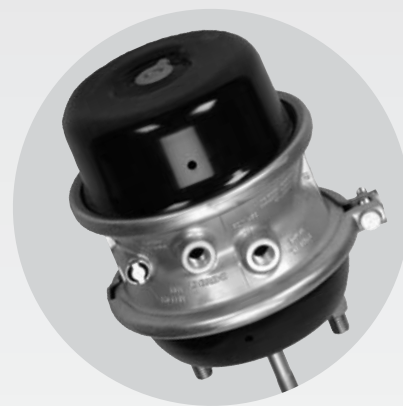


Haldex

L00092
Rev. 12/04

Spring Brake Actuator Catalog



Life Seal ■ Gold Seal ■ Midland 3030

Maxibrake ■ Wedge ■ Service

**I n n o v a t i v e V e h i c l e
T e c h n o l o g y**

FOREWORD

PURPOSE OF THIS SECTION

This section is designed as a reference for Haldex Commercial Vehicle Systems air brake system components and accessories. Products described include all pertinent information needed to replace an OEM installed component or to help design an original installation.

DESIGN FLEXIBILITY

The products presented in this section are described by function and usage. Technical data and mounting configurations are also provided. Throughout this section, reference is made to numerous specific OEM applications. This section is not, however, intended to be a mutually exclusive listing of all part numbers and designs available. Should the need for a design not presented occur, contact your Haldex Commercial Vehicle Systems Sales Representative for additional information.

WARRANTY INFORMATION

Proper service and repair are important to the safe, reliable operation of any motor vehicle. To prevent personal injury and/or vehicle damage, careful and cautious service procedures recommended by the vehicle manufacturer should be followed by anyone servicing a motor vehicle. For details on warranty of Haldex Commercial Vehicle Systems air brake system components and accessories, refer to L20221 Aftermarket Warranty Policy. For warranty returns, use L90005 Warranty Adjustment Form.

ORDERING PROCEDURE

U.S. Customers Contact:

Phone: 800-643-2374

Fax: 800-533-1941

Mail: Commercial Vehicle Systems
North American Sales Division
Attn: Customer Service Department
10930 N. Pomona Avenue
Kansas City, MO 64153-1297

Canada Customers Contact:

Phone: 800-267-9247

Fax: 519-826-9497

Mail: Haldex Limited
Canadian Distribution Centre
Attn: Customer Service Department
525 Southgate Drive, Unit 1
Guelph, Ontario N1G 3W6

IMPORTANT NOTICE

The data listed herein is correct to the best of Haldex Brake Systems knowledge and belief, having been compiled from reliable and official sources of information. However, HALDEX COMMERCIAL VEHICLE SYSTEMS CANNOT ASSUME ANY RESPONSIBILITY for possible error or misapplication of the product. Final determination of the suitability of the products for the use contemplated by the Buyer is the sole responsibility of the Buyer. Haldex Brake Systems shall have no responsibility in connection with this suitability. It is not our intention to imply that any of the components in this catalog in connection with an engine make or model are made by any engine manufacturer.

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Commercial Vehicle Systems
North American Sales Division
10707 N.W. Airworld Drive
Kansas City, MO 64153-1215

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ACTUATORS

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TERMS

Throughout this manual, you will notice the terms “NOTE”, “IMPORTANT”, “WARNING”, and “DANGER” followed by important product information. So that you may better understand the manual, those terms are defined below. The  warns of the possibility of personal injury or death.

NOTE:

Is used as a reminder of an instruction where the concern deals with product integrity and has to do with installation, operation, maintenance or service and care of the product.

IMPORTANT:

Used without the safety alert symbol, is used as a reminder of an instruction where the concerns deal with product integrity and have to do with installation, operation, maintenance or service and care of the product. It is intended to show that vehicle breakdown and/or expensive repair could result if the instruction is not followed.

WARNING:

Is used with an instruction for the purpose of showing that a safe practice must be adhered to or that an unsafe practice must be avoided, and that if proper precautions are not taken, personal injury could result.

DANGER:

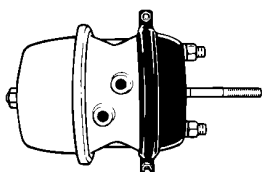
Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or death.

ACTUATORS

SPRING BRAKE MODELS

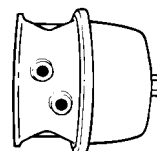
LIFE SEAL MODELS

SEALED COMBINATION (LC)



FEATURES:

- Emergency Spring Chamber is completely sealed
- Integral Caging Tool
- Guided Pressure Plate/Compression Spring Design
- Zinc Plated Spring Chamber - permanently attached for safety
- 6 year Unlimited Mileage Brake Warranty



MODEL PART NUMBERS

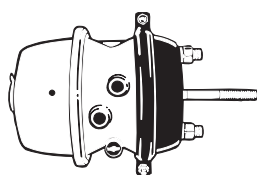
LC2430	LC2430L	LC3030	LC3030L
--------	---------	--------	---------

MODEL PART NUMBERS

LP2430	LP3030
LP2430L	LP3030L

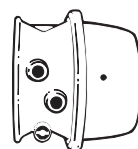
GOLD SEAL MODELS

SEALED COMBINATION (GC)



FEATURES:

- Fully Threaded Push Rod
- Orange Alert Stroke Indicator
- Piloting Diaphragm
- Piloting Dust Shield
- Epoxy Powder Coated Spring & Housing
- Zinc Plated Spring Chamber - permanently attached for safety
- 4 Year Unlimited Mileage Warranty



MODEL PART NUMBERS

GC2024	GC2424	GC2430	GC3030	GC3036	GC3636
	GC2424L	GC2430L	GC3030L	GC3036L	
		GC2430XL			

MODEL PART NUMBERS

GP1624	GP2430	GP3030
GP2024	GP2430L	GP3036
GP2424	GP2430XL	GP3636
GP2424L	GP3036L	GP3030L

LIFE SEAL AND GOLD SEAL MODEL STROKE LENGTHS

LIFE SEAL MODELS

MODEL PART NUMBERS	STROKE (in)	STROKE (mm)
LC2430	2.50 in	64 mm
LC2430L	3.00 in	76 mm
LC3030	2.50 in	64 mm
LC3030L	3.00 in	76 mm

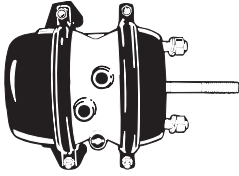
GOLD SEAL MODELS

MODEL PART NUMBERS	STROKE (in)	STROKE (mm)
GP1624	2.25 in	57 mm
GC2024	2.25 in	57 mm
GC2424	2.25 in	57 mm
GC2424L	2.50 in	64 mm
GC2430	2.25 in	57 mm
GC2430L	2.50 in	64 mm
GC2430XL	3.00 in	76 mm
GC3030	2.50 in	64 mm
GC3030L	3.00 in	76 mm
GC3036	2.50 in	64 mm
GC3036L	3.00 in	76 mm
GC3636	3.00 in	76 mm

CLAMP AND WEDGE BRAKE MODELS

CLAMP MODELS

CLAMP COMBINATION (C)



- FEATURES:**
- Fully Threaded Push Rod
 - Orange Alert Stroke Indicator
 - Piloting Dust Shield
 - Piloting Diaphragm

- Epoxy Powder Coated Spring, Housing & Spring Chamber
- Welded Safety Hooks
- 2 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

CC2024 CC2424 CC2430 CC3030

CLAMP PIGGYBACK (P)

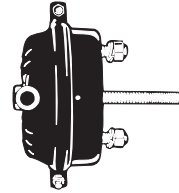


- FEATURES:**
- Epoxy Powder Coated Spring & Spring Chamber
 - Piloting Diaphragm
 - Welded Safety Hooks
 - 2 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

CP1624 CP2024 CP2424 CP2430
CP3030

CLAMP SERVICE (S)



- FEATURES:**
- Fully Threaded Push Rod
 - Orange Alert Stroke Indicator
 - Piloting Dust Shield
 - 3 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

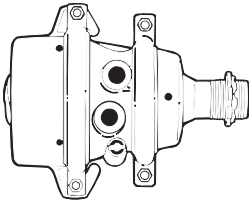
SC9 SC12 SC16 SC16L SC20 SC20L
SC24 SC24L SC24XL SC30 SC30L SC36
R30*

R30-1 w/o cable*

* Remote mounted units, see page 24.

WEDGE MODELS

CLAMP COMBINATION (SB)



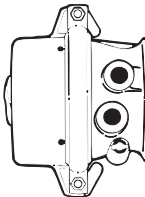
- FEATURES:**
- Available in Multiple Tube Lengths for Bendix or Rockwell Wedge Brakes
 - Epoxy Powder Coated Spring
 - Corrosion Resistant A-360 Aluminum

- Safety Hooks on Spring Chamber
- 2 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

0912SB 0916SB 1212SB 1216SB

CLAMP PIGGYBACK (PB)

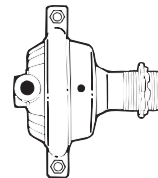


- FEATURES:**
- Epoxy Powder Coated Spring
 - Corrosion Resistant A-360 Aluminum
 - Safety Hooks on Spring Chamber
 - 2 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

0912PB 0916PB 1212PB 1216PB

CLAMP SERVICE CHAMBER (SD)



- FEATURES:**
- Available in Multiple Tube Lengths for Bendix or Rockwell Wedge Brakes
 - Zinc Plated, Epoxy Powder Coat and Aluminum A-360 Corrosion Protection
 - 2 Year Unlimited Mileage Warranty

MODEL PART NUMBERS

09SD 12SD

SERVICE AND WEDGE BRAKE MODEL STROKE LENGTHS

SERVICE BRAKE MODELS

MODEL PART NUMBERS	STROKE (in)	STROKE (mm)
SC9	1.75 in	44 mm
SC12	1.75 in	44 mm
SC16	2.25 in	57 mm
SC16L	2.50 in	64 mm
SC20	2.25 in	57 mm
SC20L	2.50 in	64 mm
SC24	2.25 in	57 mm
SC24L	2.50 in	64 mm
SC24XL	3.00 in	76 mm
SC30	2.50 in	64 mm
SC30L	3.00 in.	76 mm
SC36	3.00 in.	76 mm

WEDGE BRAKE MODELS

MODEL PART NUMBERS	STROKE (in)	STROKE (mm)
09SD	1.75 in	44 mm
12SD	1.75 in	44 mm
0912SB	1.75 in	44 mm
0916SB	1.75 in	44 mm
1212SB	1.75 in	44 mm
1216SB	1.75 in	44 mm

ACTUATORS

HOW TO IDENTIFY HALDEX ANCHORLOK SPRING BRAKES

SPRING BRAKES

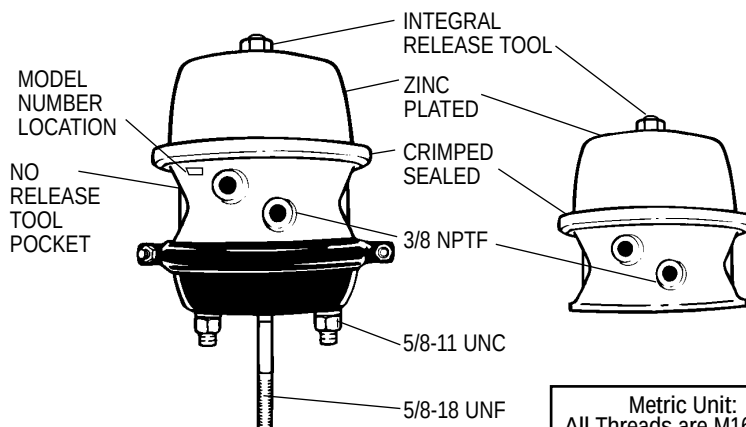
LC = Life Seal Combination
Spring Brake

LP = Life Seal Piggyback

L = Long Stroke

XL = Extra Long Stroke

LIFE SEAL BRAKE



Metric Unit:
All Threads are M16 x 1.5

GC = Gold Seal Combination
Spring Brake

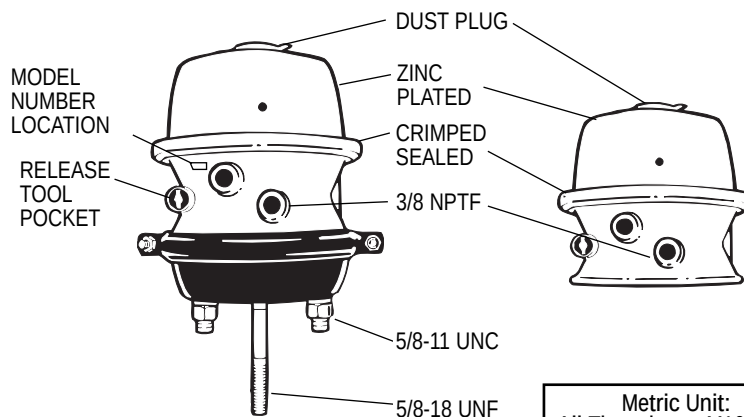
GP = Gold Seal Piggyback

L = Long Stroke

XL = Extra Long Stroke

HO = High Output

GOLD SEAL BRAKE

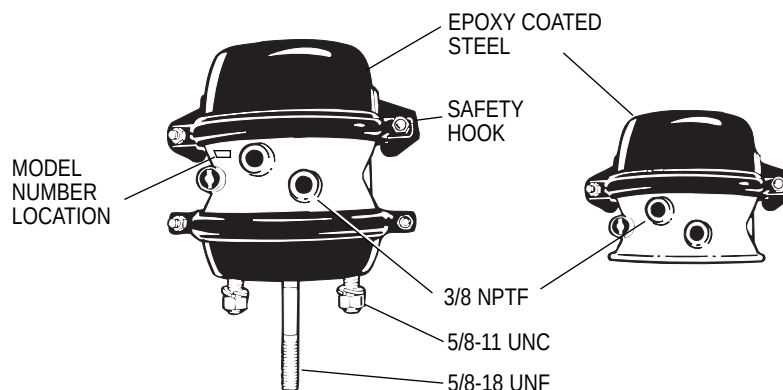


Metric Unit:
All Threads are M16 x 1.5

CLAMP TYPE BRAKE

C = Clamp Combination
Spring Brake

P = Clamp Piggyback

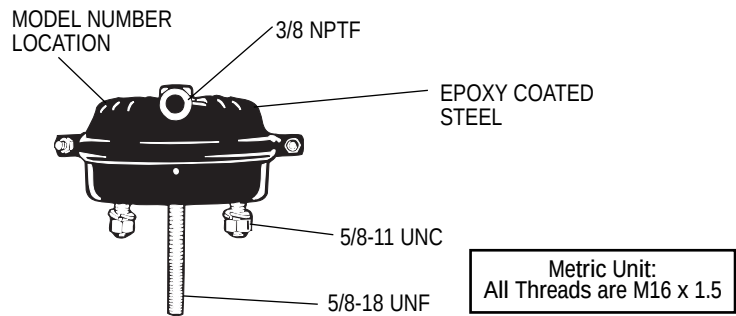


Metric Unit:
All Threads are M16 x 1.5

HOW TO IDENTIFY HALDEX ANCHORLOK SPRING BRAKES

SERVICE BRAKES

- S = Clamp Service Brake
- L = Long Stroke
- R = Remote Mount



WEDGE CLAMP BRAKES

- SB = Wedge Clamp Combination Spring Brake

- PB = Wedge Clamp Piggyback

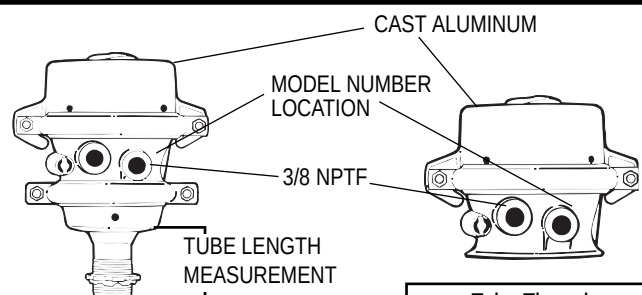
PUSH RODS



BENDIX



ROCKWELL



WEDGE SERVICE BRAKES

- SD = Wedge Clamp Service Chamber

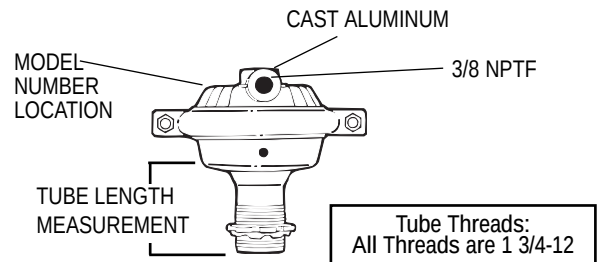
PUSH RODS



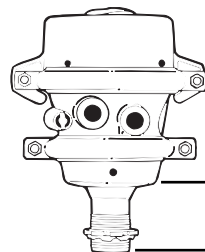
BENDIX



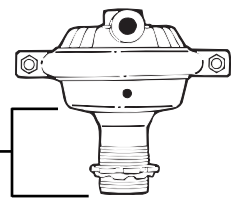
ROCKWELL



WEDGE BRAKE TUBE LENGTH MEASUREMENT



Measure "Y" dimension (tube length) from the end of the tube to the flat in the housing.



For ordering information and available tube lengths - see page 7.

Tube Threads:
All Threads are 1 3/4-12

Nomenclature Table

Prefix		Suffix	
SC Service Chamber	GP Gold Seal Piggyback	K Piggyback Kit	XHD Extra Heavy Duty
CC Clamp Style Combination	LC Life Seal Combination	L Long Stroke	Q 3/4" Push Rod
CP Clamp Style Piggyback	LP Life Seal Piggyback	XL Extra Long Stroke	Pxx Package xx Size
MC Midland Combination		CS Clevis, Stamped	B Dust Boot or Bulk
MP Midland Piggyback		CF Clevis, Forged	M Metric
GC Gold Seal Combination		HD Heavy Duty	HO High Output

ACTUATORS

HOW TO ORDER

S-CAM / AIR DISC BRAKES

TABLE I

Model	Available Stroke		Service	Remote	Life Seal	Life Seal Piggyback	Clamp Style	Clamp Style Piggyback	Gold Seal	Gold Seal Piggyback	Midland	3/4" Push Rod Option	Heavy Duty Return Spring Option	Metric Thread Option
	inch	mm	S	R	LC	LP	C	P	GC	GP	MA			
9	1.75	44	x											
12	1.75	44	x											
16	2.25	57	x											
16	2.50	64	x											
20	2.25	57	x											
20	2.50	64	x											
24	2.25	57	x											x
24	2.50	64	x											x
24	3.00	76	x											x
30	2.50	64	x	x								x		x
30	3.00	76	x									x		x
36	3.00	76	x									x		x
1624	2.25	57						x			x			x
2024	2.25	57					x	x	x	x				x
2030	3.00	76							x	x				x
2424	2.25	57					x	x	x	x				x
2424	2.50	64							x	x				x
2430	2.50	64			x	x			x	x			x	x
2430	3.00	76			x	x			x	x			x	x
3030	2.50	64			x	x	x	x	x	x	x	x	x	x
3030	3.00	76			x	x			x	x		x	x	x
3036	2.50	64							x	x		x		x
3036	3.00	76							x	x		x		x
3636	3.00	76							x	x		x		x

x = Available

See pages 8-12 for selected Haldex Anchorlok Model Part Numbers.

Referring to Table I above, the following is a step-by-step example of how to determine a Haldex Anchorlok Brake Model Type.

EXAMPLE: LC 24 30 - L - HD - HO - M

1 2 3 4 5 6

OPTION CODE DEFINITIONS:

- 1 This is the desired style (refer to page 2 for descriptions). This information is required. The example is a Life Seal combination unit.
- 2 This is the size of the unit in square inches of effective area. 2 digits are used for a service only chamber. 4 digits are used for combination service and emergency units. This information is required. In this example 24 is the service side square inch area and 30 is the emergency side.
- 3 This feature is optional where indicated. Please refer to the Technical Data Section for further information on Long Stroke (L) or Extra Long Stroke (XL) units.
- 4 Optional feature, HD designates Heavy Duty Return Spring and/or Heavy Duty Housing Assembly. Not applicable on GP and P Units.
- 5 Optional feature, HO designates High Output main compression spring.
- 6 "M" denotes Metric push rod, mounting studs and air inlet port threads. All of which are M16 x 1.5 - 6g. Spring brakes may have a combination of both standard and metric threads.

HOW TO ORDER

WEDGE BRAKES

TABLE II

1 MODEL TYPE	2 WEDGE CLAMP COMBINATION		3 TUBE LENGTHS (LISTED TUBE LENGTHS ARE AVAILABLE FOR ALL WEDGE BRAKES)	4 FOUNDATION BRAKE STYLE B (BENDIX) R (ROCKWELL)
	SB	PB		
09			2.25" 6.00"	B=BENDIX R=ROCKWELL
0912	X	X	3.00" 7.00"	
0916	X	X	3.50" 7.88"	
12			4.00" 9.38"	
1212	X	X	4.50" 10.20"	
1216	X	X	5.00" 14.50"	

X = Available

See pages 8-12 for selected Haldex Anchorlok Model Part Numbers.

Referring to Table II above, the following is a step-by-step example of how to determine an Haldex Anchorlok Wedge Brake Model Type.

EXAMPLE: 1216 - SB - 300 - R
 1 2 3 4

CODE DEFINITIONS:

- 1 This is the size of the unit in square inches of effective area. 2 digits are used for a service only chamber. 4 digits indicate a combination service/spring brake with the first 2 digits indicating the service side size and the last 2 digits indicating the emergency side size.
- 2 This is the desired style (refer to page 3 for description).
- 3 Tube length (SB & SD only). All lengths listed are available for all sizes listed. 3 or 4 digits are required, based on desired length. Drop the decimal point. Example is 3.00" (refer to page 5 for how to measure tube).
- 4 R = Rockwell, B = Bendix, type foundation brakes. This information is required on SB & SD units only.

SPRING BRAKE AVAILABLE OPTIONS:

HEAVY DUTY RETURN SPRING - TABLE I Item 4, Option Code 5

The heavy duty return spring is a high output spring (100 lb.) used primarily with Kelsey-Hayes (Gunite), Bendix and BF Goodrich disc brakes. It is standard on 36S and 3636GC.

3/4" PUSH ROD - TABLE I Item 3, Option Code 4

3/4 -12 UNF threaded push rod. Longer push rods are also available at additional cost. Consult Haldex Anchorlok applications engineering for additional information.

DUST BOOT ASSEMBLY -

Available separately, recommended for applications involving high amounts of potential environmental contaminants.

METRIC THREADS - TABLE I Item 5, Option Code 6

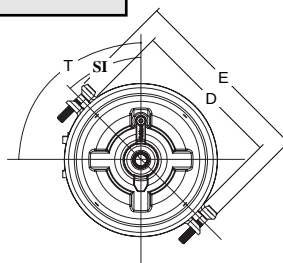
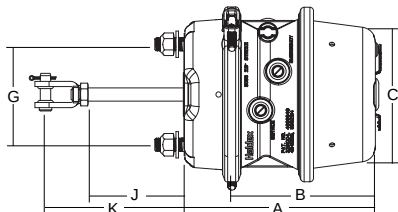
Push rod, mounting studs and air inlet port threads are all M16 x 1.5 - 6 g. Spring brakes may have a combination of both standard and metric threads.

HIGH OUTPUT COMPRESSION SPRING -

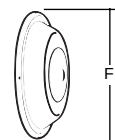
Available on select models to increase spring force output.

ACTUATORS

GOLD SEAL COMBINATION / PIGGYBACK BRAKES



SERVICE DIAPHRAGM



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Service Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the spring housing

Stud Spacing (G): 4.75" - 121 mm
Stud Type: 5/8 x 11 UNC Grade 5
Stud Length: 1.50" - 38 mm

Push Rod Thread: 5/8 x 18 UNF
Air Port Threads: 3/8 x 18 NPTF

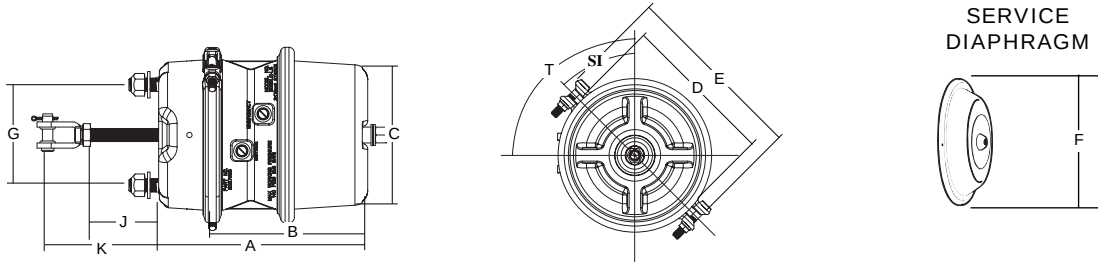
Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
1624	2.25	57	NA	72.5	NA	NA	6.3	160	5.9	150	7.5	191	NA	NA	NA	NA	10.0	4.5	NA	NA
2024	2.25	57	53.0	72.5	8.5	216	6.3	160	5.9	150	7.5	191	8.9	226	6.5	165	10.3	4.7	17.0	7.7
2030	3.00	76	92.0	116.4	9.6	244	7.8	198	6.3	160	8.3	211	9.4	239	7.1	180	18.9	8.6	21.9	9.9
2424	2.25	57	63.0	72.5	8.5	216	6.3	160	5.9	150	7.5	191	9.6	244	7.1	180	10.5	4.8	17.5	7.9
2424	2.50	64	69.5	86.9	8.9	226	5.4	137	5.4	137	7.4	188	9.2	234	7.1	180	11.0	5.0	18.0	8.2
2430	2.50	64	69.5	103.5	9.0	229	6.7	170	6.3	160	8.4	213	9.3	236	7.1	180	12.1	5.5	19.9	9.0
2430	3.00	76	92.0	116.4	9.6	244	7.8	198	6.6	168	8.3	211	9.4	239	7.1	180	18.9	8.6	21.9	9.9
3030	2.50	64	87.5	97.0	9.0	229	6.7	170	6.3	160	8.3	211	9.2	234	7.8	198	11.8	5.4	19.6	8.9
3030	3.00	76	92.0	116.4	9.5	241	7.2	183	6.3	160	8.3	211	10.2	259	7.8	198	12.3	5.6	20.6	9.3
3036	2.50	64	87.5	145.0	9.6	244	7.3	185	7.2	183	9.2	234	9.7	246	7.8	198	15.7	7.1	26.0	11.8
3036	3.00	76	109.0	167.0	10.9	277	8.5	216	7.2	183	8.2	208	9.1	231	7.8	198	15.7	7.1	26.0	11.8
3636	3.00	76	128.0	145.0	10.4	264	8.0	203	7.2	183	9.4	239	11.2	284	8.7	221	16.4	7.4	26.0	11.8

Gold Seal (GC - Combination, GP - Piggyback)

Model Size / Type	Available Stroke		Aftermarket Part Number		Qty per Pack	Push Rod Length**		T (PA) Port Angle **	SI (SCA) Service Clamp Angle**
	inch	mm	Combination	Piggyback		J (inches)	K (inches)		
1624	2.25	57	NA	GP1624	2	NA	NA	NA	NA
2024	2.25	57	GC2024	GP2024	2	9.68	NA	90 °	0 °
2424	2.25	57	GC2424	GP2424	2	9.65	NA	90 °	0 °
2424	2.50	64	GC2424L	GP2424L	2	9.50	NA	90 °	0 °
2430	2.50	64	GC2430L	GP2430L	2	9.50	NA	90 °	0 °
2430	3.00	76	GC2430XL	GP2430XL	1	8.60	NA	90 °	0 °
3030	2.50	64	GC3030	GP3030	2	10.00	NA	90 °	0 °
			GC3030R	NA	1	14.00	NA	90 °	0 °
			GC3030P40	GP3030P40	40	10.00	NA	90 °	0 °
3030	3.00	76	GC3030L	GP3030L	2	10.00	NA	90 °	0 °
			GC3030LR	NA	1	14.00	NA	90 °	0 °
			GC3030LP40	GP3030LP40	40	10.00	NA	90 °	0 °
3036	2.50	64	GC3036	GP3036	2	9.44	NA	90 °	0 °
3036	3.00	76	GC3036L	GP3036L	2	9.00	NA	90 °	0 °
3636	3.00	76	GC3636	GP3636	2	10.00	NA	90 °	0 °
With Clevis, Stamped (CS)									
3030	2.50	64	GC3030CS	NA	1	10.00	11.25	90 °	0 °
			GC3030CSP40	NA	40	10.00	11.25	90 °	0 °
With Clevis, Forged (CF)									
3030	2.50	64	GC3030CF	NA	1	10.00	11.25	90 °	0 °
			GC3030CFP40	NA	40	10.00	11.25	90 °	0 °
With Clevis, Forged (CF) and Push Rod Dust Boot (B)									
3030	2.50	64	GC3030CFB	NA	1	10.00	11.25	90 °	0 °
			GC3030CFBP40	NA	40	10.00	11.25	90 °	0 °
Gold Seal Piggyback Kits (K) (Piggyback, Diaphragm and Clamp Assembly)									
3030	2.50	64	NA	GP3030K	1	NA	NA	NA	NA
			NA	GP3030KP40	40	NA	NA	NA	NA
3030	3.00	76	NA	GP3030LK	1	NA	NA	NA	NA
			NA	GP3030LKP40	40	NA	NA	NA	NA

** Applies to combination assemblies only.

LIFE SEAL COMBINATION / PIGGYBACK BRAKES



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Service Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the spring housing

Stud Spacing (G): 4.75" - 121 mm
Stud Type: 5/8 x 11 UNC Grade 5
Stud Length: 1.50" - 38 mm

Push Rod Thread: 5/8 x 18 UNF
Air Port Threads: 3/8 x 18 NPTF

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
2430	2.50	64	69.5	97.0	9.6	244	7.2	183	6.6	168	8.3	211	9.2	234	7.1	180	12.1	5.5	19.5	8.8
2430	3.00	76	116.4	100.0	9.8	249	7.4	188	6.6	168	8.3	211	9.2	234	7.1	180	12.5	5.7	20.9	9.5
3030	2.50	64	90.5	97.0	8.9	226	6.7	170	6.6	168	8.3	211	9.2	234	7.8	198	12.9	5.9	20.7	9.4
3030	3.00	76	116.4	100.0	9.8	249	7.2	183	6.6	168	8.3	211	9.2	234	7.8	198	13.1	5.9	21.7	9.8

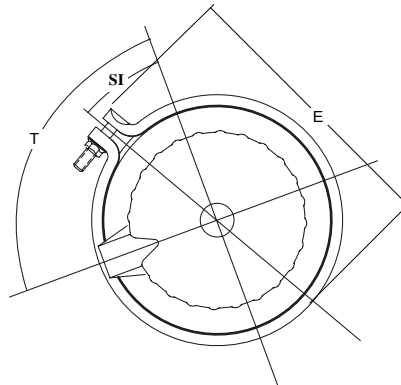
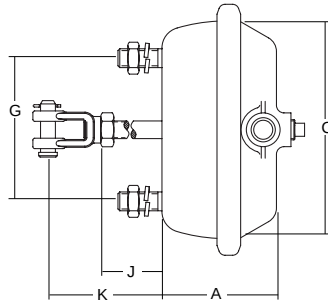
Life Seal (LC - Combination, LP - Piggyback)

Model Size / Type	Available Stroke		Aftermarket Part Number		Qty per Pack	Push Rod Length**		T (PA) Port Angle **	SI (SCA) Service Clamp Angle**
	inch	mm	Combination	Piggyback		J (inches)	K (inches)		
2430	2.50	64	LC2430	LP2430	1	9.50	NA	90 °	0 °
2430	3.00	76	LC2430L	LP2430L	1	8.62	NA	90 °	0 °
3030	2.50	64	LC3030	LP3030	1	10.00	NA	90 °	0 °
			LC3030R	NA	1	14.00	NA	90 °	0 °
			LC3030P40	LP3030P40	40	10.00	NA	90 °	0 °
3030	3.00	76	LC3030L	LP3030L	1	10.00	NA	90 °	0 °
			LC3030LR	NA	1	14.00	NA	90 °	0 °
			LC3030LP40	LP3030LP40	40	10.00	NA	90 °	0 °
Life Seal Piggyback Kits (K) (Piggyback, Diaphragm and Clamp Assembly)									
3030	2.50	64	NA	LP3030K	1	NA	NA	NA	NA
			NA	LP3030KP40	40	NA	NA	NA	NA
3030	3.00	76	NA	LP3030LK	1	NA	NA	NA	NA
			NA	LP3030LKP40	40	NA	NA	NA	NA

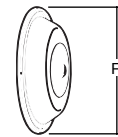
** Applies to combination assemblies only.

ACTUATORS

SERVICE CHAMBER BRAKES



SERVICE
DIAPHRAGM



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Service Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the pressure housing

Type 9, 12 and 16 2.25" Stroke

Stud Spacing (G): 3.00" - 76 mm
Stud Type: 7/16 x 14 UNC Grade 5
Stud Length: 1.12" - 28 mm

Push Rod Thread: 1/2 x 20 UNF
Air Port Threads: 3/8 x 18 NPTF

All others

Stud Spacing (G): 4.75" - 121 mm
Stud Type: 5/8 x 11 UNC Grade 5
Stud Length: 1.50" - 38 mm

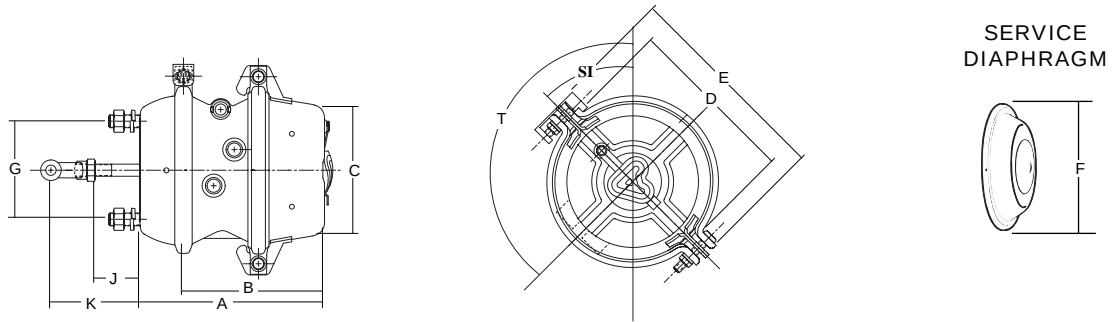
Push Rod Thread: 5/8 x 18 UNF
Air Port Threads: 3/8 x 18 NPTF

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
9	1.75	44	16.0	NA	4.4	112	NA	NA	4.0	102	NA	NA	5.6	142	5.5	140	NA	NA	4.4	2.0
12	1.75	44	24.0	NA	3.7	94	NA	NA	4.0	102	NA	NA	7.7	196	5.5	140	NA	NA	5.2	2.4
16	2.25	57	39.0	NA	4.6	117	NA	NA	4.6	117	NA	NA	8.3	211	6.2	157	NA	NA	5.7	2.6
16	2.50	64	52.3	NA	4.7	119	NA	NA	6.5	165	NA	NA	6.5	165	6.3	160	NA	NA	6.8	3.1
20	2.25	57	51.3	NA	4.0	102	NA	NA	7.0	178	NA	NA	8.9	226	6.5	165	NA	NA	8.0	3.6
20	2.50	64	61.0	NA	4.7	119	NA	NA	6.9	175	NA	NA	6.9	175	6.6	168	NA	NA	7.0	3.2
24	2.25	57	67.0	NA	4.3	109	NA	NA	7.5	191	NA	NA	9.3	236	7.1	180	NA	NA	8.5	3.9
24	2.50	64	69.5	NA	4.4	112	NA	NA	7.5	191	NA	NA	9.3	236	7.1	180	NA	NA	8.5	3.9
24	3.00	76	85.0	NA	4.7	119	NA	NA	7.4	188	NA	NA	7.4	188	7.0	178	NA	NA	9.1	4.1
30	2.50	64	87.6	NA	4.2	107	NA	NA	8.2	208	NA	NA	9.3	236	7.8	198	NA	NA	9.5	4.3
30	3.00	76	92.0	NA	4.1	104	NA	NA	8.2	208	NA	NA	9.8	249	7.8	198	NA	NA	8.7	3.9
36	3.00	76	136.4	NA	4.8	122	NA	NA	9.3	236	NA	NA	10.8	274	8.7	221	NA	NA	13.0	5.9
R30	2.50	64	82.0	NA	4.9	124	NA	NA	8.2	208	NA	NA	8.3	211	7.8	198	NA	NA	12.5	5.7

Service Chamber (SC - Combination SP - Piggyback)

Model Size / Type	Available Stroke		Aftermarket Part Number	Qty per Pack	Push Rod Length		T (PA) Port Angle	SI (SCA) Service Clamp Angle
	inch	mm			J (inches)	K (inches)		
09	1.75	44	SC09	2	10.43	NA	0 °	135 °
12	1.75	44	SC12	2	10.41	NA	90 °	45 °
16	2.25	57	SC16	2	9.52	NA	90 °	45 °
16	2.50	64	SC16L	1	10.00	NA	0 °	0 °
20	2.25	57	SC20	2	10.15	NA	90 °	45 °
20	2.50	64	SC20L	1	10.00	NA	0 °	0 °
24	2.25	57	SC24	2	10.23	NA	90 °	45 °
24	2.50	64	SC24L	2	9.47	NA	90 °	45 °
24	3.00	76	SC24XL	1	10.00	NA	0 °	0 °
30	2.50	64	SC30	2	10.34	NA	90 °	0 °
30	3.00	76	SC30L	1	10.00	NA	0 °	0 °
36	3.00	76	SC36	2	8.00	NA	90 °	0 °
R30	2.50	64	R30	1		NA	90 °	0 °

CLAMP STYLE COMBINATION / PIGGYBACK BRAKES



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Emergency Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the spring housing

Stud Spacing (G): 4.75" - 121 mm
Stud Type: 5/8 x 11 UNC Grade 5
Stud Length: 1.50" - 38 mm

Push Rod Thread: 5/8 x 18 UNF
Air Port Threads: 3/8 x 18 NPTF

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F*		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
1624	2.25	57	NA	78.9	NA	NA	6.3	160	6.0	152	NA	NA	9.4	239	NA	NA	10.5	4.8	NA	NA
2024	2.25	57	53.0	78.9	8.5	216	6.3	160	6.0	152	NA	NA	9.4	239	6.5/7.1	165/180	10.6	4.8	17.4	7.9
2424	2.25	57	63.0	78.9	8.6	218	6.3	160	6.0	152	NA	NA	9.4	239	7.1	180	10.5	4.8	17.9	8.1
2430	2.50	64	63.0	99.3	8.6	218	6.3	160	6.3	160	NA	NA	10.2	259	7.1/7.9	180/201	11.5	5.2	17.5	7.9
3030	2.50	64	87.5	103.0	8.9	226	6.8	173	6.3	160	NA	NA	10.2	259	7.9	201	13.2	6.0	20.9	9.5

*The first dimension is for Service Side and the second dimension is for the Emergency Side

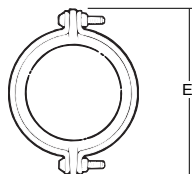
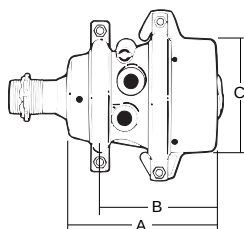
Clamp Style (CC - Combination CP - Piggyback)

Model Size / Type	Available Stroke		Aftermarket Part Number		Qty per Pack	Push Rod Length**		T (PA) Port Angle**	SI (SCA) Service Clamp Angle**
	inch	mm	Combination	Piggyback		J (inches)	K (inches)		
1624	2.25	57	NA	CP1624	2	NA	NA	NA	NA
2024	2.25	57	CC2024	CP2024	2	9.68	NA	90 °	0 °
2424	2.25	57	CC2424	CP2424	2	9.65	NA	90 °	0 °
2430	2.25	57	CC2430	CP2430	2	9.44	NA	90 °	0 °
3030	2.50	64	CC3030	CP3030	2	9.44	NA	90 °	0 °

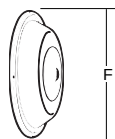
** Applies to combination assemblies only.

ACTUATORS

WEDGE SERVICE CHAMBER COMBINATION / PIGGYBACK BRAKES



SERVICE DIAPHRAGM



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Service Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the spring housing

Wedge Service Chambers

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F*		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
09	1.75	44	22.5	NA	2.6	66	NA	NA	3.3	84	NA	NA	7.0	178	5.0	127	NA	NA	3.0	1.4
12	1.75	44	28.6	NA	2.6	66	NA	NA	4.0	102	NA	NA	7.6	193	5.5	140	NA	NA	4.2	1.9

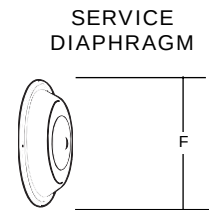
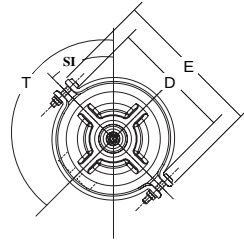
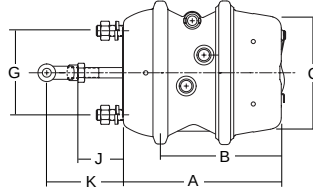
*The first dimension is for Service Side and the second dimension is for the Emergency Side

Wedge Double Diaphragm

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F*		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
0912	0.75	19	25.0	26.5	6.4	163	4.9	124	4.8	122	NA	NA	7.8	198	5.1/5.5	130/140	5.9	2.7	13.0	5.9
1212	1.75	44	28.8	28.1	6.3	160	5.0	127	4.8	122	NA	NA	7.8	198	5.5	140	6.0	2.7	14.0	6.4
0916	1.75	44	25.9	39.6	7.1	180	5.7	145	5.7	145	NA	NA	8.4	213	5.1/6.1	130/155	8.0	3.6	13.0	5.9
1216	1.75	44	31.0	38.8	7.0	178	5.7	145	5.7	145	NA	NA	8.4	213	5.5/6.1	140/155	9.0	4.1	17.0	7.7

*The first dimension is for Service Side and the second dimension is for the Emergency Side

MIDLAND STYLE COMBINATION / PIGGYBACK BRAKES



J-Face of the stud housing to the tip of the service push rod
K-Face of the stud housing to the center of the main clevis pin
A-Length of the chamber from face of the stud housing to the end of spring housing
B-Length of piggyback center body to end of spring housing
C-Dimension at spring housing

D-Dimension at Rolled Seal
E-Dimension at Service Clamp Band
F-Dimension of Service Diaphragm
Note: Angles are measured counter-clockwise with the studs in the vertical position and viewed from the spring housing

Stud Spacing (G): 4.75" - 121 mm
Stud Type: 5/8 x 11 UNC Grade 5
Stud Length: 1.50" - 38 mm

Push Rod Thread: 5/8 x 18 UNF
Air Port Threads: 3/8 x 18 NPTF

Model Size / Type	Available Stroke		Service C.U.IN.	Spring C.U.IN.	A		B		C		D		E		F		Mass Piggyback		Mass Combination	
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs	kg
3030	2.50	64	87.5	97.0	9.0	229	6.7	170	6.3	160	8.3	211	9.2	234	7.8	198	11.8	5.4	19.6	8.9

Midland (MC - Combination, MP - Piggyback)

Model Size / Type	Available Stroke		Aftermarket Part Number		Qty per Pack	Push Rod Length**		T (PA) Port Angle**	SI (SCA) Service Clamp Angle**
	inch	mm	Combination	Piggyback		J (inches)	K (inches)		
3030	2.50	64	MC3030B	MP3030B	45	9.36	NA	90 °	0 °
With Clevis, Stamped (CS)									
3030	2.50	64	MC3030CSB	MP3030B	45	9.36	10.66	90 °	0 °
Midland Piggyback Kits (K) (Piggyback, Diaphragm and Clamp Assembly)									
3030	2.50	64	NA	MP3030KB	45	NA	NA	NA	NA

** Applies to combination assemblies only.

ACTUATORS

ACTUATOR PRODUCT LINE COMPONENTS

03-ACTUATORS

Clamp Band - CB

Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
9	n/a	n/a	CB09	T-09 Clamp Band Kit	10 bags/box
12	n/a	n/a	CB12	T-12 Clamp Band Kit	10 bags/box
16	n/a	n/a	CB16	T-16 Clamp Band Kit	10 bags/box
16	2.50	64	CB16LS2	T-16 Clamp Band Kit, 1 Pc., Black Finish	10 bags/box
20	n/a	n/a	CB20	T-20 Clamp Band Kit	10 bags/box
20	n/a	n/a	CB20S1	T-20 Clamp Band Kit, Black Finish	10 bags/box
24	n/a	n/a	CB24	T-24 Clamp Band Kit	10 bags/box
24	n/a	n/a	CB24S1	T-24 Clamp Band Kit, Black Finish	10 bags/box
30	n/a	n/a	CB30	T-30 Clamp Band Kit	10 bags/box
30	n/a	n/a	CB30S1	T-30 Clamp Band Kit, Black Finish	10 bags/box
36	n/a	n/a	CB36S1	T-36 Clamp Band Kit, Black Finish	10 bags/box



Diaphragm - DP

Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
9	1.75	44	DP09	T-09 Diaphragm	10 bags/box
12	1.75	44	DP12	T-12 Diaphragm	10 bags/box
16	2.25	57	DP16	T-16 Diaphragm	10 bags/box
16	2.50	64	DP16L	T-16L Diaphragm	10 bags/box
20	2.25	57	DP20	T-20 Diaphragm	10 bags/box
20	2.50	64	DP20L	T-20L Diaphragm	10 bags/box
24	2.25/2.50	57/64	DP24L	T-24 and T-24L Diaphragm	10 bags/box
24	3.00	76	DP24XL	T-24XL Diaphragm	10 bags/box
30	2.50	64	DP30	T-30 Diaphragm	10 bags/box
30	3.00	76	DP30L	T-30L Diaphragm	10 bags/box
36	3.00	76	DP36	T-36 Diaphragm	10 bags/box



Service Pressure Housing - PH

Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
30	2.50	64	PH30	T-30 Pressure Housing	1 bag/box



Service Push Rod - PR

Type	Length Rod Assy.	Length Thread	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
20	13.50	10.50	PR20	T-20 Service Push Rod 5/8-18 UNF	1 bag/box
24	14.00	11.15	PR24	T-24 Service Push Rod 5/8-18 UNF	1 bag/box
24	12.50	8.60	PR24M	T-24M Service Push Rod M16X1.5	1 bag/box
30	17.75	14.75	PR30	T-30 Service Push Rod 5/8-18 UNF	1 bag/box
30	12.62	8.90	PR30M	T-30M Service Push Rod M16X1.5	1 bag/box
30	24.00	21.00	PR30S1	T-30 Service Push Rod 3/4-14 UNF	1 bag/box
36	18.00	14.25	PR36	T-36 Service Push Rod 5/8-18 UNF	1 bag/box
36	21.50	18.25	PR36S1	T-36 Service Push Rod 3/4-14 UNF	1 bag/box



ACTUATOR PRODUCT LINE COMPONENTS

Service Return Spring - RS



Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
n/a	n/a	n/a	RS5	Return Spring for Midland and current T-30 and G(L)C3030 2.5" Models	1 bag/box
n/a	n/a	n/a	RS6	Return Spring for Anchorlok and DDSB except 3636 and RS5	1 bag/box
n/a	n/a	n/a	RS7	Return Spring for Type 3636	1 bag/box

Spring Brake Service Housing - SBH



Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
24	2.50	64	SBH24L	Spring Brake Service Housing 9 Gauge with 40 mm Hole Studs: 5/8 x 11 UNC	1 bag/box
24	3.00	76	SBH24XL	Spring Brake Service Housing 9 Gauge with 40 mm Hole Studs: 5/8 x 11 UNC	1 bag/box
30	2.50	64	SBH30	Spring Brake Service Housing 9 Gauge with 40 mm Hole Studs: 5/8 x 11 UNC	1 bag/box
30	3.00	76	SBH30L	Spring Brake Service Housing 9 Gauge with 40 mm Hole Studs: 5/8 x 11 UNC	1 bag/box

OTHER - Dust Shield - DS, Release Tool - RT, Release Tool Plug - RTP, Boot Assembly - BA



Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
n/a	n/a	n/a	DS1	Dust Shield - 5/8" Push Rod 1" (25.4mm) Hole	10 bags/box
n/a	n/a	n/a	DS2	Dust Shield - 3/4" Push Rod 1" (25.4mm) Hole	10 bags/box
n/a	n/a	n/a	DS3	Dust Shield - Blue - 5/8" Push Rod 1.58" (40mm) Hole	10 bags/box
n/a	n/a	n/a	DS4	Dust Shield - Blue - 3/4" Push Rod 1.58" (40mm) Hole	10 bags/box
n/a	n/a	n/a	RT1	Release Tool - All DDSB except xx36	10 bags/box
n/a	n/a	n/a	RT2	Release Tool - For 3036 and 3636	10 bags/box
n/a	n/a	n/a	RT3	Release Tool - For Remote Chambers	10 bags/box
n/a	n/a	n/a	RTP1	Release Tool Plug - Gold Seal and Clamp Style except xx36	10 bags/box
n/a	n/a	n/a	RTP2	Release Tool Plug - Midland Style	10 bags/box
n/a	n/a	n/a	RTP3	Release Tool Plug - Gold Seal 3036 and 3636	10 bags/box
n/a	n/a	n/a	BA1	Boot Assembly for 5/8" Push Rod	10 bags/box

ACTUATORS

ACTUATOR PRODUCT LINE COMPONENTS

Clevis Forged - CF, Clevis Stamped - CS

Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
n/a	n/a	n/a	CF1	Clevis Forged - 0.5 Pin 1/2-20 UNF	10 bags/box
n/a	n/a	n/a	CF2	Clevis Forged - 0.5 Pin 5/8-18 UNF	10 bags/box
n/a	n/a	n/a	CF3	Clevis Forged - 5/8 Pin 5/8-18 UNF	10 bags/box
n/a	n/a	n/a	CF4	Clevis Forged - 1/2 Pin 3/4-16 UNF	10 bags/box
n/a	n/a	n/a	CF5	Clevis Forged - 14MM Pin M16X1.5	10 bags/box
n/a	n/a	n/a	CF6	Clevis Forged - 1/2 and 1/4 Pin 1.38 5/8-18 UNF	10 bags/box
n/a	n/a	n/a	CF7	Clevis Forged - 1/2 and 1/4 Pin 1.25 5/8-18 UNF	10 bags/box
n/a	n/a	n/a	CF8	Clevis Forged - 1/2 and 1/4 Pin 1.25 1/2-20 UNF	10 bags/box
n/a	n/a	n/a	CF9	Clevis Forged - Remote	10 bags/box
n/a	n/a	n/a	CS2	Clevis Stamped - 0.5 Pin 5/8-18 UNF	10 bags/box

OTHER - Clevis Pin - CP, Pipe Plug - PP, Mounting Hardware Kit - HW

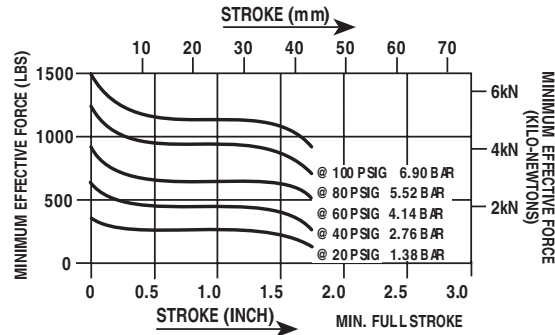
Type	Stroke (in)	Stroke (mm)	New AM Part No.	Description/Notes	Pkg. Qty. 1 Per Bag
n/a	n/a	n/a	CP1	Clevis Pin - 1/2"	10 bags/box
n/a	n/a	n/a	CP2	Clevis Pin - 5/8"	10 bags/box
n/a	n/a	n/a	PP1	Pipe Plug Fitting	10 bags/box
n/a	n/a	n/a	HW1	Mounting Hardware Kit Lock Washer and Std Nut 7/16" - 14	10 bags/box
n/a	n/a	n/a	HW2	Mounting Hardware Kit Lock Washer and Std Nut 5/8" - 11	10 bags/box
n/a	n/a	n/a	HW3	Mounting Hardware Kit Flat Washer and Locking Nut 5/8" - 11	10 bags/box
n/a	n/a	n/a	HW4	Mounting Hardware Kit 1/2 - 20 Jam Nut	10 bags/box
n/a	n/a	n/a	HW5	Mounting Hardware Kit 5/8 - 18 Jam Nut	10 bags/box
n/a	n/a	n/a	HW6	Mounting Hardware Kit M16X1.5 Jam Nut	10 bags/box
n/a	n/a	n/a	HW7	Mounting Hardware Kit 3/4 - 16 Jam Nut	10 bags/box
n/a	n/a	n/a	HW8	Mounting Hardware Kit 3/8 - 24 Clamp Band Nut and Bolt	10 bags/box



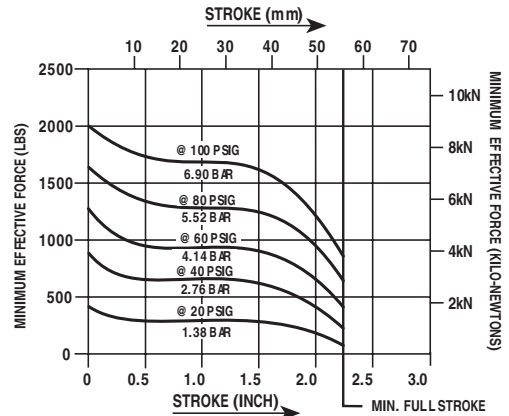
NOTE: SERVICE AND SPRING BRAKE FORCE CURVES ARE STATED AS MINIMUM VALUES.

SERVICE DIAPHRAGM PERFORMANCE CURVES

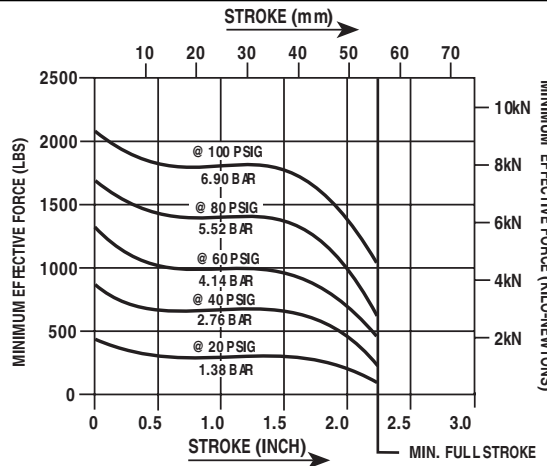
MODELS
S12



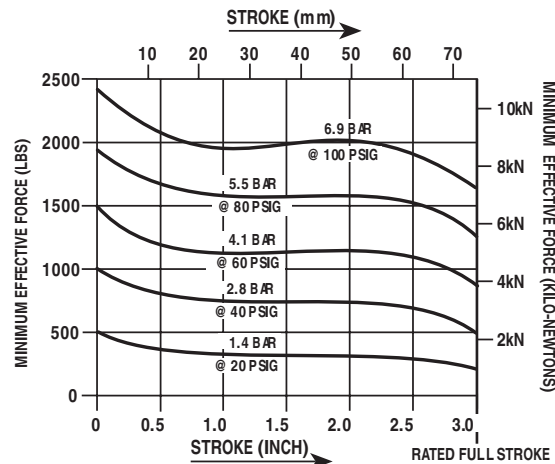
MODELS
S16



MODELS
S20,
GC2024



MODELS
GC2030
XL

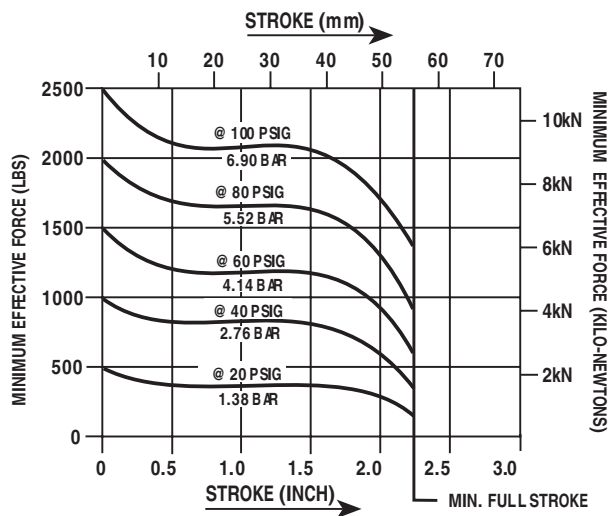


ACTUATORS

SERVICE DIAPHRAGM PERFORMANCE CURVES

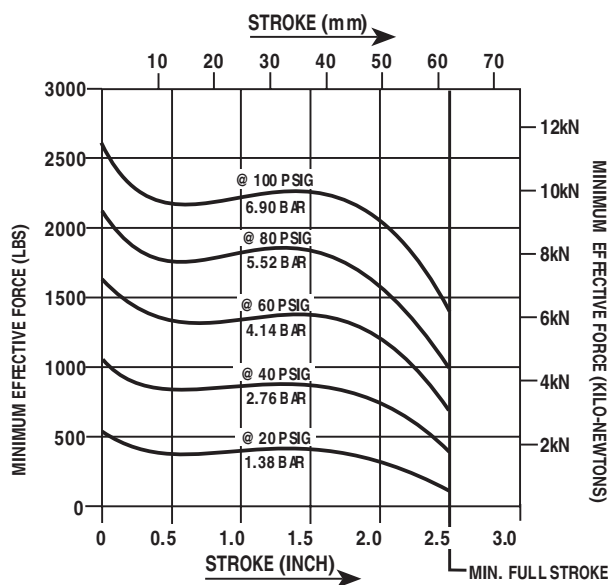
MODELS

S24,
GC2424,
GC2430



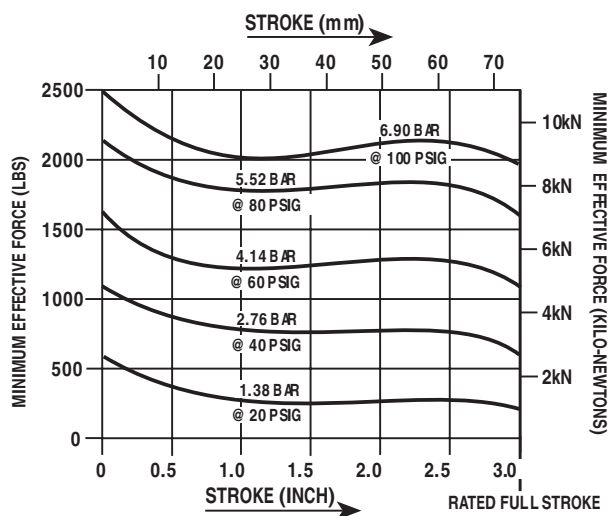
MODELS

S24L,
GC2424L,
GC2430L,
LC2430L



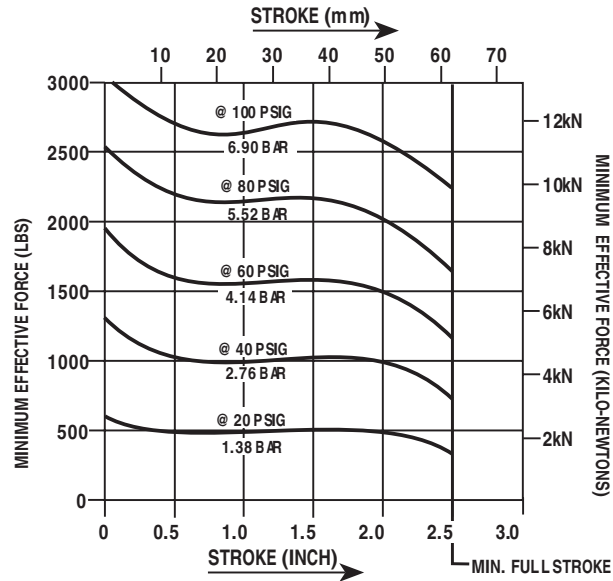
MODELS

GC2430XL
(EUROBRAKE)
LC2430XL

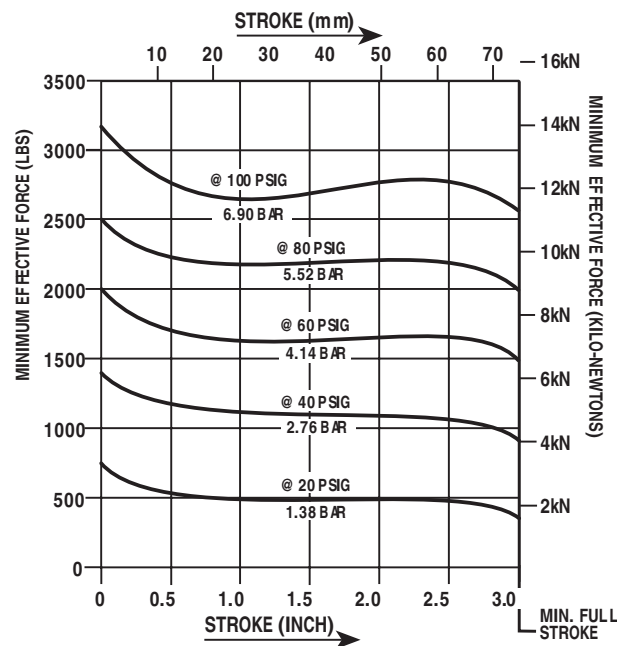


SERVICE DIAPHRAGM PERFORMANCE CURVES

MODELS
S30,
GC3030,
LC3030,
GC3030HO,
GC3036



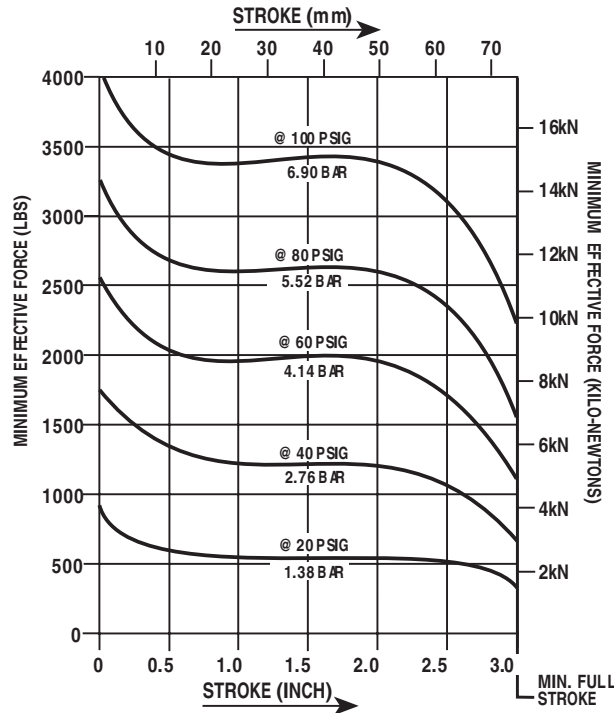
MODELS
S30L,
GC3030L
LC3030L
GC3036L



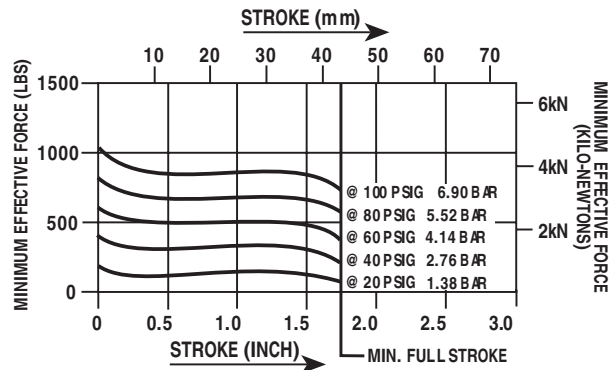
ACTUATORS

SERVICE DIAPHRAGM PERFORMANCE CURVES

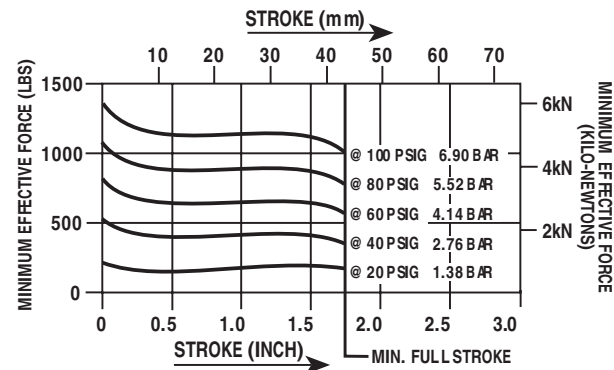
MODELS
S36,
GC3636



WEDGE BRAKE
MODELS
09 SD,
0912,
0916

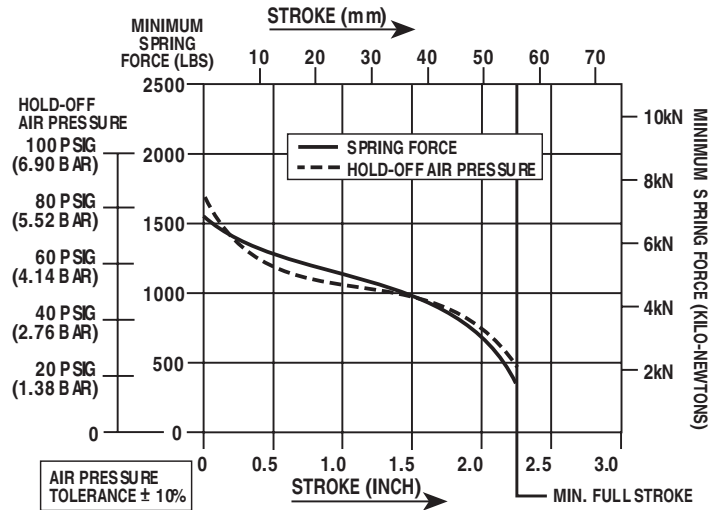


WEDGE BRAKE
MODELS
12 SD,
1212,
1216

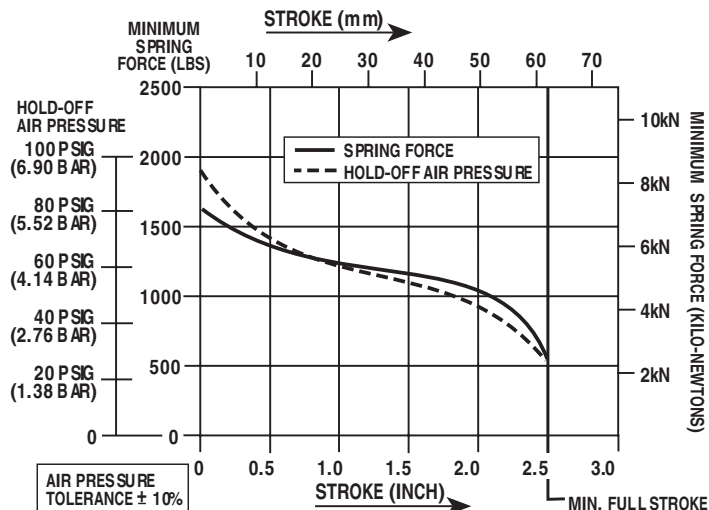


SPRING FORCE CURVES

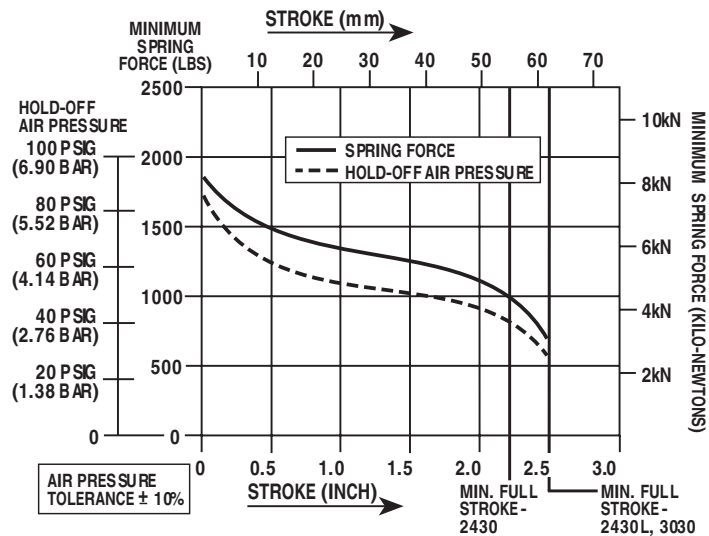
MODELS
1624,
2024,
2424



MODELS
2424 L



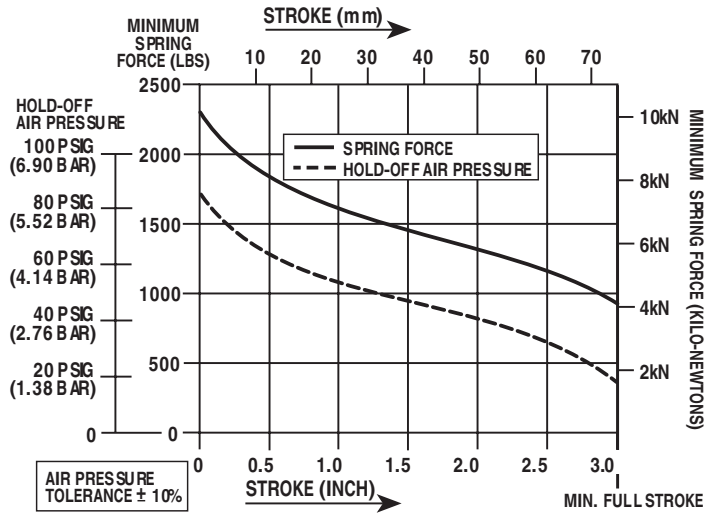
MODELS
2430,
3030,
2430 L



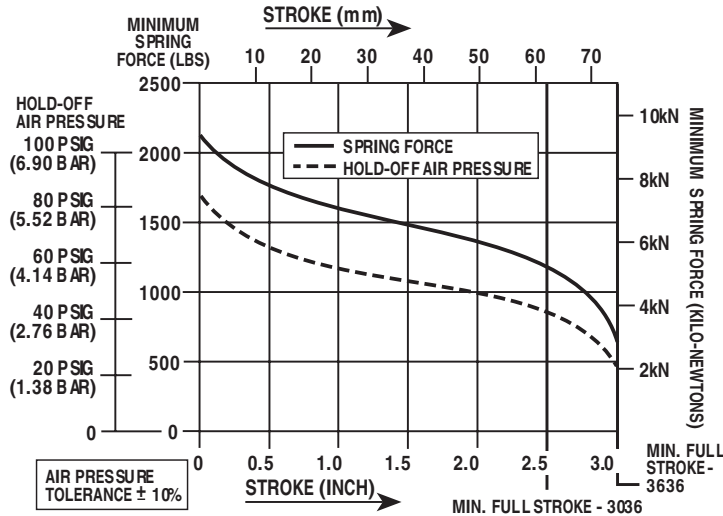
ACTUATORS

SPRING FORCE CURVES

MODELS
2030 XL,
2430 XL,
3030 L

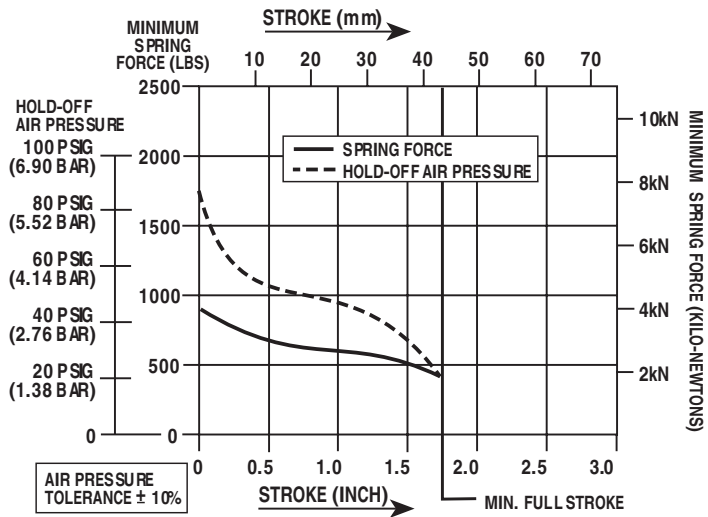


MODELS
3036,
3636

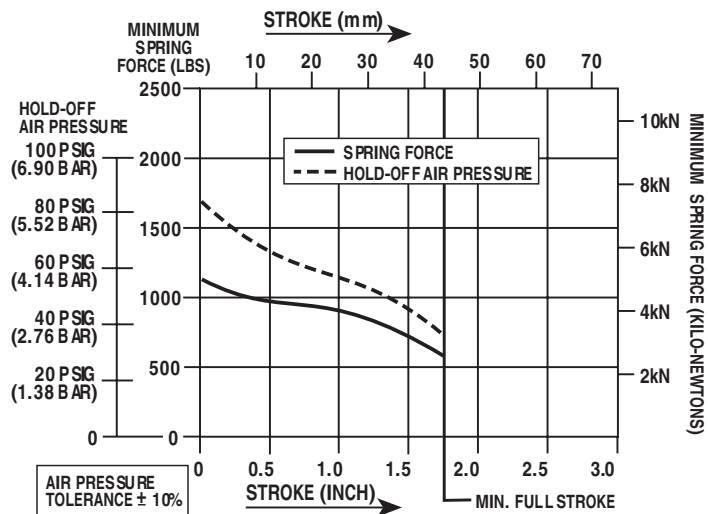


SPRING FORCE CURVES

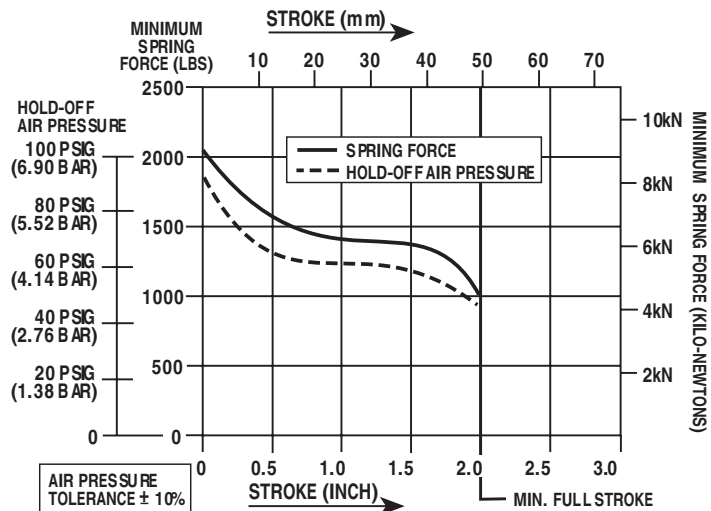
WEDGE BRAKE
MODELS
0912,
1212



WEDGE BRAKE
MODELS
0916,
1216

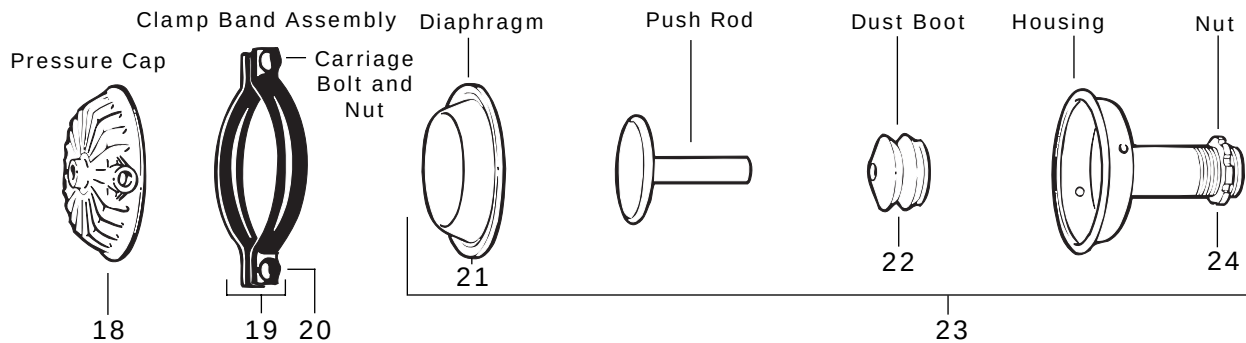


MODELS
R-30
(REMOTE)



SERVICE COMPONENTS

WEDGE BRAKES



SPRING BRAKE - SERVICE SIDE AND SERVICE CHAMBER COMPONENTS

ITEM	DESCRIPTION	QTY.	WHERE USED	PART NO.
18.	PRESSURE CAP	1	9SD	0956001
			12SD	1256001
19.	CLAMP BAND ASSEMBLY (SERVICE)	1	9SD, 0912, 0916	0964003
			12SD,1212,1216	1264003
20.	CARRIAGE BOLT AND NUT ASSY.	2	ALL	9999143
21.	DIAPHRAGM (SERVICE)	1	9SD, 0912, 0916	0962001
			12SD,1212,1216	1262001
22.	DUST BOOT	1	ALL	9999131
23.	HOUSING ASSY. REPLACEMENT KIT	1	TYPE 9 - ALL TUBE LENGTHS	See chart below
	Includes: Push Rod, Dust Boot, Housing and Nut, Diaphragm		TYPE 12 - ALL TUBE LENGTHS	See chart below
24.	NUT	1	ALL	9999130

WEDGE BRAKE HOUSING ASSY. REPLACEMENT KITS

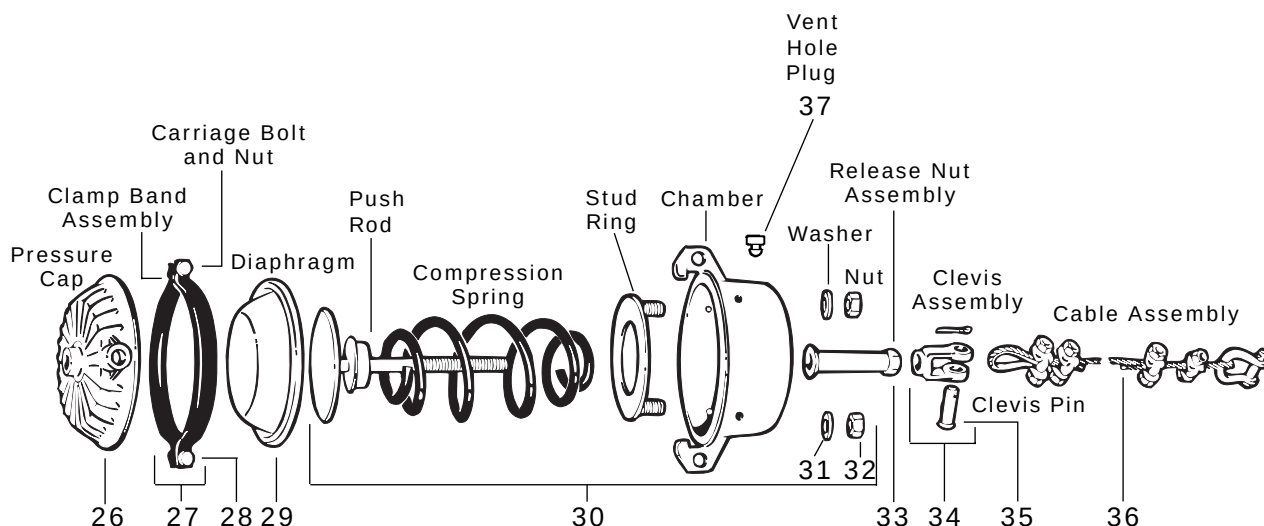
TYPE 09			TYPE 12	
TUBE LENGTH*	BENDIX	ROCKWELL	BENDIX	ROCKWELL
W/ 2.25" TUBE	0984001	0985001	1284003	1285007
W/ 3.00" TUBE	0984002	0985003	1284005	1285010
W/ 3.50" TUBE	0984003	0985008	1284006	1285011
W/ 4.00" TUBE	0984004	0985013	1284007	1285012
W/ 4.50" TUBE	0984006	0985004	1284008	1285014
W/ 5.00" TUBE	0984005	0985005	1284009	1285015
W/ 6.00" TUBE	0984007	0985006	1284010	1285017
W/ 7.00" TUBE	0984008	0985007	1284012	1285018
W/ 7.88" TUBE	0984009	0985009	1284013	1285019
W/ 9.38" TUBE	0984010	0985010	1284014	1285022
W/ 10.20" TUBE	0984011	0985011	1284015	1285002
W/ 14.50" TUBE	0984012	0985012	1284002	1285005

*See page 5 for tube length measurement procedure

SERVICE COMPONENTS

S-CAM BRAKES (Remote Unit)

03-ACTUATORS

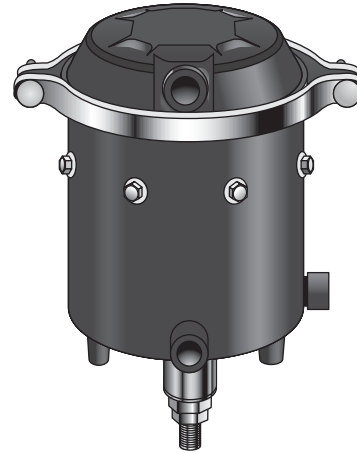


ITEM	DESCRIPTION	QTY.	WHERE USED	OLD PART NO.	NEW PART NO.
26.	PRESSURE CAP	1	R-30	1126M040-2	3056001
27.	CLAMP BAND ASSEMBLY	1	R-30	1126M005-CA	3064004
28.	CARRIAGE BOLT AND NUT ASSEMBLY	2	ALL	3/8-16	9999143
29.	DIAPHRAGM	1	R-30	1126M009	3062003
30.	CHAMBER ASSEMBLY	NOT SERVICED SEPARATELY			
31.	WASHER	2	LOCK-use w/ STD NUT FLAT-use w/ LOCK NUT FLAT- HEAVY DUTY - use w/LOCK NUT	11M046 11M066 1128M042	9999069 9999093 9999142
32.	NUT	2	5/8"-STD - use w/ LOCK WASHER 5/8"-STD METRIC - use w/ LOCK WASHER 5/8"-LOCK - use w/ FLAT WASHER 5/8"-LOCK METRIC - use w/ FLAT WASHER	11M067 11M067-4 11M067-1 11M067-5	9999094 9999096 9999095 9999997
33.	RELEASE NUT ASSEMBLY	1	R-30	1130MR05	3099006
34.	CLEVIS ASSEMBLY	1	R-30	11M018-1/2	9999044
35.	CLEVIS PIN	1	1/2" PIN	11M061	9999087
36.	CABLE ASSEMBLY	1	R-30	1130MR06	3099008
37.	VENT HOLE PLUG	OPT. UP TO 6	ALL	11M003-WP	9999028

MAXIBRAKE[®]I SPRING BRAKES

SERVICE SIZES 20", 24", 30", 36"

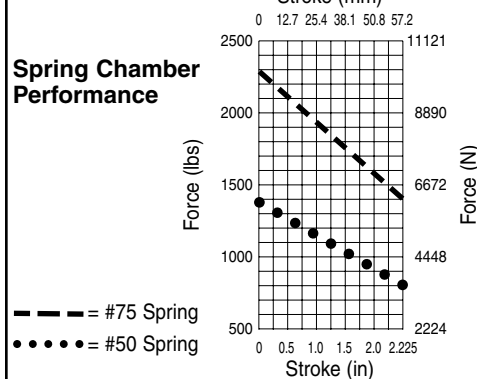
- All steel housings provide strength, durability and extra corrosion resistance.
- Aluminum piston and nylon bearings provide maximum guidance stability that diffuses lateral and twisting motion.
- Steel alloy springs are epoxy coated to protect against rust and corrosion.
- Deeper spring cavities and optional spring force outputs offer uniform output and longer service life.
- Unit cannot be released manually, making it inoperative. This insures the vehicle cannot be moved until the air supply is at a safe level.



MAXIBRAKE[®]I - SINGLE PACKS - 1 PER BOX

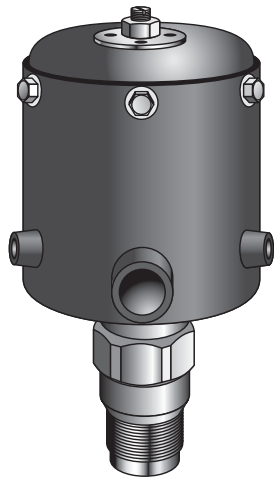
Service No.	OEM. No.	Description
MA15770	KSM2050KC800NN	Type 20, #50 Spring, Univ. 8" Push Rod
MA15772	KSM2075KC800NN	Type 20, #75 Spring, Univ. 8" Push Rod
MA15773	KSM2450KC800NN	Type 24, #50 Spring, Univ. 8" Push Rod
MA15775	KSM2475KC800NN	Type 24, #75 Spring, Univ. 8" Push Rod
MA15777	KSM3075KC800NN	Type 30, #75 Spring, Univ. 8" Push Rod
MA15779	KSM3675KC800NN	Type 36, #75 Spring, Univ. 8" Push Rod

MAXIBRAKE[®]I



REPLACEMENT PART	TYPE 20 SERVICE NO.	TYPE 24 SERVICE NO.	TYPE 30 SERVICE NO.	TYPE 36 SERVICE NO.
Steel Pressure Plate	M4040992	M4040754	M4036174	M4040757
Clamp Band Kit	M4031060	M4031061	M4031062	M4031063
Diaphragm	M4031540	M4031251	M4031165	M4031252
Push Rod - 1.75" Projection	---	---	---	M4036067
Push Rod - 8.00" Projection	M4040134	M4036060	M4036066	M4036068
Spring Retainer	M4031047	M4031047	M4031047	M4031047
Push Rod Retainer Spring	M4031046	M4031046	M4301046	M4031046
Spring Support	M4040475	M4031017	M4031017	M4031017
#50 Spring (Maximum Release Pressure 55 PSI, Minimum Hold-Off Pressure 49 PSI)	M4031295	M4031295	M4031295	M4031295
#75 Spring (Maximum Release Pressure 87 PSI, Minimum Hold-Off Pressure 82 PSI)	M4031002	M4031002	M4031002	M4031002
Felt Wiper Ring	M4031173	M4031173	M4031173	M4031173
Cap Screw	---	M4031041	M4031041	M4031041
Cylinder Assembly 3/8" NPT	M4040527	M4040530	M4040533	M4040596
Cylinder Assembly Universal	---	M4041173	M4041175	M4041177
Flange Nut	M4031340	M4031340	M4031340	M4031340
O-Ring (Small)	M4031044	M4031044	M4031044	M4031044
Nylon Bushing	M4031161	M4031161	M4031161	M4031161
Jam Nut	M4031134	M4031134	M4031134	M4031134
Drain Hole Plug	---	M4031076	M4031076	M4031076
Aluminum Piston Repair Kit	M4040025	M4040025	M4040025	M4040025
Boot Kit	M4031333	M4031333	M4031333	M4031333
Piston Bearing FOR STEEL PISTON ONLY	M4041367	M4041367	M4041367	M4041367
Maintenance Kit - For Aluminum Piston Only	M4041406	M4041406	M4041406	M4041406
Maintenance Kit - For both Steel and Aluminum Pistons. Services One Unit.	RN21AD	RN21AD	RN21AD	RN21AD
Maintenance Kit - For both Steel and Aluminum Pistons. Services Two Unit.	RN21AE	RN21AE	RN21AE	RN21AE

MAXIBRAKE® H-SERIES SPRING BRAKES

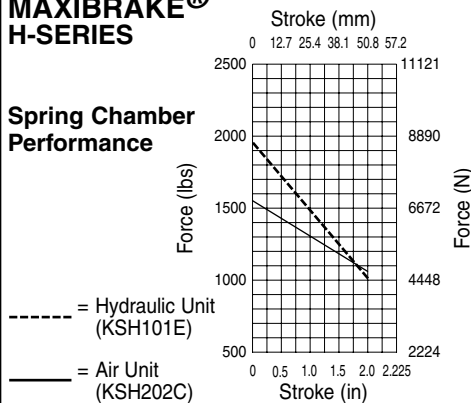


AIR/HYDRAULIC SPRING-SET PARKING BRAKE

- All steel housings provide strength, durability and extra corrosion resistance.
- Steel piston and nylon bearings provide maximum guidance stability that diffuses lateral and twisting motion.
- Steel alloy springs are epoxy coated to protect against rust and corrosion.
- Deeper spring cavities and optional spring force outputs offer uniform output and longer service life.
- The Maxibrake® H-Series Air and Hydraulic Spring-Set Parking Brake release mechanisms are housed inside the unit making them readily available for use.

MAXIBRAKE® H-SERIES

Spring Chamber Performance



MAXIBRAKE® H-SERIES - SINGLE PACKS - 1 PER BOX

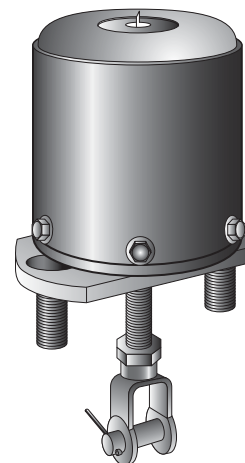
Service No.	OEM No.	Description
MA15500	KSH101E	Hydraulic Spring-Set Parking Brake Complete
MA15502	KSH101F	Hydraulic Spring-Set Parking Brake With Fluid Inlet Elbow
MA15504	KSH202C	Air Spring-Set Parking Brake With 3/8" NPT Air Inlet

REPLACEMENT PART	SERVICE NO.
Bleeder Valve and Adapter Kit	MQ5200180
Cap Screw	M4631656
Cylinder Assembly	M5200143
Jam Nut	M5200108
Service Parts Kit (Release Bolt, Pin, Slotted Nut, Filter)	M5200092
Hydraulic Service Kit (O-Ring 5" x 4 1/2" x 1/4", O-Ring 1 1/2" x 1 5/16" x 3/32", O-Ring 1 5/16" x 1" x 5/32", O-Ring 1 13/16" x 1 5/8" x 3/32", Piston Bearing, Insert, Piston Bearing Compressor, Filter, TR-3 Lubricant)	M5200090
Hydraulic Service Kit (Same as Above [M5200090], Plus Release Bolt, Pin, Slotted Nut)	M5200078
Air Service Kit (O-Ring 5" x 4 1/2" x 1/4", O-Ring 1 1/2" x 1 5/16" x 3/32", O-Ring 1 1/4" x 1" x 1/8", O-Ring 1 13/16" x 1 5/8" x 3/32", Piston Bearing, Insert, Piston Bearing Compressor, Filter, Lubricant)	M5200201
Air Service Kit (Same as Above [M5200201], Plus Release Bolt, Pin, Slotted Nut)	M5200200
Air Service Kit (Same as Above [M5200200]—Excluding TR-3 Lubricant)	M5200173
Fluid Inlet Fitting	KSH5200099

MAXIBRAKE® HR-SERIES SPRING BRAKES

AIR/HYDRAULIC - PULL TYPE

- All steel housings provide strength, durability and extra corrosion resistance.
- Steel piston and nylon bearings provide maximum guidance stability that diffuses lateral and twisting motion.
- Steel alloy springs are epoxy coated to protect against rust and corrosion.
- Deeper spring cavities and optional spring force outputs offer uniform output and longer service life.
- Unit cannot be released manually, making it inoperative. This insures the vehicle cannot be moved until the air hydraulic supply is at a safe level.

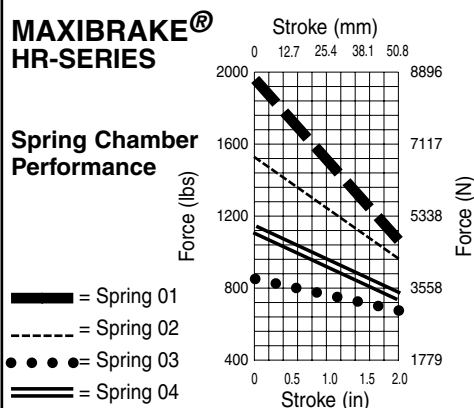


MAXIBRAKE® HR-SERIES - SINGLE PACKS - 1 PER BOX

Service No.	OEM. No.	Description
-----	KSHR2PT01A625NN	HR-Pull Type - Air (1400 lbs.)
-----	KSHR2PT02A625NN	HR-Pull Type - Air (1100 lbs.)
-----	KSHR2PT03A625NN	HR-Pull Type - Air (600 lbs.)
-----	KSHR2PT04A625NN	HR-Pull Type - Air (850 lbs.)
-----	KSHR2PT01H625NN	HR-Pull Type - Hydr (1400 lbs.)
-----	KSHR2PT02H625NN	HR-Pull Type - Hydr (1100 lbs.)
-----	KSHR2PT03H625NN	HR-Pull Type - Hydr (600 lbs.)
MA15509	KSHR2PT04H625NN	HR-Pull Type - Hydr (850 lbs.)

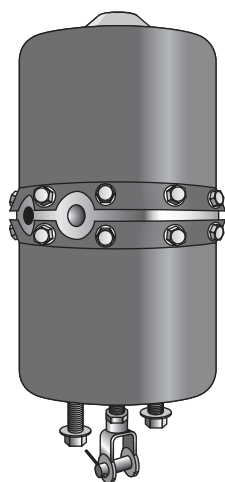
MAXIBRAKE® HR-SERIES

Spring Chamber Performance



REPLACEMENT PART	SERVICE NO.
Dust Boot Kit	MQ15707
Service Kit - Air	MQ15708
Service Kit - Hydraulic	MQ15709

MAXIBRAKE® 50-SERIES SPRING BRAKES

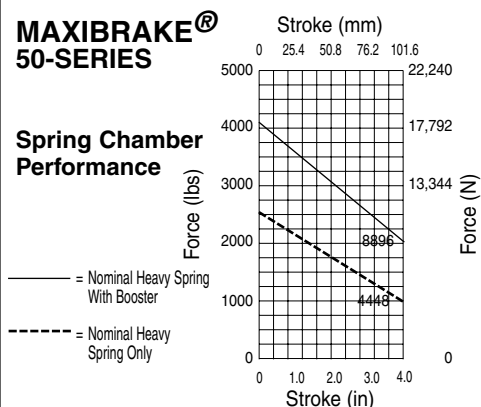


SERVICE SIZE 50"

- All steel housings provide strength, durability and extra corrosion resistance.
- Nylon piston and push rod bearings prevent metal-to-metal contact.
- Packing cup type service brake piston seals provide positive seal throughout articulating action.
- Dual pistons (service and spring chamber) insures that pressure bearing surface remains constant.

MAXIBRAKE® 50-SERIES

Spring Chamber Performance



MAXIBRAKE® 50-SERIES - SINGLE PACKS - 1 PER BOX

Service No.	OEM. No.	Description
MA15690	KSC50HBBC-175NN	1.75" Push Rod
MA15691	KSC50HBBC-800NN	8.00" Push Rod

REPLACEMENT PART	SERVICE NO.	REPLACEMENT PART	SERVICE NO.
Emergency Cylinder Assembly	M5040580	Yoke Kit	M5040392
Cap Screw	M5040472	Boot Kit	M5040486
Spring Locator	M5040378	Instruction Washer	M4740161
Booster Spring	M5040390		
Heavy Spring	M5040388	Universal Maintenance Kit:	RN21AF
Service Piston Bearing ⁽¹⁾	M5040367	2-Packing Cups, 2-Piston Bearings, 2-Large Seals, Small Seal, Snap Ring, Nylon Bushing, Return Spring Locator, Sealing Compound, TR-3 Lubricant, Filter, Service Filter, Cylinder Drain Valve, Plug, Boot Strap, 5-Cap Screws, Emer. & Svc. Packing Retainer, 9-Self-Tapping Screws, Plug, Breather Plug, 2-Pan Head Self-Tapping Screws, End Cap Cover, Svc. & Parts Bulletin W/Supplement	
Emergency Piston Bearing ⁽²⁾	M5040563		
Packing Cup	M5040368		
Emergency Piston Assembly Kit	M5040516		
Large Seal	M5040538		
Bulkhead	M5040370		
Nylon Bushing	M5040372		
Snap Ring	M5040373		
Self-Tapping Screw	M5040495	Release Bolt Kit:	M5040585
Service Packing Retainer	M5040493	Release Bolt, Release Washer, Instruction Washer	
Service Piston Assembly	M5040513		
Return Spring	M5040364		
Return Spring Locator	M5040377		
Service Cylinder Assembly	M5040567		
Service Filter	M5040402		
Filter Retaining Ring	M5040536		
Jam Nut	M5040391		

Note: 1. Emergency Piston Bearing prior to 5/00.
2. Emergency Piston Bearing 5/00 to present.

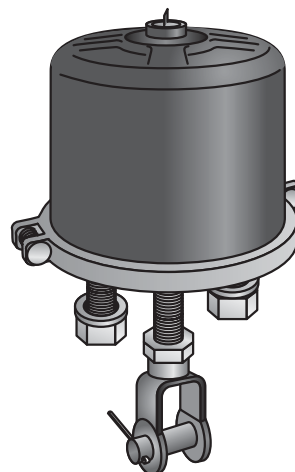
MAXIBRAKE[®] 50-SERIES SERVICE CHAMBERS

B MODEL SERVICE CHAMBER

- Output is constant.
- Black epoxy coated finish allows for extra corrosion resistance.
- Heavy duty steel and ductile construction for added strength.
- Standard mounting with heavy duty 3/4" mounting studs.

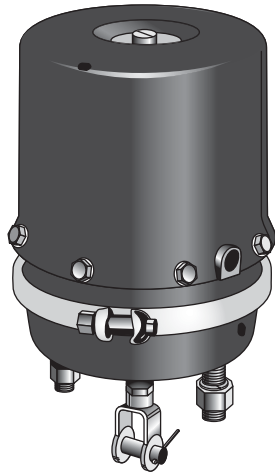
MAXIBRAKE[®] B MODEL SVC. CHAMBER-SINGLE PACKS-1/BOX

Service No.	OEM. No.	Description
MA15703	-	4" Stroke Air W/8.00" Push Rod, W/Yoke & Boot



REPLACEMENT PART	SERVICE NO.	REPLACEMENT PART	SERVICE NO.
Clamp Band Assembly	M4031063	Maintenance Kit:	M5040566
O-Ring	M5040557	1 - Piston Bearing	
Piston Bearing	M5040563	2 - O-Rings	
Spring	M5040555	1 - Lubricant	
Spring Locator	M5040377	1 - Spring Locator	
Mounting Plate Assembly	M5040561	1 - Filter	
Filter	M5040402	1 - Boot Strap	
Boot Assembly	M5040524	1 - Boot Adapter	
Jam Nut	M5040391		
Hardened Washer	M5040409		
Yoke Kit	M5040392		

MAXIBRAKE® CAMTITE SERIES SPRING BRAKES

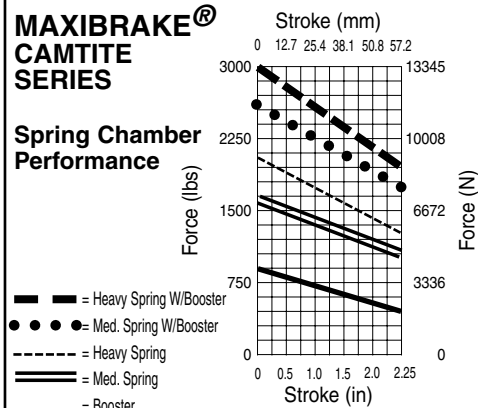


SERVICE SIZES 24", 30", 36"

- All steel housings provide strength, durability and extra corrosion resistance.
- Steel piston and nylon bearings provide maximum guidance stability that diffuses lateral and twisting motion.
- Steel alloy springs are epoxy coated to protect against rust and corrosion.
- Deeper spring cavities and optional spring force outputs offer uniform output and longer service life.
- Booster Spring may be combined with medium and heavy spring for additional ranges of force outputs.

MAXIBRAKE® CAMTITE SERIES

Spring Chamber Performance



MAXIBRAKE® CAMTITE SERIES-SINGLE PACKS-1/BOX

Service No.	OEM. No.	Description
MA15551	KSC24HBC-800NN	Type 24, 8" Push Rod, Heavy Spring
MA15553	KSC24HBBC-800NN	Type 24, 8" Push Rod, Heavy Spring W/Booster
MA15555	KSC24MBC-800NN	Type 24, 8" Push Rod, Medium Spring
MA15557	KSC24MBBC-800NN	Type 24, 8" Push Rod, Medium Spring W/Booster
MA15559	KSC30HBC-800NN	Type 30, 8" Push Rod, Heavy Spring
MA15561	KSC30HBBC-800NN	Type 30, 8" Push Rod, Heavy Spring W/Booster
MA15563	KSC30MBC-800NN	Type 30, 8" Push Rod, Medium Spring
MA15565	KSC30MBBC-800NN	Type 30, 8" Push Rod, Medium Spring W/Booster
MA15567	KSC36HBC-800NN	Type 36, 8" Push Rod, Heavy Spring
MA15569	KSC36HBBC-800NN	Type 36, 8" Push Rod, Heavy Spring W/Booster
MA15573	KSC36MBBC-800NN	Type 36, 8" Push Rod, Medium Spring W/Booster
-	KSC30MBBCS45625	Type 30, 8" Push Rod, Medium Spring

REPLACEMENT PART	TYPE 24 SERVICE NO.	TYPE 30 SERVICE NO.	TYPE 36 SERVICE NO.
Self-Tapping Screw	M4740012	M4740012	M4740012
Snap Plug	M4731975	M4731975	M4731975
Stop Washer	M4731974	M4731974	M4731974
Release Bolt	M4731970	M4731970	M4740105
Cylinder	M4740420	M4740420	M4740432
Cap Screw	M4631656	M4631656	M4631656
Filter	M4731971	M4731971	M4731971
Spring Locator	M4740191	M4740191	M4740191
Booster Spring (Maximum Release Pressure 33 PSIG, Minimum Hold-Off Pressure 28 PSIG)	M4740112	M4740112	M4740112
Medium Spring (Maximum Release Pressure 56 PSIG, Minimum Hold-Off Pressure 51 PSIG)	M4731921	M4731921	M4731921
Heavy Spring (Maximum Release Pressure 68 PSIG, Minimum Hold-Off Pressure 63 PSIG)	M4731922	M4731922	M4731922
Felt Wiper Ring	M4731805	M4731805	M4731805
Piston Seat Ring	M4731799	M4731799	M4731799
Piston Assembly	M4740421	M4740421	M4740421
Bulkhead With 3/8" NPT Air Inlets	M4740299	M4740309	M4740313
Nylon Bushing	M4731745	M4731745	M4731745
Retainer Ring	M4731804	M4731804	M4731804
Follower	M4731785	M4731785	M4731785
Machine Screw	M4736161	M4736161	M4736161
Clamp Band Kit	M4031061	M4031062	M4031063
Diaphragm	M4031251	M4031165	M4031252
Push Rod Assembly (8.00" Projection)	M4736034	M4731986	M4740102
Return Spring	KN36404	KN36404	KN36404
Non-Pressure Housing Assembly (5/8 - 18 UNF)	M4740563	M4940329	M4740098
Boot And Retainer Kit	M4940273	M4940273	M4940273
Instruction Washer	M4740161	M4740161	M4740161
Maintenance Kit	M4740157	M4740157	M4740157

MAXIBRAKE® R-SERIES SPRING BRAKES

AIR APPLICATION- PULL TYPE

- All steel housings provide strength, durability and extra corrosion resistance.
- Steel piston and nylon bearings provide maximum guidance stability that diffuses lateral and twisting motion.
- Steel alloy springs are epoxy coated to protect against rust and corrosion.
- Deeper spring cavities and optional spring force outputs offer uniform output and longer service life.
- Unit cannot be released manually, making it inoperative. This insures the vehicle cannot be moved until the air supply is at a safe level.
- Maximum hydraulic pressure - 125 PSI.

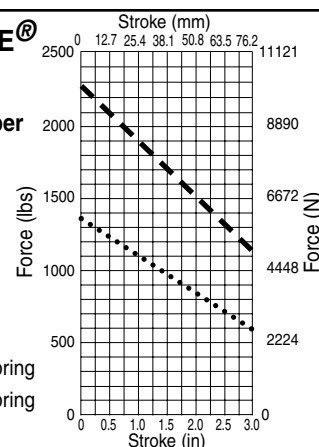


MAXIBRAKE® R-SERIES SINGLE PACKS - 1 PER BOX

Service No.	OEM No.	Description
MA15651	KSMR0PT50-800NN	1.38" Stroke, #50 Spring, 8" Push Rod
-	KSMR0PT75-800NN	1.38" Stroke, #75 Spring, 8" Push Rod
MA15655	KSMR1PT50-800NN	2.25" Stroke, #50 Spring, 8" Push Rod
MA15657	KSMR1PT75-800NN	2.25" Stroke, #75 Spring, 8" Push Rod
MA15659	KSMR2PT50-800NN	2.62" Stroke, #50 Spring, 8" Push Rod
MA15661	KSMR2PT75-800NN	2.62" Stroke, #75 Spring, 8" Push Rod
MA15663	KSMR3PT50-800NN	3.00" Stroke, #50 Spring, 8" Push Rod
MA15665	KSMR3PT75-800NN	3.00" Stroke, #75 Spring, 8" Push Rod

MAXIBRAKE® R-SERIES

Spring Chamber Performance

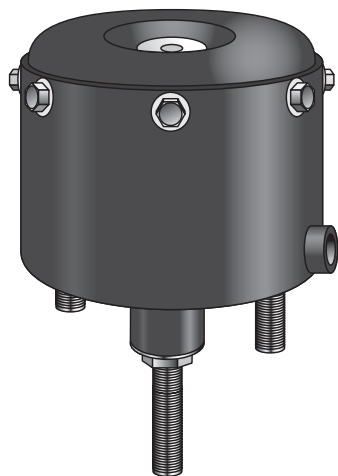


For Hydraulic Pull Type Application - Special Order.

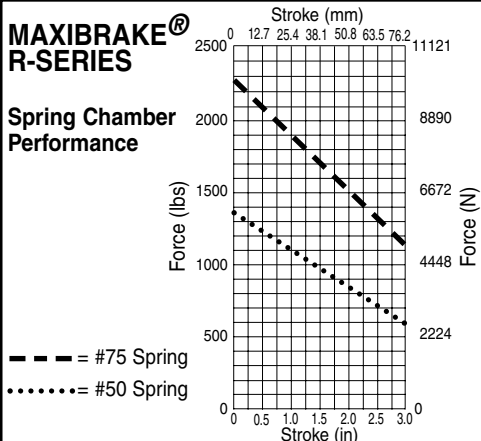
REPLACEMENT PART	R0PT 1.38" Stroke SERVICE NO.	R1PT 2.25" Stroke SERVICE NO.	R2PT 2.62" Stroke SERVICE NO.	R3PT 3.00" Stroke SERVICE NO.
Cylinder Assembly (Air)	KSM4040894	M4040899	M4040772	M4040900
Cylinder Assembly (Hydraulic)	M4041300	M4041302	----	----
Cap Screw	M4031041	M4031041	M4031041	M4031041
Plug Cylinder	M4031076	M4031076	M4031076	M4031076
Piston Assembly (Includes Push Rod - Standard 8.00" Projection)	M4040893	M4040893	M4040893	M4040893
O-Ring (Hydraulic Unit Requires 2)	M4031045	M4031045	M4031045	M4031045
Felt Wiper Ring (For Air Unit Only)	M4031173	M4031173	M4031173	M4031173
#50 Spring Maximum Release Pressure 55 PSI Minimum Hold-Off Pressure 49 PSI	M4031295	M4031295	M4031295	M4031295
#75 Spring Maximum Release Pressure 87 PSI Minimum Hold-Off Pressure 82 PSI	M4031002	M4031002	M4031002	M4031002
Steel Stud Mounting Plate	M4041502	M4041502	M4041502	M4041502

MAXIBRAKE® R-SERIES SPRING BRAKES

AIR APPLICATION - PUSH TYPE



- Same features and benefits as R-Series Pull Type Brake.
- Unit cannot be released manually, making it inoperative. This insures the vehicle cannot be moved until the air supply is at a safe level.
- Maximum hydraulic pressure - 125 PSI.



MAXIBRAKE® R-SERIES SINGLE PACKS - 1 PER BOX

Service No.	OEM. No.	Description
MA15601	KSMR0PH50-800NN	1.38" Stroke, #50 Spring, 8" Push Rod
MA15603	KSMR0PH75-800NN	1.38" Stroke, #75 Spring, 8" Push Rod
MA15605	KSMR0PHS75-800NN	1.38" Stroke, #75 Spring, 8" Push Rod
MA15607	KSMR1PH50-800NN	2.25" Stroke, #50 Spring, 8" Push Rod
MA15609	KSMR1PH75-800NN	2.25" Stroke, #75 Spring, 8" Push Rod
MA15610	KSMR1PHS50-800NN	2.25" Stroke, #60 Spring, 8" Push Rod
MA15612	KSMR1PHS75-800NN	2.25" Stroke, #75 Spring, 8" Push Rod
MA15614	KSMR2PH50-800NN	2.62" Stroke, #50 Spring, 8" Push Rod
MA15616	KSMR2PH75-800NN	2.62" Stroke, #75 Spring, 8" Push Rod
MA15617	KSMR2PHS50-800NN	2.62" Stroke, #50 Spring, 8" Push Rod
MA15619	KSMR2PHS75-800NN	2.62" Stroke, #75 Spring, 8" Push Rod
MA15621	KSMR3PH50-800NN	3.00" Stroke, #50 Spring, 8" Push Rod
MA15623	KSMR3PH75-800NN	3.00" Stroke, #75 Spring, 8" Push Rod
MA15624	KSMR3PHS50-800NN	3.00" Stroke, #50 Spring, 8" Push Rod

For Hydraulic Push Type Application - Special Order.

REPLACEMENT PART	R1PH 2.25" Stroke SERVICE NO.	R2PH 2.62" Stroke SERVICE NO.	R3PH 3.00" Stroke SERVICE NO.	R2PHS 2.62" Stroke SERVICE NO.
Cylinder Assembly (Air)	M4031043	M4031090	M4031089	M4031090
Cap Screw	M4031041	M4031041	M4031041	M4031041
Piston Assembly	M4031742	M4031743	M4031744	M4031743
Plug Cylinder	M4031076	M4031076	M4031076	M4031076
Small O-Ring (Hydraulic Unit Requires 2)	M4031044	M4031044	M4031044	M4031044
Large O-Ring (Hydraulic Unit Requires 2)	M4031045	M4031045	M4031045	M4031045
Felt Wiper Ring (For Air Unit Only)	M4031173	M4031173	M4031173	M4031173
#50 Spring	M4031295	M4031295	M4031295	M4031295
#75 Spring	M4031002	M4031002	M4031002	M4031002
Spring Support	M4031070	M4031070	M4031070	M4031070
Nylon Bushing	M4031161	M4031161	M4031161	M4031161
Stud Mounting Plate	M4041502	M4041502	M4041502	M4041502
Jam Nut	M4031134	M4031134	M4031134	M4031134
Flange Nut	M4031340	M4031340	M4031340	M4031340
Push Rod Assembly (Includes Push Rod - Standard 8.00" Projection)	M4040719	M4040718	M4040717	M4040796
Yoke And Pin Kit (1/2" Diameter)	KN36470	KN36470	KN36470	KN36470
Dust Boot Kit	M4031334	M4031334	M4031334	M4031334

DOUBLE DIAPHRAGM SPRING BRAKE

GENERAL SAFETY PRECAUTIONS

⚠ DANGER: A spring brake contains a very powerful compression spring. Failure to comply with all of the following instructions may result in forceful release of the piggyback or spring chamber and its contents which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

IMPORTANT: ALWAYS BLOCK WHEELS to prevent vehicle rollaway when performing any brake maintenance.

⚠ DANGER: Haldex Anchorlok DOES NOT recommend the rebuilding of any of its air brake actuator products. Nor does Haldex Anchorlok recommend the use of rebuilt Haldex Anchorlok air brake actuators.

- If spring brake shows structural damage DO NOT cage the spring and DO NOT attempt to service it. Replace the complete unit. To prevent severe personal injury when removing an uncaged spring brake from a vehicle, cut the service push rod making sure to relieve all force on it. After cutting the push rod, remove the spring brake from the vehicle, then disarm the spring brake using a suitable safety chamber (See Page 48 - Figure 36).
- Never strike any part of the spring brake with a hammer or any other heavy object; structural damage may result.
- Do not drop spring brake, as compression spring may forcefully release.
- If air pressure is used to aid in the caging process, do not tighten the release tool more than finger tight. The air pressure must always be exhausted after the spring has been mechanically caged prior to any disassembly.
- On all Haldex Gold Seal & Life Seal Spring Brakes, the emergency diaphragm cannot be replaced. Replace the complete piggyback. (Follow instructions listed under "Mechanical Release" on Page 35 for Gold Seal brakes. Page 38 for Life Seal brakes. And "Piggyback Installation Instructions" on Pages 44 and 45).

IMPORTANT: It is recommended that a new service brake diaphragm be used when installing a new piggyback. DO NOT use a piloted diaphragm on the service side (a piloted "protrusion" diaphragm is designed to be used in the emergency spring chamber only). Use of a piloted diaphragm results in a reduction of stroke length.

Continued on next page

FIG 1 - Gold Seal Spring Brake

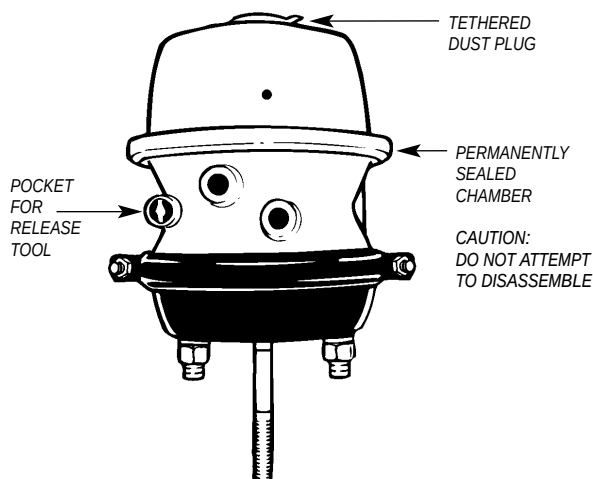
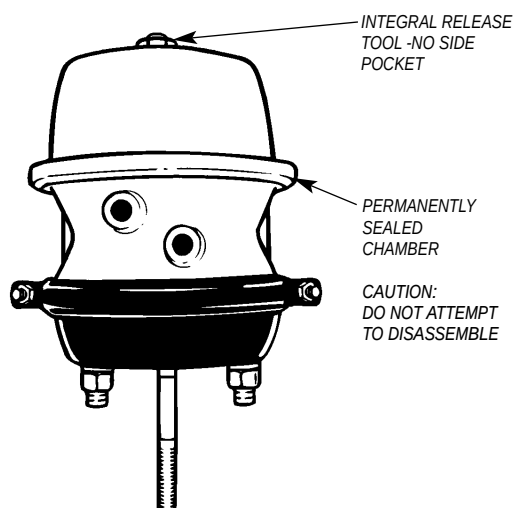


FIG 2 - Life Seal Spring Brake



DOUBLE DIAPHRAGM SPRING BRAKE

GENERAL SAFETY PRECAUTIONS (Cont'd)

- Haldex manufactures a complete line of 3.0" (76 mm) stroke brake actuators. In some cases these are referred to as "Long Stroke" (L). In other cases they are referred to as "Extra Long Stroke" (XL). To avoid confusion, please refer to Table 1 below.

TABLE 1 STROKE MODELS

2.5" (64 MM) STROKE MODELS		3.0" (76 MM) STROKE MODELS	
COMBINATION	PIGGYBACK	COMBINATION	PIGGYBACK
GC2424L	GP2424 L	GC2430XL	GP2430XL
GC2430L	GP2430L	LC2430XL	LP2430XL
LC2430L	LP2430L	GC3030L	GP3030L
GC3030	GP3030	LC3030L	LP3030L
GC3036	GP3036		
GC3030	LP3030		

⚠ WARNING: NEVER interchange 3.0" (76 mm) stroke actuator components with 2.25" (57 mm) or 2.5" (64 mm) stroke components. Performance and stroke may be seriously affected.

⚠ WARNING: NEVER interchange spring brake manufacturers components. Performance and stroke may be seriously affected. Although spring brake manufacturers components look similar, they should never be interchanged.

- When servicing 3.0" stroke actuators, it is imperative that strict attention is paid to the components. These air brake actuators have push rod stroke capabilities in excess of the standard 2.25" (57 mm)* or 2.5" (64 mm) design. The serviceable components for these actuators are unique. They include the following:

*2.5" stroke T-24 diaphragm may be used in 2.25" stroke T-24 service brake applications.

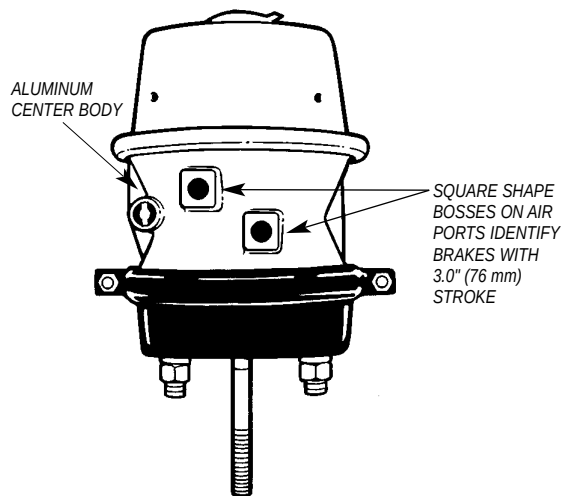
- 1) Service Diaphragm
- 2) Service Housing
- 3) Service Pushrod
- 4) Complete Piggyback

- These components are uniquely identified as "Long Stroke", "LS", or "3.0" (76 mm) Stroke" on each component. The unique square bosses on the air inlet ports on the aluminum center body easily identify the spring brake as 3.0" (76 mm) stroke (Figure 3).

- To aid in the identification of Long Stroke brakes being used on vehicles, Haldex has decals available (Figure 3A). These decals can easily be attached to the side of the vehicle.

Labels can be purchased from your local Haldex Distributor.

FIG 3 - Gold Seal & Life Seal 3.0" (76 mm) Stroke Spring Brake



DOUBLE DIAPHRAGM SPRING BRAKE

GENERAL SAFETY PRECAUTIONS (Cont'd)

FIG 3A - Long Stroke Brake Alert Decal

L80033

5.50"

— ATTENTION —

**Installed on this vehicle/axle are
3 inch LONG STROKE SPRING BRAKES**

Maximum Readjustment Stroke 2.5" according to C.V.S.A.
Appendix A - North American Uniform Out-of-Service Criteria



3.00"

L80034

5.50"

— ATTENTION —

DES FREINS À RESSORT À COURSE LONGUE DE 3 POUCES

sont montés sur l'essieu de ce véhicule

Le réglage maximal de course est de 2,5 po, selon la C.V.S.A.
Annexe A - Critères uniformes nord-américains de mise hors service

**Installed on this vehicle/axle
are 3 inch LONG STROKE SPRING BRAKES**

Maximum Readjustment Stroke 2.5" according to C.V.S.A.
Appendix A - North American Uniform Out-of-Service Criteria



3.00"

DOUBLE DIAPHRAGM SPRING BRAKE

RECOMMENDED PREVENTATIVE MAINTENANCE

- Preventative maintenance for Haldex Gold Seal and Life Seal combination spring brake models is recommended every three months or every 25,000 miles (40,000 km).

IMPORTANT: ALWAYS BLOCK WHEELS to prevent vehicle rollaway when performing any brake maintenance.

1. Check the conditions of the foundation brakes, including drums, shoes and linings, rollers, bushings, etc.
2. Check for structural damage of the spring brake, brake adjuster and s-cam. Replace if necessary.

3a. Gold Seal Models:

Apply the parking brake. Remove the dust plug from the rear of the spring housing and physically inspect the condition of the parking spring. If the parking spring is broken, replace the spring brake with either a new piggyback unit or an entire unit. Please refer to Pages 44 and 45 for specific piggyback installation instructions or to Pages 39 thru 43 for combination installation instructions.

IMPORTANT: ALWAYS replace dust plug after inspection.

3b. Life Seal Models:

Mechanically release the parking brake and follow the procedure listed on Page 38.

4. Apply the Service Brakes. Check the air lines and fittings for leaks. Check for proper torque according to Table 4, Page 41.
5. After allowing the brake drum to cool to room temperature, check for the correct spring brake stroke and verify proper installation. Proper installation can be verified by following the instructions listed on Page 43.

DOUBLE DIAPHRAGM SPRING BRAKE

GOLD SEAL - MECHANICAL RELEASE OF SPRING BRAKE

⚠ DANGER: Read Pages 35-37 carefully. Do not attempt to mechanically release (cage) the spring on a spring brake if it shows structural damage. Caging the spring or disassembly of the chamber may result in the forceful release of the spring chamber and its contents which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE. Remove complete spring brake and replace with new unit.

⚠ DANGER: DISARM spring chamber before discarding old brake. To disarm, use a suitable Safety Chamber (see Page 48). Failure to disarm assembly prior to disposal may, in time, result in spontaneous release of the spring chamber and its contents, which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

TO CAGE PARK BRAKE COMPRESSION SPRING (RELEASE PARK BRAKE)

IMPORTANT: ALWAYS BLOCK WHEELS to prevent vehicle rollaway when performing any brake maintenance.

1. Remove dust plug from release tool hole in center of spring housing (Figure 4).
2. Remove release tool assembly from side pocket of center body (Figure 4).
3. Insert release tool through key hole in chamber into the spring piston (Figure 5 Arrow A).
4. Turn release tool 1/4 turn clockwise (Figure 5 Arrow B).
5. Pull on release tool to ensure stud crosspin is properly seated in the spring piston.
6. Assemble release tool washer and nut on release tool, finger tighten only (Figure 5).

FIG 4

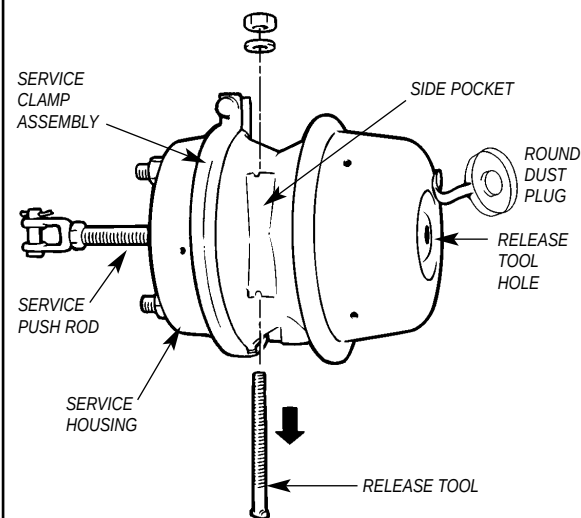
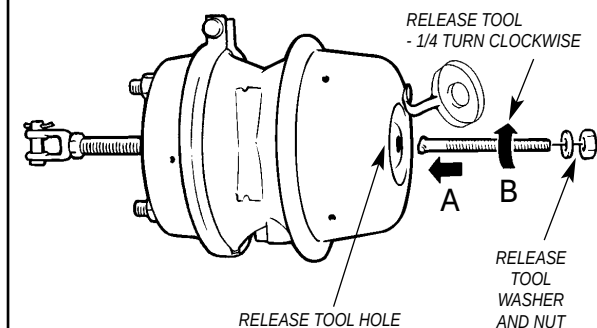


FIG 5



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DOUBLE DIAPHRAGM SPRING BRAKE

GOLD SEAL - MECHANICAL RELEASE OF SPRING BRAKE (Cont'd)

⚠ DANGER: The below listed instructions only apply when spring brake is not pressurized. If air pressure is used to compress the spring, do not tighten release tool more than finger tight. Torquing the release tool nut while the spring brake is pressurized can cause spring piston damage resulting in sudden release of the spring which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE. Air pressure must be released after caging, prior to any disassembly.

7. a). Turn release tool nut clockwise with hand wrench (DO NOT USE HIGH SPEED AND/OR POWER DRIVEN IMPACT WRENCH) and make certain push rod is retracting (Figure 6).
7. b). This procedure will be made much easier if air pressure (100-120 PSIG; 6.6-8.0 BAR) is used to collapse the compression spring before turning the release tool nut with a hand wrench. Proper caging will be complete when a slight resistance is felt after turning the release tool nut. Release the air pressure after caging prior to any disassembly.

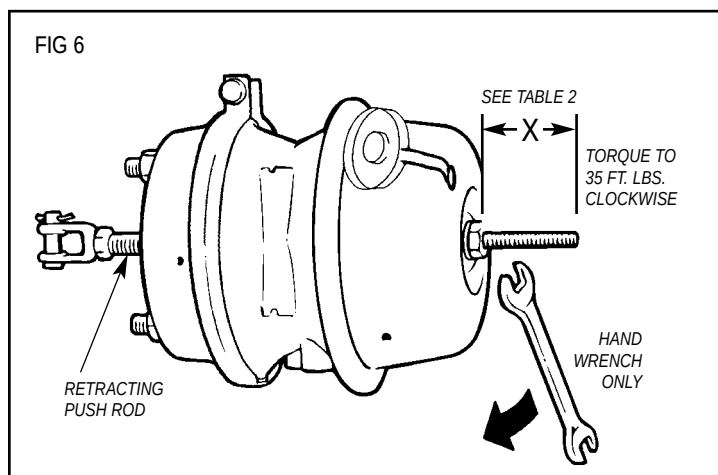
IMPORTANT: Do not over torque release tool assembly. Over torquing release tool can cause spring piston damage.

IMPORTANT: To insure the parking spring is fully caged, the release tool length (X dimension) (Figure 6) should measure as shown in Table 2.

Table 2

Model	Stroke		X-Minimum	
	inch	mm	inch	mm
1624	2.25	57	2.9	74
2024	2.25	57	2.9	74
2424	2.25	57	2.9	74
2424	2.50	64	2.9	74
2430	2.25	57	2.9	74
2430	2.50	64	2.9	74
2430	3.00	76	3.4	86
3030	2.50	64	2.9	74
3030	3.00	76	3.4	86
3036	2.50	64	3.6	91
3036	3.00	76	2.4	61
3636	3.00	76	3.6	91

NOTE: If dimension of release tool (X dimension) length is less than the minimum measurement, then spring brake unit must be replaced.



Continued on next page

DOUBLE DIAPHRAGM SPRING BRAKE

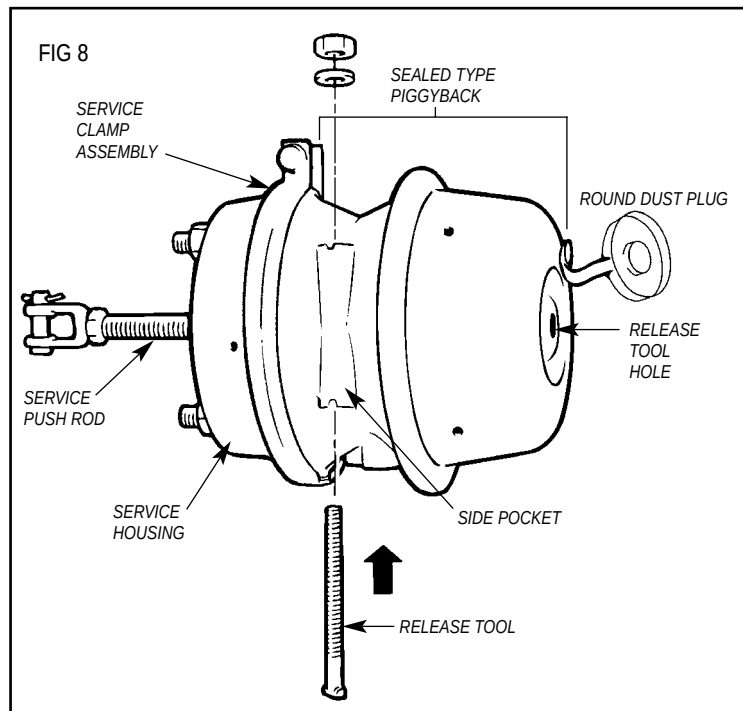
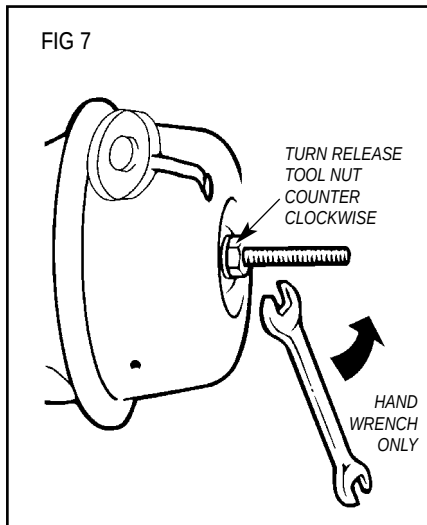
GOLD SEAL - MECHANICAL RELEASE OF SPRING BRAKE (Cont'd)

TO UNCAGE PARK BRAKE COMPRESSION SPRING (APPLY PARK BRAKE)

1. Turn release stud nut counter clockwise with hand wrench (DO NOT USE HIGH SPEED OR POWER DRIVEN IMPACT WRENCH). This procedure will be made much easier if air pressure (100-120 PSIG; 6.6-8.0 BAR) is used to collapse the spring (Figure 7).
2. Remove release tool nut and washer.
3. Push release tool in, turn 1/4 turn counter clockwise and remove.
4. Place release tool in pocket with T-head down and washer and nut up (this allows the washer to protect the pocket from corrosive elements while allowing the pocket to drain around the T-head (Figure 8).
5. Torque the nut to 5-8 ft. lb. (6.8-10.8 Nm).
6. Install dust plug in release tool hole. Insert the plug into the hole in the housing and push firmly until the plug is securely in place.
7. Lift edge of tether plug to be sure the plug is firmly in place.

IMPORTANT: Always re-install tethered dust plug in release tool key hole. Failure to do so will result in corrosion and foreign particle ingestion through the hole which will void the warranty. Do not use excessive force when installing the plug. Excessive force may damage the plug and make it unusable.

Replacement tether plugs can be purchased from your local Haldex Distributor.



DOUBLE DIAPHRAGM SPRING BRAKE

LIFE SEAL - MECHANICAL RELEASE OF SPRING BRAKE

⚠ DANGER: The below listed instructions only apply when spring brake is not pressurized. If air pressure is used to compress the spring, do not tighten release tool more than finger tight. Torquing the release tool nut while the spring brake is pressurized can cause spring plate damage resulting in sudden release of the spring which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE. Air pressure must be released after caging, prior to any disassembly.

⚠ DANGER: DISARM spring chamber before discarding old brake. To disarm, use a suitable Safety Chamber (see Page 50). Failure to disarm assembly prior to disposal may, in time, result in spontaneous release of the spring chamber and its contents, which COULD CAUSE DEATH, PERSONAL INJURY AND/OR PROPERTY DAMAGE.

TO CAGE PARKING SPRING (RELEASE PARK BRAKE)

IMPORTANT: ALWAYS BLOCK WHEELS to prevent vehicle rollaway when performing any brake maintenance.

IMPORTANT: Do not over torque release tool assembly. Over torquing release tool can cause pressure plate damage. Life Seal S-Cam type 55 ft. lb. (74Nm) Maximum, Counter Clockwise.

1. a). Turn release tool nut counter clockwise with hand wrench (DO NOT USE HIGH SPEED AND/OR POWER DRIVEN IMPACT WRENCH) and make certain push rod is retracting (Figure 11).
1. b). This procedure will be made much easier if air pressure (100-120 PSIG; 6.6-8.0 BAR) is used to collapse the parking spring before turning the release tool nut with a hand wrench. Proper caging will be complete when a slight resistance is felt after turning the release tool nut. Release the air pressure after caging prior to any disassembly.

IMPORTANT: To ensure the parking spring is fully caged, the release tool length (X dimension) (Figure 11) should measure as shown in Table 3.

TO UNCAGE PARKING SPRING (APPLY PARK BRAKE)

1. Turn release tool nut clockwise with hand wrench (DO NOT USE HIGH SPEED OR POWER DRIVEN IMPACT WRENCH). This procedure will be made much easier if air pressure (100-120 PSIG; 6.6-8.0 BAR) is used to collapse the spring.
2. Turn release tool nut until contact is made with the spring housing. Torque to 55 ft. lb. (74 Nm). Torque value is stamped on housing (Figure 12).

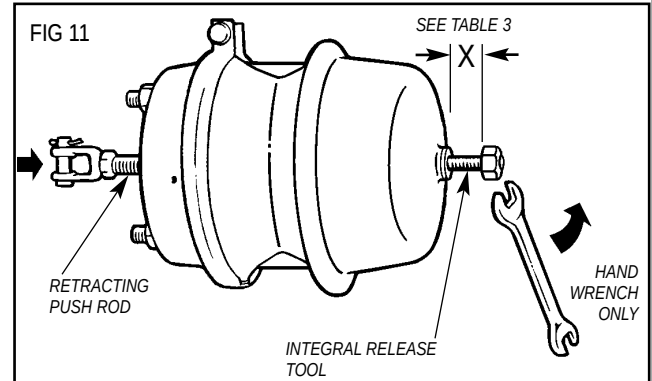
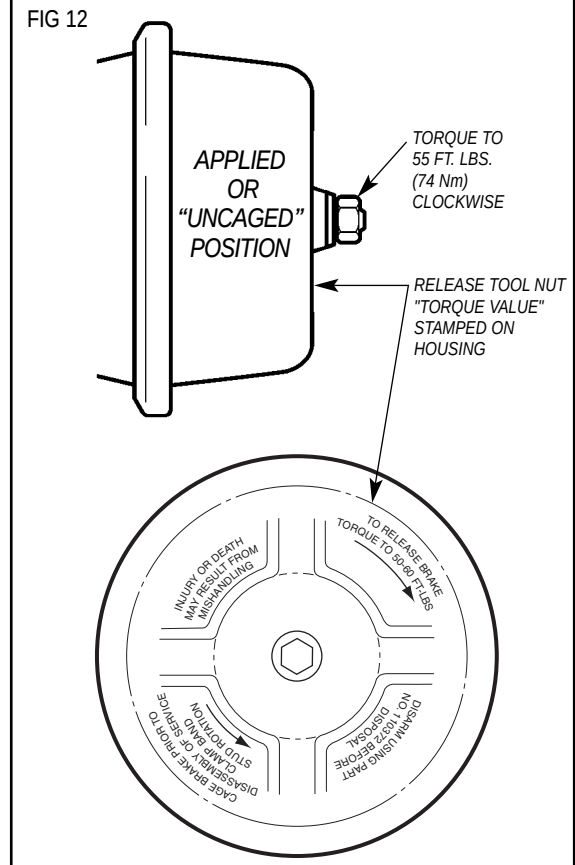


TABLE 3

CHAMBER TYPE	STROKE	X - MINIMUM	X - MAXIMUM
30	2 1/2" (64 mm)	2.40" (61 mm)	2.56" (65 mm)
30LS	3" (76 mm)	2.90" (74 mm)	3.06" (78 mm)

NOTE: If dimension of release tool (X dimension) length is less than the minimum measurement, the spring brake unit must be replaced.



DOUBLE DIAPHRAGM SPRING BRAKE

COMBINATION SPRING BRAKE INSTALLATION INSTRUCTIONS

INSTALLATION PREPARATION

IMPORTANT: Spring brake must be caged prior to performing installation procedures. If brake is not caged, follow steps on Pages 35-37 for safety instructions and mechanical release of spring brake.

NOTE: In an effort to maximize the life of Haldex spring brakes, Haldex recommends the following brake mounting guidelines when installing Haldex spring brakes on your vehicle(s).

CUT PUSH ROD TO CORRECT INSTALLATION LENGTH

IMPORTANT: Before installing a new combination spring brake, it is necessary to determine the correct service push rod length to ensure proper alignment for efficient operation of the spring brake.

NOTE: Units are furnished with a universal fully threaded push rod and must be cut to the correct length.

IMPORTANT: Place blocks under wheels to prevent vehicle rollaway before removing spring brake actuators.

NOTE: If spring brake unit being replaced is not available to take measurements from, follow the procedures listed under Step 5, Page 40.

1. Remove worn or non-functional spring brake unit from vehicle:
Determine manufacturer and model of unit to be replaced. Refer to that manufacturer's service manual for caging and removal instructions.
2. Make sure the parking spring of the removed actuator is fully released (parking spring caged) and the service brake push rod is fully retracted to zero stroke position (i.e. brake fully released).
3. Measure and record the "J" and "K" dimensions from unit to be replaced (*Figure 13*).
"J" dimension = The dimension from mounting face of actuator to end of push rod.
"K" dimension = The dimension from mounting face of actuator to centerline of clevis pin.
4. Take measured "J" dimension (*Figure 13*) from the *removed* unit and mark push rod of *new* unit to be cut.

FIG 13

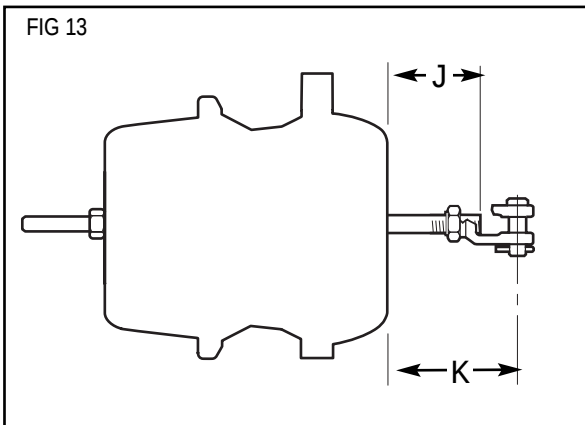
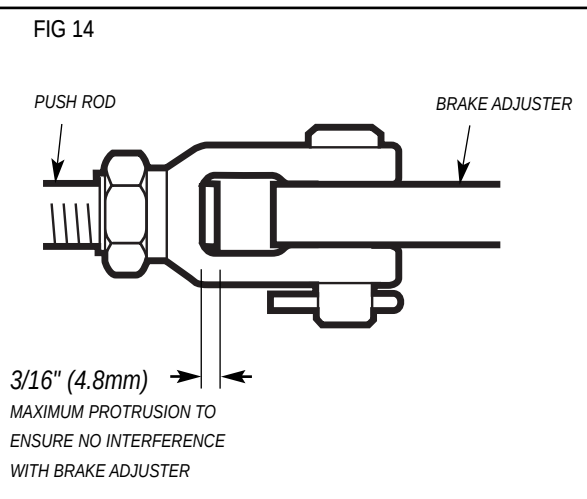


FIG 14



Continued on next page

DOUBLE DIAPHRAGM SPRING BRAKE

COMBINATION SPRING BRAKE INSTALLATION INSTRUCTIONS (Cont'd)

NOTE: Step 5 lists the procedures to determine correct push rod length when the spring brake being replaced is not available. Move ahead to Step 6 if correct push rod length is already determined.

5. To determine the correct push rod length of the brake to be installed, measure the "B" dimension as shown (Figure 15) and subtract the setup stroke as listed in Table 5 (Page 43). With the spring brake fully caged: "B" minus Setup Stroke = Push Rod Length including Clevis. (Figure 16)

NOTE: Setup stroke is only to establish push rod length. (See Step 6 on Page 42).

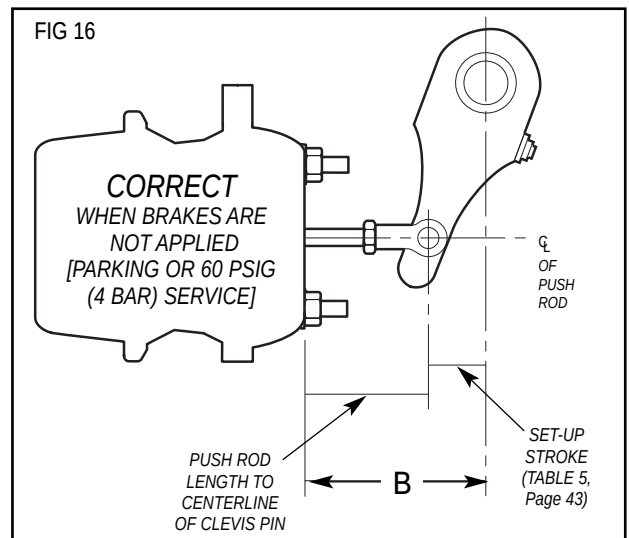
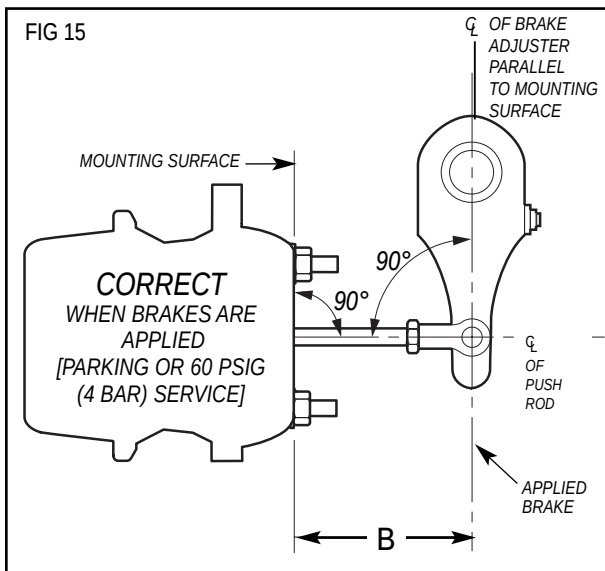
EXAMPLE:

For a typical Type 30 spring brake, if "B" (Figure 15) = 5.0 inches, setup stroke = 1 1/2 inches (Table 5, Page 43). The push rod length from mounting face to centerline of main clevis pin should measure: 5 minus 1 1/2 = 3 1/2 in. with the spring brake caged. (Figure 16)

6. Before marking push rod to be cut on new unit, be sure the spring brake is caged and the push rod is fully retracted to the zero stroke position. Refer to mechanical release instructions: Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

NOTE: When determining the push rod cut-off length, the length of the threaded rod protruding between the clevis legs must not exceed 3/16" (4.8 mm) to ensure no interference with the operation of the brake adjuster (Figure 14).

7. Thread clevis jam nut past the mark on push rod. Align edge of nut with mark to use as a guide for cutting. Use a sharp hack-saw and cut push rod on the mark.
8. After cutting rod, thread jam nut off to clean up threads.



DOUBLE DIAPHRAGM SPRING BRAKE

COMBINATION SPRING BRAKE INSTALLATION INSTRUCTIONS (Cont'd)

FIG 17

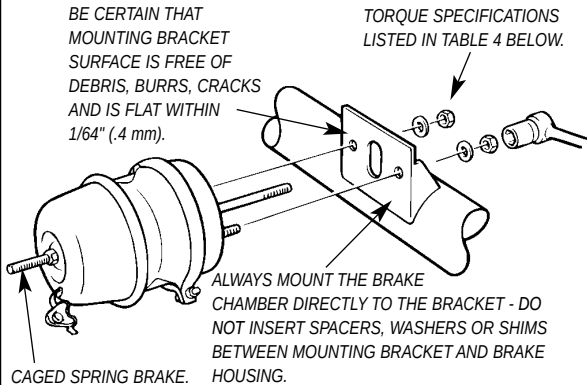


FIG 17A

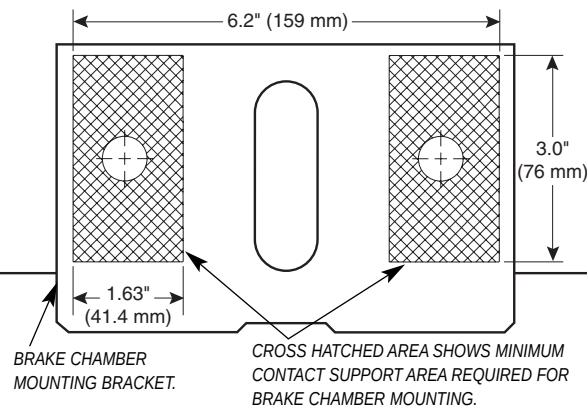


FIG 18

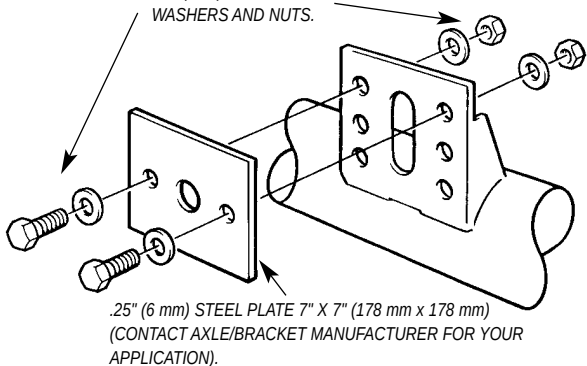
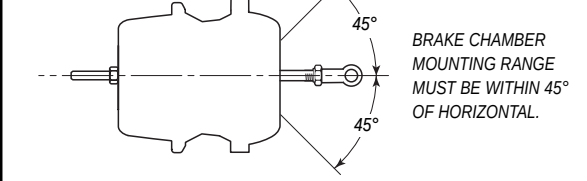


FIG 18A



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MOUNTING SPRING BRAKE TO MOUNTING BRACKET

When attaching spring brakes to mounting brackets the following checks and instructions should be performed:

1. Mounting brackets must be inspected to assure that bracket surface is free from debris, burrs, cracks, weld spatter and is flat within 1/64" (.4 mm) (Figure 17).
2. Attach spring brake directly to mounting bracket on axle. Fasten with mounting hardware (Figure 17). Torque to specifications listed in Table 4 below.

IMPORTANT: When mounting a spring brake to a horizontal axle bracket, as shown in Figure 17, the bracket must meet the minimum contact area (Figure 17A).

When the spring brake mounting bracket requires the studs to be in the vertical position (rotated 90° from horizontal), the contact area can be slightly less than the minimum contact area for horizontal mount.

IMPORTANT: Always mount brake chamber directly to bracket, if a reinforcement plate is necessary, follow the guidelines for plate attachment below. DO NOT insert spacers, washers or shims between mounting bracket and brake housing. (Figure 17) Consult the bracket manufacturer for your application to determine if a reinforcement plate is necessary.

DO NOT mount spring brake in a vertical position. The spring brake must be mounted within 45 degrees of horizontal (Figure 18A).

NOTE: In some cases it may be necessary to rotate air ports and/or clamp bands for proper clearance and installation on vehicle. (See Page 46 for rotation instructions.)

REINFORCEMENT PLATE ATTACHMENT GUIDELINES

When attaching a reinforcement plate to the brake mounting bracket face the following guidelines must be followed:

1. Attach .25" (6 mm) steel plate 7" x 7" (178 mm x 178 mm) square, to brake mounting bracket face. Secure with (2) 5/8" or M16 bolts, washers and nuts, and torque to 50 ft. lb. (67.5 Nm) (Figure 18).
2. Weld reinforcement plate to brake mounting bracket (See Figure 19) for suggested weldment locations. For exact location and weld size, refer to axle manufacturer's guidelines. Allow welds to cool and remove bolts (Figure 19, Page 42).
3. Attach spring brake directly to new reinforcement plate. Fasten with mounting hardware (Figure 20, Page 42). Torque to specifications listed in Table 4 below.

TABLE 4 INSTALLATION TORQUE VALUES

	TORQUE
Mounting Hardware	130-150 lb. ft. (177-203 Nm)
Jam Nut	15-25 lb. ft. (20-34 Nm)
Port Plug or Reducer	15-20 lb. ft. (20-27 Nm)
Air Fittings	25-30 lb. ft. (34-40 Nm)
LIFE SEAL - Release Tool Nut	55 lb. ft. (74 Nm)
GOLD SEAL - Release Tool Nut	25-35 lb. ft. (34-47 Nm)
GOLD SEAL - Release Tool Nut (in side pocket)	5-8 lb. ft. (7-11 Nm)
Carriage Bolt Nuts (for clamps)	20-30 lb. ft. (27-40 Nm)

DOUBLE DIAPHRAGM SPRING BRAKE

COMBINATION SPRING BRAKE INSTALLATION INSTRUCTIONS (Cont'd)

ATTACH CLEVIS AND AIR LINES

1. Thread jam nut back onto the push rod a sufficient length to allow assembly of the clevis.
2. Thread clevis onto the push rod. Clevis from removed unit may be reused provided clevis pin hole is not worn. Adjust clevis to the same "K" dimension as measured from the removed unit (Figure 13, Page 39).
3. Hold clevis to prevent it from turning and tighten jam nut against clevis to torque specifications. (See Table 4, Page 41 for Installation Torque Values). The clevis must be adjusted so that it has full thread engagement on the push rod (from flush to 3/16" (4.8 mm) protrusion). (Figure 14, Page 39).
4. Connect the service and emergency air line to the proper air ports. Torque to specifications listed in Table 4, Page 43.
5. Connect clevis to the brake adjuster using clevis and cotter pins, and uncage the spring brake. Refer to uncaging procedures: Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

IMPORTANT: If push rod is not long enough to reach brake adjuster mounting hole, DO NOT physically pull push rod out to reach mounting hole.

6. Adjust the brake adjuster to the listed setup stroke (See Table 5, Page 43). (Figure 22)

FIG 19

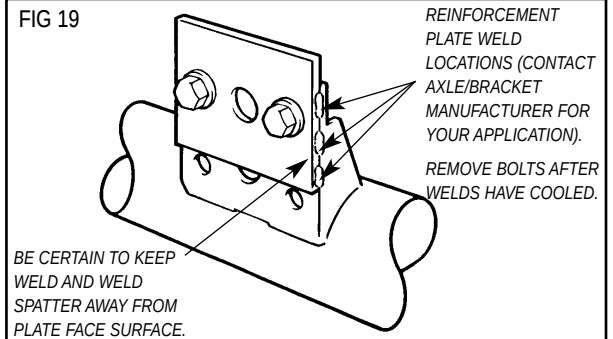


FIG 20

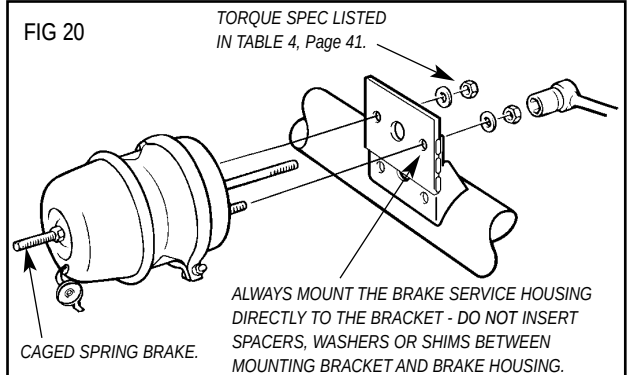


FIG 21

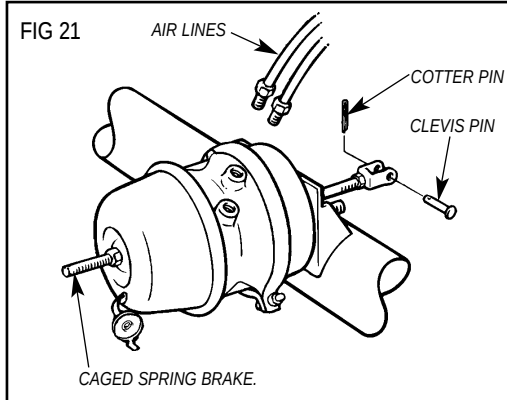


FIG 22

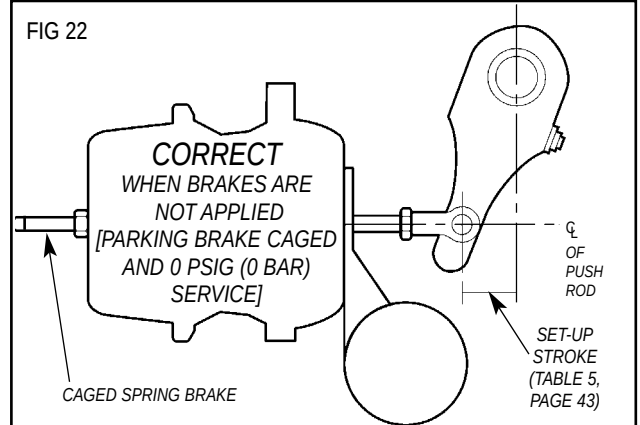
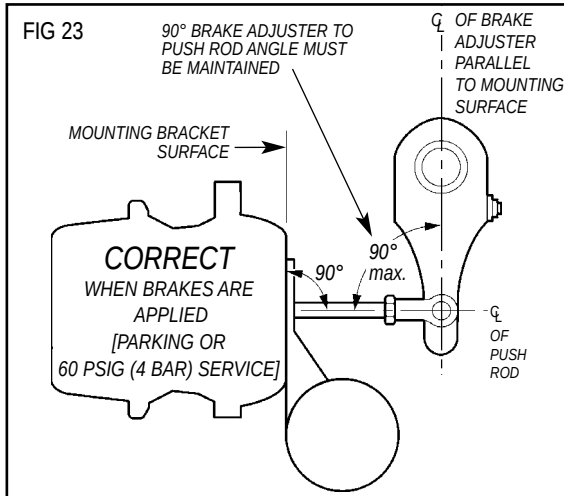


FIG 23



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DOUBLE DIAPHRAGM SPRING BRAKE

COMBINATION SPRING BRAKE INSTALLATION INSTRUCTIONS (Cont'd)

VERIFY PROPER INSTALLATION

1. With the brake applied, the following conditions must occur: a.) push rod 90° to the centerline of brake adjuster; b.) push rod 90° to the mounting face of the spring brake. (Figure 23, Page 42).

Table 5
Stroke Values

Service Side Size / Type	Available Stroke inch mm	Recommended Stroke Range		Set-up Stroke Applied Brake * **	
		Minimum inch mm	Maximum inch mm	inch	mm
9	1.75 44	Should be as short a stroke as possible without brake dragging.	1.38 35	1.00	25
12	1.75 44		1.38 35	1.00	25
16	2.25 57		1.75 44	1.38	35
16	2.50 64		2.00 51	1.50	38
20	2.25 57		1.75 44	1.38	35
20	2.50 64		2.00 51	1.50	38
20	3.00 76		2.50 64	1.75	44
24	2.25 57		1.75 44	1.38	35
24	2.50 64		2.00 51	1.50	38
24	3.00 76		2.50 64	1.75	44
30	2.50 64		2.00 51	1.50	38
30	3.00 76		2.50 64	1.75	44
36	3.00 76		2.25 57	1.75	44

* Stroke length measured by applying parking brake or 60 PSIG (4 Bar) service brake application

** Typical setup stroke values

NOTICE: For special applications consult vehicle, brake or brake adjuster manufacturers.

IMPORTANT: Incorrect push rod brake adjuster setup will result in improper brake operation.

2. If the setup results in the condition depicted in Figure 24 or Figure 25, the spring brake is misaligned and must be corrected by one or more of the following:

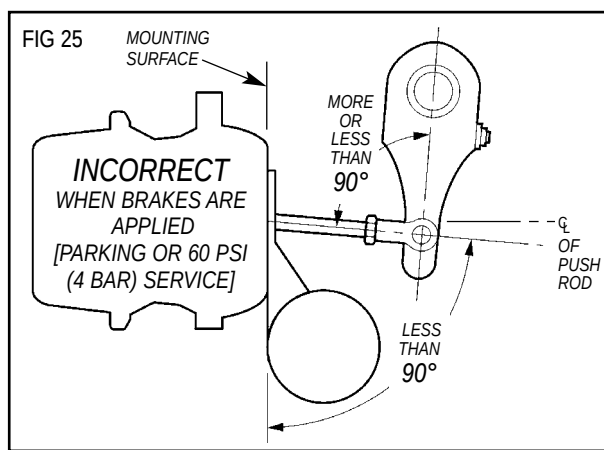
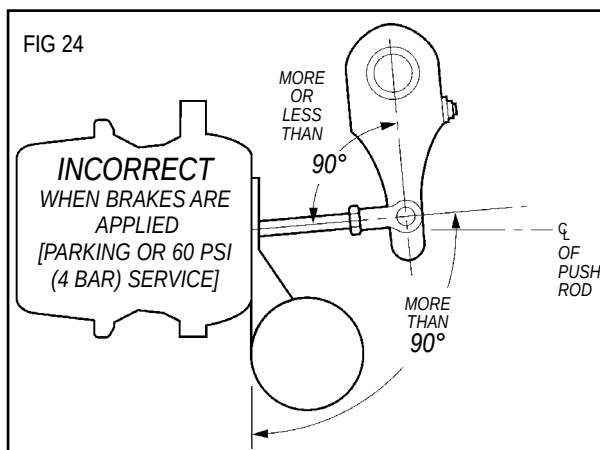
Figure 24 a.) shorten push rod, b.) align spring brake on mounting bracket, c.) mount clevis in proper brake adjuster hole.

Figure 25 a.) lengthen push rod, b.) align spring brake on mounting bracket, c.) mount clevis in proper brake adjuster hole.

If misalignment cannot be corrected, consult with foundation brake manufacturer for verification of correct mounting bracket position.

3. Once the spring brake and push rod are set properly (Figure 23, Page 42), release the brakes and follow vehicle manufacturer's instructions for brake adjustment.

IMPORTANT: After installation, check for proper parking spring operation, service brake operation and brake adjustment.



DOUBLE DIAPHRAGM SPRING BRAKE

PIGGYBACK INSTALLATION INSTRUCTIONS

TO REMOVE PIGGYBACK FROM SERVICE HOUSING

1. Refer to mechanical release instructions: Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

⚠ WARNING: Failure to comply with all instructions for mechanical release may result in the forceful release of the spring which COULD CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

2. If vehicle air pressure was used to aid in the caging process, exhaust the air pressure.
3. To prevent sudden release of service housing assembly and to facilitate rotation of air ports or mounting studs, the service push rod should be prevented from retracting by clamping the service push rod in place with vise grip pliers as shown (Figure 28a/b).
4. Disconnect the airlines from the air ports on the adapter.
5. Remove service clamp assembly (Figure 28a/b).

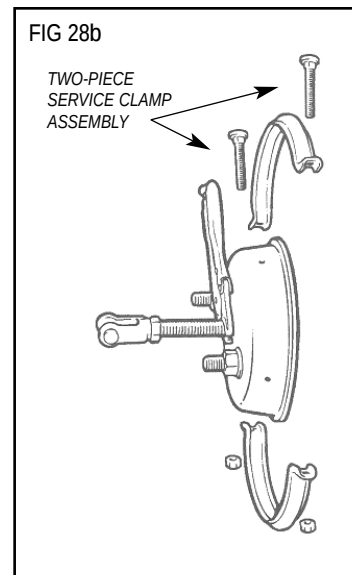
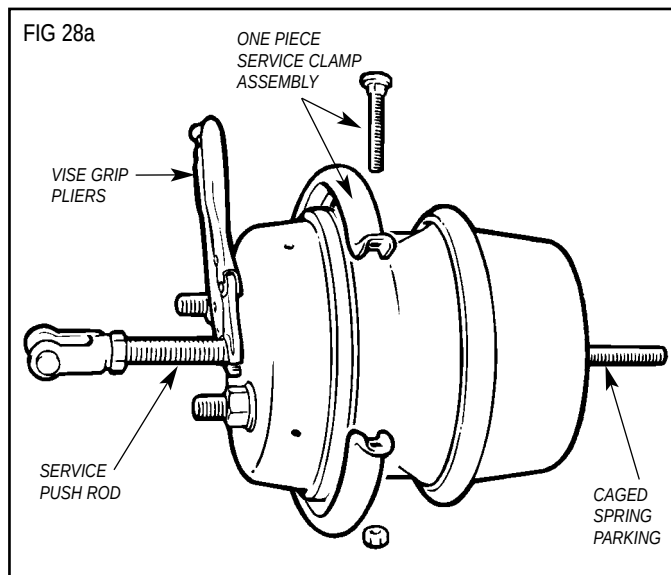
IMPORTANT: DO NOT bend the clamp assembly when removing.

TO INSTALL PIGGYBACK ON SERVICE HOUSING

1. If piggyback is not caged, follow steps on Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

⚠ WARNING: Failure to comply with all instructions for mechanical release may result in the forceful release of the spring which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

2. Before installing piggyback on existing non-pressure housing, inspect the clamp assembly, the service return spring, the service push rod and non-pressure housing. If any structural damage is noted, replace with new parts.
3. Wipe the surface of the service push rod clean of any oil, grease or dirt. Check to see that the bottom most vent holes in the housing are not plugged.



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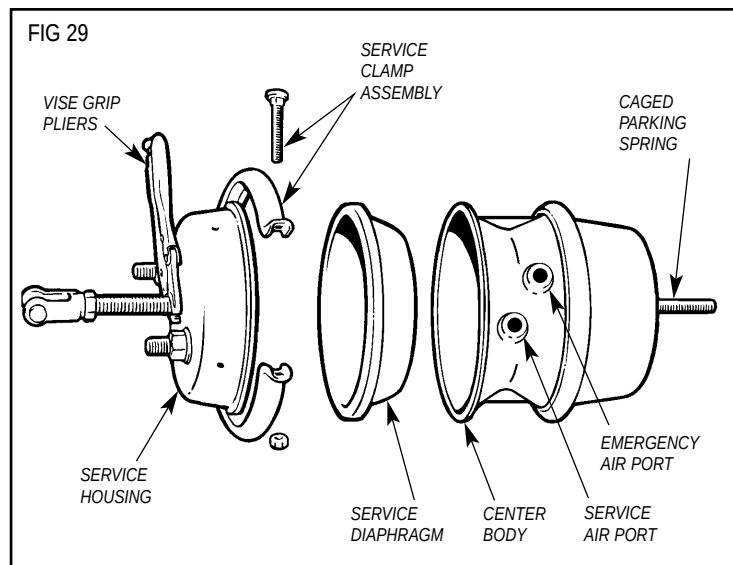
DOUBLE DIAPHRAGM SPRING BRAKE

PIGGYBACK INSTALLATION INSTRUCTIONS (Cont'd)

IMPORTANT: It is recommended that a new service brake diaphragm be used when installing a new piggyback. DO NOT use a piloted diaphragm on the service side (a piloted "protrusion" diaphragm is designed to be used in the emergency spring chamber only). Use of a piloted diaphragm results in a reduction of stroke length.

4. Place the new service diaphragm in adapter (as shown) and center the housing over the diaphragm and adapter lip (Figure 29).
5. Ensure that diaphragm is properly seated between the adapter and housing lip and that the air ports are in the desired positions. When reinstalling the one-piece service clamp assembly (Figure 28a), torque the carriage nut to specifications listed in Table 4, Page 41. When reinstalling the two-piece service clamp assembly (Figure 28b), tighten each nut equally, alternating every other turn. Torque each carriage nut to specifications listed in Table 4, Page 41. DO NOT strike clamp or unit with a hammer.
6. Check carriage bolts and clamp assembly for proper seating around the adapter and housing lip, and remove vise grip pliers previously clamped around the service push rod to prevent it from retracting.
7. Reconnect the air lines to the air ports on the adapter, making sure to connect the proper lines to the service and emergency ports (Figure 29). Torque to specifications listed in Table 4, Page 41.
8. Apply a maximum of 120 PSIG (8 BAR) air to the service port and check diaphragm seal for leakage by applying a water and soap solution to the service clamp area. (No leakage allowed).
9. Uncage parking spring. Refer to uncaging instructions: Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

IMPORTANT: After reassembly, check for proper emergency and service brake operation. For brake adjustment, follow vehicle manufacturer's instructions.



DOUBLE DIAPHRAGM SPRING BRAKE

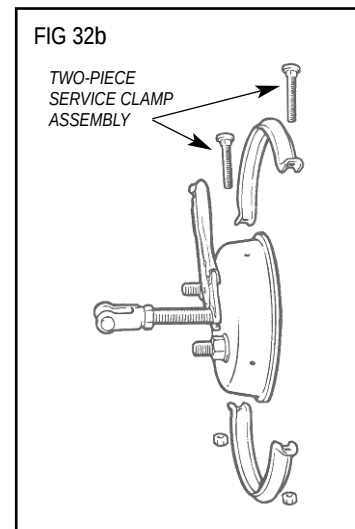
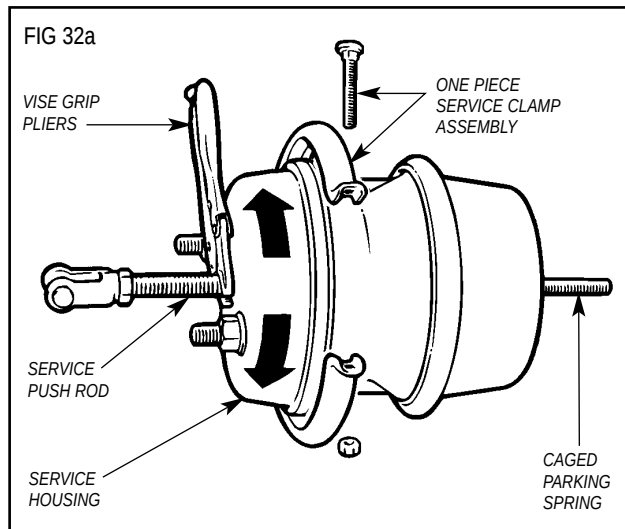
ROTATING MOUNTING BOLTS, CLAMPS AND/OR AIR INLET PORTS

TO ROTATE SERVICE HOUSING MOUNTING STUDS

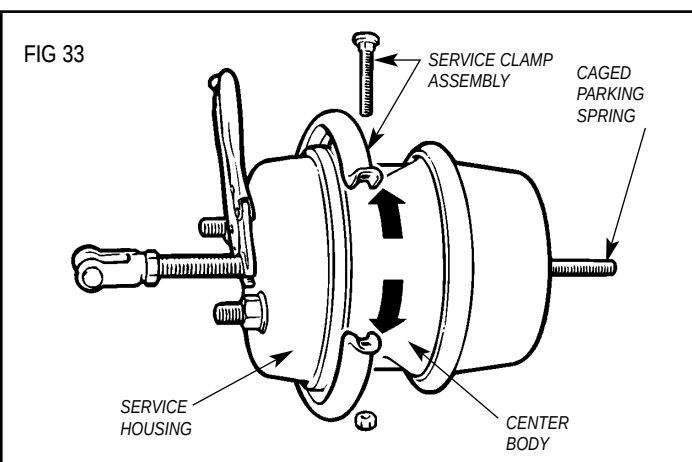
1. For Mechanical Release of Spring Brake see Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

⚠ DANGER: Failure to comply with all instructions for mechanical release may result in the forceful release of the spring which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

2. If vehicle air pressure was used to aid in the caging process, exhaust the air pressure.
3. To prevent sudden release of service housing assembly and to facilitate rotation of air ports or mounting studs, the service push rod should be prevented from retracting by clamping the service push rod in place with vise grip pliers as shown (Figure 32a/b).
4. Remove service clamp/carriage bolt and rotate service housing (Figure 32a/b) or center body (Figure 33) to desired position.
5. Ensure that diaphragm is properly seated between the center body and housing lip and that the air ports are in the desired positions. When reinstalling the one-piece service clamp assembly (Figure 32a), torque the carriage nut to specifications listed in Table 4, Page 41. When reinstalling the two-piece service clamp assembly (Figure 32b), tighten each nut equally, alternating every other turn. Torque each carriage nut to specifications listed in Table 4, Page 41. DO NOT strike clamp or unit with a hammer.
6. Check carriage bolts and clamp assembly for proper seating around the center body and housing lip, and remove vise grip pliers previously clamped around the service push rod to prevent it from retracting.
7. Apply a maximum of 120 PSIG (8 BAR) air pressure to the service port and check seal for leakage by applying a water and soap solution to the service clamp area (No leakage is allowed).
8. Uncage parking spring. Refer to uncaging instructions: Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.



⚠ WARNING: After reassembly, check for proper emergency and service brake operation. For brake adjustment, follow vehicle manufacturer's instructions.



DOUBLE DIAPHRAGM SPRING BRAKE

SERVICE DIAPHRAGM REPLACEMENT

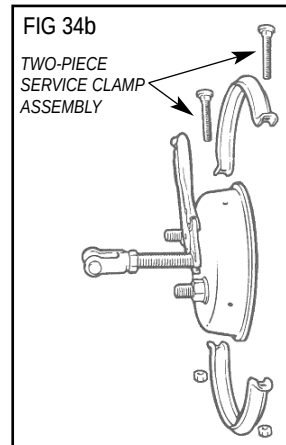
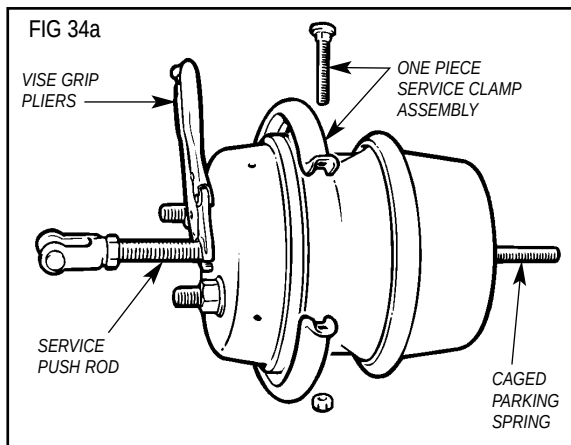
1. For Mechanical Release of Spring Brake see Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.

⚠ DANGER: Failure to comply with all instructions for mechanical release may result in the forceful release of the spring which could CAUSE DEATH, SEVERE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

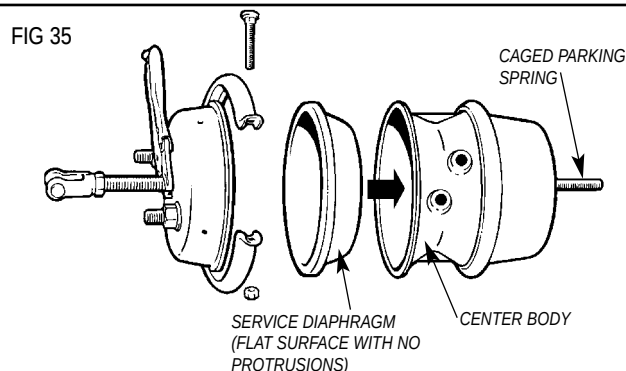
2. If vehicle air pressure was used to aid in the caging process, exhaust the air pressure.
3. To prevent sudden release of the piggyback or service push rod assembly and to facilitate the installation of the new diaphragm, the service push rod should be prevented from retracting by clamping the service push rod in place with vise grip pliers as shown (Figure 34a/b).
4. Remove service clamp assembly and discard old diaphragm.
5. Inspect the service clamp assembly, the center body wall and lip, the housing, the service return spring and service push rod. If any structural damage is noted, replace with new part.
6. Wipe the surface push rod plate clean of any oil, grease or dirt.
7. Place the new service diaphragm in center body and center the housing over the diaphragm and center body (Figure 35).

IMPORTANT: It is recommended that a new service brake diaphragm be used when installing a new piggyback. DO NOT use a piloted diaphragm on the service side (a piloted "protrusion" diaphragm is designed to be used in the emergency spring chamber only). Use of a piloted diaphragm results in a reduction of stroke length.

8. Ensure that diaphragm is properly seated between the center body and housing lip and that the air ports are in the desired positions. When reinstalling the one-piece service clamp assembly (Figure 34a), torque the carriage nut to specifications listed in Table 4, Page 41. When reinstalling the two-piece service clamp assembly (Figure 34b), tighten each nut equally, alternating every other turn. Torque each carriage nut to specifications listed in Table 4, Page 41. DO NOT strike clamp or unit with a hammer.
9. Check carriage bolts and clamp assembly for proper seating around the center body and housing lip, and remove vise grip pliers previously clamped around the service push rod to prevent it from retracting.
10. Apply a maximum of 120 PSIG (8 BAR) air pressure to the service port and check diaphragm seal for leakage by applying a water and soap solution to the service clamp area (No leakage is allowed).
11. Uncage parking spring (See instructions on Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.).



IMPORTANT: After reassembly, check for proper emergency and service brake operation. If installed on vehicle, check brake adjustment by following vehicle manufacturer's instructions.



DOUBLE DIAPHRAGM SPRING BRAKE

DISARMING PROCEDURES: PIGGYBACK AND COMBINATION SERVICE/SPRING BRAKES

⚠ DANGER: A Piggyback or Combination Service/Spring Brake must be disarmed before disposal, or forceful release of the compression spring may occur in the future without warning.

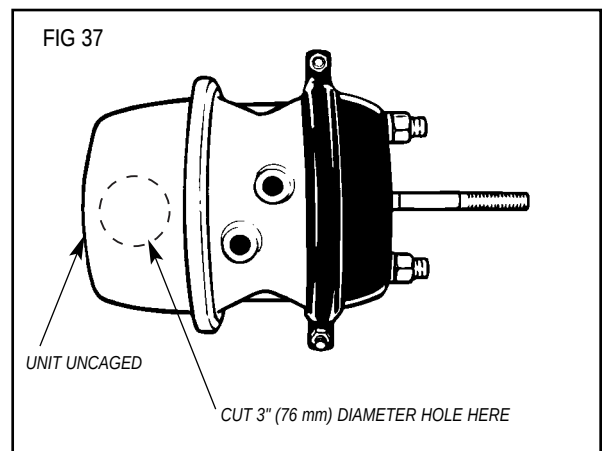
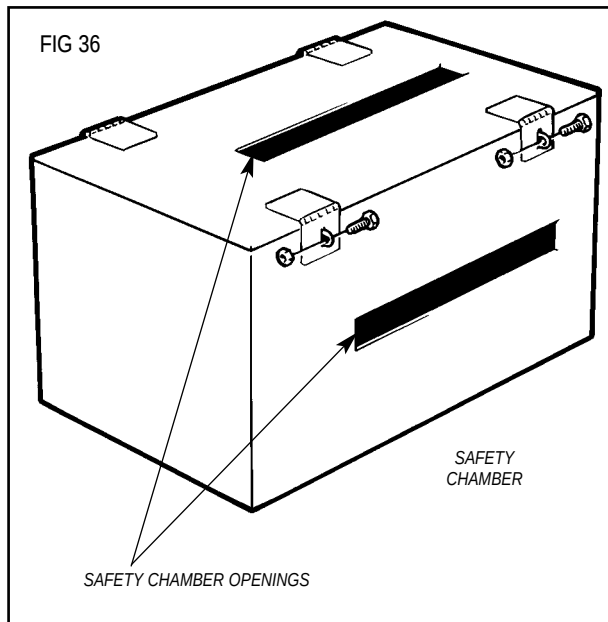
NOTE: A detailed drawing of the Safety Chamber is available free-of-charge upon request. Contact Haldex Anchorlok Engineering Department at 800-643-2374. (Drawing #110372)

1. Remove the caged Piggyback or Combination Service/Spring Brake from vehicle, after removal uncage the parking spring.
2. Open the lid of the Safety Chamber and place the uncaged Piggyback or Combination Service/Spring Brake inside the chamber, close lid and lock hinges in place with bolts as shown (Figure 36).

NOTE: Service push rod may need to be cut in order to fit a Combination Service/Spring Brake into the Safety Chamber (Figure 36).

3. While wearing safety glasses, use an acetylene cutting torch and cut a 3" (76 mm) diameter hole (Figure 37) out of the Spring Brake chamber wall through one of the openings in the Safety Chamber (Figure 36).
4. Once the compression spring is exposed, use the acetylene cutting torch to cut the exposed spring in one or more places until the compression spring pieces can be moved around inside the Spring Brake chamber with a long screwdriver or similar tool through the disarming chamber openings.
5. Once the compression spring pieces can be moved around inside the Spring Brake, the disarming process is complete and the piggyback can be removed from the Safety Chamber after it has cooled down. The unit can be submersed in water to cool it quickly.

⚠ WARNING: Cutting of the Spring Brake Chamber with an acetylene torch can result in harmful fumes. Do not breathe these fumes. All cutting should be done outside or in a well ventilated area. After cutting the chamber, submerge it in water to cool. If the disarmed unit is not cooled, it will emit additional fumes and it could start a fire if stored near combustible material.



DOUBLE DIAPHRAGM SPRING BRAKE

ORANGE ALERT STROKE INDICATOR OPERATION

IMPORTANT: All Haldex brake chambers are equipped with a stroke indicator which meets October 1994 FMVSS-121 requirements. Please read the following information carefully and familiarize yourself with the operation of this feature.

WHAT IS A STROKE INDICATOR?

An Haldex Orange Alert stroke indicator is an orange knurled band located on the service push rod. This band is permanently embossed on the push rod and painted (Figure 38).

The orange band (stroke indicator) is normally inside the brake chamber (Figure 38) and will only start to protrude outside of the mounting face of the service housing when the spring brake or service chamber has only 20% of stroke remaining (Figure 39).

HOW TO USE A STROKE INDICATOR

IMPORTANT: A stroke indicator is not intended to be used as the only indicator of when to adjust the brakes on a vehicle. For brake adjustment, follow vehicle manufacturer's instructions.

At the point where the leading edge of the stroke indicator is level with the mounting face of the service housing, as shown (Figure 39), the combination spring brake or service chamber has only 20% of available stroke remaining. (See Table 6 below).

When the stroke indicator becomes visible, maintenance is required. The brake may need adjustment, or it may require component replacement.

IMPORTANT: Depending on the location and type of mounting bracket used, it may be difficult to observe the stroke indicator's protrusion once the spring brake or service chamber has been mounted to the vehicle.

IMPORTANT: When disassembly of the Haldex Spring Brake is required, consult the Haldex Anchorlok "Instructions for Mechanical Release and Diaphragm Replacement." (See Pages 35-37 for Gold Seal brakes. Page 38 for Life Seal brakes.)

FIG 38

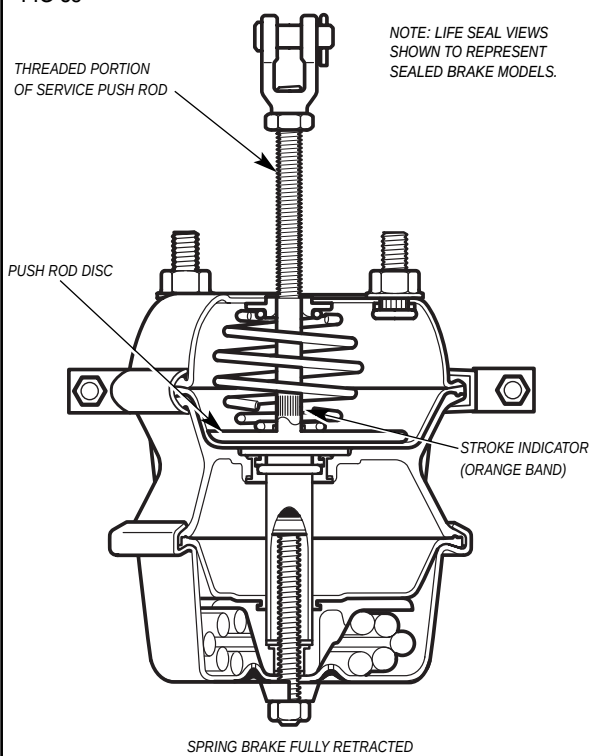


FIG 39

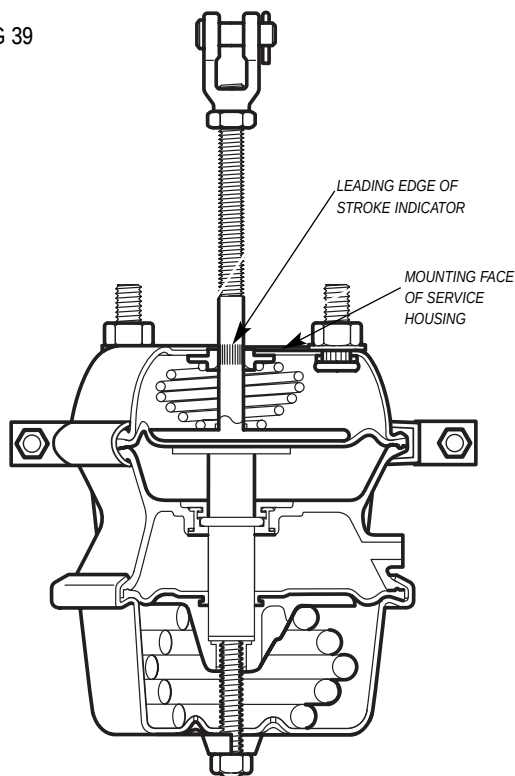


Table 6

Recommended Brake Re-Adjustment Stroke

Service Side	Available Stroke		Re-Adjust Stroke	
Size / Type	inch	mm	inch	mm
9	1.75	44	1.38	35
12	1.75	44	1.38	35
16	2.25	57	1.75	44
16	2.50	64	2.00	51
20	2.25	57	1.75	44
20	2.50	64	2.00	51
20	3.00	76	2.50	64
24	2.25	57	1.75	44
24	2.50	64	2.00	51
24	3.00	76	2.50	64
30	2.50	64	2.00	51
30	3.00	76	2.50	64
36	3.00	76	2.25	57

DOUBLE DIAPHRAGM SPRING BRAKE

DETERMINING WARRANTY STATUS

Actuator Date Code Change

For standardization and consistency, Haldex is modifying the date code format on all brake actuators produced after November 1, 2004. The date code will remain in the same location on all actuators.

The new date codes can be interpreted using the following information:

Day of Year	Shift	Year	Location
DDD Days running of the year	S A = First Shift B = Second Shift C = Third Shift	YY Two Digit Year	L A = Apodaca (Monterrey), Mexico K = Iola, Kansas

For example, a date code of 307A04A would translate to Tuesday, November 2, 2004, First Shift, Apodaca (Monterrey), Mexico.

Date codes on actuators built in Apodaca (Monterrey), Mexico (formerly Anchorlok) between June 1, 1990 and October 31, 2004, can be interpreted using the following information.

Market	Day of Year	Year	Run No.
O O = OEM D = Distributor	DDD Days running of the year	YY Two Digit Year	XX Production run

Date codes on actuators built in Iola, Kansas (formerly Midland) prior to November 1, 2004 can be interpreted using the following information.

Day of Year	Shift	Year	Location
DDD Days running of the year	S A = First Shift B = Second Shift C = Third Shift	Y Single Digit Year	L K = Iola, Kansas

If you have questions about this date code change or other Haldex Actuator technical issues, please contact your local Haldex Sales Professional.

CORRECTIVE ACTION FORM

Haldex tries to make certain the information published in our catalogs is as accurate as possible. We will appreciate any comments and/or help in identifying any errors that you may find. Please indicate your comments below and forward to the Marketing Department, via fax or mail as indicated.

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