



Pacific Marine & Industrial

Ferry Passenger Seat Installation Manual



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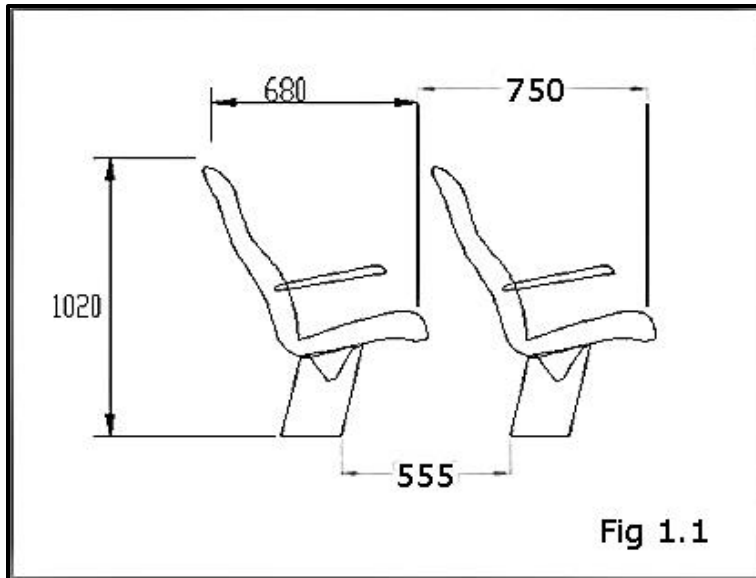
Ferry Passenger Seat Installation Manual

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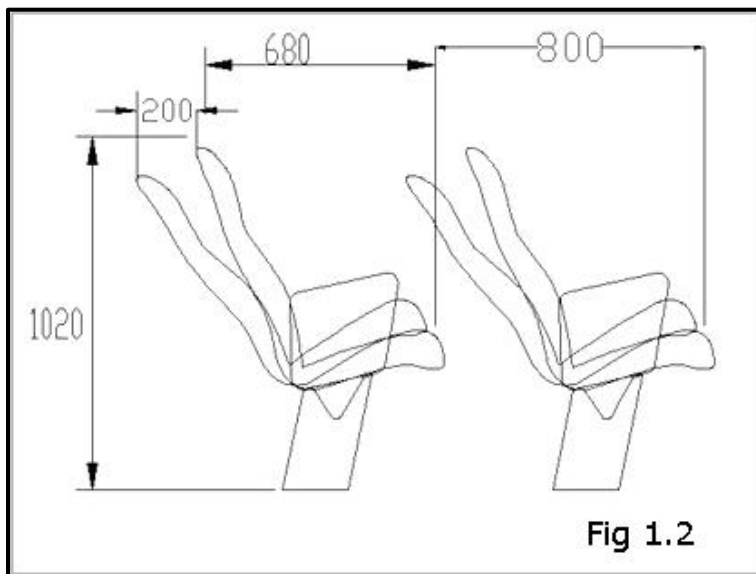
Minimum Recommended Distance for Seat Installation**Section 01.00**

Be sure to check with the authority governing your vessel such as the Coast Guard or other government organization to see if they have any minimum requirements.

Following (Figure 1.1 and 1.2) are the absolute minimum requirements as recommended by Pacific Marine & Industrial. See section 02.00 for recommended comfortable seat pitch measurements.



Fixed Back Seats: 750mm (shown above) absolute minimum.



Reclining Seats: 800mm (shown above) absolute minimum.

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Selecting Seat Placement:**Section 02.00**

Refer to figure 2.1, 2.2 and 2.3 below that show all measurements that need to be taken into account when deciding on the position of the seats on the deck. Some of the measurements required are given on the approval drawings for your project.

A) Distance from front or back of seat leg to the end of track: minimum of 200mm.

B) Distance from rear of leg to wall: minimum can be taken from approval drawings. Note: reclining seats need more room - refer to approval drawings.

C) Seat Pitch:

Fixed Back Seats: 850mm is comfortable, 780mm is minimum, 750mm absolute minimum

Reclining Back Seats: 900mm is comfortable, 850mm minimum, 800mm absolute minimum

D) Distance from center of leg to end of beam: refer to approval drawings.

E) Leg centers: shown on approval drawings.

F) Distance from center of leg to wall: minimum of ' $D + 10\text{mm}$ ' assuming a vertical wall.

G) Total length of passenger bay

Note: Any obstructions such as support posts should be considered when calculating the track and seat positions.

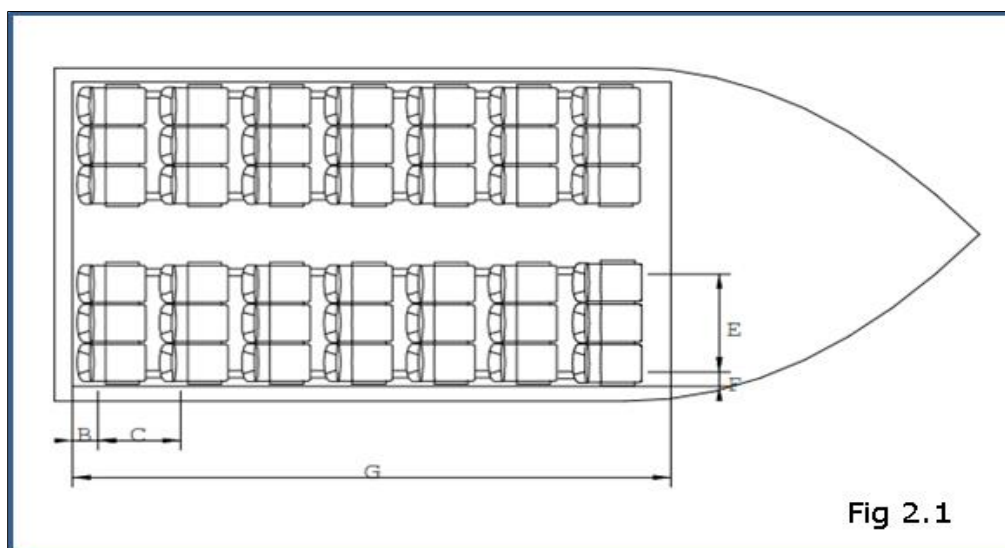
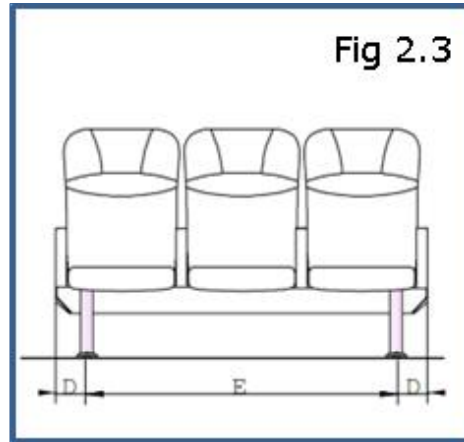
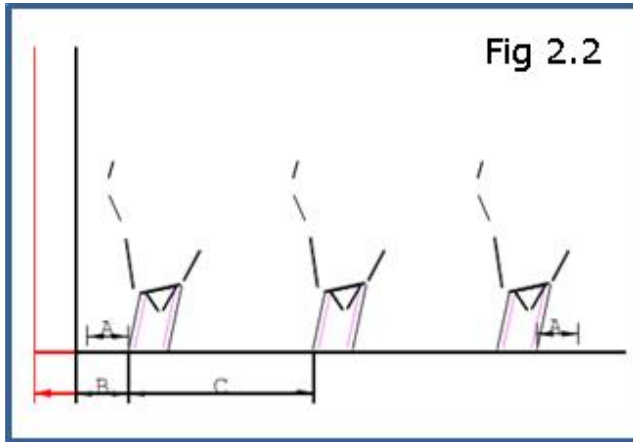


Fig 2.1



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Installation of Track Type Seats – Seat Track

Section 03.00

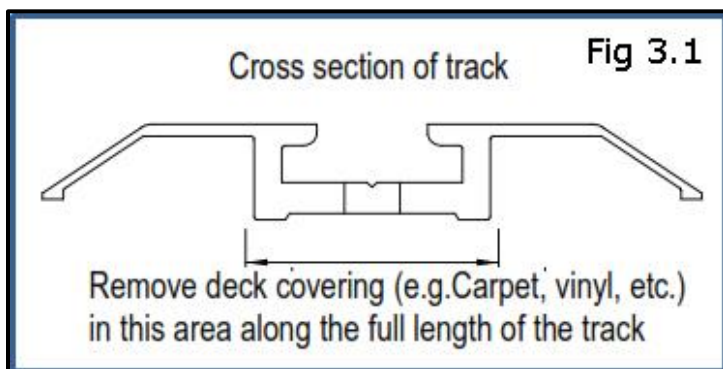
Tools required: Power drill, 6.5mm drill bit, countersinking drill bit, 6.5mm rivet gun, tape measure, pencil.

Fasteners required: Approximately twenty-three 6.5mm countersunk stainless steel sealed monobolts per meter. Other similar fasteners are acceptable at the choice of the shipyard.

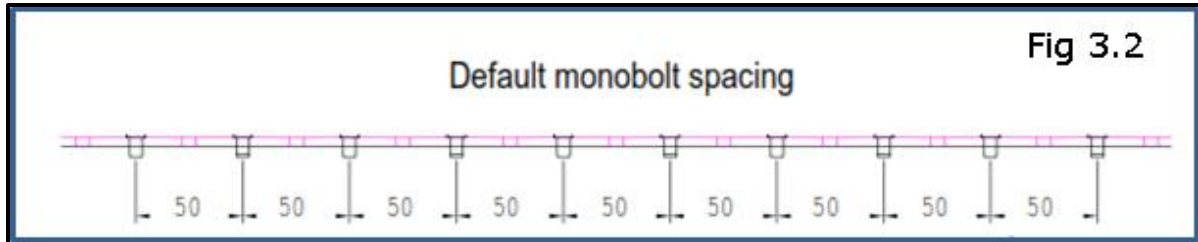
Installing Track:

Picture of each step is shown in figure 3.4 below and has the corresponding step number.

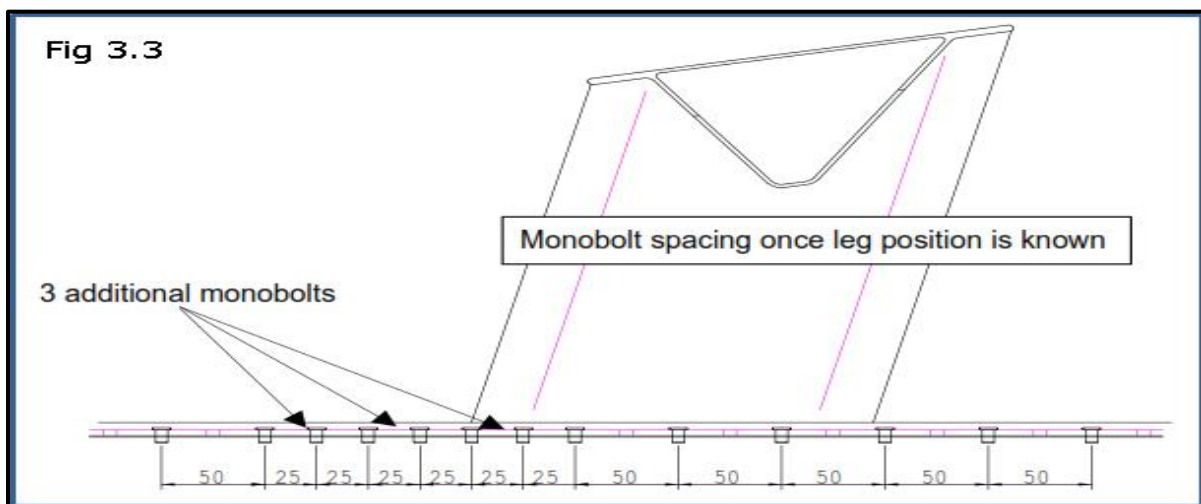
1) Place track in position on deck. Ensure that any deck covering (carpet, vinyl, etc) is removed to allow the inner flange of the seat track to fit flush against the deck. Refer to figure 3.1 below.



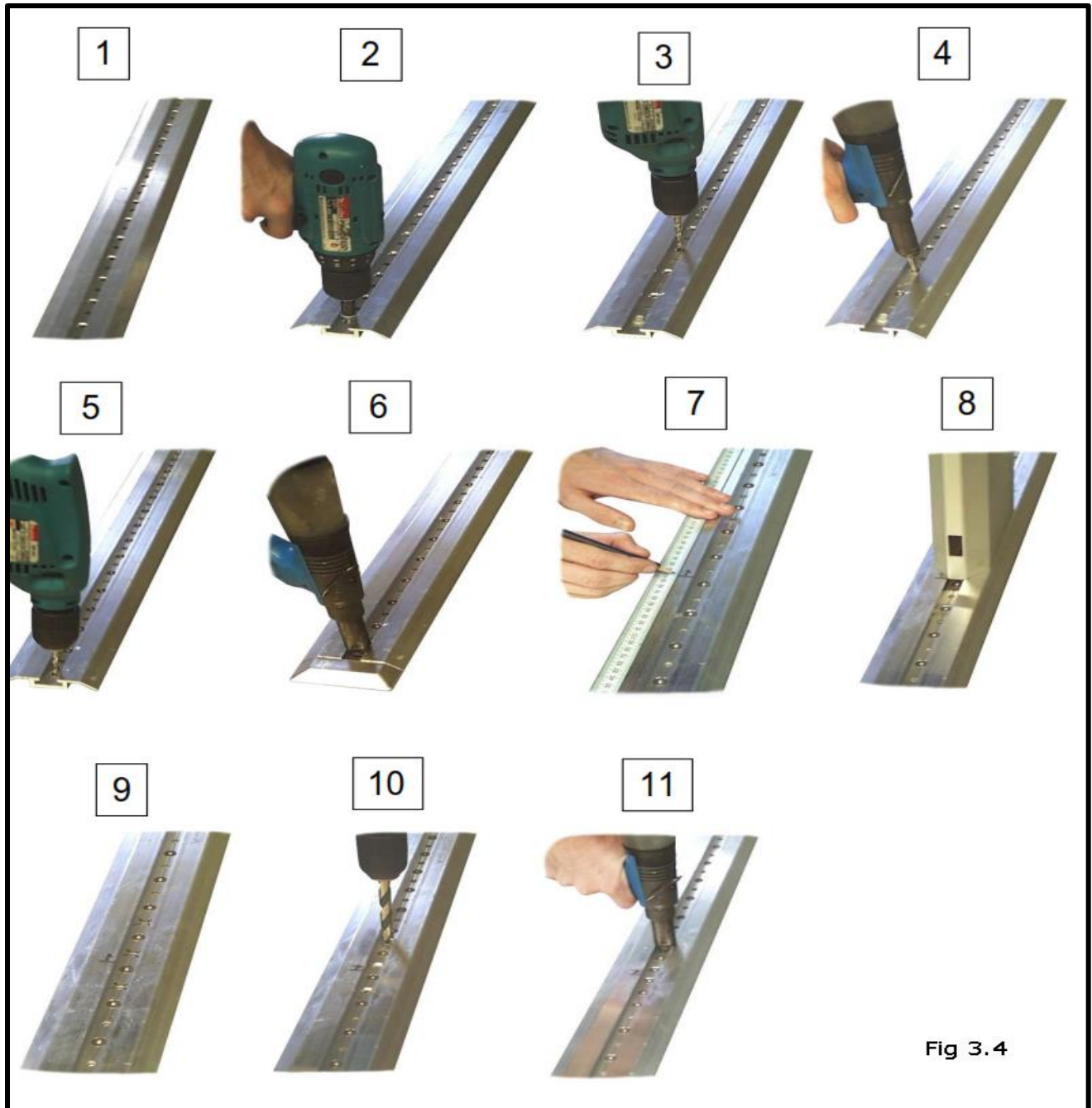
- 2) Temporarily secure the track at the proper distance at either end with a self-tapping screw to prevent the track from moving out of place.
- 3) Drill 6.5mm holes at 50mm spacing into deck. Lift track up and clear all aluminum filings so it sits flush to deck.
- 4) Monobolt track to deck at 50mm spacing. See figure 3.2 below.



- 5) Remove self-tapping screws at either end of the track and drill 6.5mm holes into deck.
- 6) Place track ends under seat track at either end and monobolt track to deck through both holes.
- 7) Mark on the track the position of where the backs of all the legs will go - Refer to figure 2.2, measurement 'C'.
- 8 & 9) Three extra monobolts must be used at the back of the leg, 1 being forward of the rear of leg and the other two being aft of the rear of leg. Mark each extra hole - Refer to figure 3.3 below.



- 10) Drill the three extra 6.5mm holes for each leg through the deck, then countersink the holes.
- 11) Monobolt track to deck through each extra hole. Proceed to install the legs.



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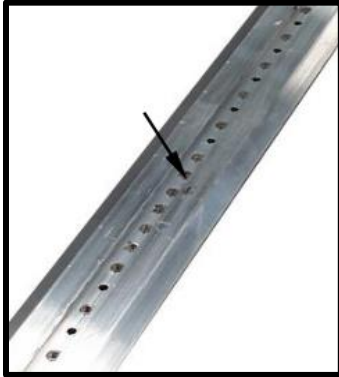
Installation of Track Type Seats – Legs and Beams

Section 04.00

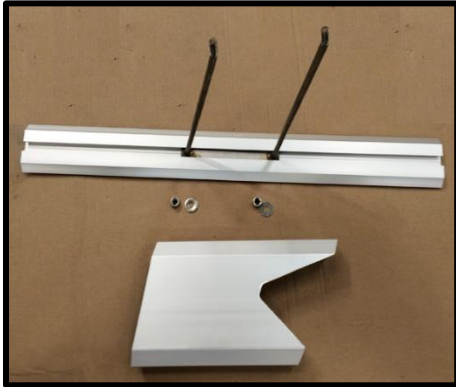
Installing Legs, Seat Beams, Track Rubber and Track Ends

Tools required: Sockets and ratchet wrench, knife or tin snips.

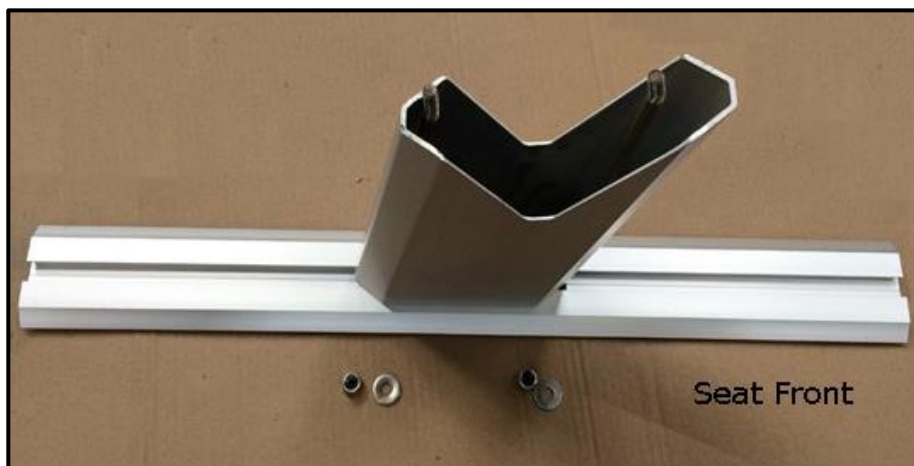
1. Legs to be assembled with back of leg at mark made in track as you have laid out previously in step 7 of section 03.00.



2. Insert the U bolt system into the track. The taller U bolt leg is the seat front end.



3. Remove the nuts and bolts from the U bolt system. Place the leg over the u bolt. The taller side of the u bolt and the taller side of the V in the leg are the seat front side.



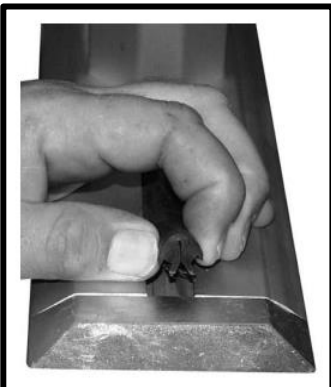
4. Place the seat row beam over the two (or more) assembled legs and insert the U bolt ends into the proper holes in the beam. Install nuts and washers on the u bolt ends and tighten to 24.3 Ft-Lbs. or 33 Nm. Make sure the back of the leg is lined up with the marks on the track (per section 03.00 part 7) before tightening.



5. Cut track insert rubber to length with tin snips or knife so it fits between the legs or between the leg and the track end fitting.



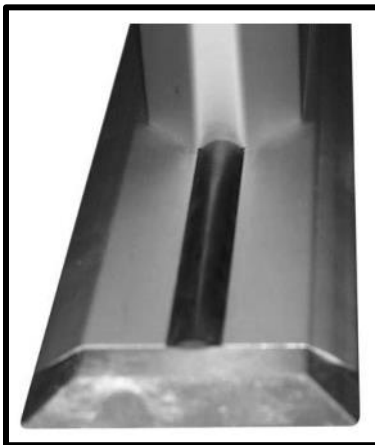
6. Squeeze track insert rubber together as shown so it will fit its rubber flanges completely into the track opening.



7. Work in one direction, while squeezing and inserting. Ensure that all edges finish inside track opening.



8. Once fully inserted the track rubber cannot be moved out of place.



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Installation of Bolt Down Seats

Section 05.00

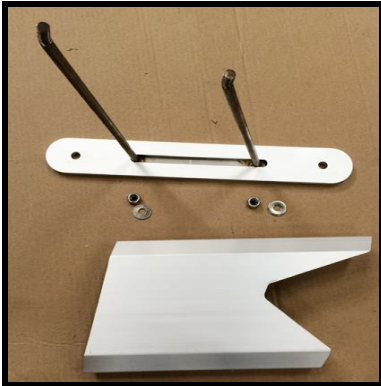
Installing Bolt Down Adapter, Legs, Seat Beams

It is easiest to assemble the bolt down adapter, legs and beams into one component and then fix each assembly to the deck in the proper position as selected in Section 01.00 and 02.00 above.

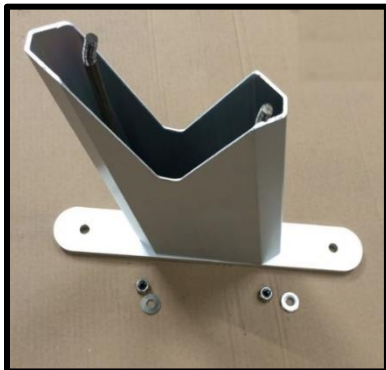
1. Bolt down seats use the same leg and U bolt system as the track type seat. You simply replace the track with the bolt down adapter.



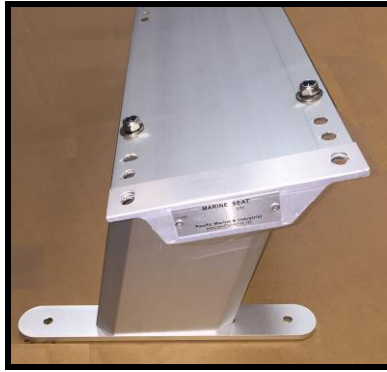
2. Remove the nuts and washers. Insert the U bolt system through the bolt down adapter.



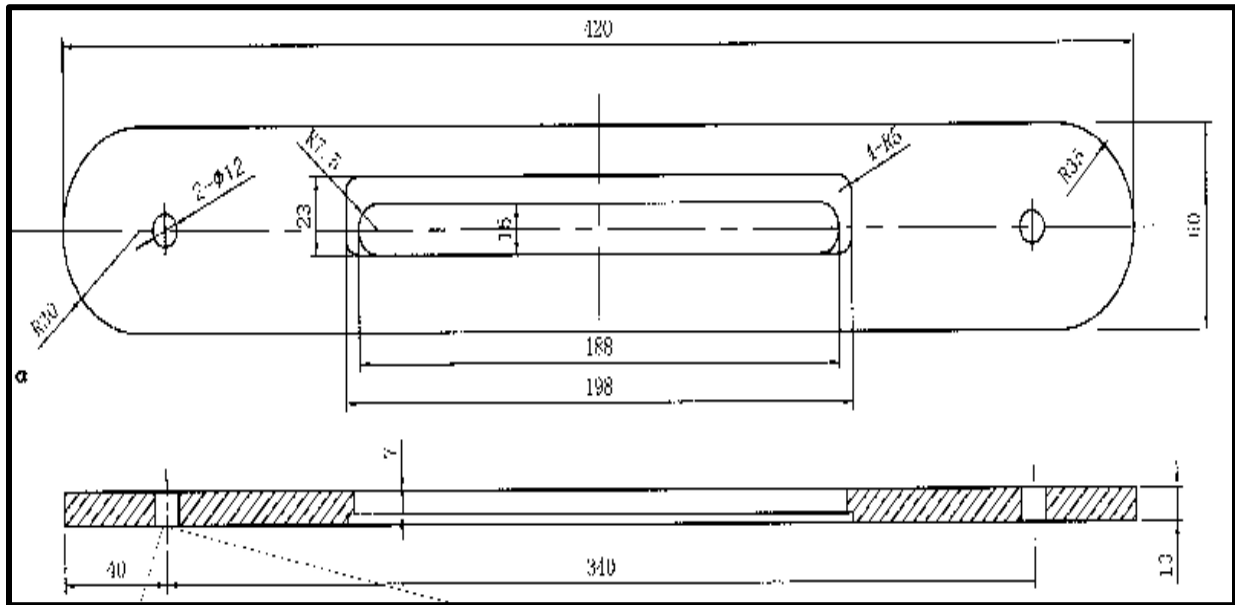
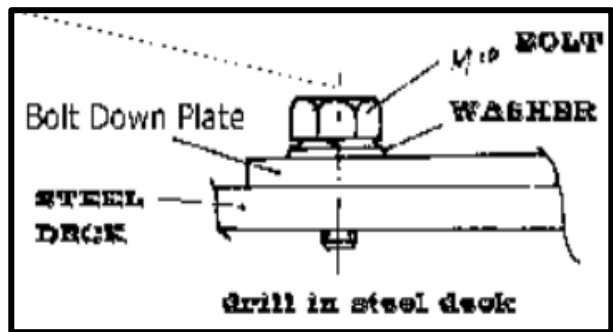
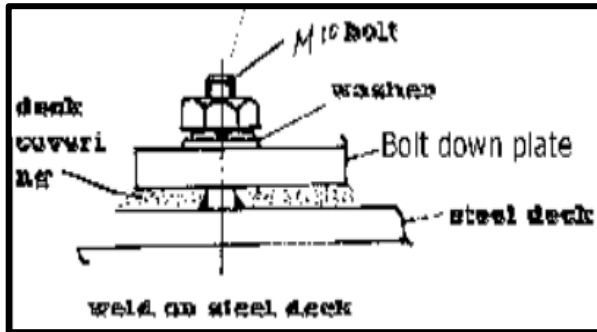
3. Place the leg over the U bolt system and bolt down adapter. The taller end of the u bolt and the taller end of the V in the leg is the seat front side.



4. Place beam across the two (or more) assembled legs and insert the U bolt ends into the proper holes in the beam. Install washers and then nuts on u bolt and tighten to 24.3 ft.-lb. or 33 Nm.



5. Install each bolt down seat row (bolt down plate, legs and beam assembly) that has been assembled (single, double, triple, etc) in the chosen location on deck as you have selected in section 01.00 and 02.00 above. There are 2 ways to install: weld stud onto deck or drill in deck. See following images and drawing.

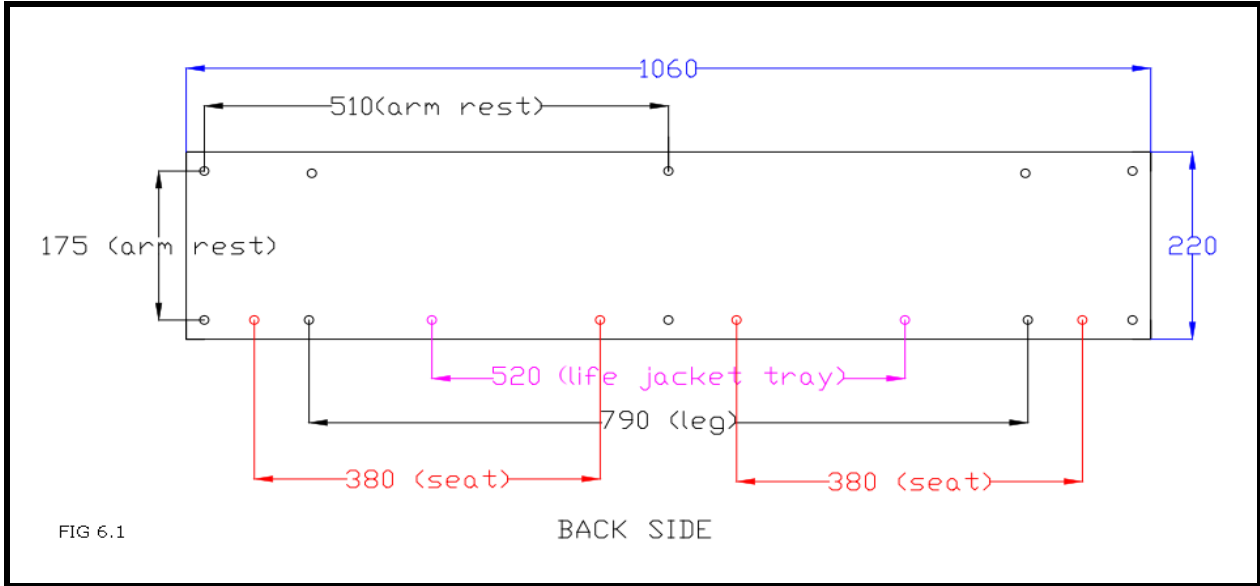


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Drawing of Seat Beam and Designated Holes

Section 06.00

Figure 6.1 below shows the hole location and spacing (for standard product) on the seat beam for different components such as arm rest, seat, legs and life jacket tray. Life jacket bag does not need holes.



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Installation of Life Jacket Holder

Section 07.00

1. Life jacket holders install under the seat beam as shown in these images:



Life Jacket Tray (Bolted Back Of Bar)

Life Jacket Bag (Strap Attachments)

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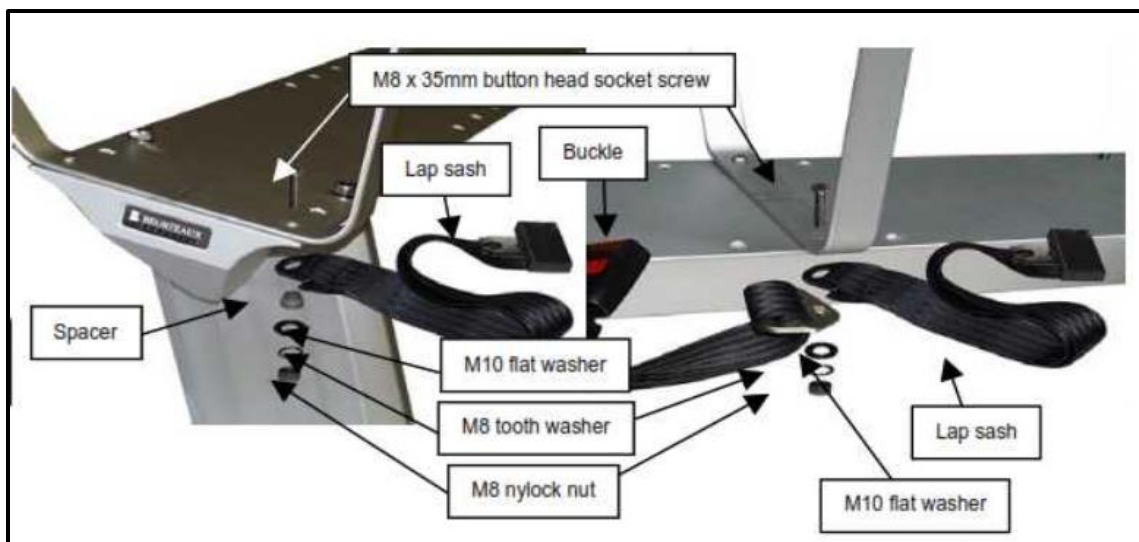
Installation of Seat Belt

Section 08.00

1. The seatbelt (buckle side and lap sash side) is supplied in a separate box. The only fastener to be used out of the box is the spacer as shown in image below. Discard the other hardware in the seat belt box. Before installation the buckle should be extended 100mm (4 inches) from its supplied length.



2. Installation of seat belts **OPEN ARMRESTS ONLY**: Longer M8 x 35 button head socket screws and M10 flat washers are supplied in a separate box. Discard one of the M8 x 20mm screws supplied on the back of the armrest, the front of the armrest still uses the M8 x 20mm screw. The lap sash is attached on the left hand side of the seat (sitting in seat). The buckle is attached on the right hand side of the seat. The seatbelt should be attached with components in the order as shown in the image below. Bolts should be tightened to 17Nm. The spacer should only be used when the lap sash is on the end of a beam.



3 Installation for **CLOSED ARMRESTS ONLY**: Longer M8 x 35 hex head bolts and M10 flat washers are supplied in a separate box. From the arm rest discard the rear

M8 x 25mm bolt supplied with the armrest, the front of the armrest still uses M8 x 25mm bolt. The lap sash is attached on the left hand side of the seat (sitting in seat). The buckle is attached on the right hand side of the seat. The seatbelt will be attached with components in the order as shown in the image below. Bolts should be tightened to 17Nm. The spacer should only be used when the lap sash is on the end of a beam.



4 - When installation of the seat is completed the seatbelt buckle and lap sash should be placed between the armrest and seat and then clipped together so they sit on the seat cushion as shown.



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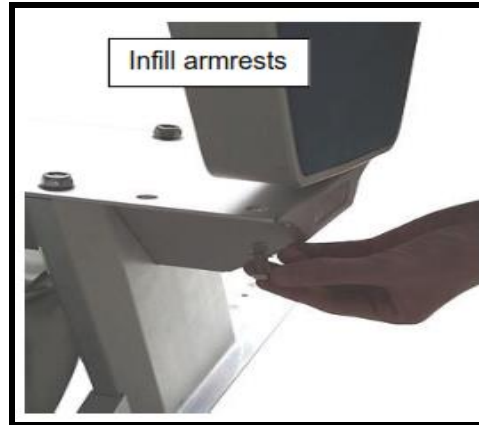
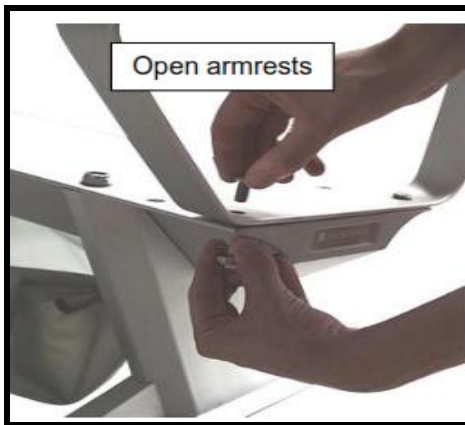
Installation of Arm Rest and Seat

Section 09.00

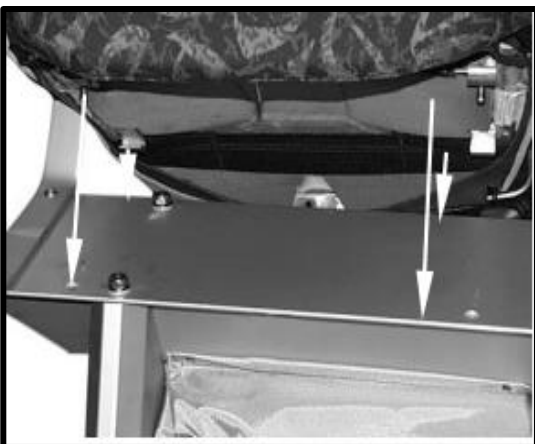
1. Following image shows beam holes and their designated use. From beam ends and going inwards: arm rest holes, seat holes (one side only) and leg holes.



2. Place armrest on beam as shown and secure with supplied nuts, bolts, and washers. Tighten bolts to 12.5 ft.-lb. or 17Nm.



2. To install seat, first clip front tabs over front of beam and then lower seat so that the bolts pass through the holes in the rear of the beam.



- Put nuts and washers on seat bolts and tighten to 12.5 ft.-lb. or 17Nm.



- Seats are now fully assembled.

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Seat Maintenance, Repairs and Spare Parts

Section 10.00

- Selection of Upholstery:

A. The most durable and long lasting material is fabric upholstery however it is not as easy to clean as PVC (also called synthetic leather).

B. PVC Synthetic Leather upholstery on the other hand is easy to clean with sponge and water however, over time it can crack and wear out. See image below. Some customers prefer PVC for the ease of cleaning and they accept that it will not last as long as fabric.



C. Genuine leather is also available however it is expensive and can stain.

2. Cleaning of Upholstery:

When cleaning upholstery use clean water. A very light soap is acceptable. Do not use any acid or alkaline cleaning solvents. Do not clean using a steam cleaning apparatus. Steam cleaning can insert water into the seat foam and / or damage the foam with the heat of the steam.

3. Spare Parts:

A. The most common spare part is PM&I's quick replacement upholstery cover. In the case of dirt or damage we can provide replacement covers that will match your existing and be quickly and easily replaced while the seat is in place on your vessel.

B. Spare seat top's can be purchased. This will allow you to quickly unbolt the damaged seat top (2 bolts) and replace with a new or reconditioned seat top. The dirty or damaged seat top can then be repaired at your leisure.

C. Reclining seats may need the air spring or the knob on the reclining lever replaced from time to time.

D. Other parts such as arm rest, cross bars, legs, track, etc. are interchangeable and can be purchased and replaced if needed.