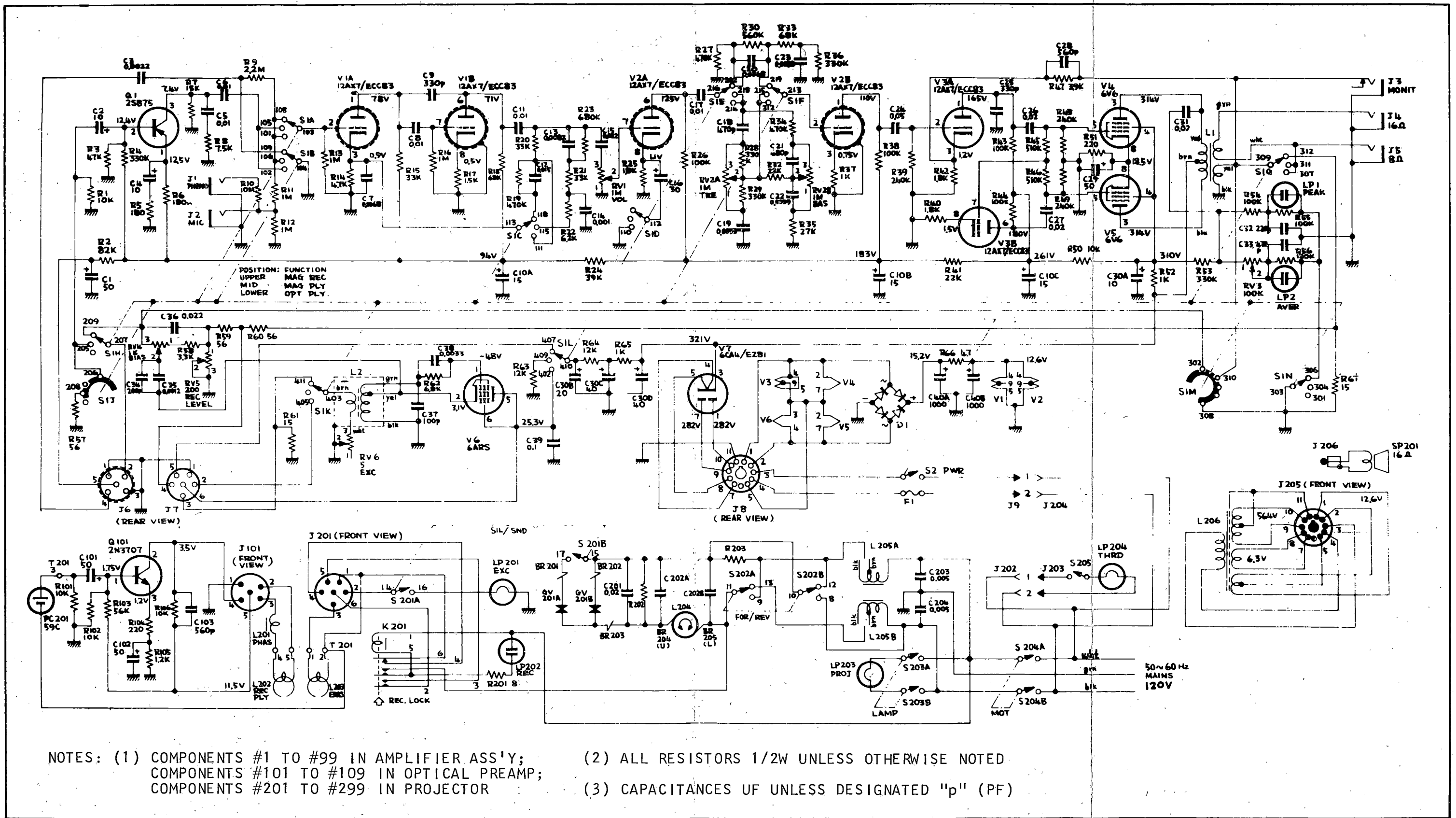
- NOTE:
- 1.- ALL RESISTORS 1/2 WATT UNLESS OTHERWISE SPECIFIED.
 - 2.- POWER INPUT: 117V, 50/60~ FOR 8302A AND 8302C, 220V, 50/60~ FOR 8302B.
 - 3.- WHEN ORDERING REPLACEMENT PARTS, MODEL DESIGNATION (8302A, 8302B, ETC.) AND REFERENCE SYMBOL (C17, R36, T3, ETC.) MUST BE INCLUDED.

Figure 18. Amplifier Schematic Wiring Diagram (8302A/B/C Projectors Only)

AMPLIFIER SCHEMATIC WIRING DIAGRAM
(Design 8302L Only)

REFERENCE DESIGNATION	PART NO.	DESCRIPTION	REFERENCE DESIGNATION	PART NO.	DESCRIPTION
BR201, BR202, BR203	430747	BRUSH, Governor	J203	No Number	CONNECTOR (Included in P/N 27996)
BR204, BR205	430639	BRUSH, Motor	J204	No Number	CONNECTOR (Included in P/N 29291)
C1, C29	431809	CAPACITOR	J205	No Number	CONNECTOR (Included in P/N 435259)
C2, C4	431334	CAPACITOR	J206	430412	PLUG, Speaker
C3, C22	431576	CAPACITOR	K201	29252	RELAY
C5, C6	432098	CAPACITOR	L1	430886	TRANSFORMER, Output
C7, C20	432285	CAPACITOR	L2	431041	TRANSFORMER, Oscillator
C8, C11, C17	431572	CAPACITOR	L201	09463	COIL, Phase
C9, C25	431571	CAPACITOR	L202	040779	HEAD ASSEMBLY, Rec/Play
C10	431584	CAPACITOR	L203	040780	HEAD ASSEMBLY, Erase
C12	433314	CAPACITOR	L204	005006	ARMATURE ASSY
C13, C23	431574	CAPACITOR	L205	005005	STATOR ASSY
C14	432238	CAPACITOR	L206	435259	TRANSFORMER, Power
C15, C36	431573	CAPACITOR	LP1, LP2	431479	NEON TUBE AND BRACKET
C16	431043	CAPACITOR	LP201	17327	LAMP, Exciter
C18, C33	431569	CAPACITOR	LP202	22646	LAMP, Pilot
C19	431566	CAPACITOR	LP203	26465	LAMP, Projection
C21	431570	CAPACITOR	LP204	430076	LAMP, Threading
C24	431581	CAPACITOR	PC101	041670	PHOTOCELL
C26, C27, C31	431579	CAPACITOR	Q1	431014	TRANSISTOR, 2SB75
C28	431568	CAPACITOR	Q101	432327	TRANSISTOR, 2N3707
C30	431583	CAPACITOR	R1	432073	RESISTOR
C32	431678	CAPACITOR	R2	433321	RESISTOR
C34	431589	CAPACITOR	R3	432074	RESISTOR
C35	431587	CAPACITOR	R4, R53	432061	RESISTOR
C37	431588	CAPACITOR	R5	432026	RESISTOR
C38	431586	CAPACITOR	R6	431537	RESISTOR
C39	431727	CAPACITOR	R7	431536	RESISTOR
C40	431585	CAPACITOR	R8	433262	RESISTOR
C101, C102	432020	CAPACITOR	R9	431802	RESISTOR
C103	431568	CAPACITOR	R10	431531	RESISTOR
C201	25824	CAPACITOR	R11	431530	RESISTOR
C202	29282	CAPACITOR	R12	431551	RESISTOR
C203, C204	29302	CAPACITOR	R13	431187	RESISTOR
D1	431045	DIODE	R14	431288	RESISTOR
F1	604063	FUSE (1.25AT)	R15	431292	RESISTOR
GV201	9428	GOVERNOR	R16	431187	RESISTOR
J1, J2	431491	JACK, Phonograph and Microphone			
J3	430891	JACK, Monitor			
J4, J5	430413	JACK, Speaker			
J6	430895	SOCKET, Rec/Play Head			
J7	431490	SOCKET, Erase Head, exciter			
J8	22601	SOCKET, Power			
J9	26744	RECEPTACLE, AC			
J101	22661	PLUG			
J201	29265	PLUG			
J202	No Number	CONNECTOR (Included in P/N 29291)			

REFERENCE DESIGNATION	PART NO.	DESCRIPTION	REFERENCE DESIGNATION	PART NO.	DESCRIPTION
R17	432213	RESISTOR	RV5	431563	RESISTOR, Variable
R18	431188	RESISTOR	RV6	431311	RESISTOR, Variable
R19	431527	RESISTOR	S1	431042	SWITCH, Function
R20	431522	RESISTOR	S2	No Number	SWITCH, Power (included in RV2)
R21	431292	RESISTOR	S201	29580	SWITCH, Silent-Sound
R22	433319	RESISTOR	S202	29296	SWITCH, Forward-Reverse
R23	432218	RESISTOR	S203, S204	17373	SWITCH, Lamp and Motor
R24	433322	RESISTOR	S205	No Number	SWITCH, (included in P/N 27996)
R25	431534	RESISTOR	SP201	041516	SPEAKER, Integrated
R26	431547	RESISTOR	T201	22623	TERMINAL, Ring
R27	431527	RESISTOR	V1	430777	ELECTRON TUBE, 12AX7/ECC83
R28, R29	431526	RESISTOR	V2	430557	ELECTRON TUBE, 12AX7/ECC83
R30	432481	RESISTOR	V3	430776	ELECTRON TUBE, 12AX7/ECC83
R31, R45, R46	431528	RESISTOR	V4, V5	430775	ELECTRON TUBE, 6V6-GT
R32	431193	RESISTOR	V6	430556	ELECTRON TUBE, 6AR5
R33	431188	RESISTOR	V7	430559	ELECTRON TUBE, 6CA4/EZ81
R34	431527	RESISTOR			
R35	431190	RESISTOR			
R36	431526	RESISTOR			
R37	431533	RESISTOR			
R38	431547	RESISTOR			
R39	433318	RESISTOR			
R40	431534	RESISTOR			
R41	433328	RESISTOR			
R42	431534	RESISTOR			
R43, R44	431547	RESISTOR			
R47	433316	RESISTOR			
R48, R49	431538	RESISTOR			
R50	431543	RESISTOR			
R51	431361	RESISTOR			
R52	431533	RESISTOR			
R54, R55	431295	RESISTOR			
R56	431673	RESISTOR			
R57	431532	RESISTOR			
R58	431541	RESISTOR			
R59, R60	431532	RESISTOR			
R61	431558	RESISTOR			
R62	431554	RESISTOR			
R63	431559	RESISTOR			
R64	431557	RESISTOR			
R65	431556	RESISTOR			
R66	431555	RESISTOR			
R67	431558	RESISTOR			
R101	432623	RESISTOR			
R102, R106	432023	RESISTOR			
R103	431494	RESISTOR			
R104	433590	RESISTOR			
R105	432027	RESISTOR			
R201	430354	RESISTOR			
R202	28587	RESISTOR (100 ohms)			
R203	11056	RESISTOR (10k ohms)			
RV1	No Number	RESISTOR, Variable (included in S1)			
RV2	435256	RESISTOR, Variable			
RV3	431561	RESISTOR, Variable			
RV4	431562	RESISTOR, Variable			



NOTES: (1) COMPONENTS #1 TO #99 IN AMPLIFIER ASS'Y;
COMPONENTS #101 TO #109 IN OPTICAL PREAMP;
COMPONENTS #201 TO #299 IN PROJECTOR

(2) ALL RESISTORS 1/2W UNLESS OTHERWISE NOTED
(3) CAPACITANCES UF UNLESS DESIGNATED "p" (PF)

Figure 19. Amplifier Schematic Wiring Diagram
(8302L Projector Only)

NUMERICAL INDEX OF PARTS

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
0772	3-13	09262	12-30	040261	1-3
01078	5-5	09282	10-37	040643	12-62
01477	5-31	09283	3-1	040644	12-49
02040	1-1	09425	12-33	040668	1-15
02678	10-45	09431	1-5	040669	14-13
02794	7-4	09445	5-8		
03446	13-21	09447	11-	040674	3-4
03460	4-29	09454	11-65	040678	1-5
03461	4-8, 10-21	09455	8-21	040679	12-15
03464	4-25	09462	17-		
03788	3-1	09463	11-52, 18A-L201		
03927	6-1	09469	11-19	040696	4-31
04523	13-16	09470	11-40	040704	6-8
04720	3-8	09550	15-14, 17-	040752	8-30
04946	4-4	09551	11-68	040753	8-27
05382SP	9-5	09577	4-19	040763	11-
05647	2-3	09651	13-14	040765	12-62
05707	3-22	09653	13-12	040766	1-11
05708SP	9-7	09654	13-	040771	1-5
05746	3-24	09655	1-14	040773	11-
05774	10-12	005000	8-24	040778	11A-12, 11A-14
05775	10-13	005005	8-30, 18A-L205	040779	11A-11, 18A-L202
05799	5-22	005006	8-27, 18A-L206	040780	11A-13, 18A-L203
07022	9-5	005014	1-11	040794	11-41
07023	2-1, 6-9	005016	12-25	040804	11-61
07053	10-40	005017	12-24	041177	15B-5
07204	2-2, 9-12	005019	11-61	041270	3-24
07205	3-8	005048	11-53	041271	5-5
07213	10-	005054	12-22	041272	5-31
07544	9-1	010097	4-25	041273	7-4
07786	9-7	010324	11-61	041274	10-3
08076	8-24	010522	6-8	041275	10-37
08252	11A-14	010524	3-22	041516	12-58C, 18A-SP201
08258	10-8	010602	6-18	041668	11-40
08338	2-12	011418	6-8	041669	11-31
08388	9-4	011419	8-21	041670	18A-PC101
08455	4-22	011421	1-14	041877	3-4
08456	4-22	011422	1-15	042801	1-11
08850	9-1	011423	13-	042802	1-5, 15A-
08858	15-25	011424	13-25	042807	12-58
08867	10-3	011425	13-	042808	12-58D
08881	12-8	011426	13-14	042809	12-62
08883	12-2	011908	1-11	042903	11A-1A
08887	12-	M025161	3-4	112	3-19
08909	13-	M025986	4-24	145	4-15
08910	13-25			570	2-10
08917	12-20			866	5-34
08964	12-	M026181	8-27	873	2-9
08990	4-4, 10-17	M026184	8-24	890	3-16
09201	11A-13	M026312	5-5	891	3-15
09202	11A-11	M026319	8-18	965	3-11
09203	11A-12	040162	12-15	966	3-14
09248	11A-9	040165	12-52	1367	14-9
09250	11A-8	040175	12-24	1375	14-11
09251	11A-1, 11-31	040176	12-25	1587	3-7
09252	12-62	040194	1-11	3954	10-30, 11-59

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
4255	4-23	9567	11-44	12762	8-25B
4258	2-13, 11-28	9718	8-20	12776	3-1A
4460	5-30	10350	8-22	12778	3-1C
4664	8-11	10388	8-13	12864	7-7, 14-2
5014	6-10	10390	8-15	13366	9-8
5110	5-3	10529	5-29	13387	9-3
5111	5-2	10540	7-13	13525	12-27
5112	5-1	10547	7-5	13581	8-7
5113	5-9	10554	7-1	13586	8-1
5123	5-7	10565	3-2	13587	8-2
5148	4-13	10747	14-6	13589	8-8
5160	3-9	10749	7-12	13691	1-7
5162	8-25A	10750	7-9	13982	8-31D
5193	8-5	11036	14-7	14175	11-60
5200	8-29	11054	5-26	15203	4-11
5201	8-28	11055	5-25	15582	7-8, 14-3
5206	9-10	11056	18A-R203	15617	11A-10
5238	7-11, 13-13,	11110	5-10B	15634	3-6
	14-4	11147	4-30, 10-24	15690	9-18
5247	6-3	11268	4-26, 10-22,	16184	3-5
5266	11-27		10-43	16191	3-21
5296	5-28	11269	4-26	16194	4-27, 10-23
5306	9-14	11276	5-20	16198	3-1D
5343	8-6	11279	5-17	16207	3-1F
5469	5-6	11280	5-11	16217	6-12
5495	7-14, 14-8	11281	5-19	16243	4-5, 10-18
5514	7-10, 14-5	11282	5-16, 5-18	16244	4-6, 10-19
5557	5-33	11462	13-15	16698	7-6
5618	4-14	11463	13-9	17038	17-
5626	6-7	11466	13-22	17078	17-
5629	14-10	11470	13-20	17079	17-
5636	3-21	11471	13-24	17093	17-
5639	3-20	11472	13-23	17182	14-15
5692	8-25C	11474	13-11	17183	14-16
5893	6-4, 13-19	11475	13-10	17312	10-39
6093	5-32	11478	13-1	17313	2-4
6129	7-2	11569	6-5	17315	11-51
6715	3-17	11709	2-19A	17317	10-42
6716	6-6, 9-9	11713	3-18	17320	1-9
6926	9-16	11757	4-3, 10-16	17321	1-6
6953	15-14	11761	4-10, 10-27	17327	2-6, 18A-LP201
7495	8-12	11762	4-2	17345	1-8
7591	8-31A	11795	4-17	17351	11-64
7856	11-43	11796	3-1H	17362	10-44
8066	6-11	11799	4-12	17373	11-66, 18A-S203,
8179	1-2, 12-7	11852	4-24		18A-S204
8918	5-10A	11859	4-7, 10-20	17388	2-7
9117	8-14	11868	4-28, 10-25	17620	11-22
9121	11-55	12071	3-1B	17896	14-12, 14-14
9207	8-3	12087	3-3	19031	8-33
9208	8-4	12128	13-18	19080	17-
9260	5-12, 5-14	12129	13-17	19082	17-
	5-21, 5-23	12144	17-	19293	17-
9426	5-15, 5-24	12641	10-43	19294	17-
9428	8-10, 18A-GV201	12719	4-18	19306	17-
9558	5-4	12720	3-1G	19307	17-

PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER	PART NUMBER	FIGURE AND INDEX NUMBER
19327	12-58E	23111	6-14	27779	17-
19350	17-	23112	3-2	27781	17-
19505	17-	23116	6-13, 9-19	27783	17-
19560	17-	23255	10-33	27786	17-
19561	17-	23256	10-35	27787	17-
20431	17-	23257	10-36	27790	17-
20623	11-21	23258	10-34	27791	17-
20717	3-23	23261	11-33	27901	12-9
20726	7-16	23288	12-18	27902	12-10
20727	7-21	23414	12-17, 12-19,	27907	12-5
20728	7-25		12-60	27908	12-3
20731	7-20	23565	9-1A	27914	11-57
20808	11-15	24147	8-22	27915	11-56
21238	12-57	24599	8-38	27916	12-
21280	12-52B	24840	17-	27925	12-29
21490	9-15	24947	13-2	27938	14-17
21491	9-13	24954	11-26	27947	1-13
21736	12-38	25108	10-28	27948	12-22
21765	10-32	25190	6-6	27950	12-21
21779	10-9	25243	9-10	28021	11-67
21780	10-7, 10-11	25356	13-5	28048	12-12
21781	10-14	25580	15-8	28059	15-7, 17-
21782	10-2	25606	11-47	28088	12-52A
21793	10-1	25713	11-24	28200	15-5, 17-
21821	10-15	25716	11-17	28587	8-32B, 18A-R202
21898	1-12	25717	11-35	28600	8-32B
21982	2-8	25718	11-12	29002	9-9
22031	11-58	25742	11-21	29194	11-45, 11-63
22457	3-12	25821	17-	29248	11-38
22464	8-37, 11-69	25823	17-	29250	12-63
22577	17-	25824	17-, 18A-C201	29251	12-64
22584	17-	25828	17-	29252	11-47, 17-, 18A-K201
22601	15-2, 15B-22,	25829	17-	29253	11-46
	18A-J8	25966	8-25	29265	17-, 18A-J201
22603	11A-4	25984	7-15	29282	8-34, 18A-C202
22609	11A-15	25985	11A-16	29285	11-39
22610	11A-	26085	8-15A	29287	11-48
22615	11A-7	26238	7-18	29290	8-18
22621	11A-5	26245	8-23	29296	11-54, 18A-S202
22623	11A-3, 18A-T201	26379	11-62	29302	18A-C203, 18A-C204
22631	12-1	26465	1-, 18A-LP203	29309	11-37
22637	11-9	26503	12-28	29312	8-17
22638	11-8	26631	3-1H	29313	8-19
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