

## Section G

# Electric Interlocking Machines

### *Foreword*

G.R.S. Electric Dynamic Indication Interlocking has been in use for over a quarter of a century. During this entire period there has been no fundamental change in the basic principles of the system as originally conceived. Many refinements in detail design and in manufacturing methods have been made, yet the Model 2 Electric Interlocking Machine of today is clearly recognizable in its prototype of twenty-five years ago.

The Model 5 Electric Interlocking Machines are essentially a rearrangement, on a new form of supporting structure of the various units used on the Model 2 Machine. The principle objective in this new design was an arrangement in which all operating parts and electrical units would be readily accessible for work and inspection. The same principles in operation were retained, but the mechanical parts have been simplified, strengthened and improved to meet the demands of modern requirements, and are arranged to facilitate unit replacements.

Because of the flexibility of design this machine can be furnished in several forms to meet the requirements of various railroads. Distinctive variations in the machine make-up are designated by different Form letters.

#### **Model 5 Form A**

The Model 5 Form A Machine has preliminary latch locking, that is, the mechanical locking in the machine is actuated by a latch on the lever and not by movement of the lever itself.

Another distinguishing feature of this machine is the use of vertical slide-type, low-voltage circuit controllers. See Plate G0117 for assembly drawing of this machine.

#### **Model 5 Form B**

The Model 5 Form B is similar in many respects to the Form A Machine, yet it is built on an entirely different frame. This machine has the latch locking lever identical to the Form A Machine, however, the low-voltage circuit controllers at the rear of the machine are of the vertical rotary-type and space is provided for a greater number of low-voltage contacts. See Plate G0119 for assembly drawing of this machine.

#### **Model 5 Form C**

The Model 5 Form C Machine is the same in every respect as the Form B Machine, with the exception of the lever. This machine is equipped with lever locking, that is, the mechanical locking is actuated by the movement of the lever. See Plate G0121 for assembly drawing of this machine.

### **Model 5 Form D**

The Model 5 Form D Machine is similar to the Form A Machine inasmuch as it is equipped with latch locking and the low-voltage circuit-controllers are of the vertical slide-type. However, the frame and various other equipment have been rearranged for the purpose of accommodating double indication-magnets, two indication selectors and two polarized relays for use in installations where it is required to operate two switch machines within a single lever space. See Plate G0123 for assembly drawing of this machine.

### **Model 5 Form E**

The Model 5 Form E Machine is built on an entirely different frame, but has similar characteristics of the Form C Machine, that is, lever locking is employed and the low-voltage circuit-controllers at the rear of the machine are of the vertical rotary-type. The polar relays and fuse boards for this machine have been mounted on the end of cabinet as in designing this machine it was necessary to reduce the width of the machine owing to a limited amount of space in the tower. See Plate G0125 for assembly drawing of this machine.

### **Model 5 Form F**

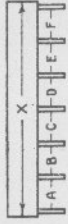
The Model 5 Form F Machine is equipped with latch locking and the low-voltage circuit-controllers are of the vertical rotary-type. Double indication-magnets, indication selectors and polar-relays have been accommodated for levers where it has been found necessary to operate two switch machines within a single lever space. This machine differs from the Form D, however, in that the width of the machine has been reduced by mounting the low-voltage circuit-controllers on the inside of the leg at the rear of the machine, still retaining all the features of accessibility. See Plate G0127 for assembly drawing of this machine.

Model 2 Electric Interlocking Machines  
Framing and Spacing of Legs

(For Model 2 Unit-Lever Framing and Spacing see Page 5a)

NO. OF LAYERS	COMBINATION NO. OF BEDS	NO. OF LEGS	NO. OF BKTS	CENTER TO CENTER OF LEGS											X = LENGTH OVER LOCKING		
				A	B	C	D	E	F	G	H	J	K				
8	1-8	1	2														1'-4"
12	1-12	1	3														2'-0"
16	1-16	2	3	2'-1"													2'-8"
20	1-20	2	4	2'-9"													3'-4"
24	1-24	2	4	3'-5"													4'-0"
28	1-28	2	5	4'-1"													4'-8"
32	1-32	2	5	4'-9"													5'-4"
36	1-36	2	6	5'-5"													6'-0"
40	1-40	2	6	6'-1"													6'-8"
48	1-48	3	7	3'-8 $\frac{1}{2}$ "													8'-0"
56	1-32+1-24	3	9	5'-0 $\frac{1}{2}$ "	3'-8 $\frac{1}{2}$ "												9'-4"
64	2-32	3	10	5'-0 $\frac{1}{2}$ "	3'-0 $\frac{1}{2}$ "												10'-8"
72	1-40+1-32	3	11	6'-4 $\frac{1}{2}$ "	5'-0 $\frac{1}{2}$ "												12'-0"
80	2-40	3	12	6'-4 $\frac{1}{2}$ "	6'-4 $\frac{1}{2}$ "												13'-4"
88	2-32+1-24	4	14	5'-0 $\frac{1}{2}$ "	4'-0"	5'-0 $\frac{1}{2}$ "											14'-8"
96	3-32	4	15	5'-0 $\frac{1}{2}$ "	5'-4"	5'-0 $\frac{1}{2}$ "											16'-0"
104	2-32+1-40	4	16	5'-0 $\frac{1}{2}$ "	6'-8"	5'-0 $\frac{1}{2}$ "											17'-4"
112	2-40+1-32	4	17	6'-4 $\frac{1}{2}$ "	5'-4"	6'-4 $\frac{1}{2}$ "											18'-8"
120	3-40	4	18	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "											20'-0"
128	4-32	5	20	5'-0 $\frac{1}{2}$ "	5'-4"	5'-0 $\frac{1}{2}$ "											21'-4"
136	3-32+1-40	5	21	5'-0 $\frac{1}{2}$ "	5'-4"	6'-4 $\frac{1}{2}$ "											22'-8"
144	2-40+2-32	5	22	6'-4 $\frac{1}{2}$ "	5'-4"	6'-4 $\frac{1}{2}$ "											24'-0"
152	3-40+1-32	5	23	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "											25'-4"
160	4-40	5	24	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "											26'-0"
168	4-32+1-40	6	26	5'-0 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	5'-0 $\frac{1}{2}$ "									28'-0"
176	3-32+2-40	6	27	5'-0 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	5'-0 $\frac{1}{2}$ "									29'-4"
184	3-40+2-32	6	28	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "									30'-8"
192	4-40+1-32	6	29	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "	5'-4"	6'-4 $\frac{1}{2}$ "									32'-0"
200	5-40	6	30	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "	6'-8"	6'-4 $\frac{1}{2}$ "									33'-4"

Model 2 Electric Interlocking Machines  
Framing and Spacing of Legs

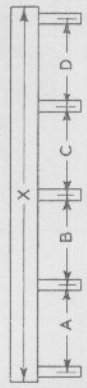
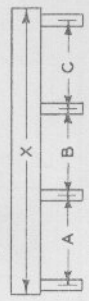
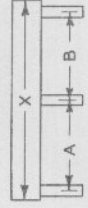
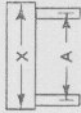
NO. OF LEVERS OF BEDS	COMBINATION NO. OF LEGS BKTS	CENTER TO CENTER OF LEGS										X=LENGTH OVER LOCKING		
		A	B	C	D	E	F	G	H	J	K			
208	4-32x2-40	7	32	6'-4 $\frac{1}{2}$ "	5'-4"	5'-4"	5'-4"	5'-4"	6'-4 $\frac{1}{2}$ "				34'-8"	
216	3-40x3-32	7	33	6'-4 $\frac{1}{2}$ "	5'-4"	5'-4"	5'-4"	5'-4"	6'-4 $\frac{1}{2}$ "				36'-0"	
224	6-40x2-32	7	34	6'-4 $\frac{1}{2}$ "	6'-8"	5'-4"	5'-4"	6'-8"	6'-4 $\frac{1}{2}$ "				37'-4"	
232	5-40x1-32	7	35	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	5'-4"	6'-8"	6'-4 $\frac{1}{2}$ "				38'-8"	
240	6-40	7	36	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	6'-8"	6'-4 $\frac{1}{2}$ "				40'-0"	
248	3-40x4-32	8	38	6'-4 $\frac{1}{2}$ "	5'-4"	5'-4"	5'-4"	5'-4"	6'-4 $\frac{1}{2}$ "				41'-4"	
256	4-40x3-32	8	39	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	6'-8"	5'-4"				42'-8"	
264	5-40x2-32	8	40	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "				44'-0"	
272	6-40x1-32	8	41	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	5'-4"	6'-8"	6'-4 $\frac{1}{2}$ "				45'-4"	
280	7-40	8	42	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	6'-8"	6'-4 $\frac{1}{2}$ "				46'-8"	
288	4-40x4-32	9	44	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "			48'-0"	
296	5-40x3-32	9	45	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-8"				49'-4"	
304	6-40x2-32	9	46	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "				50'-8"	
312	7-40x1-32	9	47	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "				52'-0"	
320	8-40	9	48	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	6'-8"	6'-4 $\frac{1}{2}$ "				53'-4"	
328	5-40x4-32	10	50	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "			54'-8"	
336	6-40x3-32	10	51	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-8"				56'-0"	
344	7-40x2-32	10	52	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-4 $\frac{1}{2}$ "				57'-4"	
352	8-40x1-32	10	53	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	5'-4"	6'-8"				58'-8"	
360	9-40	10	54	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	6'-8"	6'-8"				60'-0"	
368	6-40x4-32	11	56	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	5'-4"	6'-8"	5'-4"	6'-8"			61'-4"	
376	7-40x3-32	11	57	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	5'-4"	6'-8"				62'-8"	
384	8-40x2-32	11	58	6'-4 $\frac{1}{2}$ "	5'-4"	6'-8"	6'-8"	6'-8"	6'-8"				64'-0"	
392	9-40x1-32	11	59	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	5'-4"	6'-8"				65'-4"	
400	10-40	11	60	6'-4 $\frac{1}{2}$ "	6'-8"	6'-8"	6'-8"	6'-8"	6'-8"				66'-8"	

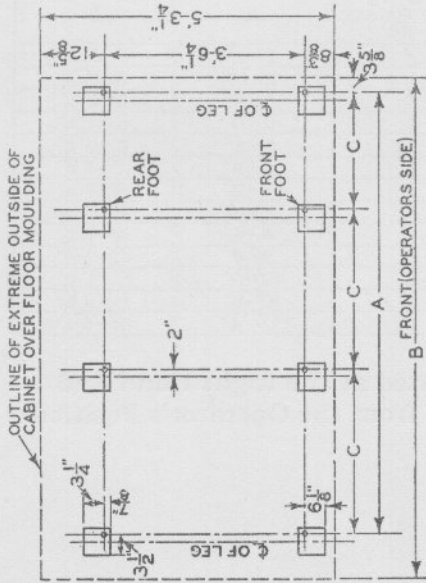
MACHINE		CABINET DIMENSIONS.	
		LENGTH	WIDTH
MODEL 2 — PLATE 6010.		LENGTH OVER LOCKING PLUS 7"	2'-8 $\frac{1}{2}$ "
MODEL 2 UNIT LEVER TYPE — PLATE 6015.		LENGTH OVER LOCKING PLUS 12"	2'-9"
MODEL 2 UNIT LEVER TYPE WITH ROTARY CIRCUIT CONTROLLERS — PLATE 6011.		LENGTH OVER LOCKING PLUS 12"	4'-8"

Model 2 Unit-Lever Interlocking Machines  
Framing and Spacing of Legs

NO. OF LEVERS	COMBINATION OF BEDS	NO. OF LEGS	NO. OF BRACKETS	CENTER TO CENTER OF LEGS					X = LENGTH OVER LOCKING
				A	B	C	D	E	
12	1-12	2	3	18"					2'-0"
16	1-16	2	3	2'-2"					2'-8"
20	1-20	2	4	2'-10"					3'-4"
24	1-24	2	4	3'-6"					4'-0"
28	1-28	2	5	4'-2"					4'-8"
32	1-32	2	5	4'-10"					5'-4"
36	1-36	2	6	5'-6"					6'-0"
40	1-40	2	6	6'-2"					6'-8"
48	1-48	3	7	3'-9"	3'-9"				8'-0"
56	1-32+1-24	3	9	5'-1"	3'-9"				9'-4"
64	2-32	3	10	5'-1"	5'-1"				10'-8"
72	1-40+1-32	3	11	6'-5"	5'-1"				12'-0"
80	2-40	3	12	6'-5"	6'-5"				13'-4"
88	2-32+1-24	4	14	5'-1"	4'-0"	5'-1"			14'-8"
96	3-32	4	15	5'-1"	5'-4"	5'-1"			16'-0"
104	2-32+1-40	4	16	5'-1"	6'-8"	5'-1"			17'-4"
112	2-40+1-32	4	17	6'-5"	5'-4"	6'-5"			18'-8"
120	3-40	4	18	6'-5"	6'-8"	6'-5"			20'-0"
128	4-32	5	20	5'-1"	5'-4"	5'-4"	5'-1"		21'-4"
136	3-32+1-40	5	21	5'-1"	5'-4"	5'-4"	6'-5"		22'-8"
144	2-40+2-32	5	22	6'-5"	5'-4"	5'-4"	6'-5"		24'-0"
152	3-40+1-32	5	23	6'-5"	6'-8"	5'-4"	6'-5"		25'-4"
160	4-40	5	24	6'-5"	6'-8"	6'-8"	6'-5"		26'-8"
168	4-32+1-40	6	26	5'-1"	5'-4"	6'-8"	5'-4"	5'-1"	28'-0"
176	3-32+2-40	6	27	5'-1"	6'-8"	5'-4"	6'-8"	5'-1"	29'-4"
184	3-40+2-32	6	28	6'-5"	5'-4"	6'-8"	5'-4"	6'-5"	30'-8"
192	4-40+1-32	6	29	6'-5"	6'-8"	5'-4"	6'-8"	6'-5"	32'-0"
200	5-40	6	30	6'-5"	6'-8"	6'-8"	6'-8"	6'-5"	33'-4"



Model 5 Forms A, B, C, D and F Electric Interlocking Machines  
Framing and Spacing of Legs

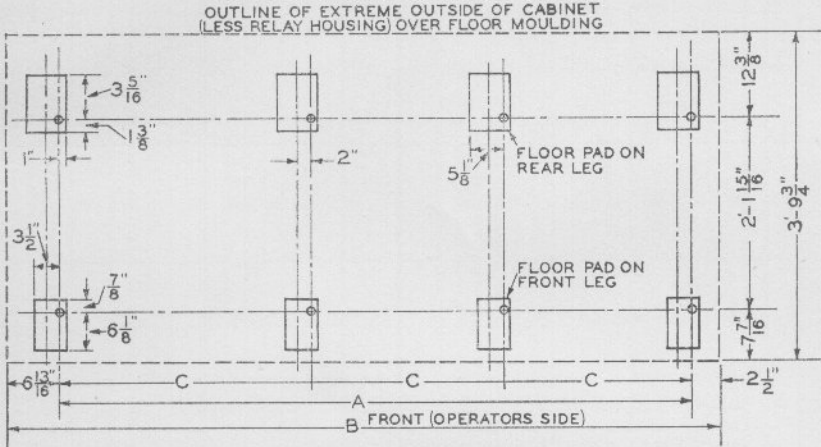


NO. OF LEVER LEGS	NO. OF 16 LEVER BANKS C-34	NO. OF 12 LEVER BANKS C-26	A	B
88	7	4	15'-8"	16'-7 1/4"
96	7	6	17'-0"	17'-11 1/4"
104	8	5	18'-6"	19'-5 1/4"
112	8	7	19'-0"	20'-9 1/4"
120	9	6	21'-4"	23'-3 1/4"
128	9	8	22'-8"	23'-7 1/4"
136	10	7	24'-2"	25'-1 1/4"
144	10	9	25'-6"	26'-5 1/4"
152	11	8	27'-0"	27'-11 1/4"
160	11	10	28'-4"	29'-3 1/4"
168	12	9	29'-10"	30'-9 1/4"
176	12	11	31'-2"	32'-1 1/4"
184	13	10	32'-8"	33'-7 1/4"
192	13	12	34'-0"	34'-11 1/4"
200	14	11	35'-6"	36'-5 1/4"
208	14	13	36'-10"	37'-9 1/4"
216	15	12	38'-4"	39'-3 1/4"
224	15	14	39'-8"	40'-7 1/4"
232	16	13	41'-2"	42'-1 1/4"
240	16	15	42'-6"	43'-5 1/4"
248	17	14	44'-0"	44'-11 1/4"
256	17	16	45'-4"	46'-3 1/4"
264	18	15	46'-10"	47'-9 1/4"
272	18	17	48'-2"	49'-1 1/4"
280	19	16	49'-8"	50'-7 1/4"
288	19	18	51'-0"	51'-11 1/4"
296	20	17	52'-6"	53'-5 1/4"
304	20	19	53'-10"	54'-9 1/4"
312	21	18	55'-4"	56'-3 1/4"
320	21	20	56'-8"	57'-7 1/4"
328	22	19	58'-2"	59'-1 1/4"
336	22	21	59'-6"	60'-5 1/4"
344	23	20	61'-0"	61'-11 1/4"
352	23	22	62'-4"	63'-3 1/4"
360	24	21	63'-10"	64'-9 1/4"
368	24	23	65'-2"	66'-1 1/4"
376	25	22	66'-8"	67'-7 1/4"
384	25	24	68'-0"	68'-11 1/4"
392	26	23	69'-6"	70'-5 1/4"
400	26	25	70'-10"	71'-9 1/4"

NO. OF LEVER LEGS	NO. OF 16 LEVER BANKS C-34	NO. OF 12 LEVER BANKS C-26	A	B
12	2	1	2'-2"	3'-1 1/4"
16	2	1	2'-10"	3'-9 1/4"
24	3	2	4'-4"	5'-3 1/4"
28	3	1	5'-0"	5'-11 1/4"
32	3	2	5'-8"	6'-7 1/4"
36	4	3	6'-6"	7'-5 1/4"
40	4	1	7'-2"	8'-1 1/4"
44	4	2	7'-10"	8'-9 1/4"
48	4	3	8'-6"	9'-5 1/4"
52	5	1	9'-4"	10'-3 1/4"
56	5	2	10'-0"	10'-11 1/4"
64	5	4	11'-4"	12'-3 1/4"
72	6	3	12'-10"	13'-9 1/4"
80	6	5	14'-2"	15'-1 1/4"

All 12 Lever Banks Are Located at Right Hand End of Machine When Viewed from the Operator's Position

**Model 5 Form E Electric Interlocking Machines  
Framing and Spacing of Legs**



NO. OF LEVERS	NO. OF LEGS	NO. OF 16 LEVER BANKS C=34"	NO. OF 12 LEVER BANKS C=26"	A	B
12	2		1	2'-2"	3'-3 1/4"
16	2	1		2'-10"	3'-11 1/4"
24	3		2	4'-4"	5'-5 1/4"
28	3	1	1	5'-0"	6'-1 1/4"
32	3	2		5'-8"	6'-9 1/4"
36	4		3	6'-6"	7'-7 1/4"
40	4	1	2	7'-2"	8'-3 1/4"
44	4	2	1	7'-10"	8'-11 1/4"
48	4	3		8'-6"	9'-7 1/4"
52	5	1	3	9'-4"	10'-5 1/4"
56	5	2	2	10'-0"	11'-1 1/4"
60	5	3	1	10'-8"	11'-9 1/4"
64	5	4		11'-4"	12'-5 1/4"

**All 12 Lever Banks Are Located at the Right Hand End  
of the Machine When Viewed from the Operator's Position**