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INSTALLATION AND SERVICE DIVISION
RCA MANUFACTURING CO., INC.
CAMDEN, N. J.

MI-1050
MI-1051
MI-1052
MI-1053
SERIES

CLASSIFICATION Technical - Photophone - Soundheads **DATE** April 22, 1938

SUBJECT: MI-1050 SERIES SOUNDHEADS (SIMPLEX) **NUMBER** SL-2C1-2.13

TO: A-5, B-1, B-2, B-4, C-7, D-7, E-7, F-7, G-1, G-2, G-3, G-4, H-7

This Data Sheet revised and rewritten to include later type soundheads. SUPERSEDES SL-2C1-2.5

The MI-1050 series soundheads are de luxe units designed for use with High Fidelity Reproducing Equipments. They are equipped with a flywheel on the motor shaft to give smooth starting and running characteristics.

The following table gives the present MI-1050 series soundhead designations and identifying characteristics.

MI-1050	60 cycles	(Oyster gray interior finish.
MI-1051	50 cycles	(Double pad rollers on take-up sprocket.
MI-1052	D.C.	(1-1/4 mil Ilex optical system.
MI-1053	25 cycles	(Exciter lamp mounting board with strap connections to (mounting studs.
MI-1050-A	60 cycles	(Oyster gray interior finish.
MI-1051-A	50 cycles	(Double pad rollers on take-up sprocket. (1-1/4 mil Ilex optical system. (Exciter lamp mounting board with leads connecting directly (to mounting studs.
MI-1050-B	60 cycles	(Oyster gray interior finish.
MI-1051-B	50 cycles	(Double pad rollers on take-up sprocket. (1-1/4 mil Ilex optical system. (Exciter lamp mounting board with leads connecting directly (to mounting studs. (Sprockets using #12-32 Allen set screws. (Improvement in casting to take excess play out of optical (unit adjusting ring. (New type lateral guide pressure roller and flange. (Improved lateral guide assembly mounting stud. (Simplex drive gear with steel bearing and new shaft. (Improved motor mounting and flexible coupling with greater (oil resisting qualities. (Lateral adjustment on exciter lamp socket.

The new type pressure roller and flange assembly (figure 43) for the lateral guide was designed to minimize film weave and buckling. Replacement of the older type assembly to be made only when necessary.

The external leads for the exciter lamp supply fasten directly to the lamp holder studs.

The #12-32 Allen set screws supplied with the sprockets are similar to the #10-32 Allen set screws used on the MI-1715-A changeover switches. The Stock No. 26581 Allen wrench supplied for the changeover switches can be used for the sprockets. The sprockets retain the same stock numbers.

The Stock No. 23660 exciter lamp holder base now incorporates a horizontal adjustment screw and locking nut. This base is being supplied on all replacement orders for Stock No. 23660, and also with the exciter lamp holder on all new soundheads.

The Stock No. 23948 shielded, grease-packed bearings are being universally used to replace the Stock No. 25514 bearing. The later model soundheads are supplied with the Stock No. 23948 bearing on the drum shaft, and the Stock No. 25514 bearing in the gear box. For field replacement purposes, only the Stock No. 23948 bearing will be supplied. These may be used in the gear box, and while the constant oil bath may wash some of the grease out of the bearing, as long as the oil is kept at proper level, this will not be detrimental to the life of the bearing.

The Stock No. 23983 projector drive gear has a long steel bearing surface instead of the inserted bronze bushing used on the Stock No. 26279 gear. The Stock No. 23985 shaft has an oil groove that was not on the Stock No. 25001 shaft. The Stock No. 23983 gear should not be used with the Stock No. 25001 shaft, and the Stock No. 26279 gear should not be used with the Stock No. 23985 shaft. The Stock No. 23983 gear and Stock No. 23985 shaft assembly replaces previous assembly. The Stock No. 23984 washer is a bronze thrust washer used between the Stock No. 23983 gear hub and outside shoulder of Stock No. 23985 shaft.

JWB

Printed in U.S.A.

The following text gives the installation procedure, care and maintenance and the mechanical and electrical adjustments which may be required for this type of soundhead.

PART I - INSTALLATION (Simplex Projector)

1. **Dismantle Existing Equipment.**
   (a) Remove the lower door from the drive side of the projector head.
   (b) Remove the lamphouse and the lamphouse carriage.
   (c) Remove the main-bearing bracket.

2. **Assembly of Soundhead and Projector.**
   (a) Place the RCA main-bearing bracket in the pedestal head and secure it in position with the main-bearing pivot-pin.
   (b) Attach the lamphouse bracket to the main-bearing bracket and lock the tilting device.
   (c) Start the two upper soundhead mounting screws and lift the soundhead into position so that the two screws will fit into the slotted holes in the face of the main-bearing bracket.
   (d) Install the two lower soundhead mounting screws and tighten all four screws so that the soundhead is securely fastened to the main-bearing bracket.
   (e) Remove the shipping guard from the soundhead and carefully clean all excess grease or oil with clean, lint-free cloths. Do not use any cleaning fluid.
   (f) Install the conduit anchor plate and the exciter-lamp transformer or photocell transformer (whichever is to be used).
   (g) Disconnect the ground lead from the motor. Loosen the two motor clamps and remove the motor from its cradle. Mount the motor bracket loosely with the four 5/16"-18 x 3/4 bolts provided. Place the Stock No. 20424 aligning tool on the motor shaft and set the motor in its cradle. Replace and lock the two motor clamps.
   (h) Slide the motor bracket up or down on the soundhead until the motor armature shaft is aligned vertically with the soundhead drive shaft. Tighten the motor bracket mounting bolts to hold this correct vertical alignment of the shafts.
   (i) Loosen the motor cradle mounting bolts and shift the motor cradle laterally until a position is found where the aligning tool can be freely rotated and moved along the two shafts. The cradle should then be bolted down for final alignment check. Mark the position of the motor cradle on the motor bracket with a scriber so that the same position can again be obtained without the use of the aligning tool.
   (j) Remove the motor-cradle mounting-screws and remove the motor from the soundhead. Remove the aligning tool and install the flywheel on the armature shaft so that it matches the bevel of the shaft. Lock the flywheel with the nut provided.
   (k) Place the spacer (Stock No. 20422) and the flexible coupling (Stock No. 23677) on the soundhead drive-shaft shown in Figure 3. Place the motor and cradle on the motor bracket so that the armature shaft will enter the hole in the flexible coupling, and slide the motor and cradle assembly to the position previously marked with a scriber. Fasten the coupling to the motor and drive shafts. The coupling should be pushed tight against the Stock No. 20422 spacer before fastening. Clamp the motor cradle to the motor bracket to hold the position previously marked.
   (l) Remove the brake from the flywheel guard and bolt the guard to the motor bracket. Re-install the brake and check to be sure that the brake lining clears the flywheel. It may be necessary to dress down a thick brake lining with a file to obtain good clearance when the brake lever is up.
   (m) Place the oil pan in position on the bottom of the Simplex projector head and start the 3/8"-16 1/8" screw in the front mounting hole on the bottom of the projector head. Start the 3/8"-16 1/4" head screw in the rear mounting hole. Use lockwashers provided. Place the projector, with oil pan, on top of the soundhead so that the heads of the two screws pass through the slotted key holes in the top of the soundhead. Shift the projector head slightly forward and turn in the screws so that they are not quite tight. (Use Stock No. 26522 wrench for the front screw.)
   (n) Install the gear and pulley (Stock No. 26244) on the gear shaft, using the washer, spring, and "C" washer to hold the gear in place.
   (o) Install the Stock No. 23983 Simplex Projector drive gear and Stock No. 23985 shaft in the projector head, locking the shaft tightly into the special Stock No. 20042 nut. (This nut is not required in the Super-Simplex.) Lock the Simplex set-screw against the shaft. On the Standard Simplex, the set-screw is on side away from lens, and in the Super-Simplex it is on the lens side.
   (p) Move the projector head toward screen until the projector drive-gear and the gear and pulley are meshing with slight clearance. Move the projector head toward or away from the operating side so that the sides of the two gears are flush. Remove the gear and pulley and tighten the projector mounting screws little by little, replacing the gear and pulley at intervals, noting whether the gear mesh is too tight. If necessary, move the projector head toward the rear of the soundhead to loosen the mesh. When the two projector mounting screws are tight, there should be a very small amount of backlash (about .002" clearance), and the sides of both gears must be flush. Use a straight edge and check very carefully at several points to be certain that the gears are perfectly aligned. If the gear mesh is not correct, uneven wear of the gear teeth will result. If the gears are not aligned, projector drive gear shaft will wear excessively.
   (q) Remove the upper oil plug from the gear case cover, and fill the gear compartment to the level of the hole with Stock No. 25551 oil, using a pressure type oil can. Install the Stock No. 23680 oil cup and fill the cup with Stock No. 25551 oil.
   (r) Mount the lower take-up magazine, the take-up belt and the upper magazine on the projector-soundhead assembly.
   (s) Mount the lamphouse bracket and lamphouse.

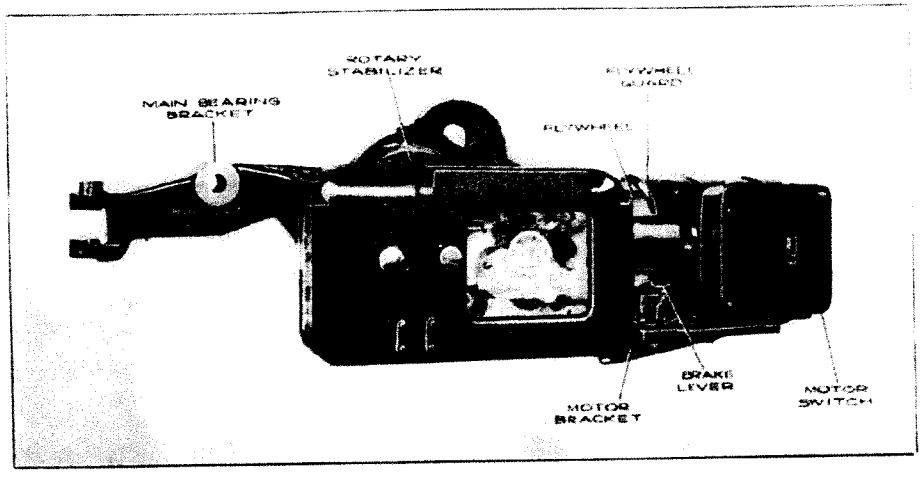


Figure 1 - Operating Side of Soundhead

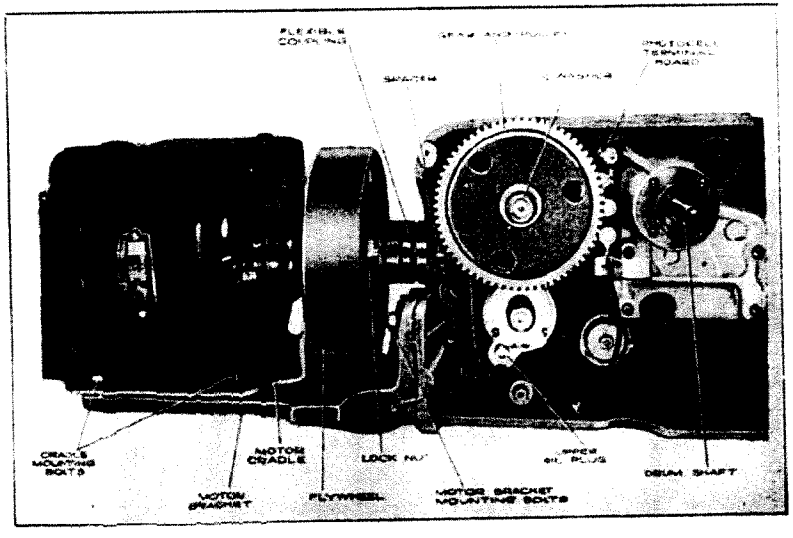


Figure 3 - Motor and Gear Mounting

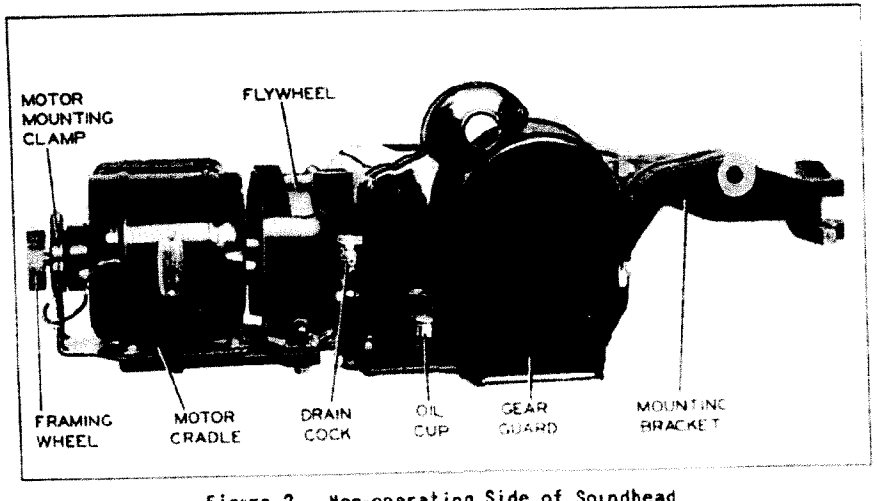


Figure 2 - Non-operating Side of Soundhead

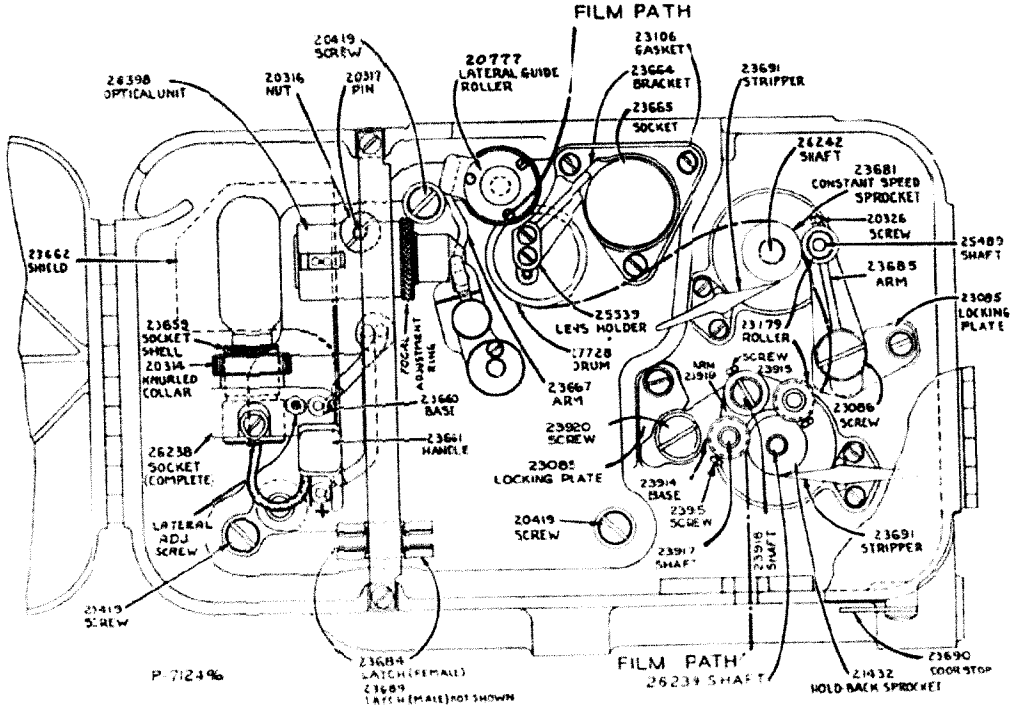


Figure 4 - Operating Side of Soundhead

(t) Make connections to the photocell-transformer or exciter-lamp transformer and install the static shield on the drum-shaft housing. Also make connections to the motor switch.
(u) Install the rotary stabilizer on the drum shaft with the spring, lockwasher, and nut provided for the purpose.
(v) Mount the guard over the rotary stabilizer and gear case.
(w) Install the crank-shaft film-guide at the lower sprocket in the projector head.
(x) Oil the pad rollers with Simplex projector oil.
(y) Fill the oil cup at the *front* bearing on the motor with a good grade SAE #30 oil. The *rear* bearing on the motor is a special grease-packed ball bearing, and does not require oiling or greasing.
(z) When all oiling points on the motor soundhead and projector have been properly oiled, turn on the motor switch and run the machine, feeling all bearings at frequent intervals to be sure that the bearings run cool. It is desirable to run each soundhead and projector for at least two hours before attempting to run a show.

PART 2 - SERVICE DATA (MI-1050 Soundhead)

1. Wiring Diagrams.

Figure 7 shows the photocell transformer wiring for the MI-1050 series soundheads.
Figure 8 shows the exciter transformer wiring in the soundhead.

2. Exciter Lamp Adjustment.

The proper vertical positioning of the exciter lamp should be made as follows:
(a) Insert the exciter lamp in the bayonet socket and press it downward, giving it a slight clockwise twist to lock it into position.
(b) Turn on the exciter lamp.
(c) Place a white card between lens barrel and photocell condenser lens bracket.
(d) Adjust the vertical position of the lamp by turning the knurled collar until the light spot on the card is evenly illuminated, vertically.
(e) Lock the vertical adjustment clamping screw.
(f) Loosen the nut on the slotted screw that appears above and to the left of the handle. Turn the screw counter-clockwise until it sticks out about 1/2". Then push the exciter lamp holder in so that it rests solidly against the holding bracket. Turn the screw clockwise till the image on the white card is the brightest and most uniform. Lock the screw by tightening the nut up to the exciter lamp base.

3. Focusing Light Beam of Sound Optical System.

Two methods can be used to obtain correct focal adjustment of the optical unit. An output meter, such as a thermo-galvanometer, or power-level indicator, connected across the loudspeaker voice-coil circuit, and a 9,000-test recording such as that on the Stock No. 27638 test film running through the projector, will indicate when the correct focal adjustment has been obtained while turning the focal adjustment ring.

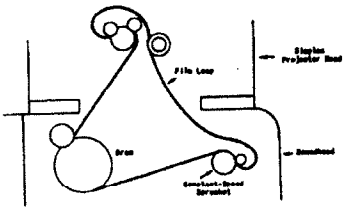


Figure 5 - Test Film Loop

In using the test film, Stock No. 27638, it is suggested that a portion of the film be made into a loop approximately 28 inches in length. The loop can then be easily threaded in the soundhead as shown in Figure 9 to facilitate adjustments.
NOTE: In some systems where a low-pass filter is used, the output method does not give satisfactory results. If the low-pass filter cannot easily be removed from the circuit, the flicker method, while not as accurate as the meter method, may be used with fairly good results.
For the flicker method of obtaining focal adjustment, proceed as follows: Place a white card between the photocell lens and the photocell. Thread the machine with a 9,000 cycle test film (Stock No. 27638). Pull the film very slowly downward by turning the framing handle or flywheel on the motor shaft by hand. Note the direction of movement of the frequency lines as they travel across the light image on the card. If the lines move downward on the card, move the optical unit closer to the film. If the lines move upward, move the optical unit away from the film.
The correct focal adjustment is obtained when the lines move neither upward nor downward, but make a definite flicker of light on the card.

4. Pad Roller Adjustment.

To obtain proper clearance between the pad roller and its associated sprocket, proceed as follows:
Thread two thicknesses of film in the soundhead and adjust each pad roller by means of the locking screws in the pad-roller plates so that, when closed, the pad rollers rest against the film.
NOTE: The double pad-rollers for the lower take-up sprocket are mounted on a yoke which pivots on a pin which is locked in the roller locking-arm. A small degree of play is allowed at the point of pivot so that the rollers should automatically ride at the same distance from the sprocket when in the running position. If it is found that one roller is always closer to the sprocket than the other, the pivot pin locknut should be loosened, and the knurled handle of the pivot pin rotated to the position for correct location of both rollers. There should still be a small amount of play for the yoke about the point of pivot when the rollers are in the running position.

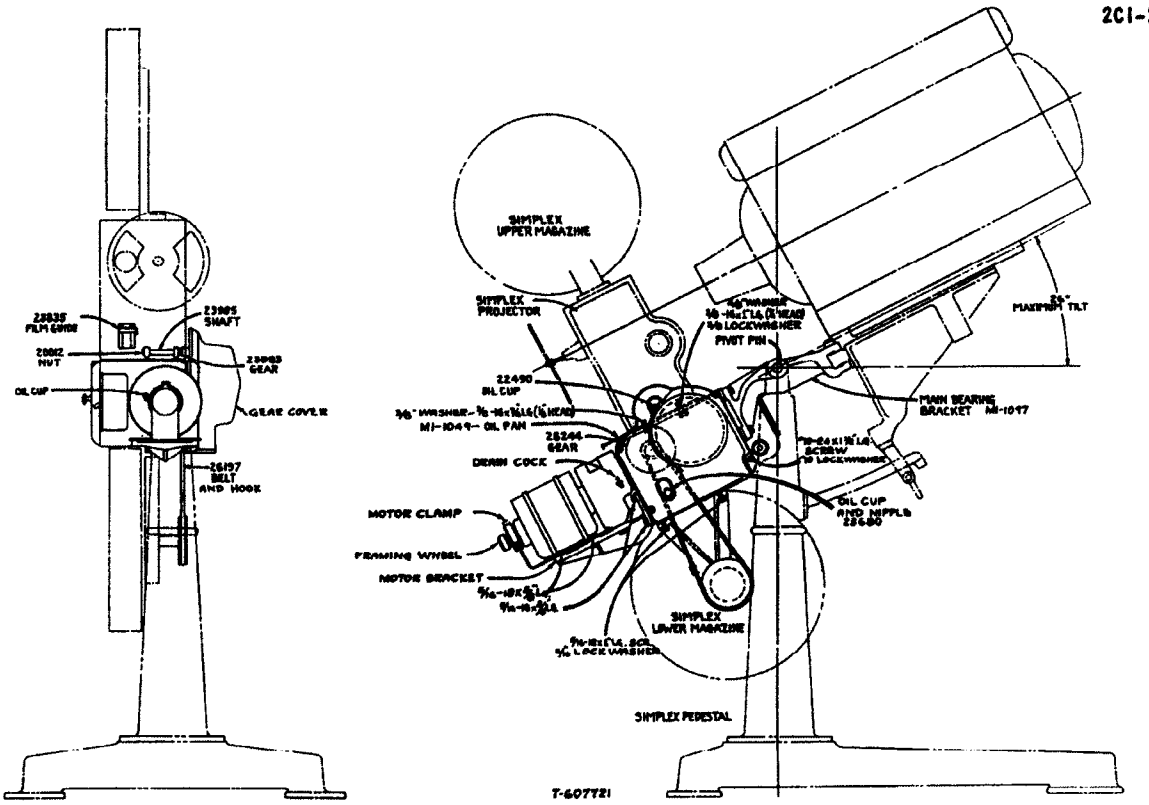


Figure 6 - Soundhead with Simplex Projector Equipment

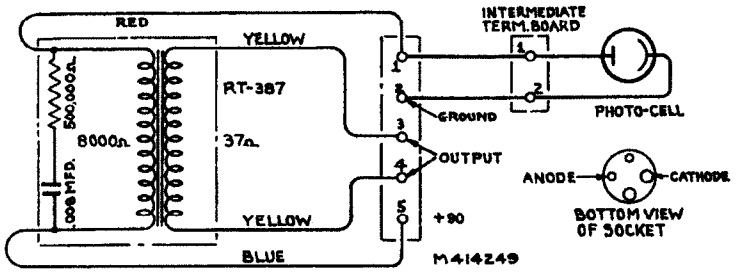


Figure 7 - Photocell Transformer Schematic

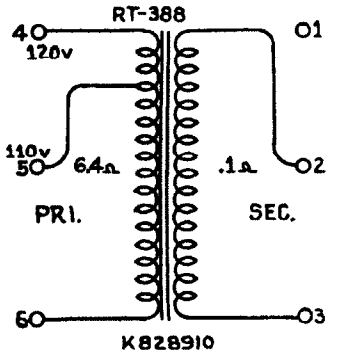


Figure 8 - Exciter Lamp Schematic

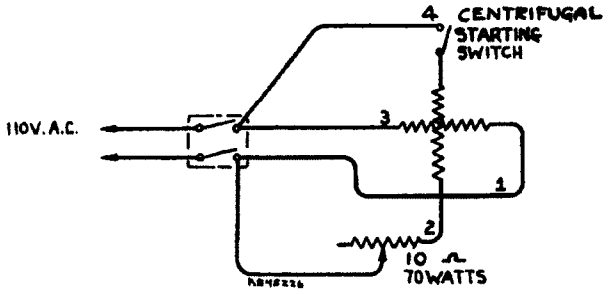


Figure 9 - Schematic Wiring of A-C Motor

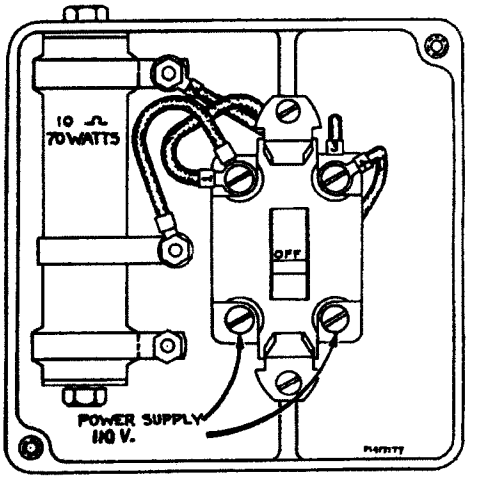


Figure 10 - Motor Switch Wiring

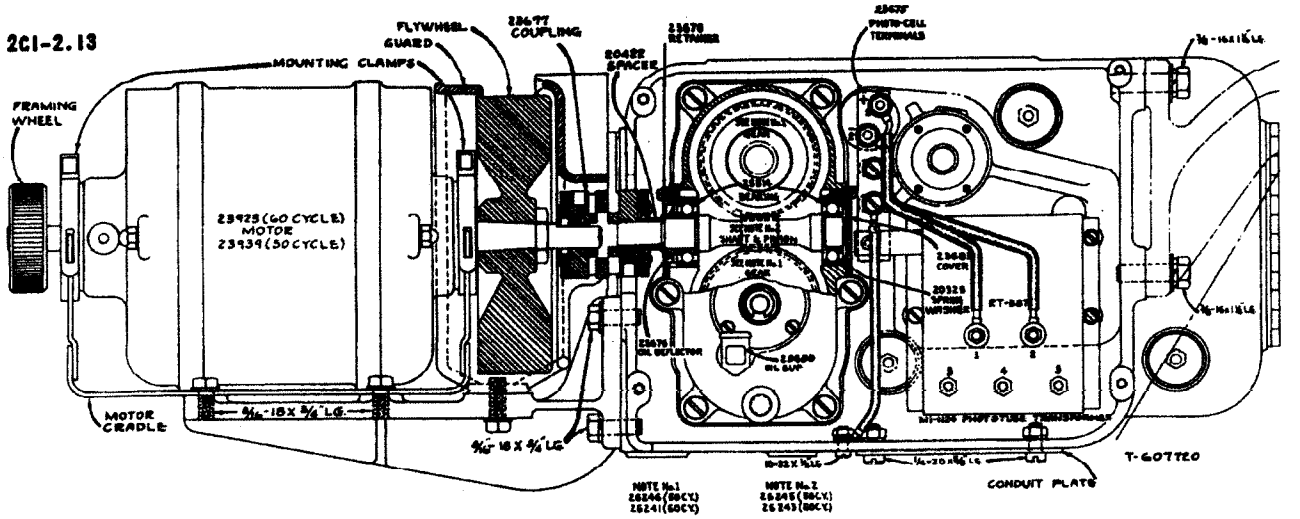


Figure 11 - Drive Side of Soundhead

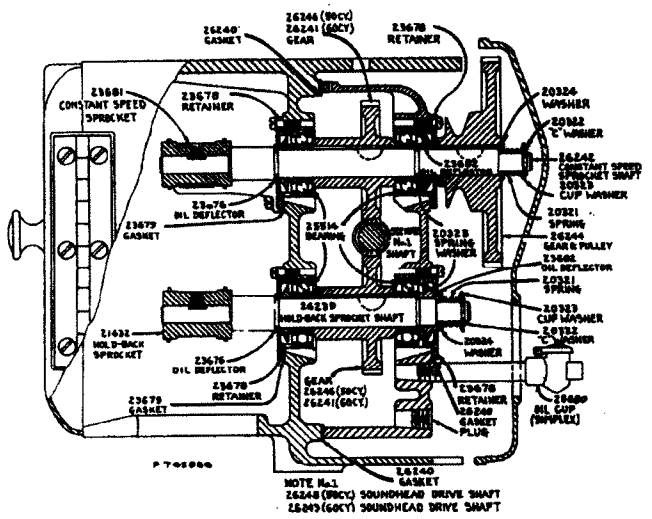
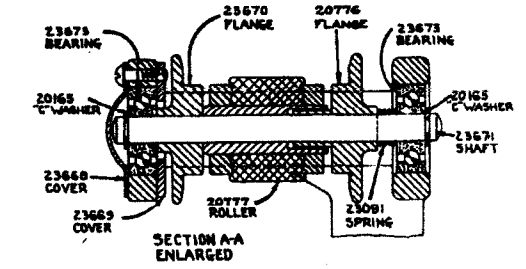


Figure 12 - Cross Section of Soundhead



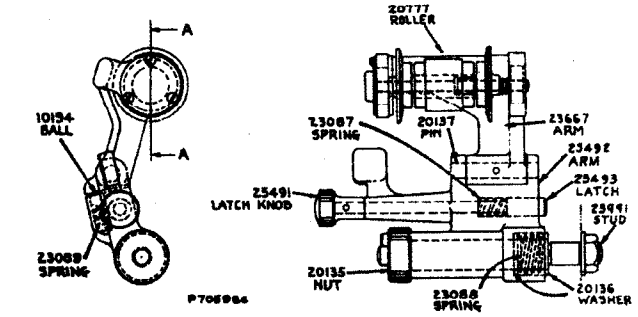


Figure 13 Pressure Roller and Lateral Guide Assembly

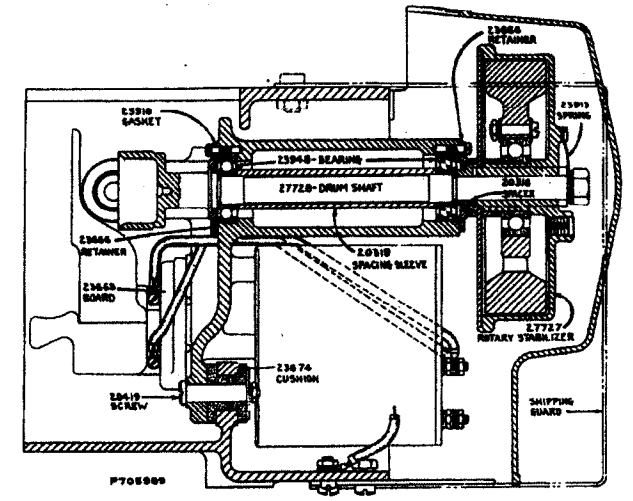


Figure 14 - Cross Section of Soundhead

5. Adjustment of Film Strippers.
Each film stripper should be set so that the lip of the stripper is below the outer surface of the film-guide flange, but should not be close enough for the stripper to touch the sprocket at any point. A stripper is adjusted by loosening the lock screws, shifting the stripper to the correct position, and securely locking it.

6. Adjustment of Lateral Guide and Pressure Roller.
The lateral-guide roller should be set so that it will keep the film sound track in the correct lateral position with respect to the light beam. A buzz-track test film (Stock No. 27638) should be run through the machine with the exciter lamp on and the amplifier in operation, so that sound can be heard. Loosen the knurled adjusting-nut lock-screw, start the projector, and turn the adjusting nut so that the recording on each side of the buzz track cannot be heard. Lock the adjusting screw in the position of correct adjustment. A felt pad is cemented to the outer face of the roller and, if the gate remains in the closed position for a considerable period of time, the felt may press down and flatten on the surface which rests against the sound drum. It is, therefore, recommended that the assembly remain in the "open" position after the end of day's performance. The door of the soundhead cannot be closed while the gate assembly is in the open position.

7. Replacement of Photocell Condenser Lens.
There should be no need for making any adjustments on the condenser lens. However, should the lens be removed from its holder, it should be replaced so that the flat surface of the lens is toward the photocell and so that the notch in the lens is aligned with the notch in the holder.

8. Adjustment of the Take-up Mechanism.
To make the adjustment, thread the projector with a 2,000 foot reel of film. Start the projector and watch the action of the film as it is wound on the take-up reel. If a loose loop forms stop the projector, loosen the set screw in the knurled nut at the end of the take-up spindle, and increase the tension by screwing the adjustment nut against the spring. If the take-up reel pulls the film taut, the tension of the spring should be decreased by backing off on the adjustment nut.

9. A-C Projector Drive Motor.
The a-c motor is of the split-phase-starting, induction type. It is rated at 1/4 h.p. The motor incorporates an automatic starting switch which opens to remove the starting winding from the motor circuit when normal running speed has been reached. The starting resistor should be adjusted so that normal running speed will be reached two seconds after starting the motor.

REPLACEMENT PARTS

DESCRIPTION	STOCK NO.
OPTICAL SYSTEM AND EXCITER LAMP ASSEMBLIES	
BRACKET - Photocell bracket with three mounting screws and washers	23664
COVER - Photocell cover	25559
GASKET - For bracket	23106
HOLDER - Photocell lens holder	25539
LENS - Photocell lens	25538
NUT - Knurled nut for locking optical unit	20316
OPTICAL UNIT - Optical unit complete	26398
PIN - Locking pin for optical unit	20317
SOCKET - Photocell socket with two leads	23665
BASE - Exciter lamp socket base	23660
BOARD - Mounting board for exciter lamp assembly	23663
HANDLE - Molded handle for exciter lamp socket assembly	23661
NUT - Knurled adjusting nut for exciter lamp socket	20314
SCREW - Two 6-32 fillister head screws and flat washers for securing knurled adjusting nut	20315
SHIELD - Exciter lamp shield with two mounting screws and washers	23662
SOCKET - Exciter lamp socket comprising socket and outer threaded shell with flexible lead and terminal	23659
SPRING ASSEMBLY - To improve Stock No.23659	23829
SOCKET - Exciter lamp socket assembly complete	26238
SPRING - Exciter lamp socket contact spring with reenforcing blade, mounting screws, nuts and lockwashers	23080
STOP - Exciter lamp horizontal adjusting stop.	26580
LAMP - Exciter lamp (A.C.) 10 VOLT 7½ AMP.	22534
LAMP - Exciter lamp (D.C.) 10 VOLT 5 AMP.	22017
DRUM SHAFT ASSEMBLY	
BEARING - Ball bearing for drum shaft-grease packed	23948
GASKET - Vellumoid gasket (1-7/8" o.d.) for ball bearing	25518
RETAINER - Ball bearing retainer	23666
SHAFT - Drum shaft with nut and washer	27728
SPACER - Steel spacing sleeve for drum shaft	20319
SPACER - Steel spacer between drum shaft bearing retainer and damping wheel	20318
SPRING - Spring with nut and lockwasher	23913
STABILIZER - Rotary stabilizer	27727
LATERAL GUIDE AND PRESSURE ROLLER ASSEMBLY	
ARM - Lower arm for lateral guide	25492
ARM - Upper arm for lateral guide	23667
BALL - Steel ball for pressure roller arm locking mech. (pkg. of 20)	10194
BEARING - Ball bearing for lateral guide roller shaft	23673
COVER - Inner cover for lateral guide roller ball bearings	23669
COVER - Outer cover for lateral guide roller ball bearings	23668
FLANGE - Lateral guide roller inner flange	20776
FLANGE - Lateral guide roller outer flange	23670
KNOB - Knurled knob with taper pin for latch	25494
LATCH - Lateral guide and pressure roller latch complete with taper pin	25493
NUT - Knurled adjusting nut with locking screw	20135
PIN - Pivot for upper arm, with taper pin	20137
ROLLER - Pressure roller	20777
SHAFT - Roller shaft with two "C" washers	23671
SPRING - Coil spring for pressure roller latch	23087
SPRING - Coil spring for lower arm pivot	23088
SPRING - Coil spring for lateral guide roller.	23091
SPRING - Spring for pressure roller locking mechanism	23089
STUD - Lateral guide and pressure roller assembly mounting stud	23994
WASHER - "C" washer for roller shaft	20165
WASHER - Washer for retaining Stock No. 23088 spring	20136

REPLACEMENT PARTS

DESCRIPTION	STOCK NO.
SINGLE PAD ROLLER ASSEMBLY	
ARM - Pad roller arm with ball, spring, stop pin and set screw	23685
PLATE - Pad roller arm locking plate	23C85
ROLLER - Pad roller	23479
SCREW - Mounting screw for pad roller arm	23086
SCREW - Square head set screw for shaft	2C326
SHAFT - Pad roller shaft	25489
DOUBLE PAD ROLLER ASSEMBLY	
ARM - Pad roller arm	23919
BASE - Double pad roller base with ball, spring, stop pin and set screw	23914
PIN - Double pad roller stop pin	23916
PLATE - Roller base locking plate	23085
ROLLER - Pad roller	23179
SCREW - Special set screw for double pad roller	23915
SCREW - Special screw for double pad roller base	23920
SHAFT - Pad roller shaft	23917
SHAFT - Pad roller base shaft	23918
****GEAR BOX ASSEMBLY**	
BEARING - Ball bearing for CSS & HBS shafts, main drive shaft	23948
COUPLING - Flexible coupling with set screws	23677
COVER - Cover plate for main drive shaft inner bearing	23683
DEFLECTOR - Oil deflector for main drive shaft outer bearing and CSS & HBS shafts inner bearings	23676
DEFLECTOR - Oil deflector for CSS & HBS shafts outer bearings	23682
GASKET - Vellumoid gasket (o.d. 1-7/8") for ball bearing retainers & cover	23679
GASKET - Vellumoid gasket for gear box	26240
GEAR - 49 tooth bronze spiral gear for CSS & HBS shafts, with Woodruff key(60 cycle)	26241
GEAR - 37 tooth bronze spiral gear for CSS & HBS shafts, with Woodruff key(50 cycle)	26246
RETAINER - Ball bearing retainer for CSS & HBS shafts, coupling end of main drive shaft.	23678
SHAFT - Constant speed sprocket shaft	26242
SHAFT - Hold-back sprocket shaft	26239
SHAFT AND PINION - Main drive shaft with 10 tooth spiral pinion gear(60 cycle)	26243
SHAFT AND PINION - Main drive shaft with 9 tooth spiral pinion gear(50 cycle)	26245
SPACER - Spacer between flexible coupling and oil deflector	20422
SPRING - Coil tension spring at ends of CSS & HBS shafts	20321
SPROCKET - Constant speed sprocket	23681
SPROCKET - Hold-back sprocket	21432
WASHER - "C" washer for ends of CSS & HBS shafts	20322
WASHER - Cup washer used between "C" washer & tension spring at ends of CSS & HBS shafts	20323
WASHER - Spring washer used between bearings & retainers of outer bearings on CSS & HBS shafts & inner bearing of main drive shaft	20325
WASHER - Thrust washer for tension spring at ends of CSS & HBS shafts	20324

**NOTE: CSS - Constant Speed Sprocket. HBS - Hold-back Sprocket.

DESCRIPTION	STOCK NO.
MAIN CASE ASSEMBLIES	
BOARD - Mounting board for exciter lamp	23675
CUSHION - Set of 2 rubber cushions	23674
KNOB - Door knob with nut and washer	23688
LATCH - Door latch - female portion with screws, nuts and lockwashers	23684
LATCH - Door latch male section with mounting screws, nuts and washers	23689
SCREW - Special screw for Stock No.23674 cushion - with nut & washer	20419
STOP - Door stop assembly complete	23690
STRIPPER - Film stripper with mounting screws & washers	23691
WINDOW - Glass window for door	25560
DRIVE MOTOR ASSEMBLY	
BEARING - Ball bearing for flywheel end of motor	26568
BRAKE - Soundhead motor brake	23921
CUSHION - Round rubber cushion for supporting motor in cradle	26936
DRAIN COCK - Flywheel guard drain cock	23922
MOTOR - 110-volt, 60-cycle, single-phase motor, complete with switch, switch box, flywheel, and framing wheel	23923
MOTOR - 110-volt, 50-cycle, single-phase motor	23939
RESISTOR - 10 ohm motor starting resistor	26303
SHOE - Leather brake shoe	25766
SWITCH - DPST tumbler switch	25765
SWITCH - Rotating section of centrifugal starting switch (60 cycle)	26259
SWITCH - Stationary section of centrifugal starting switch	26260
SWITCH - Rotating section of centrifugal starting switch (50 cycle)	26374
ACCESSORIES (SIMPLEX)	
BELT - Round leather takeup belt	26197
CUP - Projector drive shaft oil cup	22490
CUP - Oil cup for filling oil well, with exten.	23680
GEAR - Projector drive gear assembly comprising 51 tooth textolite gear, 17 tooth spiral pinion assembled	23983
GEAR - 66 tooth spiral driving gear, and takeup pulley	26244
GUIDE - Crank shaft film guide	23835
NUT - Rectangular nut for projector drive shaft	20012
SHAFT - Projector drive shaft	23985
WASHER - Bronze thrust washer for projector drive shaft	23984
WRENCH - 1/4" Allen set screw wrench	22112
WASHER - Steel thrust washer for drive shaft	22235
MISCELLANEOUS	
FILM - 75 ft.length of 9,000 cycle and buzz track test film	27638
FILM - 500 ft. length of special test film - frequencies to 10,000 cycles, music and speech	26571
TOOL - Motor shaft alignment tool	20421
TRANSFORMER - Photocell transformer - RT-387	23833
TRANSFORMER - Exciter lamp transformer - RT-388	23834

SINGLE CONTACT BAYONET BASE EXCITER LAMPS:

BXC 8½ VOLT, 4 AMP

BXR 10 VOLT, 5 AMP

BXG 10 VOLT, 7½ AMP

25560 DOOR GLASS IS:

$4\frac{1}{2}" \times 5\frac{1}{2}" \times \frac{3}{16}"$ THICK

INSTALLATION AND SERVICE DIVISION

RCA MANUFACTURING CO., INC.

CAMDEN, N. J.

MI-1050-C
MI-1051-C
MI-1052-B
Issue 1

CLASSIFICATION Technical - Photophone - Soundheads

DATE May 23, 1940

SUBJECT: MI-1050-C, MI-1051-C & MI-1052-B SOUNDHEADS

NUMBER SL-2C1-2.13-A

TO:

The subject soundheads are similar to their respective previous models but include such added features as, visual type gear box oil gauge, improved lateral guide and pressure roller assembly, and undercut pad rollers. The external cases are furnished in fine black wrinkle finish. The ten ohm, seventy watt starting resistor has been omitted. It is not required since each of these soundheads is equipped with a flywheel, which increases the time in attaining full speed to approximately two seconds.

See Service Letter 2C1-6.23 for the new pressure roller assembly details and method of disassembly. Refer to 2C1-2.13 for technical data and general photographs for these types of soundheads.

A complete list of replacement parts is given below which should be used in ordering parts for subject soundheads.

The 1052-B is identical to the 1050-C except for drive motor and bracket assembly. The 1052-B uses a shunt-wound d-c motor with a control knob for setting governor contact for a film speed of 90 feet per minute.

REPLACEMENT PARTS

Optical System

DESCRIPTION	STOCK NO.
Base - Exciter lamp socket base	23660
Board - Two contact board for holding exciter lamp socket assembly	23663
Contact - Complete contact assembly with lead, spring, and washers	23829
Contact - Horizontal flat spring contact	23980
Contact - Vertical flat spring contact with reinforcing blade	23080
Handle - Moulded handle for exciter lamp socket assembly	23661
Lamp - Exciter lamp (AC)	22631
Lamp - Exciter lamp (DC)	22017
Nut - Knurled adjusting nut for exciter lamp socket	20314
Nut - Knurled nut for locking optical unit	20316
Optical Unit (1-1/4 mil.)	26398
Pin - Locking pin for optical unit	20317
Screw - Two No. 6-32 fillister head screws for locking nut Stk. No. 20314	20315
Shield - Exciter lamp shield	23662
Socket - Complete exciter lamp socket assembly	26238
Socket - Exciter lamp socket threaded shell and contact and lead only	23659
Stop - Lateral stop clip for exciter lamp socket	28580
Washer - Bronze spring washer for exciter lamp socket	27772

Phototube Assembly

Bracket - Phototube bracket	23664
Cover - Phototube cover	25569
Gasket - Gasket for phototube bracket	23106
Holder - Phototube lens holder	25539
Lens - Phototube lens	25538
Phototube	RCA-868
Ring - Spacer ring for phototube socket	27805
Socket - Phototube socket	23665

Lateral Guide And Pressure Roller Assembly

Arm - Lower arm	28100
Arm - Upper arm	23667
Ball - Ball for arm locking mechanism	10194
Ball Bearing - Ball bearing for lateral guide roller	23673
Cover - Inner cover for lateral guide roller ball bearings	23669
Cover - Outer cover for lateral guide roller ball bearings	23668
Flange - Inner guiding flange - (has extended hub)	28525
Flange - Outer guiding flange	28522
Knob - Lateral guide roller latch knob	28101
Latch - Lateral guide roller latch	28102
Nut - Adjusting nut complete with screw	20135
Pin - Pivot pin for upper arm complete with taper pin	20137
Ring - Guide roller retaining ring	28524
Roller - Pressure roller	20777
Screw - Bearing cover screw - (2-56 x 3/8)	26620
Shaft - Roller shaft complete with one retaining ring and 2 "C" washers	28521
Spacer - Spacer under Spring Stock No. 28526	28527
Spring - Roller tension spring	28526
Spring - Coil tension spring for lower arm pivot	23088
Spring - Coil tension spring for pressure roller latch	23087
Spring - Tension spring for pressure roller arm mechanism	23089
Stud - Lateral guide roller mounting stud	23991
Washer - "C" washer for roller shaft ends	20165
Washer - Pivot tension spring retaining washer	20136
Washer - Spring washer between roller and flange	28523
Washer - Upper arm end play washer	20185

Single Pad Roller Assembly

Arm - Pad roller arm with ball, spring, stop pin and set screw	23685
Plate - Pad roller arm locking plate	23086
Roller - Pad roller	28519
Screw - Mounting screw for pad roller arm	23086
Screw - Square head set screw for shaft	27794
Shaft - Pad roller shaft	25489

Double Pad Roller Assembly

Arm - Pad roller arm	23919

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osd

DESCRIPTION	STOCK NO.
Base - Double pad roller base with ball, spring, stop pin and set screw	23914
Pin - Double pad roller stop pin	23916
Plate - Roller base locking plate	23086
Roller - Pad roller	28519
Screw - Special set screw for double pad roller	27794
Screw - Special screw for double pad roller base	23920
Shaft - Pad roller shaft	23917
Shaft - Pad roller arm mounding shaft.	23918

** Gear Box Assembly

Bearing - Ball bearing for CSS & HBS shafts, main drive shaft	23948
Coupling - Flexible coupling with set screws	23677
Cover - Cover plate for main drive shaft inner bearing	23683
Deflector - Oil deflector for main drive shaft outer bearing and CSS & HBS shafts inner bearings	23676
Deflector - Oil deflector for CSS & HBS shafts outer bearings	23682
Gasket - Vellumoid gasket (o.d. 1-7/8") for ball bearing retainers & cover	23679
Gasket - Vellumoid gasket for gear box	26240
Gear - 49 tooth bronze spiral gear for CSS & HBS shafts, with Woodruff key (60 cycle)	26241
Gear - 37 tooth bronze spiral gear for CSS & HBS shafts, with Woodruff key (50 cycle)	26246
Retainer - Ball bearing retainer for CSS & HBS shafts, coupling end of main drive shaft	23678
Shaft - Constant speed sprocket shaft.	26242
Shaft - Hold-back sprocket shaft	26239
Shaft and Pinion - Main drive shaft with 10 tooth spiral pinion gear (60 cycle).	26243
Shaft and Pinion - Main drive shaft with 9 tooth spiral pinion gear (50 cycle).	26245
Spacer - Spacer between flexible coupling and oil deflector.	20422
Spring - Coil tension spring at ends of CSS & HBS shafts	20321
Sprocket - Constant speed sprocket	23681
Sprocket - Hold-back sprocket.	21432
Washer - "C" washer for ends of CSS & HBS shafts	20322
Washer - Cup washer used between "C" washer & tension spring at ends of CSS & HBS shafts	20323
Washer - Spring washer used between bearings & retainers of outer bearings on CSS & HBS shafts & inner bearing of main drive shaft	20325
Washer - Thrust washer for tension spring at ends of CSS & HBS shafts	20324
Gauge - Visual type oil gauge.	28068
Nipple - Oil gauge nipple	28069

** *NOTE: CSS - Constant Speed Sprocket.*
HBS - Hold-back Sprocket.

Drum Shaft Assembly

Bearing - Ball bearing for drum shaft.	23948
Gasket - Vellumoid gasket (1-7/8" o.d.) for ball bearing	25518
Retainer - Ball bearing retainer	23666
Shaft - Drum shaft with nut and washer	27728
Spacer - Steel spacing sleeve for drum shaft	20319
Spacer - Steel spacer between drum shaft bearing retainer and damping wheel	20318
Spring - Two fingered driver spring	23913
Stabilizer - Rotary stabilizer	27808

MI-1050-C & MI-1051-C Drive Motor Assemblies

Bearing - Ball bearing for flywheel end of motor	26568
Brake - Soundhead motor brake	23921
Cushion - Round rubber cushion with bevel washer and ring for supporting motor in cradle	26936
Drain Cock - Flywheel guard drain cock	23922
Motor - 110-volt, 60-cycle, single-phase motor, complete with switch, switch box, flywheel, and framing wheel (gloss finish)	23923
Motor - 110-volt, 50-cycle, single-phase motor (gloss finish)	23939
Shoe - Leather brake shoe	25766
Switch - DPST tumbler switch	25765
Switch - Rotating section of centrifugal starting switch (60 cycle)	26259
Switch - Stationary section of centrifugal starting switch	26260
Switch - Rotating section of centrifugal starting switch (50 cycle)	26374
Ring - Cylindrical metal ring covering #26936 washer	28538
Wheel - Motor hand wheel	23692

MI-1052-B Drive Motor Assembly

Motor - 115 v, d-c 1.5 ampere drive motor complete	29217
Brake - Brake assembly complete.	25768
Brush - Speed control brush	25760
Brushes - Set of 2 for d-c motor	25759
Cap - Screw-type cap for motor brush holder.	25761
Cap - Screw-type cap for speed control brush holder	25762
Contacts - Set of 2 for speed control mechanisms	25764
Dial - Reference dial for speed control mechanism	25750
Governor Weight - Rotating governor assembly complete with contact and spring	23827
Gear - 49 tooth bronze spiral gear for constant speed and hold back sprocket shafts.	26241
Pivot - Pivot shaft for brake handle	25767
Resistor - Tapped porcelain resistor, 620 ohms tapped at 20, 80, 150 and 310.	25758
Shaft - Pinion main drive shaft with 10 tooth spiral pinion gear	26243
Shoe - Leather brake shoe complete with rivets	25766
Switch - DPST tumbler switch for drive motor	25765

Main Case Assemblies

Board - Mounting board for photocell leads	23675
Cushion - Set of 2 rubber cushions	23674
Knob - Door knob with nut and washer	23688
Latch - Door latch - female portion with screws, nuts and lockwashers	21446
Latch - Door latch male section with mounting screws, nuts and washers	23689
Screw - Special screw for Stock No. 23674 cushion - with nut & washer	20419
Stop - Door stop assembly complete	23690
Stripper - Film stripper with mounting screws and washers	23691
Window - Glass window for door	25560
Clip - Window glass support clip	26623

Miscellaneous

Film - 75 ft. length of 9,000 cycle and buzz track test film	27638
Film - 500 ft. length of special test film - frequencies 30 to 10,000 cycles.	28129
Tool - Motor shaft alignment tool.	20421
Transformer - Photocell transformer - RT-387	23833
Transformer - Exciter lamp transformer RT-388	23834
Wrench - for #12 Allen set screw	26581
Wrench - for 1/4" Allen set screw	22112
Belt - 42" takeup belt	26197
Guide - Film guide	23835
Pulley - Takeup drive pulley	23986
Gear - 66 tooth steel takeup drive gear.	26604
Tool - Clamping tool for assembling rubber motor mtg. washer.	28196
Wrench - for 3/8" Allen set screw	22111

FORM 220-1

INSTALLATION AND SERVICE DIVISION

RCA MANUFACTURING CO., INC.

CAMDEN, N. J.

MI-1050-D
MI-1051-D
MI-1051-E

Issue 1

CLASSIFICATION Technical - Photophone - Soundheads

DATE June 12, 1941

SUBJECT: MI-1050-D, MI-1051-D and MI-1051-E SOUNDHEADS

NUMBER SL-2C1-2.13-B

The subject soundheads are similar to their respective previous models, but include the following modifications.

1. Stock #20777 pressure roller has been superceded by a steel pressure roller Stock #28785 on all above models.

2. MI-1050-D uses Stock #28786, 110 V. 60 cycles, single phase motor complete with switch box, flywheel and framing wheel (Black Wrinkle finish).

3. MI-1051-D uses Stock #23939, 110 V. 50 cycles motor as above except in Black Gloss finish.

4. MI-1051-E uses Stock #45303, 110 V. 50 cycles motor as above except in Black Wrinkle finish.

See SL-2C1-2.13-A for other replacement parts.

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INSTALLATION AND SERVICE DIVISION

RCA MANUFACTURING CO., INC.

CAMDEN, N. J.

CLASSIFICATION Technical - Photophone - Soundheads

DATE May 26, 1938

SUBJECT: STOCK NO. 26602 VISUAL OIL GAUGE FOR MI-1040/50/60/70 SERIES SOUNDHEADS

NUMBER SL-2C1-6.15

TO: A-5, B-1, B-2, B-4, C-7, D-7, E-7, F-7, G-1, G-2, G-3, G-4, H-7

An improved type oil gauge, shown in Figure 1, has been included in the MI-9125 and MI-1125-E drive equipments for installation on MI-1040 series soundheads. This new oil gauge is now available in stock, complete with extension pipe, as Stock No. 26602, and may be installed on any MI-1040/50/60/70 series soundheads now in service. The net price of this oil gauge is $1.26 per unit. The Stock No. 26602 oil gauge supersedes Stock No. 23680 oil cup. The oil gauge should *not* be charged against maintenance contracts when it is to be installed as an improvement, but should be billed to the customer.

For proper indication of the oil level, the gauge should be installed in the lower gear box oil drain hole. It will be necessary to cut away the gear cover as shown by the dotted line in Figure 2, so that the cover clears the gauge. This section of the cover can be removed by drilling several holes and cutting away the portion between the holes with a hacksaw. The rough edges should be finished off smooth with a file. Gear covers included in the MI-9125 and MI-1125-E drive equipments have been modified in manufacture for use with the oil gauge and therefore will not require modification in the field.

Projectionists should be instructed to fill the gear box until the oil level reaches the mark on the glass tube. This should be done after the projector has been at rest at least five minutes.

For the first filling of the gear box, or after draining the oil, a pressure gun should be used to force oil into the gear compartment before the oil pipe is screwed in place. This will force the air out through the small vent hole at the top of the gear box casting. If the oil gauge is filled without the use of a pressure gun, it will take considerable time before the correct level is reached inside the gear box.

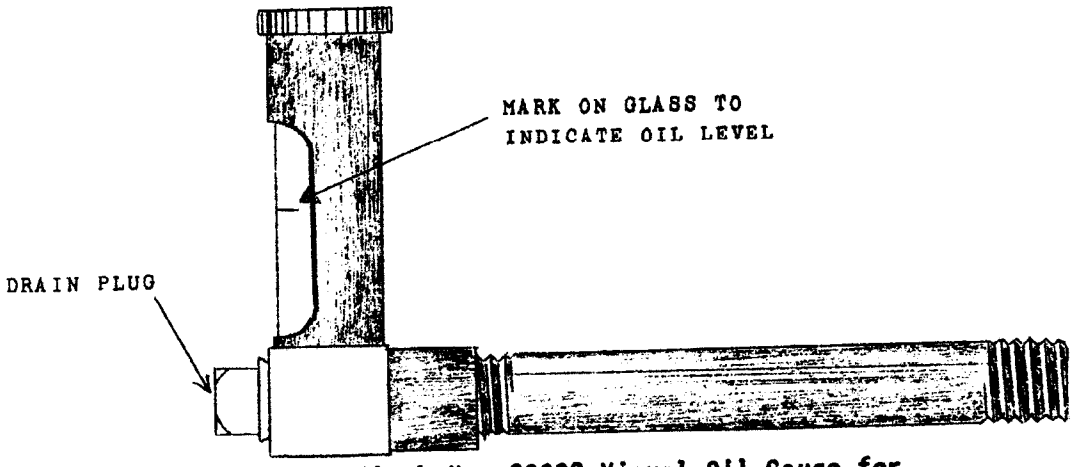

Figure 1 - Stock No. 26602 Visual Oil Gauge for MI-1040/50/60/70 Series Soundheads

(OVER)

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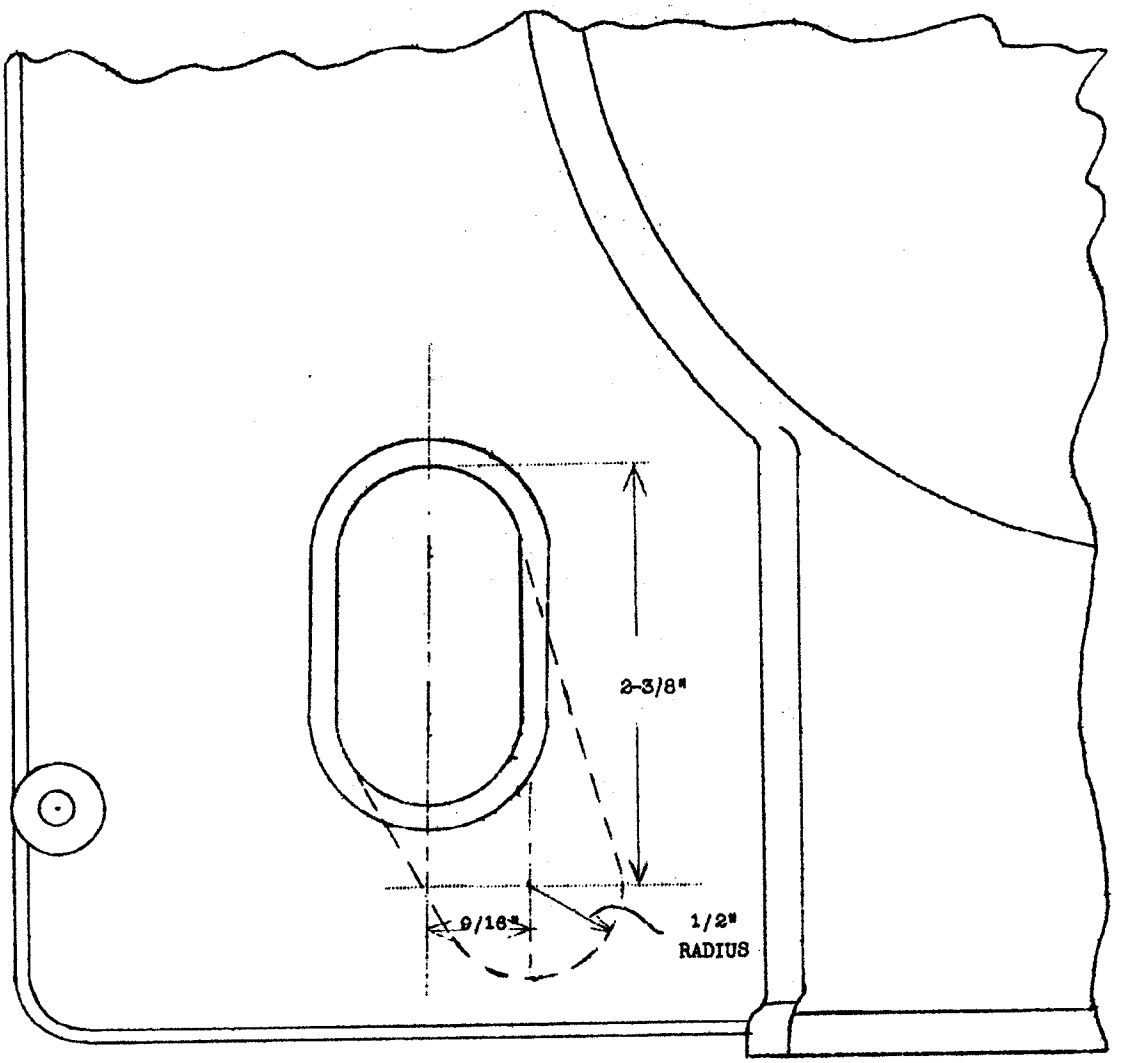


Figure 2 - Alteration to Gear Guard

INSTALLATION AND SERVICE DIVISION

RCA MANUFACTURING CO., INC.

CAMDEN, N. J.

MI-1040
MI-1050
MI-1060
MI-1070

CLASSIFICATION Technical - Photophone - Soundheads

DATE Jan. 18, 1938

SUBJECT: MI-1040, 1050, 1060, 1070 SERIES SOUNDHEADS
LATERAL GUIDE ROLLER ASSEMBLY

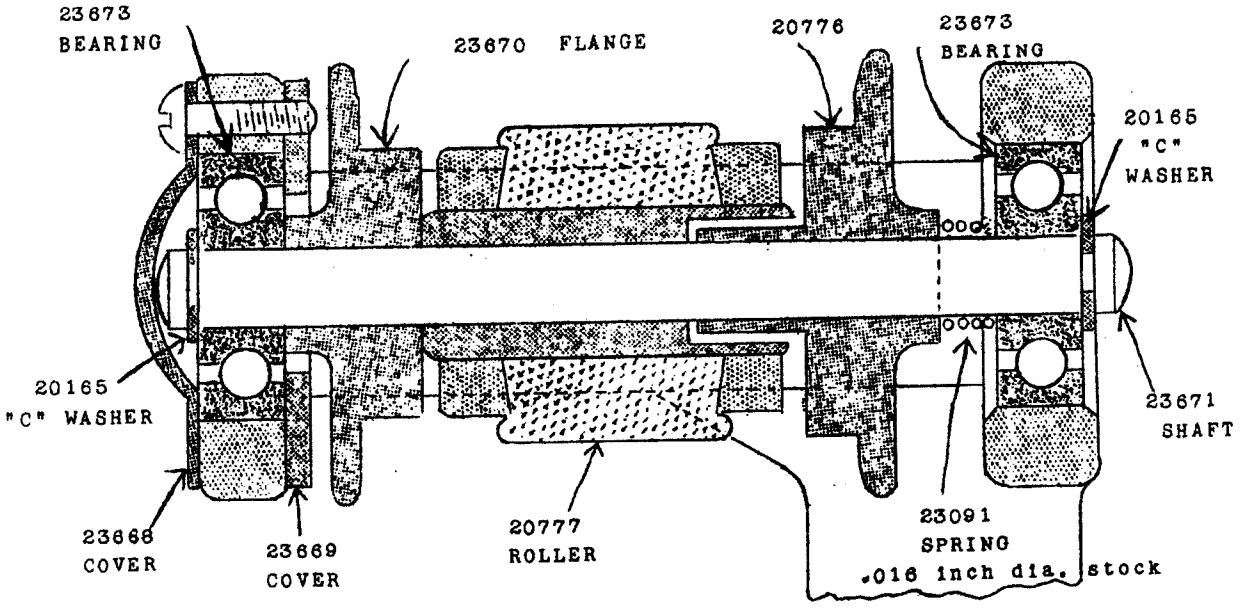
NUMBER SL-2C1-6.90

TO: A-5, B-1, B-2, B-4, C-7, D-7, E-7, F-7, G-1, G-2, G-3, G-4, H-7

In most cases of film weave reported during the past year, it has been found that warped film was the primary cause of this condition. Field tests indicated that by increasing the tension of the Stock No. 23091 spring, against the inside flange Stock No. 23670, film weave could be entirely eliminated in most instances. Accordingly, all Stock No. 23091 springs now in Replacement Parts Stock at Camden havebeen changed to .016 inch diameter steel as compared to .013 inch diameter, previously used.

Another cause of film weave was found to be due to rough spots in the flange bearing hole and the shaft Stock No. 23671. To remedy this condition the guide roller assembly should be disassembled and washed thoroughly in naptha. Then the shaft and flange bearing holes should be polished with crocus cloth, after which the parts should again be cleaned, and oiled with a light grade of Pyroil before assembly.

A slight change in design of the inside guide flange and the roller has also proved effective in producing uniform motion of the film, even though the film is warped. The inside flange has an extended sleeve, which fits into a recess in the roller, thus providing a longer bearing surface and allowing the flange to slide more easily along the shaft. This is shown in the sketch below.



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The modified flange Stock No. 20776 and modified roller Stock No. 20777 are available in Replacement Parts Stock at Camden. This modification, together with the tension spring of .016 inch diameter stock, will be incorporated in new production soundheads.

In most cases where the present Stock No. 23670 flange is in use, any tendency for film weave can be corrected by polishing the bearing surfaces and using a heavier tension spring. When ordering Stock Nos. 20776 and 20777 for replacement in existing soundheads, they should not be charged against Photophone Guarantee Account, except in those instances where the equipment is still within the 90-day guarantee period.

REPLACEMENT PARTS

STOCK NO.	DESCRIPTION	NET PRICE
20776	FLANGE	$3.85
20777	ROLLER	4.90
23091	SPRING	0.25