Safety / Efficiency /Quality

Horrods

Engineering Excellence since 1950

SwiftMelt Mastic Asphalt Mixer

500 – 1000kg Capacity

Original Operating & Maintenance Instructions

www.wjhorrod.co.uk

JUNE 2025

Office 020 8539 8746 / Terry 0794 7876203

UK CA

Contents

Introduction

All our products are made to a very high, and recognised engineering standard, and if used correctly by a trained, certificated operative, to our operating and maintenance instructions increases the machines longevity.
Operatives must always read the manufacturers operating instructions before attempting to use the machine.
No attempt must be made to carry out any repairs or maintenance whilst equipment is in operation.
Safe working practise is a legal requirement and must always be adhered to. Protective clothing should always be worn when operating this equipment.
Faulty equipment should be immediately shut down and reported directly to the supervisor/person in charge and not used again until the fault has been rectified.

PLEASE NOTE

This unit was designed and manufactured for use with asphalt-based materials (please enquire if you are unsure of the content of the material you will be using within it).

Updates and alterations made to improve safety and efficiency. Machine collected by client 24/06/2025

Health & Safety

1] Equipment should only be used by a trained, and certified operative who has been trained by WJ Horrod.

2] Protective clothing and full-face mask should *always be worn* when operating the *SwiftMelt. Ear defenders must be worn. (see Page 4 for the decibel reading)*

3] Never leave the *SwiftMelt* unattended when alight or running.

4] If a fault occurs, shut down immediately and report the fault to the person directly responsible.

5] Always turn the engine, and the burners off and allow to go cold before maintenance or repairs are carried out.

6] If the trailer has been uncoupled from the towing vehicle the prop stands must be deployed before use as illustrated in the photograph below.

7] When the *SwiftMelt* is being used in an area where the general public may come into contact 'Hot Surface' warnings should be posted on, or around machine.

8] Last, but not least, remember that <u>safety is everyone's responsibility</u>, never do anything that is likely to put yourself, or anybody else at risk.

Fig 1. Prop stands should always be lowered if the towing vehicle is uncoupled

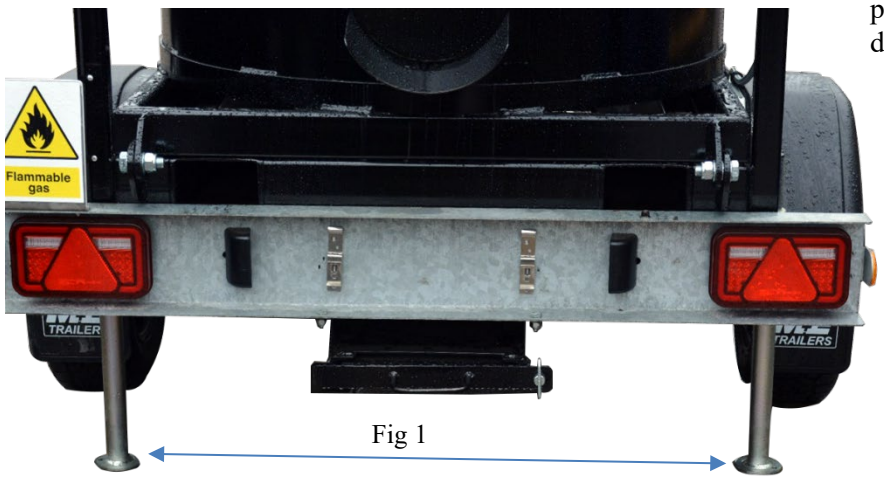


Fig 1

Fig 2 show's a prop in isolation. When secured in the towing state (retained at the prop stand end and fastened tightly to prevent deployment

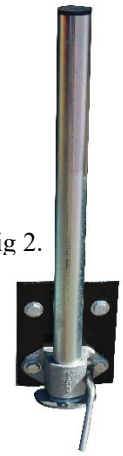


Fig 2.

Pre-checks before use, general information, and safe working practises.

1 Always check the engine fuel, oil, and hydraulic oil levels are correct before starting engine.

2 Start and run the engine before loading the material, to make sure the engine is running correctly and then switch the engine off.

3 Lubrication Regularly checking the moving parts where necessary will ensure the machine operates at its best and prolongs its service life. Always check before starting (see page 5) regular maintenance will prevent excessive wear on moving parts and prolong the machines life.

4 GAS SYSTEM PRE-CHECKS

For machines using LPG propane gas heating systems, all fixtures and fittings MUST be checked prior to every use for any damage or excessive wear & tear.
All joins should be leak tested using leak detector spray. **Never use a naked flame to leak test.**

5 Loading (see page 6).

6 Agitate the material as soon as it is becoming fluid, without causing damage to machine.
Do not continually agitate until the material is ready. Please note: the material should be agitated at intervals to prevent burning. Do not engage hydraulic forward drive permanently unless the material is ready to be fully agitated 360º (1 full turn) this will cause a loss of viscosity in the hydraulic oil resulting in damage to hydraulic parts. Agitators will only operate in reverse mode whilst lever is held in reverse position. (This mode should only be used in emergencies and never held in that position for any length of time). Once the material is ready, it can be continually agitated.
PLEASE NOTE Once the material is at the correct laying temperature, replace any used material with new blocks. Permitting the machine to run low/empty, will increase the reheating period.

7 Overheating the machine will cause excessive pan and cladding distortion.

8 **NOISE LEVELS:**
Decibel reading on pre-delivery checks:
99db next to the machine
93db measured from 1.5 metres.
We do not have information on decibel reading (noise) when the machine is under load.
Note: Machines may vary so each machine sold will be given the test and the level document.

9 Never clean the mixer pan by heating it up and applying cold water. This is a practise called ‘blowing’ and is occasionally employed by some operatives. This practise will harden the pan steel, causing distortion, reducing the pan life and is extremely dangerous to operate safely.

10 The correct method of cleaning the pan; Empty the material and switch the engine off, rake out as much of the remaining material as is possible, and allow machine to go cold overnight. You can then clean out, carefully with a compressed air/electric mechanical chisel.

11 Regular servicing and maintenance is not only necessary but a legal requirement. Service agreements are available for all types of machines. For further details on service agreements and mixer man training contact the office.

12 Please make sure that the area around and under either static or trailer mounted machines is free of combustibles.

13 The engine should always be running when the burner is in use. The battery powering the thermostat unit can only be charged with the engine running. If the engine is switched off, the solenoid valve and thermostat will deplete the battery below the voltage required for the engine to keep the battery charged.

14 The machine is fitted with overhead lightbar for operatives use when night work is being carried out.

15 The trailer is fitted with a bucket stand.

overhead lighting bar

Bucket step

TROUBLE SHOOTING

Pilot will not stay alight after blue button is released.

- Check the connection at the bottom of the flame failure valve i.e. valve with blue button.
- Flame on the pilot is weak indicates a blocked jet. The jet can only be blown out and sealed by a certified gas safe engineer.

Burner is not working.

- Battery is flat – Place the battery on charge (or replace battery if it fails to charge. Type is a car battery code 063)
- Solenoid valve coil is burnt out.
- Blocked solenoid valve.
- Thermostat is not working.

No gas is reaching the Control Box.

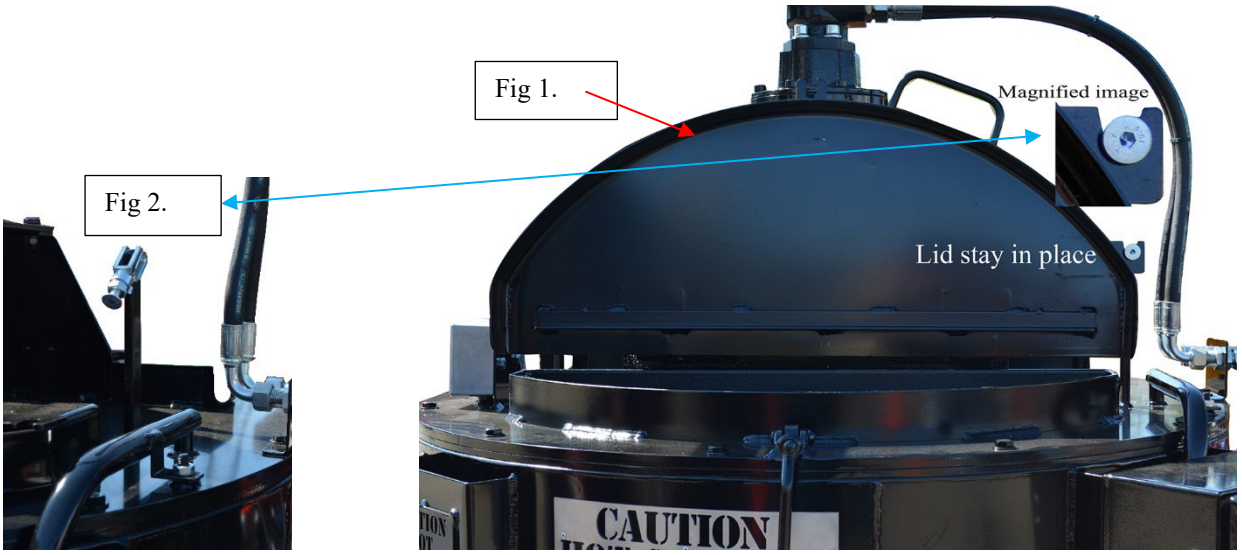
- Check the long handle ball valve behind the gas cylinders has been turned on
- Flashback arrestor may need to be changed.
- Thermostat may need to be replaced.

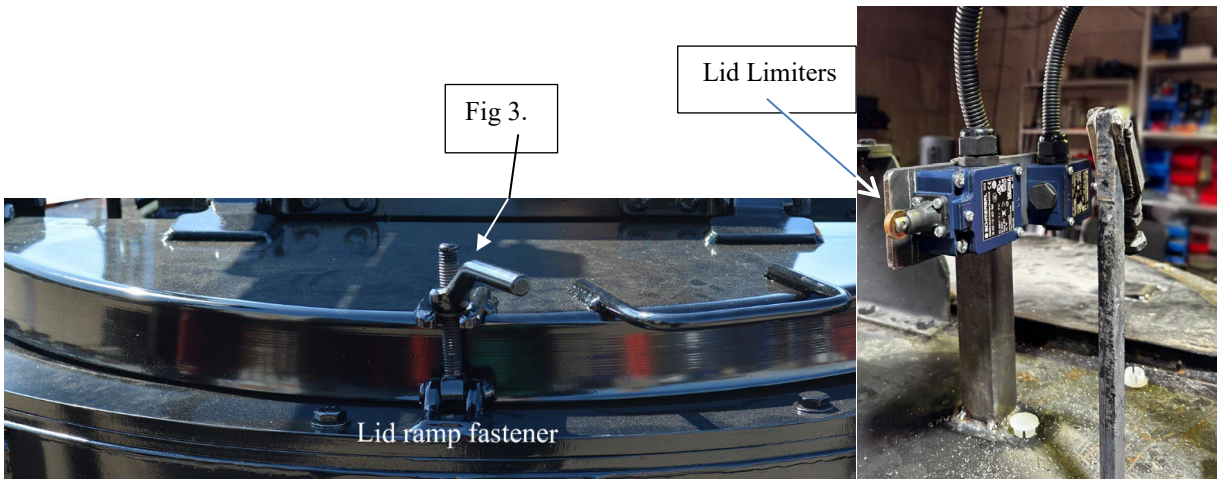
During use the paddles stop operating. Should this happen operation must cease.

- Turn the gas off at the cylinder(s)
- Close the lids of the pan.
- Switch off the engine.
- Drain out as much material as possible
- Allow the machine to go cold.
- Once the pan is drained and is cold to safely investigate. Check for any foreign objects or any 'burnt in' material before attempting to run the machine again.

LOADING MATERIALS INTO THE MACHINE

- The engine must be switched off.
- Open both lids fully (Fig 1) and attach the lid stays (Fig 2) to prevent/avoid crush injury.
- Material must be broken into small pieces and placed inside the pan, filling the voids with the material as fully as possible from a cold light up, this will increase the efficiency of the machine and reduce the pan distortion.
- Material should only be agitated once it becomes fluid to ensure the machines hydraulics are not forcing the paddles into solid materials thus causing distress/damage to the machines drive system.
- Material should be agitated at intervals to prevent burning in from occurring at the bottom of the pan.
- Material can be continuously agitated once the fluidity completes and all blocks are now turning liquid.
- (Fig 3) Shows lid ramp fastener used to secure the lid shut when not in use





THE LIDS MUST BE FULLY OPENED WHEN LOADING THE MACHINE.

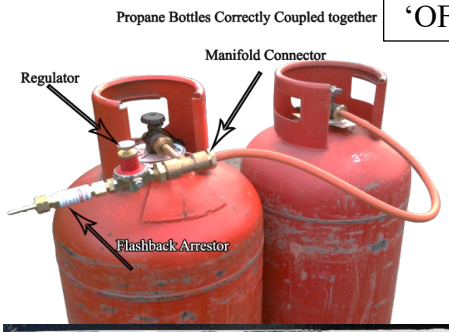
Lid limiters are included to assist the safety of operators and must be utilised when loading.

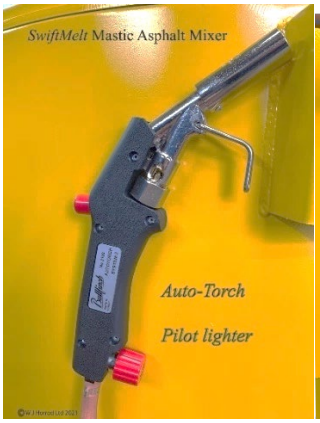
Thermostat Control Gas System Lighting Instructions

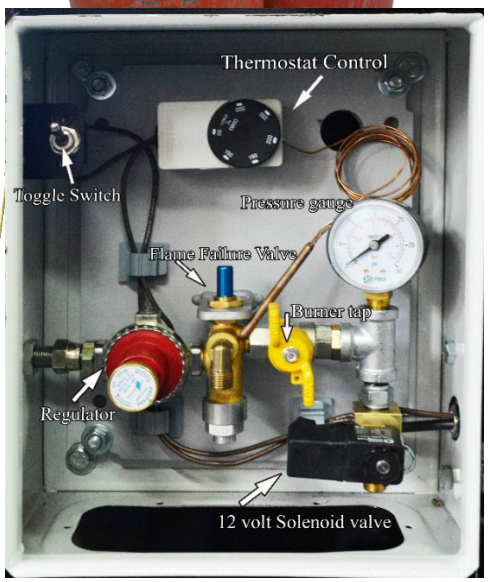
1	Connect 2 No.19kg propane gas cylinders via a manifold connector (Applies to the cylinders situated within the cylinder stand on the vehicle) or via the pigtails (Fig 1) in purpose made cylinder carrier on the unit mounted on the rolling chassis. Connect the auto-torch to the quick release connector.

Purpose built LPG cylinder carrier fitted with pigtails (Fig 1) on unit mounted on rolling chassis

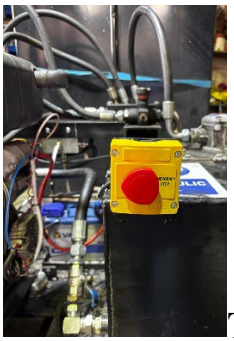
2. Open burner control box and ensure that all gas valves are in the 'OFF' position.







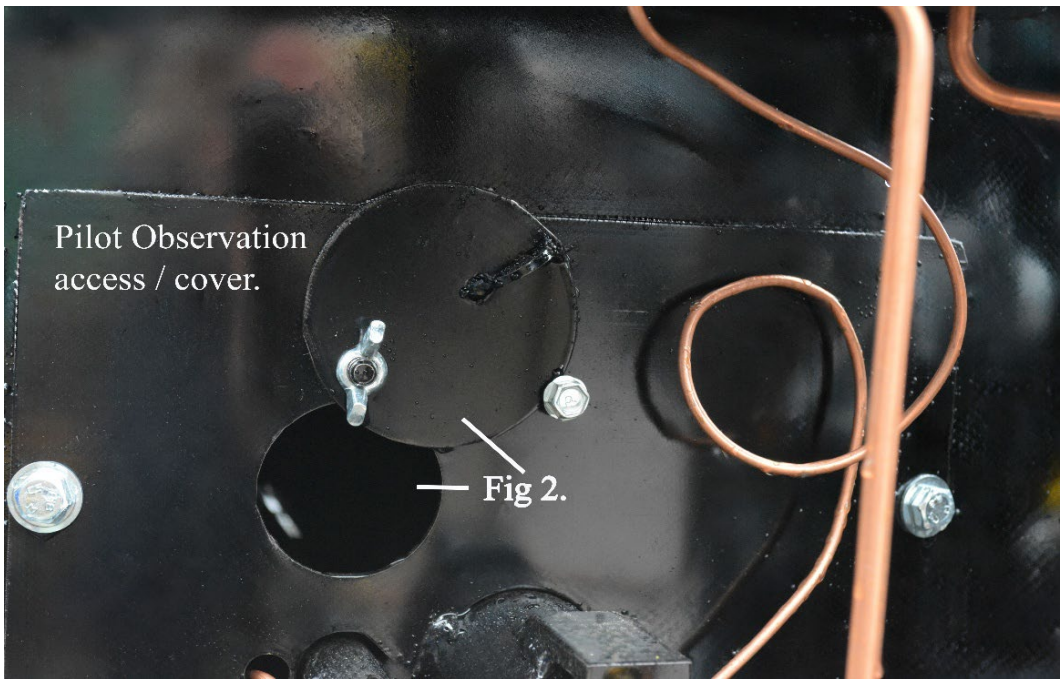
The emergency stop button will cut the gas to the main burner function.



The pilot light remains lit.

3 Turn on gas cylinder.

4 Light auto-torch. Depress blue flame failure valve button and light through pilot observation hole (Fig 2.) located above the pilot burner.
Hold the flame failure button down for approximately 15 seconds then release, after which the pilot will stay alight. If in the unlikely event that the pilot should fail to stay alight, repeat the lighting procedure above.



5 Turn off auto-torch and disconnect from gas supply.

6 Switch main burner toggle switch to the 'ON' position, slowly open main burner gas valve situated to the right of the flame failure valve, main burner will now ignite. Now check all gas connections using a leak detector spray.

7 Adjust regulator to the required gas pressure i.e., 10-PSI. Set thermostat to the required material working temperature. When the material has reached the set temperature the main burner will automatically switch off and re-light when the temperature drops.

8 We recommend that the machine should not be operated above 10 PSI from a cold light.
Each machine is designed around heat input and flue output, increasing pressure will cause excessive heat, which will distort the pan bottom and inner casing.

Shutting Down and Making Safe

1 Turn gas off at the cylinders.

2 When the pilot and main burner has been extinguished, turn off all gas valves and switches then lock the burner control box.

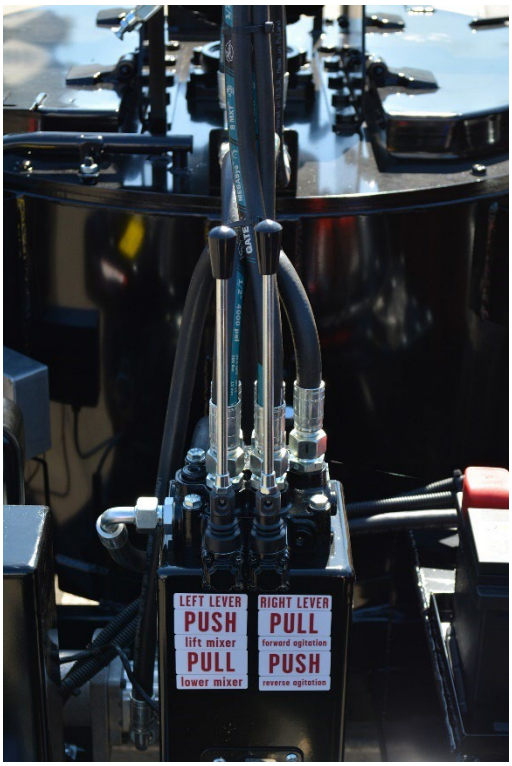
3 IMPORTANT you must turn off toggle switch and ignition key otherwise if left on they will discharge the battery.

Fig 3

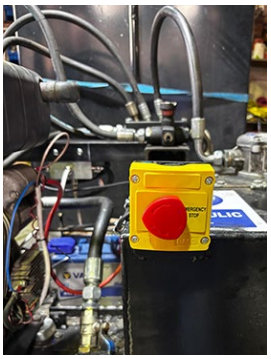
H y d r a u l i c O p e r a t i o n

- Ensure both levers are in a neutral position.
- Load the material and start the engine.
- Wait for 15-20 minutes and then pull the right-hand lever for forward paddle rotation.
- When materials are ready to decant, the paddle must be disengaged to operate the tipping ram. Once raised then re-engage the paddle rotations to assist with discharging the materials. (Please see instructions which are applied below the levers on the machine to operate the tipping action. The image on the right shows the hydraulic control levers)
- If you are unsure, please contact us.

H Y D R A U L I C O I L F I L L E R



Safety upgrades to the emergency shutdown of the burners



Emergency stop
Hydraulics (Paddle rotation)/Main burners.

Yanma Engine – Operation Manual is supplied with all new machines:
Machines on hire should adhere to the following.
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

- Explosion hazard – deep the area around the battery well-ventilated. While the engine is running or the battery is charging, hydrogen gas is produced which can easily be ignited.
- Keep sparks, open flame and any other form of ignition away while the engine is running, or battery is charging.
- Never short out battery terminals, including when checking the remaining battery charge. This will result in a spark and may cause an explosion of fire. Use a hydrometer to check the remaining charge.
- If the electrolyte is frozen, slowly warm the battery before you recharge it.
- Do not loosen the high-pressure pipe while the engine is running, even in low idle. This is dangerous because fuel under high pressure will blow out.
- Do not start the engine by shorting across stater terminals. The machine will start in gear if safety circuitry is bypassed.
- Diesel fuel is extremely flammable and explosive under certain conditions.
- When you remove any fuel system component to perform maintenance (such as changing the fuel filter) place an approved container under the opening to catch the fuel.
- Never use a shop rag to catch the fuel. Vapors from the rag are flammable and explosive.
- Wipe up any spills.
- Wear eye protection. The fuel system is under pressure and fuel could spray out when you remove any fuel system component.
- Only use the key switch to start the engine.
- Never jump start the engine. Sparks caused by shorting the battery to the starter terminals may cause a fire or explosion.
- Only fill the fuel tank with diesel fuel.
- Never refuel with the engine running.
- Keep sparks, open flames or any other form of ignition (match, cigarette, static electric source) well away when refueling.
- Never overfill the fuel tank.
- Be sure to place the diesel fuel container on the ground when transferring the diesel fuel from the pump to the container. Hold the hose nozzle firmly against the side of the container while filling it. This prevents static electricity build-up which could cause sparks and ignite fuel vapor.
- Before you operate the engine, check for fuel leaks. Replace rubberized fuel hoses every two years or every 2000 hours of engine operation, whichever comes first, even if the engine has been out of service. Rubberized fuel lines tend to dry out and become brittle after 2 years or 2000 hours of engine operation.
- Do not let fuel exceed the fuel level mark on the fuel filter (inlet) of the fuel tank filler port. The fuel oil may expand when the ambient temperature is high, and overflow the fuel tank cap.

- Never remove the fuel cap with the engine running.
- Never use diesel fuel as a cleaning agent.
- Failure to comply with any of the above may result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, will result in death or serious injury.

- Wear tight clothing and keep your hair short or tie it back while the engine is running.
- Remove all the jewelry before you operate or service the machine.
- Never operate the engine without the guards in place.
- Before you start the engine make sure that all bystanders are clear of the area.
- Never operate the engine when you are feeling unwell.
- Never operate the engine while wearing a headset to listen to music or radio because it will be difficult to hear the warning signals.
- If you must drain the engine oil while it is still hot, stay clear of the hot engine oil to avoid being scalded. Make sure you wear eye protection.
- Keep your hands and other body parts away from hot engine surfaces such as the muffler, exhaust pipe, and engine block during operation and shortly after you shut the engine down. These surfaces are extremely hot while the engine is operating and could seriously burn you.
- Burn hazard, batteries contain sulfuric acid. Never allow battery fluid to come in contact with clothing, skin or eyes. Severe burns could result. Always wear safety goggles and protective clothing when servicing the battery. If battery fluid contacts the eyes and/or skin, immediately flush the affected area with a large amount of clean water and obtain prompt medical treatment.
- Check the electrical harnesses for cracks, abrasions, and damaged or corroded connectors. Always keep the connectors and terminals clean.

NOTICE indicates a situation which can cause damage to the machine, personal property and/or the environment or cause the equipment to operate improperly.

- Diesel fuel – poor quality fuel can reduce engine performance and cause damage. Only use diesel fuels recommended by YANMAR for the best engine performance.
- Only use clean diesel fuel.
- Never remove inlet strainer from the filler from the filler port. If removed, dirt and debris could get into the fuel system causing it to clog.
- Keep the fuel tank and fuel handling equipment always clean.
- Only use the engine lubricating oil specified. Other oils may affect warranty coverage, cause internal engine components to seize and/or shorten engine life.
- Prevent dirt and debris from contaminating the engine lubricating oil. Carefully clean the oil cap/dipstick and the surrounding area before you remove the cap.
- Always keep the oil level between the upper and lower lines on the oil cap/dipstick.
- Never overfill the engine with engine lubricating oil. Overfilling may result in white exhaust smoke, engine overspeed or internal damage.

- Be sure to use YANMAR genuine filter for replacing the engine lubricating oil filter.
- Never hold the key in the start position for longer than 15 seconds or the starter motor will overheat. After 2 unsuccessful attempts allowing the starter motor to cool down for 2 minutes.
- After you start the engine, we recommend you warm up the engine for 5 to 10 minutes without load. This will prevent the wearing of engine components.
- For maximum engine life, YANMAR recommends that when shutting the engine down, you allow the engine to idle, without load for 5 minutes. This will allow the engine components that operate at high temperatures, such as exhaust system, to cool slightly before the engine itself is shut down.

For further information please contact YANMAR dealer.

F I L L E R C A P F O R D I E S E L

TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	ACTION	REFER TO
Indicator Turns On - Engine Running			
Engine oil pressure indicator (If equipped)	Low level of engine oil Too high an oil level	Check and adjust oil level as necessary	Checking Engine Oil on page 23
	Clogged engine oil filter	Replace engine oil filter element	Replace Engine Oil on page 48
Battery Indicator	Battery failure	• Check battery condition	Check Indicators on page 25
	• Faulty dynamo	See authorized Yanmar industrial engine dealer or distributor	
Indicator Does Not Turn On - Key Switch is Turned to ON (OFF + ON)			
	• Faulty electrical wiring or faulty indicator	• See authorized Yanmar industrial engine dealer or distributor	
Indicator Stays On - Key Switch is Turned from Start to ON (START + ON)			
• Battery indicator stays On	Faulty alternator	See authorized Yanmar industrial engine dealer or distributor	
• Engine oil pressure indicator stays On	• Faulty engine oil pressure switch		
Engine Does Not Start			
• Starter motor operates but engine does not start	• No diesel fuel	Refuel fuel system	Filling the Fuel Tank on page 21
	• Improper diesel fuel	Replace with recommended diesel fuel	Diesel Fuel Specifications on page 20
	• Clogged fuel filter	• Replace fuel filter	Drain the Fuel Tank and Replace Outlet Fuel Filter on page 53
	• Closed fuel cock	Check the fuel cock position	
	• Poor fuel injection	See authorized Yanmar industrial engine dealer or distributor	
	Compressed air leakage from intake/exhaust valves		
	Faulty engine stop solenoid (if equipped)		
• Starter motor does not operate or rotates too slowly (engine can be turned manually)	• Battery needs charging	• Check electrolyte, recharge	Check Battery (If Equipped) on page 42
	• Faulty cable connection at • battery terminals	Clean terminals, retighten	
	• Faulty starter switch	See authorized Yanmar industrial engine dealer or distributor	
	Faulty starter motor		
Engine cannot be manually turned	Inner parts seized or damaged		

SYMPTOM	PROBABLE CAUSE	ACTION	REFER TO
White or Black Exhaust Smoke			
• Black exhaust smoke	Engine overloaded	• Reduce load	
	Clogged air cleaner element	Clean element or replace	Clean Air Cleaner Element on page 52
	Improper diesel fuel	Replace with recommended diesel fuel	Diesel Fuel Specifications on page 20
	• Faulty spraying of fuel injection	• See authorized Yanmar industrial engine dealer or distributor	
	Excessive intake/exhaust valve clearance		
White exhaust smoke	Improper diesel fuel	Replace with recommended diesel fuel	Diesel Fuel Specifications on page 20
	• Faulty spray pattern of fuel injection	• See authorized Yanmar industrial engine dealer or distributor	
	• Fuel injection timing delay		
	Engine burning oil		

TROUBLESHOOTING INFORMATION

If your engine does not operate properly, refer to the troubleshooting chart or consult your authorized Yanmar industrial engine dealer or distributor.

Supply the authorized Yanmar industrial engine dealer or distributor with the following information:

- Model name and serial number of your engine.
- The driven machine type (tractor, generator, skid steer loader), manufacturers name, model and serial number.
- How long the engine has been in service (the number of engine hours or the number of calendar months)
- Operating conditions when problem occurs:
- Engine rpm
- Colour of exhaust smoke
- Type of diesel fuel
- Type of engine oil
- Any abnormal noises or vibration
- Operating environment such as high altitude or extreme ambient temperatures, etc.
- Engine maintenance history and previous problems
- Other factors that contribute to the problem

Lubrication Checks Daily:

Lubrication Checks Daily:

Top stirrer shaft 4 bolt flange bearing (grease nipple)

Engine oil level.

Dipstick

Oil filler inlet breather

Oil level checker located on the off side of the gearbox.
The cap should be unscrewed and outlet monitored, as when oil seeps through the outlet it confirms the oil level is correct.

Maintenance Monthly:

Stirrer arm bolts – checked and tightened.
Engine holding down bolts – checked and tightened.
Gearbox fixing bolts – checked and tightened.
Gearbox stirrer shaft coupling – checked and tightened.
Clean burner housing and burners.

We recommend always having the following to hand when using this machine:

Leak Detector Spray

The *SwiftMelt* mixer is designed as a compact and versatile machine. Available in as static free standing, static truck mounted or trailerised models. Some of the available types are listed below, along with the materials and purposes for which the machine is currently used.

Transporting

Mounting: Truck mounted.
Fitted to a rolling chassis Meredith & Eyre booklet supplied)
Static Unit
Mounted on 4 No. Heavy-duty swivel brake & fixed casters used underneath static unit frame.

WARNINGS that must be adhered to.

1] Before uncoupling the trailer from towing vehicle apply the handbrake and lower the front jockey wheel.
2] Never use the mixer tilting ram without first lowering rear prop stands. (This only applies if the machine has been un-coupled from the towing vehicle).

Usage:

Hot charged mastic asphalt transporter.
Specialist Highways machine (Pacopatch System)
Small Quantity restricted access areas (Roofing Contracts)
Small Vehicle axle loads (Transit etc.)

Handling:

Dedicated fork-lifting facility built into base frame as standard.

Optional: Tested crane lifting eyes. **Requested at time of ordering.**
Test certificate available for tested lifting eyes at additional cost if required.

SIGNAGE ON MACHINE

Instructive and health & Safety information

Signage must be read, adhered to, and remain clean and free of any form of distortion or covered with any other sign without prior authorisation of W J Horrod Ltd.

1. **Signage provides duty to wear PPE, protecting ears from engine/operating noise.**
2. **A notice to shut down correctly to avoid battery draining.**
3. **DANGER alerting the correct steps to resupply the LPG gas.**
4. **Sign to note buttons should be pressed once PPE work gloves have been removed.**

Sign is located at the controls of the hydraulic tilt/lift to indicate that operators must keep their hands (any appendage) from the area indicated.

Signage indicates the correct shut down process to avoid battery depletion. (above red warning sign)

Signage below/left – Diesel Only to prevent the wrong liquid being put in the diesel tank.
Warning sign: Caution Hot

W J Horrod Ltd kim@wjhorrod.co.uk

Signage notes Hydraulic oil inlet and reminds of correct liquid usage within the hydraulic oil tank.

Warning Sign:
Indicates Hazchem
Flammable gas

Warning sign below Hot Surface H&S

W. J. HORROD LIMITED

Tel: 020 8539 8746

OPERATING INSTRUCTIONS FOR BURNER UNIT FITTED WITH ELECTRIC THERMOSTAT

1. Open control box(es) and ensure toggle switch and ball valves are in the off position.

2. Connect suitable electrical supply to the machine. Power supply should not exceed 20 metre from machine to avoid a drop in voltage. Connect the 0-2 bar regulator c/w flashback arrestor and hose that is provided to the propane cylinder, ensuring that the regulator and cylinder are clean before connecting. This will ensure a gas tight seal.

3. **Lighting:**
   Ensure the regulator is set to zero by turning fully anti-clockwise. Turn gas on at cylinder, adjust regulator clockwise until some resistance can be felt from regulator spring.

4. Leak test gas connections between the cylinder and burner assembly using a suitable leak detector. NEVER use a naked flame to test for gas leaks.

5. Turn on and light auto torch if fitted, depress flame failure button and light pilot burner using auto torch. Keep button depressed for approximately 15 seconds then release, pilot burner should now stay alight. If flame goes out repeat lighting procedure.

6. After pilot flame has been established turn off auto torch turn toggle switch to the on position, then slowly open burner ball valve. After main burner has been established leak test all remaining gas joints. Regulator can now be adjusted to required pressure. Note, burners should not be operated above 1.5 bar (22 PSI).

7. Set thermostat to required temperature. Main burner will now be controlled thermostatically.

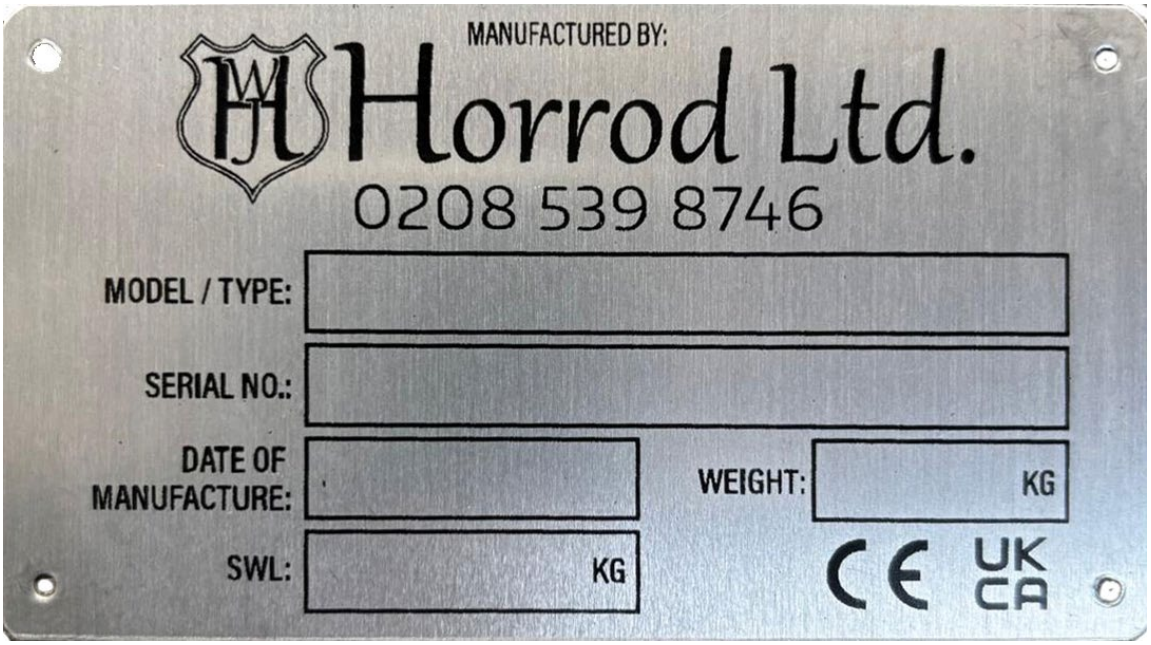
8. After use, it is advised that gas should first be turned off at the cylinder followed by the burner ball valves and the toggle switch. This will ensure that all the gas in the pipe work is burnt off. Always switch off burner solenoid valve when unit is not in use making the unit completely safe.

9. If in any doubt contact manufacturers for advice on the number above.

Operating instructions:

Sign is fitted to machine as a secondary reminder of how to correctly set up and run the burner.

Identification Manufacturing Plate:



Operator Notes

Enclosure trailer information & maintenance.

MEREDITH AND EYRE

Meredith and Eyre Ltd Broadway Industrial Estate, Hyde, Cheshire, SK14 4QF **T** 0161 368 6414 **F** 0161 367 8702
E enquiries@meredithandeyre.co.uk **W** www.meredithandeyre.co.uk

RECOMMENDED MAINTENANCE & SERVICE INFORMATION

SUSPENSION AXLES

AUTO-REVERSE COUPLINGS

T CHASSIS

GENERAL TRAILER INFORMATION

SERVICE SCHEDULE

BEFORE EACH JOURNEY

TASK	SEE SECTION
Check the trailer visually for damage	
Check connection to towing vehicle	1.4
Check joint pins (adjustable height only) 4.0	
Check tyre pressures	

AFTER THE FIRST 500 MILES OR 1 MONTH
(In addition to the above)

TASK	SEE SECTION
Re-torque wheel nuts/bolts	5.5
Check/re-adjust braking system	3.2
Check wheel hub for side play	5.1

AFTER EVERY 3000 MILES OR 3 MONTHS
(In addition to the above)

TASK	SEE SECTION
Check/re-adjust braking system	**3.2**

AFTER EVERY 6000 MILES OR 6 MONTHS
(ADJUSTABLE HEIGHT ONLY)

TASK	SEE SECTION
Grease joints	4.2

AFTER EVERY 12000 MILES OR 12 MONTHS
(In addition to the above)

TASK	SEE SECTION
Lubricate the 50mm ball head (if fitted)	6.0
Check/lubricate the jockey wheel and/or prop stand	
Apply grease to over-run coupling grease nipples	6.0
Clean/inspect/re-grease joints	4.3

AFTER EVERY 24000 MILES OR 24 MONTHS
(In addition to the above)

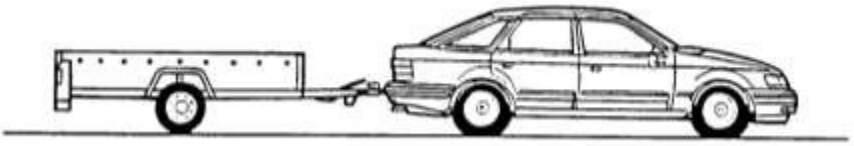
TASK	SEE SECTION
Check/clean/re-grease wheel hub bearings	5.0

1.0 GENERAL INFORMATION

In order to maintain the function and safety of your trailer, only original parts of the manufacturers design must be used, and servicing undertaken by qualified personnel

1.1 TOWING LEVEL

Ideally the trailer should be towed level and not with the draw bar leaning up or down excessively. Some countries allow ± 4° from the level (approximately ±100mm) but in others it remains at the discretion of the user for safe operating conditions.



1.2 CAPACITIES

For safety, warranty and legal reasons, do not exceed the maximum allowable fully laden mass.

On a trailer's drawbar assembly there may be 3 or more labels/stampings stating the maximum masses and other parameters. It is important to be aware that the label or stamping stating the lowest maximum gross mass overrules all others; generally the label affixed to the body of the trailer by the trailer or plant manufacturer states the actual maximum, as this will allow for wheel and tyre capacities.

1.3 TYRES & WHEELS

Within the EC, tyres must be marked with a Load Index (LI) and Speed Symbol, which designate the maximum carrying capacity per tyre at the maximum speed.

For trailer use, Car tyres may be given a bonus loading of 5% and Commercial Van tyres 10% due to the reduced speed limits that apply to trailers (in the UK 60mph). However, we would generally recommend working within the Load Index designation to allow for the possibility of operation over the normal speed limitations.

LOAD INDEX													
LI	**Kg**	**LI**	**Kg**	**LI**	**Kg**	**LI**	**Kg**	**LI**	**Kg**	**LI**	**Kg**	**LI**	**Kg**
67	307	78	425	89	580	100	800	111	1090	122	1500	133	2060
68	315	79	437	90	600	101	825	112	1120	123	1550	134	2120
69	325	80	450	91	615	102	850	113	1150	124	1600	135	2180
70	335	81	462	92	630	103	875	114	1180	125	1650	136	2240
71	345	82	475	93	650	104	900	115	1215	126	1700	137	2300
72	355	83	487	94	670	105	925	116	1250	127	1750	138	2360
73	365	84	500	95	690	106	950	117	1285	128	1800	139	2430
74	375	85	515	96	710	107	975	118	1320	129	1850	140	2500
75	387	86	530	97	730	108	1000	119	1360	130	1900	141	2575
76	400	87	545	98	750	109	1030	120	1400	131	1950	142	2650
77	412	88	560	99	775	110	1060	121	1450	132	2000	143	2725

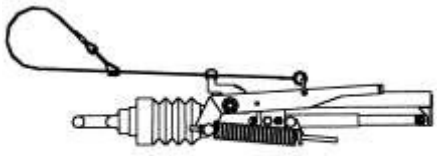
SPEED SYMBOLS										
Speed Symbol	F	G	J	K	L	M	N	P	Q	R
Max MPH	50	56	62	68	75	81	87	93	100	106
Max KMH	80	90	100	110	120	130	140	150	160	170

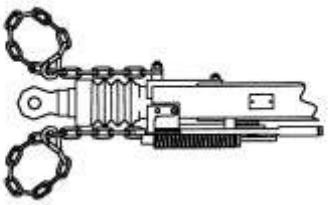
The maximum tyre pressure marked on the tyre is usually compatible with the load index and speed symbol. If in doubt, check with the manufacturer or with us.

1.4 CONNECTION TO TOWING VEHICLE

Firstly check the compatibility of your 50mm Ball Coupling or Towing Eye with the Towing Jaw/Ball connection on your vehicle.

Always fit the breakaway cable or safety chain in a loop, fastening back on itself, to a substantial integral point on the towing vehicle. Ensure that the effective length is as short a possible, but still allows articulation (e.g. for cornering) without applying the brakes or tension through the chains.





WARNING: We do not recommend the use of safety chains and a breakaway cable at the same time.

LEGAL NOTE: It is legal to use safety chains up to a maximum gross trailer mass of 1500kg.

2.0 ROUTINE CHECKS

2.1 VISUAL INSPECTION

Regular visual inspections will usually identify accidental damage if conducted systematically.

2.2 TYRE DAMAGE

It is dangerous to neglect tyre damage, and should a blister, rupture or cut be detected, exposing the casing, or the tyre suffers a violent impact (e.g. against a kerb) such that there is a risk of internal damage, it is advisable to have the tyre examined by a specialist as soon as possible**.**

2.3 WHEEL DAMAGE

Wheels damaged or distorted or having wheel nut/bolt seatings cracked or deformed must not be repaired or used in service.

WARNING: If the wheel is damaged, it is possible that the brake drum, stub axle or complete axle may have been damaged, so investigate further.

2.4 TOWING EYE, BALL HITCH & DRAWBAR ATTACHMENT

Gripping the towing eye or ball in both hands, pull back and forth, up and down, feeling for excessive moment. Replace any parts that are bent or deformed in anyway. Check the attachment of the Coupling Body to the Drawbar and of the drawbar to the trailer/machine.

2.5 HAND BRAKE

Apply hand brake checking operation and effectiveness. If in doubt re-adjust braking system (see section 3.2)

3.0 BRAKING SYSTEM

3.1 WHEEL JACKING

On level ground, with the hand brake lever in the off position and overrun coupling draw tube shaft fully extended forwards, secure one wheel with wheel chocks. Position your jacking device behind the opposite wheel, as near to a main longitudinal chassis member as possible, lift the wheel clear of the ground, then secure with suitable axle stands.

3.2 BRAKING SYSTEM ADJUSTMENT

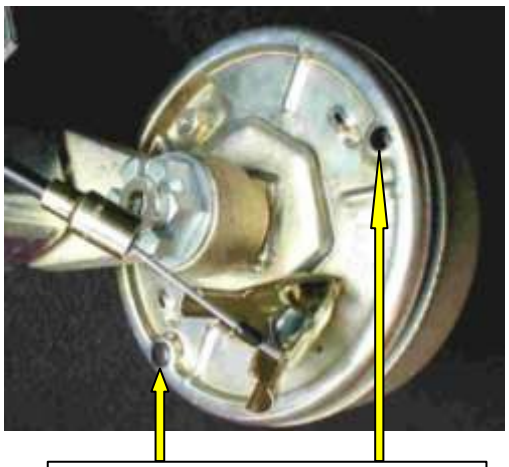
Where the transmission rod and brake cables are already connected, take the tension out of the system by winding back the nuts on the rod behind the compensator.

It is now possible to begin the set up procedure:

3.3 WHEEL BRAKES

These can be adjusted by means of a 17mm, 19mm or 24mm AF Spanner (dependent on brake type) on the adjuster bolt head at the rear of the brake back plate.

Rotate each wheel only in the forward direction of travel, whilst tightening the bolt until the wheel locks. Then, gradually back off the adjuster nut until the wheel can rotate forwards with just a slight resistance/audible brushing of the brake drum on the brake linings (This is best judged with the wheel and tyre fitted to the brake drum)



If not already connected, connect the Bowden (sheathed) cables to the brake

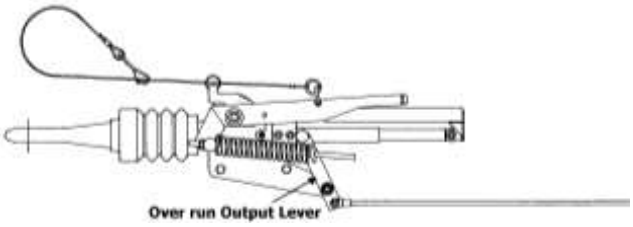
3.4 COUPLING AND TRANSMISSION SYSTEM

Attach the opposite end of the outer cable to the anchor plate on the axle or draw bar, using the nut provided. Connect the inner cables to the compensator, locking the 2 plain nuts together in front of the compensator for each cable. If not already connected, attach the rear end of the brake rod to the compensator centre hole.

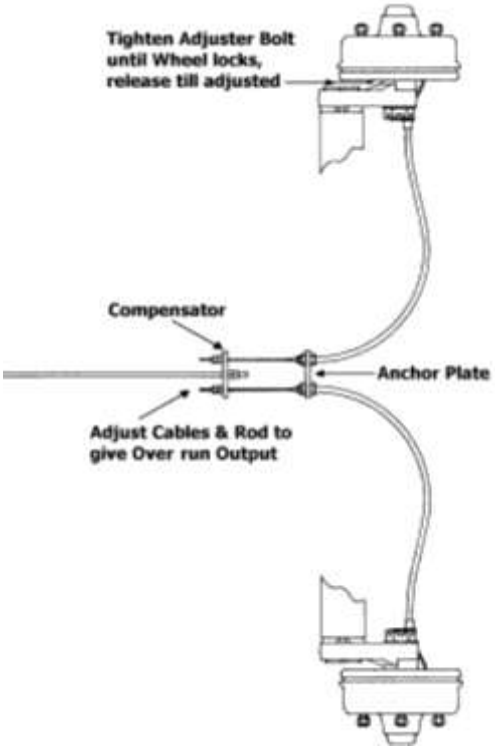
COUPLINGS WITH HANDBRAKE MOUNTED ON COUPLING BODY

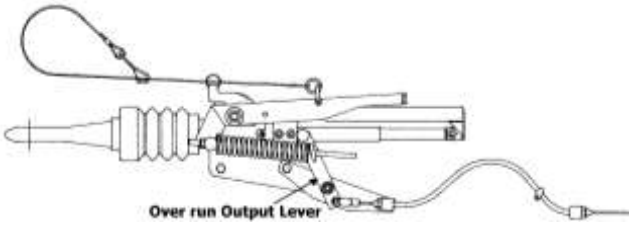
Use the plain nuts behind the compensator to adjust, until the overrun output lever can be pulled rearwards by firm hand pressure (not loose) a maximum of 14mm (16mm for adjustable height models). For Knott couplings there should not be any movement.

Maintain the compensator at 90º to the draw bar for even distribution of force into each cable. Ensure the cables are not 'kinked' or damaged.

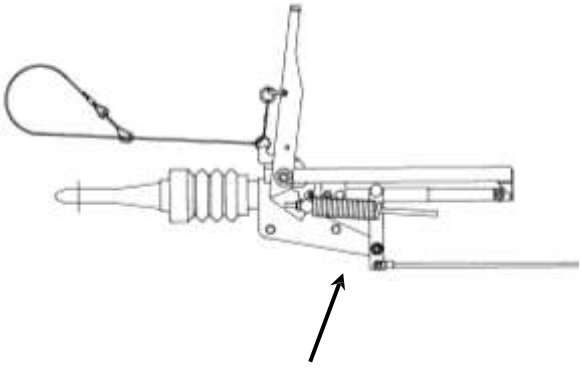


Meredith & Eyre Fixed Height Coupling up to 2500kg GVM

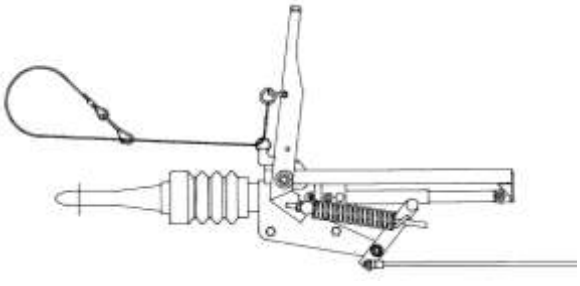




Meredith & Eyre Adjustable Height Coupling up to 2000kg GVM



Meredith & Eyre Handbrake Applied (Note Spring Store now compressed)



Meredith & Eyre Handbrake after automatic activation in the reverse mode (Note Spring Store now extended handbrake will feel less tensioned)

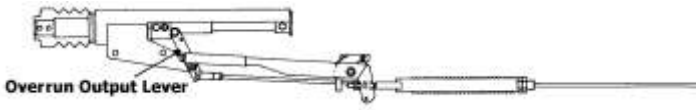
With the handbrake fully off, check that the spring store's overall length is 185 to 190mm and is not applying a force to the U-shaped guide on the side of the overrun lever. Adjusting is by the nut at the front of the assembly. This procedure should only be necessary when replacement parts have been fitted.

COUPLINGS WITH HANDBRAKE MOUNTED ON DRAW BAR

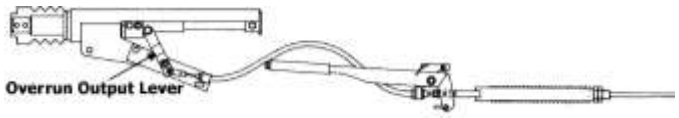
The set up for the higher capacity Couplings is the similar to the above, with the exception of the setting of the handbrake spring store, which is more powerful due to the higher transmission forces requirements for heavier trailers.

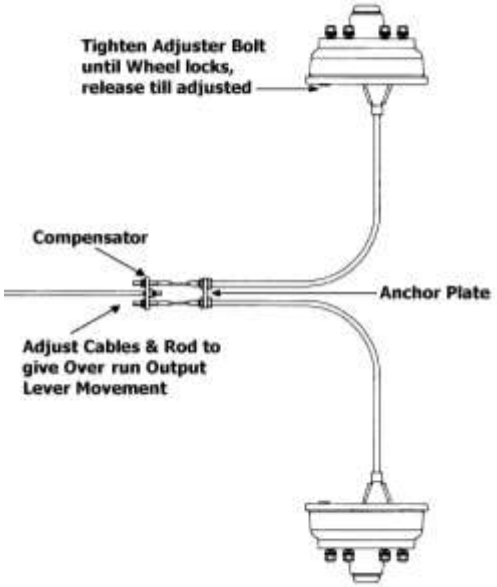
Use the plain nuts behind the compensator to adjust, until the overrun output lever can be pulled rearwards by firm hand pressure (not loose) a maximum of 18mm (8mm for adjustable height models).

Maintain the compensator at 90º to the draw bar for even distribution of force into each cable. Ensure the cables are not 'kinked' or damaged.



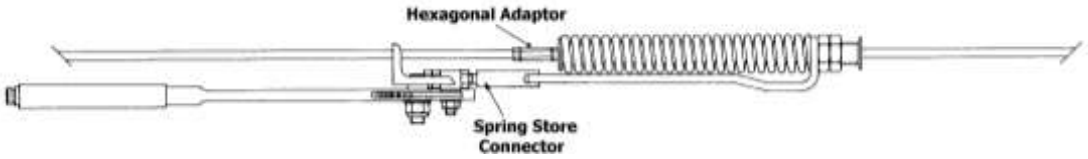
Meredith & Eyre Fixed Height Coupling
2500kg to 3500kg GVM



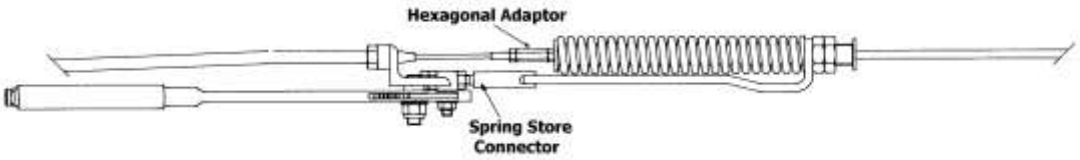


Meredith & Eyre Adjustable Height Coupling
2200kg to 3500kg GVM

With these models, the brake transmission linkage runs through the spring store, which must be set correctly to achieve automatic operational tensioning of the system.



Meredith & Eyre Fixed Height Coupling
2500kg to 3500kg GVM



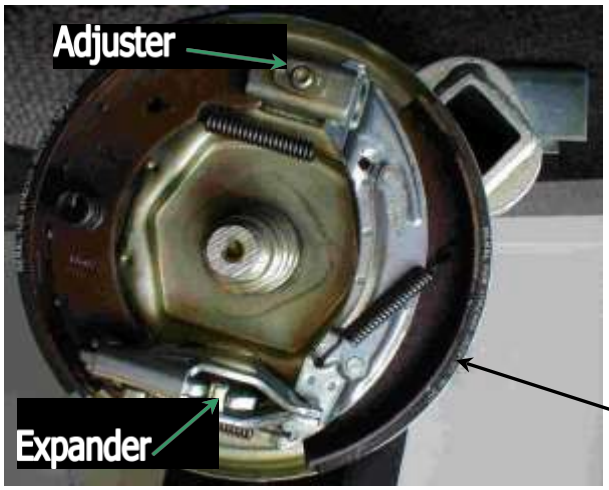
Meredith & Eyre Adjustable Height Coupling
2200kg to 3500kg GVM

Leave the Handbrake and Spring Store connector loose while setting the overrun system as previously described. Finally, pull the spring store up to the hexagonal adaptor by sliding the spring and bracket forward. Tighten the 3 locking nuts on the connector.

3.5 BRAKE PARTS

Brake shoes are recommended to be replaced when the lining thickness measures less than 2mm, as it is likely that they will be worn out before the next service. The lining thickness can be viewed through the inspection ports on the brake backplate (see 3.3)

Always replace both brake shoes together, regardless of the lining thickness on the other shoe. It is further advised that brake shoes should be replaced as an axle set to avoid uneven braking from side to side.



Right Hand Knott 203 x 40 Auto Reverse Brake back plate assembly shown.

Note position of sliding shoe relative to adjuster or expander. To function correctly the brake must be assembled in this way.

Left Hand Brake is a mirror image

Sliding (Auto Reverse) Brake shoe

KNOTT & BRADLEY COUPLINGS

Please follow the adjustment instructions above, but do not allow for the rearward movement of the overrun output lever, which is only required on Meredith & Eyre Couplings. All Bradley and Knott couplings operate in the same manner, so the type of housing – Cast A Frame, Pressed Steel A Frame or Pressed Steel Square Tube - is irrelevant to the brake servicing.

Knott Cast Body Coupling

Bradley Cast Body Coupling

4.0 ADJUSTABLE HEIGHT DRAW BARS

4.1 HEIGHT ADJUSTMENT / TIGHTENING JOINTS

The principle of the joints is steel pegs engaging with mating dimples, which can be seen between the joint plates.

While securing the assemblies, the equipment should be ‘rocked’ as the joint pins are tightened to allow positive location.

When initially hand tight, they should be further tightened until the next visible ‘R’ pin hole lines up for insertion of the pin.

For reference only, the actual torque figures if checked would be approximately –

TYPE A900	135-175Nm
TYPE A1600	175-220Nm
TYPE A2400	230-300Nm
TYPE A3500	410-475Nm

4.2 GREASING ADJUSTABLE JOINTS

There is a grease nipple at each joint pin position

4.3 CLEANING, INSPECTION & ASSEMBLY

Dismantle the joint pins and joints. Check condition and if serviceable clean, smear with grease and reassemble.

5.0 WHEEL HUB ASSEMBLIES

5.1 INSPECTION

Ensure the brake shoes (if braked) are clear of the drum with no interference. Clean hub to remove any road debris.

Rotate the hub slowly – there should be no roughness or restriction

Rotate the hub rapidly – there should be no rumble, rattle or high-pitched noises.

Rock the wheel while holding at the top and the bottom to detect essential bearing endplay. The maximum movement should be 2mm measured at the Wheel Rim.

If any clearance / free movement appears to emanate from the suspension, check the axle housing for damage.

5.2 WHEEL HUB ASSEMBLIES WITH TAPER ROLLER BEARINGS

In order to re-set, remove the grease cap, split pin and set the Slotted nut.

It is generally accepted that a finger tight slotted nut will result in a correct setting and running clearance for normal bearing life. Always replace the split pin with a new one when setting is complete and re-fit the grease cap.

WARNING: It is our experience that the majority of bearing failures are the result of over-tightening of the Slotted nut or failure to replace contaminated grease (e.g.: Water ingress – especially salt water).

The wheel bearings are greased on assembly at the factory and should be re-greased at a minimum every 24000 miles or 2 years with axle grease 'Elf Multi 2' or equivalent.

Use the service interval to inspect the bearings for wear/damage. Replace the seal if necessary, lubricating the lip and bore, not the outside diameter.

WARNING: It is as important not to over pack the hub with grease, as it is to allow bearings to run dry.

5.3 REMOVAL OF HUB / BRAKE DRUM ASSEMBLY

Remove wheel, grease cap, split pin, slotted nut and washer and pull drum off the stub axle. To avoid contamination, take care not to drop the outer bearing cone onto the floor.

5.4 WHEEL HUB ASSEMBLIES WITH UNIT BEARINGS

These hubs require no maintenance, however at intervals of 24000 miles or 12 months, the wheel hubs should be checked for side play and the complete hub replaced if necessary.

WARNING: When refitting the hub always fit a new nut and tighten to a torque of 280Nm (206 lbf.ft.)

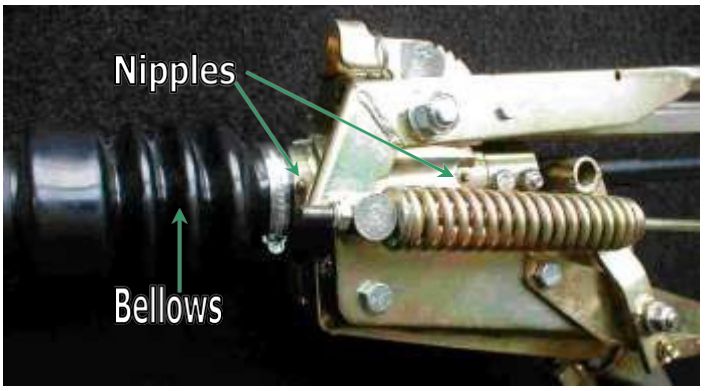
5.5 WHEEL NUT / STUD TORQUE SETTINGS

WHEEL NUT / STUD	**Nm**		**Lbf.ft**	
	MIN.	**MAX.**	**MIN.**	**MAX.**
WHEEL NUT 3/8“ UNF	50	55	35	40
WHEEL NUT 1/2” UNF	70	110	50	80
WHEEL NUT 5/8” UNF	135	160	100	120
WHEEL NUT M18 x 1.5	245	300	180	220
WHEEL STUD M12 x 1.5	65	90	50	65
WHEEL STUD M14 x 1.5	120	150	90	110

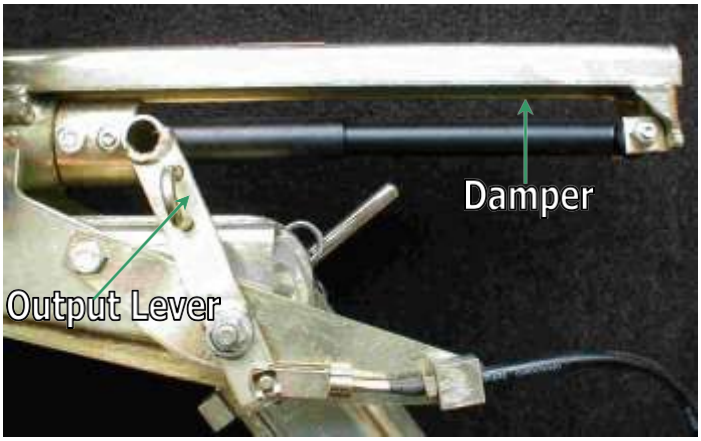
6.0 OVERRUN COUPLING ASSEMBLY

The Coupling is greased on assembly but will require periodic maintenance to ensure a smooth operation of the braking system.

Re-grease the shaft bearings via the grease nipples provided at 6000 mile or 6 month intervals. Also ensure correct functioning of all pivots, levers, ratchets and the spring store assembly. Grease all points of movement.



Meredith & Eyre Coupling with bellows and shaft nipples featured.



Meredith & Eyre Coupling, with damper and overrun output lever featured.

The hydraulic damper is sealed and maintenance free but its operation should be checked if braking problems occur. If the damper is to be removed, enclose it in a strong cloth and do not stand directly in line as the damper contains oil and gas under high pressure. To remove, release the 2 bolts at either end. The damper will need to be slightly pre-compressed to be fitted. This is normal and ensures that the braking system works efficiently and that the trailer is towed on the drawtube, not on the damper as this would lead to premature failure.

Meredith & Eyre Couplings do not require for the towing ball head or eye to be removed or loosened when replacing a damper.

Bradley and Knott Couplings have the damper attached to the rear bolt of the towing head. These dampers in these couplings require a larger amount of pre-compression when being fitted, so remove the cast L shaped bracket which attaches the damper to the rear of the coupling body and reassembly this onto the new damper before assembly onto the coupling body.

7.0 STUB AXLE / BRAKE BACK PLATE

A number of Meredith & Eyre axles feature a removable stub axle, as shown. This design is unique to Meredith & Eyre and illustrates our desire to keep replacement costs as low as possible.

The large slotted nut on the back of the arm is torqued to 230 nm (170 lbf.ft). Removing this nut will allow the stub axle be removed.

When refitting, if the split pin cannot be fitted after torque setting the slotted nut, tighten the nut further until the next available hole is accessible.

The removal of this assembly is only necessary when the stub axle or brake back plate is to be replaced, e.g. after an accident. Make a note of how the parts are fitted and the position of the cable holder.

All other brakedrum components are accessed from the front via the grease cap.

All other Axles have a welded stub axle and brake back plate assembly, which cannot be replaced. In the event of damage to a stub axle it is likely that the whole axle will need to be replaced.

8.0 TROUBLE SHOOTING

SYMPTOM	CAUSE	RECTIFICATION
Braking is one-sided	Incorrect adjustment at wheel	Adjust
	Brake cable seized	Free off or replace
	Brake lining contaminated with grease	Replace
Braking during mild deceleration	Coupling damper is weak or ineffective	Replace
	Brakes over-adjusted	Adjust
Trailer Brakes snatch when braking	Brakes over-adjusted	Adjust
	Brake cable sticking	Free off or replace
	Brakes under-adjusted	Adjust
	Coupling damper is weak or ineffective	Replace
	Drawtube sticking	Check over full stroke, lubricate if necessary
Brake Judder	Brake lining contaminated with grease	Replace
	Failure of bond between brake lining and shoe	Replace
	Distorted/cracked Brakedrum	Replace
	Drums have rusty patches on braking surface	Clean up with abrasive paper and wipe out
Trailer brakes lock up when reversing	Brakes over-adjusted	Adjust
	Incompatibility between Coupling and Brakes	Consult manufacturer(s)
Trailer brakes inoperative	Brakes under-adjusted	Adjust
	Brake lining contaminated with grease	Replace
	Brake cables seized	Free off or replace
	Brake linings worn out	Replace
Hot brakes	Brakes over-adjusted	Adjust
	Pull off springs stretched/broken	Replace
	Brake cables seized	Replace
Handbrake will not hold on a slope	Brakes under-adjusted	Adjust
	Incorrect setting of Spring Store	Adjust

9.0 TORQUE FIGURES

Application	Fastener Size	Nm		Lbf.ft	
		MIN.	MAX.	MIN.	MAX.
70 / 80mm Drawbar to Axle	3/8" UNF	40	55	30	40
90 / 100mm Drawbar to Axle	M12	90	90	65	65
Towing Eye Cross bolts	M10	55	55	40	40
Towing Eye Cross bolts	M12	75	75	55	55
50mm Ball Head Cross Bolts	M12	75	75	55	55
M&E Coupling to 80mm Drawbar	½" UNF	50	60	35	45
M&E Coupling to 90mm Drawbar	½" UNF	55	70	40	50
M&E Coupling to 100mm Drawbar	5/8" UNF	60	80	45	60
Knott Coupling to Drawbar	M12	60	75	45	55

General Torque settings for Grade 8.8 Fasteners used with Self Locking Nuts				
Fastener Size	Nm		Lbf.ft	
	MIN.	MAX.	MIN.	MAX.
M8 x 1.25	25	25	17	17
M10 x 1.5	50	50	35	35
M12 x 1.75	90	90	65	65
M14 x 2.0	130	130	97	97
M16 x 2.0	200	200	150	150

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