

**FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
BOH FPU Field Pack-up Units**

**CHAPTER 2
OPERATOR INSTRUCTIONS**

This page was intentionally left blank

**OPERATOR INSTRUCTIONS
FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
BOH FPU Field Pack-up Units**

OPERATION OF QUADCON SYSTEM

STANDARD QUADCON PARTS MODULES

There are five configurations of Storage Modules

NOTE

The QUADCON module adapter system requires that the QUADCON container have some tie down device present to attach the QUADCON adapters to. See Page WP 0004 00-4

All BOH FPU Modules are designed to stand alone or to be loaded and secured within the QUADCON containers. BOH Environmental currently offers five Models (variations) of standard shipping/storage modules for the shipping/storage of small, intermediate material. QUADCON modules measure 61.541" (H) x 48.74" (W) x 44.22" (D) and are capable of holding a cross section of drawers from 4" to 12" in depth. These drawers have a design-rated capacity of 100 lbs. All drawers are full extension (40-inches) and allow full access to stowed material. Small to intermediate parts storage/shipping modules are available with 4-inch, 6-inch, 8-inch, 10- inch, and 12-inch deep drawers. Compartments are adjustable in 2" increments from front to back. The maximum drawer compartments in standard QUADCON shipping/storage modules range from 127 to 780.

QUADCON MODULE ACCESSORY

There are three models of QUADCON Floor Adapters: Multi Use, Adapter A and Adapter B.

Note

The QUADCON Adapters are specifically designed for QUADCON containers that have internal container attachment devices provided.

BOH Environmental currently offers three floor adapters to fit the QUADCON container. The QUADCON Adapter is designed to modify QUADCON Containers to allow the installation of 48" wide QUADCON FPU Modules and other BOH modules. The installation of the FPU QUADCON Adapter requires no drilling or welding through use of existing QUADCON cargo tie-down rings/fixtures.

Note

BOH Container and other product manuals are available on PDF Manuals at
<http://www.bohfpusystems.com>

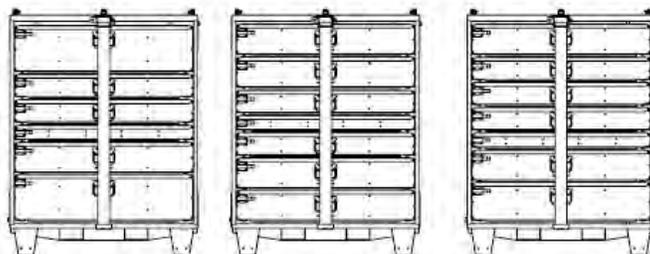
WARNING



When loading module drawers with material, always load the bottom drawers first and avoid loading the top drawers with the heavier material that may cause a tipping hazard.

Five QUADCON Parts Module Configurations

There are five variations of drawer configurations available. The drawers are provided with ball bearing slides for ease of operation. Each drawer is provided with metal dividers to separate material. Slam latches retain the drawers and a security bar can accept a pad lock. There is a mat and tie-down rings on the top to the top of the module to secure additional material.



CONFIG # 1

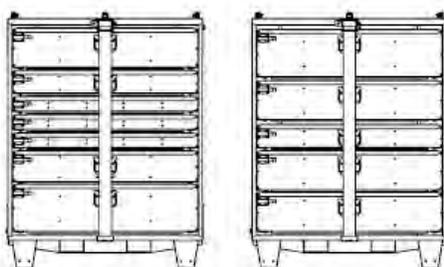
4" Drawers - 1
6" Drawers - 2
8" Drawers - 1
12" Drawer - 2

CONFIG # 2

4" Drawers - 1
6" Drawers - 2
8" Drawers - 4

CONFIG # 3

4" Drawers - 1
6" Drawers - 3
8" Drawers - 2
10" Drawers - 1



CONFIG # 4

4" Drawers - 3
6" Drawers - 1
8" Drawers - 1
10" Drawers - 1
12" Drawer - 1

CONFIG # 5

6" Drawers - 1
10" Drawers - 3
12" Drawer - 1

Note

Module drawers have standard sets of dividers. Additional divider sets may be obtained on request (See Parts Support Chapter 6 WP 0022 00-18 to 00-23)

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS
FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
 BOH FPU Field Pack-up Units

OPERATION OF THE QUADCON ADAPTERS

INITIAL SETUP:

Downloaded and Operating
Maintenance Level
 Operator/Crew

Personnel Required

Two (plus one supervisor)

Tools Required

two 3/4" open end wrench, 3/4" ratchet end wrenches

OPERATION OF THE QUADCON ADAPTERS

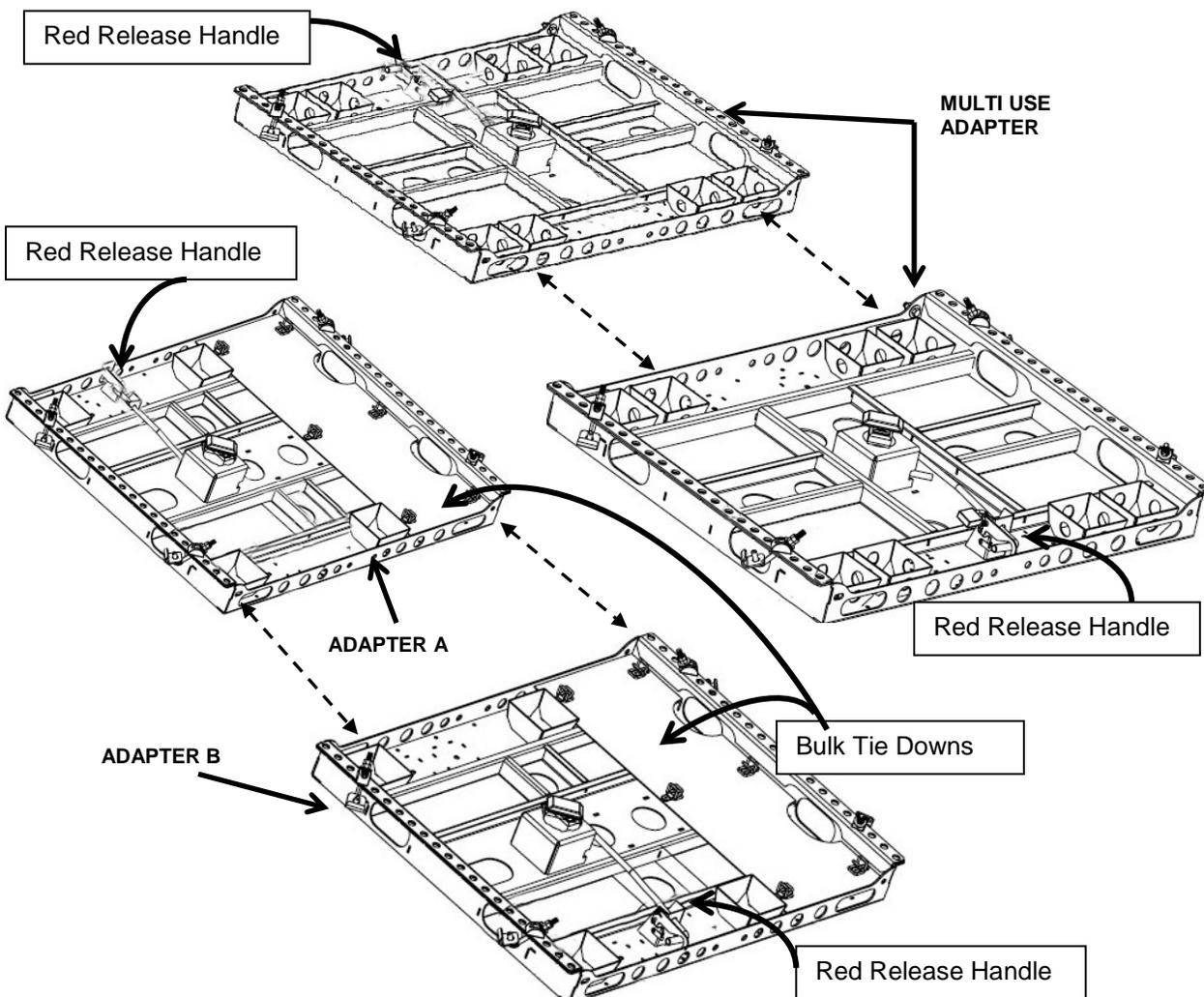
Three Type QUADCON Adapters A and B

There are two models of floor adapters designed to accept and secure various FPU modules within the QUADCON containers and provide a bulk storage platform when installed.

(See Chapter 1 WP 0002 Adapter A and adapter B.)

MULTI USE QUADCON Adapters

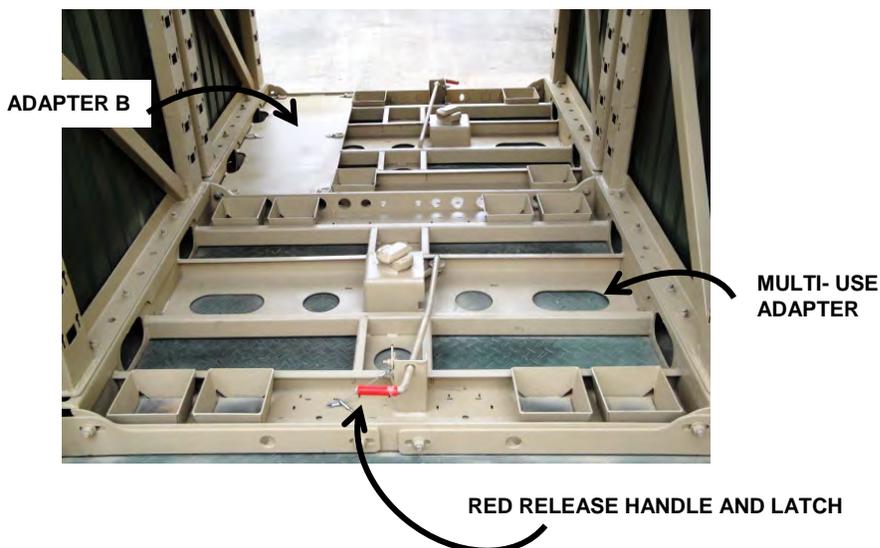
The Multi Use QUADCON Adapter has eight module foot pockets to accept the 48" QUADCON modules and is designed to accept various other BOH FPU modules. (See Chapter 1 WP 0002 Multi Use adapter.)



0004 00-1

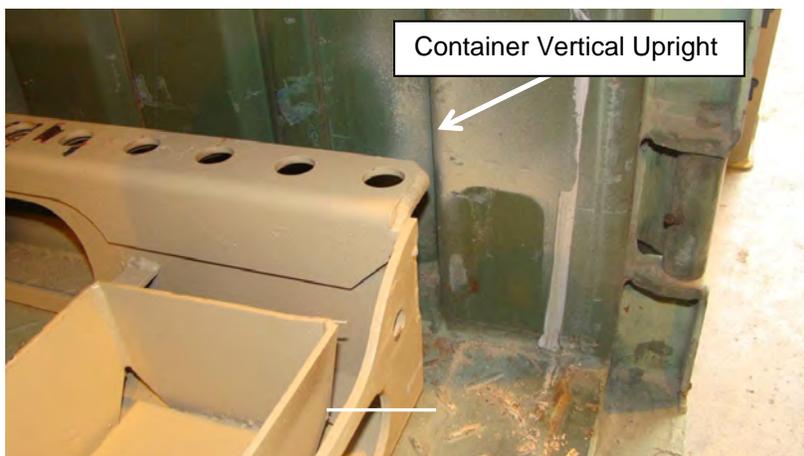
Note

The MULTI- USE Adapter and Adapter A or B may be used in combination to create a tailored storage configuration.

**Installing the QUADCON Adapters****WARNING**

Use proper lifting techniques when lifting the QUADCON Adapter. Use work gloves when handling the Adapter. Never use fingers to align the bolt holes. Ensure that there is proper footing when moving lifting or positioning the Adapter.

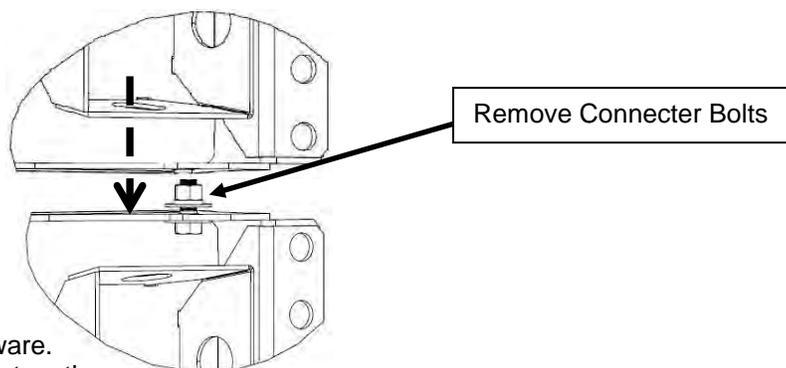
1. With assistance, place the QUADCON Adapter in the container with the red release handle facing the door entry for access to the handle.
2. The front of the adapter should be positioned just inside the two vertical uprights located on either side of the door entry and evenly spaced from the side walls.



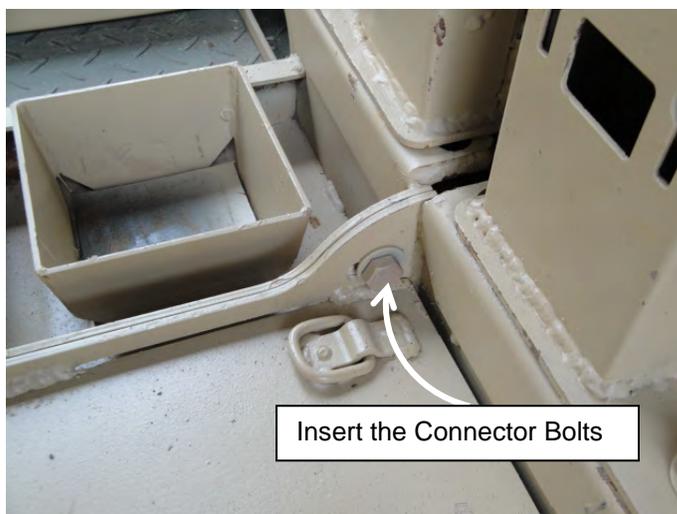
Connecting the Second Adapter

NOTE

When installing the second adapter, the rear connector hardware must be removed until the adapters are in position.



1. Remove the hardware.
2. Place the adapters together.
3. Align the holes of the adapters to insert the bolts.
4. Insert the bolts, washers and nuts through both adapters left and right side.
5. Tighten the nuts, finger tight.



Note

The holes are elongated to provide position adjustment. When the proper position is achieved and after all other hardware has been tightened, tighten the connection bolts last with two $\frac{3}{4}$ " open end wrenches..

Securing the QUADCON Adapters

The adapters are secured to the QUADCON containers that have welded floor rings or brackets by means of an adjustable J hook device.

Note

The QUADCON Adapters are designed to be used with non-standard QUADCON containers without anchor devices. For standard QUADCON containers without anchor devices, the QUADCON adapters must be used in conjunction with the adapter restraint system.

Note

Eight J bolts are required when installing floor adapters

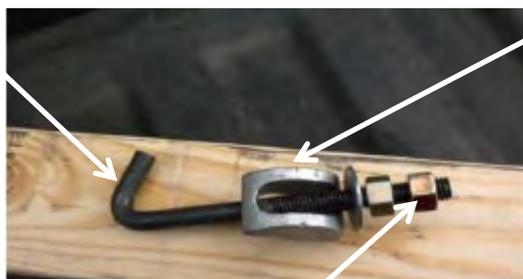
ADJUSTABLE J HOOK BOLT AND WELDED FLOOR RING



1. When installing the J hook bolts, select a hole near the tie down ring, then angle the J-bolt about 20 to 30 degrees toward the center.
2. Feed each J hook bolt through the hole engaging the ring and place the hillside washer, flat washer adjustment nut and jam nut on the bolt and hand tighten.



J HOOK BOLT



HILLSIDE WASHER

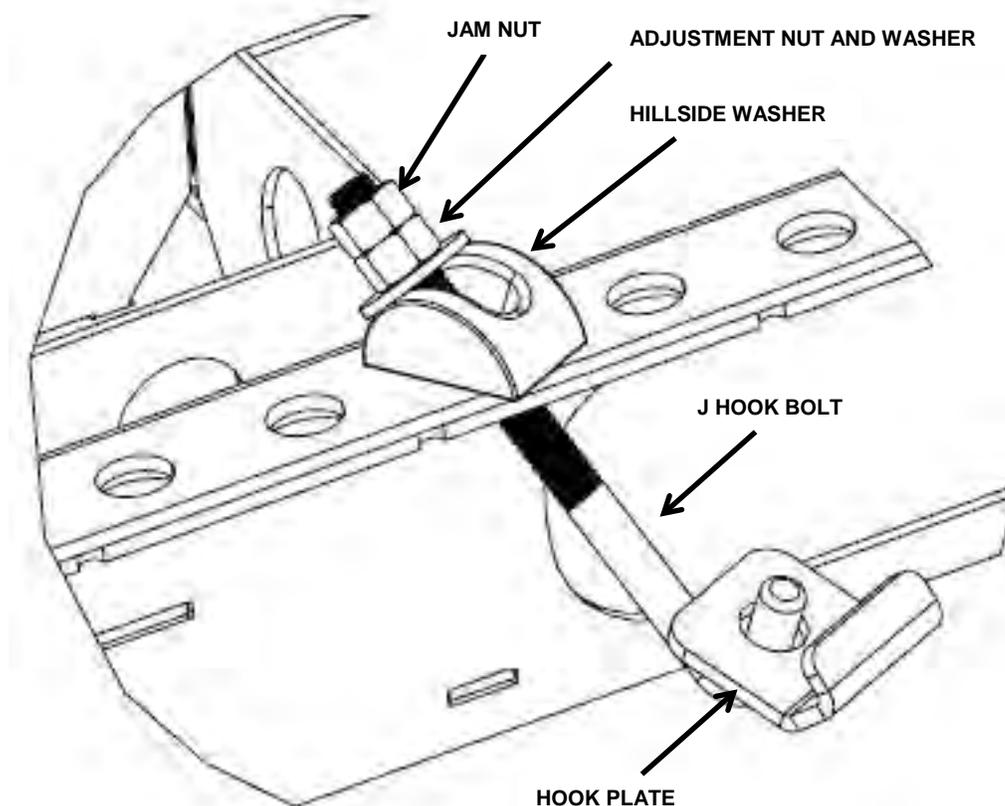
JAM NUTS AND WASHER

3. Once the adapters are in position and secure, tighten the rear connector bolts with two $\frac{3}{4}$ " open end wrenches. See page WP 0004 00-3 and 0004 00-5.

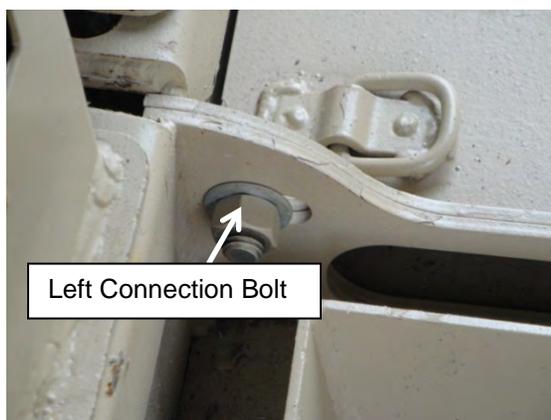
Securing the QUADCON Adapters

NOTE

The hook plate is provided for those QUADCON containers that have no floor rings but have tie-down blocks. The hook plates are provided to attach directly to the tie-down blocks.



1. Feed each J hook bolt through the hole, engaging the hook plate to side wall tie-down blocks and place the hillside washer, flat washer adjustment nut and jam nut on the J hook bolt and finger tighten.
2. Progressively tighten each adjustment nut on all J Bolts with a $\frac{3}{4}$ " open end wrench until the adapters are secured in place, and then tighten the jam nuts to prevent the J Bolts from becoming loose.
3. Ensure the adapters are in the desired position and all other hardware is tight.
4. Tighten the left and right connection bolts and nuts, with two $\frac{3}{4}$ " open end wrenches.



This page was intentionally left blank

OPERATOR INSTRUCTIONS
FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
BOH FPU Field Pack-up Units

Operation of the QUADCON Adapter Restraint System Installation

INITIAL SETUP:

FPU Downloaded and Operating

Maintenance Level

Operator/Crew

Personnel Required

Two (plus one supervisor)

Tools Required

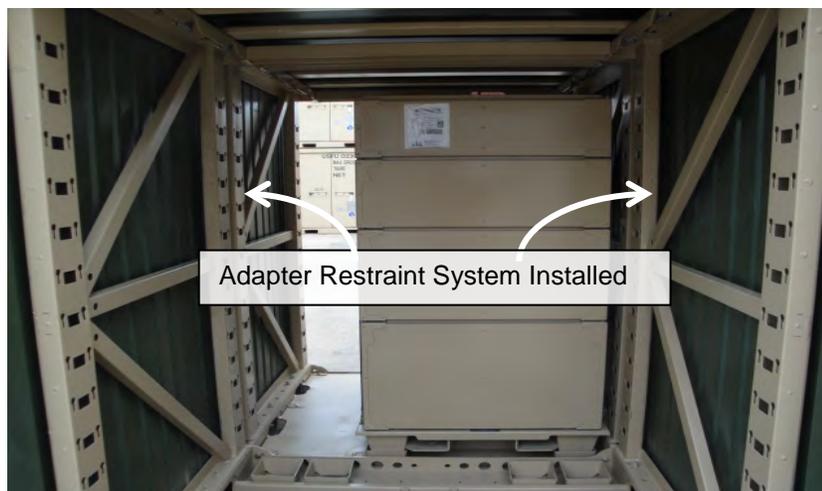
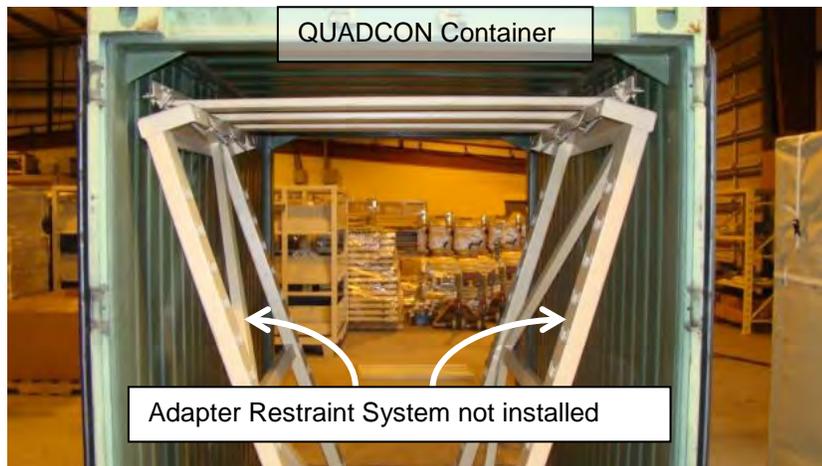
pry bar, two ¾" open end wrench and ratchet end wrenches

Adapter Restraint System Installation

The BOH Adapter Restraint System, is designed to be used in QUADCONs without tie-down devices within the containers.

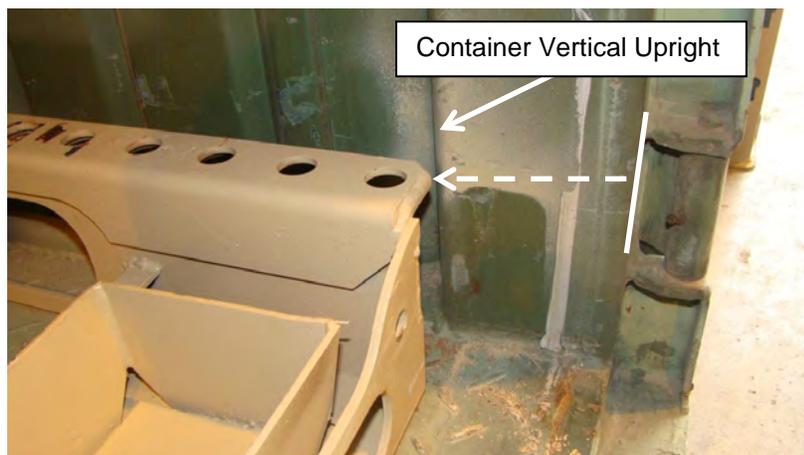
For information contact BOH Environmental LLC <http://www.bohfpusystems.com>

The BOH Adapter Restraint System when installed is a self-supporting internal frame that restrains and secures the Multi-Use Adapters and Adapters A and B in the QUADCON container that have no attachment devices.



Adapter Restraint System Installation

1. With assistance, place the QUADCON Adapter in the container with the red release handle facing the door entry for access to the handle.
2. The front of the adapter should be positioned just inside the two vertical uprights located on either side of the door entry and evenly spaced from the side walls.



WARNING



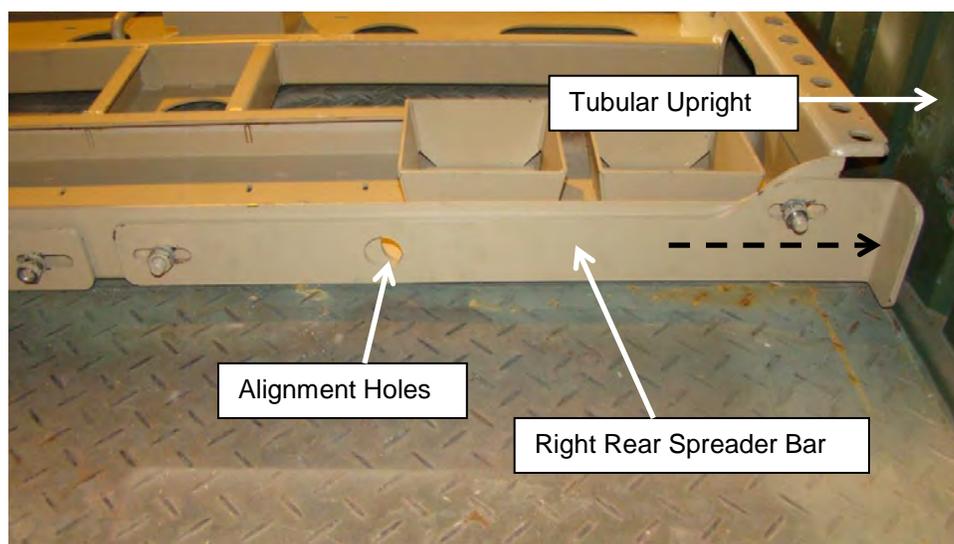
Use proper lifting techniques when lifting the QUADCON Adapter. Use work gloves when handling the Adapter. Never use fingers to align the bolt holes. Ensure that there is proper footing when moving, lifting or positioning the Adapters.

Install Spreader Bars

Note

When installing a single adapter in the container, front and rear spreader bars are required. When installing two adapters in the container, only the front spreader bars are required.

3. Using the provided $\frac{3}{4}$ " bolts, nuts and washers, install both front spreader bars onto the adapter.
4. Position the right side spreader bar against the wall tubular upright and tighten the nuts and bolts.



5. Using a pry bar in the alignment holes, position the left spreader bar tight against the wall tubular upright and tighten the $\frac{3}{4}$ " nuts and bolts.

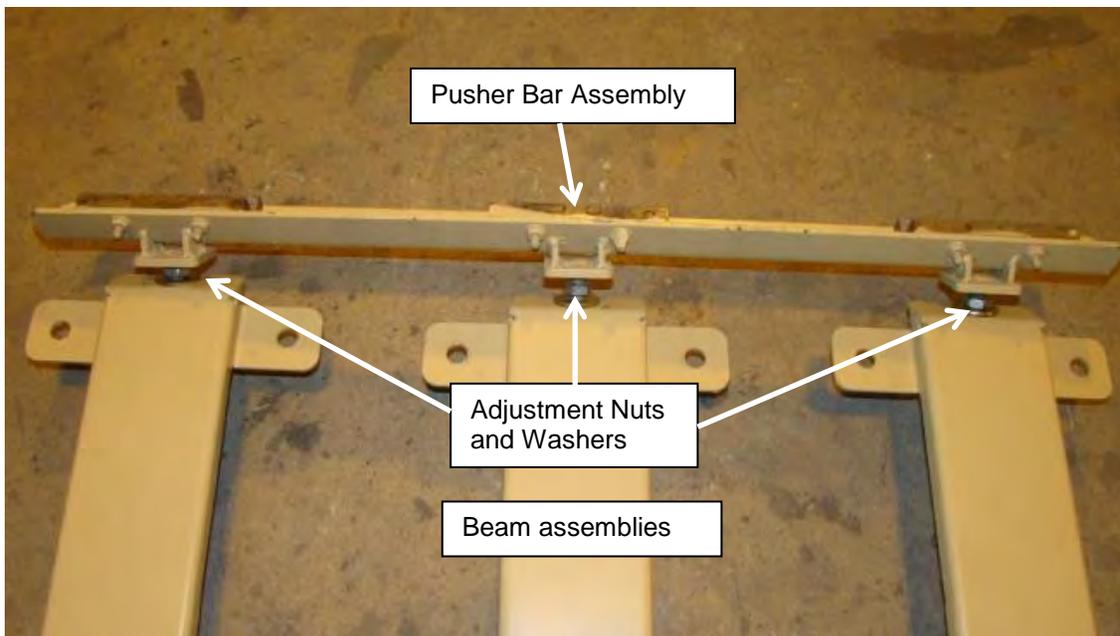
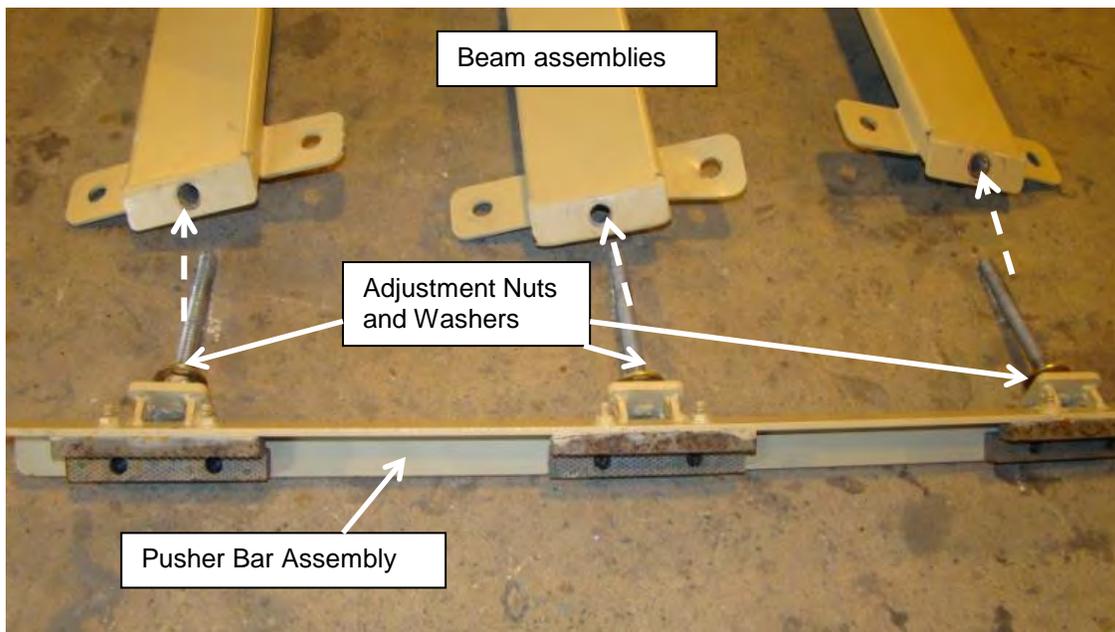


Assemble Pusher Bars and Beams

Note

Do not remove the adjustment nuts and washers from the pusher bar assemblies.

6. Install two pusher bar assemblies, with adjustment nuts and washers, to the top of three beam assemblies.
7. Do not attach the $\frac{3}{4}$ " mounting nuts and washers at this time.
8. Each pusher bar and beam is labeled TOP to identify their position.



Install Frame Uprights

WARNING

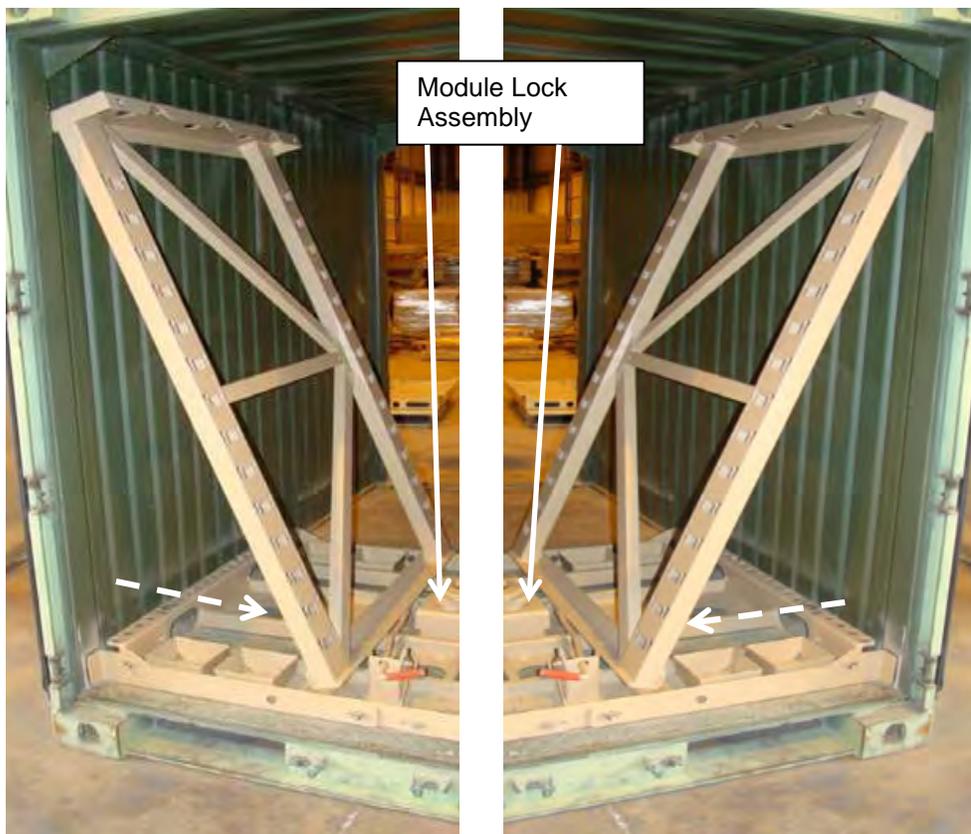


Assistance is required for the following assembly steps. Use proper lifting techniques when lifting the frames and assembled beams. Use work gloves when handling all restraint parts. Never use fingers to align the bolt holes. Ensure that there is proper footing when moving, lifting or positioning the frames.

9. With assistance, prop the right and left frames against the right and left wall and against the Module Lock Assembly in the center of the floor adapter as shown.

Note

Each frame is labeled "TOP INSIDE" for proper orientation.



WARNING



Care and caution should be taken when walking over the floor adapter assembly.

Install Beams and Pusher Bar Assemblies

WARNING

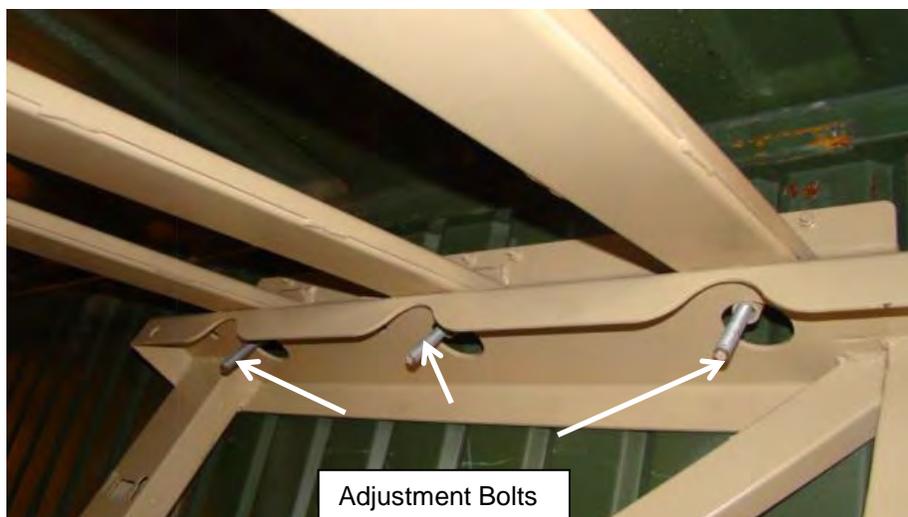


Assistance is required for the following assembly steps. Use proper lifting techniques when lifting the Beam and Pusher Bar Assemblies. Use work gloves when handling all restraint parts. Never use fingers to align the bolt holes. Ensure that there is proper footing when moving, lifting or positioning the Beam and Pusher Bar Assemblies.

10. With assistance carefully pick up the three assembled beams and pusher bars and place them on top of the frames as shown on both sides.



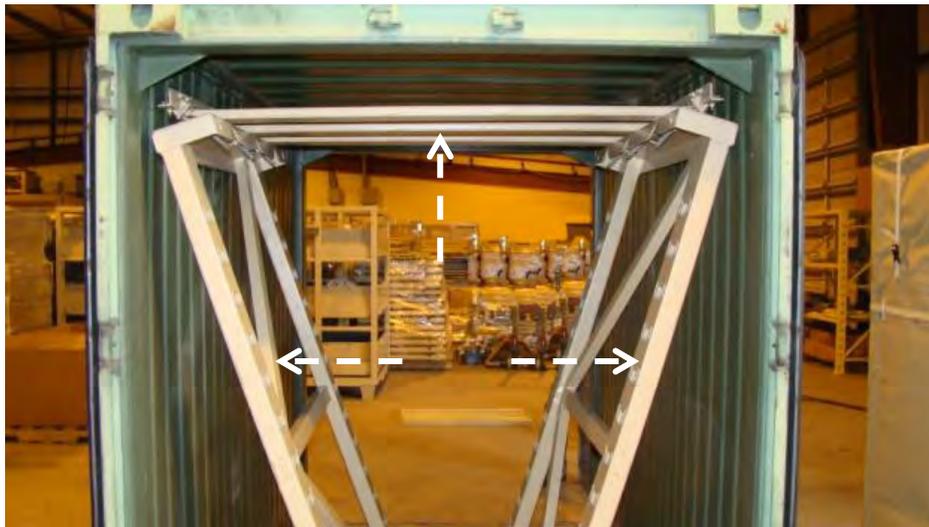
11. With assistance, place each adjustment bolt through the openings in the top of the frame as shown on both sides.



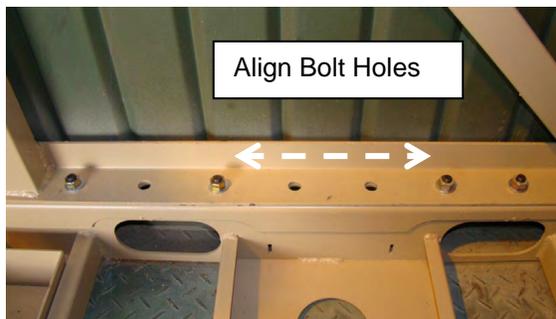
0005 00-6

Assembled Frame work

12. With assistance, lift and swing out the right and then the left assembled frame and cross beams onto the Floor Adapter Plate.



13. Align the bolt holes with a pry bar in the Adapter Plate and Frame to accept the $\frac{3}{4}$ " bolts and nuts. Finger tighten nuts at this time.

**WARNING**

Never use fingers to align the bolt holes.

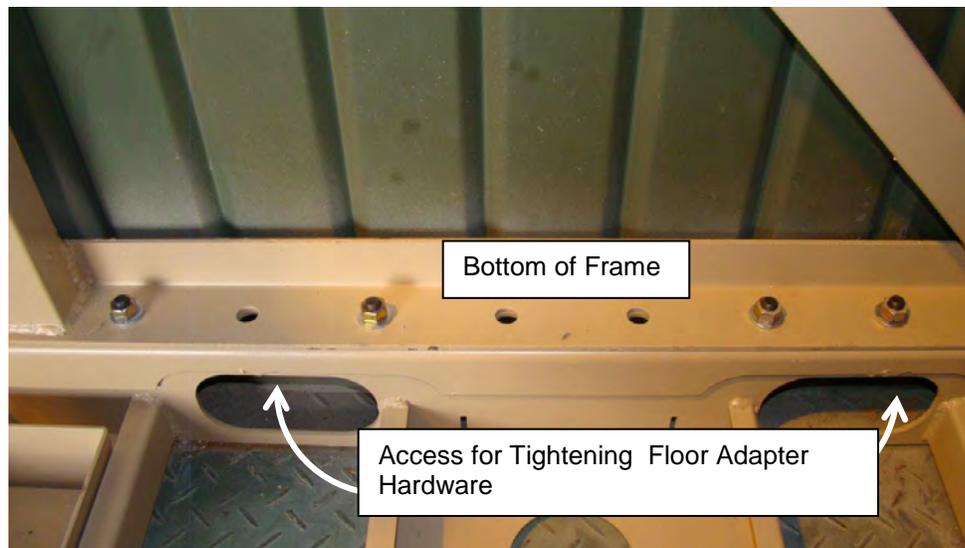
Attach Beams and Frame

Each Beam and Frame is secured with bolts through the beam flange holes and top of the frame at the ceiling.

14. At the ceiling, install the six $\frac{3}{4}$ " bolts, washers and nuts through beams and frame top of both the left and right side. Finger tighten all the nuts.



15. With the frames and beams in place, tighten (with a $\frac{3}{4}$ " open end wrench) all the top and bottom bolts and nuts on both sides of the frame works.
16. Recheck all the Spreader Bars for tightness. (See page WP 0005 00-3)



Cross Members

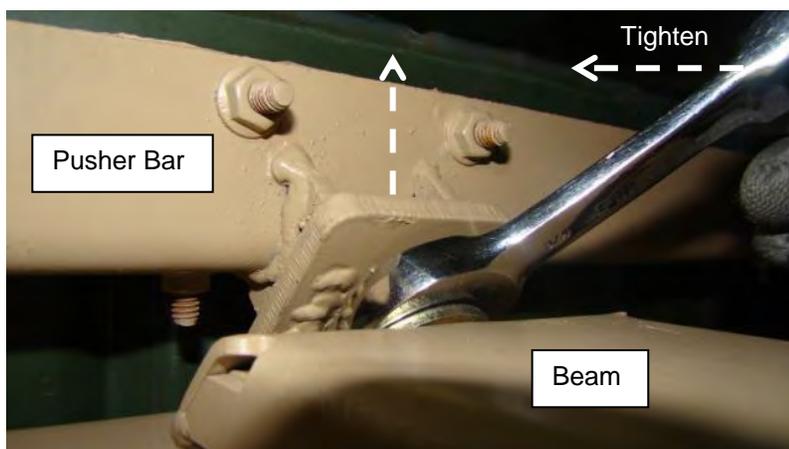
There are two cross members that are placed at the front and rear of the top of the frame to strengthen the frame works. This step will require assistance.

17. With assistance hold each cross member in place and install the 3/4" bolts, washers and nuts at both ends and finger tighten.



Pusher Bar Adjustment

The purpose of the Pusher Bar Assembly is to fit over the longitudinal tubing that runs the length of the container between the roof and the side wall. This secures the restraint frame work to the ceiling of the container.



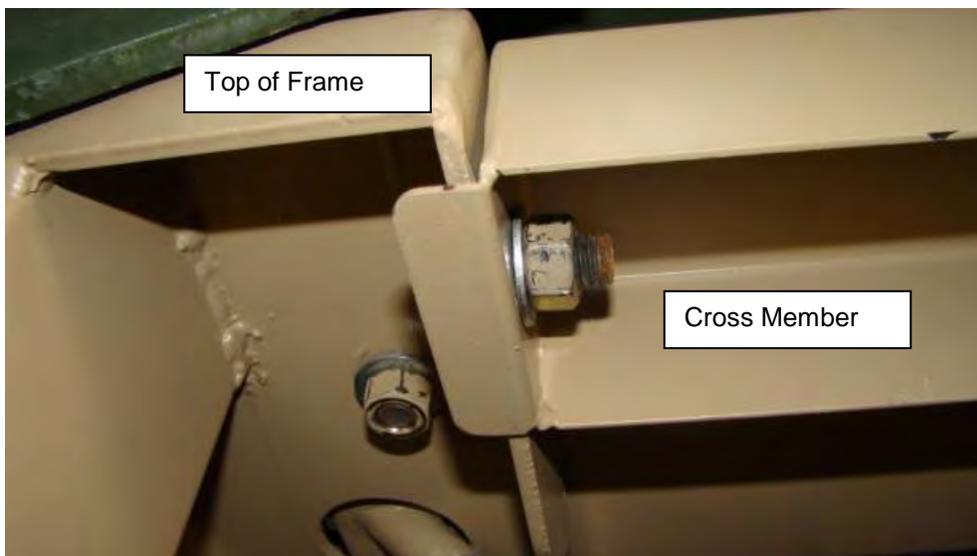
18. Adjust the left and right Pusher Bars at each beam with a counterclockwise wrench rotation until the Pusher Bars are firm and tight.

Caution

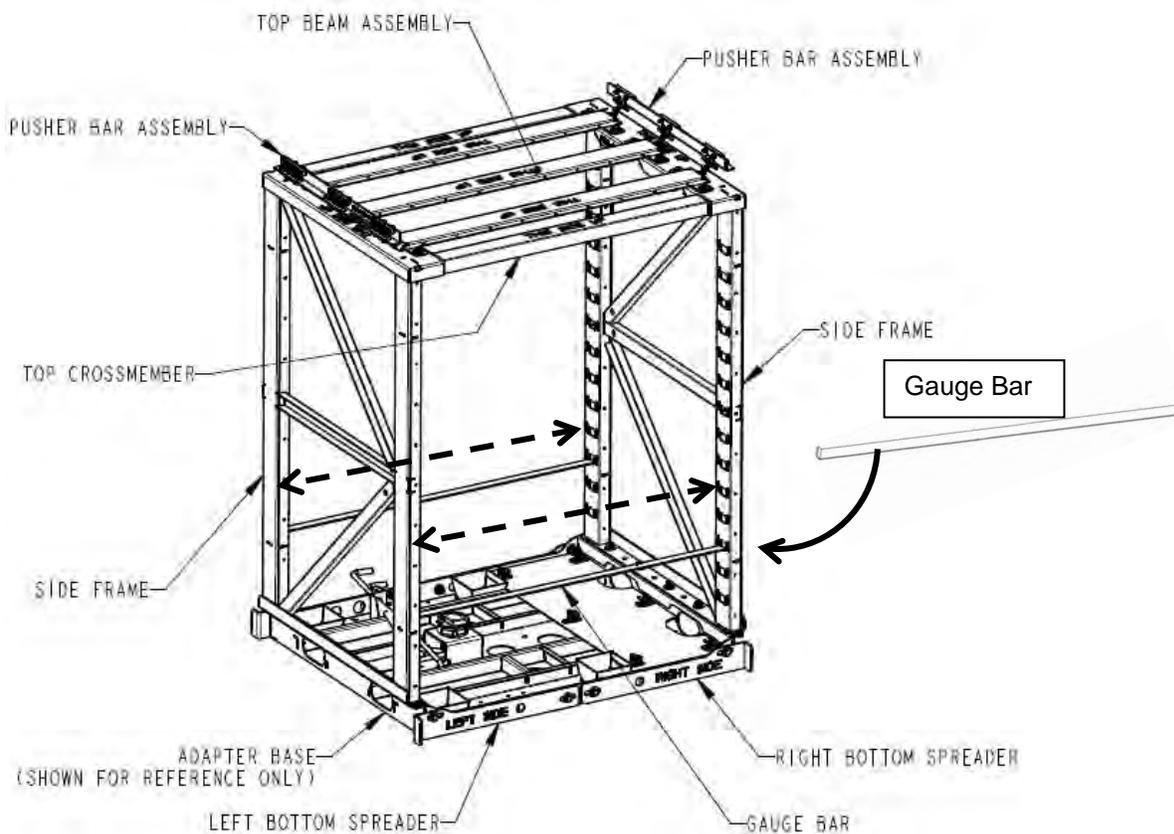
Do not overtighten hardware; damage may occur to the roof of the container or frame work.

Cross Members

19. Return to the Cross Members and tighten the $\frac{3}{4}$ " bolts and nuts with a $\frac{3}{4}$ " open end wrench.



20. Recheck the tightness of all the hardware on the restraint system.
 21. Check the space between the left and right side frame with the gauge bar.



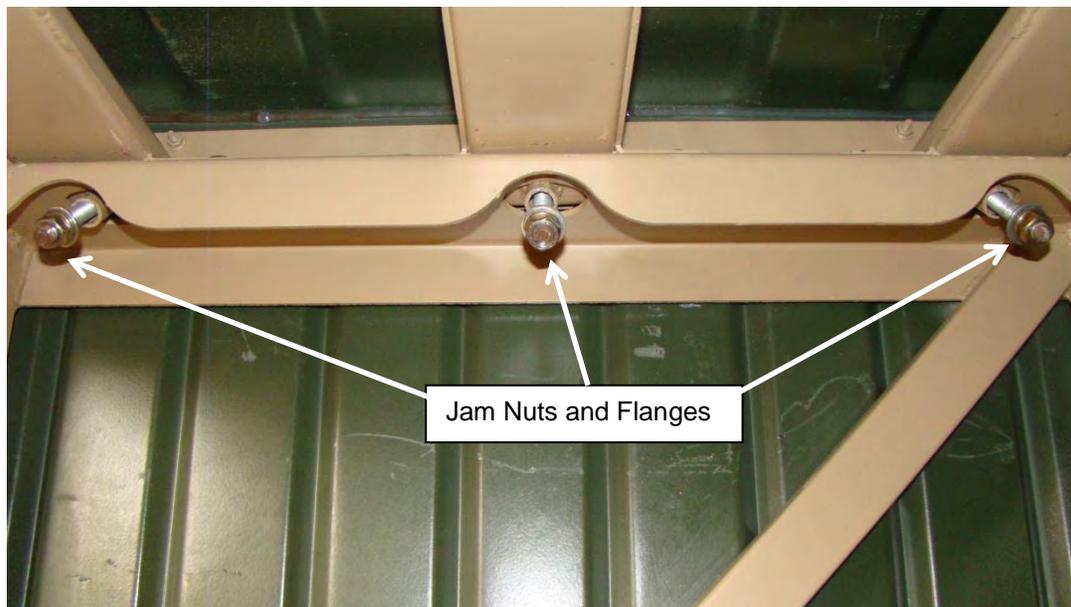
Adjustment Bolt Jam Nuts

The Adjustment bolt jam nuts, flat washers and lock washers prevent each adjustment nut from becoming loose due to vibrations.

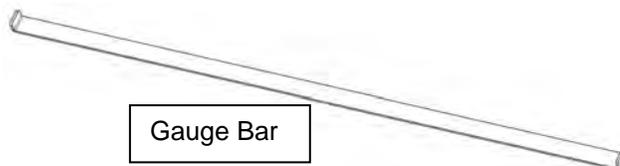
22. Install and tighten the six $\frac{3}{4}$ " jam nuts until the lock washers are compressed on the adjustment bolts to prevent the adjustment nuts from becoming loose.

Note

Tighten the jam nuts and washers against the collar until the lock washers are compressed.



23. Recheck the space between the left and right side frame with the gauge bar.



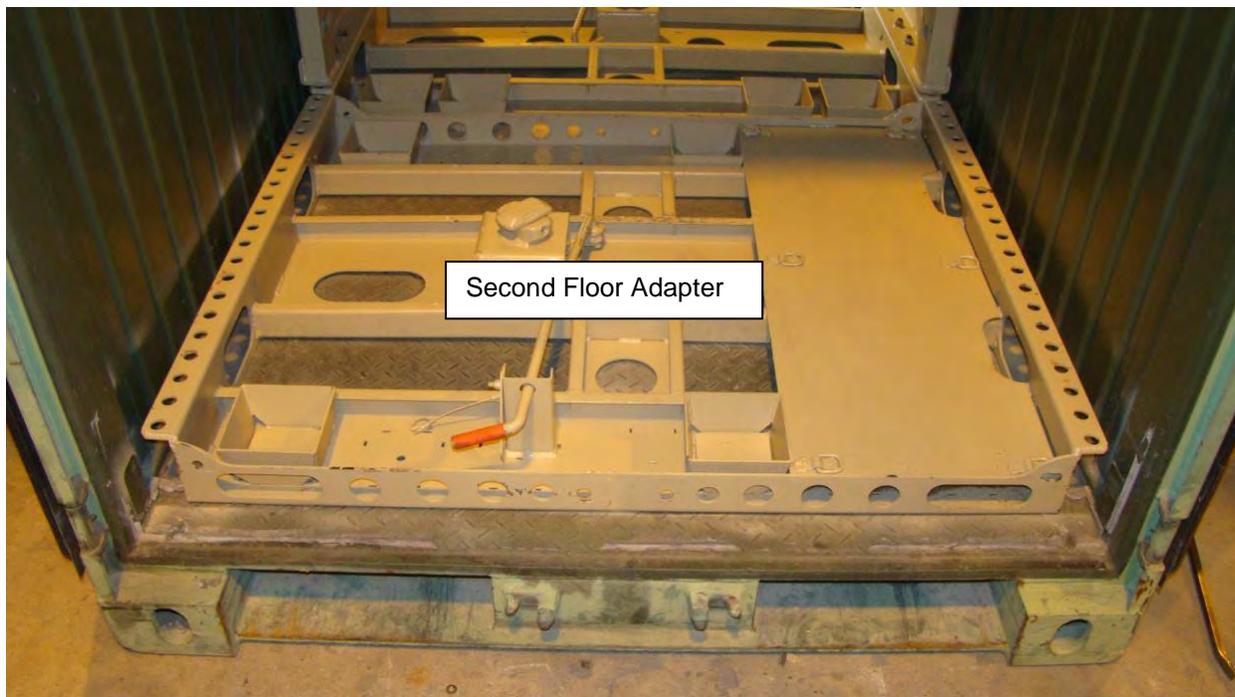
Installing a second Floor Adapter

The BOH Floor Adapters are designed to accept a second adapter and Restraint System. These steps will require assistance.

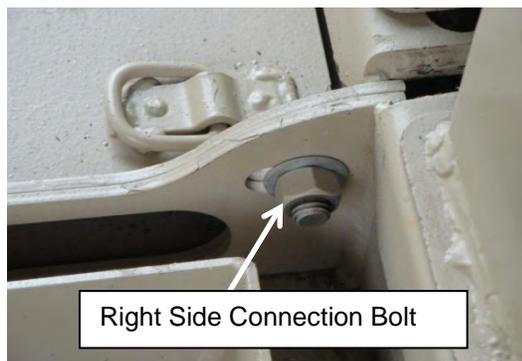
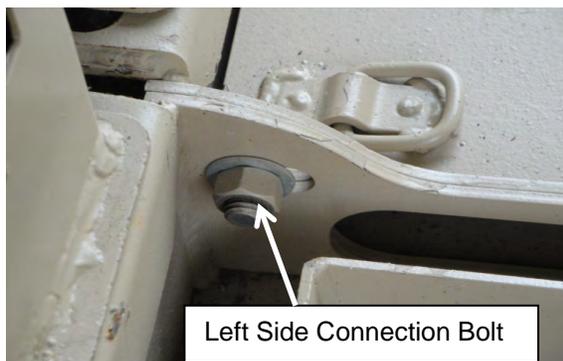
Note

When installing two adapters in the container, only the front spreader bars are required.

24. Remove the two rear spreader bars. (See page WP 0005 00-3)
25. With assistance place the second Floor Adapter in the position described in steps 1 and 2, page WP 0005 00-2.



26. Align the connection bolt holes of the two Floor Adapters, and install the two $\frac{3}{4}$ " bolts and washers, finger tighten.



Installing the Second Restraint System

These steps will require assistance.

27. Follow steps 1 through step 23 and follow all safety warnings, cautions and notes. (See Pages WP 0005 00-2 to 0005 00-11)



28. Return to the Floor Adapter connection bolts; tighten both left and right bolts and nuts.



END OF WORK PACKAGE

This page was intentionally left blank

OPERATOR INSTRUCTIONS
FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
BOH FPU Field Pack-up Units

Loading the Modules in the container

INITIAL SETUP:

FPU Loading and Operating

Maintenance Level

HME Operator/Ground Guide

Personnel Required

Two (plus one supervisor)

Tools Required

HME Fork Lift

Loading the QUADCON Modules**Caution**

Always ensure that all Floor Adapter and Restraint System attaching hardware is installed properly before installation of the module. (Review WP 0004 00 and 0005 00)

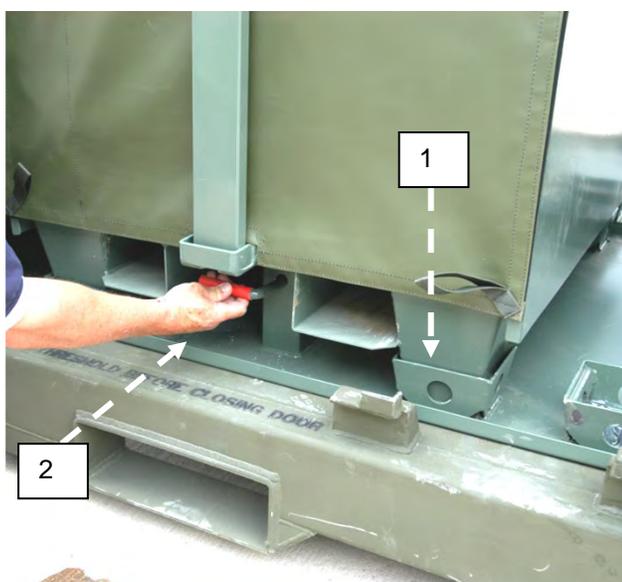


HME Operation

WARNING



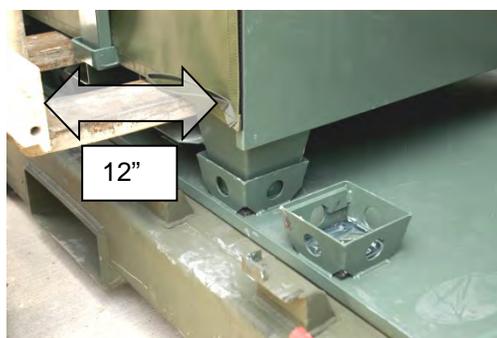
Always ensure that all Floor Adapter and Restraint System attaching hardware is tight and installed properly before installation of the module. Ground guides and the HME operators must maintain direct line of sight and insure that personnel are clear of the containers during this operation.



1. Verify that the module is properly seated (1) and the red handle (2) on the module-locking arm is pushed in completely to its closed and locked position, latched and pinned.
See page WP 0006 00-3

CAUTION

Allow 12" of space between the forklift carriage and any module when loading and unloading for greater maneuverability of the unit.



0006 00-2

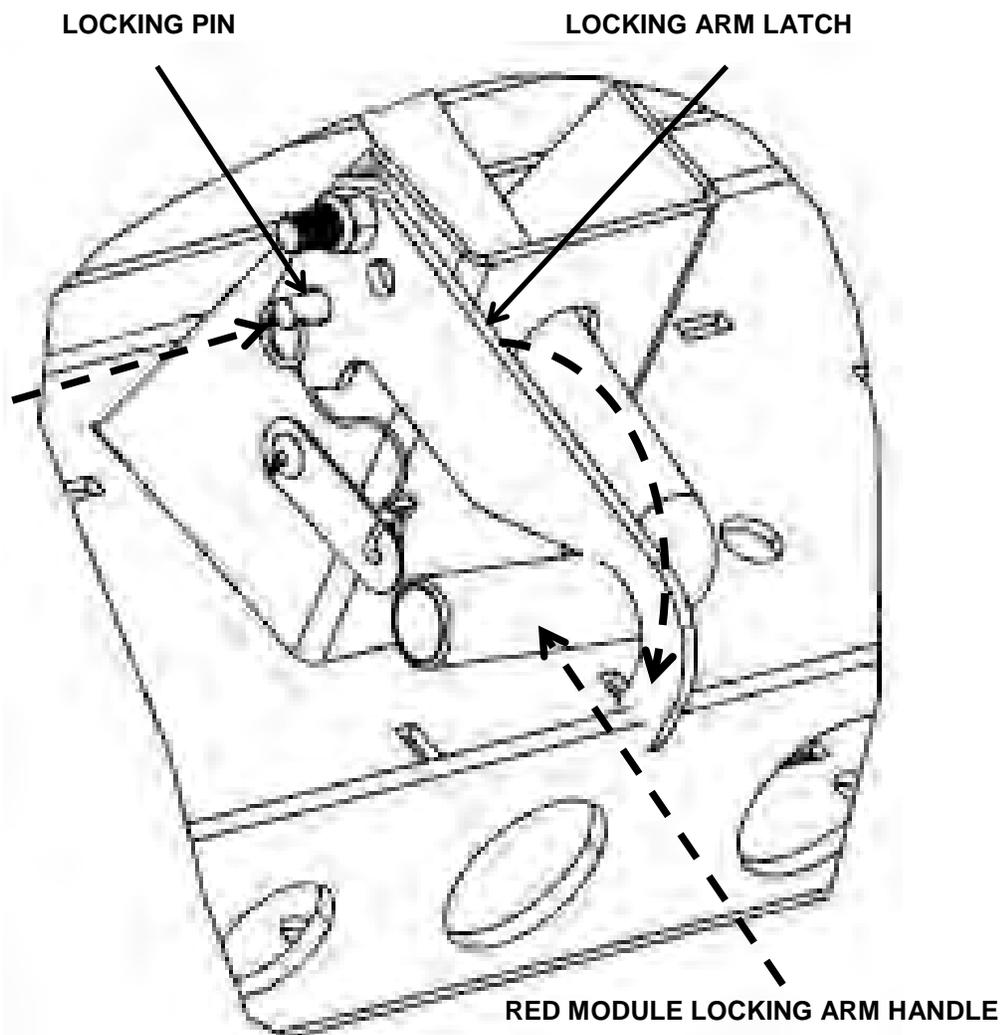
Securing the QUADCON Adapter Lock Arm and Modules

1. When the module is in place, verify that the Locking Arm Latch is in place and the Locking Pin is in place.

WARNING



The Lock Arm Latch and Pin prevents the Module Lock Arm from coming out and becoming a hazard. It also insures the modules are secure during shipment.



END OF WORK PACKAGE

0006 00-3

This page was intentionally left blank

**OPERATOR INSTRUCTIONS
FPU® SYSTEMS OPERATION MANUAL
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH QUADCON MODULES, ADAPTERS and RESTRAINT SYSTEM
BOH FPU Field Pack-up Units**

QUADCON SYSTEM OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

FPU Downloaded and Operating

Maintenance Level

Operator/Crew

Personnel Required

Two (plus one supervisor)

OPERATION UNDER UNUSUAL CONDITIONS

This work package provides instructions for the operation of the FPU QUADCON modules and Adapters under unusual conditions. These include adverse weather, nuclear, biological and chemical attack, and emergency blackout conditions.

Operation in Rain and/or Mud

1. Provide an adequate drainage ditch to prevent standing water around the FPU QUADCON modules and Adapters.
2. Secure all accessories and container during extremely harsh rain.

WARNING



In extreme cold, do not touch metal parts with bare hands.
Severe skin damage may result.

Fording

The FPU QUADCON modules are not watertight. They should never be submerged in any depth of water or material damage may result. When mounted on a trailer or truck, hard-bottom water crossings should be no deeper than approximately two feet. When in doubt, refer to Unit Standard Operating Procedures.

Interim Nuclear, Biological, and Chemical (NBC) Decontamination Procedures

WARNING



The FPU modules are NOT designed to be operated in contaminated NBC environments. Do not operate the FPU in contaminated NBC environments. If possible, cease operation of the FPU modules prior to an NBC event and close all doors.

END OF WORK PACKAGE