

5  
Dup

# TM 11-2217

WAR DEPARTMENT TECHNICAL MANUAL

## DISTORTION TEST SET

TS-383/GG

(TELETYPE SIGNAL TESTING EQUIPMENT)

**WARNING:** This manual is the property of the United States Government, and is printed and distributed solely for the use of the military, naval, and civilian personnel of the War and Navy Departments, and may not be published or reproduced in whole or in part, or in any manner or form (except by lawful copyright holders who may reproduce their copyrighted material in its original form) unless specifically approved by authorized military public relations agencies.

WAR DEPARTMENT,  
WASHINGTON 25, D. C., 14 March 1945.

### CONTENTS

Teletype Corporation Bulletins 181, Issue 2, and 1079, Issue 1.  
Teletype Corporation Correction Sheets EE-497, Issue 1, and EE-480, Issue 1.  
Teletype Corporation Wiring Diagrams 1653-G and 2151-A.  
Teletype Corporation Specification S-5288, Issue 1.

#### MAINTENANCE PARTS DATA

TM 11-2217, Distortion Test Set TS-383/GG (Teletype Signal Testing Equipment), is published for the information and guidance of all concerned.

[A. G. 300.7 (20 Oct 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,  
*Chief of Staff.*

OFFICIAL:

J. A. ULIO,  
*Major General,  
The Adjutant General.*

DISTRIBUTION:

AAF (2); AGF (2); ASF (2); T of Opn (2); Dept (2); Def Comd (2); Arm & Sv Bd (2); S Div ASF (1); Tech Sv (2); Sv C (2); PE (2); Gen Overseas SOS Dep (Sig Sec) (2); Dep 11 (2); Gen & Sp Sv Sch (2); USMA (10); WDGS Lib (5); Lab 11 (2); A (2). T/O & E: 11-107 (3); 11-127 (3); 11-237 (3); 11-287 (3); 11-500, Sig Sv Orgn, Large Operating Team (GH) (3); Small Teletype Team (GI) (3), Large Teletype Team (GK) (3), Telephone Carrier and Repeater Team (GN) (3), Telephone and Telegraph Installation Team (GO) (3); 11-587 (3); 11-592 (3); 11-597 (3).

(For explanation of symbols, see FM 21-6.)

NOTE: Failure or unsatisfactory performance of equipment used by Army Ground Forces and Army Service Forces will be reported on W.D., A.G.O. Form No. 468 (Unsatisfactory Equipment Report); by Army Air Forces, on Army Air Forces Form No. 54 (unsatisfactory report).

# WAR DEPARTMENT UNSATISFACTORY EQUIPMENT REPORT

<b>FOR</b>	(Technical service)	<b>MATERIEL</b>	DATE
<b>FROM</b>	(Organization)	(Station)	
<b>TO</b>	(Next superior headquarters)	(Station)	(Technical service)

## COMPLETE MAJOR ITEM

NOMENCLATURE	TYPE	
MODEL	MANUFACTURER	
U. S. A. REG. NO.	SERIAL NO.	DATE RECEIVED
EQUIPMENT WITH WHICH USED (IF APPLICABLE)		

## NOMENCLATURE OF DEFECTIVE COMPONENT

PART NO.	TYPE
MANUFACTURER	DATE INSTALLED

## LENGTH OF SERVICE

DATE OF INITIAL TROUBLE	TOTAL PERIOD OF OPERATION BEFORE FAILURE (FILL IN WHERE APPLICABLE)					
	YEARS	MONTHS	DAYS	HOURS	MILES	ROUNDS
TOTAL TIME INSTALLED	YEARS	MONTHS	DAYS			

## DESCRIPTION OF TROUBLE AND PROBABLE CAUSE

GIVE TYPE OF FAILURE, MECHANICAL, ELECTRICAL, WORKMANSHIP, MATERIAL, DESIGN

## UNUSUAL SERVICE CONDITIONS

GIVE BRIEF DESCRIPTION

TRAINING OR SKILL OF USING PERSONNEL (CHECK ONE)	POOR	FAIR	GOOD
DESCRIPTION OF ANY REMEDIAL ACTION TAKEN			

### RECOMMENDATIONS

<b>1ST IND.</b>	<b>ORIGINATING OFFICER</b>
OFFICE	SIGNATURE
STATION	NAME
DATE	RANK AND TITLE
(Technical service)	ORGANIZATION
<b>TO CHIEF</b>	
NAME	
STATION	
	RANK

## INSTRUCTIONS

1. It is imperative that the Chief of Technical Service concerned be advised at the earliest practical moment of any constructional, design, or operational defect in materiel. This form is designed to facilitate such reports and to provide a uniform method of submitting the required data.

2. This form will be used for reporting manufacturing, design or operational defects in materiel with a view to improving and correcting such defects, and for use in recommending modifications of materiel.

3. This form will not be used for reporting failures, isolated material defects or malfunctions of materiel resulting from fair-wear-and-tear or accidental damage nor for the replacement, repair, or the issue of parts and equipment. It does not replace currently authorized operational or performance records.

4. Reports of malfunctions and accidents involving ammunition will continue to be submitted as directed in the manner described in AR 750-10 (Change No. 3).

W. D., A. G. O. Form No. 468  
1 December 1943

5. It will not be practicable or desirable in all cases to fill all blank spaces of the report. However, the report should be as complete as possible in order to expedite necessary corrective action. Additional pertinent information not provided for in the blank spaces should be submitted as inclosures to the form. Photographs, sketches or other illustrative material are highly desirable.

6. When cases arise where it is necessary to communicate with a chief of service in order to assure safety to personnel, more expeditious means of communication are authorized. This form should be used to confirm reports made by more expeditious means.

7. This form will be made out by using or service organizations and forwarded in duplicate through command channels to the chief of technical service. The office of the chief of technical service receiving the report will forward an information copy to the Commanding General, Army Ground Forces or Army Air Forces, whichever is applicable, and to the Commanding General, Army Service Forces.

8. Necessity for using this form will be determined by the using or service troops.

BULLETIN No. 181

ISSUE 2

JULY, 1944

# TELETYPE

PRINTING TELEGRAPH SYSTEMS

DESCRIPTION AND ADJUSTMENTS

SIGNAL DISTORTION TEST SET

(CODE DISC OPERATED WITH STROBOSCOPE)



REG. U.S. PAT. OFF.  
CORPORATION

SUBSIDIARY OF

*Western Electric Company*

CHICAGO, U.S.A.

# TELETYPE

## PRINTING TELEGRAPH SYSTEMS

### DESCRIPTION AND ADJUSTMENTS SIGNAL DISTORTION TEST SET (Code Disc Operated With Stroboscope)

Signal Distortion Test Set arranged for transmitting a test message from code discs or repetitions of R, Y, T, O, M, V, LETTER, BLANK, or code length marking impulse, either undistorted or with a controlled degree of distortion up to approximately 100%. Stroboscope indicates signal length and amount of bias.

#### SET CONSISTS OF:

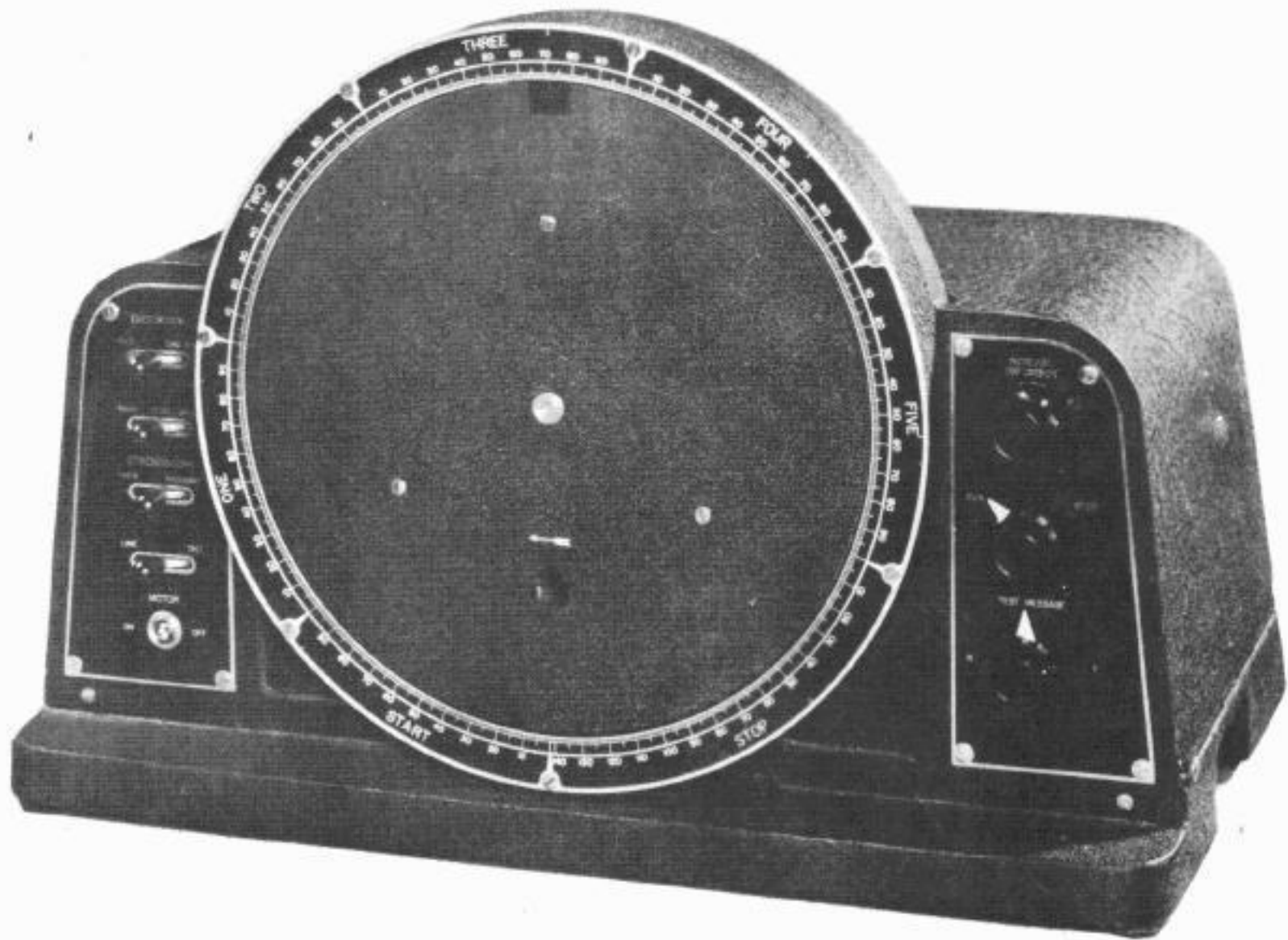
DXD4DTS (Or Any 1, 2, or 3 Station Call Letters Substituted for DTS) SIGNAL DISTORTION TEST UNIT

MU4 MOTOR UNIT (110 Volt, 60 Cycle Synchronous), and 96473 SET OF GEARS FOR 368 O.P.M.

- OR -

MU26 MOTOR UNIT (110 Volt 50/60 Cycle Governed), and 96572 SET OF GEARS FOR 368 O.P.M.





C O N T E N T S

DESCRIPTION	Page
Control Switch Keys and Knobs . . . . .	2
Distributor . . . . .	2
Distributor Test Signal Transmission . . . . .	1
General . . . . .	1
Motor Unit . . . . .	3

OPERATING PROCEDURE

Checking Relays and Repeaters . . . . .	6
Determining the Maximum Bias the Receiving Selector Will Permit . . . . .	4
Determining the Maximum End Distortion the Receiving Selector Will Permit . . . . .	5
Internal Bias . . . . .	6
Optimum Setting of the Range Finder for Biased Signals . . . . .	5
Optimum Setting of the Range Finder for End Distortion . . . . .	6
Orientation Range (Zero Bias) . . . . .	4
Testing Teletype Apparatus Locally for Receiving Margins . . . . .	4

ADJUSTMENTS

Brush Adjustment . . . . .	12
Code Disc Phasing Adjustment . . . . .	11
Code Disc Shaft End Play Adjustment . . . . .	11
Code Disc Unit Friction Assembly Torque . . . . .	12
Distortion Adjusting Gear Segment Adjustment . . . . .	8
General . . . . .	8
Indicating Lamp Arm Adjustment . . . . .	12
Indicating Lamp Position Adjustment . . . . .	12
Intermediate Gear Shaft Bearing Bracket Adjustment . . . . .	8
Local Power Requirements . . . . .	13
Main Shaft Gear Friction Clutch Torque . . . . .	12
Motor Plate Adjustment . . . . .	8
Motor Position Adjustment . . . . .	8
Motor Unit Slip Connection Spring Adjustment . . . . .	11
Outer Ring Brake Tortion Spring Adjustment . . . . .	12
Run-Stop Switch Toggle Stop Plate Spring Tension . . . . .	11
Stop Contact Adjustment . . . . .	10
Stop Contact Bracket Adjustment . . . . .	10
Stop Contact Lever Latch Cam Adjustment . . . . .	10
Stop Contact Lever Latch Spring Tension . . . . .	10
Stop Contact Lever Spring Tension . . . . .	11
Transmitting Contact Adjustments . . . . .	9
Transmitting Contact Bail Spring Tension . . . . .	11

LUBRICATION

## DESCRIPTION

### GENERAL

The Teletype Signal Distortion Test Set (Code Disc Operated With Stroboscope, see Figure 1) described herein, is a motor driven unit arranged to be used for any of the following purposes:

- (A) To transmit signals for testing Teletype start-stop printing telegraph circuits, and checking the efficiency of Teletype start-stop selectors. These signals are a repetition of any of the following test signals: TEST MESSAGE, R, Y, T, O, M, V, LETTERS, BLANK OR CODE LENGTH MARKING IMPULSE either undistorted or with controlled degree of distortion up to approximately 100%. On early models, only test message, R or Y test signals could be transmitted.
- (B) To measure accurately the impulse lengths of 7.42 unit code signals originating from an external transmitting unit. Synchronous motors with identical gear reductions on each unit operating on the same source of power are necessary because the transmitting unit and the test set must be kept in exact phase relation. If one of the units is equipped with a governed motor, a slight speed variation will cause a wavering of the impulse lengths as viewed on the stroboscope, making them difficult to measure accurately.
- (C) To check the operation of relays or start-stop regenerative repeaters in a local circuit. When using the test set in this manner, transmitted signals from the test set operate the relay or regenerative repeater being tested, and these signals in turn are routed to the test set stroboscope for observation.

Distortion produced in the transmitted signals may be any of the following types:

- (A) MARKING BIAS, which advances the beginning of each marking impulse with respect to the beginning of the character cycle.
- (B) SPACING BIAS, which delays the beginning of each marking impulse.
- (C) MARKING END DISTORTION, which delays the end of each marking impulse.
- (D) SPACING END DISTORTION, which advances the end of each marking impulse.

### DISTRIBUTOR TEST SIGNAL TRANSMISSION

#### (A) CODE DISC TRANSMITTER (Figures 2 and 3)

The transmitter, which sets up combinations for transmitting the test message, consists principally of code disc cams, contact levers, and contacts. The code disc cams actuate the contact levers which in turn operate the proper contacts.



### OPERATING PROCEDURE

The following operating procedure outlines the methods used in making several of the tests that can be made with the test set.

#### TESTING TELETYPE APPARATUS LOCALLY FOR RECEIVING MARGINS

- (1) Connect the signal distortion test set to the proper motor power supply and to 110 volts D.C., for the stroboscope lamp. (See the wiring diagram furnished with the test set.)
- (2) Connect the line terminals of the test set to the external signal circuit of the receiving apparatus to be tested. Line battery should be supplied externally.
- (3) Place the control keys and knobs as follows:

KEY OR KNOB	POSITION
Motor Switch	On
Run-Stop Knob	Stop
Line-Dist. Key	Dist.
View-Transmit Key	View
Mark-Zero-Space Key	Zero
Code Selecting Knob	R

With the above arrangement of keys and knobs the stroboscope should indicate zero distortion of the signals, that is, the stroboscope lamp should light for 100 scale divisions of the graduated dial for each marking selecting impulse and 142 scale divisions for the stop impulse. If necessary the graduated dial should be rotated to coincide with the respective impulses.

#### ORIENTATION RANGE (ZERO BIAS)

The receiving apparatus connected in the external signal circuit may now be checked for orientation range with undistorted signals by rotating the Run-Stop Knob to the Run position and the Code Selecting Knob to the Test Message position and by placing the View-Transmit Key in the transmit position.

NOTE: When determining the limits of orientation, operation is generally assumed to be correct when two 72 character lines are received with only one error.

The minimum orientation requirement for new machines is 72%.

#### DETERMINING THE MAXIMUM BIAS THE RECEIVING SELECTOR WILL PERMIT

Bias is a type of telegraph signal distortion which affects all impulses uniformly. It has the effect of advancing or delaying the beginning of each marking impulse with respect to the beginning of the character cycle.

To measure the amount of bias the selector mechanism of the receiving apparatus will withstand; place the keys and knobs in the following positions:

KEY OR KNOB	POSITION
Motor Switch	On
Line-Dist. Key	Dist.
View-Transmit Key	View
Bias-End Dist. Key	Bias
Code Selecting Knob	R
Run-Stop Knob	Stop
Mark-Zero-Space	Mark

Adjust the Increase Distortion Knob until the stroboscope indicates that the marking selecting impulses each occupy 135 scale divisions. The signals will then be biased 35%. (The Increase Distortion Knob should not be adjusted when the disc is stationary because the distributor brushes may be damaged in doing so.) Place the View-Transmit Key in the Transmit position, the Code Selecting Knob in the Test Message position, and the Run-Stop Knob in the Run position. Determine the upper limit of the range of the selector mechanism with the marking bias applied. Then place the Mark-Zero-Space Key in the Space position and determine the lower limit of the range when the spacing bias is applied. The maximum bias, in equal amounts, either marking or spacing, which the selector will withstand will be as follows:

$$\text{Maximum Bias} = 35 + \frac{\text{Upper Limit Marking Bias} - \text{Lower Limit Spacing Bias}}{2}$$

The minimum bias requirement for new machines is 40%.

NOTE: For maximum accuracy the distortion introduced by the test set should be equal to the maximum distortion tolerance in the selector.

#### OPTIMUM SETTING OF THE RANGE FINDER FOR BIASED SIGNALS

The optimum orientation setting for bias is that point at which the selector will tolerate the maximum equal amounts of either marking or spacing bias. This point may be determined from the following:

$$\text{Optimum Setting for Bias} = \frac{\text{Upper Limit Marking Bias} + \text{Lower Limit Spacing Bias}}{2}$$

#### DETERMINING THE MAXIMUM END DISTORTION THE RECEIVING SELECTOR WILL PERMIT

End distortion is a special type of telegraph signal distortion created for testing purposes. It affects all impulses uniformly except for the stop and start impulses. It has the effect of advancing or delaying the end of each marking selecting impulse with respect to the beginning of the character cycle.

To measure the amount of end distortion the selector mechanism of the receiving apparatus will withstand, place the keys and knobs in the following position:

KEY OR KNOB	POSITION
Motor Switch	On
Line-Dist. Key	Dist.
View-Transmit Key	View
Bias-End Dist. Key	End Dist.
Code Selecting Knob	R
Run-Stop Knob	Stop
Mark-Zero-Space Key	Space

Adjust the Increase Distortion Knob until the stroboscope indicates that the marking selecting impulses each occupy 65 scale divisions. The signal will then have 35% spacing end distortion. Place the View-Transmit Key in the Transmit position, the Code Selecting Knob in the Test Message position, and the Run-Stop Knob in the Run position. Determine the upper limit of the range with the 35% end distortion applied to the signals. Place the Mark-Zero-Space Key in the Mark position and determine the lower limit of the range with 35% marking end distortion applied. The maximum end distortion in equal amounts, either marking or spacing, which the selector can withstand will be as follows:

$$\begin{array}{r} \text{Maximum} \\ \text{End} \\ \text{Distortion} = 35 + \frac{\text{Upper Limit} \\ \text{Spacing End} \\ \text{Distortion} - \text{Lower Limit} \\ \text{Marking End} \\ \text{Distortion}}{2} \end{array}$$

The minimum end distortion requirements on new machines is 35%.

#### OPTIMUM SETTING OF THE RANGE FINDER FOR END DISTORTION

The optimum orientation setting for end distortion is that point at which the selector will tolerate maximum equal amounts of either marking or spacing end distortion. This point may be determined from the following:

$$\begin{array}{r} \text{Optimum Setting} \\ \text{for} \\ \text{End Distortion} = \frac{\text{Upper Limit} \\ \text{Spacing End} \\ \text{Distortion} + \text{Lower Limit} \\ \text{Marking End} \\ \text{Distortion}}{2} \end{array}$$

#### INTERNAL BIAS

The internal bias of a receiving selector may be calculated by subtracting the Optimum Setting for Bias from the Optimum Setting for End Distortion.

#### CHECKING RELAYS AND REPEATERS

Relays or repeater sets may be checked for faulty operation by comparing the perfect signals obtained locally with signals after they have passed through the relays or repeaters. In the latter case the signals

transmitted by the test set will operate the relay or repeater and the relay or repeater contacts will make and break the circuit to the stroboscope lamp. The difference between the perfect local signal and the repeated signal is the amount of distortion introduced by the repeating device.

To test relays or repeaters proceed as follows:

- (1) Remove contact protection or filter condenser from the relay contacts.
- (2) Connect the test set to the proper motor power supply and to 110 volts, D.C., for the stroboscope lamp. (See wiring diagram furnished with the test set.)
- (3) Connect the circuit of the operating winding of the relay or repeater to the line terminals on the test set.
- (4) Connect the repeated signal circuit (from the repeater or relay contacts) to the stroboscope terminals of the test set.
- (5) Place the keys and knobs in the following positions:

KEY OR KNOB	TO VIEW LOCAL SIGNALS	TO VIEW REPEATED SIGNALS
Motor Switch	On	On
View-Transmit Key	View	Transmit
Line-Dist. Key	Dist.	Line
Run-Stop Knob	Stop	Run
Code Selecting Knob	R or Y	R or Y
Mark-Zero-Space Knob	Zero	Zero

The repeated signals may now be observed and the amount of distortion measured.

To measure the amount of end distortion the selector mechanism of the receiving apparatus will withstand, place the keys and knobs in the following position:

KEY OR KNOB	POSITION
Motor Switch	On
Line-Dist. Key	Dist.
View-Transmit Key	View
Bias-End Dist. Key	End Dist.
Code Selecting Knob	R
Run-Stop Knob	Stop
Mark-Zero-Space Key	Space

Adjust the Increase Distortion Knob until the stroboscope indicates that the marking selecting impulses each occupy 65 scale divisions. The signal will then have 35% spacing end distortion. Place the View-Transmit Key in the Transmit position, the Code Selecting Knob in the Test Message position, and the Run-Stop Knob in the Run position. Determine the upper limit of the range with the 35% end distortion applied to the signals. Place the Mark-Zero-Space Key in the Mark position and determine the lower limit of the range with 35% marking end distortion applied. The maximum end distortion in equal amounts, either marking or spacing, which the selector can withstand will be as follows:

$$\text{Maximum End Distortion} = 35 + \frac{\text{Upper Limit Spacing End Distortion} - \text{Lower Limit Marking End Distortion}}{2}$$

The minimum end distortion requirements on new machines is 35%.

#### OPTIMUM SETTING OF THE RANGE FINDER FOR END DISTORTION

The optimum orientation setting for end distortion is that point at which the selector will tolerate maximum equal amounts of either marking or spacing end distortion. This point may be determined from the following:

$$\text{Optimum Setting for End Distortion} = \frac{\text{Upper Limit Spacing End Distortion} + \text{Lower Limit Marking End Distortion}}{2}$$

#### INTERNAL BIAS

The internal bias of a receiving selector may be calculated by subtracting the Optimum Setting for Bias from the Optimum Setting for End Distortion.

#### CHECKING RELAYS AND REPEATERS

Relays or repeater sets may be checked for faulty operation by comparing the perfect signals obtained locally with signals after they have passed through the relays or repeaters. In the latter case the signals

transmitted by the test set will operate the relay or repeater and the relay or repeater contacts will make and break the circuit to the stroboscope lamp. The difference between the perfect local signal and the repeated signal is the amount of distortion introduced by the repeating device.

To test relays or repeaters proceed as follows:

- (1) Remove contact protection or filter condenser from the relay contacts.
- (2) Connect the test set to the proper motor power supply and to 110 volts, D.C., for the stroboscope lamp. (See wiring diagram furnished with the test set.)
- (3) Connect the circuit of the operating winding of the relay or repeater to the line terminals on the test set.
- (4) Connect the repeated signal circuit (from the repeater or relay contacts) to the stroboscope terminals of the test set.
- (5) Place the keys and knobs in the following positions:

KEY OR KNOB	TO VIEW LOCAL SIGNALS	TO VIEW REPEATED SIGNALS
Motor Switch	On	On
View-Transmit Key	View	Transmit
Line-Dist. Key	Dist.	Line
Run-Stop Knob	Stop	Run
Code Selecting Knob	R or Y	R or Y
Mark-Zero-Space Knob	Zero	Zero

The repeated signals may now be observed and the amount of distortion measured.

## ADJUSTMENTS

### GENERAL

The following adjustments are arranged in a sequence that would be followed if a complete readjustment of the distortion test set were undertaken. This fact should be kept in mind when a single adjustment is to be made because a change in one adjustment may affect other adjustments. Therefore, if one adjustment is changed, related adjustments should be checked.

The spring tension values given in this bulletin were derived from measurements made with Teletype spring scales. These scales are calibrated for use in a vertical pull position. When used in any other position, the reading is an indicated value. Therefore, in order to obtain the specified scale readings, Teletype spring scales should be used. Springs which do not meet the requirements specified and for which no adjusting procedure is given should be replaced with new springs. Ordering information may be obtained from Teletype parts bulletin.

Remove the large test set cover and the disc front cover. Loosen the brush arm clamp screw. Move the brushes away from the disc and tighten the clamp screw. (See Figure 1.)

### MOTOR POSITION ADJUSTMENT

The lateral alignment of the motor pinion and the main shaft gear should be such that the centerline of the gear coincides with a vertical line through the center of the hole in the motor pinion. To adjust, loosen the motor mounting screws and position the motor. Tighten the mounting screws.

### MOTOR PLATE ADJUSTMENT

There should be a barely perceptible amount of backlash between the motor pinion and the main shaft gear. Check for one complete revolution of the main shaft gear. To adjust, loosen the left motor plate mounting screw and the adjusting screw lock nut. Then loosen the two right motor plate mounting screws slightly. Adjust the height of the motor pinion by means of the adjusting screw. Tighten the adjusting screw lock nut and the three motor plate mounting screws and recheck the adjustment. (See Figure 2.)

### INTERMEDIATE GEAR SHAFT BEARING BRACKET ADJUSTMENT

The intermediate gears should be favorably aligned with a perceptible amount of backlash. Check upper and lower pairs of gears. To adjust, loosen the intermediate gear shaft bearing bracket mounting screws and position the bracket. Tighten the mounting screw. (See Figure 2.)

### DISTORTION ADJUSTING GEAR SEGMENT ADJUSTMENT (Figures 1 & 2.)

With one and then the other distortion adjusting idler gear stud against the stop plate, the teeth of this gear should mesh with its associated gear segment so that the mesh is equalized (within one tooth) between the

extreme limits of travel of the gear segment. There should also be a slight amount of backlash between the gear and the gear segment throughout the entire travel of the gear segment.

To adjust for proper mesh, remove the distortion adjusting idler gear by means of its mounting screw and reinstall it so that the correct relative position is obtained to meet the foregoing requirement.

To adjust for backlash, loosen slightly the three gear segment mounting screws and position the segment. Tighten the mounting screws.

#### TRANSMITTING CONTACT ADJUSTMENTS

NOTE: The transmitting contact assemblies are numbered from 1 to 5, the number 5 toward the front of the unit. (See Figure 3.)

- (1) With the Code Selecting Knob (Figure 1) in the R position, there should be a gap of .015" to .025" between each pair of contact points of the numbers 1, 3 and 5 contact assemblies. To adjust, bend the short contact springs and their stiffeners. (See Figure 4-A)
- (2) With the Code Selecting Knob in the Y position, there should be a gap of .015" to .025" between each pair of contact points of the numbers 2 and 4 contact assemblies. To adjust, bend the short contact springs and their stiffeners. (See Figure 4-A)
- (3) With the Code Selecting Knob in the TEST MESSAGE position, and the contact levers on the high parts of their cams, there should be a gap of .015" to .030" between each pair of contact points.

To adjust, loosen the coding unit mounting screws and position the coding unit. Tighten the mounting screws. (See Figure 4-B.)

- (4) With the Code Selecting Knob in the TEST MESSAGE position, rotate the code cams until the number 1 contact lever rests on a low part of its cam. Hold the number 1 contact lever against its cam and hook an 8 oz. scale on the top of the contact shield spring. It should require 1 to 2 ozs. to pull the spring away from the contact lever. Check each contact shield spring in a similar manner with each contact lever on a low part of its respective cam. To adjust, bend the contact shield springs. (See Figure 4-C)

NOTE: There should be at least .010" clearance between the contact shield spring and the inside short contact spring. If the position of the contact shield springs is changed in any manner, recheck the contact gaps.

- (5) Apply the end of an 8 oz. scale to the short contact spring at the contact point and push at right angles to the contact spring. It should require at least 1 oz. to start each short contact spring moving away from its stiffener. To adjust, bend the short contact springs.



- (6) Hook an 8 oz. scale on the top of the outer long contact spring and pull at right angles to the contact spring. It should require 1 to 2 ozs. to start each outer long contact spring moving away from its inner long contact spring. To adjust, bend the outer long contact spring.
- (7) Hold the outer long contact spring away from the inner long contact spring and hook an 8 oz. scale over the top of the inner long contact spring. It should require 1 to 2 ozs. to start each inner long contact spring moving away from its shield spring. To adjust, bend the inner long contact spring.
- (8) Recheck (c) and (e).

#### STOP CONTACT ADJUSTMENT (Figure 5)

- (1) With the stop contact lever held up, away from the stop contacts, there should be a gap of .006" to .015" between the contact point. To adjust, bend the stop contact spring stiffeners.
- (2) Apply the push end of an 8 oz. scale to the lower contact spring at the contact point. It should require 1 to 2 ozs. to start the contact spring moving away from its stiffener. To adjust, bend the lower contact spring.
- (3) With the stop contact lever held away from the stop contacts, apply the push end of an 8 oz. scale to the upper contact spring, at the contact point. It should require 1 to 2 ozs. to start the contact spring moving away from its stiffener. To adjust, bend the upper contact spring.

#### STOP CONTACT BRACKET ADJUSTMENT (Figure 5)

With the stop contact lever in the upper notch of the stop contact lever latch and the RUN-STOP knob in the STOP position, there should be .004" to .012" clearance between the post on the stop contact lever and the insulator on the upper contact spring. To adjust, loosen the stop contact bracket mounting screws and position the bracket. Tighten the mounting screws.

#### STOP CONTACT LEVER LATCH CAM ADJUSTMENT

With the contact lever in its upper latched position and the RUN-STOP Knob in the STOP position, rotate the main shaft slowly by hand until the lever latch cam just unlatches the contact lever. Under these conditions the distributor brushes should be in a position 1/8" to 1" beyond the beginning of the stop segment on the fixed disc. To meet these requirements, adjust the lever latch cam by means of its set screw, taking care to allow clearance between the cam and the back casting.

#### STOP CONTACT LEVER LATCH SPRING TENSION (Figure 5)

With the stop contact lever latch on the high part of its cam and the stop contact lever held away from the shoulders of the latch, hook an 8 oz. scale over the stop contact lever latch, near the top, and pull in line with

the spring. It should require 6 to 8 ozs. to start the latch moving.

#### STOP CONTACT LEVER SPRING TENSION (Figure 5)

With the stop contact lever latch on the high part of its cam and the RUN-STOP Knob in the RUN position, hook an 8 oz. scale over the spring post, on the end of the stop contact lever, and pull up, in line with the spring. It should require 5 to 8 ozs. to start the lever moving.

#### RUN-STOP SWITCH TOGGLE STOP PLATE SPRING TENSION

With the RUN-STOP Knob in the RUN position and the stop contact lever latched in the lower notch of the stop contact lever latch, hook an 8 oz. scale over the large spring post on the switch toggle stop plate and pull at an angle of 90 degrees to the spring. It should require at least 4 ozs. to start the toggle stop plate moving. (See Figure 3.)

#### TRANSMITTING CONTACT BAIL SPRING TENSION

With the Code Selecting Knob in the TEST MESSAGE position, apply the push end of a 12 lb. scale to the end of the bail extension, adjacent to the code selecting cylinder. It should require at least 2 lbs. to start the bail extension moving away from the code selecting cylinder. (See Figure 2.)

#### CODE DISC SHAFT END PLAY ADJUSTMENT

The code disc shaft should have some end play, not more than .005". To adjust, loosen the code disc sleeve mounting screw and position the sleeve and shaft. Tighten the mounting screw.

#### CODE DISC PHASING ADJUSTMENT

With the code selecting knob in the TEST MESSAGE position, rotate the brush shaft until the number 3 outer contacts close. The brush for the outer ring of the fixed disc should be not more than  $3/4$  of a segment length in either direction from the gap between the stop and start segments. To adjust, loosen the nut on the upper end of the intermediate gear shaft. Rotate the code discs until the number 3 outer contacts just close and hold the discs from moving. Rotate the brush shaft until the brush for the outer ring of the fixed disc is at the gap between the stop and the start segments. Tighten the nut on the intermediate gear shaft. (See Figure 3.)

#### MOTOR UNIT SLIP CONNECTION SPRING ADJUSTMENT

- (1) With the motor unit in position on the base, hook a 4 lb. scale over one of the end motor unit slip connection springs, just below the head of the terminal screw on the motor connection block, and pull at right angles to the slip connection springs. It should require  $2\ 1/4$  to  $3\ 3/4$  lbs. to just break contact. Measure the pressure of the opposite end slip connection spring in the same manner. Use a test lamp to determine when the contact breaks. To adjust, remove the motor unit and bend the slip connection springs. (See Figure 2.)

- (2) With the motor unit removed, place a straight edge across the two end slip connection springs. There should be some clearance, not more than .015" between the two inner connection springs and the straight edge. To adjust, bend the two inner connection springs.

#### CODE DISC UNIT FRICTION ASSEMBLY TORQUE

With the motor running at least 10 minutes, hook a 32 oz. scale over the end of the friction draglever and pull at right angles to the lever. It should require 20 to 32 ozs. to hold the lever against the stud. (See Figure 2)

#### MAIN SHAFT GEAR FRICTION CLUTCH TORQUE

NOTE: Disregard this adjustment if the main shaft is equipped with a direct drive gear hub instead of a friction clutch.

Hold the motor shaft to prevent it from rotating. Hook a 64 oz. scale over the edge of the slotted part of the lamp arm and pull at right angles to the arm. It should require 40 to 48 ozs. to just start the main shaft rotating. To adjust, loosen the capstan nut lock nut and regulate the tension by means of the capstan nut. Tighten the lock nut.

#### OUTER RING BRAKE TORSION SPRING ADJUSTMENT

NOTE: This adjustment applies only to units equipped with a brake which bears against the outer ring on its upper left-hand quadrant.

Hook an 8 oz. scale over the end of the brake lever and pull at a right angle to the lever. It should require a pull of 5 to 8 ozs. to lift the lever from the outer ring. To adjust, loosen the lock nut on the brake lever mounting stud and rotate the stud. Tighten the lock nut.

#### INDICATING LAMP ARM ADJUSTMENT

The face of the slotted part of the lamp arm should be approximately in line with the face of the scale. There should be some clearance, not more than .006" at the point of least clearance between the end of the slotted part of the lamp arm and the edge of the scale plate. To adjust, loosen the lamp arm mounting screws and position the arm. Tighten the mounting screws. (See Figure 1.)

#### BRUSH ADJUSTMENT

The ends of the brushes should be cut square and be free from fragments. The brushes should be straight and extend at right angles to and 3/4" from the brush arm. To adjust, loosen the brush clamp screws and position the brushes. Tighten the clamp screws, then loosen the brush arm clamp screw, move the brushes against their respective discs until the post on the brush arm is against its stop post. (See Figure 1.)

#### INDICATING LAMP POSITION ADJUSTMENT

The indicating lamp should give a maximum of brilliancy. Observe the brilliancy with the front cover installed and the motor running. To

adjust, remove the front cover and loosen the lamp bracket mounting screw and position the bracket. Tighten the mounting screw. (See Figure 1.)

Replace the covers.

#### LOCAL POWER REQUIREMENTS

The Signal Distortion Test Sets are usually equipped with 115 volt A.C. synchronous motors. Direct current is required for the stroboscope lamp.

### LUBRICATION

The oil and grease specified in the supplement furnished with this bulletin should be used to lubricate the Teletype Signal Distortion Test Set. Unless otherwise specified, one or two drops of oil at each of the places indicated will be sufficient. Use oil for lubrication at all of the places listed, except where the use of grease is specified. Oil both loops of all helical springs that exert a nominal tension of less than 2 1/2 lbs. Apply grease to both loops of helical springs that exert a nominal tension of 2 1/2 lbs. or more.

Code disc - grease.  
Code discs oil wick - saturate.  
Code discs shaft - two bearings.  
Code selecting cylinder - two bearings.  
Code selecting cylinder camming surfaces - grease.  
Contact levers (five or six) - bearings and at shield springs.  
Contact lever bail shaft - two bearings.  
Distortion adjusting gears - two bearings.  
Intermediate gears - grease.  
Intermediate shaft - two bearings.  
Main shaft ball bearings - two.  
Main shaft friction washers - saturate.  
Main shaft gears - grease.  
Motor bearing oilers - two oil holes.  
Motor pinion - grease.  
RUN-STOP Switch shaft - bearing.  
Stop contact lever - bearing.  
Stop contact lever latch - bearing.  
Stop contact lever latch cam - grease.  
Braking pulley - grease groove sparingly.  
Braking wedge - bearing.

\* \* \*

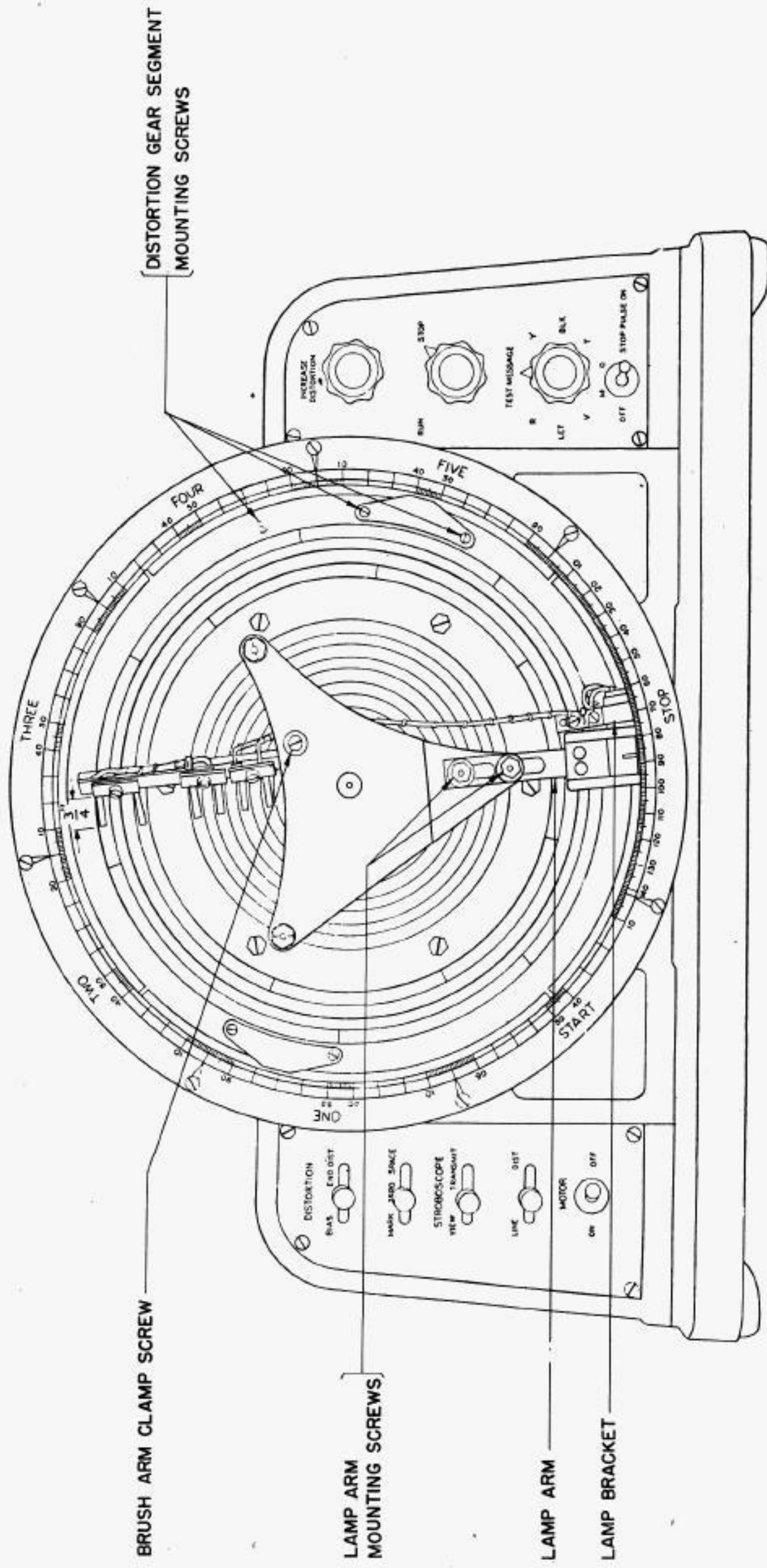


FIGURE 1

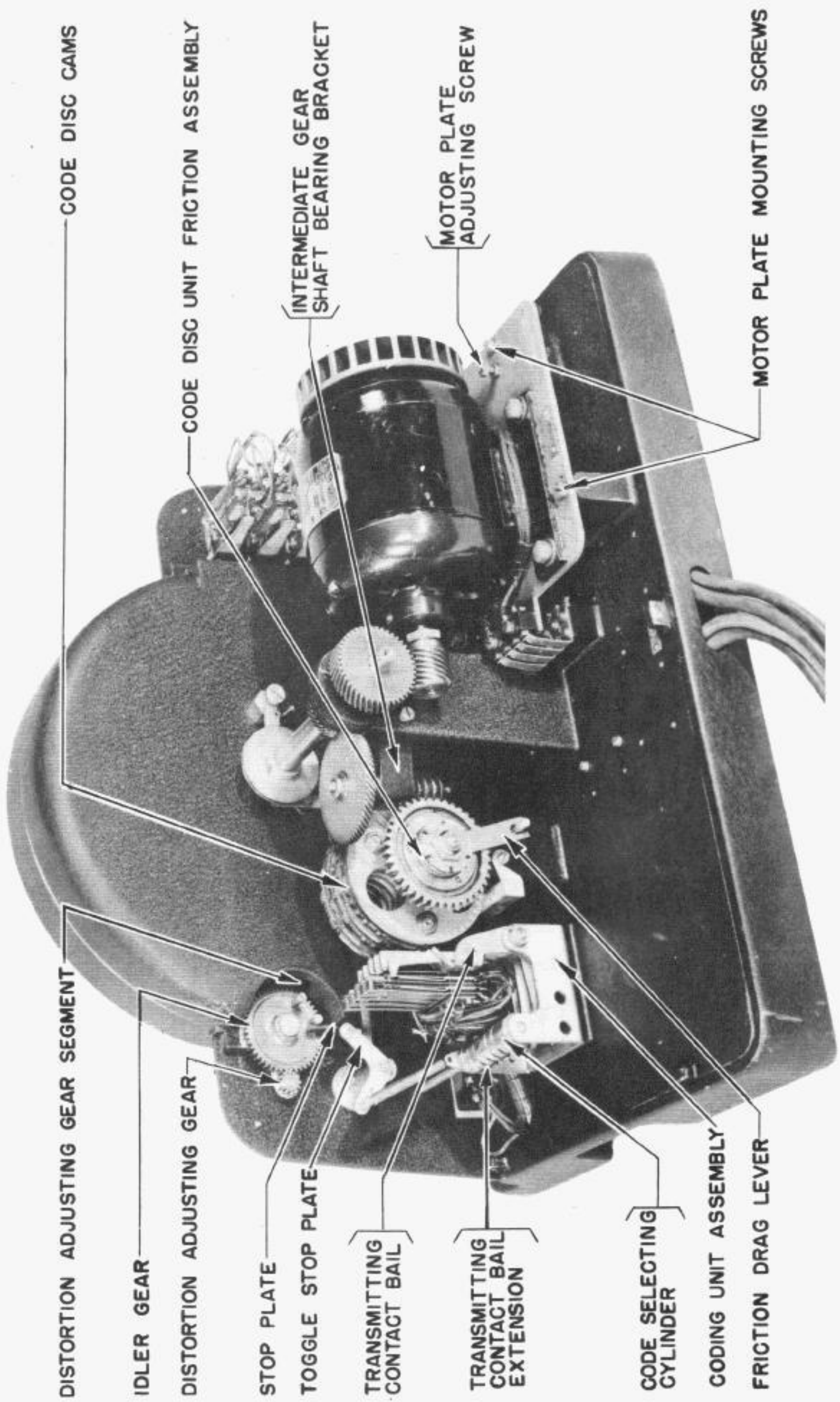
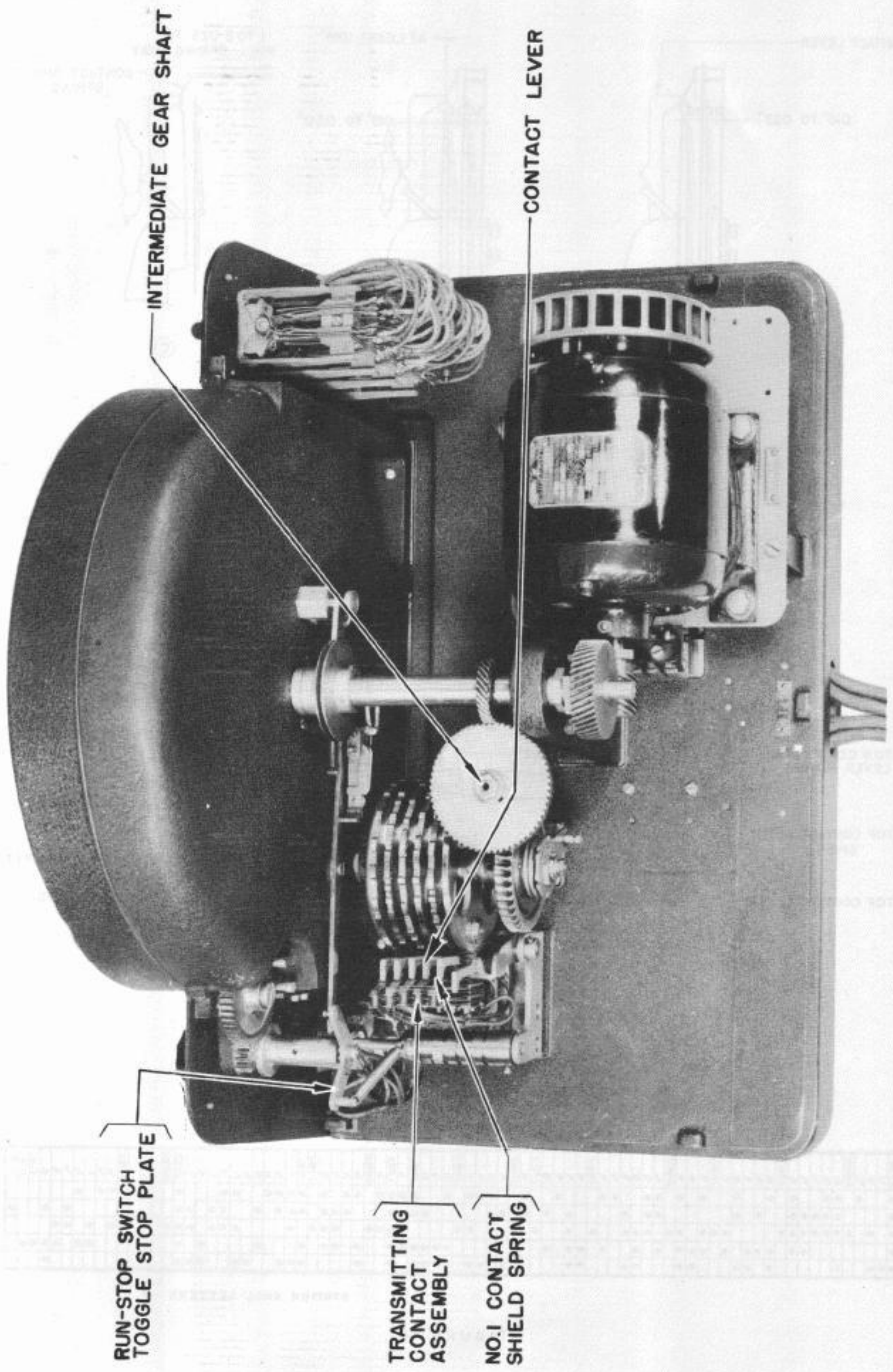


FIGURE 2



RUN-STOP SWITCH  
TOGGLE STOP PLATE

INTERMEDIATE GEAR SHAFT

TRANSMITTING  
CONTACT  
ASSEMBLY

NO.1 CONTACT  
SHIELD SPRING

CONTACT LEVER

FIGURE 3



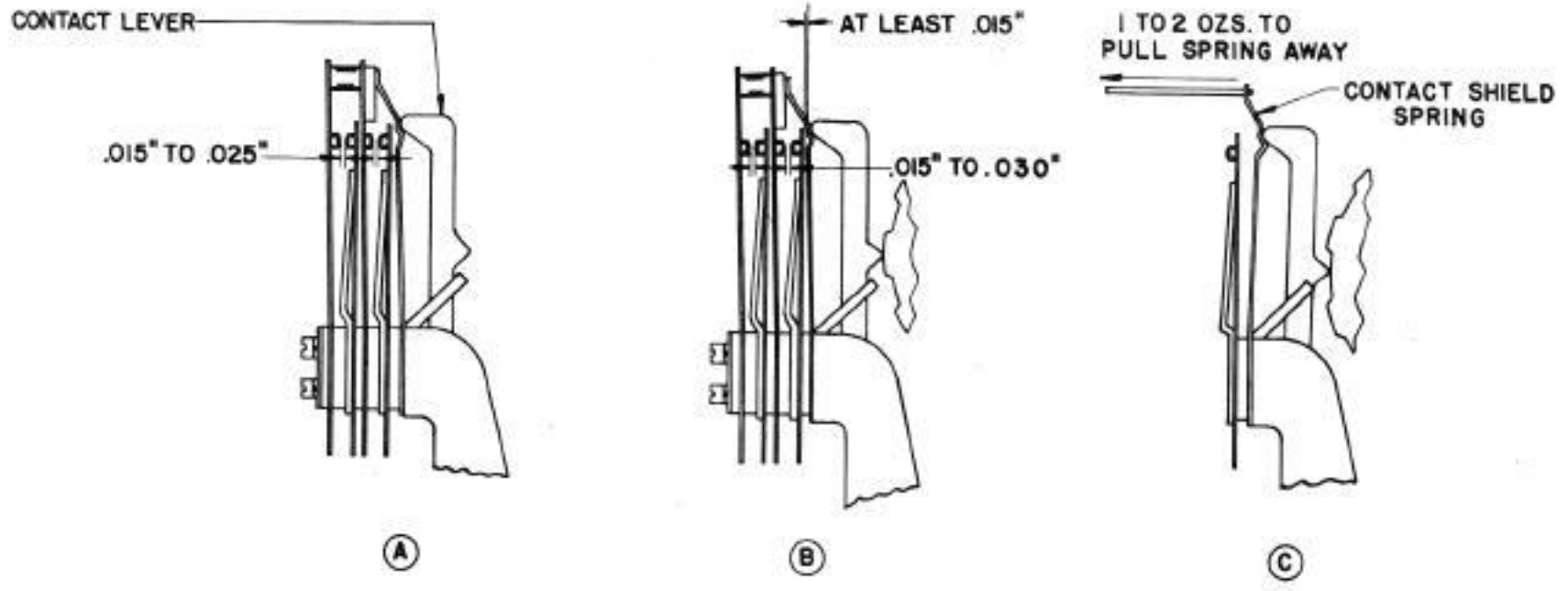


FIGURE 4

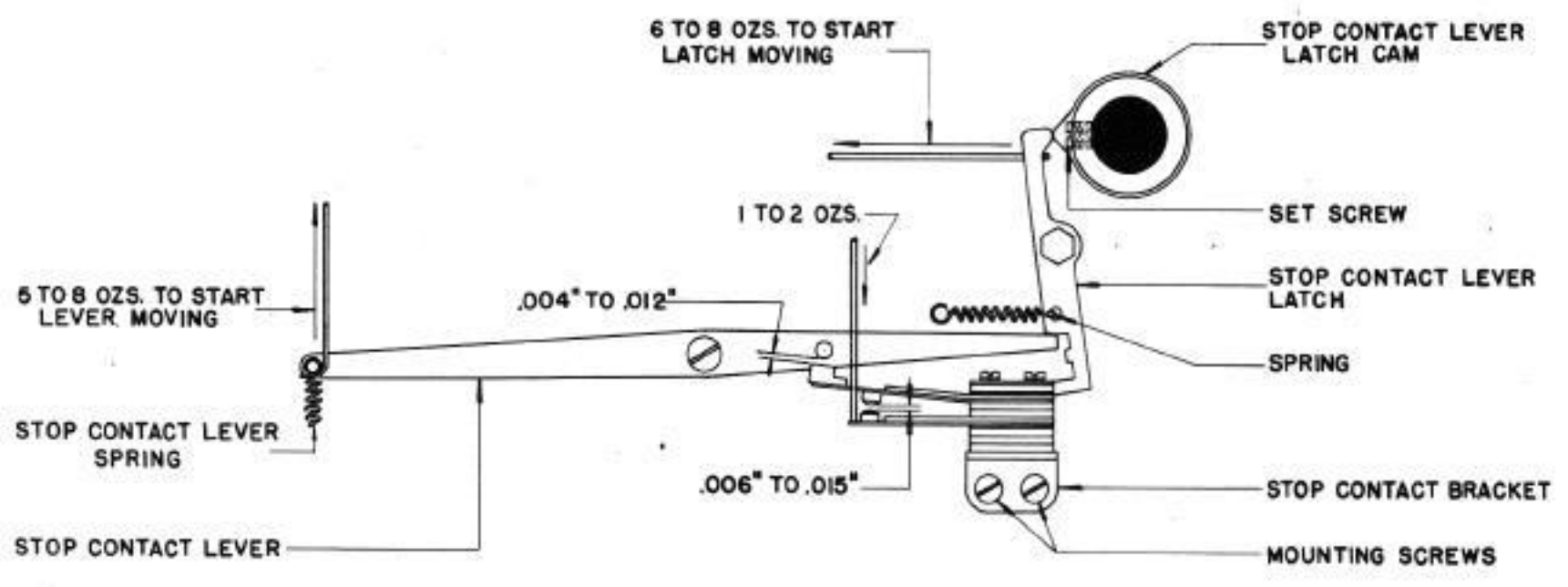


FIGURE 5

LTR.	THE	SPACE	QUICK	SPACE	BROWN	SPACE	ON	SPACE	JUMPED	SPACE	BY	SPACE	SPACE	LAZY	SPACE	DOG	SPACE	LYES	SPACE	BACK	SPACE	1	2	3	4	5	6	7	8	9	0	LTR.	SPACE	SENDING	LTR.	SPACE	LTR.			
•			•	•	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•		•	•	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•			•	•	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•			•	•	•	•		•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

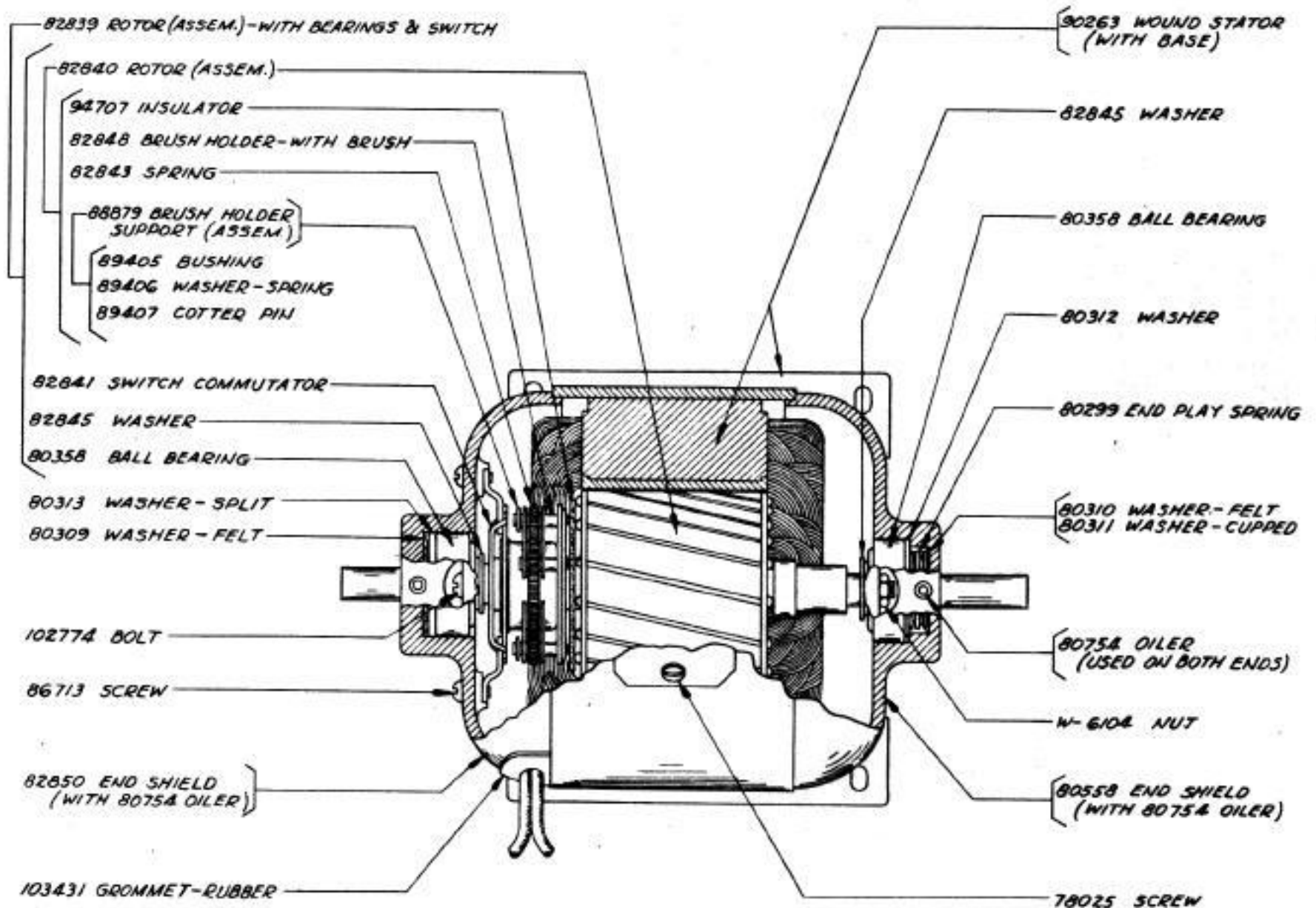
STATION GALL LETTERS

FIGURE 6

CHANGES AND ADDITIONS TO BULLETINS

1030	ISSUE 2	1064	ISSUE 1	1084	ISSUE 1	1100	ISSUE 1	1107	ISSUE 1
1031	" 3	1075	" 2	1087	" 1	1101	" 1	1108	" 1
1037	" 4	1079	" 1	1088	" 2	1102	" 1	1109	" 1
1041	" 3	1080	" 1	1094	" 2	1103	" 1	1114	" 1
1048	" 2	1082	" 2	1095	" 1	1104	" 1		
1063	" 2	1083	" 1	1096	" 1	1106	" 1		

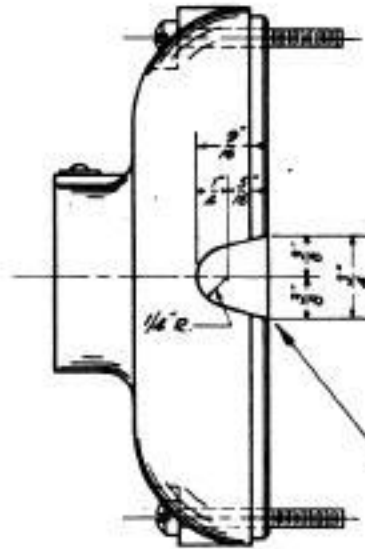
THIS CORRECTION SHEET COVERS ORDERING INFORMATION AND INTERCHANGEABILITY OF PARTS FOR THE OLD STYLE 82283 SYNCHRONOUS MOTOR (G.E. MODEL 5SH25ABII) AND THE NEW STYLE 82283 SYNCHRONOUS MOTOR (G.E. MODEL 5SH25ABIIB)



NEW STYLE

82283 SYNCHRONOUS MOTOR, 1/40 H.P., 110 V., 60 CYCLE A.C. (G.E. MODEL 5SH25ABIIB)

(SEE PAGE 2 FOR OLD STYLE)

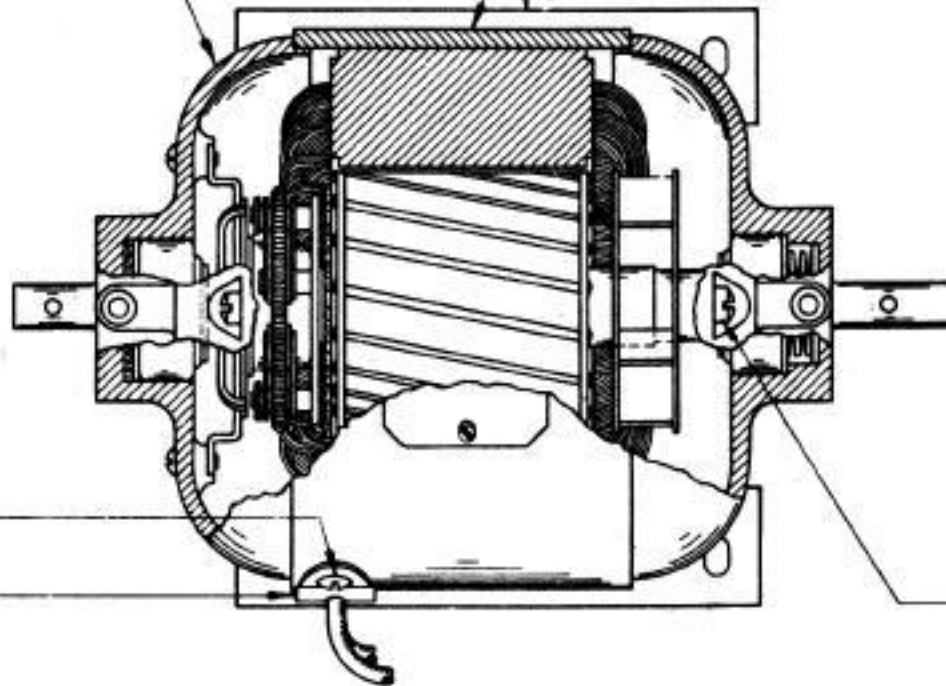


OLD STYLE 82850 END SHIELDS MAY BE WORKED OVER FOR USE WITH NEW STYLE MOTORS BY ADDING WIRE OUTLET HOLE AS ILLUSTRATED.

82850 END SHIELD - HAS BEEN REDESIGNED BUT RETAINS ITS ORIGINAL PART NUMBER. THE NEW STYLE END SHIELD (WITH WIRE OUTLET HOLE) CAN ALSO BE USED ON THE OLD STYLE MOTORS. THE OLD STYLE END SHIELD (WITHOUT WIRE OUTLET HOLE) CANNOT BE USED ON NEW STYLE MOTORS UNLESS IT BE WORKED OVER AS ILLUSTRATED ABOVE.

90263 WOUND STATOR (WITH BASE) - HAS BEEN REDESIGNED BUT RETAINS ITS ORIGINAL PART NUMBER. WHEN REPLACING AN OLD STYLE STATOR (WITH TAPPED HOLES FOR THE END SHIELD CLAMPING STUDS) WITH A NEW STYLE STATOR (WITH BODY HOLES FOR THE END SHIELD BOLTS) THE FOLLOWING NEW STYLE PARTS SHOULD BE ORDERED:

90263 WOUND STATOR (WITH BASE).....	1
82850 END SHIELD.....	1
(OR WORK OVER OLD STYLE END SHIELD)	
10343/ GROMMET - RUBBER.....	1
102774 BOLT.....	2
W-6104 NUT.....	2



OLD STYLE

82283 SYNCHRONOUS MOTOR, 1/40 H.P., 110 V., 60 CYCLE A.C. (G.E. MODEL 5SH25ABII)

(PARTS NOT LISTED SAME AS ON NEW STYLE MOTOR, SHOWN ON PAGE 1)

CHANGES AND ADDITIONS  
BULLETIN NO. 1079 (ISSUE 1)  
PARTS - SIGNAL DISTORTION TEST SET

Bulletin No. 1079 (Issue 1), in its present form, covers parts ordering information for DXD1. Since publication of the Bulletin the DXD1 has been redesigned and the following changes describe the difference between the old and new style DXD1.

(For information on DXD4 see page 4 of this correction sheet.)

Page 1

The 92399 panel plate, listed on the left hand side of the page, and the 92400 panel plate, listed on the right hand side, should read "92399 panel plate - left" and "92400 panel plate - right".

A 95282 resistor (250,000 ohms) has been added across the contact springs of the lower 5702 key.

The 91684 nut and 93075 shoulder nut, used with the 73180 toggle switch, should read "91684 nut - hex.," and "93075 nut - ring".

The 8543 screw (1/4" long), used for mounting the 92385 panel - right to the 92352 base, and the lower and upper 8543 screws on the left side of the 92400 panel plate - right, have been replaced by 103539 screws (3/8" long). This change also applies to the left side of the unit.

A brake, to prevent the rotating of the 92349 ring after it has been set in a desired position, has been added and is mounted in the upper right hand corner of the 92384 panel - left. The component parts of this brake are as follows:

101490	Stud		1
3598	Nut	) for 101490 - Rear	1
2191	Lock Washer		1
101489	Spring		1
103178	Brake Lever (Assem.)		1
101491	Brake Lever		1
78469	Bumper - Rubber		1
1163	Screw		1
34-56	Nut		1
3599	Nut	) for 101490 - Front	1
3640	Lock Washer		1
103-27	Washer		1

Page 2

The 92357 segment disc, 92363 segment ring, 92389 screw and 3640 lock washer, listed on the left side of the page, should be deleted and replaced by 92356 segment disc - outer (Assem.).

The two 1252 screws, associated with the 92395 lamp clamp, should read "1162 screw". The nut, used with the screw nearest the 92437 lamp, may be ordered as 3599 nut.

The 92358, 92359, 92360, 92361 commutator rings, 92362 segment ring and 92355 segment disc, listed on the right hand side of the page, should be deleted and replaced by 92354 segment disc-inner (Assem.).

The 92386 brush arm insulator, listed on the right hand side of the page, should read "92813 brush arm insulator (with 92930 terminals)."

The 78028 screw, 7002 washer and 2191 lock washer, used for mounting the 92393 brush arm clamp (not listed) to the 92402 hub, are incorrectly listed and should read as follows:

78028 screw (hex, head - mounts from front)  
7002 washer (for 78028)  
73235 screw (fil. head - mounts from rear)  
2191 lock washer ) for 73235  
7002 Washer )

Page 3

The springs, used with the 92425 lever (first item on left hand side of the page), and 92423 contact latch (listed on the right hand side), may be ordered as "3870 spring".

The 79516 contact spring, listed on the left hand side of the page, should read "79516 contact shield".

The ordering information pertaining to the code discs, should be deleted. Code discs should be ordered by numbers stamped thereon.

The two ball bearings, used on the 92406 shaft (with gear), may be ordered as "90122 ball bearing".

The entire group of parts, listed at the bottom on the right hand side of the page, and referring to the friction drive gear parts, has been replaced by a 102663 gear - 44T (with hub) if unit is equipped with synchronous motor, or a 102668 gear - 40T (with hub) if the unit is equipped with a governed motor. The hub of either of the above gears is of a tapered design that tightens onto the shaft as it is screwed into the gear.

Note: The gears and their respective hubs are matched sets and are not interchangeable.

In order to prevent a counterclockwise rotation of the brush arm, a reverse rotation stop has been added. This stop mounts on the rear of the 92348 frame (listed on page 1) and consists of the following parts:

96463	Pulley	1)	Mounted on Shaft
80706	Screw (for 96463)	2)	
96465	Post - Hex	1)	Mounted on rear of 92348 Frame
78301	Screw	1)	
2669	Lock washer	1)	
96464	Wedge	1)	
7048	Screw (for 96464 - Rear)	1)	
81560	Spring Post	1)	
35-54	Spring	1)	

Page 4

The 80166 pinion, 6746 screw and 2191 lock washer, have been replaced by a 102662 pinion - 9T (with hub) if the unit is equipped with a synchronous motor or a 102667 pinion - 7T (with hub) if the unit is equipped with a governed motor. The hub of either of the above pinions is of a tapered design that tightens onto the shaft as the hub is screwed into the pinion.

NOTE: The pinions and their respective hubs are matched sets and are not interchangeable.

The 6745 screw (1/2" long), used with the 34-4 nut and 2669 lock washer, at the rear of the motor mounting plate, has been replaced by a 78301 screw (5/8" long). The screw, on which the 78301 screw rests, may be ordered as 1224 screw.

The 80439 motor unit (assem.), listed on the right hand side of the page, has been superseded by an MU4 motor unit (assem.), component parts of which are illustrated on page 6 of this correction sheet.

MU26 has been assigned to a motor unit (assem.), having a governed motor. For component parts see page 7 of this correction sheet.

Page 5

The 91907 resistance unit (assem.), listed on the left hand side of the page, has been replaced by a 96814 resistor unit (assem.), component parts of which are illustrated on page 9 of this correction sheet.

A 34432 washer has been added under each of the 6745 screws, listed on right hand side of the page, with the exception of the one mounting the 8254 clamp.

The 76675 bracket (for mounting two resistors), listed on the right hand side of the page, has been replaced by a 96461 bracket (for mounting four resistors).

The value (in ohms) of the 82867 and 82870 resistors, listed on the right hand side of the page, are as follows:

82867 Resistor - 7000 ohms  
82870 Resistor - 6300 ohms (4300-2000)

The 61-24 bakelite washer, used with the 82867 and 82870 resistors, has been replaced by 75750 washer - bakelite.

The 81825 condenser - 25/100 MF., listed on the right side of the page, should read "81825 condenser - 1/100 MF." The 1162 screws (1/4" long), used for mounting the condenser, have been replaced by 74514 screws (7/8" long). The bakelite bushings, used to insulate the screws, may be ordered as 82559 bushing - bakelite.

A 102164 name plate (bearing wiring information), has been added under the two 76117 terminal blocks (assem.) and is held in place by means of the terminal block mounting screws.

Ordering information for cables has been added and is as follows:

93706 Cable - Distributor )  
93707 Cable - Motor ) W.D. 2151

DXD4 has been assigned to a new unit which is the same as the new style DXD1 with the following exceptions:

Page 1

A 93136 toggle switch (with 91683 nut - hex. and 91684 nut - ring) and 96462 insulator have been added on the right front side of the unit just below the lower 92410 knob.

The addition of the above toggle switch necessitates the replacing of the 92400 panel plate - right with a 96460 panel plate - right.

In order to improve the visability of the signals a 96458 hood has been added. This hood is cylindrical in shape and is pressed over the 92349 ring.

The brake, referred to under the heading of Page 1 for DXD1, is not used on DXD4.

Page 4

The 92371 code cylinder, listed midway down the page on the left hand side, has been replaced by a 96459 code cylinder.

Page 5

The following cord assemblies have been added:

99763 cord (assem.), consisting of a 99762 plug (two prong), a 99819 cord and two 82474 terminals.

103230 line cord (assem.) (two conductor - red shell plug) consisting of a 73497 plug (red shell) and a 103234 cord (with terminals).

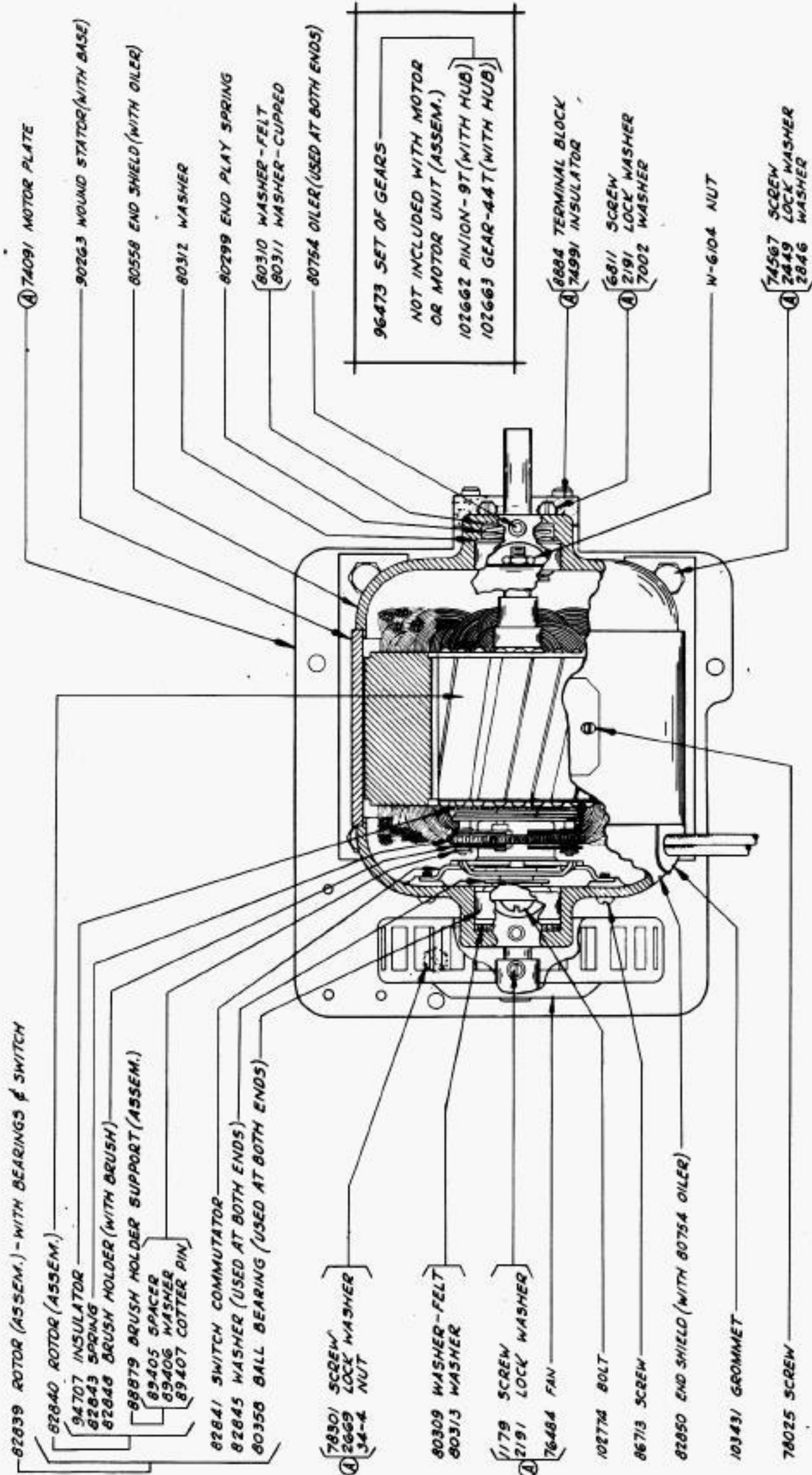
103231 line cord (assem.) (two conductor - black shell plug) consisting of a 103236 plug (black shell) and a 103234 cord (with terminals).

103232 line cord (assem.) (single conductor - red shell plug) consisting of a 73497 plug (red shell) and a 103235 cord (with terminal).

103233 line cord (assem.) (single conductor - black shell plug), consisting of a 103236 plug (black shell) and a 103235 cord (with terminal).

DXD4 is wired in accordance with wiring diagram W.D.- 1653.

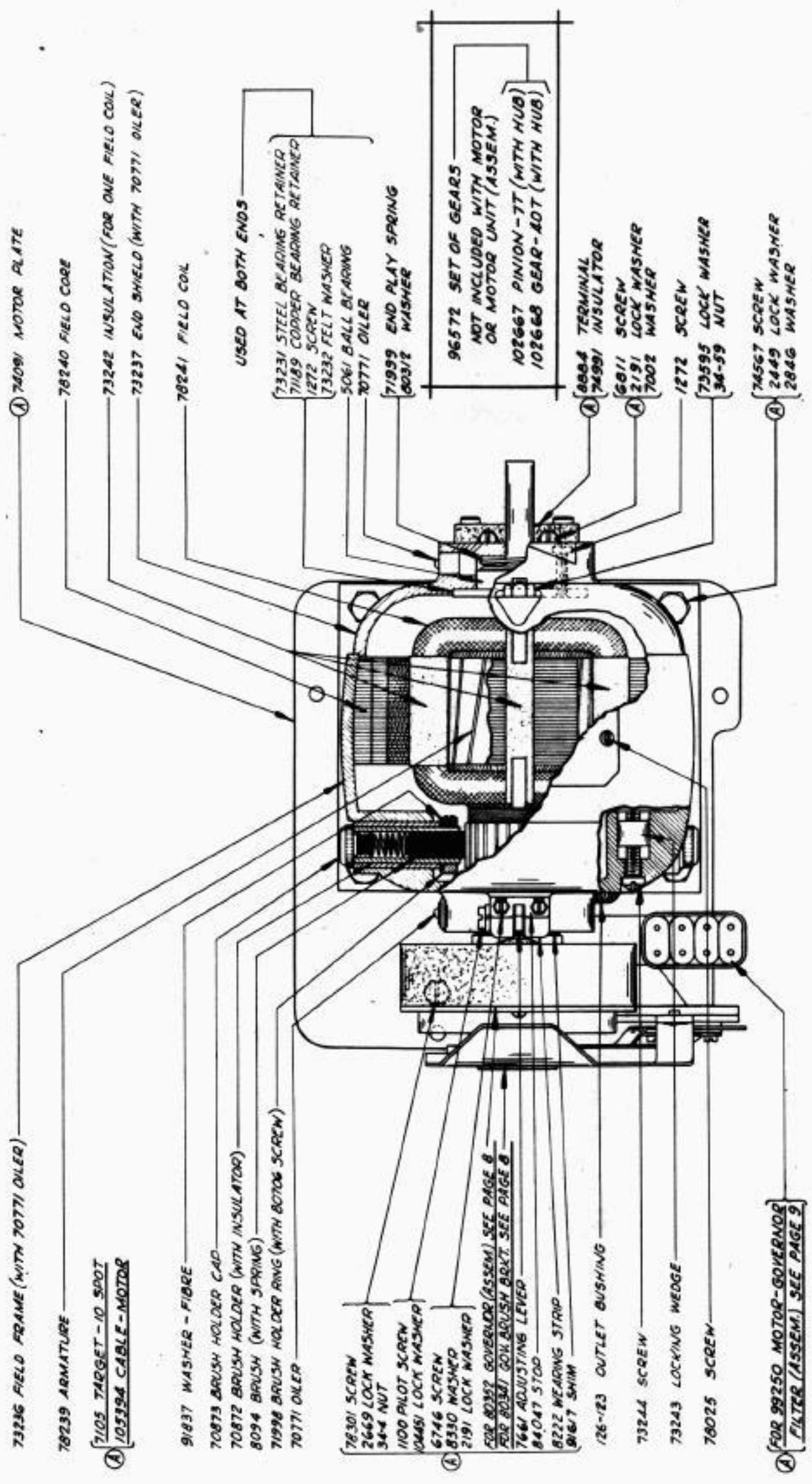




SYNCHRONOUS MOTOR

82283 SYNCHRONOUS MOTOR, 1/40 H.P., 110 V., 60 CYCLE, A.C. (G.E. MODEL 5SH25AB11B) - EXCLUDES PARTS MARKED (A)

MU4 MOTOR UNIT (ASSEM.) - INCLUDES 82283 MOTOR AND PARTS MARKED (A)



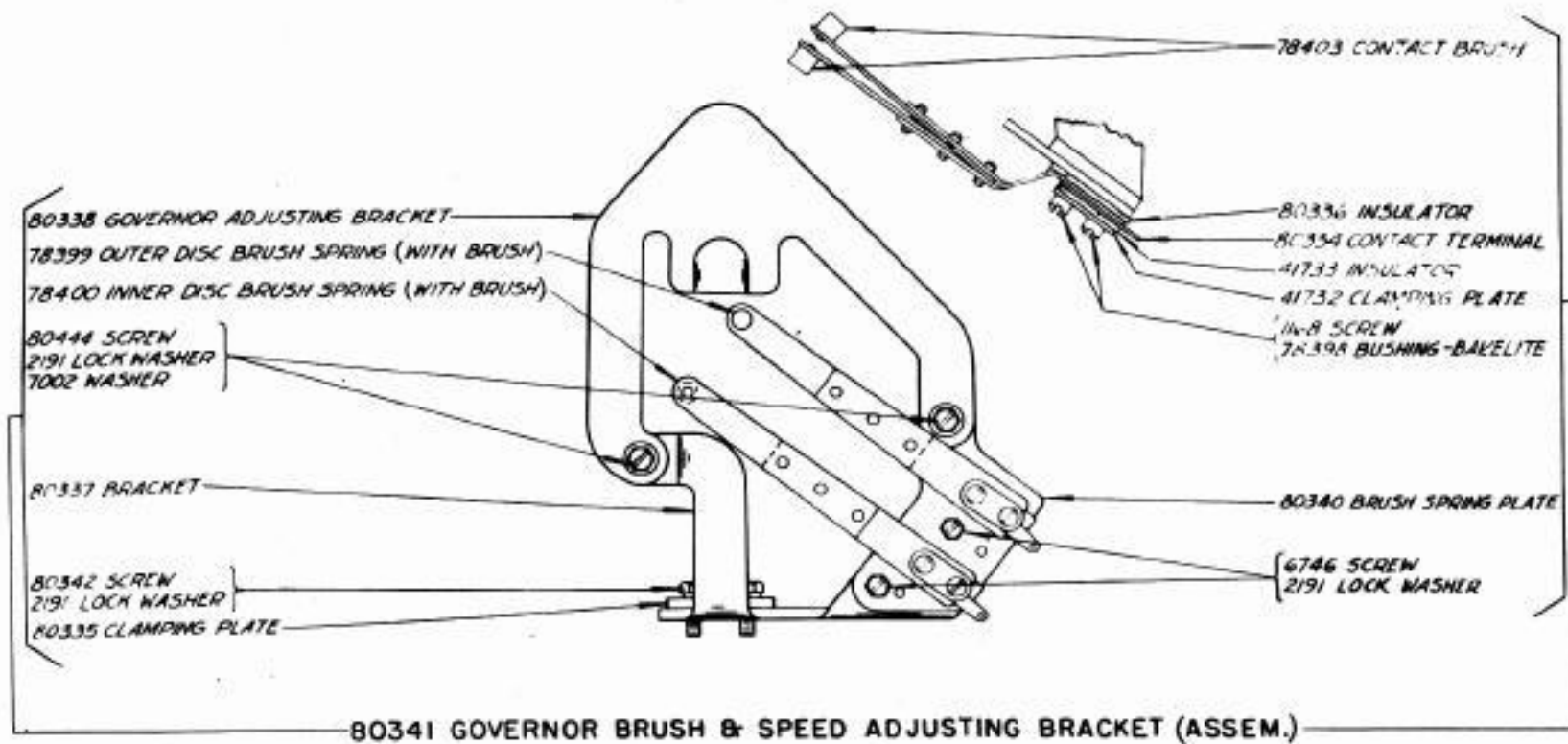
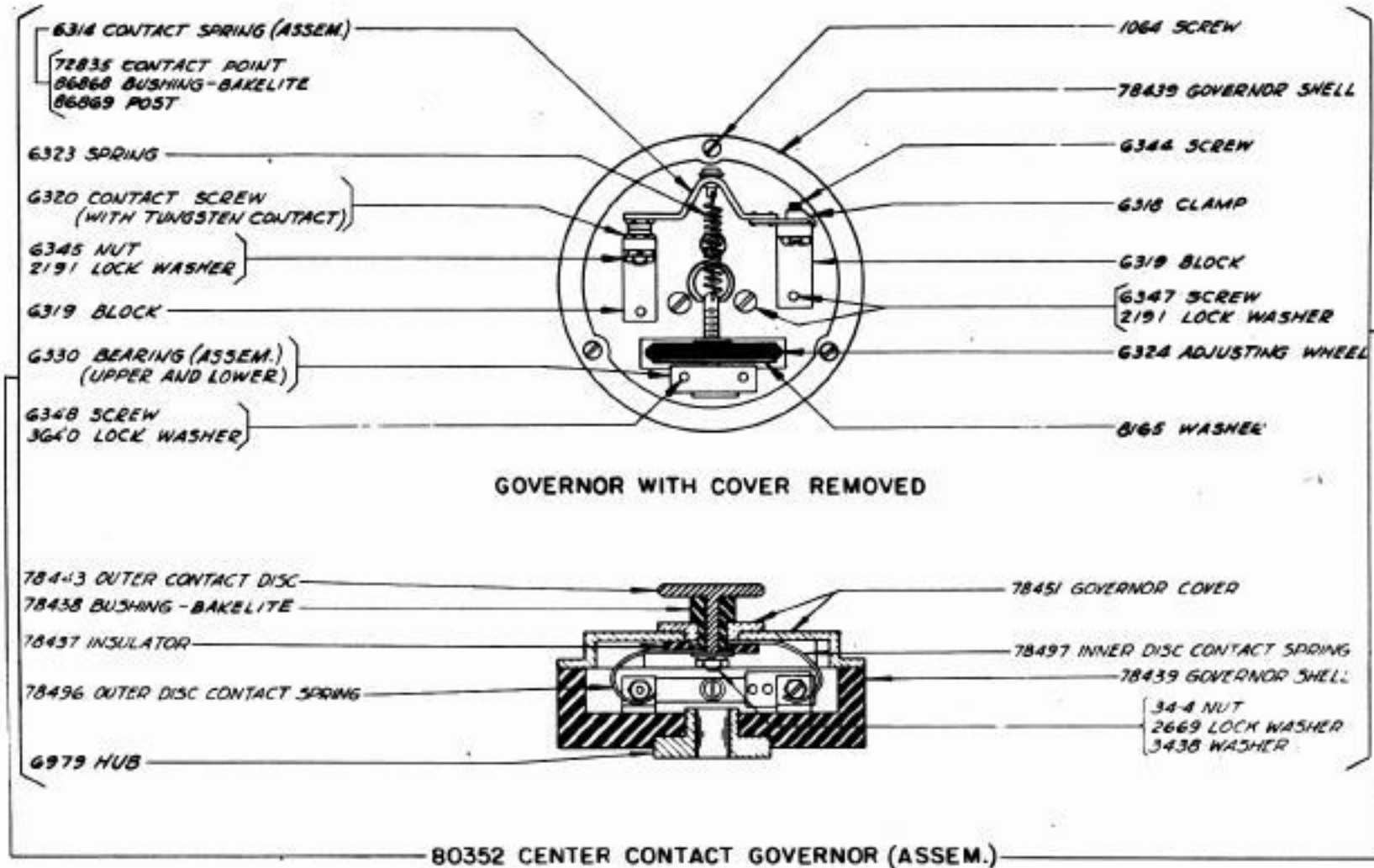
GOVERNED MOTOR

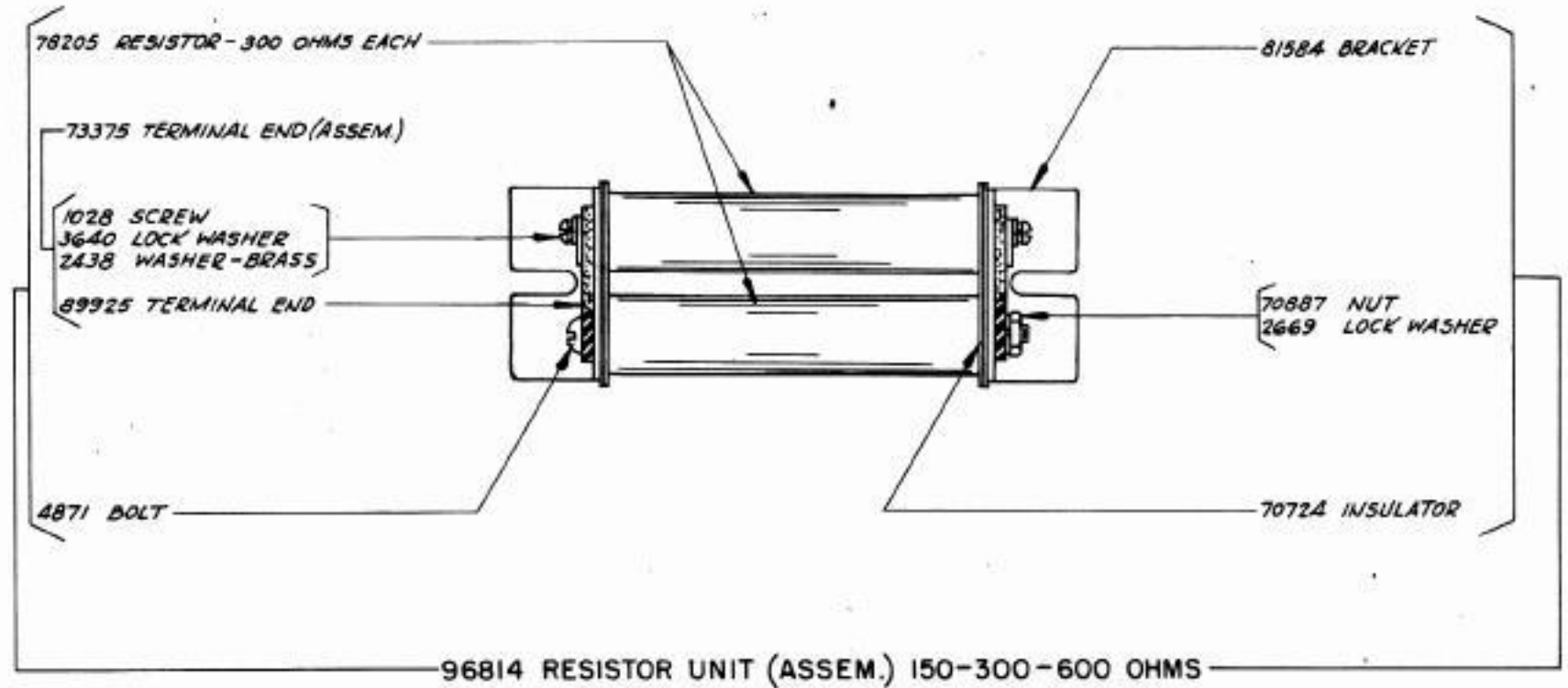
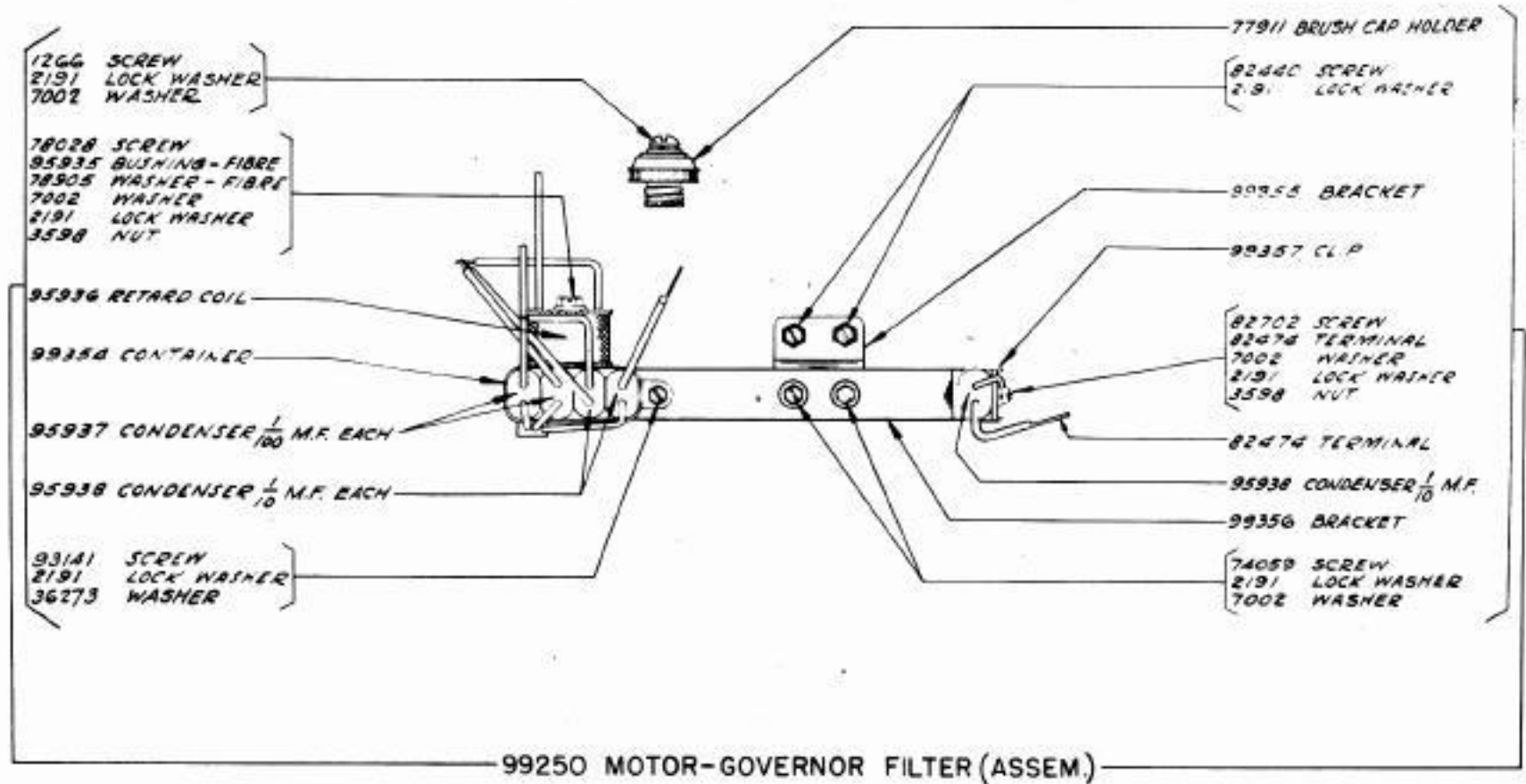
77953 MOTOR, 1/25 H.P., 110 V., 50-60 CYCLE, A.C. SERIES (G.E. MODEL 5BA65AA29) - EXCLUDES PARTS MARKED (A)

MU26 MOTOR UNIT (ASSEM.) - INCLUDES 77953 MOTOR AND PARTS MARKED (A)

6011 SCREW  
2191 LOCK WASHER  
FOR MOUNTING GOVERNOR

7105 TARGET - 10 SPOTS





BULLETIN No. 1079

ISSUE 1

FEBRUARY, 1939

# TELETYPE

PRINTING TELEGRAPH SYSTEMS

PARTS

SIGNAL DISTORTION TEST SET



CORPORATION

SUBSIDIARY OF

*Western Electric Company*

CHICAGO, U.S.A.

BULLETIN No. 1079

ISSUE 1

FEBRUARY, 1939

# TELETYPE

PRINTING TELEGRAPH SYSTEMS

PARTS

SIGNAL DISTORTION TEST SET



REG. U. S. PAT. OFF.  
CORPORATION

SUBSIDIARY OF

*Western Electric Company*

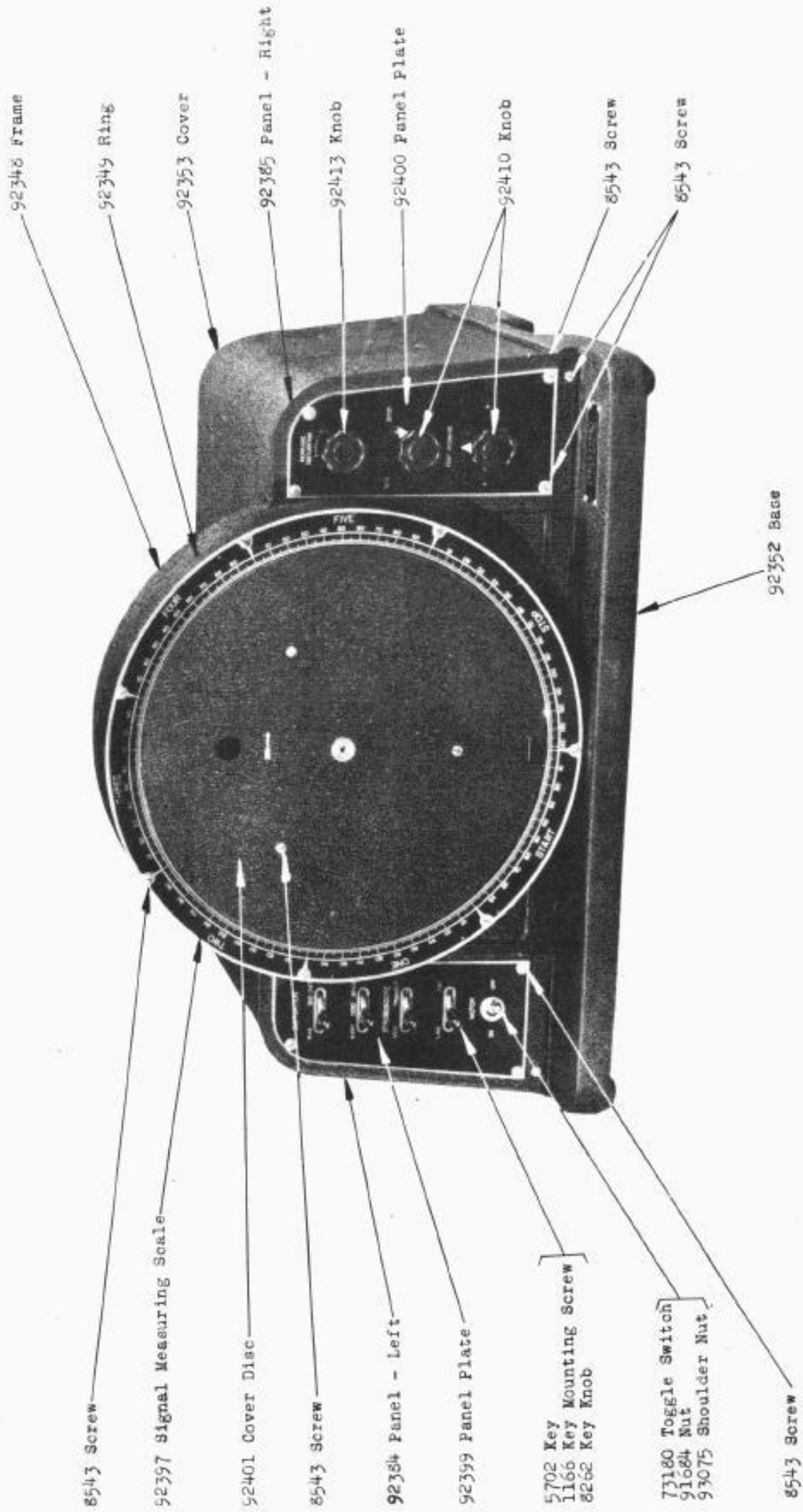
CHICAGO, U. S. A.

ALPHABETICAL INDEX

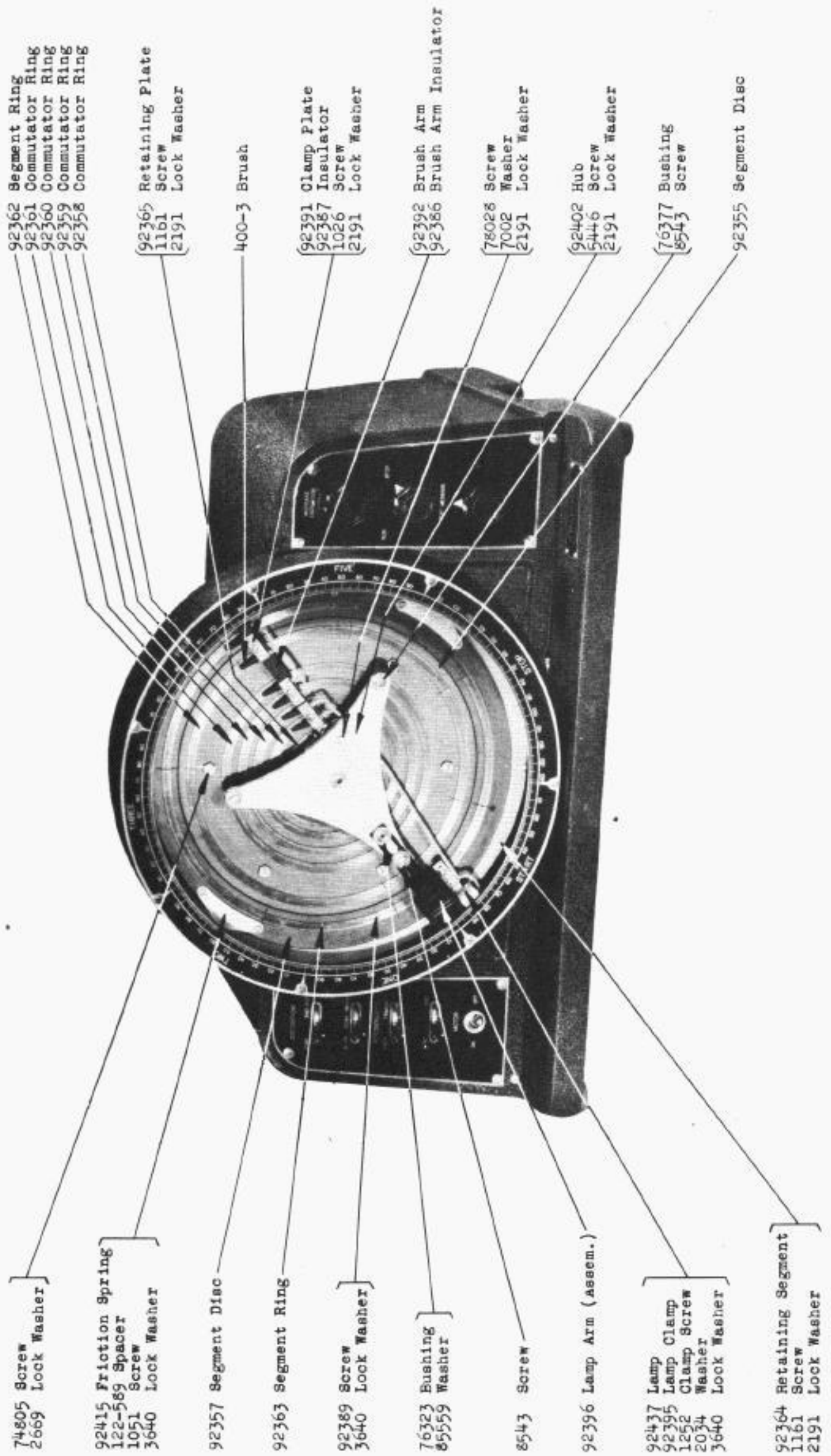
	<u>Page</u>
Base . . . . .	1
Brush Arm (Assem.) . . . . .	2
Cam Contact . . . . .	3
Condensers . . . . .	5
Cover . . . . .	1
Code Cylinder . . . . .	4
Code Disc . . . . .	3
Contact (Assem.) . . . . .	3
Contact Cam . . . . .	3
Cover Disc . . . . .	1
Contact Springs . . . . .	3
Commutator Rings . . . . .	2
Disc Code . . . . .	3
Fan . . . . .	4
Frame . . . . .	1
Friction Disc (Assem.) . . . . .	3
Gears . . . . .	3, 4
Keys . . . . .	1
Knobs . . . . .	1
Lamp . . . . .	2
Lamp Arm (Assem.) . . . . .	2
Motor Fan . . . . .	4
Motor Parts . . . . .	4
Motor Unit (Assem.) . . . . .	4
Pinion . . . . .	4
Resistors . . . . .	5
Retaining Plate . . . . .	2
Retaining Segment . . . . .	2
Resistance Unit . . . . .	5
Ring Brushes . . . . .	2
Segment Disc . . . . .	2
Segment Ring . . . . .	2
Signal Measuring Scale . . . . .	1
Terminal Block . . . . .	4, 5
Toggle Switch . . . . .	1

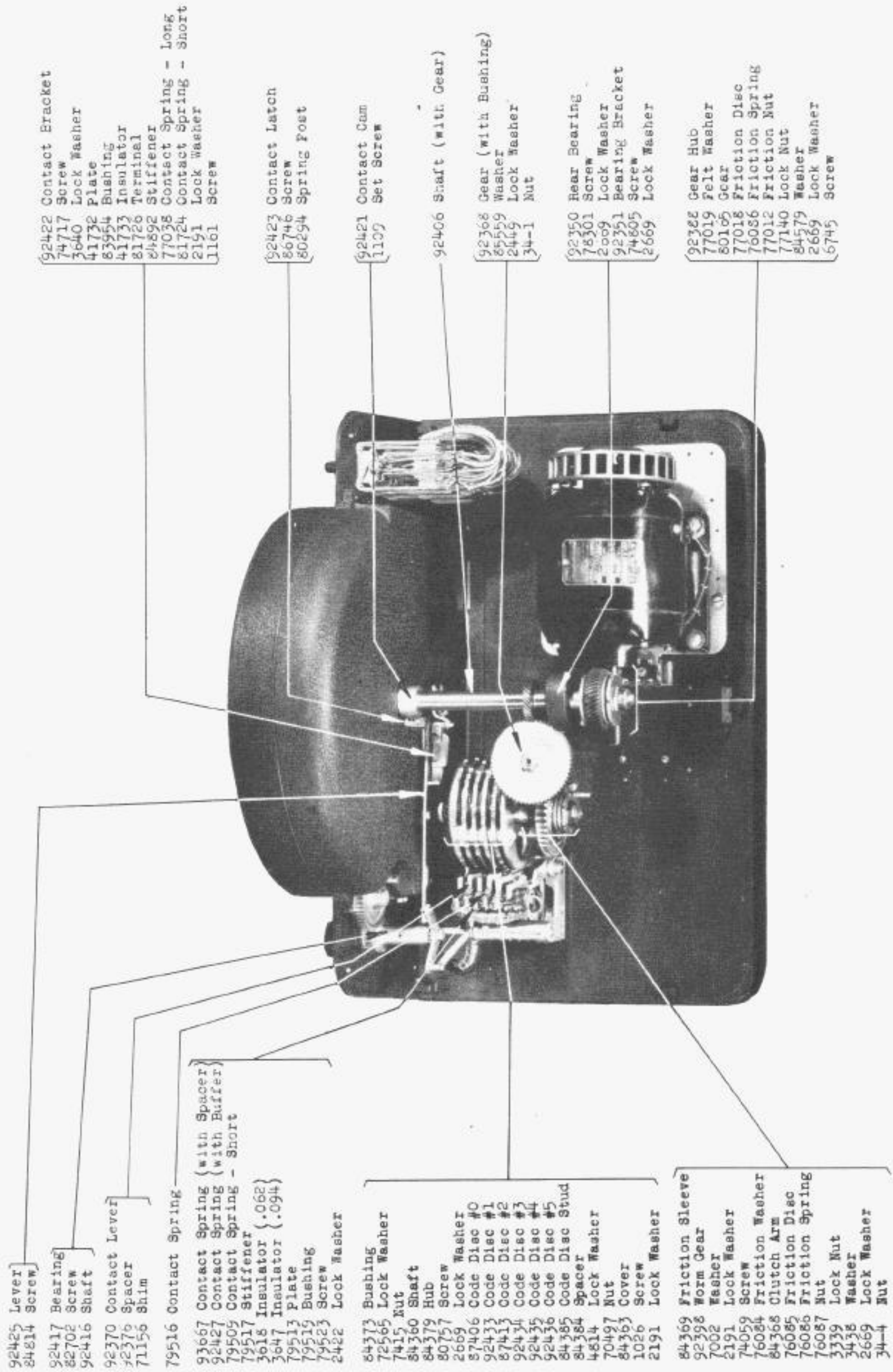
NOTE

Component parts of the apparatus covered in this catalog, on which no ordering information is listed, may be ordered by description.









92425 Lever  
84814 Screw

92417 Bearing  
82702 Screw  
92416 Shaft

92370 Contact Lever  
72376 Spacer  
71156 Shim

79516 Contact Spring  
93667 Contact Spring (with Spacer)  
92427 Contact Spring (with Buffer)

79509 Contact Spring - Short  
79517 Stiffener  
3618 Insulator (.062)  
3647 Insulator (.094)

79513 Plate  
79519 Bushing  
79523 Screw  
2422 Lock Washer

84373 Bushing  
72565 Lock Washer  
7415 Nut

84360 Shaft  
84379 Hub  
80757 Screw

2669 Lock Washer  
87406 Code Disc #0  
92433 Code Disc #1  
87413 Code Disc #2

92434 Code Disc #3  
92435 Code Disc #4  
92436 Code Disc #5  
84385 Code Disc Stud

84384 Spacer  
4814 Lock Washer  
70497 Nut

84363 Cover  
1026 Screw  
2191 Lock Washer

84369 Friction Sleeve  
92398 Worm Gear  
7002 Washer

2191 Lock Washer  
74059 Screw  
76084 Friction Washer

84368 Clutch Arm  
76085 Friction Disc  
76086 Friction Spring

76087 Nut  
3339 Lock Nut  
3438 Washer  
2669 Lock Washer  
34-4 Nut

92422 Contact Bracket  
74717 Screw

3640 Lock Washer  
41732 Plate  
83954 Bushing

41733 Insulator  
81726 Terminal  
84892 Stiffener

77038 Contact Spring - Long  
81724 Contact Spring - Short  
2191 Lock Washer  
1161 Screw

92423 Contact Latch  
86746 Screw  
80294 Spring Post

92421 Contact Cam  
1109 Set Screw

92406 Shaft (with Gear)

92368 Gear (with Bushing)  
85559 Washer  
2446 Lock Washer

34-1 Nut

92350 Rear Bearing  
78301 Screw

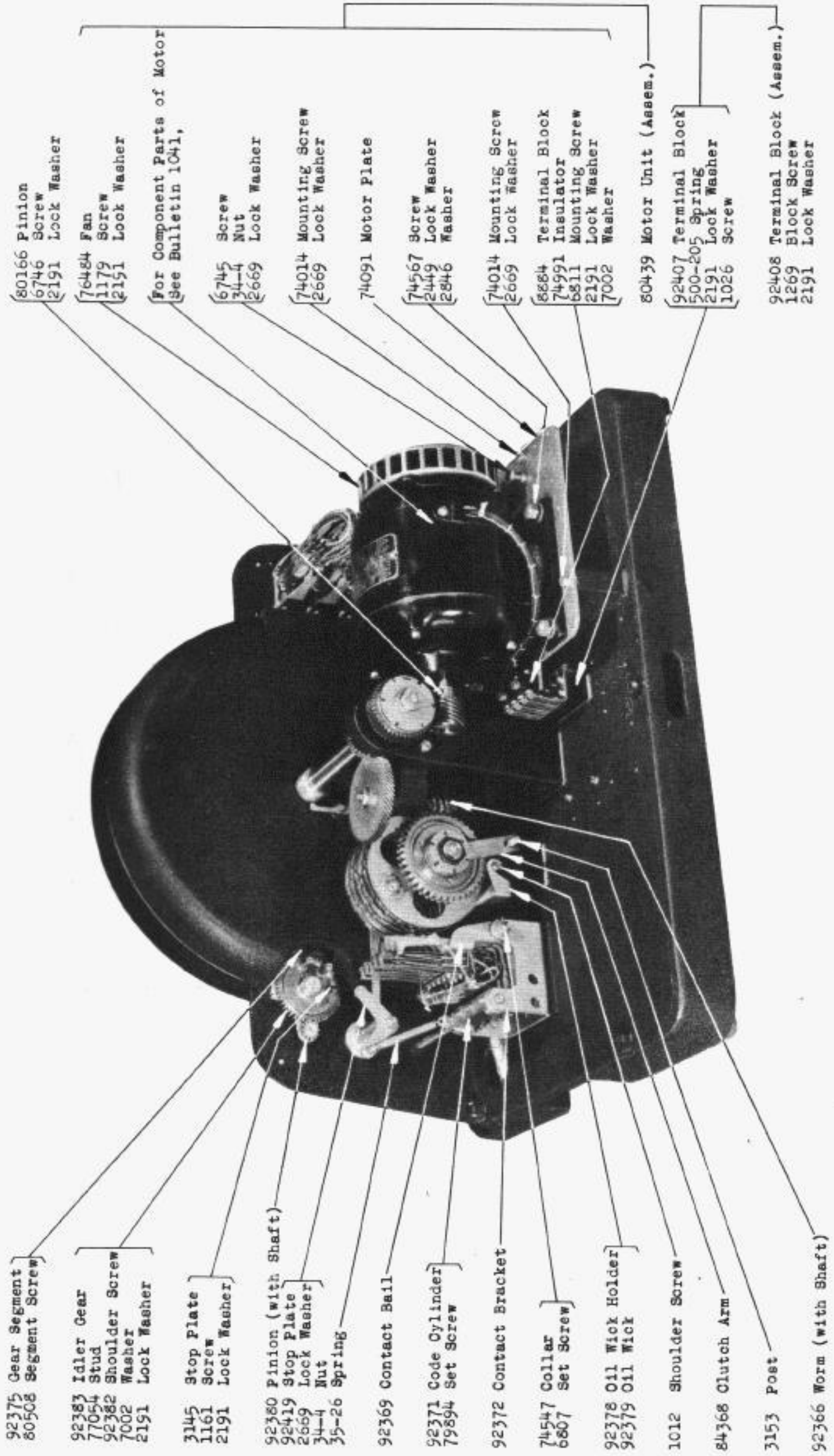
2009 Lock Washer  
92351 Bearing Bracket  
74605 Screw

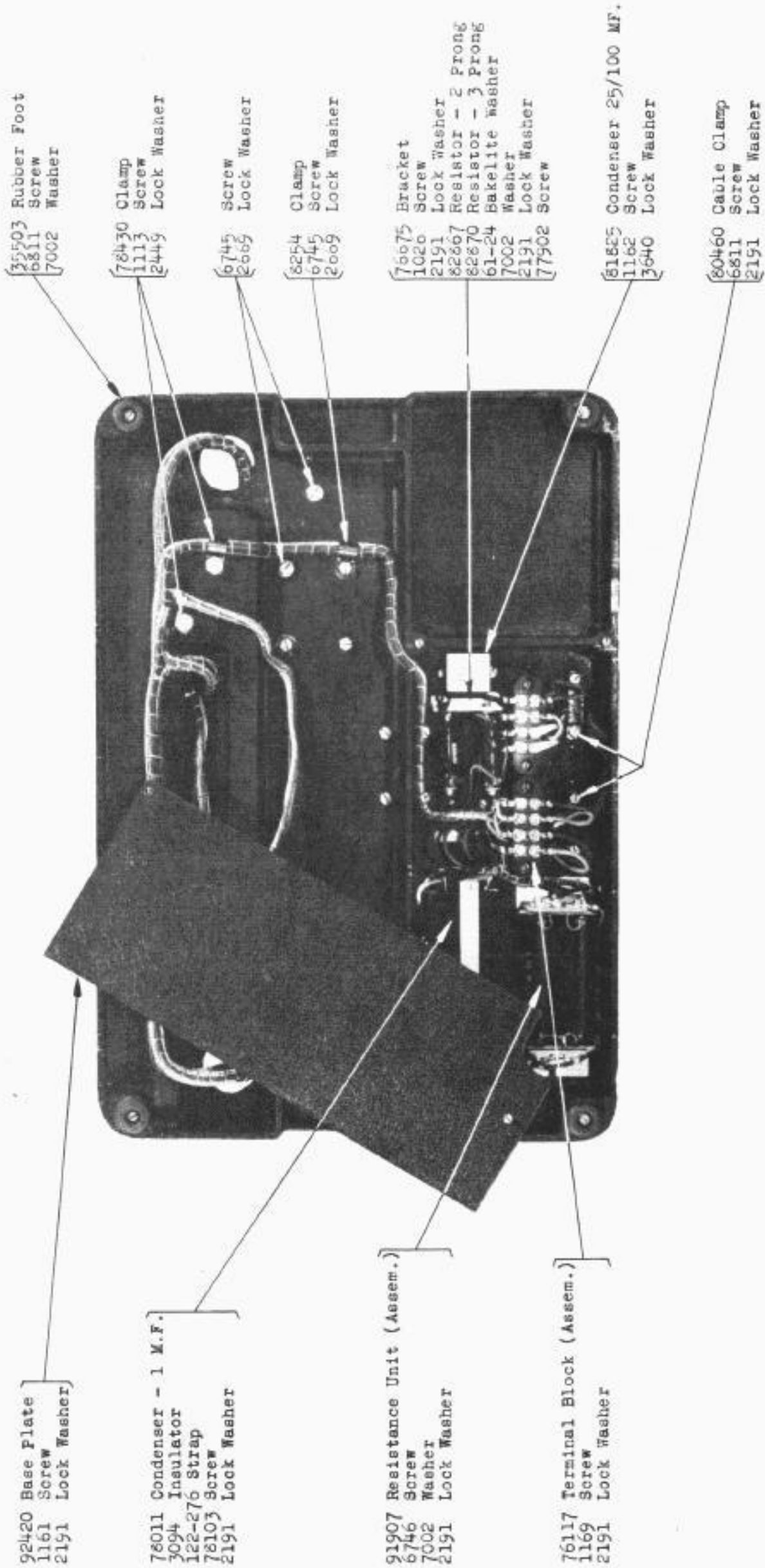
2669 Lock Washer

92388 Gear Hub  
77019 Felt Washer  
80165 Gear

77018 Friction Disc  
76086 Friction Spring  
77012 Friction Nut

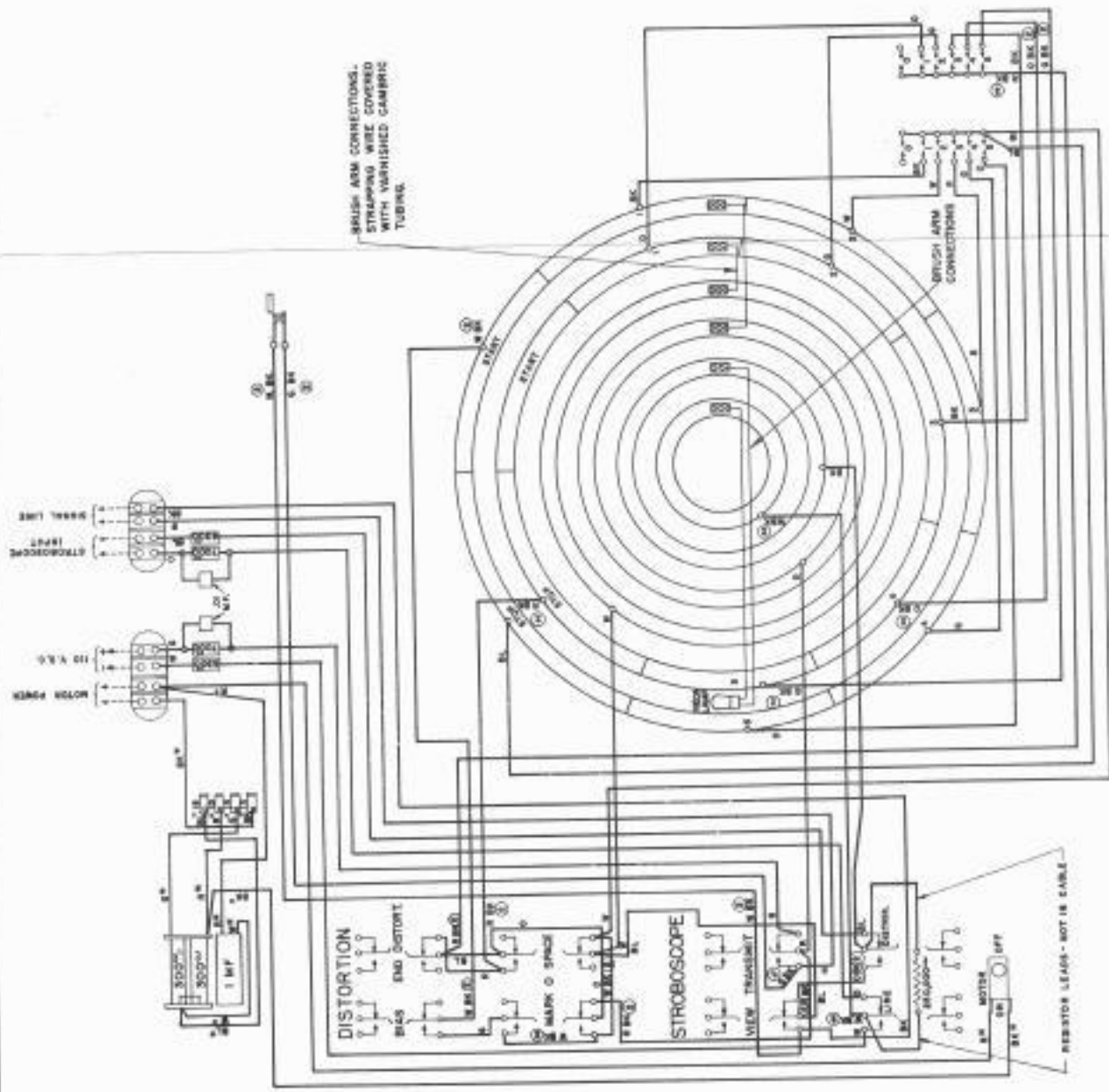
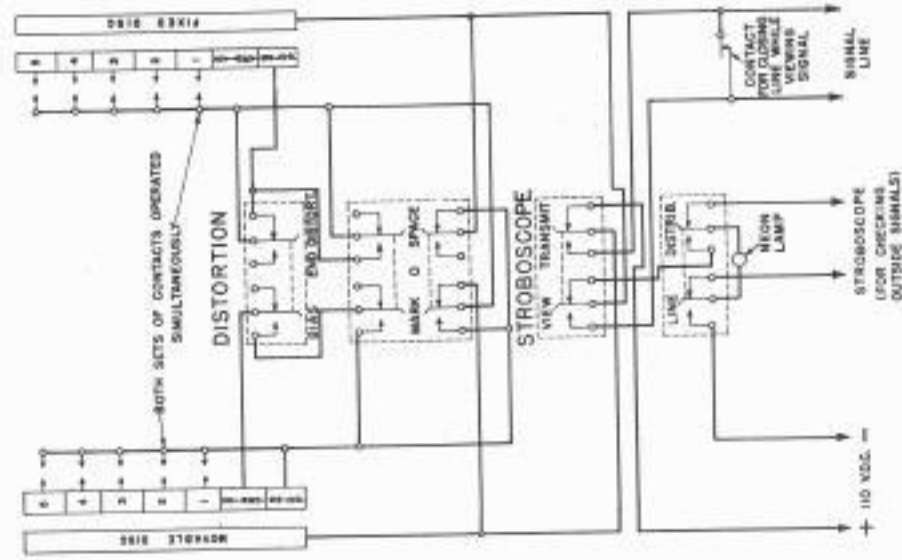
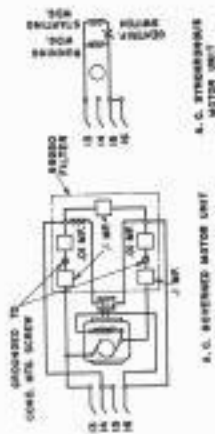
77140 Lock Nut  
84579 Washer  
2669 Lock Washer  
6745 Screw





NUMERICAL INDEX

34-1	Nut (1/4-32 Hex.), 3	76085	Friction Disc, 3	92353	Cover, 1
34-4	Nut (10-32 Hex.), 3,4	76086	Friction Spring, 3	92355	Segment Disc, 2
35-26	Spring, 4	76087	Nut (9/16-32 Special), 3	92357	Segment Ring, 2
61-24	Bakelite Washer, 5	76117	Terminal Block (Assem.), 5	92358	Commutator Ring, 2
122-276	Strap, 5	76323	Bushing, 2	92359	Commutator Ring, 2
122-589	Spacer, 2	76377	Bushing, 2	92360	Commutator Ring, 2
400-3	Brush, 2	76484	Fan, 4	92361	Commutator Ring, 2
500-205	Spring, 4	76675	Bracket, 5	92362	Segment Ring, 2
1012	Screw (6-40 Shoulder), 4	77012	Friction Nut, 3	92363	Segment Ring, 2
1026	Screw (6-40 x 3/8), 2,3,4,5	77018	Friction Disc, 3	92364	Retaining Segment, 2
1051	Screw (4-40 x 1/2), 2	77019	Felt Washer, 3	92365	Retaining Plate, 2
1109	Screw (10-32 Set), 3	77038	Contact Spring, 3	92366	Worm (With Shaft), 4
1113	Screw (1/4-20 x 7/8), 5	77054	Stud, 4	92368	Gear (With Bushing), 3
1161	Screw (6-40 x 1/4), 2,3,4,5	77140	Nut (9/16-32 Special), 3	92369	Contact Ball, 4
1162	Screw (4-40 x 1/4), 5	77902	Screw (6-40 x 2-3/8), 5	92370	Contact Lever, 3
1166	Screw (4-36 x 1/4), 1	78011	Condenser, 5	92371	Code Cylinder, 4
1169	Screw (6-40 x 7/16), 5	78028	Screw (6-40 x 15/16), 2	92372	Contact Bracket, 4
1179	Screw (6-40 x 5/8), 4	78103	Screw (6-40 x 1-3/16), 5	92375	Gear Segment, 4
1252	Screw (4-40 x 1/4), 2	78301	Screw (10-32 x 5/8), 3	92376	Spacer, 3
1269	Screw (6-40 x 1/2), 4	78430	Clamp, 5	92378	Oil Wick Holder, 4
2034	Washer, 2	79509	Contact Spring, 3	92379	Oil Wick, 4
2191	Lock Washer, 2,3,4,5	79513	Plate, 3	92380	Pinion (With Shaft), 4
2422	Lock Washer, 3	79517	Stiffener, 3	92382	Screw (1/4-32 x 25/32), 4
2449	Lock Washer, 3,4,5	79519	Bushing, 3	92383	Idler Gear, 4
2669	Lock Washer, 2,3,4,5	79523	Screw (2-56 x 25/32), 3	92384	Panel - Left, 1
2846	Washer, 4	79894	Screw (10-32 Set), 4	92385	Panel - Right, 1
3094	Insulator, 5	80165	Gear, 3	92386	Brush Arm Insulator, 2
3145	Stop Plate, 4	80166	Pinion, 4	92387	Insulator, 2
3153	Post, 4	80294	Spring Post, 3	92388	Gear Hub, 3
3339	Nut (9/16-32 Hex.), 3	80439	Motor Unit (Assem.), 4	92389	Screw (4-40 x 5/8), 2
3438	Washer, 3	80460	Cable Clamp, 5	92391	Clamp Plate, 2
3618	Insulator (.062), 3	80508	Screw (4-40 x 25/32), 4	92392	Brush Arm, 2
3640	Lock Washer, 2,3,5	80757	Screw (10-32 x 1/2), 3	92395	Lamp Clamp, 2
3647	Insulator (.094), 3	81724	Contact Spring, 3	92396	Lamp Arm (Assem.), 2
4814	Lock Washer, 3	81726	Terminal, 3	92397	Signal Measuring Scale, 1
5446	Screw (6-40x9/16), 2	81825	Condenser 25/100 M.F., 5	92398	Worm Gear, 3
5702	Key, 1	82702	Screw (6-40 x 9/32), 3	92399	Panel Plate, 1
6745	Screw (10-32 x 1/2), 3,4,5	82867	Resistor - 2 Prong, 5	92400	Panel Plate, 1
6746	Screw (6-40 x 5/16), 4,5	82870	Resistor - 3 Prong, 5	92401	Cover Disc, 1
6807	Screw (6-40 Set), 4	83954	Bushing, 3	92402	Hub, 2
6811	Screw (6-40 x 5/8), 4,5	84360	Shaft, 3	92406	Shaft (With Gear), 3
7002	Washer, 2,3,4,5	84363	Cover, 3	92407	Terminal Block, 4
7415	Nut (1/2-32 Hex.), 3	84368	Clutch Arm, 3,4	92408	Terminal Block (Assem.), 4
8254	Clamp, 5	84369	Friction Sleeve, 3	92410	Knob, 1
8262	Key Knob, 1	84373	Bushing, 3	92413	Knob, 1
8543	Screw (6-40 x 5/16), 1,2	84379	Hub, 3	92415	Friction Spring, 2
8884	Terminal Block, 4	84384	Spacer, 3	92416	Shaft, 3
35503	Rubber Foot, 5	84385	Code Disc Stud, 3	92417	Bearing, 3
41732	Plate, 3	84579	Washer, 3	92419	Stop Plate, 4
41733	Insulator, 3	84814	Screw (6-40 Shoulder), 3	92420	Base Plate, 5
70497	Nut (5/16-32 Hex.), 3	84892	Stiffener, 3	92421	Contact Cam, 3
71156	Shim, 3	85559	Washer, 2,3	92422	Contact Bracket, 3
72565	Lock Washer, 3	86746	Screw (6-40 Shoulder), 3	92423	Contact Latch, 3
73180	Toggle Switch, 1	87406	Code Disc - #0, 3	92425	Lever, 3
74014	Screw (10-32 x 3/4), 4	87413	Code Disc #2, 3	92427	Contact Spring, 3
74059	Screw (6-40 x 7/32), 3	91684	Nut (Special), 1	92433	Code Disc #1, 3
74091	Motor Plate, 4	91907	Resistance Unit (Assem.), 5	92434	Code Disc #3, 3
74547	Collar, 4	92348	Frame, 1	92435	Code Disc #4, 3
74567	Screw (1/4-20 x 1/2), 4	92349	Ring, 1	92436	Code Disc #5, 3
74717	Screw (4-40 x 23/32), 3	92350	Rear Bearing, 3	92437	Lamp, 2
74805	Screw (10-32 x 3/4), 2,3	92351	Bearing Bracket, 3	93075	Nut (Special), 1
74991	Insulator, 4	92352	Base, 1	93667	Contact Spring, 3
76084	Friction Washer, 3				



- NOTES:
- ① ALL MOTOR WIRING #18 COTTON COVERED BELLESTON (INDICATED WITH\*) - #20 STY GABLE.
  - ② ALL OTHER WIRING #20 COTTON COVERED DELBASTON (UNLESS OTHERWISE SPECIFIED) - #33018 GABLE.
  - ③ IF WIRES MARKED (O) DO NOT CONFORM WITH STANDARD DESIGNATED COLOR CODE, THE FOLLOWING ALTERNATES APPLY:  
 H - BK  
 W - BK  
 S - BK  
 O - BK
  - ④ ALL KEYS ARE SHOWN WITH KEY HARKLES IN LEFT HAND POSITION WHEN VIEWED FROM FRONT.

COLOR CODE (1)	
COLOR	TRACER
R BK	BLACK
W BK	WHITE
G BK	GREEN
O BK	ORANGE
BL	BLUE
BK	BLACK
R	RED
W	WHITE
O	ORANGE
S	GREEN

BRUSH ARM CONNECTIONS. STRAPPING WIRE COVERED WITH VARNISHED CAMBRIC TUBING.

RESISTOR LEADS - NOT IN GABLE

CONTRACT FOR CLOSING LINE WHILE VIEWING SIGNAL

STROBOSCOPE FOR CHECKING OUTSIDE SIGNALS

NEON LAMP

VIEW TRANSMIT

MARK O SPACE

END DISTORT

DISTORTION

110 VDC

1000 OHMS

1000 OHMS

1000 OHMS

1000 OHMS

1000 OHMS

1000 OHMS

1000 OHMS

1000 OHMS

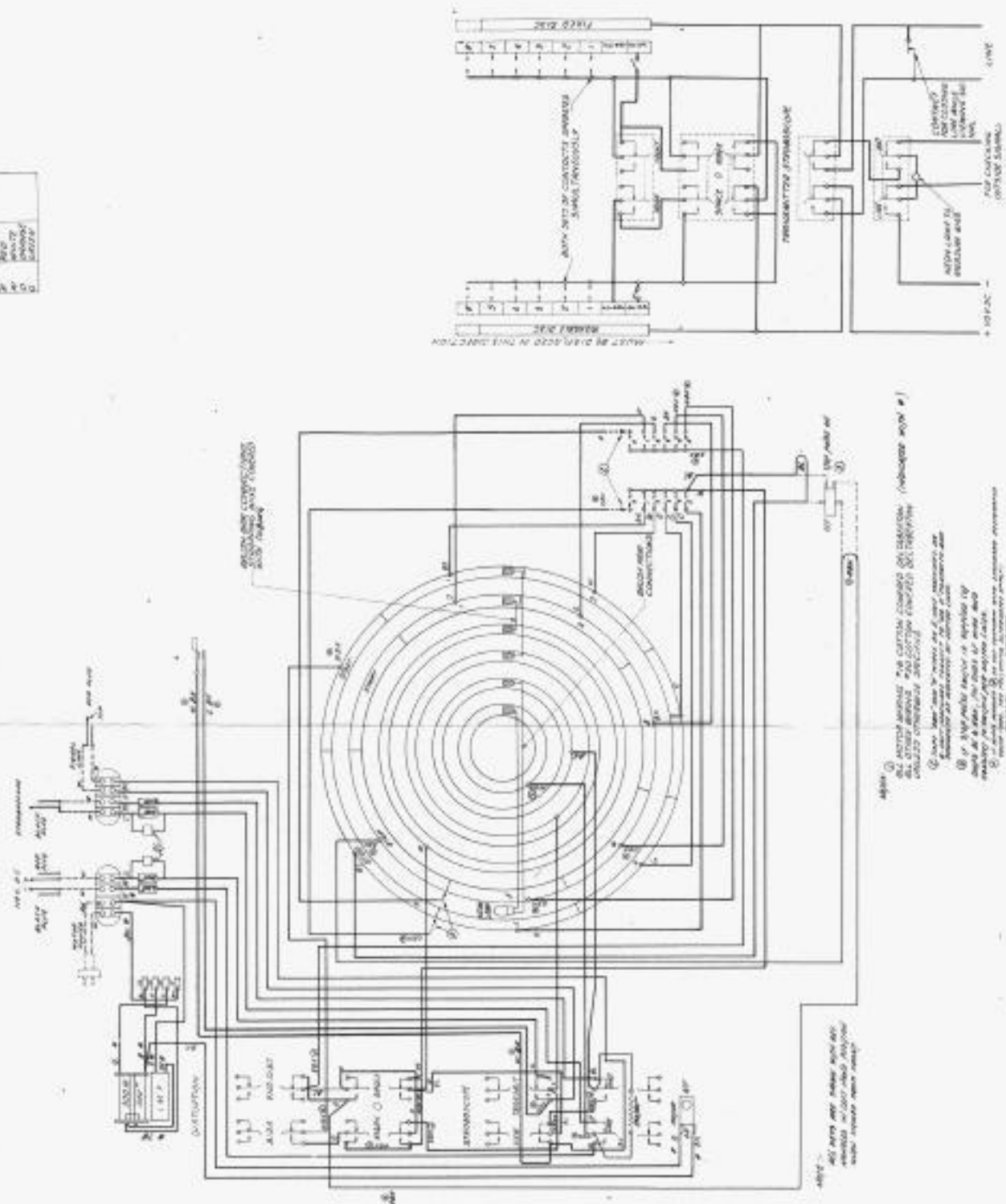
1000 OHMS

1000 OHMS

REVISIONS  
 1. CHANGE FROM 100 TO 1000  
 2. CHANGE FROM 100 TO 1000  
 3. CHANGE FROM 100 TO 1000  
 4. CHANGE FROM 100 TO 1000  
 5. CHANGE FROM 100 TO 1000  
 6. CHANGE FROM 100 TO 1000  
 7. CHANGE FROM 100 TO 1000  
 8. CHANGE FROM 100 TO 1000  
 9. CHANGE FROM 100 TO 1000  
 10. CHANGE FROM 100 TO 1000

TELETYPE  
 CONTROL UNIT  
 NO. 1000  
 NO. 1000

SYMBOL	DESCRIPTION
A	ALARM
B	ALARM
C	ALARM
D	ALARM
E	ALARM
F	ALARM
G	ALARM
H	ALARM
I	ALARM
J	ALARM
K	ALARM
L	ALARM
M	ALARM
N	ALARM
O	ALARM



NOTE: ALL WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) AND ALL OTHER WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) TO DETERMINE THE CORRECT WIRING. THE WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) TO DETERMINE THE CORRECT WIRING. THE WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) TO DETERMINE THE CORRECT WIRING.

NOTE: ALL WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) AND ALL OTHER WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) TO DETERMINE THE CORRECT WIRING. THE WIRING SHOULD BE CHECKED AGAINST THE ORIGINAL DRAWING (NUMBERED WITH #) TO DETERMINE THE CORRECT WIRING.

**MAINTENANCE PARTS DATA FOR  
DISTORTION TEST SET TS-383/GG**

**(TELETYPE SIGNAL TESTING EQUIPMENT)**



The following information was compiled on 14 March 1945.  
 The appropriate section of the ASF Signal Supply Catalog for  
 Distortion Test Set TS-383/GG is:

**HIGHER ECHELON SPARE PARTS**

**SIG 8 — TS-383/GG (when published)**

For the latest index of available catalog sections see ASF Signal  
 Supply Catalog SIG 2.

**MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG**

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mir's part and code No.
			<p><b>DISTORTION TEST SET TS-383/GG consists of the following teletype material:</b></p> <ul style="list-style-type: none"> <li>1 — 4TDXD4DTS signal distortion test unit</li> <li>1 — 4TMU26 motor unit</li> <li>1 — 4T96572 set of gears</li> <li>1 — 4T103628 speed indicator</li> <li>2 — 4TM23 instruction manuals (TM 11-2217).</li> </ul> <p><b>BEARING, ball:</b> single row radial; steel; inch series; (standard slush lubricant; std fit; tolerance ABEC-1; bore <math>\frac{1}{2}</math>"; OD <math>1\frac{5}{16}</math>"; width <math>\frac{3}{8}</math>"; Fed No. LS5; Norma-Hoff No. LS5; SKF RLS4).</p> <p><b>BOARD, terminal:</b> 4 cut-out type brass term. molded in bakelite block w/two screws in ea term.; <math>2\frac{5}{8}</math>" lg x <math>\frac{3}{4}</math>" wd x <math>\frac{5}{8}</math>" h overall; (2 mtg holes No. 20 drill counterbored 0.312" diam x 0.406" d on <math>2\frac{1}{8}</math>" mtg/c; cut-outs 0.312" wd x 0.187" d).</p>	
		4T90122		
		4T76117		
		4T92813	<p><b>BOARD, terminal:</b> 6 nickel silver lug term; natural bakelite strip; <math>3\frac{9}{16}</math>" lg x <math>\frac{7}{16}</math>" wd x <math>\frac{1}{16}</math>" thk overall; (3 mtg holes 0.144" diam on <math>\frac{3}{8}</math>" and <math>1\frac{9}{16}</math>" centers; term press fit in slots on one side of strip).</p>	
		4T400-3	<p><b>BRUSH, electrical contact:</b> braided copper wire; x-mtr, rec brush; 3" lg x <math>\frac{7}{64}</math>" wd x 0.022" thk; Belden chaos.</p>	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T35503	BUMPER, rubber: black; 1" OD x 3/8" thk overall; (1/8" diam center hole enlarged to 3/8" diam 0.219" d on one side w/edges curved; opposite side flat).	
		4T3153	BUMPER, steel: nickel finish; 1.156" lg x 0.313" diam overall; (No. 10-32 thd 0.188" lg w/hex head 0.156" thk x 0.313" across flats; post 0.812" lg x 0.219" diam extends from head; 0.062" wd slot centered 1/8" from end).	
		4T76323	BUSHING, threaded: head type; steel, nickel finish; male and female; 0.406" lg overall; male 1/4"-32 x 0.297" lg, female No. 6-40 full length; hex head 0.290" thk x 0.312" across flats; (0.047" wd groove under head).	
		4T76377	BUSHING, threaded: head type; steel, nickeled; male and female; 0.344" lg overall, outside thread 1/4"-32 x 0.228" lg, inside thread tapped No. 6-40 full length, slotted hex head 0.084" thk x 0.375" across flats; (grooved next to shoulder 0.032" wd).	
		4T84373	BUSHING, threaded: head type, steel, zinc plate, chromate finish; male; 1 9/32" lg overall; bushing 1 5/32" lg x 1/2" OD x 0.3765" ID and threaded 1/2"-32 x 1/4" lg; head 1/8" thk x 1 3/16" OD x 5/8" across flats; (oil hole 7/64" diam 1/8" from head; slot in head 3/32" wd x 5/32" d 180 deg from oil hole position; inside radial oil groove).	
		4T99763	CABLE ASSEMBLY, power: rubber jacket; round 5/16" OD; 6' lg less term.; two conductor No. 18AW stranded twist copper 18 strands No. 30 AWG; (rubber; one end polarized flat blade plug; Hubbell No. 7059; opposite end, two solder lugs teletype No. 82474).	
		4T78011	CAPACITOR, fixed: paper; single section; 1 mfd ±10%; 1000 v dc w; case 4 9/16" lg x 2" wd x 3/4" thk; Gudeman No. 7198; (metal case; wax impregnated; two lug term. on top 1/2" lg on 1" centers; no mtg furnished).	
		4T81825	CAPACITOR, fixed: paper; 10,000 mmf ±15%; 1000 VACT; case 1 1/8" lg x 1" wd x 1 5/32" d; WECO No. 152-C; (metal case; wax impregnated; 2 mtg ft with 1/8" diam holes on 1 3/8" centers; 2 flexible wire leads approx. 3 1/8" lg, one skinned and tinned 1/4" lg, other w/ No. 8 shakeproof term. lug).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T92395	CLAMP, CR steel: nickleled; lamp; one bolt type; 1.468" lg x 0.594" high x 0.312" wd x 1 <sup>7</sup> / <sub>32</sub> " ID 0.035" stock; two holes in line No. 29 drill, 0.136" diam and one slotted mtg hole 0.312" lg x 0.120" wd; (draw range 0.094").	
		4T84384	COLLAR, spacer: steel, zinc plate chromate finish; 0.500" OD x 0.323" ID x 0.187" thk.	
		4T500-205	CONTACT, spring: 0.038" nickel silver; jack type; 1 <sup>3</sup> / <sub>8</sub> " lg x 1 <sup>3</sup> / <sub>16</sub> " h x 1/4" wd overall; (bend at approx center at 90 deg; 2 mtg holes in one arm 0.144" diam on 1 <sup>3</sup> / <sub>32</sub> " centers).	
		4T77038	CONTACT, spring: steel spring, tungsten contact, bakelite insulator; 1.989" lg x 0.313" wd x 0.285" thk overall; (consisting of one spring No. 94019; one contact No. 41712; one insulator No. 77037; 2 mtg holes 0.193" diam on 3/8" mtg/c; 0.156" for end).	
		4T79509	CONTACT, spring: 0.040" nickel silver; switch type; silver contact 0.125" OD x 0.046" h; 2 <sup>7</sup> / <sub>32</sub> " lg x 1/4" wd x 3/32" thk overall; (solder lug termination 1 <sup>1</sup> / <sub>32</sub> " lg x 1/8" wd, hook type; contact 1 <sup>9</sup> / <sub>16</sub> " from first mtg/c; two mtg holes 0.148" diam on 3/8" mtg/c).	
		4T81724	CONTACT, spring: nickel silver; 1.687" lg x 0.312" wd x 5/32" thk overall, 0.0159" stock; (two mounting holes 0.193" diam on 0.375" mtg/c; contact point 5/32" OD x 1/8" high and 1.000" from first mtg hole).	
		4T92427	CONTACT, spring: w/buffer; metal alloy, nickel finish; 3 <sup>1</sup> / <sub>32</sub> " lg x 1/4" wd x 1/8" thk overall; (1/8" contact; bakelite tip on end; two 0.148" mtg holes on 3/8" centers).	
		4T93667	CONTACT, spring: 0.041" nickel silver; switch type silver contact 0.125" OD x 0.046" h; bakelite bumper same side as contact; 3.031" lg x 0.250" wd x 0.281" thk overall; (contact 1 <sup>9</sup> / <sub>16</sub> " from first mtg/c; bumper 3/16" OD x 7/32" h and 1/2" from contact; solder lug termination, hook type, 1 <sup>1</sup> / <sub>32</sub> " lg x 1/8" wd; 2 mtg holes 0.148" diam on 3/8" mtg/c).	
		4T103230	CORD, test set: green glazed cotton; oval shape, 6 ft lg less term.; 2 conductor, stranded; (coded red and white; consists of WECO No. 347A red shell plug, WECO No. S2L cord, WECO No. 136 spade lug term. and stay cord hook).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mir's part and code No.
		4T103231	CORD, test set: green glazed cotton; oval shape 6' lg less term.; 2 conductor, stranded; (coded red and white; consists of WECO No. 347B black shell plug, WECO No. S2L cord, WECO No. 136 spade lug term. and stay cord hook).	
		4T103232	CORD, test set: white glazed cotton; oval shape 6' lg less term.; single conductor, stranded; (consists of WECO No. 347A red shell plug, WECO No. SIC cord, WECO No. 93 spade lug term. and stay cord hook).	
		4T103233	CORD, test set: white glazed cotton; oval shape 6' lg less term.; single conductor, stranded; (consists of WECO No. 347B black shell plug, WECO No. SIC cord, WECO No. 93 spade lug term. and stay cord hook).	
		4T96458	COVER: scale hood; 0.020" steel, black morocco finish 12 <sup>1</sup> / <sub>16</sub> " OD x 9 <sup>3</sup> / <sub>8</sub> " h overall; (ea end open; one edge rolled, 1/8" diam; steel strip 3/4" wd x 9 <sup>1</sup> / <sub>8</sub> " lg spot welded to inside).	
		4T84369	DISK, clutch: CH steel, bright zinc finish; 1.812" OD x 0.937" lg overall; (shaft hole 0.313" diam; shoulder 0.125" thk w/three No. 6-40 tapped holes equally spaced on 0.750" rad; one end 9/16"-32 thd w/0.250" wd x 0.188" d slot; opposite end 0.500" diam x 0.250" lg).	
		4T92379	FELT, oiling: hard white felt; 3/8 lg x 3/4" wd x 5/16" thk; (one edge on long side cut at 30 deg angle).	
		4T92407	INSULATOR, block: ten No. 6-40 tapped holes; black bakelite; 1 5/8" lg x 3/4" wd x 5/8" thk; (2 rows of 4 holes ea on 3/8" x 1 3/32" centers for contact mtg; 2 holes on 1 3/16" centers for block mtg).	
		4T79519	INSULATOR, bushing: headless type; natural bakelite; 0.531" lg x 0.146" OD x 0.093" ID.	
		4T82559	INSULATOR, bushing: headless; tubular; brown bakelite; 37/64" lg; 3/16" OD x 7/64" ID.	
		4T83954	INSULATOR, bushing: cylindrical; natural xx bakelite; 1/8" ID x 3/16" OD x 0.515" lg.	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T41733	INSULATOR, plate: oblong shape; WECO grade 2g black phenol fiber; 0.687" lg x 0.312" wd x 0.062" thk; (2 mounting holes No. 10 drill 0.193" diam on 0.375" mtg/c; ends rounded on 0.156" radius).	
		4T3094	INSULATOR, plate: flat, rectangular; brown bakelite; 4 <sup>1</sup> / <sub>16</sub> " lg x 2 <sup>1</sup> / <sub>8</sub> " wd x 1 <sup>1</sup> / <sub>32</sub> " thk; (no mtg holes; curved corners).	
		4T3618	INSULATOR, plate: rectangular; bakelite dielectro XXX; 5 <sup>1</sup> / <sub>8</sub> " lg x 1 <sup>1</sup> / <sub>4</sub> " wd x 1 <sup>1</sup> / <sub>16</sub> " thk; (two mtg holes 0.147" diam on 3 <sup>1</sup> / <sub>8</sub> " mtg/c).	
		4T3647	INSULATOR, plate: rectangular; XXX bakelite; 0.625" lg x 0.250" wd x 0.094" thk; (two mounting holes 0.147" diam on 0.375" mtg/c).	
		4T92387	INSULATOR, plate: flat, rectangular; tan bakelite; 1 <sup>3</sup> / <sub>16</sub> " lg x 5 <sup>1</sup> / <sub>16</sub> " wd x 0.029" thk; (one 3 <sup>1</sup> / <sub>64</sub> " diam hole at center).	
		4T96462	INSULATOR, plate: rectangular bent at 90° angle grey fiber; one arm 1 <sup>1</sup> / <sub>2</sub> " lg x 1" wd, other arm 1 <sup>1</sup> / <sub>2</sub> " lg x 7 <sup>1</sup> / <sub>8</sub> " wd x 1 <sup>1</sup> / <sub>32</sub> " thk; (1 <sup>1</sup> / <sub>2</sub> " diam hole in center of large arm).	
		4T75750	INSULATOR, washer: flat, brown bakelite; 1 <sup>1</sup> / <sub>64</sub> " ID x 1 <sup>1</sup> / <sub>2</sub> " OD x 1 <sup>1</sup> / <sub>16</sub> " thk.	
		4T8262	KNOB, lever: black phenolic; No. 8-32 tapped; 3 <sup>1</sup> / <sub>8</sub> " OD x 7 <sup>1</sup> / <sub>8</sub> " lg; WECO No. W132717; (shaft hole 1 <sup>1</sup> / <sub>2</sub> " d; knurled).	
		4T92413	KNOB, round: fluted black bakelite; for 1 <sup>1</sup> / <sub>4</sub> " diam shaft; single No. 8-32 set screw; 1 <sup>1</sup> / <sub>8</sub> " OD x 2 <sup>3</sup> / <sub>32</sub> " thk overall; Kurz-Kasch No. S-308-64; (brass insert; shaft hole 7 <sup>1</sup> / <sub>16</sub> " d).	
		4T92437	LAMP, glow: 110 V, 1 <sup>1</sup> / <sub>4</sub> w, 0.002 amp; T-4 1 <sup>1</sup> / <sub>2</sub> clear; 1 <sup>11</sup> / <sub>32</sub> " lg; double contact bayonet base, GE Vapor Lamp No. T-4 1 <sup>1</sup> / <sub>2</sub> ; (burn any position; no resistance in base).	
		4T92370	LEVER: contact; steel; nickel plated; "L" shaped; 3.625" lg x 2.725" wd x 0.092" thk overall; (mtg hole 0.251" diam in long arm 0.562" from outer edge of short arm).	
		4T91683	NUT, hexagon: brass, nickel finish; switch bushing nut; 1 <sup>5</sup> / <sub>32</sub> "-32 thd; 5 <sup>1</sup> / <sub>16</sub> " thk; 9 <sup>1</sup> / <sub>16</sub> " wd across flats; (double chamfer).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T34-4	NUT, hexagon: steel; zinc plated; chromate finish; No. 10-32 thd; $\frac{3}{32}$ " thk; $\frac{5}{16}$ " across flats.	
		4T3599	NUT, hexagon: steel; zinc plated; chromate finish; No. 4-40 thd; $\frac{3}{32}$ " thk; $\frac{3}{16}$ " across flats.	
		4T70497	NUT, hexagon: steel, zinc plate, chromate finish; $\frac{5}{16}$ "-32 tapped; 0.092" thk; 0.437" wd across flats; (single chamfer).	
		4T91684	NUT, knurled: brass, nickel finish; ring type; $\frac{15}{32}$ "-32 tapped; $\frac{1}{16}$ " thk; $\frac{19}{32}$ " OD; (straight knurl, double chamfer).	
		4T93075	NUT, shoulder: ring type; brass, nickel finish; $\frac{15}{32}$ "-32 thd; $\frac{7}{64}$ " thk x $\frac{5}{8}$ " OD overall with shoulder $\frac{17}{32}$ " OD x $\frac{3}{64}$ " thk; (straight knurl on edge).	
		4T76087	NUT, special: steel, zinc plate, chromate finish; friction $\frac{9}{16}$ "-32 tapped; 1.250 diam; 0.095" thk; (six slots 0.100" wd x 0.125" d around edge spaced 60 deg apart; 6 beveled surfaces 0.312" wd).	
		4T41732	PLATE, retainer: steel, nickel finish; $\frac{11}{16}$ " lg x $\frac{5}{16}$ " wd x 0.035" thk; (2 mtg holes 0.116" diam $\frac{3}{8}$ " center; curved ends).	
		4T82867	RESISTOR, fixed: WW; 700 ohms, $\pm 10\%$ ; 15 w; 2" lg x $\frac{7}{16}$ " OD x $\frac{9}{32}$ " ID; Ward Leonard type "O" or equal; (vitreous enamel; inductive; ceramic core; two radial solder lug No. 211 terminals; stamped "700" on body).	
		4T82870	RESISTOR, fixed: WW; two section; 6300 ohms, $\pm 10\%$ ; 15 w; tapped at 4300 ohms; 2" lg x $\frac{1}{2}$ " OD x $\frac{5}{16}$ " ID; Ward Leonard type "O" or equal; (vitreous enamel; inductive; ceramic core; two radial solder lug terminals type No. 211; stamped "6300").	
		4T95282	RESISTOR, fixed: carbon; 250,000 ohms, $\pm 10\%$ ; $\frac{1}{2}$ w; $\frac{5}{8}$ " lg x $\frac{3}{16}$ " diam; AWS type No. RC21 BE254 K; IRC BT $\frac{1}{2}$ ; (bakelite insulation, axial wire leads $1\frac{1}{2}$ " lg).	
		4T1026	SCREW, machine: Fil H; steel; zinc plated, chromate finish; 6-40 thd; $\frac{3}{8}$ " lg under head; thd full lg; head $\frac{7}{32}$ " diam x $\frac{7}{64}$ " thk.	
		4T1161	SCREW, machine: Fil H; steel; oxidized copper finish; 6-40 thd; $\frac{1}{4}$ " lg under head; thd full lg; head 0.217" diam x 0.119" thk.	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T1162	SCREW, machine: Fil H; steel, zinc plated w/chromate finish; No. 4-40 thd; 1/4" lg under head; thd full lg; head 0.175" diam x 0.096" thk.	
		4T1166	SCREW, machine: Fil H; steel; nickel pl; No. 4-36 thd; 1/4" lg overall, thd 5/32" lg; head 0.217" diam.	
		4T1169	SCREW, machine: Fil H; steel; zinc plate, chromate finish; No. 6-40 thd; 0.438" lg under head with full length thd; head 0.119" thk x 0.217" OD.	
		4T1269	SCREW, machine: Fil H; steel, zinc plated w/chromate finish; 6-40 thd; 1/2" lg under head; thd full lg; head 7/32" diam x 7/64" thk.	
		4T6745	SCREW, machine: slotted hex head; steel zinc plated, chromate finish; No. 10-32 thd; 1/2" lg under head; head 0.313" across flats, 0.125" thk.	
		4T6746	SCREW, machine: slotted hex head; steel, nickel finish; 6-40 thd; 5/16" lg under head; head 1/4" across flats, 3/32" thk.	
		4T6811	SCREW, machine: slotted hex head; steel, nickel finish; No. 6-40 thd; 5/8" lg under head; head 1/4" across flats, 3/82" thk.	
		4T8543	SCREW, machine: Bind H; steel; zinc plated, chromate finish; No. 6-40 thd; 1/4" lg under head; head 1/4" diam x 0.062" thk.	
		4T74059	SCREW, machine: Hex H; steel; zinc plate, chromate finish; No. 6-40 thd; 7/32" lg under head; head 1/4" across flats x 3/32" thk w/chamfer on top and screw driver slot.	
		4T74717	SCREW, machine: flat Fil H; steel, nickel finish; No. 4-40 thd; 0.719" lg under head; thd 0.250" lg; head 0.187" diam x 0.094" thk.	
		4T74805	SCREW, machine: slotted hex head; steel, nickel finish; No. 10-32 thd; 3/4" lg under head; thd 0.406" lg; head 0.312" across flats x 1/8" thk.	
		4T78301	SCREW, machine: slotted hex head; steel; zinc plate chromate finish; No. 10-32 thd; 5/8" lg under head, threaded full length; head 5/16" across flats 1/8" thk.	
		4T79523	SCREW, machine: flat Fil H; steel; zinc plate, chromate finish; No. 2-56 thd; 0.781" lg under head; thd 1/4" lg; head 0.068" thk x 0.141" OD.	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T80508	SCREW, machine: flat Fil H; steel; zinc plate, chromate finish; No. 4-40 thd; $2\frac{5}{32}$ " lg under head; $1\frac{1}{32}$ " lg thd; head $\frac{3}{32}$ " thk x $\frac{3}{16}$ " OD.	
		4T103539	SCREW, machine: Bind H; steel, nickel finish; No. 6-40 thd; $\frac{3}{8}$ " lg under head, thd full lg; head 0.250" diam x 0.062" thk.	
		4T1109	SCREW, set: slotted headless; steel, parkerized; No. 10-32 thd; 0.219" lg overall; oval point.	
		4T6807	SCREW, set: slotted, headless; steel, nickeled; No. 6-40 thd; 0.188" lg with full lg thd; (rounded point).	
		4T1012	SCREW, shoulder: flat top Bind H; hardened steel, nickel finish; No. 6-40 thd; 0.219" lg under head w/ $\frac{1}{8}$ " lg thd; head 0.094" thk x $\frac{1}{4}$ " diam; (shoulder 0.186" diam x 0.094" lg).	
		4T84814	SCREW, shoulder: flat top Bind H; steel, zinc plate, chromate finish; No. 6-40 thd; 0.537" lg under head w/0.438" lg thd; head 0.094" thk x 0.281" OD; shoulder 0.187" OD x 0.074" lg; neck next to head 0.025" x 0.014" d).	
		4T86746	SCREW, shoulder: hex head, not slotted; steel, nickel finish; No. 6-40 thd; 0.234" lg under head w/0.131" lg thd; head 0.047" thk x 0.250" across flats; (shoulder 0.078" lg x 0.185" OD; neck next to shoulder 0.025" wd x 0.008" d).	
		4T92382	SCREW, shoulder: flat top Bind H; hardened steel; zinc plate, chromate finish; $\frac{1}{4}$ "-32 thd; 0.786" lg under head w/0.261" lg thd; head $\frac{1}{8}$ " thk x $\frac{1}{2}$ " OD; (shoulder 0.374" OD x 0.505" lg).	
		4T71156	SHIM: 0.010" steel; $\frac{1}{2}$ " OD, 0.254" ID.	
		4T35-26	SPRING, extension: 0.035" music wire; 2.313" lg x 0.284" OD overall; (approx 54 turns w/hook terminals parallel and indexed 180°).	
		4T3870	SPRING, extension: 0.014" music wire; 0.685" lg x 0.150" diam overall; (approx 28 turns, hook term. indexed at 90°).	
		4T76086	SPRING, flat: 0.010" CR steel; friction type; 1.188" OD x 0.150" max wd; 0.565" ID; (12 slots 0.188" d equally spaced on 30°; segments bent in alternate directions 0.070" from bent center).	

\* Ref symbol and teletype part number are stock No. less 4T.



MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T5702	SWITCH, lever: 2 position non-restoring; 1 form C double break each position; steel, cadmium plated $3\frac{1}{8}$ " lg x $1\frac{1}{2}$ " wd x $\frac{3}{4}$ " thk behind panel; (4 mtg holes No. 4-36 thd on 0.344" x 1.888" mtg/c; lever No. 8-32 thd, $1\frac{5}{16}$ " lg; 12 solder lug term.).	
		4T73180	SWITCH, toggle: SPST; laminated bakelite w/metal jacket; $1\frac{3}{16}$ " lg x $\frac{1}{2}$ " wd x $1\frac{7}{32}$ " h overall; AH & H No. 20992; (250 V 3 amp; $1\frac{5}{32}$ "-32 thd bushing $1\frac{3}{32}$ " lg; 2 solder lug term. on end; ball type toggle; w/hex nut, washer and ring nut).	
		4T93136	SWITCH, toggle: DPDT; body $1\frac{5}{32}$ " lg x $1\frac{1}{16}$ " wd x $2\frac{1}{32}$ " d overall; Cutler Hammer No. 8373; (3 amp 250 V, 6 amp 125 V; bushing $1\frac{5}{16}$ "-32 thd x $\frac{1}{4}$ " lg; 6 solder lug term. on bottom; w/one hex and one knurled nut).	
		4T81726	TERMINAL, lug: double ring, flat type; brass, tinned; 0.687" lg x 0.562" overall x 0.020" thk; (two mounting holes 0.193" diam on 0.375" mtg/c; lug at 90° angle to base with elongated hole 0.250" lg x 0.125" wd).	
		4T7002	WASHER, flat: steel, dull nickel finish; $\frac{9}{64}$ " ID x $\frac{5}{16}$ " OD x 0.032" thk.	
		4T34432	WASHER, flat: steel, hardened; zinc plate, chromate finish; $\frac{3}{16}$ " ID x $1\frac{1}{32}$ " OD x 0.036" thk.	
		4T76084	WASHER, flat: felt, white; $\frac{9}{16}$ " ID x $1\frac{1}{4}$ " OD x $1\frac{1}{16}$ " thk.	
		4T85559	WASHER, flat: steel; spacer; $\frac{1}{4}$ " ID x $\frac{1}{2}$ " OD x 0.030" thk.	
		4T2191	WASHER, lock: split ring never slip type; spring steel, white nickel finish; No. 6; $\frac{9}{64}$ " ID x $1\frac{5}{64}$ " OD x 0.032" thk.	
		4T2449	WASHER, lock: split ring, never slip type; spring steel; white nickel finish; $1\frac{7}{64}$ " ID x $\frac{7}{16}$ " OD x 0.045" thk.	
		4T2669	WASHER, lock: split ring, never slip type; spring steel, dull nickel finish; 0.200" ID x $1\frac{9}{64}$ " OD x 0.047" thk.	
		4T3640	WASHER, lock: split ring, never slip type; spring steel, white nickel finish; 0.120" ID x 0.210" OD x 0.035" thk.	
		4T72565	WASHER, lock: split ring; never slip type; spring steel, dull nickel finish; $3\frac{3}{64}$ " ID x $4\frac{9}{64}$ " OD x 0.062" thk.	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T78399	ARM ASSEMBLY, contact: nickel silver or steel w/zinc plate, chromate finish; u/w outer disk; $3\frac{3}{8}$ " lg x $\frac{7}{16}$ " wd x $1\frac{9}{32}$ " h overall; ( $\frac{1}{4}$ " diam x $\frac{1}{4}$ " lg contact brush soldered to one end, Natl Carbon grade No. 9613; flat spring on opposite end offset $\frac{3}{8}$ " on side opposite brush w/0.193" wd x 0.596" d spade type slot).	
		4T78400	ARM ASSEMBLY, contact: nickel silver or steel w/zinc plate, chromate finish; u/w inner disk; $3\frac{3}{8}$ " lg x $\frac{7}{16}$ " wd x $1\frac{9}{32}$ " h overall; ( $\frac{1}{4}$ " diam x $\frac{1}{4}$ " lg contact brush soldered to one end, Natl Carbon grade No. 9613; flat spring on opposite end offset $\frac{3}{8}$ " on brush side of arm w/0.193" wd x 0.596" d spade type slot).	
		4T5061	BEARING, ball: Norma-Hoff No. E13; GE No. 3510881, (single row, self-aligning; bore 0.5118"; 1.1811" OD 0.2756" wd).	
		4T8884	BOARD, terminal: 4 contacts extending thru block; black molded bakelite; 1.602" lg x 0.765" h x 0.438" d overall; (2 mtg holes 0.177" and 0.152" diam on 0.812" mtg/c; flat $\frac{1}{4}$ " diam term. one side, solder lug $\frac{7}{32}$ " lg opposite side).	
		4T8094	BRUSH, electrical contact: carbon; w/compression spring and end cap; $2\frac{3}{16}$ " lg x $\frac{3}{8}$ " OD overall; GE No. 5052405AA7; (rectangular shape $\frac{3}{4}$ " lg x $\frac{3}{8}$ " wd x $\frac{1}{4}$ " thk; rated 60 amp per sq in., stamped 3860).	
		4T78403	BRUSH, electrical contact: carbon, copper plated; governor; $1\frac{5}{64}$ " lg x $\frac{1}{4}$ " diam; Natl Carbon grade No. 9613; (mts on spring No. 78399, $\frac{1}{8}$ " diam x $\frac{1}{16}$ " lg on one end).	
		4T70873	CAP, contact brush: black bakelite, $2\frac{1}{32}$ " diam x $\frac{1}{2}$ " lg overall; GE No. K-5859307AEGRI, (brass insert $\frac{1}{2}$ "-32 thd extends $\frac{1}{4}$ " from cap; axial hole thru cap tapped No. 6-32; screw driver slot in head).	
		4T95937	CAPACITOR, fixed: paper; 10,000 mmf +22% -0%; 1200 VDC test; oval case $1\frac{1}{2}$ " lg x $\frac{9}{16}$ " wd x $\frac{5}{16}$ " thk overall; WECO No. D-157918, (metal case; mineral wax impregnated and filled; 2 insulated wire leads out one end 3" lg).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T95938	CAPACITOR, fixed: paper; 100,000 mmf $\pm 12\%$ ; 1200 VDC test; oval shaped $2\frac{1}{8}$ " lg x $\frac{9}{16}$ " wd x $\frac{5}{16}$ " thk overall; WECO No. D-157919, (metal case; mineral wax impregnated and filled; 2 insulated 3" lg wire leads out one end).	
		4T95936	COIL, RF: choke; single winding layer wound; unshielded; 1.1 ohm DC resistance, 180 $\frac{1}{2}$ turns No. 26 DCC wire; $\frac{7}{8}$ " diam x $\frac{5}{8}$ " lg, WECO 225A; (brass tube w/bakelite ends; axial mtg hole 0.187" diam; 2 color coded insulated wire leads out one end; stamped "Retard 225A" one end).	
		4T6320	CONTACT, screw: steel; zinc plate, chromate finish; 0.385" lg w/hex head $\frac{1}{4}$ " across flats; (screw type w/tungsten contact electrowelded to head; screw No. 6-32 thd, 0.281" lg under head, 0.188" lg thd; contact $\frac{1}{4}$ " diam x 0.020" thk).	
		4T72835	CONTACT, screw: hex head; steel, nicked; No. 2-56 thd; 0.080" lg threaded close to head; tungsten point on head 0.250" OD x 0.020" thk; hex shoulder 0.250" across flats x 0.046" thk; (0.148" lg overall).	
		4T6314	CONTACT ASSEMBLY: governor; single tungsten contact $\frac{1}{4}$ " OD x $\frac{1}{16}$ " thk; $1\frac{29}{32}$ " lg x $\frac{5}{8}$ " h x $\frac{3}{8}$ " thk overall; teletype part dwg No. 6314; (consists of: 1 No. 72835 contact, 1 No. 86868 bushing, bakelite, 1 No. 86869 post; P/o No. 15 printer and Sig C TG-7-A and TG-7-B).	
		4T96572	GEAR SET: motor and main shaft; 7 thd and 40 teeth combination; 368 opm, for 110 v AC governed motor 2100 rpm; (consists of: 1 ea No. 102667 Gear, helical; steel; 7 thd w/No. 102661 hub. 1 ea No. 102668 Gear, helical; steel; 40 teeth w/No. 102664 hub).	
		4T126-123	GROMMET, rubber: black; for $\frac{7}{16}$ " diam hole; $\frac{9}{16}$ " OD x $\frac{5}{16}$ " ID x $\frac{3}{8}$ " thk; (u/w motors).	
		4T78398	INSULATOR, bushing: black phenol fiber, grade XX; 0.125" ID x 0.187" OD x 0.145" thk; brush spring bushing.	
		4T86868	INSULATOR, bushing: tubular; bakelite, grade XX; 0.140" lg x 0.219" OD overall; (bushing 0.142" OD x 0.095" ID x 0.093" lg; shoulder 0.219" OD x 0.049" thk).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T95935	INSULATOR, bushing: headless type; tubular; black bakelite $1\frac{1}{16}$ " lg x $1\frac{1}{64}$ " OD x $\frac{3}{64}$ " ID.	
		4T41733	INSULATOR, plate: oblong shape; WECO grade 2g black phenol fiber; 0.687" lg x 0.312" wd x 0.062" thk; (2 mounting holes No. 10 drill 0.193" diam on 0.375" mtg/c; ends rounded on 0.156" radius).	
		4T74991	INSULATOR, strip: rectangular, flat, natural bakelite, 1.625" lg x 0.812" wd x 0.016" thk; (two mounting holes 0.144" diam on 0.813" mtg/c and located 0.218" from one long side equally spaced from ends).	
		4T91837	INSULATOR, washer: fiber; blue-grey color; $\frac{1}{2}$ " ID x $1\frac{1}{2}$ " OD x 0.010" thk.	
		4T78905	INSULATOR, washer: flat; natural bakelite; 0.193" ID x 0.375" OD x 0.0508" thk.	
		4T77953	MOTOR, AC: series wound; $\frac{1}{25}$ hp; open frame; $5\frac{1}{2}$ " lg x $5\frac{1}{16}$ " wd x $4\frac{15}{16}$ " h overall, excluding shaft, $\frac{3}{8}$ " diam shaft $1\frac{1}{4}$ " lg one side, $\frac{5}{8}$ " lg opposite side; 95-130 vac 60 cyc 0.8 amp; 2100 rpm; GE No. 32989 or No. 5BA65AA29; (frame GE No. 65-A; two mtg feet w/4 slotted holes 0.372" x 0.281" on $4\frac{1}{4}$ " x $3\frac{5}{8}$ " mtg/c ball bearings).	
		4T34-4	NUT, hexagon: steel; zinc plated, chromate finish; No. 10-32 thd; $\frac{3}{32}$ " thk; $\frac{5}{16}$ " across flats.	
		4T3598	NUT, hexagon: steel; zinc plated, chromate finish; 6-40 thd; $\frac{3}{32}$ " thk; $\frac{1}{4}$ " across flats.	
		4T6345	NUT, hexagon: steel; zinc plated, chromate finish; 6-32 thd; $\frac{3}{32}$ " thk; $\frac{1}{4}$ " across flats.	
		4T74091	PLATE, mounting: CR steel; bright zinc finish; motor base; $7\frac{15}{32}$ " lg x $6\frac{1}{8}$ " wd x $\frac{1}{8}$ " thk overall; (four $\frac{1}{4}$ "-20 tapped holes on $3\frac{5}{8}$ " x $4\frac{1}{4}$ " centers for motor mtg; $2\frac{5}{32}$ " lg x $1\frac{5}{8}$ " wd arm on one side w/two No. 6-40 tapped holes on $1\frac{1}{16}$ " centers; 13 other holes irregularly spaced; corners curved on $\frac{1}{2}$ " rad).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T71189	PLATE, retainer: copper; motor bearing; $1\frac{13}{16}$ " OD x $2\frac{1}{32}$ " ID x 0.015" thk; ( $1\frac{5}{8}$ " across flats, four $\frac{5}{32}$ " diam holes on $1\frac{1}{2}$ " center diam spaced 90 deg).	
		4T73231	PLATE, retainer: stainless steel; motor bearing retainer; $1\frac{13}{16}$ " OD x $2\frac{1}{32}$ " ID x 0.163" thk overall; ( $1\frac{5}{8}$ " across flats; center hole counterbored $1\frac{3}{16}$ " ID x $\frac{3}{32}$ " d for bearing; outer machined section $1\frac{5}{64}$ " wd x $\frac{1}{32}$ " d forming 2 shoulders; four No. 6-40 tapped mtg holes on $1\frac{1}{2}$ " center diam spaced 90 deg).	
		4T41732	PLATE, retainer: steel, nickel finish; $1\frac{1}{16}$ " lg x $\frac{5}{16}$ " wd x 0.035" thk; (2 mtg holes 0.116" diam $\frac{3}{8}$ " center; curved ends).	
		4T8222	PLATE, thrust: 0.017" nickel silver, nickel finish; motor wearing strip; $2\frac{7}{32}$ " lg x $\frac{3}{4}$ " wd x $3\frac{9}{64}$ " d overall; ("L" shape; one arm has curved end w/sides bent inward $\frac{1}{32}$ "; opposite arm has two $\frac{9}{64}$ " diam mtg holes on $\frac{7}{8}$ " mtg/c w/ $\frac{3}{16}$ " wd slot in center).	
		4T78205	RESISTOR, fixed: WW; 300 ohms $\pm 10\%$ ; 40w; $3\frac{7}{16}$ " lg x $\frac{3}{4}$ " diam; Ward Leonard "B" or equal; (vitreous E insulation; inductive; ceramic core; marked "300"; two radial wire leads).	
		4T96814	RESISTOR ASSEMBLY, fixed: two WW units, ea 300 ohms $\pm 10\%$ ; 40w; $5\frac{1}{8}$ " lg x 2" wd x $1\frac{1}{8}$ " h overall; (two No. 78205 vitreous E, ceramic-core resistors mtd parallel on 2 angle brackets; wired series parallel for 150, 300, or 600 ohms; 2 insulated screw term. on ea bracket; two $\frac{3}{16}$ " wd x $\frac{9}{16}$ " d mtg slots on $4\frac{1}{8}$ " centers).	
		4T1064	SCREW, machine: RH; brass; zinc plate, chromate finish; No. 6-32 thd; 0.250" lg under head, thd full lg; head 0.097" thk x 0.251" OD.	
		4T1168	SCREW, machine: Fil H; steel; zinc plated, chromate finish; No. 4-40 thd; $\frac{5}{16}$ " lg under head, thd $\frac{9}{32}$ " lg; head 0.176" diam x $\frac{7}{64}$ " thk.	
		4T1266	SCREW, machine: RH; steel; zinc plate, chromate finish; No. 6-32 thd; 0.438" lg, under head, thd full lg; head 0.097" thk x 0.251" OD.	
		4T1272	SCREW, machine: Fil H; steel; zinc plate, chromate finish; No. 6-40 thd; 0.688" lg under head, thd full lg; head 0.119" thk x 0.217" OD.	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T6344	SCREW, machine: slotted hex head; steel, nickel plated; No. 6-32 thd; 0.344" lg under head; thd full lg; head 0.187" across flats x 0.094" thk.	
		4T6746	SCREW, machine: slotted hex head; steel, nickel finish; 6-40 thd; 5/16" lg under head; head 1/4" across flats, 3/32" thk.	
		4T6811	SCREW, machine: slotted hex head; steel, nickel finish; No. 6-40 thd; 5/8" lg under head; head 1/4" across flats, 3/32" thk.	
		4T73244	SCREW, machine: Fil H; steel, cadmium finish; No. 10-30 thd; 7/8" lg under head; thd full lg; head 0.303" diam x 0.172" thk.	
		4T80342	SCREW, machine: hex head; steel, nickel finish; 6-40 thd; 23/64" lg under head, threaded full length.	
		4T80444	SCREW, machine: hex hd; steel; zinc plate, chromate finish No. 6-40 thd; 1/4" lg under head, threaded full length; head 1/4" across flats x 3/32" thk.	
		4T82440	SCREW, machine: slotted hex head; steel, nickel plated; No. 6-40 thd; 7/16" lg under head; head 1/4" across flats x 3/32" thk.	
		4T1100	SCREW, pilot: flat top bind Hd; steel; nickel finish; 1/4"-32 thd; 5/8" lg; 3/16" lg thd; hd 1 1/32" diam x 3/32" thk; pilot 3/16" diam x 1 3/32" lg.	
		4T91617	SHIM: governor; steel; 3/8" ID x 1 3/16" OD x 0.012" thk.	
		4T71999	SPRING, compression: 0.086" music wire; 31/64" lg overall; 17/64" max diam, 23/32" min diam; (approx 3 turns, LH; conical shape; open ends ground).	
		4T6323	SPRING, extension: 0.033" music wire; 1 3/16" lg x 0.259" diam overall; (19 turns open; w/machine hook terminals, indexed parallel).	
		4T78496	SPRING, flat: 0.0159" thk nickel silver; governor outer contact spring; 1 15/64" lg x 0.531" wd x 4 3/64" D overall; hook shape formed on 0.439" radius to 0.250" radius; one mounting hole 0.196" diam; base 0.531" diam and spring portion tapers from 0.250" wd max to 0.186" wd min).	
		4T78497	SPRING, flat: 0.159" thk nickel silver; governor inner contact spring; 1 15/64" lg x 1 7/32" wd x 2 5/32" D overall; hook shape formed on 0.500" radius to 0.250" radius; one mounting hole 0.285" diam; base 0.531" diam and spring portion tapers from 0.250" wd max to 0.186" wd min).	

\* Ref symbol and teletype part number are stock No. less 4T.

MAINTENANCE PARTS FOR DISTORTION TEST SET TS-383/GG (cont'd)

Major component	* Ref symbol	Signal Corps stock No.	Name of part and description	* Mfr's part and code No.
		4T99250	SUPPRESSOR, electrical noise: 5 capacitors, 1 brass core retard coil; 4 <sup>15/16</sup> " lg x 1 <sup>1/2</sup> " wd x 2 <sup>7/8</sup> " h overall; (110 VAC, 1.5 amp; open type; two No. 10 drill holes in mtg bracket on 1/2" mtg/c; consists of 3 WECO No. D-157919 capacitors, 2 WECO No. D-157918 capacitors, 1 WECO No. 225-A retard coil; includes 2 ea brush cap, screw washer and lock washer); p/o motor units MU26 and MU27.	
		4T7105	TARGET: governor flywheel; 0.032" brass or steel, 20 divisions; 3.329" OD x 1/4" thk overall; (one edge turned 90 deg to form inside mtg flange 0.242" wd; 6 cut-outs equally spaced 0.144" wd for mtg screws; outside rim alternately colored black and white in 20 equal divisions).	
		4T82474	TERMINAL, lug: ring type; tinned copper; for 1/8" OD max wire; 0.641" lg x 0.296" wd x 0.188" overall; (punched from No. 24 gauge sheet copper; solder and mechanical connection; 2 insulation clamp ears).	
		4T73232	WASHER, flat: felt, black; 5/8" ID x 1 <sup>3/16</sup> " OD x 3/16" thk; (soft mat).	
		4T2191	WASHER, lock: split ring never slip type; spring steel, white nickel finish; No. 6; 9/64" ID x 15/64" OD x 0.032" thk.	
		4T2449	WASHER, lock: split ring, never slip type; spring steel; white nickel finish; 1 <sup>7/64</sup> " ID x 7/16" OD x 0.045" thk.	
		4T2669	WASHER, lock: split ring, never slip type; spring steel; dull nickel finish; 0.200" ID x 1 <sup>9/64</sup> " OD x 0.047" thk.	
		4T3438	WASHER, flat: steel hardened; zinc plate, chromate finish; 3/16" ID x 7/16" OD x 0.053" thk.	
		4T7002	WASHER, flat: steel, dull nickel finish; 9/64" ID x 5/16" OD x 0.032" thk.	
		4T8330	WASHER, flat: steel, hardened; zinc plate, chromate finish; 0.170" ID x 1/4" OD x 0.037" thk.	
		4T80312	WASHER, flat: steel, dull nickel finish; 3/4" ID x 1 <sup>5/32</sup> " OD x 0.035" thk.	

\* Ref symbol and teletype part number are stock No. less 4T.

LUBRICATION SUPPLIES  
AND DIRECTIONS FOR USE

The following lubricants have been standardized for use on all types of Teletype apparatus:

88970	1 Qt. of KS-7470 Oil
88971	1 Gal. of KS-7470 Oil
88973	1 Lb. of KS-7471 Grease
88975	KS-8319 Grease Gun
97116	4-oz. Tube of KS-7471 Grease

The above grease is recommended instead of oil for lubricating motors equipped with ball bearings. The 88975 grease gun should be used for injecting grease into the bearings of Teletype ball bearing motors. The gun may be used also for applying grease to other parts of the apparatus and no other grease container need be carried. If this grease gun is not available, the oil listed in the foregoing should be substituted for lubricating ball bearing motors.

Instructions for Filling the Grease Gun

1. Unscrew the lubricant tube from the cap casting of the grease gun.
2. Insert fresh lubricant through the open end of the tube with the fingers. Apply gradually to eliminate air pockets.
3. Tamp the lubricant down solidly in the tube by pounding the closed end solidly against the palm of the hand. Continue to add lubricant until the tube is completely filled and the metal follower rests against the perforated tube cover.
4. Fill the cap casting with lubricant flush to the bottom side of the tube threads.
5. Screw the lubricant tube into the cap casting part way only. Then insert a pencil or rod through the perforated tube cover and exert pressure against the metal follower so as to expel any entrapped air past the tube threads. When lubricant begins to ooze through the threads, tighten the lubricant tube securely in the cap casting.
6. Operate the handle back and forth for several strokes or until lubricant is pumped from the nozzle. The gun is then ready for use. If the lubricant does not flow from the nozzle in a solid stream, it is an indication that all air has not been expelled from the lubricant tube. Invert the gun and pound the cap casting end against the palm of the hand to jar the lubricant into the pump cylinder.

Instructions for Lubricating Motor Ball Bearings

The motor bearings are packed with grease before the motor leaves the factory and under ordinary operating conditions need no additional lubrication for approximately two months. At the regular lubricating intervals one or two strokes of the plunger of the gun should apply sufficient grease to each bearing. To lubricate, press the nozzle of the gun against the ball oiler and force the grease into the hole by pushing on the plunger of the gun. Care should be taken that the bearings are not overloaded. Overloading will result in the grease oozing out of the end castings and being forced into the motor or being thrown on other parts of the mechanism. After lubricating, the motor should be run for a few minutes and then any excess grease that has been forced out of the ends of the castings should be wiped off. Each time that the gun is used for lubricating a motor bearing, the plunger should first be depressed slightly to make sure that grease will be delivered.