

HB-55626

Revision: C

CARDWELL WESTINGHOUSE & UNIVERSAL HAND BRAKE PARTS MANUAL

ECRN	HB200731A	DWG: MFM	CHK: MAK	APR: PPG
Description:	S-7012 WAS S-7022, Updated part numbers and descriptions. Added Appendix A. Updated formatting. Added HB-55624 and plated parts.			

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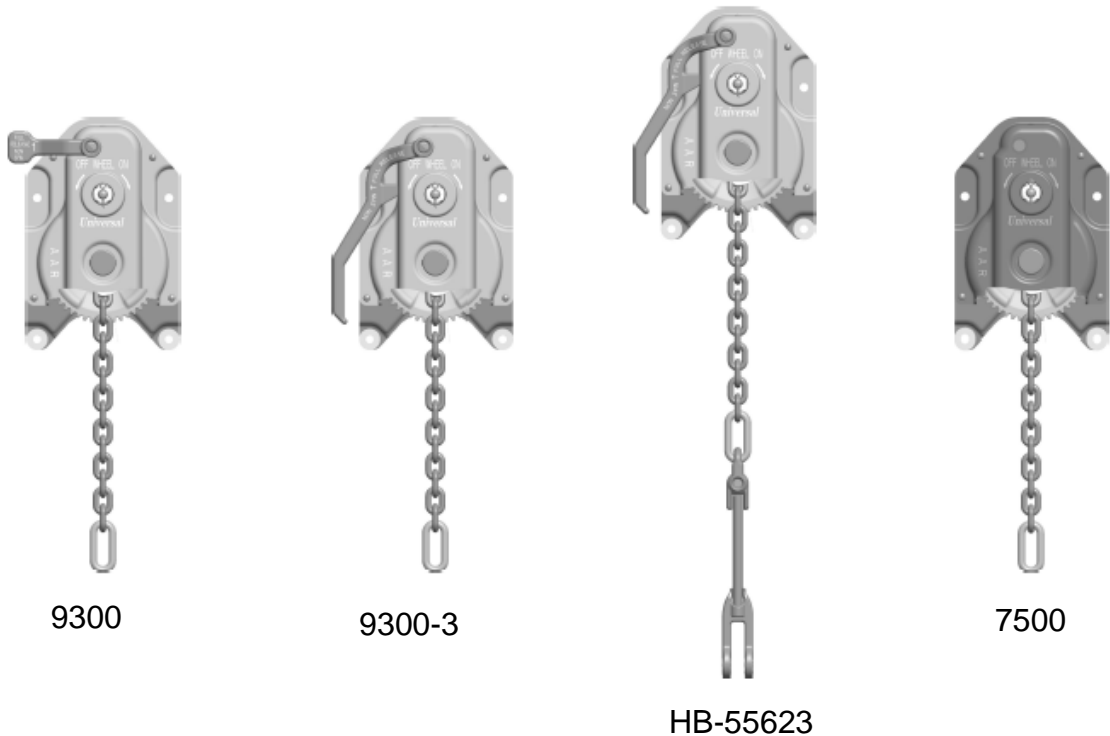
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1 Operating and Maintenance Manuals

- 1.1 For operating and maintenance information of Cardwell Westinghouse AAR Group N and Group O Handbrakes, please reference document HB-55566.
- 1.2 For Model Number explanation, reference Appendix A of this document.

2 Universal Vertical Wheel, AAR Approved Interchange Rule 13, Group N

Universal Model Number	Drawing	Application Drawing	Comments
9300	HB-55647	U-2562	Standard Chain
9300-3		U-2563	
9300-3-S			Custom Chain
9300-3G-S			
9300-H			
9300-3H			
HB-55623-1	HB-55623		Standard 9300-3 + Rod Assembly
7500	U-7500	U-2735	Standard Chain
7500-NW	U-7500-NW		

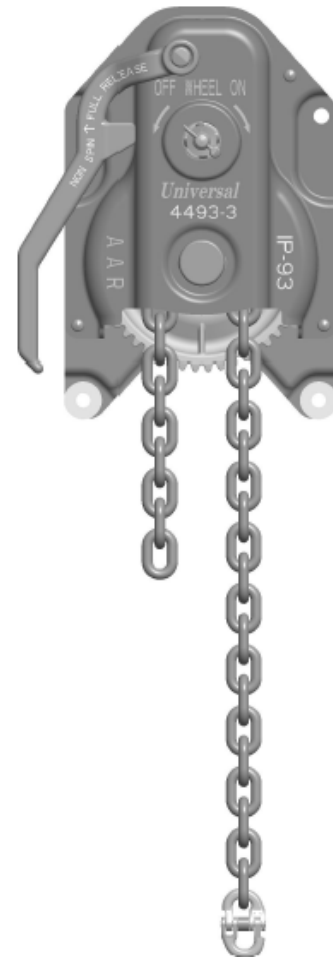


3 Universal Vertical Wheel, AAR Approved Interchange Rule 13, Group O

Universal Model Number	Drawing Number	Application Drawing
4493	U-4493-CRD	U-2486
4493-3	U-4493-3-CRD	U-2487
4493-3A		
4493-3B		
4493-3C		
4493-3D		
4493-3E		
4493-3F		
4493-3G		
4493-3H		
4493-3J		
4493-3L		



4493



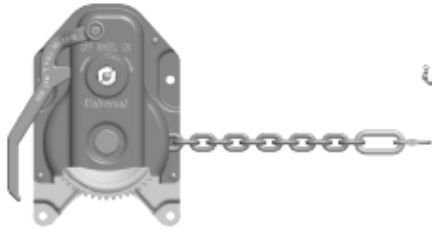
4493-3

4 Universal Vertical Wheel, Non-AAR Interchange, Group N & O, Double Sided

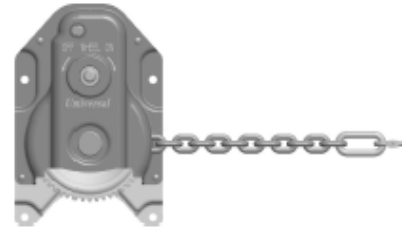
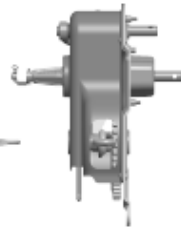
Universal Model Number	Drawing Number	AAR Group	Description
9300B-II	HB-55538	N	Double Sided, Short Handle, Side Mount, Horizontal
9300C-II	HB-55439		Double Sided, No Handle, Center Mount
9300E-II	HB-55682-CRD		Double Sided, Long Handle Vertical, Side Exit
9300F-II	HB-55697-CRD		Double Sided, No Handle Vertical, Side Exit
4493A-II	HB-55388		Double Sided, No Handle, Side Mount
4493B-II	HB-55639-CRD	O	Double Sided, Short Handle, Side Mount, Horizontal
4493B-IIA			
4493B-IIIF			
4493B-IIR			
4493B-IIU			
4493C-II	HB-55638-CRD		Double Sided, No Handle, Center Mount
4493C-IIF			
4493C-IIL			
4493C-IIM			
4493C-IIN			
4493C-IIQ	HB-55640-CRD	Double Sided, No Handle, Center Mount, Horizontal	
4493D-II			



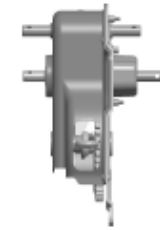
9300B-II



9300E-II



9300F-II



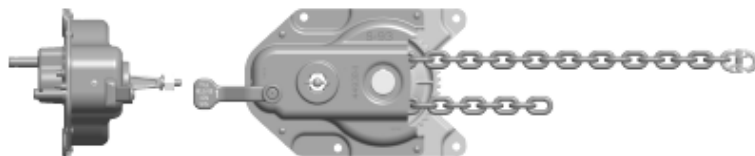
4493A-II



9300C-II



4493C-II



4493B-II

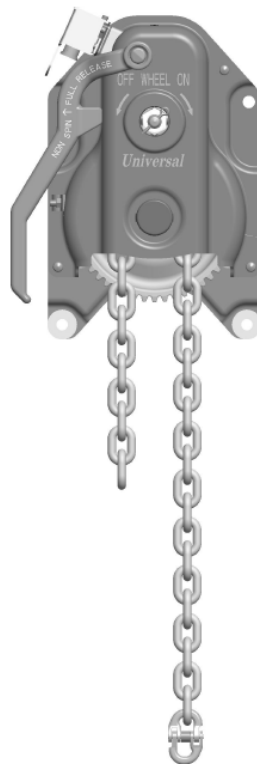


4493D-II

5 Universal Vertical Wheel, Non-AAR Interchange, Group N & O, ECP Equipped

5.1 ECP compatible sensor indicates if brake is released.

Universal Model Number	Drawing Number	AAR Group	Description
9300-3ECP	HB-55645	N	Standard ECP
9300-3ECPA			Sealed ECP
9300-3EECPA			
9300-3FECPA			
4493-3ECP	HB-55513	O	Standard ECP
4493B-IIIECP	HB-55641-CRD		Double Sided, Short Handle, Side Mount, Horizontal, ECP
4493B-IIIECPA			Double Sided, Short Handle, Side Mount, Horizontal, Sealed ECP
4493B-IIUECP	HB-55642-CRD		Double Sided, Short Handle, Side Mount, Horizontal, ECP
4493C-IIIECP			Double Sided, No Handle, Center Mount, ECP
4493C-IISECP	HB-55643-CRD		
4493D-IIIECP			
4493D-IIQECP			Double Sided, No Handle, Center Mount, Horizontal, ECP
4493D-IIIECP			

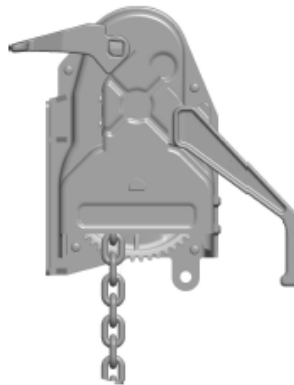


4493-3ECP

6 Universal Thin Line, Lever Type, AAR Interchange Rule 13, Group T

6.1 Above deck mounting on TOFC/COFC Cars

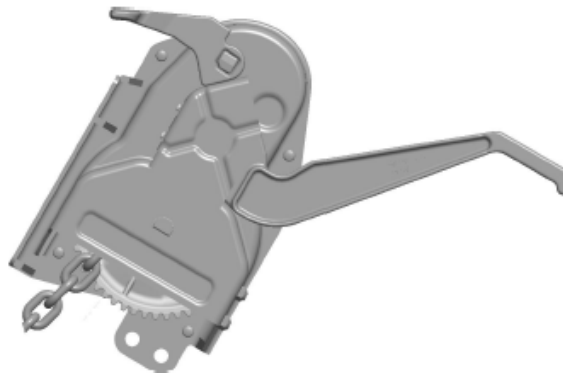
Universal Model Number	Drawing Number	Application Drawing
9017	U-9017	HB-55567
9017A	U-2760	
9017B(2417B)	HB-55279	
9017C	HB-55565	



7 Universal Thin Line, Lever Type, AAR Interchange Rule 13, Group U

7.1 Below deck mounting on TOFC/COFC Cars

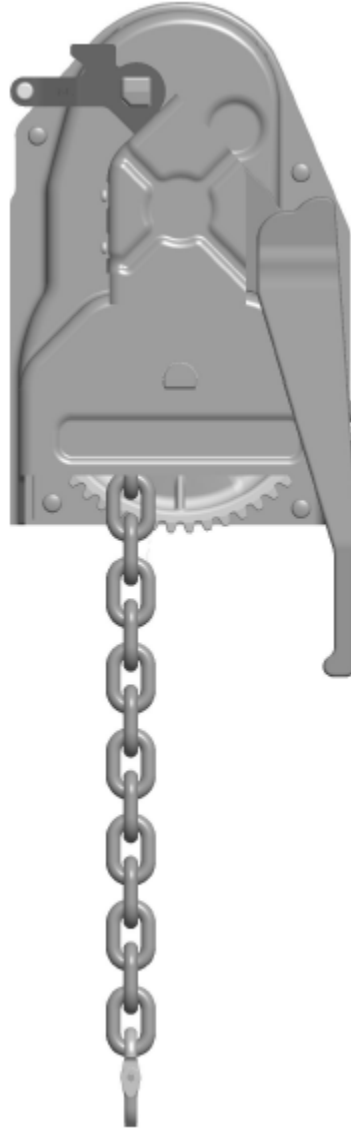
Universal Model Number	Drawing Number
9020	U-9020
9020A	U-2557
9020B	U-2726
9020C	U-2750
9020D	
9020E (2420E)	HB-55277



8 Universal Thin Line, Lever Type, AAR Interchange Rule 13, Group V

8.1 Below deck mounting on TOFC/COFC Cars

Universal Model Number	Drawing	Application Drawing
9033	U-9033	HB-55567

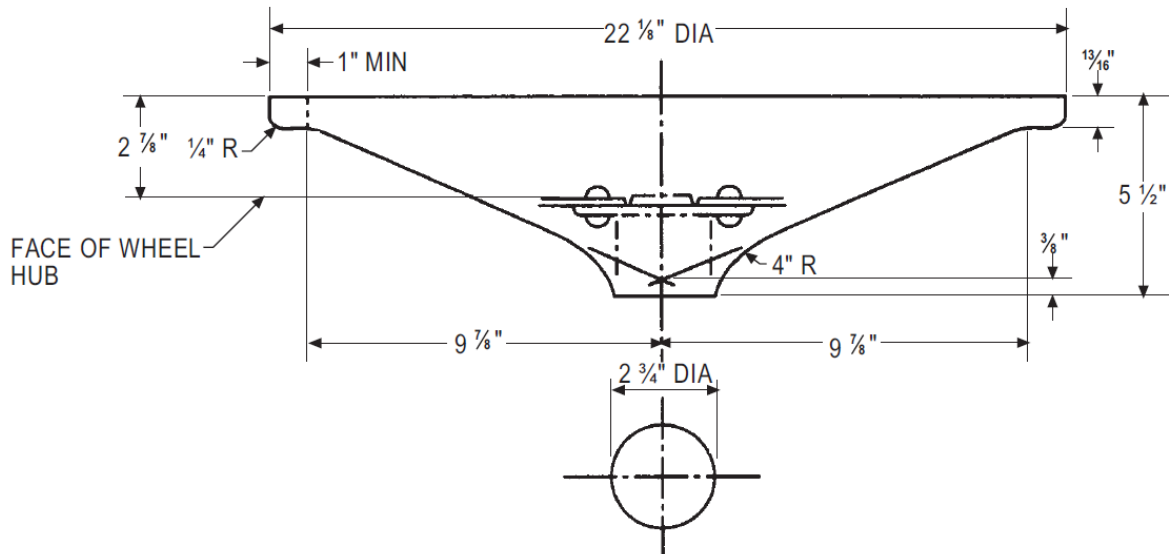


9 Hand Brake Wheels

9.1 Deep Type, AAR Standard No. 1 per AAR S-475

9.1.1 Used on aftermarket replacement of older style out of production hand brakes.

9.1.2 **CARDWELL DOES NOT OFFER THIS STYLE OF WHEEL.**

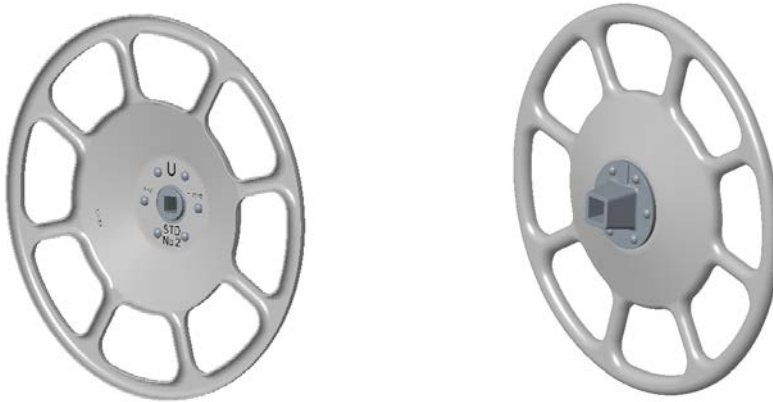


9.2 Shallow Type, AAR Standard No. 2 per AAR S-475.

9.2.1 All Steel construction

9.2.2 Used on all Universal Group N and O hand brakes with a taper shaft per AAR S-475.

Part Number	Drawing Number
T-7777	T-7777-CRD



9.3 Drop Staff 16" Horizontal Wheel

9.3.1 All Steel Construction

9.3.2 Used on all drop staff type hand brakes.

Part Number	Drawing Number
U-2004	U-2004



10 Wheel Mounting Hardware

10.1 Wheel Mounting Hardware

Standard Wheel Mounting Hardware Configuration				
Configuration	Cotter Pin	Nut	Washer	Washer Quantity
Standard Handbrake with Taper Shaft	94977	X-118	X-117	1
Primer/Epoxy Painted Handbrake with Taper Shaft		X-118P	X-117P	1
"-NW" Type Handbrake with Taper Shaft		X-158	X-165	4



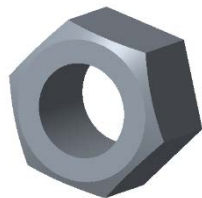
Zinc Plated Cotter Pin
Part Number: 94977
Drawing Number: 94977



Heavy Hex Nut
Part Number: X-118
Drawing Number: X-118



Lock Washer
Part Number: X-117
Drawing Number: X-117



Zinc Plated Heavy Hex Nut
Part Number: X-118P
Drawing Number: X-118



Zinc Plated Lock Washer
Part Number: X-117P
Drawing Number: X-117



Castle Hex Nut
Part Number: X-158
Drawing Number: X-158

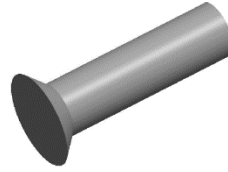


Flat Washer
Part Number: X-165
Drawing Number: X-165

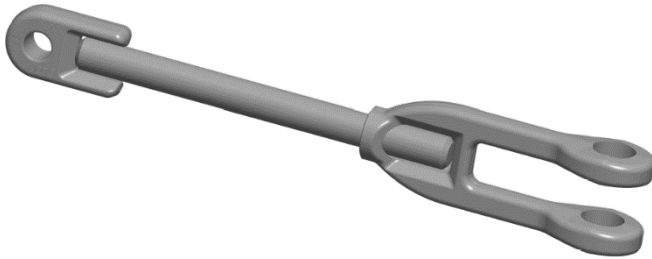
11 Chain Hardware



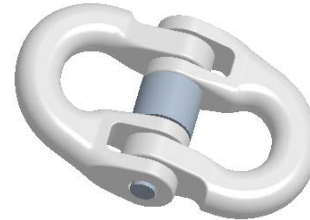
Chain Clevis
Part Number: S-7234
Drawing Number: S-7234



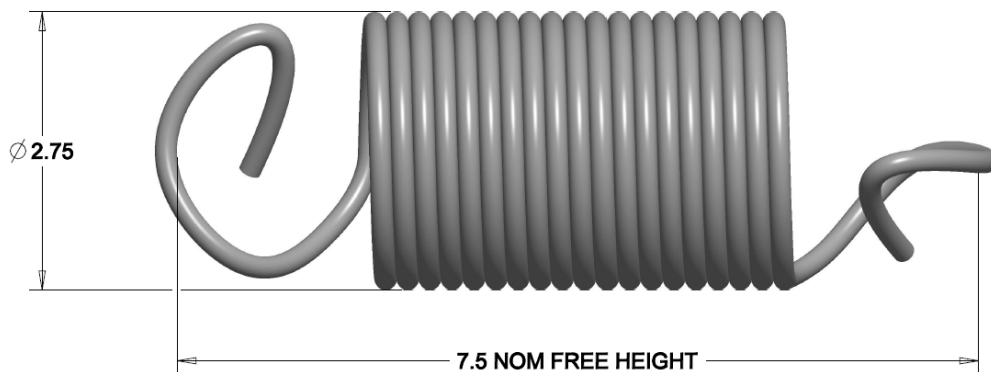
Rivet
Part Number: R-8039
Drawing Number: R-8039



Rod Assembly
Part Number: HB-55624-X
Drawing Number: HB-55624



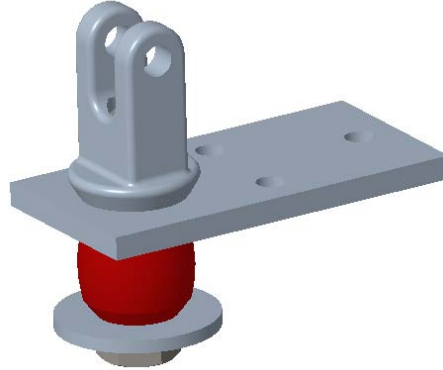
Chain Joiner
Part Number: X-293
Drawing Number: X-293-CRD



Chain Extension Spring
Part Number: HB-55554
Drawing Number: HB-55554

12 Shock Retarder Hardware for AAR S-475 Group O Hand Brakes

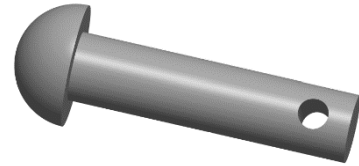
12.1 See Section 13 for shock retarder chain.



Shock Retarder Assembly
Part Number: T-6062
Drawing Number: T-6062-CRD



Shock Retarder Cotter Pin
Part Number: X-220
Drawing Number: X-220



Shock Retarder Pin
Part Number: S-7233-1
Drawing Number: S-7233-1-CRD

13 Brake Rigging Chain

13.1 Overall length is calculated by 'B' = 'A' x 1.46"

13.2 Bulk Chain and Power Unit Replacement Chain

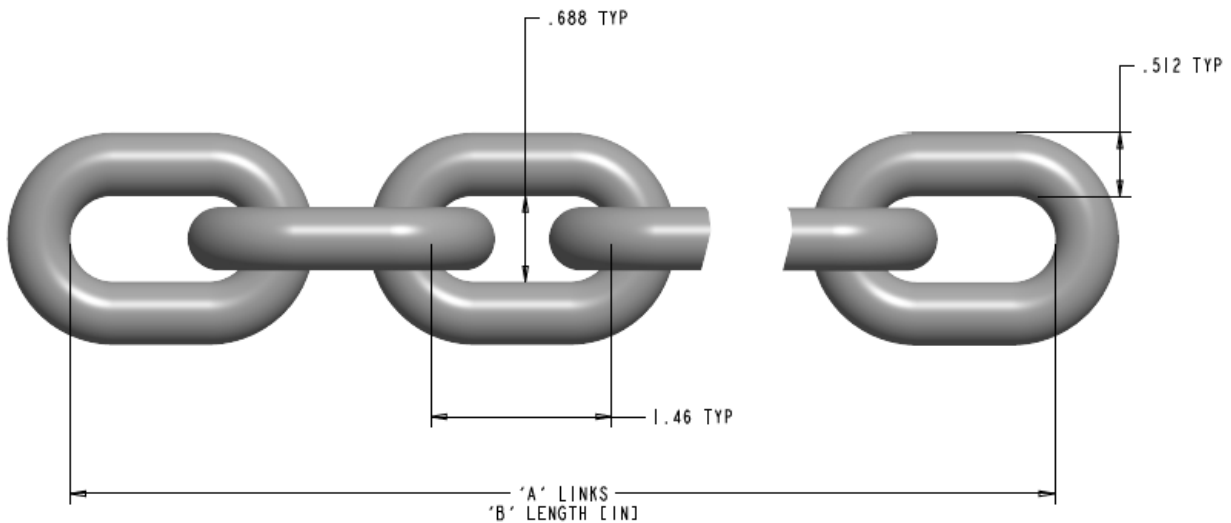
Part Number	Drawing Number	Number of Links
R-8208-'A'	R-8208	'A' ^{1 2}

¹ Minimum 'A' is 20 links.

² Maximum 'A' is 299 links

Shock Retarder Extension Chain

Part Number	Drawing Number	Number of Links	Length [in]
S-7219-2	S-7219	2	2.92
S-7219-3		3	4.38
S-7219-4		4	5.84
S-7219-5		5	7.3
S-7219-6		6	8.76
S-7219-7		7	10.22
S-7219-8		8	11.68
S-7219-9		9	13.14
S-7219-10		10	14.6
S-7219-11		11	16.06
S-7219-12		12	17.52
S-7219-13		13	18.98
S-7219-14		14	20.44



14 Bell Crank and Sheave Wheels

14.1 AAR “66” Bell Cranks increase handbrake output force per R-8142.

14.2 AAR “66” Bell Crank per AAR S-475

14.2.1 Typically 1 per car used with Group N hand brakes

Part Number	Drawing Number
7722	7722-CRD



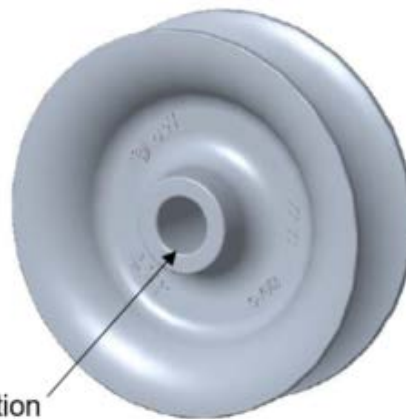
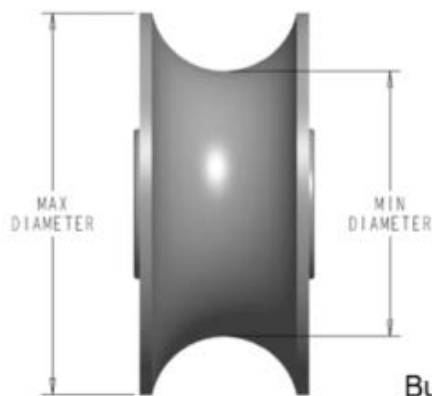
14.3 AAR Sheave Wheels per AAR S-475

14.3.1 Sheave Wheels reduce hand brake force output by 10% per wheel.

14.3.2 Typically 1 per car when used with Group N hand brakes

14.3.3 Typically 1-3 per car when used with Group O, T, & U hand brakes

Cardwell Part Number	Cardwell Drawing Number	Graham White Part Number	Min Diameter [in]	Max Diameter [in]	Bushing
HB-55596	HB-55596-CRD	110-E	3-1/8	4-1/2	No
S-7012	S-7012-CRD	N/A	6	8-1/4	No
HB-55031	HB-55031	N/A	6	8-1/4	Yes

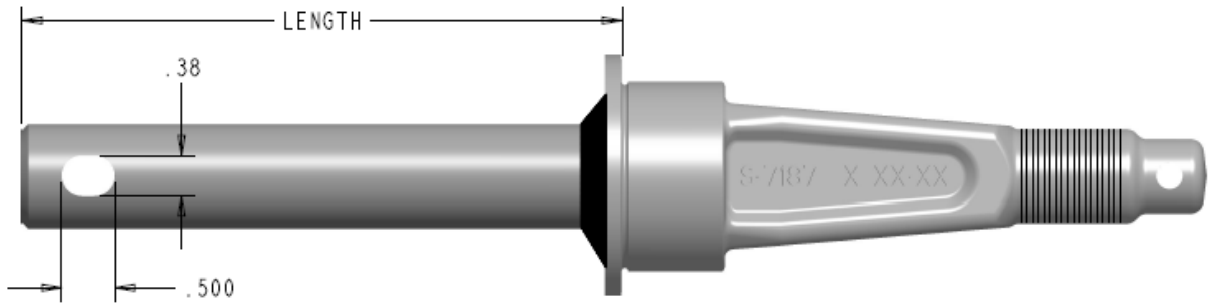


15 Double Sided Hand Brake Car Accessories

15.1 Drive Shaft

15.1.1 Taper per AAR S-475

Part Number	Drawing Number	Length [in]
HB-55045	HB-55045-CRD	5.66
HB-55045-1	HB-55045-1-CRD	3.94



15.2 Short Release Handle

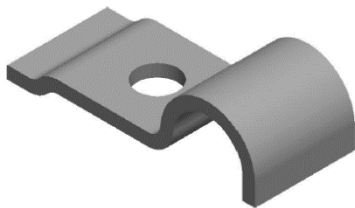
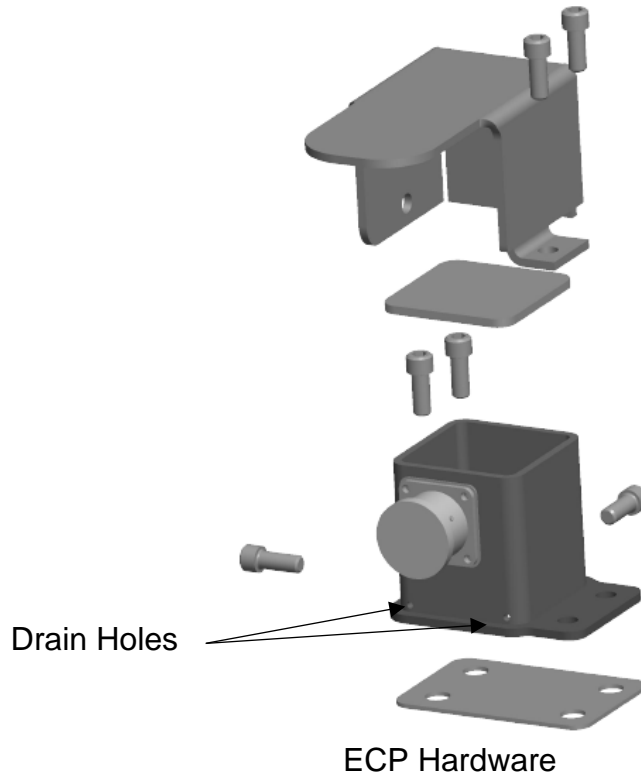
Part Number	Drawing Number
HB-55375	HB-55375-CRD



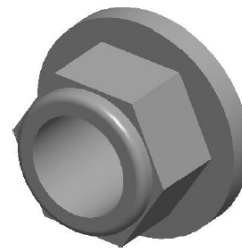
16 ECP Accessories

16.1 Field Replacement Sensor Kit

Part Number	Drawing Number	Drain Holes
HB-55618-1	HB-55618	No
HB-55618-2	HB-55618	Yes



ECP Conduit Clamp
Part Number: HB-55526
Drawing Number: HB-55526



Flange Lock Nut
Part Number: HB-55017
Drawing Number: HB-55017

Appendix A. Hand Brake Naming Conventions

- Hand Brake outline and mounting holes per AAR S-475
- Hand Brake Generic Part Number: RXXXXAAABCCC-D-EE-FF
- Any part number shown without a modifier code below will omit that portion of the part number.

Recondition Code "R"	
Code	Description
	New Part
R	Reconditioned Part

Model Number "XXXX"		
Model Number	AAR Group	Force Range ^{3 4} [lbf]
4493	Group O	4475-8000
7500 ⁵	Group N	3350-6200
9300	Group N	3350-6200
9017	Group T	3350-6200
9020	Group U	4475-8000
9033	Group V	3350-6200

³Each sheave wheel reduces hand brake forces by approximately 10% per wheel.

⁴Each AAR "66" Bell Crank increases hand brake forces per R-8142.

⁵Gradual Release Only

Modifier Code "AAA"	
Code	Description
	Short Handle
-3	Long Handle
A-II	Double Sided, No Handle, Side Mount
B-II	Double Sided, Short Handle, Side Mount, Horizontal Application
C-II	Double Sided, No Handle, Center Mount
D-II	Double Sided, No Handle, Center Mount, Horizontal Application
E-II	Double Sided, Long Handle, Vertical Application, Side Exit
F-II	Double Sided, No Handle, Vertical Application, Side Exit

Modifier Code "B"		
Code ⁶	Group N Links	Group O Links
	Standard	Standard
A		82
B		71
C		90
D		87
E	37	35
F	46	60
G	25	25
H	83	106
I		
J		155
K		
L		58
M		77
N		55
O		
P		24
Q		37
R		48
S		52
T		33
U		41

⁶If no "AAA" modifier code is present, a "-" is placed before the "Z" modifier code.

ECP Code "CCC"	
Code	Description
	No ECP Feature
ECP	Standard ECP Housing
ECPA ⁷	ECP with Sealed Housing and Sealed Bearing

Bearing Modifier Code "D"	
Code	Description
	Standard Bearing
S ⁷	Sealed Bearing

⁷"S" Bearing Modifier is not required for Hand Brakes with "ECPA" ECP Code

Hardware Code "EE"	
Code	Description
NW	Custom Release Shaft Hardware ⁸

⁸See Section 10.1 for details.

Paint Code "FF"	
See CW-00007	