



# 13" WB BRAKE FOLIO 5 & 5A FOR DC OPERATION

## GENERAL INFORMATION

Type WB Folio 5 & 5A brakes have been designed to meet AISE-NEMA Standards for torque ratings and dimensions. A magnetic brake is a safety device and Type WB brakes are liberally designed and carefully built. However, periodic inspections and adjustments will be amply repaid by prolonged life, reliable operation and greater safety to operators and equipment.

Folio 5 coils can only be installed in Folio 5 magnet cases and Folio 5A coils can only be installed in Folio 5A magnet cases. However, Folio 5 and 5A assembled magnets are interchangeable on Folio 5 and 5A brakes.

## COILS

Coils in brakes sold after June 1963 and their replacement are no longer encapsulated. Coils are insulated with mica glass tape and wedged in the magnet case. The coil case is closed by a retaining plate and filled with Spec. 323 potting compound.

## LUBRICATION

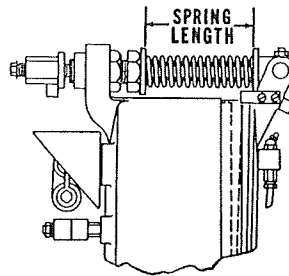
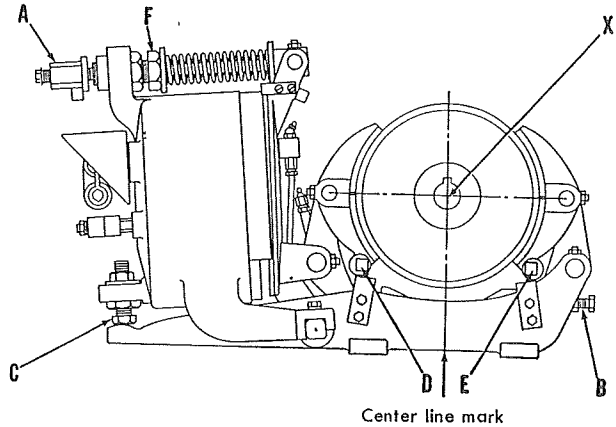
All bearings are oil-filled self lubrication type; hydraulic grease-gun fittings are provided for lubricating each bearing to replace the original oil. The fittings have external check balls and any standard hydraulic grease gun will fit them. A grade of grease equivalent to Sohiotran No. 2 is recommended. Frequency of lubrication will depend upon the service factor and atmospheric conditions.

## ADJUSTMENTS

If accurately mounted, the adjustments made on Type WB Brakes at the factory will not require changing. To assist in locating the brake, center lines are marked on the side and on the magnet end of the base casting. When properly mounted, the center of the brake wheel should coincide with the intersection (X) of two straight lines, the horizontal line being a straight line passing through the center of the shoe pins and the vertical line being an extension of the center-line marking on the side of the base casting. If the brake is not carefully aligned, the various adjustments must be remade. With the brake released, the shoes should completely clear the wheel; 1/32" is ample clearance.

### SHOE CLEARANCE ADJUSTMENT

- (1) To adjust for shoe clearance or lining wear, close the armature tight against the magnet case by turning up the manual release nut A.
- (2) Adjust shoe centering screw B until the shoe clearance on that side of wheel is about 1/32".
- (3) Adjust magnet adjusting screw C (under the magnet) until the other shoe clearance is about 1/32".



SQUARE D COMPANY CLEVELAND, OHIO		
13" TYPE WB BRAKE		
CLASS 5010	TORQUE SETTINGS	
BRAKE TORQUE	RATING	SPRING LENGTH
300		6 3/8
365	1 HR. SERIES	6 3/8
400	8 HR. SHUNT	6 3/8
475		6 3/8
550	1/2 HR. SERIES 11 HR. SHUNT	6

(4) If the clearance under either shoe is not uniform at the top and bottom points of the shoe,

- a—Rotate the adjusting cams D&E bearing on the cam rolls or
- b—Adjust the rails at D&E until the shoe clearance is uniform.

Provision is made for mounting these cams and rails on either side of the brake so that they will be readily accessible regardless of mounting.

(5) When a uniform clearance of 1/32" or slightly less, is obtained under both shoes, the brake is properly adjusted. Lock all adjusting screws by screwing the lock nuts down tight and reset magnet adjusting screw lock (if supplied).

(6) The manual release nut A should now be backed off as far as it can be turned (against the stop washer on the spring rod or cotter pin should be replaced through the slot in nut and hole in rod). This is important because, if not observed, the brake may fail to hold.

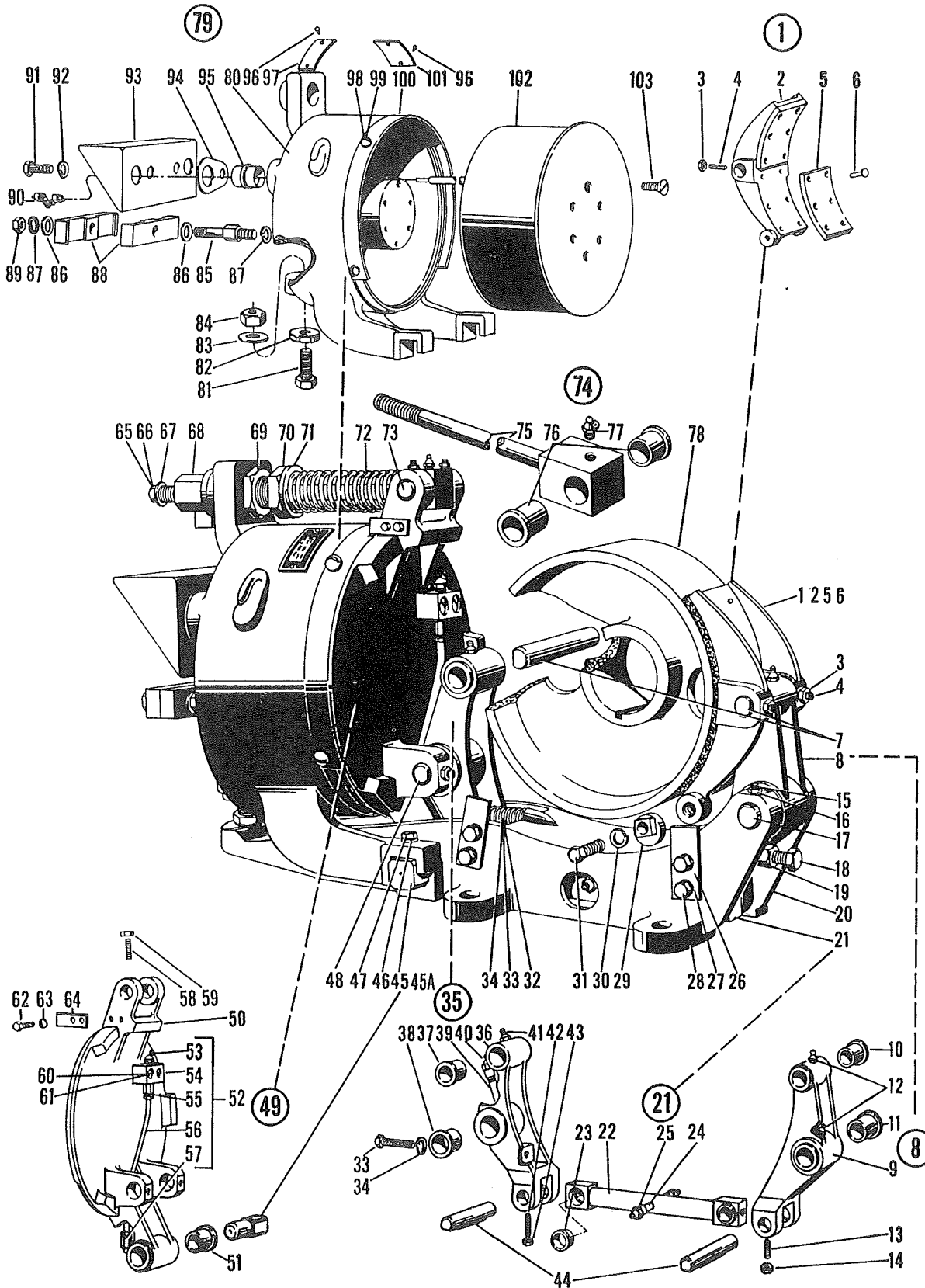
### ADJUSTMENT FOR SHOE BLOCK WEAR

As the shoe blocks wear down, the shoe clearance on release will increase, and the armature air-gap with the brake set will increase. The air-gap is correct when the end of the indicator on the armature is approximately opposite the edge of the magnet dust shield with the brake set. When shoe block wear has caused a gap of 1/8" or more between the indicator and the dust shield edge, adjust for shoe clearance as per foregoing steps (1 to 6). In no case should the gap between the end of the indicator and the edge of the dust shield be allowed to exceed 1/4"

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NOTE: Indented items are component parts of item immediately preceding.

Item No.	Part No.	Description	Item No.	Part No.	Description
†1	W-13004-A	Assembled Brake Shoe, Complete with Linings and Set Screws	■44	W-13031	Connecting Rod Pin
2	W-13005	Brake Shoe, only	■45	W-13030	Magnet Hinge Pin, 2 req'd.
3		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	45A	W-13028	Frame Bushing, 2 req'd. (not shown)
4		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	□46	23701-00320	5/8" Pl. Lk. Washer
†5	W-13043	Brake Block, 4 per set, 2 per Shoe	□47	21401-32640	5/8"-11x2" H.I. Cap Screw
†6	W-13046	Rivet, 12 req'd., per Shoe	48	W-13034	Shoe Lever Pin
7	W-13032	Shoe Pin	49	W-13002-A	Assembled Armature, Complete with Bearings, Grease Unit, Set Screws and Air Gap Indicator
8	W-13006-A	Assembled Shoe Lever, Complete with Bearings, Set Screws and Grease Fittings	50	W-13003-A	Armature with Bearings
9	W-13008-A	Shoe Lever with Bearing, same as Item 36	□51	29005-66446	Bearing, 2 req'd., same as Items 11 and 38
□10	29005-56404	Bearing, 2 req'd., same as Item 37	52	W-13047-A	Assembled Grease Unit, Complete
□11	29005-66446	Bearing, 2 req'd., same as Items 38 and 51	53	A5-2927-017-50	Grease Fitting
12	A5-2927-017-60	Grease Fitting, 2 req'd., same as Items 40 and 77	54	W-13026	Header Block
13		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	55	A5-2927-018-50	Compression Fitting
14		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	56	W-13048	Tube
15		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	57	A5-2927-018-70	Compression Fitting
16		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	58		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200
17	W-13033	Shoe Lever Pin	59		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200
18	WB-235	Equalizing Screw	□60	21101-20400	1/4"-20x1 1/4" Fil. I. Cap Screw, 2 req'd.
19	W-13042	Lock Nut	□61	23701-00200	1/4" Pl. Wk. Washer, 2 req'd., same as Items 27, 63 and 99
20	W-13018-A	Assembled Frame, Complete with Set Screws	□62	21401-20200	1/4"-20x5/8" H.I. Cap Screw, 2 req'd.
21	W-13009-A	Assembled Connecting Rod, Complete with Bearings and Grease Fittings	□63	23701-00200	1/4" Pl. Lk. Washer, 2 req'd., same as Items 26, 61 and 99
22	W-13095-A	Connecting Rod with Bearings	64	W-13049	Air Gap Indicator
23	29005-56403	Bearing, 4 req'd.	□65	21401-22240	5/16"-18x3/4" H.I. Cap Screw
24	25223-46400	1/8"x1 1/4" Pipe Nipple, 2 req'd.	■66	23701-00220	5/16" Pl. Lk. Washer
25	A5-2927-017-70	Grease Fitting, 2 req'd., same as Item 41	67	TW-76	Washer
26	W-13025	Cam Rail	68	W-13022	Manual Release Nut
27	02701-00200	1/4" Pl. Lk. Washer, same as Items 61, 63 and 99	69	W-13041	Lock Nut
28	21401-20240	1/4"-20x3/4" H.I. Cap Screw	70	W-13023	Spring Adjusting Nut
29	W-13015-A	Cam	71	W-13045	Spring Collar
30	23701-00240	3/8" Pl. Lk. Washer, same as Items 87 and '92	72	W-13020	Operating Spring
31	21401-24480	3/8"-16x1 1/2" H.I. Cap Screw	73	W-13035	Spring Rod Pin
32	WB-2330	Centering Spring	74	W-13012-A	Assembled Spring Rod, Complete with Bearings and Grease Fitting
33	WB-234	Guide Screw	75	W-13094-A	Spring Rod with Bearings
34	23701-00280	1/2" Pl. Lk. Washer	□76	29005-48320	Bearing, 2 req'd.
35	W-13007-A	Assembled Shoe Lever, Complete with Bearings and Grease Fittings	77	A5-2927-017-60	Grease Fitting, same as Items 12 and 40
36	W-13008-A	Shoe Lever with Bearings, same as Item 9	78		*Brake Wheel
37	29005-56404	Bearing, 2 req'd., same as Item 10	★79	W-13001-A	*Assembled Magnet, Complete
38	29005-66446	Bearing, 2 req'd., same as Items 11 and 51	★80	W-13087-A	Magnet Case, only
39	25223-46680	1/8"x2 1/2" Pipe Nipple	81	W-13040	Magnet Adjusting Screw
40	A5-2927-017-60	Grease Fitting, same as Items 12 and 77	82	W-13088	Magnet Adjusting Nut
41	A5-2927-017-70	Grease Fitting, same as Item 25	83	W-13092	Washer
42		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	84	W-13080	Lock Nut
43		3/8"-16x5/8" Alloy Steel Socket Half Dog Point Set Screw 22903-24200	85	W-13090	Lead Clamp Stud
			□86	23601-00240	3/8" Std. Washer, 2 req'd.
			□87	23701-00240	3/8" Pl. Lk. Washer, 2 req'd., same as Items 30 and 92
			88	W-13091	Lead Clamp, 2 req'd.
			□89	23002-00240	3/8"-16 H.I. Nut
			90		*Coil Terminal Lug, 2 req'd.
			□91	21401-24240	3/8"-16x3/4" H.I. Cap Screw, 2 req'd.
			□92	23701-00240	3/8" Pl. Lk. Washer, 2 req'd., same as Item 30 and 87

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† Essential Parts for General Maintenance. □ Minor revision since previous issue.

★ Folio 5 only, see page 4 for Folio 5A Parts.

■ See page 4 for interchangeable parts for folio 5 & 5A brakes for improved construction.

◆ Replace W-13020 Spring with { 1—W-13120 for 66% of std. torque  
1—W-13163 for 50% of std. torque  
1—W-13121 for 33% of std. torque } Refer to calibration plate.

• This single unit now used in place of separate check nut and set screw.

\* ADVISE NAMEPLATE MARKING WHEN ORDERING PARTS



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Item No.	Part No.	Description
93	W-13089	Terminal Shield
94	W-13039	Lead Gasket, 2 req'd.
95	WB-2242	Lead Bushing, 2 req'd.
<input type="checkbox"/> 96	21008-06080	# 6x1/4" Drive Screw, 4 req'd.
<input type="checkbox"/> 97	A5-1139-094-01	*Name Plate
<input type="checkbox"/> 98	21001-20100	1/4"-20x5/16" R.I. Screw, 4 req'd.

Item No.	Part No.	Description
<input type="checkbox"/> 99	23701-00200	1/4" Pl. Lk. Washer, 4 req'd., same as Items 27, 61 and 63
100	W-13024	Dust Shield
<input type="checkbox"/> 101	A5-1137-030-03	*Calibration Plate
<input checked="" type="checkbox"/> 102		*Coil Assembly
<input type="checkbox"/> 103	21721-20160	1/4"-20x1/2" Hex Socket Flat Hd. Cap Screw, 6 req'd.

COMPLETE SET BEARINGS

Item No.	Part No.	Total Req'd.	Location
<input type="checkbox"/> 10, 37	29005-56404	4	2 each for Shoe Levers, Items 9 and 36
<input type="checkbox"/> 11, 38, 51	29005-66446	6	2 each for Shoe Levers, Items 9 and 36 2 for Armature, Item 50
<input type="checkbox"/> 23	29005-56403	4	4 for Connecting Rod, Item 22
<input type="checkbox"/> 78	29005-48320	2	2 for Spring Rod, Item 75

THE FOLLOWING PARTS ARE FOR FOLIO 5A BRAKES ONLY

Item No.	Part No.	Description
79	W-13201-A	*Assembled Magnet, complete
80	W-13287-A	Magnet Case, only
102		*Coil Assembly
<input type="checkbox"/> 103	21721-22200	5/16"-18 x 5/8" "NYLOK" Hex. Socket Flat Hd. Cap Screw, 9 req'd.

PARTS FOR FOLIO 5A BRAKES FOR IMPROVED CONSTRUCTION

Item No.	Part No.	Description
21	W-13151-A	Connecting rod with bearings & grease fittings
22	W-13151-A	Connecting rod with bearings
26	W-13161	Cam Rail
29	W-16163	Adjusting Ring
		Adjusting cam & stationary rail superseded by stationary adjusting ring & adjustable rail.
44	W-13098	Connecting rod pin
45	W-13159	Magnet hinge pin, 1 req'd., single through pin & 2 Pin Collars, see below
	W-13160	Pin collar supersedes 2 hinge pins
65		
66		Omitted on W-13094-A (75)
67		
75	W-13094-A	Assembled spring rod
		1-#35 Stamped Link Sash Chain
		1-#7 x 1/2 Lg. Type "U" Drive Screw
		1-3/16 x 2 1/2 Cotter Pin
		Captive cotter pin holds manual release nut in release position.

Item No.	Part No.	Description
81A	1-W-16165	Stop Bracket
		2-1/4-20 x 1/2 H. Stl. Cap Screw
		2-1/4 shake proof Lk. Washer
102		Coil Assembly
		Includes besides coil
		1-W-13157 Retaining Plate
		<input type="checkbox"/> 9-21721-22200 Screw
		<input type="checkbox"/> 2-qts. 1594-100-12 Oil
		<input type="checkbox"/> 2/5-qt. 1594-300-12 Hardener
		9-W-8086 Spacer
17		Each pin uses 2-3/16 x 1 3/4" cotter pin 24201-12560
48		
7		Each pin uses 2-3/16 x 1 1/2" cotter pin 24201-12480
44		
73		

Minor revision since previous issue.

\* ADVISE NAMEPLATE MARKING WHEN ORDERING PARTS

TORQUE ADJUSTMENT

The braking torque is varied by adjusting the spring nut F which is threaded into the magnet lug at the top of the magnet case. This is set at the factory for a torque based on the best data available on the load to be held. The correct spring pressure is the lowest that will safely hold the load. The torque can be changed after the brake is put into service by adjusting the spring nut F. A jam nut is provided to lock the setting. To arrive at the full load motor torque for which the brake is normally set,

$$\text{Torque} = \frac{\text{HP} \times 5250}{\text{Full load speed}}$$

When making torque adjustments, refer to the TORQUE-SPRING LENGTH calibration plate on the top of the brake.

CAUTION: Do not decrease spring length below that required for maximum torque as indicated on calibration plate.

BRAKE MAGNET & MOTOR ARMATURE REMOVAL

Brake magnets can be removed easily by first releasing the spring force and disconnecting the spring rod at the armature. Remove the two cap screws securing the magnet lugs on each side of the brake and the magnet then can be lifted off the brake. Two lifting lugs welded to the brake case have been provided for this purpose.

When a motor armature must be lifted out, the brake wheel remains on the armature shaft. Release the brake wheel by turning up the manual release nut A, and then lift out the motor armature and wheel. When the armature and wheel are replaced, back off the release nut. The brake is not ready for operation with all its former adjustments undisturbed.