



unityTM

SERVICE MANUAL

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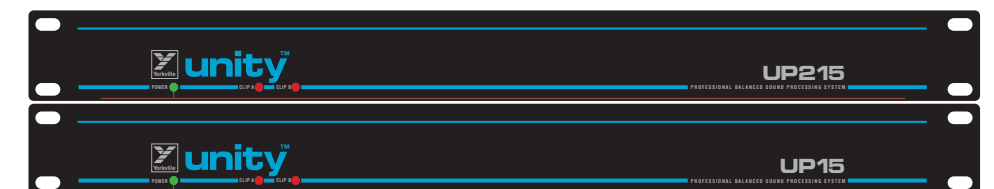
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Quality and Innovation Since 1963
Printed in Canada



TYPE: EP160

PROCESSORS

PROFESSIONAL BALANCED SOUND PROCESSING SYSTEM

IMPORTANT SAFETY INSTRUCTIONS



INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

INSTRUCTIONS RELATIVES AU RISQUE DE FEU, CHOC ÉLECTRIQUE, OU BLESSURES AUX PERSONNES.

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

AVIS:

AFIN DE REDUIRE LES RISQUE DE CHOC ELECTRIQUE, N'ENLEVEZ PAS LE COUVERT (OU LE PANNEAU ARRIERE). NE CONTIENT AUCUNE PIECE REPARABLE PAR L'UTILISATEUR.

CONSULTEZ UN TECHNICIEN QUALIFIE POUR L'ENTRETIEN.

Read Instructions:

The *Owner's Manual* should be read and understood before operation of your unit. Please, save these instructions for future reference.

Packaging:

Keep the box and packaging materials, in case the unit needs to be returned for service.

Warning:

When using electric products, basic precautions should always be followed, including the following:

Power Sources:

Your unit should be connected to a power source only of the voltage specified in the owners manual or as marked on the unit. This unit has a polarized plug. Do not use with an extension cord or receptacle unless the plug can be fully inserted. Precautions should be taken so that the grounding scheme on the unit is not defeated.

Hazards:

Do not place this product on an unstable cart, stand, tripod, bracket or table. The product may fall, causing serious personal injury and serious damage to the product. Use only with cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product. Follow the manufacturer's instructions when installing the product and use mounting accessories recommended by the manufacturer.

The apparatus should not be exposed to dripping or splashing water; no objects filled with liquids should be placed on the apparatus.

Terminals marked with the "lightning bolt" are hazardous live; the external wiring connected to these terminals require installation by an instructed person or the use of ready made leads or cords.

No naked flame sources, such as lighted candles, should be placed on the apparatus.

Power Cord:

The AC supply cord should be routed so that it is unlikely that it will be damaged. If the AC supply cord is damaged **DO NOT OPERATE THE UNIT.**

Service:

The unit should be serviced only by qualified service personnel.

Veillez lire le manuel:

Il contient des informations qui devraient étre comprises avant l'opération de votre appareil. Conservez S.V.P. ces instructions pour consultations ultérieures

Emballage:

Conservez la boîte au cas où l'appareil devait étre retourner pour réparation.

Attention:

Lors de l'utilisation de produits électrique, assurez-vous d'adhérer à des précautions de bases incluant celle qui suivent:

Alimentation:

L'appareil ne doit étre branché qu'à une source d'alimentation correspondant au voltage spécifié dans le manuel ou tel qu'indiqué sur l'appareil. Cet appareil est équipé d'une prise d'alimentation polarisée. Ne pas utiliser cet appareil avec un cordon de raccordement à moins qu'il soit possible d'insérer complètement les trois lames. Des précautions doivent étre prises afin d'éviter que le système de mise à la terre de l'appareil ne soit désengagé.

Risque:

Ne pas placer cet appareil sur un chariot, un support, un trépied ou une table instables. L'appareil pourrait tomber et blesser quelqu'un ou subir des dommages importants. Utiliser seulement un chariot, un support, un trépied ou une table recommandés par le fabricant ou vendus avec le produit. Suivre les instructions du fabricant pour installer l'appareil et utiliser les accessoires recommandés par le fabricant.

Il convient de ne pas placer sur l'appareil de sources de flammes nues, telles que des bougies allumées.

L'appareil ne doit pas étre exposé à des égouttements d'eau ou des éclaboussures et qu'aucun objet rempli de liquide tel que des vases ne doit étre placé sur l'appareil.

Les dispositifs marqués d'une symbole "d'éclair" sont des parties dangereuses au toucher et que les câblages extérieurs connectés à ces dispositifs de connection extérieure doivent étre effectués par un opérateur formé ou en utilisant des cordons déjà préparés.

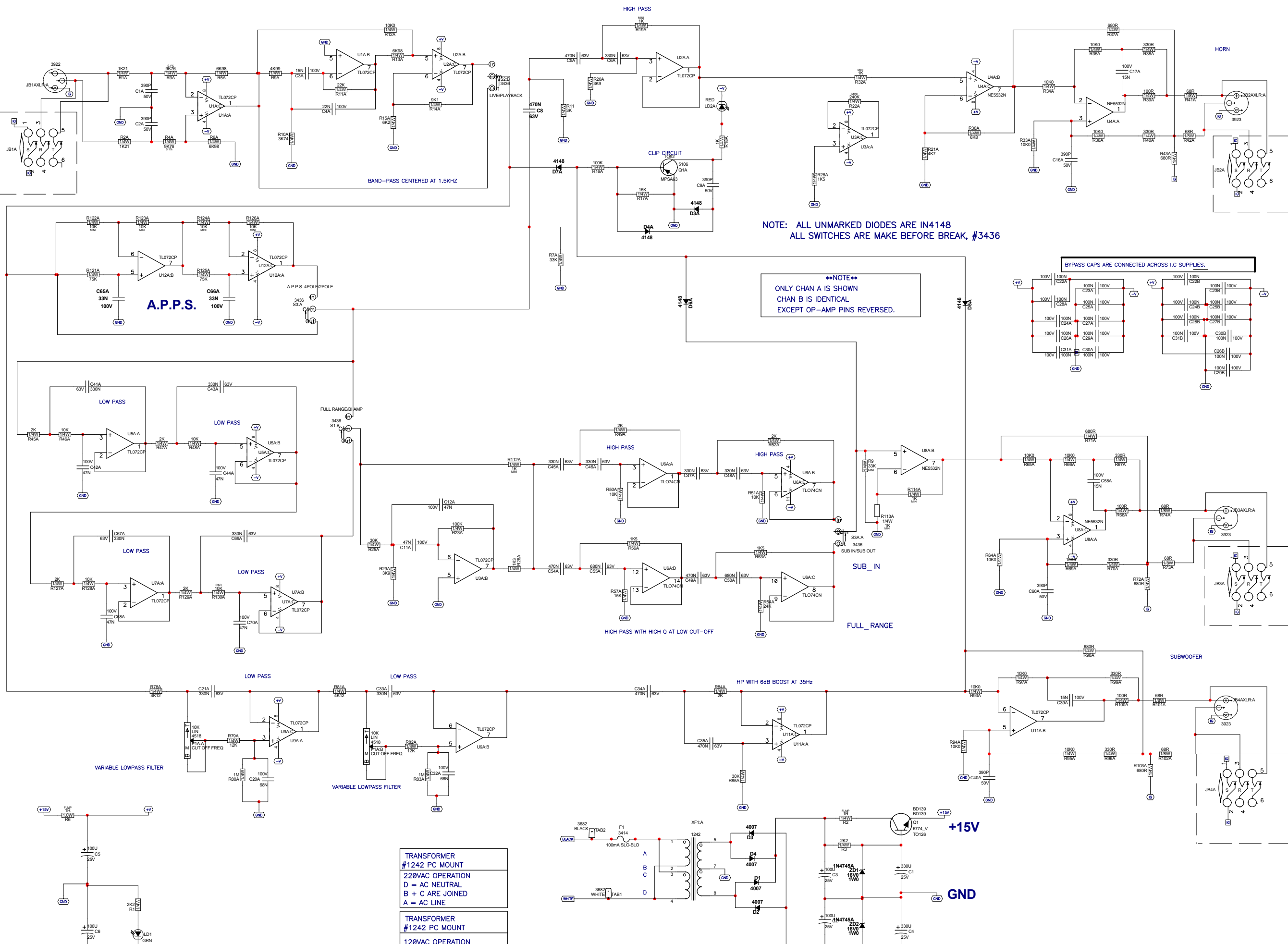
Cordon d'alimentation:

Évitez d'endommager le cordon d'alimentation. **N'UTILISEZ PAS L'APPAREIL** si le cordon d'alimentation est endommagé.

Service:

Consultez un technicien qualifié pour l'entretien de votre appareil.

YS No.	Description	Qty.	YS No.	Description	Qty.
5991	RED 3MM LED 1V9 20MA W/STOP T&R	2	3436	DPDT PUSH SW PCMT H BREAK B4 MAKE	5
5990	GRN 3MM LED 1V7 20MA W/STOP T&R	1	1242	PROCESSOR PC MOUNT CE 220/125V XFMR	1
6825	1N4148 75V 0A45 DIODE T&R	10			
6438	1N4007 400V 1A0 DIODE T&R	4			
6822	1N4745A 16V0 1W0 ZENER 5% T&R	2			
5106	MPSA63 TO92 PNP TRNSISTR DARL T&RTA	2			
6774	BD139 TO126 NPN TRAN TG	1			
6926	BD140 TO126 PNP TRAN TG	1			
6882	TL072CP IC FET DUAL OP AMP	14			
6884	NE5532N IC DUAL OP AMP	4			
6889	TL074CN IC QUAD O/A T.I ONLY	2			
5413	390P 50V 10%CAP T&R BEAD NPO	12			
5205	.15N 100V 10%CAP T&R RAD .2"FLM	8			
5210	.22N 100V 10%CAP T&R RAD .2"FLM	2			
5222	.33N 100V 10%CAP T&R RAD .2"FLM	4			
5224	.47N 100V 10%CAP T&R RAD .2"FLM	12			
5226	.68N 100V 5%CAP T&R RAD .2"FLM	4			
5212	100N 63V 5%CAP T&R RAD .2"FLM	20			
5233	330N 63V 5%CAP T&R RAD .2"FLM	22			
5234	470N 63V 10%CAP T&R RAD .2"FLM	12			
5240	680N 63V 10%CAP T&R RAD .2"FLM	4			
5267	100U 25V 20%CAP T&R RAD .2"EL	4			
5630	330U 25V 20%CAP BLK 10X13MM EL	2			
4518	.10K LIN 12MM HORIZONTAL STP26	2			
3489	CLIP 250X032 18-22AWG DISCO/INSL	2			
3602	RING TERMINAL 18AWG WIRE & #8 SCREW	1			
3682	250 MALE PCB TAB REEL	2			
3498	1/4" JCK PCB MT HORZ	8			
3414	INTERNATIONAL PC MOUNT FUSEHOLDER	2			
2435	0.100 AMP SLO-BLO .25X1.25 FUSE	1			
3827	SQUARE BUMPER BUTTON BLACK	3			
8661	BUTTON KNOB FLAT GREY	5			
8706	ROTARY KNOB BLACK W/BBLUE POINTER	2			
3461	8' 3/18 SVT AC LINE CORD	1			
3826	HEYCO #1150 STRAIN RELIEF	1			
5989	4 CIR CABLE HOLDER .098	2			
8800	6-32 KEPS NUT ZINC	2			
2006	1.0W 1R 5%FLAME PROOF T&R RES	2			
2007	1/4W 1R 5%FLAME PROOF T&R RES	2			
4637	1/8W 68R 5% T&R RES	12			
4852	1/4W 100R 5% T&R RES	6			
4855	1/4W 330R 5% T&R RES	12			
4873	1/4W 680R 5% T&R RES	12			
4823	1/4W 1K 5% T&R RES	2			
4981	1/4W 1K 5%MINI T&R RES	10			
4802	1/4W 1K21 1% T&R RES	4			
4889	1/4W 1K3 5% T&R RES	2			
4824	1/4W 1K5 5% T&R RES	5			
4935	1/4W 1K5 5% .2"U T&R RES	1			
4988	1/4W 1K5 5%MINI T&R RES	4			
4808	1/4W 2K 5% T&R RES	14			
4847	1/4W 2K2 5% T&R RES	3			
4804	1/4W 3K 5% T&R RES	2			
5028	1/4W 3K74 1% T&R RES	2			
4850	1/4W 3K9 5% T&R RES	4			
4774	1/4W 4K12 1% T&R RES	4			
4827	1/4W 4K7 5% T&R RES	2			
4639	1/4W 4K99 1% T&R RES	2			
4870	1/4W 6K2 5% T&R RES	2			
4828	1/4W 6K8 5% T&R RES	2			
4801	1/4W 6K98 1% T&R RES	6			
4810	1/4W 9K1 5% T&R RES	2			
4762	1/4W 9K760 0.1% *** T&R RES	4			
4800	1/4W 10K0 1% T&R RES	25			
4829	1/4W 10K 5% T&R RES	9			
4940	1/4W 10K 5% .2"U T&R RES	3			
4983	1/4W 10K 5%MINI T&R RES	8			
6116	1/4W 10K0 1%MINI MF T&R RES	1			
4856	1/4W 12K 5% T&R RES	4			
4830	1/4W 15K 5% T&R RES	4			
4832	1/4W 22K 5% T&R RES	2			
4902	1/4W 24K 5% T&R RES	2			
4890	1/4W 30K 5% T&R RES	3			
4941	1/4W 30K 5% .2"U T&R RES	1			
4840	1/4W 33K 5% T&R RES	2			
6122	1/4W 33K 5%MINI T&R RES	2			
4760	1/4W 75K 5% T&R RES	4			
4838	1/4W 100K 5% T&R RES	4			
6130	1/4W 240K 5%MINI T&R RES	2			
4844	1/4W 1M 5% T&R RES	4			
3616	.7" 4C-26 AWG RIBBON CABLE 0.1"	1			
8801	6-32 X 3/8 PAN PH TAPTITE JS500	7			
8829	6-32 X 3/8 FLAT PH TAPTITE BO#4 HEA	14			
8837	6-32 X 1/2 ROUND PH MS JS500	1			
8809	10-32 X 1/4 PAN PH TAPTITE JS500	1			
3517	NYLON WASHER #8 0.062	2			
8491	#10 SPLIT LOCK WASHER BO	1			



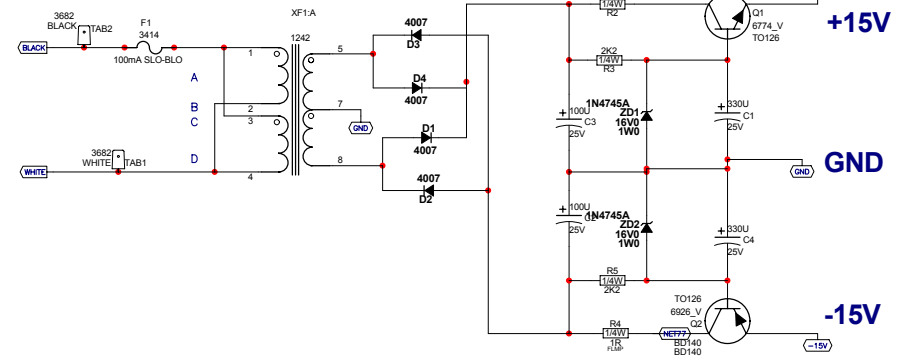
NOTE: ALL UNMARKED DIODES ARE IN4148
ALL SWITCHES ARE MAKE BEFORE BREAK, #3436

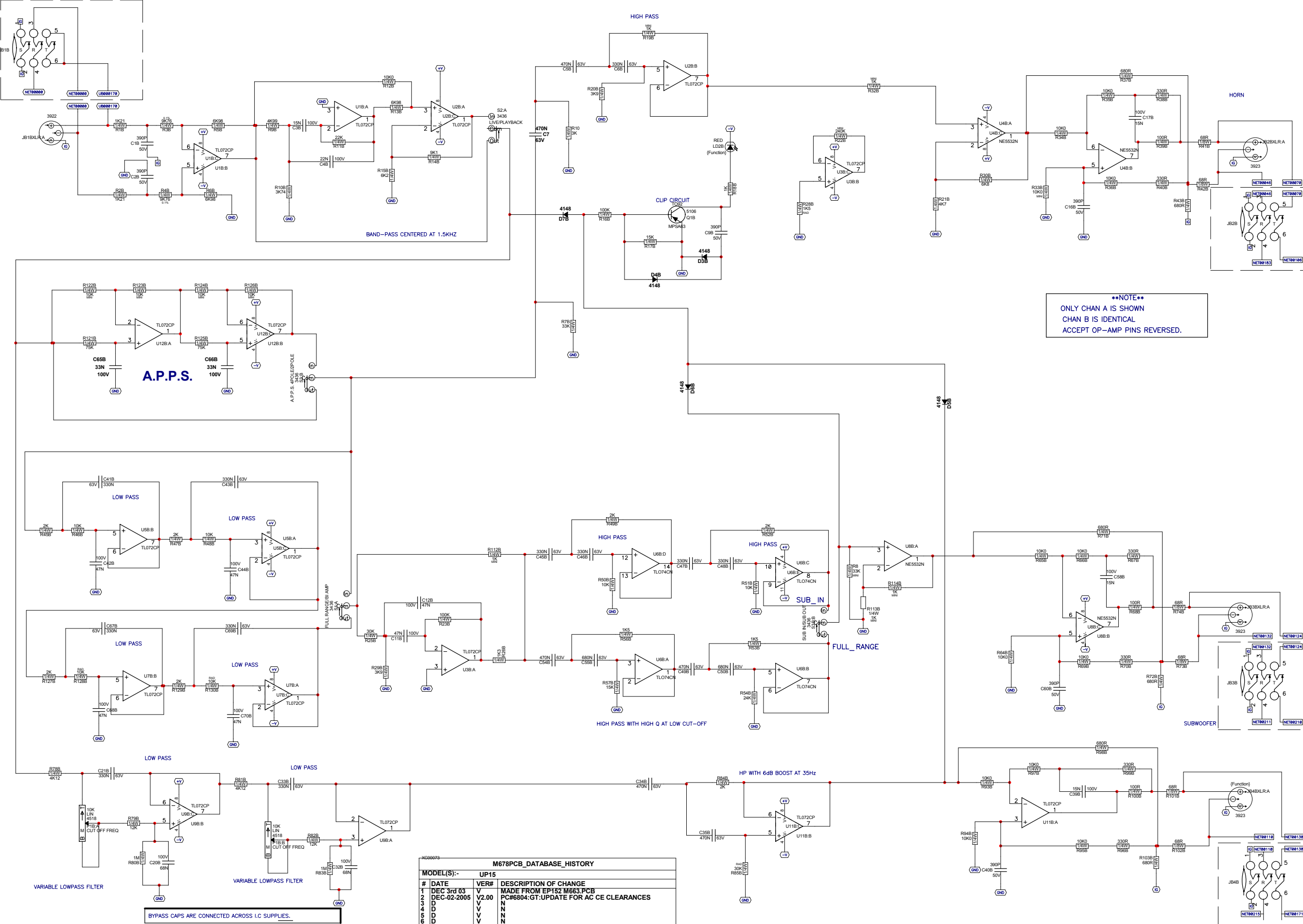
NOTE
ONLY CHAN A IS SHOWN
CHAN B IS IDENTICAL
EXCEPT OP-AMP PINS REVERSED.

BYPASS CAPS ARE CONNECTED ACROSS I.C SUPPLIES.

TRANSFORMER #1242 PC MOUNT
220VAC OPERATION
D = AC NEUTRAL
B + C ARE JOINED
A = AC LINE

TRANSFORMER #1242 PC MOUNT
120VAC OPERATION
B + D TO AC NEUTRAL
A + C TO AC LINE





****NOTE****
 ONLY CHAN A IS SHOWN
 CHAN B IS IDENTICAL
 EXCEPT OP-AMP PINS REVERSED.

XC000073

M678PCB_DATABASE_HISTORY			
UP15			
#	DATE	VER#	DESCRIPTION OF CHANGE
1	DEC 3rd 03	V	MADE FROM EP152 M683.PCB
2	DEC-02-2005	V2.00	PC#6804:GT:UPDATE FOR AC CE CLEARANCES
3	D	V	N
4	D	V	N
5	D	V	N
6	D	V	N
7	D	V	N
8	D	V	N
9	D	V	N
10	D	V	N
11	D	V	N
12	D	V	N
13	D	V	N

NOTE: ALL UNMARKED DIODES ARE IN4148
 ALL SWITCHES ARE MAKE BEFORE BREAK, #3436

BYPASS CAPS ARE CONNECTED ACROSS I.C SUPPLIES.

M678 DRILL HISTORY			
MODEL(S):-	UP15	VER#	DESCRIPTION OF CHANGE
#	DATE	VER#	DESCRIPTION OF CHANGE
1	D	V	N
2	D	V	N
3	D	V	N
4	D	V	N
5	D	V	N
6	D	V	N

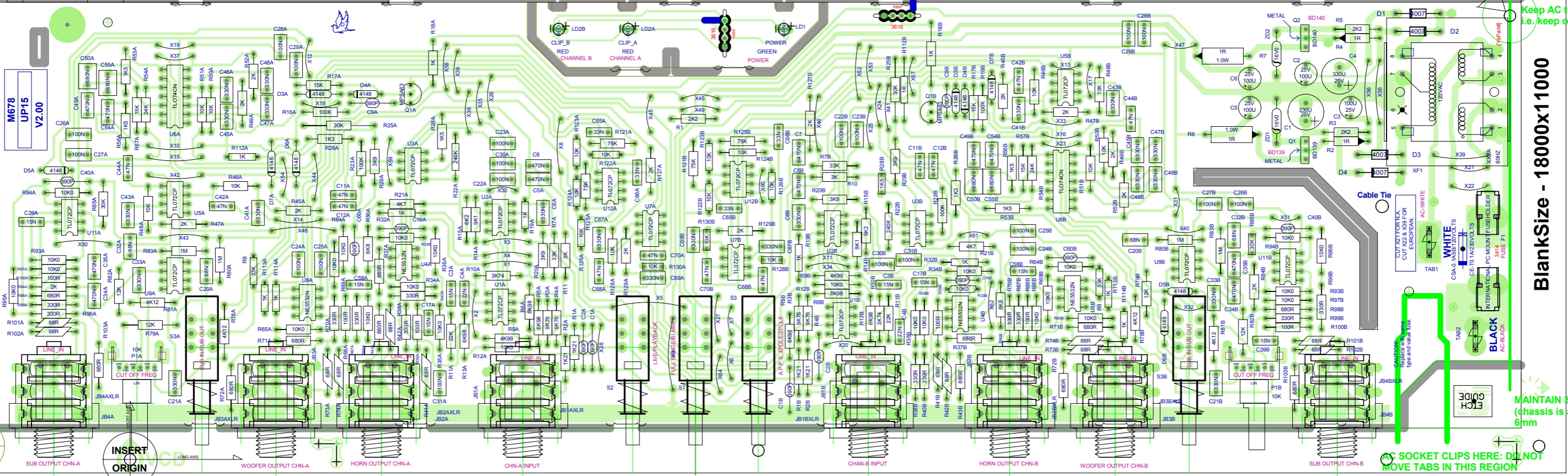
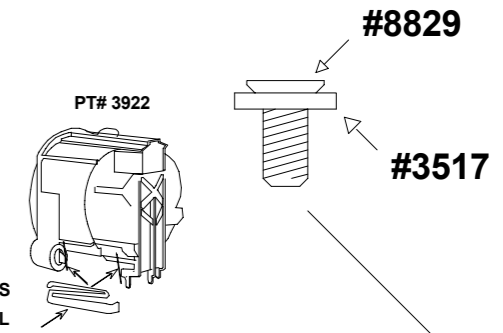
M678PCB_DATABASE_HISTORY			
MODEL(S):-	UP15	VER#	DESCRIPTION OF CHANGE
#	DATE	VER#	DESCRIPTION OF CHANGE
1	DEC 3rd 03	V1.00	MADE FROM EP152 M663.PCB
2	DEC-02-2005	V2.00	PC#6804:GT.UPDATE FOR AC CE CLEARANCES
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			

M678 PENDING CHANGES		
MODEL(S):-	UP15	PENDING CHANGE
#	PC#	PENDING CHANGE
1	PC	X
2	PC	X
3	PC	X
4	PC	X
5	PC	X
6	PC	X

PLACE IMPLEMENTED CHANGES INTO BOARD HISTORY

PRODUCTION NOTES

- 1) INSERT XLRs ON EUROPEAN AND 1/4" JACK FOR N. AMERICA
- 2) CUT METAL OFF OFF FEMALE XLRs AS SHOWN
- 3) ENSURE TRANSFORMER SITS FLAT ON PCB



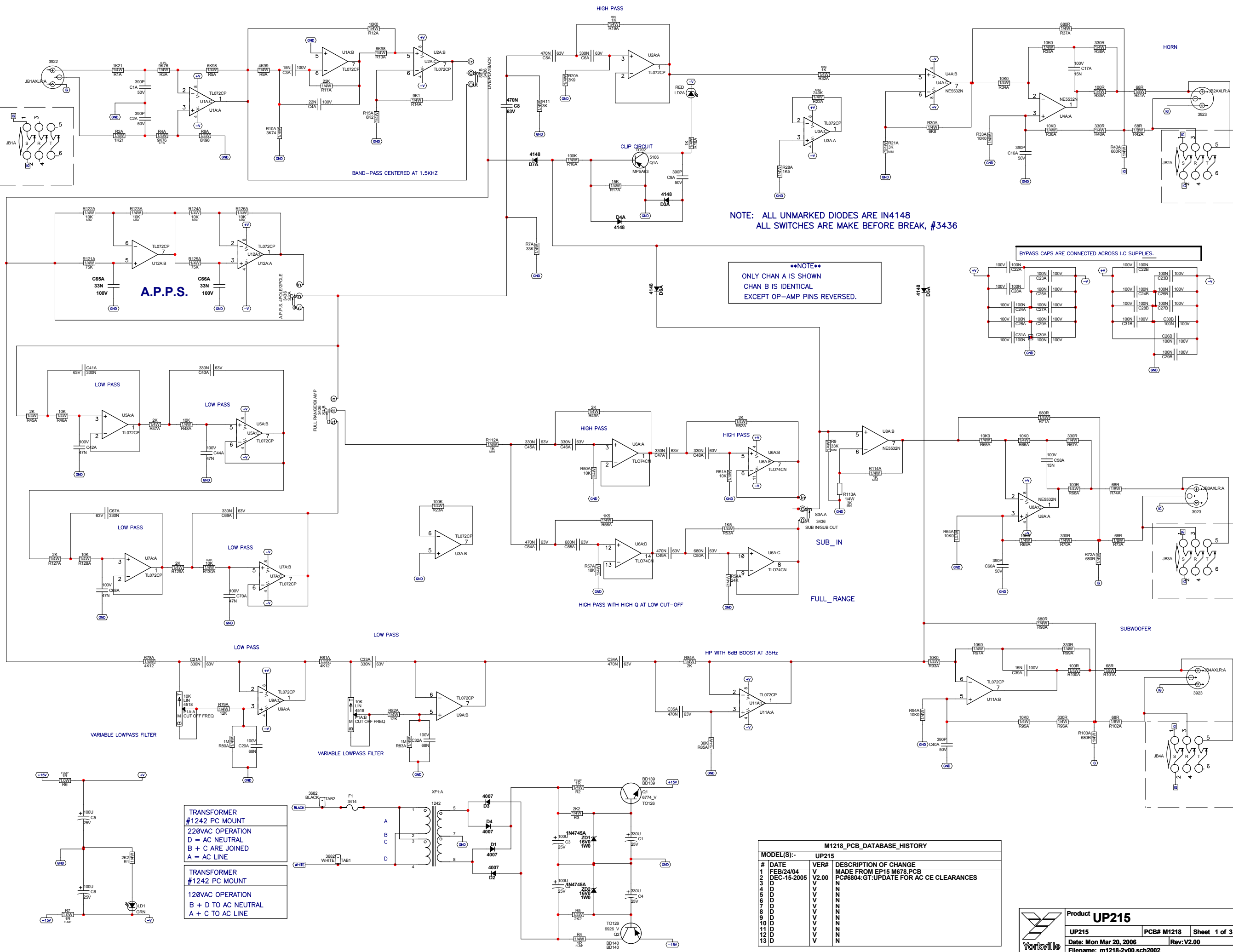
StepAndRepeat - X1@0.000Y2@5.250

BlankSize - 18000x11000

MAINTAIN 3mm (chassis is a 6mm)

Keep AC tr... i.e. keep cu...

YS No.	Description	Qty.	YS No.	Description	Qty.
5991	RED 3MM LED 1V9 20MA W/STOP T&R	2	3436	DPDT PUSH SW PCMT H BREAK B4 MAKE	5
5990	GRN 3MM LED 1V7 20MA W/STOP T&R	1	1242	PROCESSOR PC MOUNT CE 220/125V XFMR	1
6825	1N4148 75V 0A45 DIODE T&R	10			
6438	1N4007 400V 1A0 DIODE T&R	4			
6822	1N4745A 16V0 1W0 ZENER 5% T&R	2			
5106	MPSA63 TO92 PNP TRNSISTR DARL T&RTA	2			
6774	BD139 TO126 NPN TRAN TG	1			
6926	BD140 TO126 PNP TRAN TG	1			
6882	TL072CP IC FET DUAL OP AMP	14			
6884	NE5532N IC DUAL OP AMP	4			
6889	TL074CN IC QUAD O/A T.I ONLY	2			
5413	390P 50V 10%CAP T&R BEAD NPO	12			
5205	.15N 100V 10%CAP T&R RAD .2"FLM	8			
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5222	.33N 100V 10%CAP T&R RAD .2"FLM	4			
5224	.47N 100V 10%CAP T&R RAD .2"FLM	8			
5226	.68N 100V 5%CAP T&R RAD .2"FLM	4			
5212	100N 63V 5%CAP T&R RAD .2"FLM	20			
5233	330N 63V 5%CAP T&R RAD .2"FLM	22			
5234	470N 63V 10%CAP T&R RAD .2"FLM	12			
5240	680N 63V 10%CAP T&R RAD .2"FLM	4			
5267	100U 25V 20%CAP T&R RAD .2"EL	4			
5630	330U 25V 20%CAP BLK 10X13MM EL	2			
4518	.10K LIN 12MM HORIZONTAL STP26	2			
3489	CLIP 250X032 18-22AWG DISCO/INSL	2			
3602	RING TERMINAL 18AWG WIRE & #8 SCREW	1			
3682	250 MALE PCB TAB REEL	2			
3498	1/4" JCK PCB MT HORZ	8			
3414	INTERNATIONAL PC MOUNT FUSEHOLDER	2			
2435	0.100 AMP SLO-BLO .25X1.25 FUSE	1			
3827	SQUARE BUMPER BUTTON BLACK	3			
8661	BUTTON KNOB FLAT GREY	5			
8706	ROTARY KNOB BLACK W/BBLUE POINTER	2			
3461	8' 3/18 SVT AC LINE CORD	1			
3826	HEYCO #1150 STRAIN RELIEF	1			
5989	4 CIR CABLE HOLDER .098	2			
8800	6-32 KEPS NUT ZINC	2			
2006	1.0W 1R 5%FLAME PROOF T&R RES	2			
2007	1/4W 1R 5%FLAME PROOF T&R RES	2			
4637	1/8W 68R 5% T&R RES	12			
4852	1/4W 100R 5% T&R RES	6			
4855	1/4W 330R 5% T&R RES	12			
4873	1/4W 680R 5% T&R RES	12			
4823	1/4W 1K 5% T&R RES	2			
4981	1/4W 1K 5%MINI T&R RES	8			
4802	1/4W 1K21 1% T&R RES	4			
4824	1/4W 1K5 5% T&R RES	5			
4935	1/4W 1K5 5% .2"U T&R RES	1			
4808	1/4W 2K 5% T&R RES	14			
4847	1/4W 2K2 5% T&R RES	3			
4804	1/4W 3K 5% T&R RES	2			
6124	1/4W 3K 5%MINI T&R RES	4			
5028	1/4W 3K74 1% T&R RES	2			
4850	1/4W 3K9 5% T&R RES	2			
4774	1/4W 4K12 1% T&R RES	4			
4639	1/4W 4K99 1% T&R RES	2			
4870	1/4W 6K2 5% T&R RES	2			
4828	1/4W 6K8 5% T&R RES	2			
4801	1/4W 6K98 1% T&R RES	6			
4810	1/4W 9K1 5% T&R RES	2			
4762	1/4W 9K760 0.1% *** T&R RES	4			
4800	1/4W 10K0 1% T&R RES	25			
4829	1/4W 10K 5% T&R RES	9			
4940	1/4W 10K 5% .2"U T&R RES	3			
4983	1/4W 10K 5%MINI T&R RES	8			
6116	1/4W 10K0 1%MINI MF T&R RES	1			
4856	1/4W 12K 5% T&R RES	4			
4830	1/4W 15K 5% T&R RES	2			
4831	1/4W 18K 5% T&R RES	2			
4832	1/4W 22K 5% T&R RES	2			
4902	1/4W 24K 5% T&R RES	2			
4890	1/4W 30K 5% T&R RES	1			
4941	1/4W 30K 5% .2"U T&R RES	1			
4840	1/4W 33K 5% T&R RES	2			
6122	1/4W 33K 5%MINI T&R RES	2			
4760	1/4W 75K 5% T&R RES	4			
4838	1/4W 100K 5% T&R RES	4			
6130	1/4W 240K 5%MINI T&R RES	2			
4844	1/4W 1M 5% T&R RES	4			
3616	.7" 4C-26 AWG RIBBON CABLE 0.1"	1			
8801	6-32 X 3/8 PAN PH TAPTITE JS500	7			
8829	6-32 X 3/8 FLAT PH TAPTITE BO#4 HEA	14			
8837	6-32 X 1/2 ROUND PH MS JS500	1			
8809	10-32 X 1/4 PAN PH TAPTITE JS500	1			
8905	YORKVILLE PRODUCT SCHEMATIC	1			
3517	NYLON WASHER #8 0.062	2			
8491	#10 SPLIT LOCK WASHER BO	1			



NOTE: ALL UNMARKED DIODES ARE IN4148
ALL SWITCHES ARE MAKE BEFORE BREAK, #3436

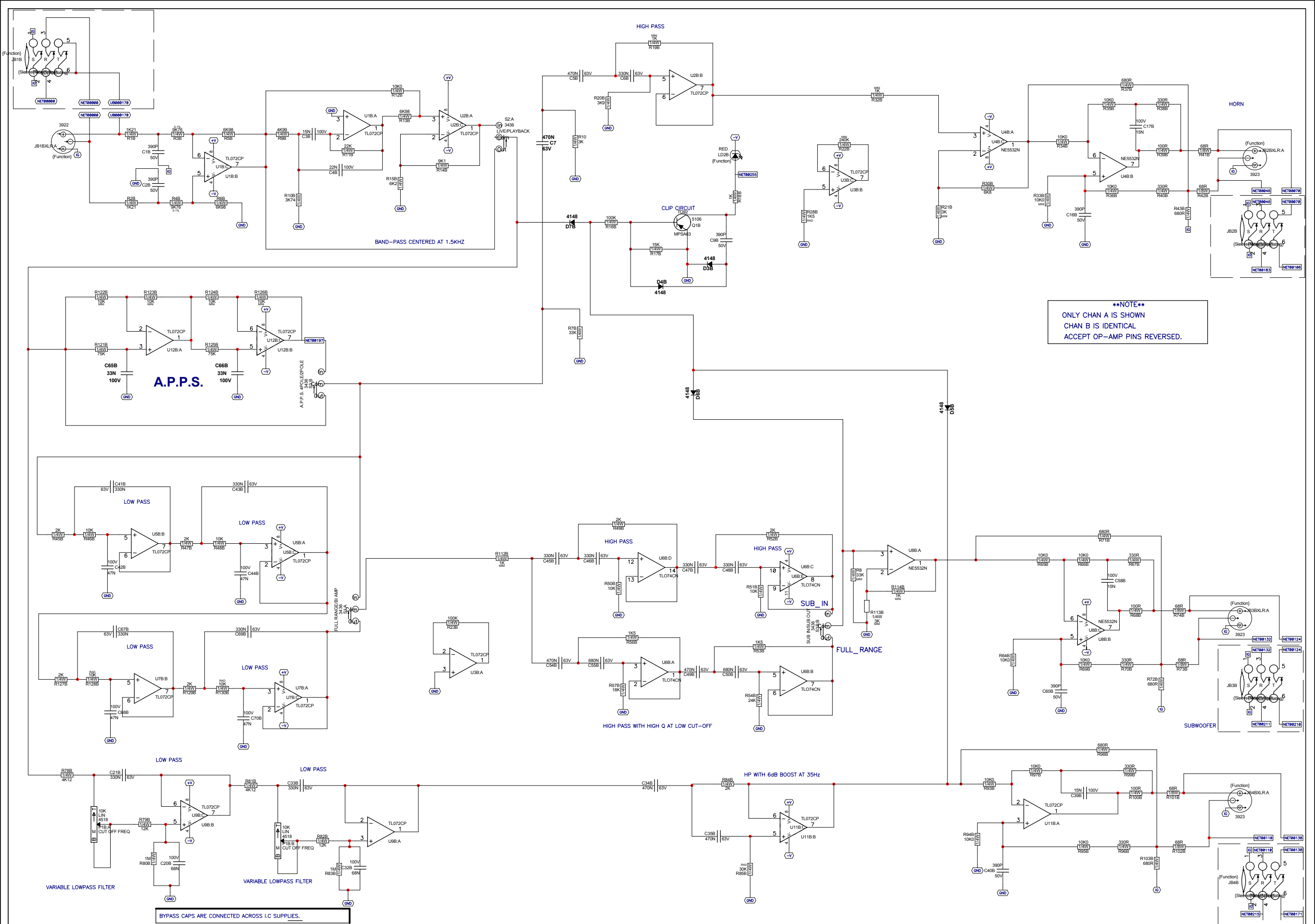
NOTE
ONLY CHAN A IS SHOWN
CHAN B IS IDENTICAL
EXCEPT OP-AMP PINS REVERSED.

BYPASS CAPS ARE CONNECTED ACROSS I.C SUPPLIES.

M1218_PCB_DATABASE_HISTORY			
MODEL(S):-		UP215	
1	FEB/24/04	V	DESCRIPTION OF CHANGE
2	DEC-15-2005	V2.00	MADE FROM EP15 M678.PCB
3		V	PC#6804:GT:UPDATE FOR AC CE CLEARANCES
4		V	N
5		V	N
6		V	N
7		V	N
8		V	N
9		V	N
10		V	N
11		V	N
12		V	N
13		V	N

TRANSFORMER
#1242 PC MOUNT
220VAC OPERATION
D = AC NEUTRAL
B + C ARE JOINED
A = AC LINE

TRANSFORMER
#1242 PC MOUNT
120VAC OPERATION
B + D TO AC NEUTRAL
A + C TO AC LINE



****NOTE****
 ONLY CHAN A IS SHOWN
 CHAN B IS IDENTICAL
 ACCEPT OP-AMP PINS REVERSED.

NOTE: ALL UNMARKED DIODES ARE IN4148
 ALL SWITCHES ARE MAKE BEFORE BREAK, #3436

M1218 DRILL HISTORY			
MODEL(S):-	UP215		
#	DATE	VER#	DESCRIPTION OF CHANGE
1	MAR-20-2006	V02	PC#6804: SEE HISTORY TABLE
2	D	V	Z
3	D	V	Z
4	D	V	Z
5	D	V	Z
6	D	V	Z

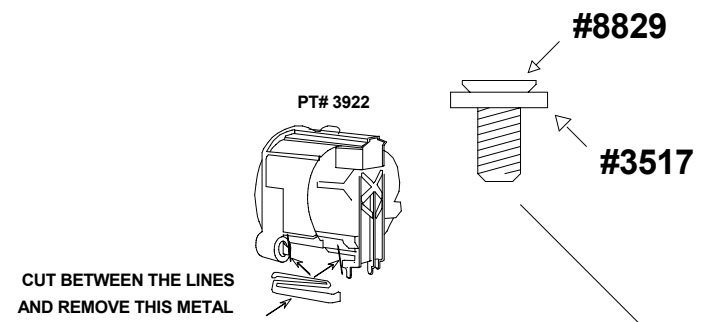
M1218 PENDING CHANGES		
MODEL(S):-	UP215	
#	PC#	DESCRIPTION OF CHANGE
1	PC	PENDING CHANGE
2	PC	XXXXXX
3	PC	XXXXXX
4	PC	XXXXXX
5	PC	XXXXXX
6	PC	XXXXXX

M1218_PCB_DATABASE_HISTORY			
MODEL(S):-	UP215		
#	DATE	VER#	DESCRIPTION OF CHANGE
1	FEB/24/04	V1.00	MADE FROM EP15 M678.PCB
2	DEC-15-2005	V2.00	PC#6804:GT:UPDATE FOR AC CE CLEARANCES
3	D	V	Z
4	D	V	Z
5	D	V	Z
6	D	V	Z
7	D	V	Z
8	D	V	Z
9	D	V	Z
10	D	V	Z
11	D	V	Z
12	D	V	Z
13	D	V	Z

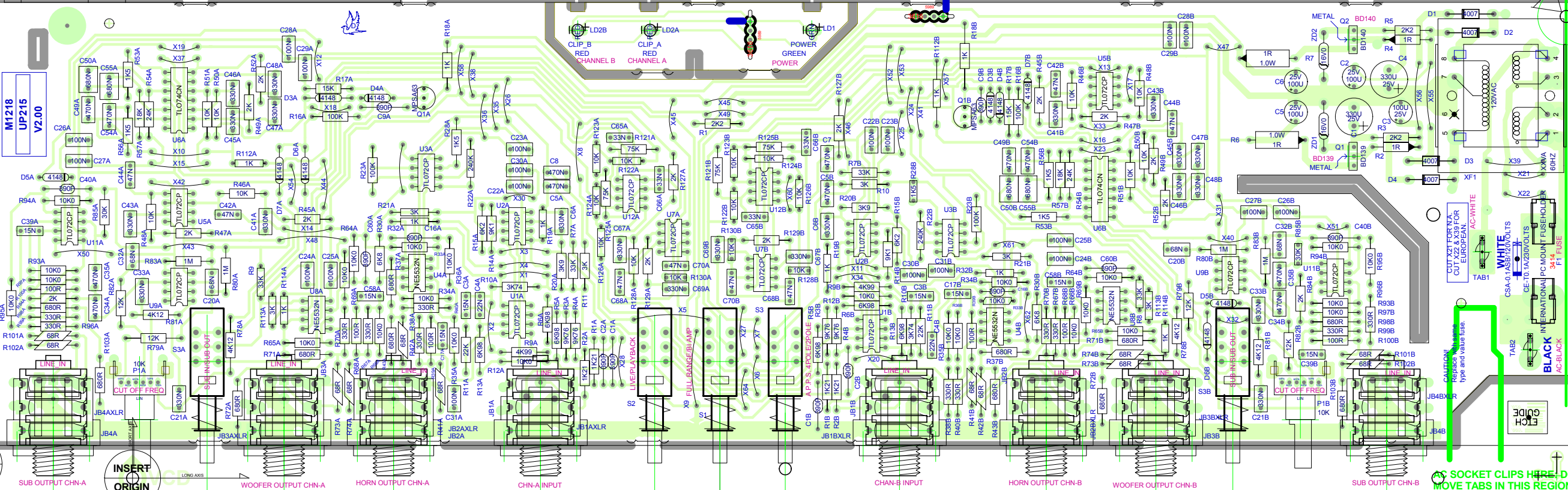
*PLACE IMPLEMENTED CHANGES INTO BOARD HISTORY

PRODUCTION NOTES

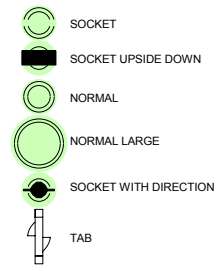
- 1) INSERT XLRs ON EUROPEAN AND 1/4" JACK FOR N. AMERICA
- 2) CUT METAL OFF FEMALE XLRs AS SHOWN
- 3) ENSURE TRANSFORMER SITS FLAT ON PCB



Keep 3 traces away from this screw hole. i.e. keep out of this circle.



BlankSize - 18000x11000



MAINTAIN 3mm space for AC traces to board edge (chassis is another 3mm away) for a total of 6mm

SOCKET CLIPS HERE, DO NOT MOVE TABS IN THIS REGION

StepAndRepeat - X1@0.000Y2@5.250