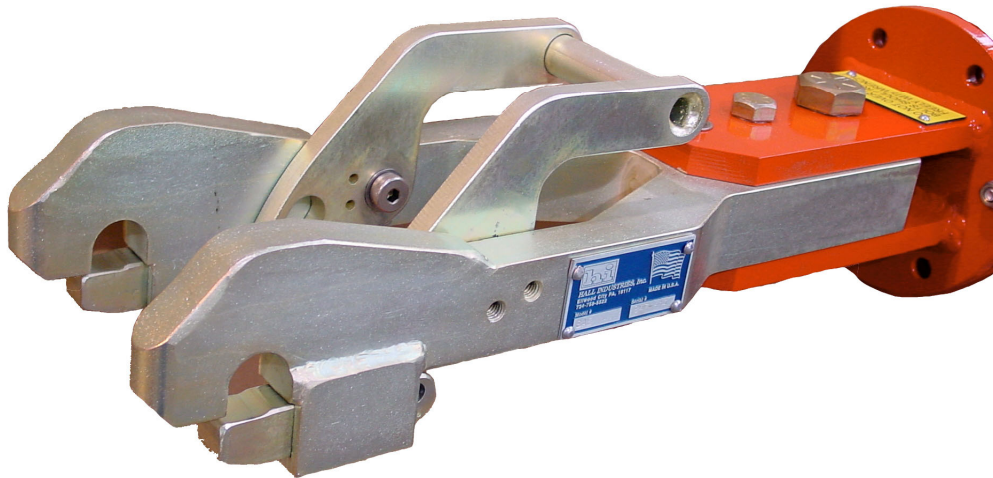


## **BAE 146 Tow Bar Equipment Manual**



**Use This Manual for**

- 1. Operating Procedures**
- 2. Maintenance Procedures**
- 3. Tow Bar and Parts Ordering**

**For ordering new Tow Bars or Renewable Parts**

Please contact:

Hall Industries Equipment Division

1 USS Industrial Park,

Phone (724) 758-5522

Ellwood City, PA 16117

FAX (724) 758-0753



**BAE 146 EQUIPMENT MANUAL**

<b>SECTION I</b>	<b>Description – Dimensions and Weights</b>
<b>SECTION II</b>	<b>Operating Procedures</b>
<b>SECTION III</b>	<b>Maintenance Procedures</b>
<b>SECTION IV</b>	<b>Renewal Parts</b>

**SECTION I  
DESCRIPTION – DIMENSIONS AND WEIGHTS  
BAE146 TOW BAR ASSEMBLY**

**SPECIFICATIONS**

Weight:	
Body	154#
Head with Adapter	58#
Tow Bar, COMPLETE	212#
Length:	
Body with Tow Eye	159”
Head with Adapter	21”
Total Assembly	180”
Width:	
Body	19”
Height:	
Body	27”



**SECTION II  
OPERATING PROCEDURE  
BAE 146 TOW BAR ASSEMBLY**

**A. ATTACHING TOW BAR TO AIRCRAFT**

After correct line-up of the tow bar to the tow pin located on the nose gear, the jaw can be clamped on. The design of the latching mechanism, including the use of detents, ensures that the head will not unlatch without manually moving the handle.

**B. ATTACHING TOW BAR TO TOW TRACTOR**

Lift to the level of the push back's hitch. Position the push back and install the hitch pin. Tow or push the aircraft only if the tow bars tires are not touching the ground.

**C. PUSHING THE AIRCRAFT**

This must be done in accordance with company instructions.

**CAUTION:** If at any time the shear pin yields or breaks, carefully bring the aircraft to a stop. Before pushing or tow can be continued a new shear pin must be inserted. Use only Hall Industries shear pin P/N TB-BAE146-SP (13,500 #).

**D. DISCONNECTING TOW BAR FROM AIRCRAFT**

Lift the tow bar head handle. This will release the tow bar head from the tow pin on the aircraft. Carefully lift the head off of the pin and let the bar down onto the tarmac. Move the tow bar and push back tractor clear of the aircraft.



**SECTION III  
MAINTENANCE PROCEDURES  
BAE 146 TOW BAR ASSEMBLY**

- A. **CAUTION: DO NOT OVERTIGHTEN ADAPTER BOLTS.**  
Check adapter bolts. Adapter bolts (shear bolt – BAE146-SP, and shoulder bolts – B7 and B11/B12) should be snug but not tight. They should not spin freely, but should be able to spin with the aid of a wrench. Overtightening will clamp the adapter to the head, and the shear pin will not provide adequate safety protection. With the shear bolt removed, the head must be able to slide within the adapter plates.
- B. Check wheels and wheel carriage for bent, broken, or worn parts and security. Lubricate pivot points. Lubricate wheels.
- C. Check head assembly for operation of lock mechanism; look for bending, security, etc.
- D. Inspect jaw assembly for worn or damaged parts and security.
- E. Check tow eye (tug attachment) for condition and security.
- F. Check main body tube for bending or cracking.
- G. Check shear pin and bushings for breakage, wear and security.
- H. Clean, repaint or touch-up paint as required.



**SECTION IV      Renewal Parts**

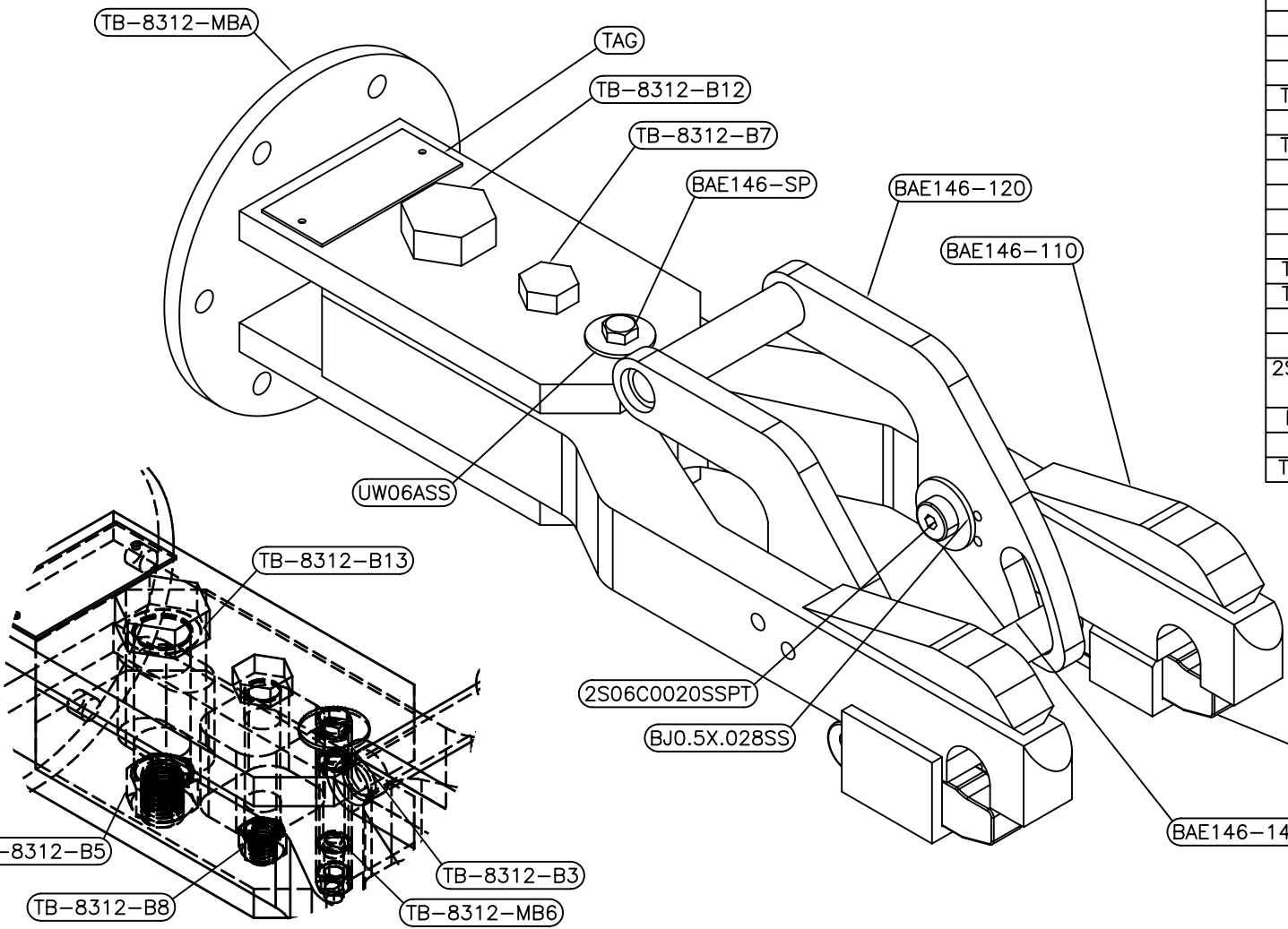
<b>QTY</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
1	COMPLETE TOWBAR	BAE146
1	COMPLETE HEAD	BAE146-100
1	COMPLETE BAR	TB-8898

<b>QTY</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
1	BODY WELDMENT	BAE146-110
1	ACTUATOR WELDMENT	BAE146-120
2	TOOTH	BAE146-130
1	CAMFOLLOWER	BAE146-140
1	ADAPTER	TB-8312-MBA
2	SHEAR BUSHING A	TB-8312-B3
1	SHEAR BUSHING C	TB-8312-MB6
1	SHEAR PIN	BAE146-SP
1	PIVOT BOLT LOCK NUT	TB-8312-B5
1	SHOULDER BOLT	TB-8312-B7
1	CAPTURE BOLT LOCK NUT	TB-8312-B8
1	SHEAR PIN NUT	TB-8312-B9
1	SHOULDER BOLT	TB-8312-B12
1	B13 SPRING WASHER	TB-8312-B13
1	FLAT WASHER	UW06ASS
1	SAFETY TAG	TAG
2	SHOULDER BOLT	2S06C0020SSPT



**SECTION IV  
RENEWAL PARTS**

<b>QTY / UNIT</b>	<b>DESCRIPTION</b>	<b>PART NUMBER</b>
1	TOWBAR TUBE ONLY	TB-8898-1
1	WHEEL CARRIAGE ASSEMBLY (INCL. 3,4,5,6,7,8,9)	TB-8898-2
1	WHEEL CARRIAGE WELDMENT	TB-8898-3
3	CLAMP ONLY FOR HANDLE AND WHEEL CARRIAGE	TB-8898-4
6	CLAMP BOLT	TB-8898-5
6	CLAMP NUT	TB-8898-6
2	WHEEL	TB-8898-7
2	FLAT WASHER	TB-8898-8
2	COTTER PIN	TB-8898-9
1	HANDLE ASSEMBLY (INCL. 11,4,5,6)	TB-8898-10
1	HANDLE	TB-8898-11
6	ADAPTER BOLT	TB-8898-12
6	ADAPTER NUT	TB-8898-13
6	ADAPTER LOCK WASHER	TB-8898-14
6	ADAPTER FLAT WASHER	TB-8898-15
	727/737 A320 PUSH BAR (4" ROUND) REPAIR	TB-8898-R



Parts List			
PART #	QTY	NAME	
BAE146-110	1	BODY WELDMENT	
BAE146-120	1	ACTUATOR WELDMENT	
BAE146-130	2	TOOTH	
BAE146-140	1	CAMFOLLOWER	
BAE146-SP	1	SHEAR PIN	
TB-8312-MBA	1	ADAPTER	
TB-8312-B3	2	SHEAR BUSHING A	
TB-8312-MB6	1	SHEAR BUSHING C	
TB-8312-B5	1	PIVOT BOLT LOCK NUT	
TB-8312-B7	1	SHOULDER BOLT	
TB-8312-B8	1	CAPTURE BOLT LOCK NUT	
TB-8312-B9	1	SHEAR PIN NUT	
TB-8312-B12	1	B12 SHOULDER BOLT	
TB-8312-B13	1	B13 SPRING WASHER	
UW06ASS	1	FLAT WASHER	
TAG	1	TAG	
2S06C002OSSPT	2	SHOULDER BOLT	
BJ0.5X.028SS	2	FLAT WASHER	
BAE146-102	2	BALL DETENT	
TB-TAG-METAL	1	TB-TAG-METAL	

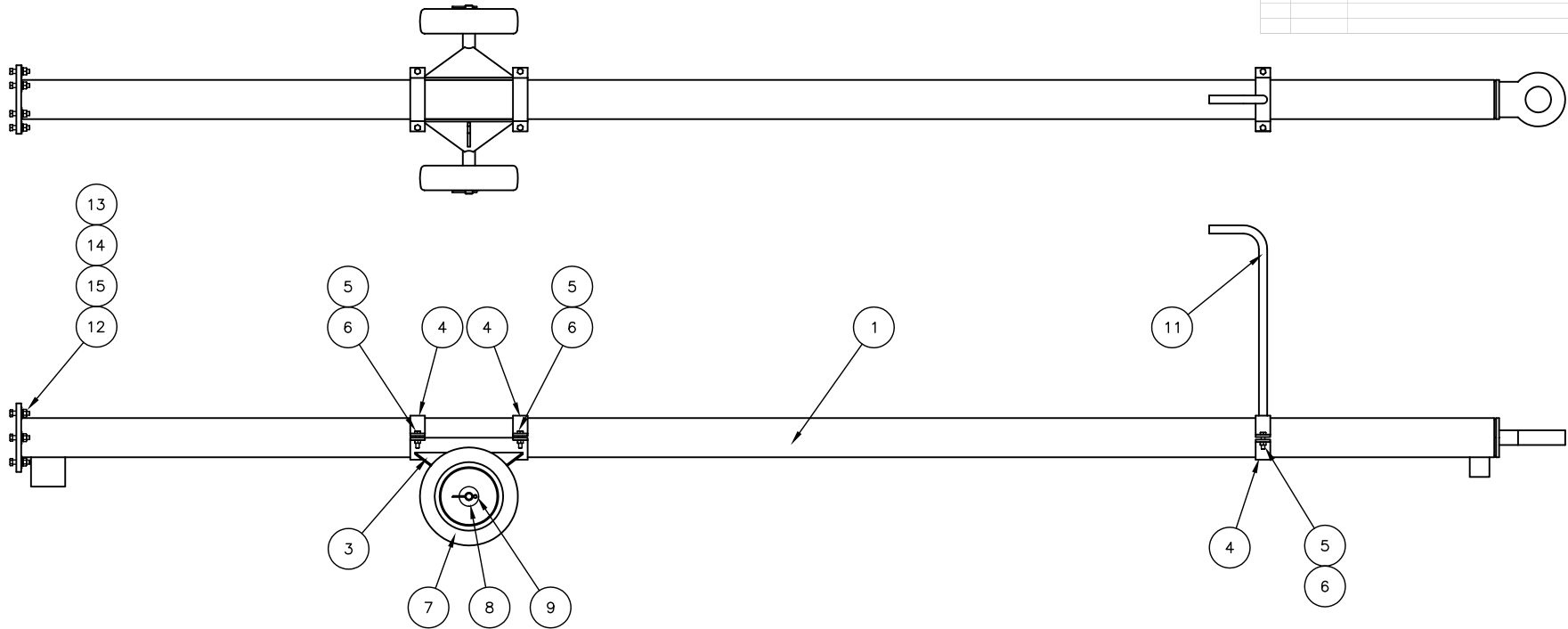
ORIGINAL

MFC INSTRUCTIONS	NONE	<b>DO NOT SCALE</b> TOLERANCES UNLESS SPEC OTHERWISE FRACTIONAL DECIMAL ANGULAR X<12 ±1/32 X ±.050 ±0.5° X>12 ±1/16 XX ±.010 XXX ±.005	SYN	DATE	REVISIONS DESCRIPTION	BY	CHK	HALL INDUSTRIES, Inc. 514 MECKLEM LANE ELLWOOD CITY, PENN. 16117 PROJECT/CUSTOMER HALL EQUIPMENT SUB/ECT BAE 146 HEAD PART LIST DIAGRAM DATE 03/01/04 DRAWING NUMBER BAE146-100 REV. 0
FINISH	NONE							
PAINT	NONE							
SURFACE FINISH	NONE							
TREATMENT	NONE							
TECHNOLOGICAL ORDER	NONE							
REFERENCE DRAWING NUMBERS	This drawing and the information it conveys are the property of Hall Industries, Inc. It shall not be reproduced in whole or in part, nor submitted to outside parties without the written consent of Hall Industries, Inc. This disclosed information is proprietary and confidential, and shall not be used in any means detrimental to Hall Industries, Inc.							

NOTE:  
 1. HARDWARE PLATED  
 2. GRADE 5 MIN.

**BILL OF MATERIALS**

MK #	QTY / UNIT	DESCRIPTION	PART NUMBER
-	1	TOWBAR COMPLETE, LESS HEAD	TB-8898
1	1	TOWBAR TUBE ONLY	TB-8898-1
-	1	WHEEL CARRIAGE ASSEMBLY (INCL. 3,4,5,6,7,8,9)	TB-8898-2
3	1	WHEEL CARRIAGE WELDMENT	TB-8898-3
4	3	CLAMP ONLY FOR HANDLE AND WHEEL CARRIAGE	TB-8898-4
5	6	CLAMP BOLT	TB-8898-5
6	6	CLAMP NUT	TB-8898-6
7	2	WHEEL	TB-8898-7
8	2	FLAT WASHER	TB-8898-8
9	2	COTTER PIN	TB-8898-9
-	1	HANDLE ASSEMBLY (INCL. 11,4,5,6)	TB-8898-10
11	1	HANDLE	TB-8898-11
12	6	ADAPTER BOLT	TB-8898-12
13	6	ADAPTER NUT	TB-8898-13
14	6	ADAPTER LOCK WASHER	TB-8898-14
15	6	ADAPTER FLAT WASHER	TB-8898-15
-		7271737 A320 PUSH BAR (4" ROUND) REPAIR	TB-8898-R



DO NOT SCALE

<b>GENERAL NOTES</b> State if NONE		<b>MFG. INSTRUCTIONS</b> NONE		<b>SIZE</b> B	<b>SCALE</b> NTS	This drawing and the information it conveys are the property of Hall Industries, Inc. It shall not be reproduced in whole or in part, nor submitted to outside parties without the written consent of Hall Industries, Inc. This disclosed information is proprietary and confidential, and shall not be used in any means detrimental to Hall Industries, Inc.	<b>HALL INDUSTRIES, Inc.</b> 201 EAST CARSON ST. PITTSBURGH, PENN. 15219					
<b>NOTE #1</b>	HARDWARE PLATED YELLOW DICHROMATE	<b>FINISH</b>	NONE	<b>TOLERANCES UNLESS SPEC. OTHERWISE</b>				<b>PROJECT/CUSTOMER</b>				
<b>NOTE #2</b>	HARDWARE GRADE 5 MIN	<b>PAINT</b>	PER SPEC	<b>FRACTIONAL</b>	<b>DECIMAL</b>			<b>ANGULAR</b>	727 / 737 / A319 / A320 TOWBAR			
<b>NOTE #3</b>	NONE	<b>SURFACE FINISH</b>	SAND BLAST BEFORE PAINT	X<12 ±1/32.X	±050			±0.5°	<b>DRAWN</b>			
<b>NOTE #4</b>	NONE	<b>TREATMENT</b>	NONE	X>12 ±1/16.XX	±010				CURRY			
<b>NOTE #5</b>	NONE	<b>TECHNOLOGICAL ORDER</b>	NONE	.XXX	±005		<b>REVISIONS</b>					
<b>REFERENCE DRAWING NO.'S</b>		<b>PROTOTYPE MADE BY</b>		<b>CHECKED BY</b>		<b>SYM</b>	<b>DATE</b>	<b>DESCRIPTION</b>	<b>BY</b>	<b>CHK</b>	<b>SUBJECT</b>	<b>REV</b>
TB-8312											TOWBAR BODY ASSEMBLY	0
<b>NOTES</b>		<b>RELEASED FOR PRODUCTION</b>		<b>COMPUTER CODE</b>		<b>DATE</b>		<b>CHECK</b>	<b>DATE</b>		<b>DWG. NO.</b>	
WARNING !!! DRAWING IS VOID IF BLOCK ABOVE IS NOT COMPLETED !!!				\\Files\Air\Towbars\737\bar.dwg		1/15/99					TB-8898	