HELIBASKET™

TOW BRIDLE

Load Out Kit

USER GUIDE

TB37000A TB37000A-B

TB3700A-C TB37000A-D

For loading of cargo, equipment, vehicles and aircraft.
Compatible with AH-64, H-1, H-47, H-60, OH-58, UH-72 and commercial equivalents.

Revision J
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Note: Manual should be printed in color for clarity

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Revision Notification

Rev.	Change History	Made By	Reviewed By	Approved By
Orig thru Rev F.	Previous editions through Revision F.			JTollenaere 03/12/2015
G	Update to address use of L and T Handle PIP Pins and addressing markings on 23' Lines.	G. Hilewitz 8/24/16	J. Tollenaere 8/24/16	V Wigington 8/24/16
H	Add TB37000A-C; TB37000A-D, updated part numbers, inventory sheets and minor editing.	G. Hilewitz 2/10/17	J. Tollenaere 2/10/17	V Wigington 2/10/17
I	Address inventory updates and details on rope care and testing	G. Hilewitz 6/10/19	J. Tollenaere 6/11/19	V Wigington 6/12/2019
J	Added P/N TB37-405 and instructions for small aircraft loading	G. Hilewitz 2/7/20	J. Tollenaere 2/10/20	V Wigington 2/10/20

Proprietary Statement:

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Operating limitations are mentioned throughout this manual, the significance of such limitations provide for the safe assembly and operation of the Tow Bridle.

The following are used throughout this manual to emphasize the importance and significance of each operating limitation:

WARNING [all caps, bold, and underlined]
OPERATING PROCEDURE, PRACTICE, ETS., WHICH MAY RESULT IN PERSONAL INJURY OR LOSS OF LIFE IF NOT FOLLOWED CAREFULLY [bold all caps text]

CAUTION [all caps, bold]
OPERATING PROCEDURE, PRACTICE, ETC., WHICH IF NOT STRICTLY OBSERVED MAY RESULT IN DAMAGE TO EQUIPMENT. [non-bold all caps text]

NOTE [all caps]
An operating procedure, condition, etc., which is essential to emphasize. [normal text]

Contents

Section 1 – Tow Bridle

1.1 – General

The Helibasket Tow Bridle products are designed to use lightweight technology for weight savings combined with maximum strength and utility capabilities. The systems use Plasma® 12 Strand rope, covered with a polyester jacket and covered with two coats of polyurethane. These ropes are designed to for long wear and abrasion resistance and repel petroleum and damage from UV rays. The tow bar is made from carbon fiber composites with aluminum inserts, and the hooks and shackles are the best products in the industry.

The standard tow bridle, P/N TB37000A, has 10' and 23' rope sets, a carbon fiber tow bar and a reinforced steering bar. This kit will work for most rolling stock and aircraft to be loaded on a cargo vessel, vehicle, or aircraft.

The TB37000A-B is the same kit as the TB37000A except it does not have a steering bar. It was designed for cargo loading scenarios where steering is done with alternative methods or not required.

The TB37000A-D is a universal kit with two 12’ ropes fitted with self-locking hooks at one end and joined by a pear link at the other and two 2 foot web slings. The system is designed for a multitude of cargo loading applications where a spreader bar or steering bar are not required. The web slings can be used on aircraft that have skid gear.

Based on multiple user requests, we combined the TB37000A and the TB37000A-D kits into a single kit we refer to as the TB37000A-C. It has 10', 12', 23' ropes and 2 web slings; the carbon fiber tow bar, reinforced steering bar and will work on almost every cargo loading scenario.

The system is approved by the USAF and called out by manufacturer and model number.

1.2 - Tow Bridle Inventory

Each TB37000A kit is delivered with the following parts and hardware defined in Table 1. Each kit (TB37000A through TB37000A-C comes pre-assembled with 10’ rope sets attached to the carbon fiber tow bar and self-locking hooks.

To ensure successful use, change of rope sets or re-assembly of the kit, we encourage the end-user to read this manual, become familiar with the components and inventory each kit.

1.3 – Reference Item Numbers

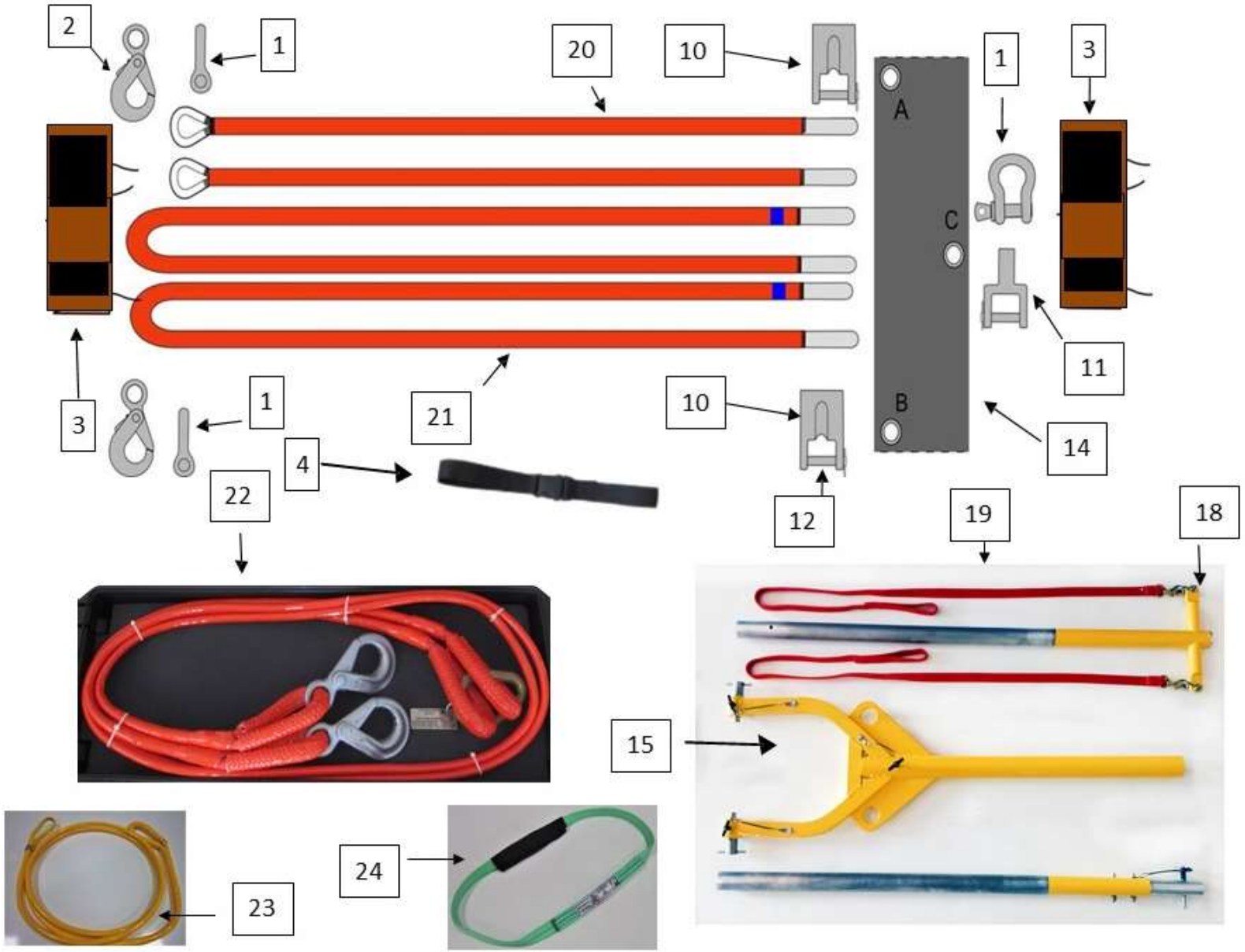
Throughout the manual, descriptions of components and parts are referenced by item numbers listed in the tow bridle inventory found in Table 1.

Component List

Item	P/N	Name	Description	TB37000A	TB37000A-B	TB37000A-C	TB37000A-D
1	TB37-001	Screw Pin Shackle	3/4" Screw Pin Shackle, Galvanized Finish	3	3	3	
2	TB37-002	Self-Locking Hook	Self-Locking Hooks	2	2	2	
3	TB37-003	Anti-Chafe Pads	Anti-Chafe (Leather) Pads	2	2	2	
4	TB37-004	Anti-Chafe Strap	Anti-Chafe Straps, Black Polyester	1	1	1	
5	TB37-101	Shipping Case	Shipping Case Pelican #1770	1	1	1	
6	TB37-101D	Shipping Case	Shipping Case, Pelican #IM3100				1
7	TB37-102	Ticket Holder	Ticket Holder, Clear Vinyl Document Sleeve	1	1	1	1
8	TB37-103	PIP Pin Saddle	PIP Pin Saddle				
9	TB37-110	Data Package	Tow Bridle Data Package: Manual, Rope Certs, CofC	1	1	1	1
10	TB37-201	Soft Eye Adapter	Soft Eye Adapter	2	2	2	
11	TB37-202	Shackle Adapter	Shackle Adapter	1	1	1	
12	TB37-203	Adapter Pin	Adapter Locking Pin, Machined	3	3	3	
13	TB37-204	Adapter PIP Pins	Adapter PIP Pins (3/16” X 2.00” with 6" Lanyard) Three spares included	6	6	6	
14	TB37-210	Carbon Fiber Tow Bar	Carbon Fiber Tow Bar Assembly	1	1	1	
15	TB37-301	Steering Bar	Steering Bar, Complete	1		1	
16	TB37-302	Axle Adapter PIP Pins	Axle Adapter PIP Pins (1/4” X 2.00” w/ 6" Lanyard)	2		2	
17	TB37-303	Steering Bar PIP Pins	Steering Bar PIP Pins (3/8” X 2.50” w/ 6" Lanyard)	2		2	
18	TB37-304	Steering Bar Shackles	1/2" Screw Pin, SS, Polished	2		2	
19	TB37-305	Steering Bar Leads	Steering Bar Leads, Red/Orange, 6'	2		2	
20	TB37-401	Rope, 10’	Rope: 10’ 8” in (ORANGE BTU Thimble Cover)	2	2	2	
21	TB37-402	Rope, 23’	Rope: 2 x 23’ (GREEN BTU Thimble Cover or blue band)	2	2	2	
22	TB37-403	Sling, 12’	Rope: 2 Leg of 1/2"dia. X 12' with 3/4" Pear Shape Link and 2 self-locking hooks			1	1
23	TB37-404	Rope, 15’	Rope: 15’ YELLOW BTU Thimble Cover				
24	TB37-405	Strap	Strap: 32" Diameter Endless Web Sling (Green)			2	2

Table 1- Inventory

See exploded component listing on next page.
NOTE: TB37402 Rope Sets may be identified with either a blue wrap at one end or a green BTU thimble coating.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1.4 - Carbon Fiber Tow Bar Assembly

The Carbon Fiber Tow Bar [14] can be assembled with either side up as is shown in the picture. Take care to ensure that the adapters are all assembled in the proper orientation and all the pins protrude through the side that is up during use.

Figure 1Carbon Fiber Tow Bar w/ Alum Bushings

Step 1 **-**Place the Carbon Fiber Tow Bar [14] on a flat surface. Orient the parts as shown in (Figure 2). The Shackle Adapter [11] with PIP Pin should be placed on the side with the single bushing. The pin with the detent pin should be protruding to the top. Two Soft Eye Adapters [10[with Pin should be placed on the side with two bushings. The adapter pin with the PIP Pin should be protruding to the top. (Figure 2).

Figure 2

Figure 3: Carbon Fiber Tow Bar w/o Ropes

CAUTION: WHEN THE ASSEMBLY IS COMPLETE, MAKE SURE THAT THE ADAPTORS ARE IN THE CORRECT POSITIONS AND THAT THE ATTACHMENT PINS AND PIP PINS ARE ALL ON TOP AS DEPICTED IN FIGURE: 3

NOTE: The TB37000A-(X) has been designed to move over the ramp and the floor of the aircraft without catching or snagging. This is only possible when all of the pins are visible from the top of the assembly. Additional PIP Pins have been included in the kit to allow for loss or misplacement. The PIP Pin must be in place to assure that the TB37000A-(X) performs safely and without loss of one of the adaptors.

WARNING: DO NOT UNDER ANY CIRCUMSTANCES EMPLOY THE TB37000A-(X) WITHOUT THE QUCIK RELEASE PINS IN PLACE TO CAPTURE AND LOCK THE ADAPTORS IN PLACE. DAMAGE TO THE EQUIPMENT OR INJURY TO PERSONNEL MAY OCCUR.

Step 2 -Assemble the 10 ft 8in Ropes [20], the Shackle [1], the Hook [2] and the Anti Chafe Pad [3] as is shown in (Figure 4)

Figure 4: Rope, shackle, hook and airframe pad assembly

Step 3 -Assemble the 10 ft 8in Ropes, into the Soft Eye Adapters with Pin as is shown in (**Figure 5)**.

WARNING: ENSURE THAT THE SHACKLE PIN AND THE SOFT EYE PINS ARE ALL PROTRUDING ON THE TOP TO PREVENT THESE PARTS FROM SNAGGING OR CATCHING ON RAMP SURFACES,

Figure 5: Ropes assembled into the Soft Eye adaptors

Figure 6: Assembled Tow Bridle w/10' Rope Set

Section 2 – Tow Bridle Applications

General Information**:**

The Tow Bridle TB37000A, and all variations, are designed to move all types of rolling cargo into the cargo bay of our large cargo aircraft (C130, C17, C5 and Antonov). It can be used with any cargo winching device and can be used to move cargo up to 37,000 lbs in gross weight (on freely rotating wheels).

It can be used with the self-locking hooks [2] connected to the screw pin shackles [1] or with the screw pin shackles [1] connected directly to the cargo being winched into the aircraft.

The hooks and the shackles are load rated so that if one line fails, the other will be able to hold the weight of the cargo without loss of position. The following are general instructions on how to load the MH-60, UH-60 from the front and from the tail.

2.1 H-60 Front First Load:

Figure 6.5: Front Load of H-60

Procedure:

Remove the two 10’ 8” ropes [20], two black anodized soft eye adaptors [10], two screw pin shackles [1], two self-locking hooks [2], two anti -chafe pads [3], the Black Carbon Fiber Tow Bar [14] with center front shackle adaptor [11] with a screw pin shackle [1] installed.

Note: The longer 23’ 0” [21] lines are identified with green BTU ends or a blue ring band below the BTUs).

Figure 7: Kit Assembled for Front Load of H-60

Insert the soft eye (the eye without the BTU heavy abrasion sleeve) of each 10’ 8” rope into one of the black anodized Soft Eye Adapters. Orient adapters so adapter pins [12] fit flush on bottom and extend through side with PIP pin attached.

Figure 8: Rope Soft Eyes in Soft Eye Adapters

Using the adapter pins [12] of the Soft Eye Adapter, connect the adapter and rope to one of the outside Tow Bar aluminum holes. Repeat the above procedure so both 10' 8" lines are connected to the carbon fiber tow bar with soft eye adapters. See Figure 9.

> NOTE: Make sure each soft eye adapter is pinned and locked to the black carbon fiber tow bar using the 3/16" PIP Pin.

Figure 9: Proper Assembly of Adapters w/ Ropes

Using the screw pin shackles [1] connect one self-locking hook [2] to the BTU end of each of the 10ft 8in lines [20]. Ensure that the locking lug of the shackle is facing to the outside of the assembly on each side. Stretch the lines out to make sure they are straight. The lines don't twist, so if the lug is on the wrong side, remove the screw pin shackle and reverse the position.

Figure 10: Self-Locking Hooks Installed on BTUs

Each 10.8” line connects to the towing mounting plate as shown in Figure 11 or Figure12. Figure 12 is the modified foot pedal mount used on the Special Operations MH-60 models.

Figure 11

Figure 12

Attach and adjust the protective pads as necessary to prevent damage.

Figure 13: Anti-Chafe Pads Installed

Walk Around Inspection Before Loading

- Insure Hooks are attached correctly to aircraft or vehicle tow fittings.
- Protective pads are in place
- 3/16” PIP Pins are clearly visible and in place. PIP Pin lanyards are secured with screws to the Soft Eye Adapters and the Shackle Adapter

2.2 H-60 Tail First Load:

Procedure:

Remove the two 23’ ropes [21], two black anodized soft eye adaptors [10], two screw pin shackles [1], two self-locking hooks [2], two anti-chafe pads [3], the Black Carbon Fiber Tow Bar [14] with shackle adapter [11] and screw pin shackle [1] installed.

Note: The longer 23’ 0” [21] lines are identified with green BTU ends or a blue ring band below the BTUs),

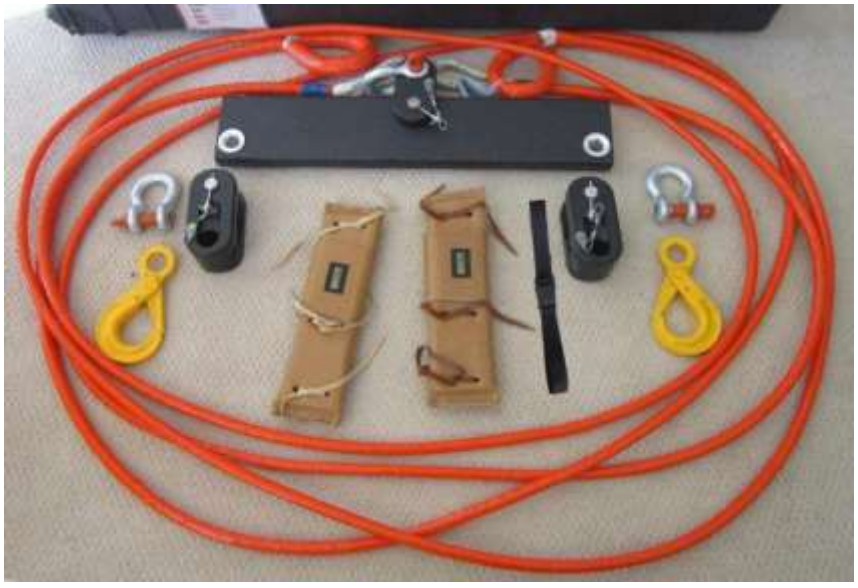

Figure 14: Kit Assembled for Tail Load of H-60

Insert the small lift eye (the eye without the BTU heavy abrasion sleeve) of each 23’ rope into one of the black anodized Soft Eye Adapters

Figure 15: Rope Soft Eyes in Soft Eye Adapter

Using the steel pin of the Soft Eye Adapter, connect the adapter and rope to one of the outside Tow Bar aluminum holes.

Repeat the above procedure so both 23’ lines are connected with Soft Eye Adapters to the Black Tow Bar. NOTE: Make sure each Soft Eye Adapter is pinned and locked to the Black Carbon Fiber Tow bar using the 3/16” PIP Pin.

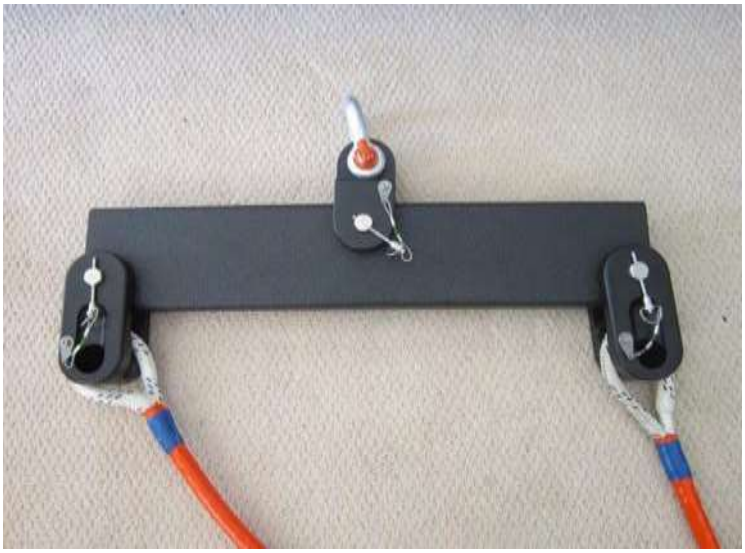

Figure 16: Proper Assembly of Adapters w/ Ropes

Using the alloy shackles connect one hook to the end (with the BTU) of each of the 23' lines. Ensure that the locking lug of the shackle is facing to the outside of the assembly on each side. Stretch the lines out to make sure they are straight. The lines don't twist, so if the lug is on the wrong side, you will have to remove the shackle and reverse the position.

Figure 17: Self-Locking Hooks on BTU Ends

Attach and adjust the protective pads as necessary.

Figure 18: Attach Anti-Chafe Pad

Figure 19: Shackle Lugs on Outside of Fuselage

Each 23’ line connects to the towing rings as shown below:

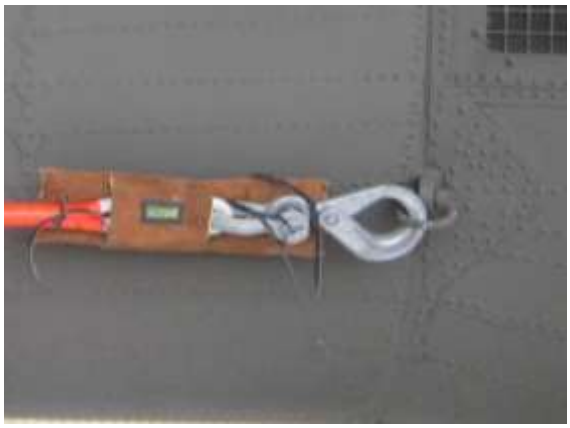

Figure 20: Right Side Fuselage

Figure 21: Left Side of Fuselage

On the Right side of the fuselage (looking forward from the tail) ensure that you have used the black anti-chafe strap [4] to hold the 23’ line above the HF antenna. This is for the sole protection of the HF antenna while using the Tow Bridle to load the aircraft.

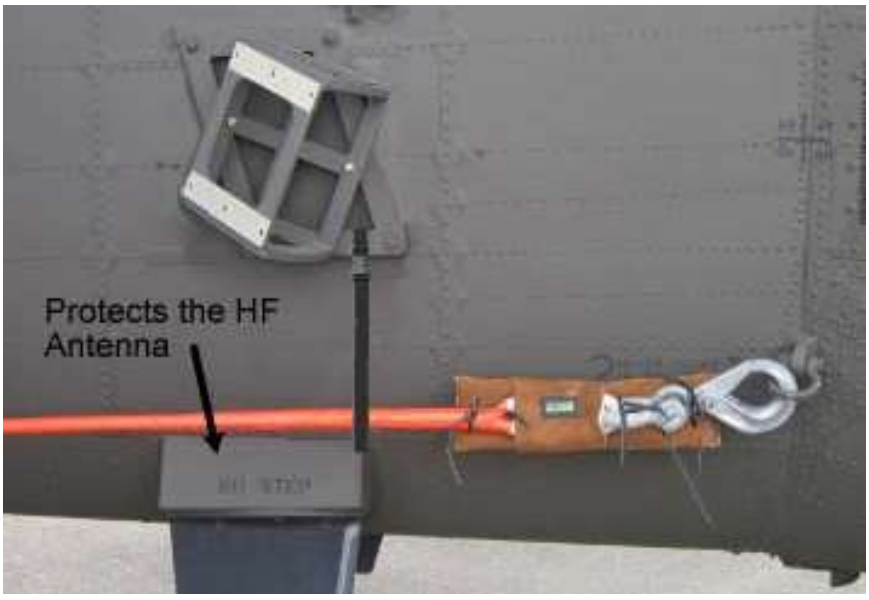

Figure 22: Use the Anti-Chafe Strap

Walk Around Inspection Before Loading

- Insure Hooks are attached correctly to aircraft tow fittings.
- Protective pads are in place
- 3/16” PIP Pins are clearly visible and in place. PIP Pin lanyards are secured with screws to the Soft Eye Adapters and the Shackle Adapter

2.3 *H-47 Tail First Load:*

Procedure:

Remove the two 10’ 8” ropes [20], two black anodized soft eye adaptors [10], two screw pin shackles [1], two self-locking hooks [2], two anti -chafe pads [3], the Black Carbon Fiber Tow Bar [14] with center front shackle adaptor [11] with a screw pin shackle [1] installed.

Figure 23: Kit Assembled for Load of H-47

Note: The longer 23’ 0” [21] lines are identified with green BTU ends or a blue ring band below the BTUs).

Insert the small lift eye (the eye without the BTU heavy abrasion sleeve) of each 10’ 8” rope into one of the black anodized Soft Eye Adapters.

Figure 24: Rope Soft Eyes in Soft Eye Adapters

Using the steel pin of the Soft Eye Adapter, connect the adapter and rope to one of the outside Tow Bar aluminum holes. Repeat the above procedure so both 10’ 8” lines are connected with Soft Eye Adapters to the Black Tow Bar.

NOTE: Make sure each Soft Eye Adapter is pinned and locked to the Black Carbon Fiber Tow bar using the 3/16 inch PIP Pins

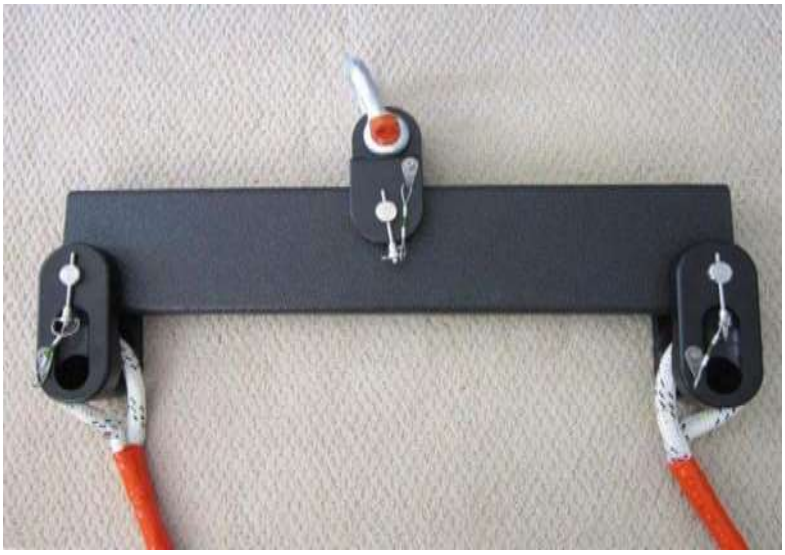

Figure 25: Soft Eye Adapters on Tow Bar

Using the alloy shackles connect one hook to the end (with the BTU) of each of the 10ft 8in lines. Ensure that the locking lug of the shackle is facing to the outside of the assembly on each side. Stretch the lines out to make sure they are straight. The lines don't twist, so if the lug is on the wrong side, you will have to remove the shackle and reverse the position.

Figure 26: Self-Locking Hooks Installed on BTUs

Attach the protective pads as necessary.

Figure 27: Attach Anti-Chafe Pads

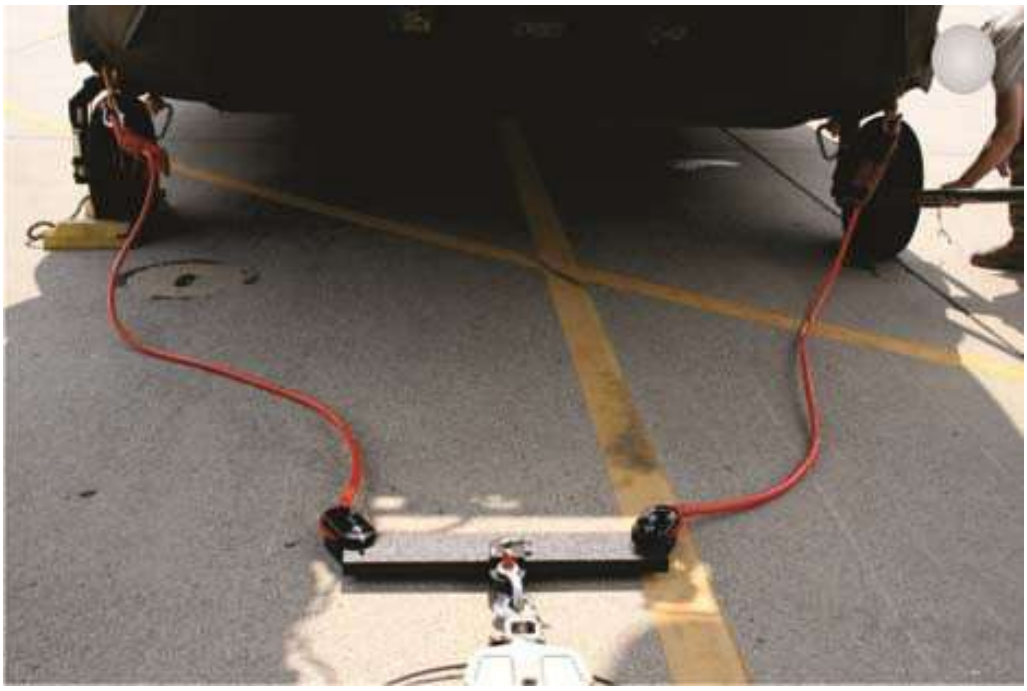

Figure 28: Attach Steering Device to Wheel

Figure 29: H-47 Configured for Tail First Load

Walk Around Inspection Before Loading

- Insure Hooks are attached correctly to aircraft tow fittings.
- Protective pads are in place
- 3/16” PIP Pins are clearly visible and in place. PIP Pin lanyards are secured with screws to the Soft Eye Adapters and the Shackle Adapter

2.4 Small Aircraft Set Up

Two straps (PN: TB37405) were added to the TB37000A-C and TB37000A-D to accommodate the need for loading aircraft without a ring type of attachment for the self-locking hooks in the kit.

The straps come in a set of two. Each strap has a working load limit (WLL) of 2,500 pounds.

The straps are made of 2" green webbing sewn in a continuous loop. To use these straps, wrap around the pull point or aircraft skid gear, then run one end through the other and pull tight. Secure the self-locking hook to the remaining end. See photo below.

2.5 Steering Bar for Universal Application of Tow Bridle Kit

The Tow Bridle Kit comes with a steering bar that can be used with the AH-64, H-60, and the H-3. It comes in two or three pieces which can be assembled with the use of a PIP pin. You can see in Figure 30 that it is easily handled and placed on the tail wheel. Use the 55 inch center extension (not shown) when towing the H-60.

Figure 30: Steering Bar Assembled

Figure 31: Steering Bar Attached to Tail Wheel

The steering bar reduces the required work to direct the Helicopter into the cargo aircraft. It is manufactured of aluminum and with the two ropes from the Tow Bar being used in conjunction; it easily controls the direction of the aircraft as it is being pulled into the cargo aircraft.

Figure 32: Steering Bar Used to Move AH-64

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CAUTION: Aircraft must be moving with tail wheel unlocked prior to turning tail wheel with Steering Bar.

NOTE: Slide the handle of the Steering Bar into the socket on the yoke and align the red and blue dots to ensure the PIP pin will insert to connect the handle to the yoke.

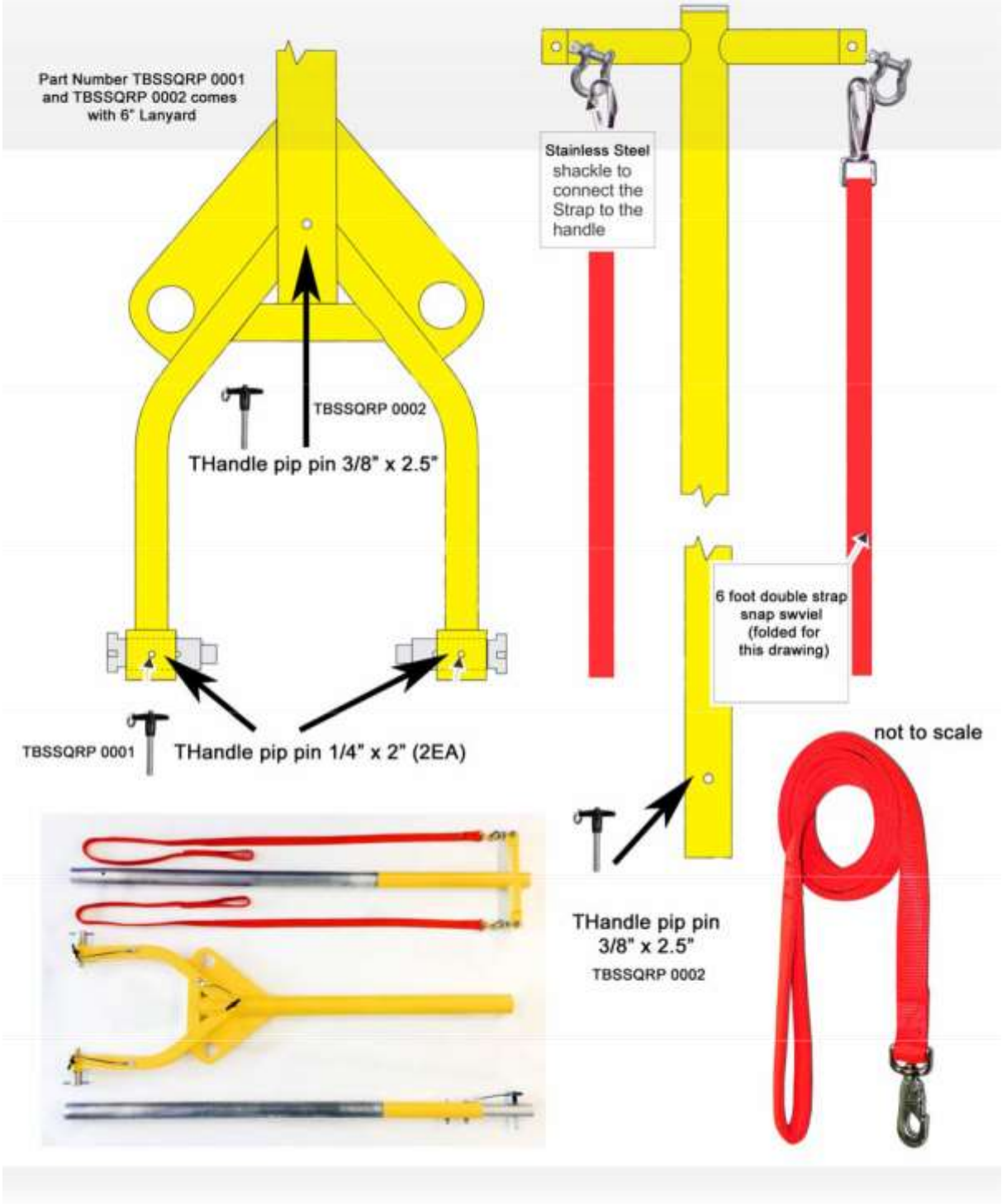
The Steering bar attachment points have several positions so that it can fit a large variety of aircraft. The attachment points are movable in and out and held in place with PIP pins. The alignment of the PIP pin to the attachment point is as is shown in Figure 33. The handle of the attachment point should be at 90° to the PIP pin. In the figure, you can see one of the holes for the PIP pin just above the body of the Steering Bar. Note: Both T-Handle and L-Handle type PIP pins are acceptable for use.

Figure 34:Figure 33: Correct Positioning of Axle PIP Pin

Figure 33: Correct Positioning of PIP Pins

NOTE: All configurations should be properly assembled and all of the PIP pins should be securely inserted before use.

NOTE: Center section can be used to make steering easier and more precise, space permitting.



Section 3 – Maintenance and Inspection

3.1 Maintenance

The TB37000A-(X) has been specifically designed to minimize the needs for maintenance.

- **Shackle Adapter with PIP Pin and Soft Eye Adapters with PIP Pin:** The aluminum adaptors are anodized to prevent degradation and need only to be kept clean and free of dirt and debris.
- **Carbon Fiber Bar w/Alum Bushing:** The Carbon Fiber Bar has been coated with a polyurethane coating to protect it and should be kept free of dirt and debris.
- **Rope Sets 10 ft, 12 ft and 23 ft:** The Ropes have been coated with a polyurethane jacket and the soft eyes have been protected with an abrasion resistant covering. The Ropes should be kept free of dirt and debris.
- **Screw Pin Shackle and Self-locking Hook:** The Shackles and Hooks are alloy materials that are designed to take wear under all reasonable applications. The Shackles and Hooks should be kept clean and free of dirt and debris.
- **Anti-Chafe Pad:** The Anti-Chafe Pads are made of leather and should be kept clean and free of dirt and debris. The Airframe Protection Pads should be treated periodically with a leather conditioner to increase the lifetime.
- **Steering Bar:** The Steering Bar is aluminum coated with a yellow Powder Coat. It is designed to be used in all environments. The steering bar should be clean and free of dirt and debris.
- **Anti-Chafe Strap:** The Anti-Chafe Strap (protects H-60M Model antenna) is made out of nylon with a black nylon plastic connector. The strap should be clean and free of dirt and debris.
- **Pelican Storage Box:** The storage box should be kept clean and free of dirt and debris. In all instances, the equipment should be stored in a dry environment and dried prior to storage after use.

CAUTION: KEEP THE EQUIPMENT DRY WHILE IN STORAGE; THE LEATHER ITEMS ARE THE ONLY ITEMS THAT SHOULD BE TREATED PERIDOCALLY TO INCREASE THE OPERATIONAL LIFETIME.

3.2 Inspection:

Shackle Adapter with PIP Pin and Soft Eye Adapters with PIP Pin: The aluminum soft eye adaptors are anodized to prevent degradation, inspection should be performed to ensure that the adaptors do not display any cracks and the attachment pins move in and out freely. If there are any cracks present, remove the aluminum soft eye adaptors from service.

Carbon Fiber Bar w/Alum Bushing: Where the Carbon Fiber Bar has been coated with a polyurethane coating, inspection should be performed to ensure that there are no penetrations, the coating has not been removed down to the carbon fiber. If the coating has been compromised and the carbon fiber is intact, replace the Line-X coating. If the carbon fiber has been compromised take out of service. If the bar shape has been deformed, take out of service. If any of the aluminum inserts are loose or missing, remove from service.

Rope Sets 10 ft, 12 ft and 23 ft: The pull lines are comprised of three layers of material. The center is the Plasma core lifting element. Covering the Plasma is a polyester jacket or sock. Finally the polyester jack is impregnated and cured with two coats of orange Urethane.

The serviceability of each rope is based on condition. See below for inspection criteria. Additional recertification or load testing is based on user requirements. If a user requires periodic load testing of the ropes, that can be accomplished at a qualified local load testing facility.

- The orange Urethane coating can be cut or chaffed exposing the Polyester jacket. NOTE: Depending upon climate the Urethane may become discolored. This does not affect the Tow Bridle's capability and can be wiped off using a citrus cleaner.
- The Polyester jacket can be cut, chaffed or stained
- If the Plasma lifting core is exposed and damaged (abrasion or cute to purple core), the pull line has to be taken out of service and replaced.

Screw Pin Shackle and Self-locking Hook: The Shackles and Hooks are forged alloy materials designed to take wear under all reasonable applications. The Shackles and Hooks should be inspected for damage and ease of operation. If they are damaged enough to prevent operation, take out of service and replace.

Rope Airframe Protection Pad: The Airframe Protection Pads are made of leather; the Airframe Protection Pads should be inspected for damage that prevents protection of the airframe. If severely damaged enough, take out of service and replace.

Steering Bar: The Steering Bar is aluminum coated with a yellow Powder Coat. It is designed to be used in all environments.

If the PIP Pin holes become elongated and will not allow the pip pins to maintain their lock, take

out of service.

If the Steering bar welds have become compromised take out of service.

If the powder coat is damaged or chipped, the Bar can remain in service.

Line Support Strap: The Lift Line Support Strap (protects M Model antenna) is made out of nylon with a black nylon plastic connector.

If the strap is cut or abraded to the point where individual strands are being cut, take out of service.

If the connector loses its spring to connect, take out of service.

Pelican Storage Box: The Pelican Case has a life time guarantee. If it becomes unserviceable, return it to manufacturer for replacement.

CAUTION: KEEP THE EQUIPMENT DRY WHILE IN STORAGE; THE LEATHER ITEMS ARE THE ONLY ITEMS THAT SHOULD BE TREATED PERIDOCALLY TO INCREASE THE OPERATIONAL LIFETIME.