

NMO LOW BAND

LOW BAND ANTENNA TUNING INSTRUCTIONS:

Larsen low band antennas are tuned to the desired operating frequency by using a whip of the appropriate length. The particular vehicle on which the antenna is mounted and the location that the antenna is placed on that vehicle will affect the tuning of the antenna. The whip cutting charts given below, are provided as examples of the required whip lengths for an antenna mounted on a permanent through hole mount on the roof of a mid sized car and on a TMB mount on a mid sized car. Start with the whip longer than what is called out in the cutting chart. Trim the whip until the lowest VSWR or reflected power is achieved over your desired frequency band.

The vehicle acts as the ground plane for the low band antennas, which are loaded $\frac{1}{4}$ wave antennas. The shape and size of the vehicle (ground plane) will affect the tuning of the low band antennas. The various metal panels of the vehicle may or may not be electrically bonded together. This variation in electrical bonding of the various metal portions of the vehicle will of course change the size and shape of the "ground plane". The whip length required to tune the antenna to a particular operating frequency will vary depending on which make and model of vehicle the antenna is mounted on, and may vary for vehicles of the same make and model because vehicles are not manufactured to meet radio frequency electrical bonding requirements.

The cutting charts provided below are provided as a guide of required whip lengths to tune an antenna to a particular frequency. You will get different results due to variations in vehicle geometry, mounting location on the vehicle and type of mount used. Start with the whip longer than what is specified in the cutting chart and trim the whip to achieve the lowest VSWR or reflected power over the desired operating band. It may not be possible to obtain less than 1.5:1 VSWR or less than 4% reflected power for some vehicle/mounting configurations.

CUTTING THE ROD

The whip is constructed of the highest grade 17-7PH stainless steel to provide all-weather protection and maximum radiation efficiency. Use sharp corner of file or edge of grinding wheel to cut the rod and snap off with a pair of pliers.

CLEANING THE ROD

To clean the antenna rod, use a damp sponge and soap. In stubborn cases, use a mild abrasive (Bon Ami). Note: Continued use of harsh abrasives could reduce the antenna's performance.



Pulse warrants to every user of a Larsen product that it will perform to its specified ratings and will be free of defects in materials and workmanship.

Pulse will repair or replace without charge any Larsen product which fails to meet this warranty within one year of the purchase date. Excluded is failure due to misuse such as striking objects, improper installation, and use beyond specifications.

Pulse will not be responsible for any incidental or consequential damages due to failure of a Larsen product under this warranty or any implied warranty.

LARSEN - A Pulse Brand

3611 N.E. 112th Avenue
Vancouver, Washington 98682

Phone: 800-268-3662

360-944-7551

Fax: 360-944-7556

www.larsen-antennas.com

Larsen®, Kulrod® and Kulduckie® are registered trademarks of Pulse Electronics.
Kulglass® Series U.S. Patent #4,764,773; KGB Series U.S. Patent #5,099,252; #5,155,494 - 11/99

NMO LOW BAND



PI00076, Rev. C, 03/11, 5192.2002

LOW BAND CUTTING CHARTS

NMO27B / NMO27C

Operating Frequency	Roof Mount				TMB Mount, Hood/Trunk			
	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm
27.0 MHz	47	119.38	46 1/4	117.48	47 1/2	120.65	45 3/16	114.78
27.5 MHz	45 1/4	114.93	44 3/8	112.71	45 3/4	116.20	43 7/16	110.33
28.0 MHz	44 1/8	112.08	42 5/8	108.27	44 1/8	112.08	41 5/8	105.73
28.5 MHz	42 3/4	108.58	40 7/8	103.82	42 3/16	107.16	40	101.60
29.0 MHz	41 1/4	104.78	39 1/4	99.70	40 3/4	103.50	38 5/16	97.31
29.5 MHz	39 3/4	100.96	37 1/2	95.25	39	99.06	36 3/4	93.35
30.0 MHz	37 3/4	95.88	35 15/16	91.28	37 5/16	94.77	35 1/4	89.54

NMO30B / NMO30C

Operating Frequency	Roof Mount				TMB Mount, Hood/Trunk			
	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm
30.0 MHz	51 9/16	130.97	48 1/2	123.19	49 1/8	124.78	46 15/16	119.22
31.0 MHz	47 1/2	120.65	45 1/4	114.94	45 15/16	116.68	43	109.22
32.0 MHz	44 1/2	113.03	41 13/16	106.20	42 1/2	107.95	40 9/16	103.03
33.0 MHz	41 1/2	105.41	39	99.06	39 15/16	101.44	37 5/8	95.57
34.0 MHz	38 3/4	98.43	36 3/8	92.39	37 3/8	94.93	34 5/8	87.95
35.0 MHz	36 3/8	92.39	33 13/16	85.88	35 1/4	89.54	32 3/4	83.19

NMO34B / NMO34C

Operating Frequency	Roof Mount				TMB Mount, Hood/Trunk			
	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm
34.0 MHz	52	132.08	49 7/8	126.68	48 1/4	122.56	46 3/8	117.79
35.0 MHz	49 1/4	125.10	46 7/16	117.95	46 1/16	117.00	43 7/8	111.44
36.0 MHz	46 1/8	117.16	43 5/8	110.81	43 5/8	110.81	41 9/16	105.57
37.0 MHz	43 1/2	110.49	41 1/4	104.78	41 1/4	104.78	39 1/8	99.38
38.0 MHz	41 1/8	104.46	39	99.06	39 1/8	99.38	36 7/8	93.66
39.0 MHz	38 7/8	98.74	36 11/16	93.19	37 15/16	96.36	35	88.90
40.0 MHz	36 7/8	93.66	34 5/8	87.95	35 3/16	89.38	32 3/4	83.18

NMOWB40C

Low Frequency	High Frequency	Inches	cm
40	45	60 7/8	154.60
42	48	57 5/16	145.50
43.65	50	54 9/16	138.60

NMO40B / NMO40C

Operating Frequency	Roof Mount				TMB Mount, Hood/Trunk			
	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm
40.0 MHz	52	132.08	50 3/8	127.95	48 7/8	124.14	47	119.38
42.0 MHz	48 1/8	122.24	46 3/16	117.32	44 1/4	112.40	42 5/8	108.27
44.0 MHz	44	111.76	42 1/2	107.95	40 3/4	103.51	38 13/16	98.58
46.0 MHz	40 1/2	102.87	38 5/8	98.11	38 1/4	97.16	36	91.44
48.0 MHz	37 7/16	95.09	35 5/16	89.69	36	91.44	34 1/4	87.00
50.0 MHz	34 5/8	87.95	33 5/8	85.41	32 3/8	82.23	31 1/2	80.01

NMO50B / NMO50C

Operating Frequency	Roof Mount				TMB Mount, Hood/Trunk			
	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm	Without Spring Inches	Without Spring cm	With Spring Inches	With Spring cm
47.0 MHz	48 3/4	126.37	48 1/8	122.24	46 3/8	117.79	44 7/8	113.98
48.0 MHz	48 1/8	122.24	46 5/8	118.43	45 1/2	115.57	44 1/2	113.03
49.0 MHz	47	119.38	45 1/4	114.94	45	114.30	43 7/8	111.44
50.0 MHz	45 5/8	115.89	44 1/16	111.92	44 1/16	111.92	42 5/8	108.27
51.0 MHz	43 3/4	111.13	42 3/16	107.16	43	109.22	41 1/4	104.78
52.0 MHz	42 9/16	108.11	41	104.14	41 7/8	106.36	39 1/2	100.33
53.0 MHz	41 1/4	104.78	40	101.60	40	101.60	38 1/4	97.16
54.0 MHz	40 1/2	102.87	38 15/16	98.90	39	99.06	37 1/8	94.30

Note: Larsen NMO antennas come from the factory with both an O Ring and a SuperSeal Gasket (RGSS). Use one or the other for mounting the antenna — they cannot be used together. The RGSS is typically used for permanent mounts.

