



OPERATION & MAINTENANCE MANUAL



FLATBED RANGE



TABLE OF CONTENTS

TRAILER DETAILS	03
INTRODUCTION	04
SAFETY INFORMATION	05
General safety requirements	
Operator Responsibilities	
Intended Use	
Prohibited Use	
Modifications	
Animal Welfare	
Hazard Awareness	
DEALER HANDOVER PRE DELIVERY CHECKLIST	07
OPERATION	
Coupling trailer to towing vehicle	
Loading and unloading correctly	
Before loading livestock	
During loading livestock	
After loading livestock	
Rubber tail door/Floor	
Sheep Decks	
Dividing gate	
Side access doors	
Ventilation system	
Interior lighting	
Effluent tank and drainage system	
MAINTENANCE	
Tyre maintenance	
Hub bearing maintenance	
Brake maintenance	
Coupling maintenance	
Galvanise finish	
Trailer cleaning	
SERVICE	
Service Schedule	
Service Record	
WARRANTY	



Enter the following information for your own records:	
Trailer Model: From CoC	
VIN number: (From VIN plate)	
Date of Purchase:	
Purchased from:	
Max Gross weight (MGW):	
Unladen Weight:	
Payload: (MGW minus unladen weight)	

Manufacturer's Plate

The trailer is fitted with a Manufacturer's Plate to the right-hand side drawbar which will show the following information:

- The manufacturers name and address details.
- The trailer Vehicle identification number.
- The trailer type approval number.
- Maximum gross weight for the trailer
- Axle capacity

Intended use:

The following are permitted:

- (Tipper) Transport of loose aggregates, woodchips and for landscaping use.



General – All Types Covered by this Manual.

This manual contains the information required to ensure safe operation and correct maintenance of the M-Tec Tipping Trailers. Please take the time to read the contents of this manual before you attach the trailer to the towing vehicle or attempt to load it. Make sure everyone responsible is fully conversant with the procedures for attaching to the towing vehicle, towing, loading, unloading and maintaining the unit.

By following, understanding, and practising the information and procedures in this manual, the trailer will give you many miles/kilometres of safe use. Whilst every effort has been made to ensure the accuracy of these instructions, they are intended only as a guide to the user.

Operating Tipping Trailer

During extended journeys, carry out regular checks on the condition of the load securing system.

- It is recommended that new users practice operating the tipping mechanism with the trailer empty to ensure familiarity with the controls.
- Check to ensure lighting is adequate.
- The trailer lighting could be obscured when tipping. Ensure that measures are taken to compensate for this when operating on a public road, such as placing a warning tri-angle or lights behind the vehicle.
- Tipping Trailers must be stationary, coupled to the towing vehicle with the handbrake applied.
- Do not open the tailboard while trailer body is raised. Tailboards must be opened before tipping commences.
- Tipping results in the centre of gravity being elevated with consequent risk of rollover. This risk increases dramatically if the trailer has an initial side-slope or is on soft ground.
- If the load slides out the rear but sticks in the front, be aware that the centre of gravity is now higher than before and the trailer is now in its least stable condition. Providing the trailer is still level it is safe to go on tipping until the load at the front discharges.
- If any part of the load is stuck in the front of the trailer and will not discharge when the maximum tip angle is reached, lower the body and shovel the remaining load until loose. Then tip again. Using the towing vehicle to try and jerk the stuck load free is **VERY UNSAFE**.
- Prop stands and chocks may be used to supplement stability where ground conditions are marginal.
- After discharge is complete, do not drive off until the body is fully lowered. Even when the above limitations are respected.
- No-one except the Operator should be in the working area while tipping.

Safety Prop



DO NOT ENTER, LEAN INTO OR REACH INTO THE AREA UNDER THE RAISED BODY UNLESS THE PROP IS LOCKED IN THE SAFETY POSITION AS SHOWN: IF UNABLE TO DO SO EMPLOY THE USE OF A SECOND PERSON.

Ensure the prop is safely in position when tipped, see below.



Loading Tipping Trailer Correctly



M-TEC Tipping Trailers are designed to maintain proper weight distribution when the load is evenly spread across the full length of the trailer or when the centre of the load is positioned just ahead of the trailer's wheel set.

These trailers can also function as flatbeds if the bodywork is removed, but the headboard must never be removed under any circumstances.

When loading, the load should ideally be placed against the headboard to prevent additional force from impacting the headboard during emergency braking or an accident. In cases where the load is short and weight distribution requires it to be positioned further back, it is recommended to use sturdy wooden spacers between the load and the headboard.

All loads must be properly secured to prevent rolling or shifting, using a combination of chocks and ratchet straps. If a load comes loose during an accident, it may be deemed a contributing factor to the incident.

TOP HINGE TAILBOARD FUNCTION:

The tailboard can be hinged either at the top or the bottom, depending on the type of load being carried. For aggregate materials like sand or gravel, which are free-flowing and can easily pass under the top edge of the tailboard, the top-hinged method is recommended. This approach is generally preferred, as it prevents the tailboard from making contact with the ground.



BOTTOM HINGE TAILBOARD FUNCTION:

Use the bottom hinged method where it is likely that the load will jam against the top edge of the tailboard. Logs would be a good example of such a load. M-Tec trailers have been designed to ensure that the tailboard does not make contact with the ground before the trailer reaches its maximum tipping angle. Avoiding any damage to the tailboard.



Loading Skids

Where loading skids are fitted the procedure for using them is as follows. It is assumed that skids are used to load wheeled vehicles.

All M-Tec Tipping trailers come with ramp carriers as standard, this allows you the option to purchase skids at any times. The skids are stowed under the trailer body and are removed from the rear of the trailer. See the picture below which shows the 2x lugs which need to be twisted to access the ramps.

It is strongly recommended that any lifting or positioning of the skids is carried out by two persons. (Each skid weighs approximately 40kg).

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TIPPING - Electric Tip

M-TEC Tipping Trailer comes with a 12V DC Power pack package to operate a single acting cylinder, complete with detachable two button pendent and hand pump backup in case of power failure.

12V DC 1.6KW 2500rpm	12V DC	2.1cc/r	4.5L	160 bar
Motor	Lowering Coil Voltage	Gear Pump	Oil Tank	System Pressure

The following instructions are not exhaustive or specific to any particular application or installation and are intended for an appropriately qualified and experienced technician:-

- Ensure that before commencing any service work that equipment is mechanically and electrically isolated and that system pressure has been exhausted.
- The general condition of the oil tank and all pipework should be inspected for leaks and damage.
- Check that all electrical connections and fuses are in a good condition and are suitable for the application.
- Inspect the tank oil level with all actuators in their closed position.

To Be Inspected Regularly

- Change the oil every 12 months with suitable new, clean filtered oil of at least 12 micron.
- If changing the oil, it may be prudent to remove the tank and check the inside and the suction strainer for severe contamination. Recycle used oil responsibly.
- Check the filler breather for any airborne contamination and replace if necessary.
- Observe if the general environment has changed from the last inspection for moisture, dust or temperature change.

Hydraulic Fluid

A high-quality mineral hydraulic oil is to be used in the system, always fill from a filtered clean source (ISO4406 18/16/13), ISO viscosity grade VG 32 or 46 is recommended. Leave a 25mm air gap at the top of the oil tank, larger gaps may be needed if the unit is subjected to tilting. Do not use water-based fluids, Phosphate Esters or oils such as Skydrol.

Lowering The Trailer Bed/Body

- Ensure that the area between the chassis and platform is clear of obstruction.
- Do not rest a hand on the control box lid.
- Lower the trailer bed/body by pressing the 'down button' or opening the pressure release valve.
- Once lowered switch off the isolator, remove the key and store safely.
- Disconnect the remote control from the socket.

Important Note. The remote-control unit supplied is generally splash-proof but is not fully waterproof. It should never be immersed in water and should be stored safely when not in use. If it is damaged, it should be removed from service immediately, and replaced if not repairable.

Battery Maintenance & Charging



Batteries fitted, are 12V 105Ah, maintenance free (apart from charging) type. When working on the battery observe the appropriate safety precautions:

- Always match the charger to the battery type and capacity.
- Charge the battery in a well-ventilated area, away from any potential sparks or flames.
- Charging generates small amounts of highly flammable hydrogen gas.
- Ensure the charger leads are correctly connected to the battery terminals: positive to positive, and negative to negative before turning on the charger.
- Once charging is complete, switch off the charger before disconnecting the leads from the battery
- If the battery becomes hot or leaks acid, stop charging immediately. The battery is likely damaged and should be replaced.
- Never charge a frozen battery or one with a temperature above 45°C.
- Batteries naturally self-discharge over time, even when not in use. Allowing the battery to discharge deeply will make recovery slow or impossible. A voltage check and recharge every 6 months is essential.
- In cold weather, there is a risk of internal freezing, which can cause the battery to crack and leak. Keeping the battery fully charged reduces this risk.
- Avoid rapid charging, as it can reduce the battery's charge cycle lifespan by up to 30%
- Overcharging—often indicated by the battery heating up—can cause the internal plates to buckle and make contact. If this happens, the battery is irreparably damaged and should be replaced.

Note: Prolonged periods of deep discharge can lead to "sulphation" of the plates inside the battery. Recovery involves slow charging over an extended period, but this may also cause overcharging damage once the battery is restored.

Tyre Maintenance



Tyres must be maintained at the specified pressures. Underinflation, especially at maximum load, can cause overheating, uneven wear, reduced stability, and potential sudden failure.

When replacing tyres, ensure they match the same size and load/speed rating. The load and speed index codes are crucial; avoid tyres with lower ratings than specified, as they may be unsafe.

Tyre sidewalls may also list other speed, load, and pressure details for regions outside Europe, these should be ignored in Europe; only the load speed index is relevant here.

Tyre Size	Correct Load/ Speed Index	Pressure (Cold)
185/60/R12	106/104N	95psi

Hub Bearing Maintenance



1. Position the Trailer

- Place the trailer on stands with all wheels free.

Note: Ensure the handbrake lever is secured in the "off" position.

2. Check for Bearing Play

- Rock the road wheel to check for any play in the bearing (refer to point '6').

3. Remove Wheels and Hub Cap

- Remove the wheels and the hub cap.
- If necessary, loosen the brake adjuster bolt.

4. Remove the Axle Nut

- Remove the axle nut. This could be a castellated nut with a split pin or a high-torque nut.
- Remove the brake drum (hub pullers may be needed), being careful not to disturb the bearings.

Warning: Avoid inhaling brake dust and do not use compressed air to clean the drum.

5. Clean the Brake Drum

- Gently remove the dust using a small brush.

Continued on next page....

6. Inspect and Replace the Brake Drum

- Check the condition of the brake drum. Replace it if deep score marks are visible.
- After removing the retaining circlips, replace them as follows:
- Press or gently drift the new bearing into place, ensuring it is square to the bore and seated against the shoulder. Refit the circlips.
- Fit the drum to the axle shaft and tighten the nut to the correct torque (280 Nm).

Note: The high-torque nut used in this process may only be reused twice. If the history of the nut is unknown, it must be replaced.

7. Inspect Bearings

- Individual taper roller bearings consist of inner and outer bearings, along with a separate seal. These are adjustable, but the condition of the bearings must be assessed before any adjustment.
- Wash away any grease and oil from the bearing using a suitable solvent. Inspect each roller, as well as the inner and outer races. If there is any pitting, damage, or corrosion, replace the bearing.

Note: If any part of the bearing shows damage or wear, it is recommended to replace all bearings in the hub and install a new oil seal.

- Using a brass drift, carefully drive out the outer races, working around the circumference.
- Clean the hub and carefully tap in the new outer races using a brass drift. Ensure the bearings are seated against the shoulders.
- Grease the bearings and fit them with a new seal. Apply grease between each roller and a light coat of grease on the bearing races.

8. Fit the Brake Drum

- Fit the drum back onto the axle shaft and tighten the nut to 70 Nm torque while rotating the drum slowly. Loosen the nut, ensuring the drum doesn't rotate. Finger-tighten the nut, back it off to the first castellation, and fit a new split pin.

9. Reassemble

- Refit the hub cap and replace the wheels. Check for excessive play at the wheel rim. If necessary, repeat step 7.5.

10. Adjust the Brake Linkage

- See brake adjustment in the next section.



The brake cable consists of the following components:

- Outer plastic sheath
- Spiral steel case
- Thick nylon sheath
- Inner steel cable

Local wear on the outer plastic sheath, which exposes the steel spiral, does not affect the brake function. However, if the steel spiral case is damaged or penetrated, ***urgent replacement is required.***

Brake Cable Functionality Check:

- The brake cable should move smoothly and evenly when the handbrake is applied.
- When the coupling head is moved side to side with the handbrake engaged (and the trailer wheels on the ground), the wheels on both sides should engage auto-reverse and show equal movement.

If equal movement is not observed at either stage, it is possible that water has entered the system, causing the cable to rust, swell, and seize. However, the most likely cause is that the brakes are out of adjustment. The first step should be to reset the brakes as described in the next section.

Signs for Immediate Replacement:

- Rust or fraying of the inner cable.
- Rusting of the threaded end, preventing the adjuster nuts from turning.

If any of these issues are present, immediate replacement of the brake cable is necessary.



When adjusting the brake drum, always turn the wheel in the direction of forward rotation. Ensure that the coupling drawtube is fully extended and that there is no tension in the brake rod or cables.

1. Adjust the Brake Shoes

- Turn each wheel in the direction of forward rotation.
- Turn the brake adjuster bolt clockwise until you feel some resistance as the brake shoes begin to grip the drum.
- Slowly turn the brake adjuster bolt anticlockwise until the wheel rotates freely again.

2. Adjust the Brake Rod

- Turn the nut on the brake rod until it contacts the compensator.

Caution: Do not over-tighten the nut, as this can cause the brakes to drag and overheat.

3. Check Re-assembly

- Warning: Double-check that everything has been reassembled correctly, with all fasteners securely tightened.
- Operate the handbrake several times to ensure the compensators are properly seated.
- Check the travel of the individual brake cables. The travel should be 2-5mm. If the travel is not correct, re-adjust the brake.

4. Check Auto-Reverse Mechanism

- With the handbrake engaged, turn each wheel in the reverse direction. The wheels should turn slightly and then lock as the auto-reverse mechanism engages.

Note: As each wheel is turned, you will notice a rearward movement of the handbrake lever as the energy store operates. This action should occur only once on the rearward turn of each wheel.

Warning: If any wheel fails to lock, there is too much slack in the system.

5. Check Compensator Alignment

- Ensure the compensators are positioned at a 90° angle to the brake rod when the brakes are applied in both forward and reverse directions.
- If misalignment occurs, adjust the cable locking nuts. This is particularly important if a new cable has been fitted.

6. Recheck Wheel Nut Tightness

- After engaging the handbrake and leaving it on, lower the trailer back to the ground and recheck the tightness of the wheel nuts.

7. Brake Bedding-In

- Note that the brakes will not be fully effective until the new linings have properly bedded in.

8. Recheck Brake Adjustment

- After a short journey, recheck the brake adjustment for proper functionality.

Warning: The brake drums may be hot.

- Check every 2,500 miles: Inspect the overrun coupling unit and jockey wheel for any damage or wear. Replace any worn or damaged parts immediately.
- Lubricate the wheel spindle and screw thread every **5,000 miles**.
- To minimize wear on the towing ball and coupling head, clean the cup in the coupling head ****monthly**** and apply fresh grease.

Specific Checks Every 2,500

1. Coupling Mounting Bolts

- Check that the mounting bolts securing the coupling are tight.

2. Coupling Head Bolts

- Ensure the bolts securing the coupling head are tight.

3. Coupling Head

- Using a 50mm test towball (must meet BSAU 113c, size between 49.61mm and 50.00mm) check that the tow ball locates and locks correctly in the coupling head.
- Verify that any wear/location indicators are functioning properly (see below).
- Lubricate the mechanism and lightly grease the inside of the coupling socket.

4. Draw Tube

- Check the draw tube by moving the shaft up and down to ensure that the bearings supporting the draw tube are not worn.

5. Drawtube Gaiter

- Inspect the gaiter for any splits or tears. Replace the gaiter if damaged.

6. Damper

- With the handbrake off and wheels chocked, push the coupling in.
- If the damper does not move or moves in with no resistance and does not return, the damper must be replaced.
- It should move in steadily with uniform resistance.

Note: Ensure that the correct specification of replacement damper is used.

7. Handbrake

- Check that the handbrake operates with the correct movement. Lubricate the pivots for smooth operation.

8. Grease Nipples

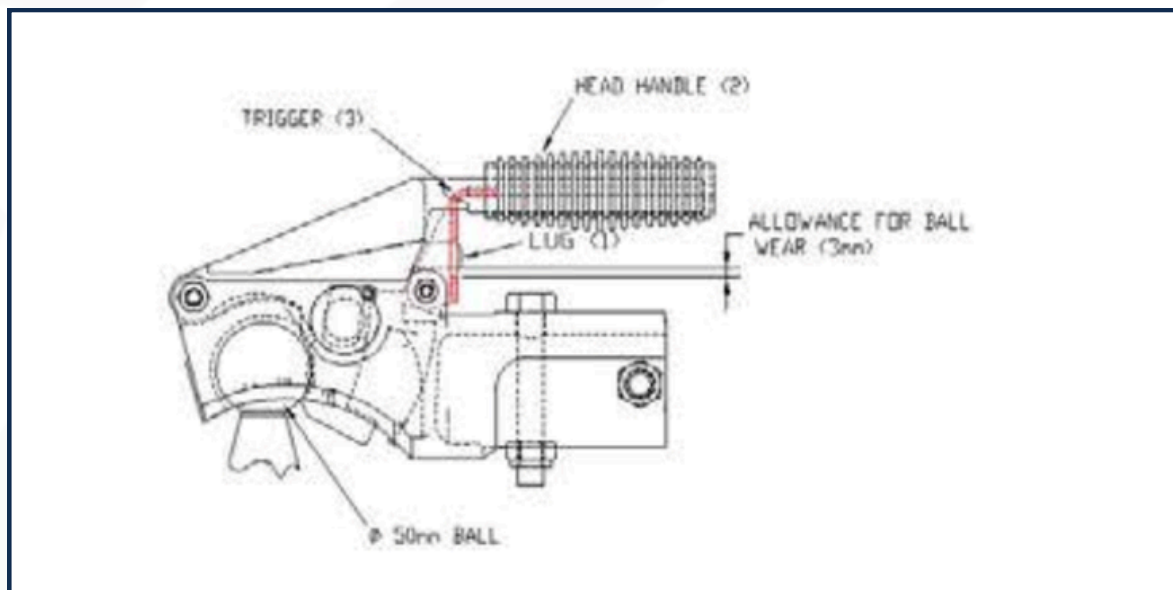
- Use a grease gun to apply a generous amount of grease to the nipples located on top of the housing.

9. Breakaway Cable

- Check the breakaway cable for any kinks or fraying. Verify that the clip operates correctly and that the cable is securely attached to the “burst” ring.

To assess if either the vehicle's tow ball or the ball coupling is excessively worn, follow this procedure:

- Couple the trailer to the towing vehicle.
- Check the square lug (1) at the rear of the head-handle (2). It should rest at the bottom of the slot in the trigger (3)
- If the square lug is resting at the bottom of the slot, this indicates that either the coupling head, the tow ball, or both are worn and need attention.



If so, check further by using a new 50mm ball. If the lug remains at the bottom of the slot the coupling head is excessively worn and should be replaced. However, if the lug is now riding noticeably higher up the slot the original 50mm ball should be replaced.

Note: If it is necessary to replace the coupling head remember to carry out the first check once more as the 50mm ball may need replacing as well!



Hot-dip galvanizing is the process of coating steel with a thin layer of zinc by immersing the steel in a molten bath of zinc at approximately **460°C**. All M-TEC trailers undergo galvanizing to protect against rust and extend their working life. The galvanized coating creates a protective outer layer that shields the steel from corrosion and wear.

Over time, galvanized surfaces form a natural oxide layer that further protects the zinc and underlying steel from corrosion. This gives the trailer a finish that can range from bright silver to dull grey.

If the trailer is exposed to road salt, this can alter the appearance of freshly galvanized surfaces, turning them grey or black and causing white or grey deposits.

This discoloration typically occurs if the trailer is not washed after use, allowing the chemical properties of the salt to react with the galvanized surface and cause staining.

Important Notes:

While the galvanized surface may appear stained, this does not affect the protective properties of the coating.

To prevent staining and maintain the finish, it is essential to wash the trailer thoroughly after every use, especially if exposed to road salt or other corrosive materials.

Trailer Cleaning & Maintenance



Regular Washing: Wash the trailer regularly with a solution of water and a mild detergent, such as a car wash product, to help maintain the surface finish of plated and painted components.

Special Attention in Harsh Conditions: This is especially important if the trailer is used on salt-treated roads, in coastal areas, is heavily soiled, or is used to carry corrosive substances like fertilizers.

In these cases, ****thoroughly wash the trailer down after each use**** to prevent corrosion.

Pressure Washing Caution: If using a pressure washer, avoid directing the high-pressure spray at electrical components or decals for extended periods, or at close range, to prevent damage.

Avoid Harmful Additives: Do not use additives designed for brightening aluminium, often containing phosphoric acid, on galvanized surfaces. These products can slowly remove the protective zinc coating, compromising the durability of the galvanization.



THANKYOU

Get in touch

00353 49 4320620

www.m-tec.ie

info@m-tec.ie

Drumcondra, Swanlinbar
Co.Cavan H14 TD77