

**FPU® SYSTEMS OPERATION MANUAL  
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)  
Light Expeditionary Module (LEM)  
BOH FPU Field Pack-up Units**

**CHAPTER 2  
OPERATOR INSTRUCTIONS**

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**OPERATOR INSTRUCTIONS****FPU® SYSTEMS OPERATION MANUAL  
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)  
Light Expeditionary Module (LEM)  
BOH FPU Field Pack-up Units****PREPARATION FOR MOVEMENT**

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**PREPARATION FOR MOVEMENT**

This work package provides step-by-step instructions for the download, set-up and moving of the Light Expeditionary Module (LEM).

**WARNING**

If a LEM Module is dropped during transit movement of any kind, drawer trays may be damaged; extreme care should be taken when opening the drawers to preclude material from falling on and injuring personnel. Ensure 3G bars are installed in their appropriate hasp slot positions (see page 0006 00-5) and all drawer and tray latches are engaged before any MHE or transport movement.

**Site Requirements****WARNING**

Outside the warehouse, modules must be operated on level ground. To maintain control, consider the ground surface conditions in an open environment for adequate traction, such as mud, snow, ice and sand. Review the weight tables pages WP 0005 00-2 to 00-3 prior to any movement for MHE and personnel requirements.

**CAUTION**

Flood plain conditions should be considered for LEM Modules. Although the drawers are weather resistant, they are not water tight, and the operation of the Modules would be impaired in a flooding condition. If in doubt, consult the operations supervisor or commander.

**WARNING**

Overhead power lines and obstructions can cause serious injury, death or damage to property. Forklift operators, truck drivers and ground guides should always clear overhead when loading or unloading the LEM Module.

## Preparing LEM Modules for Use

Once downloaded from the truck, trailer or other transport vehicle, the LEM Module is ready for immediate use in most circumstances.

### WARNING



The LEM Module is designed for a ground-based operation and MIL VANs, M-129 VANs, ISO Containers or Military Ships. Never attempt to access the LEM Module or the drawers when the LEM Module is without a safe-footing established area. Always establish a safe footing operational site. Consider the weight of each LEM and their individual components.

### CAUTION

The stored material in any single drawer should not exceed 100 lbs.

### MODULE WEIGHT TABLES

LEM 70" MODULE Configurations #1 thru # 15	Part Number	Shipping Weight	Max Gross Weight	Net (Cargo) Weight	MHE Recommended
LEM 70" Config. #1	17000001-003	646	1046	400	3,000 lb. forklift
LEM 70" Config. #2	17000002-003	643	1043	400	3,000 lb. forklift
LEM 70" Config. #3	17000003-003	640	1040	400	3,000 lb. forklift
LEM 70" Config. #4	17000004-003	645	1045	400	3,000 lb. forklift
LEM 70" Config. #5	17000005-003	594	894	300	3,000 lb. forklift
LEM 70" Config. #6	17000006-003	700	1200	500	3,000 lb. forklift
LEM 70" Config. #7	17000007-003	697	1197	500	3,000 lb. forklift
LEM 70" Config. #8	17000008-003	694	1194	500	3,000 lb. forklift
LEM 70" Config. #9	17000009-003	699	1199	500	3,000 lb. forklift
LEM 70" Config. #10	17000010-003	648	1048	400	3,000 lb. forklift
LEM 70" Config. #11	17000011-003	700	1200	500	3,000 lb. forklift
LEM 70" Config. #12	17000012-003	697	1197	500	3,000 lb. forklift
LEM 70" Config. #13	17000013-003	694	1194	500	3,000 lb. forklift
LEM 70" Config. #14	17000014-003	699	1199	500	3,000 lb. forklift
LEM 70" Config. #15	17000015-003	648	1048	400	3,000 lb. forklift
<b>End of 70" Weight Table</b>					

LEM 36"MODULE Configuration #1 thru # 5	Part Number	Shipping Weight	Max Gross Weight	Net (Cargo) Weight	MHE Recommended
LEM 36" Config. #1	17100001-003	400	700	300	3,000 lb. forklift
LEM 36" Config. #2	17100002-003	397	697	300	3,000 lb. forklift
LEM 36" Config. #3	17100003-003	394	694	300	3,000 lb. forklift
LEM 36" Config. #4	17100004-003	399	699	300	3,000 lb. forklift
LEM 36" Config. #5	17100005-003	348	548	200	3,000 lb. forklift
<b>End of 36" Weight Table</b>					

Module Components Weight Table			
BOH LEM Module Components	Weight	Part Number	Personnel Required to Lift
LEM cage	91 lb.	17000130-003	2
LEM 18" Upper Hull With 1 Tray But Without Drawers	114 lb.	N/A	2
LEM 18" Upper Hull With 2 Tray But Without Drawers	147 lb.	N/A	2
LEM 30" Lower Hull with 2 Trays But Without Drawers	166 lb.	N/A	2
LEM 30" Lower Hull with 3 Trays But Without Drawers	199 lb.	N/A	2
4" Drawer Empty	25 lb.	17000654-003	2
6" Drawer Empty	29 lb.	17000655-003	2
8" Drawer Empty	33 lb.	17000656-003	2
10" Drawer Empty	37 lb.	17000657-003	2
12" Drawer Empty	40 lb.	17000658-003	2
16" Drawer Empty	43 lb.	17000659-003	2
18" 3G bar	2 lb.	17000170-003	1
30" 3G bar	2 lb.	17000165-003	1
Cabinet Base and twist lock	98 lb.	17000100-003	2
Single Mounting Plate	75 lb.	17000500-003	2
Double Mounting Plate	142 lb.	17000501-003	4
Triple Mounting Plate	211 lb.	17000502-003	6
<b>End of Module Components Weight Table</b>			

**WARNING**

Multiple personnel are required when lifting empty components. Always use the handles when lifting any LEM component. **Always separate the drawers from the tray when assembling or disassembling the system.** Two personnel are required when lifting full or empty drawers into and out of the trays. Avoid lifting with your back, bend your knees slightly and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

**WARNING**

Always place each disassembled component out of the traffic area. Failure to follow may result in damage to the equipment and/or stored material and injury to personnel.

**NOTE**

The 4" drawer lids are designed specifically for the 4" drawer and are not applicable to other drawers.

**END OF WORK PACKAGE**

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**OPERATOR INSTRUCTIONS**
**FPU<sup>®</sup> SYSTEMS OPERATION MANUAL  
 (INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)  
 Light Expeditionary Module (LEM)  
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**LEM COMPONENT DESCRIPTION**


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**Component Weights**


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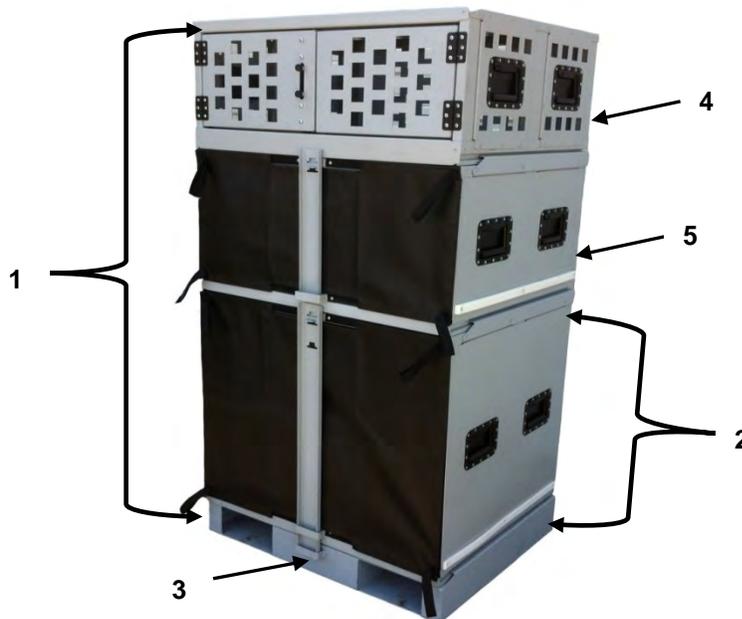
**WARNING**


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Multiple personnel are required when lifting empty components. Always use the handles when lifting any LEM component. **Always separate the drawers from the tray when assembling or disassembling the system.** Two personnel are required when lifting full or empty drawers into and out of the trays. Always follow DOD safe lifting procedures. Avoid lifting with your back, bend your knees slightly and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

The LEM modules come in fifteen 70" high modules (1) with a cabinet base (3) and cage (4), and five 36" high modules (2) with cabinet base (3) but without a cage (4) and 18" cabinet (5).


**NOTE**

The 70" module cabinets, cage and cabinet base have a bezel and track that mate to interlock module components. The 36" module does not have a bezel on its top and will not accept any cabinet or cage.

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## LEM Cage Description

- The LEM cage (1) is secured and prevented from sliding by the 3G bar (2) on the cabinet (3) under the cage (1).
- The LEM cage (1) is retained by means of a track (4) on the bottom of the cage (1) that mates with the bezel (5) on the top edges of the cabinet (3) under the cage (1).
- The track (4) and bezel (5) system is designed to interlock each component into a rigid unitized module.
- The LEM cage (1) has retractable handles (6) for maneuvering the cage (1).
- The LEM cage (1) has hinged doors (7) that are retained by two spring loaded slam latches (8) on the left door (9).



### WARNING



Always place each disassembled component out of the traffic area. Failure to follow may result in damage to the equipment and/or stored material and injury to personnel.

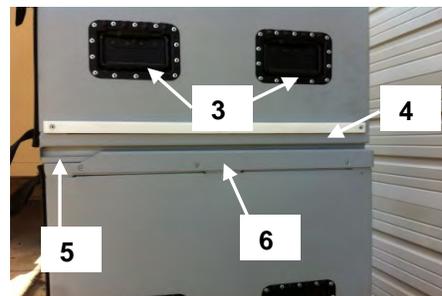
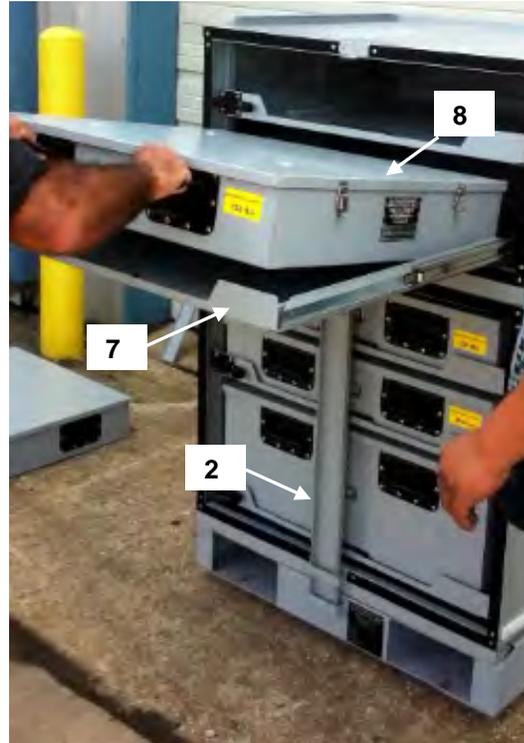
## LEM Cabinet Description

- The LEM cabinet (1) as a unit houses various prescribed size sliding drawers (2).
- Each LEM cabinet (1) as a unit is retained by the track (3) and bezel (4) system to create a unitized set of cabinets (1).
- The LEM cabinets are secured by two 3G bars (5) that have additional slots (6) and can be arranged upward to secure the cage.
- The 3G bars (5) can be repositioned to allow each cabinet (1) to stand alone as a unit.
- Each LEM cabinet (1) has bumper strips (7) on sides and back to protect the unit.
- The LEM cabinets (1) have a cabinet base (8) that allows MHE movement in a warehouse environment.
- The top of each cabinet (1) has slide tape strips (9) that reduce metal to metal friction and scratching the paint.



## LEM Hull Description

- The LEM hull (1) is held in place by the lower 3G bar (2).
- The LEM hulls (1) have side handles (3) for installation or separation of the hulls (1).
- The LEM hulls (1) have bumper strips (4) and the track (5) and bezel (6) system to interlock the hulls (1).
- The LEM hull (1) houses the trays (7) that slide out to accept the drawers (8).



### WARNING



Always place each disassembled component out of the traffic area. Failure to follow this may result in damage to the equipment and/or stored material and injury to personnel.

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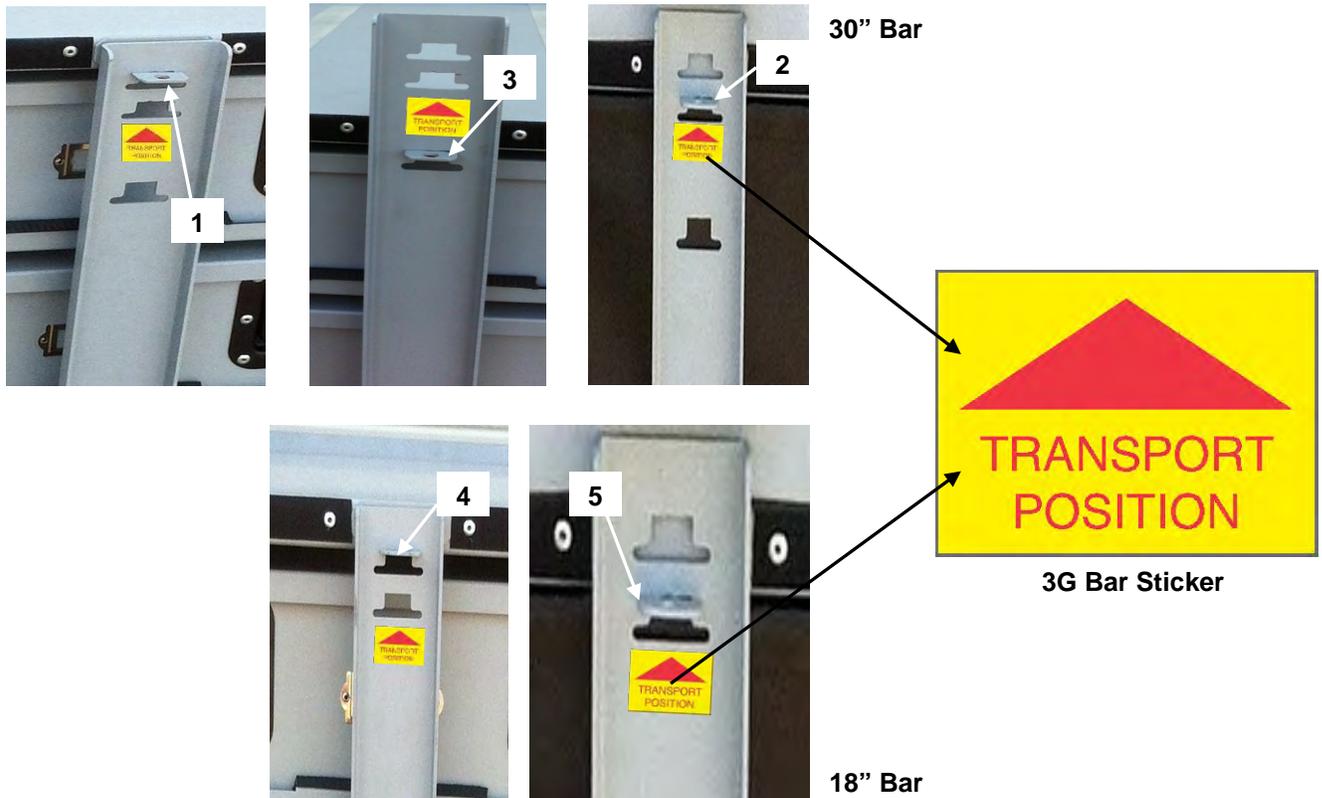
### 3G Bar Description

- **30" Bar**
  - top slot (1): For removal of 18" hull from the top of the 30" hull
  - center slot (2): To inhibit lateral movement of the 18" cabinet over the 30" cabinet and the 30" cabinet over the cabinet base (*Position required for fully assembled and secured 70" LEM configuration*)
  - bottom slot (3): To allow for the cabinet to be placed directly on the floor, secured and padlocked.
- **18" Bar**
  - top slot (4): For removal of cage from the top of the 18" hull. Allows for the cabinet to be placed directly on the floor, secured and padlocked
  - bottom slot (5): To inhibit lateral movement of the top cage over the 18" hull (*Position required for fully assembled and secured 70" LEM configuration*). Also allows the cabinet to be placed directly on the floor, secured and padlocked just like the top slot.

#### WARNING



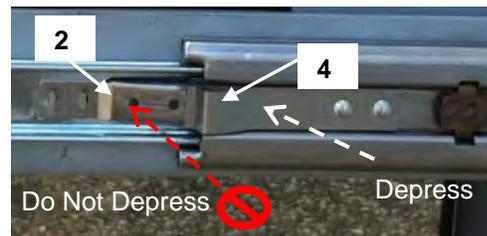
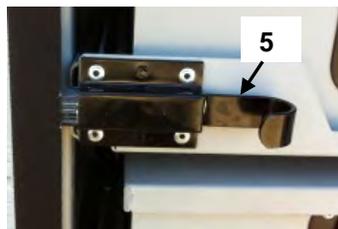
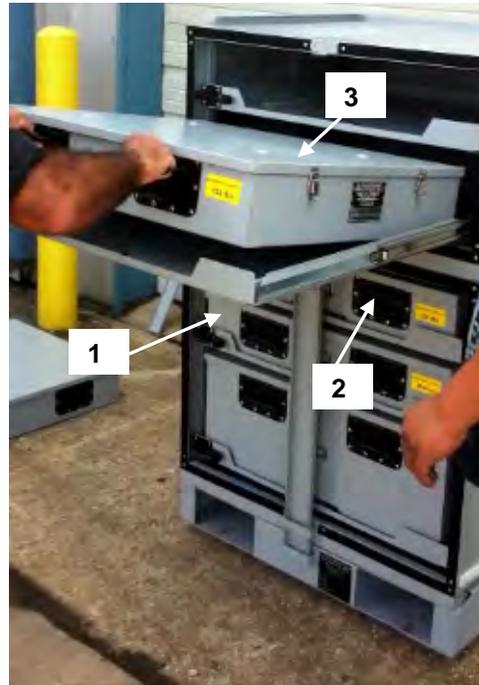
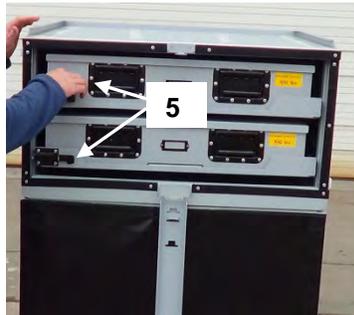
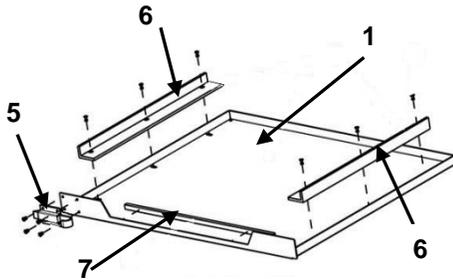
The 30" center slot (2) and 18" bottom slot (5) positions are required to properly secure the fully assembled 70" LEM configuration for transport. Failure to comply may result in damage to the equipment and/or stored material and injury to personnel.



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## LEM Tray Description

- The LEM tray (1) is designed to slide out until the detent (2) is engaged that prevents the tray (1) from rolling back when installing the drawer (3).
- The LEM tray detent release lever (4) must be released to return the tray (1) into the hull.
- The LEM tray (1) has a slam latch (5) mounted on the left side to hold it within the hull.
- The LEM tray (1) has two drawer spacer angles (6) to help center and retain the drawer from shifting in the tray, assist sliding the drawer into place and reduce metal to metal friction.
- The LEM tray (1) also has a strip (7) on the front to help center and retain the drawer (3) from shifting in the tray.



### WARNING



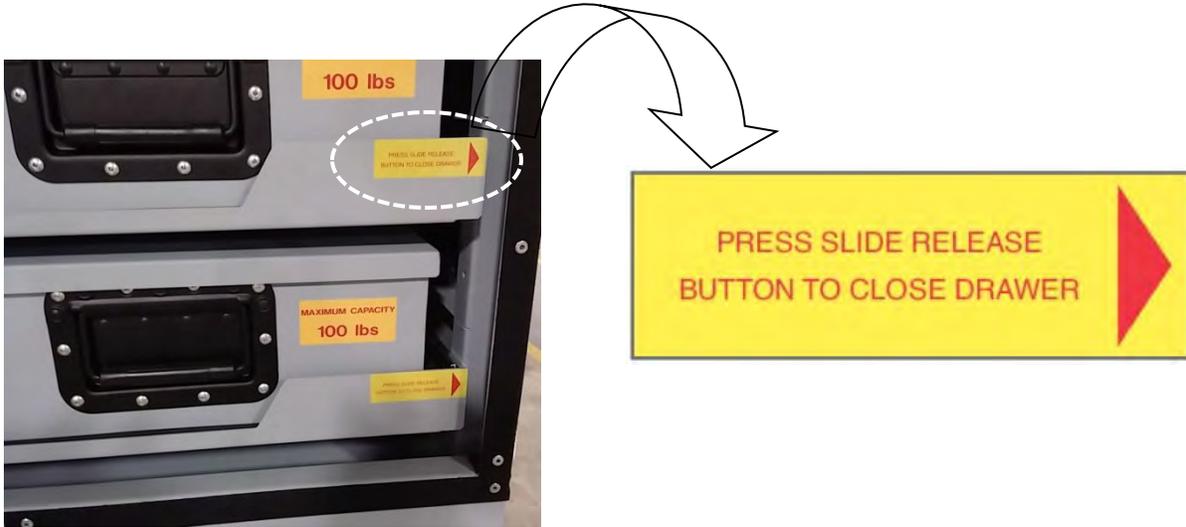
Do not depress the detent (2) to release the tray; always use the release lever (4) to prevent a pinched finger. Extend the tray from the drawer handles; do not grab the front of the tray to extend the tray out as this may result in a pinched finger. Always follow DOD safe lifting procedures. Avoid lifting with your back, bend your knees slightly and lift in tandem with a partner's assistance.

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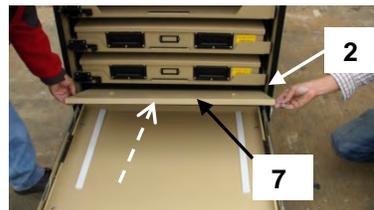
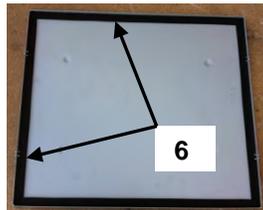
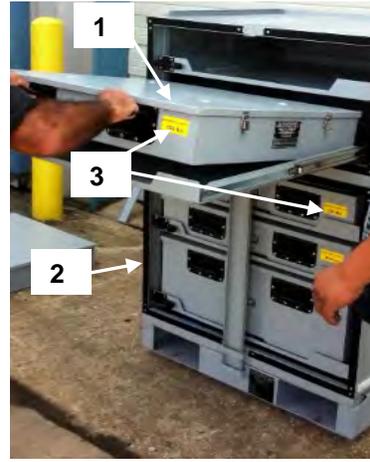
**CAUTION**

Always press the detent release lever (right side) (1) to release and close the drawer tray when in the fully extended, locked-out position (2). Shoving against this drawer tray without first pressing this release lever could result in damage to the drawer slides causing the drawer tray to become inoperable.



## LEM Drawer Description

- The LEM drawers (1) come in various prescribed sizes that fit the cabinets (2).
- Each LEM drawer (1) has a 100 lb. limit label (3) on the front of each drawer.
- The LEM drawers (1) have dimples (4) on the top and mating dimples on the bottom that help prevent them from slipping when stacked.
- The LEM drawers (1) have latches (5) and a seal (6) to prevent moisture and dust from entering the drawer.



### NOTE

When it is preferred to operate the drawers (1) without lids (7) and prevent misplacement of lids (7), they can be stored in the bottom of each cabinet/hull assembly (2). This space allows for the storage of up to 3 lids and 3G bar. To access the bottom storage space, lock out the bottom tray and remove the drawer. For ease of lid removal, insert and stack the lids with the tops facing down. Consider the environment that may affect the stored material such as rain, humidity, dust and sand when operating without lids.

### CAUTION

When stacking the lids in the bottom of the hull assembly, ensure they do not interfere with the tray operation or cause damage to the lids (7), tray or drawer(1). Prior to movement of the 70" module or 36" module, ensure these lids are reattached to the drawers.

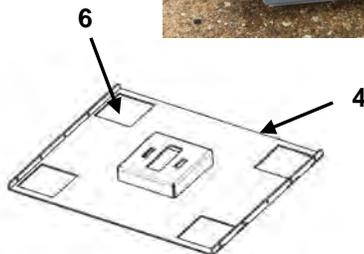
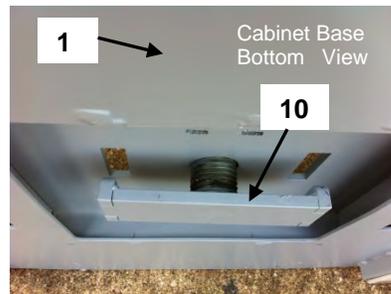
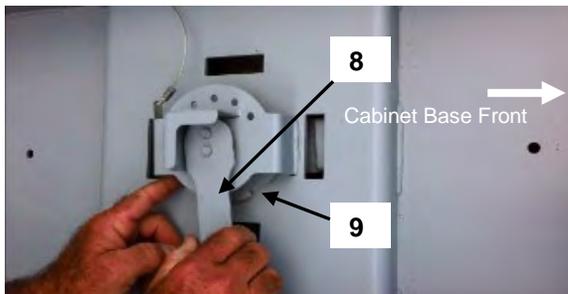
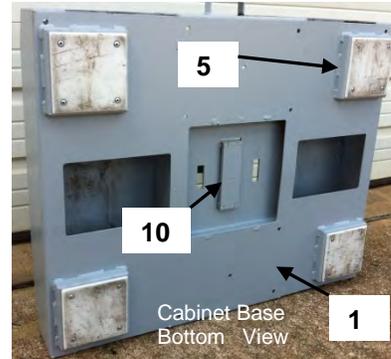
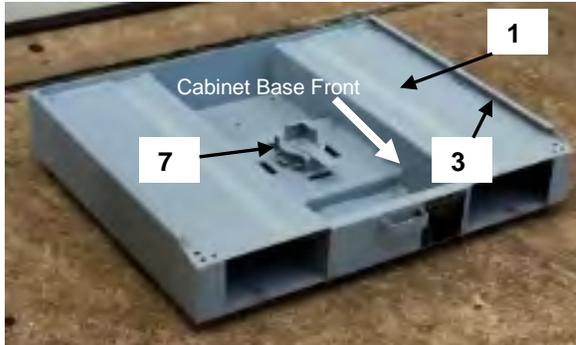
### CAUTION

The 4" drawer lids (7) are designed specifically for the 4" drawers and are not applicable to other drawers.

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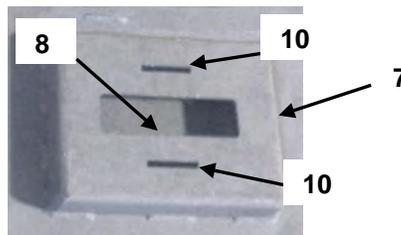
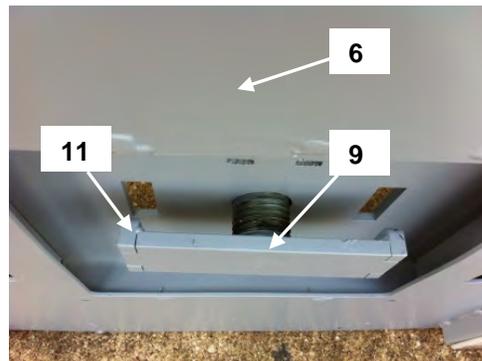
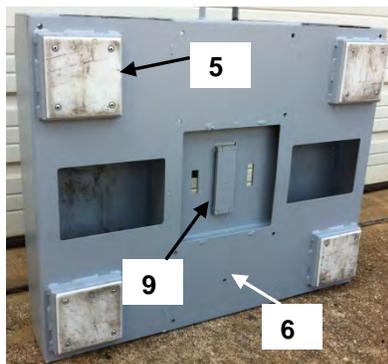
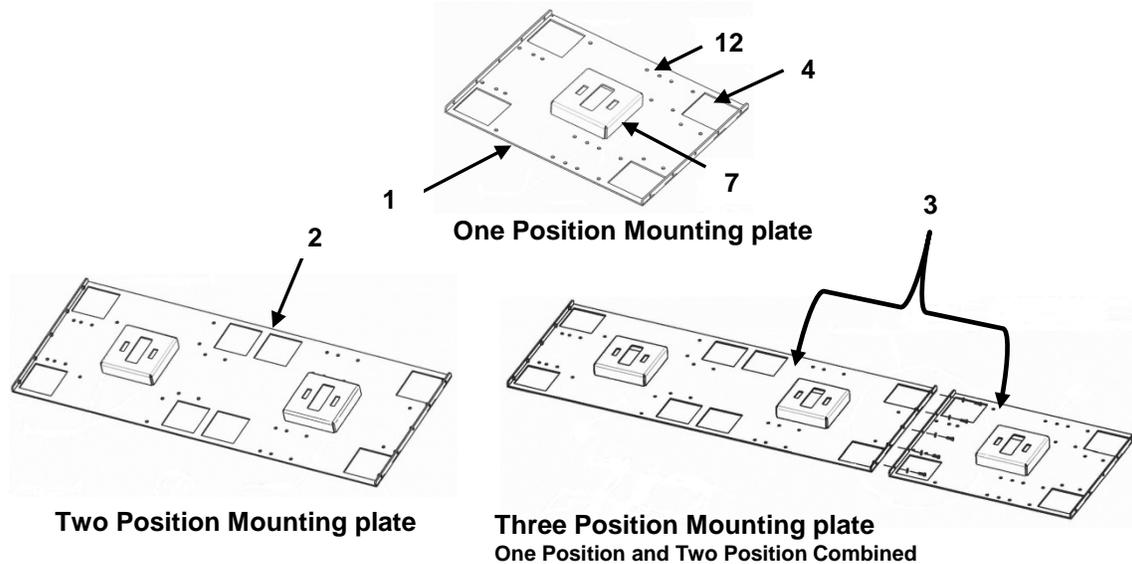
## LEM Cabinet Base Description

- The LEM cabinet base (1) is designed to support and interlock the cabinets and provide a means to transport the unit with a forklift in a warehouse environment.
- The cabinet base (1) has a track (2) and bezel (3) to interlock the first cabinet.
- The cabinet base (1) is designed to be mechanically locked down within MIL VANs, M-129 VANs, ISO Containers or Military Ships, onto one of the three types of mounting plates (4).
- The cabinet base (1) has four feet (5) that match the cutouts (6) in mounting plate (4).
- The cabinet base (1) has a twist lock device (7) with an adjustment handle (8) and star nut (9) to position the bottom flange and keys (10) into the mounting plate (4).



## LEM Mounting Plates Description

- There are single (1), double (2) and triple position (3) mounting plates.
- The LEM mounting plates (1, 2 & 3) are designed to be bolted (holes provided (12)) or welded in place.
- The LEM mounting plates (1, 2 & 3) have cutouts (4) that accept the feet (5) of the cabinet base (6).
- The LEM mounting plates (1, 2 & 3) have a center receiver (7) with center cutouts (8) that receive the twist lock flange and key device (9).
- The LEM mounting plates (1, 2 & 3) have slots (10) that accept the keys (11) to make a positive locking connection of the cabinet base (6) and LEM unit.



## END OF WORK PACKAGE

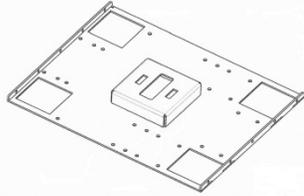
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## OPERATOR INSTRUCTIONS

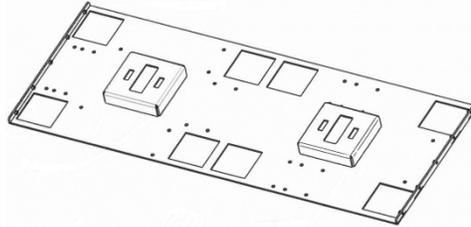
### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS & SPECIAL TOOL LIST) Light Expeditionary Module (LEM) BOH FPU Field Pack-up Units

#### INSTALLING THE LEM MOUNTING PLATES

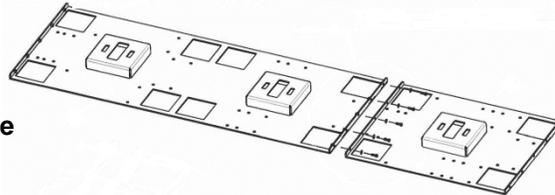
**One Position Mounting plate**



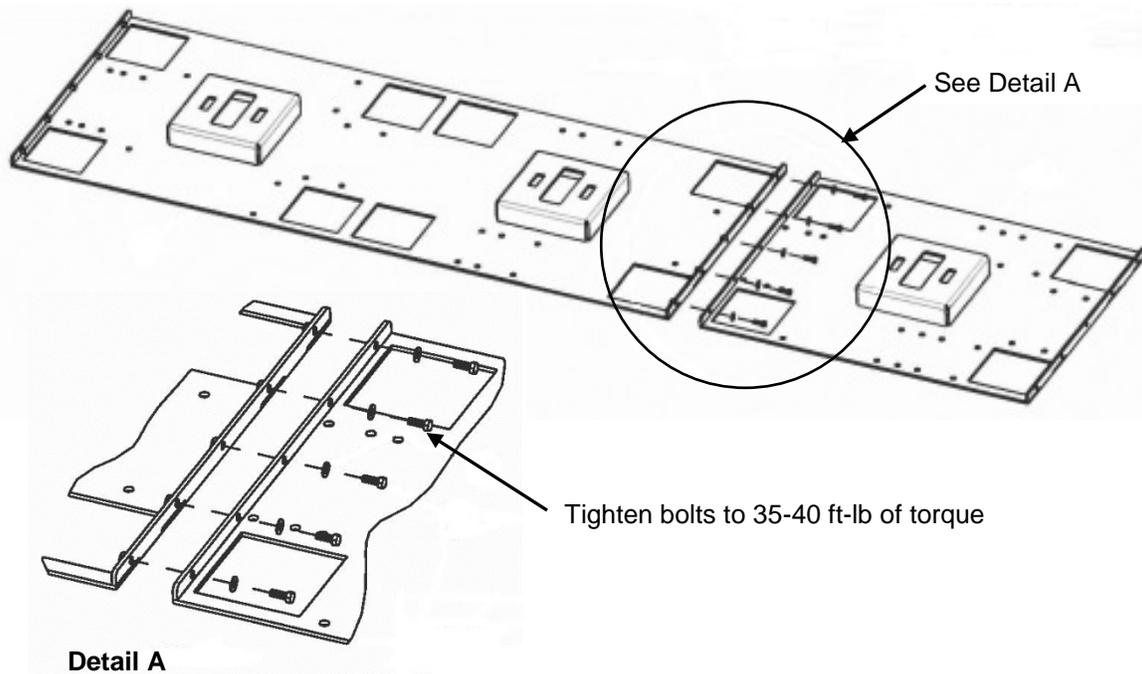
**Two Position Mounting plate**



**Three Position Mounting plate**



The LEM mounting plate can be installed into a variety of containers (10-foot, 20-foot, 30-foot, 40-foot MIL Vans, M-129 Vans and MF containers). LEM mounting plates come in three configurations. These are 1-position mounting plates, 2-position mounting plates and 3-position mounting plates. The 3-position mounting plate comes in two pieces (2-position and 1-position) and is bolted together. By removing the connecting bolts, it may be broken down to assist positioning during the installation process.



## General Spacing Guidelines

These installation instructions are to be used as a guide. The customer is responsible for verifying the structural capabilities and dimensions within his container since not all containers are created equally. Bolt holes are provided on each plate for bolting to the floor; however, additional holes may be required. Please contact Jim Stokes at [jstokes@bohfpusystems.com](mailto:jstokes@bohfpusystems.com) with any questions.

1. To determine the number of LEM cabinets the container may accommodate, measure the length and width of the useable floor space inside the container using the following mounting plate dimensions and considering that the cabinets may be installed along both walls facing inward.
  - 1-position mounting plate – 35.4" x 28"
  - 2-position mounting plate – 70.8" x 28"
  - 3-position mounting plate (a 1-position connected to a 2-position) – 106.1" x 28"
2. Internal width of the container must have a minimum of 89.5 inches to allow drawers to extend to their fully open position. Leave six inches or more clearance at each end of the container to allow access when installing or removing the cabinets from the mounting plates.
3. Position the mounting plates in their desired configuration along both side walls of the container with recommended spacing of at least 2-inches from the side walls and 6-inches from the end walls. 31.5-inches minimum required between cabinets on opposite walls to allow for the full extension of drawers (see drawing for typical configuration in a sample 20' ISO container).

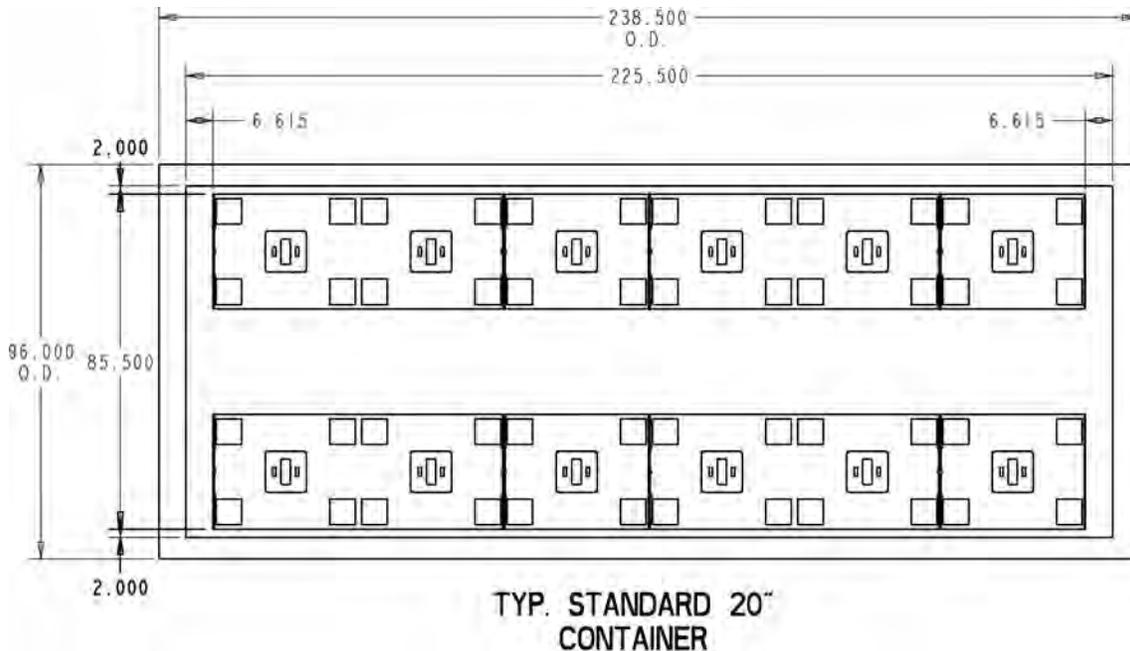
### NOTE

In order to remove a loaded drawer and carry it down the aisle and out the container with the assistance of two people, 30" minimum is required between cabinets on opposite walls. Proceed slowly and carefully down the aisle to avoid hitting hands on cabinets causing injury and/or dropping the drawer causing injury and/or damage to equipment.

### WARNING



Use extreme caution when manually moving mounting plates (1, 2 or 3). Use sufficient personnel to maneuver the mounting plates. Always follow DOD safe lifting procedures. Avoid lifting with your back, bend your knees slightly and lift in tandem with the assistance of partners. Review the Module Component Weight Table page 0005 00-3.



### Plate Installation Guide (Bolting)

To begin the installation process, access to the bottom of the container will be required. Because work will be performed underneath, properly rated stands will be required to ensure safe working conditions and room to access the bolts to attach the nuts and washers.

#### WARNING



Installation of mounting plates (bolting) requires that personnel perform work under the container. The stands used to secure the container off the ground to allow this work should meet or exceed OSHA requirements and/or the safe working requirements issued by the customer's military unit, whichever is more stringent. Failure to comply with these requirements could result in serious injury or death.

1. Using a tape measure, determine spacing of the cross members under the container. Once the spacing has been determined, measure the distance from the end of the container to the center of first cross member.
2. Once the center for the first cross member is determined, use a tape measure and masking tape to mark the locations of all cross members along the wall from front to rear.

#### NOTE

Using the masking tape, mark the cross members approximately 30-inches from the side wall on both sides. This will identify their location once the mounting plates have been placed in their desired configuration.

3. Position the mounting plates in their desired configuration along both side walls of the container with recommended spacing of at least 2-inches from the side walls and 6-inches from the end walls. 31.5-inches minimum required between cabinets on opposite

walls to allow for the full extension of drawers (see drawing for typical configuration in a sample 20' ISO container).

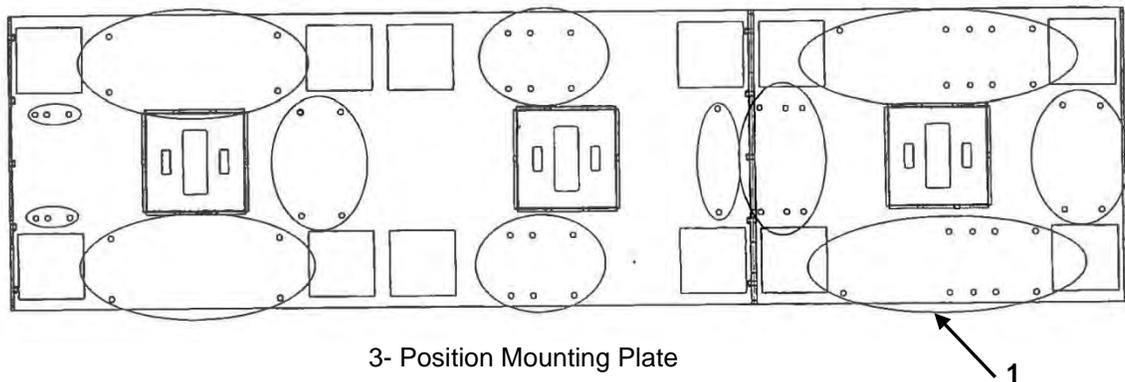
**NOTE**

The three position mounting plate may be disassembled into two pieces to allow positioning by four people.

4. Reconnect the 3-position plates using the bolts, nuts and washers provided.
5. Bolt holes have been provided in locations shown below for ease of installation. At least one bolt, nut and washer must be used in each bubbled area (1). Should all available holes in each bubbled area conflict with a cross member in the container floor structure, drilling of additional holes may be required. When drilling, ensure that the hole is no closer than 2 inches from the mounting plate edge or cabinet feet opening. Using a 5/8" bit, drill the holes through the mounting plate and container floor on the first plate at one end of the container.

**NOTE**

When selecting the length of the 1/2" bolts that will be needed to secure the mounting plates to the container floor, ensure they are only long enough to penetrate through the plate and floor and allow the washer and nut to be properly installed. If the nut is too long, it will extend past the cross members and make contact to the ground surface once the container is moved from the stands. This could damage the container floor.



6. Insert 1/2" grade 8 bolts (not provided) through the mounting plate. Access the bottom of the container and insert a lock washer on each nut and loosely tighten.

**NOTE**

There are numerous types of containers with different types of floor structures (Wood, composite and steel). When installing the mounting plates on composite or wood floors, add an additional over-size washer to prevent the nut from pulling through the floor.

**CAUTION**

Do not use lag bolts to secure the plates to containers with wooden floors. These may come loose over time during movement operations which will cause damage to the LEM cabinets, store material and container.

7. Repeat steps 5 and 6 for the first mounting plate on the opposite side wall from the one just installed.
8. Proceed to install the remainder of the mounting plates being careful to ensure the plates remain lined up in their correct position.
9. Insert remaining bolts, washers and nuts. Using a ratchet and 3/4" socket, tighten all nuts.

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**WARNING**

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Protective gloves should be worn when handling metal parts in high temperatures. Failure to wear gloves may result in burning or blistering of the skin upon contact. Eye protection should be worn when grinding, drilling or welding. Failure to comply will result in injury to personnel.

**Plate Installation Guide (Welding)**

Standard welding principles and materials apply to LEM mounting plate installation. Welding procedures will not be discussed in this tech manual. Refer to TC 9-237.

These installation instructions are to be used as a guide. The customer is responsible for verifying the structural capabilities and dimensions within his container since not all containers are created equally. Please contact Jim Stokes at [jstokes@bohfpusystems.com](mailto:jstokes@bohfpusystems.com) for additional information.

**END OF WORK PACKAGE**

## OPERATOR INSTRUCTIONS

### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS & SPECIAL TOOL LIST) Light Expeditionary Module (LEM) BOH FPU Field Pack-up Units

#### DISASSEMBLING THE LEM MODULE

#### Disassembly Procedure

#### WARNING



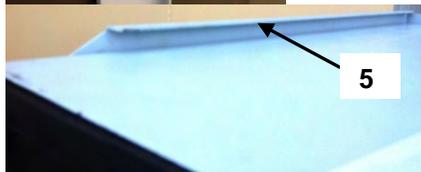
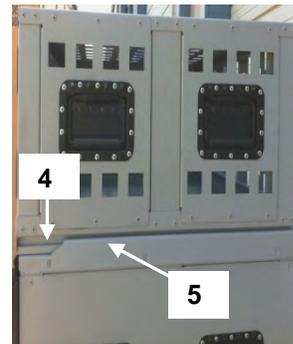
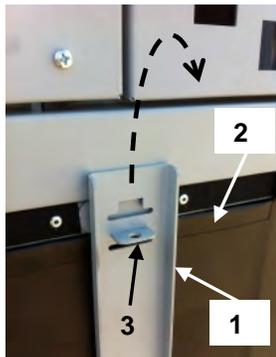
The LEM components are heavy, especially loaded drawers and empty hulls. Before attempting to lift any component, consult the component weight table pages WP 0005 00-3. When in doubt, consult a supervisor and a doctor to ensure that it is safe for the operator and assistant to perform heavy lifting. Always follow DOD safe lifting procedures. Failure to follow proper lifting procedures may cause damage to the equipment and injury to personnel.

#### NOTE

To install the LEM onto a mounting plate, the LEM module must be disassembled to gain access to the cabinet base (6) and twist lock device. Each hull has a bezel (5) and mating track (4) that interlocks the stacked components.

#### Remove the LEM 3G Bars and Dust Cover

1. Remove upper 18" 3G bar (1) and dust cover (2); lift up the bar to clear the tab (3).

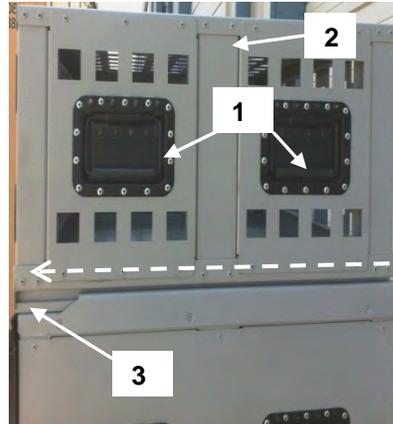


## Remove the LEM Cage

1. To remove the cage (2) either lower the top 18" 3G bar to its top slot or remove it; leave the bottom 30" 3G bar (4) in place to retain the 18" cabinet (5).
2. With assistance of one other personnel, use the handles (1) on the side to remove the cage (2) by sliding it forward until it is clear of the top hull bezels (3).



Do not remove the bottom 30" 3G bar (4)

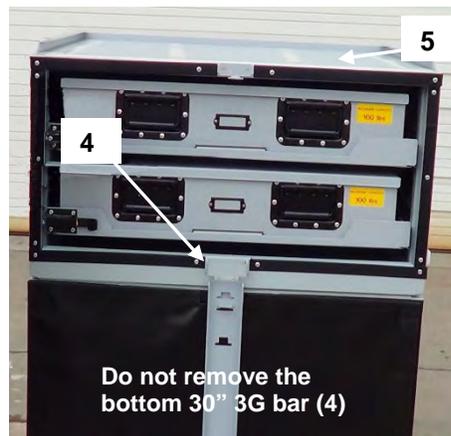
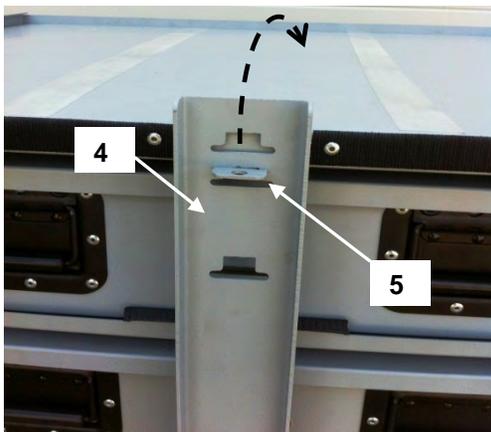


**WARNING**



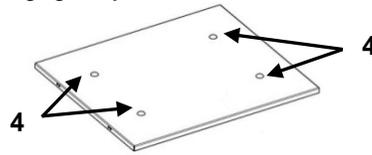
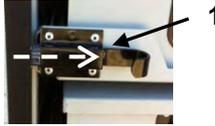
Do not remove the bottom 30" 3G bar (4) until the cage and 18" drawers have been removed. Always place each component out of the traffic area. Failure to follow may result in damage to the equipment and/or stored material and injury to personnel.

3. After the cage has been removed, then remove the drawers from the 18" hull assembly.
4. Allow the lower 30" 3G bar (4) to remain until the drawers have been removed to retain the 18" hull (5).
5. Remove the 3G bar; lift up the bar to clear the tab (5) to remove the 18" hull; only after the drawers have been removed.

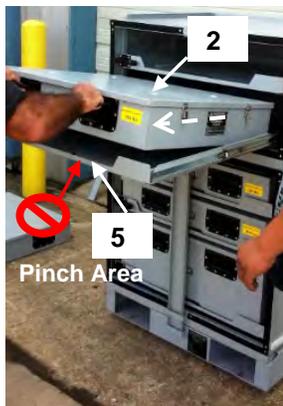


## Remove the LEM Drawers

1. Pull the slam latch (1) on the left side, pull out the top drawer assembly (2) by the drawer handles (3) until the slide detent on the right side is engaged; you should hear an audible click.



2. Lift the drawer (2) up and forward of the tray to gain access to the rear handles. Each person should stand to the sides of the drawer (2) and lift with one hand in the front and one hand in the back of the drawer.
3. With assistance, remove each drawer (2) from the trays by means of the front and rear handles (3).



4. Stack the drawers (2) aside away from the traffic area; align the drawers (2) so the dimples (4) mate.

### WARNING



Always align the drawers (2) in a stack so the dimples (4) on the lid top and drawer bottom mate to prevent the drawers (2) from sliding off the stack.

### WARNING

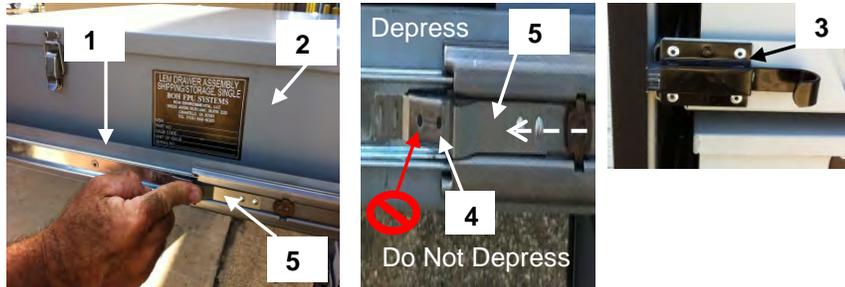


**Always separate the drawers from the tray when assembling or disassembling the system.** Two personnel are required when lifting full or empty drawers (2) into and out of the trays. Do not place your fingers between the tray edge (5) and the drawer when pulling out a drawer (2), a pinch could occur. Always follow DOD safe lifting procedures. Avoid lifting with your back and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

**WARNING**

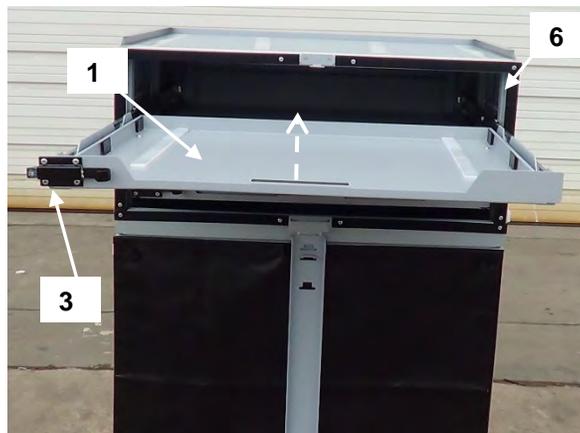
Always fully close each tray (1) or drawer assembly (2) until the slam latch (3) is engaged. Do not depress the detent (4) to release it; always use the release lever (5) to prevent a pinched finger. Failure to follow securing procedures may result in damage to the equipment and/or stored material and injury to personnel.

5. Depress the detent lever (5) on the right slide, to return the tray (1) into the hull (6).

**CAUTION**

Always press the detent release lever (right side) (4) to release and close the drawer tray when in the fully extended, locked-out position. Shoving against this drawer tray (1) without first pressing this release lever could result in damage to the drawer slides causing the drawer tray to become inoperable.

6. Push each empty tray (1) back into the hull (6), until the slam latch (3) is engaged.

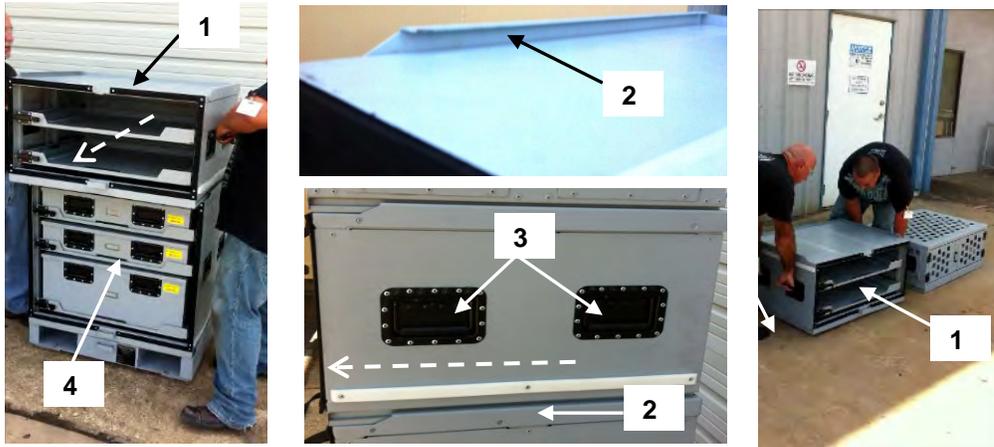


## Remove the LEM Hulls

### WARNING



Always ensure all drawers have been removed and the trays are fully closed until the slam latches are engaged before removing the hull assembly.



1. With assistance, remove the upper 18" hull (1) with the handles (3) on the side of the hull, by sliding it forward until it clears bezels (2) of the lower 36" cabinet (4).
2. Place the 18" hull (1) away from the traffic area.

### WARNING



**Always separate the drawers from the tray when assembling or disassembling the system.** Two personnel are required when lifting empty hulls into and out of the module. Always follow DOD safe lifting procedures. Avoid lifting with your back and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

**WARNING**

Do not lift up the lower 30" hull (1) with the cabinet base (2) attached; slide the hull (1) forward from the cabinet base (2) until it is clear of the cabinet base bezels (3). Place all components out of the traffic area. Failure to follow procedures may result in damage to the equipment and/or stored material and injury to personnel.

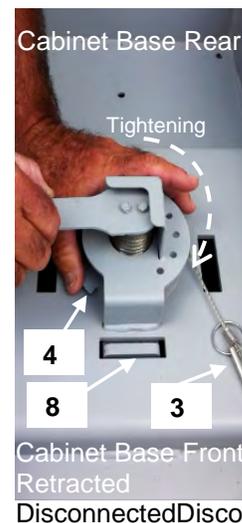
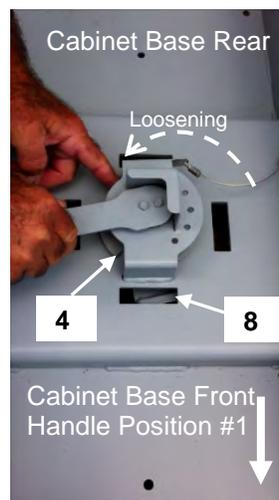
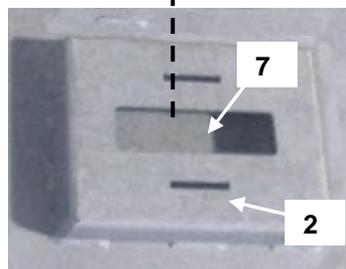
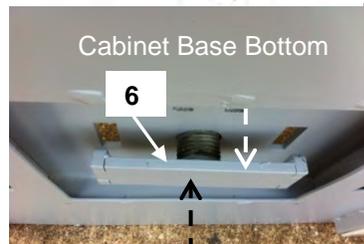
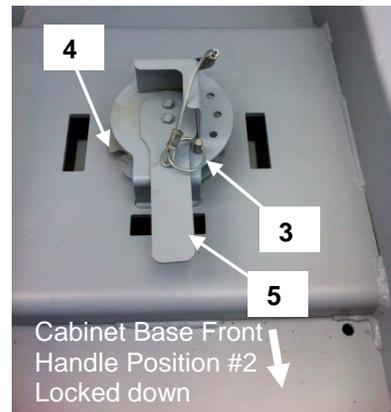
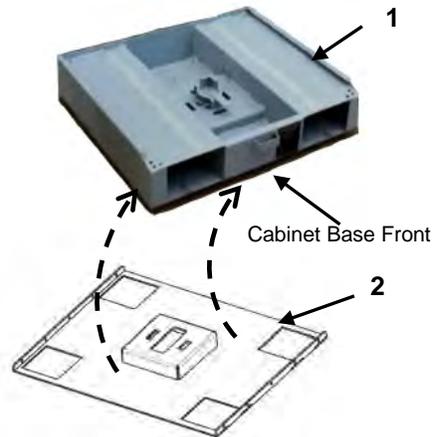
3. With assistance, proceed to remove the remaining drawers from lower 30" cabinet; follow Drawer Removal steps 1 through 6 page 0008 00-3 and 00-4.
4. Remove the lower 30" hull from the bezels (3) of the cabinet base (2).
5. Place the 30" hull (1) out of the traffic area.

**WARNING**

Always place each component out of the traffic area. Failure to follow may result in damage to the equipment and/or stored material and injury to personnel.

## Remove the Cabinet Base from the Mounting Plate

1. To remove the cabinet base (1) from the mounting plate (2), first remove the securing pin (3).
2. (From position #2) Rotate the star nut (4) beneath the handle (5) counter clockwise to extend the male flange, with keys (6), until free enough to rotate the handle.
3. Rotate the handle ¼ turn clockwise (to position #1), until the male flange and keys (6) match the opening (8) and fit through the large female receiver cavity (7).
4. Retract the flange with keys (6) by rotating the star nut (4) with a clockwise rotation until the keys mate with the cabinet base openings (8).
5. With assistance, lift the cabinet base (1) from the mounting plate (2) and place it away from the traffic area.



### WARNING



Two personnel are required when lifting the cabinet base from the mounting plate. Always follow DOD safe lifting procedures. Avoid lifting with your back and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

### END OF WORK PACKAGE

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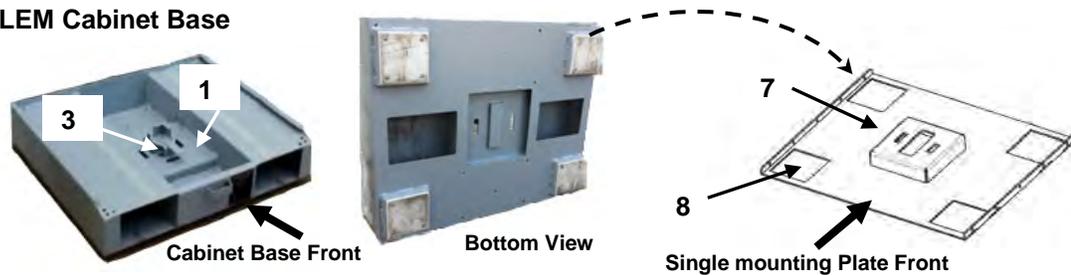
## OPERATOR INSTRUCTIONS

### FPU® SYSTEMS OPERATION MANUAL (INCLUDING REPAIR PARTS & SPECIAL TOOL LIST) Light Expeditionary Module (LEM) BOH FPU Field Pack-up Units

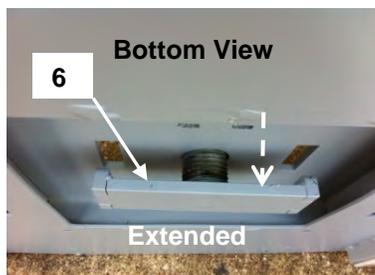
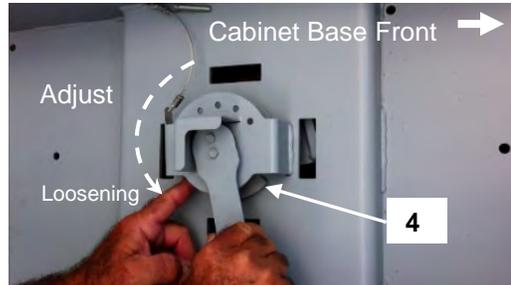
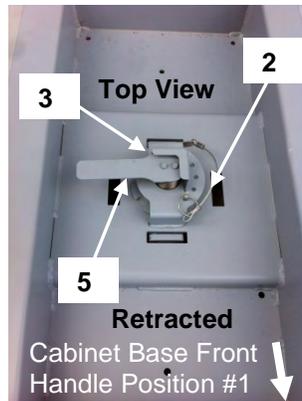
#### ASSEMBLING THE LEM MODULE

#### Assemble and Install the Module

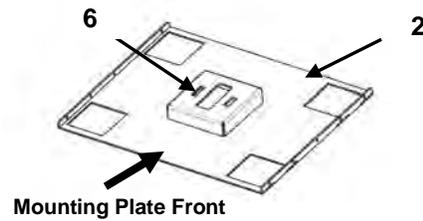
##### Install LEM Cabinet Base



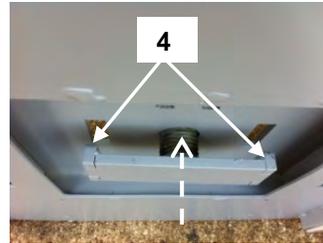
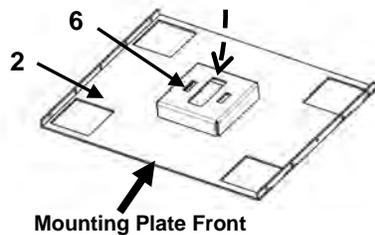
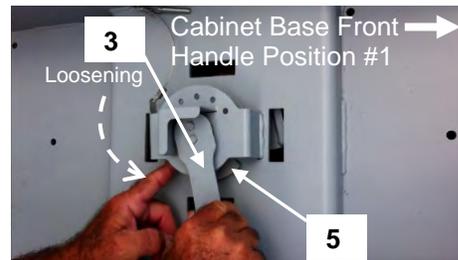
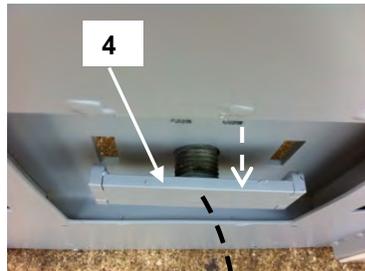
1. If the handle (5) is in the retracted position #1 shown below, proceed to step 4
2. In the center of the cabinet base (1), remove the pin (2) from the twist lock device (3) and rotate the star nut (4) counter clockwise beneath the handle (5) until the flange (6) can move freely.
3. Rotate the twist lock handle (5) clockwise until the male flange and keys (6) are in position #1 which allows the male flange (6) to align with the female cavity (7) of the mounting plate (8)



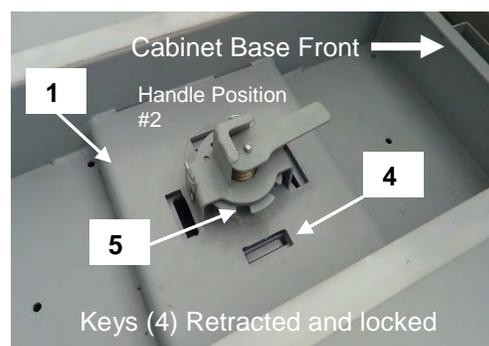
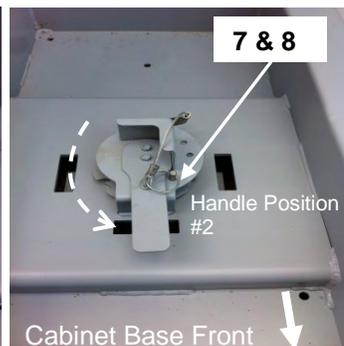
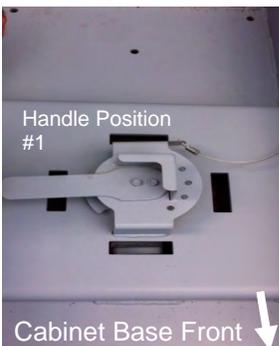
4. With assistance, place the cabinet base (1) onto the mounting plate (2) with both fronts facing forward.



5. Rotate the twist lock handle (3) ¼ turn from position #1 to position #2.



6. Tighten and retract the twist lock device by a clockwise rotation of the star nut (5); the male flange and keys (4) should now pass through the mounting plate slots (6) and the cabinet base (1) locking the base to the mounting plate (2).
7. Install the securing pin (7) in the handle pin holes (8). This may require a slight rotation of the star nut, so that the pin may pass between the teeth of the star nut.

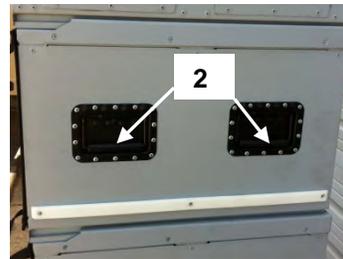


### **CAUTION**

Do not overtighten the star nut (5). Tighten only finger tight.

### Install LEM Hulls

1. With assistance, lift the lower 30" hull assembly (1) by the side handles (2).
2. Place the lower 30" hull assembly (1) on the cabinet base (3) by aligning the hull tracks with the base bezels and sliding the hull back over the cabinet base.
3. Ensure the 30" hull (1) is completely seated in the cabinet base (3).
4. With assistance, lift and install the upper 18" hull (4) by following steps 1 through 3.
5. With assistance, install the cage (5) on the top of the module by following steps 1 through 3.



#### WARNING



**Always separate the drawers from the tray when assembling or disassembling the system.** Two personnel are required when lifting empty hulls into and out of the module. Always follow DOD safe lifting procedures. Avoid lifting with your back and lift in tandem with a partner's assistance. Failure to follow proper lifting procedures may result in damage to the equipment and injury to personnel.

## Install LEM Drawers

### WARNING



Always load the bottom drawer (4) first. Do not pull out more than one drawer (4) at a time. Ensure that all drawer slam latches (1) are engaged when closed. Engage the detent (3) when opening the tray (2) or drawer (4) to prevent drawer rollback.

1. Release the slam latch (1) and pull out the bottom tray (2).

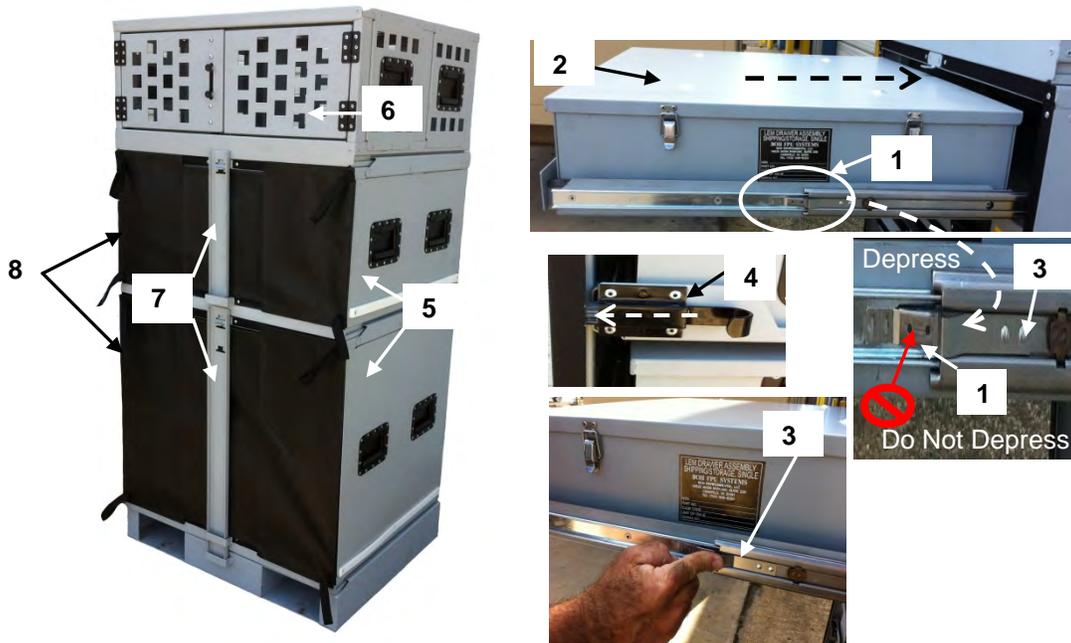


2. Ensure the tray (2) is fully extended and the detent (3) is engaged to prevent tray (2) roll back.
3. With assistance, place the bottom drawer (4) into the tray (2).
4. Release the detent (3) with the detent lever (5) and push the drawer (4) in until the slam latch (1) is engaged.
5. With assistance, proceed to install each drawer (4) into the trays (2) by following steps 1 through 4.
6. The module is now ready to receive material.
7. Release the slam latch (1) of the bottom drawer (4).
8. Pull the drawer (4) until the detent (3) is engaged to prevent drawer (4) roll back.



9. Fill each divider (5) with the material or remove dividers segments to match the size of the material.

10. Release the detent (1) by depressing the detent lever (3) on the right side of the drawer assembly (2) and close the drawer (2) until the slam latch (4) is engaged.
11. Continue to fill the LEM with material from the bottom up; follow Install LEM Drawers steps 8 through 10.



12. Install both dust covers (8) and secure the cabinets (5) and cage (6) with the 3G bars (7).

#### WARNING



Do not depress the detent (1) to release it; always use the release lever (3) to prevent a pinched finger. If the LEM is not secured to the mounting plate in a warehouse environment, a tilt hazard will occur when the top drawers are loaded with material and extended without any weight on the bottom drawers. Always load the LEM drawers from the bottom up and unload from the top down. Failure to follow this procedure may cause tipping of the module and injury to personnel. The 3G bars (7) need to be placed in the proper position to secure the cabinet/top cage before any movement. Also if cabinet is being used onboard ship the bar needs to be placed in the proper position to prevent cabinet/top cage from coming loose during heavy sea states. Failure may damage equipment and can cause injury or death.

#### CAUTION

Always press the detent release lever (right side) (1) to release and close the drawer tray when in the fully extended, locked-out position. Shoving against this drawer tray without first pressing this release lever could result in damage to the drawer slides causing the drawer tray to become inoperable.

### END OF WORK PACKAGE

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**OPERATOR INSTRUCTIONS****FPU® SYSTEMS OPERATION MANUAL  
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)  
Light Expeditionary Module (LEM)  
BOH FPU Field Pack-up Units****LEM OPERATION UNDER UNUSUAL CONDITIONS**

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**OPERATION UNDER UNUSUAL CONDITIONS**

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

**Operation in Rain and/or Mud**

1. Provide an adequate drainage ditch to prevent standing water around the LEM modules.
2. Secure all accessories and containers during extremely harsh rain.

**Operation in Hot Weather****WARNING**

Protective gloves should be worn when handling metal parts in high temperatures. Failure to wear gloves may result in burning or blistering of the skin upon contact.

**Operation in Snow, Ice, or Extreme Cold****WARNING**

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

**Fording**

Although the drawers are weather resistant, they are not water tight. 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 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**