

BRYSTON

10B
CROSSOVER
OWNER'S MANUAL

for Models
10B-STD, 10B-SUB & 10B-LR

INTRODUCTION:

The 10B crossover is available in three stock versions; 10B-SUB incorporating frequencies more suitable to sub-woofer applications (40Hz to 500hz), 10B-STD which is more applicable to speakers requiring frequency control in the mid-band and tweeter areas (70Hz to 4500Hz) and the 10B-LR, which uses plug in resistor programming cards to set the crossover frequency. Both the 10B-SUB and 10B-STD crossovers include a mode called Mono Low Pass (see below) which replaces the Two Way Mono (Linkwitz-Riley) mode in older model 10B's. The Two Way Mono mode (see below) is retained in the 10B-LR allowing for very steep (non Linkwitz-Riley) 8th order filters.

MONO LOW PASS MODE (10B-SUB AND 10B-STD ONLY):

The 10B-STD and 10B-SUB crossovers generate a summed low pass output signal by first summing or adding together the left channel and right channel input signals to form a left plus right (L+R) signal. If the MODE switch (located on the rear panel) is in the Mono Low Pass position then this L+R signal is fed into both of the low pass filter sections (Left and Right) available in the 10B. As a result, the common low pass output can be taken from either of the two low pass (LP) outputs; either left LP out or right LP out. These outputs are designated as Left and Right for convenience only. If the low pass output used is the one designated as the left channel, then the crossover frequency and slope (or filter order) switches on the left side of the unit's front panel (as viewed from the front) will control the low pass filter parameters. Likewise, if the right channel low pass output is used, then the right channel switches will control its filter parameters. There is no interaction between the two sets of controls. If one of the two low pass filters is not used, then settings of its crossover frequency and slope switches are irrelevant and will have no affect on the performance of the other filter sections of the crossover. The two high pass filter sections (left and right) operate independently in Mono low Pass mode.

STEREO MODE:

As in the older versions of the 10B, the stereo mode provides two, two way crossovers wherein the left input is fed into a separate low pass filter and a separate high pass filter, both of which are independently adjustable from the front panel controls. Likewise, the right input signal is fed into a separate low pass filter and a separate high pass filter, both of which are independently adjustable from the front panel controls. All four filters have separate output connectors on the rear panel. There is no interaction whatsoever between left and right channels or between low pass and high pass filters.

THREE WAY MONO MODE (10B-LR ONLY) :

Available only in the 10B-LR (Linkwitz-Riley filters), this mode is the same as in the older model 10B. The four filter sections (two low pass and two high pass) of the 10B are combined to form a single channel three way crossover providing one low pass, one mid or band pass and one high pass filter. The mid (or band pass) filter is formed by combining the left channel high pass and the right channel low pass filters into a single filter wherein the lower end of the pass band is determined by the left channel high pass controls and the upper end of the pass band is determined by the right channel low pass controls

Only the LEFT channel input is used in Three Way Mono mode. The left channel low pass output provides the low pass output. The mid or band pass output is taken from the right channel low pass output connector and the high pass is taken from the right channel high pass connector. All filter slopes are 24dB per octave, Linkwitz-Riley alignment.

PROGRAMMING THE 10B-LR CROSSOVER:

The crossover points in the 10B-LR are set by inserting small programming boards (4 per channel) each containing 2 resistors. See illustration "10B LINKWITZ-RILEY STEREO CROSSOVER" and on page 7 and document "10B-FREQ-RES-TABLES.doc"

POWER AMPLIFIERS:

When power amplifiers of different power capabilities are used, the woofers will likely be driven by the most powerful amplifier and the tweeters by the least powerful amplifier since the woofers can generally be expected to be less efficient. When power amplifiers of equivalent power capabilities are used in a bi-amped system, and when the power amps employ totally separate power supplies for each channel (as all Bryston power amplifiers do) it is desirable to place each power amplifier as close to its speaker as possible and use one channel to drive the woofer and the other to drive the tweeter. Please note that if the power amps being used do not employ totally separate power supplies for each channel, some envelope distortion between channels may occur since the power drawn from the low frequency channel driving the woofer will usually be considerably greater than from the higher frequency channel driving the tweeter.

POWER AMPLIFIER PLACEMENT:

Where there is a considerable distance between the audio signal source and the speakers, it is preferable to reduce the distance between the power amplifiers and the speakers at the expense of increasing the distance between preamp and crossover or crossover and power amplifier. The low impedance across the speaker lines is more likely to affect signal quality with distance than is the higher impedance across the preamp to crossover, or crossover to power amplifier cables.

BALANCED VERSUS UNBALANCED CABLING:

If the distance between the power amplifier and crossover or crossover and preamplifier is greater than 30 feet, it may be desirable to use balanced cables to interconnect the two distant pieces of equipment as this may reduce noise pickup. To facilitate this, the 10B crossover is available with balanced inputs and outputs (PRO versions) using 3 pin XLR connectors (outputs use male connectors, inputs use female connectors). Pin 3 is the positive (non-inverted or Hot) signal, pin 2 is the negative (inverted or neutral) signal and pin 1 is ground.

Where a long run of balanced cable is used to interconnect the preamplifier to the crossover, and the crossover is placed within a few feet of the power amplifier there is no advantage in using a balanced interconnection between the crossover and power amplifier. Balanced cabling does not reduce noise; it merely reduces the ability of the cable to pickup noise. The balanced output of a 10B Pro crossover can easily be used as an unbalanced output by using XLR pin 3 (positive) as the HOT line and XLR pin 1 as the ground line.

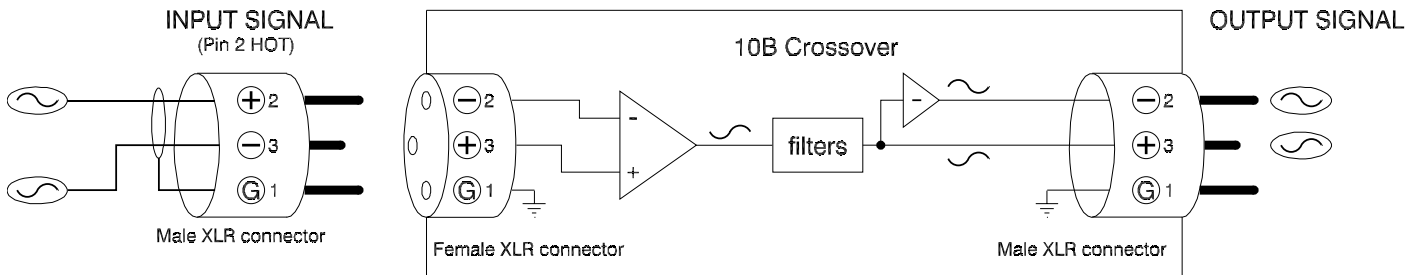
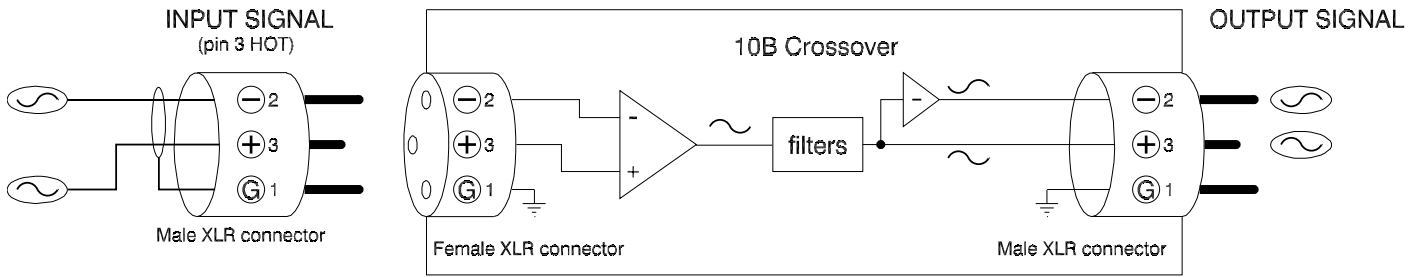
Since there is no phase inversion in the 10B, the negative XLR output pins (#2) can be used in the same way to achieve the same effect and the output will remain un-inverted with respect to the input. In other words, any signal that enters the negative XLR input pin (#2) will exit the negative XLR output pin (#2) un-inverted with respect to the input. Similarly any signal that enters the positive XLR input pin (#3) will exit the positive XLR output pin (#3) un-inverted with respect to the input. It is for this reason that the 10B has not been changed to comply with the AES adopted XLR pin configuration for balanced signals (pin 3 negative, pin 2 positive and pin 1 ground) and retains its original XLR pin-out of pin 3 positive, pin 2 negative and pin 1 as ground.

Note, however, that Bryston's current production power amplifiers do follow the AES convention. As the above illustrations indicate, however, the 10B PRO models do not introduce any phase inversion and thus can be used with either pin 2 hot or pin 3 hot balanced cable systems without changing the phase relationships of the system.

CABLES:

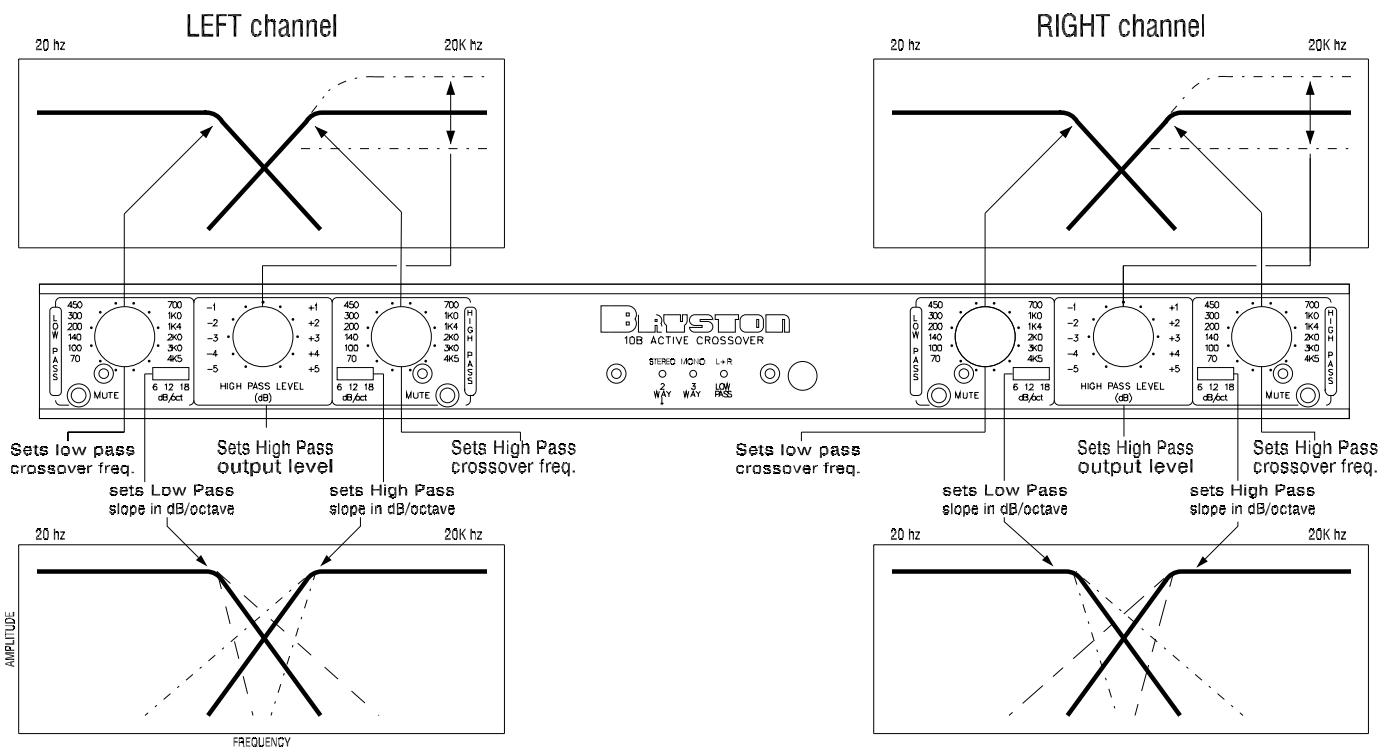
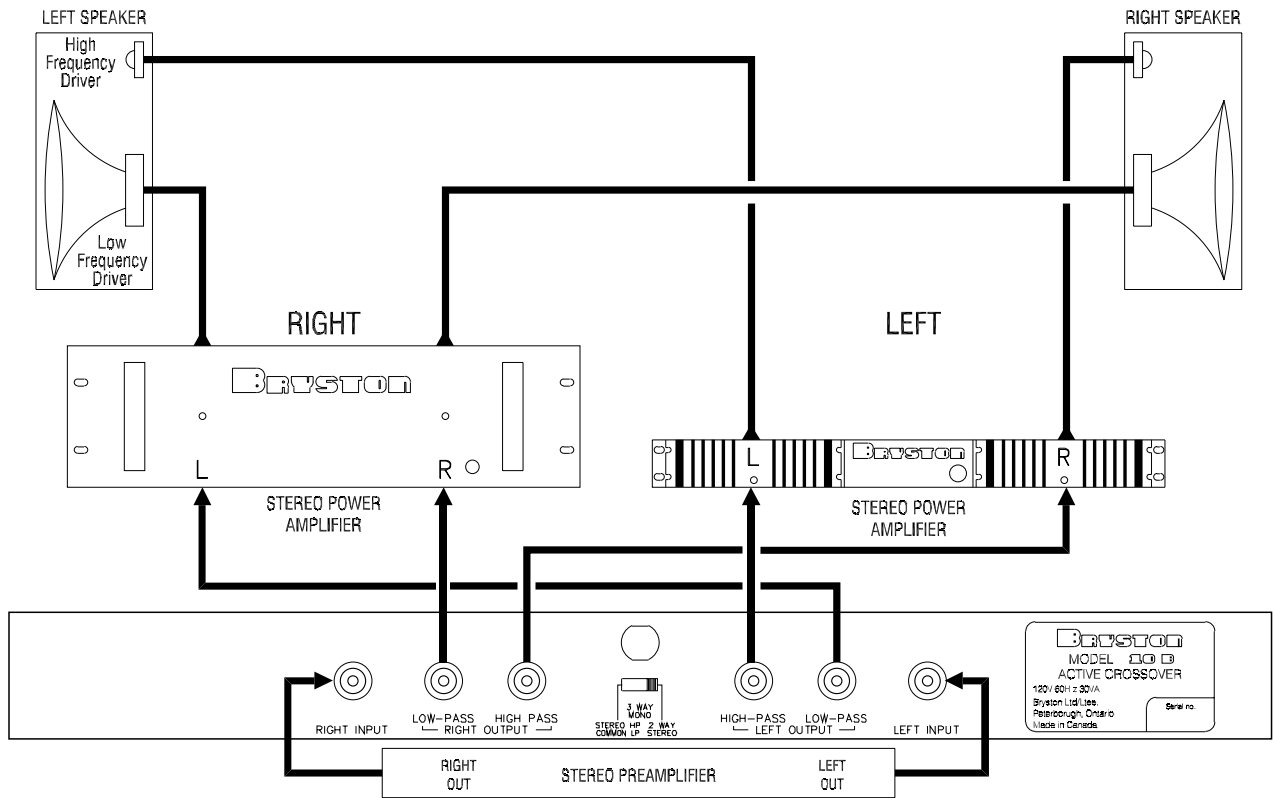
Bryston supplies a variety of stock audio interface cables and will supply reasonably priced semi-custom cables (including adapter cables and cables with custom printed identification sleeves) upon request. Bryston's balanced cables employ double insulated, 100% shielded twisted pair cable with

24g stranded, tinned copper conductors and locking XLR connectors with metal shells and gold plated contacts. Unbalanced cables use single conductor shielded co-axial cable with gold plated male phono (RCA) plugs in metal shells.



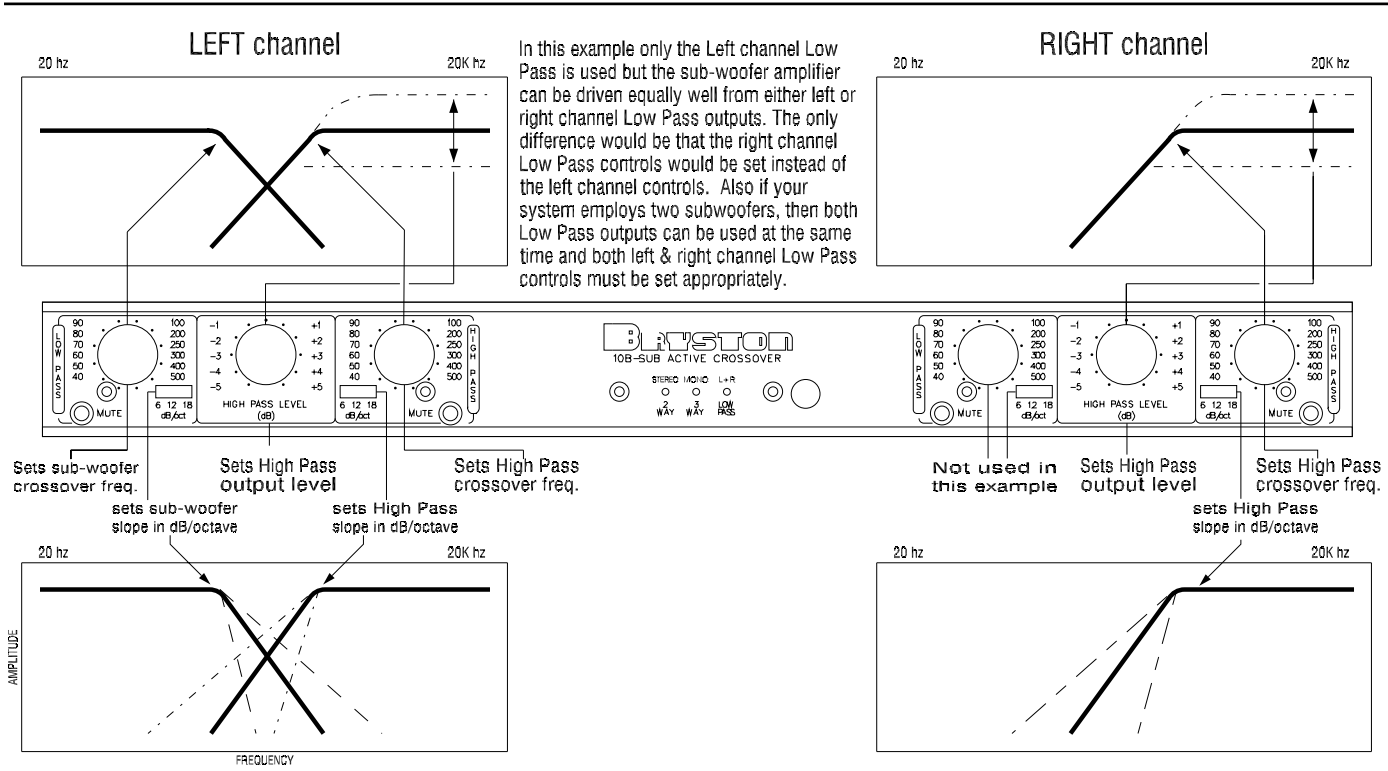
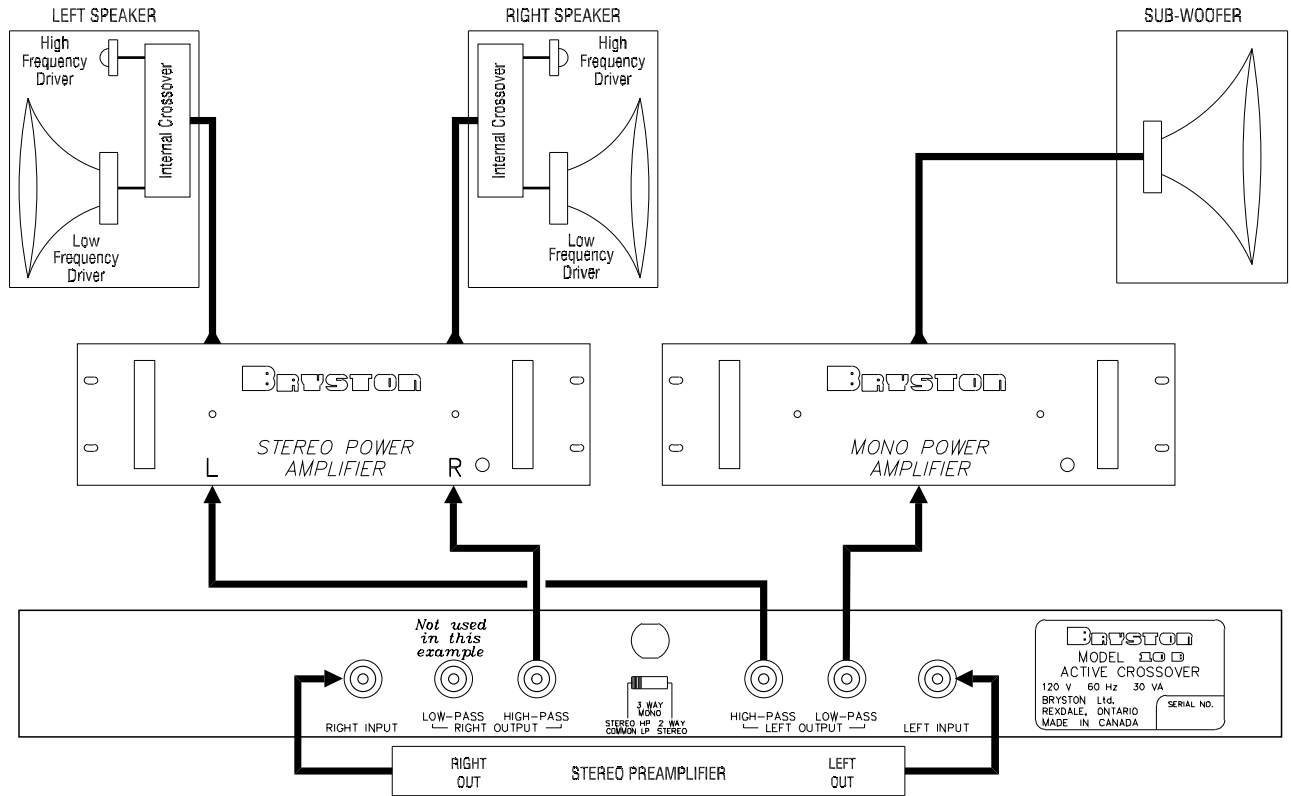
BRVSTON 10B CROSSOVER

HOOKUP EXAMPLE for TWO WAY STEREO MODE



BRYSTON 10B CROSSOVER

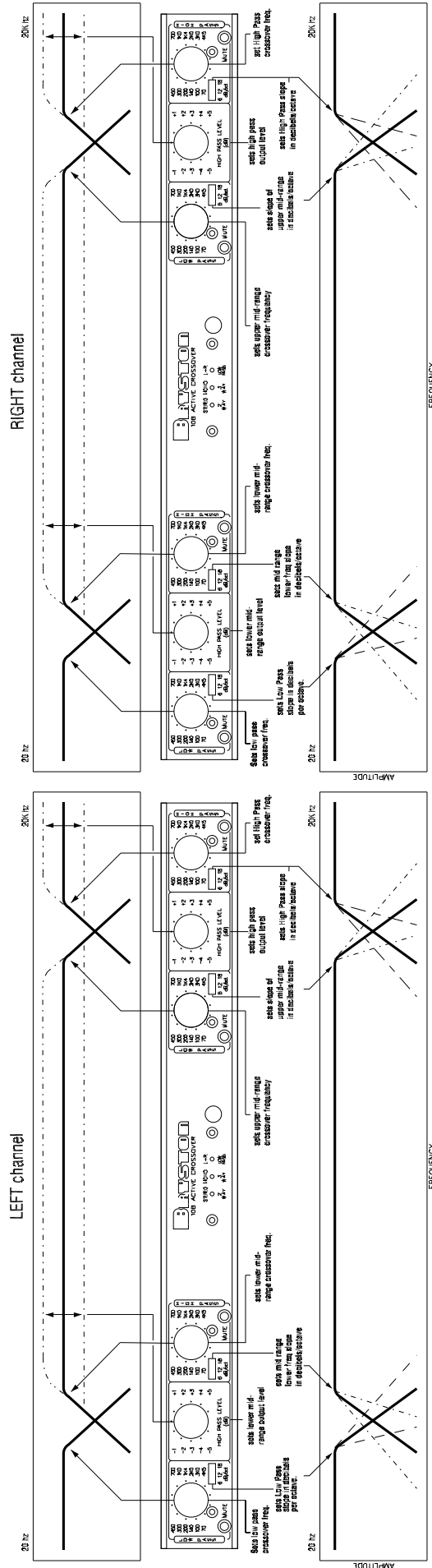
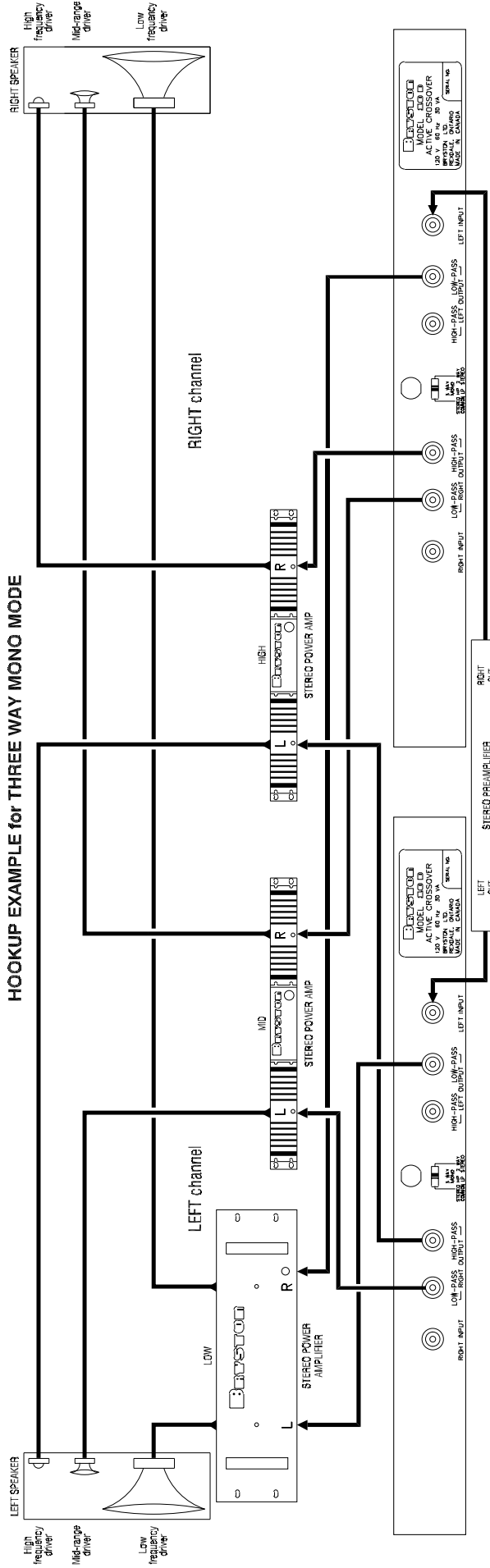
HOOKUP EXAMPLE for using a COMMON (L+R) SUB-WOOFER



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10B CROSSOVER

HOOKEUP EXAMPLE FOR THREE WAY MONO MODE



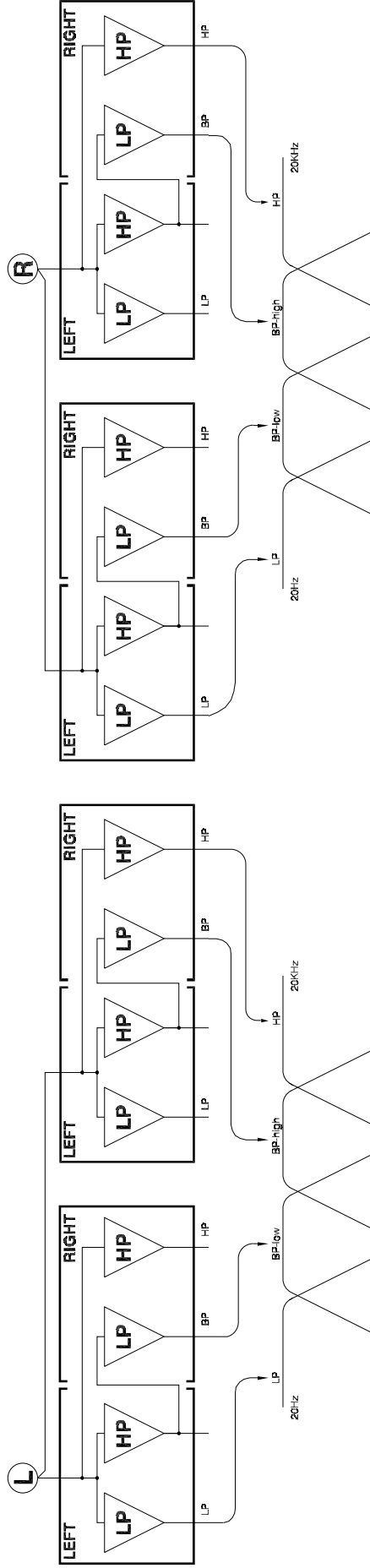
CONNECTING 10B CROSSOVERS IN A STEREO 4-WAY CONFIGURATION

CROSSOVER #1
10B-LR, 10B-STD or 10B-SUB
3-Way Mono mode

CROSSOVER #2
10B-LR, 10B-STD or 10B-SUB
3-Way Mono mode

CROSSOVER #3
10B-LR, 10B-STD or 10B-SUB
3-Way Mono mode

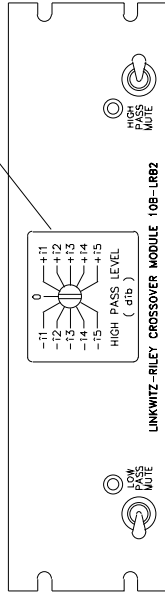
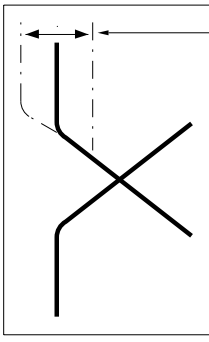
CROSSOVER #4
10B-LR, 10B-STD or 10B-SUB
3-Way Mono mode



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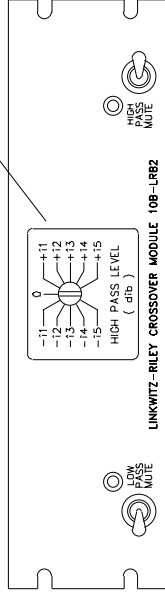
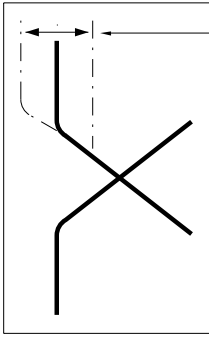
10B-LR PROGRAMMABLE LINKWITZ-RILEY STEREO CROSSOVER

20 hz Left Channel 20K hz



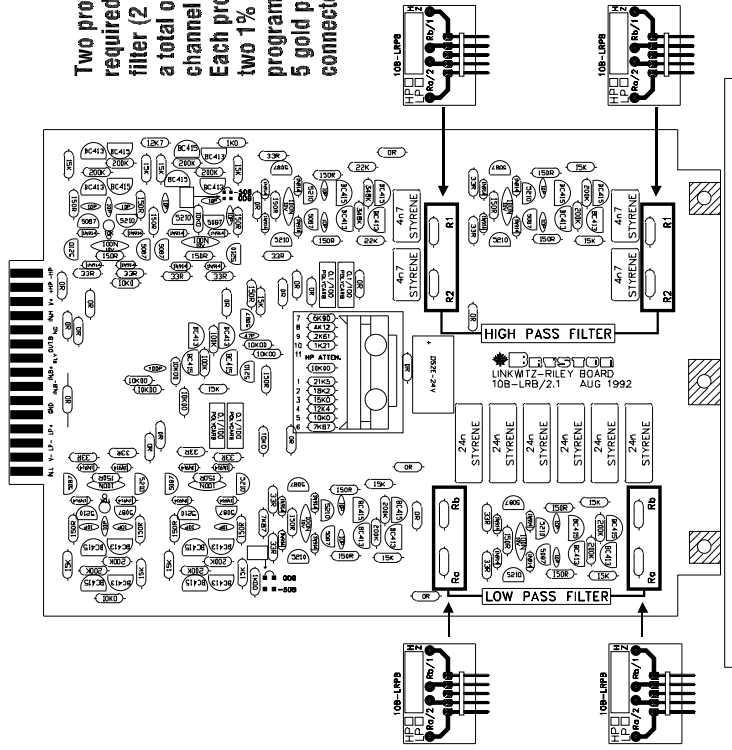
Crossover modules slide out from the front of the chassis to allow convenient access to programming boards and sockets.

20 hz Right Channel 20K hz

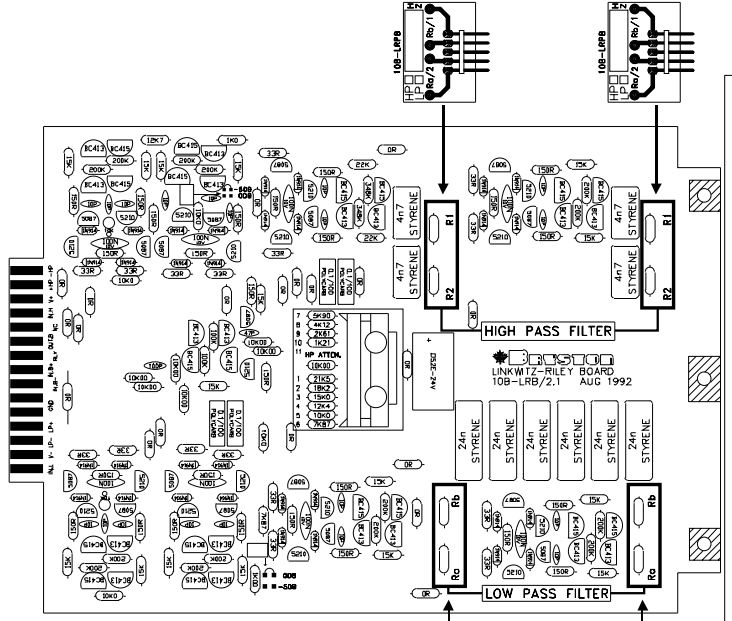


Only this LED should be lit indicating that the unit is in Stereo, Linkwitz-Riley mode.

Two programming boards (10B-LRPB) are required to set the crossover points for each filter (2 for the Low & 2 for the High pass) for a total of four programming boards for each channel or eight for the entire stereo unit. Each programming board or module contains two 1% metal film resistors. Each programming board/module is equipped with 5 gold plated pins that plug into gold plated connectors mounted on the crossover board.



Top view of Crossover module/board



Top view of Crossover module/board

RESISTOR/CAPACITOR SUBSTITUTION TABLES FOR PROGRAMMING CUSTOM CROSSOVER FREQUENCIES IN LINKWITZ-RILEY (10B-LR) MODELS

The resistors used to program specific crossover frequencies in the Linkwitz-riley filters are often installed directly on the 10B-LR main boards, but they can also be installed on small programming boards as shown in the illustration "10B-LR PROGRAMMABLE LINKWITZ-RILEY STEREO CROSSOVER". Since the resistor values are dependent on the capacitor values used on the 10B-LR main board it is essential that the exact capacitor values are determined before attempting to find the correct resistor values for any particular crossover frequency. You may notice that the low pass capacitors (C1a, C1b, C2a & C2b ~ six axial capacitors in a row in the front left quadrant of the board) may be either 20nF, 22nF or 24nF. Also, please note that C1 is actually formed by paralleling two capacitors of the same value. Parallel capacitors are also used, on occasion, to produce other values of capacitance where needed. The value of two capacitors in parallel is equal to the sum of the two capacitances.

Please note that Bryston recommends that any component substitutions be performed only by qualified service personnel and that Bryston cannot be held responsible for any damage caused by unqualified personnel. Please contact your Bryston dealer or Bryston Limited directly if you have any questions about performing any modifications to Bryston equipment.

Capacitors: Low pass: C1=40n, C2=20n, High Pass: C(ab)=4n7															
FREQ.	LP Ra,Rb	HP R1	HP R2	FREQ.	LP Ra,Rb	HP R1	HP R2	FREQ.	LP Ra,Rb	HP R1	HP R2				
11278 Hz	499R	2K100	4K220	11013 Hz	511R	2K150	4K320	733 Hz	7K680	32K400	64K900	715 Hz	7K870	33K200	66K500
10761 Hz	523R	2K210	4K420	10500 Hz	536R	2K260	4K530	698 Hz	8K060	34K000	68K100	682 Hz	8K250	34K800	69K800
10251 Hz	549R	2K320	4K640	10014 Hz	562R	2K370	4K750	666 Hz	8K450	35K700	71K500	650 Hz	8K660	36K500	73K200
9771 Hz	576R	2K430	4K870	9539 Hz	590R	2K490	4K990	634 Hz	8K870	37K400	75K000	619 Hz	9K090	38K300	76K800
9318 Hz	604R	2K550	5K110	9092 Hz	619R	2K610	5K230	604 Hz	9K310	39K200	78K700	591 Hz	9K530	40K200	80K600
8877 Hz	634R	2K670	5K360	8672 Hz	649R	2K740	5K490	577 Hz	9K760	41K200	82K500	563 Hz	10K000	42K200	84K500
8463 Hz	665R	2K800	5K620	8264 Hz	681R	2K870	5K760	552 Hz	10K200	43K200	86K600	536 Hz	10K500	44K200	88K700
8063 Hz	698R	2K940	5K900	7871 Hz	715R	3K010	6K040	526 Hz	10K700	45K300	90K900	512 Hz	11K000	46K400	93K100
7688 Hz	732R	3K090	6K190	7504 Hz	750R	3K160	6K340	498 Hz	11K300	47K500	95K300	489 Hz	11K500	48K700	97K600
7328 Hz	768R	3K240	6K490	7151 Hz	787R	3K320	6K650	477 Hz	11K800	49K900	100K00	465 Hz	12K100	51K100	102K00
6982 Hz	806R	3K400	6K810	6822 Hz	825R	3K480	6K980	454 Hz	12K400	52K300	105K00	443 Hz	12K700	53K600	107K00
6660 Hz	845R	3K570	7K150	6499 Hz	866R	3K650	7K320	433 Hz	13K000	54K900	110K00	423 Hz	13K300	56K200	113K00
6345 Hz	887R	3K740	7K500	6191 Hz	909R	3K830	7K680	411 Hz	13K700	57K600	115K00	402 Hz	14K000	59K000	118K00
6045 Hz	931R	3K920	7K870	5905 Hz	953R	4K020	8K060	394 Hz	14K300	60K400	121K00	383 Hz	14K700	61K900	124K00
5766 Hz	976R	4K120	8K250	5628 Hz	1K000	4K220	8K450	375 Hz	15K000	63K400	127K00	365 Hz	15K400	64K900	130K00
5517 Hz	1K020	4K320	8K660	5360 Hz	1K050	4K420	8K870	356 Hz	15K800	66K500	133K00	347 Hz	16K200	68K100	137K00
5260 Hz	1K070	4K530	9K090	5116 Hz	1K100	4K640	9K310	341 Hz	16K500	69K800	140K00	333 Hz	16K900	71K500	143K00
4980 Hz	1K130	4K750	9K530	4894 Hz	1K150	4K870	9K760	323 Hz	17K400	73K200	147K00	316 Hz	17K800	75K000	150K00
4769 Hz	1K180	4K990	10K000	4651 Hz	1K210	5K110	10K200	309 Hz	18K200	76K800	154K00	301 Hz	18K700	78K700	158K00
4539 Hz	1K240	5K230	10K500	4431 Hz	1K270	5K360	10K700	295 Hz	19K100	80K600	162K00	287 Hz	19K600	82K500	165K00
4329 Hz	1K300	5K490	11K000	4231 Hz	1K330	5K620	11K300	281 Hz	20K000	84K500	169K00	275 Hz	20K500	86K600	174K00
4108 Hz	1K370	5K760	11K500	4020 Hz	1K400	5K900	11K800	268 Hz	21K000	88K700	178K00	262 Hz	21K500	90K900	182K00
3936 Hz	1K430	6K040	12K100	3828 Hz	1K470	6K190	12K400	255 Hz	22K100	93K100	187K00	249 Hz	22K600	95K300	191K00
3752 Hz	1K500	6K340	12K700	3654 Hz	1K540	6K490	13K000	243 Hz	23K200	100K00	200K00	237 Hz	23K700	100K00	200K00
3562 Hz	1K580	6K650	13K300	3474 Hz	1K620	6K810	13K700	232 Hz	24K300	102K00	205K00	226 Hz	24K900	105K00	210K00
3411 Hz	1K650	6K980	14K000	3330 Hz	1K690	7K150	14K300	221 Hz	25K500	107K00	215K00	216 Hz	26K100	110K00	221K00
3234 Hz	1K740	7K320	14K700	3162 Hz	1K780	7K500	15K000	211 Hz	26K700	113K00	226K00	205 Hz	27K400	118K00	237K00
3092 Hz	1K820	7K680	15K400	3010 Hz	1K870	7K870	15K800	201 Hz	28K000	118K00	237K00	196 Hz	28K700	121K00	243K00
2947 Hz	1K910	8K060	16K200	2871 Hz	1K960	8K250	16K500	191 Hz	29K400	124K00	249K00	187 Hz	30K100	127K00	255K00
2814 Hz	2K000	8K450	16K900	2745 Hz	2K050	8K660	17K400	182 Hz	30K900	130K00	261K00	178 Hz	31K600	133K00	267K00
2680 Hz	2K100	8K870	17K800	2618 Hz	2K150	9K090	18K200	174 Hz	32K400	137K00	274K00	170 Hz	33K200	140K00	280K00
2547 Hz	2K210	9K310	18K700	2490 Hz	2K260	9K530	19K100	166 Hz	34K000	143K00	287K00	162 Hz	34K800	147K00	294K00
2426 Hz	2K320	10K000	20K000	2375 Hz	2K370	10K000	20K000	158 Hz	35K700	150K00	301K00	154 Hz	36K500	154K00	309K00
2316 Hz	2K430	10K200	20K500	2260 Hz	2K490	10K500	21K000	150 Hz	37K400	158K00	316K00	147 Hz	38K300	162K00	324K00
2207 Hz	2K550	10K700	21K500	2156 Hz	2K610	11K000	22K100	144 Hz	39K200	165K00	332K00	140 Hz	40K200	169K00	340K00
2108 Hz	2K670	11K300	22K600	2054 Hz	2K740	11K800	23K700	137 Hz	41K200	174K00	348K00	133 Hz	42K200	178K00	357K00
2010 Hz	2K800	11K800	23K700	1961 Hz	2K870	12K100	24K300	130 Hz	43K200	182K00	365K00	127 Hz	44K200	187K00	374K00
1914 Hz	2K940	12K400	24K900	1870 Hz	3K010	12K700	25K500	124 Hz	45K300	191K00	383K00	121 Hz	46K400	196K00	392K00
1821 Hz	3K090	13K000	26K100	1781 Hz	3K160	13K300	26K700	118 Hz	47K500	200K00	402K00	116 Hz	48K700	205K00	412K00
1737 Hz	3K240	13K700	27K400	1695 Hz	3K320	14K000	28K000	113 Hz	49K900	210K00	422K00	110 Hz	51K100	215K00	432K00
1655 Hz	3K400	14K300	28K700	1617 Hz	3K480	14K700	29K400	108 Hz	52K300	221K00	442K00	105 Hz	53K600	226K00	453K00
1576 Hz	3K570	15K000	30K100	1542 Hz	3K650	15K400	30K900	103 Hz	54K900	232K00	464K00	100 Hz	56K200	237K00	475K00
1505 Hz	3K740	15K800	31K600	1469 Hz	3K830	16K200	32K400	98 Hz	57K600	243K00	487K00	95 Hz	59K000	249K00	499K00
1436 Hz	3K920	16K500	33K200	1400 Hz	4K020	16K900	34K000	93 Hz	60K400	255K00	511K00	91 Hz	61K900	261K00	523K00
1366 Hz	4K120	17K400	34K800	1334 Hz	4K220	17K800	35K700	89 Hz	63K400	267K00	536K00	87 Hz	64K900	274K00	549K00
1303 Hz	4K320	18K200	36K500	1273 Hz	4K420	18K700	37K400	85 Hz	66K500	280K00	562K00	83 Hz	68K100	287K00	576K00
1242 Hz	4K530	19K100	38K300	1213 Hz	4K640	19K600	39K200	81 Hz	69K800	294K00	590K00	79 Hz	71K500	301K00	604K00
1185 Hz	4K750	20K000	40K200	1156 Hz	4K870	20K500	41K200	77 Hz	73K200	309K00	619K00	75 Hz	75K000	316K00	634K00
1128 Hz	4K990	21K000	42K200	1101 Hz	5K110	21K500	43K200	73 Hz	76K800	324K00	649K00	72 Hz	78K700	332K00	665K00
1076 Hz	5K230	22K100	44K200	1050 Hz	5K360	22K600	45K300	70 Hz	80K600	340K00	681K00	68 Hz	82K500	348K00	698K00
1025 Hz	5K490	23K200	46K400	1001 Hz	5K620	23K700	47K500	67 Hz	84K500	357K00	715K00	65 Hz	86K600	365K00	732K00
977 Hz	5K760	24K300	48K700	954 Hz	5K900	24K900	49K900	63 Hz	88K700	374K00	750K00	62 Hz	90K900	383K00	768K00
932 Hz	6K040	25K500	51K100	909 Hz	6K190	26K100	52K300	60 Hz	93K100	392K00	787K00	59 Hz	95K300	402K00	806K00
888 Hz	6K340	26K700	53K600	867 Hz	6K490	27K400	54K900	58 Hz	97K600	412K00	825K00	56 Hz	100K00	422K00	845K00
846 Hz	6K650	28K000	56K200	826 Hz	6K810	28K700	57K600	55 Hz	102K00	432K00	866K00	54 Hz	105K00	442K00	887K00
806 Hz	6K980	29K400	59K000	787 Hz	7K150	30K100	60K400	53 Hz	107K00	453K00	909K00	51 Hz	110K00	464K00	931K00
769 Hz	7K320	30K900	61K900	750 Hz	7K500	31K600	63K400	50 Hz	113K00	475K00	953K00	49 Hz	115K00	487K00	976K00
								48 Hz	118K00	499K00	1M0000	47 Hz	121K00	511K00	1M0200
								45 Hz	124K00	523K00	1M0500	44 Hz	127K00	536K00	1M0700
								43 Hz	130K00	549K00	1M1000	42 Hz	133K00	562K00	1M1300
								41 Hz	137K00	576K00	1M1500	40 Hz	140K00	590K00	1M1800

39 Hz 143K00 604K00 1M2100
 38 Hz 150K00 634K00 1M2700
 36 Hz 158K00 665K00 1M3300
 34 Hz 165K00 698K00 1M4000
 32 Hz 174K00 732K00 1M4700
 31 Hz 182K00 768K00 1M5400
 29 Hz 191K00 806K00 1M6200
 28 Hz 200K00 845K00 1M6900
 27 Hz 210K00 887K00 1M7800
 25 Hz 221K00 931K00 1M8700
 24 Hz 232K00 1M0000 2M0000
 23 Hz 243K00 1M0200 2M0500
 22 Hz 255K00 1M0700 2M1500
 21 Hz 267K00 1M1300 2M2600
 20 Hz 280K00 1M1800 2M3700
 19 Hz 294K00 1M2400 2M4900

38 Hz 147K00 619K00 1M2400
 37 Hz 154K00 649K00 1M3000
 35 Hz 162K00 681K00 1M3700
 33 Hz 169K00 715K00 1M4300
 32 Hz 178K00 750K00 1M5000
 30 Hz 187K00 787K00 1M5800
 29 Hz 196K00 825K00 1M6500
 27 Hz 205K00 866K00 1M7400
 26 Hz 215K00 909K00 1M8200
 25 Hz 226K00 953K00 1M9100
 24 Hz 237K00 1M0000 2M0000
 23 Hz 249K00 1M0500 2M1000
 22 Hz 261K00 1M1000 2M2100
 21 Hz 274K00 1M1800 2M3700
 20 Hz 287K00 1M2100 2M4300
 19 Hz 301K00 1M2700 2M5500

733 Hz 6K980 32K400 64K900
 699 Hz 7K320 34K000 68K100
 666 Hz 7K680 35K700 71K500
 635 Hz 8K060 37K400 75K000
 605 Hz 8K450 39K200 78K700
 577 Hz 8K870 41K200 82K500
 550 Hz 9K310 43K200 86K600
 524 Hz 9K760 45K300 90K900
 502 Hz 10K200 47K500 95K300
 478 Hz 10K700 49K900 100K00
 453 Hz 11K300 52K300 105K00
 434 Hz 11K800 54K900 110K00
 413 Hz 12K400 57K600 115K00
 394 Hz 13K000 60K400 121K00
 373 Hz 13K700 63K400 127K00
 358 Hz 14K300 66K500 133K00
 341 Hz 15K000 69K800 140K00
 324 Hz 15K800 73K200 147K00
 310 Hz 16K500 76K800 154K00
 294 Hz 17K400 80K600 162K00
 281 Hz 18K200 84K500 169K00
 268 Hz 19K100 88K700 178K00
 256 Hz 20K000 93K100 187K00
 244 Hz 21K000 100K00 200K00
 232 Hz 22K100 102K00 205K00
 221 Hz 23K200 110K00 221K00
 211 Hz 24K300 113K00 226K00
 201 Hz 25K500 118K00 237K00
 192 Hz 26K700 124K00 249K00
 183 Hz 28K000 130K00 261K00
 174 Hz 29K400 137K00 274K00
 166 Hz 30K900 143K00 287K00
 158 Hz 32K400 150K00 301K00
 150 Hz 34K000 158K00 316K00
 143 Hz 35K700 169K00 340K00
 137 Hz 37K400 174K00 348K00
 131 Hz 39K200 182K00 365K00
 124 Hz 41K200 191K00 383K00
 118 Hz 43K200 200K00 402K00
 113 Hz 45K300 210K00 422K00
 108 Hz 47K500 221K00 442K00
 103 Hz 49K900 232K00 464K00
 98 Hz 52K300 243K00 487K00
 93 Hz 54K900 255K00 511K00
 89 Hz 57K600 267K00 536K00
 85 Hz 60K400 280K00 562K00
 81 Hz 63K400 294K00 590K00
 77 Hz 66K500 309K00 619K00
 73 Hz 69K800 324K00 649K00
 70 Hz 73K200 340K00 681K00
 67 Hz 76K800 357K00 715K00
 63 Hz 80K600 374K00 750K00
 61 Hz 84K500 392K00 787K00
 58 Hz 88K700 412K00 825K00
 55 Hz 93K100 432K00 866K00
 52 Hz 97K600 453K00 909K00
 50 Hz 102K00 475K00 953K00
 48 Hz 107K00 499K00 1M0000
 45 Hz 113K00 523K00 1M0500
 43 Hz 118K00 549K00 1M1000
 41 Hz 124K00 576K00 1M1500
 39 Hz 130K00 604K00 1M2100
 37 Hz 137K00 634K00 1M2700
 36 Hz 143K00 665K00 1M3300
 34 Hz 150K00 698K00 1M4000
 32 Hz 158K00 732K00 1M4700
 30 Hz 169K00 787K00 1M5800
 28 Hz 182K00 845K00 1M6900
 26 Hz 196K00 909K00 1M8200
 24 Hz 210K00 1M0000 2M0000
 22 Hz 232K00 1M1000 2M2100
 20 Hz 255K00 1M1800 2M3700
 18 Hz 280K00 1M3000 2M6100

716 Hz 7K150 33K200 66K500
 682 Hz 7K500 34K800 69K800
 650 Hz 7K870 36K500 73K200
 620 Hz 8K250 38K300 76K800
 591 Hz 8K660 40K200 80K600
 563 Hz 9K090 42K200 84K500
 537 Hz 9K530 44K200 88K700
 512 Hz 10K000 46K400 93K100
 487 Hz 10K500 48K700 97K600
 465 Hz 11K000 51K100 102K00
 445 Hz 11K500 53K600 107K00
 423 Hz 12K100 56K200 113K00
 403 Hz 12K700 59K000 118K00
 385 Hz 13K300 61K900 124K00
 365 Hz 14K000 64K900 130K00
 348 Hz 14K700 68K100 137K00
 332 Hz 15K400 71K500 143K00
 316 Hz 16K200 75K000 150K00
 303 Hz 16K900 78K700 158K00
 287 Hz 17K800 82K500 165K00
 274 Hz 18K700 86K600 174K00
 261 Hz 19K600 90K900 182K00
 250 Hz 20K500 95K300 191K00
 238 Hz 21K500 100K00 200K00
 226 Hz 22K600 105K00 210K00
 216 Hz 23K700 110K00 221K00
 205 Hz 24K900 118K00 237K00
 196 Hz 26K100 121K00 243K00
 187 Hz 27K400 127K00 255K00
 178 Hz 28K700 133K00 267K00
 170 Hz 30K100 140K00 280K00
 162 Hz 31K600 147K00 294K00
 154 Hz 33K200 154K00 309K00
 147 Hz 34K800 162K00 324K00
 140 Hz 36K500 169K00 340K00
 134 Hz 38K300 178K00 357K00
 127 Hz 40K200 187K00 374K00
 121 Hz 42K200 196K00 392K00
 116 Hz 44K200 205K00 412K00
 110 Hz 46K400 215K00 432K00
 105 Hz 48K700 226K00 453K00
 100 Hz 51K100 237K00 475K00
 95 Hz 53K600 249K00 499K00
 91 Hz 56K200 261K00 523K00
 87 Hz 59K000 274K00 549K00
 83 Hz 61K900 287K00 576K00
 79 Hz 64K900 301K00 604K00
 75 Hz 68K100 316K00 634K00
 72 Hz 71K500 332K00 665K00
 68 Hz 75K000 348K00 698K00
 65 Hz 78K700 365K00 732K00
 62 Hz 82K500 383K00 768K00
 59 Hz 86K600 402K00 806K00
 56 Hz 90K900 422K00 845K00
 54 Hz 95K300 442K00 887K00
 51 Hz 100K00 464K00 931K00
 49 Hz 105K00 487K00 976K00
 47 Hz 110K00 511K00 1M0200
 44 Hz 115K00 536K00 1M0700
 42 Hz 121K00 562K00 1M1300
 40 Hz 127K00 590K00 1M1800
 38 Hz 133K00 619K00 1M2400
 37 Hz 140K00 649K00 1M3000
 35 Hz 147K00 681K00 1M3700
 33 Hz 154K00 715K00 1M4300
 31 Hz 165K00 768K00 1M5400
 29 Hz 174K00 806K00 1M6200
 27 Hz 187K00 866K00 1M7400
 25 Hz 205K00 953K00 1M9100
 23 Hz 221K00 1M0200 2M0500
 21 Hz 249K00 1M1800 2M3700
 19 Hz 274K00 1M2700 2M5500
 17 Hz 294K00 1M3700 2M7400

Low pass: C1=44n, C2=22n | High Pass: C(ab)=4n7

FREQ.	LP	HP	HP	FREQ.	LP	HP	HP
	Ra,Rb	R1	R2		Ra,Rb	R1	R2
10253 Hz	499R	2K320	4K640	10012 Hz	511R	2K370	4K750
9782 Hz	523R	2K430	4K870	9545 Hz	536R	2K490	4K990
9319 Hz	549R	2K550	5K110	9104 Hz	562R	2K610	5K230
8882 Hz	576R	2K670	5K360	8672 Hz	590R	2K740	5K490
8471 Hz	604R	2K800	5K620	8265 Hz	619R	2K870	5K760
8070 Hz	634R	2K940	5K900	7883 Hz	649R	3K010	6K040
7694 Hz	665R	3K090	6K190	7513 Hz	681R	3K160	6K340
7330 Hz	698R	3K240	6K490	7156 Hz	715R	3K320	6K650
6989 Hz	732R	3K400	6K810	6822 Hz	750R	3K480	6K980
6662 Hz	768R	3K570	7K150	6501 Hz	787R	3K650	7K320
6348 Hz	806R	3K740	7K500	6201 Hz	825R	3K830	7K680
6055 Hz	845R	3K920	7K870	5908 Hz	866R	4K020	8K060
5768 Hz	887R	4K120	8K250	5628 Hz	909R	4K220	8K450
5495 Hz	931R	4K320	8K660	5369 Hz	953R	4K420	8K870
5242 Hz	976R	4K530	9K090	5116 Hz	1K000	4K640	9K310
5016 Hz	1K020	4K750	9K530	4873 Hz	1K050	4K870	9K760
4782 Hz	1K070	4K990	10K000	4651 Hz	1K100	5K110	10K200
4528 Hz	1K130	5K230	10K500	4449 Hz	1K150	5K360	10K700
4336 Hz	1K180	5K490	11K000	4228 Hz	1K210	5K620	11K300
4126 Hz	1K240	5K760	11K500	4029 Hz	1K270	5K900	11K800
3936 Hz	1K300	6K040	12K100	3847 Hz	1K330	6K190	12K400
3734 Hz	1K370	6K340	12K700	3654 Hz	1K400	6K490	13K000
3578 Hz	1K430	6K650	13K300	3480 Hz	1K470	6K810	13K700
3411 Hz	1K500	6K980	14K000	3322 Hz	1K540	7K150	14K300
3238 Hz	1K580	7K320	14K700	3158 Hz	1K620	7K500	15K000
3101 Hz	1K650	7K680	15K400	3027 Hz	1K690	7K870	15K800
2940 Hz	1K740	8K060	16K200	2874 Hz	1K780	8K250	16K500
2811 Hz	1K820	8K450	16K900	2736 Hz	1K870	8K660	17K400
2679 Hz	1K910	8K870	17K800	2610 Hz	1K960	9K090	18K200
2558 Hz	2K000	9K310	18K700	2496 Hz	2K050	9K530	19K100
2436 Hz	2K100	10K000	20K000	2380 Hz	2K150	10K000	20K000
2315 Hz	2K210	10K200	20K500	2264 Hz	2K260	10K500	21K000
2205 Hz	2K320	11K000	22K100	2159 Hz	2K370	11K000	22K100
2105 Hz	2K430	11K300	22K600	2055 Hz	2K490	11K800	23K700
2006 Hz	2K550	11K800	23K700	1960 Hz	2K610	12K100	24K300
1916 Hz	2K670	12K400	24K900	1867 Hz	2K740	12K700	25K500
1827 Hz	2K800	13K000	26K100	1783 Hz	2K870	13K300	26K700
1740 Hz	2K940	13K700	27K400	1700 Hz	3K010	14K000	28K000
1656 Hz	3K090	14K300	28K700	1619 Hz	3K160	14K700	29K400
1579 Hz	3K240	15K000	30K100	1541 Hz	3K320	15K400	30K900
1505 Hz	3K400	15K800	31K600	1470 Hz	3K480	16K200	32K400
1433 Hz	3K570	16K900	34K000	1402 Hz	3K650	16K900	34K000
1368 Hz	3K740	17K400	34K800	1336 Hz	3K830	17K800	35K700
1305 Hz	3K920	18K200	36K500	1273 Hz	4K020	18K700	37K400
1242 Hz	4K120	19K100	38K300	1212 Hz	4K220	19K600	39K200
1184 Hz	4K320	20K000	40K200	1158 Hz	4K420	20K500	41K200
1129 Hz	4K530	21K000	42K200	1103 Hz	4K640	21K500	43K200
1077 Hz	4K750	22K100	44K200	1051 Hz	4K870	22K600	45K300
1025 Hz	4K990	23K200	46K400	1001 Hz	5K110	23K700	47K500
978 Hz	5K230	24K300	48K700	955 Hz	5K360	24K900	49K900
932 Hz	5K490	25K500	51K100	910 Hz	5K620	26K100	52K300
888 Hz	5K760	26K700	53K600	867 Hz	5K900	27K400	54K900
847 Hz	6K040	28K000	56K200	827 Hz	6K190	28K700	57K600
807 Hz	6K340	29K400	59K000	788 Hz	6K490	30K100	60K400
769 Hz	6K650	30K900	61K900	751 Hz	6K810	31K600	63K400

IMPORTANT SAFETY INSTRUCTIONS



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage “ within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT.

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

BRYSTON LIMITED WARRANTY

Bryston analog audio circuits are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.

Bryston Digital circuits and cables are warranted for five years from the original date of manufacture. The warranty includes parts and labour.

Bryston products having motorized moving parts, excluding motorized volume controls, are warranted for three years from the original date of manufacture. The warranty includes parts and labour.

Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay shipping costs one way (usually the return portion) during the first three years of warranty coverage.

In the event of a defect or malfunction, contact Bryston’s repair centers for return authorization. Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary. This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer.

Tampering by persons other than factory authorized service personnel or failure to fully comply with Bryston operating instructions voids the warranty. This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

As of 2006-02-22 Bryston will only warranty Bryston products purchased through authorized Bryston dealers. Bryston products with a date code of 0608 or higher (date code format is “yyww”, where “yy” is the two least significant digits of the year and “ww” is the week of the year) must be accompanied by a copy of the bill-of-sale from a Bryston authorized dealer to qualify for warranty service. The warranty is transferable from the original owner to a subsequent owner as long as a copy of the bill-of-sale from the original authorized Bryston dealer accompanies the re-sale. The copy of the bill of sale to any subsequent owner need ONLY include the Name of the Bryston Authorized Dealer and the Model and Serial number of the Bryston product. The warranty will only be honored in the country of the original purchase unless otherwise pre-authorized by Bryston.

BRYSTON SERVICE in CANADA:

Postal address: **PO. BOX 2170, Stn. Main
PETERBOROUGH, ONTARIO
CANADA K9J 7Y4**

Courier address: **677 NEAL DRIVE
PETERBOROUGH, ONTARIO
CANADA K9J 6X7**

PHONE: 705-742-5325
FAX: 705-742-0882
E-mail: cdnser@bryston.ca

BRYSTON SERVICE in the USA:

**79 COVENTRY ST., Suite 5
NEWPORT, VERMONT
U.S.A. 05855-2100**

PHONE: 802-334-1201
FAX: 802-334-6658
E-mail: usaser@bryston.ca

BRYSTON SERVICE outside Canada and the USA:

contact your local distributor or

CHECK OUR WEB SITE:
E-MAIL BRYSTON DIRECTLY:
FAX BRYSTON DIRECTLY:
PHONE BRYSTON DIRECTLY:

www.bryston.ca
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