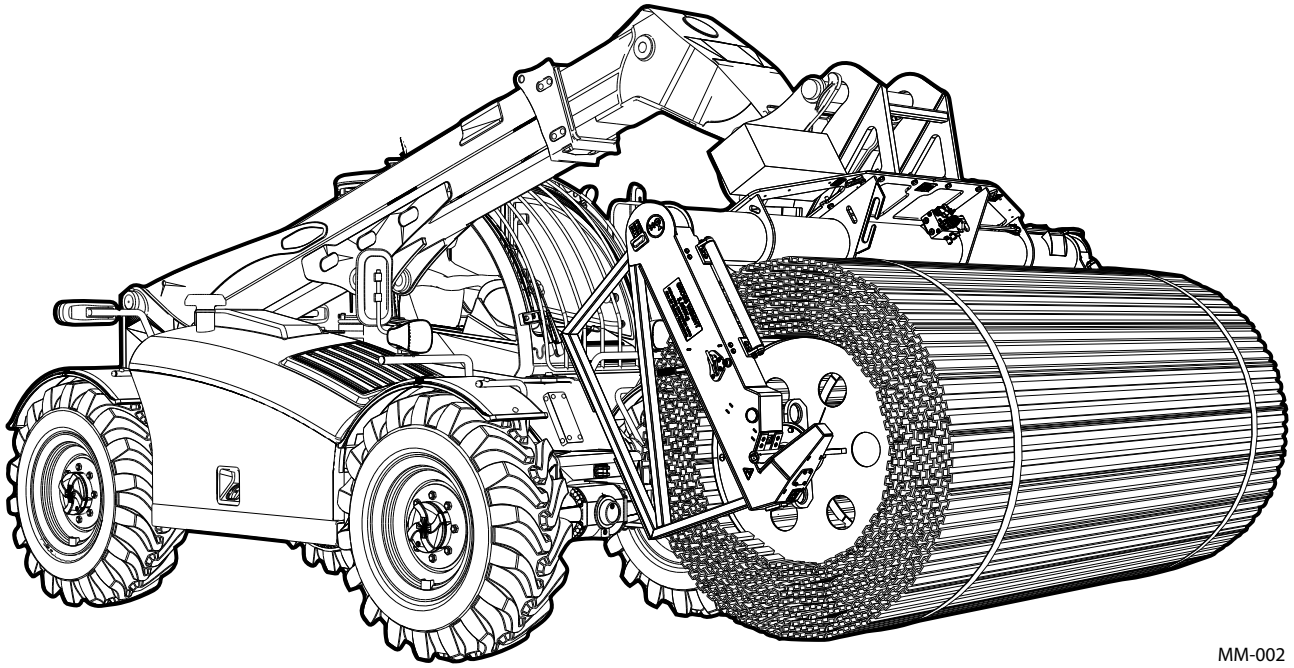
C40 PLANT ADAPTOR (PA)
TRACKWAY®

USER MANUAL



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FAUN TRACKWAY®

Part Number: 5814769

REF: FTWP-5814769

Rev: 1.0

Disclaimer

Due to continuous development some of the images may differ from the actual equipment shown.

Amendments

REVISION	REASON	DATE	PAGE NO

FAUN TRACKWAY

Contents

1. OVERVIEW

1.1 General

This manual is for the person (the Vehicle Operator and Assistant) whose roles are to operate the C40 Plant Adaptor (C40 PA) on a routine basis. To ensure the users have a thorough understanding of how to use the system to deploy and recover Trackway® and to perform routine maintenance and repair of the system, this manual provides:

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

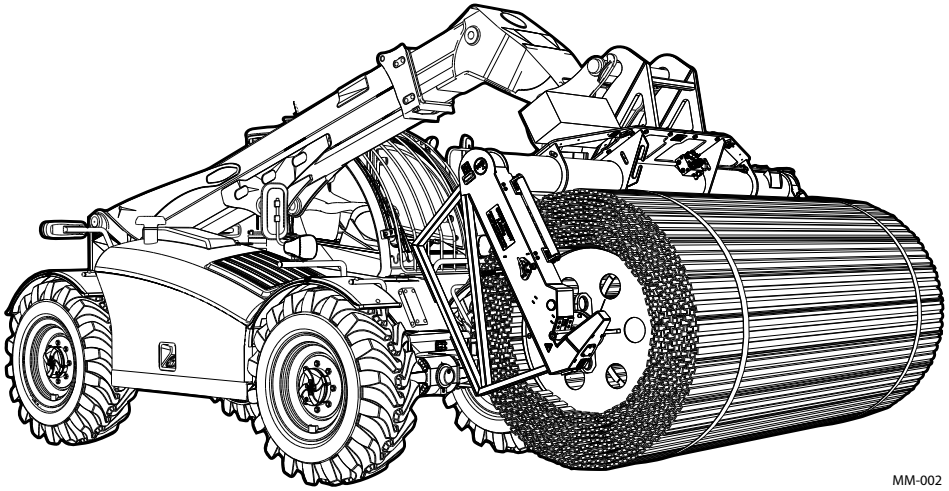


Fig. 1-1 C40 Plant Adaptor

1.2 System Description

C40 PA is FAUN's versatile system for rapidly deploying modular roadway, providing temporary access to areas where there are no roads or damaged roads.

The C40 PA allows up to 40m lengths of C40 Trackway® to be laid and recovered by only two personnel and a vehicle capable of hosting the system.

The C40 PA consists of:

- Plant Adaptor (PA)
- Spool of C40 Trackway®
- Vehicle Interface Kit
- Trackway® Anchorage Kit

1.3 Abbreviations and Definitions

PA	Plant Adaptor
CM	Corrective Maintenance
PM	Preventative Maintenance
WLL	Work Load Limit

1.4 Limitations of Use

1.4.1 General

This section documents the limitations that apply to the use of Trackway®.

1.4.2 Maximum Slope

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

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

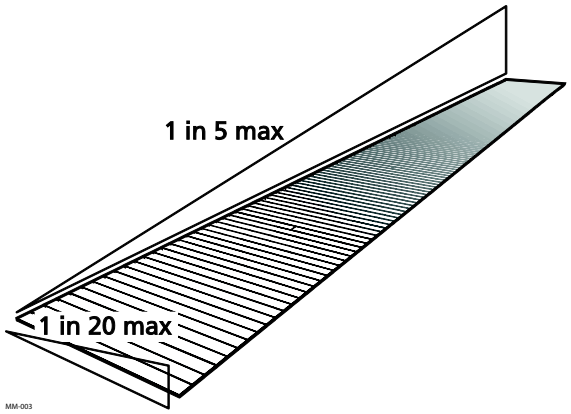


Fig. 1-2 Maximum Slope for Trackway® Deployment

1.4.3 Uneven Ground

Trackway® may be laid over hummocks or depressions that do not exceed 150 mm, but open ditches should be filled.

Tree stumps or rocks greater than 100 mm should be cleared before laying Trackway®.

1.4.4 Vehicle Types

The Trackway® is designed for rubber-tyred or rubber-padded vehicles.

If tracked vehicles with steel grouser blades are to use the Trackway®, then timber dunnage should be used to protect the surface of the Trackway® from the tracks.

1.4.5 Tracked Vehicle Operation

Tracked vehicles should preferably enter and leave the Trackway® at the ends and not over the sides to eliminate the risk of track horns locking under the Trackway® edges when slewing.

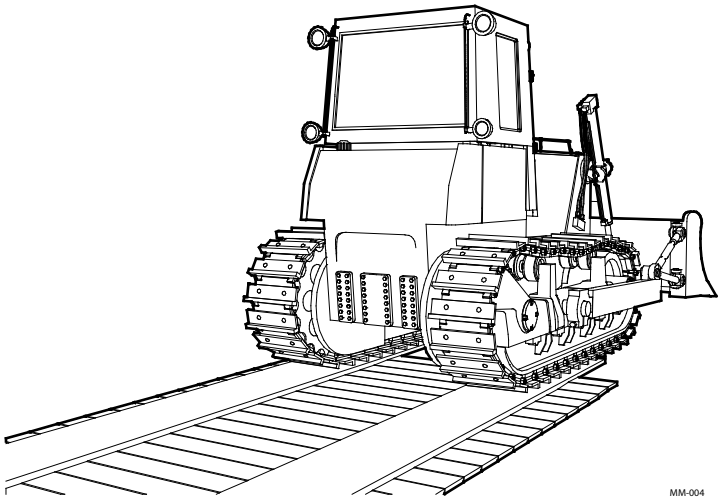


Fig. 1-3 Protect the Trackway® from Metal Tracked Vehicles

2. HEALTH AND SAFETY

2.1 General

Whilst working with the C40 Plant Adaptor (C40 PA) equipment, it is important that risks to personnel's health and safety are properly controlled. Health and safety is about preventing injury or illness whilst at work. This section outlines the major health and safety issues during the use of the C40 PA, but it is up to individuals to ensure that they comply with these guidelines.

At all times, the guidelines given in this manual must be followed when using any of the C40 PA equipment. Personnel should also:

- Take reasonable care of their own and other people's health and safety;
- Co-operate with colleagues and superiors on health and safety where necessary;
- Tell someone (supervisor or health and safety representative) if it is thought that the work or inadequate precautions are putting anyone's health and safety at serious risk.

This section covers the main health and safety aspects of the C40 PA with which all personnel must be familiar. For more in-depth information, consult with local documentation.

2.2 Manual Handling

Work related injuries resulting in Musculoskeletal Disorders (MSDs) account for around half of all work related ill-health, many of these are caused by the poor management and practice of manual handling.

Those engaged in manual handing are to inform their line manager or supervisor about any physical or medical condition that could affect their ability to undertake manual handling operations safely.

Personnel are to risk assess the transporting or supporting of a load including lifting, putting down, carrying, pushing, pulling, moving by hand or bodily force to reduce the risk of injury to a level that is as low as is reasonably practicable.

All personnel should comply with safe work processes and training provided by line management for manual handling activities and report any deficiencies that may be evident.

2.3 Handling Oils and Lubricants

When handling oils and lubricants the following safety precautions must be followed at all times. For additional safety information regarding symptoms and first aid, consult with local documentation.

2.3.1 Skin Contact

Personnel may be exposed to skin contact with oils and lubricants through direct handling, using petroleum to clean equipment, or if they are stored within the workplace. A common source of skin contact is from personnel leaving oil soaked rags in their coverall pockets. The following precautions must be taken:

- Personnel must ensure that they wear personal protective equipment (PPE);
- All personnel must handle oils and lubricants carefully especially during transfer from a container;
- Face and hands are to be washed frequently with hot water and soap.

- Nails are to be scrubbed with a nail brush.
- On no account are personnel to practice the cleaning of hands with a petroleum product.
- Working clothes are not to be worn outside of working hours and personnel are to en-sure that such clothes are laundered weekly.
- Hot baths or showers are to be taken at the end of each working day; this must also take place immediately if contamination has occurred.

2.3.2 Ingestion

After handling petroleum products, toxic substances can be transferred to food and drink as a result of poor hygiene.

Prolonged exposure to this type of poisoning can cause mouth and throat cancer and stomach ulcers.

A severe form of lung damage called pneumonitis may occur if liquid petrol is inhaled directly onto the lungs, for example, whilst manually siphoning a tank or from inhaling vomit after swallowing petrol. This is why it is important not to make someone sick if they have swallowed petrol and to seek immediate medical advice.

Ingestion precautions are as follows:

- General hygiene precautions are to be taken and enforced.
- Food or beverages must not be taken into or consumed within a hazardous area.
- Personnel are to wash their hands before eating, drinking, smoking and using the lavatory.
- The mouth is to be rinsed with water before eating or drinking.

If oils and lubricants are ingested seek immediate medical advice.

2.3.3 Eye Contact

Eye contact could occur through splashing or pressurisation of fuel during transfer operations. Personnel could simply contaminate the eye by brushing the face with a soiled glove or from the skin because of poor hygiene. As a safety precaution, personnel must wear the correct eye protection to avoid contact.

If oils and lubricants come into contact with the eye seek immediate medical advice.

2.3.4 Dermatitis

Dermatitis is inflammation of the skin caused by skin contact with a range of materials that dry out and damage the skin. It can affect all parts of the body, but it is most common to see the hands affected.

Sometimes the consequences of skin contact with a material are immediately visible, sometimes skin contact occurs without apparent effect. However, every contact can cause minute amounts of invisible damage to the skin that can build up until more serious signs are seen, i.e. dermatitis.

Personnel must ensure regular skin checks are carried out to look for early signs of dermatitis.

2.4 Plant Moving Equipment

Unauthorised persons are not permitted to operate or interfere with the C40 PA.

In addition to the general safety precautions detailed in this section, additional safety precautions applying to the operation of the C40 PA contained in this manual and further particular circumstances whether detailed in the partner Maintainer manual or contained in unit orders or local instructions are to be observed.

Ensure all pre work and post work checks are carried out, as per the host machine user manual/ training.

2.5 System Warnings

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

WARNING: Personnel should not work under the elevated Interface Plate.

WARNING: While the C40 PA is being prepared, ground guides should ensure the work area is clear of unauthorised personnel.

WARNING: Ensure the Host Vehicle is stationary before disengaging Constant Tension.

WARNING: During recovery, ground guides should ensure the work area is clear of unauthorised personnel.

WARNING: Maintenance tasks that are to be performed on the C40 PA shall be governed by local regulations for working from height. Where possible, dismount the system to carry out maintenance tasks.

2.6 System Cautions

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

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

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

CAUTION: The C40 PA should be at ground level for preventative maintenance tasks to be carried out.

3. TECHNICAL DATA

3.1 Spool - 3.3m Standard

Width	1,000 mm
Length	3,850 mm
Height	1,000 mm

Table 3-1: Spool Dimensions (mm)

Empty	340 kg
40m of Trackway®	3,100 kg
Total	3,440 kg

Table 3-2: Weights (kg)

3.2 Spool - 4.2m Extra Wide

Width	1,000 mm
Length	4,685 mm
Height	1,000 mm

Table 3-3: Spool Dimensions (mm)

Empty	385 kg
40m of Trackway®	3,860 kg
Total	4,245 kg

Table 3-4: Weights (kg)

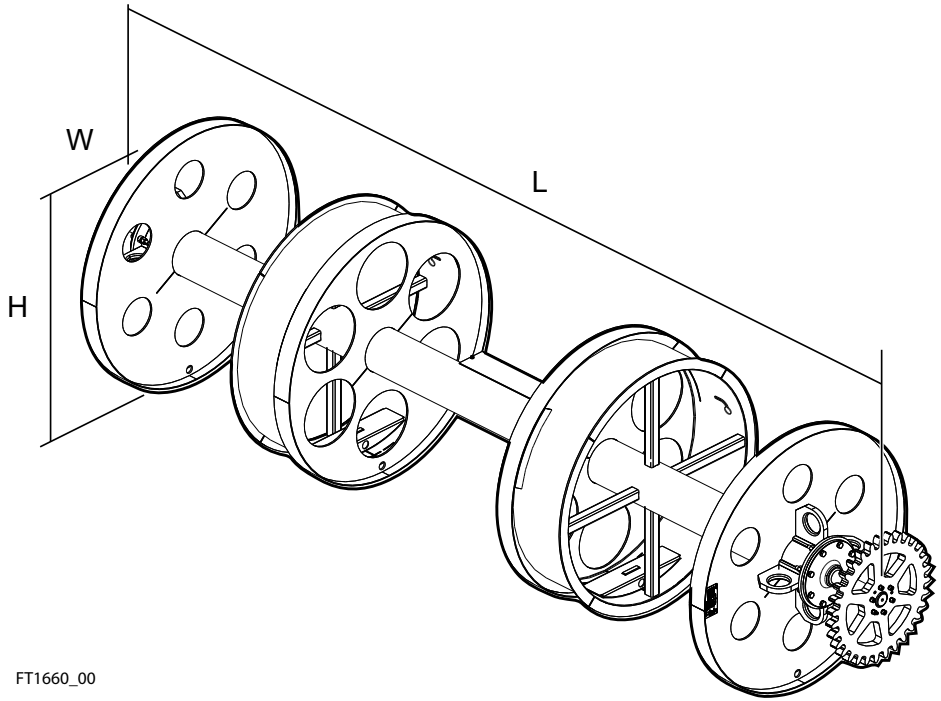


Fig. 3-1 Spool Dimensions

3.3 C40 PA - 3.3m Standard

Width	4260 mm
Length	1820 mm
Height	1095 mm

Table 3-5: C40 PA Dimensions (mm)

Empty	500 kg
Spool	340 kg
40m of Trackway®	3,100 kg
Total	3,940kg

Table 3-6: C40 PA Weights (kg)

3.4 C40 PA - 4.2m Extra Wide

Width	5060 mm
Length	1820 mm
Height	1095 mm

Table 3-7: C40 PA Dimensions (mm)

Empty	670 kg
Spool	385 kg
40m of Trackway®	3,860 kg
Total	4,915 kg

Table 3-8: C40 PA Weights (kg)

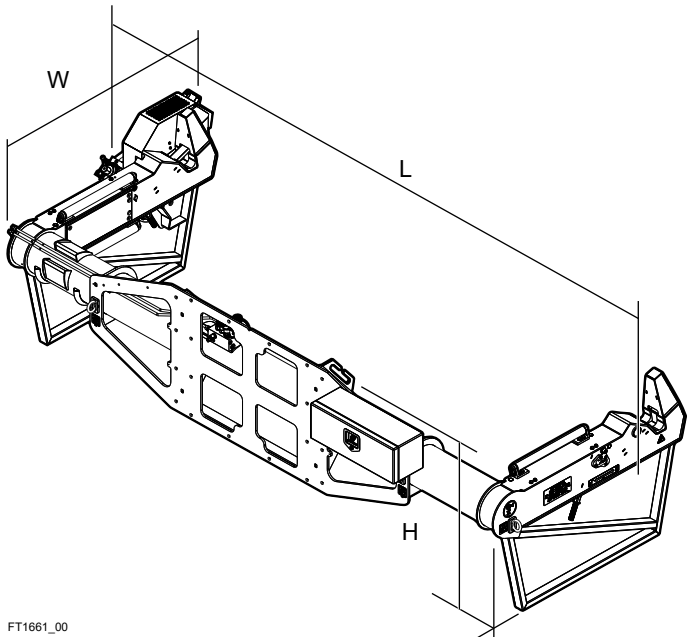


Fig. 3-2 C40 PA Dimensions

3.4.1 Interface Plates (Typical)

The typical weight of the Interface Plates is 285kg.

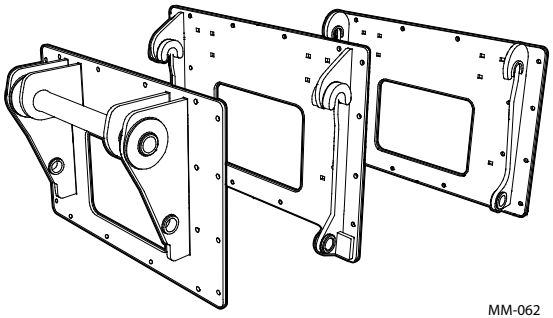


Fig. 3-3 Typical Interface Plates

3.5 Trackway®

The Plant Adaptor uses C40 Trackway®. The C40 Trackway® consists of a number of interlocking panels that form a section 3.35m wide and 40m long.

Sets of Split Panels are fitted approximately every 5m to allow sections of Trackway® to be removed or joined more easily.

C40 - 3.3m Standard

	Full Panel	Half Panel
Width	3,354 mm	1,677 mm
Length	213 mm	213 mm
Running Length	200 mm	200 mm
Thickness	30.5 mm	30.5 mm
Weight	15.5 kg	7.75 kg
# per 30m Section	193	14

Table 3-9: C40 - 3.3m Standard Panel Data

C40 - 4.2m Extra Wide

	Full Panel	Half Panel
Width	4,200mm	2,100 mm
Length	213 mm	213 mm
Running Length	200 mm	200 mm
Thickness	30.5 mm	30.5 mm
Weight	19.3 kg	9.6 kg
# per 30m Section	193	14

Table 3-10: C40 - 4.2m Extra Wide Panel Data

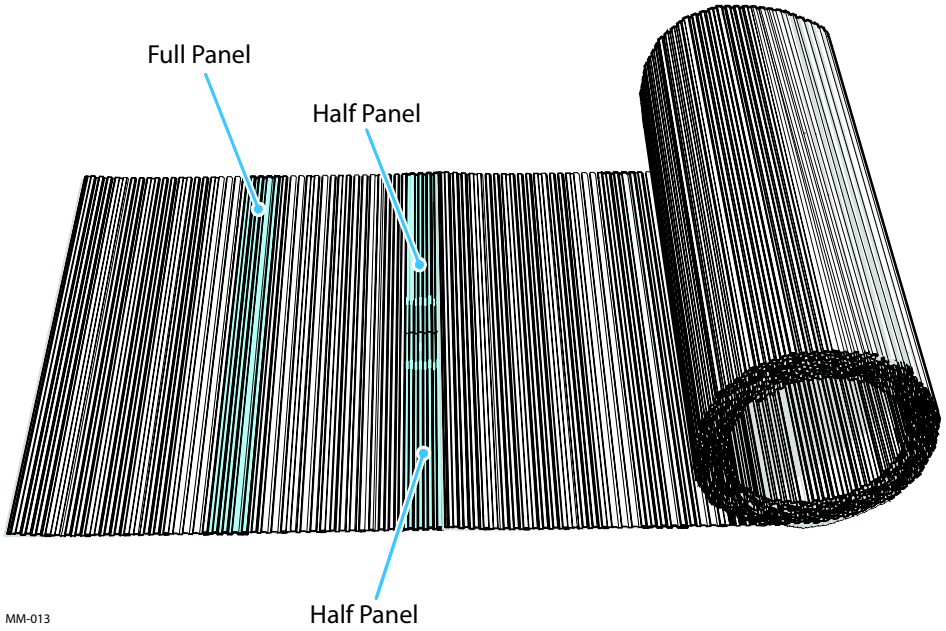


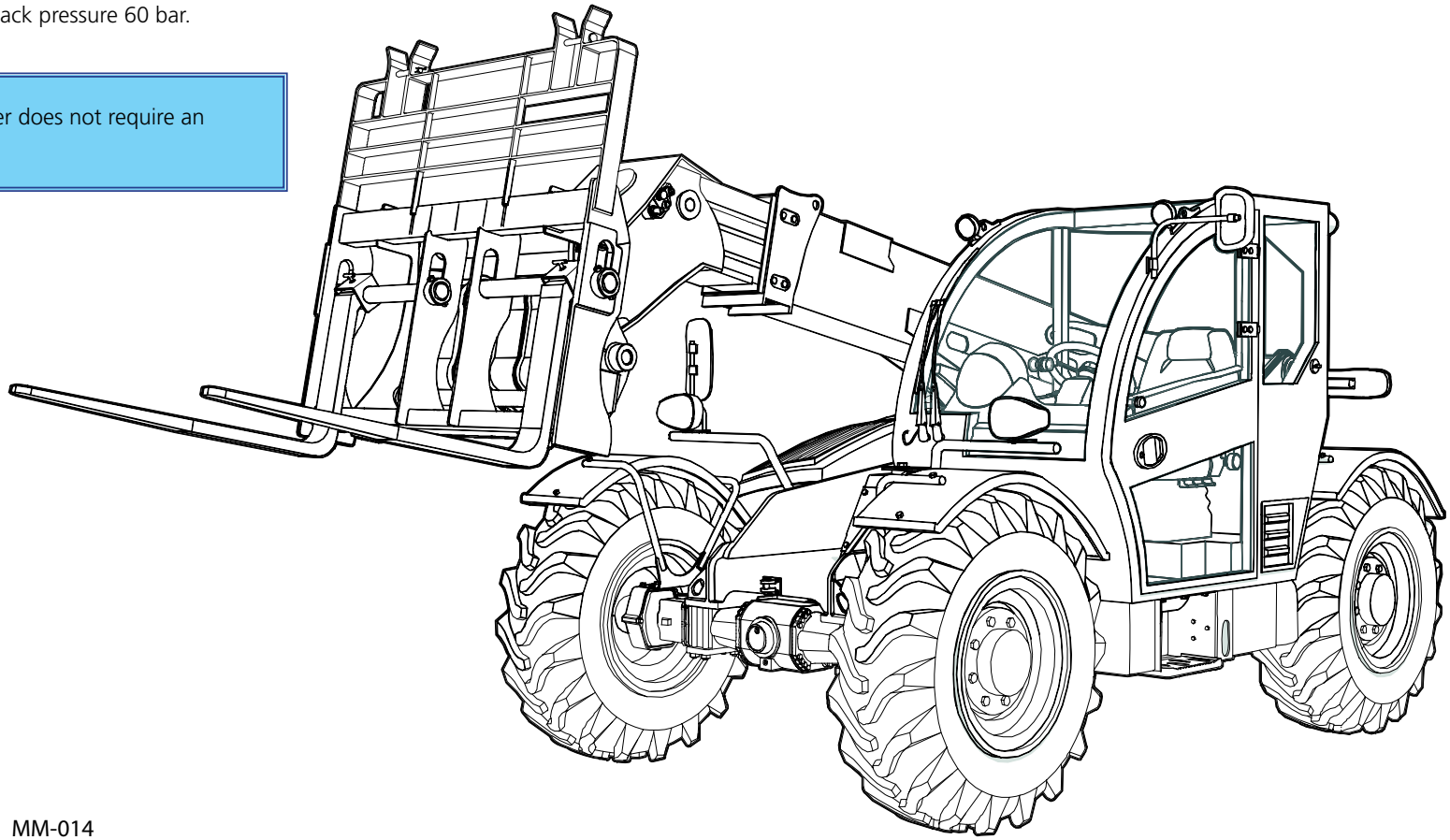
Fig. 3-4 C40 Trackway® Panels

3.6 Host Vehicle Requirements

The Host Vehicle must comply with following requirements:

- Front end loader, excavator or telescopic handler;
- Minimum payload 8,000 kg at maximum articulation;
- Auxiliary connections from the A & B port of the host machine's auxiliary system;
- Nominal hydraulic requirement 180 bar @ 40 l/min (minimum 25 l/min);
- Motor case drain (if fitted) maximum back pressure 60 bar.

NOTE: The dispenser does not require an electrical feed.



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3.7 Hydraulic System

Capacity	Hydraulic System	2.5 litres
	Spool motor	630 cc^3 / rev
Pressure	System maximum operating	180 bar
	Constant tension	60-70 bar
Oil	Motor case drain (if fitted)	60 bar
	Nominal flow	25 litres / min
	Minimum cleanliness (ISO4406)	19 / 16

Table 3-11: Hydraulic System Specifications

4. CONSTRUCTION

4.1 General

This chapter describes the system as a whole and the key components of the system in order to give the Operator and Maintainer the correct knowledge of how the system operates and the appropriate terminology.

The main components of the C40 PA, which will be described in this chapter, are the:

- Plant Adaptor;
- Spool Drive Assembly;
- Spool;
- Trackway® (C40);
- Interface Kits;
- Anchorage Kits.

4.2 Assembly

Trackway® is transported, stored, deployed and recovered on Spools, around which the Trackway® can be coiled.

The C40 PA is mounted on the Host Vehicle using the appropriate Interface Kit. The Plant Adaptor is controlled from and powered by the Host Vehicle.

The Host Vehicle can deploy and recover Trackway® using the Plant Adaptor which carries spools of Trackway®.

The Plant Adaptor's Quick Coupling Spool System allows multiple spools of Trackway® to be deployed and recovered.

When not in use the Plant Adaptor can be detached from the Host Vehicle and stored on the transit feet.

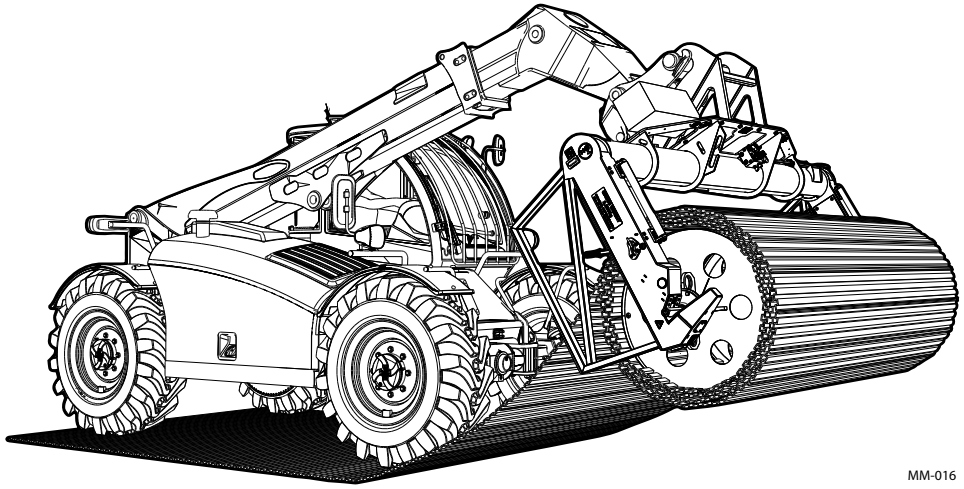


Fig. 4-1 C40 PA Deploying Trackway®

4.3 Plant Adaptor

The Plant Adaptor is a simple, low maintenance and cost effective system for deploying and recovering C40 Trackway®.

The Plant Adaptor is mounted onto a suitable Host Vehicle (see Section 3.7 for Host Vehicle Requirements) using a dedicated Interface Kit.

The Plant Adaptor carries the Spool with the Host Vehicle providing hydraulic power and control. The Plant Adaptor does not require an electrical feed.

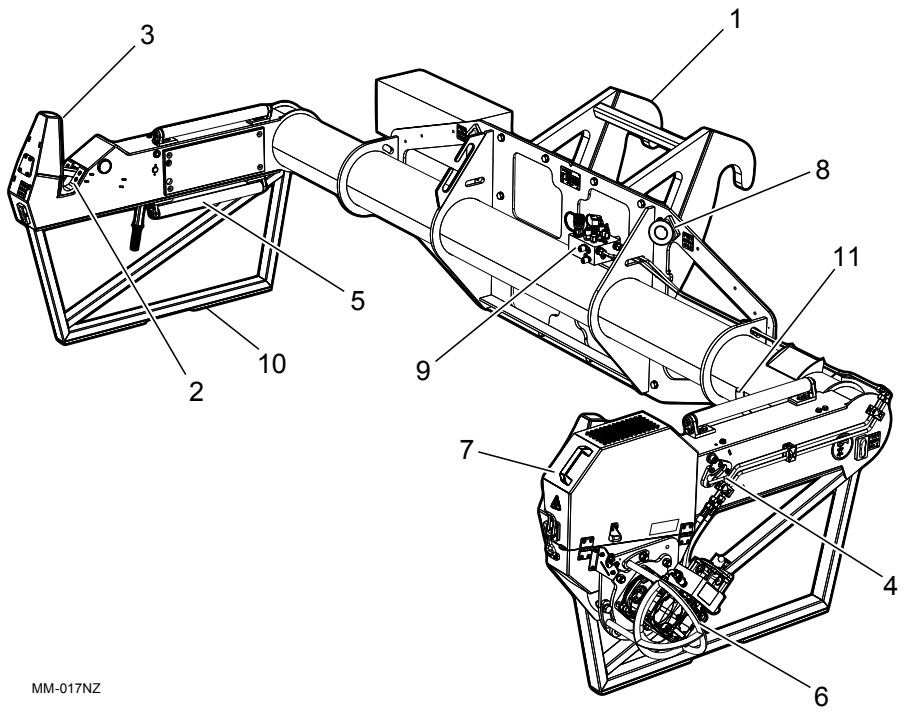
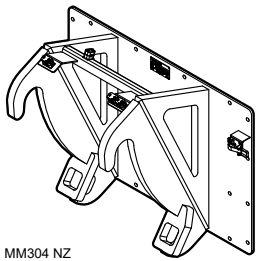
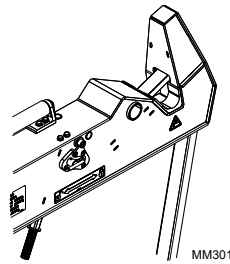
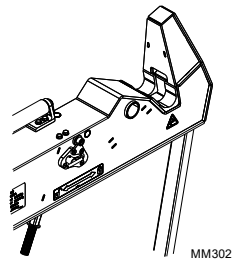
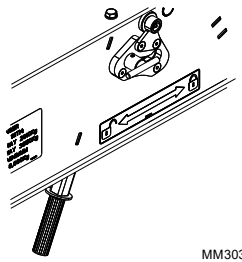
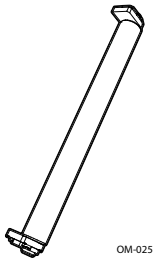
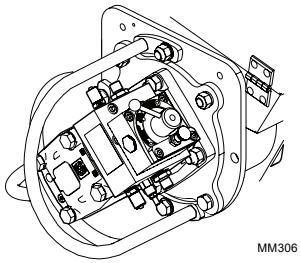
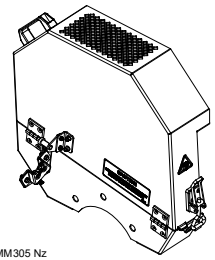
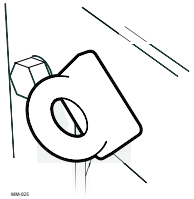
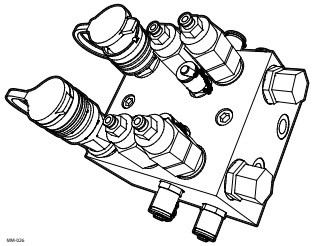
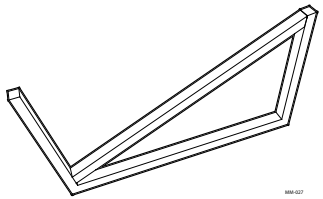
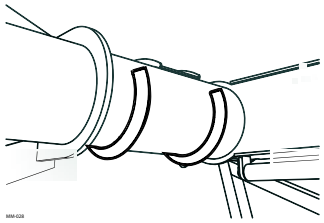


Fig. 4-2 The Plant Adaptor

#	Item	Description	
1	Interface Plate	Provides a connection point for the relevant Host Vehicle.	 MM304 NZ
2	Spool Pockets	A Spool Pocket on each Arm houses and locks the Spool Shafts when a Spool is loaded.	 MM301 NZ
3	Arm Horns	The two Arm Horns are used to manoeuvre the Spool during loading and unloading.	 MM302 NZ
4	Spool Lock Levers	Operated to lock and unlock the Spool in the Spool Pockets.	 MM303 NZ

#	Item	Description	
5	Side Roller	Side Rollers on each Arm align the Trackway® and prevent it damaging the Plant Adaptor through contact.	 OM-025
6	Spool Drive Assembly	Powers the Spool during deployment and recovery of Trackway®.	 MM306 NZ
7	Gear Guard	Provides a protective enclosure for the Spool Gear and the Drive Gear.	 MM305 Nz
8	Tie-down Point	Tie down points provided for securing the Plant Adaptor to the Flatrack.	

#	Item	Description	
9	Speed and Pressure Control Manifold	Enables functional movement of the Spool.	
10	Dispenser Stands	Enable the Plant Adaptor to be freestanding when not attached to the Host Vehicle	
11	Flatrack Alignment Guide	Provides a visual aid to enable the Vehicle Operator to position the Plant Adaptor correctly on the Flatrack	

4.4 Spool Drive Assembly

The Spool Drive Assembly controls and powers the Spool during deployment and recovery of Trackway®.

The Host Vehicle provides power and control to the Spool Drive Assembly. In addition to the control from the Host Vehicle the Assistant uses the Mode Selector to switch the Assembly between operational modes.

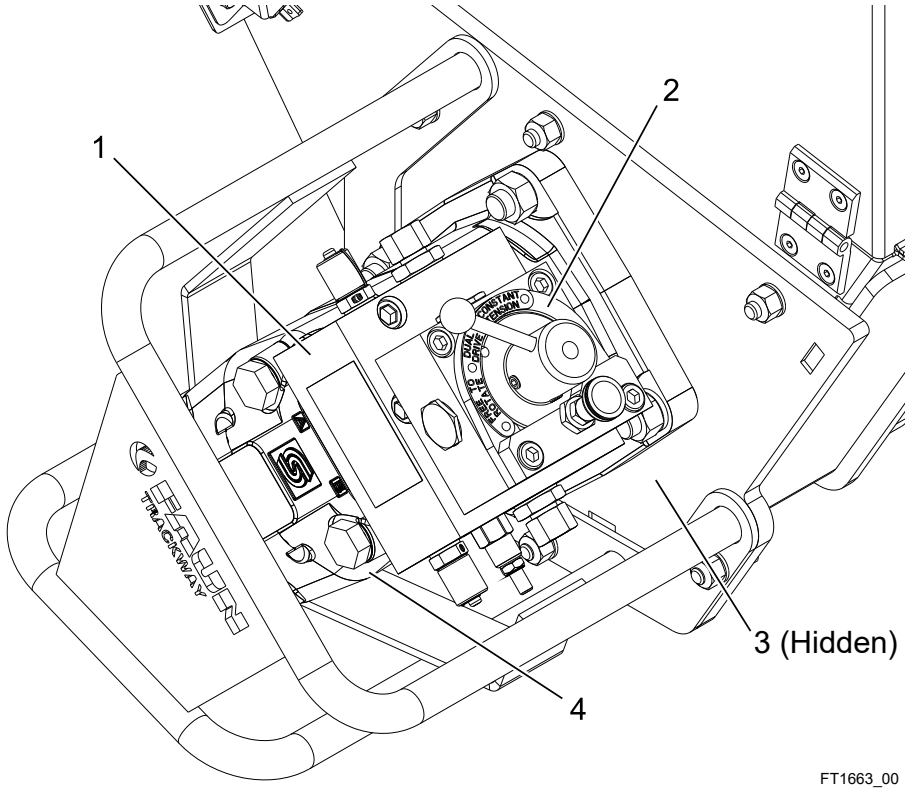
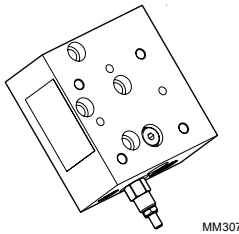
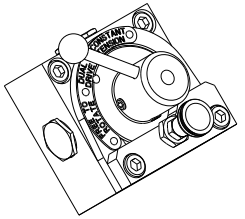
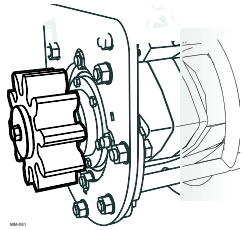
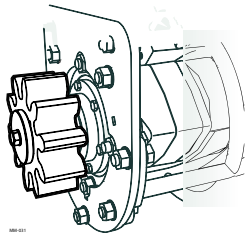


Fig. 4-3 Spool Drive Assembly

#	Item	Description	
1	Overcentre Valve Block with Constant Tension	Dual Overcentre Valves for load control plus Constant Tension Relief Valve.	 MM307 NZ
2	Mode Selector (Ball Valve)	Handle operated by the Assistant which positions the ball valve to switch to the required function of the Spool Drive Motor.	
3	Drive Gear	Meshes with the Spool Gear.	
4	Spool Drive Motor	Controls and Powers the Spool during Deployment and Recovery of Trackway®.	

4.5 Spool

The Spool is a tubular frame with circular End Plates. Trackway® is coiled onto the Spool for storage and transit.

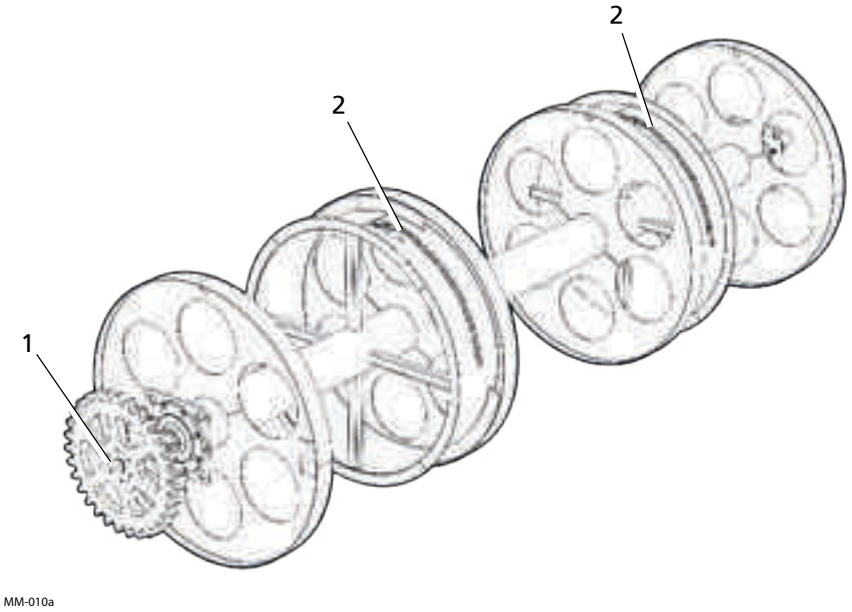
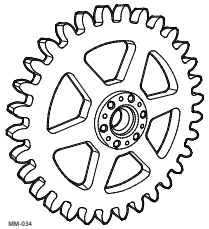
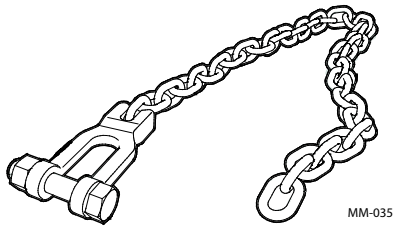


Fig. 4-4 Spool

#	Item	Description	
1	Spool Gear	Meshes with the Spool Drive Assembly to power the Spool.	 MM-034
2	Spool Chains	Two Spool Chains, fixed at one end o the Spool and are used in the deployment and recovery of the Trackway®.	 MM-035

4.6 Trackway®

Trackway® consists of Panels connected together. The Panels are connected via a male and female flexible joint. The flexibility enables the Trackway® to be laid on undulating ground or coiled into a roll.

The Panels are locked together with Locking Pins that prevent lateral movement.

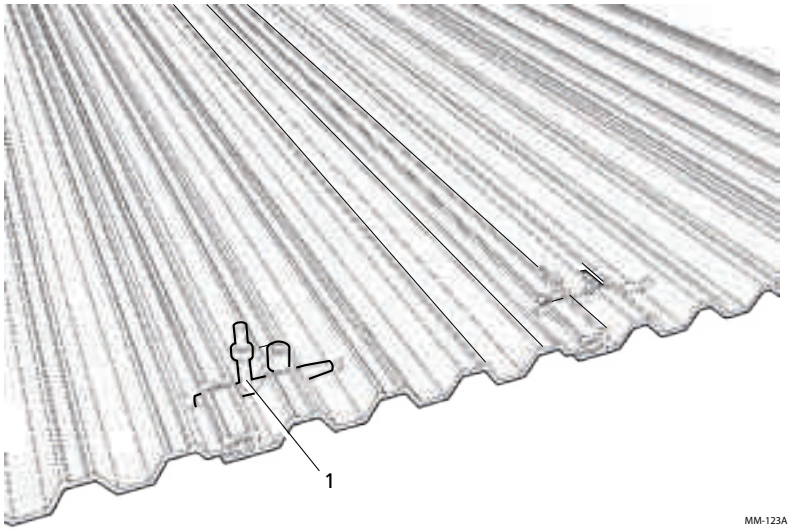
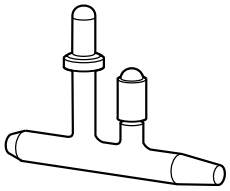


Fig. 4-5 Trackway®

#	Item	Description	
1	Locking Pins.	Lock Trackway® Panels together to prevent Lateral movement.	

4.7 Transit Feet

The Transit feet provides storage for the:

– Plant Adaptor;

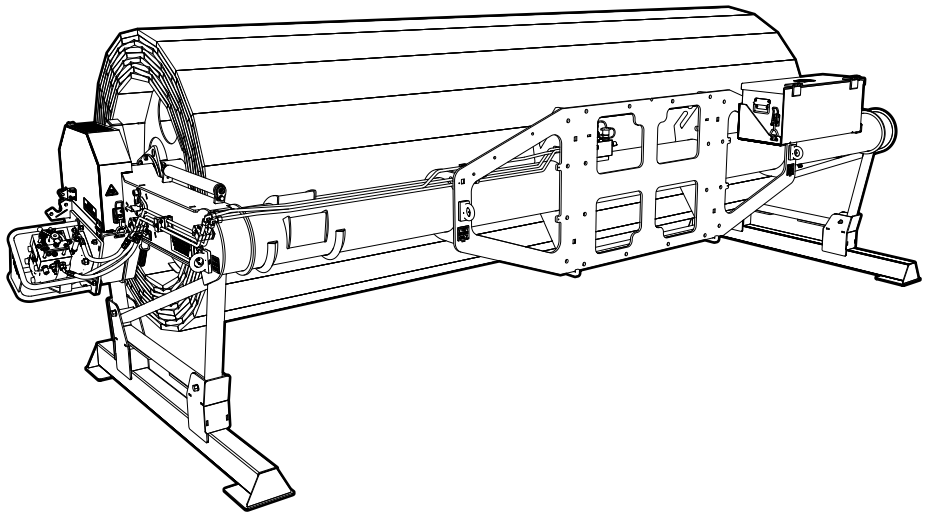
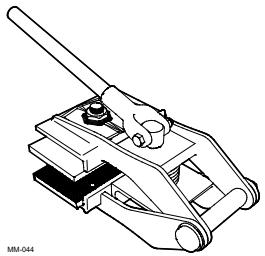
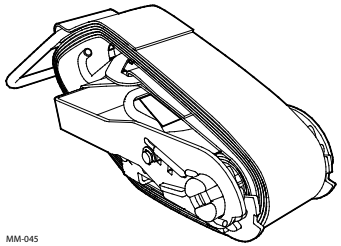
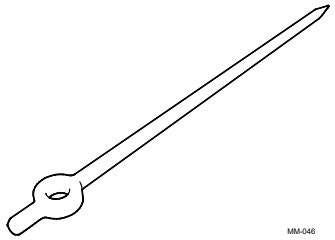
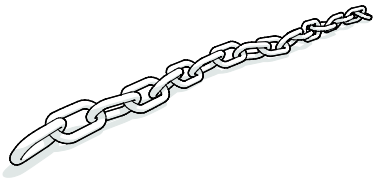
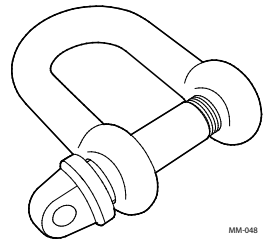
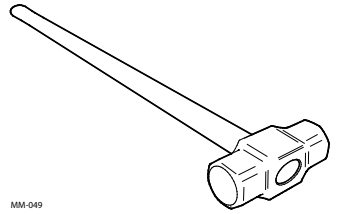
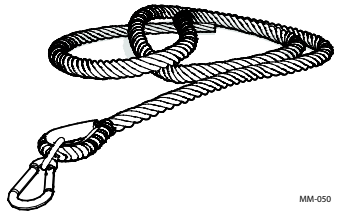
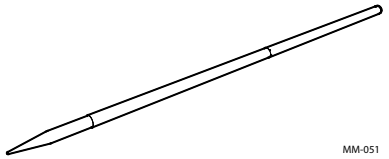
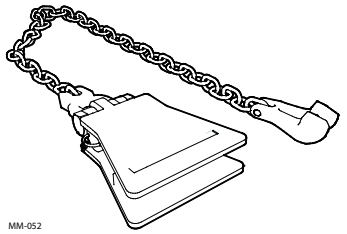
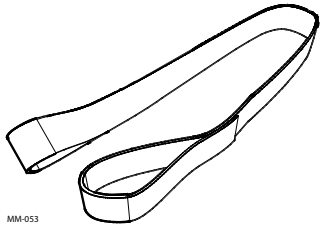
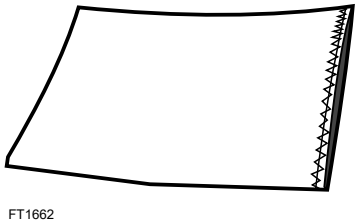


Fig. 4-6 C40 PA on Transit Feet

4.8 Accessories

Accessories, which are kept in the Flatrack Storage Box, enable deployment, recovery, anchorage and basic maintenance.

Item	Description	Qty	
Junction Clamp	Used to connect sections of Trackway® that have been split in order to turn a corner or change direction.	4	 MM-044
Transit / Holdfast Strap	Used to secure the roll of Trackway® when in transit and storage. Can also be used when anchoring Trackway®. Has a protective sleeve.	2	 MM-045
Ground Anchor Stake	Used to anchor the Trackway®.	12	 MM-046
Holdfast Chain	Connected to the Trackway® via Steel Shackles in order to anchor using the Ground Anchor Stakes.	4	
Steel Shackle (WLL 2T)	Used to connect the Holdfast Chains to the Trackway®.	8	 MM-048
Sledge-hammer (6.4kg)	Used to drive the Ground Anchor Stakes into the ground.	1	 MM-049
Hand Line (Single Leg)	Used to pull out Panels when splitting the Trackway®.	2	 MM-050

Item	Description	Qty	
Sighting Rod (orange / white)	Used as an aid to the Vehicle Operator in deployment of Trackway®.	0	
End Adaptor	Aids in the recovery and the deployment of Trackway®. Two are positioned each end of the Trackway®.	4	
2t Webbing Duplex (2m)	Aids lifting the Interface Plates.	2	
Spare Locking Pin bag	Contains 10x Locking Pins in a pouch.	1	

5. OPERATION

5.1 General

This chapter documents how the C40 PA should be operated.

It provides instruction on:

- Pre-Operation Inspection;
- Ground condition assessment;
- C40 PA Controls;
- Mounting and Dismounting the C40 PA;
- Deployment;
- Loading and Unloading Spools;
- Recovery;
- Splitting Trackway®;
- Joining Trackway®;
- Anchoring Trackway®;

5.2 Pre-Operation Inspection

The Pre- and Post-Operation Checklist lists the checks to be conducted on the:

- Plant Adaptor;
- Spool;
- Trackway®;
- Accessories.

Checks should be conducted daily before operating the C40 PA and again after operations are complete.

Please refer to the Pre- and Post-Operation Checklist in Section 6.4 – this checklist must be completed to ensure the system is functional before use.

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 Ground condition assessment.

5.3.1 General

Before deploying the Trackway®, the condition of the ground should be assessed. The Operator shall survey the operating area for the C40 PA and ensure that the area is suitable to lay the Trackway®.

Trackway® 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 Trackway® Lengths;

> The success, efficiency and time taken to deploy Trackway® is related to the thoroughness of the ground condition assessment - especially over difficult terrain. The more carefully this task is undertaken, the faster the deployment will be and less damage to the Trackway® will be incurred.

5.3.2 Soft Ground

If the Trackway® 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.

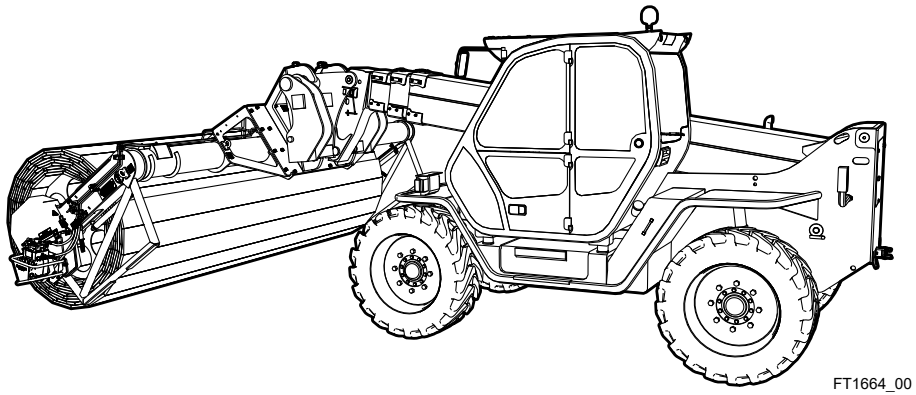


Fig. 5-1 Spanning Soft Ground

5.3.3 Uneven Ground

The route will need to be cleared if the Trackway® needs to cross uneven ground that exceeds the limits documented in Section 1.4.3.

Clearance requires a lot of effort and is time consuming.

5.3.4 Alignment Changes

Bends in the Trackway® route cause traffic flow to be slowed and therefore should be minimised.

Natural obstacles may require a change of alignment.

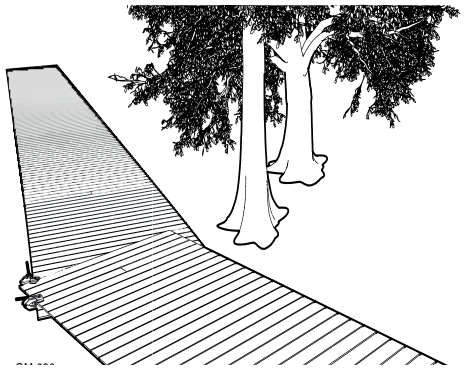


Fig. 5-2 Alignment Change to Avoid Natural Obstacle

5.3.5 Deploying Across Slopes

The route must be chosen such that the maximum inclines documented in Section 1.4.2 are not exceeded.

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

Unless the Trackway® beds firmly into the ground it should be anchored on the uphill slope.

5.3.6 Non-Standard Trackway® Lengths

Where the length of a route is not the length of a standard section of Trackway® (say 40m), the Trackway® will need to be split or joined during deployment to create custom length sections.

5.3.7 Setting Out

Once the optimum route has been decided the area is marked out.

The left-hand side of the Trackway® run is staked out. Sighting Rods are used at the beginning, middle and end of the Trackway® run.

Using the Plant Adaptor and the Sighting Rods the Operator can align the Vehicle during deployment of the Trackway®.

Fig. 5-3 Setting out the Route

5.4 Introduction to Controls

5.4.1 General

The C40 PA is mainly controlled by the Vehicle Operator from the Host Vehicle. This includes:

- Positioning the Plant Adaptor
- Rotating the Spool

There is one control that is operated by the Assistant – the Mode Selector. The Mode Selector switches the Spool Drive between the following functions:

- Constant Tension
- Dual Function
- Free to Rotate

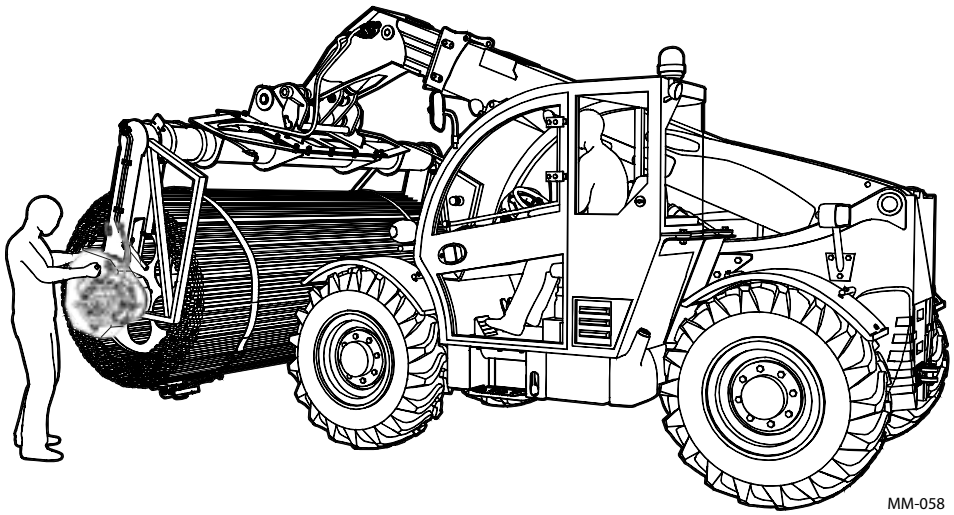


Fig. 5-4 C40 PA Controls

5.4.2 Host Vehicle Controls

Refer to the Host Vehicle's Operator Handbook for auxiliary control operation.

The operating 'sense' for the auxiliary control should be:

Rotation is based on looking onto the Spool drive gear.

- Moving the control towards the spool results in 'clockwise' rotation of the spool for deployment of the Trackway®
- Moving the control away from the spool results in 'anti-clockwise' rotation of the spool for recovery of the Trackway®.

> The rotation of the spool can be changed by swapping round the Hydraulic Hose connections on to the host vehicle.

5.4.3 Mode Selector General

The Mode Selector, operated by the Assistant, switches the Spool Drive between the following functions:

- Constant Tension
- Dual Drive
- Free to Rotate

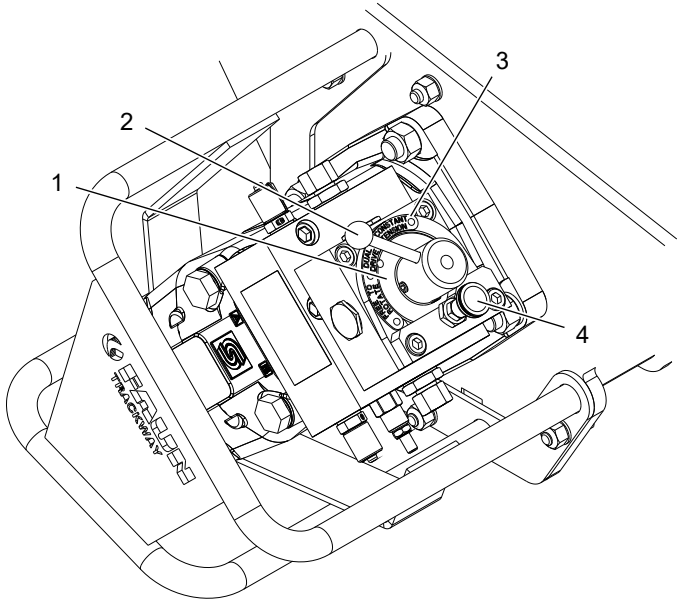


Fig. 5-5 Host Vehicle Auxiliary Control Operation

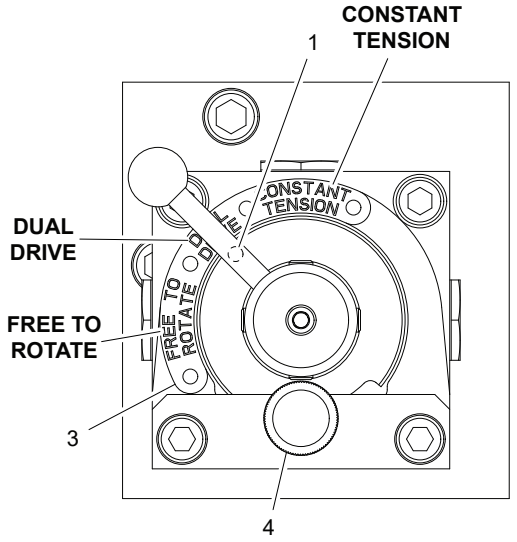
Components

1. Selection Dot
2. Handle
3. Labelled Dial
4. Safety Gate

Operation

To select the desired mode the Assistant uses the Handle to turn the Labelled Dial. The position on the Labelled Dial that lines up with the Selection Dot on the base is the selected mode.

In order to select EMERGENCY MODE mode, the Assistant must lift the Safety Gate (4) to allow the Handle to turn to the EMERGENCY MODE position.



Mode	Position	Usage	Details
Constant Tension	CONSTANT TENSION	Deployment	The Operator does not operate the auxiliary controls to deploy the Trackway®. The vehicle is simply driven forward to draw the track from the spool.
Dual Function	DUAL DRIVE	Recovery, Powered Deployment	Allows the Host Vehicle's auxiliary controls to power the rotation of the Spool in either direction.
Free to Rotate	FREE TO ROTATE	Usage during mechanical failure.	The spool is in 'free-wheeling' situation and has no hydraulic control exerted on the spool. This mode should only be selected when loading/ unloading spools.

5.5 Mounting and Dismounting C40 PA

5.5.1 Introduction

The C40 PA is designed to be easily mounted and dismounted from the Host Vehicle so the Vehicle can be utilised for other tasks in addition to deploying and recovering Trackway®.

The Dispenser, when dismounted from the Host Vehicle, should always be stored on the transit feet.

The C40 PA can be provided with several Integration Kits to allow it to be mounted onto different Host Vehicles.

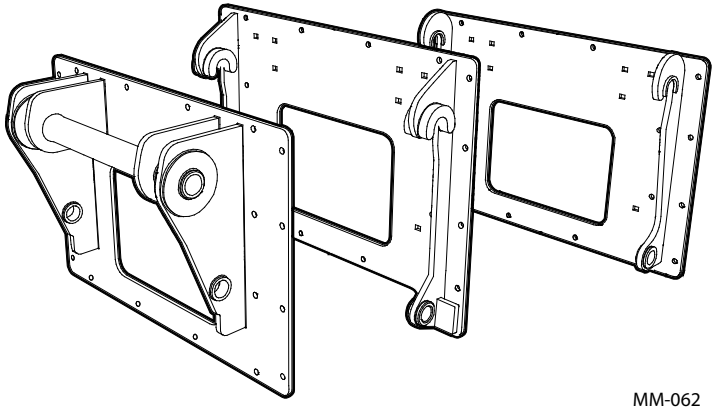


Fig. 5-6 Typical Interface Plates

Each Interface Kit contains a set of Hydraulic Hoses and an Interface Plate. The Interface Plate is bolted onto the Dispenser and should only be attached by a trained Operator or Maintainer.

Interface plates will be transported and stored on a separate pallet.

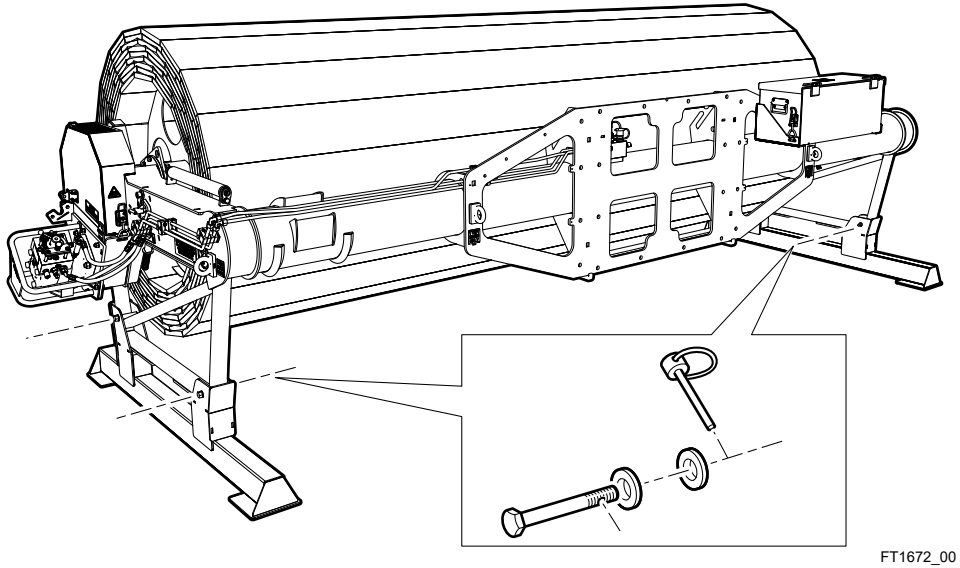


Fig. 5-7 Dismounted Dispenser on the Transit Feet

To remove the transit feet, remove the four securing bolts and raise the PA out of the Transit Feet 'pockets'.

Refit the the securing bolts, when the C40 PA has been removed from the area of the Transit Feet.

5.5.2 Changing an Interface Plate

Equipment Required:

- Integration Plate
- 2t Webbing Duplex (2m)
- Toolkit
- 2T Shackles

The following procedure replaces an incompatible Interface Plate that is already attached to the Plant Adaptor with the correct Interface Plate for the Host Vehicle.

C40 PA must be disconnected from host vehicle and placed on flat ground.

Attach suitable duplex straps to interface plate and host vehicle. When the plate is supported by the straps, the interface plate securing bolts can be removed and the interface plate lifted away from the C40 PA and placed onto a pallet.

WARNING: Only use the provided straps or suitably rated similar items for lifting the interface plate.

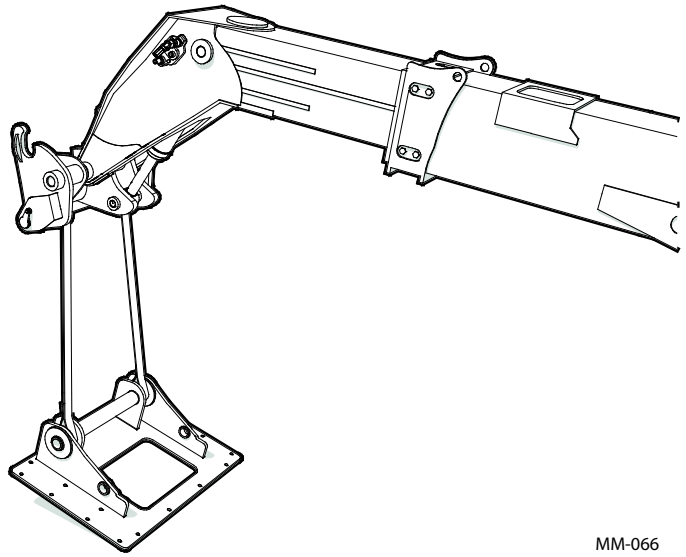


Fig. 5-8 Attach Compatible Plate using Webbing Duplex

Using the Host Vehicle, select Interface Plate to be fitted and position the compatible Interface Plate so that it can be attached to the Plant Adaptor

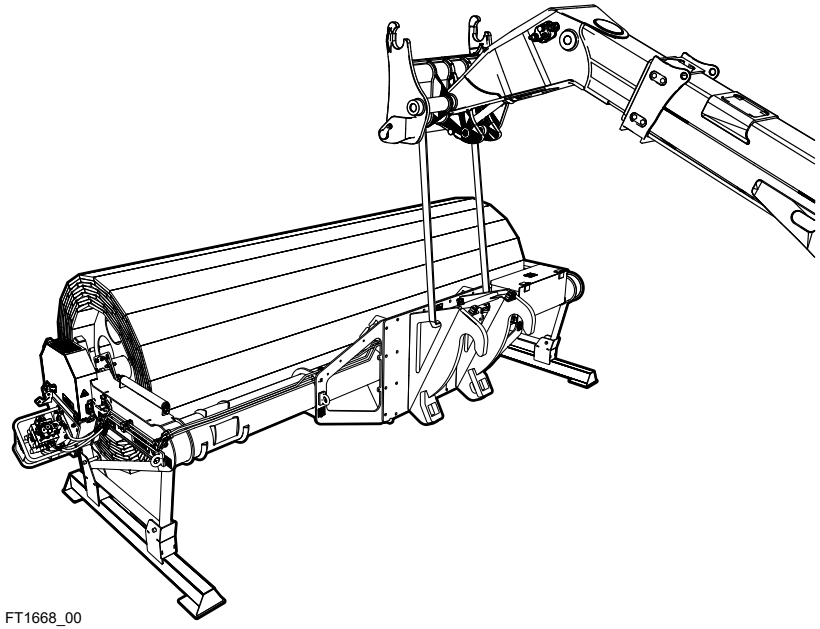


Fig. 5-9 Position Plate so it can be attached to the Plant Adaptor

Secure the compatible Interface Plate to the Plant Adaptor with bolts. Once secure, remove the Webbing Duplex from the Interface Plate and Host Vehicle.

Stow the Webbing Duplex and Shackles.

WARNING: Personnel should not work under the elevated Interface Plate.

5.5.3 Before Integration Checks

The following checks must be conducted before mounting the Plant Adaptor onto the Host Vehicle:

- Ensure the correct Interface Plate for the Host Vehicle is fitted and all securing bolts are tight.
- Ensure the Flatrack or Plant Adaptor is situated on flat and level ground with a suitable area around the system for the Host Vehicle to access it.
- Inspect the two motor connection hoses, protection sleeves and steel pipes to check they are in good condition and not damaged or leaking, replace or tighten as required.
- Check that the four Side Rollers are in place and freely rotate.
- Check the Trackway® Alignment Guide is fitted.

If a Spool is loaded into the Plant Adaptor:

- Check the Transit Straps securing the Trackway® are fitted, in good condition and are tight. If they are defective replace, tighten if loose.

WARNING: When changing transit straps, do so one at a time. This will ensure the Trackway® end cannot drop over the spool.

- Check the two Spool Lock Levers are in the locked position and the Locking Bolts are trapping the Spool Shaft into place.
- Check that the Gear Guard is fitted and in good condition.

5.5.4 Mounting the Dispenser

Equipment Required:

– Hydraulic Hoses from the Vehicle's Integration Kit

Before mounting the Dispenser ensure that:

– The Host Vehicle meets the required specification (see Section 3.7).
– The correct Interface Plate has been fitted.
– The correct Hydraulic Hoses from the Interface Kit for the Vehicle have been identified.
– Before Integration Checks have been completed (Section 5.3.3).
– The ground around the C40 PA is flat and stable with a suitable area around the system for the Host Vehicle to access it.

Position the Vehicle so that the end of the Vehicle's quick hitch is aligned with the Interface Plate on the Dispenser.

Follow the Vehicle's connection procedures to attach the Dispenser via the Interface Plate.

Connect the Hydraulic Hoses to the Dispenser.

Follow the Vehicle's auxiliary connection procedure to connect the Hydraulic Hoses to the Vehicle.

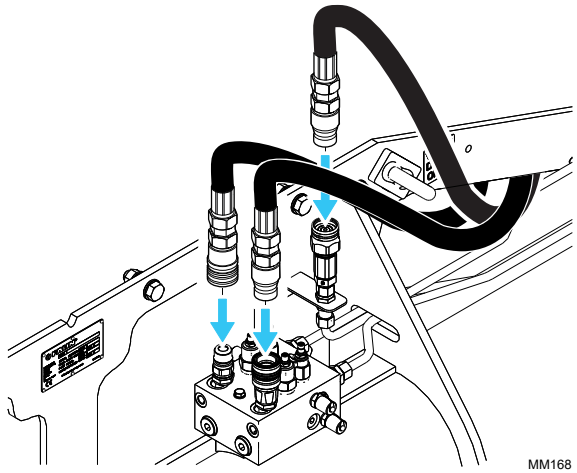


Fig. 5-10 Connect Hydraulic Hoses to the Dispenser

> Using the Vehicle's auxiliary connection procedure should ensure that there is no pressure in the system while connecting.

Once the Tie Down Straps have been removed, lift the Dispenser so that the Spool is 100mm clear of the ground.

With the Mode Selector set to Dual Function, check that the Spool rotates relative to the control movement of the Host Vehicle. If the direction of rotation is incorrect, swap the Hydraulic Hose connections from the Host Vehicle, to suit operator control.

> If the Dispenser is empty open the Gear Guard and check the Drive Gear rotates. Ensure the Gear Guard is closed afterwards.

The Dispenser is ready to be lifted.

5.6 Deployment

Equipment Required:

– Hand Lines x 2

5.6.1 General

This section details how the Trackway® can be deployed using the C40 PA.

Before starting deployment operations ensure the following steps have been taken:

– Ground condition assessment and setting out of the route.

Before deploying the Trackway® the following steps must be taken:

– Position the Vehicle as required
– Manually position Trackway® under the front wheels of the Host Vehicle

Once the Trackway® has been deployed the following steps must be taken before moving the Vehicle:

– Disconnect the Trackway® from the Spool
– Anchor the Trackway® as required
– If this is the last operation of the day then complete the Pre- and Post-Operation Checklist (Section 6.4).

WARNING: While the C40 PA is being prepared, ground guides should ensure the work area is clear of unauthorised personnel.

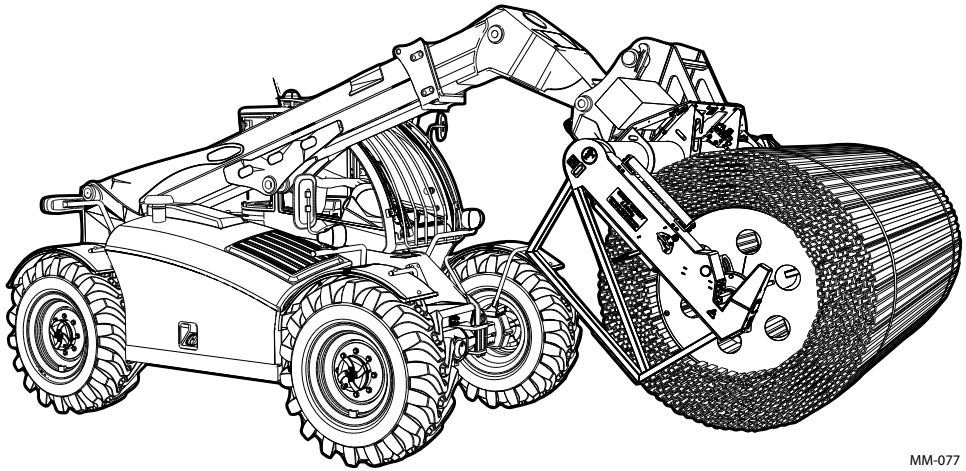


Fig. 5-11 Position Vehicle at Intended Trackway® Start

5.6.2 Positioning the Vehicle

Position Vehicle so that the front wheels are where the Trackway® is intended to begin.

The Dispenser should be positioned so that the bottom of the Spool is about 400 mm above the ground and the gap between the Spool and the wheels of the Vehicle is between 1,500 mm and 2,000 mm.

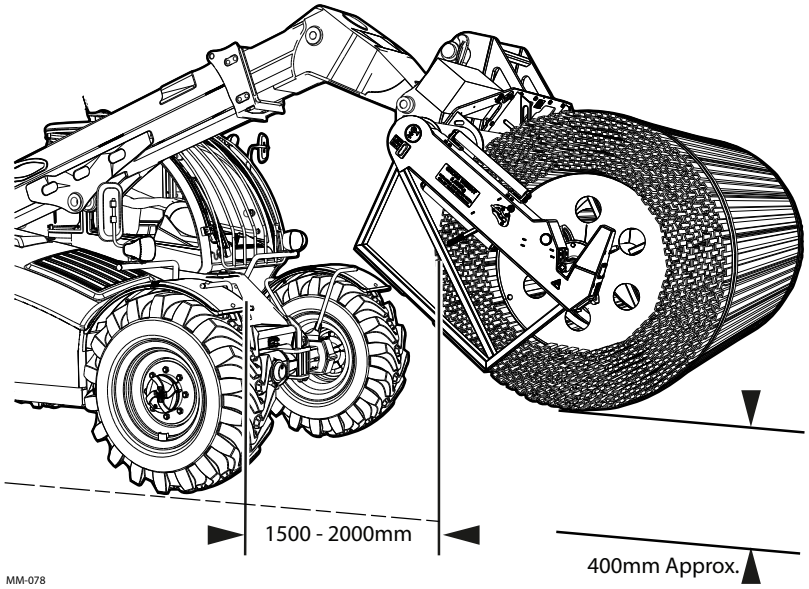


Fig. 5-12 Position the Plant Adaptor

5.6.3 Positioning Trackway® Under the Front Wheels

The Assistant selects Constant Tension on the Mode Selector.

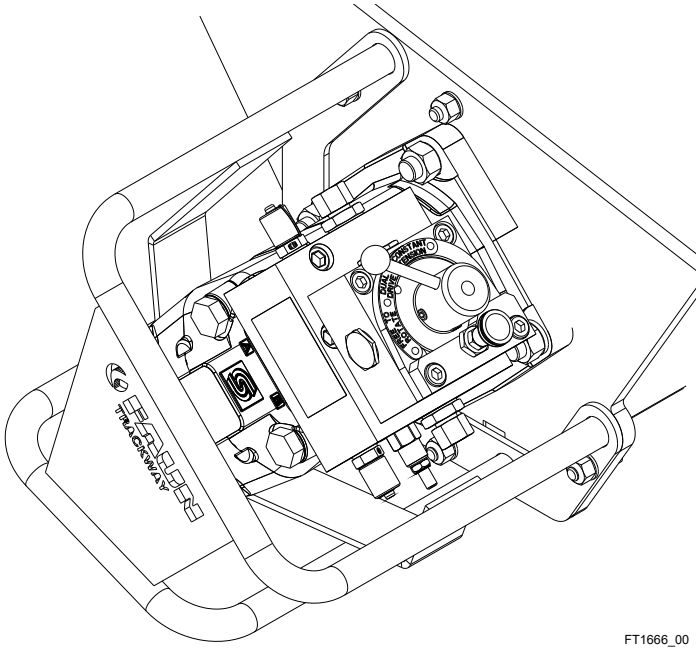


Fig. 5-13 Constant Tension Selected

Rotate the Spool until the end of the Trackway® is at the 3 o'clock position (nearest the Vehicle).

This is important to ensure the safe release of the Transit Straps.

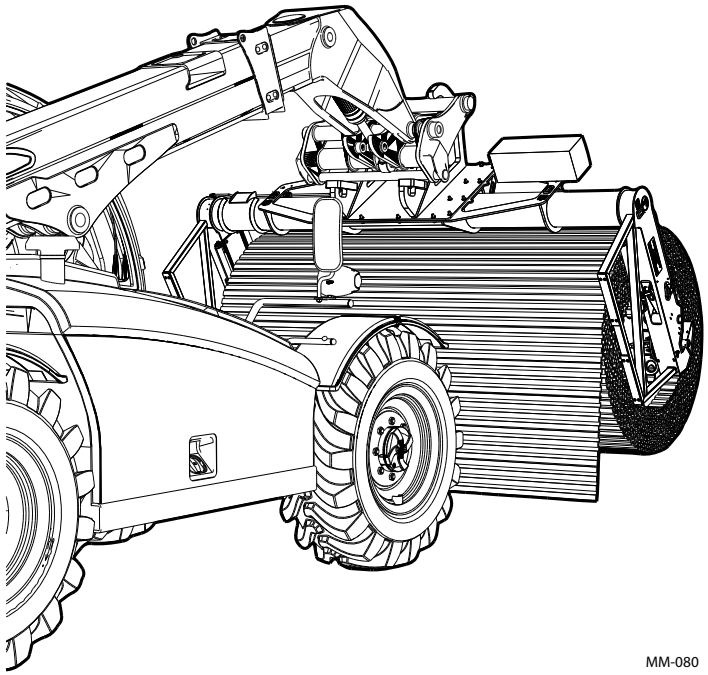


Fig. 5-14 End of the Trackway® at the Bottom

Working together, Vehicle Operator and Assistant release the Transit Straps by slackening the ratchet buckle. Remove, coil and stow the Transit Straps.

The Assistant attaches the two Hand Lines to the first Panel using the rope's karabiner.

The Assistant, using one Hand Line, pulls one side of the Trackway® under the front wheel of the Vehicle while the Driver spools-out sufficient Trackway® to allow engagement of the first Panel under the wheel.

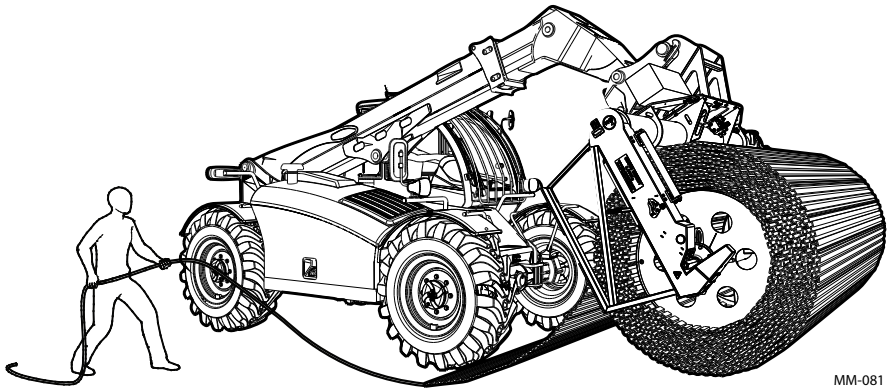


Fig. 5-15 Pull Trackway® Under Front Wheels

The Assistant, moving round the back of the Vehicle to reach the Hand Line at the other side, then pulls the other side of the Trackway® under the other front wheel.

> The alignment of the first panel of Trackway® will determine the direction of deployment.

The Driver, spooling-out a small amount of Trackway®, should move the Vehicle forward onto the first Panel of Trackway® under the guidance of the Assistant.

5.6.4 Deploying Trackway®

Ensure there are no objects or people in the deployment area.

The Assistant should select Constant Tension on the Mode Selector so that the Trackway® can be drawn off the Spool without operating the Vehicle's spool-out controls.

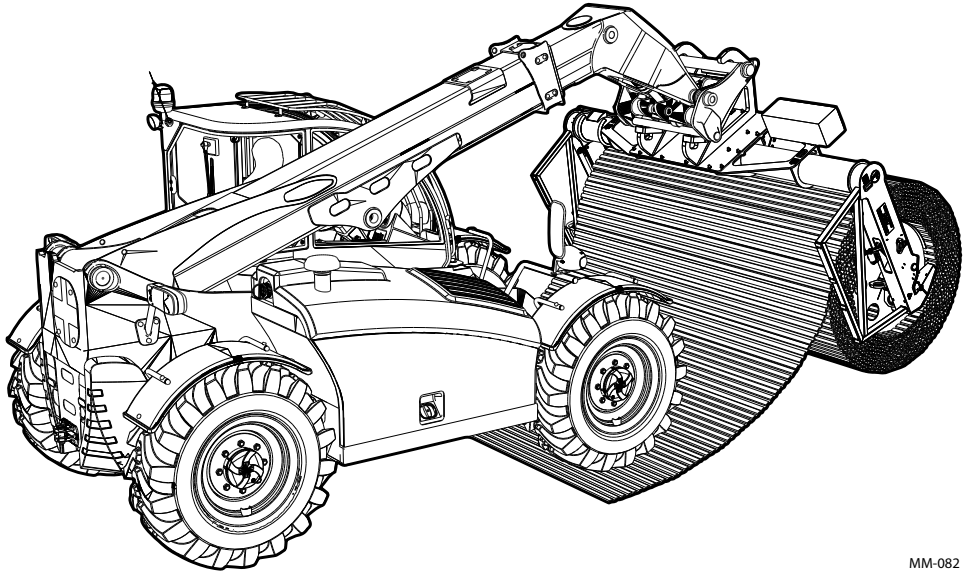


Fig. 5-16 Deploy Trackway®

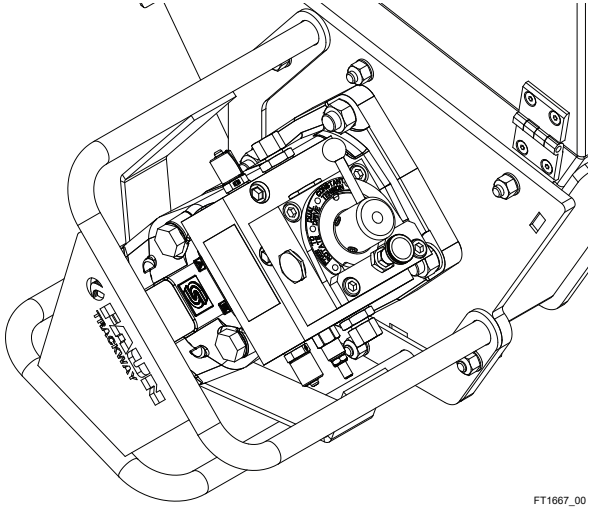


Fig. 5-17 Constant Tension Selected

Drive the Vehicle forward in a straight line, deploying the Trackway® by drawing it off the Spool.

Maintain a constant gap between the edge of the Trackway® and the Side Rollers. Use the Sighting Rods positioned during Setting Out to keep the Vehicle aligned during deployment of the Trackway®.

> Deployment should be gradual at first, until the Vehicle Operator is familiar with the operation.

Slow the deployment as the last wrap of Trackway® is visible on the Spool. Stop when the last Trackway® Panel is clear of the Spool at the 3 o'clock position.

With the Vehicle stationary and Constant Tension still selected, lower the end of the Trackway® to the ground using the Vehicle's controls.

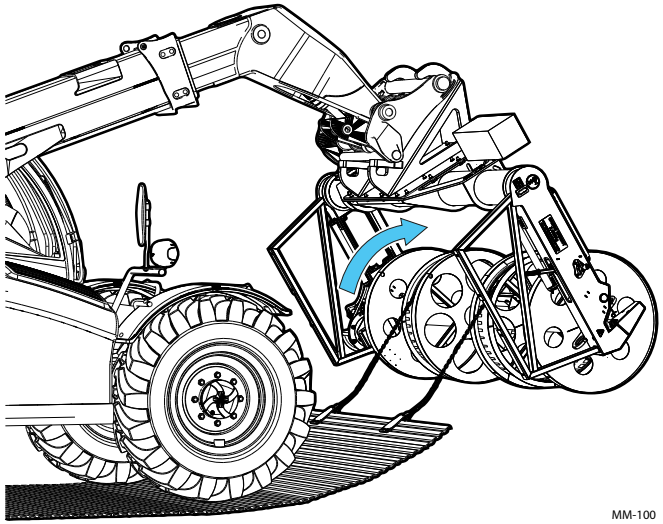


Fig. 5-18 Lower the Trackway® to the Ground with the Arm

The Assistant selects Dual Drive on the Mode Selector.

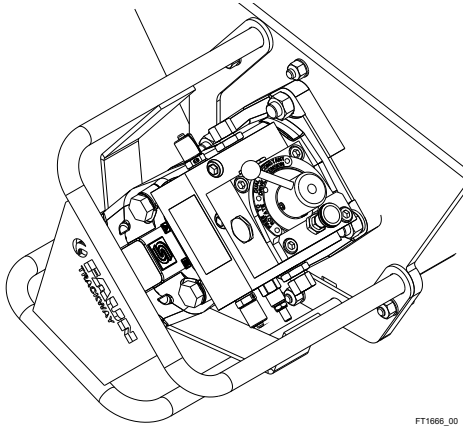


Fig. 5-19 Dual Function Selected

CAUTION: Ensure the Host Vehicle is stationary before disengaging Constant Tension.

Spool-out sufficient length of Spool Chain so that the End Adaptors are fully on the ground.

5.6.5 Disconnect Trackway® from Spool

Guided by the Assistant, reverse the Vehicle so that the Spool is no longer above the End Adaptors. Spool-out additonal Spool Chain if required.

The Assistant should:

- Disconnect the Chain Clutch between the Spool Chains and End Adaptors.
- Remove the End Adaptors from the Trackway®.
- Stow the End Adaptors.

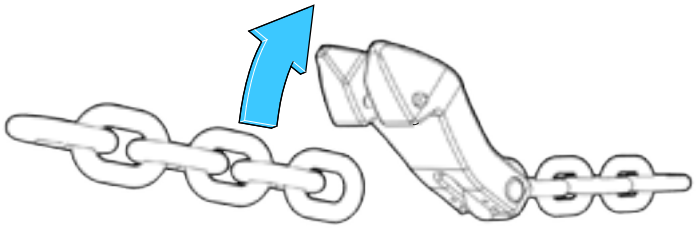


Fig. 5-20 Disconnect Chain Clutch

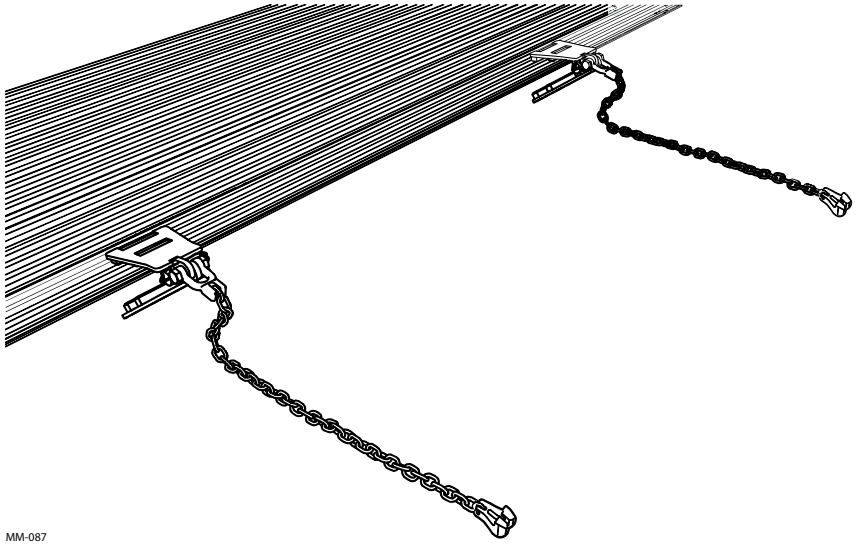


Fig. 5-21 Remove End Adaptors

5.6.6 Anchoring the Trackway®

With the Trackway® deployed, it should be securely anchored using the procedures as outlined in chapter 5.14.

5.6.7 Post-Operation Inspection

If this is the last operation of the day complete the Pre- and Post-Operation Checklist (see Section 6.4).

5.7 Loading and Unloading Spools

5.7.1 General

The C40 PA can deploy and recover multiple Spools of Trackway®. This is achieved by loading / unloading Spools, full or empty, onto the Plant Adaptor.

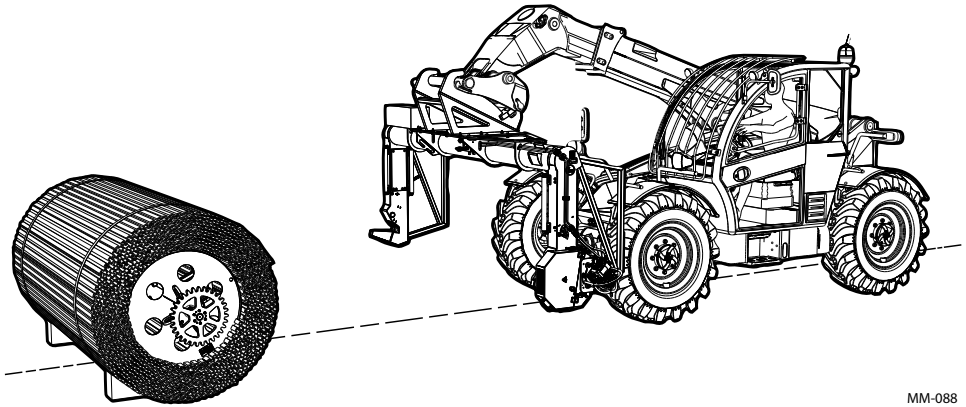


Fig. 5-22 Position Vehicle with Spool Gear on the Left

5.7.2 Loading Spools

> Ensure the Spool is chocked to prevent movement when loading.

Position the Vehicle so that the Dispenser is aligned with the Spool with the Spool Gear on the left hand side.

If loading a full Spool, ensure that Spool contains no more than 40m of Trackway® and Transit Straps are securing the Trackway® to the Spool.

The Assistant shall open the Gear Guard on the Dispenser and select 'free to rotate' position on the mode selector.

Rotate the Dispenser down so that the Arm Horns are approximately horizontal (dependent on the maximum crowding rotation of the Host Vehicle) and the tips of the Arm Horns are lower than the height of the Spool Shafts.

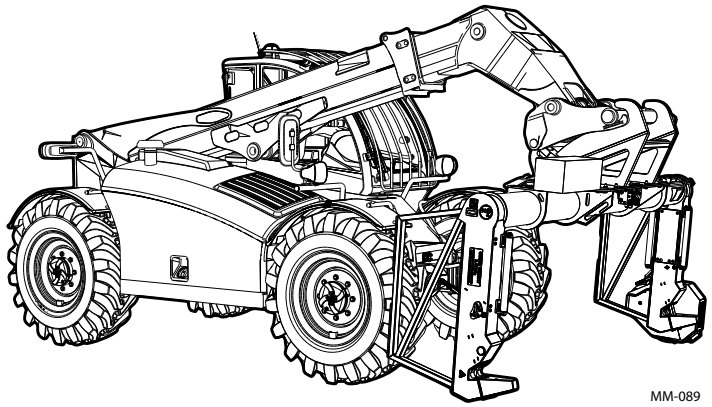


Fig. 5-23 Lower Arm Horns

The Assistant shall ensure that the Spool Locking Levers are in the unlocked position and the Locking Bolts are fully retracted.

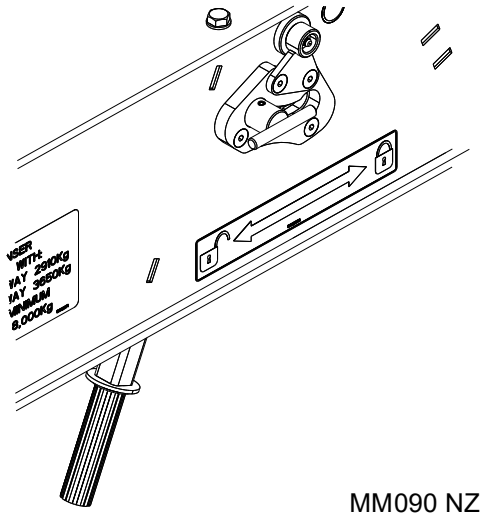


Fig. 5-24 Locking Levers Unlocked

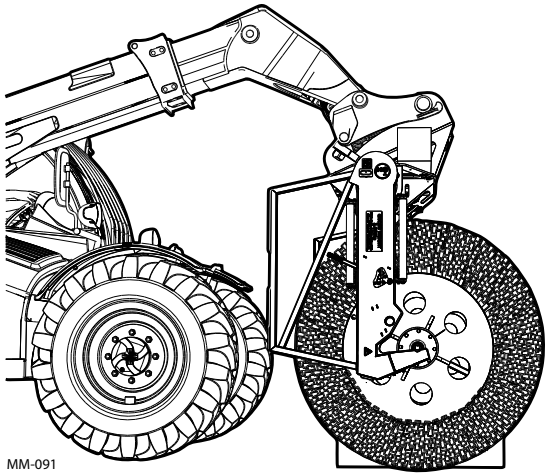


Fig. 5-25 Arm Horns Underneath the Spool Shafts

Drive the Vehicle forward so that the Arm Horns are just underneath the Spool Shafts. The Assistant will guide the alignment of the Spool and the Arm Horns using hand signals (see Section 2.5).

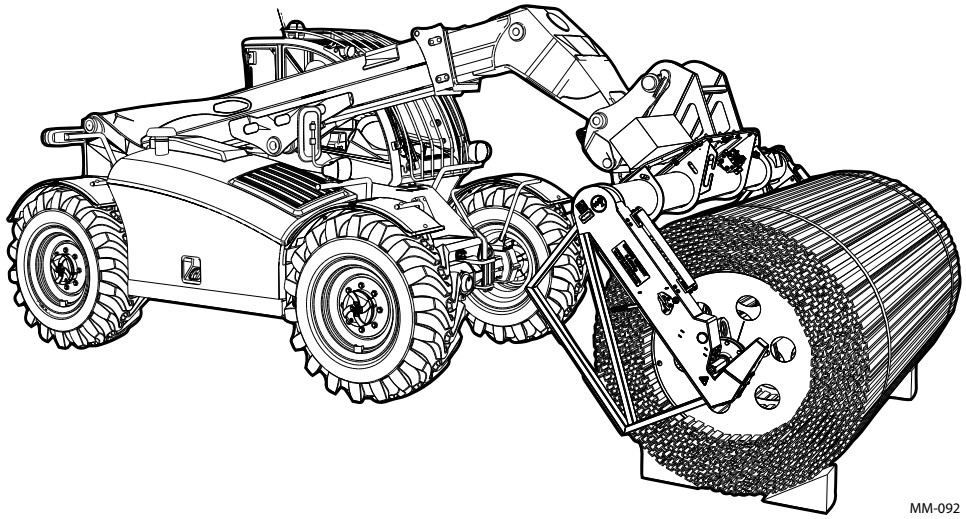
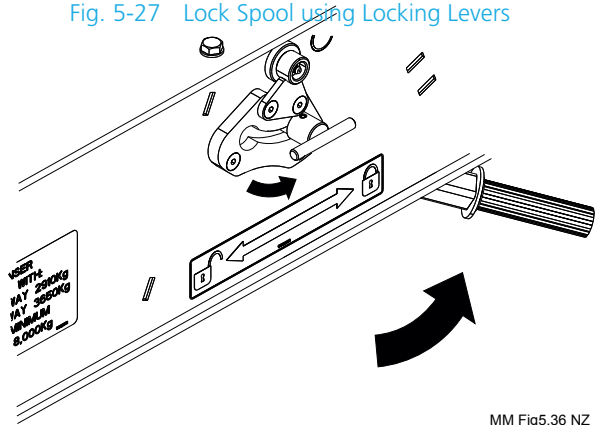


Fig. 5-26 Rotate Dispenser until Spool Shafts Engage with Pockets

Rotate the Dispenser Arms upwards by approximately 40° until the Spool Shafts engage with bottom of the Spool Pockets. Ensure that the gears have meshed.

The Assistant shall secure the Spool by moving both Spool Locking Levers on the Dispenser Arms into the locked position, visually checking that the Spool Locks have engaged with the locking catches and the Locking Bolts are over the top of the Spool Shafts.

Fig. 5-27 Lock Spool using Locking Levers



The Assistant shall close the Gear Guard and secure it with the two catches.

With the Mode Selector in Dual Function mode, check that the Spool rotates in both directions under powered operation.

5.7.3 Unloading Spools

Equipment Required:

– Chock x 4

Before considering unloading the Spool ensure the ground conditions are sufficiently level and firm to take the weight of the Host Vehicle and the Spool.

> If unloading a full Spool, ensure that Spool contains no more than 40m of Trackway® and Transit Straps are securing the Trackway® to the Spool.

Rotate the Dispenser to the deployment position with the bottom of the Spool 300 mm

above the ground. Select ‘free to rotate’ on the mode selector.

The Assistant shall move both Spool Locking Levers on the Dispenser into the unlocked position to release the Spool, visually checking that the Spool Locks have fully disengaged.

The Assistant shall open the Gear Guard on the Dispenser.

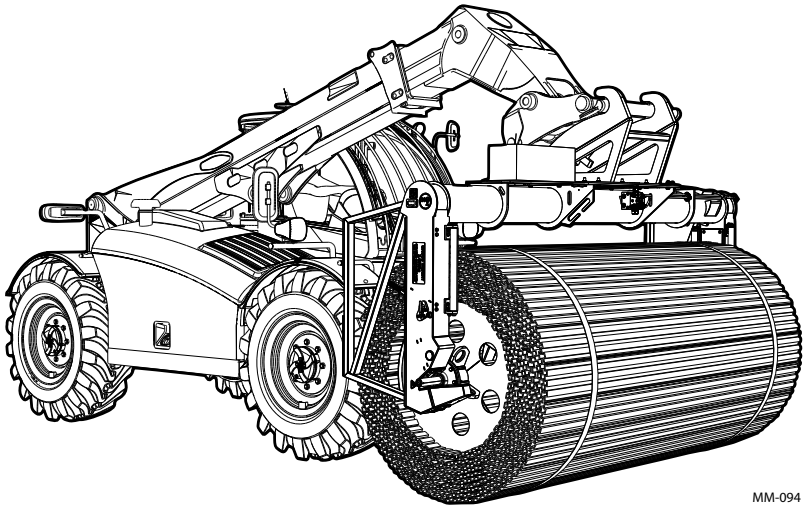


Fig. 5-28 Arm Horns Horizontal with the Spool Low to the Ground

Rotate the Dispenser Arms down until the Arm Horns are horizontal, lifting the Dispenser as required to prevent the Trackway® contacting the ground.

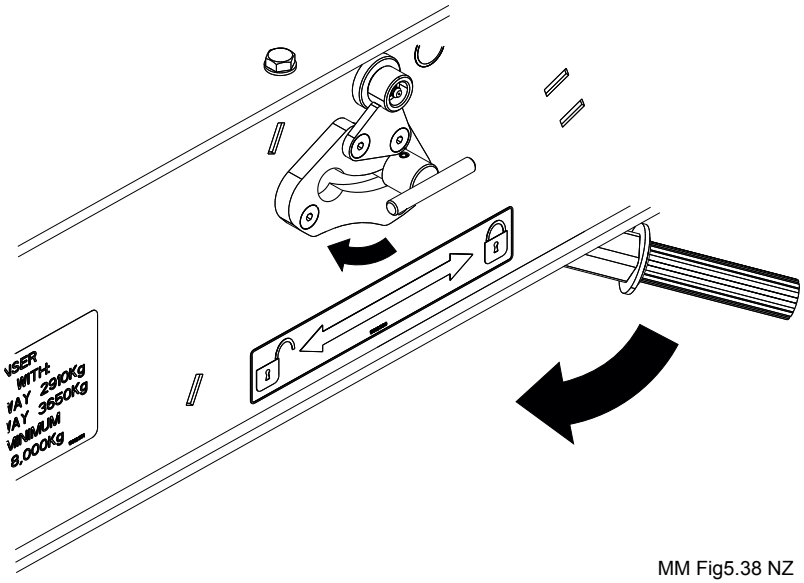


Fig. 5-29 Unlock Spool using Locking Levers

Under the guidance of the Assistant, lower the Spool to the ground, making sure that the ratchets on the Transit Straps do not make contact with the ground.

Once the full weight of the Spool is supported on the ground (the Spool Shafts are just out of the bottom of the Spool Pockets), the Assistant must chock both sides of the Spool to prevent rolling.

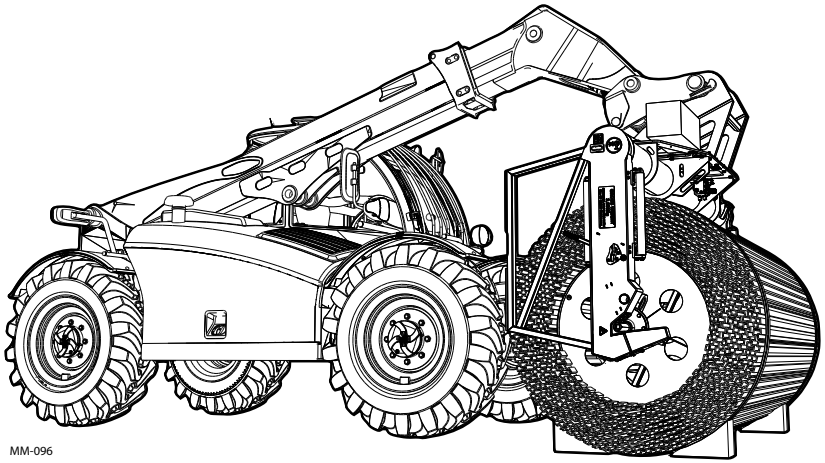


Fig. 5-30 Secure the Spool

Under the guidance of the Assistant, lower the Dispenser until the tips of the Arm Horns are below the Spool Shafts. Slowly reverse the Vehicle in a straight line clear of the chocked Spool.

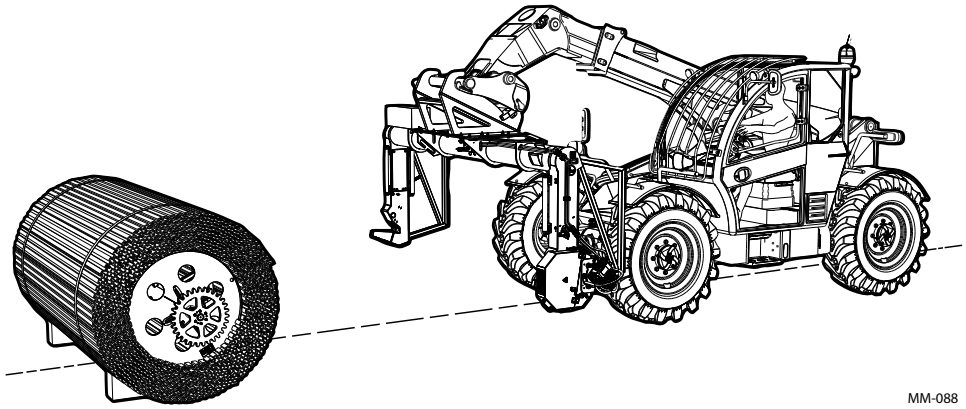


Fig. 5-31 Reverse Vehicle until clear of Spool Gear

Once the Arm Horns are disengaged from the Spool, the Dispenser should be rotated up to prevent contact with the ground.

The Assistant shall close the Gear Guard and fasten the clips.

5.8 Recovery

Equipment Required:

- End Adaptor x 2
- Transit Strap x 2

5.8.1 General

This section details how the Trackway® can be recovered by the C40 PA.

Before starting recovery operations ensure the following steps have been taken:

- Check the Trackway® Condition.

Before recovering the Trackway® the following steps must be taken:

- Position the Vehicle.
- Connect the Spool Chains.

Once the Trackway® has been recovered the following steps must be taken before moving the Vehicle:

- Secure the Trackway® for transit.
- If this is the last operation of the day then complete the Pre- and Post-Operation Checklist (Section 6.4).

WARNING: During recovery, ground guides should ensure the work area is clear of unauthorised personnel.

5.8.2 Checking the Trackway® Condition

Before recovery, while the Trackway® is no longer in use, check for damage to the Panels or debris that could obstruct recovery.

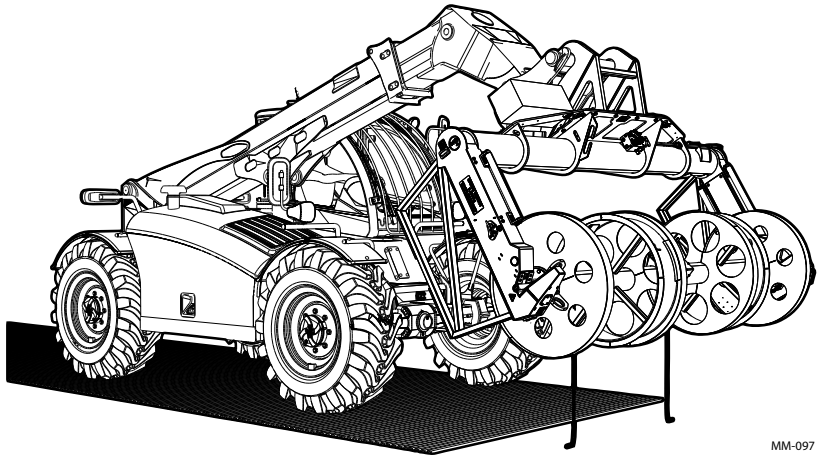


Fig. 5-32 Position the Vehicle on the Trackway®

5.8.3 Positioning the Vehicle

Position the Vehicle on top of the Trackway® a few Panels from the end, and present the chains in front of the spool. Position the Plant Adaptor so it is between 0.5m and 1m above the ground so the Spool Chains will be within reach of the End Adaptors.

5.8.4 Attaching the Spool Chains

If this is the first operation of the day then complete the Pre- and Post-Operation Checklist (see Section 6.4).

Attach the End Adaptors to the last Panel on the Trackway® to be recovered. The End Adaptors should be placed in line with the Spool Chains, approximately 10 grooves in from the edge of the Trackway®.

Rotate the Spool so that the Chains are at the 6 o'clock position.

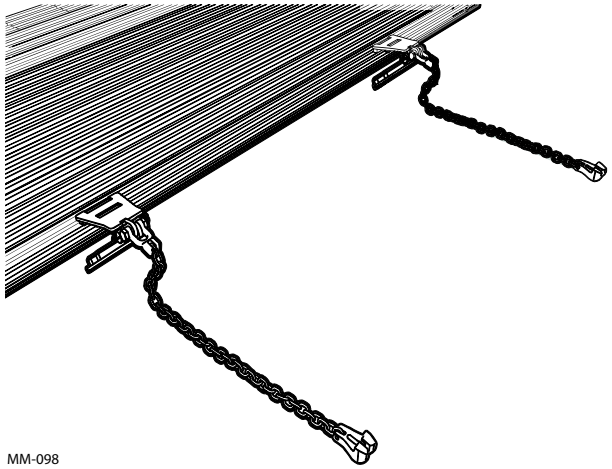


Fig. 5-33 Attach End Adaptors

Attach the last link of the Spool Chain to the Chain Clutch on the End Adaptor.

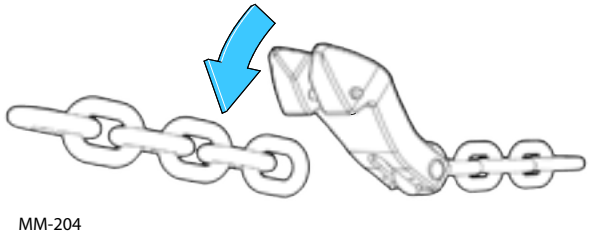


Fig. 5-34 Connect Chain Clutches

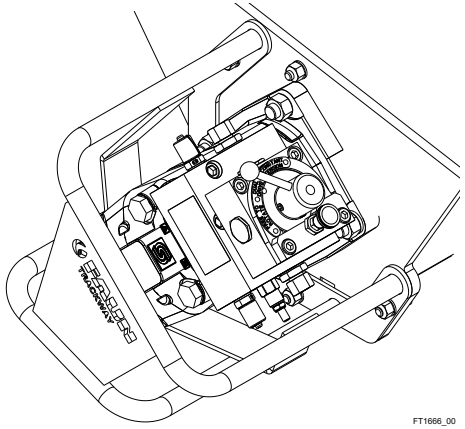


Fig. 5-35 Constant Tension Selected

Spool-in the Spool until the Spool Chains are taut. Simultaneously reverse the Host Vehicle and spool-in the Trackway®. Check the edges are between the Guide Rollers. Spool-in 'overwind' direction.

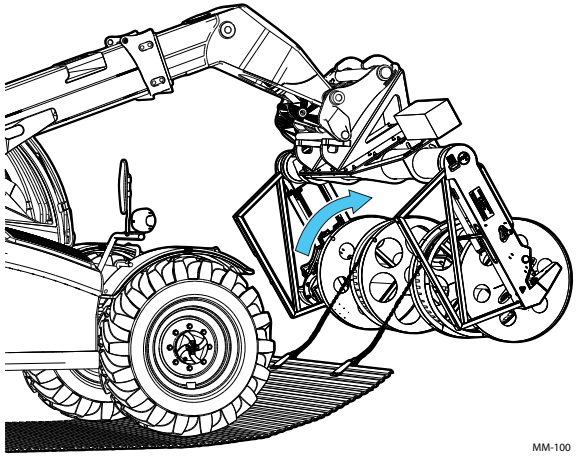


Fig. 5-36 Spool Chains Taut

5.8.5 Recovering the Trackway®

Ensure the Mode Selector is set to Dual Drive.

Simultaneously reverse the Vehicle at a low speed whilst spooling-in the Trackway®. Match the vehicle speed to the rate that the Trackway® is being recovered onto the Spool.

> The Assistant should use hand signals (Section 2.5) to assist with vehicle alignment.

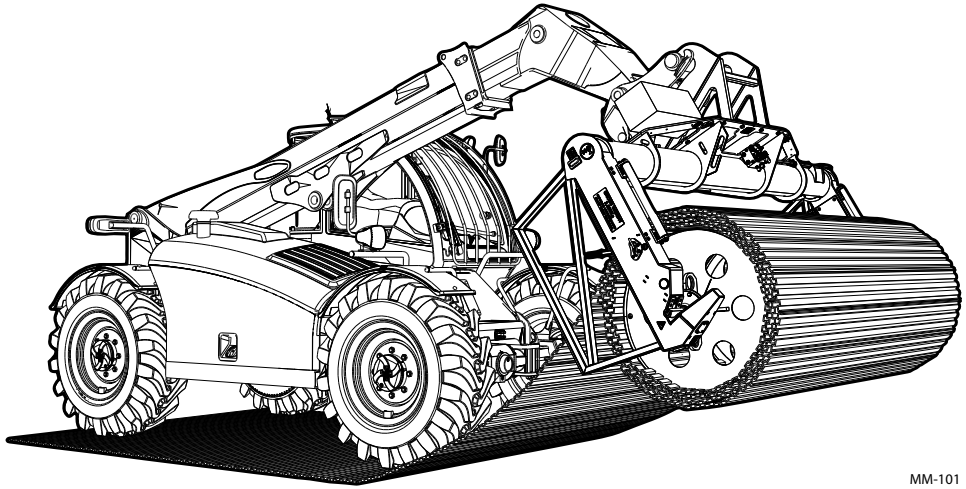


Fig. 5-37 Recovering Trackway®

Continue until the Trackway® is fully recovered onto the Spool and the end of the Trackway® is at the 3 o'clock position.

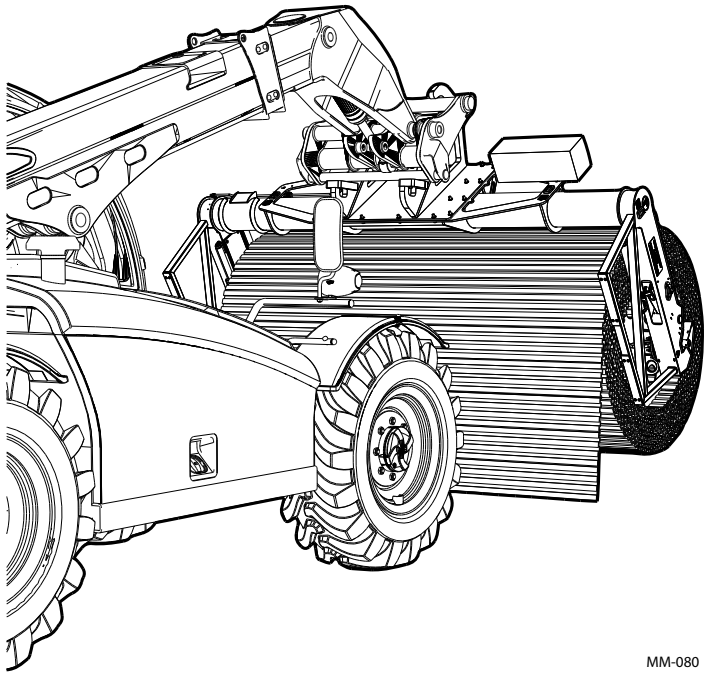


Fig. 5-38 Recovery Complete with Trackway® End at the 3 o'clock position

5.8.6 Securing the Trackway®

Secure the Trackway® with two Transit Straps by throwing the end of each Strap over the Spool (from the front of the Vehicle) and securing with the ratchets horizontally in line with the Spool Shafts opposite the Host Vehicle. The Transit Straps should be positioned in line with the outer Dispenser Beam Tube outer Gusset Plates.

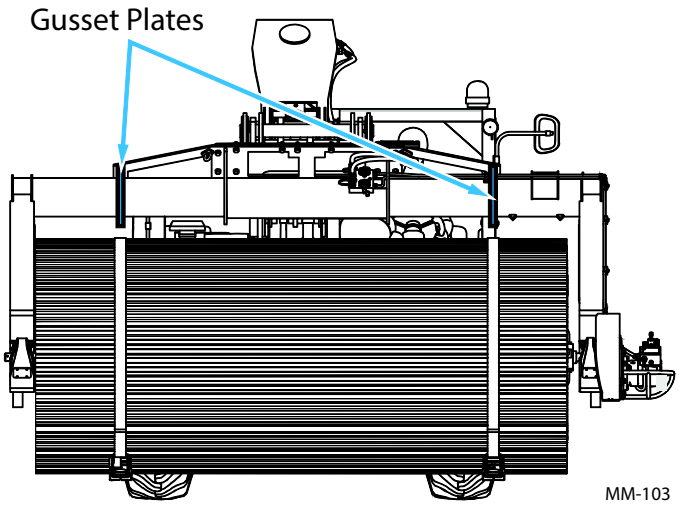


Fig. 5-39 Secure Trackway with Transit Straps

If this is the last operation of the day then complete the Pre- and Post-Operation Checklist (see Section 6.4).

5.9 Post-Operation Inspection

The Pre- and Post-Operation Checklist lists the checks to be conducted on the:

- Plant Adaptor
- Spool
- Trackway®
- Accessories

Checks should be conducted on the C40 PA after operations are complete.

Please refer to the Pre- and Post-Operation Checklist in Section 6.4 – this checklist must be completed to ensure the system is functional after use.

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

5.10 Splitting Trackway®

Operation to be carried out in dual mode only.

Equipment Required:

- Hand Line

Trackway® can be split to:

- Facilitate manual recovery
- Create shorter runs
- Replace or repair damaged panels and sections

Trackway® can be split during deployment, recovery, or when all of the Trackway® is on the ground.

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

> It is recommended to split the Trackway® using Half Panels because less force is required to extract them and less clearance at the side of the Trackway® is required.

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

If splitting at a row of Half Panels then make sure there is at least 2.0m clearance on each side of the Trackway®.

If splitting a row with a Full Panel then make sure there is at least 4m clearance on one side of the Trackway®.

When splitting / joining the Trackway®, the Spool should be placed on the ground to eliminate 'Spool creep'. If this is not achievable, a maximum clearance of 400mm must not be exceeded.

Locate the Locking Pins at each end of the Panel(s) to be removed and the adjacent Trackway® Panel. Lift and slide these Locking Pins into the open position.

Attach the Hand Line 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 Trackway® until it is free and clear. If splitting at a row of Half Panels, repeat for the other Half Panel.

Recover the remaining Trackway® back onto the Spool and secure it following the recovery procedures in Section 5.9.

Stow the Hand Line in the Storage Boxes.

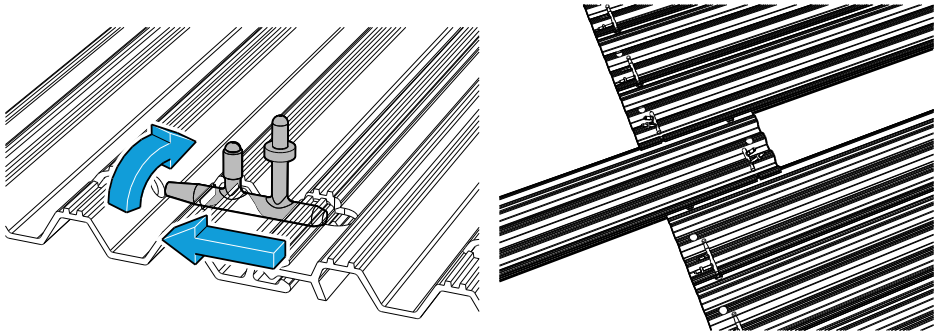


Fig. 5-40 Splitting Trackway®

5.11 Joining Trackway®

Operation to be carried out in dual mode only.

Equipment Required:

- Spare Full Panel or pair of Half Panels (if spare Panels are unavailable remove Panel(s) from deployed Trackway®)
- Hand Line
- Tool Panel Handle
- Sledgehammer

5.11.1 General

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

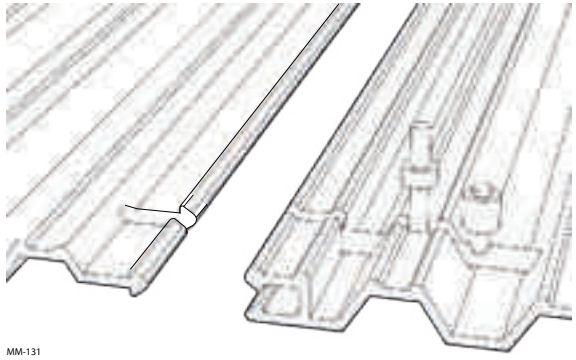


Fig. 5-41 Male and Female Panel Ends

Trackway® must be only deployed in a straight line. Where bends in the route are required, separate sections of Trackway® can be joined at an angle (see Section 5.13.5).

5.11.2 Positioning the Dispenser

Position the Dispenser on top of the deployed Trackway®, as near to the centreline as possible, with the Vehicle front wheels approximately 3m in front of the end to be joined.

Deploy the Trackway® from the Spool, following the deployment procedures outlined in Section 5.6, until it is touching the top of the Trackway® on the ground, with the edges of both Trackways® aligned.

When splitting / joining the Trackway®, the Spool should be placed on the ground to eliminate 'Spool creep'. If this is not achievable, a maximum clearance of 400mm must not be exceeded.

Slowly drive the Vehicle forward so that the end of the Trackway® on the Dispenser lines up with and is parallel to the end of the Panel of the Trackway® on the ground, at a distance of approximately 200mm.

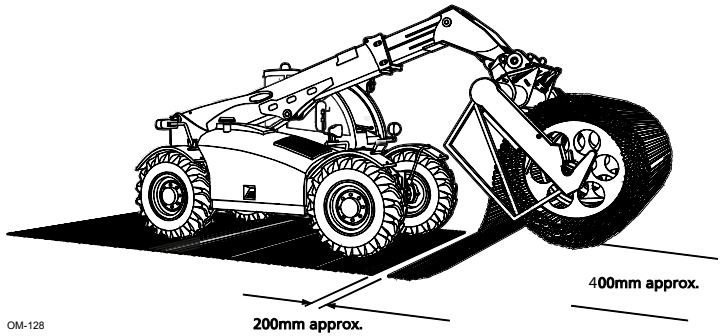


Fig. 5-42 Trackway® Aligned Ready for Joining

5.11.3 Inserting Half Panels

Slot a spare Half Panel approximately 300 mm into one side of the Trackway®, ensuring that the male and female joints connect on each side with the Trackway® Panel on the ground

and the Trackway® Panel leading off the Dispenser.

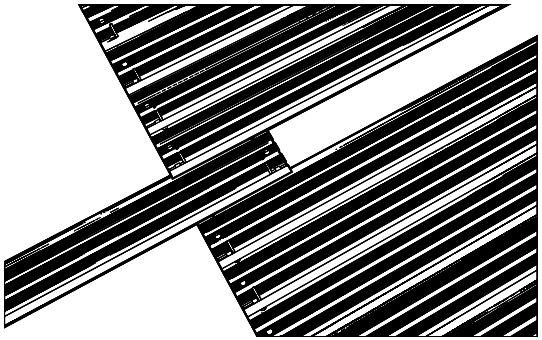


Fig. 5-43 Initially Insert Half Panels 300mm into Trackway®

Repeat with the other Half Panel on the other side of the Trackway®.

With the ends of the Trackway® segments to be joined properly aligned and connected, both Half Panels can be pushed in fully. The Sledgehammer may be used if this is too difficult to do by hand (use in conjunction with dunnage).

It may help to engage the centre Locking Pin of the first Half Panel inserted to make inserting the second Half Panel easier.

Slide the Locking Pins into the locked position at each end of the inserted Half Panels and the Panel adjacent to it.

Stow any Accessories back in the Storage Boxes. Continue laying Trackway®.

5.11.4 Inserting a Full Panel

Insert one end of a spare Full Panel into the Trackway®, ensuring that the male and female joints connect on each side with the Trackway® Panel on the ground and the Trackway® Panel leading off the Dispenser. Assistance may be required to align both sections.

Attach the Hand Line to the inserted edge of the Panel being inserted by clipping it through the hole. Ensure that the karabiner gate is closed.

Using the Hand Line, pull the Full Panel all the way into the Trackway®.

WARNING: Do not walk under the raised boom.

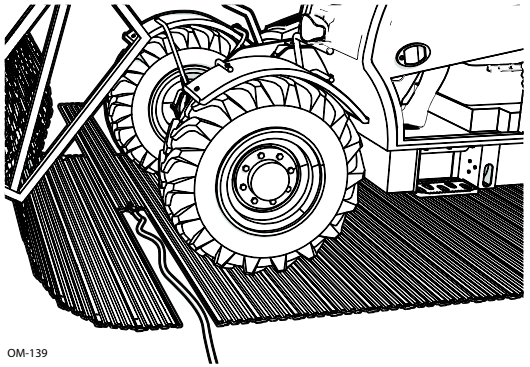


Fig. 5-44 Pulling the Panel into the Trackway®

Slide the Locking Pins 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.

Continue laying Trackway®.

5.11.5 Joining Trackway® at an Angle (optional)

Equipment Required:

– Junction Clamp x 2

Where two sections of Trackway® are required to be at an angle to each other to create a bend in the route, the two sections of Trackway® must be deployed so they overlap fully, so that both sides can be clamped together.

> If the Junction Clamp clamping mechanisms have been closed for storage, they must be re-opened by turning their handle anti-clockwise.

Clamp the two sections of Trackway® together by sliding the jaws of a Junction Clamp over both sections. Close and tighten the Clamp by winding its handle clockwise. Once secure, flip the handle away from the Trackway® to the locked position.

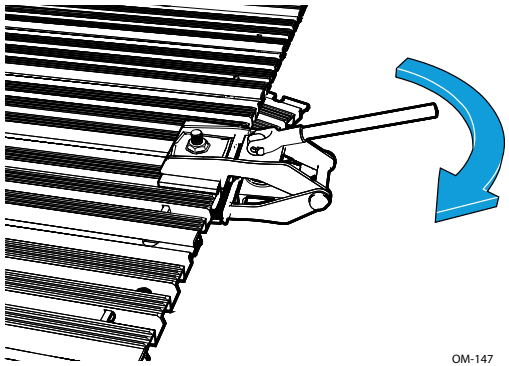


Fig. 5-45 Slide a Junction Clamp over Both Trackway® Sections

Repeat on the other side of the Trackway® to complete the join.

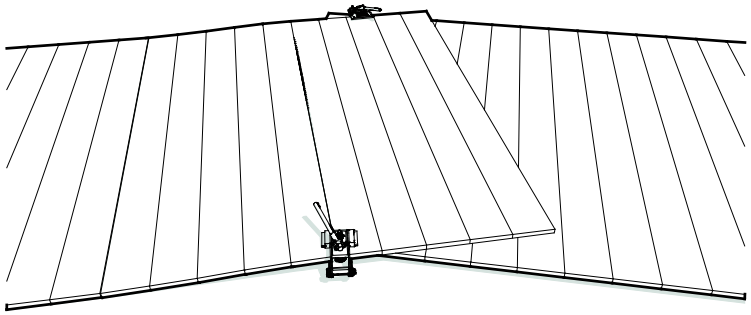


Fig. 5-46 Completed Junction

5.12 Anchoring Trackway®

5.12.1 General

When deploying Trackway®, anchorages are required to prevent the laid Trackway® from rucking under traffic and to prevent movement of the Trackway® on slopes and inclines.

Standard 30m runs of Trackway® are normally anchored at each entry end of the Trackway®.

On runs of 30m of Trackway® or more, it may be desirable to anchor the Trackway® at the entry end of the Trackway® and at intervals of approximately 30m.

When the ground slopes in the direction of vehicle traffic, the Trackway® should be anchored to prevent it working downhill. Anchorages should be installed in pairs, one each side of the Trackway®, with one pair of anchorages at the top and others at frequent intervals down the slope.

On level ground, short runs of Trackway® may not require anchorage - dependant on the strength of the ground.

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

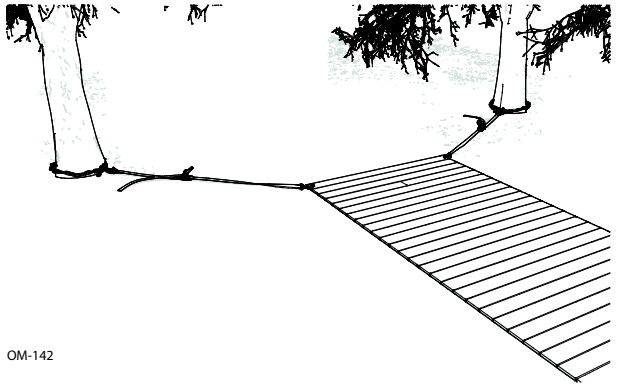


Fig. 5-47 Making use of Natural Anchors

5.12.2 Anchoring Trackway®

Equipment Required:

- Shackles
- Holdfast Straps
- Holdfast Chains
- Ground Anchor Stakes
- Sledgehammer

Assemble the anchorage. The anchorage assembly should be extended to approximately 3/4 of its full length.

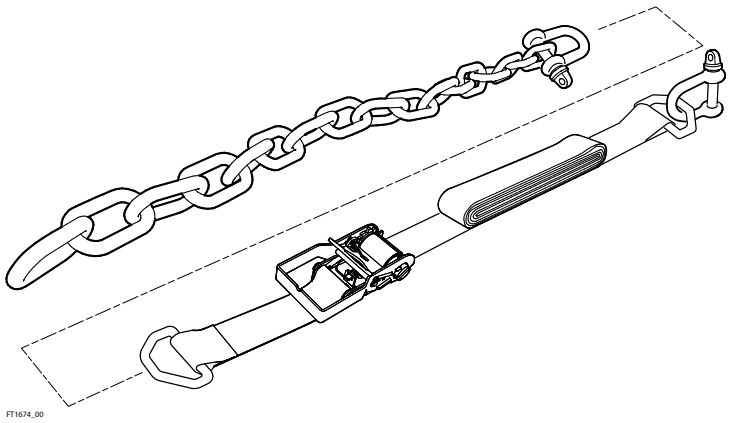


Fig. 5-48 Anchorage Assembly

Attach the end Shackle to a Trackway® panel using the hole in the end of the Trackway® panel.

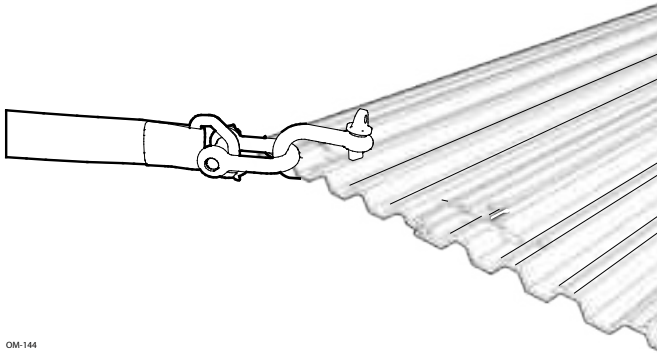


Fig. 5-49 Anchorage Attached to Trackway®

Position the anchorage assembly at a 45° angle to the front of the Trackway® start point, placing one anchorage assembly on each side.

Drive in three Ground Anchor Stakes, using the Sledgehammer, through the chain links at different angles either side of the line of pull - ensuring the Ground Anchor Stakes are securely driven into the ground.

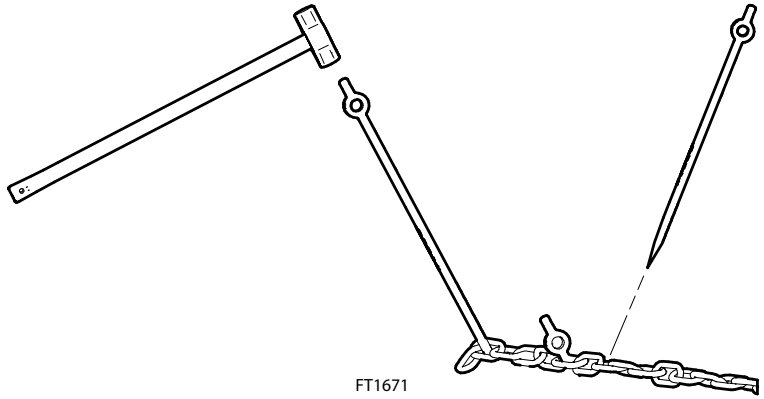


Fig. 5-50 Anchor Stakes

Take up the slack in the Holdfast Straps, ensuring that the ratchets are not over-tightened.

6. MAINTENANCE

6.1 General

This chapter provides detailed maintenance procedures, to be performed by qualified maintenance personnel to prevent damage and ensure long-term serviceable use.

6.2 Preventative Maintenance

6.2.1 General

This section details the preventative maintenance that should be undertaken to avoid or mitigate the consequences of C40 PA failure.

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

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

CAUTION: The C40 PA should be at ground level for preventative maintenance tasks to be carried out.

6.2.2 Preventative Maintenance Plan

The Preventative Maintenance Schedule shown in Section 6.3 consists of tasks allocated to:

- The Operator
- The Maintainer

When appropriate, use the supplied manufacturer handbooks as supporting literature.

Tasks are broken down generally as follows and are specified as either Operator or Maintainer tasks.

Cleaning: wipe down with a damp cloth or jet wash as appropriate to remove dirt and debris.

- Lubricating: apply the specified lubricant.
- Changing: remove the part and replace.
- Checking: visual inspection to see if the part is still present and functional.
- Adjusting: use of a tool to ensure the correct tightness.

6.2.3 Preventative Maintenance Intervals

After operation: After each time the equipment is used.

Monthly: On a set date each month.

Annually: After 250 hrs or 12 months

6.2.4 Preventative Maintenance Checklists

The Pre- and Post-Operation Checklist is used by the Operator to assess the equipment before and after use and report any damage or defects for remedial action (see Section 6.4).

The Maintenance Checklist is used by the Maintainer to assess the equipment during monthly and annual checks and report any damage or defects for remedial action (see Section 6.5 in Maintainer Manual).

6.3 Preventative Maintenance Schedule

6.3.1 Plant Adaptor

						Interval and Tasks			
S/N	SYSTEM	LUBRICATION / PART CHANGE	CLASS	SPECIFICATION	QTY	After Operation	Monthly	Annually/250 hrs Operation	Carry out By
1	DRIVE GEAR	Lubricate	NLGI -2	NLGI -2, EP, Castrol Biotac EP2	As Req.	Clean & Grease	Clean & Grease	Clean & Grease	Operator
2	SPOOL LOCK BAR PIVOTS	Lubricate	NLGI -2	NLGI -2, EP, Castrol Biotac EP2	As Req.	Clean & Grease	Clean & Grease	Clean & Grease	Operator
3	SPOOL LOCK BAR CATCHES	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
4	GEAR GUARD HINGES AND LATCHES	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
5	QUICK RELEASE COUPLINGS	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
6	SIDE ROLLERS (8 LOCATIONS)	Lubricate	NLGI -2	NLGI -2, EP, TFC 410 Hydraulic Oil	As Req.	Clean & Grease	Clean & Grease	Clean & Grease	Operator

6.3.2 Spool

						Interval and Tasks			
S/N	SYSTEM	LUBRICATION / PART CHANGE	CLASS	SPECIFICATION	QTY	After Operation	Monthly	Annually/250 hrs Operation	Carry out By
8	SPOOL CHAINS	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
9	SPOOL GEAR	Lubricate	NLGI -2	NLGI -2, EP, Lithium	As Req.	Clean & Grease	Clean & Grease	Clean & Grease	Operator

6.3.3 C40 Trackway®

						Interval and Tasks			
S/N	SYSTEM	LUBRICATION / PART CHANGE	CLASS	SPECIFICATION	QTY	After Operation	Monthly	Annually/250 hrs Operation	Carry out By
10	PANELS	-	-	-	-	Clean	Clean & Lubricate	Clean & Lubricate	Operator
11	LOCKING Pins	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
12	Half Panel					Clean	Clean & Lubricate	Clean & Lubricate	Operator
13	Junction Clamp	Lubricate		WD40	As Req	Clean & lubricate	Clean & lubricate	Clean & lubricate	Operator

6.3.4 Accessories

						Interval and Tasks			
S/N	SYSTEM	LUBRICATION / PART CHANGE	CLASS	SPECIFICATION	QTY	After Operation	Monthly	Annually/250 hrs Operation	Carry out By
12	STEEL SHACKLE WLL2 TON	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
13	Hand Line KARABINER	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator
14	SIGHTING RODS	-	-	-	-	Clean	Clean	Clean	Operator
15	DUPLEX WEBBING WLL 2T, 2m	-	-	-	-	Clean	Clean	Clean	Operator
16	RATCHET Straps	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator

6.3.5 Interface Kits

						Interval and Tasks			
S/N	SYSTEM	LUBRICATION / PART CHANGE	CLASS	SPECIFICATION	QTY	After Operation	Monthly	Annually/250 hrs Operation	Carry out By
17	HYDRAULIC HOSE QUICK COUPLERS	Lubricate	-	WD40	As Req.	Clean & Lubricate	Clean & Lubricate	Clean & Lubricate	Operator

6.4 Operator Pre and Post Operation Checklist

SERIAL NUMBER:	DATE:
This is to certify that I have inspected the equipment in accordance with the pre and post operation check-list.	
OPERATOR NAME AND RANK:	SIGNATURE:

SN	ITEM	INSPECTION POINT		PASS CRITERIA		PASS / FAIL	COMMENTS
1	DISPENSER	a.	Check the frame.	i.	No welding cracks or distortion.		
		b.	Check the sole plates x 4.	i.	Not overly worn, missing or broken.		
		c.	Check tie down points x 8.	i.	Not bent, missing or broken.		
		d.	Check the side rollers x 4.	i.	Roller shafts and locating tabs/bolts are not damaged or missing.		
				ii.	Able to rotate.		
		e.	Check the quick release couplings.	i.	No damage, no leakage and clean.		
		f.	Check the hydraulic hoses, pipes and fittings.	i.	No damage, no leakage.		
		g.	Check the lock assemblies are engaged.	i.	Not loose, broken or missing, functional.		
		h.	Check the spool motor.	i.	No damage, no leakage.		
		i.	Check the motor guard.	i.	Is present, not damaged.		
		j.	Check the gear guard.	i.	Is present, not damaged, functional.		
		k.	Check the Mode Selector.	i.	Not bent, missing or broken.		
		l.	Check the interface plate.	i.	Is the correct plate, is firmly attached.		
		m.	Check the spool bearing in the bottom of the spool pockets.	i.	Not worn, missing or broken.		
		n.	Check the drive pinion.	i.	Visual check to confirm not broken or missing gear teeth.		

SN	ITEM	INSPECTION POINT		PASS CRITERIA		PASS / FAIL	COMMENTS
1	DISPENSER (CONT'D)	i.	Check the motor guard.	i.	Is present, not damaged.		
		j.	Check the gear guard.	i.	Is present, not damaged, functional.		
		k.	Check the Mode Selector.	i.	Not bent, missing or broken.		
		l.	Check the interface plate.	i.	Is the correct plate, is firmly attached.		
		m.	Check the spool bearing in the bottom of the spool pockets.	i.	Not worn, missing or broken.		
		n.	Check the drive pinion.	i.	Visual check to confirm not broken or missing gear teeth.		
2	SPOOL	a.	Check the frame NB: Deploy the Trackway® first.	i.	Visual check to confirm no welding cracks or distortion.		
		b.	Check the spool shafts and the retaining bolts are tight.	i.	Visual check to confirm no damage.		
		c.	Check the spool deployment and recovery chains.	i.	Chain links are not bent, worn diameter limits or broken.		
		d.	Spool deployment and recovery chain lugs.	i.	Load lug is not bent, worn diameter limits or broken.		
		e.	Check sprocket teeth (31), gear and fastenings.	i.	Visual check to confirm not missing.		
3	Trackway®	a.	Check transit and holdfast straps, hooks and mechanism.	i.	Not torn, missing, bent, broken or inoperative.		
		b.	Check panels.	i.	Are operational, not badly worn, torn, twisted or bent.		
		c.	Locking Pins	i.	Are present, operational, not badly worn, torn, twisted or bent.		
		d.	Pin Pouch - Check 10x Pins are present.	i.	10x Pins are present.		
4	DISPENSER AND Trackway® ACCESSORIES	a.	Hand line	i.	Is operational, not badly worn, twisted or bent.		
5		a.	Interface Plates with equipment.	i.	Is present, Plate is not badly split, worn or bent. Hoses are present, not split.		

7. TROUBLESHOOTING

7.1 Hydraulic System Issues

Symptom/Fault	Possible Cause		Action	Level
No powered Spool rotation	Auxiliary pump disengaged.		Ensure the PTO [power take off] on the Host Vehicle is engaged (if needed, refer to the vehicle manufacturer's manual for further information).	Operator
	Incorrect function on the Mode Selector.		Set the Mode Selector to Dual Drive (powered operation in both directions).	Operator
	Hydraulic hoses connected incorrectly.		Ensure the Hydraulic Hose quick release connectors are correctly fitted to the Host Vehicle and the Plant Adaptor (refer to the vehicle manufacturer's manual for further information).	Operator
	Insufficient hydraulic oil in the Host Vehicle's hydraulic Tank.		Replenish the Host Vehicle's hydraulic tank with hydraulic oil.	Operator
	No pressure or insufficient pressure in the system	Relief valve opening below setting.	Adjust the relief valve.	Maintainer
		Hydraulic motor is worn or has excessive external damage.	Repair or replace the unit.	Maintainer
		Hydraulic couplings are disconnected.	Connect the couplings.	Operator
Erratic operation of motor	Entrapped air causing fluctuating pump delivery.		Ensure that the oil in system is clear from bubbles and foam.	Maintainer
	Inconsistent engine speed.		Check the PTO condition and engine speed.	Maintainer
	Air pocket in system.		Remove air from system by bleeding.	Maintainer

Symptom/Fault	Possible Cause	Action	Level
Speed of hydraulic movement	Engine RPM is too high/low.	Adjust the engine RPM.	Operator
	Pump delivery is too low.	Refer to the chassis manufacturer's manual.	Maintainer
	Incorrect speed adjustment.	Adjust speed.	Maintainer
Creeping or over movement	Spool brake oil level or condition.	Check oil/replace if necessary.	Maintainer
	Spool brake is worn/damaged.	Investigate brake condition/replace components worn or damaged components.	Maintainer
	Over-centre valve is incorrectly adjusted.	Check and adjust valve.	Maintainer

FAUN Trackway Limited
Bryn Cefni Industrial Estate, Llangefni, Isle of Anglesey, UK, LL77 7XA

TEL: +44 1248 722777
info@fauntrackway.co.uk

FAUN Trackway USA, Inc.
1101 Wilson Blvd., 6th Floor, Arlington, Virginia, 22209-2211

TEL: +1 202 459 0802
info@fauntrackway.com

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