

**FPU® SYSTEMS OPERATION MANUAL  
(INCLUDING REPAIR PARTS)  
EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)  
BOH FPU Field Pack-up Units**

**European Patent Number EP 1224127**

**CHAPTER 5**

**UNIT MAINTENANCE INSTRUCTIONS**

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**  
**FPU-20-3 DOOR ASSEMBLIES**  
**INSPECT, SERVICE**

---

**INITIAL SETUP:****Materiel/Parts**

Lubricant (see Table 2 Lubrication in WP 0017)

**Personnel Required**

One

**Tools**

Rags, General Mechanic's Tool Kit, Ladder with hand rail

---

**References**

Chapter 5 WP 0026 00-2

**Equipment Condition**

ECASL SYSTEM Inspect and Repair

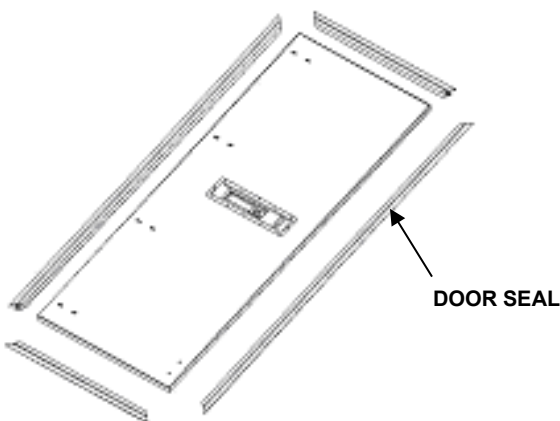
---

**INSPECT**

With doors open, inspect seal surfaces, and report problems with door seal to maintenance.

**SERVICE**

1. Wipe seal surfaces clean and apply a light coat of lubrication (refer to Table 2 Lubrication in WP 0017) to seal mating surfaces.
2. Report gouges, cracks, rips, tears, etc. in door seal to maintenance.



---

**WARNING**

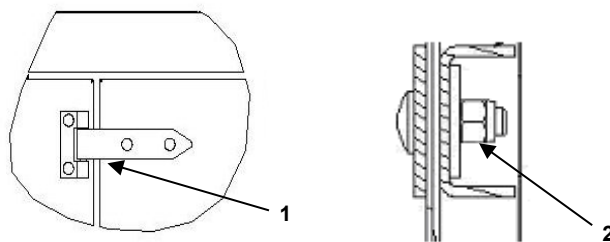
---



Ensure the container is out of the wind before attempting repair of the doors.  
Review door strap arrangements chapter 2 WP 0006 00-5.

**ALIGN**

Refer to door diagram, WP 0026 00-2.

**Align FPU-20-3 bi-fold type doors as follows:**

1. Ensure the container is on a level surface.
2. Remove drawers/pallets directly behind the door to be aligned.
3. With door #1 and #2 in the open position, loosen hinge locknuts (2) on the door that is misaligned, i.e. door #3 is with door #4.
4. Close the misaligned door #3 and #4 leaving the opposite door #1 and #2 open to allow access for measurements.
5. Using a pry bar, or wood wedge, center door with equal distance from top of door edge to header and bottom door edge to threshold.
6. Retighten locknuts (2) on the door #3 and #4 hinges (1).
7. Reopen the door #3 and #4 to check alignment with door #1 and 2.
8. Close the misaligned door #3 and #4 and opposite doors #1 and #2.
9. Visually check the door alignment of door #3 and #4 to door #1 and #2.
10. Retighten hinge locknuts (2) on the misaligned door #3 and #4.

**Align FPU-20-3 barn type doors #5, #6,#11 and #12 as follows:**

1. Ensure the container is on a level surface.
2. Remove drawers/pallets/modules directly behind the door #5 to be aligned.
3. With doors #5 in the open position, loosen hinge locknuts on the door #5 and to be aligned.
4. Close the misaligned door #5 leaving the opposite doors #6 open to allow access for measurements.
5. Using a pry bar, or wood wedge, center door with equal distance from top of door edge to header and bottom door edge to threshold.
6. Retighten locknuts (2) on the door #5 hinges (1).
7. Reopen the door #5 to check alignment with door #6.
8. Close the misaligned door #5 and opposite door #6.
9. Visually check the door alignment of door #5 to door #6.
10. Retighten hinge locknuts (2) on the misaligned door #5.

## REPLACE

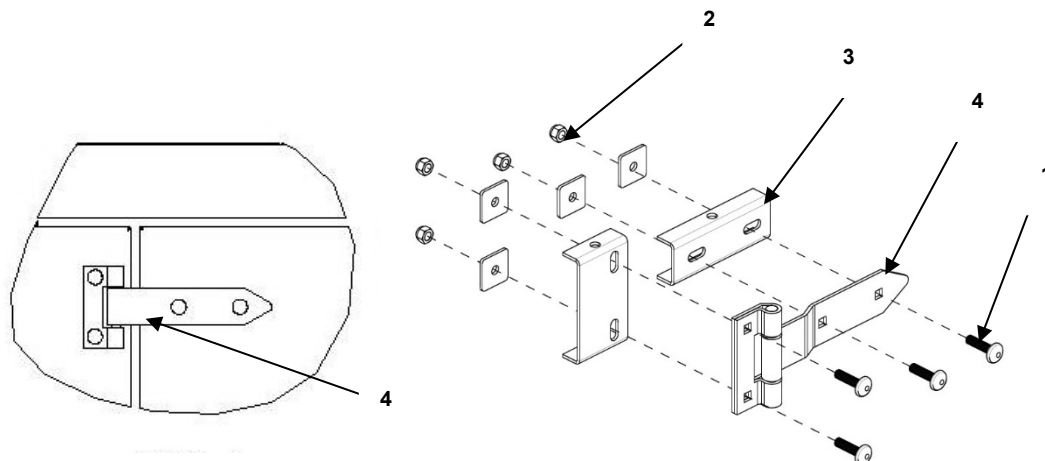
### Replacement of Door Hinge

1. Remove hinge bolts (1), locknuts(2) and brackets (3), and hinge (4) to be replaced.

#### NOTE

Only replace one hinge at a time to avoid alignment problems.

2. Install and tighten brackets (3), bolts (1), locknuts (2), and replacement hinge (4).
3. Check door operation, alignment and align as required.



### Replacement of Door Assembly

Refer to door diagram WP 0026 00-2 for door arrangements. The primary components are the door, handle assembly, hinges (4), carriage bolts (1), lock nuts (2) and door seals.

## REPAIR

#### NOTE

Hinges on the corners of the container are welded to the container frame.

### Repairs Requiring Welding

Welding repairs are only required when the ECASL SYSTEM is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual; refer to applicable welding codes such as TC 9-237.

## END OF WORK PACKAGE

This page was intentionally left blank

## UNIT MAINTENANCE INSTRUCTIONS

### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS) EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL) BOH FPU Field Pack-up Units

#### FPU-20-3 DOOR SEALS

#### REPAIR, REPLACE

##### INITIAL SETUP:

##### Materiel/Parts

Prescribed Door Seal Kit

##### Personnel Required

One

##### Tools

Ladder, Pocket Knife, ½ hp drill, 3/16" drill bit, pop rivet tool, needle nose pliers

##### References

Chapter 5 WP 0026 00-2 and 00-3

##### Equipment Condition

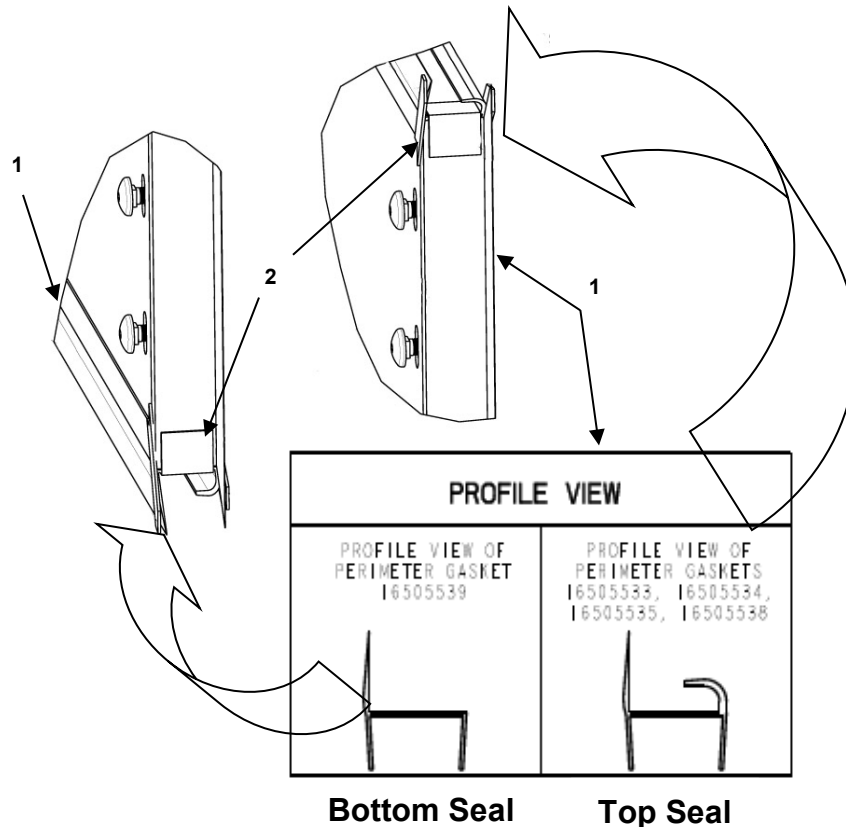
ECASL SYSTEM Repair

##### REPLACE

The door perimeter seals (1) are secured with 3/16" x ¼" pop rivets, the corner tab gaskets (2) are secured with adhesive provided with the door seal kit.

##### NOTE

Refer to door diagram WP 0026 00-2 and 00-3 for the door type, number of hinges and door seal kits, which vary with each door location.

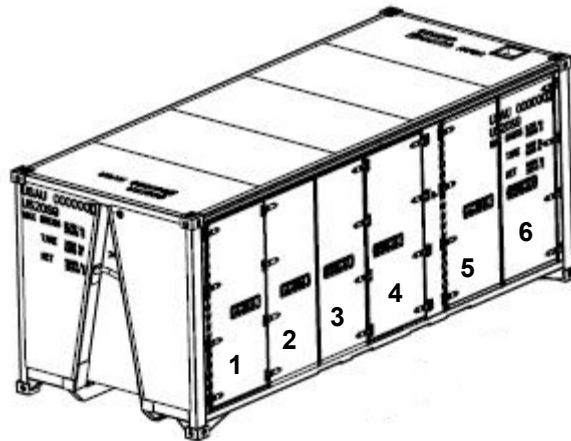
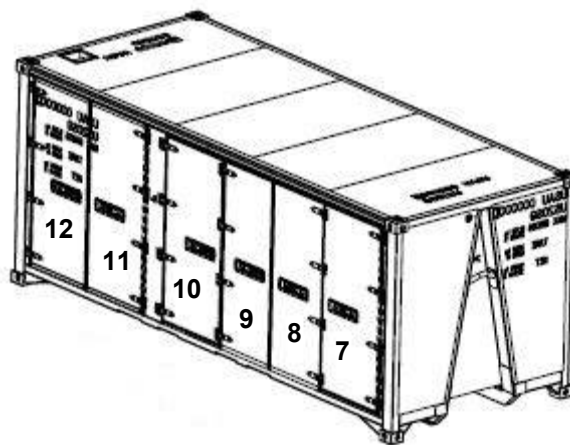


**WARNING**



Ensure the container is out of the wind before attempting repair of the doors.

**FPU-20-3 Door Location Diagram**





## Door Seal types and Profiles

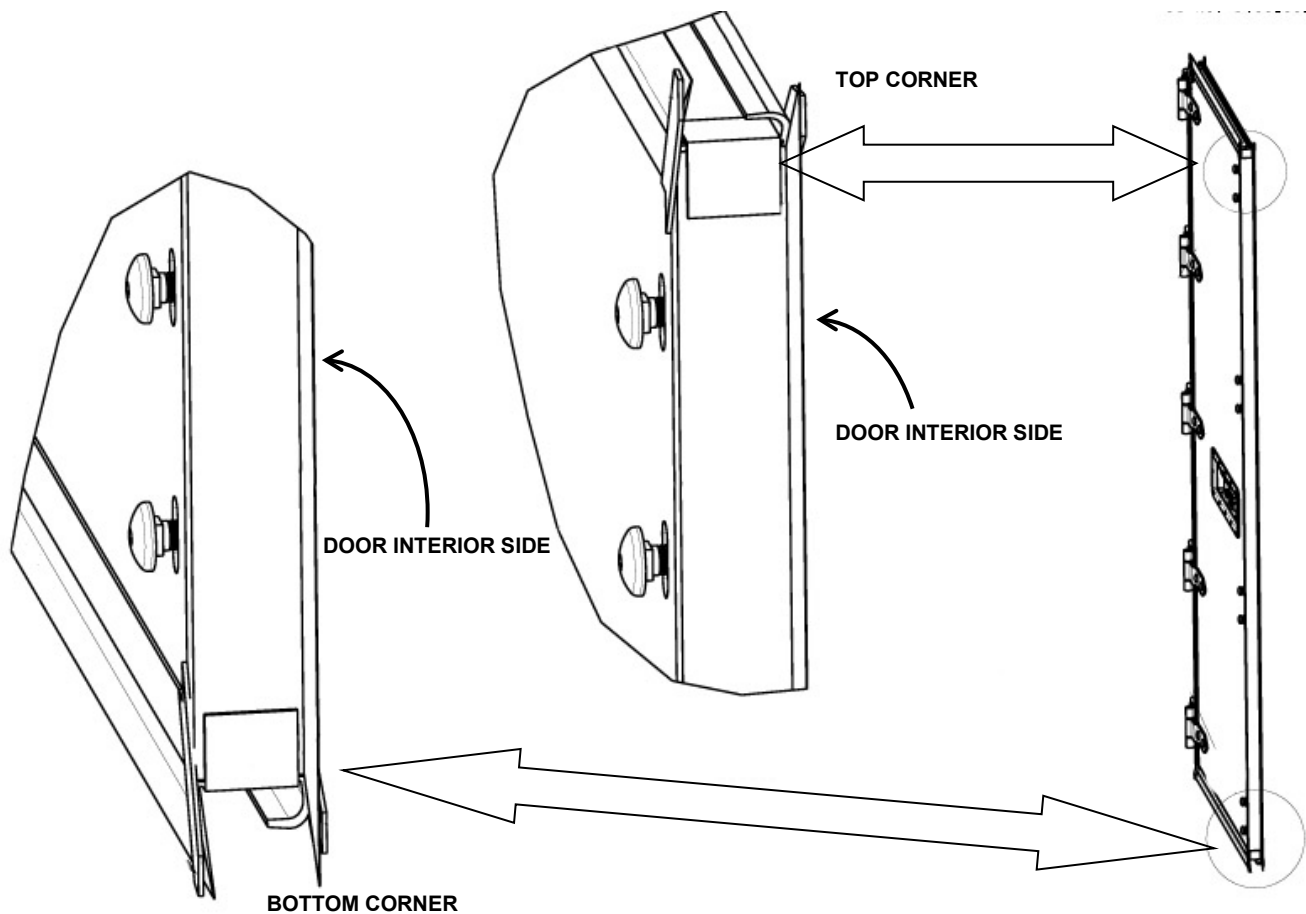
### FPU-20-3

Doors #2 and #3, #8 and #9 are rectangular bi-fold doors. (See pages WP 0026 00-2).  
The seals (1) and gaskets (2) have been specifically designed for each door.

#### CAUTION

Ensure the proper seal kit for each door is available before starting.  
See chapter 6 WP 0045 FPU-20-3 for door seal kits to the specific door.

1. Apply a ¼" wide bead of sealant to the inside of the perimeter seal (1) before installing the seal.
2. Align the rivet holes and install the pop rivets (See page 0026 00-4)
3. Gaskets (2) are used to cover mating seal segments and make the seal integrity continuous.



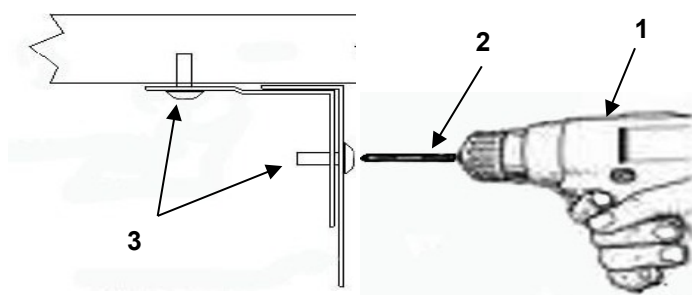
## Remove and Replace Rivets

1. Wipe the rivet surfaces clean, use a 1/2 hp electric drill (1) with a 3/16" drill bit (2), and drill through the center core of the rivet (3).

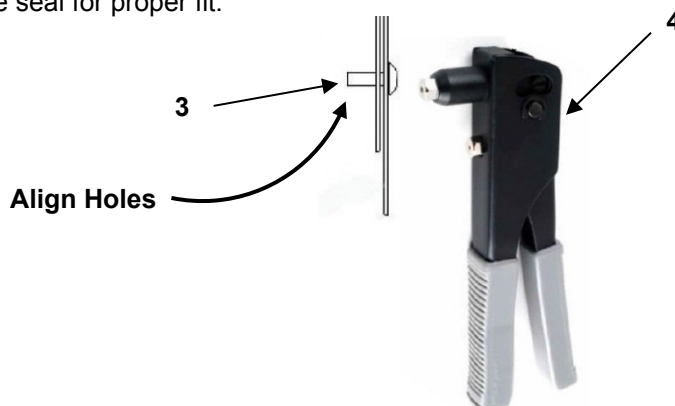


### **WARNING**

Use proper eye protection when operating a drill.



2. Remove the remainder of any pop rivet debris with needle nose pliers and wipe the hole clean with a rag.
3. Remove the seal and install the new seal.
4. Insure the holes are properly aligned.
5. Insert a new 3/16" DIA pop rivet (3), through the holes of seal and door to be installed (aligning top and bottom).
6. Use the pop rivet tool (4) to secure each pop rivet and seal in place.
7. Check for proper alignment and tight attachment of the seal.
8. Ensure the seal surfaces are dry and clean before applying adhesive.
9. Install new gaskets with sealant and adhesive to cover the mating edges of the seals.
10. Close the door and inspect the seal for proper fit.



## UNIT MAINTENANCE INSTRUCTIONS

### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS) EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL) BOH FPU Field Pack-up Units

#### FPU-20-3 FOLDING STEPS

#### INSPECT, SERVICE, REPLACE

#### INITIAL SETUP:

##### Material/Parts

Lubricant

##### Personnel Required

One

##### Tools

General Mechanic's Tool Kit/Ladder

##### References

WP 0019 00

##### Equipment Condition

ECASL SYSTEM Set-up

#### INSPECT

Raise and lower each of the steps (1) to ensure they stow and operate properly.

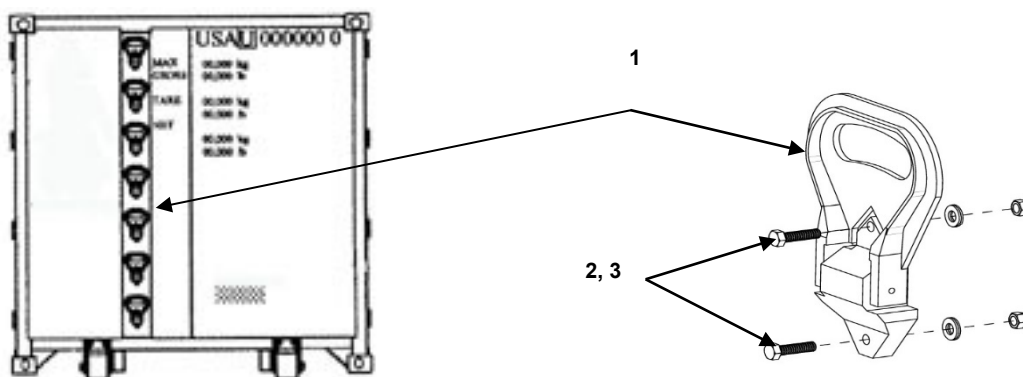
#### SERVICE

Apply 10W40 lube oil between the moving parts.

#### REPLACE

1. Remove the mounting bolts and washers (2, 3) with a 9/16 inch socket and ratchet.
2. Install replacement step (1), apply Loctite 262 to the bolt threads, replace bolts and washers (2, 3) with the 9/16" socket and ratchet.

#### FPU-20-3 FOLDING STEPS



#### END OF WORK PACKAGE

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**PARTS/BULK STORAGE AID Vertical Rack Frame**

**REPAIR, REPLACE**

**INITIAL SETUP:**

**Material/Parts**

None

**Personnel Required**

One

**Tools**

Ladder with hand rail

**References**

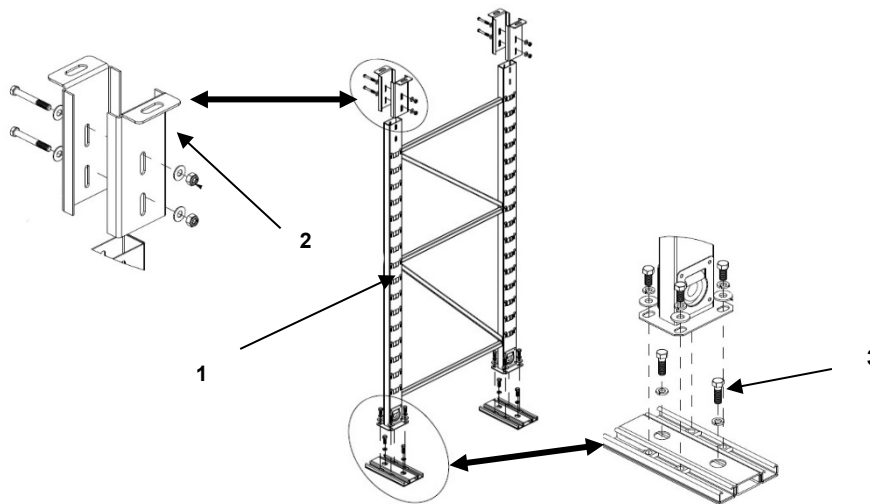
Chapter 2 WP 0007 and 0008

**Equipment Condition**

ECASL SYSTEM Setup

**REPAIR**

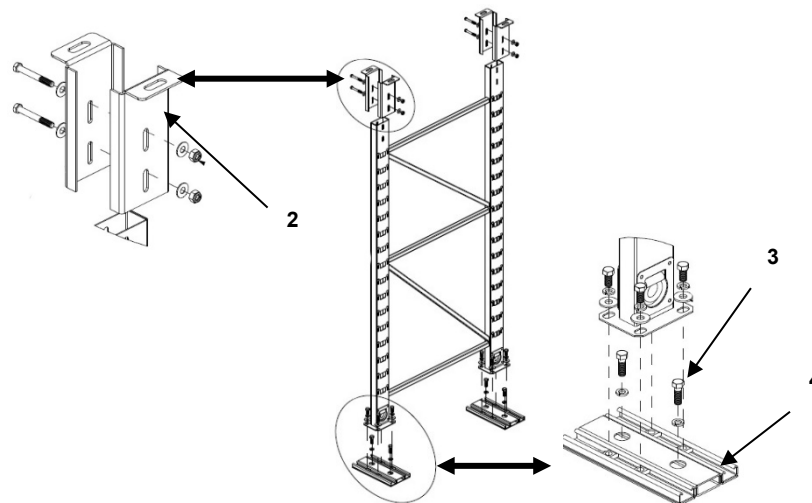
Welding repairs are only required when the ECASL SYSTEM is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this manual. Refer to applicable welding codes such as TC 9-237 for welding procedures.



**REPLACE**

1. Remove all drawers/pallets, drawer/pallet ledges that are attached to the vertical rack frame (1) to be replaced. Review WP 0007 00-3 and 0008 00-3 for drawer and pallet ledge removal procedures.
2. Remove the 1/2-inch hex head bolts from the upper rack attachment assembly (2) and vertical rack frame base using a 3/4-inch socket with ratchet.
3. Slide the rack upper attachment assembly (2) down and remove vertical rack frame.
4. Remove the bottom base frame bolts (3) from the base (4).

5. Insert the repaired/replacement vertical rack frame in the approximate position.
6. Attach upper attachment assembly (2) and vertical rack base with 1/2-inch hex head bolts (Apply Loctite 262 to bolt threads). Hand-tighten only.
7. Reattach drawer/pallet ledges in their desired positions. Review WP 0007 00-3 and 0008 00-3 for drawer and pallet ledge removal procedures.
8. If the vertical rack frame is being installed on a pallet-configured container, use the pallet ledge stabilizer to obtain proper spacing by attaching, but not tightening, the stabilizer.
9. Tighten all 1/2-inch bolts on the rack upper attachment (2) and vertical rack frame base (3) using a 3/4-inch socket with ratchet.
10. Reattach pallets to vertical rack frame; review WP 0007 00-3 and 0008 00-3 for pallet ledge removal procedures.



## END OF WORK PACKAGE

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**PARTS STORAGE AIDS Drawer Assembly**

**INSPECT, SERVICE, REPLACE**

---

**INITIAL SETUP:**

**Materiel/Parts**

Rags, Water

**Personnel Required**

One

**Tools**

General Mechanic's Tool Kit

**References**

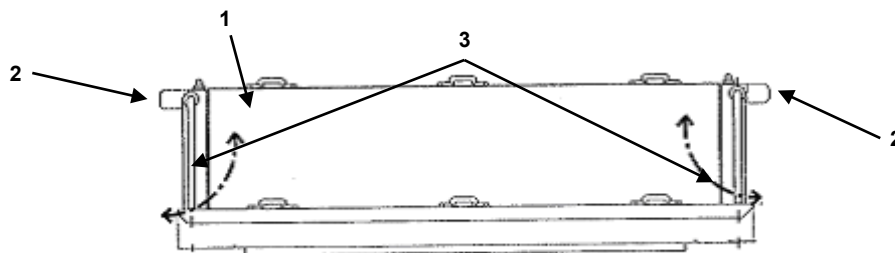
Chapter WP 0008 00

**Equipment Condition**

ECASL SYSTEM Setup

---

**INSPECT**



1. Inspect drawer (1) for cracks, excessive dents or sagging. Notify maintenance if any repairs are necessary. Replace drawer if necessary.
2. Open and close drawer assemblies (1) following steps outlined in WP 0008 00-2 to ensure proper operation (opens/closes without any binding, drawer stops work properly). Notify maintenance if any repairs are necessary.

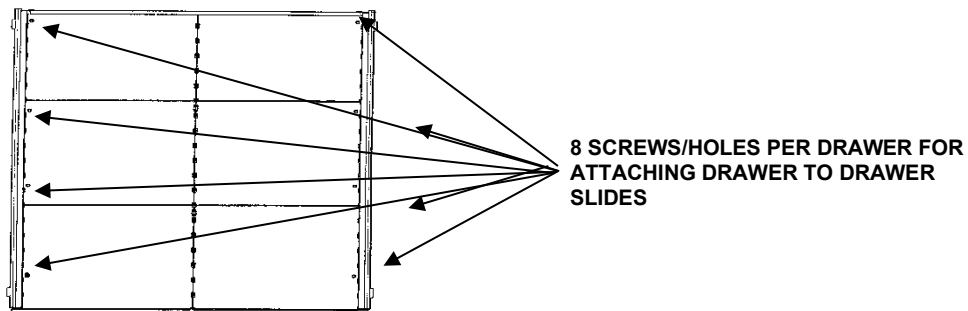
**SERVICE**

1. Remove debris and trash from drawer (1) as necessary.
2. Wipe Drawer (1) interior and exterior with a wet rag as required.

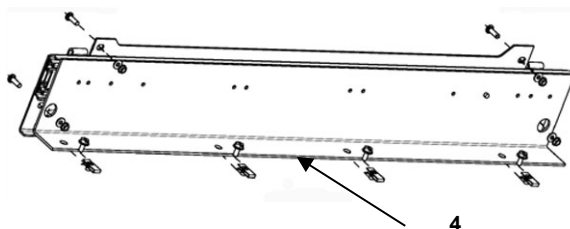
## REPLACE

Replace drawer assembly if required. Drawer must be replaced if the locking tabs (2) or handles (3) fail to hold the drawer in the open or closed position and if there is excessive sagging or bending.

To replace:



1. Fully extend drawer to the open position. (If drawer will not stay in the open position, this task will require two people. One to hold the drawer in the extended position and the other to perform drawer removal task).
2. Remove all stored material from drawer.
3. Remove eight ¼-inch screws located in the bottom of the drawer at either side.
4. Lift drawer from slide ledge ( 4).



## CAUTION

If a bolt is lost or damaged beyond use, obtain a replacement. Do not install with less than the proper number of bolts or equipment damage may occur.

5. Position new drawer on the slide ledge being careful to align mounting holes.
6. Install eight ¼-inch screws and slightly hand-tighten.
7. After hand tightening, push drawer completely closed and pull back to the full open position to allow drawer to seat into its proper location on the drawer slide ledge.
8. Being careful not to over tighten, secure the eight ¼-inch mounting screws.

## END OF WORK PACKAGE



## UNIT MAINTENANCE INSTRUCTIONS

### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS) EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL) BOH FPU Field Pack-up Units

#### PARTS STORAGE AIDS Drawer Slide

#### INSPECT, SERVICE, REPLACE

#### INITIAL SETUP:

##### Material/Parts

Rags, Water

##### Personnel Required

Two

##### Tools

General Mechanic's Tool Kit

##### References

Chapter WP 0008

##### Equipment Condition

ECASL SYSTEM Set-up

#### INSPECT

1. Inspect parts storage aid drawer slides for operation, missing hardware per Chapter WP 0008 00-3 to 00-4.
2. Inspect parts storage aid drawer slides for dirt/debris that would affect performance.

#### SERVICE

Wipe surfaces as necessary to keep equipment clean.

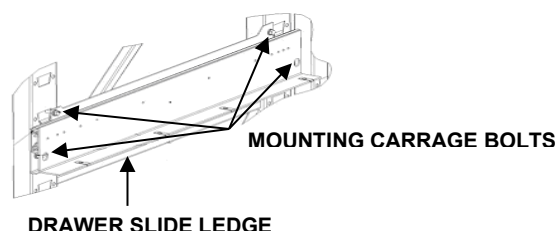
#### REPLACE

1. Fully extend drawer to the open position. (If drawer will not stay in the open position, this task will require two people. One to hold the drawer in the extended position and the other to perform drawer removal task).
2. Remove all stored materiel from drawer.

#### CAUTION

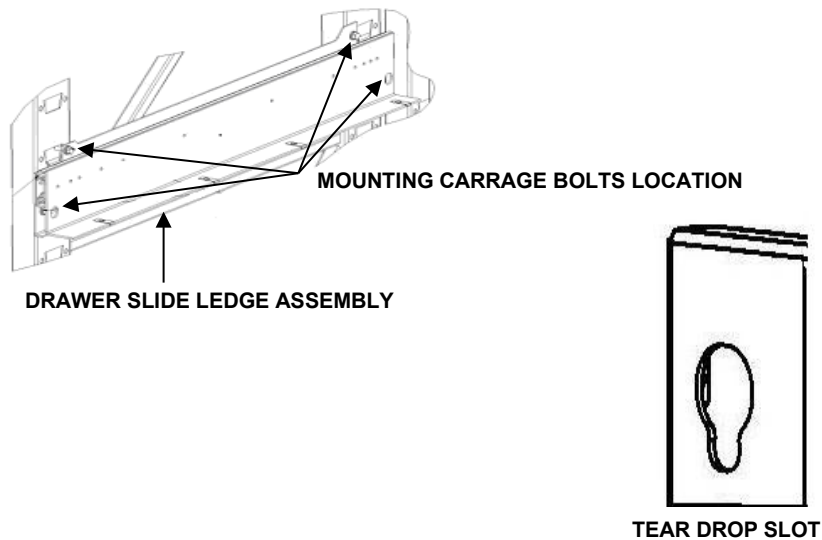
If a bolt is damaged beyond use, obtain a replacement. Do not install with less than the proper number of bolts or damage to equipment may occur.

3. Loosen, but do not remove, the four 1/4-inch nuts on the carriage bolts using a 7/16-inch socket with ratchet and extension.



4. Slide ledges are retained on the vertical rack frame by four bayonet tabs protruding into the windows of the vertical rack frame. This requires the ledge to be loosened from the vertical rack frame. While one person securely holds the slide ledge, the second person applies an upward force by tapping the underside of the slide ledge at the attached points with a 2 x 4 soft wooden block or similar material.

5. Place the drawer slide ledges in their desired positions by inserting the bayonet tabs into the vertical rack frame windows while aligning the four carriage bolts into their appropriate slots. Slots are tear drop to retain the head of the ¼" carriage bolts. Tap down on the ledge a 2 X 4 soft wooden block or similar material. Ensure the carriage bolts drop completely down in the slots.



6. Apply Loctite 262 red to the four ¼-inch nuts on the carriage bolts.
7. Tighten drawer slides ledge to rack frame by tightening the four ¼ -inch carriage bolt nuts using a 7/16 -inch socket with ratchet and extension.
8. Position new drawer on the slide ledge being careful to align mounting holes.
9. Install eight ¼-inch screws and slightly hand-tighten.
10. After hand tightening, push drawer completely closed and pull back to the full open position to allow drawer to seat into its proper location on the drawer slide ledge.
11. Being careful not to over tighten, secure the eight ¼-inch mounting screws.
12. Reinstall drawer in accordance with chapter 2 WP 0008 00-3 and 00-4.

## END OF WORK PACKAGE

**UNIT MAINTENANCE INSTRUCTIONS**

**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**

**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**BULK STORAGE AID Pallet**

**INSPECT, SERVICE, REPLACE**

**INITIAL SETUP:****Materiel/Parts**

Rags, Water

**Personnel Required**

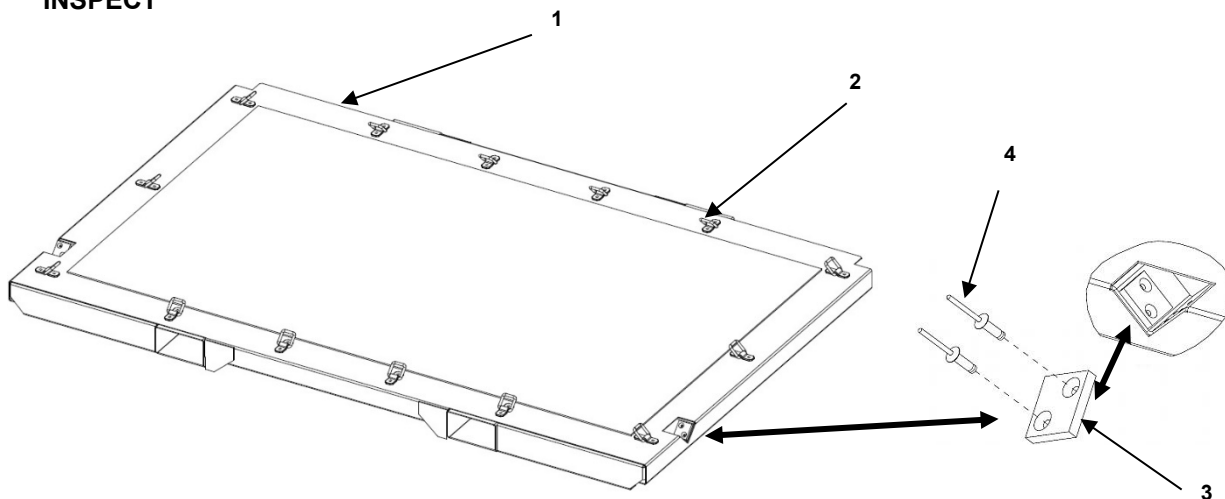
Two and MHE Support

**References**

WP 0007

**Equipment Condition**

ECASL SYSTEM Setup

**INSPECT**

1. Inspect pallet (1) for cracks, excessive dents or sagging. Report to maintenance for repair or replacement.
2. Inspect pallet for missing or damaged D-rings (2). Report to maintenance for repair or replacement.
3. Inspect for missing or damaged pallet lock pads (3).

**SERVICE**

Wipe surfaces as necessary to keep equipment clean.

**REPAIR**

1. Remove and install the lock pad pop rivets (4); see page 0026 00-4 steps 1 through 7.

**NOTE**

Welding repairs are only required when the ECASL SYSTEM is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual; refer to applicable welding codes such as TC 9-237.

**END OF WORK PACKAGE**

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**BULK STORAGE AID Pallet Ledge**

**INSPECT, SERVICE, REPLACE, REPAIR**

**INITIAL SETUP:**

**Material/Parts**

Rags, Water

**Personnel Required**

Two

**Tools**

General Mechanic's Tool Kit, MHE Support

**References**

WP 0007

**Equipment Condition**

ECASL SYSTEM Setup

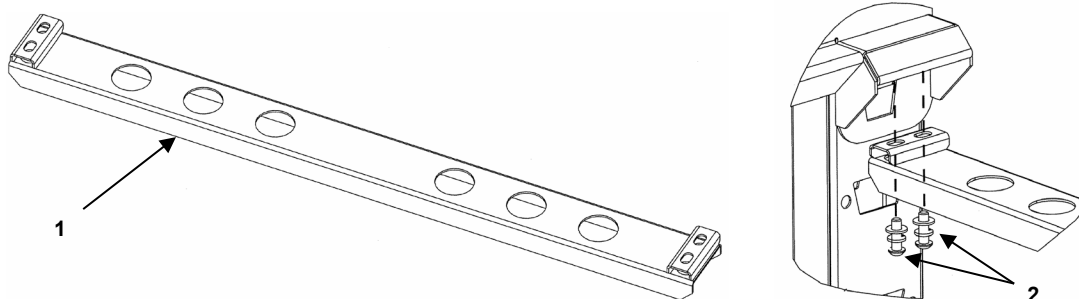
**INSPECT**

1. Inspect pallet ledges and rack support (1) for cracks or excessive bends. Report to Maintenance for repair.
2. Inspect pallet ledges for proper operation of cam locks and missing hardware.
3. Inspect pallet ledges for dirt/debris that would affect performance.

**SERVICE**

1. Wipe surfaces and cam lock mechanism as necessary.
2. Lubricate locking rod and cam locks as necessary; refer to WP 0017 00.

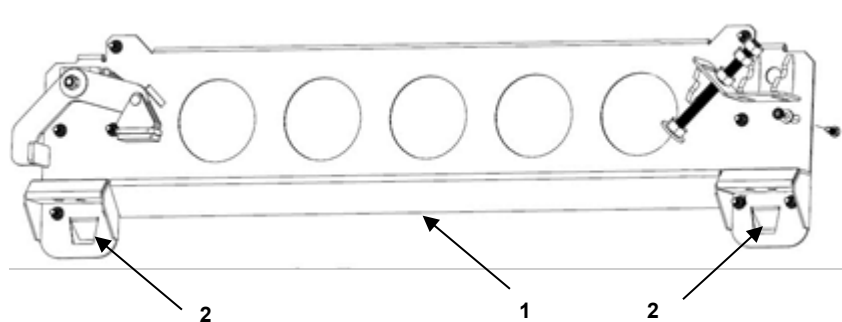
**REPLACE**



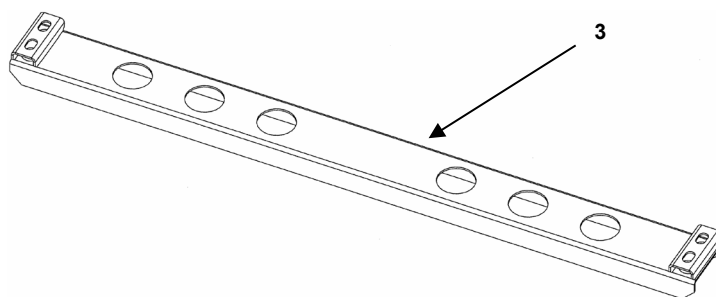
1. Remove pallet on ledge to be replaced and any pallets located above and below to allow access.
2. Remove front and rear rack support (1) by removing the eight 3/16-inch bolts (2) with a hex head drive socket and 3/8-inch ratchet with an extension.
3. Loosen, but do not remove, the ten carriage bolt nuts using 7/16-inch socket and ratchet with extension from the two pallet ledges on the vertical rack frame.

**CAUTION**

If bolts (2) are damaged beyond use, obtain a replacement. Do not install with less than the proper number of bolts or damage to the equipment may occur.



4. Pallet ledges (1) are retained on the vertical rack frame by ten ¼-inch carriage bolts and four bayonet tabs (2) protruding into the windows of the vertical rack frame. This requires the ledge to be loosened from the vertical rack frame. While one person securely holds the pallet ledge, the second person applies an upward force by tapping the underside of the ledge at the attached point with a 2 X 4 soft wooden block or similar material.
5. Place new pallet ledges(1) in their desired positions, by inserting the bayonet tabs (2) into the vertical rack frame windows. Align the ten carriage bolts into their appropriate slots. Ensure that pallet ledges are at the same height in the vertical rack frame. Ensure all bayonet tabs (2) have engaged the vertical rack frame windows before tapping into place. Tap down on the ledge with a 2 X 4 soft wooden block or similar material. Ensure the carriage bolts drop completely down in the slots.
6. Apply Loctite 262 red, to the ten ¼-inch nuts on the carriage bolts.
7. Tighten the ten carriage bolt nuts using a 7/16-inch socket, ratchet and extension.
8. Reinstall rear pallet ledge rack support (3) with the four Allen bolts using 3/16-inch hex head driver socket and 3/8-inch ratchet with extension.
9. Reinstall front pallet ledge rack support (3) with the four Allen bolts using 3/16-inch hex head driver socket and 3/8-inch ratchet with extension.
10. Reinstall pallet.

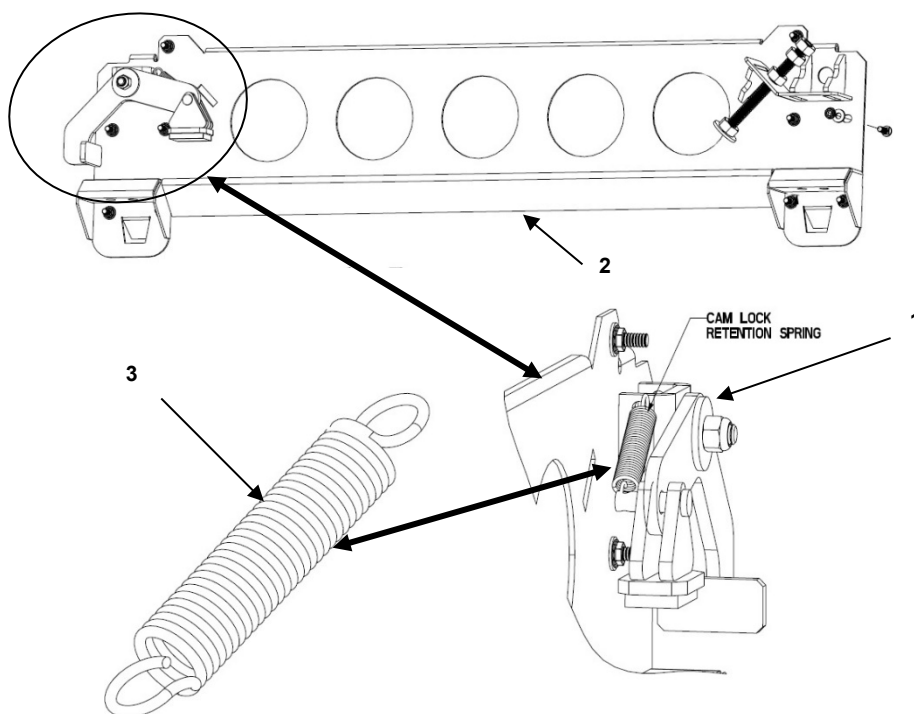


**REPAIR**

1. To repair the pallet ledge cam lock (1), the pallet ledge must be removed. To remove the pallet ledge (2) to be repaired, follow steps 1 through 4; refer to page WP 0032 00-1 and 00-2.
2. Remove the 1/2-inch x 5/8-inch cam shoulder bolt and 1/2-inch lock nut using a 1/4-inch Allen wrench and 9/16-inch socket and ratchet.
3. Detach spring from pallet ledge cam lock (3).
4. Attach new spring of the ledge cam lock assembly to the pallet ledge.
5. Reinstall pallet ledge (2), following steps 5 through 10. See page WP 0032 00-2.

**REPLACE**

6. Attach new cam lock assembly (1) to the pallet ledge (2) using the 1/4-inch Allen wrench and 9/16-inch socket and ratchet.
7. Reinstall pallet ledge (2), following steps 5 through 10. See page WP 0032 00-2.

**END OF WORK PACKAGE**

This page was intentionally left blank



**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**REMOVABLE CRADLE (8 ft. compartment of the FPU-20-3)**

**INSPECT, SERVICE, REPLACE, REPAIR**

---

**INITIAL SETUP:**

**Materiel/Parts**

None

**Personnel Required**

Two

**Tools**

General Mechanic's Tool Kit, MHE and lifting strap or sling

**References**

WP 0010 00

**Equipment Condition**

ECASL SYSTEM Setup

---

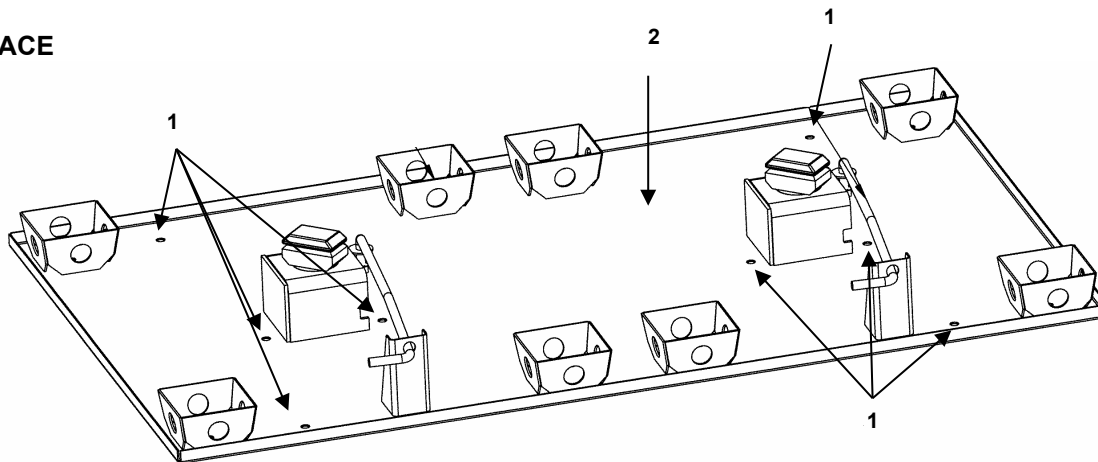
**INSPECT**

1. Inspect for dirt and debris that could affect performance.
2. Inspect for cracks at the point where the twist lock and module receptacles are welded to the adapter plate. Report to maintenance for repair.
3. Pull and push the lock handle to ensure locking devices operate correctly; refer to chapter 2 WP 00010 00-9.

**SERVICE**

Wipe and sweep surfaces as necessary to keep equipment clean.

**REPLACE**



1. Remove the modules, review chapter 2 WP 0006 00-8 to 00-10.
2. Remove twelve bolts (1) using 3/4-inch wrench.
3. Remove the Removable cradle (2) from the FPU-20-3 using MHE with sling or strap.
4. Position replacement Removable cradle using MHE and sling or strap inside FPU-20-3.
5. Replace twelve bolts using 3/4-inch wrench.
6. Replace both modules, refer to chapter 2 WP 0006 00-8 to 00-10.

**REPAIR**

1. Report cracks that may occur in corners, around mounting holes and bracket welds to maintenance.
2. Remove the removable cradle when necessary from the FPU-20-3 to make weld repairs.
3. Remove the twelve  $\frac{3}{4}$ " bolts with a wrench.
4. Remove the removable cradle from the FPU-20-3 using MHE with sling or strap.

**NOTE**

Welding repairs are only required when the ECASL SYSTEM is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual; refer to applicable welding codes such as TC 9-237.

**END OF WORK PACKAGE**

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**REMOVABLE CRADLE Lock Device**

**INSPECT, SERVICE, REPLACE, REPAIR**

---

**INITIAL SETUP:**

**Materiel/Parts**

Lubricant (see Table 2 Lubrication in WP 0017)

**Personnel Required**

One

**References**

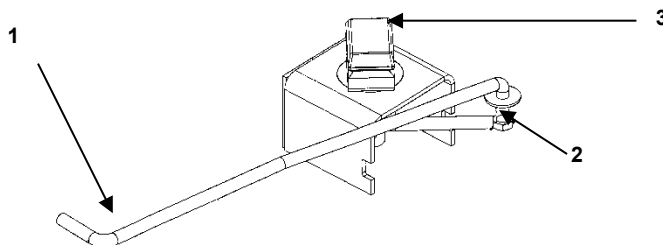
Chapter WP 0006 00-8 to 00-10.

**Equipment Condition**

ECASL SYSTEM Set-up

---

**INSPECT**



1. Pull and push to check lock device (3) for smooth motion.
2. Inspect cotter pin (2) and handle operation.
3. Inspect weld for cracks, report weld cracks to maintenance.

**SERVICE**

1. Pull the Red handle ISO locking arm (1) out, into unlocked position.
2. Remove Module using appropriate MHE, lift module to clear cradles.
3. Lubricate moving parts.
4. Pick up module with drawers facing forklift.
5. Position module over cradles.
6. Lower module into cradles.
7. Push the Red handle ISO locking arm (1) into the locked position.

**REPAIR**

1. Remove and replace bent or damaged Red handle ISO Locking arm (1).

**NOTE**

Welding repairs are only required when the ECASL SYSTEM is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual; refer to applicable welding codes such as TC 9-237.

**END OF WORK PACKAGE**

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**FPU-20-3 REAR ROLLER ASSEMBLY**  
**INSPECT, SERVICE, REPLACE, REPAIR**

**INITIAL SETUP:****Materiel/Parts**

Rags, Water

**Personnel Required**Two plus Supervisor  
(attached)**Tools**

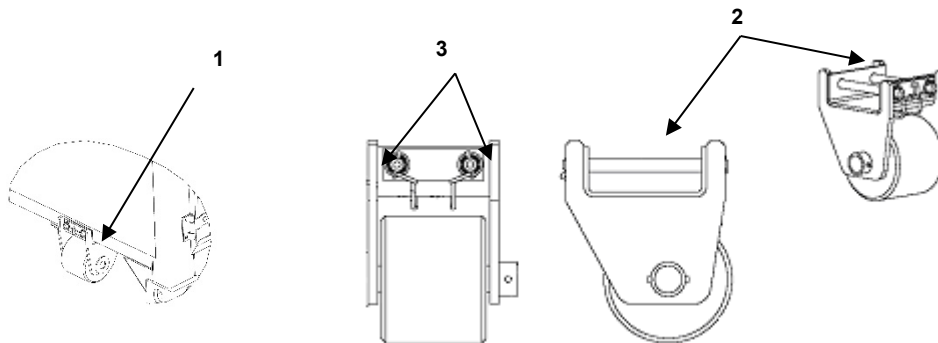
General Mechanic's Tool Kit, MHE Support

**References**

WP 0005 00-4 and 00-5

**Equipment Condition**

ECASL SYSTEM Setup (Rollers)

**INSPECT**

1. Inspect the rear roller assembly (1) for dirt/debris that would affect performance. Clean as required.
2. Inspect the rear roller assembly for the presence of connector pins (2) and Lynch pin retaining clips (3).

**SERVICE**

Remove debris from the roller assembly and clean with a wet rag.

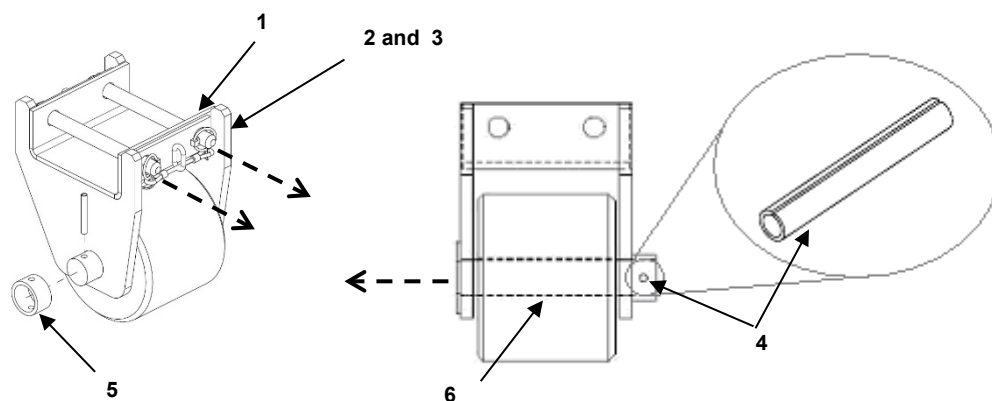
**REPLACE**

1. Raise container by lifting with the HEMTT-LHS or properly rated MHE.
2. Remove the two 1/4-inch lynch pins from the rear of the rear roller assembly attaching pins.
3. While supporting the roller assembly, remove the 3/4-inch rear roller attaching pins, then remove the roller assembly.
4. Attach new rollers by aligning the holes in the rollers with the holes in the container and inserting 3/4-inch retention pins.

**0035 00-1**

- Reattach the 1/4-inch lynch pins to the rear of the 3/4-inch rear roller attaching pins

## REPAIR



- Elevate the container enough to remove with MHE support.
- Remove the roller assembly (1) from the FPU-20-3; see chapter 2 WP 0005 00-4 and 00-5.
- Remove the Lynch Pins (2) and Frame Pins (3).
- Drive the roller pin (3) with a 5/16-inch flat punch, holding retaining collar to roller pin assembly.
- Remove retaining collar (4).
- Slide roller pin (4) from roller frame (1).
- Replace worn/broken or damaged parts.
- Apply lubrication; refer to chapter 4 WP 0017 Table 2.
- Reinsert roller pin (6).
- Reinsert the retaining collar (5) and secure with 5/16-inch rolled pin (4) with the hammer and flat punch.
- Position the roller assembly (1), insert the frame pins (3) and insert the lynch pins (2).

## END OF WORK PACKAGE

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**  
**BULK STORAGE MODULE**

**INITIAL SETUP:****Materiel/Parts**

Rags, light lube oil

**Personnel Required**

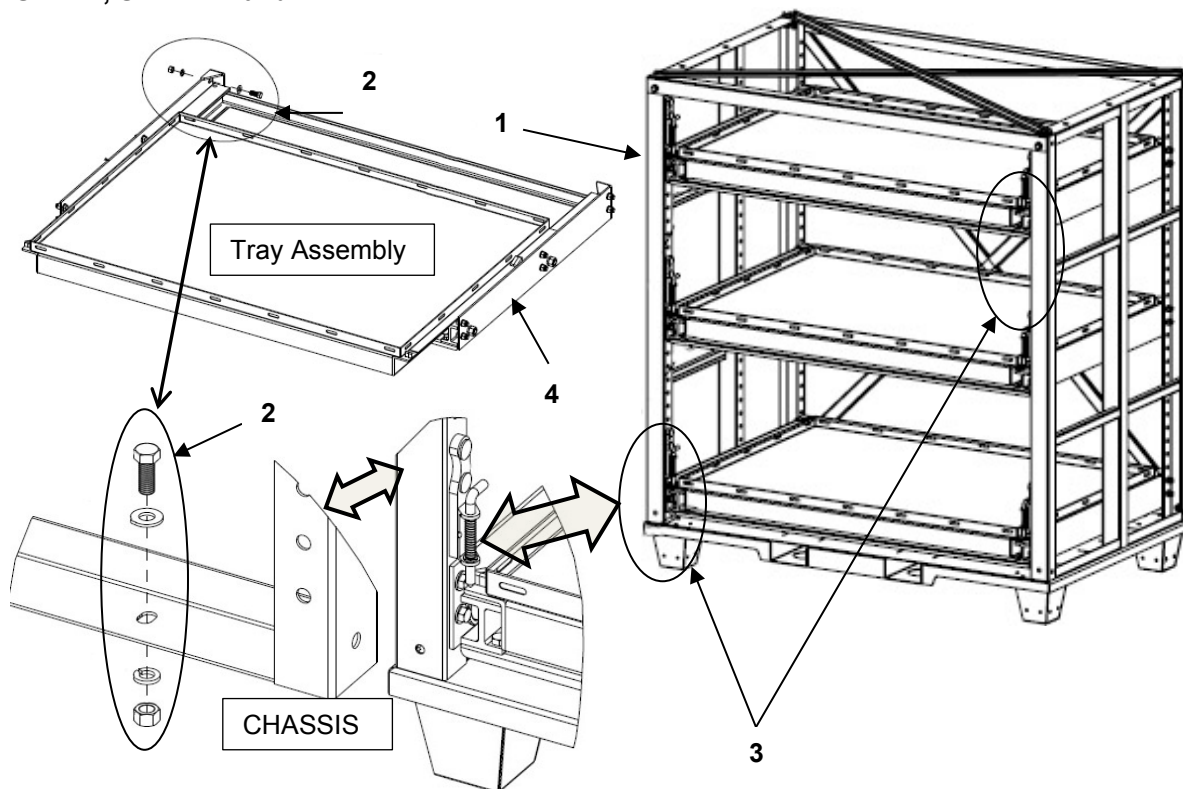
Two

**Tools** $\frac{3}{4}$ " Open End Wrench,  $\frac{1}{2}$ " Ratchet, Socket Wrench and Tape Measure**References**

Chapter 2 WP 0009

**Equipment Condition**

Module Operation Checks

**INSPECT, SERVICE and REPAIR**

1. Inspect all the chassis, trays and bins (1) for loose or missing hardware.
2. Tighten loose hardware (2) with a  $\frac{3}{4}$ " open end wrench and  $\frac{3}{4}$ " socket wrench.
3. Replace missing hardware.
4. Inspect each left and right locking latch bolts and springs for smooth operation (3). See WP 0009 00-4.
5. Inspect the roller shelves (4) for ease of operation. Review WP 0009 00 for operation.
6. Inspect inside surface of roller tray or bin tracks (4) for dirt or rust. Clean and apply light oil and wipe off excess.

0036 00-1

**NOTE**

Tray and frame hardware (2) are common throughout the module.

7. Test locking latch bolts and springs for proper operation, See WP 0009 00-4. Clean and lubricate as needed.

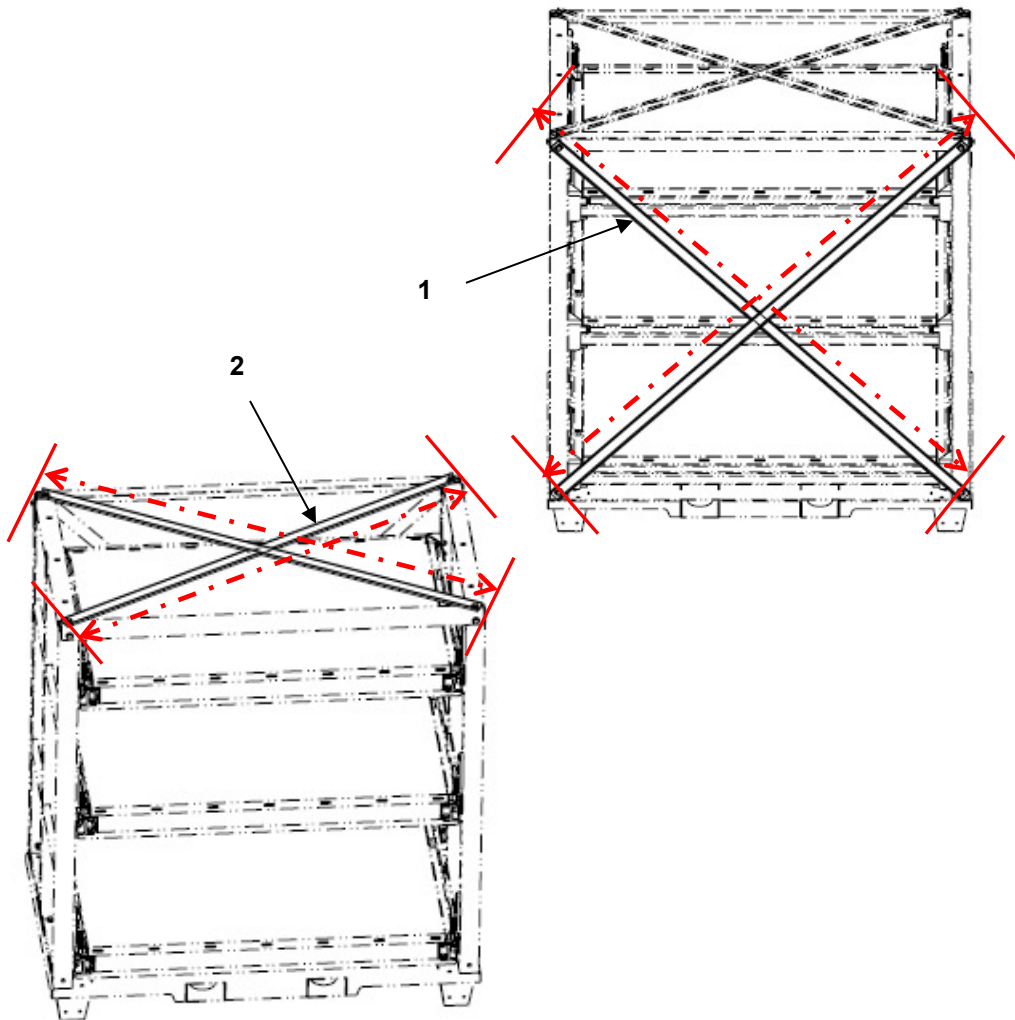
**NOTE**

Tray or bin roller bearings do not require lubrication. Lubrication will only attract dirt and sand.

**Chassis Adjustment**

Ensure that the front and rear cross bars are square and equal by measuring diagonally from corner to corner. The measurement should be equal.

1. Place the FPU Bulk Module on a flat, reasonably level surface.
2. Measure both rear (1) and top (2) cross bars corner to corner diagonally.
3. Loosen and adjust until they are of equal distance.
4. Retighten the hardware.
5. Test the roller shelves for smooth operation.



0036 00-2



**Repairs Requiring Welding:** Welding repairs are only required when the ECASL SYSTEM module is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual. Refer to applicable welding codes such as TC 9-237.

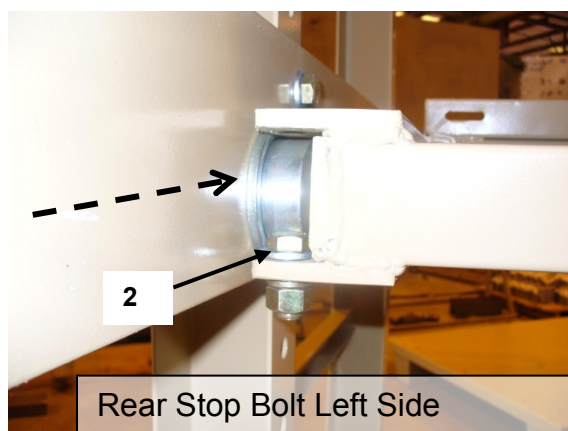
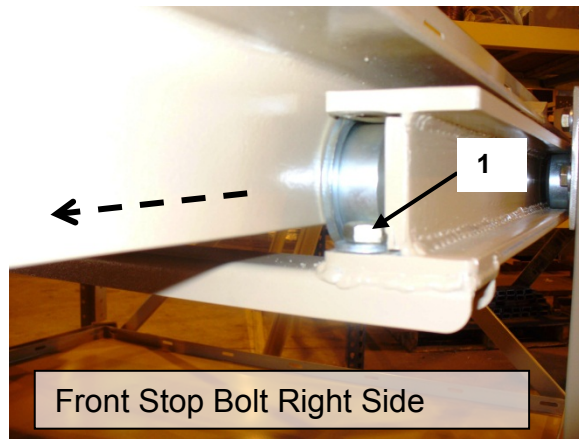
### Tray or bin Stop Bolts (Safety Check)

1. Check shelves for all four Stop Bolts, front (1) and rear (2).



#### WARNING

Always ensure that all four of the front (1) and rear (2) stop bolts are in place that prevent the shelves from rolling out of the chassis. Failure to comply will result in damage, injury or death.



#### Note

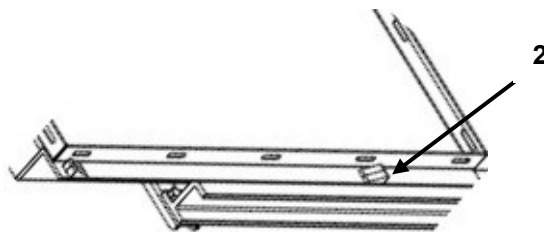
Only remove the stop bolts when removing a tray or bin or repositioning a tray or bin.

## Unsafe Condition



### WARNING

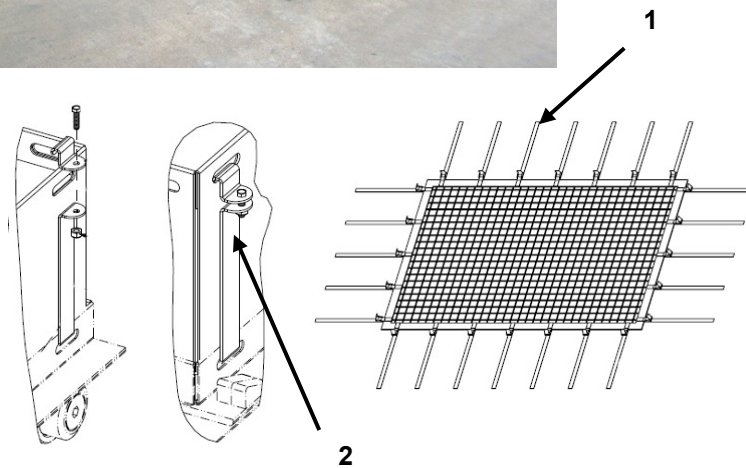
The bin latches (1) are not behind the rear cams (2) and this tray or bin is free to roll in or out. Always ensure that the tray or bin is in the full out position and the latches (1) are behind the rear cam (2) to prevent tray or bin roll back.



0036 00-4

### Cargo Nets and 8" tray to bin Adapter

1. Check nets for frayed, missing or torn straps (1).
2. Check the four corner retaining clips (2) for missing or loose hardware.



**END OF WORK PACKAGE**

**0036 00-5**

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**BULK STORAGE MODULE Shelf Reposition**

**INITIAL SETUP:**

**Materiel/Parts**

Rags, light lube oil

**Personnel Required**

Two

**Tools**

$\frac{3}{4}$ " Open End Wrench,  $\frac{1}{2}$ " Ratchet and  $\frac{3}{4}$ " Socket Wrench

**References**

Chapter 2 WP 0009

**Equipment Condition**

ECASL SYSTEM Setup completed

**REMOVE, REPOSITION and REPLACE**



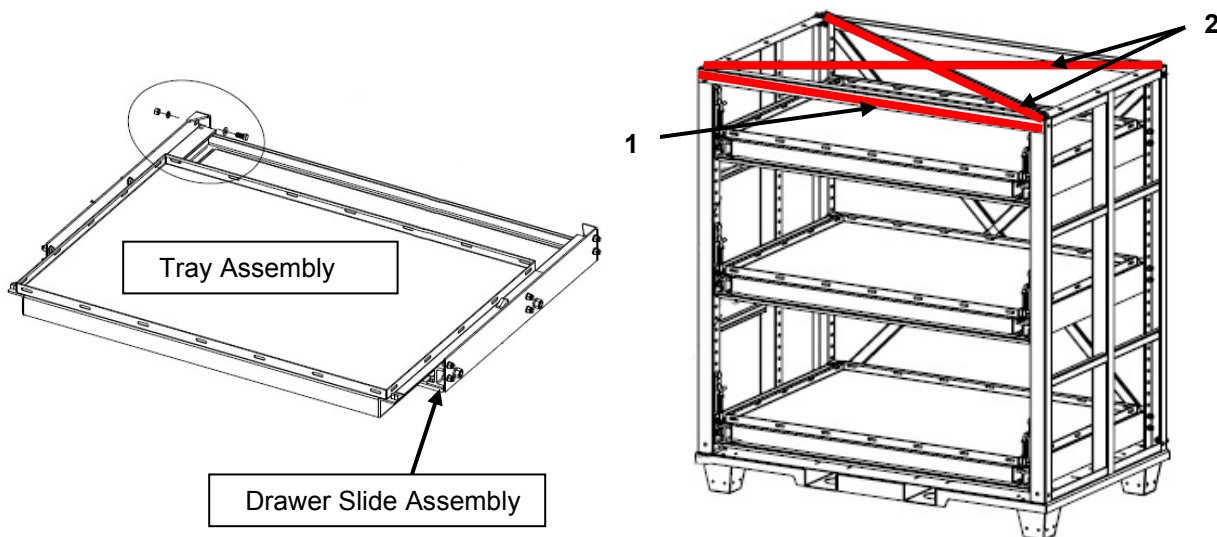
**WARNING**

This operation requires two personnel. Failure to acquire assistance will result in injury.



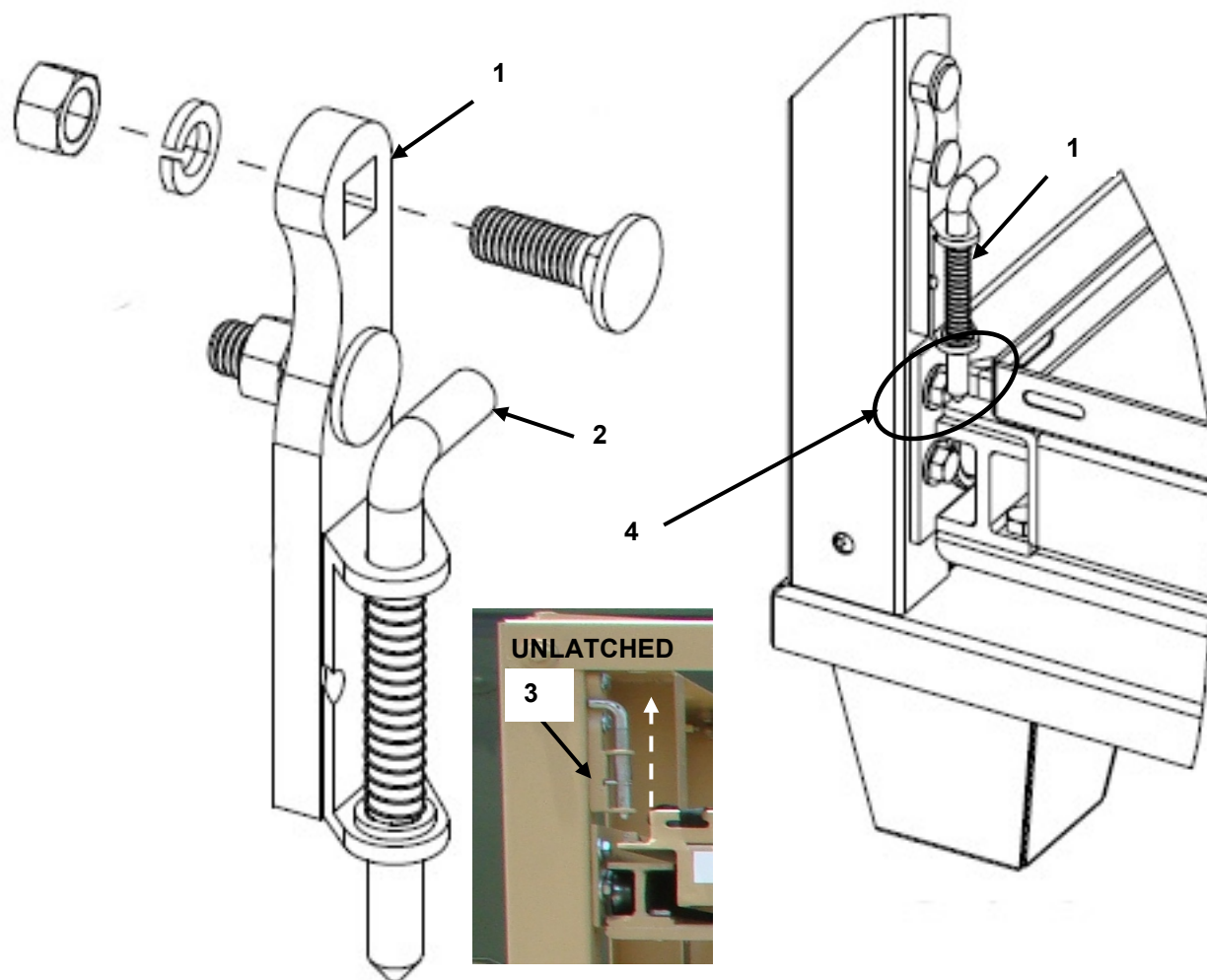
**WARNING**

Never remove the top spreader bar (1) or top cross members (2) as this will cause the module and drawers to become unstable. Failure to comply could cause damage to equipment, serious injury or even death. Drawers can be adjusted per the procedure found in this WP should additional space be needed.



0037 00-1

1. Remove all material from the trays or bins.
2. Remove the left and right drawer latch bolt assemblies (1).

**Note**

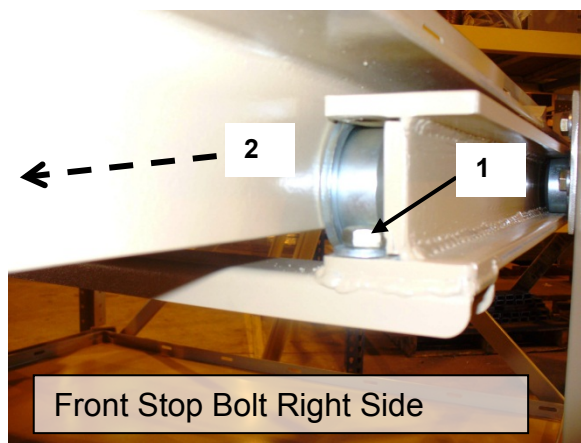
The left latch bolt (2) has a retaining pin (3) to hold it in the unlatched position. The right latch bolt (2) has no retaining pin (3).

3. Set both right and left latch bolts (2) in the latched position (4) to access the mounting bolts.

**WARNING**

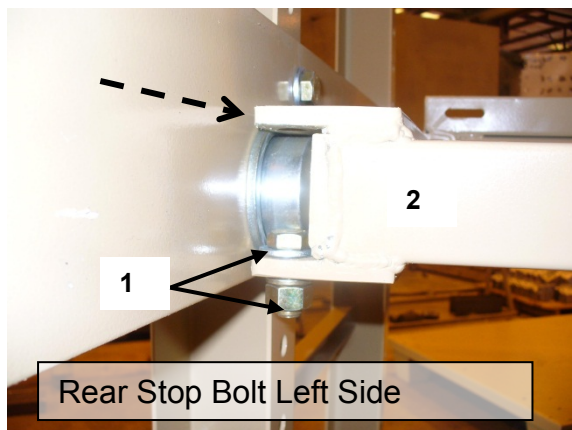
Removal of the stop bolts, front or rear (1), will allow the shelves to roll out of the chassis. This may result in damage, injury or death. Only remove the stop bolts when removing a tray or bin or repositioning a tray or bin.

4. Remove the front stop bolts (1), left and right.
5. With assistance, remove the inner tray assembly (2) of the tray or bin and place it aside.

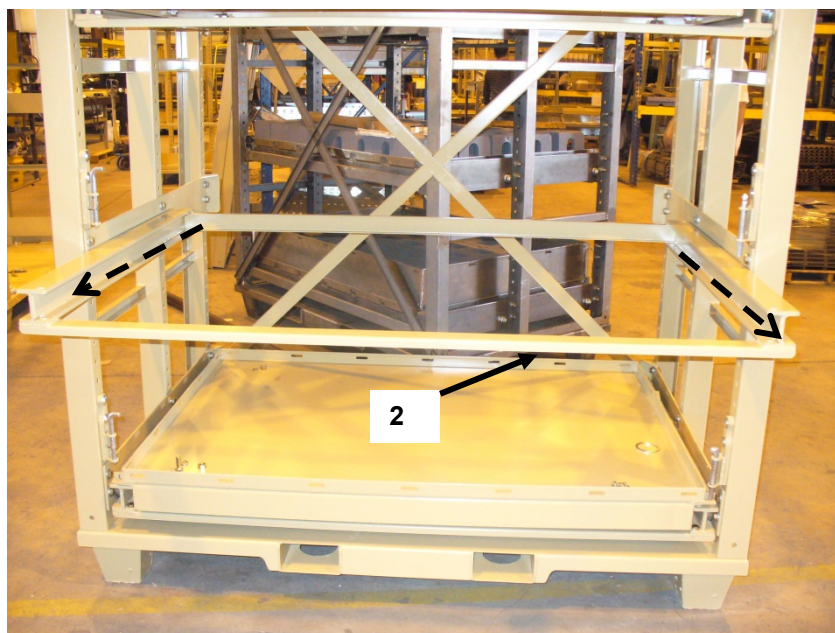


0037 00-3

6. Remove the rear stop bolts hardware (1), left and right side.



7. Remove the slide rack (2) from the front of the chassis and put it aside.

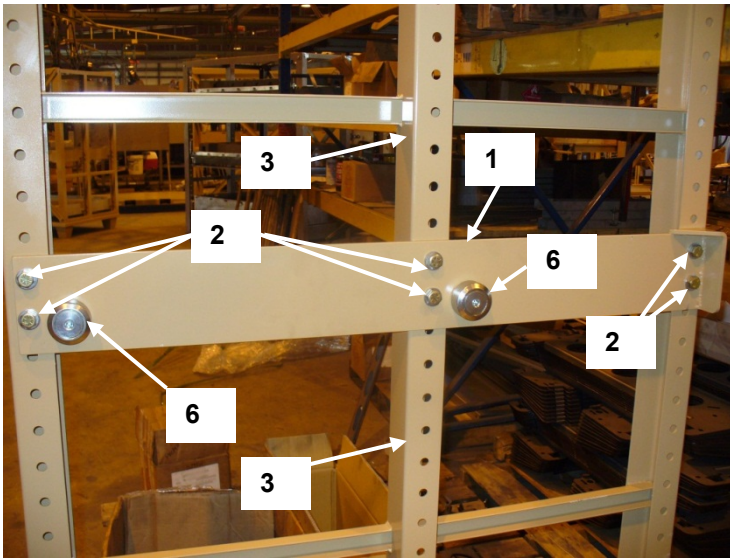


**WARNING**

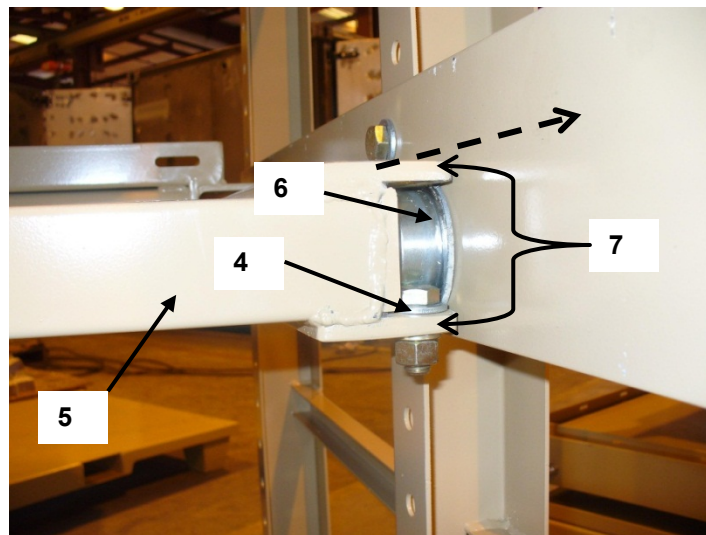
Removal of the front or rear (1) stop bolts will allow the shelves to roll out of the chassis. This may result in damage, injury or death. Only remove the stop bolts when removing a tray or bin or repositioning a tray or bin.



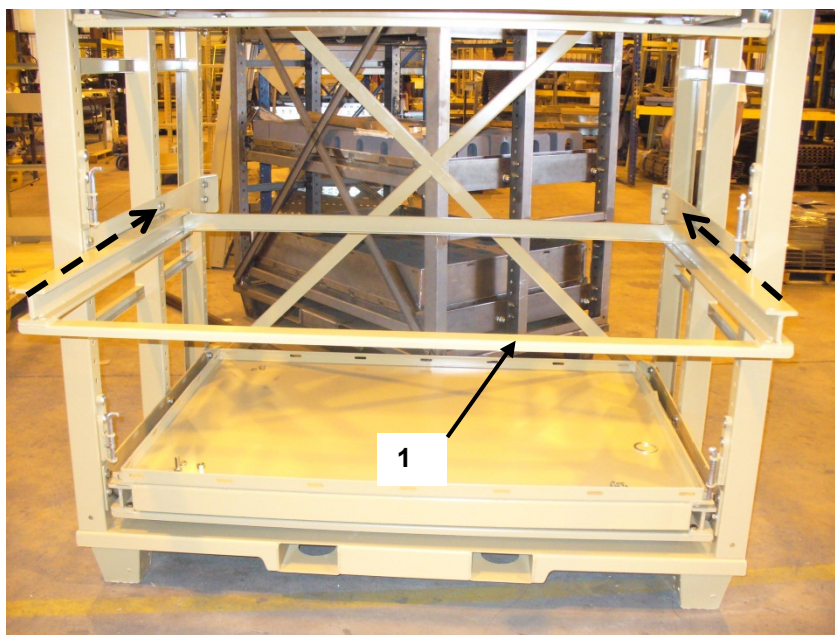
8. Remove the left and right drawer slide assembly (1) by removing the six mounting bolts, washers and nuts (2).



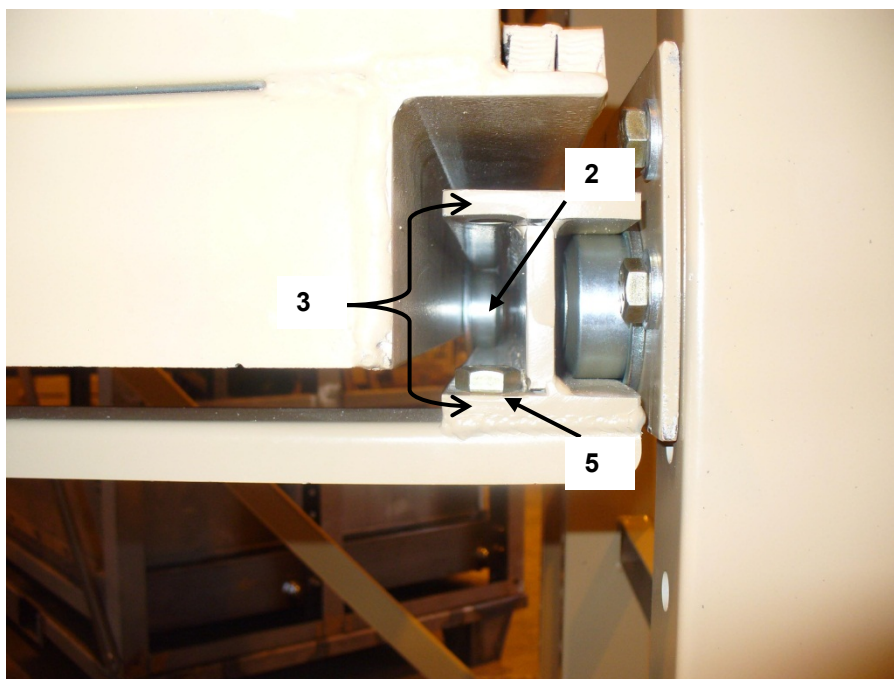
9. Reposition the left and right drawer slide assembly to the desired holes in the chassis (3) and insert and retighten the six nuts and bolts (2).
10. With stop hardware (4) removed, insert the slide rack (5) and guide the four bearings (6) into the outside track (7) of the slide rack (5).
11. Reinsert and tighten the rear stop bolt hardware (4).



12. Position the slide rack (1) to the full in position before attempting to insert the inner tray.



13. With assistance, insert and guide the left and right tray bearings (2) into the internal tracks (3) of the slide rack (1).  
14. Insert and tighten the front stop bolt hardware (5).



**END OF WORK PACKAGE**

**0037 00-6**

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**BULK STORAGE MODULE Bearing Replacement**

**INITIAL SETUP:****Material/Parts**

Bearing kit

**Personnel Required**

Two

**Tools**

$\frac{3}{4}$ " Open End Wrench,  $\frac{1}{2}$ " Ratchet,  $\frac{3}{4}$ " Socket Wrench, 1  $\frac{1}{8}$ " Open End Wrench and  $\frac{3}{8}$ " Allen Wrench

**References**

Chapter 5 WP 0037 steps 1 - 14

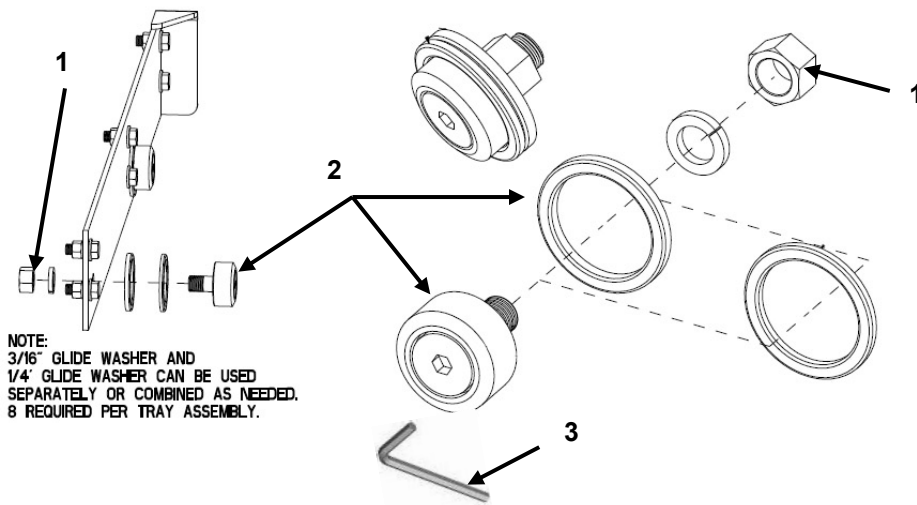
**Equipment Condition**

Operational

**REMOVE and REPLACE****NOTE**

When removing of the entire tray or bin assembly for repositioning, the latch bolt assembly removal is not required. Just raise the latch bolt above the cam stop, to the unlatched position.

1. Remove the tray or bin, see steps 1 thru 14 pages WP 0037 00-1 to 00-5.
2. Do not remove the latch bolt assembly step 2 page WP 0037 00-2.
3. When the tray or bin tray and slide rack have been removed, remove the retaining nut (1) with the  $1 \frac{1}{8}$ " open end wrench.
4. Replace the bearings and washers (2) and replace and tighten the retaining nut (1).
5. Use a  $1 \frac{1}{8}$ " open end wrench and retain the bearing with a  $\frac{3}{8}$ " Allen wrench (3).



6. Reinstall the slide rack (Step 9 - 10 page 0037 00-5).
7. Reinstall the tray (Step 11 - 13 page 0037 00-5 through 00-6).

**END OF WORK PACKAGE**

0038 00-1

This page was intentionally left blank

**UNIT MAINTENANCE INSTRUCTIONS**

**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**

**BULK STORAGE MODULE 8" Bin Kit**

**INITIAL SETUP:****Materiel/Parts**

8" Adapter Kit

**Personnel Required**

Two

**Tools**

5/16" Open End Wrench, 3/8" Ratchet, 3" Extension and 5/16" Socket Wrench

**References**

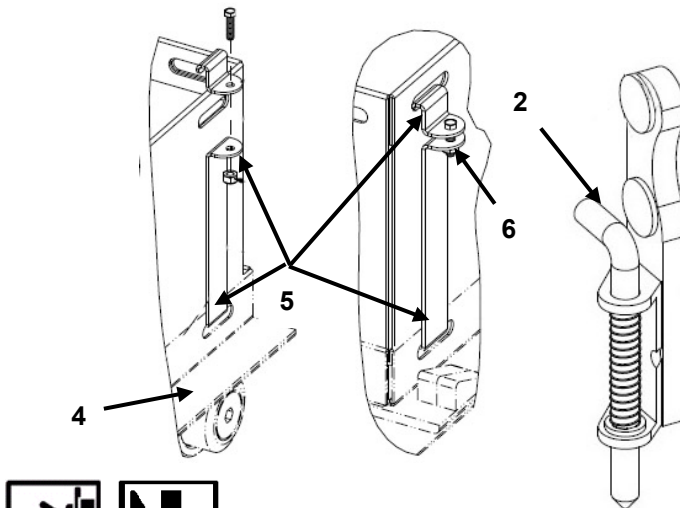
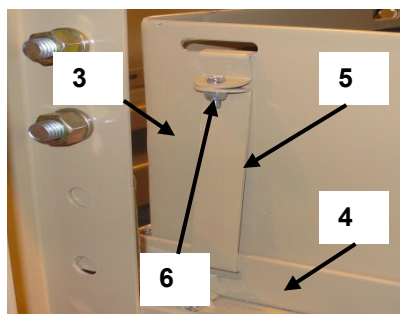
Chapter 2 WP 0009

**Equipment Condition**

ECASL SYSTEM Setup

**INSTALL****Install 8" Bin Assembly**

1. Pull out the tray or bin (1) to the full out position and engage the latch (2) to prevent roll back.
2. With assistance, place the 8" bin adapter (3) inside the tray (4).
3. Insert the top and bottom connector clips (5) in the slots in all four corners.
4. Insert the bolts and tighten the self-locking nuts (6) with the 5/16" wrenches.

**WARNING**

This operation requires two personnel. Ensure that the tray or bin (1) is in the full out position and bolt latch assemblies (2) are engaged to prevent movement. Failure to acquire assistance may result in injury.

**END OF WORK PACKAGE**

This page was intentionally left blank

---

**UNIT MAINTENANCE INSTRUCTIONS**  
**FPU® SYSTEMS OPERATION MANUAL**  
**(INCLUDING REPAIR PARTS)**  
**EXPEDITIONARY CONTAINERIZED AUTHORIZED STOCKAGE LIST (ECASL)**  
**BOH FPU Field Pack-up Units**  
**STANDARD STORAGE MODULES**  
**INSPECT, SERVICE**

---

**INITIAL SETUP:****Materiel/Parts**

Lubricant

**Personnel Required**

One

**Tools**

Rags, 7/16" wrench, scrap of wood, 18 oz. hammer

**References**

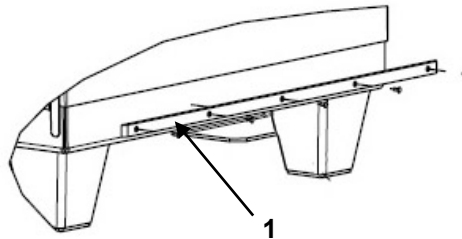
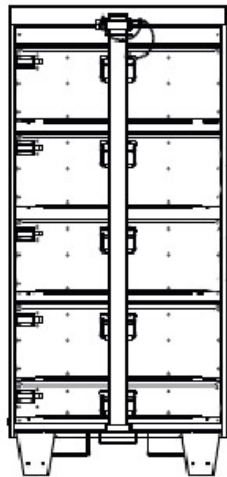
WP 0010 00

**Equipment Condition**

ECASL SYSTEM Setup

**INSPECT**

With drawers open, inspect handles, missing hardware, latches and drawer operation, and report problems with drawer damage to direct support maintenance.



1. Inspect for missing or damaged side bumper strips (1). Notify maintenance of any missing or damaged bumper strips for replacement.

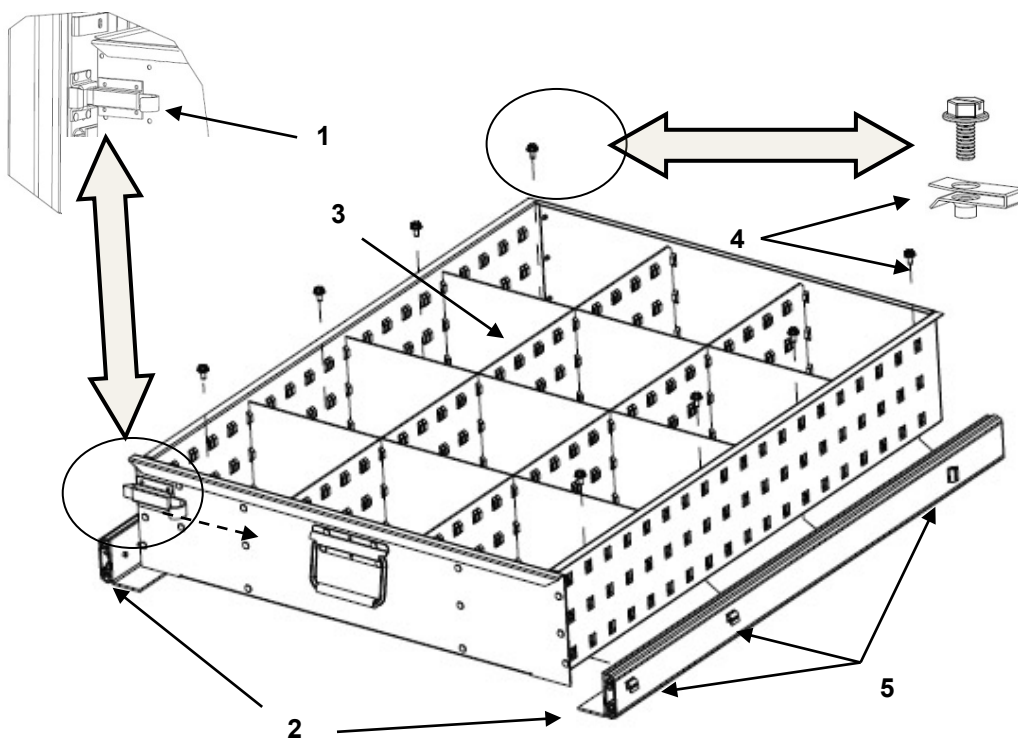


**WARNING**

The modules must be operated on level ground and periodically be checked for shifting from a level position in or out of the containers. To maintain control, consider the ground surface conditions for adequate traction, such as mud, snow, ice and sand.

**SERVICE**

2. Lubricate the slam latch (1) and roller bearings (2), front and rear of the slides with light lube spray. Notify maintenance of any missing or damaged slam latch for replacement.
3. Replace any missing  $\frac{1}{4}$ "-20 TPI x  $\frac{1}{2}$ " (4) drawer mounting bolts and automotive threaded clips.





## REPLACE

### Replacement of drawer assembly

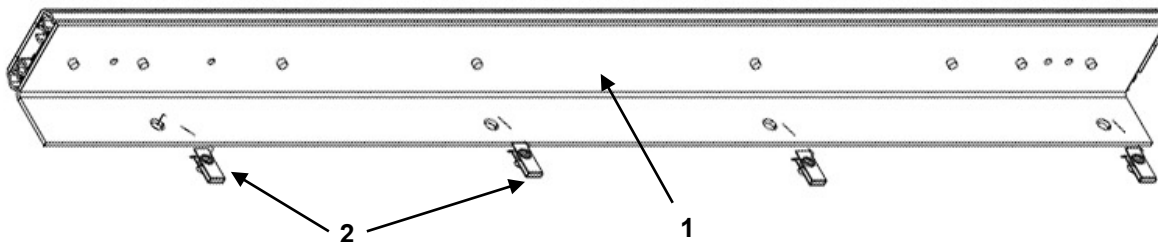
Although the standard modules come in prescribed drawer configurations, there are optional drawers of various sizes that can replace the existing configuration.

#### Drawer and Slide Removal

1. Release the slam latch (1) on the left side of the drawer.
2. Pull the drawer to the full out position.
3. Remove the material and divider set (3).
4. Remove the eight bolts (4) on the interior of the drawer with the 7/16" wrench or flat tip screwdriver.
5. Lift the drawer from the bearing slides (2).
6. Remove the two set bolts that secure the slide to the module housing.
7. Use a block of wood and 18 oz. hammer to tap the slides (2) up to disengage the tabs (5) and cleats.

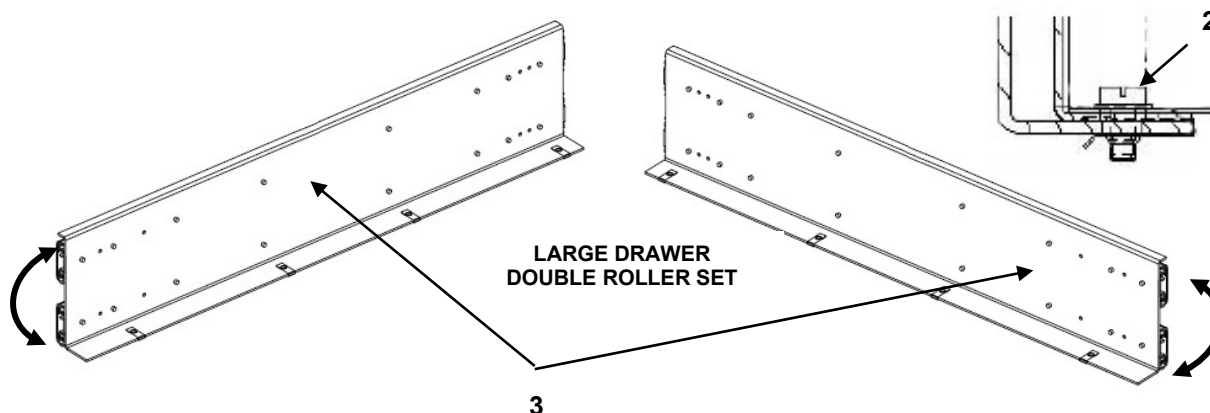
#### Drawer Slide Bearings

The drawers are attached to the roller slides (1), by means of automotive threaded clips (2) and 1/4-20 x 5/8" TPI bolts.



#### Note

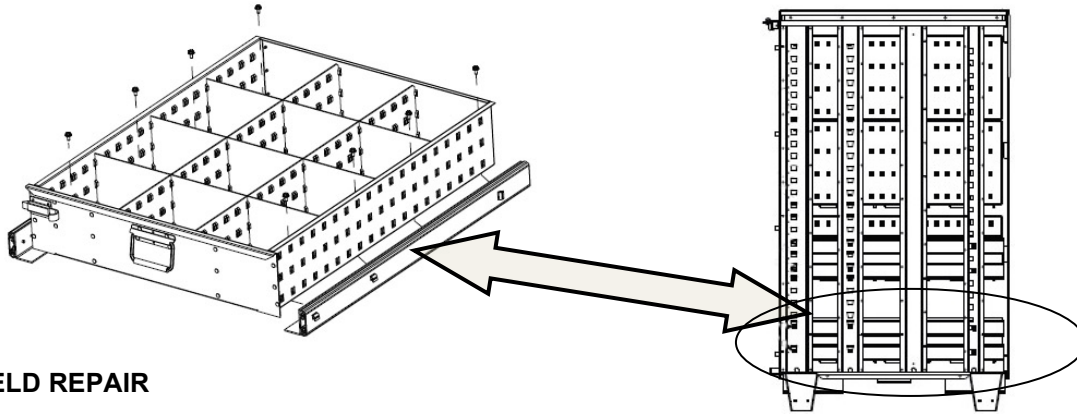
There are two sizes of drawer slides; a single roller and double rollers (3) for the large drawers. The drawer slides come in left and right pairs as part of a drawer replacement kit and are matched to the drawer size.



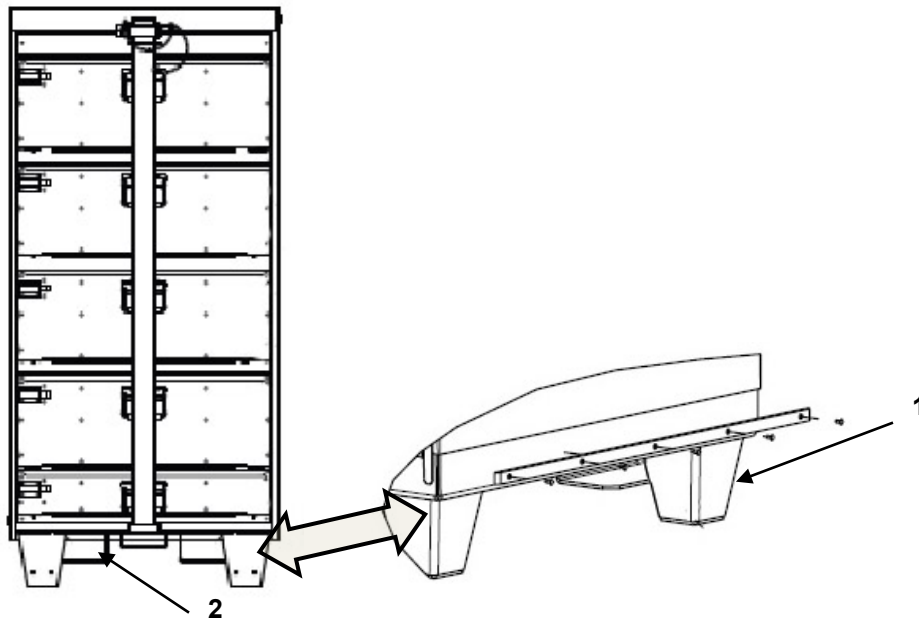
## ALIGN

### To attach the drawer slide

1. Align the three sets of tabs on the back of the slide and tab holes in the three uprights.
2. Tap the slide down with a block of wood until the slide is level and secure.
3. Install the two set bolts that secure the slide to the module housing.
4. Insert the drawer and tighten the eight bolts with the 7/16" wrench.
5. Push the drawer to the full in position until the slam latch is engaged.



## WELD REPAIR



1. Inspect the exterior of the cabinet brackets and all four base feet (1) and forklift pockets (2) for damage.
2. Notify maintenance of any dents or damage requiring weld repair.

### **Repairs Requiring Welding**

Welding repairs are only required when the ECASL SYSTEM module is pierced, punctured, or cracked. Standard welding principles and materials apply to ECASL SYSTEM repairs. Welding procedures will not be discussed in this tech manual. Refer to applicable welding codes such as TC 9-237.

### **END OF WORK PACKAGE**

This page was intentionally left blank