Refurbishment of your X-904 or X-1000

A note to our end users.

We are pleased that you chose the X-904 or X-1000 for your operations and we want you to have the best and safest possible program for the offshore transfer of your most important asset, your people.

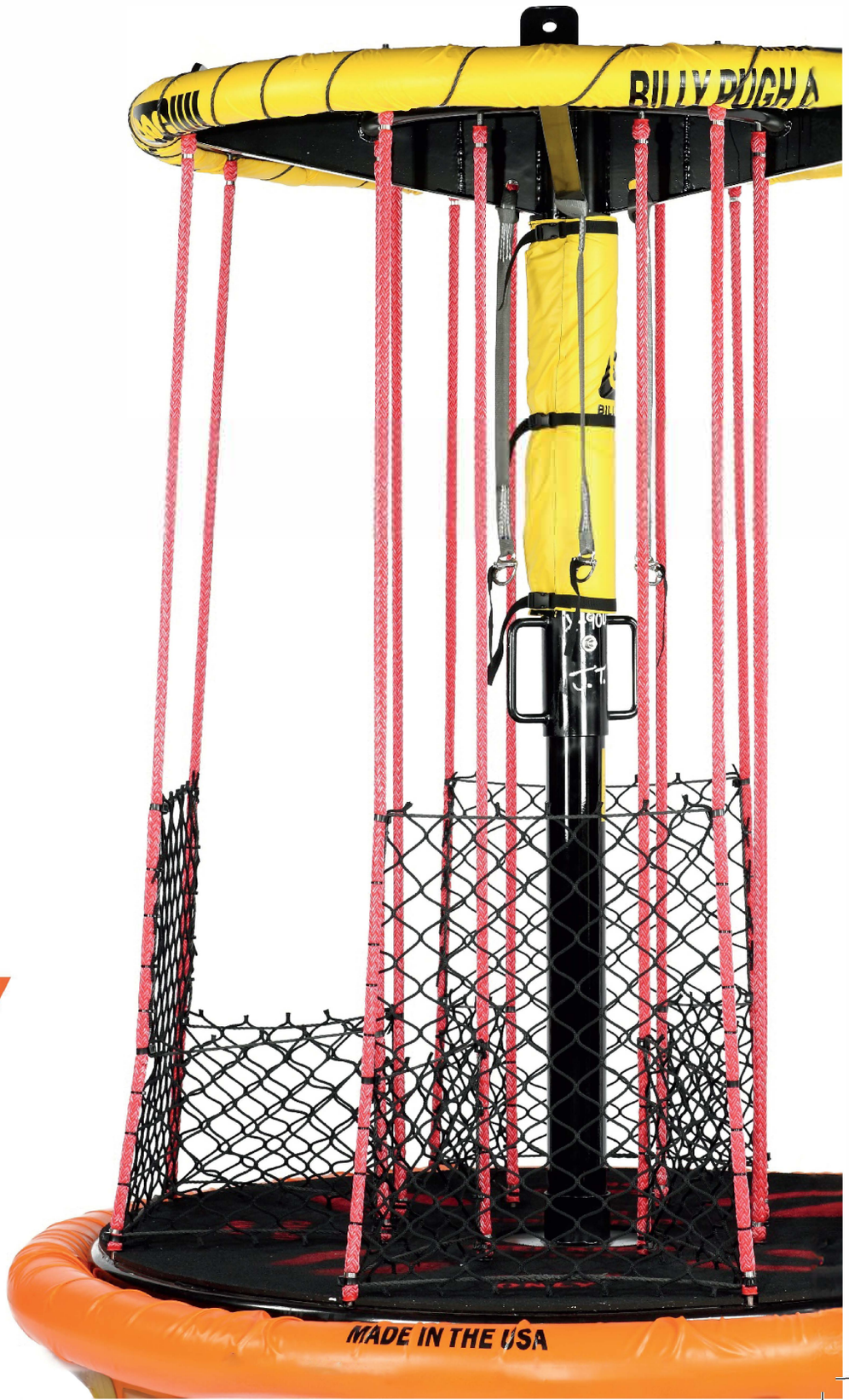
When it's time for your X-904 or X1000 to be refurbished, please refer only to a Billy Pugh Company certified Refurbishment Center or Technician. We have them strategically located all over the world and they are specifically trained to perform this critical service. We have provided a listing of those companies certified to maintain your Personnel Transfer Device here on our website: https://www.billypugh.com/support/refurbishment/
If you have any questions or concerns about getting your X-904 refurbishment, please e-mail us at bpc@billypugh.com.

X-904

User Manual

Rev 2025.3

18 March 2025



Welcome

Dear Customer,

Thank you for purchasing this Billy Pugh transfer device.

This product has been tested and certified and is provided with an original hard copy certificate, delivered with the device. To receive free access to copies of this certificate and all future certification for the unit **you will need to register the product**. This can be done by using the QR code below.

After the 30th June 2025 this will be the only way to access certification for free. After this date additional certificates outside of this system will be a chargeable item, at $150.

You will of course be able to register at any time to get the free access to the certificates.

REGISTER THIS UNIT NOW

https://bpc.myfleet360.net/registrations

Purchase Date: _____

Purchased from: _____

Model No. _____

Serial Number: _____

Date Put Into Service: _____

Introduction

As leadership of Billy Pugh Company, I would like to thank you for your purchase of our X-904 or X-1000 Personnel Transfer Device. With over 17 years of safe service to the industry, the X-904 has literally performed millions of transfers safely, gaining the confidence of riders throughout the world over. It is this great safety record that has led the X-904 to become the market leader in safe personnel transfers to both the Oil and Gas and Ship-to-Ship markets.

At Billy Pugh Company we love to engage and collaborate with people in the industry. For that reason, we like to say that our Research and Development Department is the offshore workforce itself. Our business model is to regularly engage with our customers to listen to their current safety challenges and learn what safety features they want to see inherent in the design of our products. The X-904 and now the new X-1000 are excellent case studies in product development through close collaboration with the end user.

Beyond the X-1000, we have added several other new safety products to our portfolio of products. With a nod to our rich 65+ year history, each of these new products is the result of engaging and listening to our customers. Whether it's the product idea itself or the structural engineers running strength calculations, our products are designed and manufactured by people who have experience in oil and gas and offshore marine environments. We feel this is the key to delivering a safe reliable product to our loyal and valued customers. We will continue to leverage our industry friendships to develop new innovative safety products for the industries we serve.

.

Mike Cadigan

Mike Cadigan
President
Billy Pugh Company, LLC

Recommended Practice and Inspection

Personnel Transfer Device, X-904

BILLY PUGH COMPANY

INTEGRITY MANAGEMENT SYSTEM (IMS)

Printed documents are considered uncontrolled.
Controlled documents can be found on the Billy Pugh Co., LLC. website.

1.0 INTRODUCTION

1.1 Purpose

This recommended practice is intended to assist all offshore employers in the development of safe work practices relative to the task of transferring personnel to-and-from offshore facilities utilizing a Billy Pugh X-904 personnel transfer device. This recommended practice addresses the minimum regulatory and industry requirements for the use of this unit. (see 2.3 Design Standards)

1.2 Scope

This recommended practice is intended for application by employers working in a marine offshore environment who transfer, move, or transport their workforce by a Billy Pugh X-904 personnel device. This recommended practice should be applied as appropriate with due consideration made for any additional special hazards identified by the employer as a result of a thorough Job Safety Analysis (JSA) / Job Hazard Analysis (JHA).

1.3 Responsibilities

It is the responsibility of the offshore employer to ensure this recommended practice is applied appropriately within their organization. Management of offshore personnel transfer safety should be an integral component of the employers' existing Safety Management System (SMS). Each offshore employer is encouraged to follow these recommendations and to proactively modify or supplement them with additional beneficial practices, equipment, or environmental conditions.

2.0 ACRONYMS, DEFINITIONS & REFERENCES

2.1 Acronyms

ABS	-	American Bureau of Shipping
API	-	American Petroleum Institute
ASME	-	American Society of Mechanical Engineers
BPC	-	Billy Pugh Company
JSA/JHA	-	Job Safety Analysis / Job Hazard Analysis
PFD	-	Personal Flotation Device
PHC	-	Passive Heave Compensator
PTD	-	Personnel Transfer Device
RP	-	Recommended Practice
SES	-	Suspended Emergency Seat
SMS	-	Safety Management System
WLL	-	Working Load Limit

2.2 Definitions

In Service Date: The date the X-904 is unwrapped is the "In Service Date". That date will be noted on the X-904 certificate and the yellow sticker attached to the center pole. The "In Service Date" is used as the date for aging the device for inspections and replacement. If during inspection it is found that there is not an "In Service Date" recorded, then the "In Service Date" will defer back to:

a) Goods Receiving date. This is the date the customer received the goods from their forwarding agent. If you do not have this date then the Invoice date will apply, see b) below.
b) Invoice date (from Distributor to Customer) or Delivery Order date (from Distributor to Customer) from a delivery order or Invoice. If you do not have this date then the Purchase Order date will apply, see c) below.
c) Purchase Order date (Customer PO to Distributor). This is the date the PO was created. If you do not have this date then the Distributor Receiving date will apply, see d) below.
d) Distributor Receiving date from Billy Pugh Company. If you do not have this date then the Manufactured date will apply, see e) below.
e) Manufactured date when the device was made.

Qualified Person: A person designated by the employer who has the experience and formalized training to safely operate the crane, rigging and associated lifting devices assigned at the work location.

Qualified Inspector: A person designated by the employer who, by reason of appropriate experience and training, in addition to meeting the requirements of a qualified person, has attended formal training in inspection, maintenance and troubleshooting of cranes, rigging and lifting devices.

Rigging: Load lines, master links, safety slings and hardware that attach the X-904 Personnel Transfer Device to the crane hook or block device.

2.3 Design Standards

The X-904 Personnel Transfer Device has been designed, manufactured, inspected, and tested in accordance with:

- ASME B30.23-2022 Personnel Lifting Systems
- ABS Guide for Certification of Personnel Transfer Appliances, Chapter 7

2.4 References

- American Petroleum Institute (API) – "API RP-2D Recommended Practice for Operation & Maintenance of Offshore Cranes"
- International Association of Drilling Contractors (North Sea Chapter)- IMCA SEL 08/01 "Transfer of Personnel by Basket on the UK Continental Shelf"
- Moxie Media Corporation – "Personnel Basket Safety Video Training Series" Updated 2023
- International Marine Contractors Association (IMCA) – "Task Risk Assessment Study 8/2000"
- National Research Council, Assembly of Engineering Marine Board – "Committee on Assessment of Safety of OCS Activities"
- Billy Pugh Company, Inc. – "Procedures for Maintenance & Inspection of Personnel Baskets"
- Kennedy Wire Rope & Sling Company – "Procedures for Inspection & Maintenance of Wire Rope Slings and Rigging"
- Department of the Interior, Minerals Management Service – "Safety Alert No. 190-1/22/00 & Safety Alert No. 193-2/28/01"
- Global Drilling Leadership Initiative – "Recommended Practice #6"
- Oil Companies International Marine Forum (OCIMF) – Transfer of Personnel by Crane Between Vessels
- X-904-4 Personnel Transfer Device General Arrangement Drawing No. X9044-100

3.0 BACKGROUND, PRODUCT HIGHLIGHTS & DESIGN FEATURES

3.1 Background

With over 15 years of safe service to the industry, the X-904 has literally performed millions of safe transfers, gaining the confidence of riders the world over. This significant safety record, as well as the devices ease of use, has led the X-904 to become the market leader in safe personnel transfers for both the Oil and Gas and Ship-to-Ship markets.

At Billy Pugh Company we like to say that our Research and Development Department is the offshore workforce itself. Our business model is to regularly engage with our customers to learn what safety features they want to see inherent in the design of our products. The X-904 is an excellent case study in product development through close collaboration with the end user.

While the X-904 is still the industry leader, in late 2022 we launched a project to design our next-generation Personnel Transfer Device, which we will call the X-1000. Like the X-904 project 15 years ago, this new design is the result of in-depth customer engagement to learn what safety features the customer truly values. We designed the new X-1000 with safety features that can be upgradeable from the current X-904-4 on the market today.

3.2 Product Highlights

Every X-904 Personnel Transfer Device includes:

- ✓ Designed to ASME B30.23-2022 Personnel Lifting Systems
- ✓ Designed to the ABS Standard for Personnel Transfer Appliances
- ✓ Working Load Limit (WLL) of 1,200 lbs. for four riders plus light luggage
- ✓ Individual Landing Cushions (Upgrade Option)
- ✓ Removable Suspended Emergency Seat option (Upgrade Option)
- ✓ Floor Grating for improved viewing of landing for the rider (Standard on new Models)
- ✓ Grabline Cushions for improved rider comfort (Upgrade Option)
- ✓ Stretcher accommodation in addition to the emergency seat
- ✓ Snag Resistant Tag Line
- ✓ Quick Release Lanyards
- ✓ Stabilizer

The following X-1000 upgrades are available for all X-904 Personnel Transfer Device:

- ✓ Self-Righting Flotation System
- ✓ Enhanced Side Impact Protection on outer perimeter
- ✓ Passive Heave Compensation for softer pickup & takeoff

3.3 Standard Design Features

3.3.1 Individual Landing Cushions (Upgrade Option)

1" nitrile foam with a non-skid surface has been added to the standing areas providing the rider(s) with a cushion for a softer landing as well as hi-viz foot placement graphics.

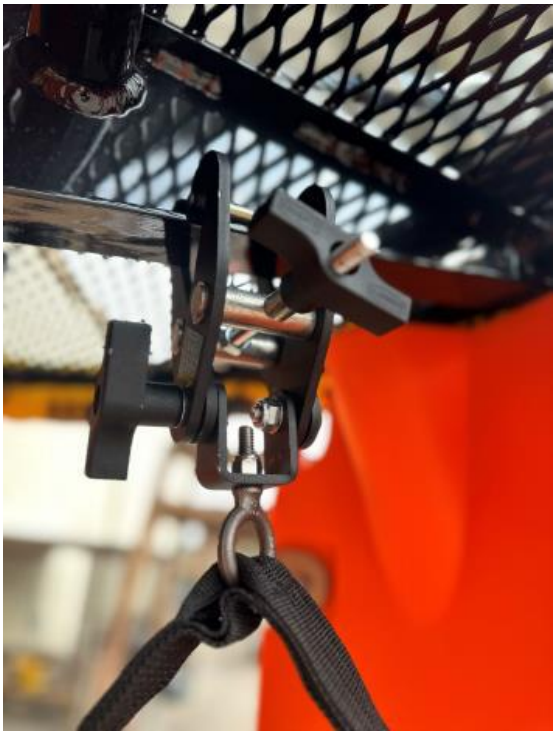
3.3.2 Removable Suspended Emergency Seat (SES-1) (Upgrade Option)

Designed for the rider who cannot stand during crew changes, the Suspended Emergency Seat (SES) is a hanging seat that clamps to the upper lift frame of the X-904 or X-1000. The upper scissor clamp device (WLL of 500 lbs.) enables it to quickly attach or detach when needed. The SES (WLL of 300 lbs.) has an 18 oz. orange seat cover, an 8" wide by 30" long durable PVC reinforced seat, 2" black webbing, an adjustable back strap and cushioned stainless steel spreader bar. The entire SES seat assembly weighs only 11 lbs.

This functional design enables a person, who is unable to stand due to sickness or minor injury, to be transferred in the PTB. The seat can also provide a medic with the opportunity to sit adjacent to a stretcher during transfers.

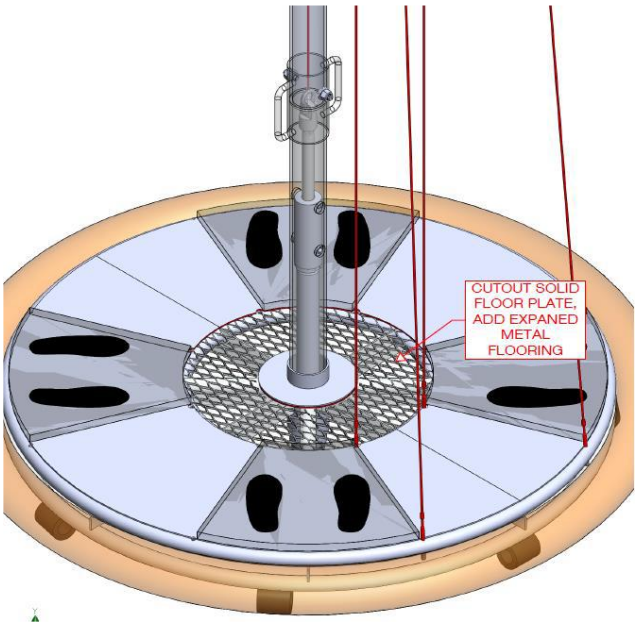
Personnel using the seat are still able to use the quick release safety lanyard by removing the lanyard from the standard top hole attachment and reattaching the lanyard to one of the pole coupling handles. Alternatively, a longer lanyard (10/12-man lanyard) can be attached to the standard top hole attachment location.

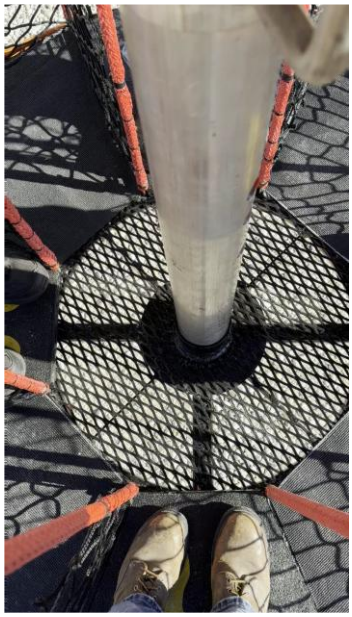
This suspended emergency seat is NOT designed for everyday personnel transfers.



3.3.3 Floor Grating for Improved Downward Viewing (Standard on new Models)

Expanded metal in the center permits the rider(s) to maintain their safe inward orientation holding the grab lines as the unit descends and to look down to see an approaching deck at landing to reduce the risk of the rider(s) being caught off guard.





3.3.4 Grabline Cushions (Upgrade Option)

The Grabline Cushions provide padding and comfort to the rider(s). Affix the cushion by wrapping it around the grabline and securing with Velcro at the desired height of the rider.

3.3.5 Stretcher Accommodation

A stretcher carrying an injured person can be transported in the X-904 or X-1000 Personal Transfer Device (see Appendix 6.2). Riders may accompany patient either as passengers in the standing position or as an attendant in the seated or kneeling position.

Photo shown with Stretcher in X-904 model

3.3.6 Snag Resistant Tag Line

BPC taglines are made of polydacron rope and dipped in liquid polyurethane which saturates the rope to make it one of the most durable tag lines available in the market. This also provides a wet or dry non-slip gripping surface by incorporating horizontal wraps. Due to their unique construction, our taglines are highly resistant to wrapping or catching on pinch points as they have no knots or raised areas. They are also far less affected by deterioration from UV rays due to their polyurethane coatings.

BPC designed the Push-Pull Tag Line specifically to meet the challenges associated with positioning loads while observing a hands-free policy. We've incorporated a 4 ft. rigid section into our already durable tag line that is sturdy enough to push the load to a preferred location but is also flexible enough to slightly bend.

Tag lines length for the X-1000 units should be 15 ft. This recommendation is consistent with API-RP-2D (Annex C). The tag line should be attached to either of the two deck lashing points on the bottom platform.

Semi-Rigid Tag Line w/ 4ft Push-Pull Rigid Section

3.3.7 Quick Release Safety Lanyards

Safety without confinement. All models are equipped with quick release safety lanyards to provide safety and give the rider confidence while in transit.

3.3.8 Stabilizer

If you see twists in the stabilizer (the rubber "bungee" attached above the four-part sling next to the load line) get these twists out before the next lift.

Inside the canvas bag that holds the rubber bungee there is also a safety load line that backs up the main wire rope load line. If there are twists where the wire rope load line is wrapped around the bag (holding the line and the rubber) when the lift is made it can break or damage the rubber bungee inside. This WILL NOT cause any safety issues as the rubber bands in no way are load bearing, but to maintain the best performance of your X-904.

There have been some questions about the stabilizer and safety line in terms of its purpose on our Personnel Transfer Devices. First of all, the safety line is made from ¾" 12-strand rope with a tensile strength of 22,050 lbs. This line is made slightly longer than the wire rope load line and is intended only to serve as a backup in the event of separation or failure of the main load line. It does not carry any of the load on normal lifts. The 12-strand rope is not deteriorated by UV, due to its protection from the orange cover.

At the two-year refurbishment, a new stabilizer assembly comes with the refurb kit and is replaced at this time.

The rubber bungee also serves to assist the crane operator in keeping the rigging in the proper position when slacking off.

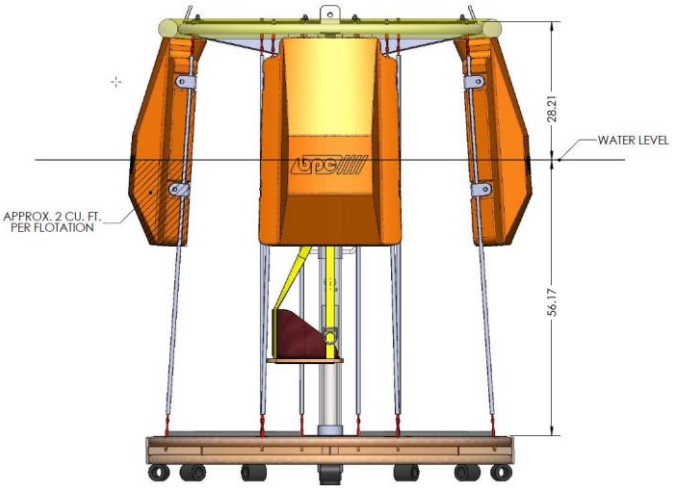
3.4 Upgradable Design Features

3.4.1 Self-Righting Flotation Modules

Flotation modules can be added to the upper section of the grablines and top frame to incorporate Self-Righting Floatation without impeding rider egress.

The Self-Righting Flotation is designed to preserve 'Quick Egress' capability for the rider. The concept of Self-Righting Flotation places the center of buoyance above the center of gravity, thus always ensuring the device will maintain a righting moment if ever in the water.

Riders have the option to escape rapidly or remain in place taking advantage of the impressive stability afforded by the design of the floats.



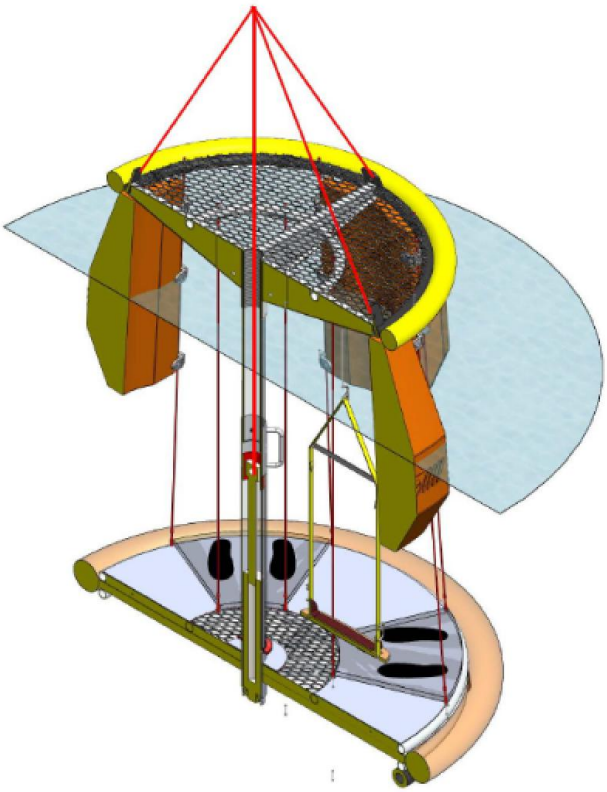
3.4.2 Enhanced Side Impact Protection

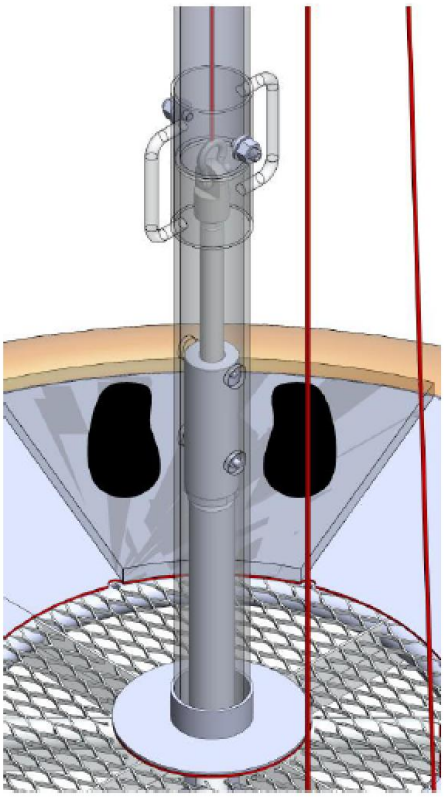
The robust nature of the flotation modules enables them to also act as enhanced side impact protection for riders during the transfer.

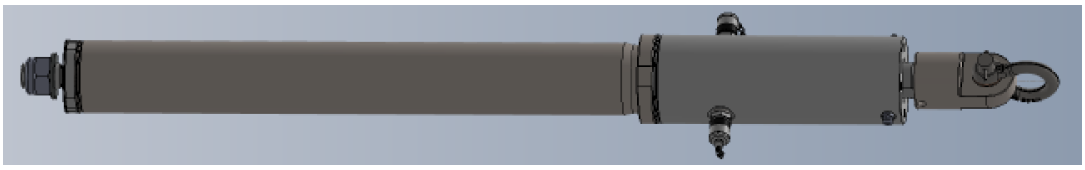
3.4.3 Passive Heave Compensation

In cooperation with Safelink, the Poseidon C-500 2 Passive Heave Compensator (PHC) has been incorporated into the center pole and connects to the upper master link in the rigging. This engages during the start of the lift and then transfers the load to the main rigging. The PHC is designed to act as a spring initially taking up the load and smoothly transferring the load to the main rigging. The rider(s) benefits by not being jerked around or surprised by a quick snatch off the deck.

The PHC is positioned low in the center pole to retain a low center of gravity and reduce loose rigging above the load. By keeping the weight low in the load, it helps to stabilize the load during the transfer, benefitting the rider(s).







3.5 ABS Certification

3.5.1 ABS Type Approved Manufacturer

In terms of personnel transfer devices, we do charge an additional fee for ABS certificates to offset our costs associated with this service. ABS is not required in all parts of the world for personnel transfer devices so we only charge those companies that choose this option.

3.5.2 ABS Type Approval Program

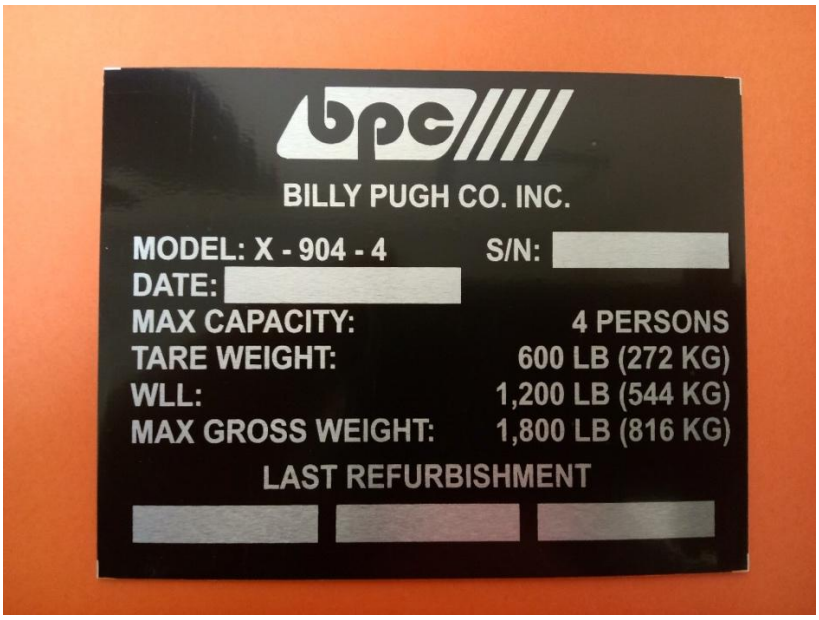
In the Type Approval Program, ABS certifies that enrolled manufacturers are capable of consistently producing a product in compliance with product specifications. Each product is tested to verify that it will perform reliably in the marine and offshore environment.

The ABS Type Approval process provides design verification and manufacturing assessment that confirms products meet applicable quality industry standards and class requirements.

To find out about the ABS Type Approval process visit www.eagle.org.

3.5.3 How Can I Tell if My Billy Pugh Personnel Transfer Device is ABS Type Approved?

Not all Billy Pugh Co. Personnel Transfer Devices come with ABS Type Approval Certificates. The design itself is ABS Type Approved under our Product Quality Assessment Program. The X-904 series does not have a serial number that designates type approval. The last 2 numbers of the serial number are the year of manufacture. All ABS X-904's are marked with the ABS Badging and includes a special ABS certificate.



3.5.4 Product Registration

Every X-904 should be registered on our Product Registration Website. This allows the user to record and track the In-Service Date of the device and access electronic copies of current certificates. Please refer to Appendix 6.8 to access a procedure to help guide the Product Registration Process.

4.0 RECOMMENDED PRACTICES / INSPECTIONS / MAINTENANCE

4.1 Safe Recommendations for the X-904

When the X-904 is utilized to perform personnel transfers, it is recommended that the operation be performed under strict controls. At minimum, it is recommended that a Job Safety Analysis (JSA) or Job Hazard Analysis (JHA) be performed prior to the task taking place.

It is recommended that communication be established prior to, and maintained throughout, the personnel transfer. This communication whether radio or hand signals should be between the crane operator and the banksman/signalman.

It is recommended that all equipment involved in personnel transfers must have current certification and be visually inspected for condition prior to each use.

4.1.1 Prior to a Personnel Transfer:

A Qualified Inspector should perform a Pre-Use Inspection as explained in section 4.2.2. The Inspector should look for signs of:

- Abrasion
- Cuts
- Cracks
- Ultraviolet degradation and / or chemical attack

When damage affecting the structural integrity of the X-904 is discovered, the device should be immediately taken out of service.

4.1.2 Recommended Practices:

The following minimum lifting practices are recommended for all crane assisted Personnel Transfers:

a) Any offshore facility conducting personnel transfers with a PTD should have a written procedure for this activity.
b) A pre-use inspection should be conducted prior to any personnel transfer with a PTD.
c) Cranes assigned to personnel lifting duties should be suitable for this purpose per relevant API spec.
d) Crane operators assigned to personnel lifting duties should be certified and competent to perform this task.
e) A snag resistant tag line should be affixed to all PTD's.
f) Crane hooks used for personnel transfers must have a locking latch.
g) Only approved PTD's should be used for lifting personnel per API specifications. PTD's should not be used as a workbasket or cargo net.
h) PTD's should be legibly marked with the maximum number of passengers allowed.
i) Only the X-904-4 model is equipped with areas designed for light luggage. Luggage should be stowed before the lift is made and easily accessible for debarkation. No large or heavy items (bigger than the storage area) should be allowed on the X-904-4. Large or heavy items should be sent separately via a cargo basket.
j) PTD's should not be utilized in weather, winds or sea conditions that the qualified person considers to be unsafe. See Appendix 6.1 Offshore Safe Weather Conditions for Personnel Transfer

k) Before any attempt is made to lift personnel with a PTD, clear instructions should be given to all persons involved.
l) No person suffering from acute seasickness or vertigo shall be transported by a PTD. If the transfer is necessary, the affected person should be put inside a stretcher which is shackled to the rigging provided inside the PTD. A qualified escort should accompany the individual.
m) Any individual has the right to refuse transfer by a PTD.
n) All personnel riding on a PTD should wear an approved life vest or life preserver. An approved Type I illuminated PFD may be required for all transfers conducted at night or for rough seas and bad weather transfers (depending on Operator/Contractor policy).
o) All personnel riding on the X-904 should stand on the inside of the unit, with their feet placed as marked on the Landing Cushions, and grasp the cushioned grablines. A riders forearms should be interlocked.
p) If the crane operators' view of the primary signalman is obstructed, the PTD should not be moved until alternative communication or signal devices are placed in service.
q) A designated primary landing zone should be marked in a safe area as determined by a JSA or JHA. This area should, at minimum, be twice the diameter of the PTD.
r) When transferring personnel, the PTD should be lifted only high enough to clear obstructions.
s) A loaded PTD should only be raised or lowered directly over the water and never a vessel or hard surface.
t) The crane operator may refuse to lift any person who does not comply with the operator's instructions.
u) An experienced escort should be provided for persons who are not confident riding on a PTD.
v) Injured, seasick or unconfident persons may ride in a sitting position, on the inside pf the PTD, with a qualified person as an escort.

Note: Depending on company policies, attaching the man positioning lanyard to the riders' PFD may be optional during transfers with the X-904. Billy Pugh Company encourages the use of this lanyard but is not a requirement to meet this recommended practice.

4.2 Inspection and Maintenance

4.2.1 Inspection Frequency

The end-user is recommended to adopt procedures that meet or exceed these recommendations.

	Frequency		
Type of Inspection	**Before Each Use**	**6 Months**	**24 Months**
Pre-Use Inspection	x		
Scheduled Inspection		x	
Scheduled Refurbishment			x

***__Remember__: When inspecting any safety equipment, always err on the side of caution. The cost of a new Personnel Transfer Device (or any safety equipment) is very small compared to the potential consequences of putting an unsafe or damaged device into service.

4.2.2 Pre-Use Inspection

All Pre-Use Inspections of the X-904 should be performed by a Qualified Person and should always incorporate an Operator's pre-use inspection. Disassembly is not required unless the visual inspection identifies a potential issue.

Line instructions for the X-904 Pre-Use Inspection Form (see Appendix 6.3)

1. General Damage – Check for any damage or defect on all parts of the device.
2. Safety Load Line – Visually inspect the safety load line when attaching the X-904 to the crane hook.
3. 4-Part Sling - Visually insect the 4-part sling, associated hardware as well as the load line.
4. Stabilizer – Visually inspect the fabric covered stabilizer for tears or excessive wear. Look for crimps, broken wires or excessive wear or rust. If any of these problems exist, take the device out of service immediately and replace the stabilizer.
5. Crane Hook – Visually inspect the crane hook's positive locking device for function and physical condition.
6. Top & Bottom Ring – Visually inspect all the load bearing areas of the X-904 for excessive wear or damage.
7. Rigging Lines – Visually inspect the rigging lines (inner & outer).
8. Center Pole – Visually inspect the aluminum center section for damage, cracks, deformation or excessive wear.
9. Quick Release Hooks – Inspect the stainless steel quick release hooks. Regularly spray with a lubricant (i.e. WD-40) to protect from corrosion.

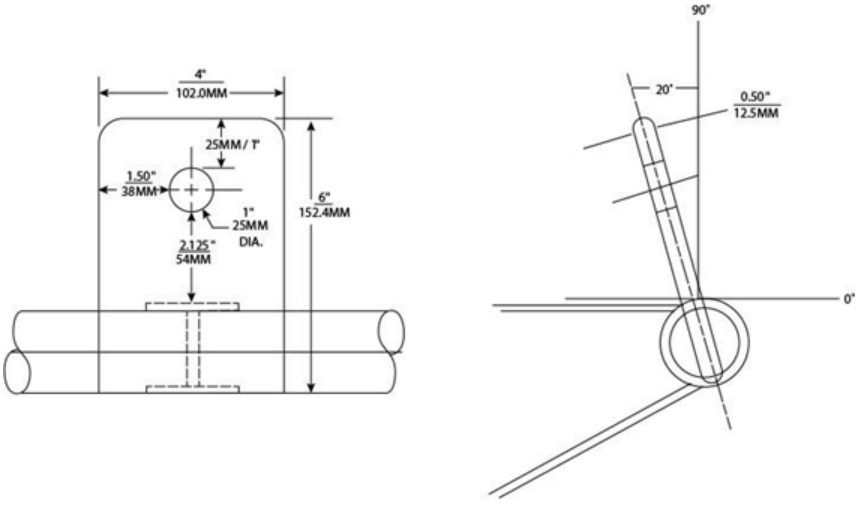
If any load bearing area of the X-904 is worn or defective in any way, take the device out of service immediately.

4.2.3 Scheduled Inspection

All 6 Month Scheduled Inspections of the X-904 should be performed by a Qualified Person and should always incorporate an Operator's pre-use inspection. Disassembly is not required unless the visual inspection identifies a potential issue.

Line instructions for the X-904 6 Month Inspection Form (see Appendix 6.4)

1. General Damage – Check for any damage or defect on all parts of the device.
2. Safety Load Line – Visually inspect the safety load line when attaching the line to crane hook.
3. 4-Part Sling - Visually insect the 4-part sling, associated hardware as well as the load line
4. Stabilizer – Visually inspect the fabric covered stabilizer for tears or excessive wear. Look for crimps, broken wires or excessive wear or rust. Replace inner rubbers if damaged, broken or they have lost elasticity.
5. Rigging Ropes – Visually inspect the vertical rigging ropes and the nuts & bolts that hold them for sufficient and consistent tension.
6. Top & Bottom Ring – Visually inspect the top and bottom powder coated aluminum frame including the top and bottom rings, expanded metal top and center pole. Look for excessive wear, cracks or corrosion.
7. Center Pole – Turn center pole (at least 3 full turns) loosening and then tightening. Swab the threads with lubricant to prevent seizing.
8. Flotation Ring Covers – Inspect the top and bottom outer flotation ring covers for damage.
9. Rubber Feet – Visually inspect the rubber feet on the bottom frame for deterioration, damaged or missing feet.
10. Non-OEM Components or Modifications – Visually inspect for modifications or non-OEM supplied components. Non-OEM components should be removed
11. Pad Eyes – Visually inspect the pad eyes on the upper ring of the X-904. There should be no cracks or damage to the welds. The hole in the pad eye should still be round and not elongated by more than 5%. The angle of the pad eye from the upper ring should be 20 degrees inside of vertical (see drawing below). Some wear of the coating is to be expected and is acceptable, but there should not be excessive wear of metal.



Pad Eye Specification

4.2.4 Scheduled Refurbishment

The X-904 should be refurbished every 2 years (with the understanding that it had passed all Pre-Use and 6 month inspections). The 2 year refurbishment helps to ensure these devices are more than ready to do the job they were designed for.

Why every 2 years? We have found that on average (based on over 60 years of manufacturing safety equipment for offshore use) that 2 years in the field is the maximum time that we can recommend using these types of devices without replacing critical parts.

The center section of the X-904 is made from aluminum to keep the weight of the X-904 as light as possible. Aluminum does 'cycle' overtime and can lose some strength. After 8 years in the field (new plus 3x 2 year refurbishments) we recommend the device be replaced.

For a listing of the 40+ companies worldwide who are certified to furbish your X-904, go to billypugh.com and look under the 'Support' link onscreen. They will not only re-certify the unit but also replace worn or damaged parts.

Web Link: X-904 Refurbishment - Billy Pugh

5.0 REVISIONS

Rev.	Date	Nature of Revision
0a	20-Nov-2024	Initial Draft Created
0f	05-Jan-2025	Latest Update

6.0 APPENDICES

6.1 Offshore Safe Weather Conditions for Personnel Transfer

BPC does not have a specific Adverse Weather Policy for offshore crane personnel transfer. There are several reasons for this:

1. Many of the Operators and Contractors using Personnel Transfer Devices have different tolerances and procedures for their transfer operating envelopes. We try not to place our own limits about sea states and weather conditions in that this may conflict with those policies implemented by said companies.
2. There are so many variables in determining a safe working envelope for offshore crane assisted personnel transfers. These variables make it difficult to give a 'cut and dried' number for wind and sea states.

Examples:

- What is the size of the vessel involved? Transferring to or from a 300 ft supply boat in heavy seas is a much different operation than performing the same transfer to or from a small crew boat.
- What is the training and experience of the personnel being transferred?
- What is the size and condition of the landing area?
- What is the training, experience, competence and certification of the crane operator?
- Is the transfer taking place on the windward or leeward side?
- What is the visibility for the crane operator?
- Does the vessel(s) have DP (Dynamic Positioning) capability to remain on station?
- Does the crew being transferred, the boat captain and the crane operator agree, from their pre-lift meeting) that this transfer can be done safely? In our opinion, this is the most critical factor in rough sea / bad weather personnel transfer decisions.

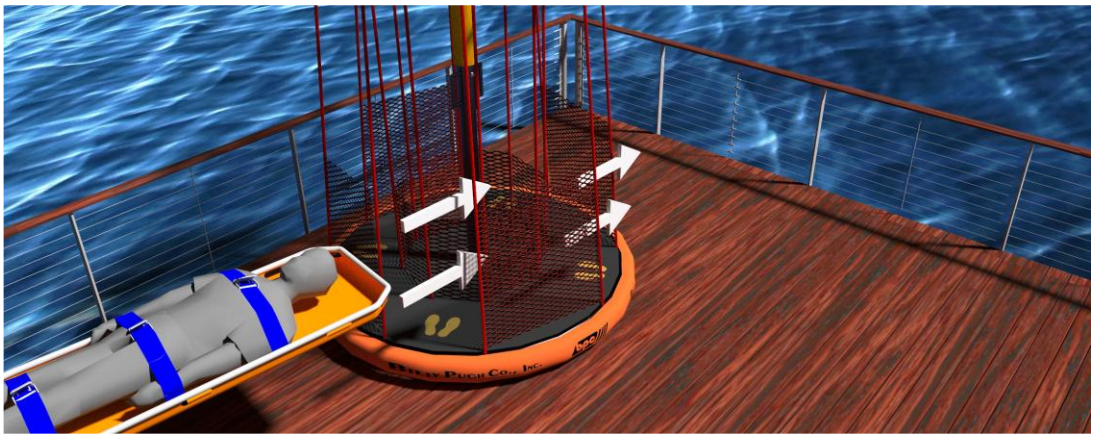
Scenario 1: A major oil company had to perform an extremely large number of crane transfers in the Gulf of Mexico. Their operating wind window was 30 knots which is a common general crane operating maximum working window in many areas of the world. What this major operator found was that they were slightly exceeding 30 knots in a large percentage of days. What they also found was that (because they had good equipment, big DP vessels, well trained crews and crane operators and a good transfer system) they could safely increase the transfer operating envelope to 35 knots. Things went extremely well, they transferred over 47,000 personnel during this phase of the operation with zero incidents. If we had recommended a 30 knot maximum it would have been in conflict with their, very safe and well thought out, transfer operation.

Scenario 2: With a small boat, no DP, inexperienced crew etc. a 35 knot wind would not be a safe transfer envelope. In fact, a 30 knot wind would probably not be a safe transfer condition. In this second scenario, if we were to state in our RP the "30 knots is the maximum" these transfers might be performed because they fit within the envelope we suggested and that might have created a hazardous condition.

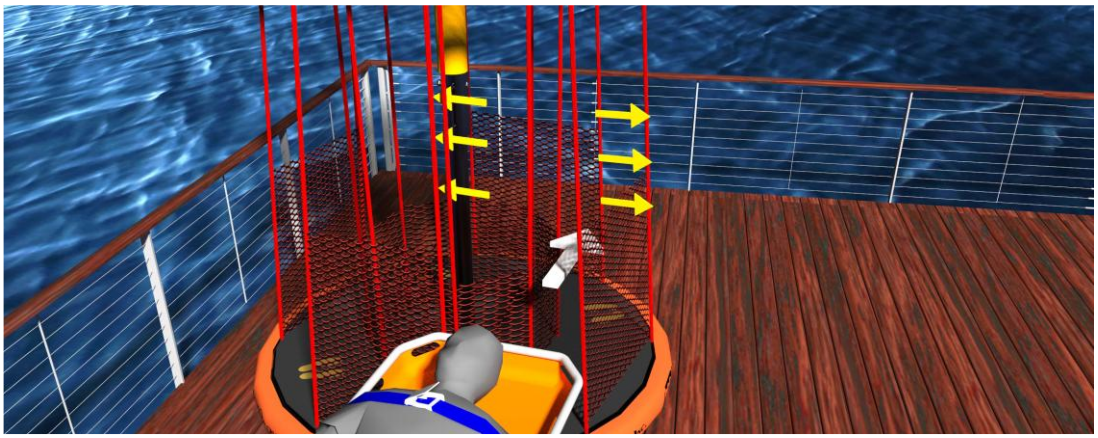
6.2 Stretcher Transfers

Step 1: Placing the Stretcher inside the X904 or X-1000 Personnel Transfer Device (PTD)

1. With the PTD in the working position, carry one end of the stretcher in through any opening and out through the adjacent opening. With the center of the stretcher inside the PTD lower the stretcher to the floor.



2. Vertical grablines will expand to accommodate the width of the stretcher.



Step 2: Secure the Stretcher

1. Tie off the stretcher using the PTD's outer vertical grablines.

Step 3: Boarding with Stretcher

1. Riders may accompany the patient either as attendants (in the seated or kneeling position) or as passengers (in the standing position).

6.3 Pre-Use Inspection Form

X-904 Pre-Use Inspection

Serial No.:	
Date:	
Inspected By:	
Signature:	

Item No.	Description	Pass	Fail
1.	General Damage		
2.	Safety Load Line		
3.	4 Part Sling		
4.	Stabilizer (ensure orange stabilizer is not wrapped around the load line)		
5.	Crane Hook		
6.	Top and Bottom Ring		
7.	Rigging Lines		
8.	Center Pole		
9.	Quick Release Hooks		

Notes:

6.4 6 Month Inspection Form

X-904 6 Month Inspection

Serial No.:	
Inspection Date:	
Cert. Expiration Date:	
Inspected By:	
Signature:	

Item No.	Description	Pass	Fail
1.	General Damage		
2.	Safety Load Line		
3.	4 Part Sling		
4.	Stabilizer (ensure orange stabilizer is not wrapped around the load line)		
5.	Rigging Ropes		
6.	Top and Bottom Frames		
7.	Center Pole		
8.	Flotation Ring Covers		
9.	Rubber Feet		
10.	Non-OEM Components or Modifications		
11.	Pad Eyes		

Notes:

6.5 Service Record Form

X-904 Service Record

Serial No.:	
Company:	
Location:	
In Service Date:	

2nd Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

4th Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

6th Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

Note: Refurbishments occur on the highlighted rows (every two years)

6.6 X-904 Assembly, Disassembly & Storage

Each X-904 is shipped to our customers disassembled. Before you can enjoy riding the X-904, you must assemble the personnel transfer device.

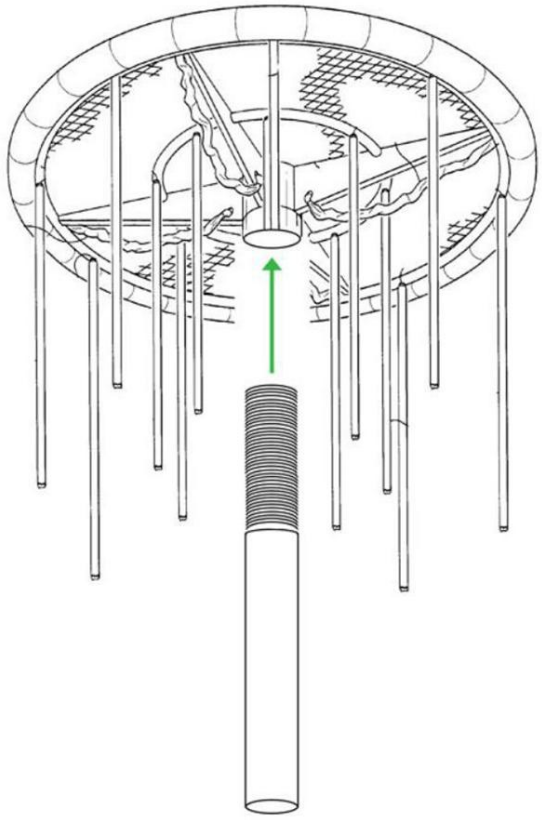
Every X-904 is shipped with the following accessories:

- **Training Flash Drive.** Use our training flash drive to learn how to operate and ride the X-904. If you need additional training, Billy Pugh Company offers a variety of training materials to our customers. Visit www.billpugh.com for more information.
- **Certification Package.** Manufacturer Certificate. Optional ABS Certification Report or ABS Type Approval.
- **Recommended Practice.** This Recommended Practice document is included. In the Appendix section you will find suggested pre-use and 6 month inspection forms as well as a suggested service record.

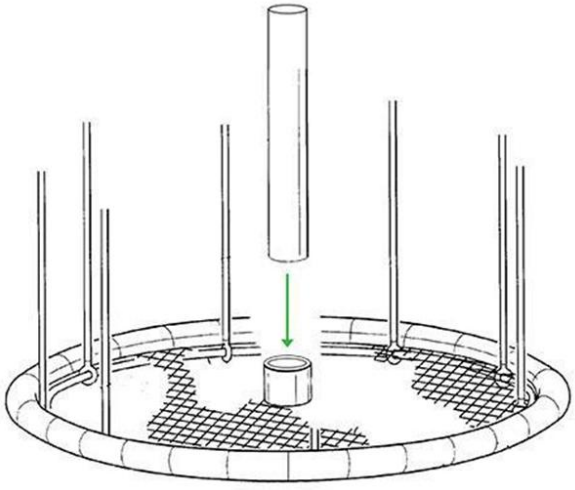
6.6.1 Assembly

1. **Unpacking.**
   a. Carefully untie or cut the rope that secures the shipping basket.
   b. Remove all items from the shipping basket.
   c. Verify that all items (listed below) are present:
      - ✓ **Basket.** Top and bottom platform. These two halves are attached with the ropes and already includes the netting and safety lanyards.
      - ✓ **Upper Center Pole.** Top threaded vertical pole for connecting the top half of the platform to the bottom.
      - ✓ **Lower Center Pole.** Bottom threaded vertical pole for connecting the bottom half of the platform to the top.
      - ✓ **Tightening Boards.** Two (2) 904P-23 boards for tightening the center pole.
      - ✓ **Center Pole Cover.** 904P-4 Yellow PVC/Nylon 13 oz. center pole cover pad.
      - ✓ **Teflon Bearing.** P17 on General Arrangement Drawing, 4" OD x ¼" Teflon vertical center pole bearing.
      - ✓ **Coupling.** P27 on General Arrangement Drawing, coupling is used to join the top and bottom center poles.
      - ✓ **Fasteners.** P39 on General Arrangement Drawing. One (1) ½" x 6" SS bolt with one (1) ½" locknut and two (2) ½" SS washers.
      - ✓ **Tagline.** PTL-1 15' tag line with ½" safety shackle for the 4-, 6- & 8-man devices. The 10- & 12-man devices come equipped with a 20' tagline.
2. **Set up the basket for assembly.**
   Attach the top of the basket to the crane hook and lift until the grablines become tight. If no crane is available, carefully lay top of basket on its side.

3. **Attach threaded pole to roof of basket.**
   Insert the threaded pole into the top section and screw the pole all the way until the threads bottom out.



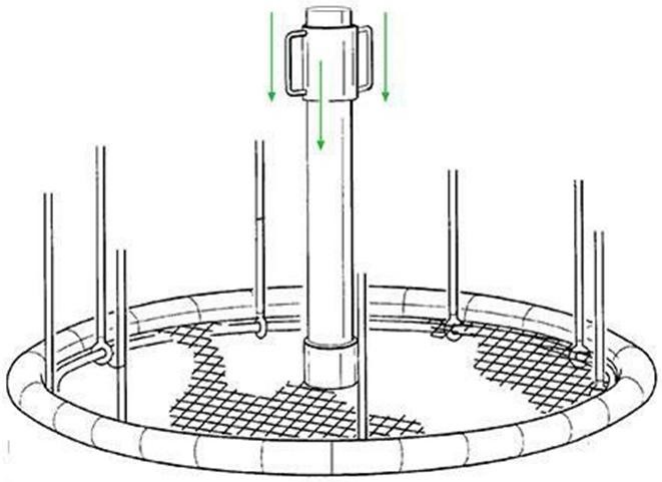
4. **Installing the bottom pole.**
   Insert the bottom pole into the receiver on the bottom frame of the basket.



5. **Install Teflon bearing.**
   Place the Teflon bearing on top of the bottom center pole from step 4.

6. **Install Coupling.**
   a. Place the coupling over the bottom pole from step 5.

   b. Slide the coupling carefully down to the bottom of the pole. Be careful not to damage the coupling.

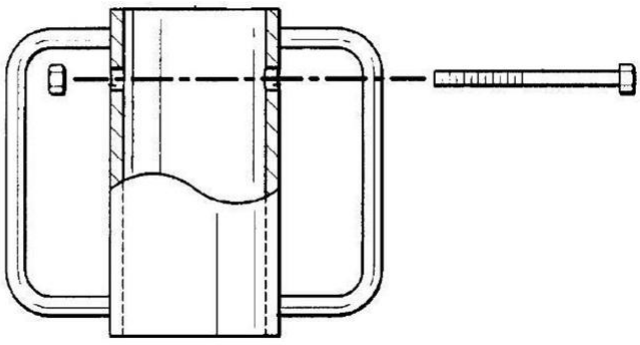


7. **Joining the top and bottom assemblies.**
   a. Join the top and bottom poles by lifting the top assembly and placing the top pole on the bottom pole with the Teflon bearing between the two of them.

   b. Slide the coupling over the seam created by both the top and bottom poles.

   c. Insert the supplied bolt, washers and nut.

   d. Tighten the nut onto the bolt until snug. ***Do not over tighten***.



8. **Tighten the red Vertical Grab Lines.**
   Important note: Your X-904 is shipped with 'number of turns' markings. This number is set by Billy Pugh Company engineers during assembly and is required for the safe operation of the device.

   Number of turns = The number of 'counter clockwise' turns the center pole needs to make in order to remove the grablines 'slack' required during assembly.

   This number is set by Billy Pugh Company before leaving the facility.

   1. Starting by hand, twist the center pole counter clockwise until tight. Take note of the number of turns.
   2. Finish tightening the coupling with boards until the prescribed number of turns is achieved as indicated on the top of the frame.

6.6.2 Disassembly (Break Down)

1. Attach the X-904 sling to the crane hook, davit hook, or any other device that will safely support the top frame assembly.
2. Grab the coupling on the center pole and turn clockwise until there is slack in all the red grablines.
3. Remove the bolt that passes through the coupling making sure to hold the coupling as to not allow it to fall to the bottom of the pole. ***Failing to do so could cause damage to the coupling.***
4. Slide the coupling up and off of the pole and set the coupling aside.
5. Pull the bottom pole from the frame assembly.
6. Turn the top pole counter clockwise to remove it from the upper frame.
7. Safely lower the top frame assembly.

6.6.3 Storage

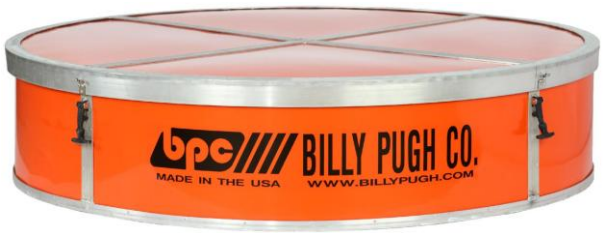
Like any product used in a harsh marine environment, the X-904 should be protected from the elements (UV rays from sunlight and weather) when not in use for extended periods of time. Ideally the device could be stored inside and out of the direct sunlight but that is not always possible offshore.

Billy Pugh Company offers three (3) separate storage accessories

1. Vinyl cover for assembled X-904, product #904P-31

2. Vinyl cover for unassembled X-904, product #904P-30

3. Storage box for unassembled X-904 for all-weather, year-round storage and protection, product #904 B-4



6.7 Specifications

6.7.1 Dimensions

Model	Imperial Units			Metric Units		
	Base Width	Total Length	Height of Device	Base Width	Total Length	Height of Device
X-904-4	85 in.	33 ft.	96 in.	215 cm	1006 cm	243 cm
X-904-6	100 in.	33 ft.	96 in.	254 cm	1006 cm	243 cm
X-904-8	100 in.	33 ft.	96 in.	254 cm	1006 cm	243 cm
X-904-10	111 in.	33 ft.	96 in.	281 cm	1006 cm	243 cm
X904-12	118 in.	33 ft.	96 in.	299 cm	1006 cm	243 cm

6.7.2 Capacity

Model	Passenger Capacity	Imperial Units	Metric Units
X-904-4	4	1200 lbs.	544 kg
X-904-6	6	1800 lbs.	816 kg
X-904-8	8	2400 lbs.	1088 kg
X-904-10	10	3000 lbs.	1360 kg
X904-12	12	3600 lbs.	1632 kg

ABS TYPE APPROVED PRODUCT

6.8 Product Registration Process

Every X-904 should be registered on our Product Registration Website. This allows the user to record and track the In-Service Date of the device and access electronic copies of current certificates. Please follow the below process to ensure your device is properly registered.

6.8.1 Access the Billy Pugh Company Product Registration Page

There are two ways to access the Product Registration page:

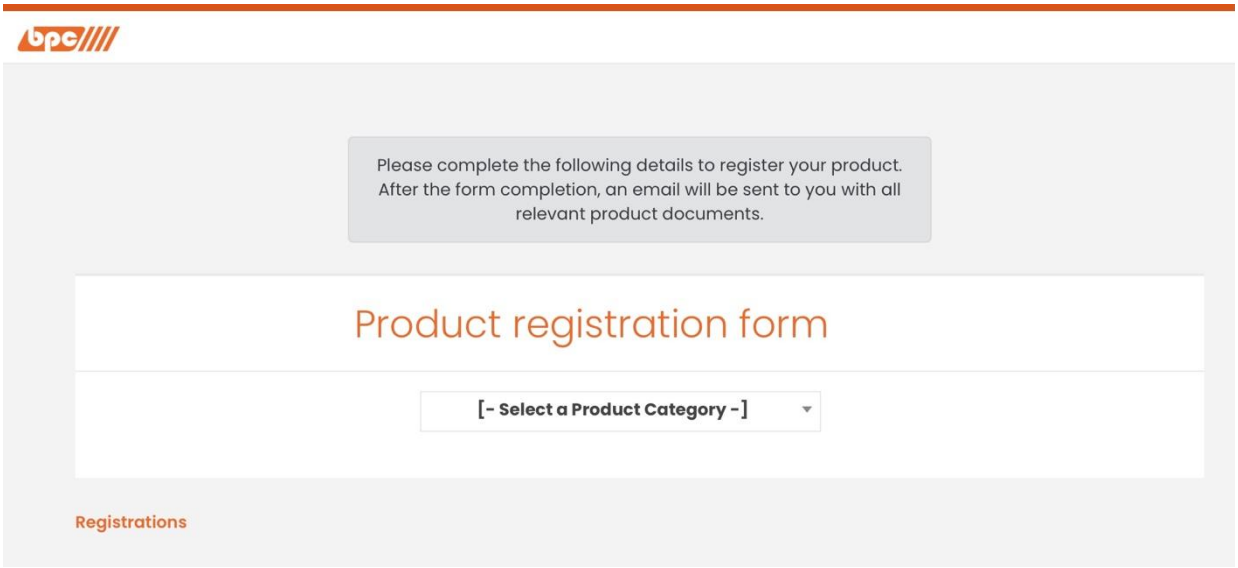
1. Enter or click on the web link below to access the Product Registration page.

https://bpc.myfleet360.net/registrations

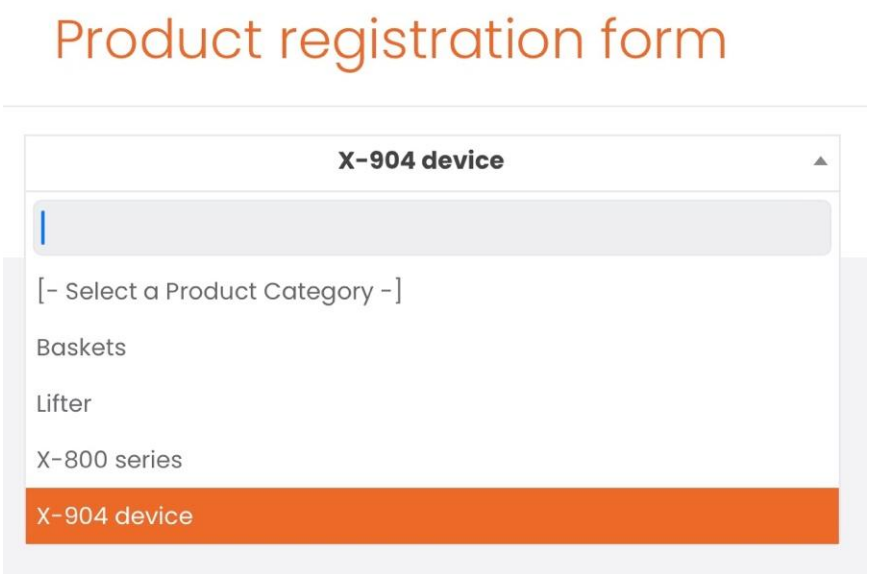
OR

2. Click or scan the QR code below.

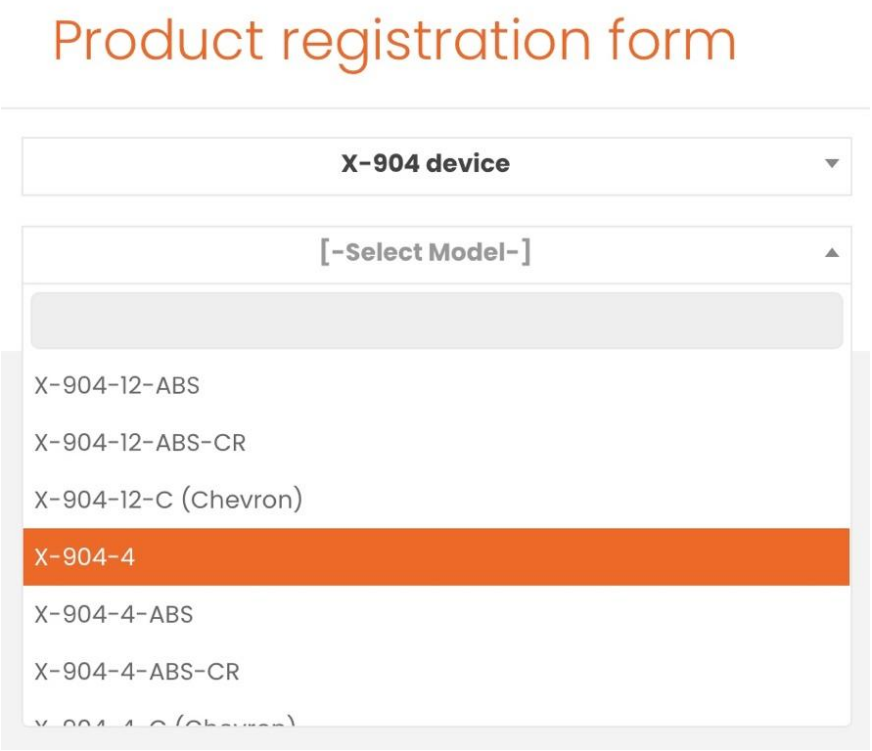
6.8.2 Select a Product Category



6.8.3 Select a Device from the Menu

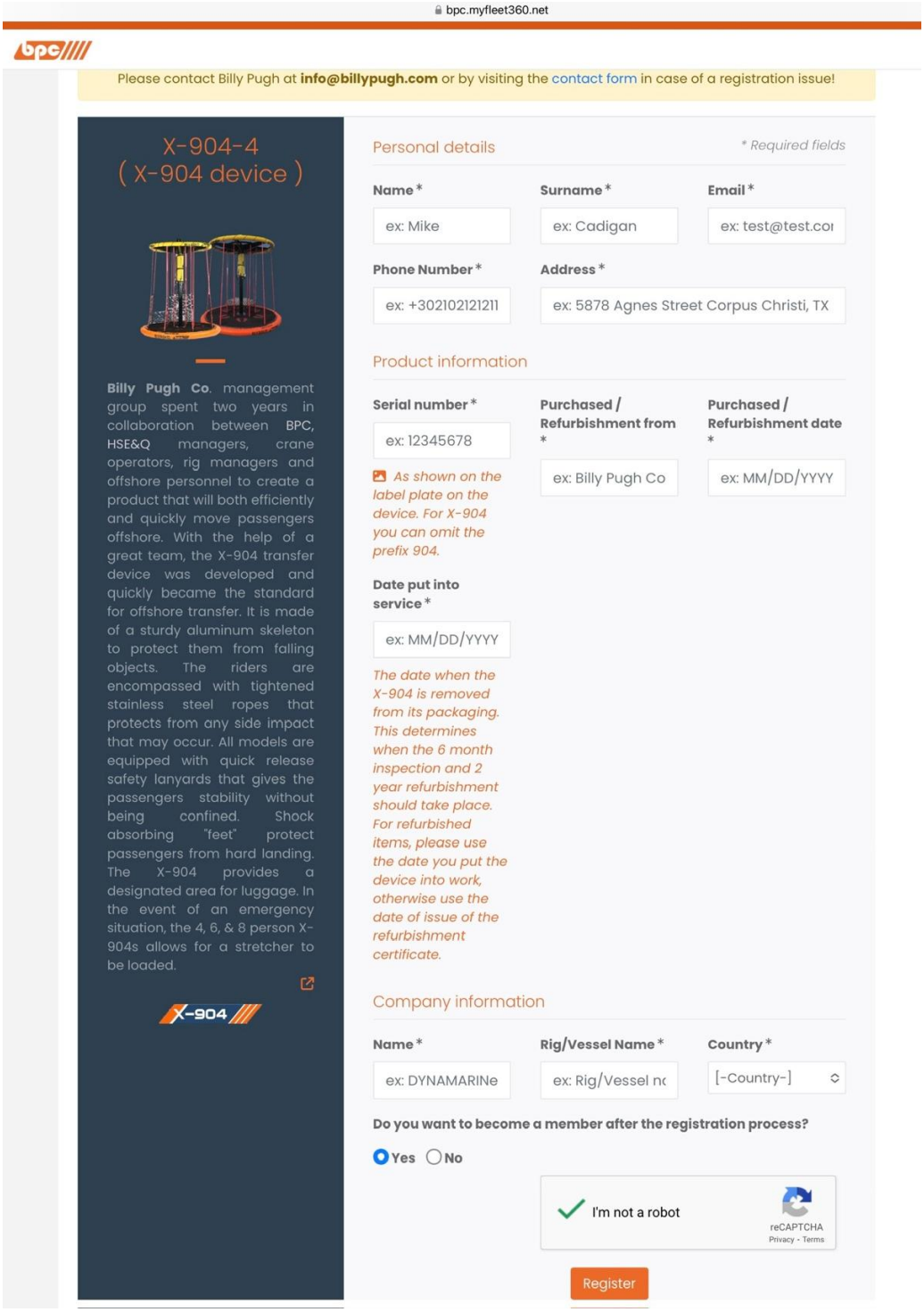


6.8.4 Select a Model from the Menu



6.8.5 Complete the Form

Fill in all fields, indicate whether you want to become a member, verify that you are not a robot then click on the Register button and you will have successfully have completed the registration process.



Recommended Practice and Inspection

Personnel Transfer Device, X-1000

BILLY PUGH COMPANY

INTEGRITY MANAGEMENT SYSTEM (IMS)

Printed documents are considered uncontrolled.
Controlled documents can be found on the Billy Pugh Company, LLC website.

1.0 INTRODUCTION

1.1 Purpose

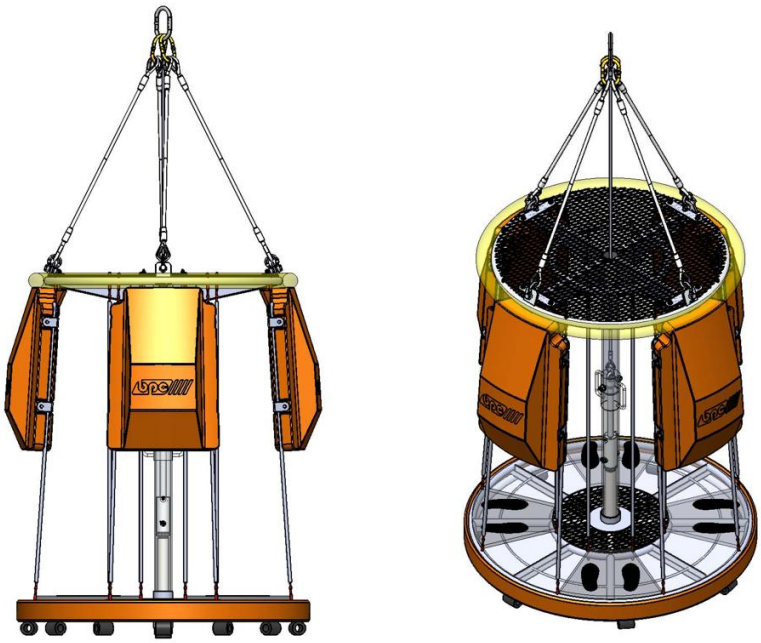
This recommended practice is intended to assist all offshore employers in the development of safe work practices relative to the task of transferring personnel to-and-from offshore facilities utilizing a Billy Pugh X-1000 Personnel Transfer Device. This Recommended Practice (RP) addresses the minimum regulatory and industry requirements for the use of this unit. (see 2.3 Design Standards)

1.2 Scope

This recommended practice is intended for application by employers working in a marine offshore environment who transfer, move, or transport their workforce by a Billy Pugh X-1000 personnel device. This Recommended Practice should be applied as appropriate with due consideration made for any additional special hazards identified by the employer as a result of a thorough Job Safety Analysis (JSA) / Job Hazard Analysis (JHA).

1.3 Responsibilities

It is the responsibility of the offshore employer to ensure this recommended practice is applied appropriately within their organization. Management of offshore personnel transfer safety should be an integral component of the employers' existing Safety Management System (SMS). Each offshore employer is encouraged to follow these recommendations and to proactively modify or supplement them with additional beneficial practices, equipment, or environmental conditions.



2.0 ACRONYMS, DEFINITIONS & REFERENCES

2.1 Acronyms

ABS	-	American Bureau of Shipping
API	-	American Petroleum Institute
ASME	-	American Society of Mechanical Engineers
BPC	-	Billy Pugh Company
JSA/JHA	-	Job Safety Analysis / Job Hazard Analysis
PFD	-	Personal Flotation Device
PHC	-	Passive Heave Compensator
PTD	-	Personnel Transfer Device
RP	-	Recommended Practice
SES	-	Suspended Emergency Seat
SMS	-	Safety Management System
WLL	-	Working Load Limit

2.2 Definitions

In Service Date: The date the X-1000 is unwrapped is the "In Service Date". That date will be noted on the X-1000 certificate and the yellow sticker attached to the center pole. The "In Service Date" is used as the date for aging the device for inspections and replacement. If during inspection it is found that there is not an "In Service Date" recorded, then the "In Service Date" will defer back to:

a) Goods Receiving date. This is the date the customer received the goods from their forwarding agent. If you do not have this date then the Invoice date will apply, see b) below.
b) Invoice date (from Distributor to Customer) or Delivery Order date (from Distributor to Customer) from a delivery order or Invoice. If you do not have this date then the Purchase Order date will apply, see c) below.
c) Purchase Order date (Customer PO to Distributor). This is the date the PO was created. If you do not have this date then the Distributor Receiving date will apply, see d) below.
d) Distributor Receiving date from Billy Pugh Company. If you do not have this date then the Manufactured date will apply, see e) below.
e) Manufactured date when the device was made.

Qualified Person: A person designated by the employer who has the experience and formalized training to safely operate the crane, rigging and associated lifting devices assigned at the work location.

Qualified Inspector: A person designated by the employer who, by reason of appropriate experience and training, in addition to meeting the requirements of a qualified person, has attended formal training in inspection, maintenance and troubleshooting of cranes, rigging and lifting devices.

Rigging: Load lines, master links, safety slings and hardware that attach the X-1000 Personnel Transfer Device to the crane hook or block device.

2.3 Design Standards

The X-1000 Personnel Transfer Device has been designed, manufactured, inspected, and tested in accordance with:

- ASME B30.23-2022 Personnel Lifting Systems
- ABS Guide for Certification of Personnel Transfer Appliances, Chapter 7

2.4 References

- American Petroleum Institute (API) – "API RP-2D Recommended Practice for Operation & Maintenance of Offshore Cranes"
- International Association of Drilling Contractors (North Sea Chapter)- IMCA SEL 08/01 "Transfer of Personnel by Basket on the UK Continental Shelf"
- Moxie Media Corporation – "Personnel Basket Safety Video Training Series" Updated 2023
- International Marine Contractors Association (IMCA) – "Task Risk Assessment Study 8/2000"
- National Research Council, Assembly of Engineering Marine Board – "Committee on Assessment of Safety of OCS Activities"
- Billy Pugh Company, Inc. – "Procedures for Maintenance & Inspection of Personnel Baskets"
- Kennedy Wire Rope & Sling Company – "Procedures for Inspection & Maintenance of Wire Rope Slings and Rigging"
- Department of the Interior, Minerals Management Service – "Safety Alert No. 190-1/22/00 & Safety Alert No. 193-2/28/01"
- Global Drilling Leadership Initiative – "Recommended Practice #6"
- Oil Companies International Marine Forum (OCIMF) – Transfer of Personnel by Crane Between Vessels
- X-1000-4 Personnel Transfer Device General Arrangement Drawing No. X10004-100

3.0 BACKGROUND, PRODUCT HIGHLIGHTS & DESIGN FEATURES

3.1 Background

The Billy Pugh Company (BPC) X-1000 Personnel Transfer Device incorporates new innovative safety features following extensive customer engagement to determine what the rider truly values in safety and comfort during transfer.

We received clear feedback that “quick egress” was the most important safety feature valued by the rider. Notably, we also learned that riders want to stand during transfers, face inward along with a soft takeoff/landing being very important.

We designed the new X-1000 with safety features that can be upgradeable from the current X-904-4 on the market today. We can accommodate the upgrades and retrofit process during the standard 2-year Refurbishment Process. Alternatively, the X-1000 can be purchased as a complete kit effective June 2024.

3.2 Product Highlights

- ✓ Designed to ASME B30.23-2022 Personnel Lifting Systems
- ✓ Working Load Limit (WLL) of 1,200 lbs. for four riders plus light luggage
- ✓ Self-Righting Flotation System
- ✓ Enhanced Side Impact Protection on outer perimeter
- ✓ Passive Heave Compensation for softer pickup & takeoff
- ✓ Individual Standing Cushions for softer impact upon landing
- ✓ Removable Suspended Emergency Seat option
- ✓ Floor Grating for improved viewing of landing for the rider
- ✓ Grabline Cushions for improved rider comfort
- ✓ Stretcher accommodation in addition to the emergency seat

3.3 Design Features

3.3.1 Enhanced Side Impact Protection

The robust nature of the flotation modules enables them to also act as enhanced side impact protection for riders during the transfer.

3.3.2 Individual Landing Cushions

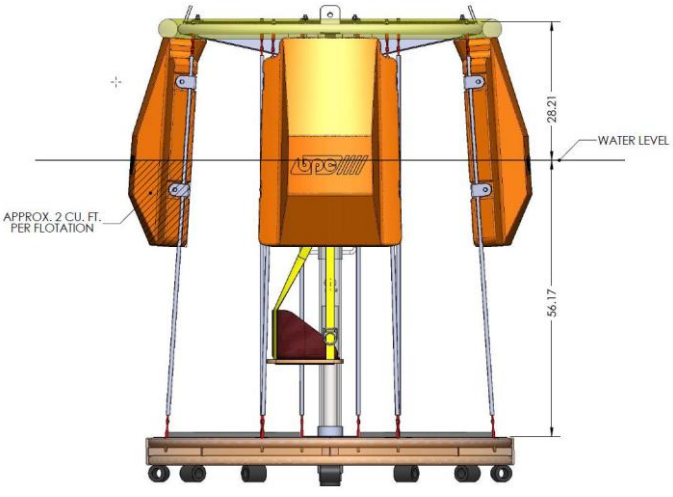
1" nitrile foam with a non-skid surface has been added to the standing areas providing the rider(s) with a cushion for a softer landing as well as hi-viz foot placement graphics.

3.3.3 Self-Righting Flotation Modules

Flotation modules have been added to the upper section of the grablines and top frame to incorporate Self-Righting Floatation without impeding rider egress.

The Self-Righting Flotation is designed to preserve 'Quick Egress' capability for the rider. The concept of Self-Righting Flotation places the center of buoyance above the center of gravity, thus always ensuring the device will maintain a righting moment if ever in the water.

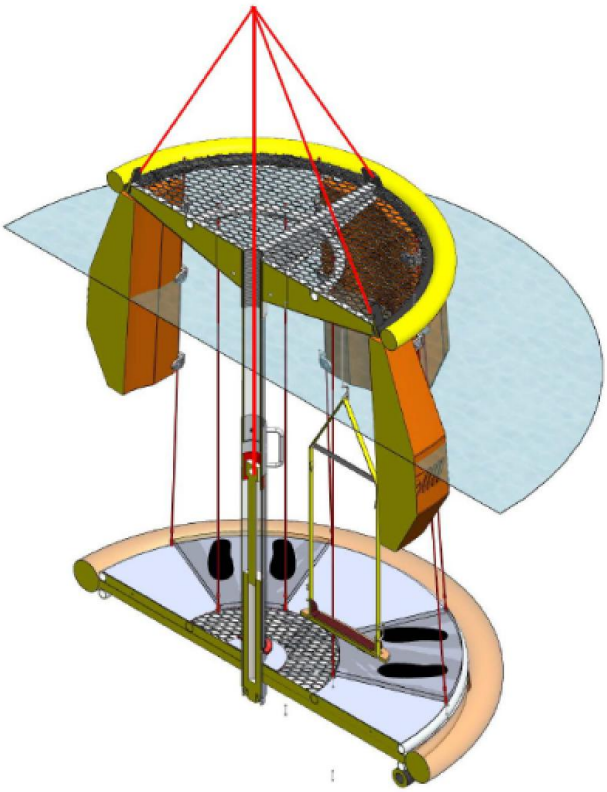
Riders have the option to escape rapidly or remain in place taking advantage of the impressive stability afforded by the design of the floats.

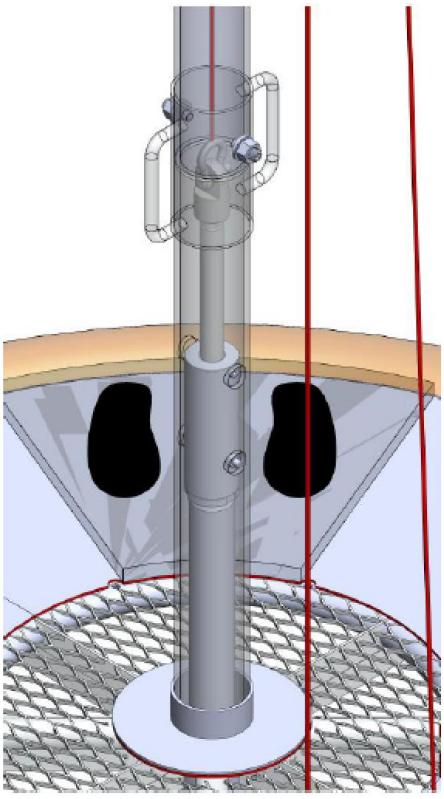


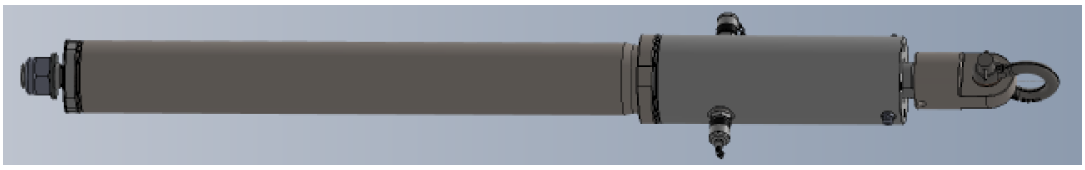
3.3.4 Passive Heave Compensation

In cooperation with Safelink, the Poseidon C-500 2 Passive Heave Compensator (PHC) has been incorporated into the center pole and connects to the upper master link in the rigging. This engages during the start of the lift and then transfers the load to the main rigging. The PHC is designed to act as a spring initially taking up the load and smoothly transferring the load to the main rigging. The rider(s) benefits by not being jerked around or surprised by a quick snatch off the deck.

The PHC is positioned low in the center pole of the X-1000 to retain a low center of gravity and reduce loose rigging above the load. By keeping the weight low in the load, it helps to stabilize the load during the transfer, benefiting the rider(s).







3.3.5 Removable Suspended Emergency Seat (SES-1)

Designed for the rider who cannot stand during crew changes, the Suspended Emergency Seat (SES) is a hanging seat that clamps to the upper lift frame of the X-1000. The upper scissor clamp device (WLL of 500 lbs.) enables it to quickly attach or detach when needed. The SES (WLL of 300 lbs.) has an 18 oz. orange seat cover, an 8" wide by 30" long durable PVC reinforced seat, 2" black webbing, an adjustable back strap and cushioned stainless steel spreader bar. The entire SES seat assembly weighs only 11 lbs.

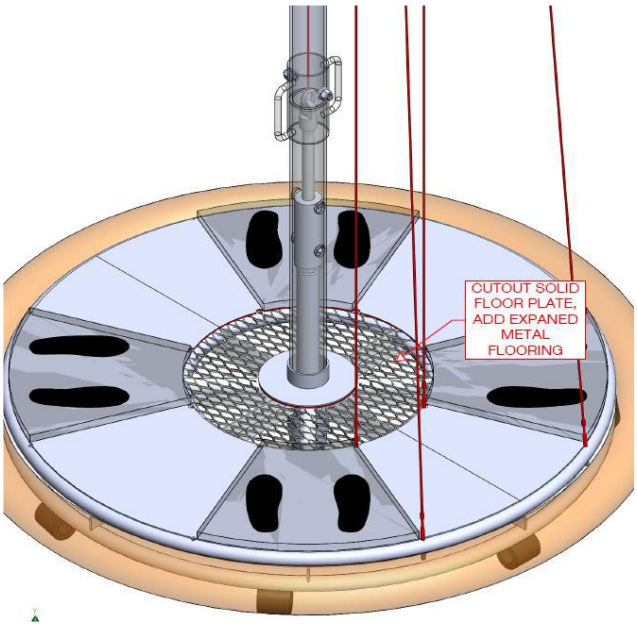
This functional design enables a person, who is unable to stand due to sickness or minor injury, to be transferred in the PTB. The seat can also provide a medic with the opportunity to sit adjacent to a stretcher during transfers. Given the simple scissor clamp connection point, the Suspended Emergency Seat can also be used on X-904 Personal Transfer Devices.

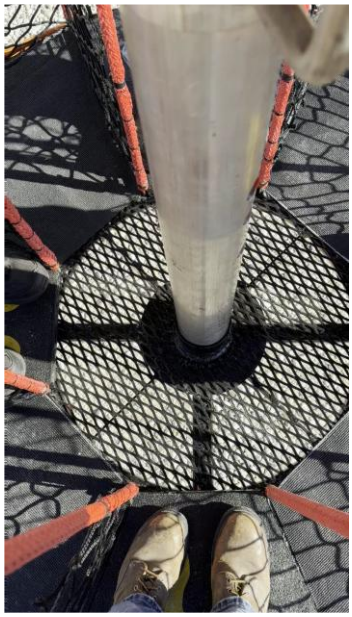
Personnel using the seat are still able to use the quick release safety lanyard by removing the lanyard from the standard top hole attachment and reattaching the lanyard to one of the pole coupling handles. Alternatively, a longer lanyard (10/12-man lanyard) can be attached to the standard top hole attachment location.

This device is NOT designed for everyday personnel transfers.

3.3.6 Floor Grating for Improved Downward Viewing

Expanded metal in the center permits the rider(s) to maintain their safe inward orientation holding the grab lines as the unit descends and to look down to see an approaching deck at landing to reduce the risk of the rider(s) being caught off guard.





3.3.7 Grabline Cushions

The Grabline Cushions provide padding and comfort to the rider(s). Affix the cushion by wrapping it around the grabline and securing with Velcro at the desired height of the rider.

3.3.8 Stretcher Accommodation

A stretcher carrying an injured person can be transported in the X-904 or X-1000 Personal Transfer Device (see Appendix 6.2). Riders may accompany patient either as passengers in the standing position or as an attendant in the seated or kneeling position.

Photo shown with Stretcher in X-904 model

3.3.8 Snag Resistant Tag Line

BPC taglines are made of polydacron rope and dipped in liquid polyurethane which saturates the rope to make it one of the most durable tag lines available in the market. This also provides a wet or dry non-slip gripping surface by incorporating horizontal wraps. Due to their unique construction, our taglines are highly resistant to wrapping or catching on pinch points as they have no knots or raised areas. They are also far less affected by deterioration from UV rays due to their polyurethane coatings.

BPC designed the Push-Pull Tag Line specifically to meet the challenges associated with positioning loads while observing a hands-free policy. We've incorporated a 4 ft. rigid section into our already durable tag line that is sturdy enough to push the load to a preferred location but is also flexible enough to slightly bend.

Tag lines length for the X-1000 units should be 15 ft. This recommendation is consistent with API-RP-2D (Annex C). The tag line should be attached to either of the two deck lashing points on the bottom platform.

Semi-Rigid Tag Line w/ 4ft Push-Pull Rigid Section

3.3.9 Quick Release Safety Lanyards

Safety without confinement. All models are equipped with quick release safety lanyards to provide safety and give the rider confidence while in transit.

3.3.10 Stabilizer

If you see twists in the stabilizer (the rubber "bungee" attached above the four-part sling next to the load line) get these twists out before the next lift.

Inside the canvas bag that holds the rubber bungee there is also a safety load line that backs up the main wire rope load line. If there are twists where the wire rope load line is wrapped around the bag (holding the line and the rubber) when the lift is made it can break or damage the rubber bungee inside. This WILL NOT cause any safety issues as the rubber bands in no way are load bearing, but to maintain the best performance of your X-1000.

There have been some questions about the stabilizer and safety line in terms of its purpose on our Personnel Transfer Devices. First of all, the safety line is made from ¾" 12-strand rope with a tensile strength of 22,050 lbs. This line is made slightly longer than the wire rope load line and is intended only to serve as a backup in the event of separation or failure of the main load line. It does not carry any of the load on normal lifts. The 12-strand rope is not deteriorated by UV, due to its protection from the orange cover.

At the two-year refurbishment, a new stabilizer assembly comes with the refurb kit and is replaced at this time.

The rubber bungee also serves to assist the crane operator in keeping the rigging in the proper position when slacking off.

3.4 Product Certification

3.4.1 ABS Type Approved Manufacturer

In terms of personnel transfer devices, we do charge an additional fee for ABS to offset our costs associated with this service. ABS is not required in all parts of the world for personnel transfer devices so we only charge those companies that choose this option.

3.4.2 ABS Type Approval Program

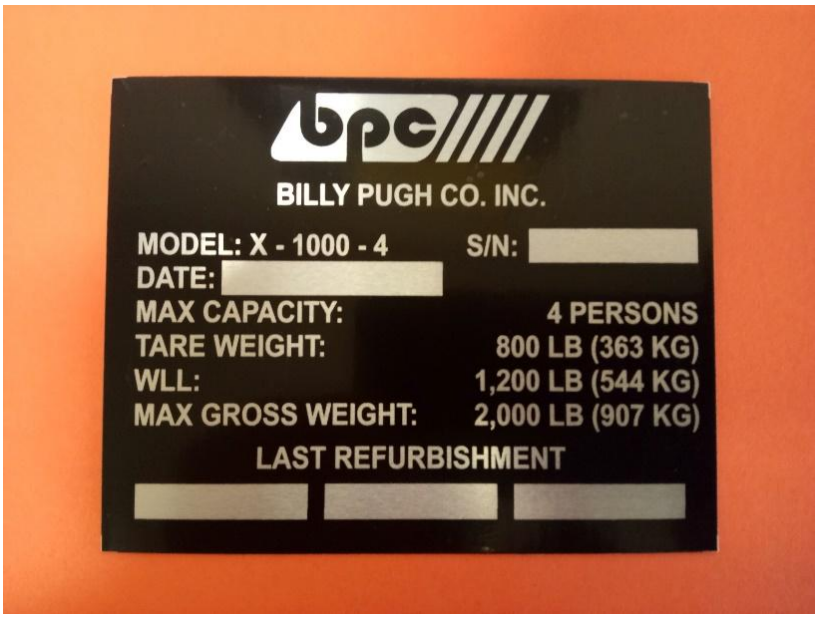
In the Type Approval Program, ABS certifies that enrolled manufacturers are capable of consistently producing a product in compliance with product specifications. Each product is tested to verify that it will perform reliably in the marine and offshore environment.

The ABS Type Approval process provides design verification and manufacturing assessment that confirms products meet applicable quality industry standards and class requirements.

To find out about the ABS Type Approval process visit www.eagle.org.

3.4.3 How Can I Tell if My Billy Pugh Personnel Transfer Device is ABS Type Approved?

Not all Billy Pugh Co. Personnel Transfer Devices come with ABS Type Approval Certificates. The design itself is ABS Type Approved under our Product Quality Assessment Program. The X-1000 series does not have a serial number that designates type approval. The last 2 numbers of the serial number are the year of manufacture. All X-1000's are marked with the ABS Badging and includes a special ABS certificate.



3.4.4 Product Registration

Every X-1000 should be registered on our Product Registration Website. This allows the user to record and track the In-Service Date of the device and access electronic copies of current certificates. Please refer to Appendix 6.8 to access a procedure to help guide the Product Registration Process.

4.0 RECOMMENDED PRACTICES / INSPECTIONS / MAINTENANCE

4.1 Safe Recommendations for the X-1000

When the X-1000 is utilized to perform personnel transfers, it is recommended that the operation be performed under strict controls. At minimum, it is recommended that a Job Safety Analysis (JSA) or Job Hazard Analysis (JHA) be performed prior to the task taking place.

It is recommended that communication be established prior to, and maintained throughout, the personnel transfer. This communication whether radio or hand signals should be between the crane operator and the banksman/signalman.

It is recommended that all equipment involved in personnel transfers must have current certification and be visually inspected for condition prior to each use.

4.1.1 Prior to a Personnel Transfer:

A Qualified Inspector should perform a Pre-Use Inspection as explained in section 4.2.2. The Inspector should look for signs of:

- Abrasion
- Cuts
- Cracks
- Ultraviolet degradation and / or chemical attack

When damage affecting the structural integrity of the X-1000 is discovered, the device should be immediately taken out of service.

4.1.2 Recommended Practices:

The following minimum lifting practices are recommended for all crane assisted Personnel Transfers:

a) Any offshore facility conducting personnel transfers with a PTD should have a written procedure for this activity.
b) A pre-use inspection should be conducted prior to any personnel transfer with a PTD.
c) Cranes assigned to personnel lifting duties should be suitable for this purpose per relevant API spec.
d) Crane operators assigned to personnel lifting duties should be certified and competent to perform this task.
e) A snag resistant tag line should be affixed to all PTD's.
f) Crane hooks used for personnel transfers must have a positive locking latch.
g) Only approved PTD's should be used for lifting personnel per API specifications. PTD's should not be used as a workbasket or cargo net.
h) PTD's should be legibly marked with the maximum number of passengers allowed.
i) The X-1000 is equipped with areas designed for light luggage. Luggage should be stowed before the lift is made and easily accessible for debarkation. No large or heavy items (bigger than the storage area) should be allowed on the X-1000. Large or heavy items should be sent separately via a cargo basket.
j) PTD's should not be utilized in weather, winds or sea conditions that the qualified person considers to be unsafe. See Appendix 6.1 Offshore Safe Weather Conditions for Personnel Transfer

k) Before any attempt is made to lift personnel with a PTD, clear instructions should be given to all persons involved.
l) No person suffering from acute seasickness or vertigo shall be transported by a PTD. If the transfer is necessary, the affected person should be put inside a stretcher (See Section 6.2) or theX-904 Emergency Seat (see Section 3.3.8) which is shackled to the rigging provided inside the PTD. A qualified escort should accompany the individual.
m) Any individual has the right to refuse transfer by a PTD.
n) All personnel riding on a PTD, whether standing or sitting in the suspended emergency seat, should wear an approved life vest or life preserver. An approved Type I illuminated PFD may be required for all transfers conducted at night or for rough seas and bad weather transfers (depending on Operator/Contractor policy).
o) All personnel riding on the X-1000 should stand on the inside of the unit, with their feet placed as marked on the Landing Cushions, and grasp the cushioned grablines. A riders forearms should be interlocked.
p) If the crane operators view of the primary signalman is obstructed, the PTD should not be moved until alternative communication or signal devices are placed in service.
q) A designated primary landing zone should be marked in a safe area as determined by a JSA or JHA. This area should, at minimum, be twice the diameter of the PTD.
r) When transferring personnel, the PTD should be lifted only high enough to clear obstructions.
s) A loaded PTD should only be raised or lowered directly over the water and never a vessel or hard surface.
t) The crane operator may refuse to lift any person who does not comply with the operator's instructions.
u) An experienced escort should be provided for persons who are not confident riding on a PTD.
v) Injured, seasick or unconfident persons may ride in a sitting position, on the inside of the PTD, with a qualified person as an escort.

Note: Depending on company policies, attaching the man positioning lanyard to the riders' PFD may be optional during transfers with the X-1000. Billy Pugh Company encourages the use of this lanyard but is not a requirement to meet this recommended practice.

4.2 Inspection and Maintenance

4.2.1 Inspection Frequency

The end-user is recommended to adopt procedures that meet or exceed these inspection recommendations.

	Frequency		
Type of Inspection	**Before Each Use**	**6 Months**	**24 Months**
Pre-Use Inspection	x		
Scheduled Inspection		x	
Scheduled Refurbishment			x

***__Remember__: When inspecting any safety equipment, always err on the side of caution. The cost of a new Personnel Transfer Device (or any safety equipment) is very small compared to the potential consequences of putting an unsafe or damaged device into service.

4.2.2 Pre-Use Inspection

All Pre-Use Inspections of the X-1000 should be performed by a Qualified Person and should always incorporate an Operator's pre-use inspection. Disassembly is not required unless the visual inspection identifies a potential issue.

Line instructions for the X-1000 Pre-Use Inspection Form (see Appendix 6.3)

1. General Damage – Check for any damage or defect on all parts of the device.
2. Safety Load Line – Visually inspect the safety load line when attaching the X-1000 to the crane hook.
3. 4-Part Sling - Visually insect the 4-part sling, associated hardware as well as the load line
4. Stabilizer – Visually inspect the fabric covered stabilizer for tears or excessive wear. Look for crimps, broken wires or excessive wear or rust. If any of these problems exist, take the device out of service immediately and replace the stabilizer,
5. Crane Hook – Visually inspect the crane hook's positive locking device for function and physical condition.
6. Top & Bottom Ring – Visually inspect all the load bearing areas of the X-1000 for excessive wear or damage.
7. Rigging Lines – Visually inspect the rigging lines (inner & outer).
8. Center Pole – Visually inspect the aluminum center section for damage, cracks, deformation or excessive wear.
9. Quick Release Hooks – Inspect the stainless-steel quick release hooks. Regularly spray with a lubricant (i.e. WD-40) to protect from corrosion.
10. Flotation Modules – Inspect floats and their brackets to ensure all is tight and nothing is loose.

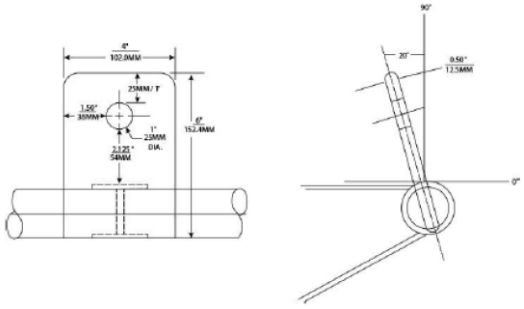
If any load bearing area of the X-1000 is worn or defective in any way, take the device out of service immediately.

4.2.3 Scheduled Inspection

All 6 Month Scheduled Inspections of the X-1000 should be performed by a Qualified Person and should always incorporate an Operator's pre-use inspection. Disassembly is not required unless the visual inspection identifies a potential issue.

Line instructions for the X-1000 6-Month Inspection Form (see Appendix 6.4)

1. General Damage – Check for any damage or defect on all parts of the device.
2. Safety Load Line – Visually inspect the safety load line when attaching the line to crane hook.
3. 4-Part Sling - Visually insect the 4-part sling, associated hardware as well as the load line
4. Stabilizer – Visually inspect the fabric covered stabilizer for tears or excessive wear. Look for crimps, broken wires or excessive wear or rust. Replace inner rubbers if damaged, broken or they have lost elasticity.
5. Rigging Ropes – Visually inspect the vertical rigging ropes and the nuts & bolts that hold them for sufficient and consistent tension.
6. Top & Bottom Ring – Visually inspect the top and bottom powder coated aluminum frame including the top and bottom rings, expanded metal top and center pole. Look for excessive wear, cracks or corrosion.
7. Center Pole – Turn center pole (at least 3 full turns) loosening and then tightening. Swab the threads with lubricant to prevent seizing.
8. Flotation Ring Covers – Inspect the top and bottom outer flotation ring covers for damage.
9. Rubber Feet – Visually inspect the rubber feet on the bottom frame for deterioration, damaged or missing feet.
10. Non-OEM Components or Modifications – Visually inspect for modifications or non-OEM supplied components. Non-OEM components should be removed
11. Passive Heave Compensator (PHC) – Ensure the PHC is pressured up to the desired pressure range of 450-500psi. The nut on the bottom of the PHC should be secure and tight to ensure solid connection point between the PHC and Center Pole. Additionally, inspect the compensator sling to ensure connection points have integrity.
12. Flotation Modules – Inspect floats and their brackets to ensure all is tight and nothing is loose.
13. Pad Eyes – Visually inspect the pad eyes on the upper ring of the X-1000. There should be no cracks or damage to the welds. The hole in the pad eye should still be round and not elongated by more than 5%. The angle of the pad eye from the upper ring should be 20 degrees inside of vertical (see drawing below). Some wear of the coating is to be expected and is acceptable, but there should not be excessive wear of metal.



Pad Eye Specification

4.2.4 Scheduled Refurbishment

The X-1000 should be refurbished every 2 years (with the understanding that it had passed all Pre-Use and 6 month inspections). The 2 year refurbishment helps to ensure these devices are more than ready to do the job they were designed for.

Why every 2 years? We have found that on average (based on over 60 years of manufacturing safety equipment for offshore use) that 2 years in the field is the maximum time that we can recommend using these type of devices without replacing critical parts.

The center section of the X-1000 is made from aluminum to keep the weight of the X-1000 as light as possible. Aluminum does 'cycle' overtime and can lose some strength. After 8 years in the field (new plus 3x 2 year refurbishments) we recommend the device be replaced.

For a listing of the 40+ companies worldwide who are certified to furbish your X-1000, go to billypugh.com and look under the 'Support' link onscreen. They will not only re-certify the unit but also replace worn or damaged parts.

Web Link: X-1000 Refurbishment - Billy Pugh

5.0 REVISIONS

Rev.	Date	Nature of Revision
0i	11-Jan-2025	New graphic for 1.3

6.0 APPENDICIES

6.1 Offshore Safe Weather Conditions for Personnel Transfer

BPC does not have a specific Adverse Weather Policy for offshore crane personnel transfer. There are several reasons for this:

1. Many of the Operators and Contractors using Personnel Transfer Devices have different tolerances and procedures for their transfer operating envelopes. We try not to place our own limits about sea states and weather conditions in that this may conflict with those policies implemented by said companies.
2. There are so many variables in determining a safe working envelope for offshore crane assisted personnel transfers. These variables make it difficult to give a 'cut and dried' number for wind and sea states.

Examples:

- What is the size of the vessel involved? Transferring to or from a 300 ft supply boat in heavy seas is a much different operation than performing the same transfer to or from a small crew boat.
- What is the training and experience of the personnel being transferred?
- What is the size and condition of the landing area?
- What is the training, experience, competence and certification of the crane operator?
- Is the transfer taking place on the windward or leeward side?
- What is the visibility for the crane operator?
- Does the vessel(s) have DP (Dynamic Positioning) capability to remain on station?
- Does the crew being transferred, the boat captain and the crane operator agree, from their pre-lift meeting) that this transfer can be done safely? In our opinion, this is the most critical factor in rough sea / bad weather personnel transfer decisions.

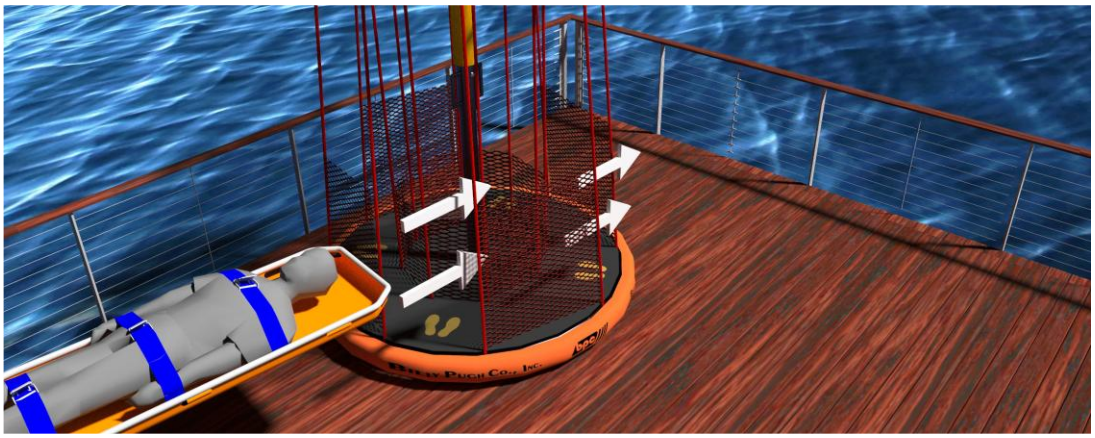
Scenario 1: A major oil company had to perform an extremely large number of crane transfers in the Gulf of Mexico. Their operating wind window was 30 knots which is a common general crane operating maximum working window in many areas of the world. What this major operator found was that they were slightly exceeding 30 knots in a large percentage of days. What they also found was that (because they had good equipment, big DP vessels, well trained crews and crane operators and a good transfer system) they could safely increase the transfer operating envelope to 35 knots. Things went extremely well, they transferred over 47,000 personnel during this phase of the operation with zero incidents. If we had recommended a 30 knot maximum it would have been in conflict with their, very safe and well thought out, transfer operation.

Scenario 2: With a small boat, no DP, inexperienced crew etc. a 35 knot wind would not be a safe transfer envelope. In fact, a 30 knot wind would probably not be a safe transfer condition. In this second scenario, if we were to state in our RP the "30 knots is the maximum" these transfers might be performed because they fit within the envelope we suggested and that might have created a hazardous condition.

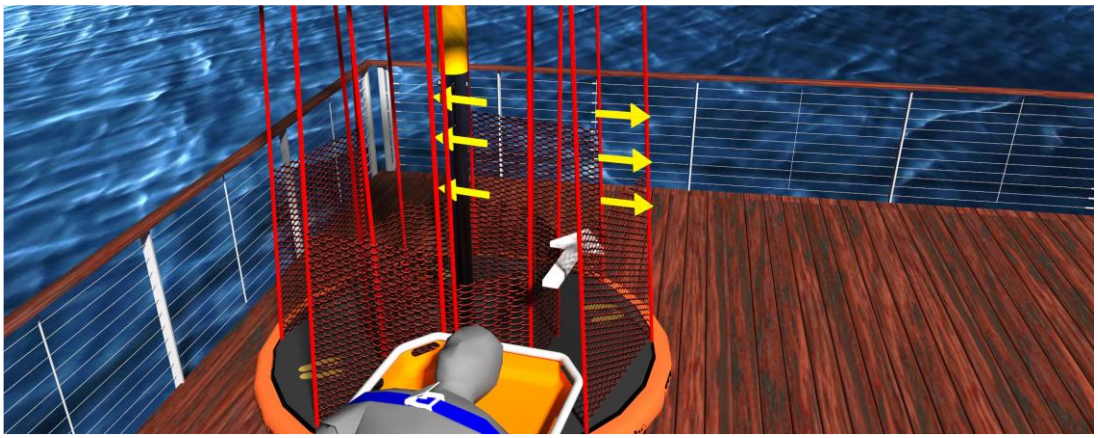
6.2 Stretcher Transfers

Step 1: Placing the Stretcher inside the X904 or X-1000 Personnel Transfer Device (PTD)

1. With the PTD in the working position, carry one end of the stretcher in through any opening and out through the adjacent opening. With the center of the stretcher inside the PTD lower the stretcher to the floor.



2. Vertical grablines will expand to accommodate the width of the stretcher.



Step 2: Secure the Stretcher

1. Tie off the stretcher using the PTD's outer vertical grablines.

Step 3: Boarding with Stretcher

1. Riders may accompany the patient either as attendants (in the seated or kneeling position) or as passengers (in the standing position).

6.3 Pre-Use Inspection Form

X-1000 Pre-Use Inspection

Serial No.:	
Date:	
Inspected By:	
Signature:	

Item No.	Description	Pass	Fail
1.	General Damage		
2.	Safety Load Line		
3.	4 Part Sling		
4.	Stabilizer (ensure orange stabilizer is not wrapped around the load line)		
5.	Crane Hook		
6.	Top and Bottom Ring		
7.	Rigging Lines		
8.	Center Pole		
9.	Quick Release Hooks		
10.	Flotation Modules		

Notes:

6.4 6 Month Inspection Form

X-1000 6 Month Inspection

Serial No.:	
Inspection Date:	
Cert. Expiration Date	
Inspected By:	
Signature:	

Item No.	Description	Pass	Fail
1.	General Damage		
2.	Safety Load Line		
3.	4 Part Sling		
4.	Stabilizer (ensure orange stabilizer is not wrapped around the load line)		
5.	Rigging Ropes		
6.	Top and Bottom Frames		
7.	Center Pole		
8.	Flotation Ring Covers		
9.	Rubber Feet		
10.	Non-OEM Components or Modifications		
11.	Passive Heave Compensator		
12.	Flotation Modules		
13.	Pad Eyes		

Notes:

6.5 Service Record Form

X-1000 Service Record

Serial No.:	
Company:	
Location:	
In Service Date:	

2nd Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

4th Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

6th Year Service				
6 Month	**Date**	**Inspected By**	**Pass**	**Fail**
1.				
2.				
3.				
4.				

Note: Refurbishments occur on the highlighted rows (every two years)

6.6 X-1000 Assembly, Disassembly & Storage

Each X-1000 is shipped to our customers disassembled. Before you can enjoy riding the X-1000, you must assemble the personnel transfer device.

Every X-1000 is shipped with the following accessories:

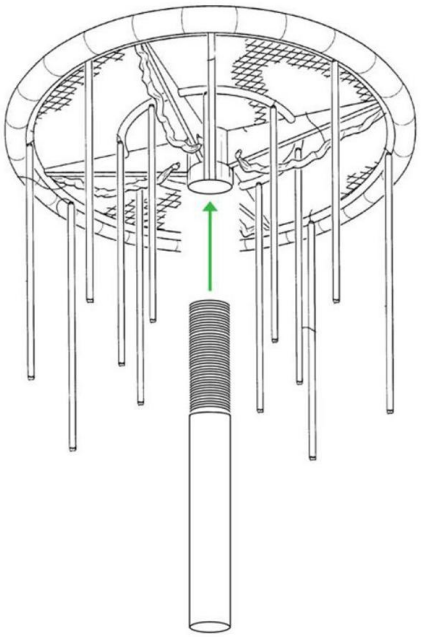
- **Training Flash Drive.** Use our training flash drive to learn how to operate and ride the X-1000. If you need additional training, Billy Pugh Company offers a variety of training materials to our customers. Visit www.billpugh.com for more information.
- **Certification Package.** Manufacturer Certificate. Optional ABS Certification Report or ABS Type Approval.
- **Recommended Practice.** This Recommended Practice document is included. In the Appendix section you will find suggested pre-use and 6-month inspection forms as well as a suggested service record.

6.6.1 Assembly

1. **Unpacking.**
   a. Carefully untie or cut the rope that secures the shipping basket.
   b. Remove all items from the shipping basket.
   c. Verify that all items (listed below) are present:
      - ✓ **Basket.** Top and bottom platform. These two halves are attached with the ropes and already includes the netting and safety lanyards.
      - ✓ **Upper Center Pole.** Top threaded vertical pole for connecting the top half of the platform to the bottom.
      - ✓ **Lower Center Pole.** Bottom threaded vertical pole for connecting the bottom half of the platform to the top.
      - ✓ **Tightening Boards.** Two (2) 904P-23 boards for tightening the center pole.
      - ✓ **Center Pole Cover.** 904P-4 Yellow PVC/Nylon 13 oz. center pole cover pad.
      - ✓ **Teflon Bearing.** P17 on General Arrangement Drawing, 4” OD x ¼” Teflon vertical center pole bearing.
      - ✓ **Coupling.** P27 on General Arrangement Drawing, coupling is used to join the top and bottom center poles.
      - ✓ **Fasteners.** P61 on General Arrangement Drawing, Two (2) 1/2” x 6” SS bolts, two (2) 1/2” locknuts and four (4) 1/2” SS washers.
      - ✓ **Tagline.** PTL-1 15’ tag line with ½” safety shackle.

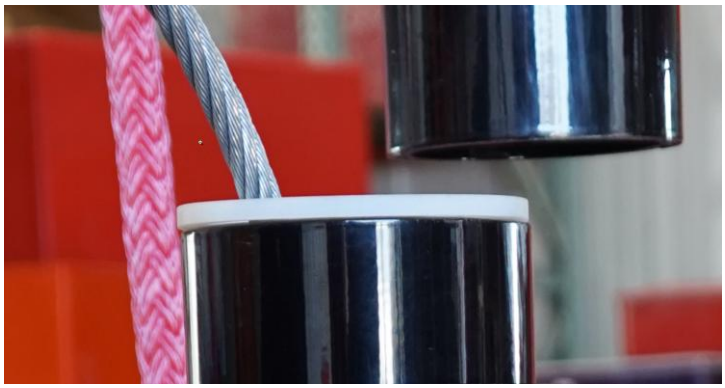
2. **Set up the basket for assembly.**
   Attach the top of the basket to the crane hook and lift until the grablines become tight. If no crane is available, carefully lay top of basket on its side.

3. **Attach threaded pole to roof of basket.**
   The X-1000 will come from the factory with the bottom half of the pole already inserted and the Passive Heave Compensator installed in the bottom half. The top half of the Center Pole will need to be installed. Insert the threaded pole into the top section and screw the pole all the way until the threads bottom out.

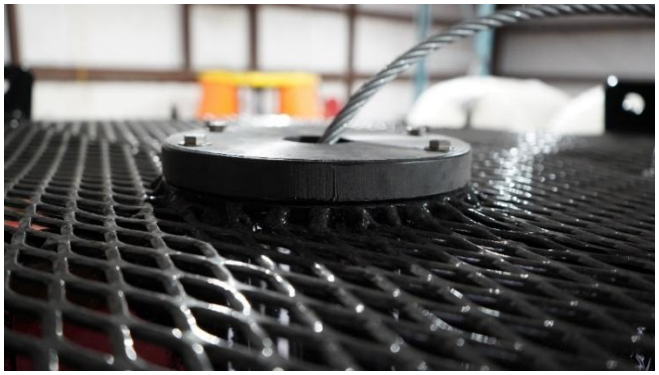


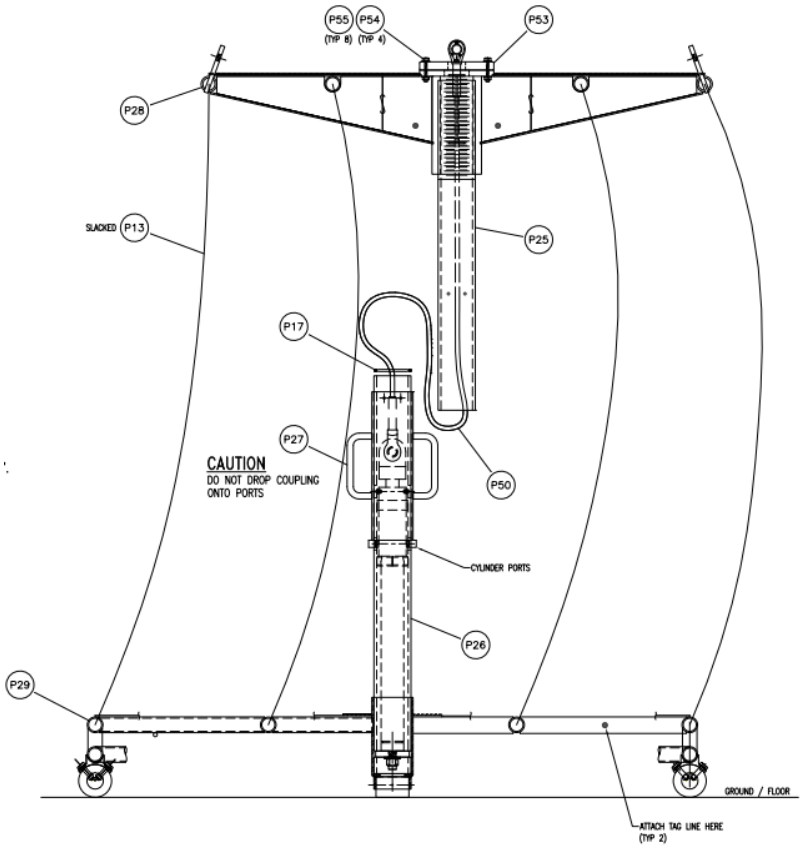
4. **Install the coupling over the bottom pole.**
   Install the coupling first by running the Heave Compensator Sling through the center of the coupling and then inserting it over the bottom pole, that is already inserted into the bottom frame. Ensure the upper pole is slightly offset from the bottom so the sling is not pinched. This Heave Compensator Sling will eventually need to be fed up through the upper portion of the center pole.

5. **Install Teflon bearing.**
   Place the Teflon bearing on top of the bottom center pole. This is needed to prevent metal on metal between the two pole sections. Additionally, this helps facilitate turning the pole needed for tightening the vertical grab lines.



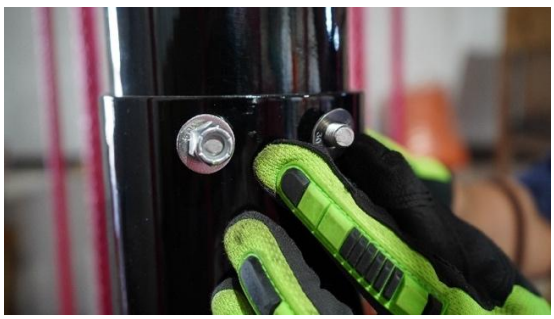
6. **Pull the Heave Compensator sling up through the upper section of the Center Pole.**
   a. Run a rope down through the upper section of the tope frame and center pole.
   b. Tie the rope to the eye on the Heave Compensator Sling so it can be pulled up through the upper Center Pole and Top Frame.



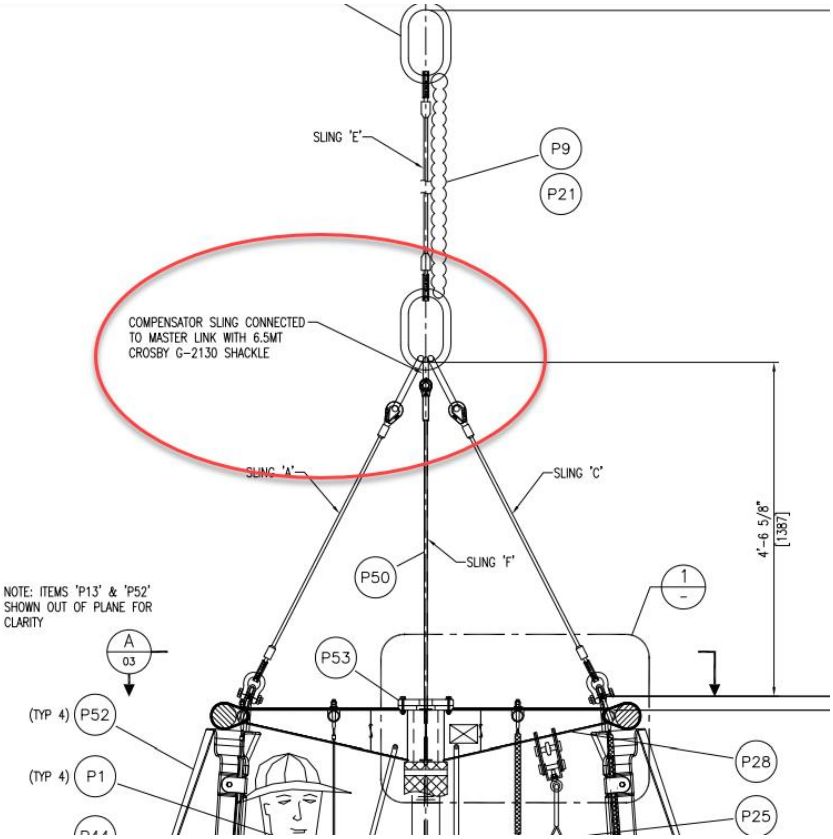


CENTER POLE ASSEMBLY TO TOP AND BOTTOM FRAMES.

7. **Joining the top and bottom assemblies.**
   a. Join the top and bottom poles by lifting the top assembly and placing the top pole on the bottom pole with the Teflon bearing between the two of them.
   b. Slide the coupling over the seam created by both the top and bottom poles.
   c. Insert the two supplied bolts, washers and nut.
   d. Tighten the nuts onto the bolts until they are snug. ***Do not over tighten***.



8. **Connect Heave Compensator Sling to Master Link.**
   After you have pulled the Heave Compensator Sling up through the Top Frame, you need to shackle the eye to the Center Master Link in the rigging assembly.



9. **Tighten the red Vertical Grab Lines.**
   Important note: Your X-1000 is shipped with 'number of turns' markings. This number is set by Billy Pugh Company engineers during assembly and is required fro the safe operation of the device.

   Number of turns = The number of 'counter clockwise' turns the center pole needs to make in order to remove the grablines 'slack' required during assembly.

   This number is set by Billy Pugh Company before leaving the facility.

   1. Staring by hand, twist the center pole counter clockwise until tight. Take note of the number of turns.
   2. Finish tightening the coupling with boards until the prescribed number of turns is achieved as indicated on the top of the frame.

6.6.2 Disassembly (Break Down)

1. Attach the X-1000 sling to the crane hook, davit hook, or any other device that will safely support the top frame assembly.
2. Grab the coupling on the center pole and turn clockwise until there is slack in all the red grablines.
3. Remove the bolts that pass through the coupling making sure to hold the coupling as to not allow it to fall to the bottom of the pole. ***Failing to do so could cause damage to the pressure gauge.***
4. Slide the coupling up and off of the pole and set the coupling aside.
5. Pull the bottom pole from the frame assembly.
6. Turn the top pole counterclockwise to remove it from the upper frame.
7. Safely lower the top frame assembly.

6.6.3 Storage

Like any product used in a harsh marine environment, the X-1000 should be protected from the elements (UV rays from sunlight and weather) when not in use for extended periods of time. Ideally the device could be stored inside and out of the direct sunlight but that is not always possible offshore.

Vinyl cover for assembled X-1000, product #904P-31

6.7 Specifications

6.7.1 Dimensions

Model	Imperial Units			Metric Units		
	Base Width	Total Length	Height of Device	Base Width	Total Length	Height of Device
X-1000-4	85 in.	33 ft.	96 in.	215 cm	1006 cm	243 cm

6.7.2 Capacity

Model	Passenger Capacity	Imperial Units	Metric Units
X-1000-4	4	1200 lbs.	544 kg

6.8 Product Registration Process

Every X-1000 should be registered on our Product Registration Website. This allows the user to record and track the In-Service Date of the device and access electronic copies of current certificates. Please follow the below process to ensure your device is properly registered.

6.8.1 Access the Billy Pugh Company Product Registration Page

There are two ways to access the Product Registration page:

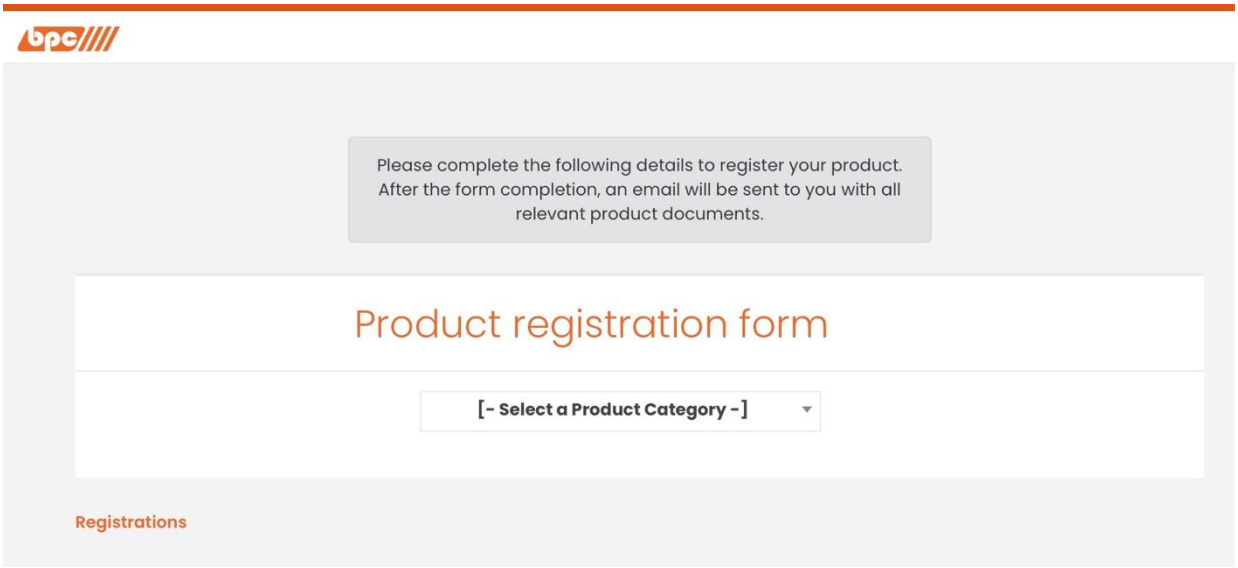
1. Enter or click on the web link below to access the Product Registration page.

https://bpc.myfleet360.net/registrations

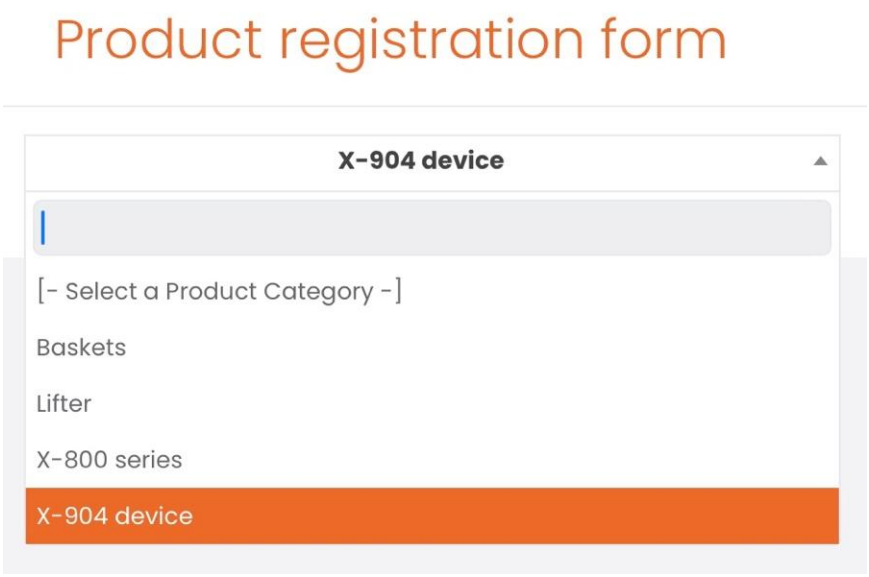
OR

2. Click or scan the QR code below.

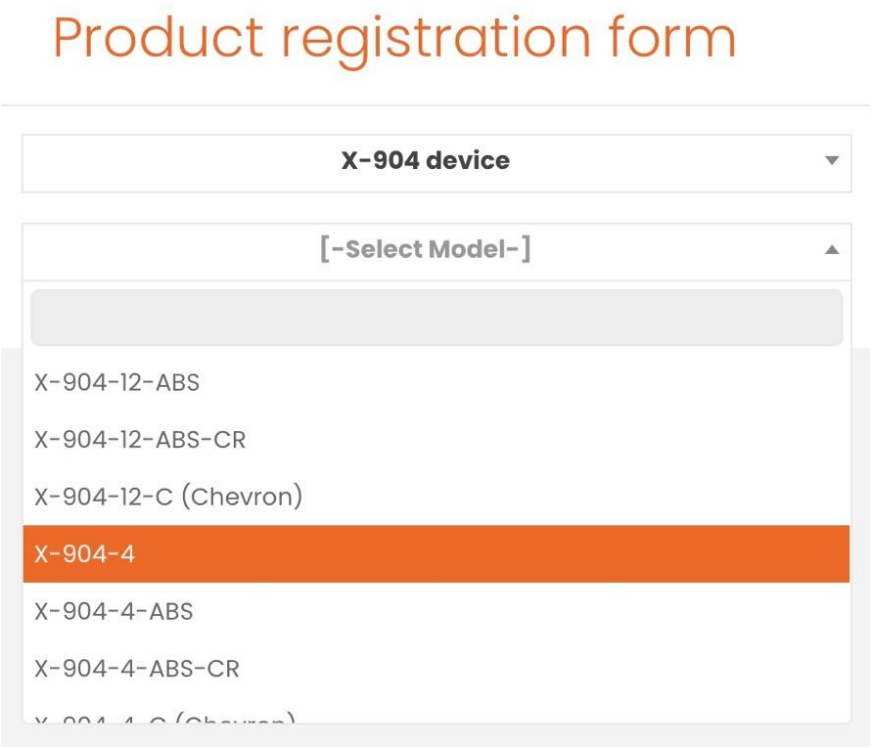
6.8.2 Select a Product Category



6.8.3 Select a Device from the Menu (X-904-4 used as an example)

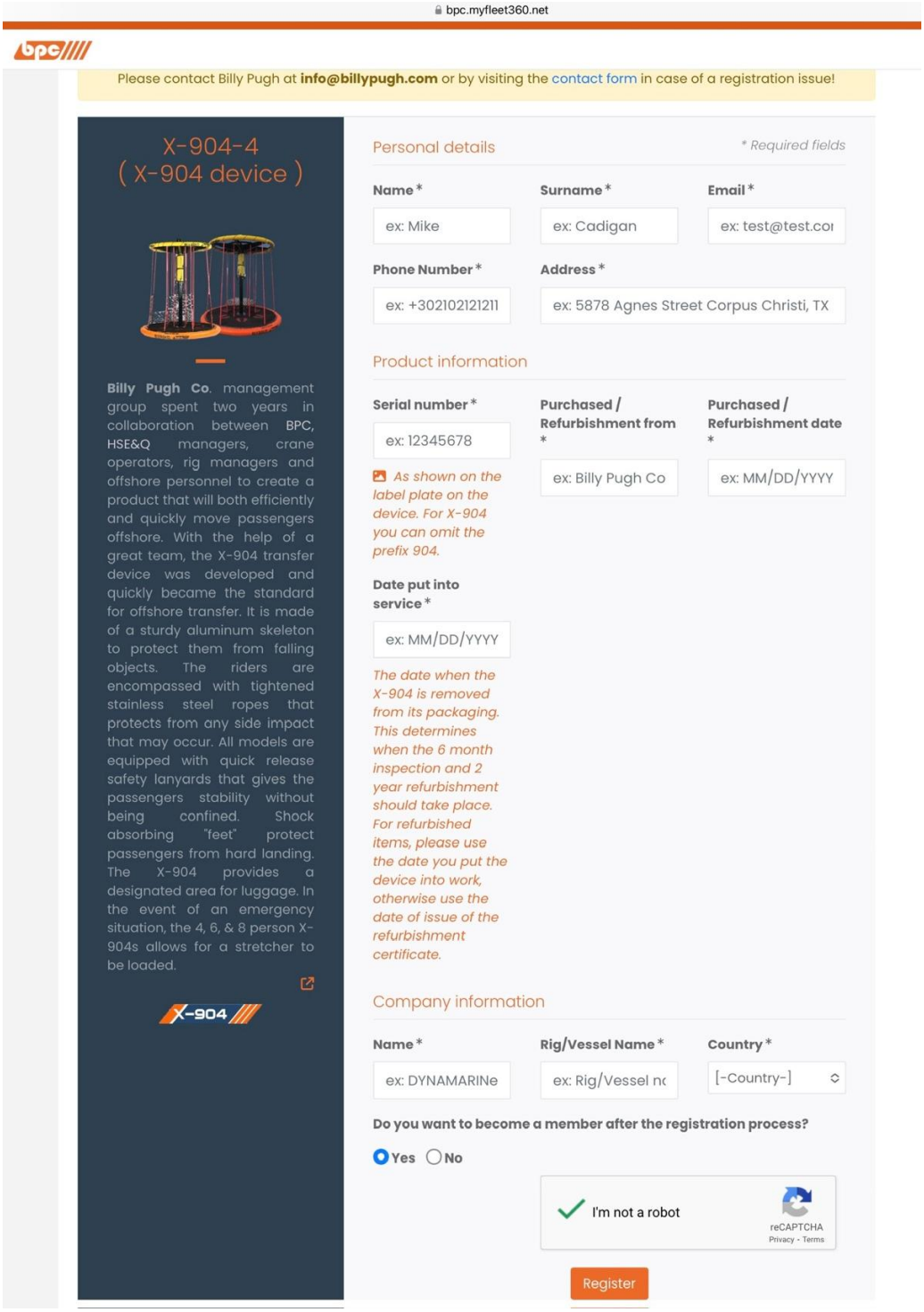


6.8.4 Select a Model from the Menu (X-904-4 used as an example)



6.8.5 Complete the Form (X-904-4 used as an example)

Fill in all fields, indicate whether you want to become a member, verify that you are not a robot then click on the Register button and you will have successfully have completed the registration process.



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