

# FG-2 CIRCUIT BREAKER

## INSPECTION CHECKLIST

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TYPE \_\_\_\_\_  
SER # \_\_\_\_\_  
FO # \_\_\_\_\_

### A. MECHANICAL INSPECTION

- \_\_\_\_\_ .1. Operating Mechanism Latching (Fig 382 & 383)\*  
With CB closed and the operating mechanism unloaded insert 2mm wedge between the opening lock support and the opening lock. Ensure that breaker remains closed.
- \_\_\_\_\_ .2. Closing Safety Clearance (Fig 385)  
With the CB open and the operating mechanism loaded, insert 2mm wedge behind the closing pushbutton. The breaker must close when depressing the close button.
- \_\_\_\_\_ .3. Opening Safety Clearance (Fig 386)  
With CB closed and the operating mechanism unloaded, insert 2mm wedge behind the opening pushbutton. The breaker must open when depressing the open button.
- \_\_\_\_\_ .4.a Opening and Closing Safety Clearance (Fig 388 & 389)  
With the CB open and the operating mechanism loaded, check manually by pressing on the moving core of the closing coil that closing occurs before the core reaches its end of travel.
- \_\_\_\_\_ .4.b Opening Coil: Check manually by pressing on the moving core of the opening coil that opening occurs before the core reaches its end of travel.
- \_\_\_\_\_ .5. Overstroke of Latching Device Crank (Fig 389)  
Check that with the opening coil core pushed in, the latching device crank (k) has an over travel of 1mm.
- \_\_\_\_\_ .6. Overstroke of End-of-Loading Contact (Fig 391)  
With the CB open and the operating mechanism loaded ensure that a gauge 1/2mm can be inserted between the push-rod of the end-of-loading contact and the paddle.

\*NOTE: FOR FIGURES SEE MANUFACTURING INSTRUCTIONS

- \_\_\_\_ .7. Overstroke of Operation Counter Control Rod (Fig 393)  
With the CB closed and the mechanism unloaded make sure control counter rod is not clamped against the pin of breaker position indicator.
- \_\_\_\_ .8. Contact Penetration Depth (See M.I.)
- \_\_\_\_ .9. Contact Wear Indicator Verified (See M. I.)
- \_\_\_\_ .10. Opening Stop Adjustment Verified (See M. I.)
- \_\_\_\_ .11. With CB open, ensure that racking handle can be inserted.
- \_\_\_\_ .12. Contacts are torqued to 20 ft/lbs and marked.
- \_\_\_\_ .13. Charge the mechanism springs and close CB. Attempt to insert racking handle. It must not go.
- \_\_\_\_ .14. After each spring discharges, install a 7/8" wedge between the cam and roller to check overtravel.

B. PHYSICAL INSPECTION

- \_\_\_\_ .1. Paint - Breaker frame and front presents good appearance and free of rust, runs, sags, etc.
- \_\_\_\_ .2. The operating mechanism is free of dirt, shavings, packing material etc.
- \_\_\_\_ .3. Motor mounting screws are tight and gears properly meshed.
- \_\_\_\_ .4. Spring holding screws have been removed.
- \_\_\_\_ .5. Connecting rod has equal engagement in both couples.
- \_\_\_\_ .6. Connecting rod jamnuts are tightened and sealed.
- \_\_\_\_ .7. Baumann rings and grip rings are in place and secure on opening and closing spring pivots.
- \_\_\_\_ .8. Stop screw jamnut is tightened and sealed.
- \_\_\_\_ .9. Correct lubrication has been applied to all points of friction.

- \_\_\_\_\_ .10. Shock absorber operates freely and smoothly when CB is opened.
- \_\_\_\_\_ .11. Worm and worm gears are lubricated and meshed properly.
- \_\_\_\_\_ .12. Open and close target label is correctly installed.
- \_\_\_\_\_ .13. Open and close pushbutton labels are correctly installed.
- \_\_\_\_\_ .14. Pointer label is correctly installed.
- \_\_\_\_\_ .15. Interrupter valve caps are secured and sealed
- \_\_\_\_\_ .16. Record interrupter pole serial numbers  
 AØ \_\_\_\_\_  
 BØ \_\_\_\_\_  
 CØ \_\_\_\_\_
- \_\_\_\_\_ .17. Stamp serial number, date code and inspectors initials on label and apply to breaker frame. (QC function)
- \_\_\_\_\_ .18. Interrupter code and spring color codes comply with table below. (Circle assembly number built)

ASSY. NUMBER	INTERRUPTER CODE	OPENING SPRING	LEFT CLOSING SPRINGS	RIGHT CLOSING SPRINGS
46001-448-50 46001-448-56 1200A LP	G3	I = B O = B	I = R O = B	I = R O = B
46001-448-51 46001-448-57 1200A IP	H3	I = R O = R	I = R O = Y	I = OR C = OR O = OR
46001-448-52 46001-448-58 1200A HP	I3	I = R O = R	I = R O = Y	I = OR C = OR O = OR
46001-448-53 46001-448-59 2000A LP	G4	I = B O = B	I = R O = B	I = R O = B
46001-448-54 46001-448-60 2000A IP	H7	I = R O = R	I = R O = Y	I = OR C = OR O = OR
46001-448-55 46001-448-61 2000A HP	K7	I = R O = R	I = R O = Y	I = OR C = OR O = OR

I = INNER SPRING  
 O = OUTER SPRING  
 R = RED  
 Y = YELLOW  
 B = BLUE  
 OR = ORANGE

C. VISUAL WIRING CHECKS

- \_\_\_\_\_ 1. Auxiliary contacts are arranged properly and wired per  
(Check one) \_\_\_\_\_ Drawing 46002-200  
\_\_\_\_\_ Special wiring diagram # \_\_\_\_\_
- \_\_\_\_\_ 2. All wiring is 14 ga. SIS unless other wise specified.
- \_\_\_\_\_ 3. All wiring is routed and supported per engineering record.
- \_\_\_\_\_ 4. Wiring over sharp surfaces is properly protected.
- \_\_\_\_\_ 5. Crimped connections are secure and sealed.
- \_\_\_\_\_ 6. Lugs are properly terminated.

D. STANDARD ELECTRICAL TESTS

- |        |       |  |
|--------|-------|--|
| TESTED | N/A   |  |
| _____  | _____ | .1. Opening and closing coil resistance per Engineering Standard E50127. (Tolerance of $\pm 10\%$ )                                    |
|        |       | Opening Coil _____ ohms  |
|        |       | Closing Coil _____ ohms  |
| _____  | _____ | .2. Mechanical operations test per ANSI C37.09-5.11.   |
| _____  | _____ | .1 At minimum control voltage: (specified below)   |
|        |       | Five (5) closing operations  |
|        |       | Five (5) opening operations  |
| _____  | _____ | .2 At maximum control voltage: (specified below)   |
|        |       | Five (5) closing operations  |
|        |       | Five (5) opening operations  |
| _____  | _____ | .3 At rated voltage (specified below)  |
|        |       | Five (5) close-open operations with the shunt-trip coil energized simultaneously with closing of the main circuit through the breaker. |

TESTED

N/A

RATED VOLTAGE	MINIMUM OPERATING VOLTAGE CLOSE COIL AND MOTOR	MINIMUM OPERATING VOLTAGE TRIP COIL	MAXIMUM OPERATING VOLTAGE
24VDC	N/A	14VDC	28VDC
48VDC	36VDC	28VDC	56VDC
125VDC	90VDC	70VDC	140VDC
250VDC	180VDC	140VDC	280VDC
120VAC	104VAC	104VAC	127VAC
240VAC	208VAC	208VAC	254VAC

.3. Timing test, per ANSI C37.09-5.12

Using the Doble motion analyzer test set TR-1A, chart the main contact closing and opening speeds at normal control voltage. (Attach recording to checklist.)

- .1 Closing velocity \_\_\_\_\_ ft/sec.
- .2 Opening velocity \_\_\_\_\_ ft/sec.
- .3 Closing time \_\_\_\_\_ msec.
- .4 Opening time \_\_\_\_\_ msec.

	OPENING	CLOSING
Velocity Ft/Sec.	10.8 Ft/Sec. ±2.0 Ft/Sec.	7.2 Ft/Sec. ±1.3 Ft/Sec.
Time Milliseconds	45-65 ms	70-90 ms

.4. Resetting time of motor at rated voltage (10 sec. max).

\_\_\_\_\_ Seconds

TESTED

N/A

\_\_\_\_\_.5. Electrical resistance of the current path per  
ANSI C37.09-5.15. (with finger assemblies removed)

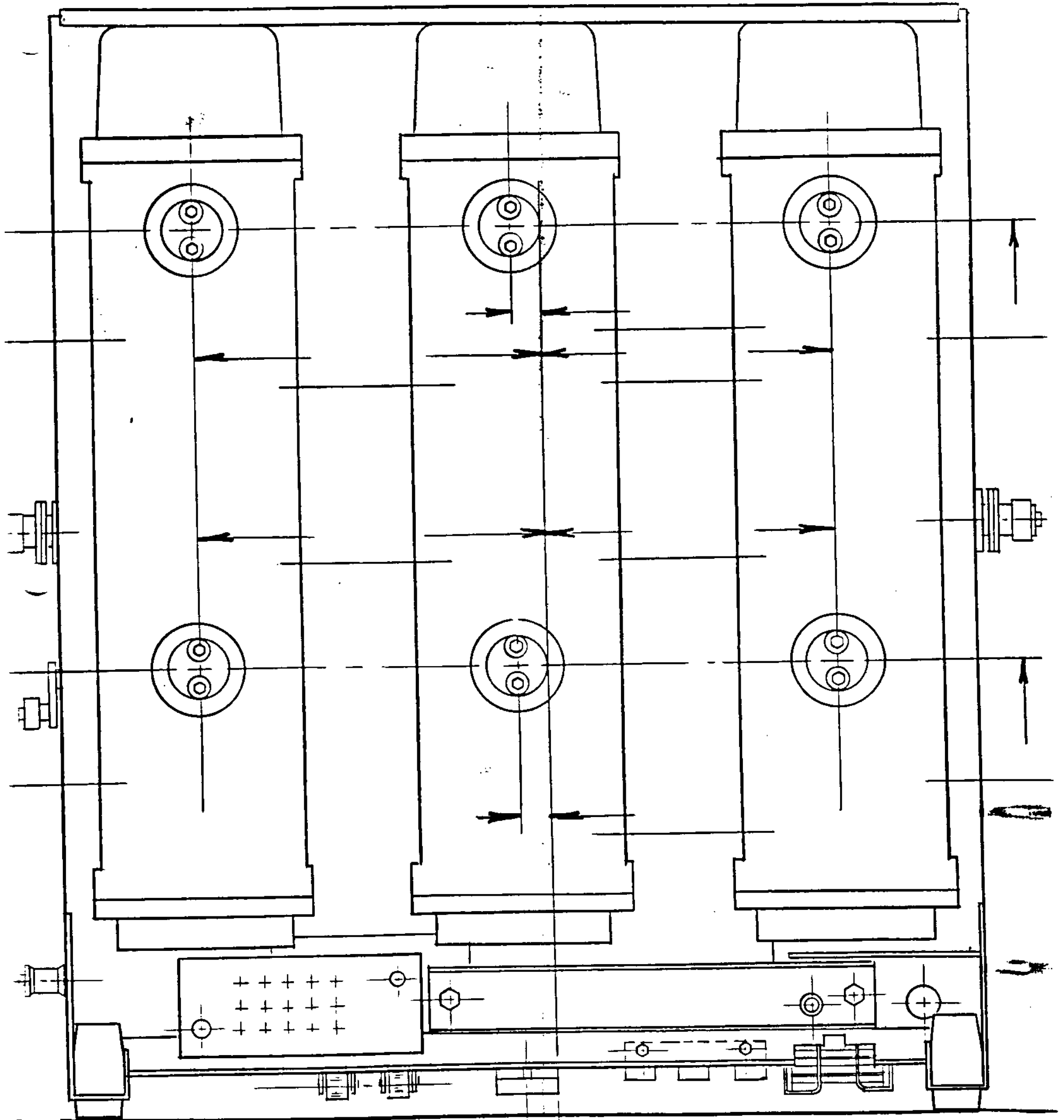
AØ \_\_\_\_\_ microhms  
BØ \_\_\_\_\_ microhms  
CØ \_\_\_\_\_ microhms

RESISTANCE		
1200 A	26	microhms
2000 A	16	microhms
3000 A	16	microhms

Tested and Approved BY \_\_\_\_\_  
Date \_\_\_\_\_

BREAKER SERIAL NO. \_\_\_\_\_

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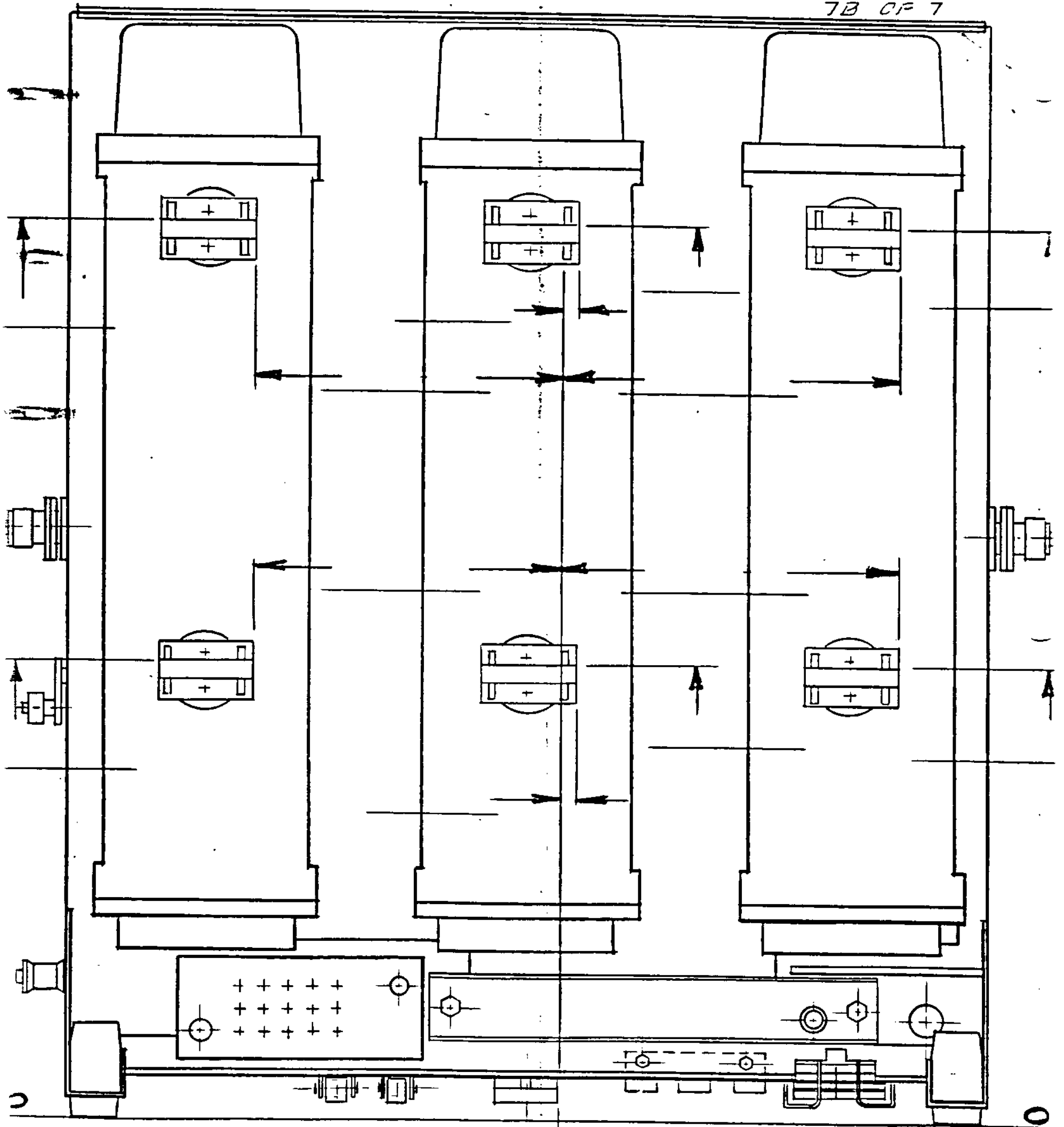


BREAKER ALIGNMENT MEASUREMENTS

P/N 46001-448-53, 54 & 55

BREAKER SERIAL NO.

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BREAKER ALIGNMENT MEASUREMENTS

P/N 46001-448-50, 51 & 52