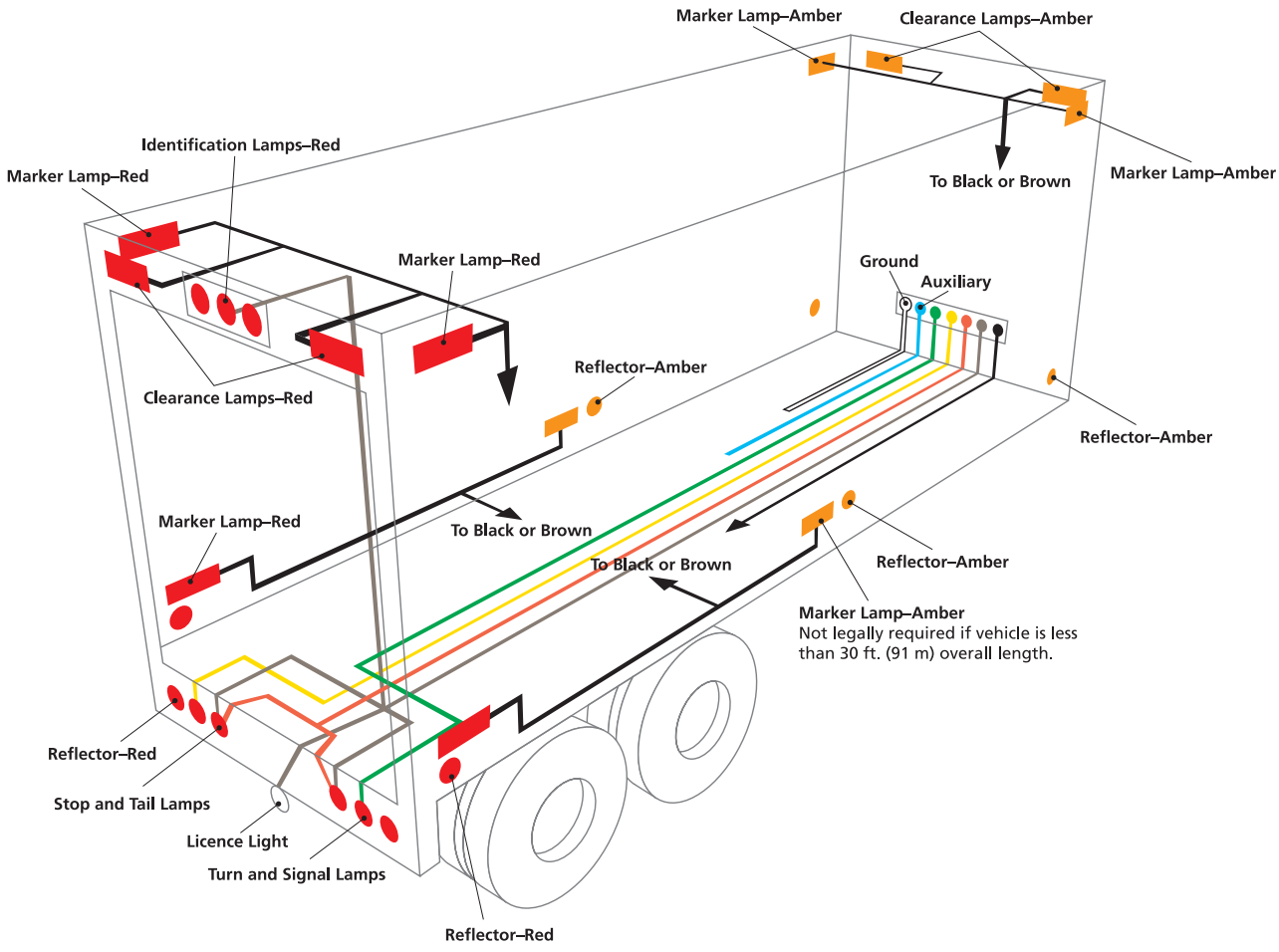
Trailer Wiring Guide



ATA, SAE & TTMA Wire Colours For Seven Pole Connectors

Wire Function	Colour Listing
Ground return	White
Left turn & hazard signal	Yellow
Right turn & hazard signal	Green
Stop lamps and anti-locking devices	Red
Tail, identification, license, clearance & marker lamps	Brown
Clearance, marker & identification lamps	Black
Auxiliary	Blue

It is advisable to balance the circuits

TTMA Recommended Wire Gauges And Vehicle Interface

Trailer Type	Circuit Type	Wire Gauge
Single or Double	Ground Circuit	10GA
Single or Double	Stop Lamp Circuit	12GA
Turnpike Double or Triple	Ground Circuit	8GA
Turnpike Double or Triple	Stop Lamp Circuit	10GA

Note: Check the latest FMVSS108 and CMVSS108 regulations for required locations mounting heights and quantities of required lighting devices. Lighting functions may be combined or separated where and as legally permitted.

Wire, Cable & Cord; Abbreviations & Terms

Table Key

S = Service
J = Junior
0 = Oil-Resistant
T = Thermoplastic Vinyl
W = Weather Approved
P = Parallel
E = Elastomer

Wire Abbreviation	Description
S	Standard Service. Rubber-insulated portable. Stranded copper conductors with separator and individual rubber installations. Rated at 600V.
SJ	Service Junior. Jacket is half the thickness of the Standard Service (S) cord. Same construction. Rated at 300V. The cords are exactly the same inside the jacket.
ST	Extra hard usage, jacketed thermoplastic construction. 600V, 60°C to 105°C.
SJT	Hard usage thermoplastic rubber-insulated conductors and overall thermoplastic jacket. 300V. 60°C to 105°C.
SJO	Service Junior rubber-insulated portable cord but with neoprene, an oil-resistant compound. Rated 300V, 60°C , 75°C or 90°C.
SJOO	Same as SJO except inner conductor insulation and the outer jacket are oil resistant.
SJOW	Same as SJO except outer jacket is weather approved
STW	Extra hard usage cord, jacketed. 600V, 60°C to 105°C. Weather resistant for outdoor use.
SJTW	Hard usage thermoplastic or rubber-insulated conductors and overall thermoplastic jacket. 300V, 60°C to 105°C. Weather resistant for outdoor use.
SJEW	Hard service thermoplastic or rubber-insulated conductors and overall thermoplastic jacket. All elastomer construction. 300V, 90°C to 105°C. Weather resistant for outdoor use.
SJEOW	Hard service thermoplastic or rubber-insulated conductors and oil-resistant thermoplastic outer jacket. All elastomer construction. 300V, 90°C to 105°C. Weather resistant for outdoor use.
SEW	Extra hard usage cord TPE jacketed all thermoplastic Elastomer (TPE) construction. 600V, 90°C to 105°C. Weather resistant for outdoor use.
SP	All rubber, service parallel cord with parallel construction. Conductors are not cabled. Rated 300V.
SPT	Same as the SP except the jacket is made of thermoplastic. Rated 300V.
SPT-1	All thermoplastic construction, parallel jacketed. 300V, 60°C to 105°C, 2 or 3-conductor (18GA)
SPT-2	Same as SPT-1 but heavier construction (18-16GA)
SPT-3	Same as SPT-2 but heavier construction (18-10GA)
SRDT	Portable range or dryer cable, 3-conductor parallel type or 4 insulated conductors, jacketed. All thermoplastic construction. 300V, maximum temperature of 60°C.
SV	Vacuum cleaner cord. A light, round cord designed for flexibility. The copper is pulled to a finer gauge before bunching.
SVT	Vacuum cleaner service cord. All plastic construction, 2 or 3-conductor. Third conductor for grounding use only. For light duty use. 300V, 60°C to 105°C.
SVE	Same as SV, except the insulation and jacket are made of thermoplastic elastomer rubber (TPE). Used for vacuum cleaners, fans and portable lights.
HPN	Two-conductor, neoprene-insulated heater cord. Parallel construction. For use in damp locations. 300V, 90°C.

Other Widely Used Terms

AWG	American Wire Gauge. Relative index of conductor sizes.
GA	Another way to refer to AWG

Conversion Tables

WIRE GAUGE CONVERSION

Gauge	Dia. (Inches)	Gauge	Dia. (Inches)	Gauge	Dia. (Inches)
4/0	.460	12	.081	27	.0142
3/0	.410	13	.072	28	.0126
2/0	.365	14	.064	29	.0113
1/0	.325	15	.057	30	.0100
1	.289	16	.051	31	.0089
2	.258	17	.045	32	.0080
3	.229	18	.040	33	.0071
4	.204	19	.036	34	.0063
5	.182	20	.032	35	.0056
6	.162	21	.0285	36	.0050
7	.144	22	.0253	37	.0045
8	.128	23	.0226	38	.0040
9	.114	24	.0201	39	.0035
10	.102	25	.0179	40	.0031
11	.091	26	.0159		

Move decimal point three places to the right to read mils.

LENGTH CONVERSION

1 INCH = 25.4 MILLIMETERS

1 MILLIMETER = 0.03937 INCH

1 FOOT= 0.3048 METERS

1 YARD = 0.9144 METERS

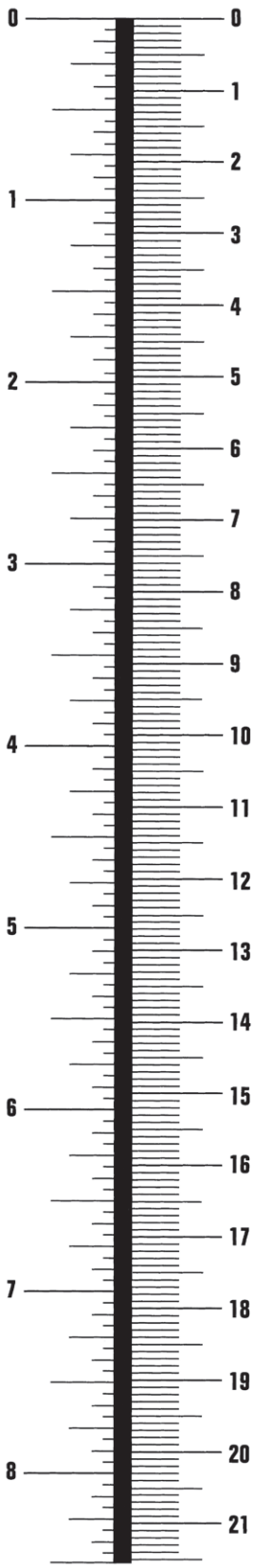
1 METER = 3.281 FEET

TEMPERATURE CONVERSION

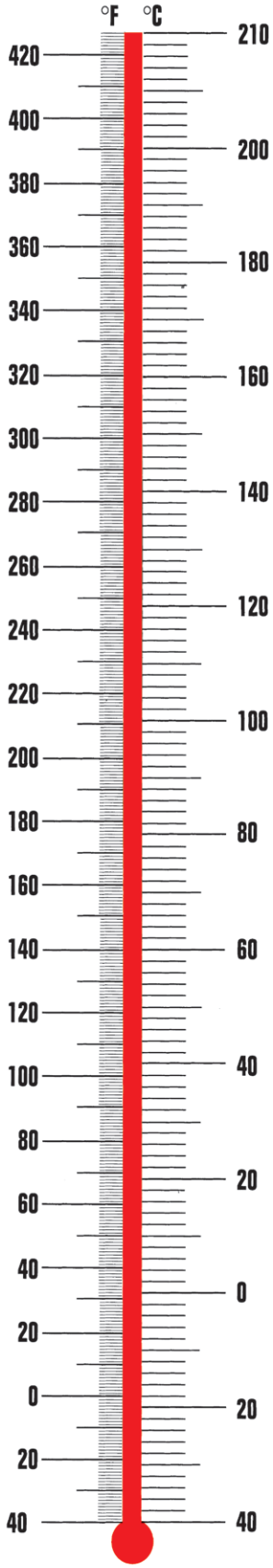
°C = .556 (°F-32)

°F = 1.8 (°C)+32

INCHES/CENTIMETERS



FAHRENHEIT – CENTIGRADE



Decimal & Stud Dimension Chart

DECIMAL EQUIVALENTS CHART

1/64 →	.015625	33/64 →	.515625
1/32 →	.03125	17/32 →	.53125
3/64 →	.046875	35/64 →	.546875
1/16 →	.0625	9/16 →	.5625
5/64 →	.07815	37/64 →	.578125
3/32 →	.09375	19/32 →	.59375
7/64 →	.109375	39/64→	.609375
1/8 →	.125	5/8 →	.625
9/64 →	.140625	41/64 →	.640625
5/32 →	.15625	21/32 →	.65625
11/64 →	.171875	43/64 →	.671875
3/16 →	.1875	11/16 →	.6875
13/64 →	.203125	45/64 →	.703125
7/32 →	.21875	23/32 →	.71875
5/64 →	.234375	47/64 →	.734375
1/4 →	.25	3/4 →	.75
17/64→	.265625	49/64 →	.765625
9/32→	.28125	25/32 →	.78125
19/64→	.296875	51/64 →	.796875
5/16→	.3125	13/16 →	.8125
21/64 →	.328125	53/64 →	.828125
11/32 →	.34375	27/32 →	.84375
23/64 →	.359375	55/64 →	.859375
3/8 →	.375	7/8 →	.875
25/64 →	.390625	57/64 →	.890625
13/32 →	.40625	29/32 →	.90625
27/64 →	.421875	59/64 →	.921875
7/16 →	.4375	15/16 →	.9375
29/64 →	.453125	61/64 →	.953125
15/32 →	.46875	31/32 →	.96875
31/64 →	.484375	63/64 →	.984375
1/2 →	.5	1 →	1.

STUD SIZE CHART WITH HOLE SIZES CHART

Standard Stud Size	Screw Dia. (")*	Hole Dia. (")*
#0	.060 (1.52mm)	.094 (2.39mm)
#1	.073 (1.85mm)	
#2	.086 (2.18mm)	
#3	.099 (2.51mm)	.120 (3.05mm)
#4	.112 (2.85mm)	
#5	.125 (3.18mm)	.146 (3.71mm)
#6	.138 (3.5mm)	
#8	.164 (4.17mm)	.173 (4.39mm)
#10	.190 (4.83mm)	.198 (5.03mm)
#12	.216 (5.5mm)	17/64 (6.75mm)
#14	.242 (6.15mm)	
1/4" (6.35mm)	.250 (6.35mm)	
5/16" (7.93mm)	.312 (7.93mm)	21/64 (8.33mm)
3/8" (9.53mm)	.375 (9.53mm)	25/64 (9.92mm)
7/16" (11.1mm)	.437 (11.1mm)	29/64 (11.51mm)
1/2" (12.7mm)	.500 (12.7mm)	33/64 (13.1mm)
5/8" (15.9mm)	.625 (15.9mm)	21/32 (16.7mm)
3/4" (19.1mm)	.750 (19.1mm)	25/32 (19.8mm)
7/8" (22.23mm)	.875 (22.23mm)	29/32 (23.03mm)
1" (25.4mm)	1.000 (25.4mm)	1-1/32 (25.43mm)