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GENERAL RAILWAY SIGNAL COMPANY

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2A SIGNAL

110 VOLT - 3 POSITION

DYNAMIC INDICATION

UPPER QUADRANT

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INSTRUCTIONS COVERING

ASSEMBLY

ADJUSTMENT

TESTING

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14 PAGES

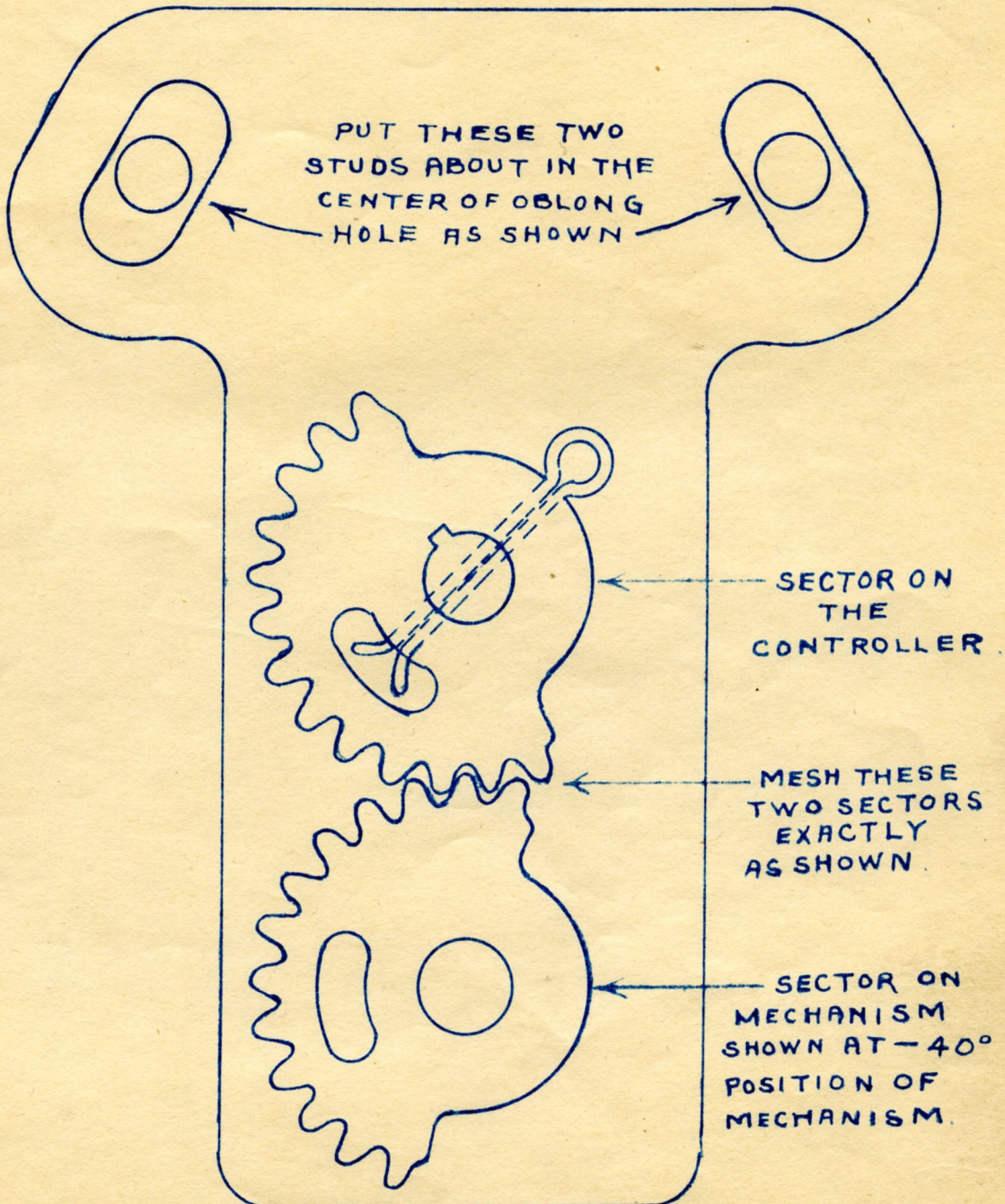




2 A SIGNAL - 110 VOLT 3 POSITION  
DYNAMIC INDICATION, R.H. U.Q.  
SKETCH - SHOWING HOW TO LOCATE  
CONTROLLER ON TO THE MECHANISM.

SK 6292 PG 1

File: 122.12 Mod 2A Signal



VIEWED FROM TRIP PLATE  
END OF CONTROLLER.

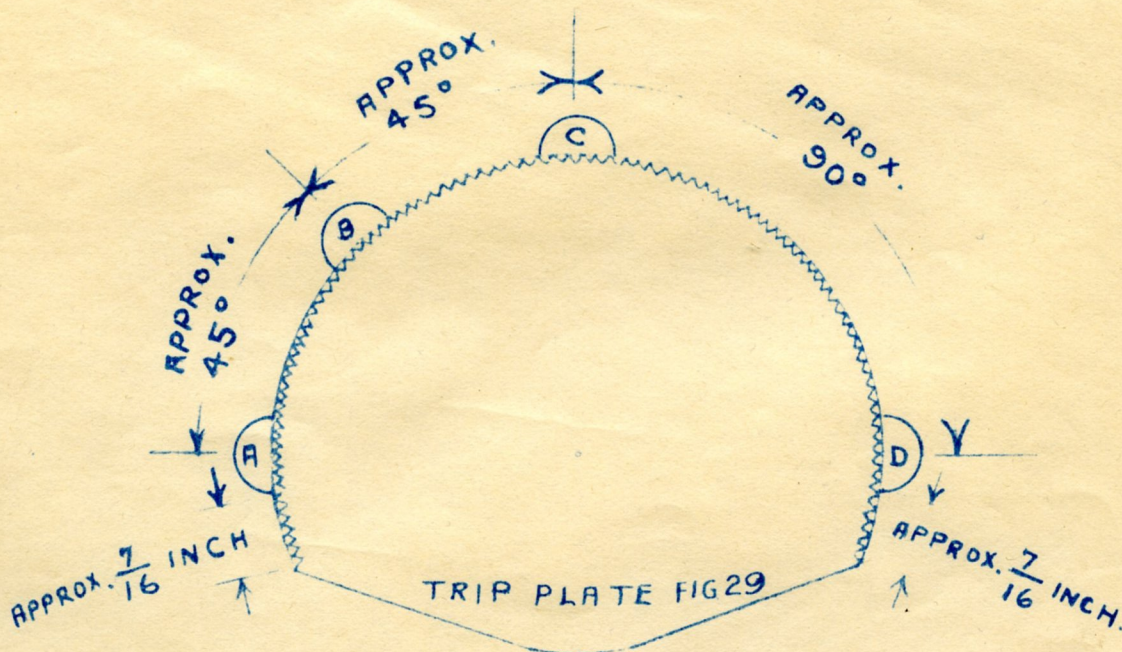


2 A SIGNAL - 110 VOLT 3 POSITION.  
DYNAMIC INDICATION. R. H. U. Q.  
SKETCH - SHOWING WHERE TO LOCATE  
TRIP FINGERS FIG. 19 ON TRIP PLATE FIG 29.

SK 6292 PG 2

File: 122.12 Mod 2A Signal

TRIP FINGERS FIG. 19 ARE SHOWN AT - A - B - C - D -



VIEWED FROM TRIP PLATE  
END OF CONTROLLER.

NOTE -

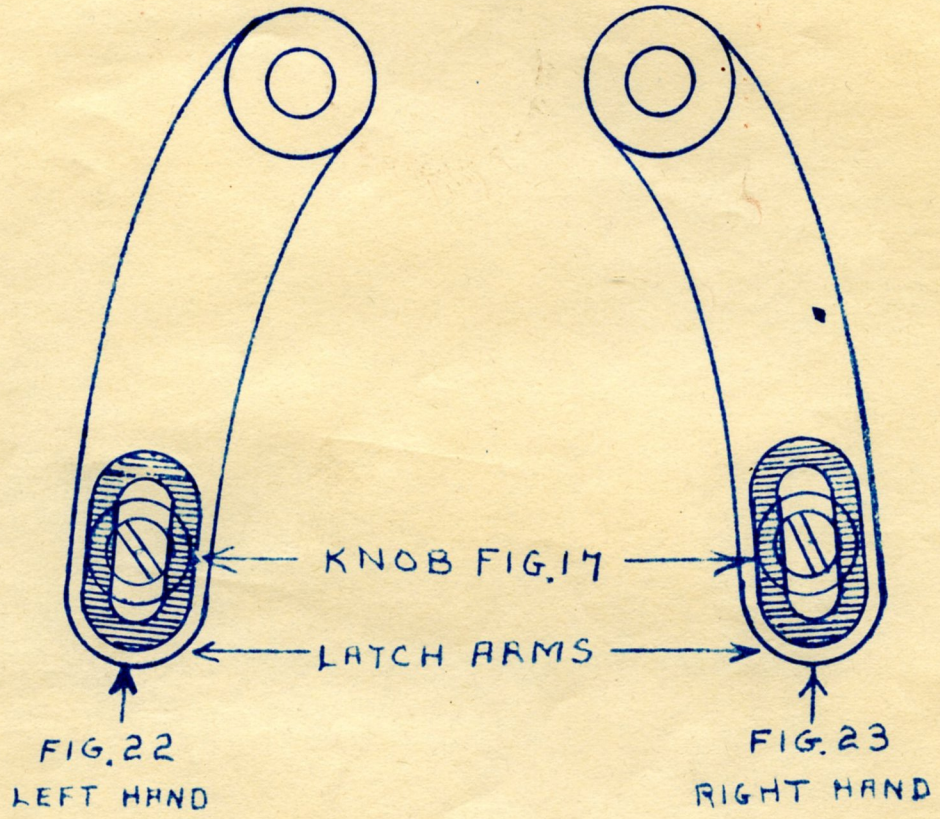
THE POSITION OF TRIP FINGERS AS SHOWN IS ONLY  
APPROXIMATE, AND THEY MAY HAVE TO BE MOVED  
SLIGHTLY TO SECURE PROPER OPERATION OF SIGNAL.



2A SIGNAL - 110 VOLT 3 POSITION.  
DYNAMIC INDICATION. R.H. U. Q.  
SKETCH - WHERE TO LOCATE KNOB FIG 17  
IN LATCH ARMS FIG 22 AND FIG. 23

SK 6292 PG 3

File: 122.12 Mod 2A Signal



2A SIGNAL - LIST OF CONTACT SEGMENTS USED  
ON CIRCUIT CONTROLLER FOR 110 VOLT DYNAMIC  
INDICATION 3 POSITION, SEMI-AUTOMATIC, UPPER  
QUADRANT, ALSO SKETCH OF LATCH PLATE NO.  
34649-1.

SK. 6292 PAGE 4

FILE: 122.12 Mod. 2A SIG.

| Contact Space | Total Length in inches | Work Performed               | Drawing Number | Figure Number |
|---------------|------------------------|------------------------------|----------------|---------------|
| 1 L           | 1 23/32                | 90° Blade Pos. snap cut off  | 29990-12       | X 6           |
| 2 R           | 1 23/32                | Mech. Free Run snap cut off  | 29990-12       | X 6           |
| 4 R           | 1 23/32                | 45° Blade pos. snap cut off  | 29990-12       | X 6           |
| 5 L           | 2 39/64                | 45° to 90° dist.sig. control | 29990-8        | Y 5           |
| 6 R           | 1 3/8                  | Mech. free run hold          | 29990-13       | X 7           |
| 8 R           | 1 3/8                  | 45° blade position hold      | 29990-13       | X 7           |
| 9 L           | 63/64                  | Snub segment - 3 required    | 29990-14       | X 8           |
| 10 R          | 1 3/8                  | 90° blade position hold      | 29990-13       | X 7           |
| 12 R          | 2 39/64                | Check on 45° blade position  | 29990-8        | Y 5           |
| 14 R          | 2 39/64                | Check on 0° blade position   | 29990-8        | Y 5           |

Latch Plate No. 34649-1 shown below MUST be used when following these instructions.



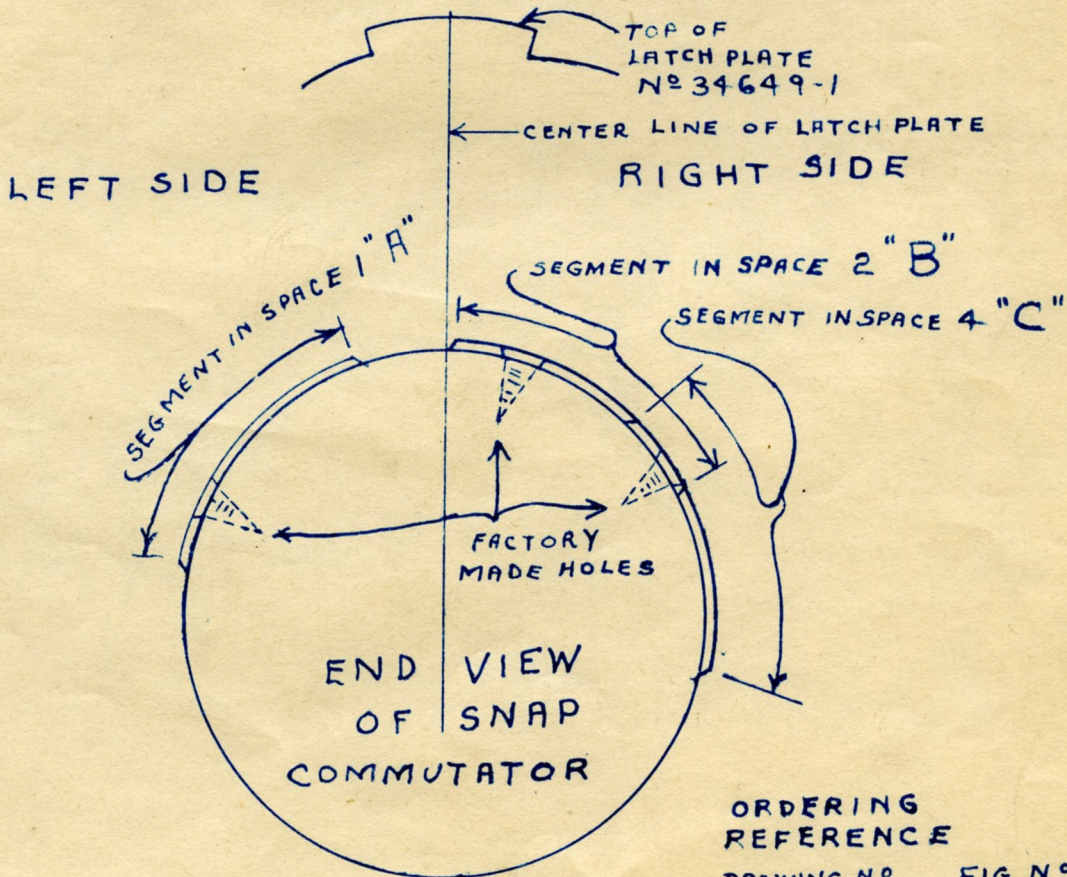
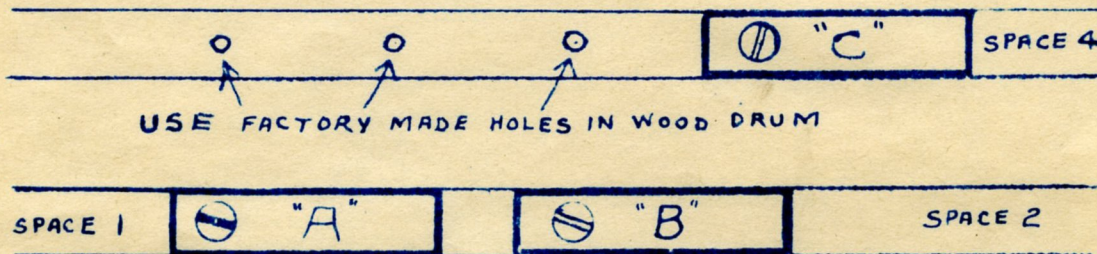


2 A SIGNAL - 110 VOLT - 3 POSITION.  
DYNAMIC INDICATION, R.H. U.Q.  
SKETCH - SHOWING WHERE TO LOCATE  
SEGMENTS ON SNAP COMMUTATOR.

SK 6292 PG 5

File: 122.12 Mod 2A Signal

FLAT PLAN VIEW OF THE TWO SLOTS OR SPACES  
IN THE WOOD DRUM OF SNAP COMMUTATOR.



ORDERING REFERENCE

DRAWING N<sup>o</sup> FIG. N<sup>o</sup>

- SEGMENT "A" = 90° BLADE POS. SNAP CUT OFF 29990-12 — X 6
- SEGMENT "B" = MECH. FREE RUN SNAP CUT OFF 29990-12 — X 6
- SEGMENT "C" = 45° BLADE POS. SNAP CUT OFF 29990-12 — X 6

USE LATCH PLATE N<sup>o</sup> 34649-1 ON THIS SIGNAL.

IMPORTANT — (USE FACTORY MADE HOLES IN WOOD DRUM)

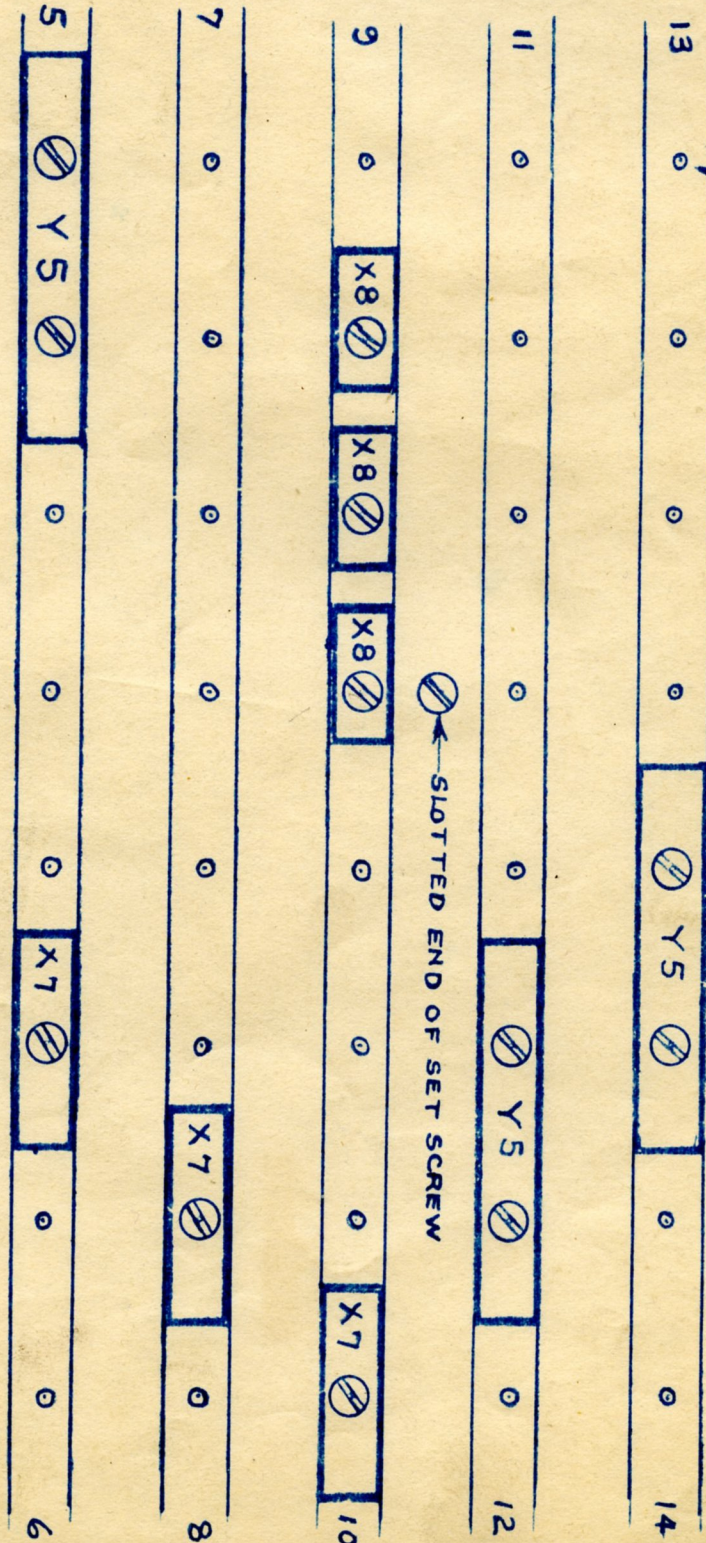


2A SIGNAL-110 VOLT 3 POSITION.  
DYNAMIC INDICATION. R.H.U.Q.  
SKETCH-SHOWING WHERE TO LOCATE  
SEGMENTS ON THE DRAG COMMUTATOR.

SK 6292 PG 6

File: 122.12 Mod 2A Signal

WHEN INSTALLING SEGMENTS USE FACTORY MADE SCREW HOLES



NOTE - Y5-X7-X8 ARE CATALOGUE REFERENCE NUMBERS

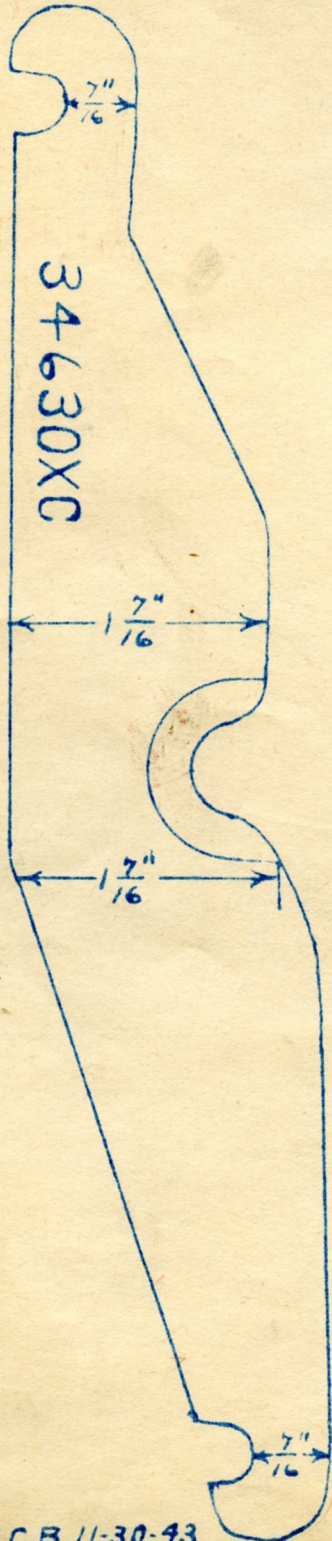
40 7-24-43  
SCR 10-24-43



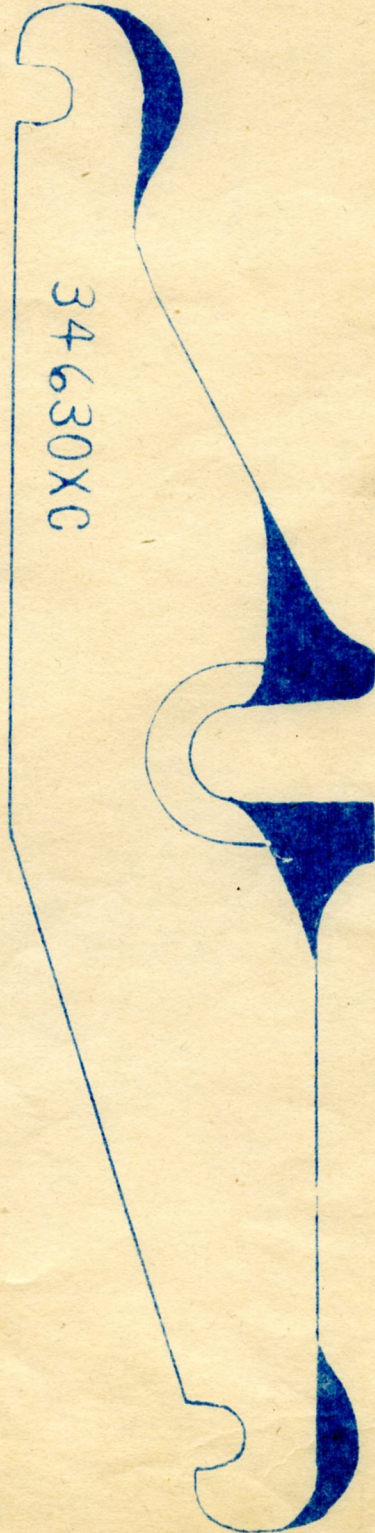
2 A SIGNAL - 110 VOLT - 3 POSITION  
DYNAMIC INDICATION - UPPER QUADRANT  
INSTRUCTIONS FOR REDUCING SIZE OF  
LEVER TO FACILITATE EASY INSTALLATION.

SK 6292 PG. 7

FILE: 122.12 MOD. 2A SIGNAL



NOTE - REMOVE PARTS SHOWN IN SOLID





2A SIGNAL - 110 VOLT. 3 POSITION DYNAMIC  
 INDICATION. SEMI AUTOMATIC. CIRCUIT  
 CONTROLLER OPERATION

SK 6292 PG. 8

FILE: 122.2 Mod. 2A SIG.

| Contacts<br>in<br>Space | GOING TO CLEAR       |                      | GOING TO STOP                        |                      | WORK<br>PERFORMED       |
|-------------------------|----------------------|----------------------|--------------------------------------|----------------------|-------------------------|
|                         | CLOSES               | OPENS                | CLOSES                               | OPENS                |                         |
| 2                       |                      | 40° POS.<br>OF MECH. | 10° POS.<br>OF MECH.                 |                      | MECHANISM<br>ONLY       |
| 4                       | 40° POS.<br>OF MECH. | 45° POS.<br>OF BLADE | 10° POS.<br>of Mech on<br>stick sig. |                      | 0° TO 45°<br>OF BLADE   |
| 6                       | 37° POS.<br>OF MECH. |                      |                                      |                      | MECHANISM<br>HOLDING    |
| 8                       | 43° POS.<br>OF BLADE |                      |                                      |                      | 45° POS.<br>HOLDING     |
| 10                      | 87° POS.<br>OF BLADE |                      |                                      |                      | 90° POS.<br>HOLDING     |
| 12                      | 40° POS.<br>OF MECH. |                      |                                      |                      | 45° BLADE<br>POS. CHECK |
| 14                      |                      | 3° POS.<br>OF BLADE  | 3° POS.<br>OF BLADE                  |                      | MECHANISM<br>POS. CHECK |
|                         |                      |                      |                                      |                      |                         |
| 1                       | 45° POS.<br>OF BLADE | 90° POS.<br>OF BLADE | 45° POS.<br>OF BLADE                 | 40° POS.<br>OF BLADE | 45° TO 90°<br>OF BLADE  |
| 9                       | 37° POS.<br>OF MECH. |                      |                                      |                      | A.C. SNUB<br>OF MECH.   |
| 9                       | 43° POS.<br>OF BLADE |                      |                                      |                      | A.C. SNUB<br>OF BLADE   |
| 9                       | 87° POS.<br>OF BLADE |                      |                                      |                      | A.C. SNUB<br>OF BLADE   |

2A SIGNAL - 110 VOLT 3 POSITION. DYNAMIC INDICATION. SEMI-AUTOMATIC. ALTERNATING CURRENT SNUB FEATURES.

SK. 6292 PAGE 9

File: 122.12 Mod. 2A Sig.

The 110 volt, 3 position dynamic indication signal motor has an armature equipped with an auxiliary winding, which under certain operating conditions, generates an alternating current.

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MECHANISM ONLY

This alternating current snubs or retards the mechanism at certain positions.

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BLADE MOVING UPWARD.

It also snubs or retards the blade at certain positions when moving towards the clear position.

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BLADE MOVING DOWNWARD.

As train passes a clear signal, the blade commences to move towards stop position. Under this condition the alternating current snubs or retards the downward movement of blade.

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IMPORTANT.

Satisfactory operation of the signal cannot be obtained unless the alternating current feature functions properly.

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FINAL ADJUSTMENT

After settings and adjustments have been made as called for on pages 1, 2, 3, 5, and 6, then to secure final satisfactory operation proceed as follows:

The contact springs on both the snap and drag commutators should be shifted up or down slightly, until desired operation is secured.

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NOTE:

Latch Plate No. 34649-1 shown on Page 4 MUST be used to secure satisfactory operation of the signal.

2A SIGNAL - 110 VOLT 3 POSITION  
DYNAMIC INDICATION. RIGHT HAND. U.Q.  
INSTRUCTIONS FOR INSTALLING RESTORING SPRINGS

S.K. 6292 PG. 10  
FILE: 122.2 Mod.2A Sig.

FIRST - REMOVE OIL PIPE WHICH SCREWS INTO BEARING OF RATCHET GEAR.

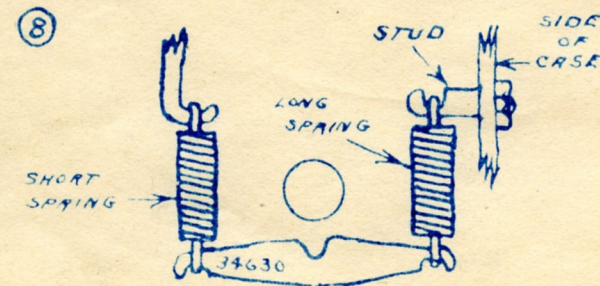
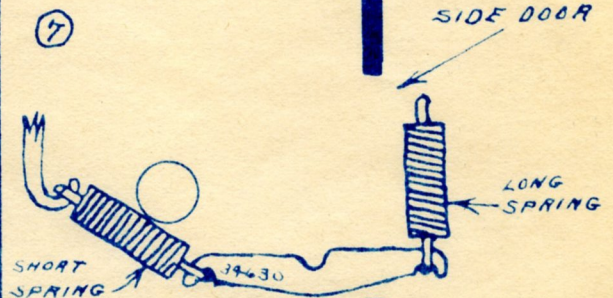
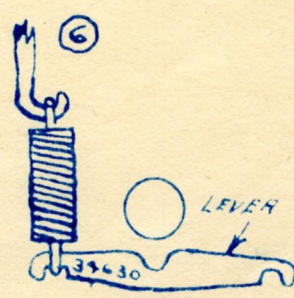
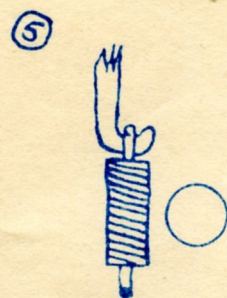
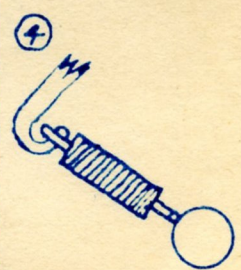
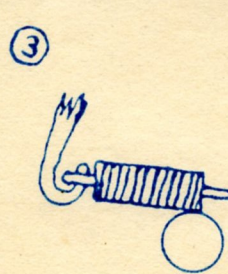
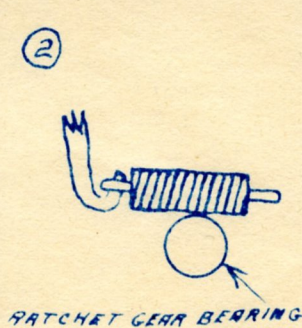
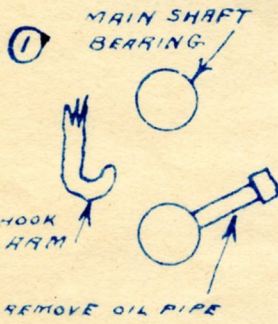
- A - Wind up mechanism by hand until lower end of hook arm is just below the main shaft, when looking through side door as shown in FIG. 1 on PAGE 11.
- B - Hang upper end of short spring in hook arm allowing spring to rest on ratchet gear shaft bearing as shown in FIG. 2.
- C - Take hold of lower end of spring and push it forward until lower end can be pushed over and drop down behind the shaft bearing as shown in FIGURES 3, 4, and 5.
- D - Now hang lever in loop at lower end of the back spring as shown in FIG. 6.
- E - Now with left hand, pull lever out through side door, and with right hand place long spring as shown in Fig. 7.
- F - Now take hold of long spring with left hand, and slip the upper end loop on to the stud which is just inside the door as shown in FIG. 8.
- G - Now place "U" bolt in notch on lever and down into the two holes in bottom of case as shown in FIG. 9.
- H - Now insert a pry bar between top of "U" bolt and the underside of bearing as shown in FIG. 10.



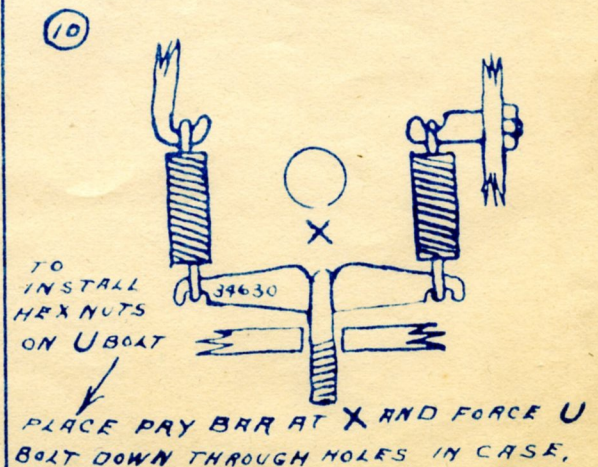
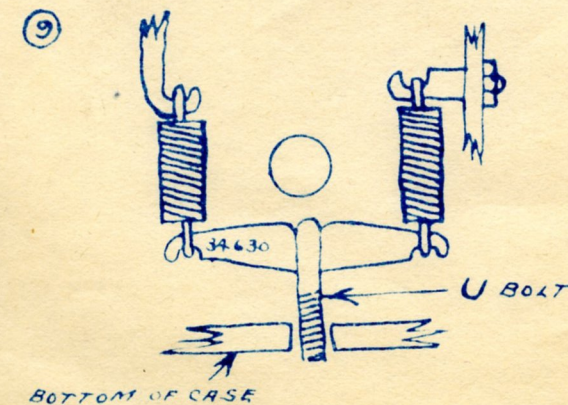
2A SIGNAL - 110 VOLT - 3 POSITION.  
DYNAMIC INDICATION. UPPER QUADRANT.  
SKETCHES WHICH APPLY TO PAGE 10.

SK. 6292 PG. 11

FILE: 122.12 MOD. 2A SIGNAL.



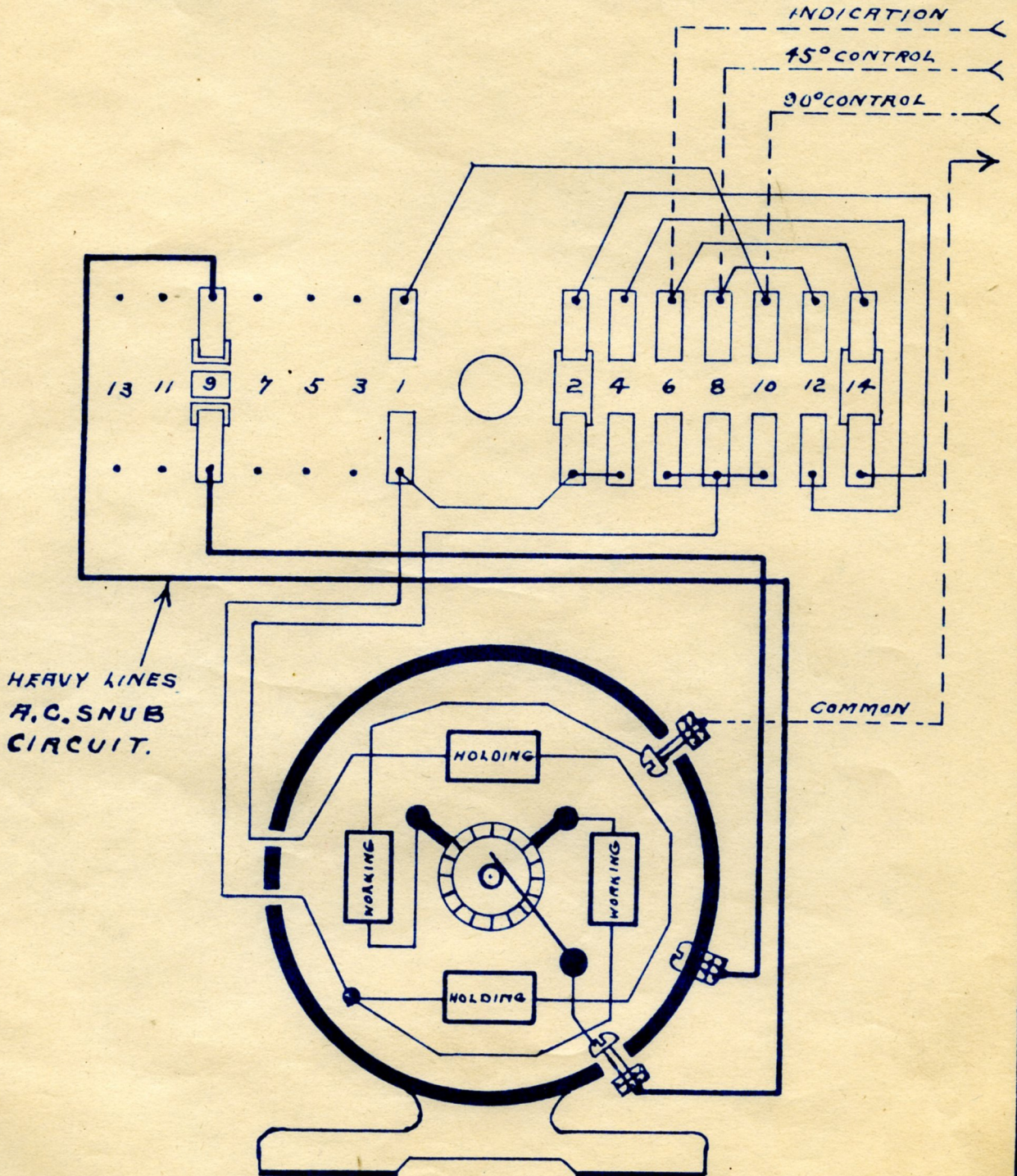
→ IMPORTANT ←  
BEFORE INSTALLING LEVER  
IT MUST BE ALTERED  
AS SHOWN ON PAGE 7  
OF THESE INSTRUCTIONS.





2A SIGNAL-110VOLT-3 POSITION  
DYNAMIC INDICATION, UPPER QUADRANT  
WIRING PLAN No 25908

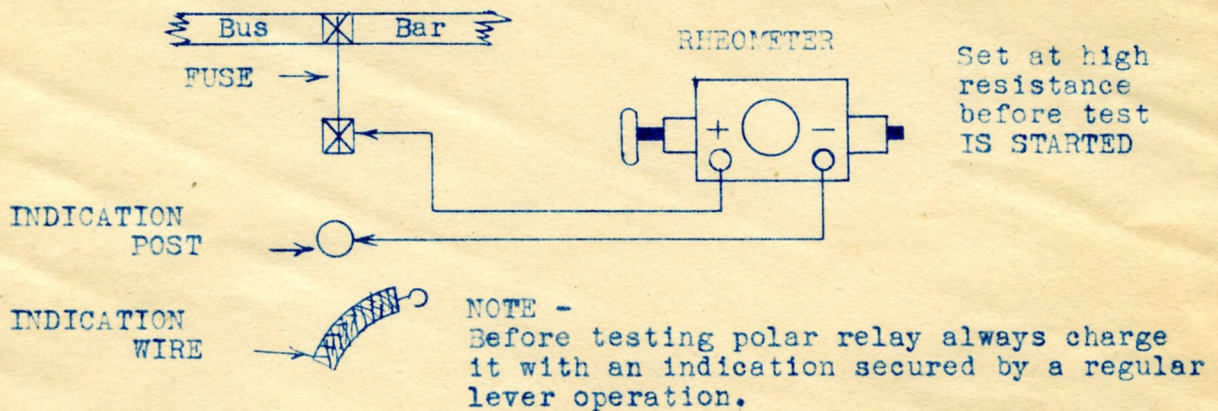
SK 6292 PG. 12  
FILE 122.12 MOD. 2A SIGNAL



2A SIGNAL - 110 VOLT - 3 POSITION. DYNAMIC INDICATION. SHOWING HOW TO TEST POLAR RELAY. SHOWING HOW TO TEST INDICATION MAGNET.

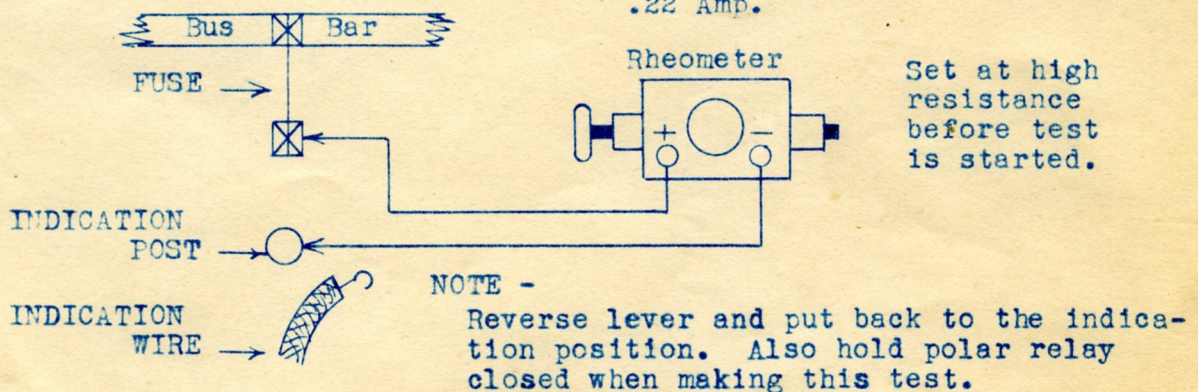
SK. 6292 Page 13  
File: 122.12 Mod. 2A  
Signal

POLAR RELAY SHOULD OPEN AT .35 AMP.



TO GET OPENING VALUE OF POLAR RELAY ON DYNAMIC INDICATION SIGNAL LEVER

SHOULD INDICATE ON .45 AMP. should not indicate on less than .22 Amp.



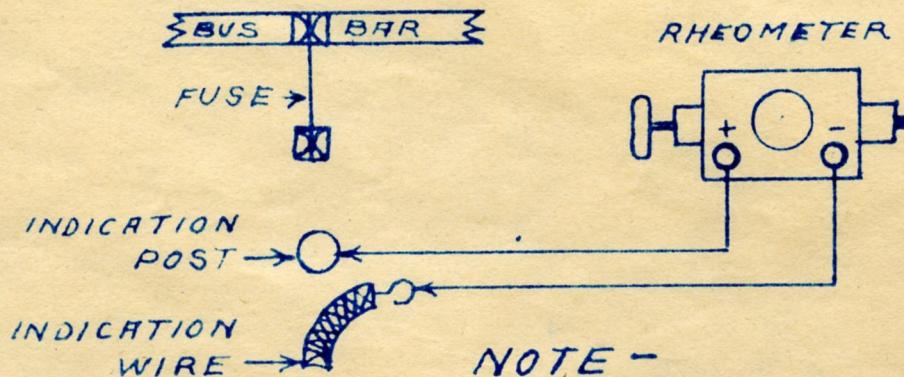
TO GET INDICATION MAGNET PICK UP VALUE OF DYNAMIC INDICATION SIGNAL LEVER.

2A SIGNAL-110VOLT-3POSITION.

DYNAMIC INDICATION.  
SHOWING HOW TO READ CLEARING  
AND INDICATION CURRENTS.

SK6292 PG. 14

FILE:122.12 MOD.2A SIG.

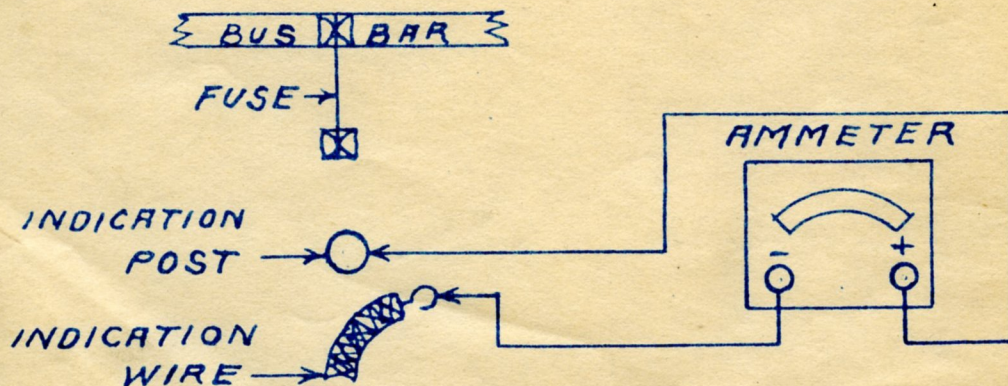


SET AT HIGH  
RESISTANCE  
BEFORE TEST  
IS STARTED.

NOTE -

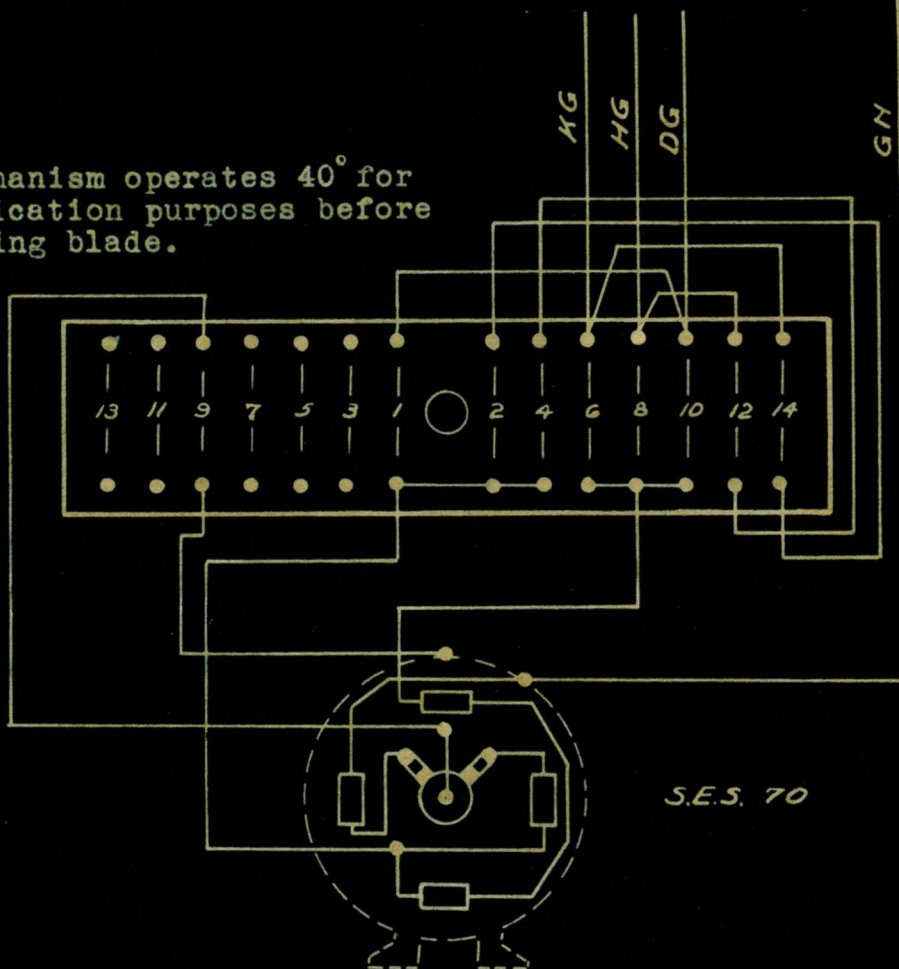
MAKE CONNECTIONS AS SHOWN  
THEN REVERSE SIGNAL LEVER.

TO GET MINIMUM CLEARING CURRENT  
OF 2A 110 VOLT SIGNAL.



TO READ INDICATION CURRENT  
OF DYNAMIC INDICATION SIGNAL.

NOTE: Mechanism operates 40° for indication purposes before moving blade.



| Fig. No. | Drawing No. | Contact Space | To Clear |      | To Stop |      |
|----------|-------------|---------------|----------|------|---------|------|
|          |             |               | Close    | Open | Close   | Open |
| X6       | 29990-12    | 1             | 85°      | 130° | 85°     | 80°  |
| X6       | 29990-12    | 2             | --       | 40°  | 10°     | --   |
|          |             | 3             |          |      |         |      |
| X6       | 29990-12    | 4             | 40°      | 85°  | 10°     | 10°  |
| Y5       | 29990-8     | 5             | 80°      | --   | --      | 80°  |
| X7       | 29990-13    | 6             | 37°      | 43°  | 43°     | 37°  |
| X7       | 29990-13    | 7             | 127°     | 131° | 131°    | 127° |
| X7       | 29990-13    | 8             | 83°      | 88°  | 88°     | 83°  |
| X8       | 29990-14    | 9             | 37°      | 41°  | 41°     | 37°  |
|          |             |               | 83°      | 88°  | 88°     | 83°  |
|          |             |               | 127°     | --   | --      | 127° |
| X7       | 29990-13    | 10            | 127°     | 131° | 131°    | 127° |
| X6       | 29990-12    | 11            | 80°      | 105° | 105°    | 80°  |
| Y2       | 29990-2     | 12            | 37°      | 88°  | 88°     | 37°  |
| Y2       | 29990-2     | 13            | --       | 43°  | 43°     | --   |
| Y2       | 29990-2     | 14            | --       | 43°  | 43°     | --   |

THE A.T. & S.F. RY. CO.

PLAN OF UNIVERSAL CIRCUIT  
BREAKER FOR MODEL 2-A  
GRS SIGNAL

SE3

LA

9-16-42