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RECOMMENDED MAINTENANCE & SERVICE INFORMATION

T CHASSIS SUSPENSION AXLES AUTO-REVERSE COUPLINGS



GENERAL TRAILER INFORMATION

SERVICE SCHEDULE

BEFORE EACH JOURNEY

<u>TASK</u>	<u>SEE SECTION</u>
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)

<u>TASK</u>	<u>SEE SECTION</u>
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)

<u>TASK</u>	<u>SEE SECTION</u>
Check/re-adjust braking system	3.2

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

<u>TASK</u>	<u>SEE SECTION</u>
Grease joints	4.2

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

<u>TASK</u>	<u>SEE SECTION</u>
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)

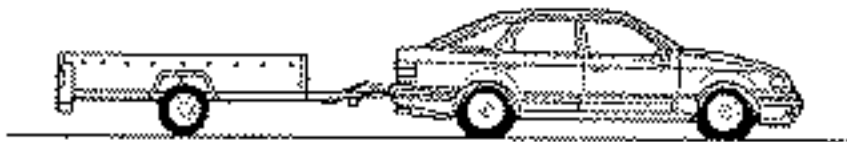
<u>TASK</u>	<u>SEE SECTION</u>
Check/clean/re-grease wheel hub bearings	5.0

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 $\pm 4^\circ$ from the level (approximately $\pm 100\text{mm}$) 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.

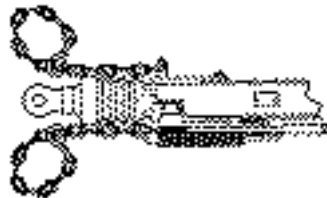
1.4 CONNECTION TO TOWING VEHICLE

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 as 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.

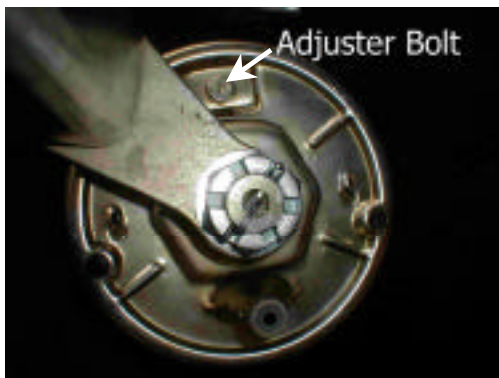
3.2 BRAKING SYSTEM ADJUSTMENT

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

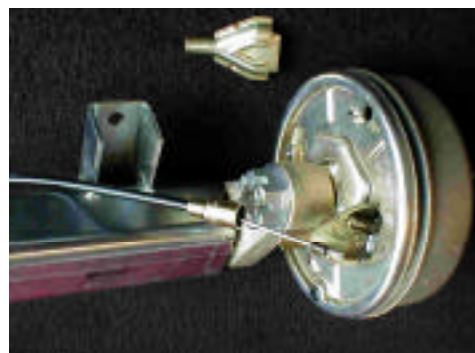
These can be adjusted by means of a 17mm, 19mm or 24mm AF Spanner (dependent on brake type) on the adjuster bolt head at the rear of the brake back plate.



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 brakes.



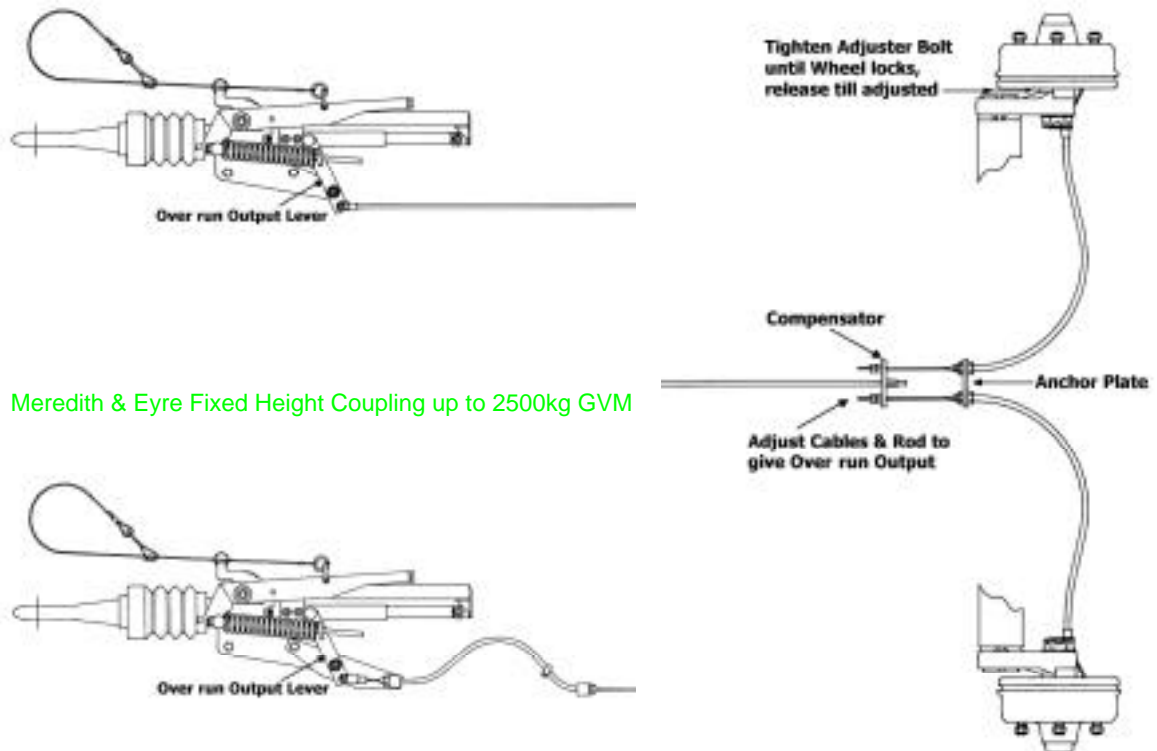
3.4 COUPLING AND TRANSMISSION SYSTEM

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

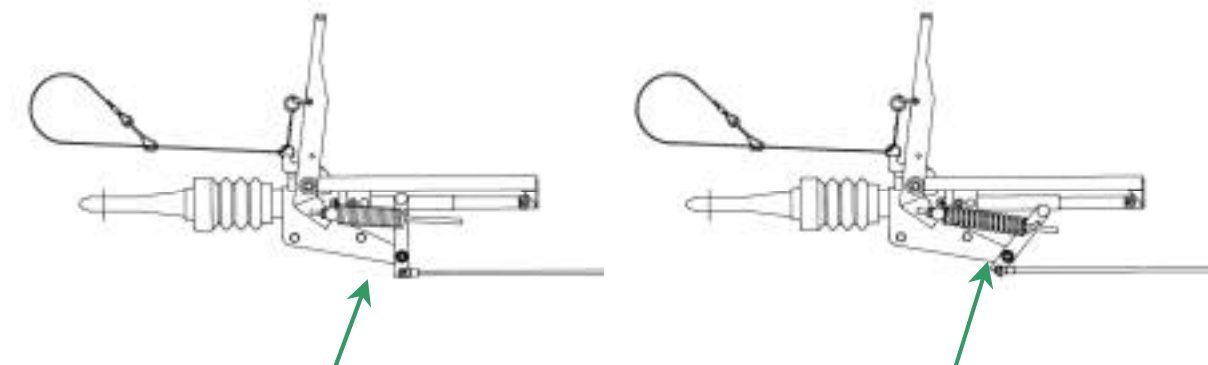
Use the plain nuts behind the compensator to adjust, until the overrun output lever can be pulled rearwards by firm hand pressure (not loose) a maximum of 14mm (16mm for adjustable height models). For Knott couplings there should not be any movement.

Maintain the compensator at 90° 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)

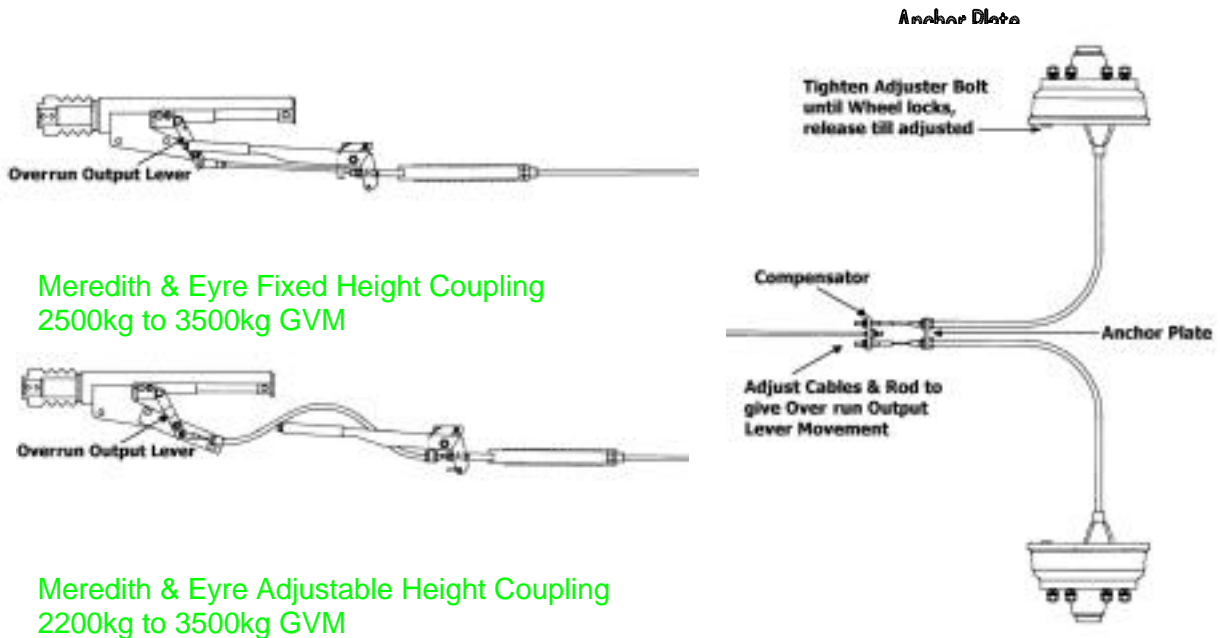
With the handbrake fully off, check that the spring store's overall length is 185 to 190mm and is not applying a force to the U shaped guide on the side of the overrun lever. Adjusting is by the nut at the front of the assembly. This procedure should only be necessary when replacement parts have been 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 90° to the draw bar for even distribution of force into each cable. Ensure the cables are not 'kinked' or damaged.

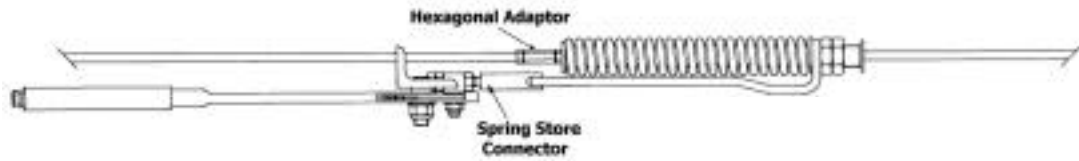


Meredith & Eyre Fixed Height Coupling
2500kg to 3500kg GVM

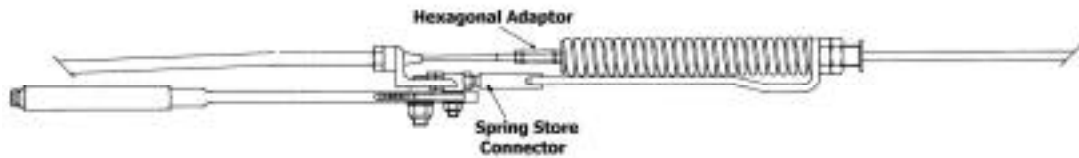
Meredith & Eyre Adjustable Height Coupling
2200kg to 3500kg GVM

ISSUE No. 2

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



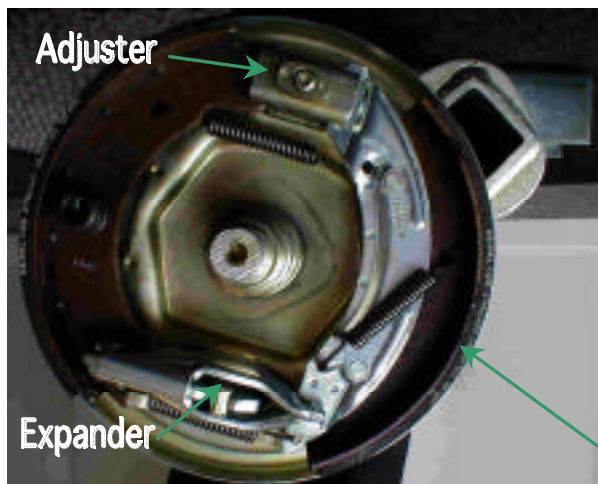
Meredith & Eyre Adjustable Height Coupling 2200kg to 3500kg GVM

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 measure less than 2mm, as it is likely that they will be worn out before the next service.

Always replace both brake shoes together, regardless of the lining thickness on the other shoe. It is further advised that brake shoes should ideally 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**

BRADLEY & KNOTT 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



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
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TYPE A1600	175-220Nm
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TYPE A2400	230-300Nm
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TYPE A3500	410-475Nm
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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.)

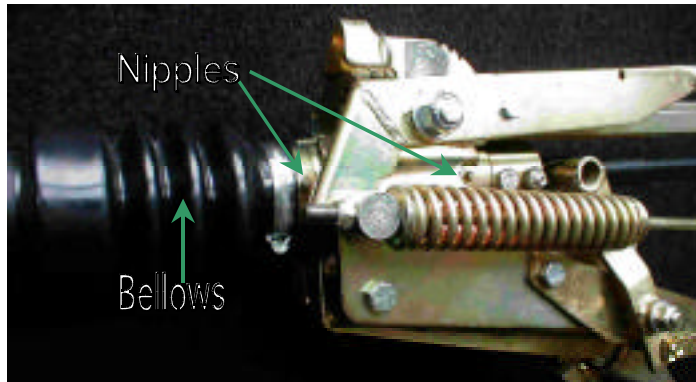
5.5 WHEEL NUT / STUD TORQUE SETTINGS

WHEEL NUT / STUD	Nm		Lbf.ft	
	MIN.	MAX.	MIN.	MAX.
WHEEL NUT 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

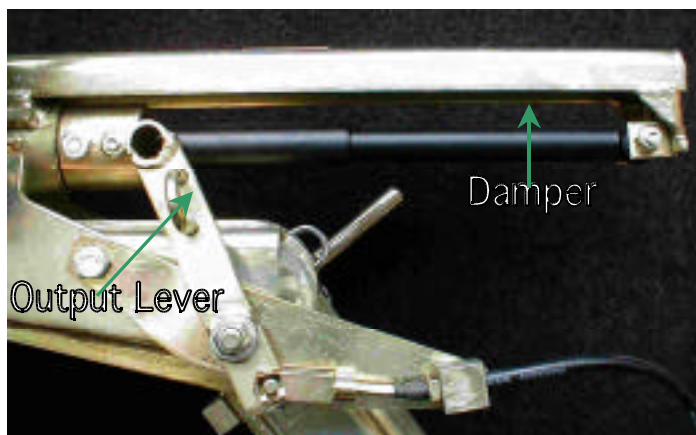
6.0 OVERRUN COUPLING ASSEMBLY

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 to 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	1/2" UNF	50	60	35	45
M&E Coupling to 90mm Drawbar	1/2" 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