QSC AUDIO PRODUCTS

QSC Electronic Crossover 1.1 Instructions

The QSC Electronic Crossover 1.1 combines a wide range electronic crossover and a high frequency power amplifier in a single package. The following instructions show you how to combine this unit with a general purpose power amp (such as the QSC A3.6) to form a high-performance bi-amped system.

1. Hook-up. Electronic crossover units are intended to be used just before the final power amp(s) in the audio system. Connect the Line Output from your mixer, etc. to the CROSSOVER INPUT, using shielded cable. The circuit will then split the high and low freqencies. The LOW FREQENCY LINE OUT from the crossover should be connected to the external power amp which drives the low freqency speakers, using shielded cable.The HIGH FREQENCY LINE OUT is internally connected to the built-in power amp. So connect your high frequency drivers (horns) to the AMPLIFIER OUTPUTS. Use the left jack (A) or both jacks (A+B) for one or two 8-ohm horns. This hook-up activates the horn protection capacitor, which limits the output from the power amp to 300 Hz and up. This provides back-up insurance against low frequency overloads to the horns, even in case of malfunction or tampering. Using the B (right) jack only will give full-range output when using the internal amplifier for auxiliary speaker loads.

2. Adjustments. Set the CROSSOVER FREQUENCY control to the desired value, based on the lower frequency limit of your horns. If you are using all-QSC components, you can dial in the correct high/low balance as follows, using the dB calibrations on the POWER AMPLIFIER GAIN controls. Look up the sensitivity ratings for your high and low frequency speakers (a figure of about 90-110 dB SPL, with 1 watt input at 4 ft. distance). Usually the horns have a higher rating, which means they are louder. If the high and low drivers have the same impedance, set the less sensitive (speaker) amplifier gain as many dB higher as necessary to compensate for the difference in the ratings (typically 3-6 dB). You will note that the more powerful QSC A3.6 (150W) has 3dB more gain than the X1.1 (70W), which means that the two amps will tend to be set to about the same place on the dial. Keep both gains as close as possible to the maximum setting for full undistorted performance. One further note: if you follow the common practice of using two speakers for each horn, the second (8-ohm) speaker adds 3dB more gain, which will reduce the high-low gain difference by 3dB on the Gain controls. After the above adjustments, set the HIGH FREQUENCY GAIN and the LOW FREQUENCY GAIN controls on the crossover to the same value, normally 0 dB.

3. Adjusting by Ear. If the above routine throws you for any reason, it is possible to find the best settings by listening tests. Start with the LOW FREQUENCY GAIN out, and set the HIGH FREQUENCY GAIN on 0dB, and the adjacent POWER AMPLIFIER GAIN on full. You should now hear the high frequencies through the horns. Turn the low frequency power amp all the way up, and then raise the LOW FREQUENCY GAIN until the high-low balance sounds right. If you run out of range, cut down on the high frequency level until you here a single, full-range reproduction. The CROSSOVER PHASE switch should now be set for the best sounding position. When phased correctly, the horn/speaker combination should have a clear, open sound, without the "horn squawk" heard with many passive crossovers.

4. Using the Crossover and Amplifier Separately. The HIGH FREQUENCY LINE OUTS are accessible for connection to an external high frequency amplifier. If you want to use the internal power amp for other uses, use the AMPLIFIER LINE IN, which separates the amp from the crossover circuit.

5. Tri-amping. Three way systems can be set up using two X1.1 units. The first unit should be set for the bass-midrange frequency. Feed the highs to the second unit for division into midrange and treble, which can be taken from the second unit's outputs.

QUILTER SOUND CO. 1936 Placentia Ave. Costa Mesa, Ca. 92627 (714) 645-2540

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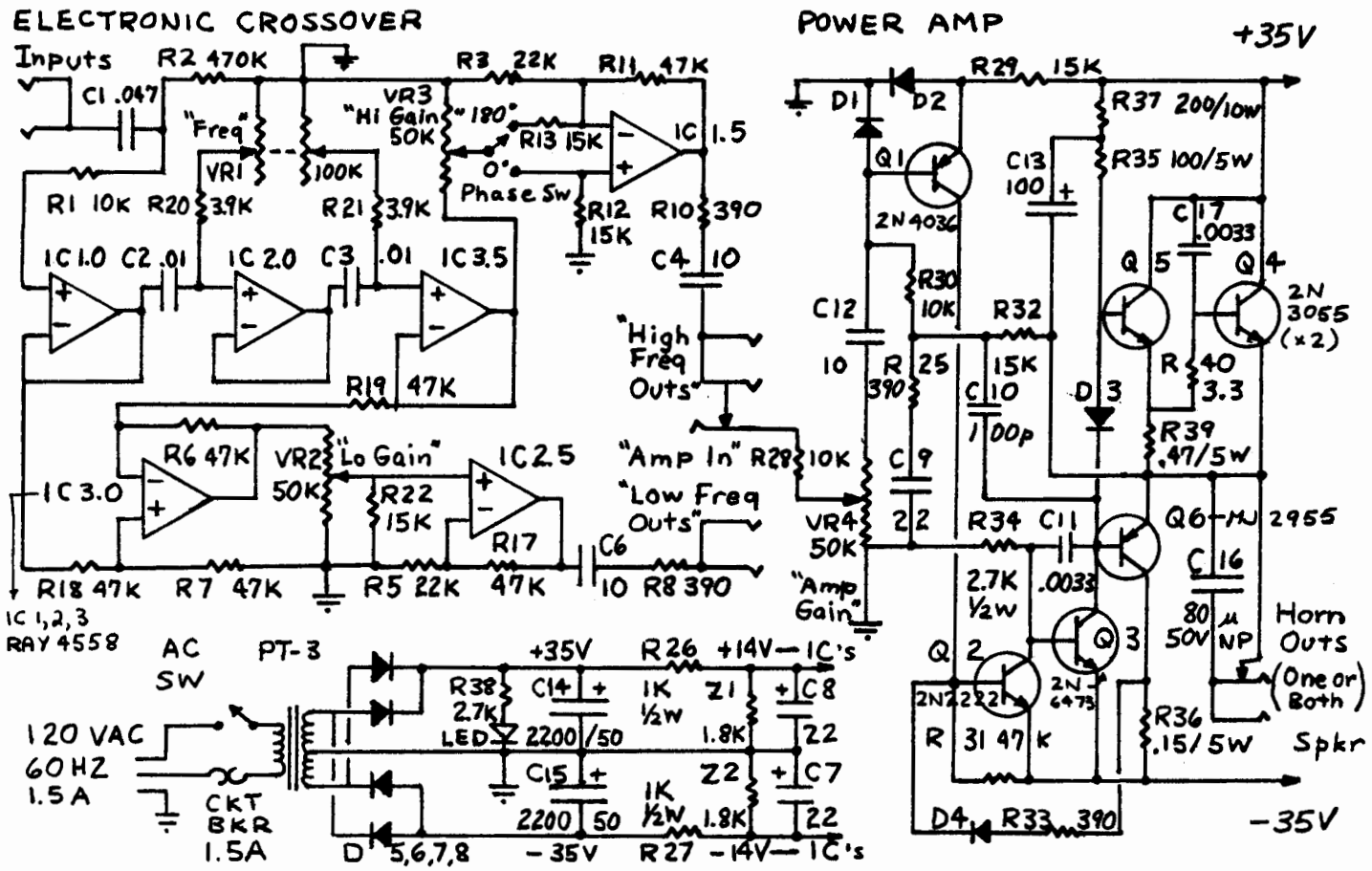
1926 PLACENTIA AVENUE ☐ COSTA MESA, CALIFORNIA 92627

QSC ELECTRONIC CROSSOVER 1.1 SERVICE INSTRUCTIONS 4-77

1. The QSC X1.1 is a re-design of the QSC Electronic Crossover 1.0. Prior to introduction of the new style line, this circuit will be found in X1.0 chassis, labeled X1.01 on rear label.
2. Revisions are as follows:
   a. An extra buffer stage is used in the high frequency filter for sharper cut-off characteristics.
   b. The constant-voltage, constant phase low frequency circuit has been retained.
   c. The power amplifier uses two NPN output transistors to ensure full current output.
   d. The rear connector has been bypassed with permanent wiring to avoid corrosion problems.
3. All IC's are socket mounted and may be changed by removing the top cover. Be sure to remove AC cord from power, before opening.
4. The power amp performance should be:
   a. 70W rms, 4 ohms, 1% distortion, 20-18KHz.
   b. DC offset (spkr jack) 100mv DC.
   c. Note that using one or both Horn jacks inserts a series 80uf (300Hz) low-frequency blocking capacitor, to protect horn drivers from unusually low frequencies or fault currents. Measurements should thus be made from the Speaker jack.
   d. Testing should be done with a Variac, set on about 30VAC until proper operation is obtained in the power amp. The IC's should come on above about 40VAC, and should be tested at full voltage.



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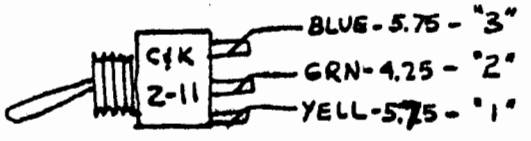
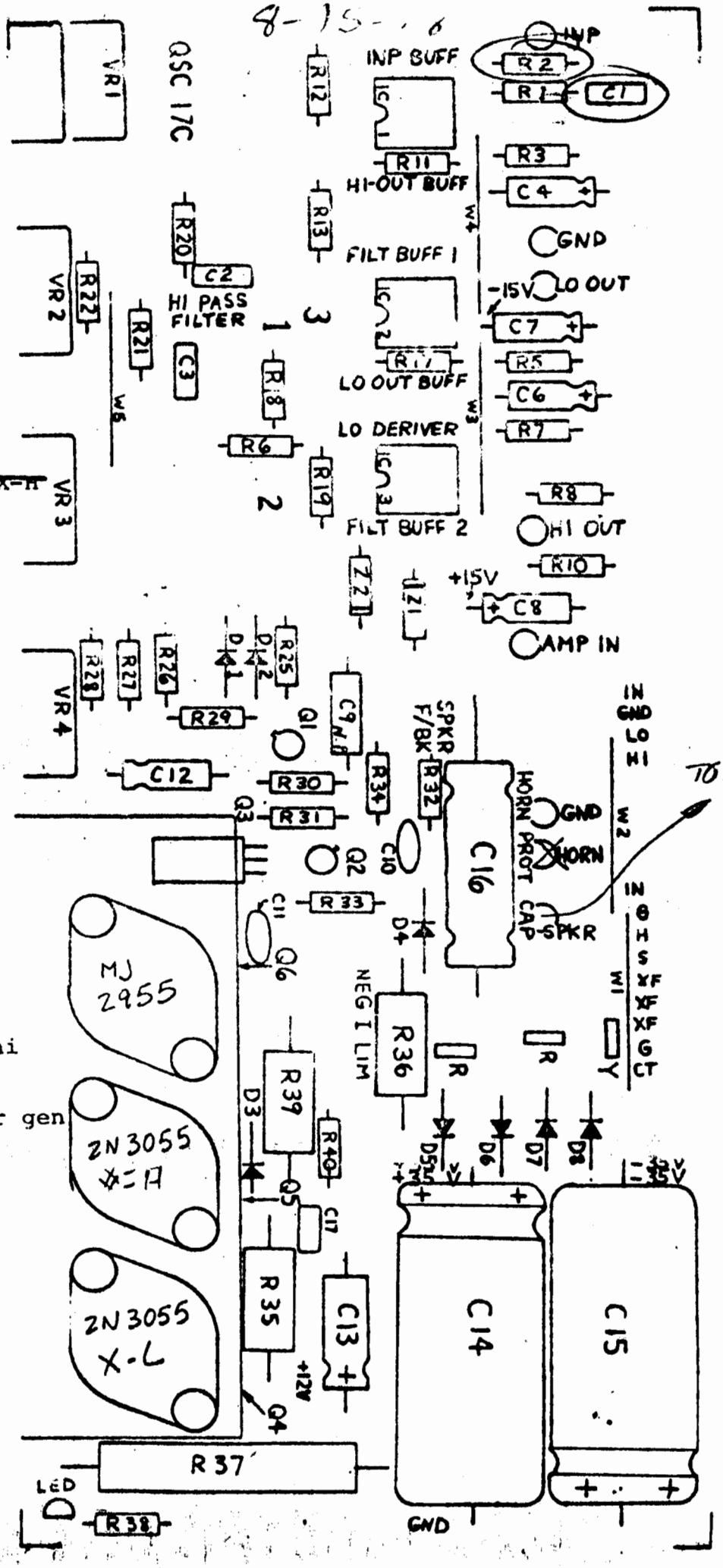
PARTS ASSY, X1.1 (QSC 17C)

R1,30	10K	.6"
R2	~~330K~~ ~~470K~~	.6"
R3,5	22K	"
R6,7,11,17,18,19, 31	47K	"
R8,10,25,33	390	"
R12,13,22,28,29,32	15K	"
R20,21	3.9K	"
R26,27	1K ½W	"
R34,38	2.7K ½W	"
R35	100/5W	1.2
R36	.15/5W	"
R37	200/10W	2.2
R39	.47/5W	1.2
R40 .6" Jump	~~3.3/1W for X-H exist:~~ ~~5.6/½W for X-H~~	
Z1,2	1.8K	

C1	~~.068~~ ~~.047~~	cut
C2,3	.01	"
C4,6,12	10/35V	.8"
C7,8,9	22/25V	"
C10	100p	cut
C11,	.0033	"
C13	100/25V	1.2
C14-15	2200/50V	2.7
~~C16~~	~~80/50VNP~~	~~2.2~~

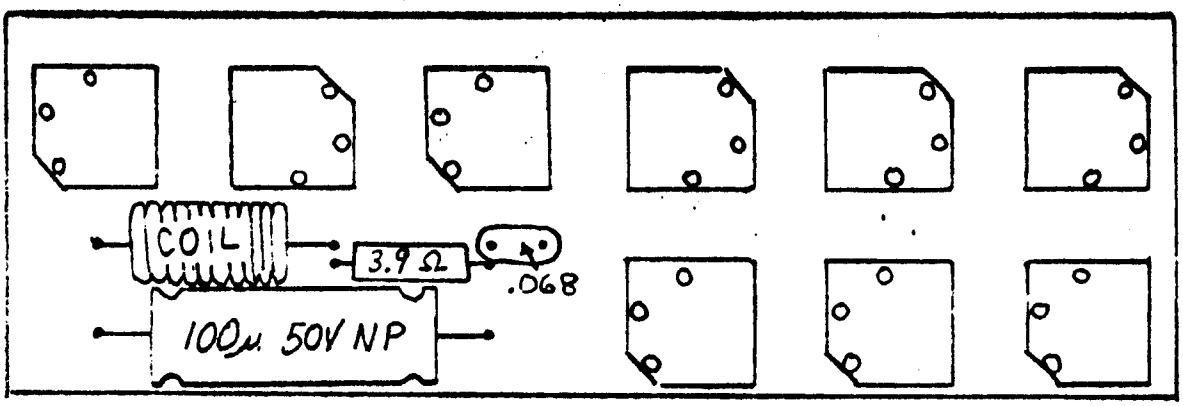
D1,2,3,4	1N4002G	.6
D5,6,7,8	IR3081	.6
IC1,2,3	4558 w/socket	
LED	5052-4850	
Q1	2N4036 gen	
Q2	2N2222 gen	
Q3	2N6473 lo or hi	
Q4	2N3055 X-L	
Q5	2N3055 X-H	
Q6	MJ2955 X1.1 or gen	
R,R,Y	.25 Z-tabs	
VR1	100K dual	
VR2,3,4	50K PCB	
W1,2,3,4,5	JUMPER, 1.25"	

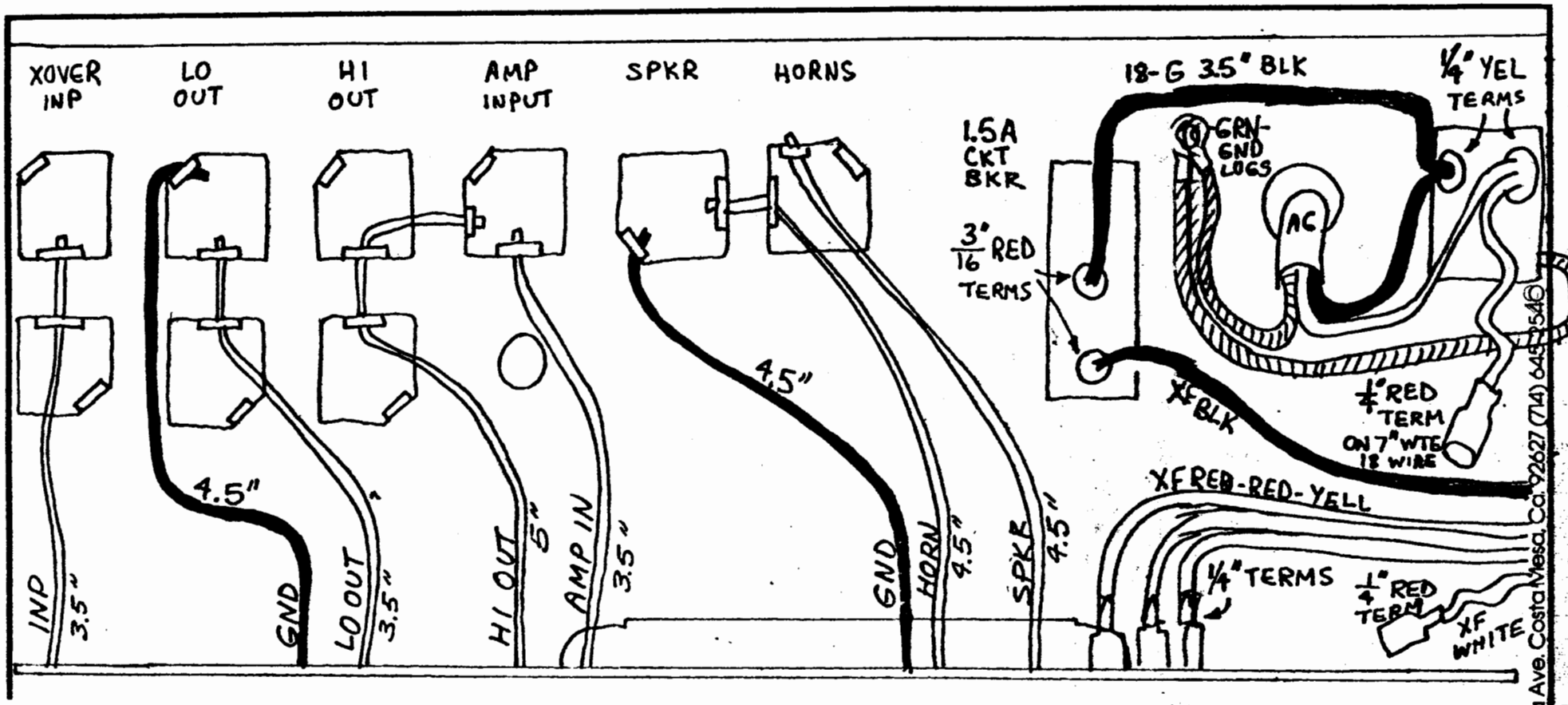




OSC AUDIO PRODUCTS

JP-2 ASSY (X1.11) PARTS SIDE 2-2-78





OSC AUDIO PRODUCTS

1.1

WIRE STRIPPING.

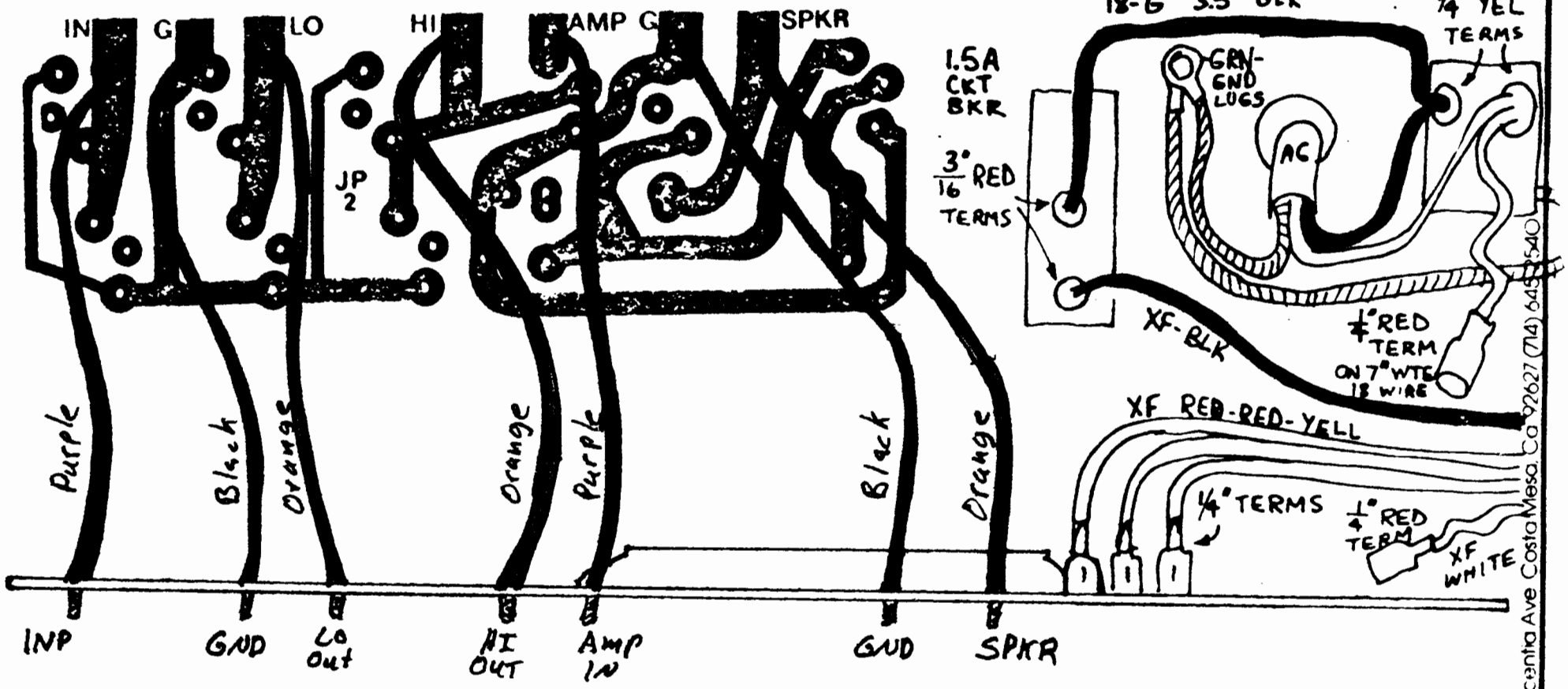
20 GAUGE JACK HOOKUP

BLK	4.5"	1/4" - 1/4"	2 PCS
ANY -	3.5"	1/4" - 3/4"	2 PCS
"	3.5"	1/4" - 1/4"	1 PC
"	5.0"	1/4" 1 1/2"	1 PC
"	4.5"	1/4" 3/4"	1 PC
"	4.5"	1/4" 1/4"	1 PC

AWG 18 AC HOOKUP

AC CORD: STD PREP:
3.5" BLK W/3/16 RED TERM, JOIN 1/4" YELL TERM
7.0" WHT W/1/4" RED TERM, JOIN 1/4" YELL TERM

XFORM
STD 1/4" TERMS ON RED-RED-YEL LEADS
3/16" RED TERM (CKT BKR) BLK LEAD
1/4" RED TERM (AC SW) WHT LEAD



Wire Stripping / Length

20 GAUGE JP HOOK UP

Black	4"	1/4"-1/4"	2 pcs
Purple	4"	1/4"-1/4"	2 pcs
Orange	4"	1/4"-1/4"	3 pcs

AWG 18 AC HOOKUP

AC CORD: STD PREP:
3.5" BLK W/3/16 RED TERM, JOIN 1/4" YELL TERM
7.0" WHT W/1/4" RED TERM, JOIN 1/4" YELL TERM

XFORM

STD 1/4" TERMS ON RED-RED-YEL LEADS
3/16" RED TERM (CKT BKR) BLK LEAD
1/4" RED TERM (AC SW) WHT LEAD

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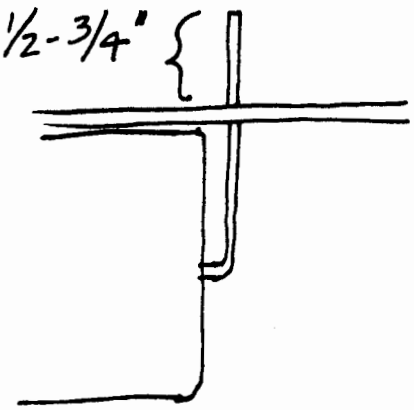
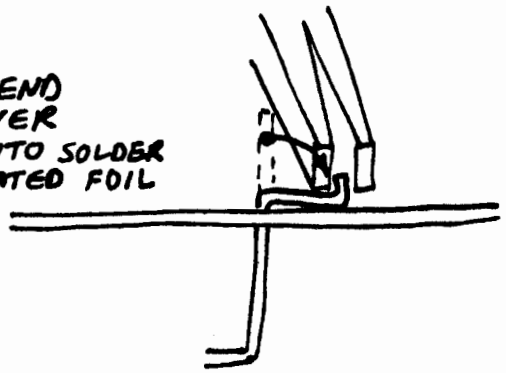
PROPER FILTER CAPACITOR MTG.

1. CUT OFF ½-¾"

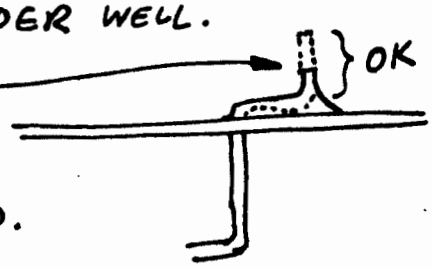


2. BEND OVER ONTO SOLDER PLATED FOIL



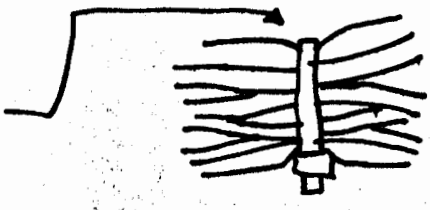
3. SOLDER WELL.

LEAVE TAB TO PERMIT REMOVAL, IF SERVICED.

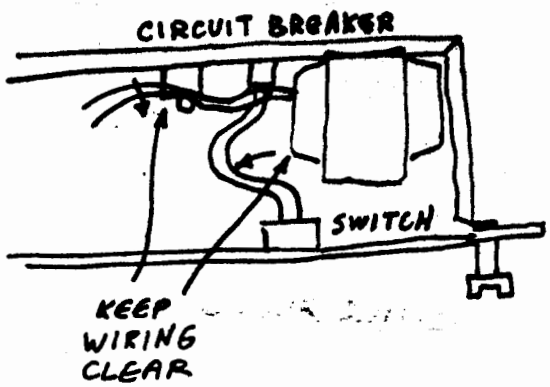


PROPER AC CABLE TYING:

1. DO NOT OVERTIGHTEN THE TIE.

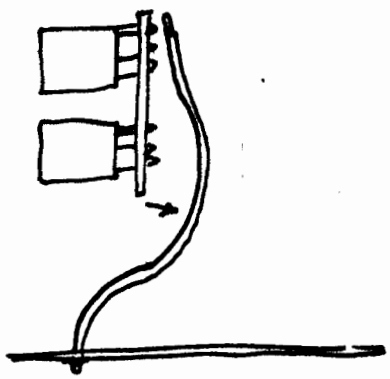


2. MAKE SURE WIRING DOES NOT LEAN AGAINST OR STRETCH ACROSS ANY METAL SURFACE. (SUCH AS TRANSFORMER & CHASSIS)



JACK PLANE WIRING:

LEAVE A LITTLE SLACK - DO NOT PULL TIGHT.



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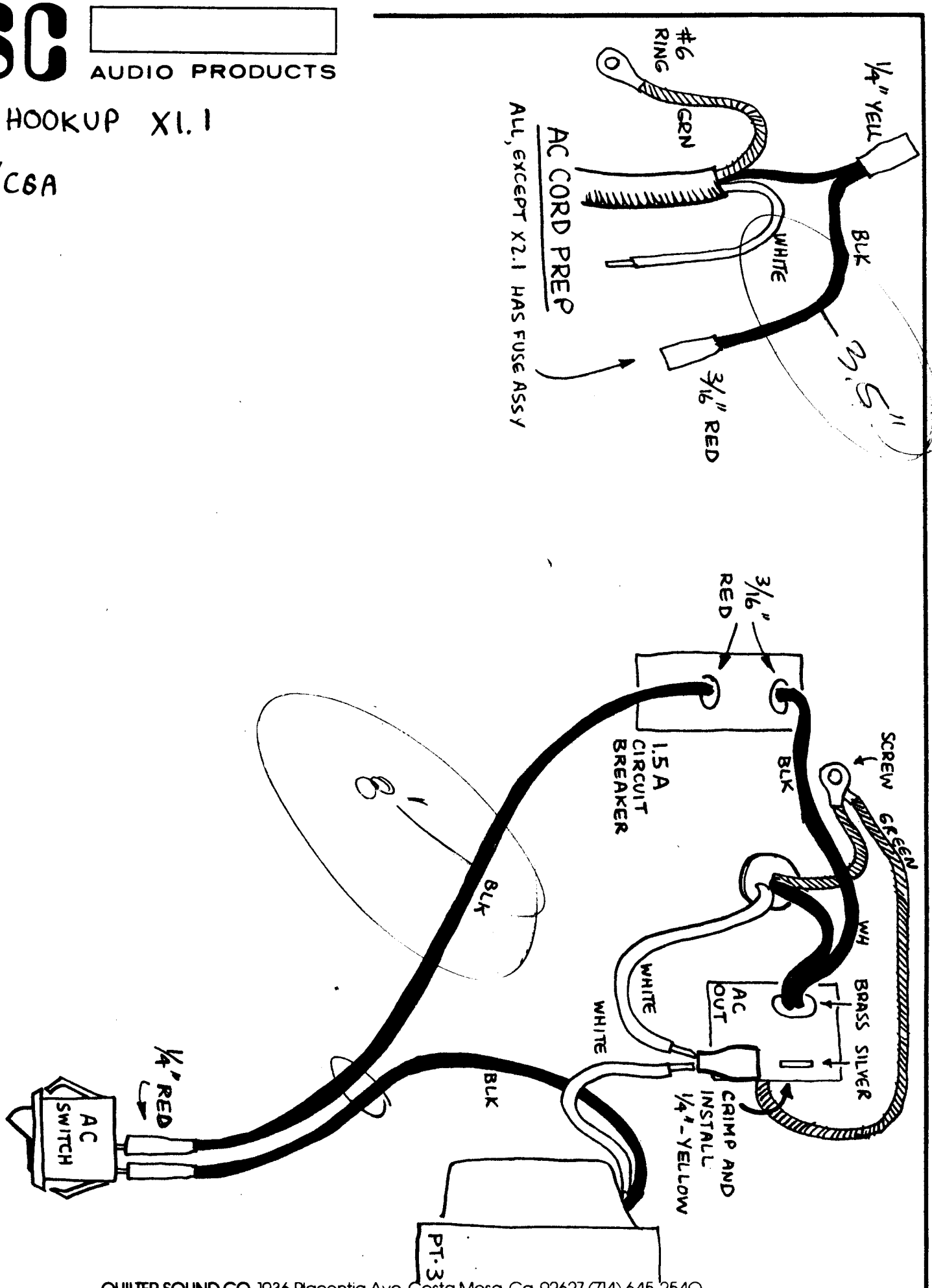
OSC AUDIO PRODUCTS

AC HOOKUP X1.1

UL/CSA



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