

BOAT RAMP KIT

USER MANUAL

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1. OVERVIEW

This manual is for the person (the operator) whose role is to utilize the Boat Ramp Kit on a routine basis.

To ensure the operator has a thorough understanding of how to use the system to deploy and recover the Boat Ramp Kit, and to perform routine maintenance and repair of the system, this manual provides:

- Technical data;
- Instruction on the standard operation of the equipment;
- Checks and routine maintenance to keep the equipment functioning safely;
- Troubleshooting guidance for simple repair of the equipment.

1.1 System Description

The Boat Ramp Kit is the ideal solution for ground stabilization for commercial applications. It is a modular system that can be rapidly deployed into water to provide a stable, high grip surface and facilitate easy launching and recovery of watercraft and people.

Each Boat Ramp Kit comprises of:

- C40 / C90 Trackway® Boat Ramp;
- Laying and Recovery Kit;
- Anchoring Recovery Kit.

Each kit's components are supplied bespoke to customer requirements. Kits and components will vary.

The Boat Ramp Kit consists of a series of interlocking aluminium C40 / C90 Trackway® Boat Ramp panels to form an access route tailored to the user's required length. It is deployed and recovered directly from the ground, or via various methods of mechanical handling.

The Boat Ramp Kit can be transported in multiple lengths of C40 / C90 Trackway® Boat Ramp panels, and can be laid and recovered by two / four persons, depending on method of use and available equipment.

Please note: Foot protection is required for walking on the C40 / C90 Trackway® Boat Ramp panels.

1.2 Limitations of Use

This section documents the limitations that apply to the use of the Boat Ramp Kit.

1.2.1 Maximum Slope

The maximum incline/decline along the direction of the C40 / C90 Trackway® Boat Ramp is 1 in 5 (20% gradient).

The maximum incline/decline across the width of the C40 / C90 Trackway® Boat Ramp is 1 in 20 (5% gradient).

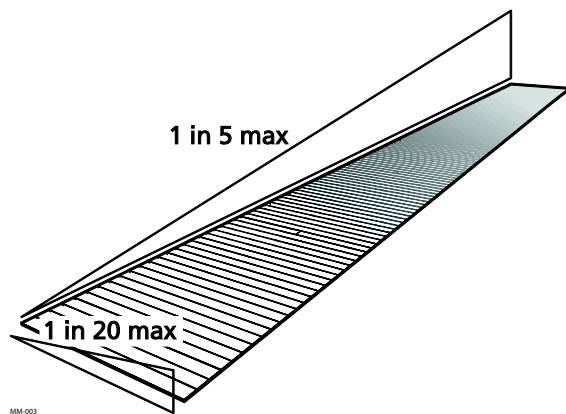


Fig. 1-1 Maximum Slope for the C40/C90 Trackway® Boat Ramp Deployment

1.2.2 Uneven Ground

The C40 / C90 Trackway® Boat Ramp may be laid over hummocks or depressions that do not exceed 150mm, but open ditches should be filled.

Tree stumps or rocks greater than 75mm should be cleared before laying the C40 / C90 Trackway® Boat Ramp.

1.2.3 Vehicle Types

The C40 / C90 Trackway® Boat Ramp is designed for rubber-tired or rubber-padded vehicles.

If tracked vehicles with steel grouser blades are to use the C40 / C90 Trackway® Boat Ramp, then timber dunnage should be applied to protect the surface of the C40 / C90 Trackway® Boat Ramp from the tracks.

Tracked vehicles should preferably enter and leave the C40 / C90 Trackway® Boat Ramp at the ends and not over the sides to eliminate the risk of grousers locking under the C40 / C90 Trackway® Boat Ramp edges when slewing.

Do not slew on the C40 / C90 Trackway® Boat Ramp.

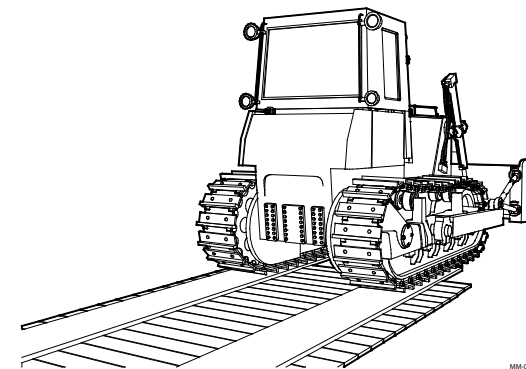


Fig. 1-2 Protect the C40/C90 Trackway® Boat Ramp from Metal Tracked Vehicles

2. HEALTH & SAFETY

2.1 System Warnings and Cautions

This section is a compilation of all the warnings and cautions made throughout this manual.



WARNING: While the Boat Ramp Kit is being prepared, the operator should ensure the work area is clear of unauthorized personnel.



CAUTION: Stand clear of the C40 / C90 Trackway® Boat Ramp during deployment. Do not stand in front of C40 / C90 Trackway® Boat Ramp end panel when releasing Transit Straps.



CAUTION: Place wheel chocks under the C40 / C90 Trackway® Boat Ramp to prevent movement. Do not stand in front/behind the unchoked C40 / C90 Trackway® Boat Ramp. Do not leave unchoked C40 / C90 Trackway® Boat Ramp unattended.



CAUTION: Wear personal protective equipment (gloves, goggles, hard hat, protective footwear and ear protection) when undertaking preventative maintenance tasks.



CAUTION: Record all faults in the Pre and Post Operation Checklist and do not use the equipment if it does not pass the inspection.



CAUTION: Collect used and excess grease including cleaning cloths and dispose of according to local environmental regulations.



CAUTION: Do not stand in front of the Pushbar if using to deploy and recover the C40 / C90 Trackway® Boat Ramp.

3. TECHNICAL DATA

3.1 C40 / C90 Trackway® Boat Ramp

Providing marine access, the C40 / C90 Trackway® Boat Ramp consists of a number of interlocking C40/C90 Trackway® Boat Ramp panels.

The weights and dimensions for the C40 and the C90 can be found in tables 3-1 and 3-2.

	C40 Standard Panel						C40 Extra Wide Panel					
	Full Panel		Half Panel		End Anchor Panel		Full Panel		Half Panel		End Anchor Panel	
Width	3,354mm	11'	1677mm	5'6"	3,354mm	11'	4,200mm	13'9"	2100mm	6'10 1/2"	4,200mm	13'9"
Length (actual)	213mm	8 1/2"	213mm	8 1/2"	213mm	8 1/2"	213mm	8 1/2"	213mm	8 1/2"	213mm	8 1/2"
Length (effective)	200mm	8"	200mm	8"	200mm	8"	200mm	8"	200mm	8"	200mm	8"
Thickness	30.5mm	1 1/4"	30.5mm	1 1/4"	30.5mm	1 1/4"	30.5mm	1 1/4"	30.5mm	1 1/4"	30.5mm	1 1/4"
Weight	15.5Kg	34.2lbs	7.75Kg	17.1lbs	15.2Kg	33.5lbs	19.3Kg	42.55lbs	9.6Kg	21.2lbs	19Kg	41.2lbs
# per 20m section	97		6		1		97		6		1	
# per 30m section	145		10		1		145		10		1	
# per 40m section	193		14		1		193		14		1	

Table 3-1 C40 Trackway® standard panel and C40 Trackway® extra wide panel Data.

	C90 Standard Panel					
	Full Panel		Half Panel		End Anchor Panel	
Width	4,572mm	15'	2286mm	7'6"	2286mm	7'6"
Length (actual)	230mm	9 1/16"	230mm	9 1/16"	360mm	14' 3/16"
Length (effective)	210mm	8 1/4"	210mm	8 1/4"	n/a	n/a
Thickness	32mm	1 1/4"	32mm	1 1/4"	38mm	1 1/2"
Weight	31.9Kg	70.3lbs	16Kg	35.2lbs	17.8Kg	39.2lbs
# per 20m section	95		6		2	
# per 30m section	143		10		2	
# per 40m section	191		14		2	

Table 3-2 C90 Trackway® Standard Panel Data

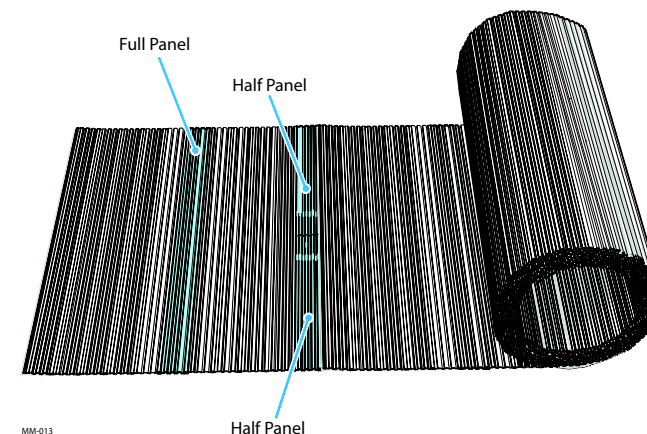


Fig. 3-1 Trackway® Boat Ramp Panels

4. CONSTRUCTION

4.1 General (C40)

The C40 Trackway® panels are supplied rolled or flat packed.

The C40 Trackway® Boat Ramp panels are connected via male and female flexible joints. The flexibility enables the C40 Trackway® Boat Ramp to be laid on undulating ground or coiled into a roll.

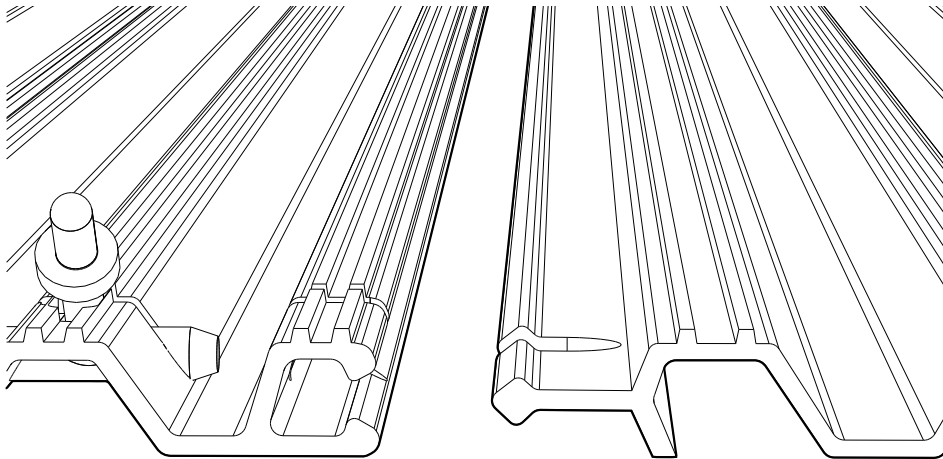


Fig. 4-1 C40 Trackway® Boat Ramp Panel Male and Female Ends

The panels are locked together with Locking Bolts or Tamperproof Locking bolts that prevent lateral movement.

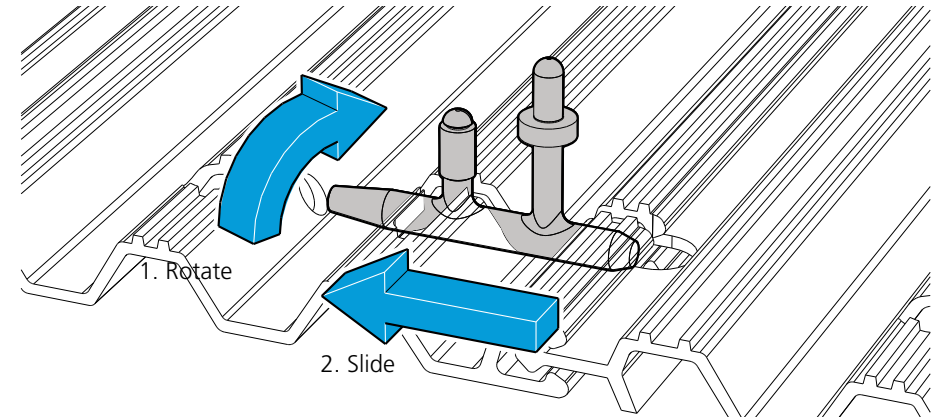


Fig. 4-2 C40 Trackway® Boat Ramp Panel - Unlocked

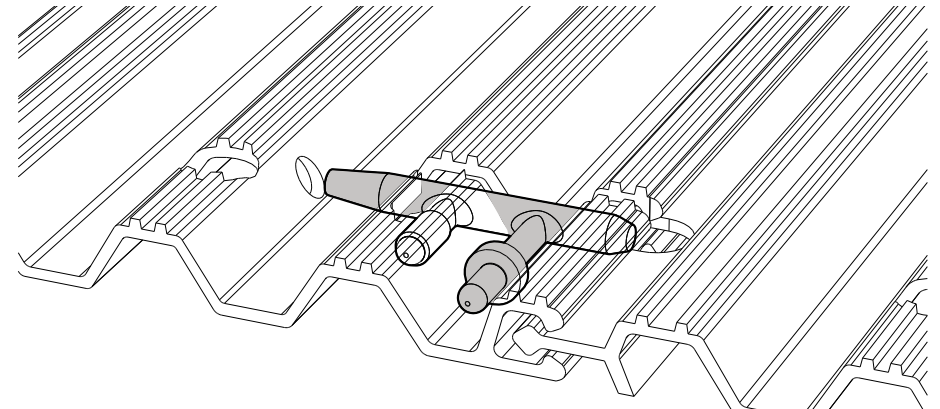


Fig. 4-3 C40 Trackway® Boat Ramp Panel - Locked

The C40 Trackway® panels are lifted with a fiber / nylon sling and a suitable spreader bar.

4.2 General (C90)

The C90 Trackway® panels are supplied rolled or flat packed.

The C90 Trackway® Boat Ramp panels are connected via male and female flexible joints. The flexibility enables the C90 Trackway® Boat Ramp to be laid on undulating ground or coiled into a roll.

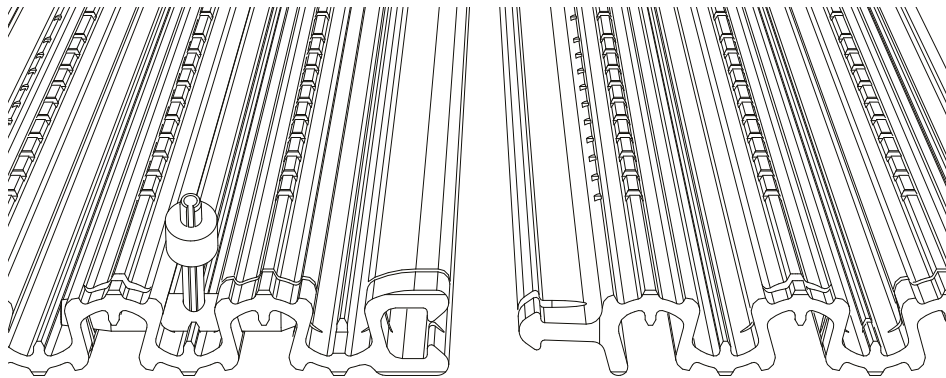


Fig. 4-4 C90 Trackway® Boat Ramp Panel Male and Female Ends

The panels are locked together with Locking Bolts or Tamperproof Locking bolts that prevent lateral movement.

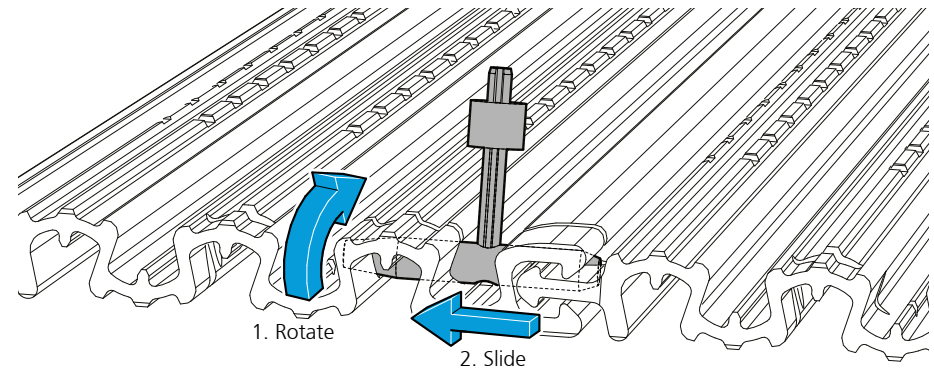


Fig. 4-5 C90 Trackway® Boat Ramp Panel - Unlocked

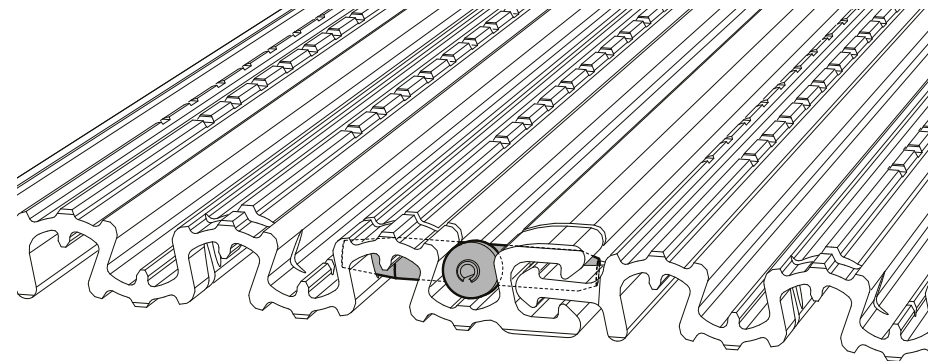


Fig. 4-6 C90 Trackway® Boat Ramp Panel - Locked

The C90 Trackway® panels are lifted with a fiber / nylon sling and a suitable spreader bar.

5. OPERATION

5.1 General

This chapter documents how the Boat Ramp Kit should be operated.

5.2 Pre-Use Inspection

Checks should be conducted daily before operating the Boat Ramp Kit and again after operations.

The C40 / C90 Trackway® Boat Ramp panels should be checked for damage such as burrs or deformation. Any burrs should be removed and filed smooth. If a panel cannot be straightened sufficiently to join other panels, it should be replaced.

Check Locking Bolts for damage, such as deformation or cracking and change as required.



CAUTION: Record all faults in the Pre and Post Operation Checklist and do not use the equipment if it does not pass the inspection.

5.3 Unloading the Container

Ensure the container is on level ground

With chock or transit wedges in place, release the securing straps.

N.B. DO NOT RELEASE THE TWO TRANSIT STRAPS HOLDING THE ROLL

Using suitable MHE (Forks) and complying with local safe lifting practices, raise the Trackway® roll and remove from the container and position in preparation for deployment, using chocks.

5.4 Loading the Container

Place suitable dunnage (wood) on container floor.

Ensure transit straps are securely fitted to the roll of Trackway®.

Using suitable MHE (Forks) and complying with local safe lifting practices, raise the Trackway® roll and place onto the dunnage, inside the container.

Place chocks or travel wedges to prevent the Trackway® moving.

Secure the Trackway® inside the container, using ratchet straps and container anchor points, as per local legislation.

5.5 Ground Preparation

5.5.1 General

Before deploying the C40 / C90 Trackway® Boat Ramp, a ground condition check is to be carried out. The operator shall survey the operating area for the C40 / C90 Trackway® Boat Ramp and ensure that the area is suitable to lay.



CAUTION: A suitably qualified and experienced operator or ground guide must be present to guide the driver and perform a ground recce.

The C40 / C90 Trackway® Boat Ramp can be successfully deployed, used and recovered on most sites ranging from very soft marsh to brush covered ground. However, if the best alignment is not explored and if the site is not properly set out, the time taken to deploy and recover will increase.

An ideal route would be a straight line across firm, smooth, flat ground with plenty of good anchorage points. Since most deployment sites are far from this ideal, the surveyor will need to select a route as free from obstruction as possible and with the best ground anchorage points.

The following sections document the following considerations the surveyor has to make before finally setting out the route:

- Softness of the Ground;
- Evenness of the Ground;
- Obstacles;
- Inclines;
- Non-Standard C40 / C90 Trackway® Boat Ramp Lengths.

5.5.2 Soft Ground

If the C40 / C90 Trackway® Boat Ramp needs to cross soft ground, then it should be deployed from a point on firm ground, laid across the soft area and continued until firm ground is reached again.

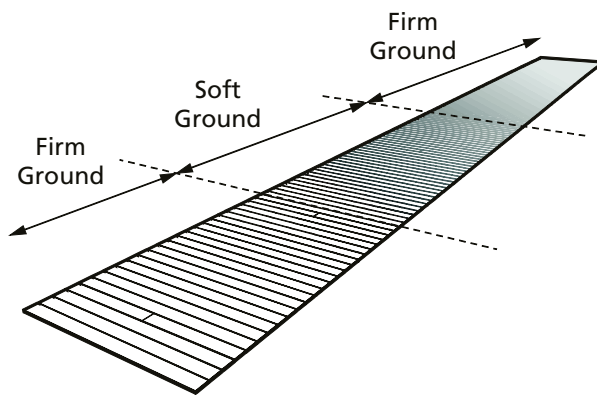


Fig. 5-1. Spanning Soft Ground

5.5.3 Uneven Ground

The route will need to be cleared if the C40 / C90 Trackway® Boat Ramp needs to cross uneven ground that exceeds the limits documented in Section 1.3.2.

Clearance requires a lot of effort and is time consuming.

5.5.4 Alignment Changes

Bends in the C40 / C90 Trackway® Boat Ramp route cause traffic flow to be slowed and therefore should be minimised.

Natural obstacles may require a change of alignment.

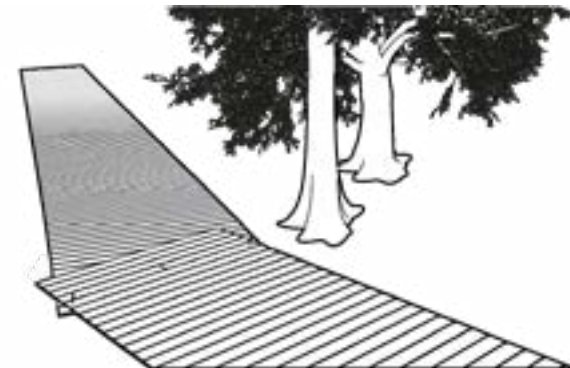


Fig 5-2. Alignment Change to Avoid Natural Obstacle

5.5.5 Deploying Across Slopes

The route must be chosen such that the maximum inclines documented in Section 1.3.1 are not exceeded.

On a cross slope, the C40 / C90 Trackway® Boat Ramp will have a tendency to slip downhill (sideways) during deployment. This effect can be counteracted by positioning the C40 / C90 Trackway® Boat Ramp slightly up-slope before beginning the deployment.

Unless the C40 / C90 Trackway® Boat Ramp beds firmly into the ground it should be anchored on the uphill slope.

5.5.6 Non-Standard C40 / C90 Trackway® Boat Ramp Lengths

Where the length of a route is not the length of a standard section of C40 / C90 Trackway® Boat Ramp, the C40 / C90 Trackway® Boat Ramp will need to be split or joined during deployment to create custom length sections (see chapters 5.10 and 5.11).

5.6 Launching with a Parbuckling Strap

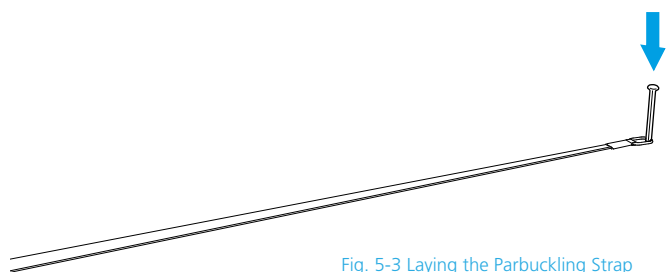


Fig. 5-3 Laying the Parbuckling Strap

Lay the Parbuckling Strap on the ground in a straight line, in the direction of lay and beyond the C40 / C90 Trackway® start position (unless it is pre-rolled). Anchor the Parbuckling Strap by hammering a Ground Anchor Stake into the ground, 800mm away from the C40 / C90 Trackway® anticipated starting point.

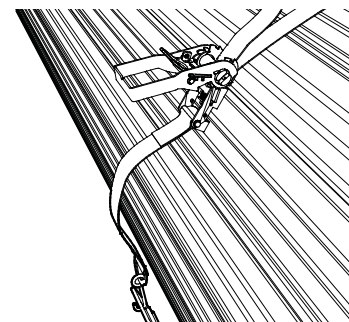


Fig. 5-4 Opening the ratchets

Lower the C40 / C90 Trackway® Boat Ramp to the floor so that the Parbuckling Strap is central to the C40 / C90 Trackway® Boat Ramp width, and remove the two Transit Straps by opening the ratchets and releasing the tension.

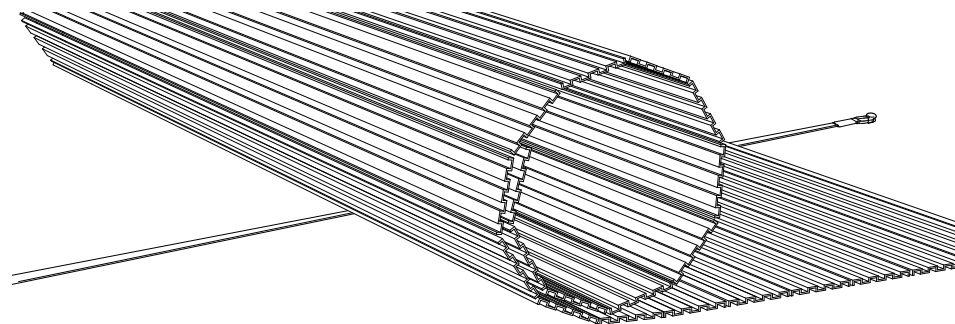


Fig. 5-5 Lower the C40/C90 Trackway® onto the Parbuckling Strap

5.7 Launching by Hand

2 - 6 people can push out the C40 / C90 Trackway® Boat Ramp by hand.

Four people can push out the C40 / C90 Trackway® Boat Ramp in a controlled and deliberate action. When momentum is gained, allow the C40 / C90 Trackway® Boat Ramp to unfurl itself and stand clear of the last wrap, as the panel can 'whip' up and cause injury.

NOTE: Gloves must be worn.

5.8 Recovery

C40/C90 Trackway® Boat Ramp is recovered by attaching the Parbuckling Strap to a vehicle and driving in a slow and controlled manner.

Attach the Parbuckling Strap to a center tow point on the vehicle.

Ensure that the other end of the Parbuckling Strap is anchored to the far end of the C40/C90 Trackway® Boat Ramp with a Ground Anchor Stake.

Position the vehicle on the C40 / C90 Trackway® Boat Ramp, facing the direction of travel. Align the vehicle parallel to the C40 / C90 Trackway® Boat Ramp, drive off slowly and only steer to correct the roll formation.

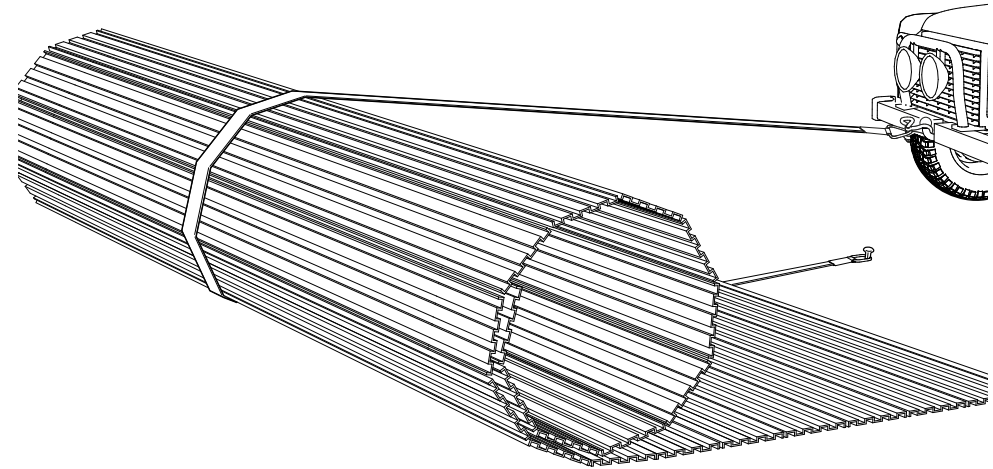


Fig. 5-6 Parbuckling the C40/C90 Trackway® Boat Ramp

Continue parbuckling until the C40 / C90 Trackway® Boat Ramp is completely rolled and finish the run by placing the roll of C40 / C90 Trackway® Boat Ramp on dunnage where possible.

Insert chocks under the C40 / C90 Trackway® Boat Ramp to prevent movement.

Store with the Parbuckling Strap.

Attach Transit Straps to the C40 / C90 Trackway® Boat Ramp.

5.9 Launching with Pushbar (optional)

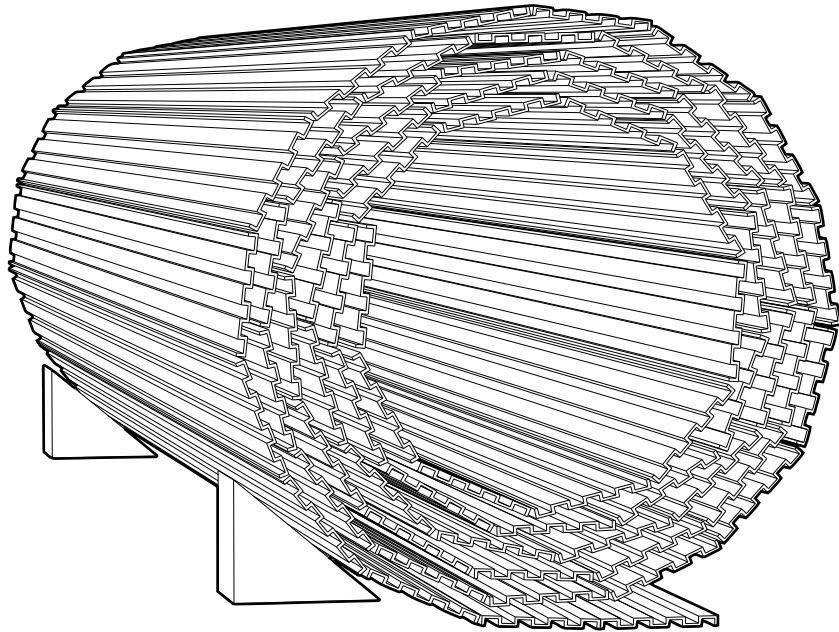


Fig. 5-7 Insert chocks under the C40/C90 Trackway® Boat Ramp to prevent movement.

Position C40 / C90 Trackway® Boat Ramp with open end at 5 / 7 o'clock, in the direction of lay.

Control with chocks and release the Transit Straps.



WARNING: Do not stand in front of the Trackway® roll.

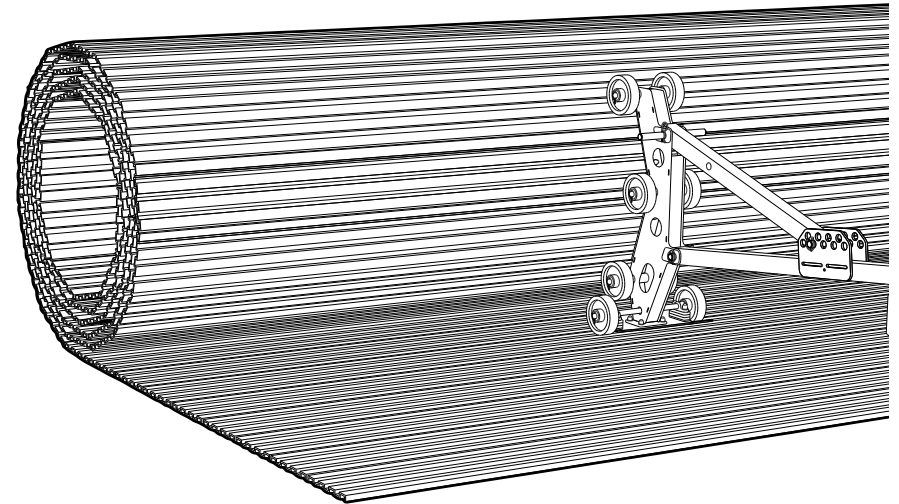


Fig. 5-8 Pushbar presented to rearward face

Present Pushbar to the rearward face of the C40 / C90 Trackway® Boat Ramp roll.

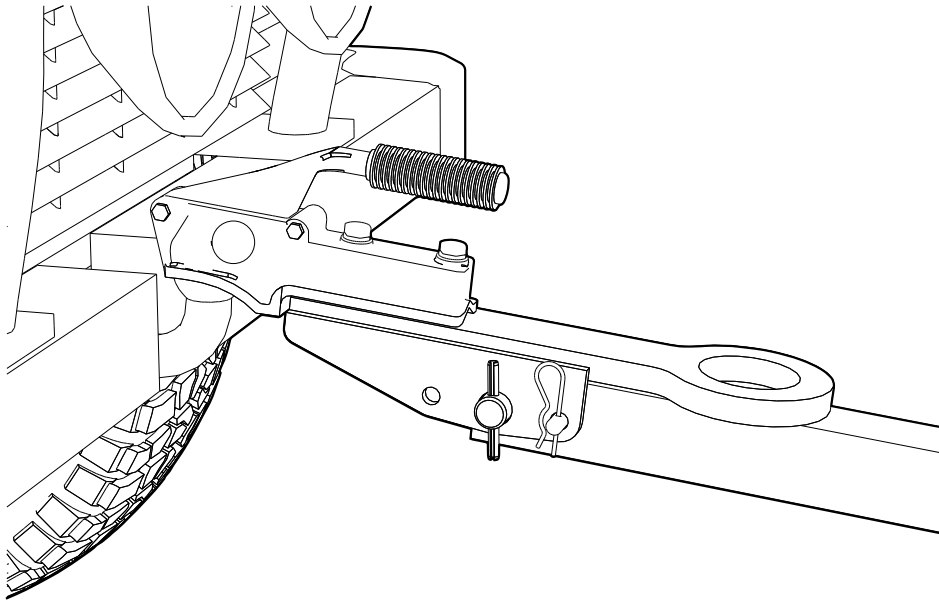


Fig. 5-9 Connect the Pushbar to the prime mover using the loop or ball hitch

Connect the Pushbar to the prime mover using the loop or ball hitch.

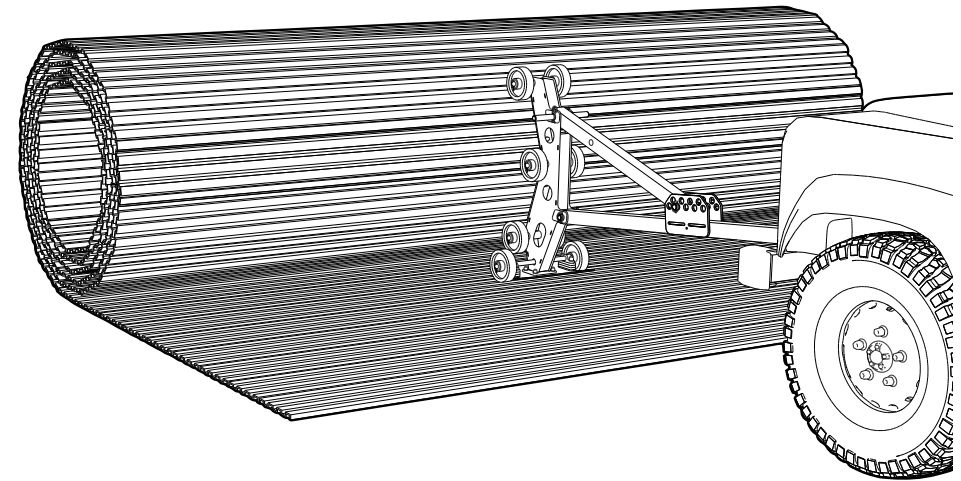


Fig. 5-10 Drive the prime mover forward slowly

Safely remove the chocks;

Drive the prime mover slowly to lay the C40 / C90 Trackway® Boat Ramp;

Control the direction of the Pushbar;

Ensure no one is standing within the area of the C40 / C90 Trackway® Boat Ramp deployment;

When all the C40 / C90 Trackway® Boat Ramp is unrolled, disconnect the Pushbar and store.

5.10 Recovery by Pushbar

Position dunnage at the far end of the C40 / C90 Trackway® Boat Ramp.

Lift the leading end panel and present the Pushbar to the center point of the C40 / C90 Trackway® Boat Ramp.

Pushing the Pushbar slowly, create the first roll by tucking the edge of the first panel into the ridge of the panel creating the roll.

Continue to roll and guide.

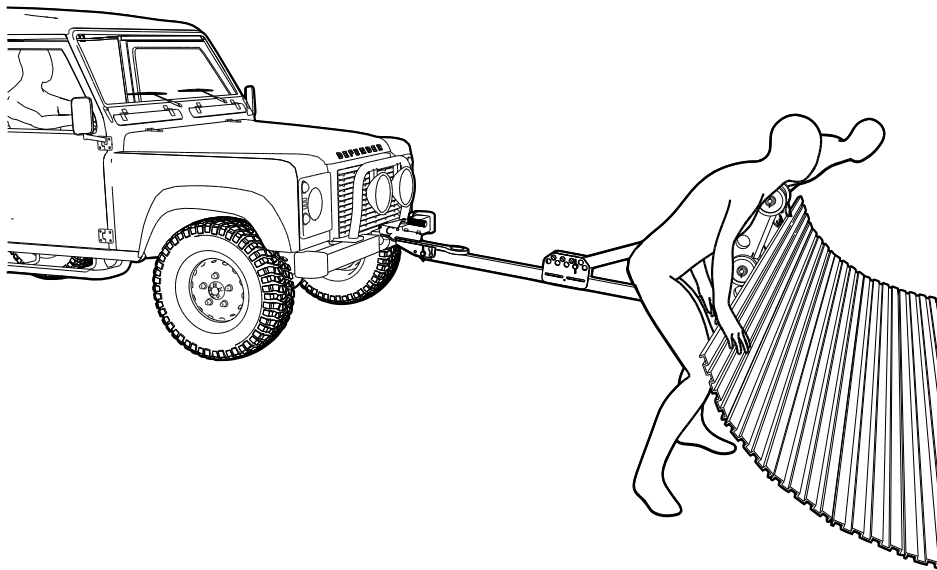


Fig. 5-11 Create the first roll by tucking the first panel into a ridge



WARNING: Keep hands clear.

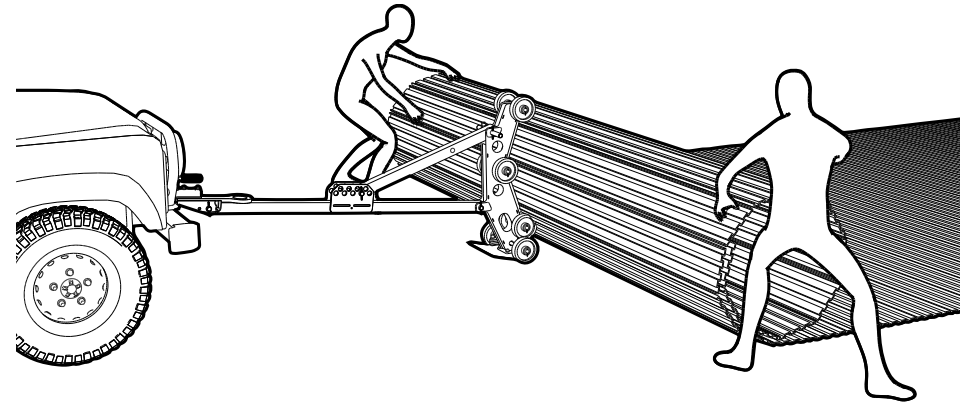
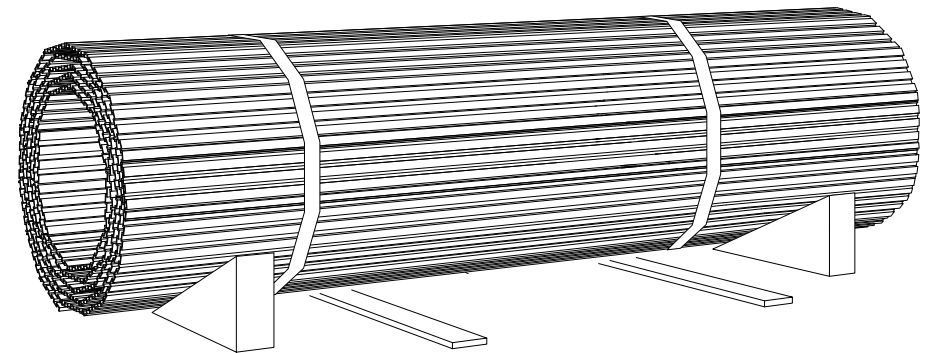


Fig. 5-12 Slowly roll the C40/C90 Trackway® forward

When rolling the C40 / C90 Trackway® Boat Ramp onto the dunnage, ensure the C40/C90 Trackway® Boat Ramp is supported with chocks once on the dunnage.

Install Transit Straps and remove Pushbar.

With chocks in place, remove and store the Pushbar.



5.11 Splitting C40/C90 Trackway® Boat Ramp

Equipment Required:

- Hand Line Assembly

C40 / C90 Trackway® Boat Ramp can be split to:

- Create shorter runs;
- Replace or repair damaged panels and sections.

C40 / C90 Trackway® Boat Ramp can be split during deployment, recovery, or when all of the C40 / C90 Trackway® Boat Ramp is on the ground.

The C40 Trackway® Boat Ramp has Half Panels fitted approximately every 5m and it is at these points that the C40 / C90 Trackway® Boat Ramp should be split, although the C40 / C90 Trackway® Boat Ramp can be split using Full Panels.



It is recommended to split the C40 / C90 Trackway® Boat Ramp using Half Panels because less force is required to extract them and less clearance at the side of the C40 / C90 Trackway® Boat Ramp is required.

Identify the row of Half Panels or Full Panels at the point where the split is to take place. Ensure that the identified row is on the ground at the rear of the transporter.

If splitting at a row of Half Panels, ensure there is 2.5m clear on each side of the C40 / C90 Trackway® Boat Ramp.

If splitting a row with a Full Panel then make sure there is 5m clear on one side of the C40 / C90 Trackway® Boat Ramp.

Locate the Locking Bolts at each end of the panels to be removed and the adjacent C40 / C90 Trackway® Boat Ramp panel(s). Lift and slide these Locking Bolts / TamperProof Locking bolts into the open position.

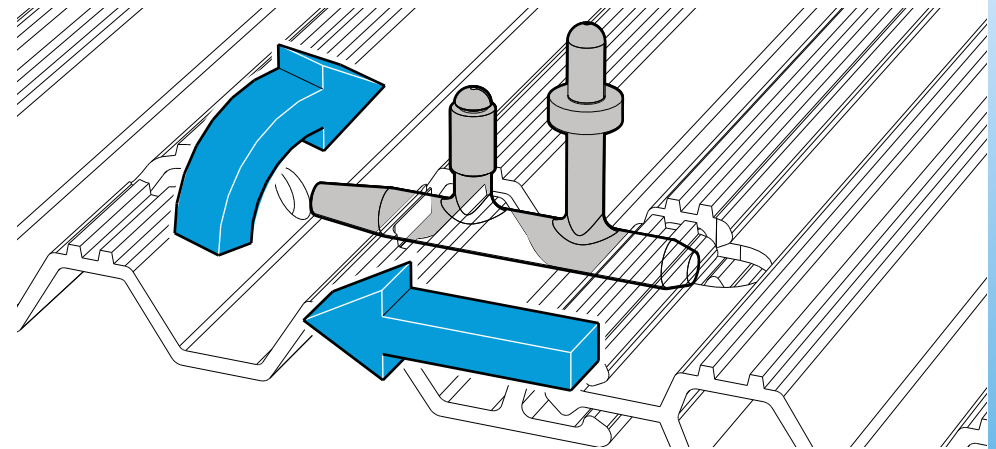


Fig. 5-13 (C40) Lift and slide these Locking Bolts / TamperProof Locking bolts into the open position

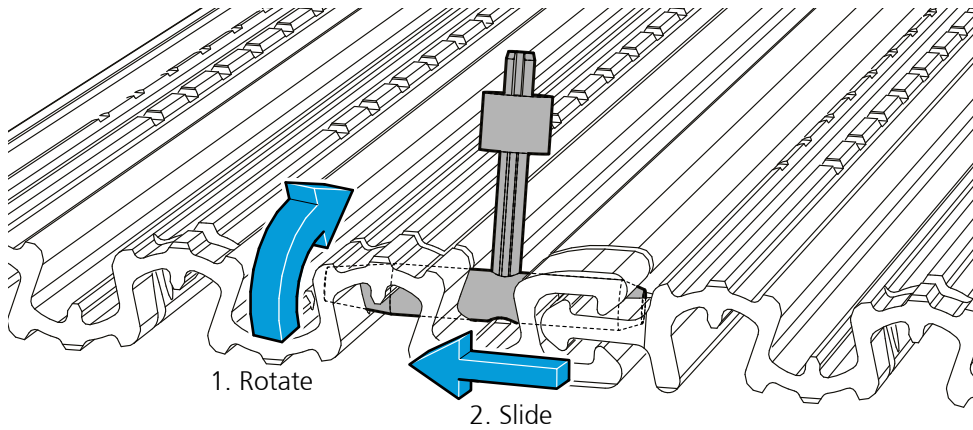


Fig. 5-14 (C90) Lift and slide these Locking Bolts / TamperProof Locking bolts into the open position

Attach the Hand Line Assembly to the outside edge of the panel to be removed by clipping it through the hole. Ensure that the karabiner gate is closed.

Slowly pull the panel out of the C40 / C90 Trackway® Boat Ramp until it is free and clear. If splitting at a row of Half Panels, repeat for the other panel.

Recover the remaining C40 / C90 Trackway® Boat Ramp as required.

5.12 Joining C40/C90 Trackway® Boat Ramp

Equipment Required:

- Spare Full Panel or Pair of Half Panels (if unavailable remove panel(s) from the deployed C40 / C90 Trackway® Boat Ramp);
- Hand Line;
- Sledge Hammer.

5.12.1 General

Sections of C40 / C90 Trackway® Boat Ramp can be joined to create longer continuous lengths or to enable the recovery of a section which has been previously split. Note that only male panel ends can be joined to female ends and vice versa.

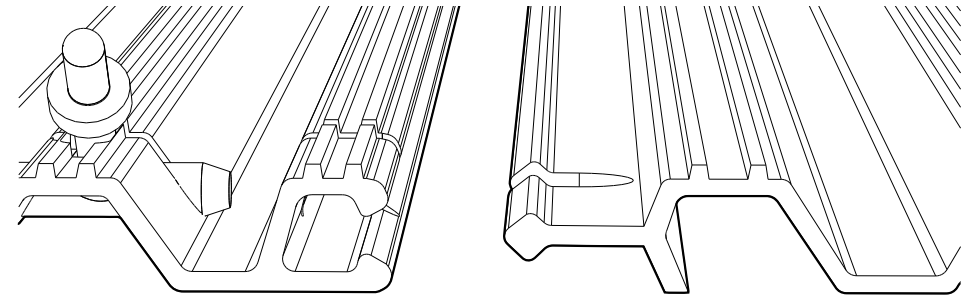


Fig. 5-15 C40 Male and Female Panel ends

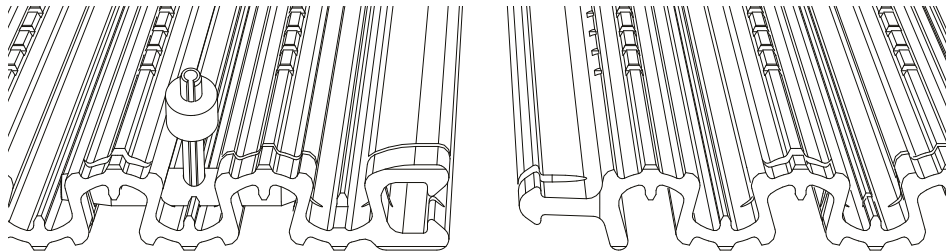


Fig. 5-16 C90 Male and Female Panel ends

C40 / C90 Trackway® Boat Ramp must only be deployed in a straight line.

5.12.2 Positioning the C40/C90 Trackway® Boat Ramp

Position the new C40 / C90 Trackway® Boat Ramp with the 'open end' facing the end of the existing run (ensure male female joint).

Remove the end panel (or Half Panels) from the end of the first C40 / C90 Trackway® Boat Ramp.

The end of the second C40 / C90 Trackway® Boat Ramp should be lined up with the end of the panel to be joined at a distance of approximately 300mm. Slowly move the roll whilst continuously checking the alignment until this is the case. Synthetic Ropes may be required for C40 / C90 Trackway® Boat Ramp adjustment.

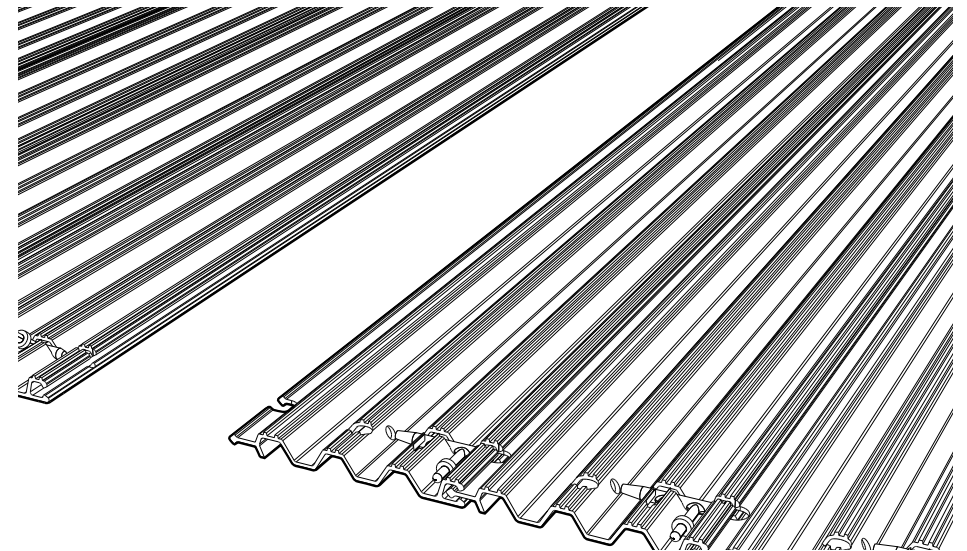


Fig. 5-17 Aligned Ready for Joining

5.12.3 Inserting Half Panels

Slot one of the spare Half Panels approximately 300mm into the C40 / C90 Trackway® Boat Ramp, ensuring that the male and female joints connect on each side with the C40 / C90 Trackway® Boat Ramp on the ground and the C40 / C90 Trackway® Boat Ramp on the Spool.

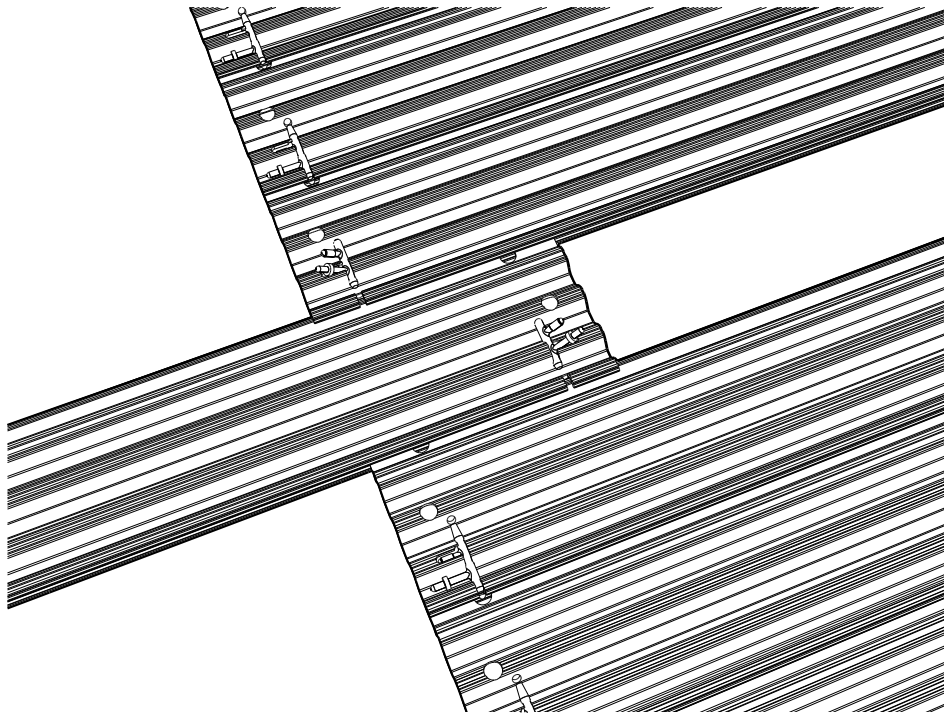


Fig. 5-18 Initially Insert Half Panels 300mm into C40/C90 Trackway® Boat Ramp

Repeat with the other Half Panel on the other side of the C40 / C90 Trackway® Boat Ramp.

With the ends of the C40 / C90 Trackway® Boat Ramp segments to be joined properly aligned and connected, the Half Panels can be pushed in fully. The Sledge Hammer may be used if this is too difficult to do by hand. Be careful, as hitting the panel too hard, directly with Sledge Hammer could damage the panels.

NOTE: It may help to engage the center Locking Bolt / Tamperproof Locking bolt of one Half Panel to make positioning the second easier.

Slide the Locking Bolt / Tamperproof Locking bolt into the locked position at each end of the inserted panel and the panel adjacent to it.

Stow any accessories back in the Storage Boxes.

5.12.4 Inserting a Full Panel

Insert the spare Full Panel into the C40/C90 Trackway® Boat Ramp between the end panel on the Spool and the end panel on the ground, ensuring that the male and female joints connect on each side. Assistance may be required to align both sections.

Attach the Synthetic Rope to the outside edge of the panel to be inserted by clipping it through the hole. Ensure that the karabiner gate is closed.

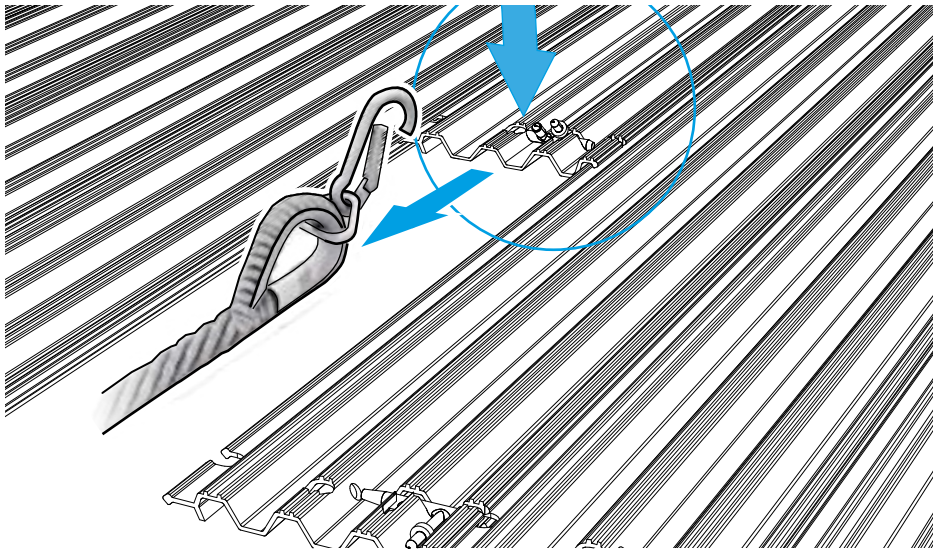


Fig. 5-19 Pull the panel into the C40/C90 Trackway® Boat Ramp using the Hand Line Assembly

Using the Hand Line Assembly pull the Full Panel all the way into the C40/C90 Trackway® Boat Ramp.

Slide the Locking Bolts / Tamperproof Locking bolts into the locked position at each end of the inserted panel and the panel adjacent to it.

5.13 Anchorage

5.13.1 General

When deploying C40 / C90 Trackway® Boat Ramp anchorages may be required, to prevent the C40 / C90 Trackway® Boat Ramp moving on the slipway.

On sloped ground, the C40 / C90 Trackway® Boat Ramp should be anchored to prevent it working downhill. Anchorages should be installed in pairs, one each side of the C40 / C90 Trackway® Boat Ramp, with one pair of anchorages at the top.

On level ground, short runs of C40 / C90 Trackway® Boat Ramp may not require anchorage - dependent on the strength of the ground.

Natural anchors such as firm trees, posts and large rocks may be used for anchorage.

5.13.2 Anchoring C40/C90 Trackway® Boat Ramp

5.13.2.1 Option 1

Equipment Required:

- Ground Anchor Stakes;
- Sledge Hammer.

The C40 / C90 Trackway® Boat Ramp can be directly staked, through holes at the end of the panels.

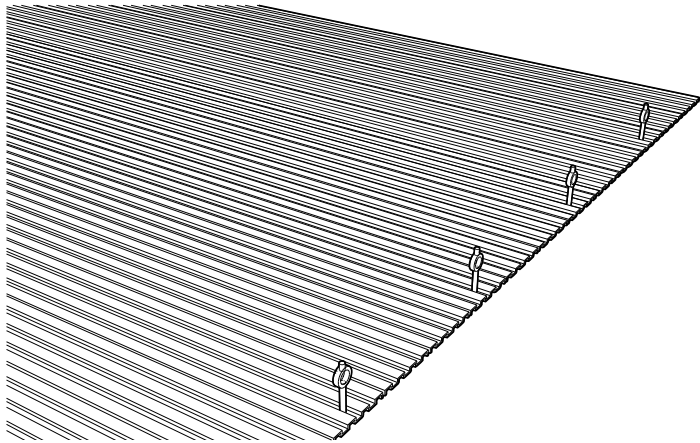


Fig. 5-20 C40/C90 Trackway® Boat Ramp section with stakes every third panel on both sides. 4 stakes per side

5.13.2.2 Option 2

Equipment Required:

- Leading Edge Anchor Plate;
 - i. Screw Anchor
 - ii. 25mm spanner or 25mm socket and ratchet.
- Side Anchor Assembly;
 - i. Screw Anchor
 - ii. Base Plate
 - iii. Top Plate
 - iv. M12 Hex Head Bolt with Locking Washer
 - v. 19mm spanner
 - vi. 25mm spanner

Leading Edge Anchor Plate

Hook lip of Leading Edge Anchor Plate into groove of C40 / C90 Trackway® panel. Insert Screw Anchor through the Leading Edge Anchor Plate and tighten down using the 25mm spanner.

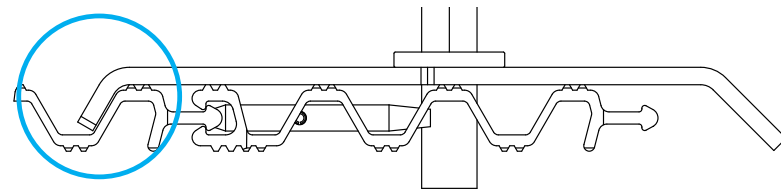


Fig. 5-21 Leading Edge Anchor Plate placed into groove of C40/C90 Trackway®

The lip can be placed either side of the C40 / C90 Trackway® panel.

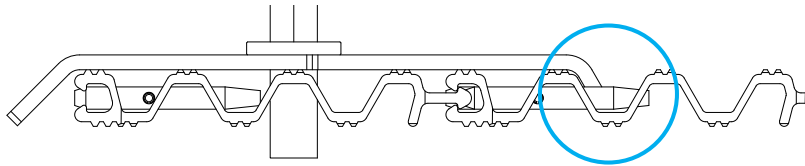


Fig. 5-22 Leading Edge Anchor Plate placed into groove of C40/C90 Trackway®

Secure Leading Edge Anchor Plates and Side Edge Anchor Plates with Screw Anchors.

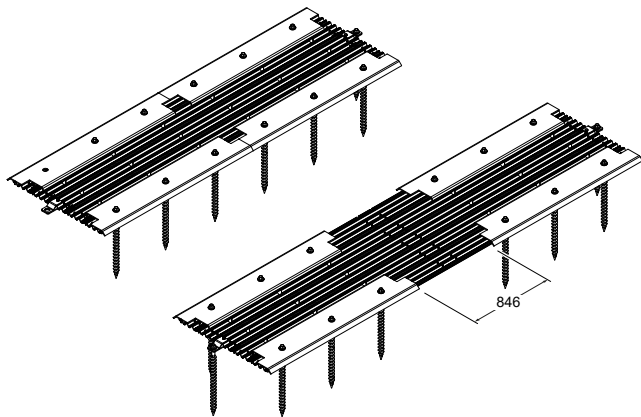


Fig. 5-23 Leading Edge Anchor Plate secured with Screw

Side Anchor Assembly

Place Base Plate under the C40 / C90 Trackway® panel, aligning the weld nut with the panel hole. Place the Top plate over the top of the C40 / C90 Trackway® panel, aligning the hole with the nut of the Base Plate.

Lock with the locking washer and M12 Hex Head Bolt and tighten using the 19mm spanner. Insert Screw Anchor into Side Anchor Assembly and tighten down using the 25mm spanner.

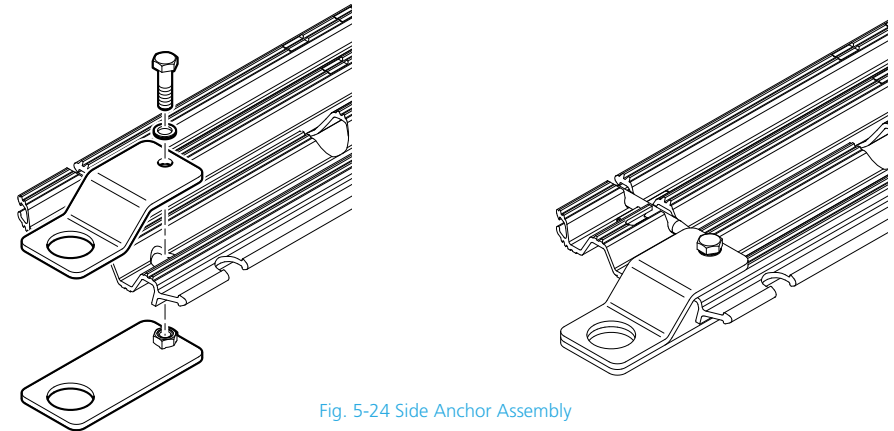


Fig. 5-24 Side Anchor Assembly

6. MAINTENANCE

6.1 General

The C40/C90 Trackway® Boat Ramp is constructed from resilient materials, to minimise maintenance requirements.

This chapter details how preventative maintenance can be undertaken to avoid or mitigate the consequences of failure of the C40/C90 Trackway® Boat Ramp.

6.2 Safety



CAUTION: Wear personal protective equipment (gloves, goggles, ear protection and safety shoes) when undertaking preventative maintenance tasks.

6.3 Preventative Maintenance

Before use: Before using the equipment, check panels are safe and serviceable. The female edges must be parallel and capable of receiving the male edge panel. Ensure Locking Bolts are all present and free from deformation or cracks.

After operation: After each time the equipment is used, the equipment should be thoroughly cleaned, inspected for damage and repaired accordingly.

6.4 Inspection

The C40 / C90 Trackway® Boat Ramp panel should be checked for damage such as burrs or deformation. Any burrs should be removed and filed smooth. If a panel cannot be straightened sufficiently to join other panels, it should be replaced.

Check Locking Bolts for damage, such as deformation or cracking and change as required.

6.5 Preventative Maintenance

Step 1 - Steam clean the panels to remove debris, ensuring all dirt is removed from around the Locking Bolts.

Step 2 - Wipe dry.

6.6 Preventative Maintenance Schedule

This chapter details how the C40 / C90 Trackway® Boat Ramp should be maintained by the Operator to prevent damage and ensure long-term serviceable use.

S/N	System	Lubrication / Part Change	Class	Specification	Qty	Interval and Tasks		Carry Out By
						After Operation	Annually	
1	C40/C90 Trackway® Boat Ramp Panels	-			As Req.	Clean	Inspect And Clean	Operator
2	Locking (Shoot) Bolts	-			As Req.	Clean	Inspect And Clean	Operator
3	Transit & Holdfast Strap	Lubricate	-	Wd40	As Req.	Clean & Lubricate	Clean & Lubricate	Operator
4	Ground Anchor Stake	-	-	-	-	Clean	Clean	Operator
5	Hand Line Assembly	Lubricate	-	Wd40	As Req.	Clean & Lubricate	Clean & Lubricate	Operator

Table 6-1 Maintenance of Parts



CAUTION: Wear personal protective equipment (gloves, goggles, ear protection and safety shoes) when undertaking preventative maintenance tasks.



CAUTION: Collect used and excess lubricant including cleaning cloths and dispose of according to local environmental regulations.

6.7 Replacing Locking Bolt

This chapter explains how to replace a Locking Bolt. For Tamperproof Locking bolts, see page 28. *To remove a Locking Bolt, the partner Locking Bolts and two adjacent panel Locking Bolts must also be opened.*

1. Lift Locking Bolt to vertical position.

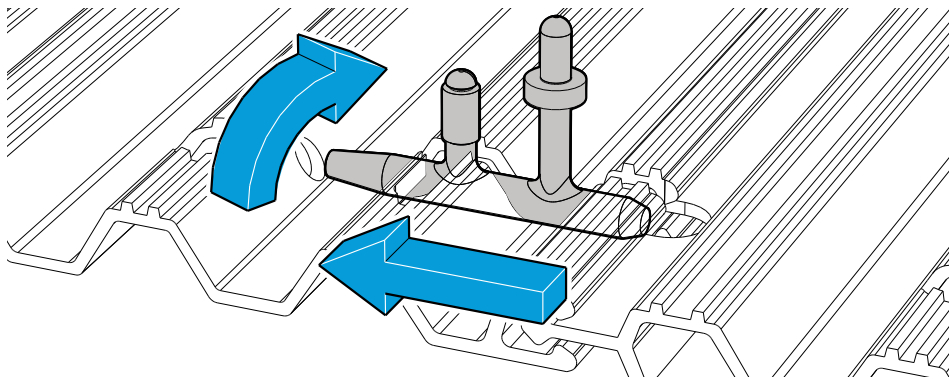


Fig 6-1 Locking Bolt into Position

2. Slide Locking Bolt backwards towards panel male end.

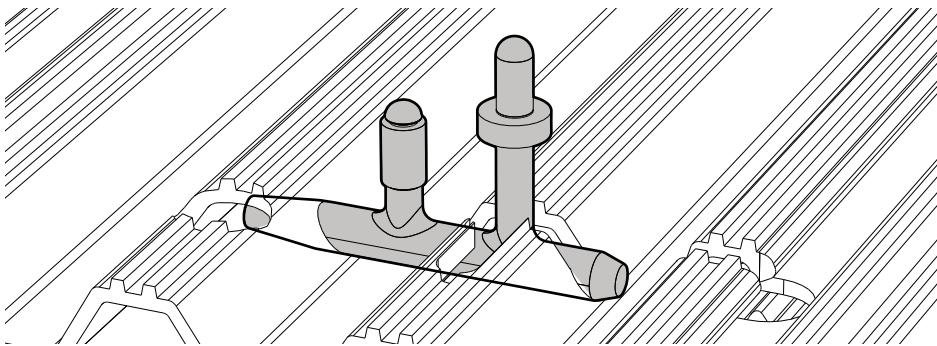


Fig 6-2 Slide Locking Bolt backwards

3. Slide panel out to reveal Locking Bolt recess.

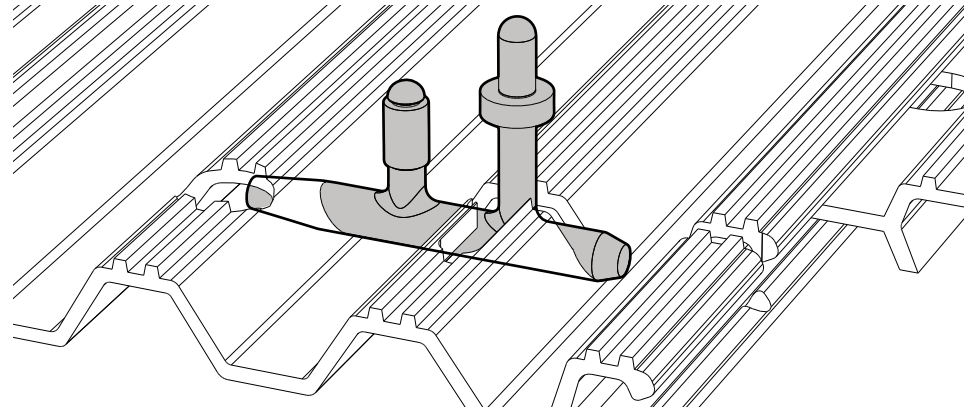


Fig 6-3 Slide panel out

4. Remove Locking Bolt

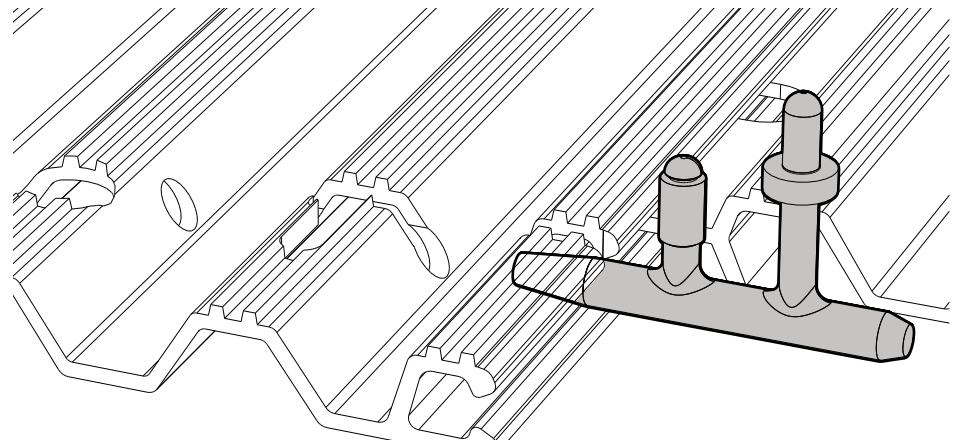


Fig 6-4 Remove Locking Bolt

5. Reverse stages 3,2 slide panel back into correct alignment, engage Locking Bolt and then lock into position.

6.8 Replacement of Tamperproof Stainless Steel Locking Bolt (optional)

1. (C40 Trackway® only) Remove the Tamperproof Locking bolt by driving the selloc pin until the end is flush with the Locking bolt using a suitable punch and hammer. Repeat this process with partner Locking bolt and two adjacent Locking bolts to enable the panel to slide out.

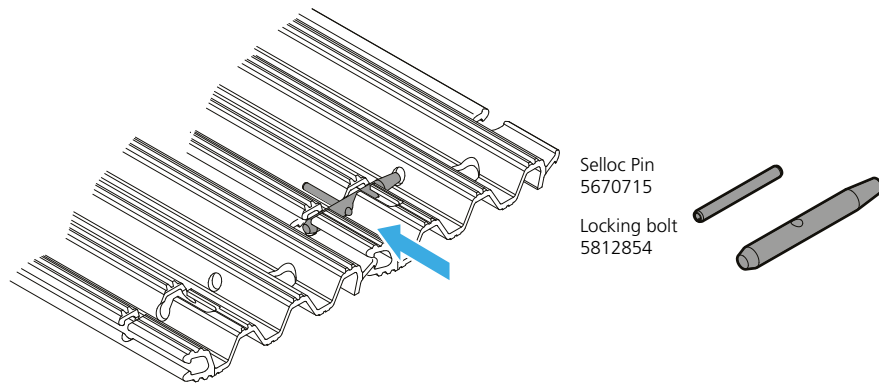


Fig 6-5 Drive Selloc Pin until flush with Locking bolt

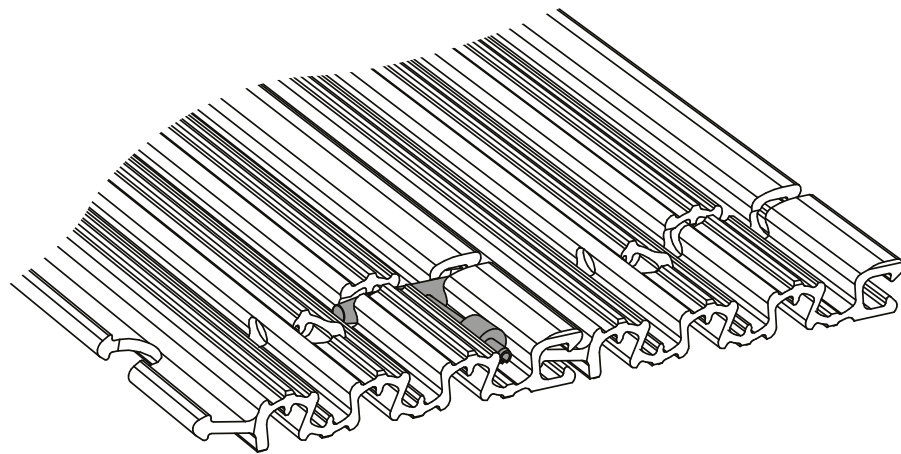


Fig 6-6 C90 Locking bolt with rubber grommet

2. Lift up the selloc pin and slide locking bolt backwards. Repeat this process with partner Locking bolt and two adjacent Locking bolts to enable the panel to slide out.

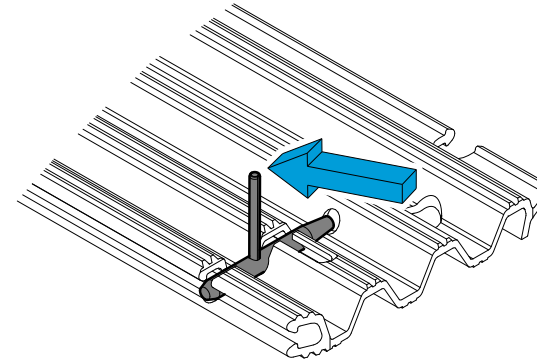


Fig 6-7 Lift up Selloc Pin

3. Slide the panel out approximately 300mm to enable the Locking bolt to be removed. Flatten the Locking bolt with the selloc pin facing into the C40/C90 Trackway and knock the selloc pin out.

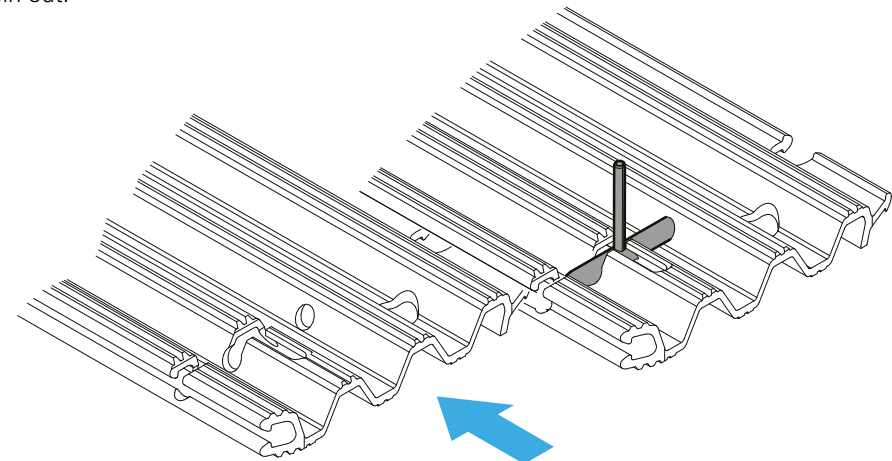


Fig 6-8 Slide out panel approximately 300mm

Using a suitable punch and hammer, drive the selloc pin out completely and slide the Locking bolt out from the panel.

To replace a Tamperproof Locking bolt, the partner Locking bolts and two adjacent panel Locking bolts must also be opened.

1. Insert the Locking bolt into the slot (female joint of the C40 Trackway®).

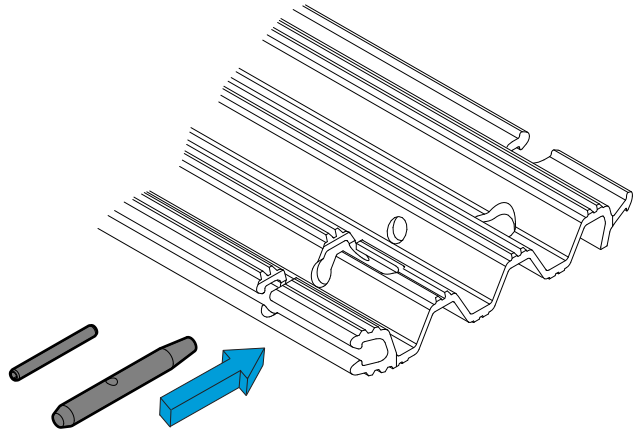


Fig 6-9 Insert Locking bolt into panel

2. Position the Locking bolt with the hole facing upwards, to receive the Selloc Pin. Insert the Selloc Pin into the hole in the Locking bolt and tap in with a hammer.

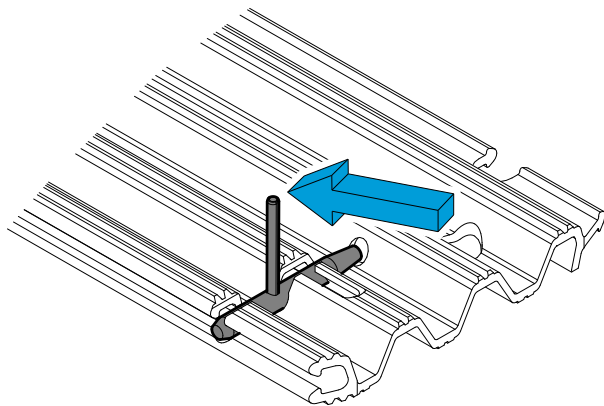


Fig 6-10 Insert the Selloc Pin into the Locking bolt

NOTE: Do not drive the Selloc Pin through the other side of the Locking bolt, as this will prevent rotation.

3. Open the Locking bolt and insert the next C40 Trackway® panel.

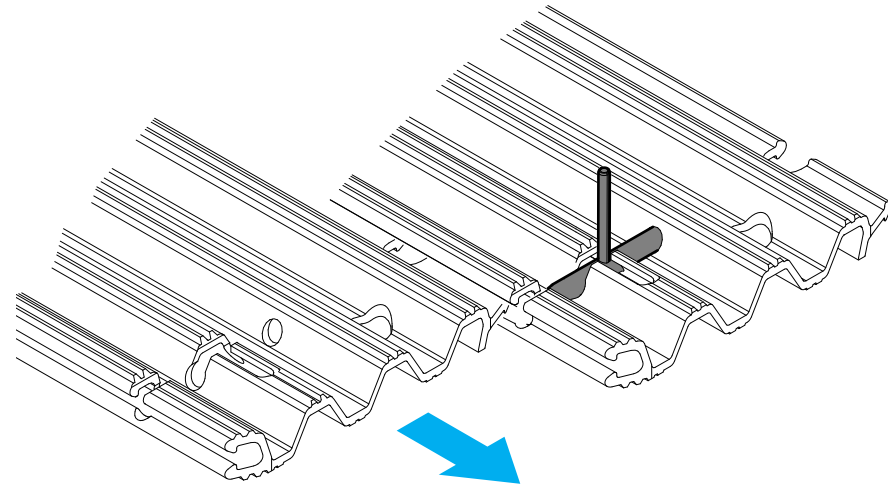


Fig 6-11 Slide next panel

4. Engage the Locking bolt and rotate the assembly outward through 90 degrees. Repeat this process with partner Locking bolt and two adjacent Locking bolts to enable the panel to lock into position.

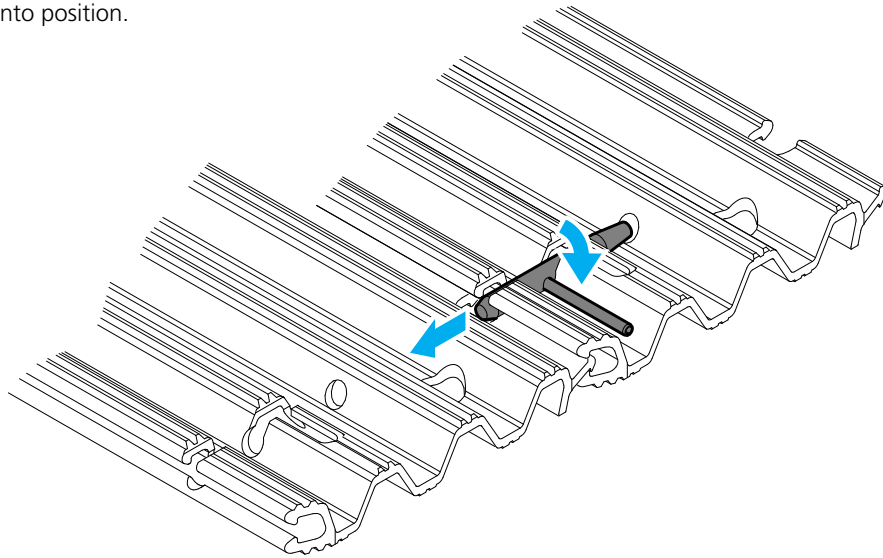


Fig 6-12 (C40) Rotate the assembly 90 degrees

5. (C40 Trackway® only) Using a suitable punch and hammer, drive the Selloc Pin through the Locking bolt until it is centrally positioned. The C40 Trackway® panels cannot be unlocked without the use of tools.

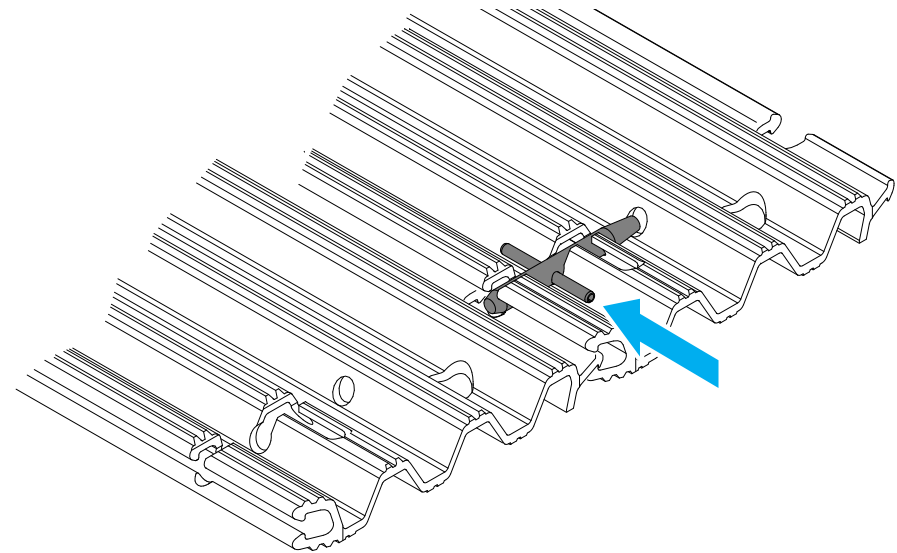


Fig 6-14 Drive Selloc Pin so it is centrally positioned within the Locking bolt

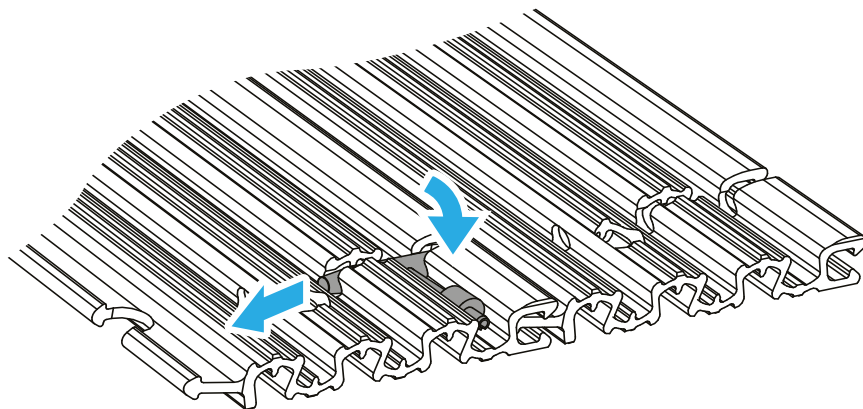
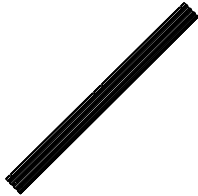

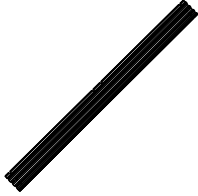





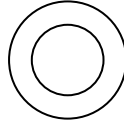
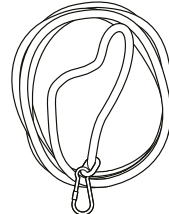
Fig 6-13 (C90) Rotate the assembly 90 degrees


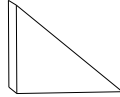


7. PARTS LIST

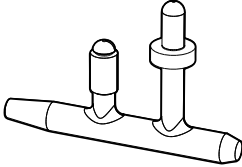

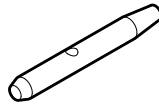
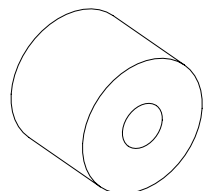
7.1 Items


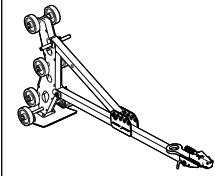
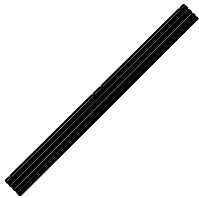

**All parts subject to change*

Item	Part Number	Name	Description	Image	Qty 20m	Qty 30m	Qty 40m
1	5296148	Full Panel	3.3 metre width. Forms main structure of C40 Trackway® Boat Ramp surface		97	145	194
2	5296149	Half Panel	3.3 metre width. Forms part of the C40 Trackway® Boat Ramp surface. Inserted every 5 linear meters to facilitate easy joining		6	10	14
3	5865002	Full Panel	4.2 metre width. Forms main structure of C40 Trackway® Boat Ramp surface		97	145	194
4	5865003	Half Panel	4.2 metre width. Forms part of the C40 Trackway® Boat Ramp surface. Inserted every 5 linear meters to facilitate easy joining		6	10	14

Item	Part Number	Name	Description	Image	Qty 20m	Qty 30m	Qty 40m
5	5670041	Transit Strap	Holds the rolled C40 Trackway® Boat Ramp panels in form, or tension device anchorage.		2	2	2
6	5670487	Ground Anchor Stake	Driven into ground for earth holdfast		12	16	20
7	5812423	Stake Washer	Used in conjunction with Ground Anchor Stakes to secure		8	12	16
8	5865734	Hand Line Assembly	Used to pull panels into place		1	1	1

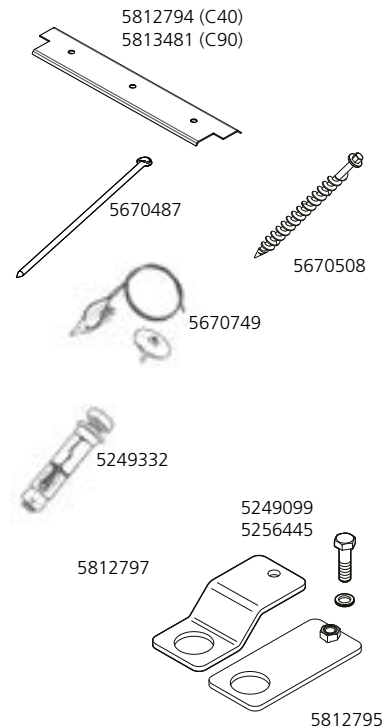
Item	Part Number	Name	Description	Image	Qty 20m	Qty 30m	Qty 40m
9	5670224	Webbing Sling 3T	To lift Trackway® Spool		2	2	2
10	5621388	Heavy Duty Wheel Chock	Prevents movement of the Trackway® when rolled		2	2	2
11	5812861	End Anchor Panel (3.3m)	Used with Leading Edge Anchor Plate to anchor the Trackway® to the ground		1	1	1
12	5812856	End Anchor Panel (4.2m)	Used with Leading Edge Anchor Plate to anchor the Trackway® to the ground		1	1	1

Item	Part Number	Name	Description	Image	Qty 20m	Qty 30m	Qty 40m
13	5865101	Locking (shoot) Bolt	Locks C40 Trackway® Boat Ramp panels into place, preventing lateral movement		200	300	400
14	5670715 (C40) 5292664 (C90)	Sellock Pin	Inserts into the locking bolt to lock C40 Trackway® Boat Ramp panels into place		200	300	400
15	5812854 (C40) 5292663 (C90)	Locking bolt	Locks C40/90 Trackway® Boat Ramp panels into place, preventing lateral movement		200	300	400
16	5292810	Rubber Grommet	Grommet to secure locking bolt in locked position.		200	300	400

Item	Part Number	Name	Description	Image	Qty 20m	Qty 30m	Qty 40m
16	5670527	Duplex Webbing Sling	Parbuckling Strap (22m)		2	4	6
17	5865572	Pushbar	Designed to roll out and recover Trackway® by use of a vehicle		Optional	Optional	Optional
18	5865738	C90 Full Panel	4.5 metre width. Forms main structure of C90 Trackway® Boat Ramp surface		91	135	180
19	5865739	C90 Half Panel	2.25 metre width. Forms part of the C90 Trackway® Boat Ramp surface. Inserted every 5 linear meters to facilitate easy joining		6	10	14

Leading Edge Anchor Kit

	Part Number	Description	Qty
Option 1	5812794	C40 Trackway Anchor Plate	2
	5813481	C90 Trackway Anchor Plate	2
	5670487	Anchor Stake 750mm	6
Option 2	5812794	C40 Trackway Anchor Plate	2
	5813481	C90 Trackway Anchor Plate	2
	5670508	Screw Anchor 660mm	6
Option 3	5812794	C40 Trackway Anchor Plate	2
	5813481	C90 Trackway Anchor Plate	2
	5670749	Earth Anchor	6
Option 4	5812794	C40 Trackway Anchor Plate	2
	5813481	C90 Trackway Anchor Plate	2
	5812545	M10 Spacer Washer	6
	5249332	M10 Raw Bolt	6



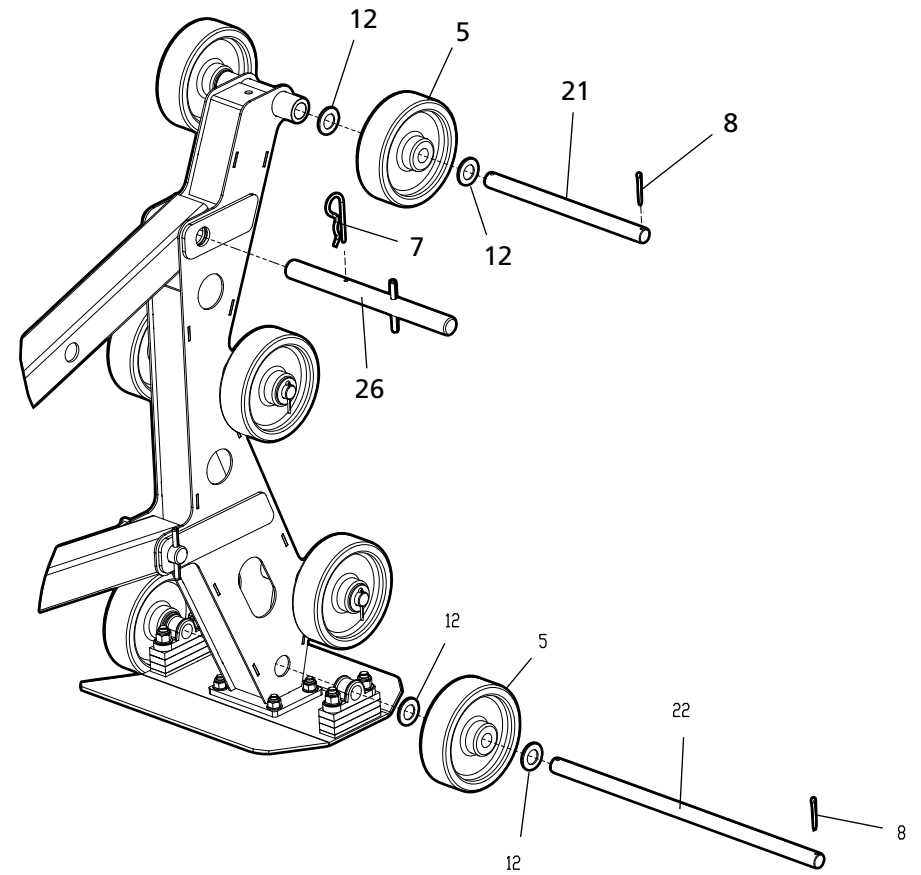
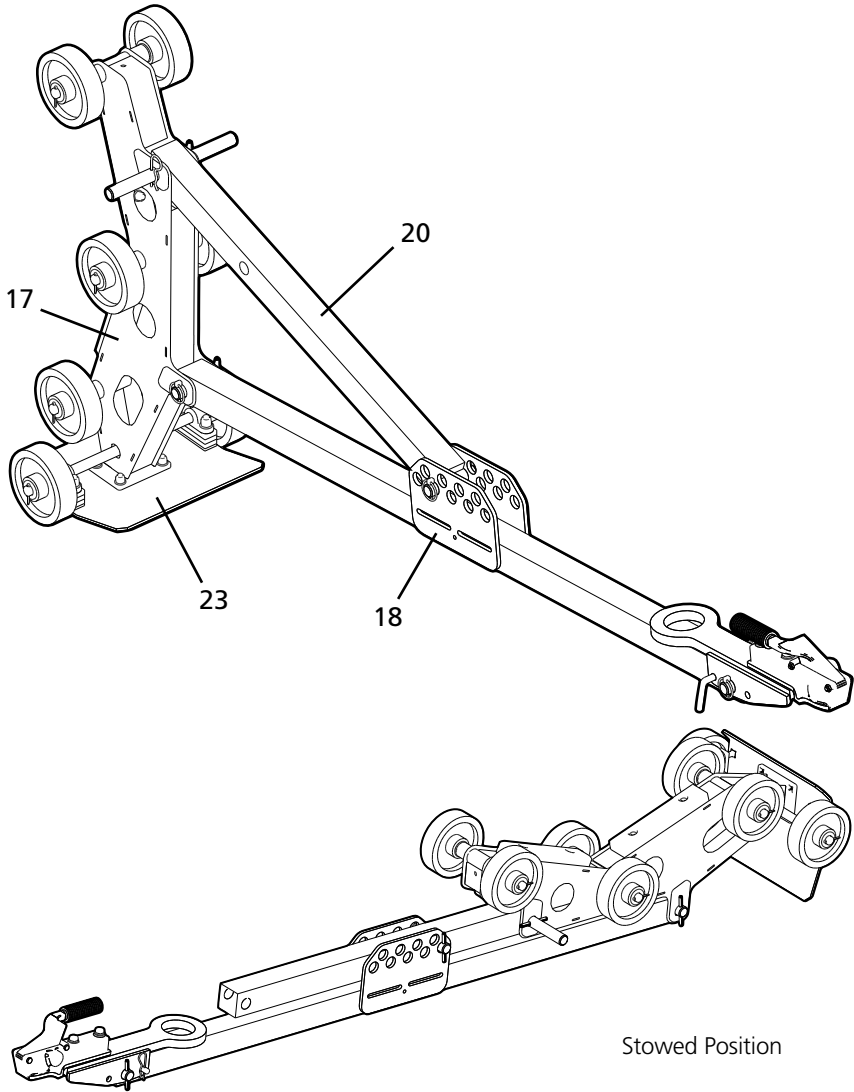
Side Anchor Assembly Kit

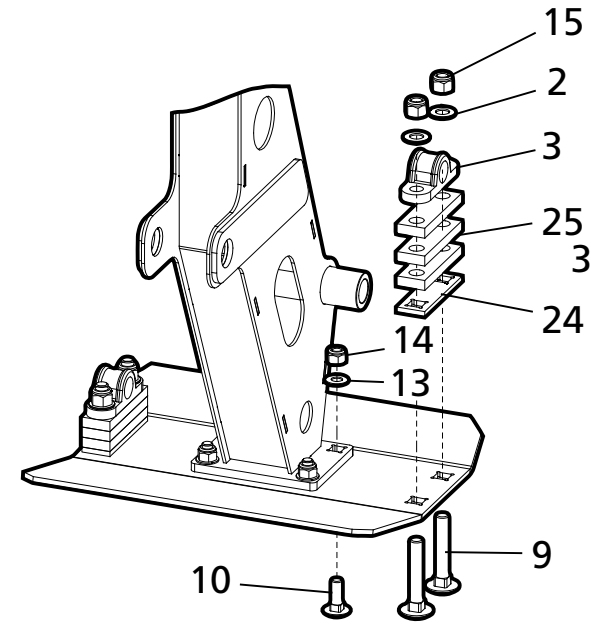
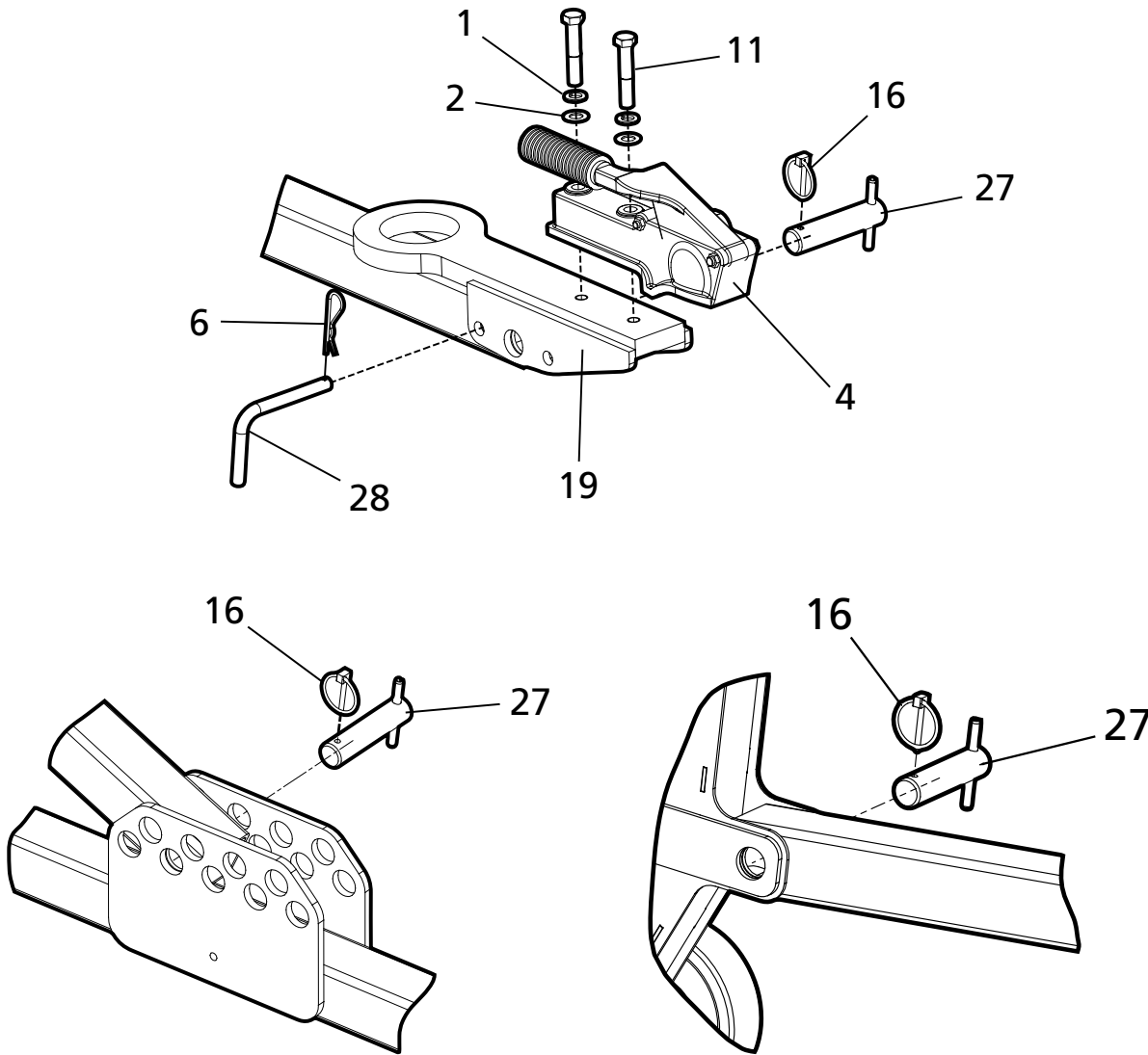
	Part Number	Description	Qty / 5 metres
Option 1	5670487	Anchor Stake 750mm	2
	5812423	Stake Washer	2
Option 2	5670508	Screw Anchor 660mm	2
	5812946	Side Anchor Kit	1
	5812795	Side Anchor Base fabrication	2
	5812797	Side Anchor Top Plate	2
	5249099	M12 x 45 Hex Head Bolt	2
	5256445	M12 Nord Lock Washer	2
Option 3	5670749	Earth Anchor	2
	5812946	Side Anchor Kit	1
	5812795	Side Anchor Base Fabrication	2
	5812797	Side Anchor Top Plate	2
	5249099	M12 x 45 Hex Head Bolt	2
	5256445	M12 Nord Lock Washer	2

7.2 Pushbar Parts List

Part Number: 5865572

NOTE: To assemble, insert pins through holes A, B and C, and secure with 'R' clip.





Item	Part Number	Description	Purpose	Qty
1	5256909	M12 Spring Washer S/S A2	Part	2
2	5621461	M12 Plain Washer A2 Form B	Part	6
3	5670162	20mm Axle Collar	Part	2
4	5670163	Coupling Head (Hitch)	Assembly	1
5	5670174	150mm Dia Wheel	Part	8
6	5670187	R Clip 3 x 72 Long S/S A2	Part	1
7	5670188	R Clip 4.0 x 76 Long S/S A2	Part	1
8	5670189	Split Cotter Pin 4 x 36 S/S A2	Part	8
9	5670190	M12 x 70 Coach Bolt S/S A2	Part	4
10	5670191	M10 x 30 Coach Bolt S/S A2	Part	4
11	5670192	M12 x 65 Hex Head Bolt S/S A2	Part	2
12	5670194	M20 Washer Form B S/S A2	Part	16
13	5670195	M10 Washer Form B S/S A2	Part	4
14	5670196	M10 Nyloc Nut S/S A2	Part	4
15	5670197	M12 Nyloc Nut S/S A2	Part	4
16	5670198	4mm Lynch Pin S/S A2	Assembly	3
17	5865573	Trolley Frame Fabrication	Assembly	1
18	5865583	Trolley Arm Fabrication	Assembly	1
19	5865586	Towing Eye Fabrication	Assembly	1
20	5865589	Brace RHS	Part	1

Item	Part Number	Description	Purpose	Qty
21	5865590	Axle Short	Part	3
22	5865591	Axle Long	Part	1
23	5865592	Skid Plate	Part	1
24	5865593	Spacer Plate 5mm	Part	2
25	5865594	Spacer Plate 10mm	Part	6
26	5865595	Pin/Handle Assembly	Assembly	1
27	5865597	Pin Assembly	Assembly	3
28	5865599	Formed Pin	Part	1



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