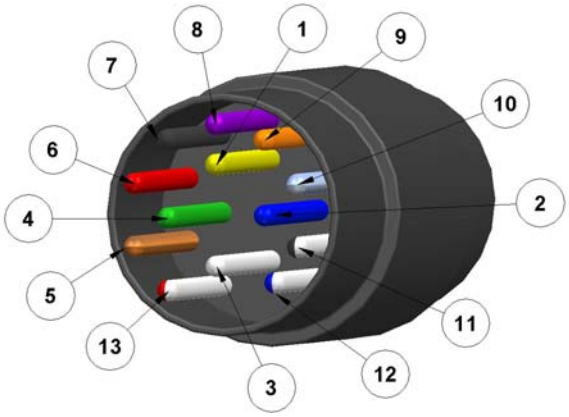
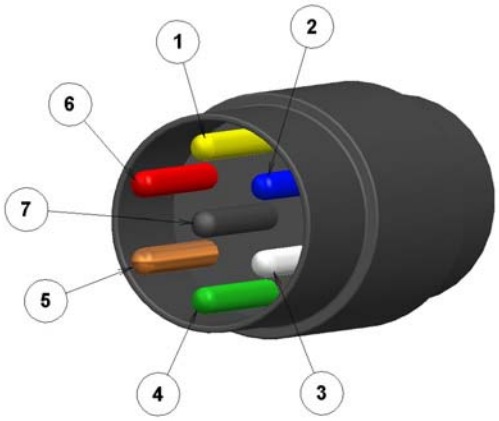
TECHNICAL – ELECTRICAL WIRING CONNECTIONS



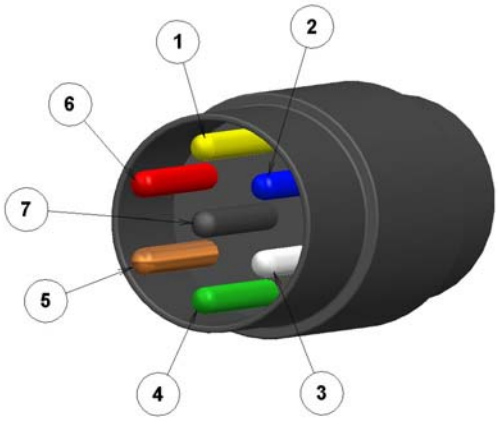
13 PIN WIRING

No	Colour	Description
1	Yellow	LH Indicator
2	Blue	Rear Fog Lamp
3	White	Earth for Pins 1 to 8
4	Green	RH Indicator
5	Brown	RH Tail Lamp, End Outline, No Plate Lamp
6	Red	Stop Lamps
7	Black	LH Tail Lamp, End Outline, No Plate Lamp
8	Pink	Reversing Lamp
9	Orange	12V Power Feed
10	Grey	Fridge (IGN Switched Live)
11	White/Black	Earth for Pin 10
12	White/Blue	Spare (Signal)
13	White/Red	Earth Return for Pin 9



12 N 7 PIN 12 VOLT (Normal)

No	Colour	Description
1 (L)	Yellow	LH Indicator
2 (54G)	Blue	Rear Fog Lamp
3 (31)	White	Earth
4 (R)	Green	RH Indicator
5 (58R)	Brown	RH Tail, End Outline, No Plate Lamp
6 (54)	Red	Stop Lamps
7 (58L)	Black	LH Tail, End Outline, No Plate Lamp



12 S 7 PIN 12 VOLT (Supplementary)

No	Colour	Description
1 (L)	Yellow	Reversing Lamp
2 (54G)	Blue	Spare
3 (31)	White	Earth
4 (R)	Green	12V Power Feed
5 (58R)	Brown	Spare
6 (54)	Red	Fridge (IGN Switched Live)
7 (58L)	Black	Spare or Earth for Pin 6

Converters are available to enable attachment of 13 pin, 7 ??? and 75 connectors for both tow vehicle and trailer. Current understanding:-

A 13 pin equipped trailer with reversing lights will need an adaptor when coupled to a 7 pin equipped tow vehicle and reversing lamp will not be functional.

Type approved trailers will need to be equipped with reversing lights:-

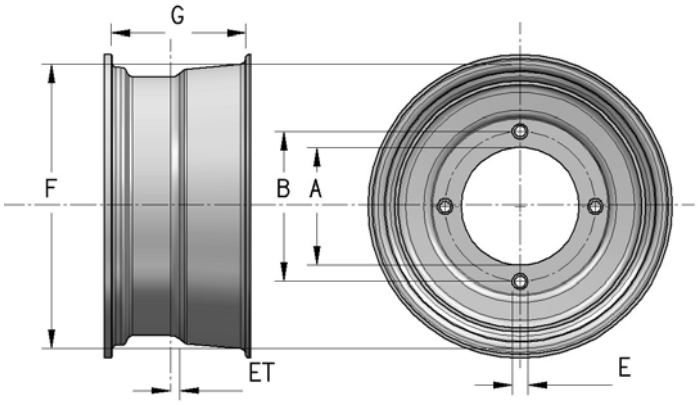
O1 optional **** O2 mandatory (one lamp up to 6m long, two lamps over 6m long)

A2B TRAILERS PTY LTD SUPPLIES LIGHTING EQUIPMENT
CONTACT US FOR FURTHER DETAILS

TECHNICAL – HUB FITTINGS

CENTRE WHEEL STUDDING

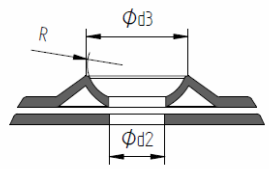
No of Bolts	Bore (A)	PCD (B)	Bolt
4	58	98	M12
4	57-60	100	M12
4	66.7	(4”) 101.6	3/8”
5	63-67	112	M12/M14
5	80	(4½”) 115	M12
4	95.25	(5½”) 139.7	M12
5	94	140	M12/M16
5	115	(6½”) 165.1	M12/M16
6	161	205	M14

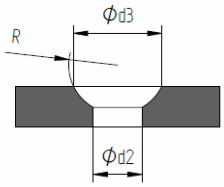


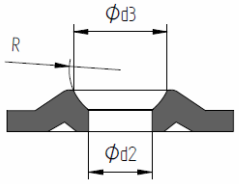
A = Bore (mm)
B = Pitch circle diameter (PCD) (mm)
ET = Offset (mm)
E = Bolt hole diameter (mm)
F = Rim diameter (inches)
G = Rim width (inches)

The correct nut or bolt must be used to suit the wheel seating i.e. Conical or spherical.

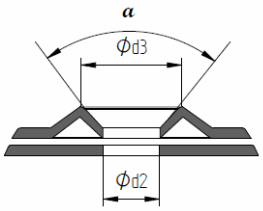
SPHERICAL COUNTERSINK

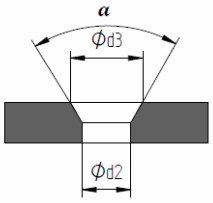


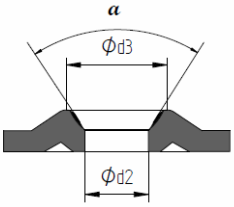




CONICAL COUNTERSINK







SPHERICAL COUNTERSINK SIZES

Internal Thread	R	Ød2	Ød3
M12 x M1,5	12	16	20
M14 x 1,5	14	16	23

CONICAL COUNTERSINK SIZES

Internal Thread	α	Ød2	Ød3
M10	60º	11	-
M10	90º	11	-
M12 x 1,5	60º	14	-
M12 x 1,5	90º	16	-
M14 x 1,5	60º	16.8	-

TECHNICAL – TYRE SPEED SYMBOLS & TYRE LOAD INDEX



TYRE SPEED SYMBOLS

Speed Symbol	Max. car speed for which tyre is suitable	
	Km/h	mph
J	100	60
K	110	69
L	120	75
M	130	81
N	140	87
P	150	93
Q	160	100
R	170	106
S	180	113
T	190	118
U	200	124
H	210	130
V	240	150



TYRE LOAD INDEX

LI	Kg	LI	Kg	LI	Kg	LI	Kg	LI	Kg	LI	Kg
60	250	71	345	82	475	93	650	104	900	115	1215
61	257	72	355	83	487	94	670	105	925	116	1250
62	265	73	365	84	500	95	690	106	950	117	1285
63	272	74	375	85	515	96	710	107	975	118	1320
64	280	75	387	86	530	97	730	108	1000	119	1360
65	290	76	400	87	545	98	750	109	1030	120	1400
66	300	77	412	88	560	99	775	110	1060	121	1450
67	307	78	425	89	580	100	800	111	1090	122	1500
68	315	79	437	90	600	101	825	112	1120	123	1550
69	325	80	450	91	615	102	850	113	1150	124	1600
70	335	81	462	92	630	103	875	114	1180	125	1650

LI = Load Index Kg = Load (Kg)

The LOAD INDEX is a numerical code associated with the maximum load a tyre can carry at the speed indicated by its Speed Symbol under service conditions specified by E.T.R.T.O 1991, passenger car tyres section 13, reproduced above.

E.T.R.T.O. 1991, Section 13, Caravans and trailers. An increase of 10% over the load capacity quoted in the table is permitted when tyres are fitted to caravans and light trailers operated within the UK with a maximum operating speed up to 100km/h. The basic inflation should be increased by 0.2 bar / 3 psi.

Commercial/truck tyres can be increased by 5% whilst dedicated 'trailer' tyres do not attract a load bonus.

New legislation is in preparation defining additional side wall markings for rolling resistance, noise and manufacturing date. This will potentially lead to limits on the age of tyre allowed in service.

A2B TRAILERS PTY LTD SUPPLIES WHEELS & TYRES
CONTACT US FOR FURTHER DETAILS

TECHNICAL – TORQUE SETTINGS

HUB NUT

Manufacturer	One Piece Bearing	Taper Roller Bearing
Knott-Avonride Ltd	280 Nm	70 Nm (Rotate Hub) then back off. Retighten finger tight then fit split pin.
Ifor Williams Trailers	350 Nm	
Al-Ko	280 Nm	

NOTE: Manufacturers specific recommendations for Torque settings and for replacement of hub nut and split pin.

WHEEL BOLTS / NUTS

Thread Type	Torque Value
M10 x 1.25 Bolt	55 Nm
M12 x 1.5 Bolt	90 Nm
M14 x 1.75 Bolt	145 Nm
3/8” UNF Nut	60 Nm
7/16” UNF Nut	70 Nm
M12 x 1.5 Nut	100 Nm
1/2" UNF Nut	90 Nm
5/8” UNF Nut	110 Nm
M16 x 1.5 Nut	195 Nm

FASTENERS - GENERAL

Bolt	Torque Value
M10 Grade 8.8	45 Nm
M12 Grade 8.8	70 Nm
M12 Grade 10.9	125 Nm
M14 Grade 10.9	170 Nm
M16 Grade 8.8	195 Nm

HEAD SECURING BOLTS

Bolt	Torque Value
M12 Grade 10.9	100 Nm
M14 Grade 10.9	125 Nm

A2B TRAILERS PTY LTD SUPPLIES HARDWARE, FIXINGS, ADAPTERS ETC
CONTACT US FOR FURTHER DETAILS

BREAKAWAY CABLES & SECONDARY COUPLINGS - EXTRACT FROM DIRECTIVE 98/12/EC

2.2.2 Trailers of category O_1 need not be fitted with a service braking device; however, if trailers of this category are equipped with a service braking device this must comply with the same requirements as those of category O_2.

2.2.2.1 Every trailer of category O_2 must be fitted with a service braking device either of the continuous or semi-continuous type of the inertia (overrun) type. The latter type shall be authorised only for trailers other than semi-trailers.

2.2.2.9 The braking devices must be such that the trailer is stopped automatically if the coupling breaks while the trailer is in motion. However, this requirement shall not apply to single-axed trailers with a maximum weight not exceeding 1.5 metric tons provided that the trailers are fitted, in addition to the main coupling, with a secondary coupling (chain, cable, etc.) which in the event of breakage of the main coupling, can stop the drawbar from touching the ground and provide some residual steering action on the trailer.

These paragraphs are closely mirrored in UNECE Regulation 13, paragraphs 5.2.2.1 and 5.2.2.9.

Knott-Avonride Ltd unbraked couplings for use on trailers up to 750kg gross weight (O_1) must be fitted with a compliant secondary coupling.

Knott-Avonride Ltd braked couplings for use on trailers 750kg to 3500kg gross weight (O_2) are fitted with a breakaway cable.

USE ONLY KNOTT-AVONRIDE LIMITED ORIGINAL REPLACEMENT PARTS

TRAILER WEIGHTS

Classification	Gross (kg)	Braking
O1	0 – 750	Unbraked with secondary coupling
O2	750 – 3500	Overrun couplings with breakaway cable (or secondary coupling to maximum mass of 1500kg)
O3	3500 – 10000	Power brakes, self adjusting hubs and ABS
O4	Over 10000	Power brakes, self adjusting hubs and ABS

NOTE: The maximum Mass considered for classifying a trailer corresponds to the static vertical load transmitted to the ground by the axle(s) (Annex II, paragraph 3, 2007/46/EC).

TRAILER DIMENSIONS

	Tow Vehicle	Length	Width	Height
The Road Vehicles (Construction & Use) Regulations 1986	< 3500 GVW	7.0m excl. drawbar	2.55m (was 2.3m)	4.2m
	> 3500 GVW	12.0m excl. drawbar	2.55m	4.2m
		(Min 4 wheels, max combination length 18m)		
EC Directive 2007/46/EEC Dimensions from 96/53/EC as amended by 2002/7/EC	M_1, M_2, M_3, N_1, N_2, N_3	12.0m incl. drawbar	2.55m (2.60m refrigerated)	4.0m
		Max articulated vehicle length 16.5m Max roadtrain (wagon & drag) 18.75m		

The information here is intended as a guide. It is as accurate as we can make at the time of printing, however, Knott-Avonride Ltd do not accept any responsibility for any inaccuracies which may be in the text. Any person wishing to depend on the information contained here must check for themselves with the original documentation including any revision or additions to regulations, instruments or the law.

TIMETABLE FOR THE ENFORCEMENT OF DIRECTIVE 2007/46/EC

O_1, O_2, O_3, O_4	Enforcement Dates		
	New Types of Vehicles Optional	New Types of Vehicles Obligatory	Existing Types of Vehicles Obligatory
Incomplete and complete vehicles	Since 29 April 2009	29 October 2010	29 October 2012
Completed vehicles	Since 29 April 2009	29 October 2011	29 October 2013
Special-purpose vehicles	Since 29 April 2009	29 October 2012	29 October 2014



GENERAL SAFETY REGULATION EC 661/2009

The General Safety Regulation (GSR) amends Directive 2007/46/EC by substituting the equivalent UNECE Regulations in place of the EC Directives. It makes compliance with the UNECE regulations for type approval submissions compulsory from 1 November 2012 and compulsory for vehicles entering into service from 1 November 2014.

All of the old EC Directives will be repealed and will be replaced by the UNECE regulations. UNECE Regulations are also recognised in a wider range of countries than the European Directives. Where equivalent UNECE Regulations are not available General Safety Implementing Measure documents are being published.