

(Given below are selected questions from the numerous inquiries received by this department, with the answers supplied by post to the members. All queries submitted must be accompanied by a stamped self-addressed envelope).

Q. 5. "I have heard of a so-called film recorder, known as The Recordgraph, but can trace no detailed information about it. Can you supply particulars?" D.R.

A. This strip recorder, developed by the Recordgraph Corporation, of America, embosses tracks on 35mm. unemulsified cellulose-acetate film. Its technical features include (a) commencement of recording automatically with the incoming of an audio-frequency signal, and stopping when the signal ceases; (b) the recorded material may be reproduced, without processing, immediately after the completion of the recording, or, if desired, it may be reproduced while the recording is being made; (c) a film roll of sufficient length to last for 8 to 12 hours of actual recording can be inserted in the magazine at a single loading; (d) a permanent sapphire stylus is used for recording and a similar one for playback; (e) the recorded material may be amplified for loudspeaker listening or it can be heard on headphones without amplification; (f) a compressor circuit in the amplifier ensures that weak signals are recorded with adequate volume without over-recording strong signals; (g) recordings may be made on both sides of the film without removing it from the machine, or without any interruption to change the recording from one side to the other. At a film speed of 20 ft. per min., and recording on both sides, only 6.25 ft. of film are consumed per hour of continuous recording, as the space between opposite perforations on the film supports 50 tracks per side. Background noise is claimed to be low, and, although exact information is not available the recorded frequency range is probably about 250 c/s. to 3,000 c/s., and a wider response with a faster linear speed. An ingenious method for moving the recording-head and playback pick-up laterally across the film so as to advance from track to track is incorporated. The film loop is wound into a roll of many turns that fit over a magazine, leaving a portion of the loop to be threaded over the recording drum and sprocket, and back to the roll. A neat splice, which has the same thickness and characteristics as the parent film, to obviate noise as the stylus passes over it, connects the two ends of the film to make a continuous loop. The film is also provided with a number of small metal contacts, and each time the film makes a complete rotation these metal contacts pass between rollers, thus closing a contact that energises a relay, which in turn closes a contact and operates the carriage motor. The track number in use is indicated by a counter, and thus, by noting the tracks as the recording is made, for playback it is only necessary to turn a knob to the counter number required, and then lower the pick-up into the particular track.

much useful advice on numerous problems of organisation, etc.....One of our enthusiastic cinema projectionist members, A. BROWN, has kindly forwarded for test samples of several American blanks that he has acquired, e.g., Duo-disc and Speak-o-Phone. These metal-based cellulose blanks are, of course, not available in this country, at present. They cut satisfactorily but are not superior to the Piodisc or M.S.S. first-grade blanks.....We are also indebted to that indefatigable technical director of A.F. Bulgin & Co. Ltd., member H.T. STOTT for various article references and photo-copied material for our library.....The Gen. Secretary was happy to receive recently a visit from member Wing-Commander B. WALLICH, during one of his lecture tours in the "S.W. area. The value and multiple applications today of a good portable magnetic recorder were discussed, and whilst recognising the excellent work of the Americans, particularly Marvin Camras, and the Germans, in this field, our Gen. Secretary expressed the opinion that developments in this subject due to our British technicians, e.g., D.R. DRYDEN, R.P. CHATEL/NAT, and others, are worthy of greater publicity than they have so far received.....D.W. ALDOUS, B.S.R.A. Gen. Secretary, too, is himself actively concerned with the development of wire recorders in this country.....From correspondence it would seem that not all members concerned with sub-standard sound-film technique are familiar with AMATEUR CINE WORLD, and its extremely helpful feature called "Tracking it Down," which is directed by B.S.R.A. member C.L. THOMSON. All cine sound enthusiasts should certainly try to obtain this 7d. quarterly publication regularly.....A fine series of articles on direct disc recording by member R.W. LOWDEN has been running in PRACTICAL WIRELESS since October 1944..... Member C.A. BANNISTER, until he joined the Navy, was an assistant recordist at the Broadhurst Gardens, London studios of the Decca Record Company, but he has sustained his interest, under difficult conditions in a submarine, in his pet topics of magnetic recording and stereophony. Both he and another young member P.L.C. RILEY have submitted technical contributions for the BULLETIN, and it is to be hoped that other members will offer their experiences, etc. in written form.....Sgt. L.J. HEBURN, a sound technician with the Army Film Section, recently sent in an interesting letter describing his experiences with R.C.A. and W.E. recording units, explaining some of the problems encountered with "location" work.....That famous personality of the electro-acoustic world P.G.A.H. VOIGT, of Voigt Patents Ltd., is still busy improving his moving-coil pick-up and loudspeaker designs, but chafing (and, in our opinion, rightly so) at the difficulties in the way of producing the highest-quality sound reproduction apparatus that he would like to.....A fellow-sufferer from the effects of the Purchase Tax on high-grade sound reproduction equipment, which is, of necessity, not cheap to market and so at a disadvantage competitively, is J.H. BRIERLEY, (Gramophone Recordings) Ltd., of Mill St. Liverpool, manufacturer of quality pick-ups and amplifiers.....Member I.P. GLOVER has recently completed an outstandingly neat and efficient conversion to sound of a Bolex G.3 projector, of which details will be published later; previously, this enthusiastic cine worker had made a most successful conversion of a Siemens H.8 projector to handle 9.5 and 16mm. sound-films, as well as 8, 9.5 and 16mm. silent films.

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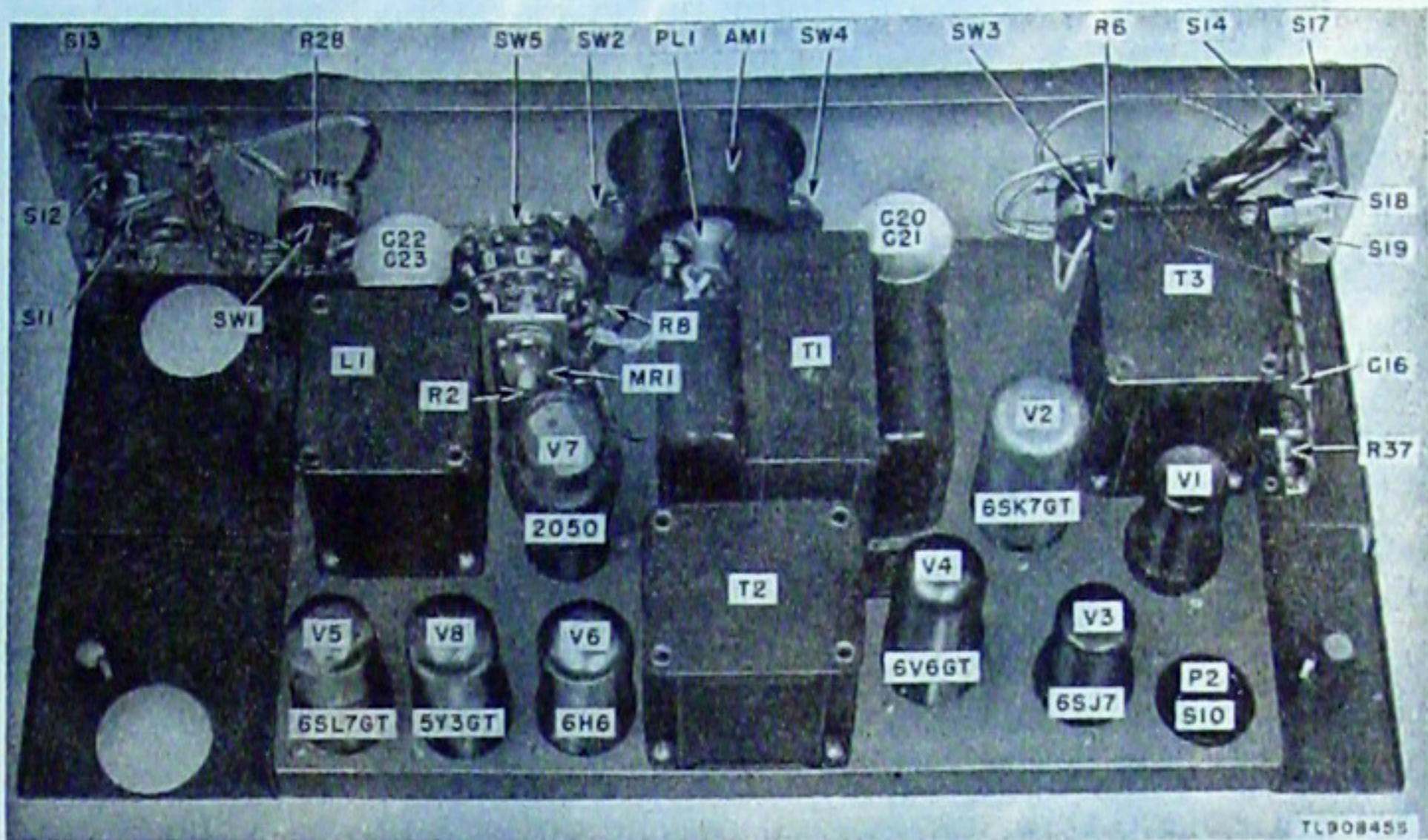


Figure 54. Location of parts on amplifier, Sound Recording Set AN/UNQ-1A.

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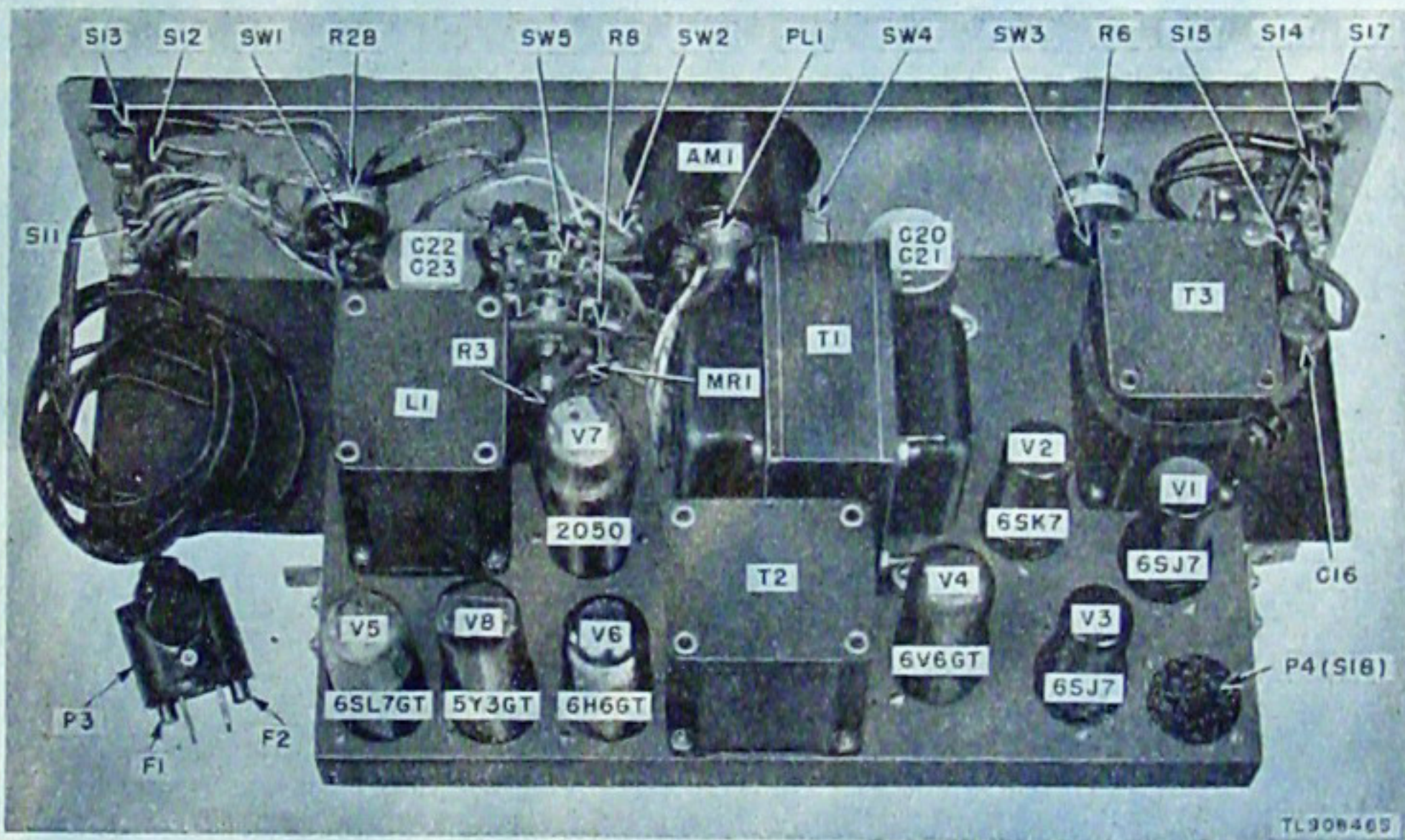


Figure 55. Location of parts on amplifier, Sound Recording Set AN/UNQ-1.

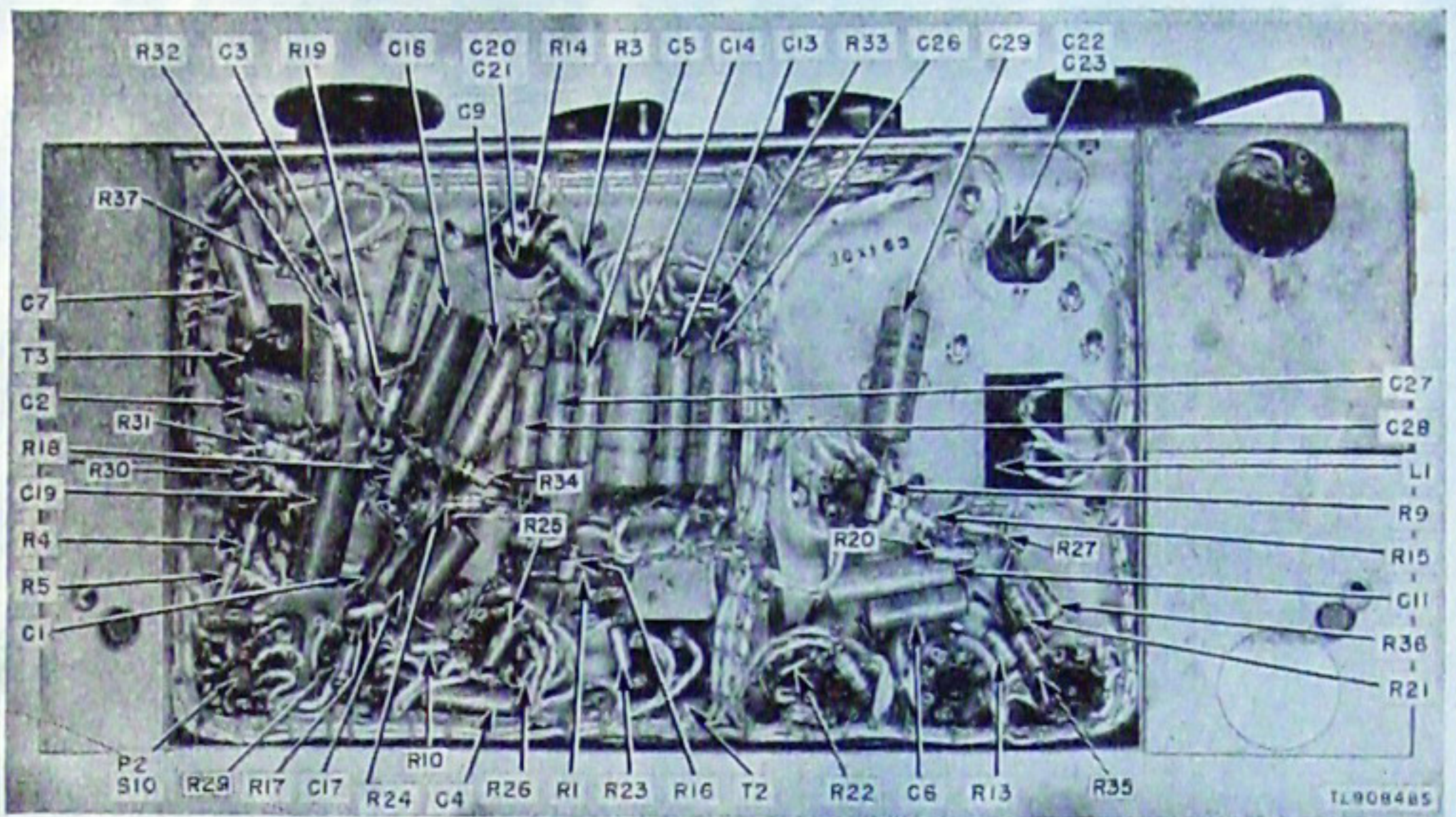


Figure 56. Location of parts underneath amplifier, Sound Recording Set AN/UNQ-1A.

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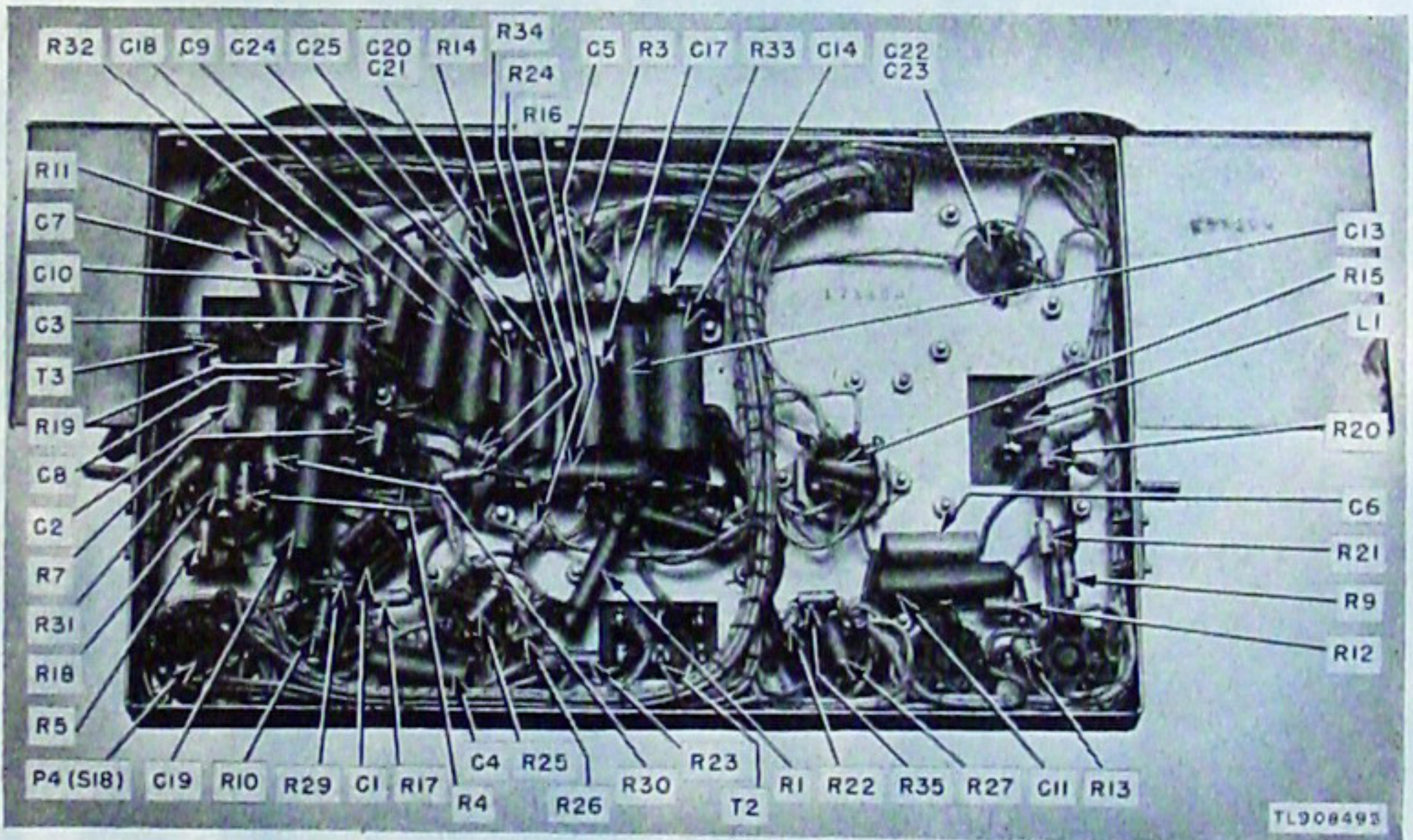
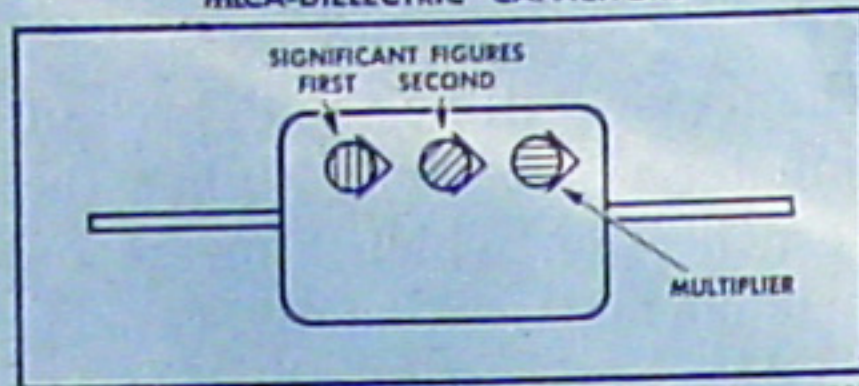


Figure 57. Location of parts underneath amplifier, Sound Recording Set AN/UNQ-1.

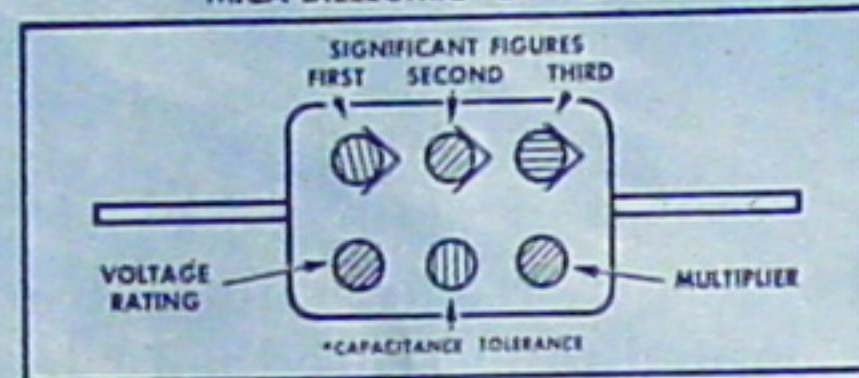
CAPACITOR COLOR CODES

RMA 3-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS

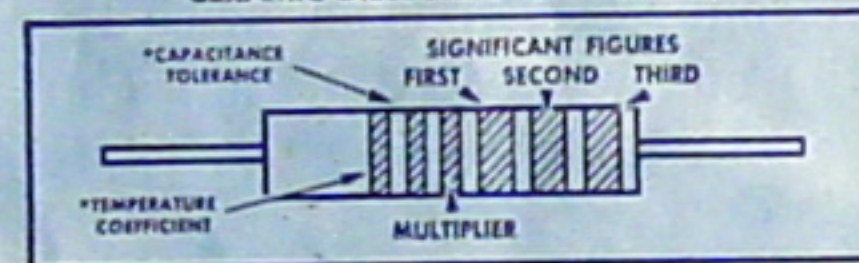


Capacitors marked with this code have a voltage rating of 500 volts.

RMA 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



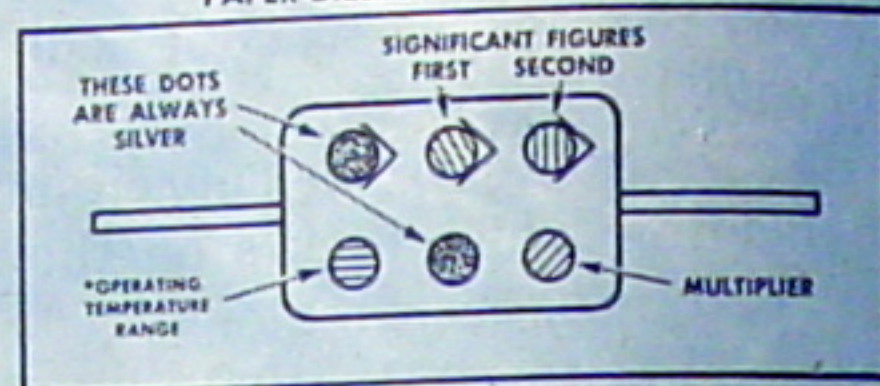
RMA COLOR CODE FOR TUBULAR CERAMIC-DIELECTRIC CAPACITORS



Capacitors marked with this code have a voltage rating of 500 volts.

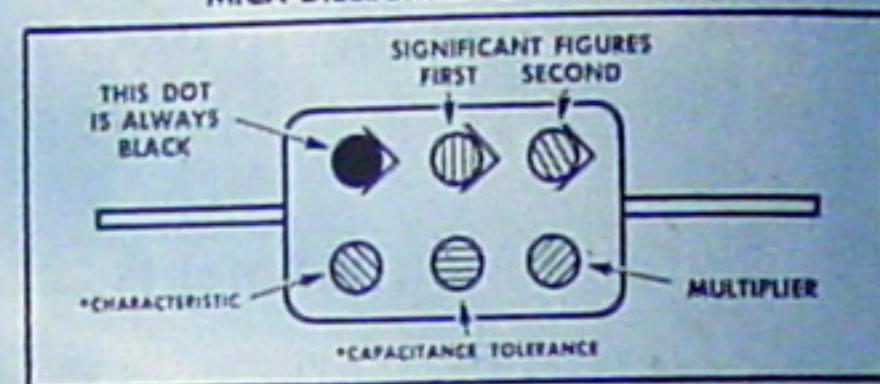
RMA Radio Manufacturers Association JAN Joint Army-Navy
Note These color codes give all capacitances in micromicrofarads.
*Items marked with an asterisk are of interest primarily to depot and higher echelon repair personnel

JAN 6-DOT COLOR CODE FOR PAPER-DIELECTRIC CAPACITORS



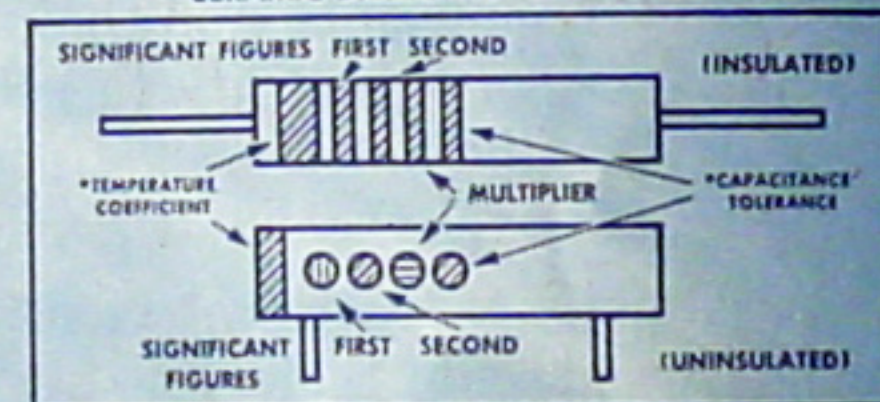
The silver dots serve to identify this marking. For working voltages see JAN type designation code.

JAN 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



The black dot serves to identify this code. For working voltages see JAN type designation code.

JAN COLOR CODE FOR FIXED CERAMIC-DIELECTRIC CAPACITORS



Capacitors marked with this code have a voltage rating of 500 volts. Either the band or dot code may be used.

COLOR	SIGNIFICANT FIGURE	MULTIPLIER			RMA VOLTAGE RATING
		RMA MICA-AND CERAMIC-DIELECTRIC	JAN MICA-AND PAPER-DIELECTRIC	JAN CERAMIC-DIELECTRIC	
BLACK	0	1	1	1	
BROWN	1	10	10	10	
RED	2	100	100	100	
ORANGE	3	1,000	1,000	1,000	
YELLOW	4	10,000			
GREEN	5	100,000			
BLUE	6	1,000,000			
VIOLET	7	10,000,000			
GRAY	8	100,000,000		0.01	
WHITE	9	1,000,000,000		0.1	
GOLD		0.1	0.1	1,000	
SILVER		0.01	0.01	2,000	
NO COLOR				500	

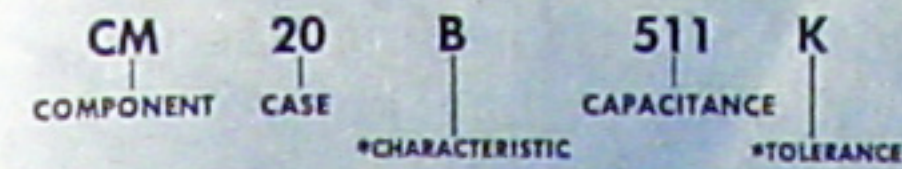
TL 13417 A

① Capacitor color-code chart.

Figure 35.

CAPACITORS

FIXED, MICA-DIELECTRIC



COMPONENT: CM signifies *fixed, mica-dielectric capacitor*.

CASE: A two-digit symbol identifies a physical case size and shape.

CAPACITANCE: A three-digit symbol indicates the capacitance value in micromicrofarads. The first two digits give the first two figures of the capacitance value; the final digit gives the number of zeros which follow the first two figures. When more than two significant figures are required, additional digits may be used, the last digit always indicating the number of zeros.

D-C WORKING VOLTAGE FOR CAPACITANCE RANGE

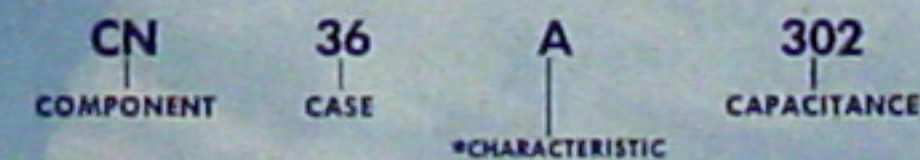
Case	Capacitance range	V _{dCW}
CM20	5-510 mmf	500
CM25	5-1,000 mmf	500
CM30	470-3,300 mmf	500
CM35	470-6,200 mmf	500
	6,800-10,000 mmf	500
CM40	3,300-8,200 mmf	500
	9,100-10,000 mmf	300

NOTE: Working voltages for capacitors above CM40 are stamped on the case.

The d-c working voltage of a capacitor can be determined from the above table when the case size and value of capacitance are known.

CAPACITORS

FIXED, MOLDED, PAPER-DIELECTRIC†



COMPONENT: CN signifies *fixed, molded, paper-dielectric capacitor*.

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② Capacitor type designations.

Figure 35—Continued.

CASE: Same as for fixed, mica-dielectric capacitors.

CAPACITANCE: A three-digit symbol indicates the capacitance value in micromicrofarads. The first two digits give the first two figures of the capacitance value; the third digit gives the number of zeros which follow the first two figures.

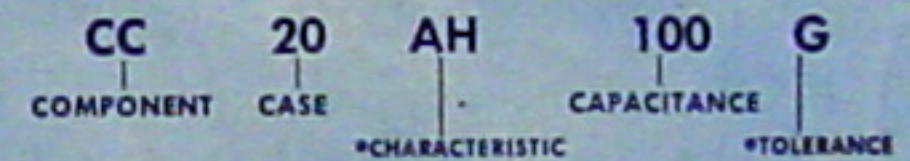
D-C WORKING VOLTAGE FOR CAPACITANCE RANGE

Case	Capacitance	V _{dCW}
CN35	3,000 mmf	800
	6,000 mmf	600
	10,000 mmf	400
CN36	3,000 mmf	400
	6,000 mmf	400
	10,000 mmf	300
CN40	3,000 mmf	400
	6,000 mmf	300
	10,000 mmf	300
CN41	3,000 mmf	600
	6,000 mmf	600
	10,000 mmf	400

The d-c working voltage of a capacitor can be determined from the above table when the case size and value of capacitance are known.

CAPACITORS

FIXED, CERAMIC-DIELECTRIC



COMPONENT: CC signifies *fixed, ceramic-dielectric capacitor*.

CASE: Same as for fixed, mica-dielectric capacitors.

CAPACITANCE: Same as for fixed, molded, paper-dielectric capacitors.

NOTE: All fixed, ceramic-dielectric capacitors have a working voltage of 500 volts, d-c.

*Items starred are of interest primarily to depot and higher echelon repair personnel.

†This is not a JAN specification. These capacitors are covered by AWS C75/221.

TL 18142

(fig. 18). (1) Place the carriage bracket assembly on the main frame. Replace the three screws into the holes on the rear of the main frame. Proceed to assemble in reverse manner to that used for the disassembly (a above).

(2) While placing the carriage bracket on the main frame, do not allow the recording needle to touch any part of the set. It will also be necessary to hold the playback-lift rod (123) in place until the assembly is back on the main frame.

(3) Adjust the recording arm for depth of track (par. 101).

(4) Turn the selector knob to RECORD. Loosen the setscrew (121) and back off the adjusting screw (62) until the surface of the screw clears the recording-arm-lift rod by about 0.010 to 0.015 inch. *This clearance must exist with the recording needle resting on a film.*

(5) After making this adjustment, check whether the recording needle clears the film in all other selector knob positions except RECORD.

94. Disassembly and Assembly of Belts (fig. 43)

a. DISASSEMBLY. (1) *Sound Recording Set AN/UNQ-1A* (fig. 43). (a) Remove power plug from receptacle.

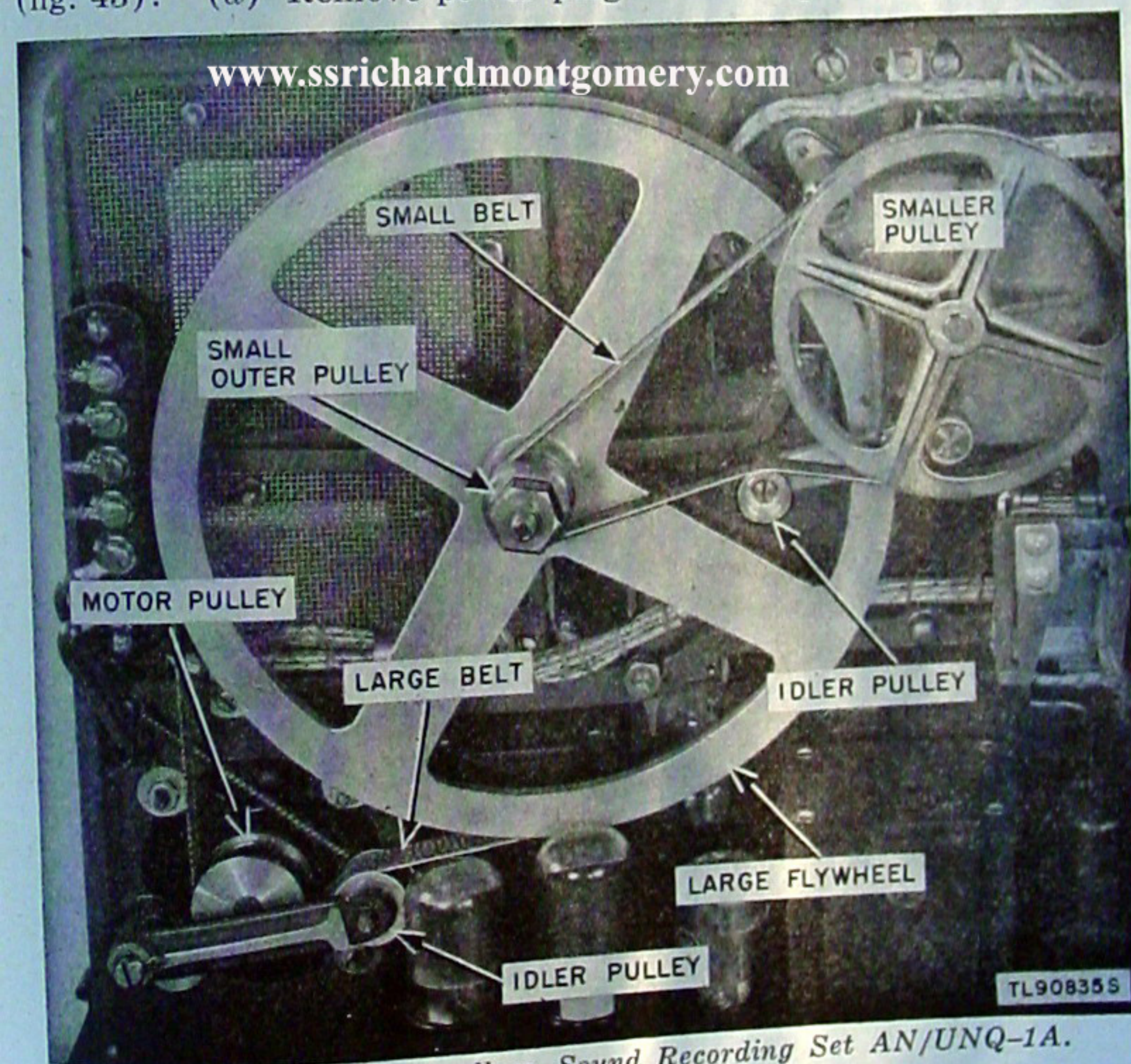


Figure 43. Belts and pulleys, *Sound Recording Set AN/UNQ-1A*.

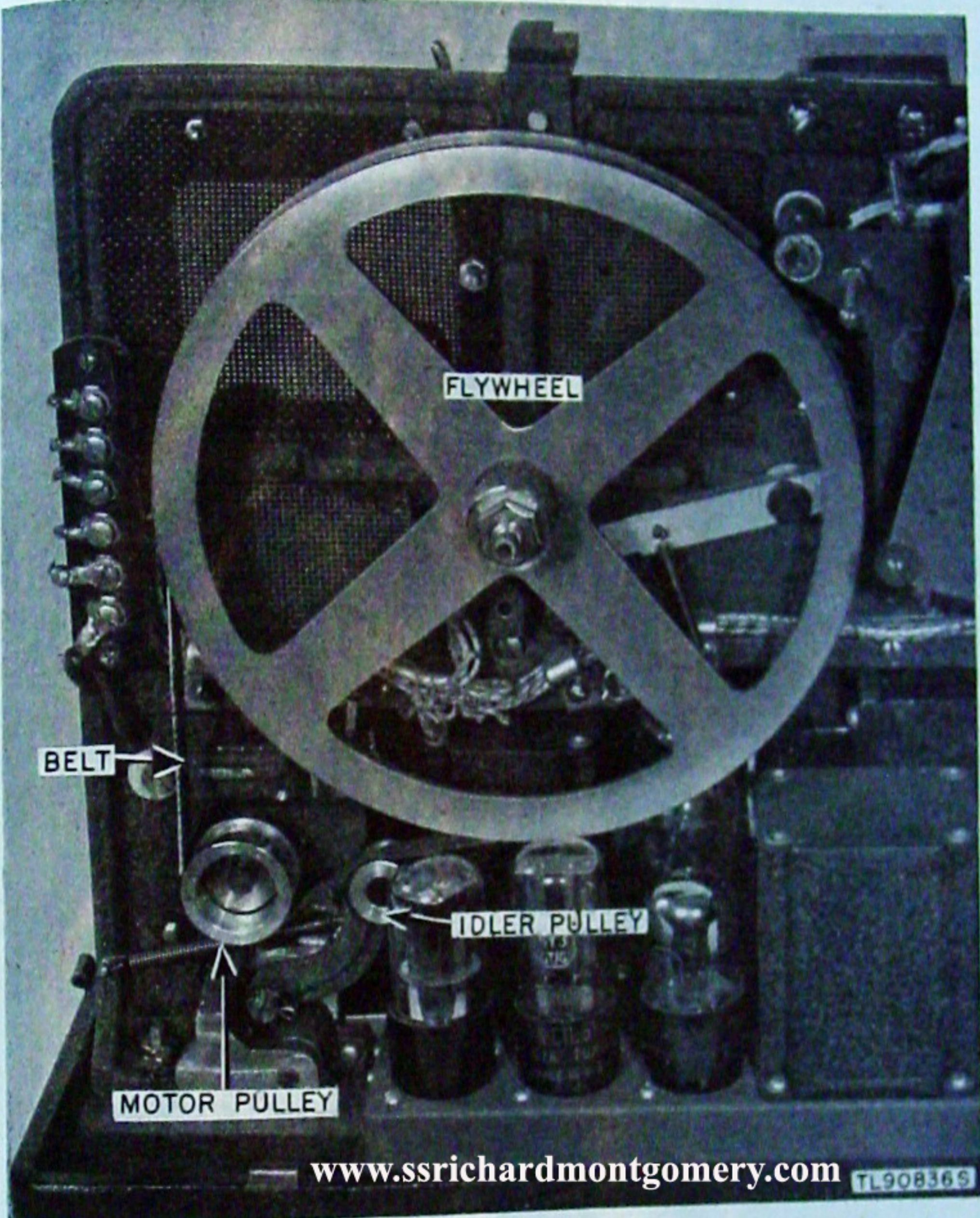


Figure 44. Belt and pulley, Sound Recording Set AN/UNQ-1.

- d. Replace the cover over the relay clutch and tighten securely.

96. Unsatisfactory Equipment Report

a. When trouble in equipment used by Army Ground Forces or Technical Services occurs more often than repair personnel feel is normal, War Department Unsatisfactory Equipment Report, WD AGO Form 468 (fig. 45) should be filled out and forwarded through channels to the Office of the Chief Signal Officer, Washington 25, D. C.

b. When trouble in equipment used by Army Air Forces occurs