



MOTION MCW WITH REAR-FACING C5 RAM DOCK

INSTALLATION AND ASSEMBLY PROCEDURE

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Revision History

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PROPRIETARY NOTE

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Required Tools and Materials

The following tools and materials are **required** for optimal MCW assembly:

<input type="checkbox"/> T25 Torx bit	<input type="checkbox"/> #2 Phillips Screwdriver
<input type="checkbox"/> 3mm Allen Key	<input type="checkbox"/> 4"- 5" Plastic Tie Wraps
<input type="checkbox"/> ½" Wrench (Supplied)	<input type="checkbox"/> Straight Edge
<input type="checkbox"/> Diagonal Cutters	<input type="checkbox"/> Razor Knife

Table 1: Required Tools and Materials

The following tools and materials are **optional**:

<input type="checkbox"/> ½" Socket and Ratchet
--

Table 2: Optional Tools and Materials

Completed Assembly Illustrations

Please use the following images to help familiarize yourself with the completed workstation. Refer to these images as necessary during Component Assembly.

Front View of Assembled MCW



Figure 1: Front View

Left Side View of Assembled MCW



Figure 2: Left Side View

Right Side View of Assembled MCW



Figure 3: Right Side View

Rear View of Assembled MCW



Figure 4: Rear View

Component Groups and Item Inventory

The following section outlines the various MCW component groups. Each component group contains an image that illustrates the individual items within that group. We recommend that you sort the MCW component items as shown below¹ as this will aid in Component Assembly.

Pay particular attention to the terminology used below, as this terminology will be used throughout the remainder of the document.

Power Supply Base Assembly

The Power Supply Base Assembly contains the following items as shown in Figure 5.



Figure 5. Power Supply Base Assembly

The Power Supply Base Assembly contains the following items as listed in Table 3 below.

- ✓ **Power Supply Shroud (A)**
- ✓ **Shroud Torque Screws (B)**
- ✓ **Power Cord Retainer (E)**
- ✓ **Power Supply Base (C)**
- ✓ **White Wire Loom (D)**

Table 3: Items shown in Figure 5.

¹ With the exception of the Power Supply Base Assembly. You may leave the shroud as-is, as disassembly is part of Step 1.

Column Assembly

The Column Assembly contains the following items as shown in Figure 6.

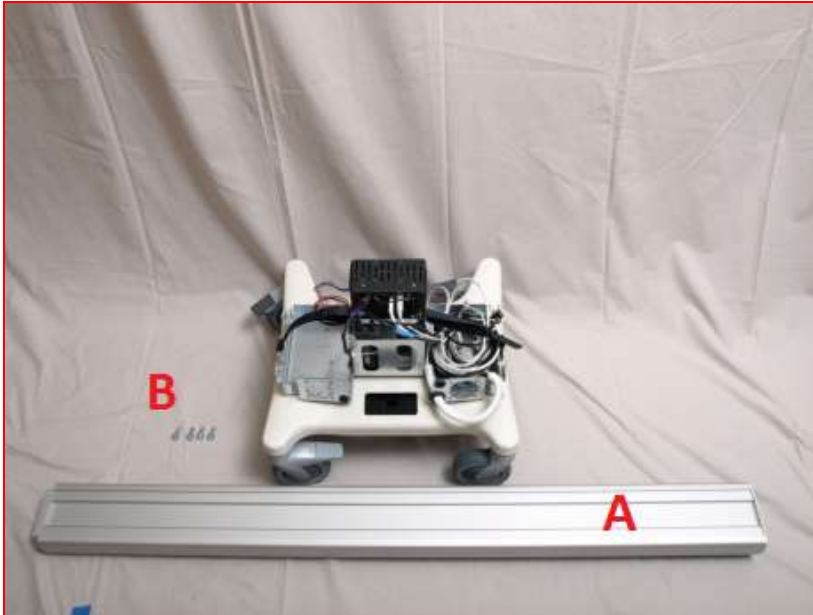


Figure 6. Column Assembly

The Column Assembly contains the following items as listed in Table 4 below.

✓ Column (A)

✓ 4 ½" Mounting Bolts (B)

Table 4: Items shown in Figure 6

Large Work Surface and Keyboard Tray Assembly

The Large Work Surface and Keyboard Tray Assembly contain the following items as shown in Figure 7.



Figure 7. Large Work Surface and Keyboard Tray Assembly

The Large Work Surface and Keyboard Tray Assembly contain the following items as listed in Table 5 below.

✓ Large Work Surface (A)

✓ Keyboard Tray (B)

Table 5: Items shown in Figure 7.

C5 Mobile Docking Station Assembly

The C5 Mobile Docking Station Assembly contains the following items as shown in Figure 8.

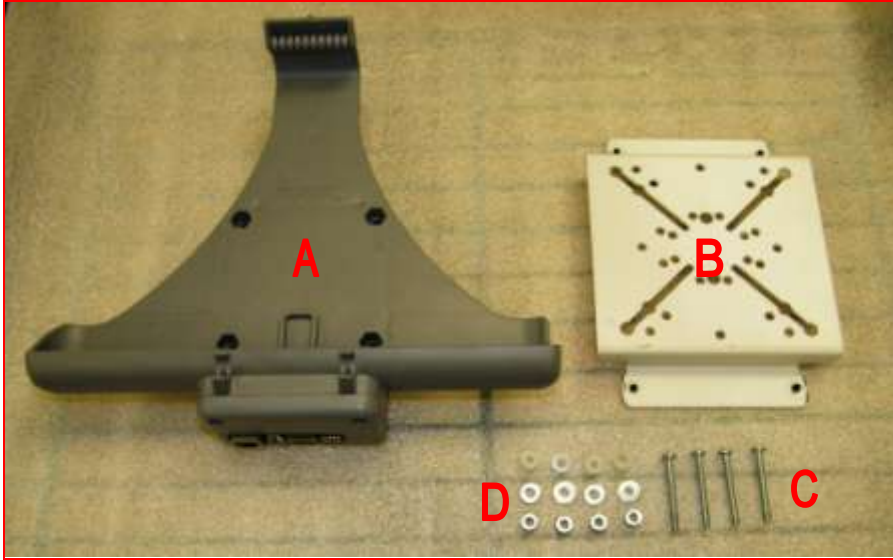


Figure 8. C5 Mobile Docking Station Assembly

The C5 Mobile Docking Station Assembly contains the following items as listed in Table 6 below.

✓ RAM Dock (A)	✓ Four #8 Washers, 10MM Spacers, and 8-32 Nuts (D)
✓ RAM Dock Mounting bracket (B)	
✓ Four 8-32 X 1.500" Mounting Screws (C)	

Table 6: Items shown in Figure 8.

Monitor and Optional Camera Assembly

The Monitor and Optional Camera Assembly contain the following items as shown in Figure 9.



Figure 9. Monitor and Optional Camera Assembly

The Monitor and Optional Camera Assembly contain the following items as listed in Table 7 below.

✓ Monitor (A)	✓ 2 Set Screws (C)
✓ 2 Piece Mounting Bracket(B)	✓ 4 Monitor Mounting Screws (D)

Table 7: Items shown in Figure 9.

Battery Gauge Assembly

The Battery Gauge Assembly contains the following items as shown in Figure 10.

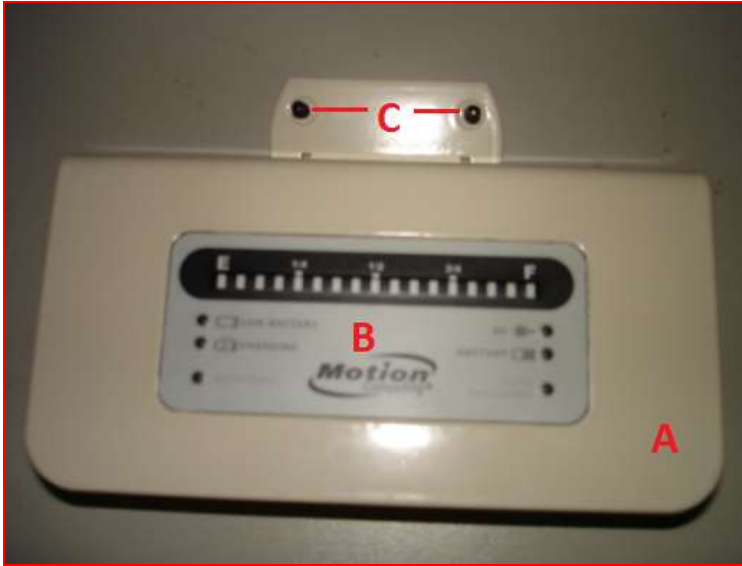


Figure 10. Battery Gauge Assembly

The Battery Gauge Assembly contains the following items as listed in Table 8 below.

✓ Gauge Housing (A)	✓ 2 Allen Head Set Screws (C)
✓ Gauge (B)	

Table 8: Items shown in Figure 10.

Decorative Plates and Wiring Assembly

The Decorative Plates and Wiring Assembly contain the following items as shown in Figure 11.

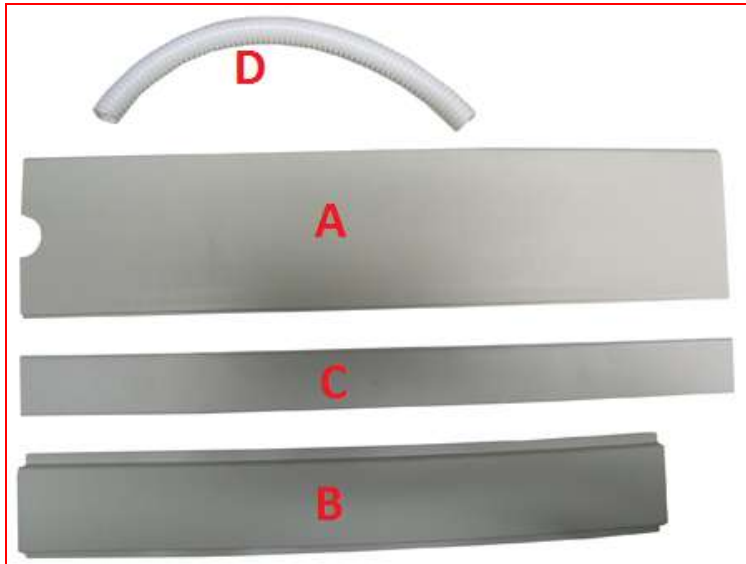


Figure 11. Decorative Plates and Wiring Assembly

The Decorative Plates and Wiring Assembly contain the following items as listed in Table 9 below.

✓ 3 Plastic Face Plates (A)	✓ 1 Plastic Piston Cover (C)
✓ 1 Plastic Front Channel Plate (B)	✓ 2 Pre-cut Wire Loom Sections (D)

Table 9: Items shown in Figure 11.

Battery Component Assembly

The Battery Component Assembly contains the following items as shown in Figure 12.

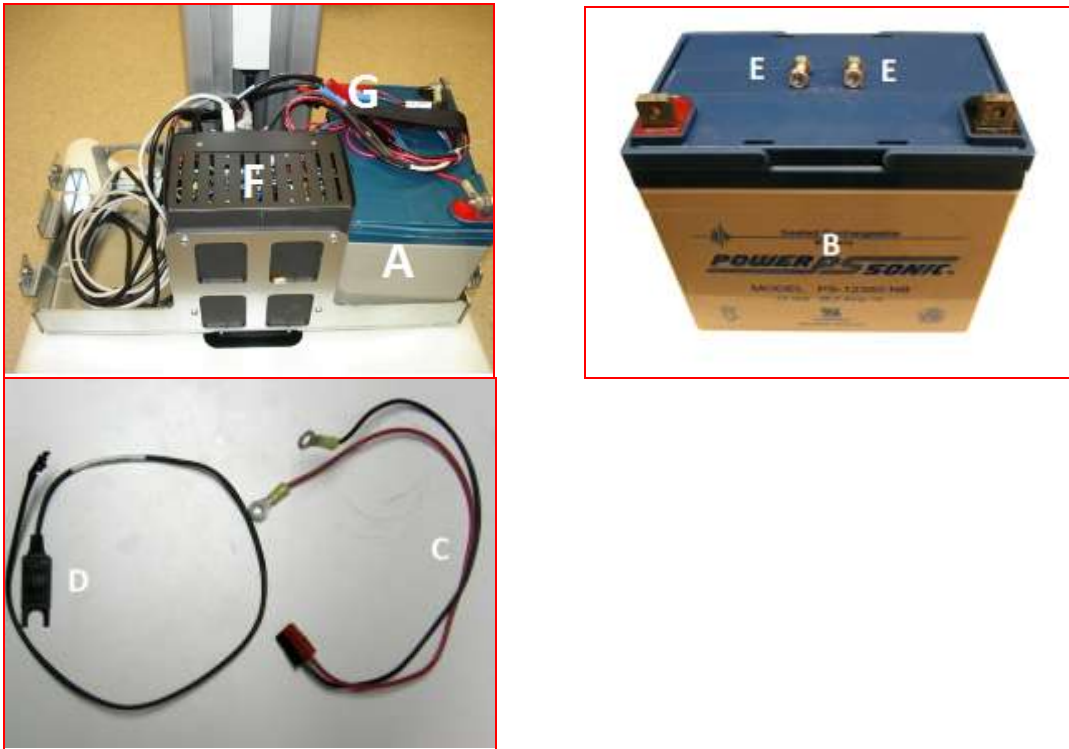


Figure 12. Battery Component Assembly

The Battery Component Assembly contains the following items as listed in Table 10 below.

✓ 1 36ah SLA Battery (A)	✓ 2 Terminal Bolt Sets (E)
✓ Additional 36Ah SLA Battery (Optional - B)	✓ 1 Charging Unit (F)
✓ 2 Battery Leads (C)	✓ Wire Harness (G)
✓ 1 Thermal Sensor Leads (D)	

Table 10: Items shown in Figure 12.

Miscellaneous Components

The Miscellaneous Components Assembly contains the following items as shown in Figure 13.



Figure 13. Miscellaneous Components Assembly

The Miscellaneous Components Assembly contains the following items as listed in Table 11 below.

✓ USB Hub (A)	✓ 2 Ferrite Snap Beads (E)
✓ USB Webcam (B)	✓ Power Cord (F)
✓ Keyboard (C)	✓ 2 Mouse Pads (G)
✓ Mouse (D)	

Table 11: Items shown in Figure 13.

Component Assembly


Installing the Power Supply Base and Column Assembly

☑ Step 1:

Using a T-25 Torx bit, remove the plastic Shroud that covers the Power Supply Base as shown in Figure 14 below.



Figure 14. Removing Plastic Shroud

Tip : Setting the wheel locks will help hold the Base Assembly in place.

☑ Step 2:

Set Shroud aside and lay the Power Supply Base on its back.

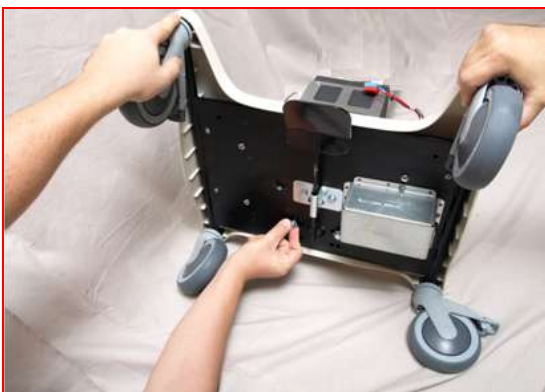


Figure 15. Laying down Power Supply Base

☑ Step 3:

Position Column, rail side up, above the Power Supply Base as shown below.



Figure 16. Positioning Column

☑ Step 4:

Insert bolts through the bottom of the base into the column. Thread each bolt before fully tightening any bolt. Tighten all four bolts securely using 12 inch-pounds of torque.



Figure 17. Placing Bolts



Figure 18. Tightening Bolts

Step 5:

Using a T-25 Torx bit, remove the bolt in front of the power supply plug in as seen in Figure 19 below.

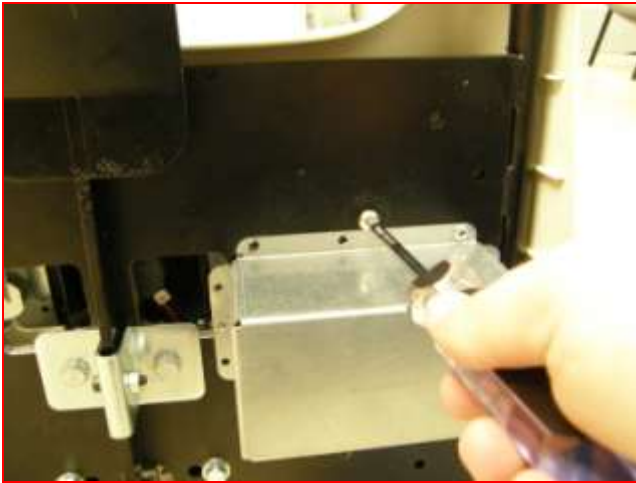


Figure 19. Removing Bolt

Step 6:

Plug in the Power Cord to the base as seen in Figure 20 below and then place the Power Cord Retainer around the power cord as seen in Figure 21.



Figure 20. Plug in Power cord



Figure 21. Put on Power Cord Retainer

Step 7:

Then thread the bolt that was removed in step five through the Power Cord Retainer as seen in the figure 22 below and then screw the bolt back in to the base of the assembly.



Figure 22. Attaching the Power Cord Retainer to the base

Step 8:

Set the base and attached column upright



Figure 23. Set column upright

Remove one screw and loosen the other screw of the column top plate to allow plate to swivel.



Figure 24. Swiveling top plate

☑ Step 9:

Insert first decorative cover in the back of the column channel grooves.



Figure 25. First decorative cover

Note: Notice the half moon on the first decorative cover

☑ Step 10:

Hold the monitor power cable, RJ-45 cable, PC cable, and USB cable against the back channel. Insert first decorative cover in the back of the column channel grooves. Slide decorative cover over the wires making sure the cables are flat against the back of the column. Slide decorative cover to the bottom of the column, all cables should exit from the half circle



Figure 26. Sliding Cover over Cords



Figure 27. Cables coming out of half circle

Installing the Large Work Surface and Keyboard Tray Assembly



Figure 28. Large Work Surface and Keyboard Tray Assembly

Note: The Large work surface and Keyboard Tray come pre-assembled

Step 11:

Slide the Large Work Surface assembly from the bottom of the front of the column rail. The bottom of the metal bracket should be around 5 inch from the bottom of the rail of the column as shown below. Once in place tighten the set screw.



Figure 29. Front of Column



Figure 30. Sliding Large Work Surface up column



Figure 31. 5.0" form bottom of rail



Figure 32. Tightening Work Surface

Note: Failure to fully tighten the set screw may result in damage to work surface or injury.

Step 12:

Slide the Keyboard Tray assembly up the rail to where the bottom of the metal bracket is flush with the bottom of the rail. Once in place tighten the set screw as shown below.

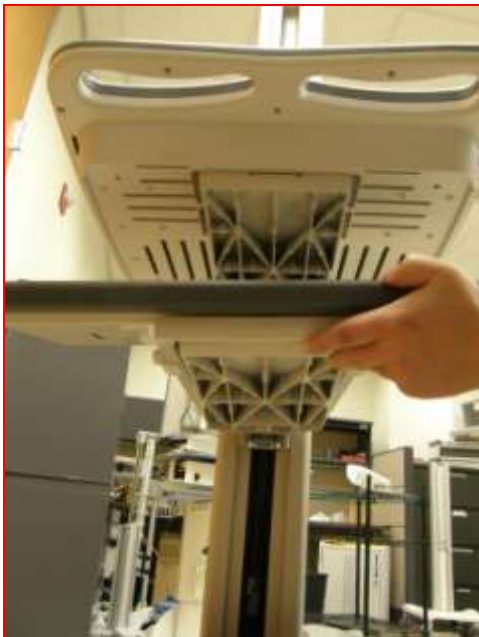


Figure 33. Sliding Keyboard Tray in Place



Note: Failure to fully tighten the set screw may result in damage to work surface or injury.

Figure 34. Tightening Tray

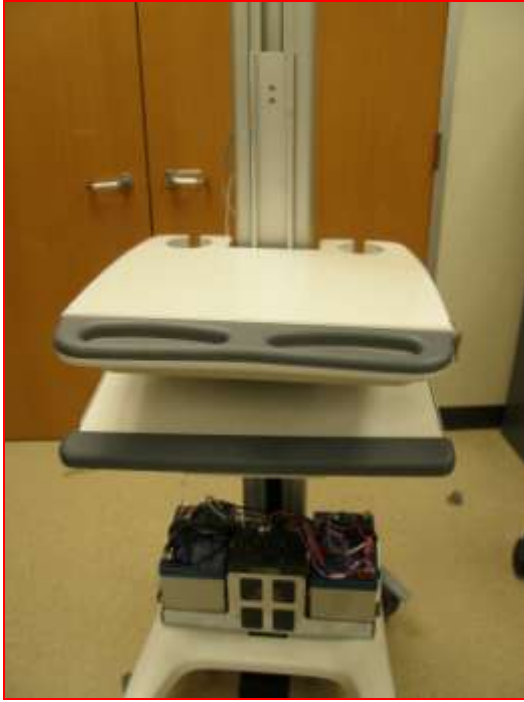


Figure 35. Large Work Surface and Keyboard Tray Completed Assembly

Installing the C5 Mobile Docking Station Assembly

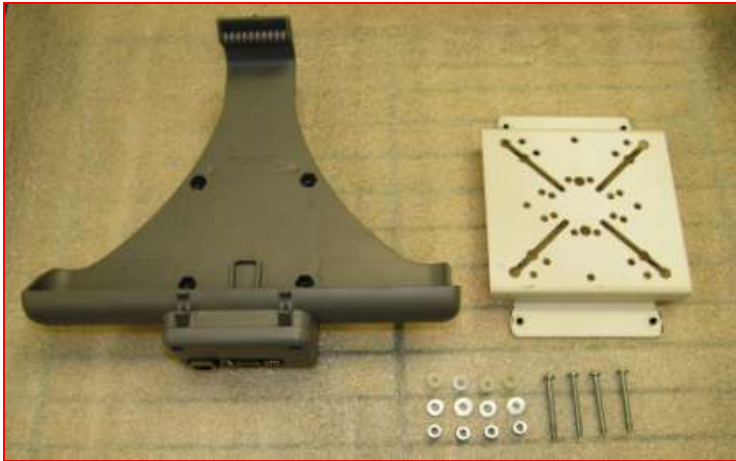


Figure 37. C5 Mobile Docking Station Assembly

Step 14:

Using the four 8-32 1.500" screws, #8 Washers, 10mm Spacers, and 8-32 nylon nuts to secure the RAM Dock to the back mounting bracket. Also pre-place the 4 allen set screws on bracket.

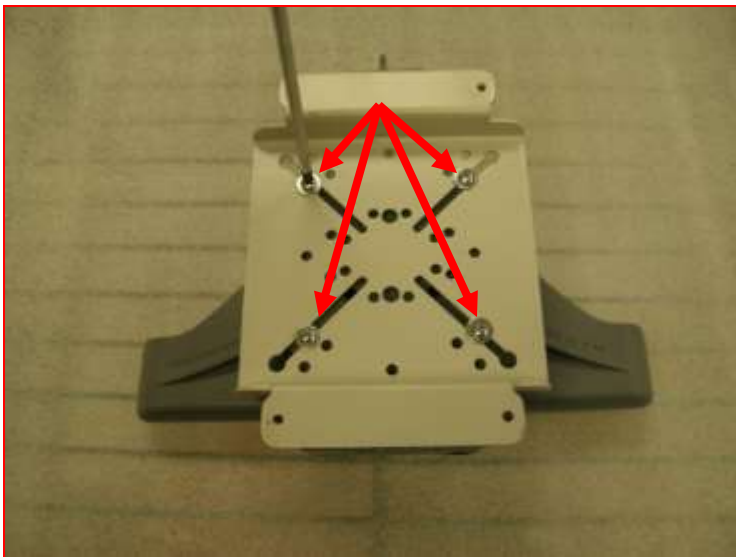


Figure 38. Securing RAM Dock to Mounting Bracket

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☑ Step 15:

Slide the RAM Dock assembly mounting plate into the back of the column rail. Position the top of the RAM Dock bracket 15" from the top of the column (see Figure 42.)



Figure 41. Sliding Dock into column



Figure 42. Placing 15" from top

☑ Step 16:

Tighten the 4 set screws using an Allen wrench.



Figure 43. Securing the top 2 set screws



Figure 44. Securing the bottom 2 set screws

Installing the Monitor Assembly

☑ Step 17:

Align the Monitor Mount holes with the monitor and tighten the 4 Phillips head monitor screws using the 100mm (outer) VESA hole pattern.



Figure 45. Screwing Mount to Monitor

☑ Step 18:

Install the monitor mount bracket by sliding it into the channel.



Figure 46. Sliding in Bracket



Figure 47. Tightening 4 Screws

Note: secure the Mount bracket with 4 Allen head screws (18mm length) and tighten with a 3mm Allen wrench.

☑ Step 19:

Install the monitor onto the mount by sliding the monitor mount over the 2 pins on the previously installed bracket (see figure 51).



Figure 50. Placing Mount on the Bracket



Figure 51. Placing on the pins

☑ Step 20:

Tighten the Monitor Mount to the Mount Bracket with the 2 m4 screws (10mm length).

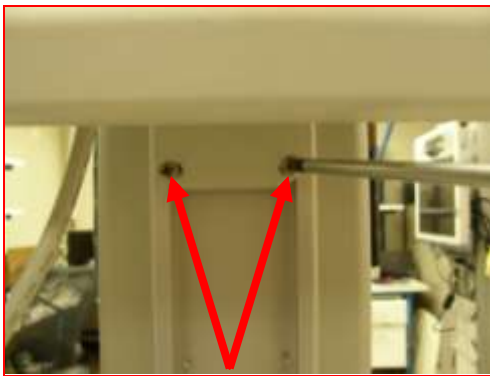


Figure 52. Tightening Set Screws

Installing the Battery Gauge Assembly

☑ Step 21:

Plug RJ-45 cable into the pre-assembled battery gauge.



Figure 53. Plugging in cable

Note: RJ-45 cable is inserted with clamp pointing downwards



Figure 54. Cable plugged in

☑ Step 22:

Install Battery Gauge Mount Plate by inserting at an angle and then rotate mount into place. Once in place tighten using two Allen set screws.



Figure 55. Inserting Battery Gauge



Figure 56. Placing Battery Gauge

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Once in place tighten using two Allen set screws.



Figure 57. Tightening Screws

Final Assembly

☑ Step 23:

Plug in and secure both the monitor power cable and the VGA cable. Also, plug on the touch screen USB if applicable.



Figure 58. Plugging in Monitor Power cable



Figure 59. Plugging in VGA cable

☑ Step 24:

Plug in and secure RAM Dock wires on the bottom. This should include the PC power cord, battery diagnostic USB and the USB extension cable for the USB Hub. All cables should be feed through the back and out the top of the RAM mounting bracket.



Figure 60. Plugging in Cords to RAM Dock

☑ Step 25:

Plug in and secure VGA Cable to top of RAM Dock using a flat head screwdriver.



Figure 61. Tightening VGA cable

☑ Step 26:

Route and dress the wires. Make sure that the work surface has been lowered to its lowest position so that the right amount of slack can be measured from the RAM Dock. Bundle and secure the wires with a cable tie both near the RAM Dock and near the monitor (see figure 63).



Figure 62. Bundling cables



Figure 63. Securing with Cable ties

☑ Step 27:

Install the supplied wire loom. After the loom is placed, secure the loom with 4 small cable ties.



Figure 64. Installing wire loom

Note: USB Extension for USB is run down the front of the column track along with the RJ-45 cable.

☑ Step 28:

Measure and trim the plastic cover plate to cover the VGA cable and top of column. Using a straight edge and a razor knife, lightly score plastic then break off two halves. It is not necessary to cut all the way through the plastic (see illustration below).



Figure 65. Cutting plastic cover



Figure 66. Snapping excess off

☑ Step 29:

Loop slack from VGA cable up into top of column. From the top, slide plastic cover down to the top of the RAM mounting plate to conceal the wires (see figure 68). Then re-attach the column plate to the top of the column.



Figure 67. Looping VGA cable



Figure 68. Sliding in top cover

☑ Step 30:

Make sure all the slack is pulled taught from the bottom of the RAM Dock to the base. Tuck a little of the slack up behind the dock mount to allow the plastic to clear (see figure 69). Dress the cables at the bottom of the column using the wire loom and slide the cover to the base allowing the cables to feed out from the cut out in the cover (see figure 70).



Figure 69. Pulling slack taught



Figure 70. Installing wire loom

Step 31:

Measure and trim the remaining plastic cover plate to cover the middle section of the column.



Figure 71. Placing Middle plastic piece

Step 32:

Install the USB hub by connecting it to the USB extension previously installed. Place the hub in the back of the tray space and plug in the touch Screen cable, keyboard and mouse to the hub as shown below.



Figure 72. Connecting USB Hub

Step 33:

Install the keyboard and secure excess slack in the tray. Leave enough slack so that keyboard tray can be pulled all the way out.



Figure 74. Installing Keyboard and Mouse

Installing the Battery

☑ Step 34:

Install Batteries with terminal pointing out. If the batteries are turned in, the thermal sensors will read incorrectly.

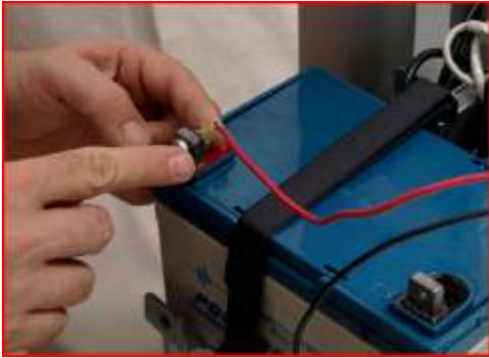


Figure 75. Placing cord

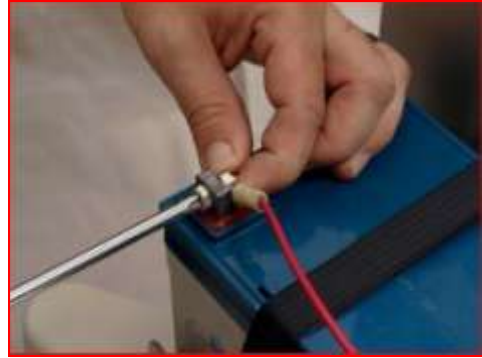


Figure 76. Tightening cord

☑ Step 35:

Install the thermal sensor with the unpainted side towards the battery post. The unpainted side of the thermal sensor must be in contact with the battery post.



Figure 77. Placing Thermal Sensor



Figure 78. Tightening Sensor

☑ Step 36:

Secure the Velcro straps over the batteries and coil up the wires in the unused battery tray. Before re-installing the base cover skip to system test in the next section to validate that the cart is operational (see figure 79).



Figure 79. Securing Batteries and Cords

System Test

To test the system plug the main power cord into an A/C outlet. This will initiate the battery system. After about 1 minute you should hear the fan from the charging unit activate.

Check the battery gauge on the front of the cart and verify that the A/C LED is on as well as the charging LED. If so, a C-5 may be placed in the RAM Dock to verify that the dock, Monitor, keyboard and mouse are functional.

If the dock is receiving power you will see the charge light illuminate on the front of the C-5 (See figure 82).



Figure 80. Plugging in the cart



Figure 81. Checking the Battery Gauge

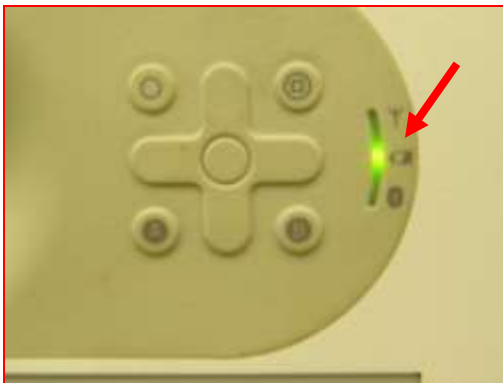


Figure 82. Checking Power on the Tablet

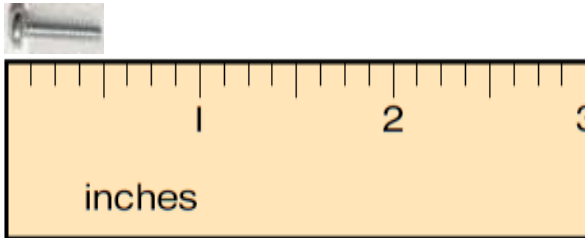
Troubleshooting

Please contact your local Motion Computing Representative for appropriate troubleshooting steps.

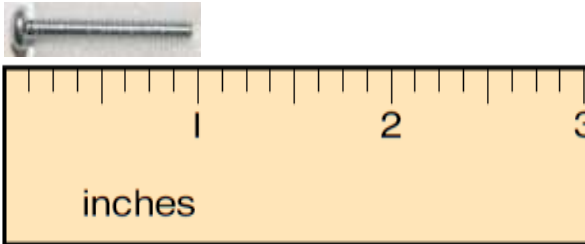
Appendix A

Screws, Nuts, and Washers Template

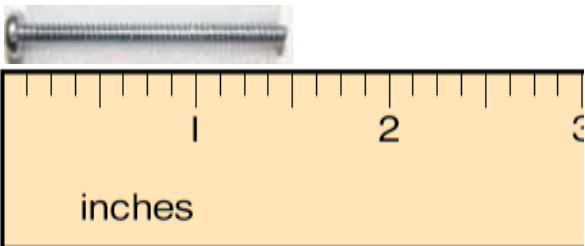
(4) 6-32 X 0.500" PANHEAD, PHILLIPS



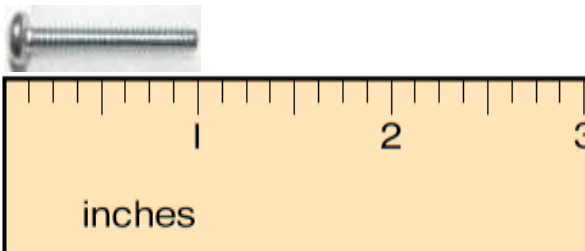
(4) 6-32 X 1.000" PANHEAD, PHILLIPS



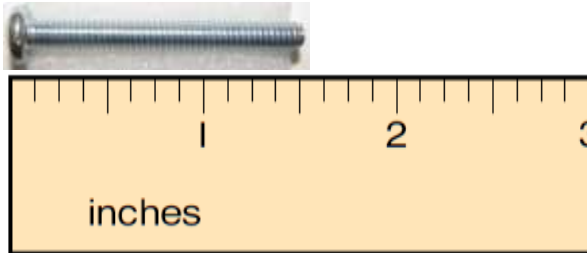
(4) 6-32 X 1.500" PANHEAD, PHILLIPS



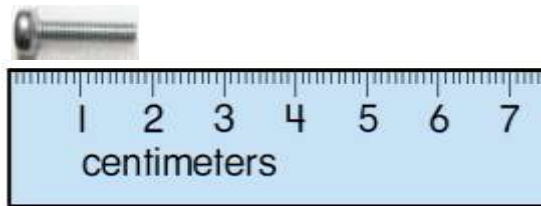
(4) 8-32 X 1.000" PANHEAD, PHILLIPS



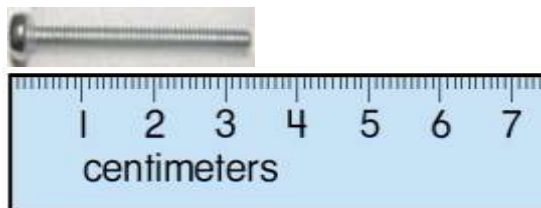
(4) 8-32 X 1.500" PANHEAD, PHILLIPS



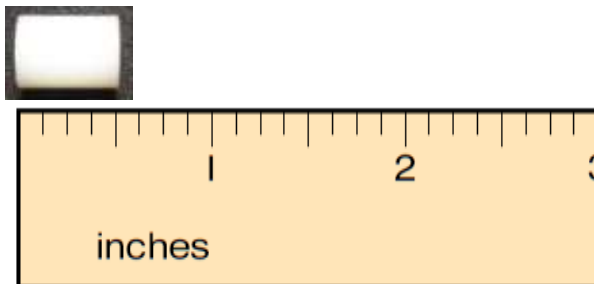
(4) M4 L18 MM PAN HEAD PHILLIPS



(4) M4 L34 MM PAN HEAD PHILLIPS



(4) PLASTIC SPACER 0.500" LENGTH, 0.375 OD, 0.175 ID.



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(8) #6 ZINC WASHER



(8) #8 WASHER



(4) 6-32 NYLOCK HEX NUT



(4) 8-32 NYLOCK HEX NUT



Appendix B

Insert Tray Removal and Installation

Removing the Insert Tray

Step 1:

Un-screw the four screws from underneath the large work surface as shown in the figures below.

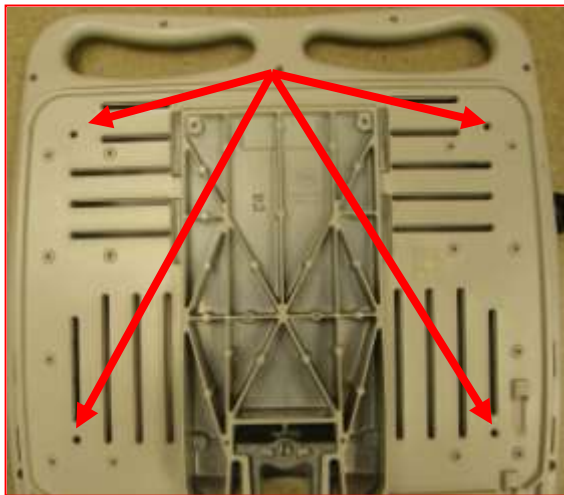


Figure 1. Showing where Screws are



Figure 2. Un-screwing the Insert

☑ Step 2:

Lift lid of large work surface and slide out the insert tray from the bottom of the drawer as shown in the figures below.



Figure 3. Lift lid

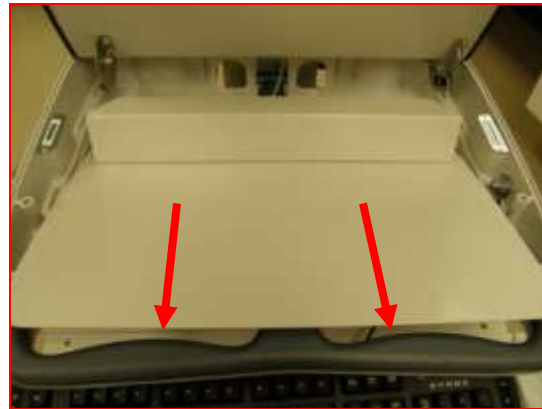


Figure 4. Slide Insert out



Figure 5. Tray with out Insert

Installing the Insert Tray

☑ Step 3:

Lift lid of large work surface and slide in the insert tray to where it lays flat on the bottom of the drawer as shown in the figures below.



Figure 6. Tray with out Insert

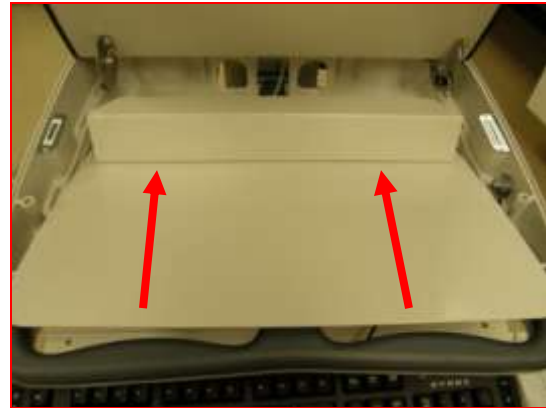


Figure 7. Slide in Insert



Figure 8. Insert in Place

☑ Step 4:

Screw in the four screws from underneath the large work surface as shown in the figures below.

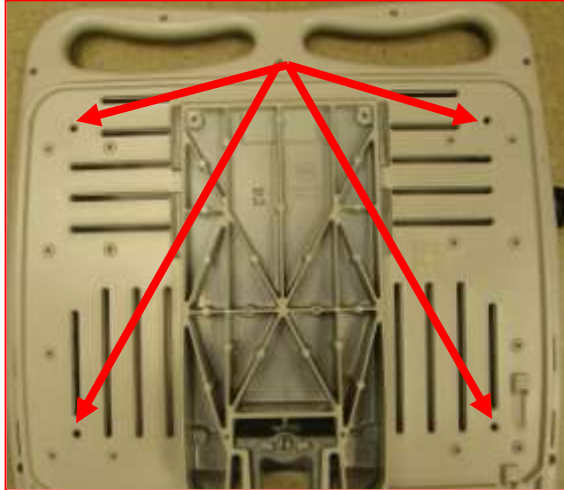


Figure 9. Showing where screws go



Figure 10. Screwing in Insert

Appendix C

AC Cable Installation

Step 1:

Lay cart down on its back to view the bottom of the base. Then remove the five screws around the inverter box as shown below.



Figure 1. AC converter box



Figure 2. Showing where the screws are

☑ Step 2:

Connect AC cord to the outlet. Then run cord through the hole in the AC inverter box and place the grommet around the AC cord in the hole of the inverter box as shown below.



Figure 3. Plugging in the cord



Note: Cut the grommet with a pair of scissors to insert the AC cord

Figure 4. Cutting Grommet



Figure 5. Placing Grommet

Note: Install the grommet and AC cable as shown.

Step 3:

Screw the inverter box back into place with the five screws removed previously in step one with the AC cord routed towards the back of the cart as shown below in the Figure 6.



Figure 6. Completed Assembly

Appendix D

Camera Mount Installation

☑ Step 1:

Installing Camera Mount (Optional.)



Figure 1. Camera Mount Assembly

Place the Camera mount onto the back of the Monitor Mount, screw into place using 2 m4 screws of maximum length of 5mm.



Figure 2. Screwing in Camera mount

Note: Camera Mount is wrapping around the monitor

Step 2:

Install the monitor onto the mount by sliding the monitor mount over the 2 pins on the previously installed bracket (see figure 4).



Figure 3. Placing the monitor on column



Figure 4. Placing mount over pins

Step 3:

Tighten the Monitor Mount to the Mount Bracket with the 2 m4 screws (10mm length).

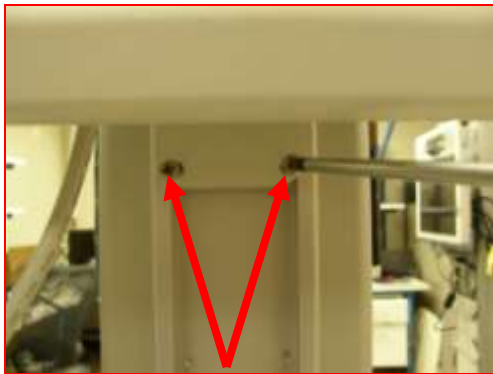


Figure 5. Screwing in the Set Screws

Installing Camera onto Mount.

Step 4:

Clamp the USB Webcam to the mounting bracket as shown in Figure 6.



Figure 6. Placing Camera on mount

Note: Pull back the Camera Clamp to widen the Clamp length

Plug Camera into the USB port in work surface or into the bottom of the J3400 Dock