



# TMX<sup>®</sup> & UBX<sup>®</sup> Parts Manual for North America

TM-23031

Revision B

ECRN	TM201005A	DWG: MFM	CHK: MAK	APR: PPG
Description:	Adding associated piston travel values to UBX kits in section 6.			

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**1 TMX Badge Plate**

WABCO TMX<sup>®</sup> BRAKE ASSEMBLY

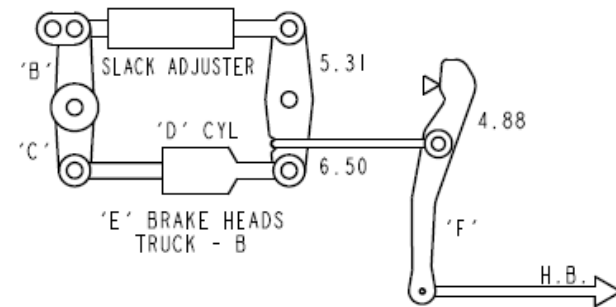
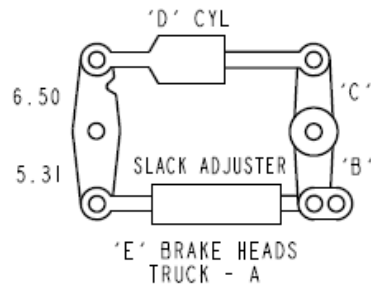


PLATE PC. NO.  
'A'

BADGE PLATE  
PART NUMBER

OPERATING P.T. - 1½" MIN 3" MAX  
ADJUST P.T. - 2" ± ¼" AT 50 PSI IN CYL. OR 20 PSI REDUCTION

® REGISTERED TRADEMARK OF WESTINGHOUSE AIRBRAKE COMPANY

**2 UBX Badge Plate**

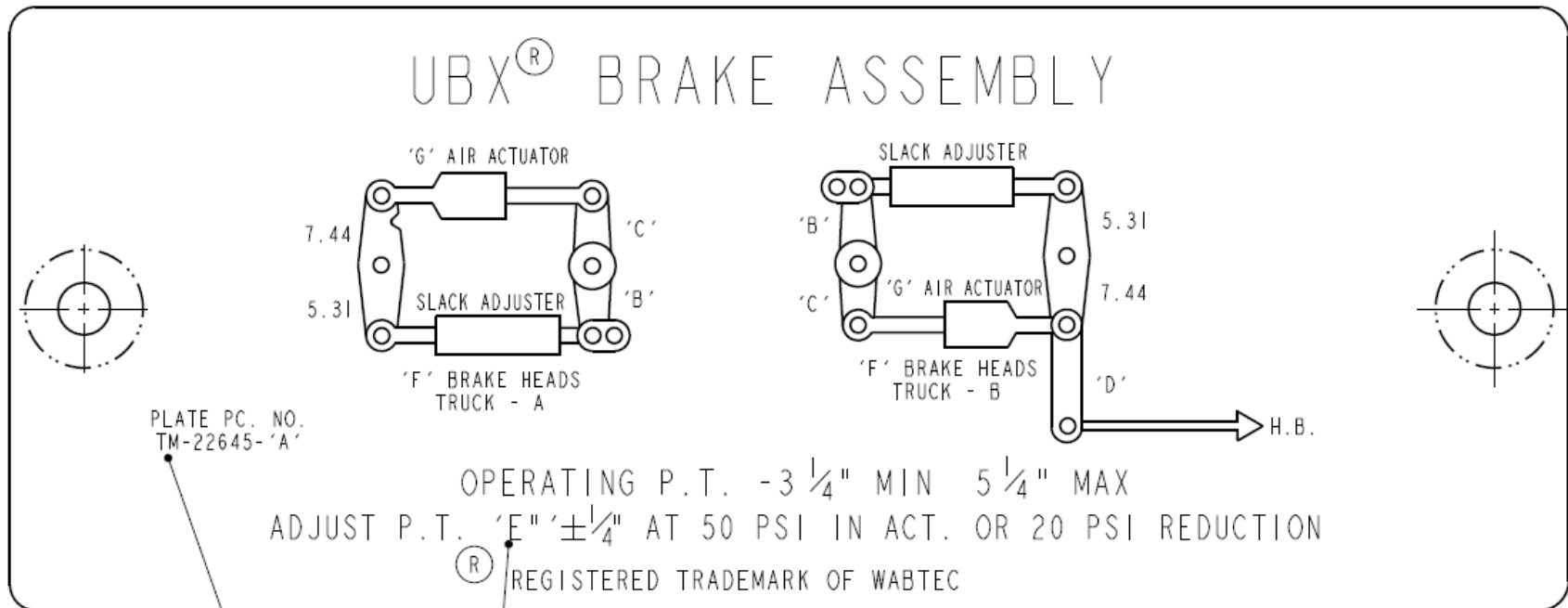


PLATE PC. NO.  
TM-22645-'A'

PISTON TRAVEL

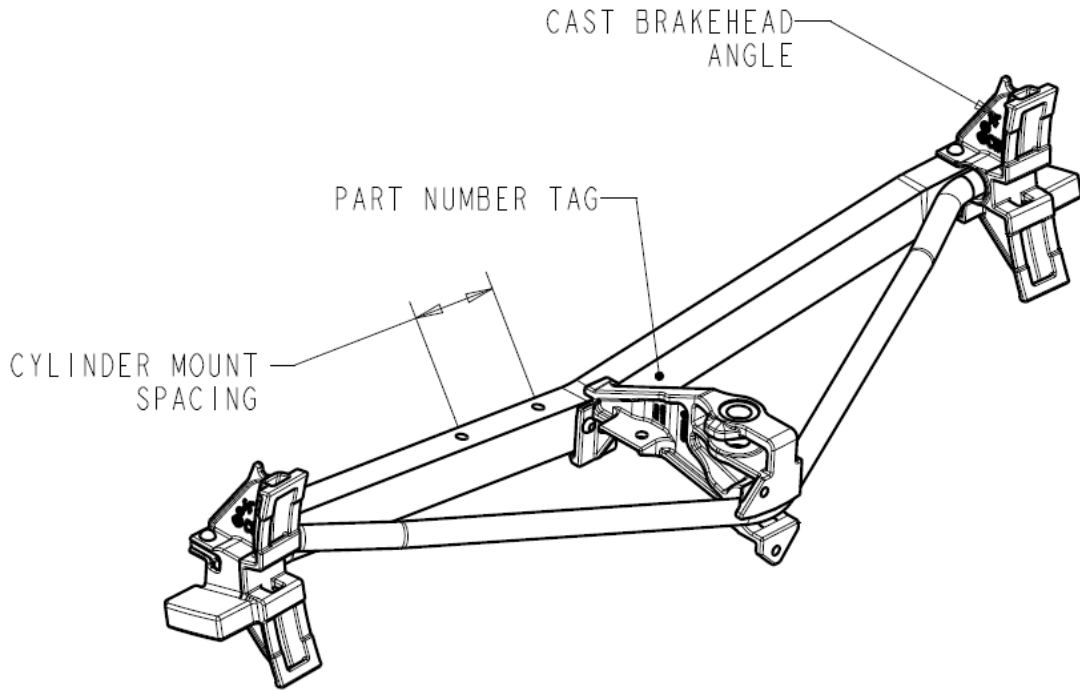
BADGE PLATE PART NUMBER

### 3 Installation Manuals

- 3.1 For information on installation of TMX, please reference document TM-22397.
- 3.2 For information on installation of UBX, please reference document TM-22401.

### 4 Brake Beams & Components

#### 4.1 Brake Beams



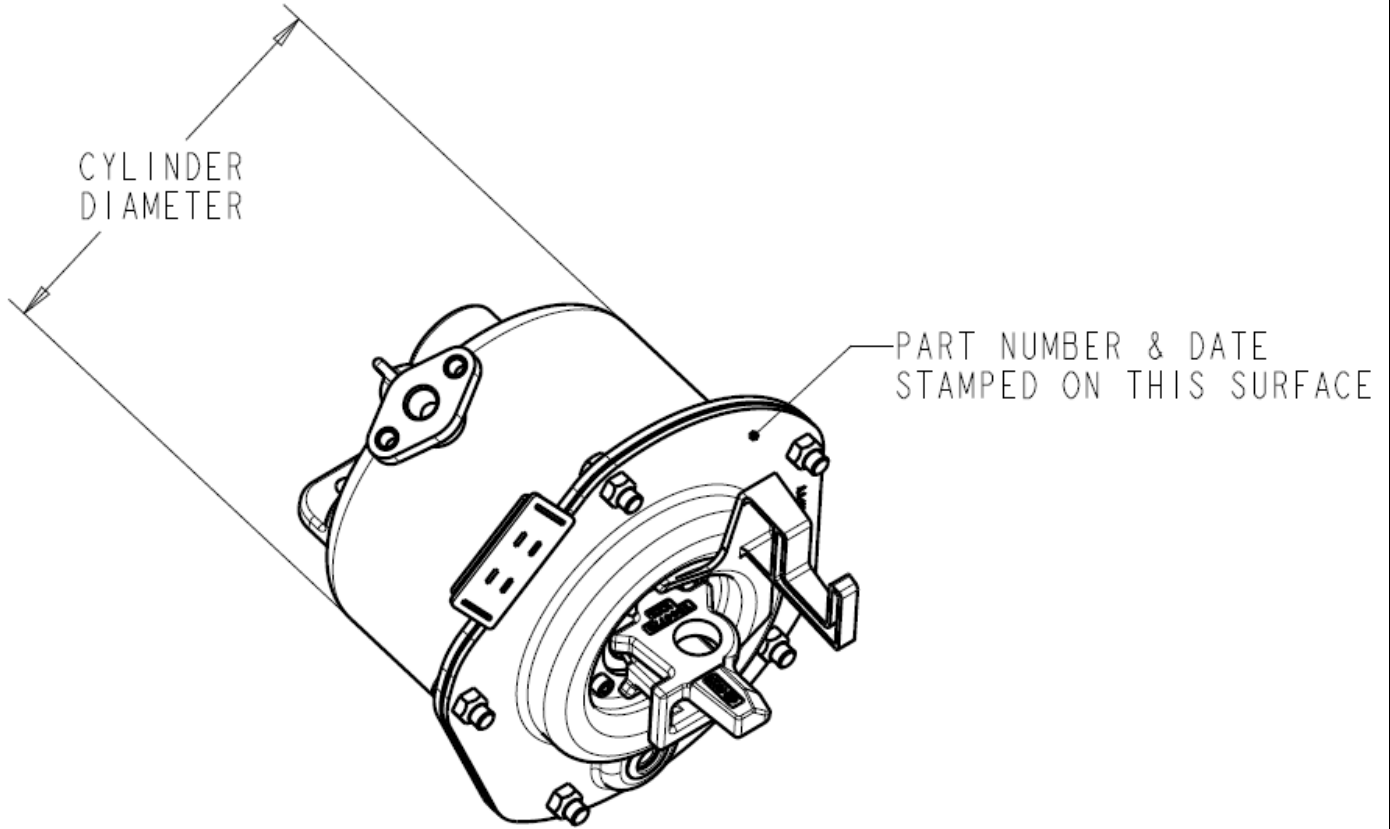
Part Number	Drawing Number	Brakehead Angle	Cylinder Mount Spacing	Compatibility
660396	660396	14°	6.562	TMX & Combination UBX <sup>1</sup>
660487	660487	18°	6.562	TMX & Combination UBX <sup>1</sup>
TM-22029	TM-22029	14°	7.562	UBX Only <sup>2</sup>

<sup>1</sup> See Section 6 for definition of Combination UBX.

<sup>2</sup>Beam is for maintenance purposes only.

## 5 TMX Cylinders

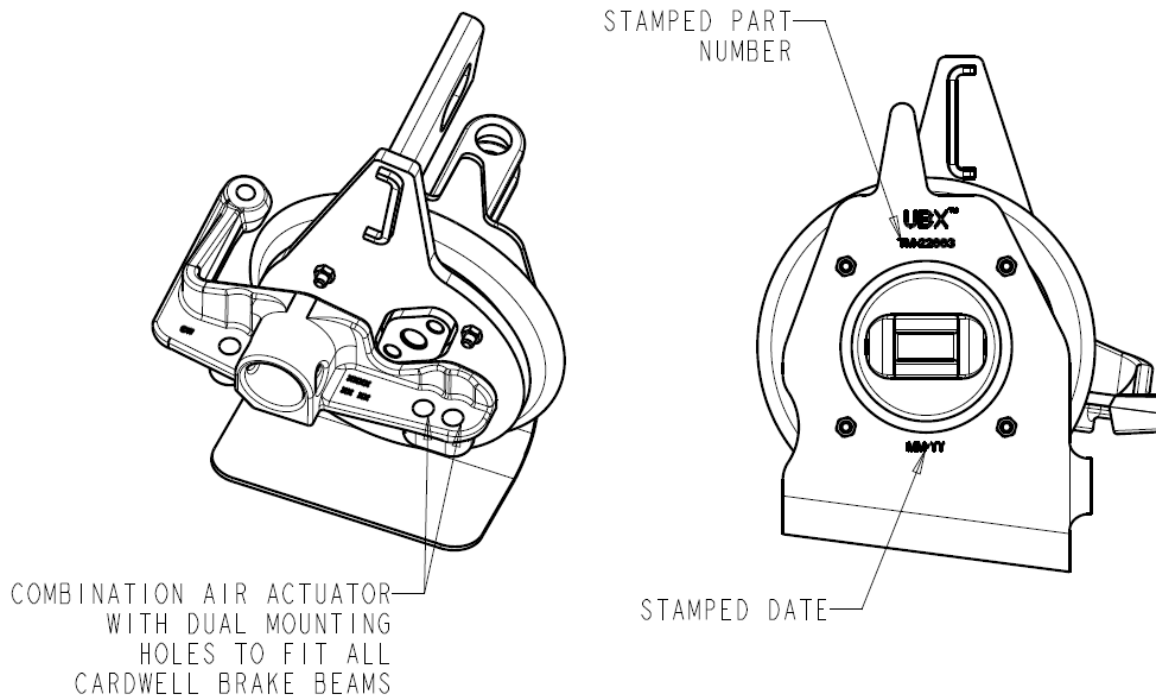
- 5.1 See latest revision of TM-22603 for TMX Cylinder technical information.
- 5.2 See 662582 for reconditioning kits.
- 5.3 See Section 1 for badge plate information.



Part Number	Drawing Number	Nominal Cylinder Internal Dia.	Cylinder Dia.	Recon Kit	Output Force [lbf] at 65 psi
660436	660436-CRD	7"	7.37"	662582-1	2,502
660436-1	660436-1-CRD	7"	7.37"	662582-1	2,502
660398	660398-CRD	8"	8.37"	662582-2	3,267
660432	660432-CRD	9-1/4"	9.62"	66582-3	4,368

## 6 UBX Actuators

- 6.1 Prior to 2006, UBX utilized a separate brake beam, TM-22029, from TMX, shown in Section 1.
- 6.2 In 2006, UBX added a second mounting hole to be able to utilize all Cardwell TMB brake beams.
- 6.3 See latest revision of TM-22604 for UBX Actuator technical information.
- 6.4 See TM-23018 for UBX reconditioning kits.
- 6.5 See Section 2 for badge plate information.

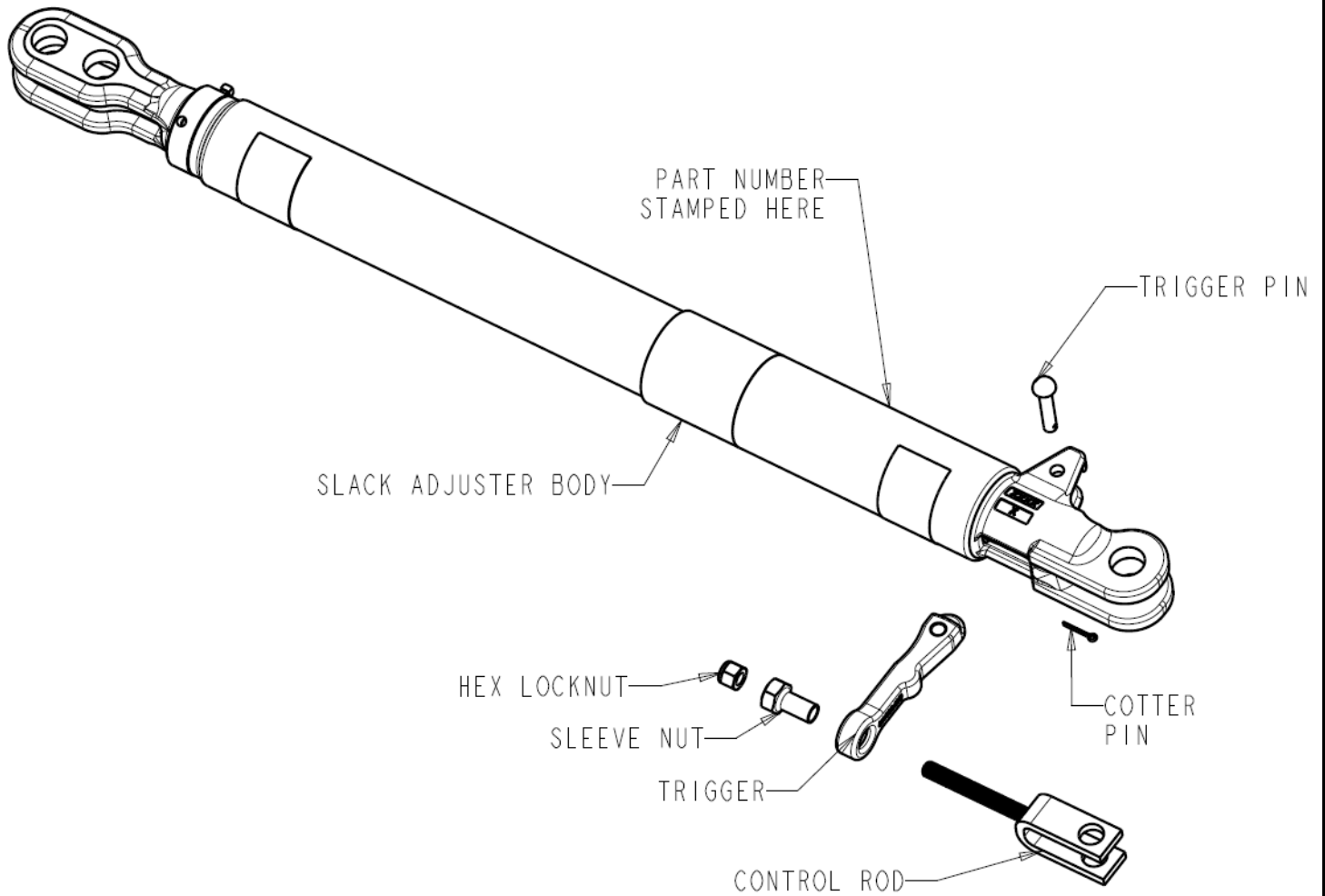


Trade Name	Part Number	Drawing Number	Recon Kit	Approx. Relaxed Bellow Diameter [in]	Output Force at 65 psi	
					Travel [in]	Output Force [lbf]
UBX	TM-22003	TM-22003-CRD	TM-23018-1	10	3.75	3,400
					4.50	2,850
UBX10	TM-22973	TM-22973-CRD	N/A	12	4.50	4,039

UBX Kits			
Part Number	Drawing Number	Description	Piston Travel <sup>3</sup>
TM-22003S	TM-22003S	UBX Actuator and Short P.T. Decal	3-3/4"
TM-22003L	TM-22003L	UBX Actuator and Long P.T. Decal	4-1/2"

<sup>3</sup> See Section 2 or Section 11.1 to determine piston travel.

## 7 Slack Adjuster & Slack Adjuster Components

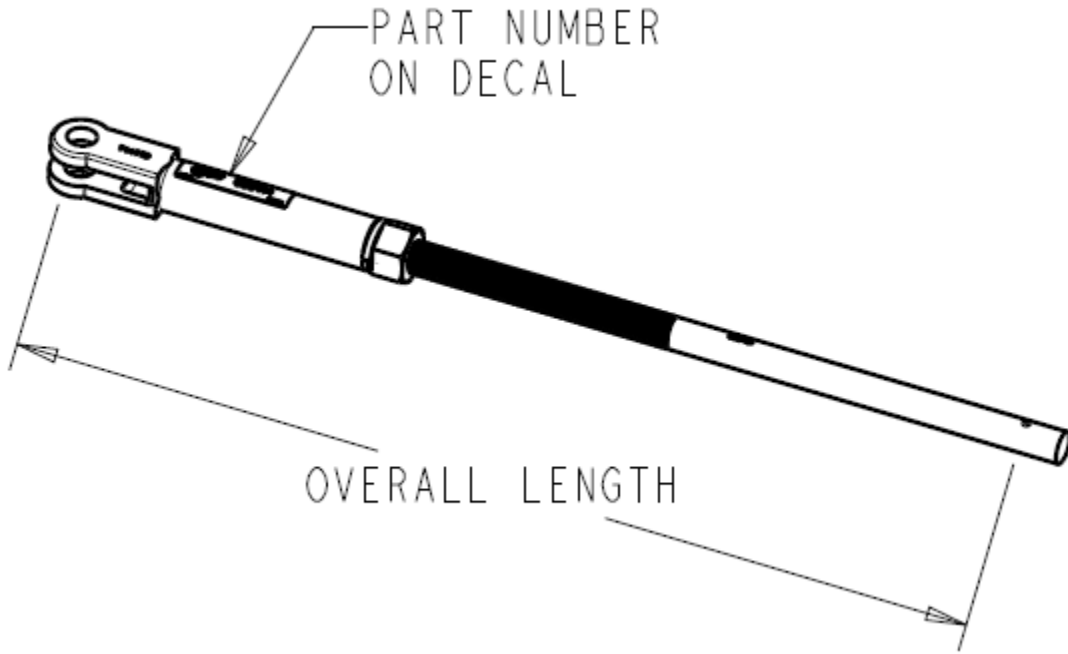


Description	Part Number	Drawing Number	Part of 660416 BOM	Part of U-2712 BOM
Slack Adjuster Body	660416	660416	N/A	Yes
Trigger Pin	660419	660419-CRD	Yes	Yes
Cotter Pin	593388	593388	Yes	Yes
Nylon Hex Locknut <sup>4</sup>	523190	523190-CRD	No	Yes
Sleeve Nut	660421	660421-CRD	No	Yes
Trigger	660417	660417-CRD	No	Yes
Control Rod	660418	660418-CRD	No	Yes

<sup>4</sup> If all steel prevailing torque hex locknut is desired, 645002-1 may be substituted for 523190. This is designated with a B prefix in the truckset part number. See Section 10.5.



**8 Push Rod**



Part Number	Drawing Number	Overall Length [in]	
		Minimum	Maximum
660414	660414-CRD	29.50	37.50

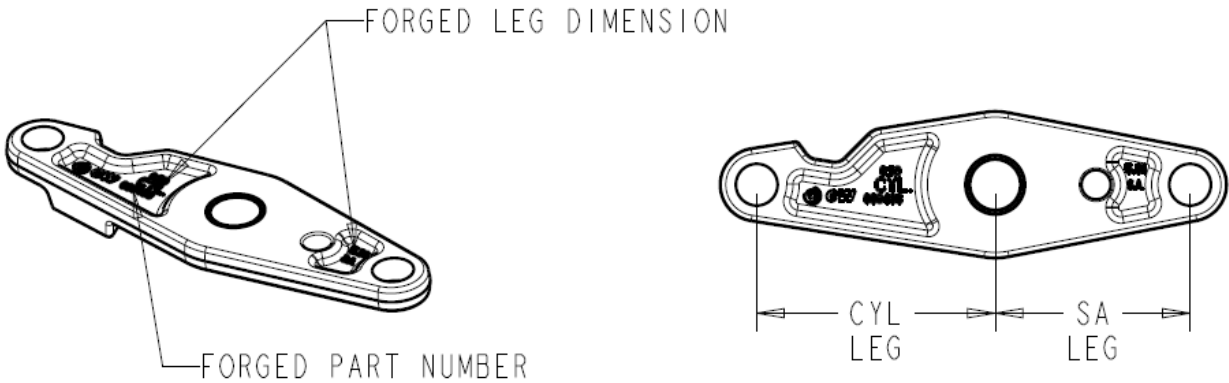
## 9 Levers

9.1 See latest revision of TM-22603 for TMX technical information.

9.2 See latest revision of TM-22604 for UBX technical information.

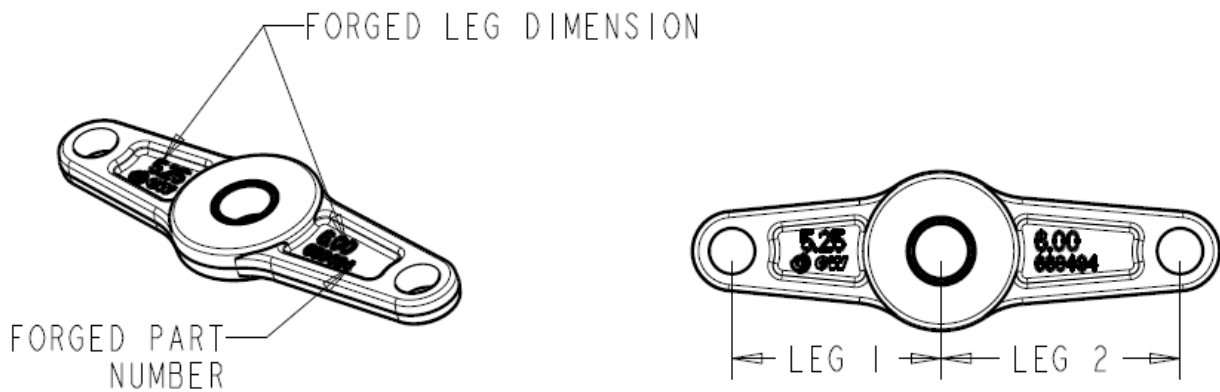
### 9.3 Transfer Levers

#### 9.3.1 Cylinder/Actuator Side Transfer Levers



Part Number	Drawing Number	Cyl Leg Dimension [in]	SA Leg Dimension [in]	Used With
660493	660493-CRD	6.50	5.31	TMX
661120	661120-CRD	7.44	5.31	UBX

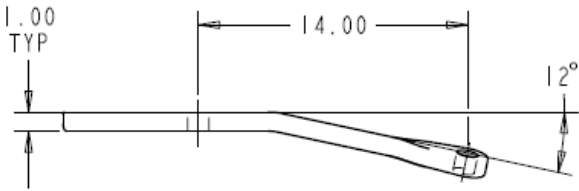
#### 9.3.2 Non-Cylinder/Actuator Side Transfer Levers



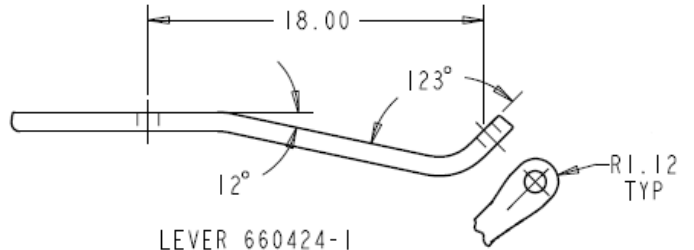
Part Number	Drawing Number	Leg 1 Dimension [in]	Leg 2 Dimension [in]
660494	660494-CRD	5.25	6.00
660494-2	660494-2-CRD	5.63	5.63

## 9.4 Hand Brake Levers

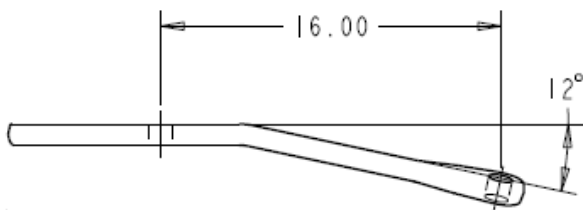
### 9.4.1 Standard Handbrake Levers



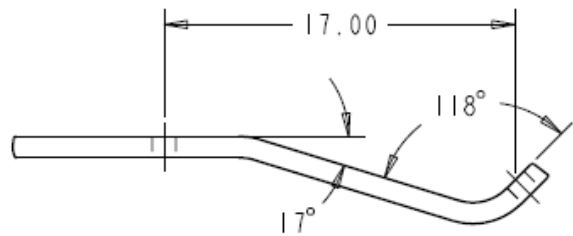
LEVER 660424



LEVER 660424-1



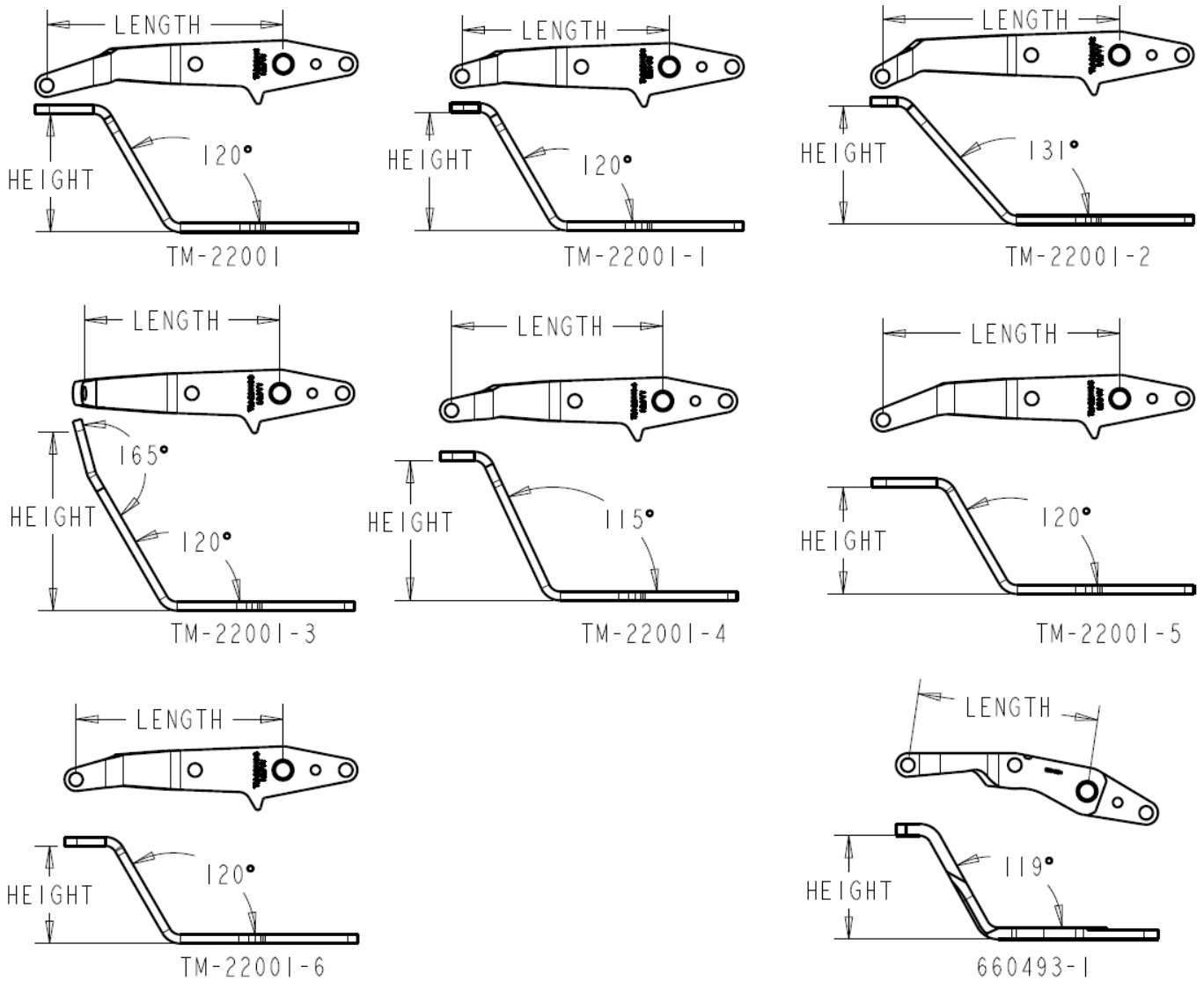
LEVER 660424-2



LEVER 660424-3

Part Number	Drawing Number	Lever Length [in]
660424	660424	14.00
660424-1	660424-1	18.00
660424-2	660424-2	16.00
660423-3	660423-3	17.00

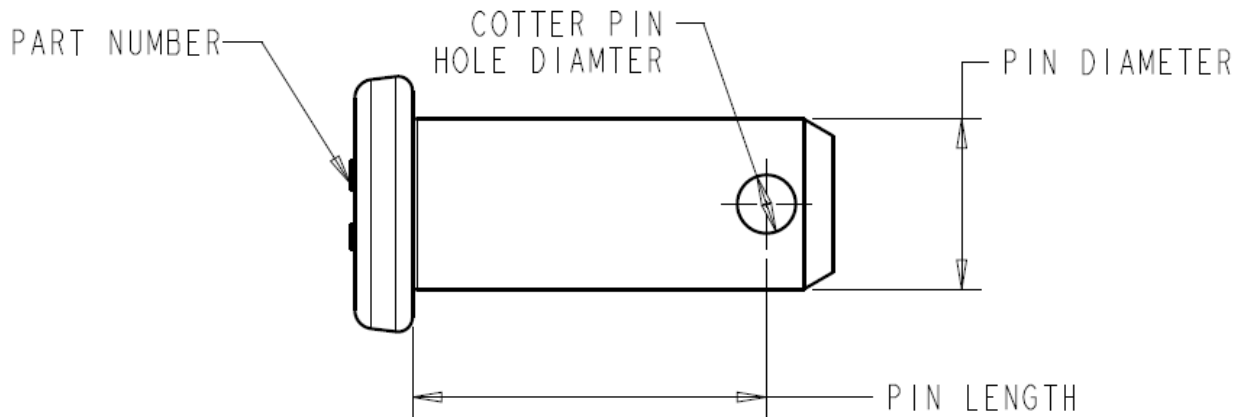
### 9.4.2 Gooseneck Handbrake Levers



Part Number	Drawing Number	Lever Length [in]	Lever Height [in]	System
660493-1	660493-1-CRD	15.00	8.75	TMX
TM-22001	TM-22001	20.00	10.00	UBX
TM-22001-1	TM-22001-1	17.50	10.00	UBX
TM-22001-2	TM-22001-2	20.00	10.00	UBX
TM-22001-3	TM-22001-3	16.89	15.16	UBX
TM-22001-4	TM-22001-4	17.86	11.81	UBX
TM-22001-5	TM-22001-5	20.00	9.00	UBX
TM-22001-6	TM-22001-6	17.50	8.25	UBX

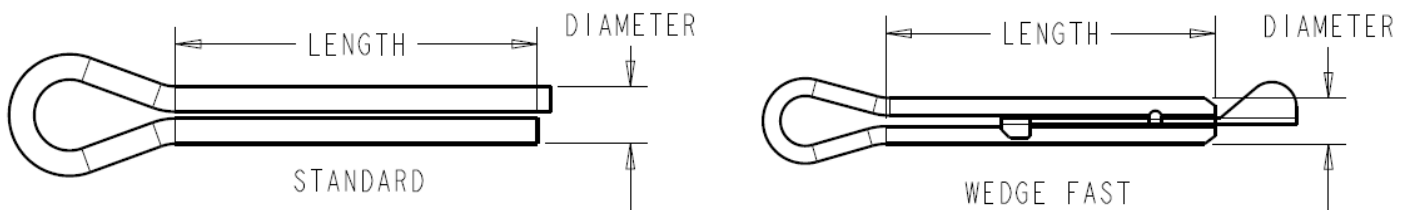
## 10 Hardware

### 10.1 Pins



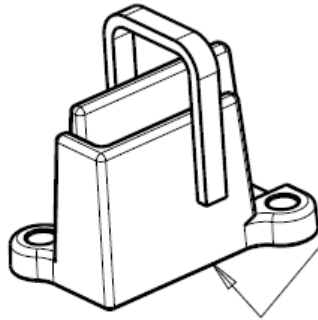
Part Number	Drawing Number	Diameter [in]	Length [in]	Cotter Hole Diameter [in]	Use
660411	660411-CRD	Ø 1-23/64	2-29/32	Ø 3/8	Strut Pin
660413	660413-CRD	Ø 1-3/32	2-9/32	Ø 3/8	Transfer Pin
660420	660420-CRD	Ø 3/4	1-3/4	Ø 5/16	Control Rod Pin
660427	660427-CRD	Ø 1-3/32	2-61/64	Ø 3/8	Hand Brake Link

### 10.2 Cotters



Part Number	Drawing Number	Diameter [in]	Length [in]	Description
569145	569145	Ø 3/8	2-3/4	Standard
569145-1	569145-1	Ø 5/16	2-1/2	Wedge Fast
94977	94977	Ø 3/16	1-1/2	Standard

### 10.3 Handbrake Equipment



HAND BRAKE STRUT BRACKET  
PART NUMBER: 660425  
DRAWING NUMBER: 660425-CRD

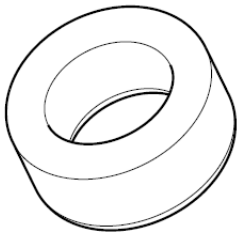
FORGED PART  
NUMBER



HAND BRAKE TRANSFER LINK  
PART NUMBER: 660426  
DRAWING NUMBER: 660426-CRD

CAST  
PART NUMBER

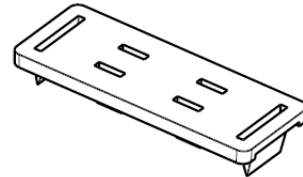
### 10.4 Cylinder/Actuator Items



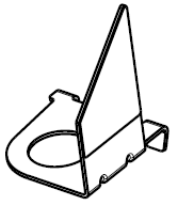
ANTI-RATTLER RING  
PART NUMBER: 506401  
DRAWING NUMBER: 506401-CRD



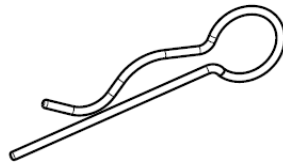
THIMBLE TYPE STRAINER  
PART NUMBER: 526835  
DRAWING NUMBER: 526835-CRD



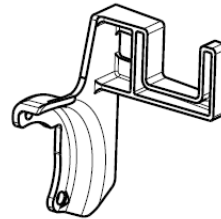
WEAR SLEEVE  
PART NUMBER: 660674  
DRAWING NUMBER: 660674-CRD



PISTON TRAVEL INDICATOR ARROW  
PART NUMBER: 660581  
DRAWING NUMBER: 660581-CRD



SPRING PIN  
PART NUMBER: 660497  
DRAWING NUMBER: 660497-CRD

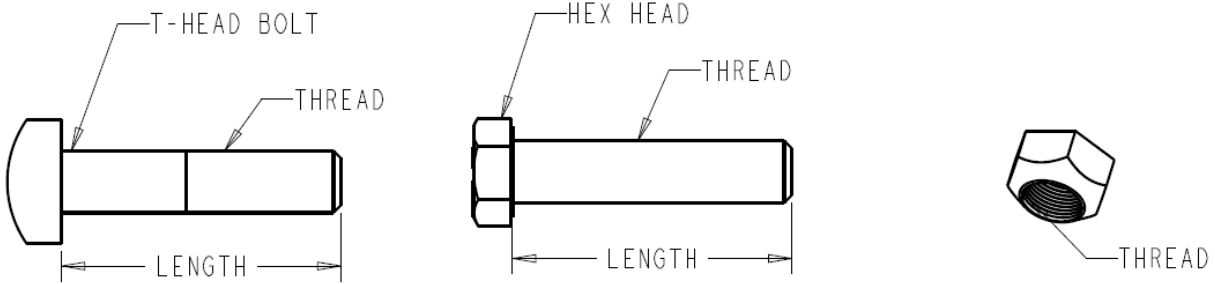


PISTON TRAVEL INDICATOR  
PART NUMBER: 660580  
DRAWING NUMBER: 660580-CRD



SOCKET HEAD CAP SCREW  
PART NUMBER: 660451  
DRAWING NUMBER: 660451

### 10.5 Cylinder/Actuator Mounting Hardware



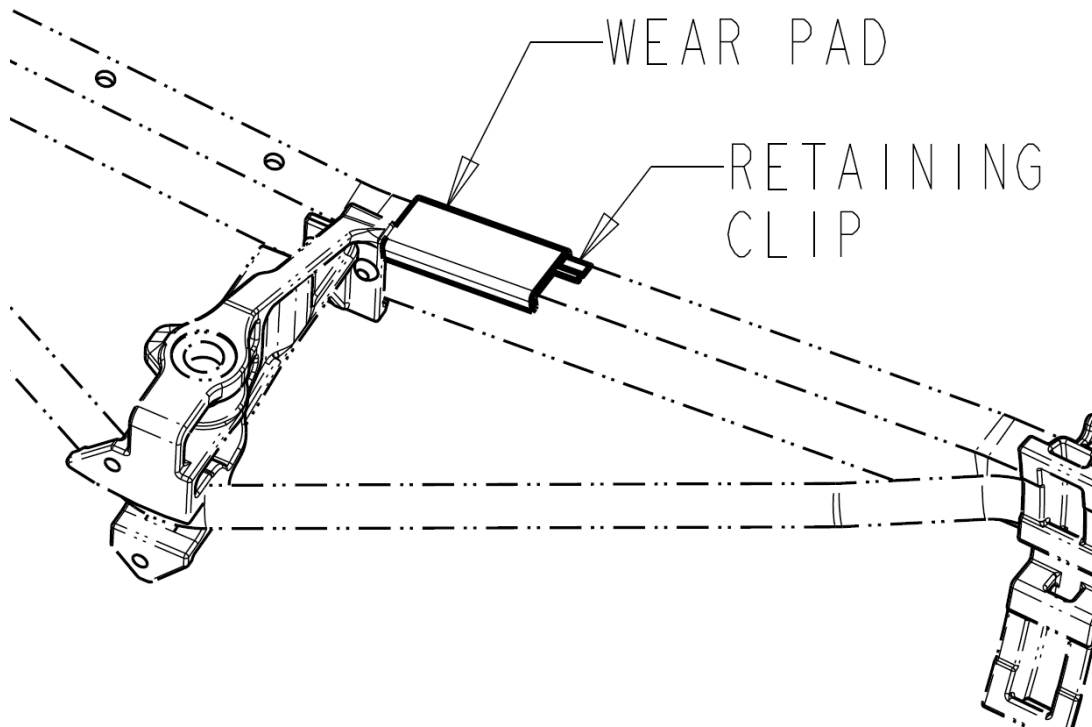
Bolts				
Part Number	Drawing Number	Length [in]	Thread	Head Type
593042 <sup>3</sup>	593042-CRD	2.25	1/2-13 UNC	T-Head
576132	576132	2.50	5/8-11 UNC	Hex Head

Nuts			
Part Number	Drawing Number	Thread	Description
645002-1 <sup>5 6</sup>	645002-1	1/2-13 UNC	Steel Lock Nut
645002-2	645002-2	5/8-11 UNC	Steel Lock Nut

<sup>5</sup> Parts are also utilized to secure hand brake strut bracket, seen in Section 10.3, when applicable.

<sup>6</sup> If truckset has a B prefix, steel lock nut 645002-1 replaces nylon lock nut 523190, seen in Section 7.

10.6 Wear Pad



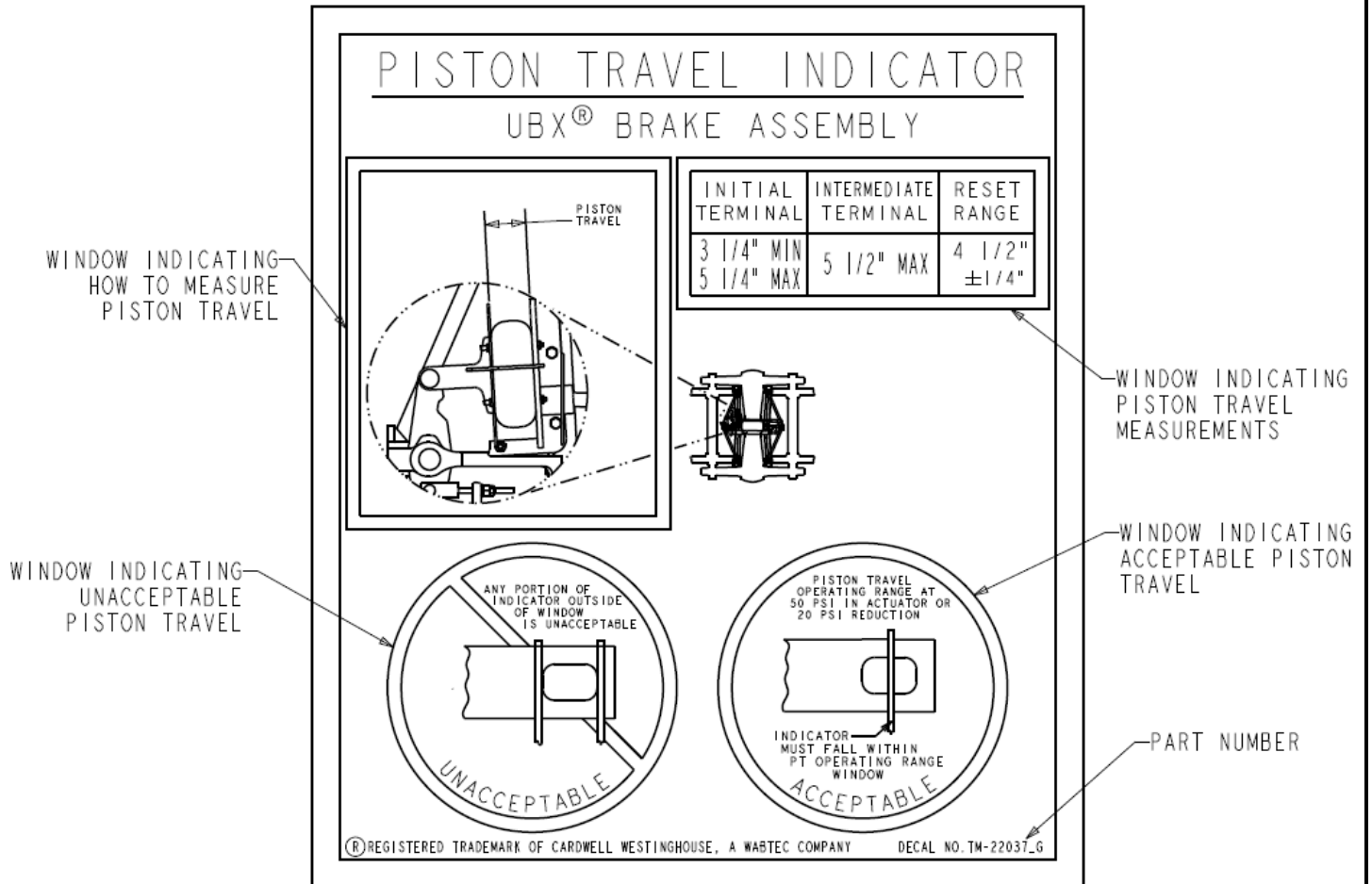
Part Number	Drawing Number	Description
TM-22133 <sup>7</sup>	TM-22133	Wear Pad Kit
TM-22138	TM-22138-CRD	Wear Pad
TM-22134	TM-22134-CRD	Retaining Clip

<sup>7</sup> Wear Pad Kit contains 1 Wear Pad and 1 Retaining Clip.

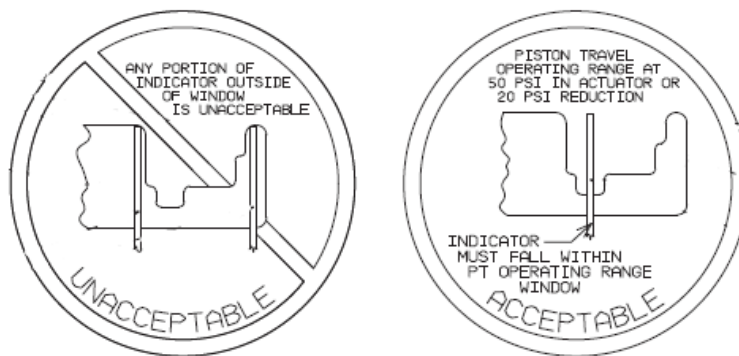


# 11 Decals

## 11.1 Piston Travel Decal



PT Decal Image 1

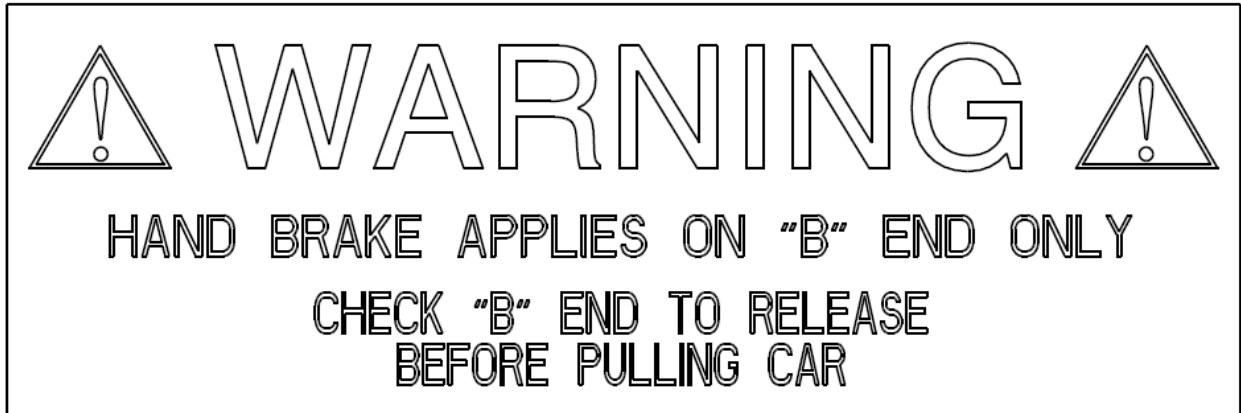


PT Decal Image 2

Part Number	Drawing Number	Piston Travel (Reset Range)	Product Line
660630	660630	2 ± 1/4	TMX
660630-1	660630-1	2-1/4 ± 1/8	TMX
660630-3	660630-3	2-1/4 ± 1/4	TMX
660630-4	660630-4	2-7/8 ± 1/8	TMX
TM-22033	TM-22033	3-3/4 ± 1/4	UBX
TM-22033-D <sup>8</sup>	TM-22033-D	3-3/4 ± 1/4	UBX
TM-22037	TM-22037	4-1/2 ± 1/4	UBX
TM-22037-D <sup>8</sup>	TM-22037-D	4-1/2 ± 1/4	UBX

<sup>8</sup>If UBX actuator piston travel indicator is similar to PT Decal Image 2, the “-D” version of the decal should be ordered.

11.2 Hand Brake Warning Decal



Part Number	Drawing Number
TM-22135	TM-22135

11.3 Tread Guard Decal



Part Number	Drawing Number
V-780265	V-780265

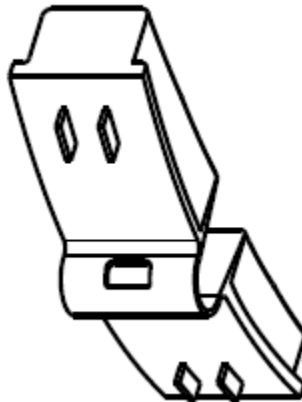
## 12 Accessories

### 12.1 Brake Keys



Part Number	Drawing Number	Description	AAR Standard
6123	6123	Forged Brake Keys	S-376
564390	564390	Stamped Brake Keys	S-376

### 12.2 Brake Shoes



Part Number	Drawing Number	Description	AAR Standard
V-474	V-474	Standard HFC Brake Shoes	M-926
V-674	V-674	Tread Guard Brake Shoes	M-997

### 13 Pneumatic Connections

#### 13.1 Brake Cylinder Hoses

13.1.1 Assemblies can be ordered in any length "L".

13.1.1.1 "L" must be in ¼" increments.

13.1.2 Specify complete piece number when ordering: XXXXXXX-FFQQ

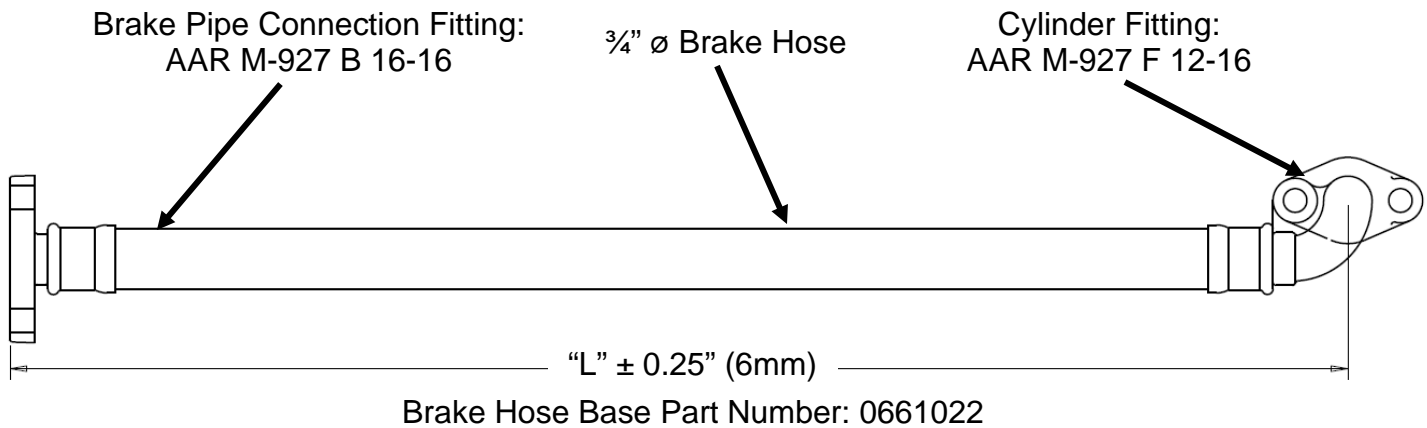
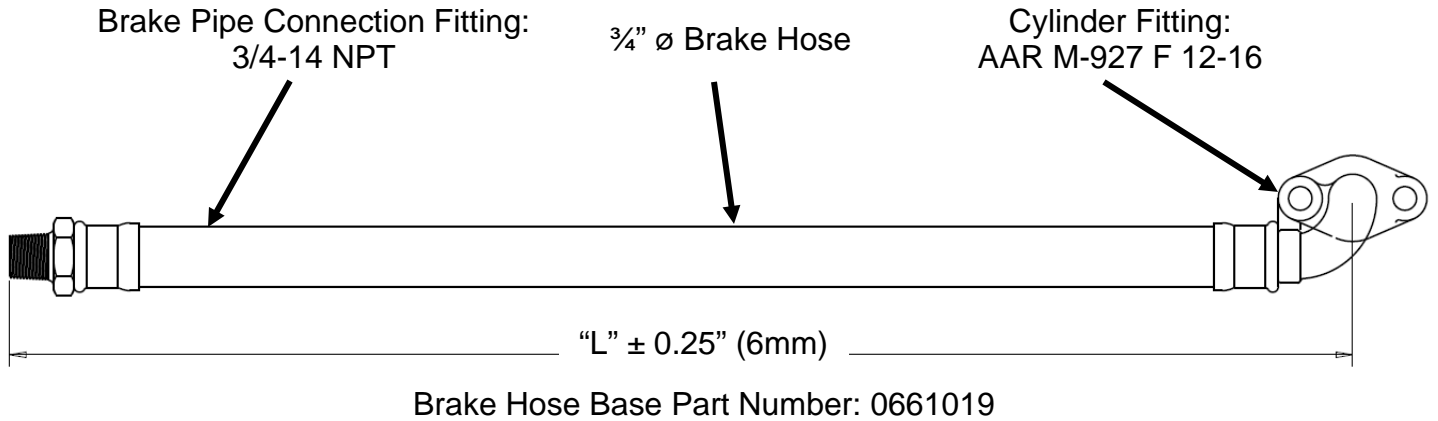
13.1.2.1 XXXXXXX is the seven-character brake hose part number seen below.

13.1.2.2 FF is the length of the hose in full inch increments.

13.1.2.3 QQ is the remaining length of the hose in quarter inch increments.

13.1.3 Example hose part numbers and lengths.

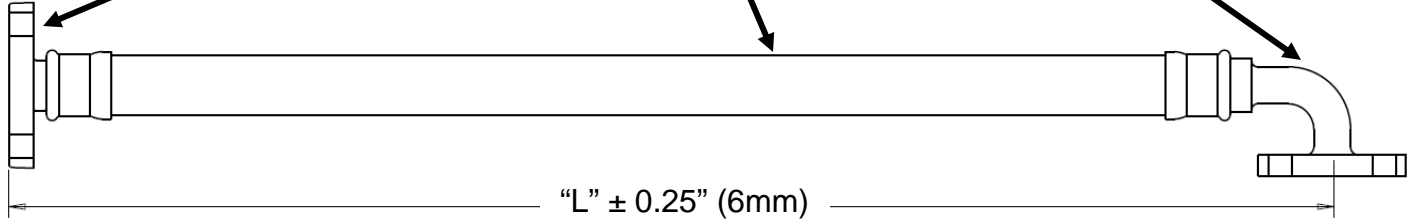
Hose Length "L" [IN.]	Complete Part Number
20.00	0661019-2000
24.25	0661019-2425
28.50	0661019-2850
30.75	0661019-3075



Brake Pipe Connection Fitting:  
AAR M-927 B 16-16

$\frac{3}{4}$ "  $\varnothing$  Brake Hose

Cylinder Fitting:  
AAR M-927 D 12-16

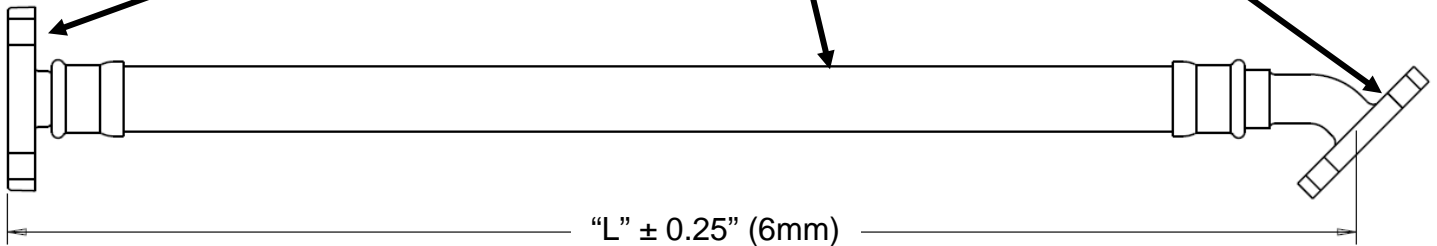


Brake Hose Base Part Number: 0661024

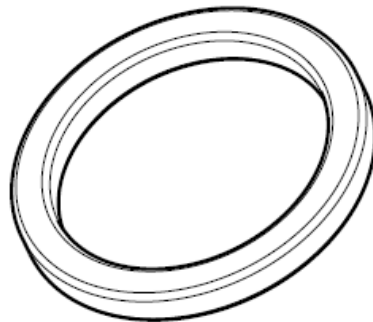
Brake Pipe Connection Fitting:  
AAR M-927 B 16-16

$\frac{3}{4}$ "  $\varnothing$  Brake Hose

Cylinder Fitting:  
AAR M-927 C 12-16



Brake Hose Base Part Number: 0661146

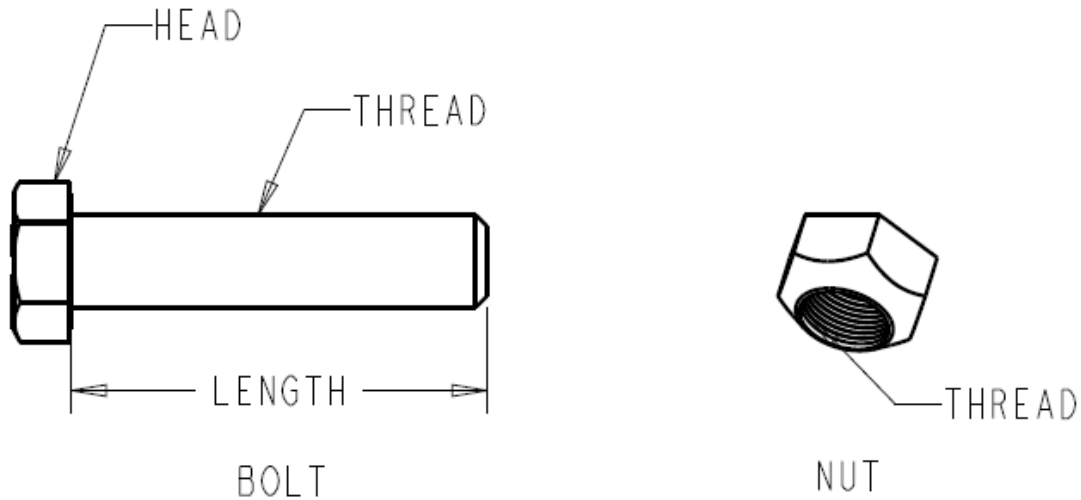


GASKET FOR AAR M927 12-16 FITTINGS  
PART NUMBER: 0093840

13.2 Hardware

13.2.1 Non-locking bolts are intended to be used with a thread sealant or locking nut; if locking bolts are utilized additional thread sealant or locking nut is not required.

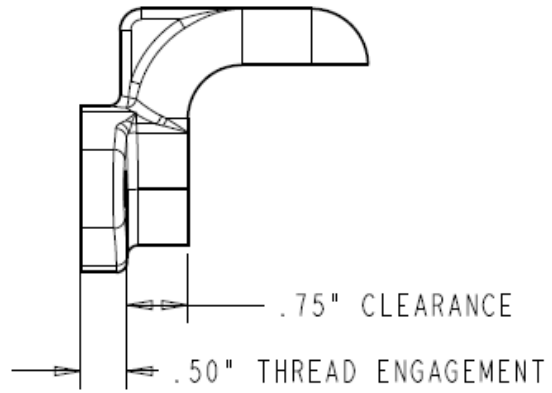
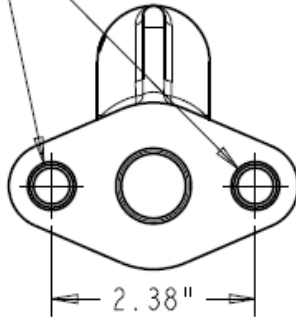
13.2.2 Reference below inlet flange images and AAR cylinder fittings to determine proper bolt length.



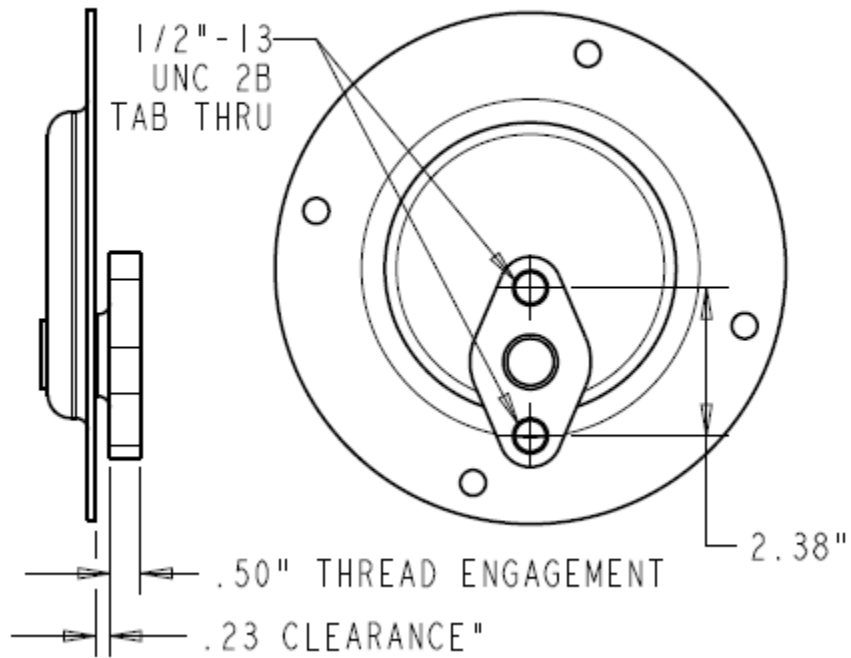
Bolts				
Part Number	Length [in]	Thread	Head Type	Thread Locking
0584840	1.00	1/2-13 UNC	Hex Head	No
0583810	1.25	1/2-13 UNC	Hex Head	No
0584543	1.50	1/2-13 UNC	Hex Head	No
0584544	1.75	1/2-13 UNC	Hex Head	No
0579623	2.00	1/2-13 UNC	Hex Head	No
0579434	1.25	1/2-13 UNC	Hex Head	Yes
0592535	1.50	1/2-13 UNC	Hex Head	Yes
0576462	1.75	1/2-13 UNC	Hex Head	Yes

Nuts		
Part Number	Thread	Description
0563643	1/2-13 UNC	Prevailing Torque, All Metal
0574077	1/2-13 UNC	Heavy Nylon Insert

1/2"-13  
UNC 2B  
TAB THRU

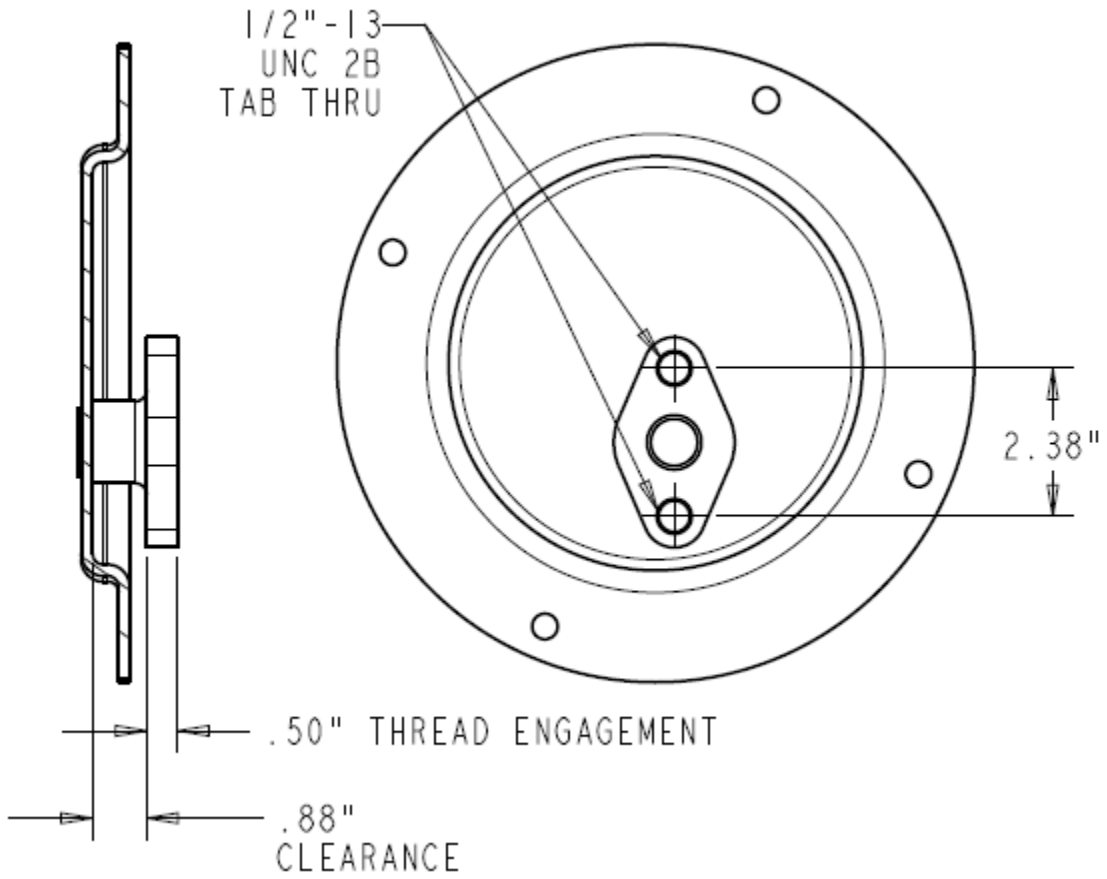


TMX Inlet Flange Reference Dimensions



UBX Inlet Flange Reference Dimensions





UBX10 Inlet Flange Reference Dimensions