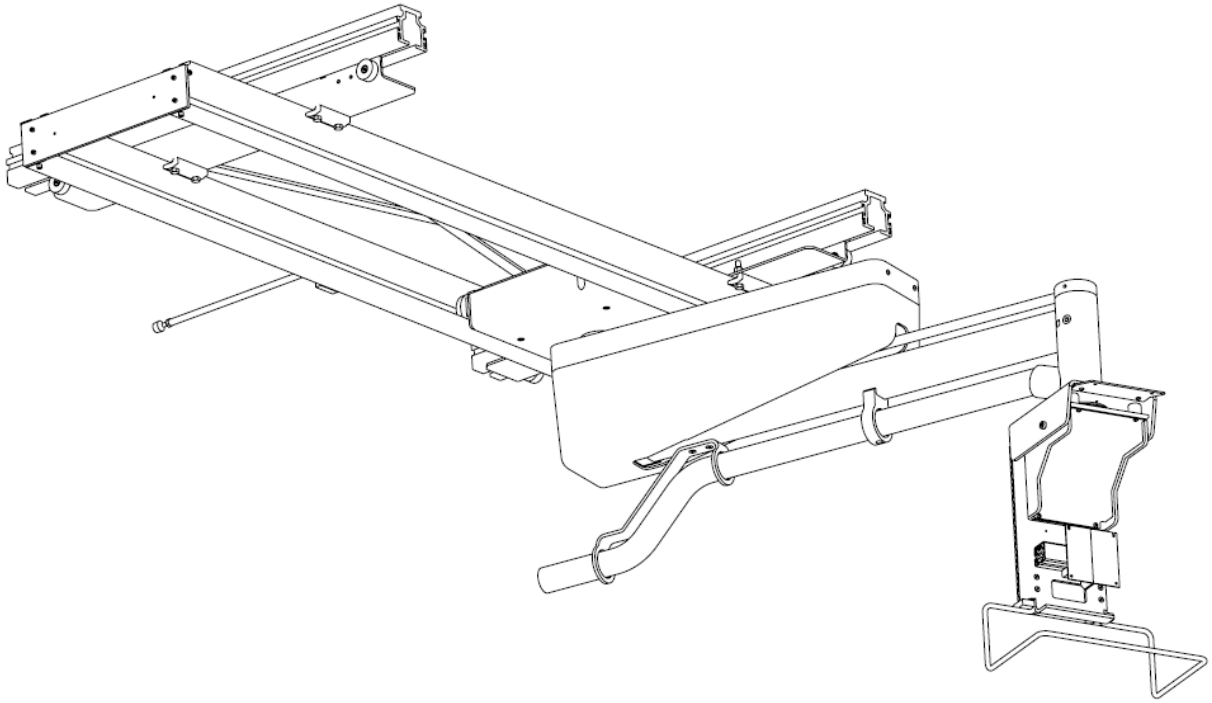
Image Diagnostics, Inc.

Manufacturer of Quality Medical Products

IDI Monitor Suspension System
Model IDI 1000F-1 and 1000F-2
with Adapter for Canon DST-1000A Ceiling Rails



Installation and Maintenance Guide

The text of this manual was originally written, approved and published by the manufacturer in English. The information in this manual is subject to change without notice.

Contents

A. INTRODUCTION

The IDI 1000F Flat Panel Suspension System is designed to mount monitors used in medical imaging procedures to the ceiling which can be repositioned by rolling along guide rails. The system features a counterbalanced arm with vertical travel and internal cable routing. A dual-axis flat panel monitor mount permits independent panel mounting and positioning. This mobile package includes clip-mounted bridge rails.

PRODUCT DATA

Package Includes:

- Mobile gantry and counterbalanced swing arm with 42" sweep radius, 25" vertical travel and ±180° rotation.
- Anodized aluminum bridge rails with *Easymount* clip system.
- Flat panel array with ±180° rotation.
- Array includes display panel mounts with ±10° tilt.
- Complete installation package; meter box mounts, all mounting hardware and cable management components; brackets, covers and "flexhaust" hose.

OPERATION

The monitors are moved along the overhead rails, positioned vertically, and rotated manually using the handle of the monitor mount on the suspension system.

B. SYMBOLS

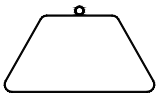
Consult accompanying documents.
Failure to follow these instructions can cause accidents resulting in serious injury to patient, user, and damage to equipment.

Warning!
Information or instructions shown near this symbol must be adhered to in order to prevent a potentially hazardous situation which if not avoided, could result in death, personal injury or damage to the equipment.

Electric Shock hazard.
Information or instructions shown near this symbol must be adhered to in order to prevent a potentially hazardous situation which if not avoided, could result in death, personal injury or damage to the equipment.

Protective Ground.
This is the common tie point between the AC monitor cord grounds, frame ground, and service (main) ground.

Alternating Current.



Weight Limit.

Recycle.
Some of the materials can be recycled rather than discarded.

EC REP **European Authorized Representative:**

Advena Ltd. Tower Business Centre, 2nd Flr., Tower Street, Swatar, BKR 4013 Malta

REF **Model of Table.**

SN **Serial Number of Table.**

Indication of European Conformity for sale in the European Economic Area (EEA).

Item complying to Type B applied part per IEC 60601-1.

Date of manufacture of the device.

Location where device was manufactured.

C. GENERAL SAFETY

Attention. Consult accompanying documents.
Failure to follow these instructions can cause accidents resulting in serious injury to patient, user, and damage to equipment.

Only qualified persons may install, operate or maintain this equipment.

Installation of this unit must adhere to applicable codes and authorities having any jurisdiction over this installation. The customer's architect or engineer is responsible for assuring that the structural support plans comply with all applicable codes and regulations.

The unit should be used only in rooms that comply with state, federal and local recommendations concerning electrical safety when used in medical installations. All electrical connections shall be done by licensed/approved electrician per national electric codes.

CAUTION:

- Always switch off mains before performing nonelectrical tests or maintenance.
- Many positions exist where equipment or patient collision may occur. Care must be exercised during equipment positioning to avoid a patient or equipment collision.

Changes and additions to the equipment may be performed only by an authorized representative. These changes must conform to regulations and accepted standards of good practice. To prevent defeat of the built-in safety mechanisms, changes must be submitted in writing to the manufacturer for review.

Use only parts specified by Image Diagnostics, Inc. when repairing or servicing this equipment.

This equipment is intended to only be used with Image Diagnostics, Inc. Cross (transverse) rails.

D. SAFETY HAZARDS

Installers and Operators using this equipment should understand the safety issues and operating instructions provided.

Comments and questions regarding safety should be addressed to:

Customer Support
Image Diagnostics, Inc.
310 AUTHORITY DRIVE
FITCHBURG, MA 01420
USA

Or call IDI at (978)829-0009 or send fax to (978)829-0027
Or call Toll Free at (877)304-5434

SAFETY HAZARDS ALERTS

Alert	Circumstances for use
DANGER	Indicates an ***imminentl****y* hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a ***potentially*** hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a ***potentially*** hazardous situation which, if not avoided, may result in minor or moderate injury or equipment damage.

E. INSTALLATION

UNPACK

No special handling is required for unpacking this equipment at the site.
Conventional shipping materials are used.
Recycle or disposal of shipping material per local regulations

INSTALL DST-1000A CEILING RAIL ADAPTERS

Before Installing the Canon supplied longitudinal ceiling rails, make sure that there is at least 35 in. [89 cm] between one end of the rails and any obstructions facing them. This will allow the complete length of the adaptors to be rolled into the ceiling rails.

1. Position each Rail Adaptor (left or right) so that the Bumper Stop is oriented toward the outside of both Canon Ceiling Rails, then roll Rail Adapters into the inside channel of the Ceiling Rails as shown in Figure 1.

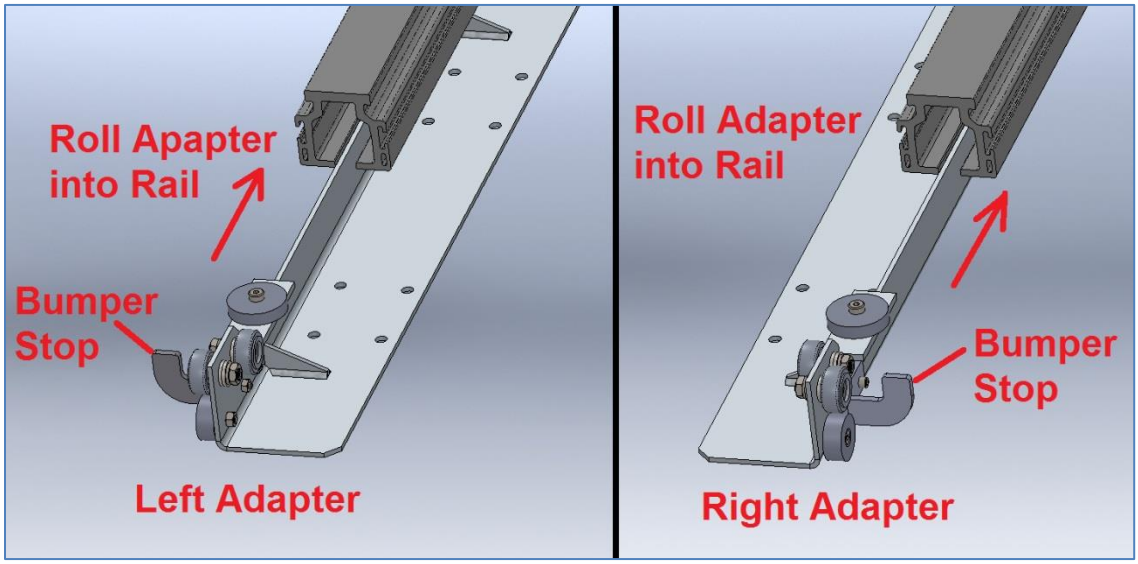


Figure 1

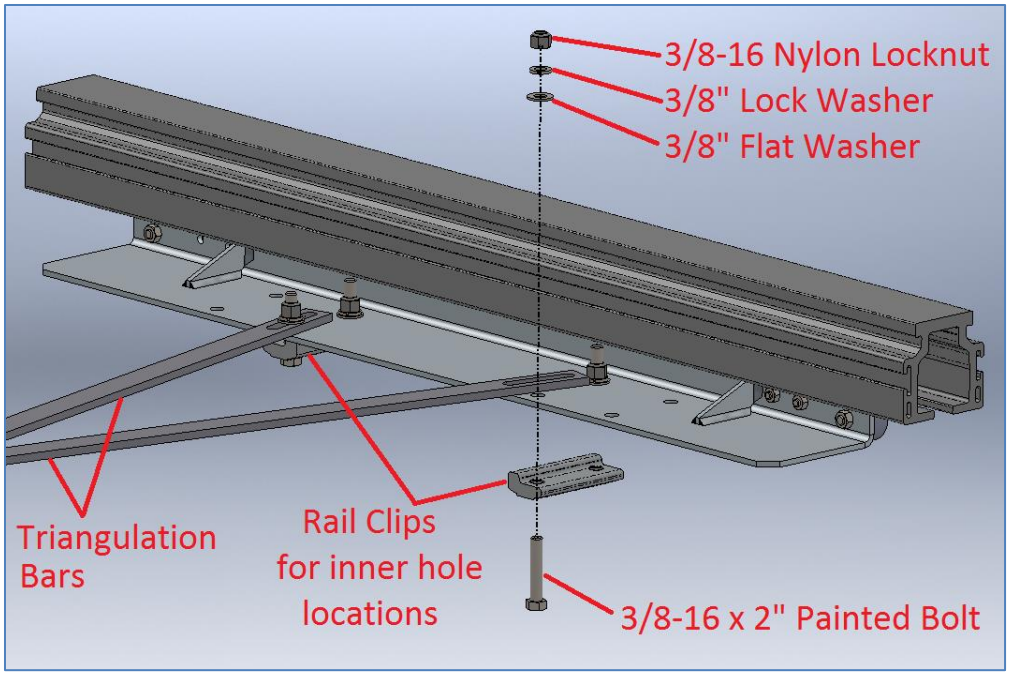


Figure 2

2. Place the two Triangulation Bars onto the top surface of the rail adapter sub-assemblies and line up the slots in the bars with the closest inner Rail Clip hole locations as shown in Figure 2.

3. Loosely attach two rail clips to each of the two rail adapters in the inner rail clip locations as shown in Figure 2 using 3/8-16 x 2" painted bolts, flat washers, lock washers and nylon locknuts. Make sure to orientate the Rail Clips as shown in Figure 2 so that they will be able to clamp onto the IDI supplied Cross Rails.

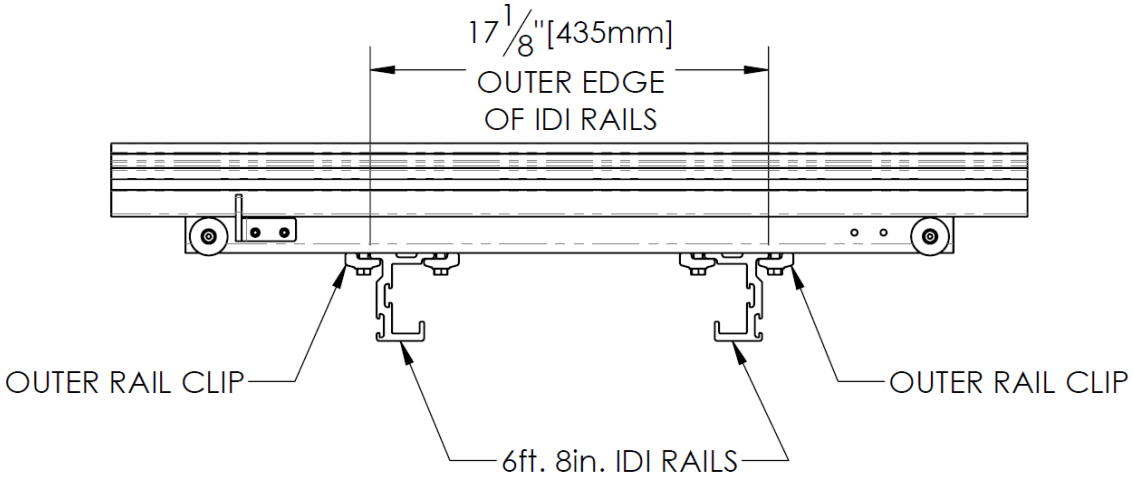


Figure 3

4. Place and orientate 6ft.-8in. IDI Cross Rails against the inner rail clips (from assembly step 3) and mount remaining four outer rail clips as shown in Figure 3. Slide the Cross Rails until they are aligned and centered under both Rail Adapter sub-assemblies and adjust the

Triangulation Bars and rail clips until the 6ft.-8in. The rails are spaced 17-1/8in. apart at both ends of the rails as shown in Figure 3.

5. Tighten rail clip hardware using Loctite #242 or equivalent.

INSTALL RAIL X/Y STOP

1. The X/Y stop unit should have a T-nut fastened to it with two socket head cap screws. Loosen the screws for the T-nut and insert the X/Y Stop unit's T-nut into one end of the IDI Cross Rail nearest to the opposing system in the room. See Figure 4 for correct orientation.

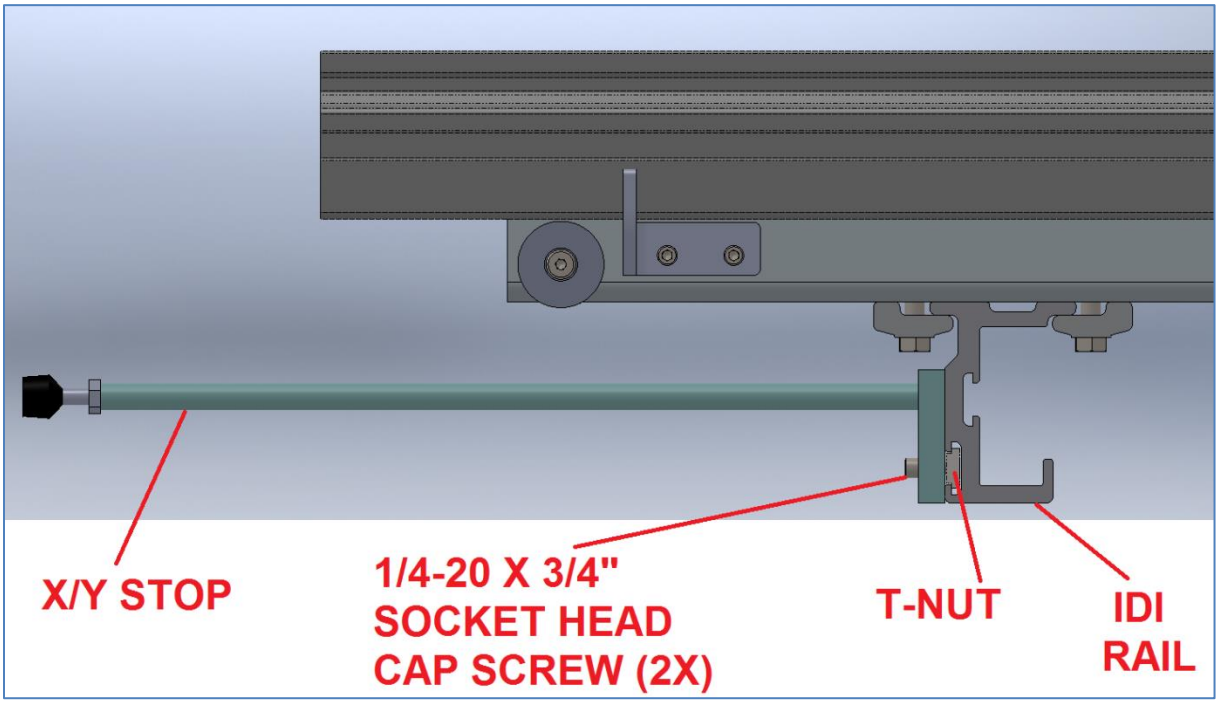


Figure 4

2. Hand tighten screws until the system is fully installed and the final position of the stop is known then tighten using Loctite #242 or equivalent.

INSTALL CROSS RAIL END PLATE

1. Install **only one** Cross Rail End Plate sub-assembly at the far end of the Cross rails, making sure that the rubber bumpers face in towards the rails. See Figure 5. Use Loctite #242 on all threads. (The other Cross Rail End Plate sub-assembly can only be installed after the cable handling hardware is installed.)

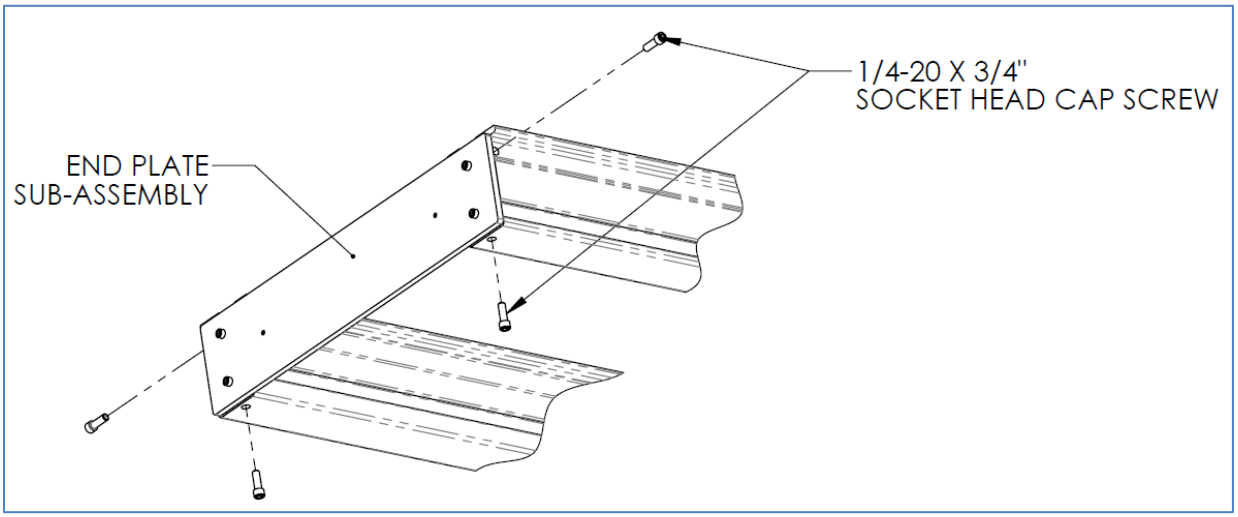


Figure 5

END-LOAD MONITOR MOUNT CARRIAGE

1. Remove packaging material from the carriage assembly.
2. Using a Hi-Jack or other suitable lift table, raise carriage (while it is still attached to pallet) up and slide its wheels into the open end of the IDI Cross Rails. ***Make sure all carriage wheels are engaged onto rails before lowering Hi-Jack.***
3. Remove pallet and shipping bars from support unit.
4. If a Stationary/Mobile Cable Handling Assembly is going to be used with this suspension system, then mount them at this stage. (Refer to instructions on pages 17-19)
5. Install the second Cross Rail End Plate on the open end of the IDI Cross Rails, making sure the rubber bumpers face in towards the carriage. (See Figure 5 for reference) Use Loctite #242 on all threads.

WARNING! **Failure to install both rail end plates may result in serious injury to user and damage to the equipment.**

INSTALL MONITOR MOUNT

NOTE TO INSTALLER: It is important that the load be balanced on the monitor mount. Consider any differences in size and weight of the monitors. Refer to Figure 6 for steps 1-6.

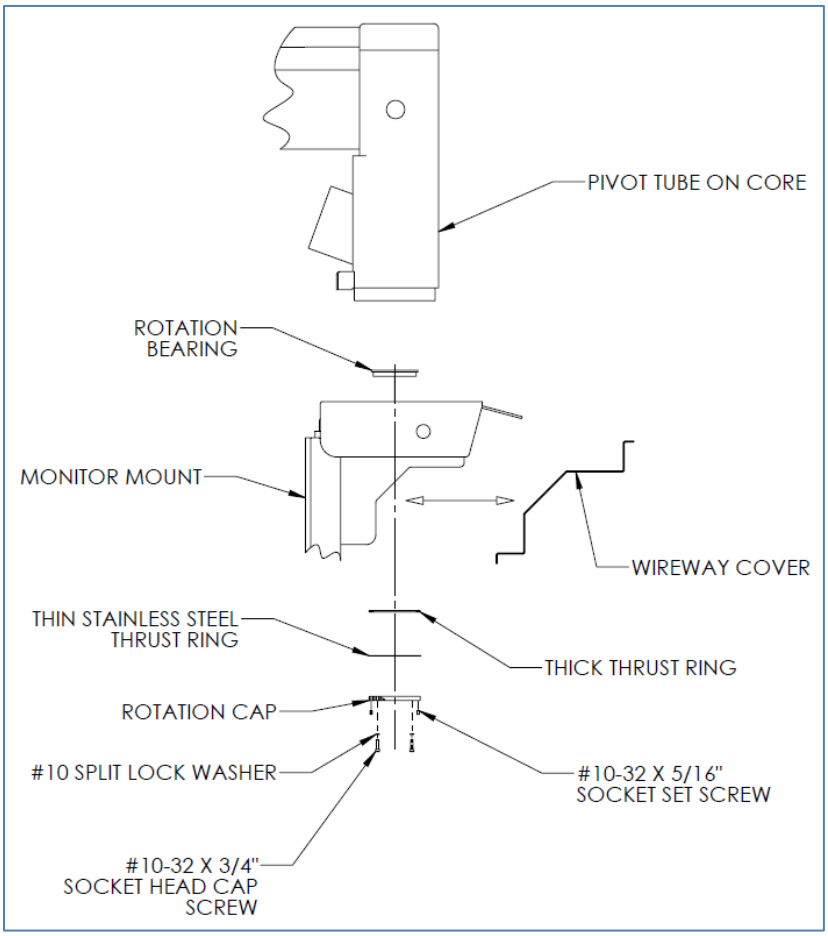
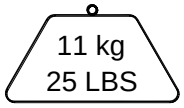


Figure 4

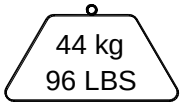
1. Remove wireway cover.
2. Insert rotation bearing into the pivot plate on the top of the monitor mount.
3. Install the thicker of the two thrust rings onto the rotation bearing from inside the monitor mount frame.
4. Install the thinner stainless-steel thrust ring onto the rotation bearing from inside the monitor mount frame.
5. Install six socket head cap screws with lock washers through the rotation cap, then through the rotation bearing and into the pivot tube of the core assembly. Use Loctite #242 on hardware.
6. Apply a very little amount of Loctite #242 to six set screws and install them into the threaded holes on the rotation cap. Install the set screws until they bottom out. They may be tightened or loosened later to adjust rotational resistance.

WARNING! Failure to securely attach hardware may result in serious injury to patient, user, and damage to equipment.

INSTALL MONITOR(S)



Maximum weight of any individual monitor.



Maximum total weight of monitors.

1. On monitor mounts designed for two monitors (1000F-2), the plastic covers shown in Figure 7 will need to be temporarily removed to gain access to the rear of the monitor mounting brackets.
2. For each monitor to be installed, insert screws into the top two mounting holes leaving a gap below the head of the screw big enough to fit over the thickness of the mounting bracket to which it is being mounted.
3. Install the monitor onto the mounting bracket by lowering the top mounting screws into the slots on the top of the mounting bracket. Insert bottom mounting screws through the rear of the mounting bracket into the monitor and tighten all four mounting screws. See Figure 7.

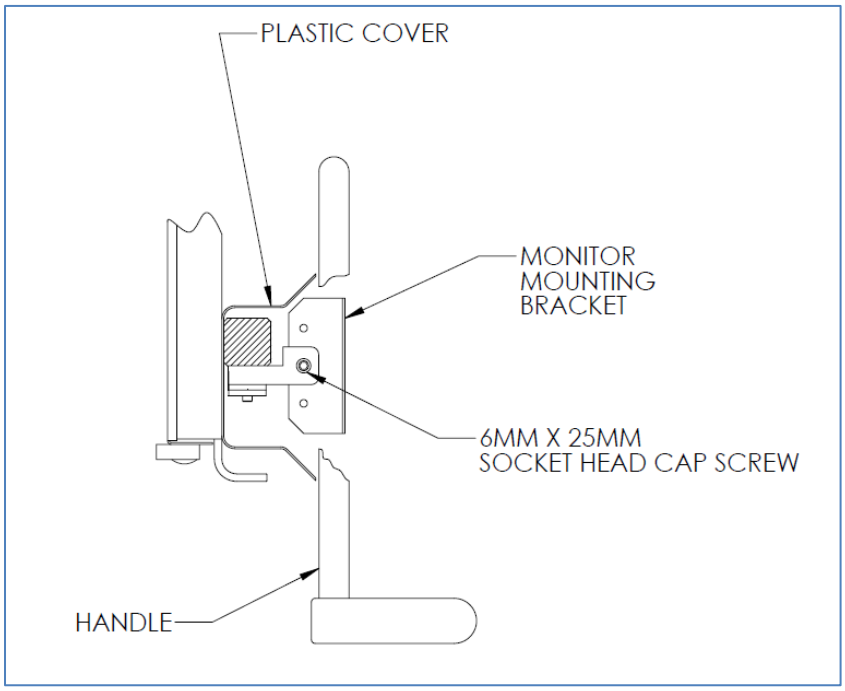


Figure 5

WARNING!	**Failure to securely attach hardware may result in serious injury to patient, user, and damage to equipment.**

4. Monitor can be tilted and rotated by hand. If monitor fails to stay in position and tilts without any outside assistance by hand, tighten the socket head cap screw on the pivot point of the bracket.

NOTE TO INSTALLER: Ground studs have been provided to properly ground monitor(s). Terminal strips have been provided for distribution of line voltage to monitor. See Figure 8. Cut and strip monitor power cord to fit.

WARNING! Remove plastic cover and remove block of wood between gantry core and arm. Failure to do so may result in serious injury to user and damage to equipment.

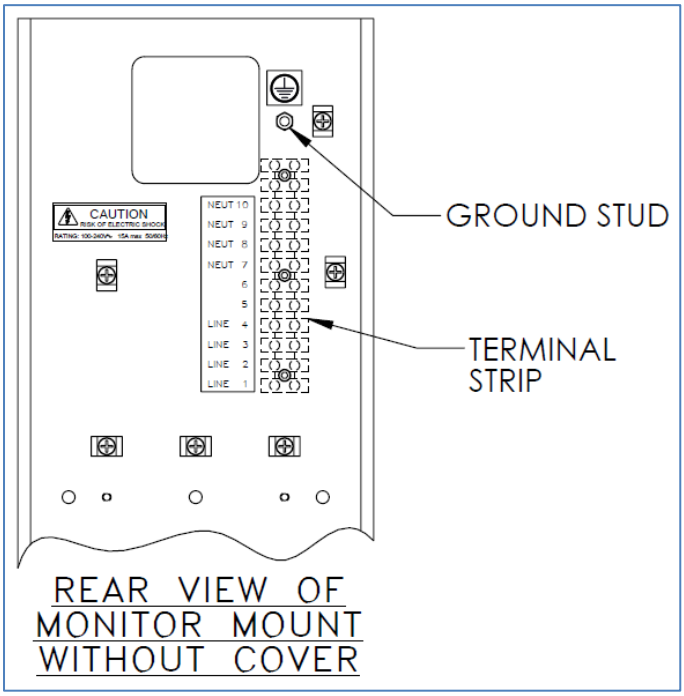


Figure 6

SET ROTATIONAL LIMITS

If desired, the rotational stop pin bumper can be relocated to one of four possible mounting locations. See Figure 9.

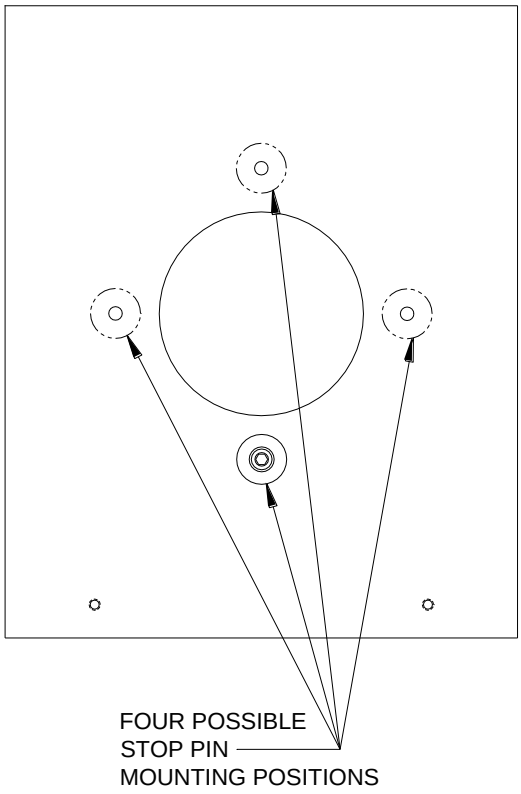


Figure 7

ELECTRICAL CONNECTIONS

1. Colors of conductors in power supply cords must be in accordance with IEC publication 60227 (amendment #1) or with IEC publication 60245.

   Wiring Color Codes:
   International: brown (line), blue (neutral), green/yellow (ground)
   North America: black (line), white (neutral), green/yellow (ground)

2. Cable tie mounting platforms are supplied near the terminal block for anchoring the monitor cords and the wires from the mains. Use nylon cable ties. (Tying the cord into a knot or tying the ends with string shall not be used for cord anchorage).
3. Arrange the conductors of the power supply cord so that the protective earth conductor is not subject to strain as long as the phase conductors are in contact with their terminals.
4. All power cords used for mains connection must have double insulation. Conduit provided for routing cables must not be relied on for insulation.

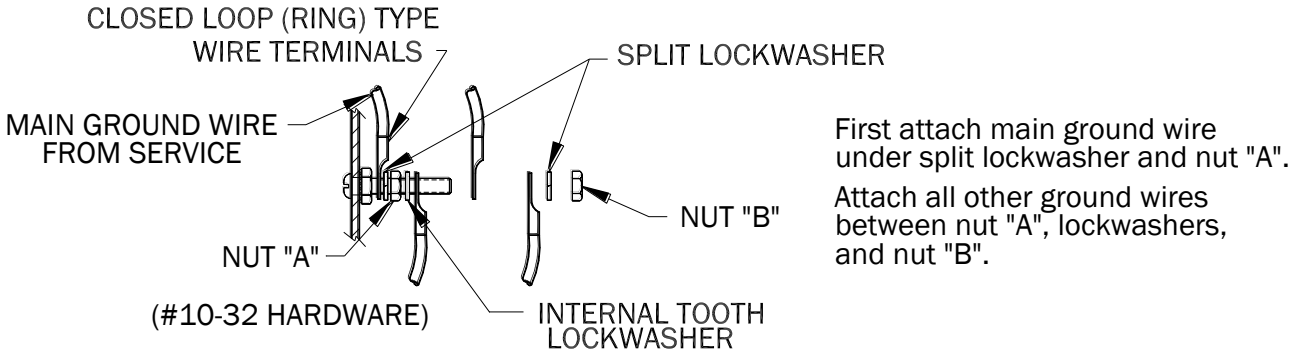


Figure 8

5. Connect all Monitor and service ground wires as shown in Figure 10. (The number of wires varies with the number of monitors installed).

INSTALL STATIONARY CABLE HANDLING ASSEMBLY

1. Determine which end of the IDI Cross Rail the Stationary Cable Handling Assembly will be positioned onto. If it is to be at the far end of the rail, slide the assembly into the rail track prior to positioning the Mobile Cable Handling Assembly. If assembly is to be positioned at the near end of rail, slide into the rail after positioning the Mobile Cable Handling Assembly. The Stationary Cable Handling Assembly is typically mounted approximately 6 inches (15cm) from the end of the rail. See Figure 11.

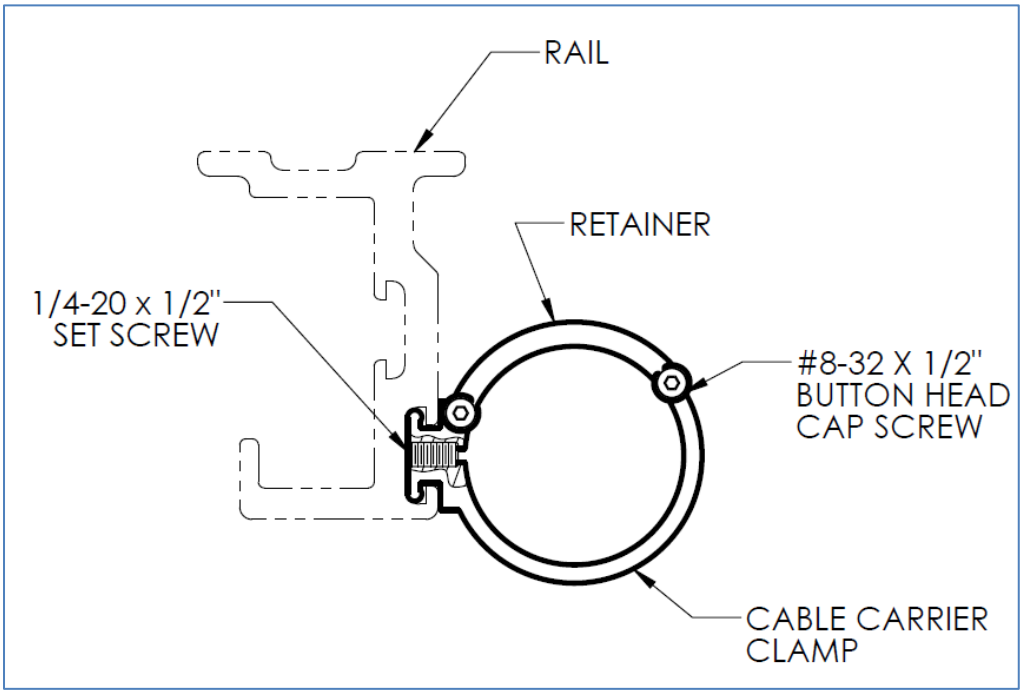


Figure 9

2. Apply Loctite #242 to threads on set screws and then tighten until secured in place.
3. Remove retainer by removing both button head cap screws.
4. Place cable hose into cable carrier clamp.
5. Reinstall retainer and mounting screws.

INSTALL MOBILE CABLE HANDLING ASSEMBLY

1. Slide two Nut Plates into the outer track of the Cross Rails. Apply Loctite #242 to the threads of two standoffs and then assemble into nut plates hand tight only. See Figure 12.

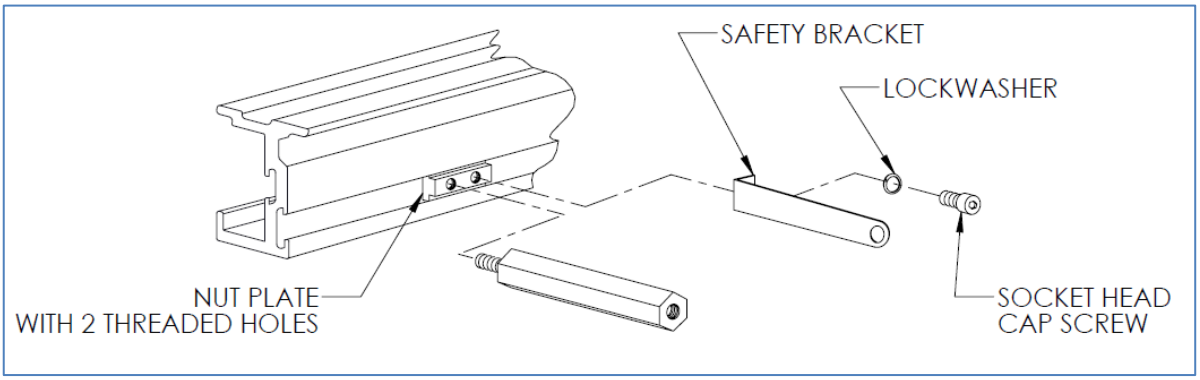


Figure 10

2. Align Safety Brackets with the inner threaded holes of the Nut Plates and fasten with a lock washer and a 3/8in. long socket head cap screw.
3. Slide Cable Trolley Assembly onto Cable Hanger shaft. See Figure 13.
4. Assemble Cable Hanger shaft through holes in Safety Brackets and into the side holes of each shaft support.
5. Install mounting screw through the shaft supports, through the hole in the end of the Cable Hanger shafts and into the standoffs. Lightly tighten mounting screws.

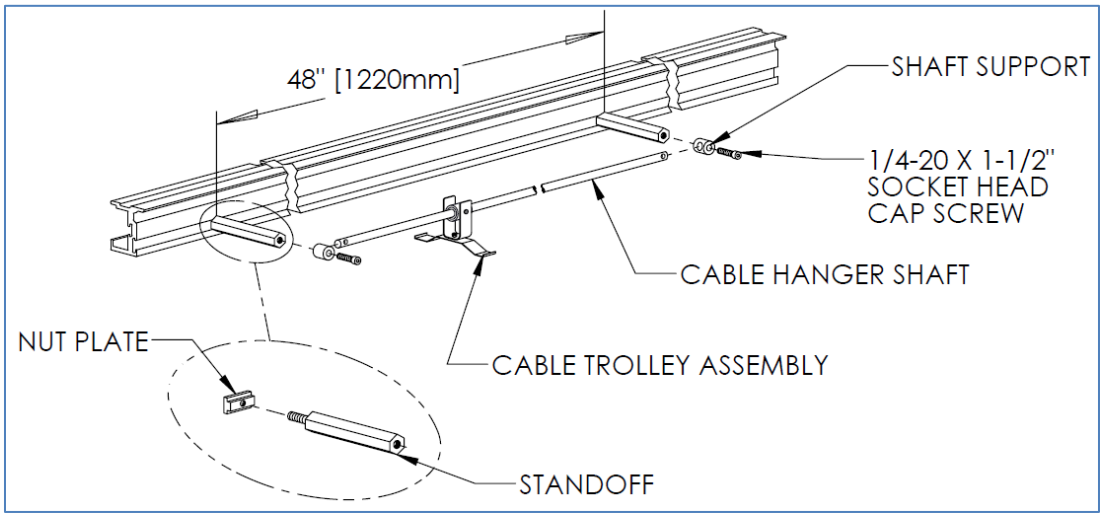


Figure 11

6. Position shaft/cable handling assembly created from steps 1-5 to desired location along length of rail. Torque standoffs to nut plates approximately 35 to 50 inch-pounds (4.2 to 6.0Nm) and tighten socket head cap screws. Use Loctite #242 on threaded hardware.

CAUTION!	**Over tightening the standoff will weaken or break the thread connecting the standoff to the nut plate causing attached components to fall. *DO NOT* loosen or adjust the exposed length of the setscrew on the standoff.**

DRESS CABLES

1. When the monitors have been properly installed, it is recommended that the cables run through the pivot tube as shown in Figure 14. Attach 2in. (5cm) Flexaust hose (provided) to pivot tube and route underneath the arm via the cable hose clamps. Rotate entire system to maximum positions. The system should not drift from any position. If it does, check that enough cable has been left to allow freedom of motion.

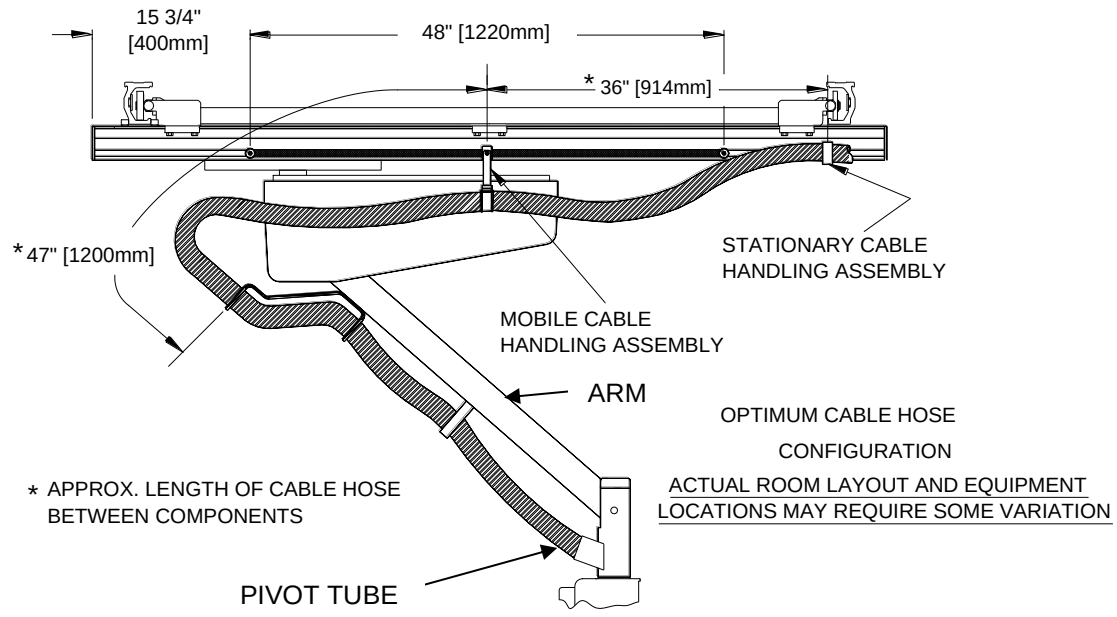


Figure 12

ADJUST WEIGHT COUNTERBALANCE

Note: System balance has been set at factory based upon quoted monitor weight.

1. Note initial settings from gas spring data label. See Figure 15.

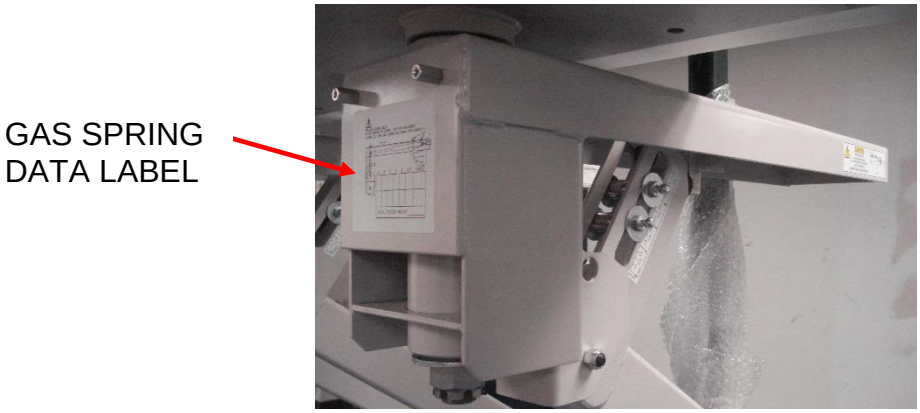


Figure 13

2. *Prior to adjustment* - payload must be secure. The arm can be pulled down to make access to adjustment nut easier. Fine adjustment to compensate monitor counterbalance can be made by turning adjustment nut located on the top surface of the core unit as shown in Figure 16.

Rotate adjustment nut clockwise to *increase* weight capacity.

Rotate adjustment nut counter-clockwise to *decrease* weight capacity.

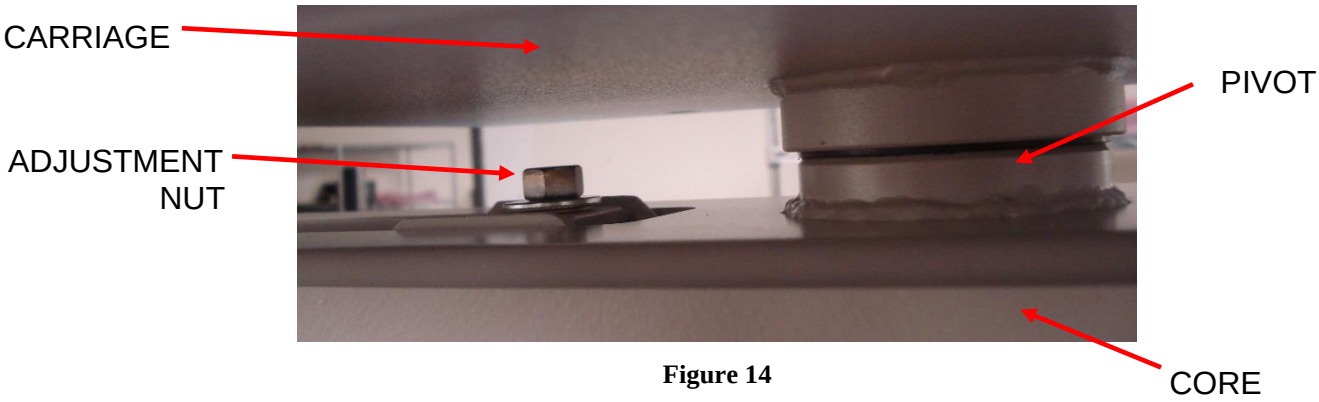


Figure 14

YOKE BALANCE ADJUSTMENT

WARNING! Yoke has been leveled at manufacturers. Make adjustment only if absolutely necessary to compensate for an unbalanced load.

NOTE: *Prior to yoke adjustment,* payload must be secure and arm *horizontal.*

To compensate for yoke balance, fine adjustments can be made by turning the link. Loosen threaded hex nut at outboard rod end, spin link until yoke is in a horizontal position and then retighten hex nut. See Figure 17.

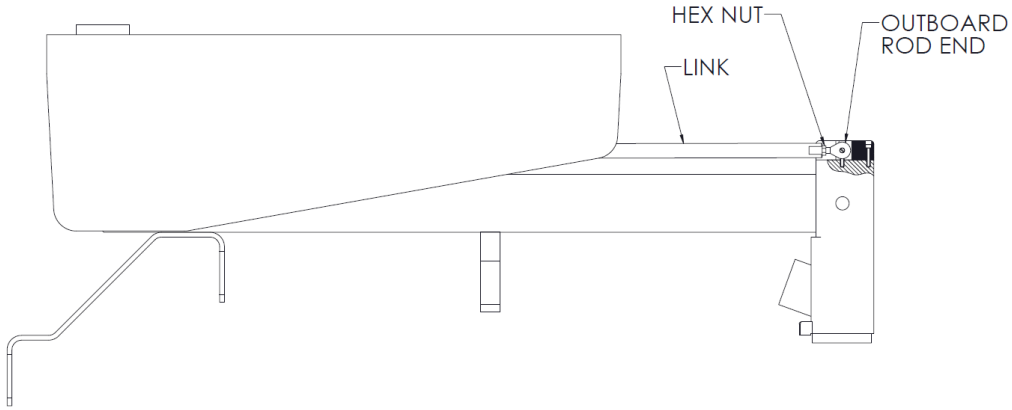


Figure 15

MONITOR MOUNT ASSEMBLY ROTATION RESISTANCE

1. The setscrews shown in Figure 6 that were installed in step 6 of "INSTALL MONITOR MOUNT" on page 12 can be loosened or tightened to adjust the rotation resistance of the suspended monitor mount assembly.
2. Replace wireway cover after making adjustment.

F. CLEANING THE EQUIPMENT

No part of this unit is designed to be sterilized in an autoclave. Do not allow water or other liquids to permeate inside the equipment as this may cause short circuits or corrosion. Clean parts with a clean cloth dampened with disinfectant or a mild detergent solution. Do not use abrasives, solvents, sprays or corrosive cleaning agents. Gently rub with a clean soft cloth to dry.

If room is to be disinfected by means of an atomizer, the equipment must be covered with plastic or similar sheeting. The equipment must be turned off well in advance of this procedure to prevent convection currents from drawing the disinfectant mist into the equipment. After the mist disperses completely, the sheeting may be removed, and the equipment disinfected as described above.

G. MAINTENANCE

"Authorized Technician"

All maintenance procedures should be done by an experienced technician with demonstrated knowledge and skills (electrical and mechanical) relative to this type of equipment.

This individual must have access to this manual and the proper tools.

Daily Maintenance Checks:

1. **Pre-Operational and Post-Operational Checks**
   Perform daily checks of the monitor suspension BEFORE and AFTER operating the equipment.

CAUTION! If any abnormality is found in the monitor suspension, stop using it. Post a sign reading "DO NOT USE" so that the system is not used until it is repaired.

2. **Visual check**
   Before checking the operation of the equipment, confirm the following:

- The monitor mount part of the suspension system is not tilted. See Figure 18.
- There should be no gap at the point where the monitor mount attaches and pivots (labeled as "A" in Figure 18).
- Screws or parts are not loose or missing.
- The pad mounted to the bottom of the monitor mount assembly is not damaged or missing. See Figure 19.

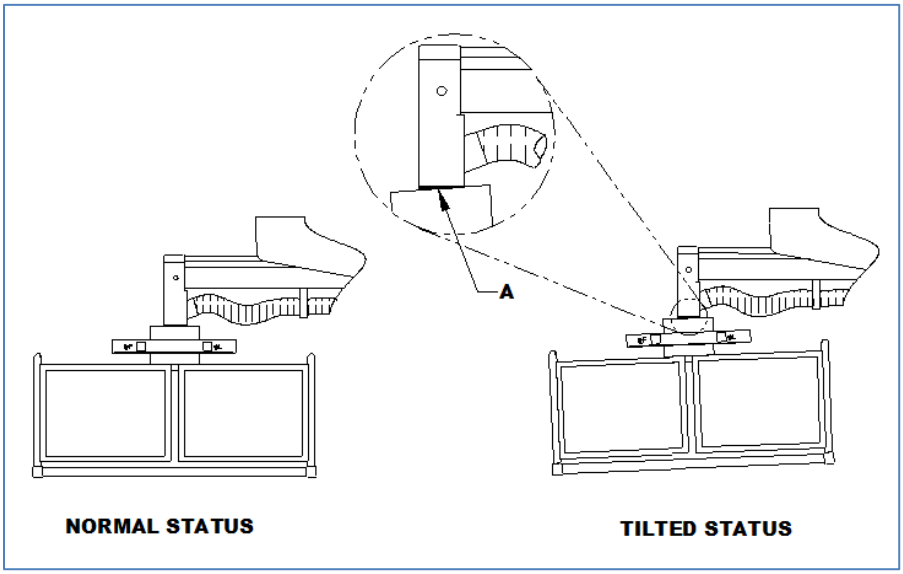


Figure 16

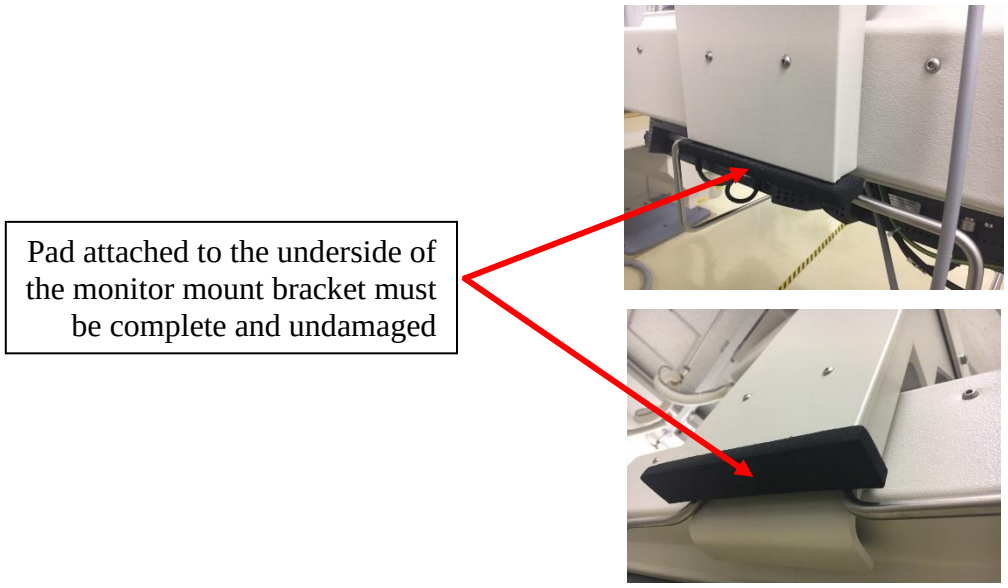


Figure 17

3. **Operational check**

Articulate all the movable sections and confirm the following:

- Operation is smooth.
- There is no play or "slop" when changing motion direction.
- There are no abnormal sounds.
- The monitors or monitor suspension are not tilted due to fasteners that are not tightened properly.

Annual Maintenance Check:

1. Check the condition of the wheels on the adapter and carriage and clean if necessary.
2. Check that the rail mounting hardware has not become loose. See Figure 20.

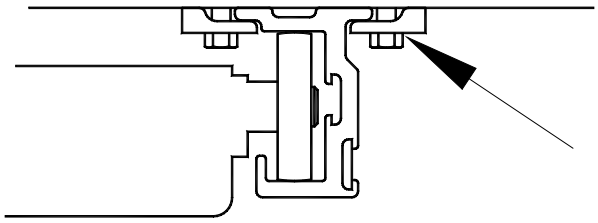


Figure 18

3. Check that the hardware securing the Rail End Plates are tightened properly. See Figure 21.

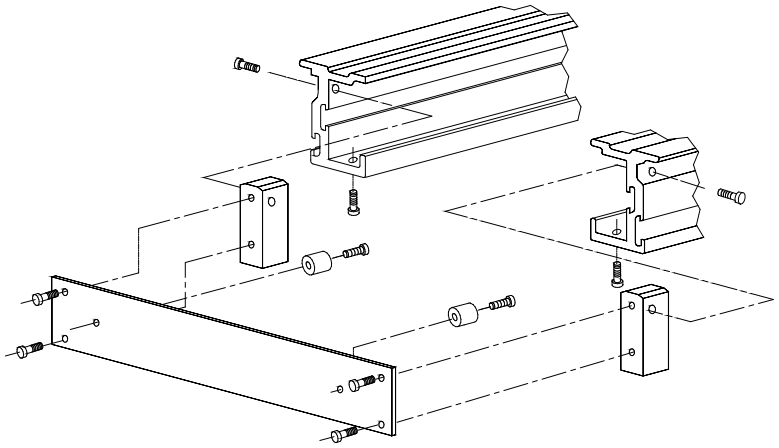


Figure 19

4. Perform a complete functional inspection:

   -Rotate monitor mount assembly through complete range.

   -Raise and lower monitor mount assembly.

   -Roll carriages to complete range of rails.

5. Clean and touch up the painted surfaces.

6. Refer to Figure 22 for the following instructions. Check that the hardware is tight and that there is no wear at (A) the end of the gantry core arm, (B) the rotational section between the gantry core arm and the monitor mount assembly, (C) the monitor mount assembly pivot joint, (D) the monitor bracket pivot (E) and the monitor. Should the screws labeled (F) become loose, there will be an opening of the mechanical junction between the gantry core arm and the monitor mount assembly (G).

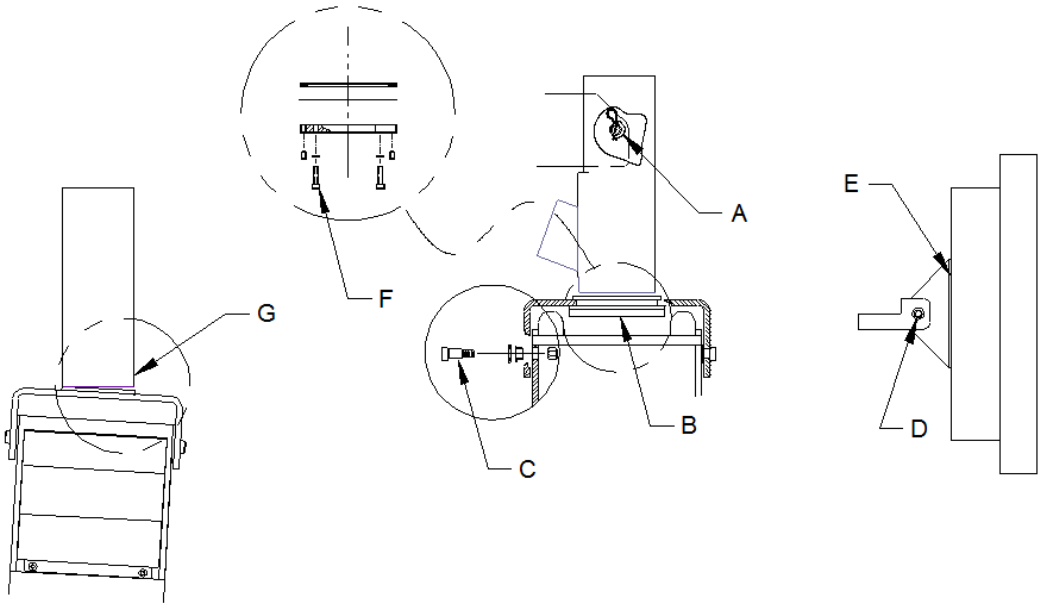


Figure 20

7. Check the pad attached to the underside of the monitor mount. If there is any damage to the pad or if the pad is not properly attached to the unit, it must be replaced. See Figure 23.

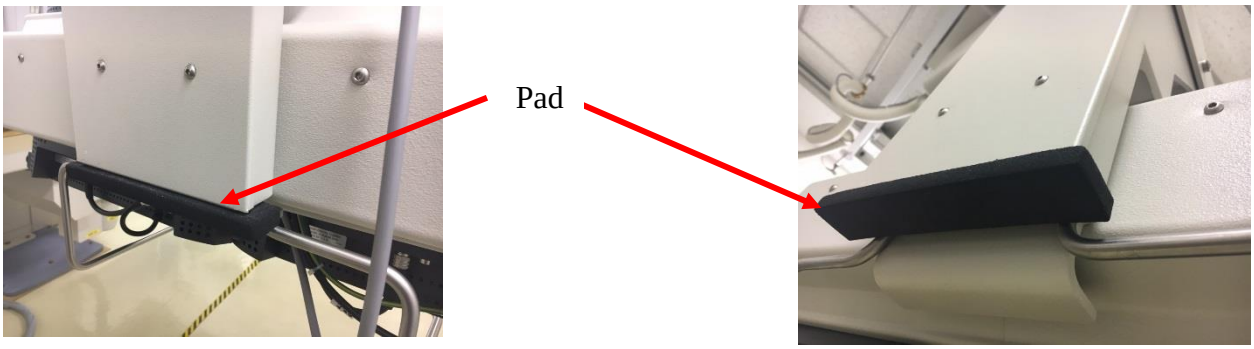


Figure 21

The procedures mentioned in these instructions are based on the recommendations of HHS, I.E.C., etc.

In cases of increased wear or where severe working conditions exist, maintenance checks should be made at shorter than the specified intervals.

Should any control or indicator fail to operate properly, do not use the equipment until it has been repaired. Operating equipment with defective components may expose the operator or the patient to safety hazards.

The manufacturer strongly recommends that a maintenance program be initiated and that a maintenance record be kept detailing dates and nature of maintenance performed, the name of the service engineer, and any other relevant information.

WARNING! **Removal of any hardware requires re-assembly with Loctite #242 or equivalent (depending on hardware size) following manufacturer's instructions.**

H. CUSTOMER SUPPORT

For technical assistance, be sure you have the complete model and serial number before contacting the local or national service office.

Customer Support
Image Diagnostics, Inc.
310 AUTHORITY DRIVE
FITCHBURG, MA 01420
USA

Or call IDI at (978)829-0009 or send fax to (978)829-0027 or call Toll Free at (877)304-5434

I. DISPOSAL GUIDELINES

Most of the components used in this suspension system are made of metal, usually aluminum or steel, and are easily recycled.

The gas springs are nearly 100% recyclable. They must be decompressed, with the remaining oil drained, before processing. (The compressed gas inside is nitrogen).

J. APPROVALS

SGS Testing Service

The system was tested and found to be in compliance with the requirements of all relevant directives and standards in effect within the European Union at the time of manufacture.

EC REP

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