



# ***SERVICE MANUAL***

TYPE: YS1026

## **A4.4**

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**Quality and Innovation Since 1963**  
Printed in Canada

## 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 être 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 être 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 être 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 être 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 être exposé à des égouttements d'eau ou des éclaboussures et qu'aucun objet rempli de liquide tel que des vases ne doit être 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 connexion extérieure doivent être effectués par un opérateur formé ou en utilisant des cordons déjà préparés.

##### **Cordon d'Alimentation**

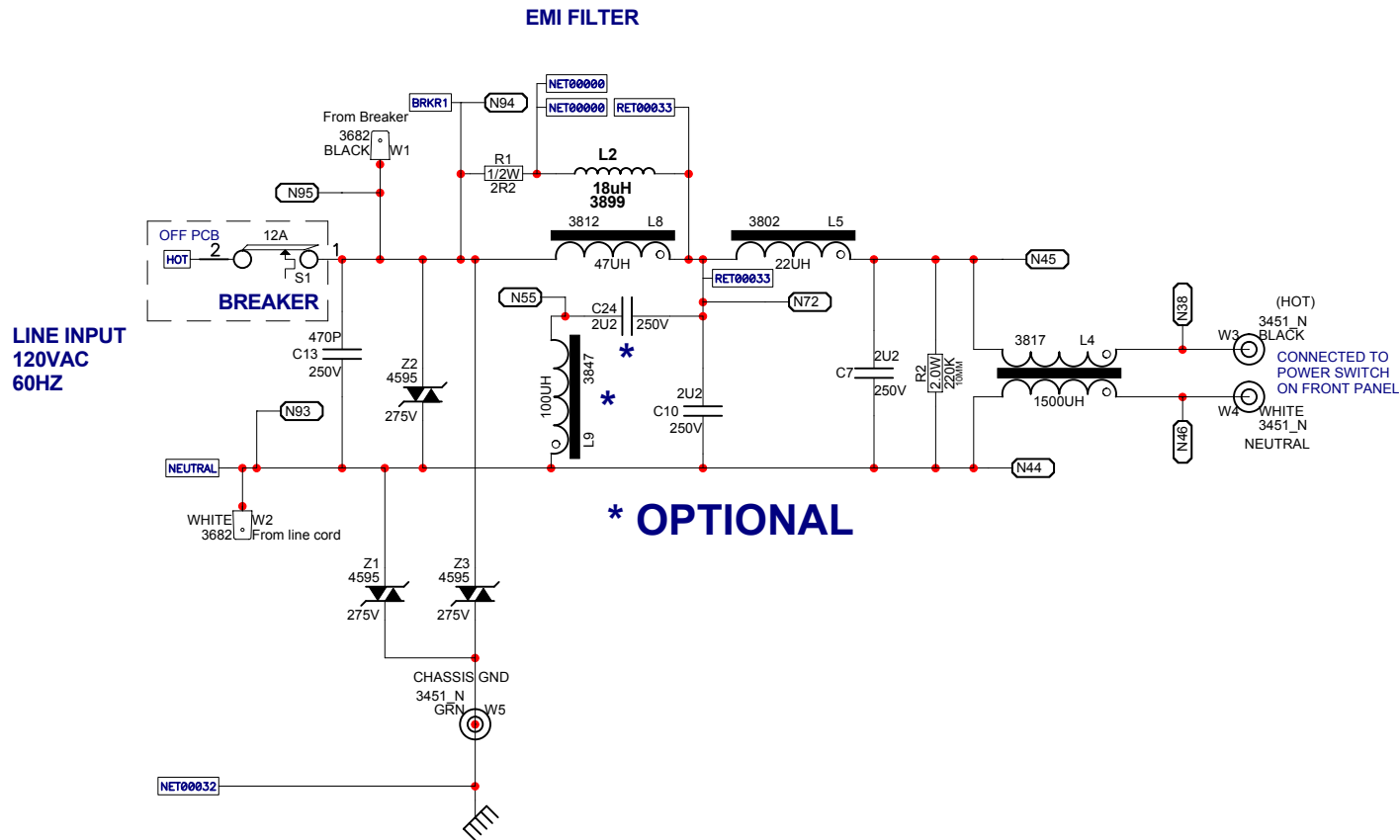
Évitez d'endommager le cordon d'alimentation. N'UTILISEZ PAS L'APPAREIL si le cordon d'alimentation est endommagé.

##### **Service**

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

A4.4 Parts List 3/12/2004

YS #	Description	Qty.	YS #	Description	Qty.	YS #	Description	Qty.	YS #	Description	Qty.
3564	8-PIN SOCKETS	1	5927	3U3 20V 20%CAP T&R RAD T1N.2" L5	2	4697	5.0W 0R005 1% BLK RES	1	4898	1/4W 91K 5% T&R RES	4
5906	RED 3MM LED 1V9 20MA 4SPCR T&R	3	5259	4U7 63V 20%CAP T&R RAD 2"EL	1	4745	5.0W 0R1 5% BLK RES	12	4838	1/4W 100K 5% T&R RES	2
5908	GRN 3MM LED 1V9 20MA 4SPCR T&R	3	5281	10U 16V 20%CAP T&R RAD 2"NP	2	4749	5.0W 0R15 5% BLK RES	4	4976	1/4W 120K 5% MINI T&R RES	2
6770	BRIDGE 50A 400V WIRE LEAD SIP	1	5282	10U 16V 20%CAP T&R 5X7MM 2"NP	1	2005	1.0W 0R47 5%FLAME PROOF T&R RES	2	4839	1/4W 150K 5% T&R RES	2
6425	BAV21 200V 0A25 DIODE T&R	4	5629	10U 160V 20%CAP BLK 10X13MM EL	4	2006	1.0W 1R 5%FLAME PROOF T&R RES	5	6137	1/4W 200K 5%MINI T&R RES	1
6821	S1TA1206D 600V 12A DIODE ULTRAFAS	9	5945	10U 63V 20%CAP T&R RAD 2"EL	4	4677	1/2W 1R 5% T&R RES	4	4668	2.0W 220K 5%10MM BODY T&R RES	3
6825	1N4148 75V 0A45 DIODE T&R	62	5260	22U 50V 20%CAP T&R RAD 2"EL	10	4688	1/2W 2R2 5% T&R RES	1	4841	1/4W 220K 5% T&R RES	2
6826	S1TA806D 600V 8A DIODE ULTRAFAS	8	5631	22U 50V 20%CAP T&R 6X7MM 2"EL	5	4911	1/4W 2R2 5% T&R RES	8	6126	1/4W 220K 5%MINI T&R RES	4
6888	HER508 1000V 3A0 DIODE ULTRAFAS	2	5961	33U 16V 20%CAP T&R RAD 2"NP	12	4748	2.0W 3R9 5% T&R	2	4879	1/4W 270K 5% T&R RES	1
6892	UF4004 200V 1A0 DIODE ULTRAFAS	4	5232	47N 600V 5%CAP BLK RAD FILM FOIL	2	4733	5.0W 5R6 5% BLK RES	2	4842	1/4W 330K 5% T&R RES	1
6896	UF5404 200V 3A0 DIODE ULTRAFAS	2	5627	47U 10V 20%CAP BLK RAD NP	3	4813	1/4W 6R2 5% T&R RES	2	4843	1/4W 470K 5% T&R RES	2
6438	1N4007 400V 1A0 DIODE T&R	4	5267	100U 25V 20%CAP T&R RAD 2"EL	6	2010	1/8W 10R0 2%FLAME PROOF T&R RES	8	4948	1/4W 1M 5% 2"U T&R RES	1
6934	MR854 400V 3A0 DIODE FASREC	20	5630	330U 25V 20%CAP BLK 10X13MM EL	6	4605	1/8W 10R 5% T&R RES	2	4888	1/4W 4M7 5% T&R RES	2
6439	1N5225B 3V0 0W5 ZENER 5% T&R	2	5622	470U 16V 20%CAP BLK AXIAL EL	2	4875	1/4W 10R 5% T&R RES	2	6132	1/4W 8M2 5%MINI T&R RES	2
6440	1N750ARL 4V7 0W5 ZENER 5% T&R	10	5632	470U 63V 20%CAP BLK LOW ESR EL	1	2013	1/8W 22R1 1%FLAME PROOF T&R RES	2	3690	8" 4C-28AWG RIB 1 W/LCK HDR 098R	1
6450	1N5242B 12V0 0W5 ZENER 5% T&R	4	5635	1000U 35V 20%CAP RADIAL ELECT BUL	1	4816	1/4W 33R 5% T&R RES	4	3565	10" 4C-28AWG RIBBON CABLE 0.1"	1
6822	1N41745A 16V0 1W0 ZENER 5% T&R	8	5904	2200U 80V 20%CAP BLK 25X30MM ELS	8	2016	1/8W 39R 2%FLAME PROOF T&R RES	12	3709	7" 6C-26AWG RIB 1 W/LCK HDR 098	1
6824	1N5246B 16V0 0W5 ZENER 5% T&R	4	5886	6800U 80V 20%CAP BLK 30X45MM ELS	8	4899	1/4W 39R 5% T&R RES	6	3706	13" 8C-26AWG RIB 1 W/LCK HDR 098R	2
6432	1N5248B 18V0 0W5 ZENER 5% T&R	1	4390	10K AUD 16MM DETENT P22	2	2017	1/4W 47R5 1%FLAME PROOF T&R RES	4	3622	14" 14C-28AWG DIP HDR CABLE .05"	1
5101	BC550C TO92 NPN TRAN T&R TB	17	4520	10K TRIM POT	2	4811	1/4W 68R 5% T&R RES	2	3696	RELAY 1C 02AQM PC24 006MA PC-S	1
5102	BC560C TO92 PNP TRAN T&R TB	21	2448	15.0 AMP CIRCUIT BREAKER	1	2020	1/8W 150R 2%FLAME PROOF T&R RES	4	3790	EMI FILTER FOR RIBBON CABLE	1
5104	MPSA56 TO92 PNP TRAN T&R TA	1	711	30 X 50 X 1.5MIL PLASTIC BAG	1	4859	1/4W 150R 5% T&R RES	4	8870	4 X 1/4 PAN PH TYPE A ZINC	2
5113	MPSA42 TO92 NPN TRAN T&R TA	2	3820	4UH COIL 14AWG ZOBEL HORIZONTAL	2	6103	1/4W 196R 1%MINI MF T&R RES	4	8877	4-40 X 1/4 FILLISTER PH MS ZN	1
5114	MPSA92 TO92 PNP TRAN T&R TA	4	3899	18UH HI-Q MINI INDUCTOR T&R	1	2021	1/4W 200R 1%FLAME PROOF T&R RES	6	8729	4 X 3/8 FLAT QUAD TYPE A JS500 BLK	4
6854	2N6517 TO92 NPN TRAN TA	2	3486	CLIP 250X032 22-18AWG DISCO-L&K	15	2022	1.0W 220R 5%FLAME PROOF T&R RES	1	8742	4-40 X 3/8 PAN PH TAPITTE JS500	2
5105	MPSA13 TO92 NPN DARL T&R TA	1	3490	CLIP 250X032 14-16AWG DISCO/INSL	11	2023	1/8W 220R0 1%FLAME PROOF T&R RES	4	8861	4-40 X 3/8 PAN PH MS JS500	11
5106	MPSA63 TO92 PNP DARL T&R TA	1	3601	RING TERMINAL 16AWG WIRE & #8 SCREW	2	4977	1/4W 220R 5%MINI T&R RES	8	8741	4-40 X 1/2 PAN PH MS JS500	19
6815	MUF6388 T212D NPN TRAN DARL TJ	1	3618	STAR RING TERMINAL 14-16AWG #10SCREW	4	2024	1/8W 249R 2%FLAME PROOF T&R RES	8	8827	4-40 X 1/2 FLAT PH TAPITTE JS500	26
6873	MJE340 T0126 NPN TRAN TG	6	3682	250 MALE PCB TAB REEL	17	4986	1/4W 270R 5%MINI T&R RES	4	8871	4-40 X 5/8 PAN PH MS JS500	9
6874	MJE350 T0126 PNP TRAN TG	6	3788	QUICKON MALE TAB	1	5033	3.0W 330R 5% T&R	1	8808	4-40 X 3/4 FL AT PH MS JS500	1
6911	BDX54C TO220 PNP TRAN DARL TE	1	3410	RED ON LEFT DUAL BINDING POST TTP5	1	4821	1/4W 470R 5% T&R RES	4	8799	6 X 1/4 PAN PH TYPE B JS500	4
6912	BDX53C TO220 NPN TRAN DARL TE	1	3415	RED ON RIGHT DUAL BINDING POST TTP5	1	4980	1/4W 470R 5%MINI T&R RES	4	8832	6-32 X 1/4 PAN PH TAPITTE JS500	1
6752	MPT10N15L TO220 NCH MFET TN	2	3918	1/4" JCK PCB MT HORZ SLIM W/SCREW	2	4671	1/2W 560R 5% T&R RES	2	8807	6-32 X 5/16 PAN PH MS JS500	1
6925	MTP82P TO220 PCH MFET TN	2	3628	SPKON 4C PCB MT VERT 250TAB GR4	2	5019	1/4W 620R 5%MINI T&R RES	5	8801	6-32 X 3/8 PAN PH TAPITTE JS500	3
6909	MJ21196 TO3 NPN TRAN TH	16	3417S	6-32 SCREW TERMINAL PC MNT SNAP-IN	1	2030	1/8W 681R 1%FLAME PROOF T&R RES	2	8829	6-32 X 3/8 FLAT PH TAPITTE B0#4 HEA	25
6989	MUL1302A TO3P PNP TRAN TK	2	3657	XLR FEML PCB MT HORZ NO SHELL	2	4869	1/4W 750R 5% T&R RES	1	8761	6-32 X 1/2 PAN PHIL MS ZINC CLEAR	64
6990	MUL3281A TO3P PNP TRAN TK	2	3451	EYELET SMALL 0.089 OD PLATED	57	4623	1/2W 1K 5% T&R RES	2	8828	6-32 X 3/4 PAN PH TAPITTE JS500	8
6910	MJ21195 TO3 PNP TRAN TH	16	3860	FAN 80MM X 80MM 40CFM 12VDC	1	4913	1.0W 1K 5% T&R RES	2	8986	6-32 X 1/2 PAN PH MS JS500	2
6734	IRG4PC50W TO247 NPN TRAN IGBT TM	2	8434	AP SERIES PLASTIC HANDLE PAIR	1	4934	1/4W 1K 5% 2"U T&R RES	1	8802	8-32 X 3/8 PAN QUAD TPITTE JS500	1
6840	MC33078P IC DUAL OP AMP	6	3894	AAVD 5972-B HS W/TAB B.O.	4	4981	1/4W 1K 5%MINI T&R RES	10	8849	8-32 X 1/2 PAN PHIL MS TIN PLATED	1
6883	TC4427CPA IC FET DUAL DRIVER	1	3501	B522007006 COMP WASH #4 SMALL	41	4988	1/4W 1K5 5%MINI T&R RES	6	8869	8-18 X 1/2 THRD CUTTING FOR PLASTIC	4
5190	MBS4992 TO92 8V5 DIAC T&R	2	3745	DUAL XSIATOR PBL SPRING CLEAR ZINC	1	4791	1/4W 1K64 1% T&T RES	4	8999	8-32 X 5/8 PAN PH TAPITTE JS500	17
6444	MAC224-4 TO220 40A TRIAC 200V	2	3552	NYLON SPRING CLAMP	1	4975	3.0W 1K8 5% T&R RES	4	8809	10-32 X 1/4 PAN PH TAPITTE JS500	4
6858	NSL-32SR2 OPTO-COUPLER LDR	2	3803	NYLON SECUR-A-TACH MINI PLASTIC TIE	1	4946	1/4W 2K 5% 2"U T&R RES	1	8731	10-16 X 5/8 TYPE B HEX W/SLOT JS500	15
6881	H11A817C IC OPTO-COUPLER CSA	5	3810	4" NYLON CABLE TIE	17	6113	1/4W 2K 5%MINI T&R RES	6	8821	10-16 X 1/32 TYPE B HEX W/SLOT BL	2
6467	10K 10% THERMISTOR NTC TO-92	2	3827	SQUARE BUMPER BUTTON BLACK	5	4919	1/4W 2K05 1%-NO SUBS- T&R RES	2	8663	11/64 NYLON SPACER (MICRO PLASTIC)	66
4595	VARIATOR 23J 275V MOV 7MM	3	8433	AP SERIES PLASTIC KNOB	2	4847	1/4W 2K2 5% T&R RES	2	8656	.171 X 1/4 NYLON SPACER #SP42	1
5401	10P 500V 5%CAP T&R RAD CER.2"NPO	4	8661	BUTTON KNOB FLAT GREY	3	4664	1/2W 2K7 5% T&R RES	2	3833	8 X 3/8 (250 OD,.171 ID)N SPACER	5
5199	100P 100V 2%CAP T&R RAD CER.2"NPO	2	8437	FAN FILTER LABEL	1	4805	1/4W 2K87 1% T&R RES	2	3741	.5 SPACER ID-.171 OD-.25 #912-500	2
5410	100P 100V 10%CAP T&R BEAD NPO	2	3468	8' 3/16 SJT AC LINE CORD STRIP 17'	1	6124	1/4W 3K 5%MINI T&R RES	6	8615	4-40 X 1/8" HEX SPACER ALUMINUM	2
5412	220P 100V 10%CAP T&R BEAD NPO	12	3821	HEYCO #1200 STRAIN RELIEF	1	6136	1/4W 3K3 5%MINI T&R RES	4	8657	6-32 X 3/8" HEX SPACER ALUMINUM	10
5417	330P 50V 10%CAP T&R BEAD NPO	2	3793	20UH COIL 5AMP SNUBR	1	5032	5.0W 3K6 5% STANDOFF BLK RES	8	8667	SHOULDER WASHER SWS-229 LENGTH 1/8	4
5419	330P 500V 5%CAP BLK MICA	1	3802	22UH COIL 15AMP FILTER	1	4774	1/4W 4K12 1% T&R RES	2	8670	SHOULDER WASHER 125X140#4 HITMP BLK	16
5201	470P 100V 5%CAP T&R RAD CER.2"NPO	6	3812	47UH COIL 15AMP INPUT	1	4910	1/4W 4K3 5% T&R RES	5	3511	#6 FLAT WASHER NYLON	2
5416	470P 50V 10%CAP T&R BEAD NPO	2	3816	50UH COIL 5AMP BOOST	1	4982	1/4W 4K7 5%MINI T&R RES	13	8485	#6 SPLIT WASHER ZINC	2
5418	470P 250V 20% Y2 CAP DISC T&R	1	3817	1.5MH COIL INPUT COM MODE	1	6128	1/4W 4K99 1%MINI MF T&R RES	2	8925	#4 INTERNAL TOOTH LOCKWASHER	1
5815	680P 200V 5%CAP T&R RAD CER.2"NPO	4	3847	100UH COIL 5AMP POWER VERT MTG	5	6138	1/4W 5K1 5%MINI T&R RES	4	8850	#10 INT TOOTH LOCKWASHER BO	4
5422	1N 50V 10%CAP T&R BEAD NPO	3	3536	12PIN STACKER VERTICAL .100	1	4887	1/4W 7K5 5% T&R RES	4	3502	NYLON FLAT WASHER OD.158ID.110H.070	2
5273	1N5 200V 5%CAP T&R RAD CER.2"NPO	2	3654	PCB CONN 4 CIR .100 LOCKING	1	4762	1/4W 9K760 0.1% *** T&R RES	8	3436	DPDT PUSH SW PCMT H BREAK B4 MAKE	3
5208	2N2 400V 5%CAP T&R RAD .2"FLM	6	3658	.8 CIR WAFER W/LCK RA 0.1" GOLD	2	4800	1/4W 10K0 1% T&R RES	2	3587	DPDT ROKR SW QUIK 250'AC/PWR ON-OFF	1
5209	4N7 250V 5%CAP T&R RAD .2"FLM	2	3662	.6 CIR WAFER W/LCK VT 0.1" GOLD	1	4829	1/4W 10K 5% T&R RES	2	3705	4P3T SLID SW PCMT H	1
5204	10N 100V 10%CAP T&R RAD .2"FLM	2	3672	6 CIR CABLE HOLDER .098	5	4983	1/4W 10K 5%MINI T&R RES	18	3395	THERMO/BRKR/N/CLOSING OPEN @82C	1
5523	10N 250V 20%CAP BLK RAD Y2 AC	2	3676	8 CIR CABLE HOLDER .098	2	5031	1.0W 10K0 5% T&R	4	1193	A4.4 PC MOUNT SWITCHING T'RD	1
5834	10N 250V 20%CAP BLK RAD POLY FLM	3	3728	.4" 6C-26 AWG RIBBON CABLE 0.1"	1	6116	1/4W 10K0 1%MINI MF T&R RES	12			
5210	22N 100V 10%CAP T&R RAD .2"FLM	8	4005	17" 6C-26 AWG RIBBON CABLE 0.1"	1	4856	1/4W 12K 5% T&R RES	4			
6435	22N 275V 20%CAP BLK X2 15MM AC	1	5989	4 CIR CABLE HOLDER .098	3	4830	1/4W 15K 5% T&R RES	3			
5224	47N 100V 10%CAP T&R RAD .2"FLM	2	8701	4-40 KEPS NUT ZINC	39	4771	1/4W 17K8 1% T&R RES	2			
5226	68N 100V 5%CAP T&R RAD .2"FLM	4	8793	4-40 HEX NUT ZINC	3	6125	1/4W 18K 5%MINI T&R RES	3			
5228	100N 100V 5%CAP T&R RAD .2"FLM	13	8760	6-32 KEPS NUT TIN PLATED	64	6123	1/4W 20K0 1%MINI MF T&R RES	7			
5314	100N 50V 10%CAP T&R BEAD X7R	9	8800	6-32 KEPS NUT ZINC	18	4777	1/4W 21K5 1% T&R RES	2			
5865	100N 250V 10%CAP BLK RAD POLY FLM	9	8787	8-32 KEPS NUT ZINC	2	4832	1/4W 22K 5% T&R RES	2			
5229	150N 63V 10%CAP T&R RAD .2"FLM	4	3796	ELASTOMER PAD TSIL 1.0X0.8	2	5024	1/4W 22K6 1% T&R RES	1			
5231	220N 63V 10%CAP T&R RAD .2"FLM	2	3797	TO-247 THERMO CONDUCTIVE PAD	4	4833	1/4W 27K 5% T&R RES	6			
5882	220N 250V 10%CAP BLK RAD POLY FLM	4	3846	TO220 THERMO PAD LARGE HOLE 56359B	24	4890	1/4W 30K 5% T&R RES	3			
5602	330N 250V 10%CAP BLK RAD POLY FLM	1	3916	TO3 SIL-P							



M1164 LINE FILTER FOR ( SMPS )			
MODEL(S):- A4.4 / A4.4CE			
#	DATE	VER#	DESCRIPTION OF CHANGE
1	AUG 28 2001	V2.00	Mounting NPH changed from 156 to 189
2	Sept 17 2001	V2.00	W3 & W4 changed from tab to eyelets
3	SEPT 17 2001	V2.00	L4,L5,L8 POLARITY SHOWN
4	OCT 04 2001	V2.00	ADD L2&R1 ACROSS L8
5	JAN 24 2002	V2.10	pc#6497 ADD R2 ACROSS C7
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

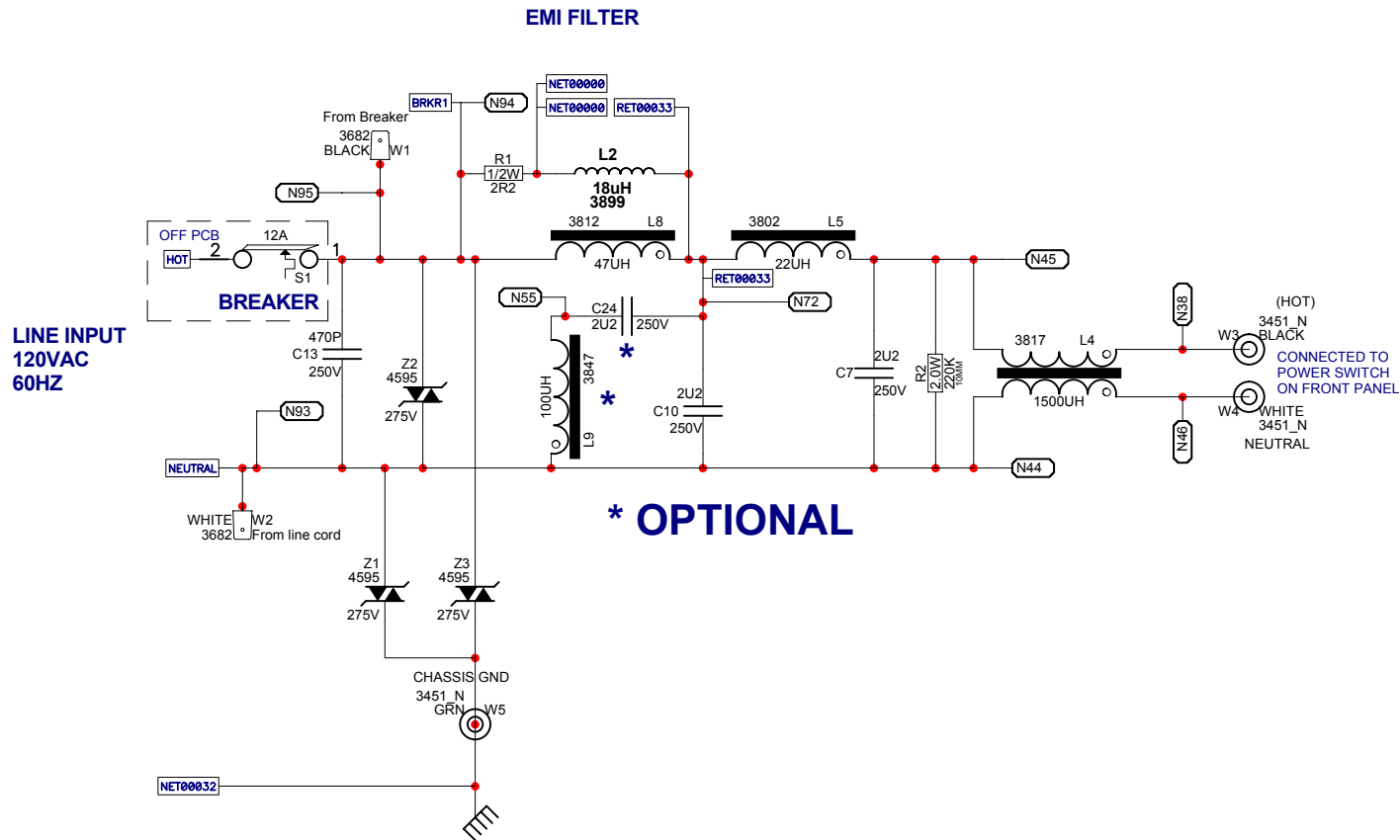


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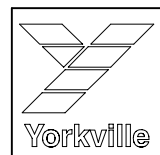
EMI FILTER      PCB# M1164      Sheet 1 of 2

Date: Sat Feb 23, 2002      Rev: V2.10

Filename: M11642V1sch.SCH2001

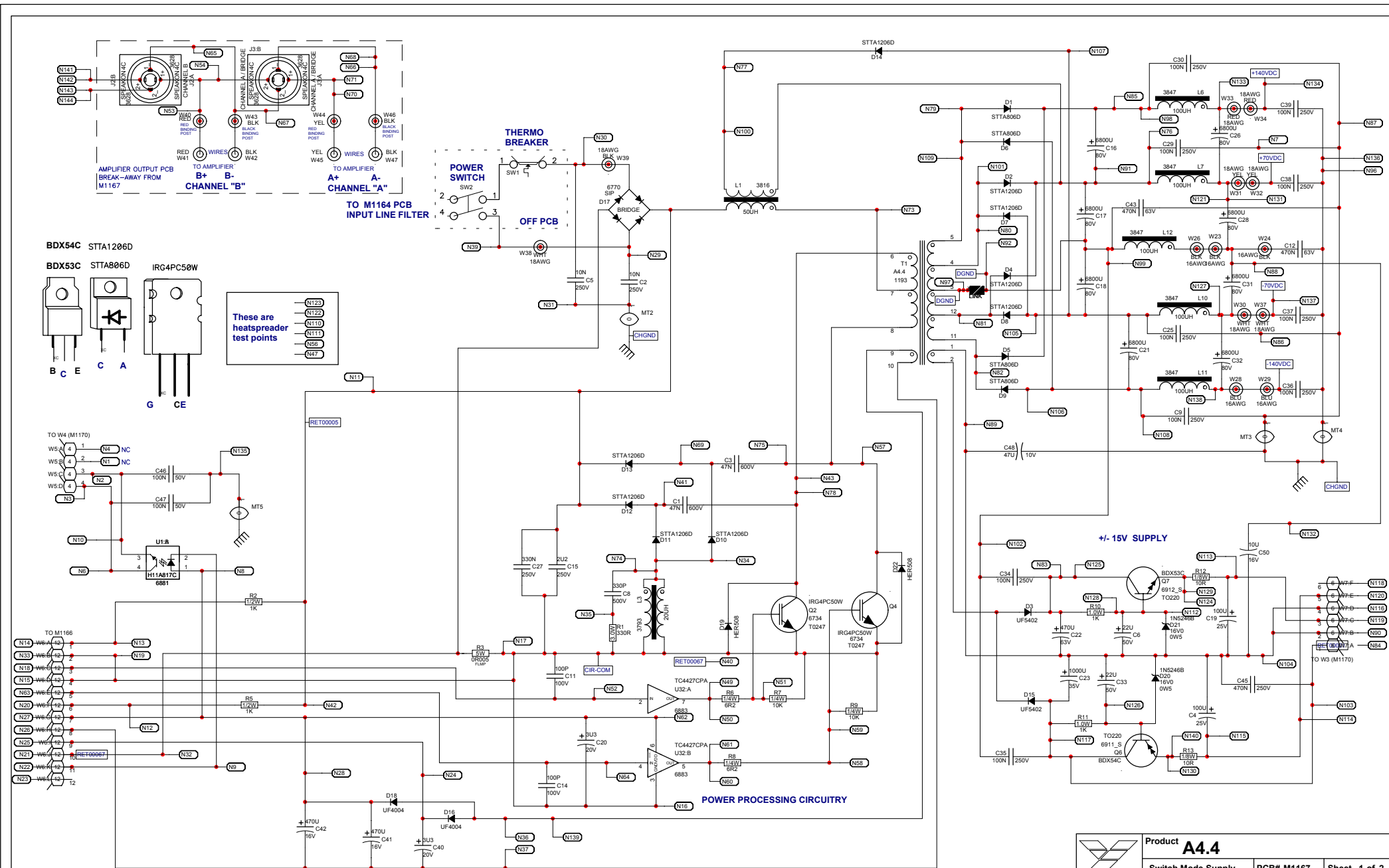


M1164 LINE FILTER FOR ( SMPS )			
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1	AUG 28 2001	V2.00	Mounting NPH changed from 156 to 189
2	Sept 17 2001	V2.00	W3 & W4 changed from tab to eyelets
3	SEPT 17 2001	V2.00	L4,L5,L8 POLARITY SHOWN
4	OCT 04 2001	V2.00	ADD L2&R1 ACROSS L8
5	JAN 24 2002	V2.10	pc#6497 ADD R2 ACROSS C7
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



Product <b>{Drawing Number}</b>		
EMI FILTER	PCB# M1164	Sheet 1 of 2
Date: Sat Feb 23, 2002		Rev: V2.10
Filename: M11642V1sch.SCH2001		



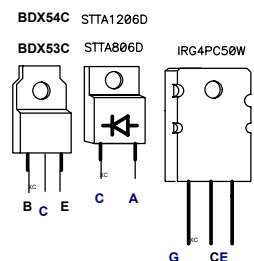


BIAS SUPPLY

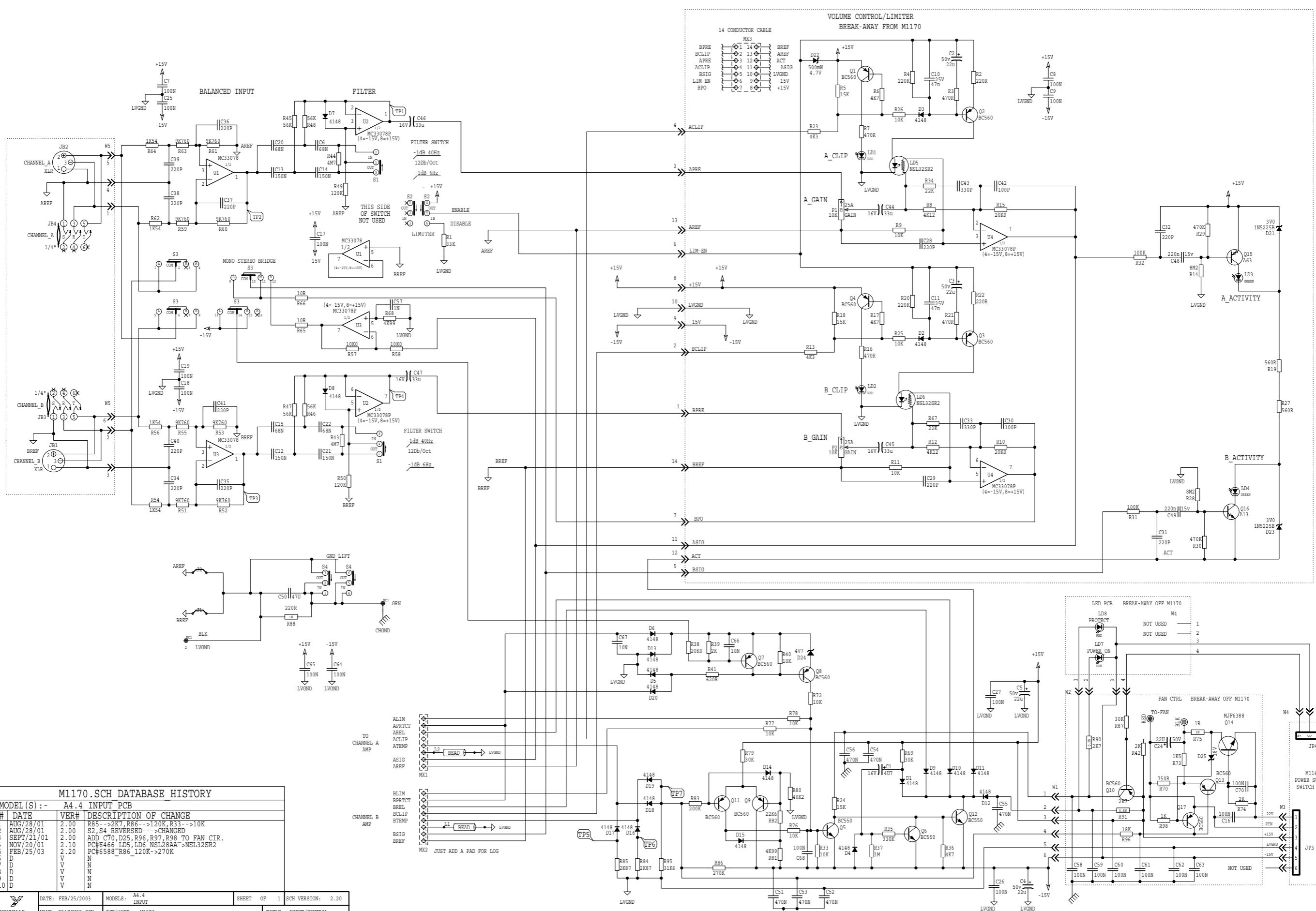
POWER PROCESSING CIRCUITRY

+/- 15V SUPPLY

These are heatspreader test points

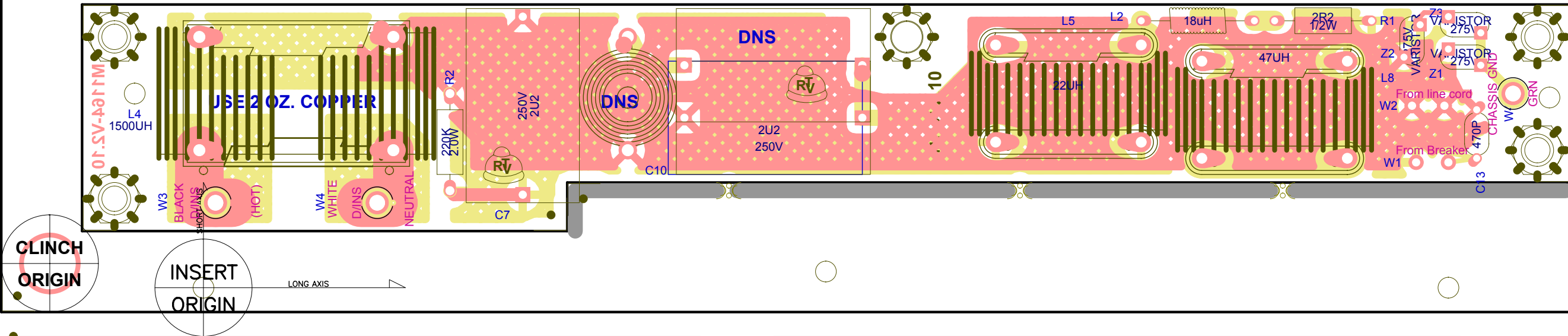


NOTE: PRIMARY LINE IS LIVE DANGER HIGH VOLTAGE ON PRIMARY SIDE



M1170.SCH DATABASE HISTORY

#	DATE	VER#	DESCRIPTION OF CHANGE
1	AUG/28/01	2.00	R85-->2K7, R86-->120K, R33-->10K
2	AUG/28/01	2.00	S2, S4 REVERSED-->CHANGED
3	SEPT/21/01	2.00	ADD C70, D25, R96, R97, R98 TO FAN CIR.
4	NOV/20/01	2.10	PC#6466 LD5, LD6 NSL28AA->NSL32SR2
5	FEB/25/03	2.20	PC#6588_R86_120K->270K
6	D	V	N
7	D	V	N
8	D	V	N
9	D	V	N
10	D	V	N



### M1164 LINE FILTER FOR ( SMPS )

MODEL(S):- A4.4 / A4.4CE

#	DATE	VER#	DESCRIPTION OF CHANGE
1	AUG 28 2001	V2.00	Mounting NPH changed from 156 to 189
2	Sept 17 2001	V2.00	W3 & W4 changed from tab to eyelets
3	SEPT 17 2001	V2.00	L4,L5,L8 POLARITY SHOWN
4	OCT 04 2001	V2.00	ADD L2&R1 ACROSS L8
5	FEB 14 2002	V2.1	ADD R2 220K 2W ACROSS C7
6	FEB 14 2002	V2.1	FIX HOLE SIZE FOR L5&L8
7	FEB 14 2002	V2.1	FIX MASKING PROBLEM FOR R1&L2
8	D	V	N
9	D	V	N
10	D	V	N
11	D	V	N
12	D	V	N
13	D	V	N

### M1164 PENDING CHANGES

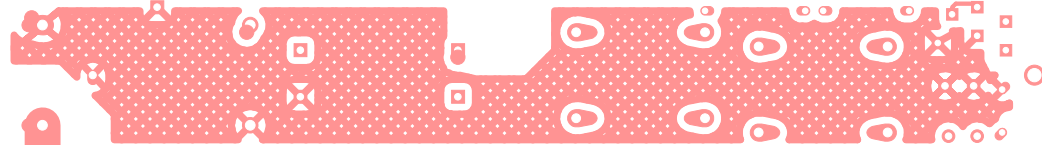
MODEL(S):- A4.4

#	PC#	PENDING CHANGE
1	PC	Force update parts #4595, 5521, 3682 which have new pads that reduce the chance of shorting.
2	PC	
3	PC	X
4	PC	X
5	PC	X
6	PC	X
7	PC	X
8	PC	X
9	PC	X
10	PC	X
11	PC	X
12	PC	X
13	PC	X

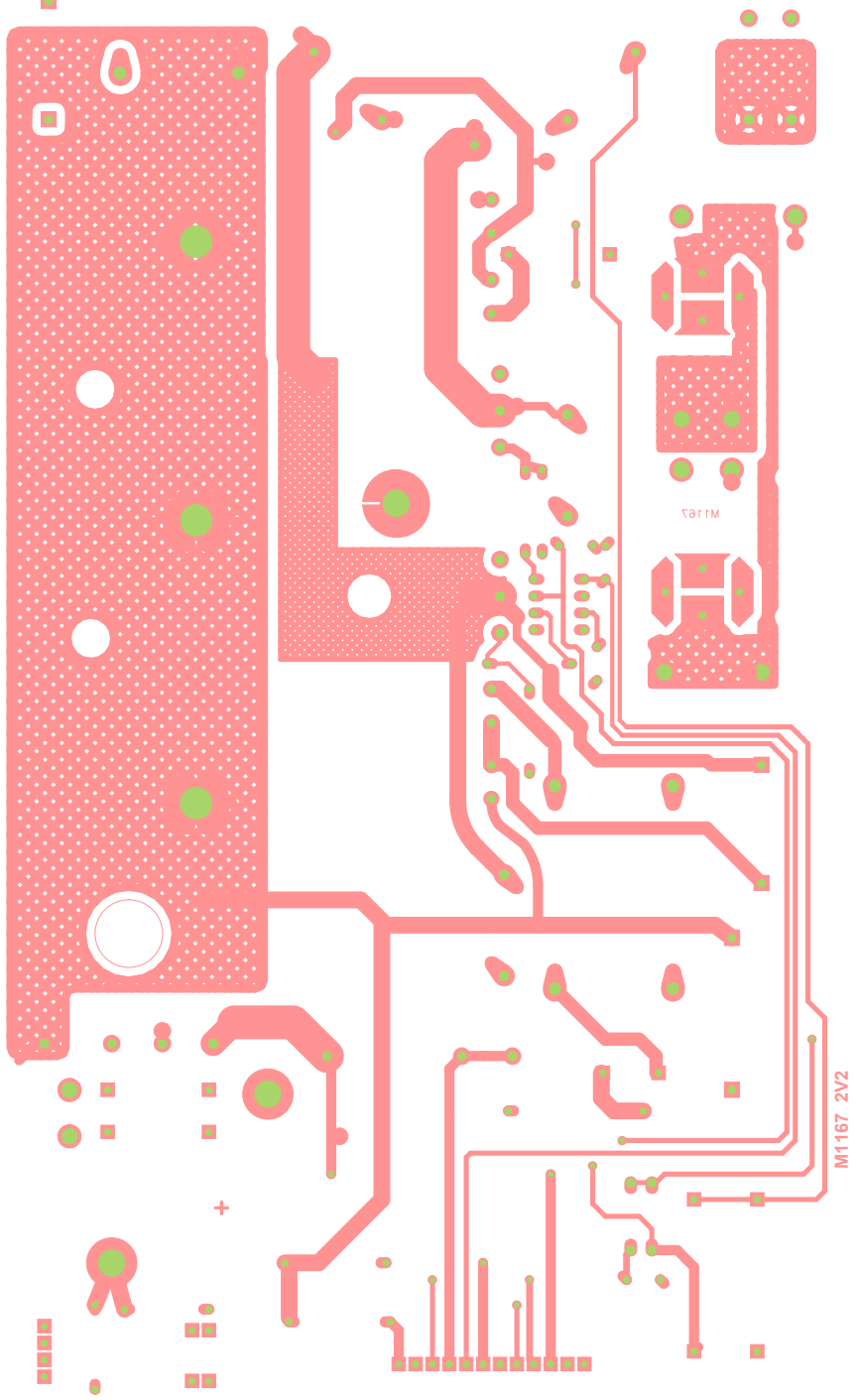
\*PLACE IMPLEMENTED CHANGES INTO BOARD HISTORY



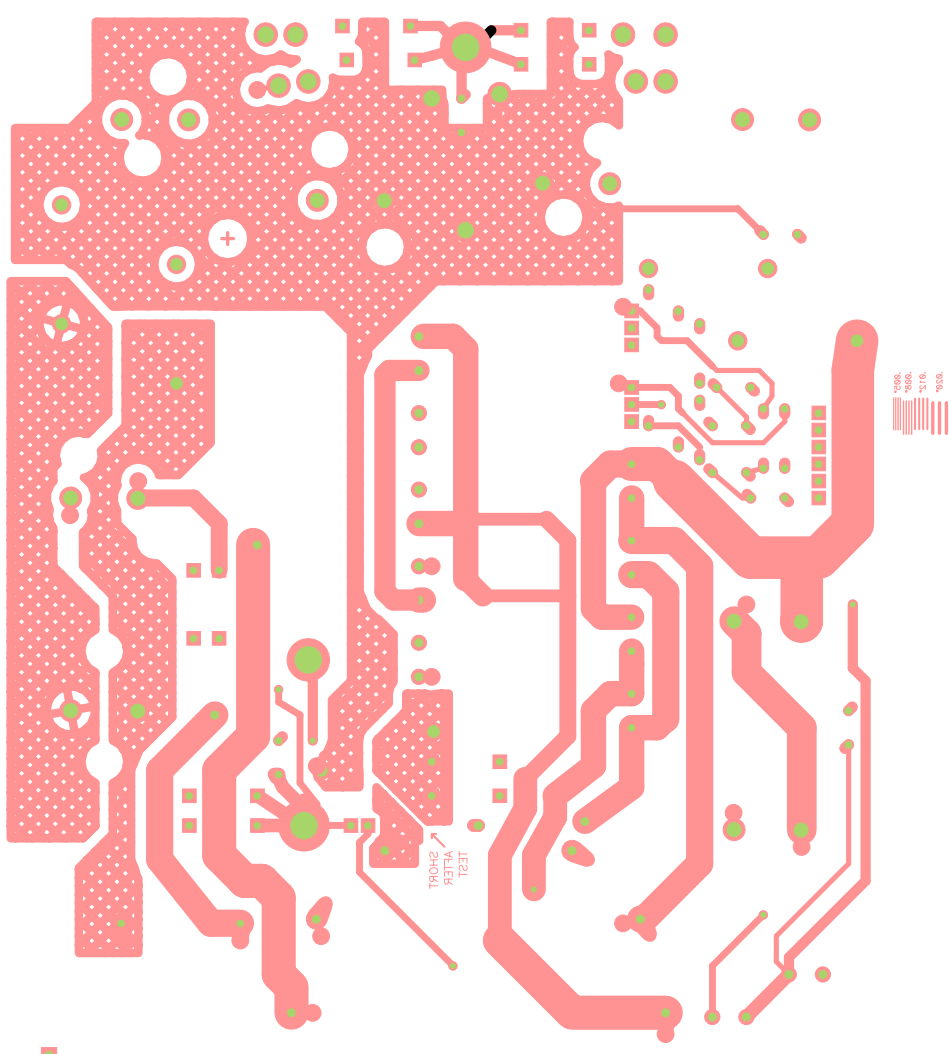
Ø1.5V-4ø11M





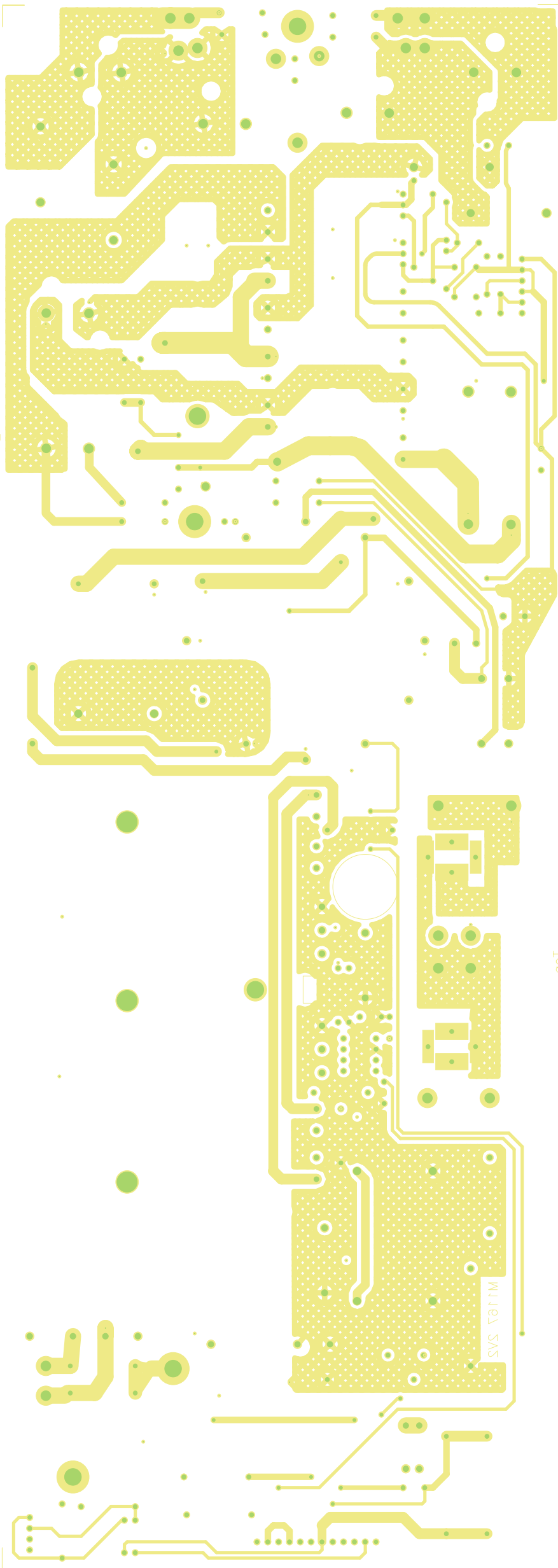


D2 Bottom M1167SAS



0.005"  
0.005"  
0.010"  
0.010"  
0.020"

PROBE  
GAGE  
CATCHHOLE



qoT

USE 2 OZ. COPPER

0.005"  
0.005"  
0.010"  
0.010"  
0.020"

.005"  
.010"  
.010"  
.020"

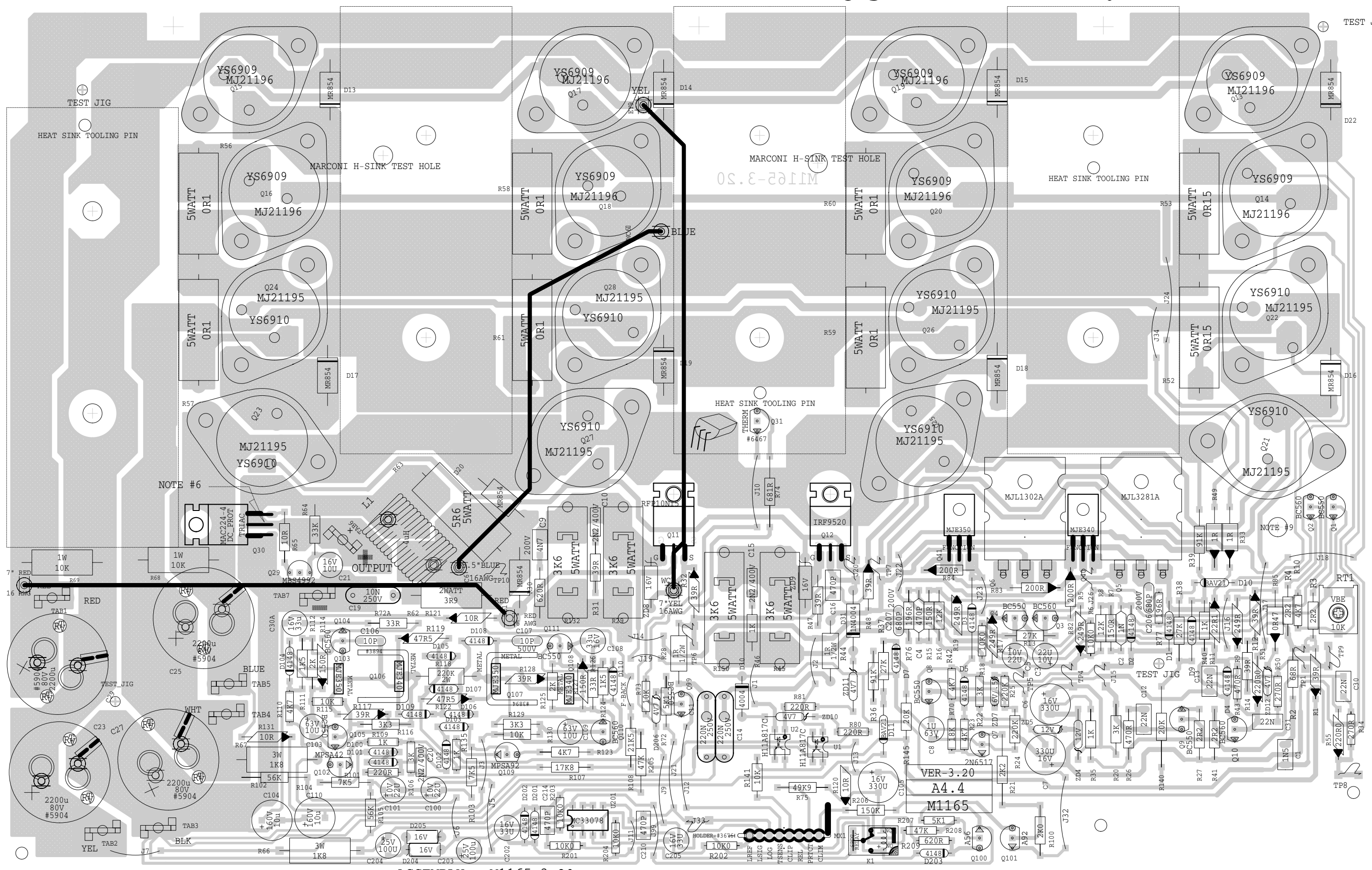
BLANK SIZE=14.500" X 9.500" X 0.0625" (1.1875" X 2.4125" X 0.015625")

SOZ COPPER

BLANK SIZE=14.500" X 9.500" X 0.0625" (1.1875" X 2.4125" X 0.015625")

M1165

A4.4

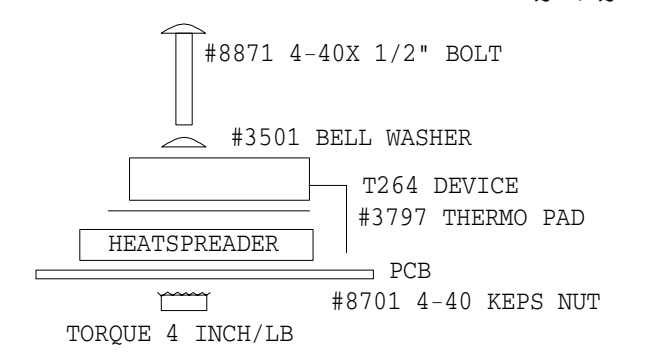


ASSEMBLY M1165-3.20  
PCB MECH M1165-3.20

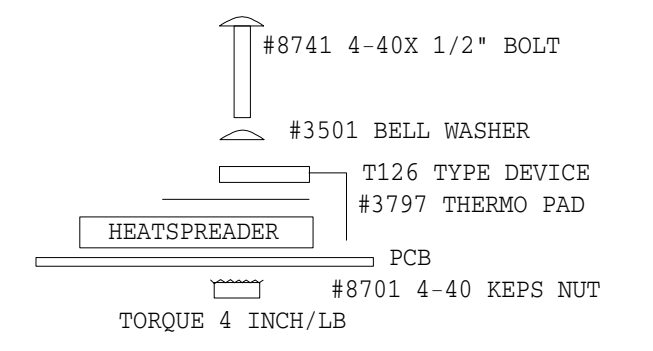
M1165 USE 2 oz. COPPER

PRODUCTION NOTES

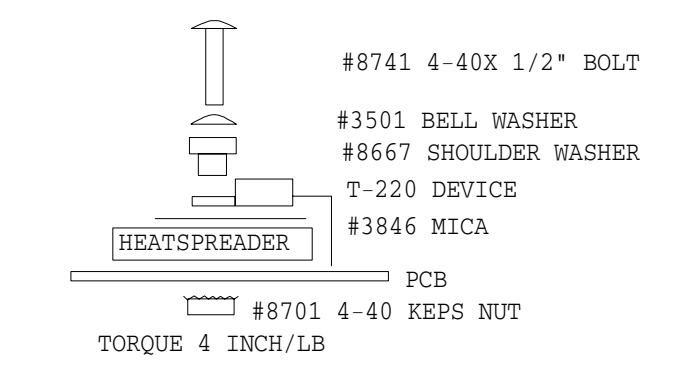
1 MOUNTING HARDWARE FOR Q5,Q6



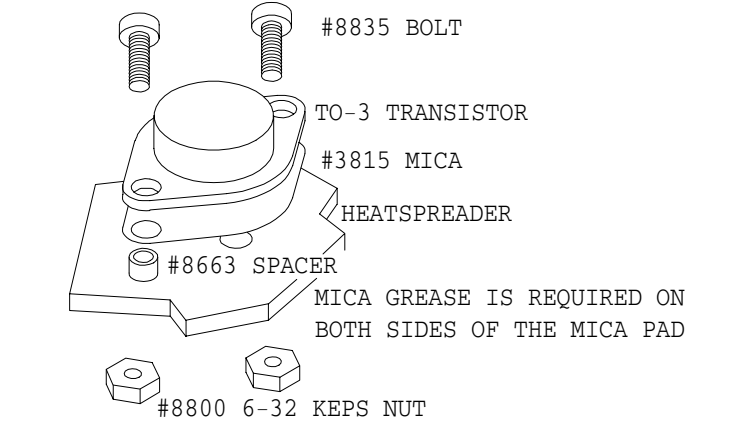
2 MOUNTING HARDWARE FOR Q40,Q41



3 MOUNTING HARDWARE FOR Q11,Q12



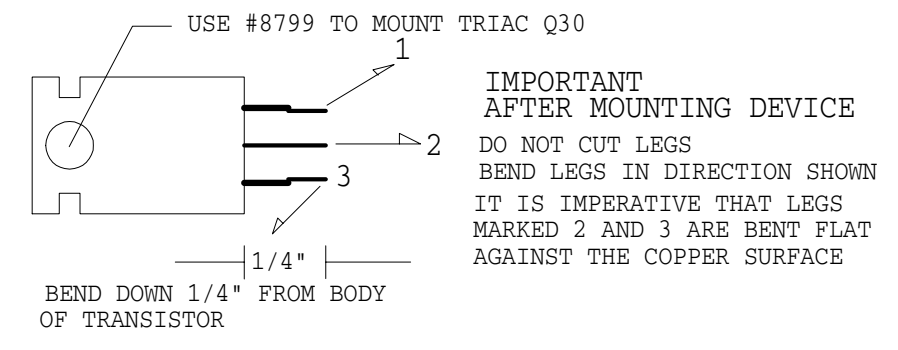
4 MOUNTING HARDWARE FOR TO3 OUTPUTS



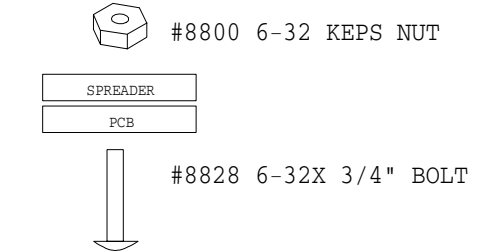
INITIAL TORQUE FOR TO-3'S IS 8 INCH/LB  
FINAL TORQUE AFTER HEATSINK HAS COOLED FROM WAVE SOLDER IS 6 INCH/LB

5 USE #4973FP SMALL BODY 1R 1W FOR R33,R49

6 MOUNTING DETAILS FOR Q30 TRIAC



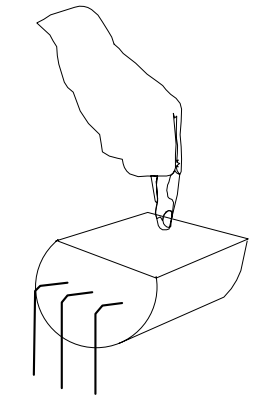
9 MOUNTING DETAILS FOR #6 SCREW



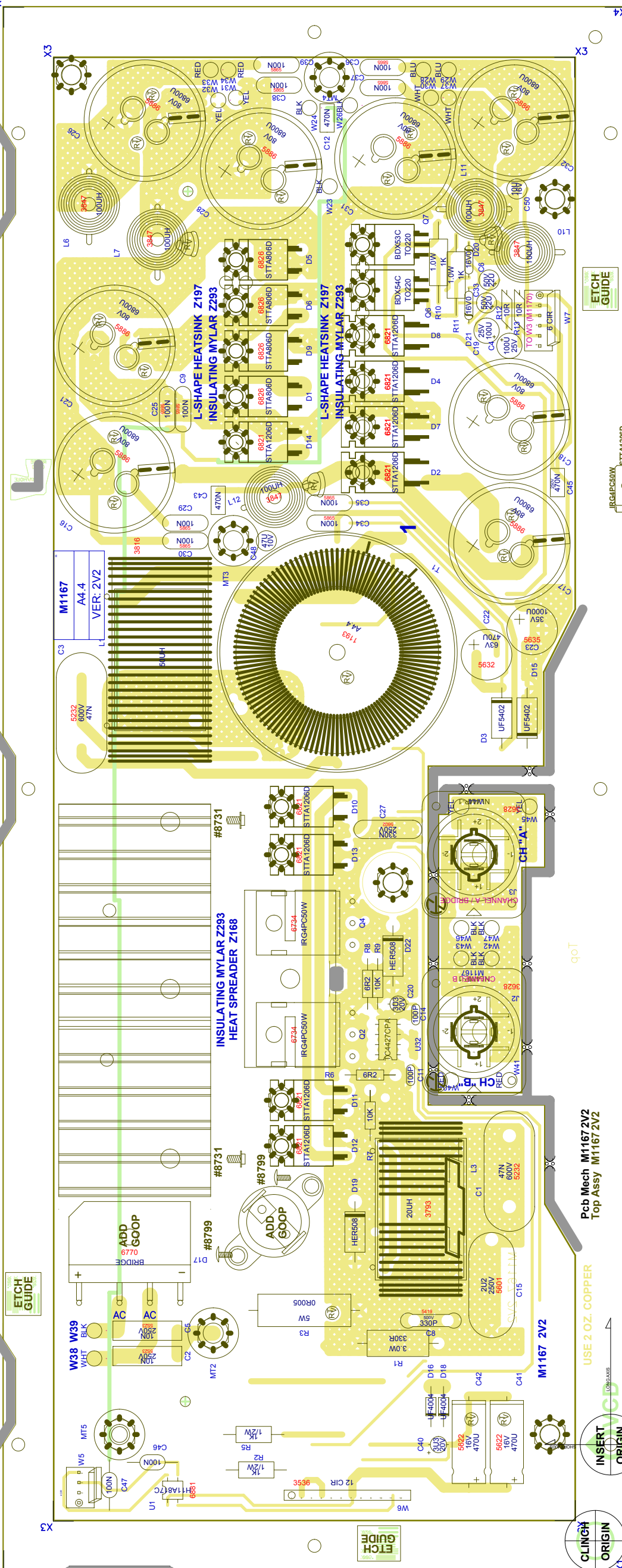
7 TAB WIRE COLOURS

TAB 1	RED	16AWG
TAB 2	YEL	16AWG
TAB 3	BLK	16AWG
TAB 4	WHT	16AWG
TAB 5	BLU	16AWG
TAB 6	OUTPUT +	
TAB 7	OUTPUT -	

8 Q31 IS HAND INSERTED AND BENT OVER WITH FLAT SIDE UP AS SHOWN.



M1165.PCB_DATABASE_HISTORY			
MODEL(S) :- A4.4			
#	DATE	VER#	DESCRIPTION OF CHANGE
1	SEPT/05/01	2.00	ADD RC NETWORK ON Q40,Q41
2	SEPT/05/01	2.00	R66&R67-->1K8/3W R72-->5K1
3	JAN/21/02	3.00	PC#6495 R76/R77 470R->196R C206/C207 220P->680P TRACES_CHANGED
4			PC#6510 J4->R141 10K
5	FEB/05/02		
6	MAY/16/03	3.10	PC#6607 C10,C15,C20 #5427->#5208
7	SEP/08/03	3.20	PC#6621 Q101 MPSA93->MPSA92
8		V	N
9		V	N
10		V	N
11		V	N



CLINGH ORIGIN

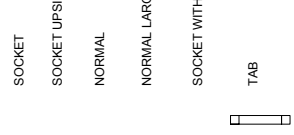
INSERT ORIGIN

USE 2 OZ. COPPER

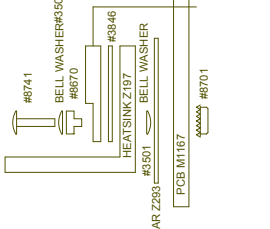
Pcb Mech M11672V2  
Top Assy M1167 2V2

MODEL(S):-		A4.4 SWITCH MODE POWER SUPPLY	
#	DATE	DESCRIPTION OF CHANGE	VER#
1	D	Mounting NPH changed from 156 to 189	2.00
2	D	move mounting hole near C24 and C15&C1 moved. Enlarge MTH pad for D14&D2	2.00
3	D	Corrections to some pads	2.10
4	APR/05/02	D2, D4, D7, D8 #6826->#6821	2.20
5	Oct/07/2003	N N N N N N N N N N	V V V V V V V V V V
6	D	N N N N N N N N N N	V V V V V V V V V V
7	D	N N N N N N N N N N	V V V V V V V V V V
8	D	N N N N N N N N N N	V V V V V V V V V V
9	D	N N N N N N N N N N	V V V V V V V V V V
10	D	N N N N N N N N N N	V V V V V V V V V V
11	D	N N N N N N N N N N	V V V V V V V V V V
12	D	N N N N N N N N N N	V V V V V V V V V V
13	D	N N N N N N N N N N	V V V V V V V V V V

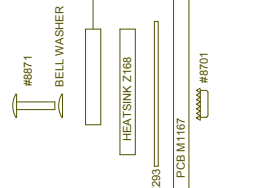
EYELET LEGEND



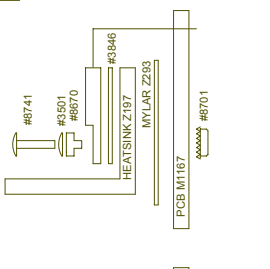
ASSEMBLY FOR D2 & D14



ASSEMBLY FOR D17



ASSEMBLY FOR D1, D9, D6, D5  
ASSEMBLY FOR D7, D4, D8, D6, Q7



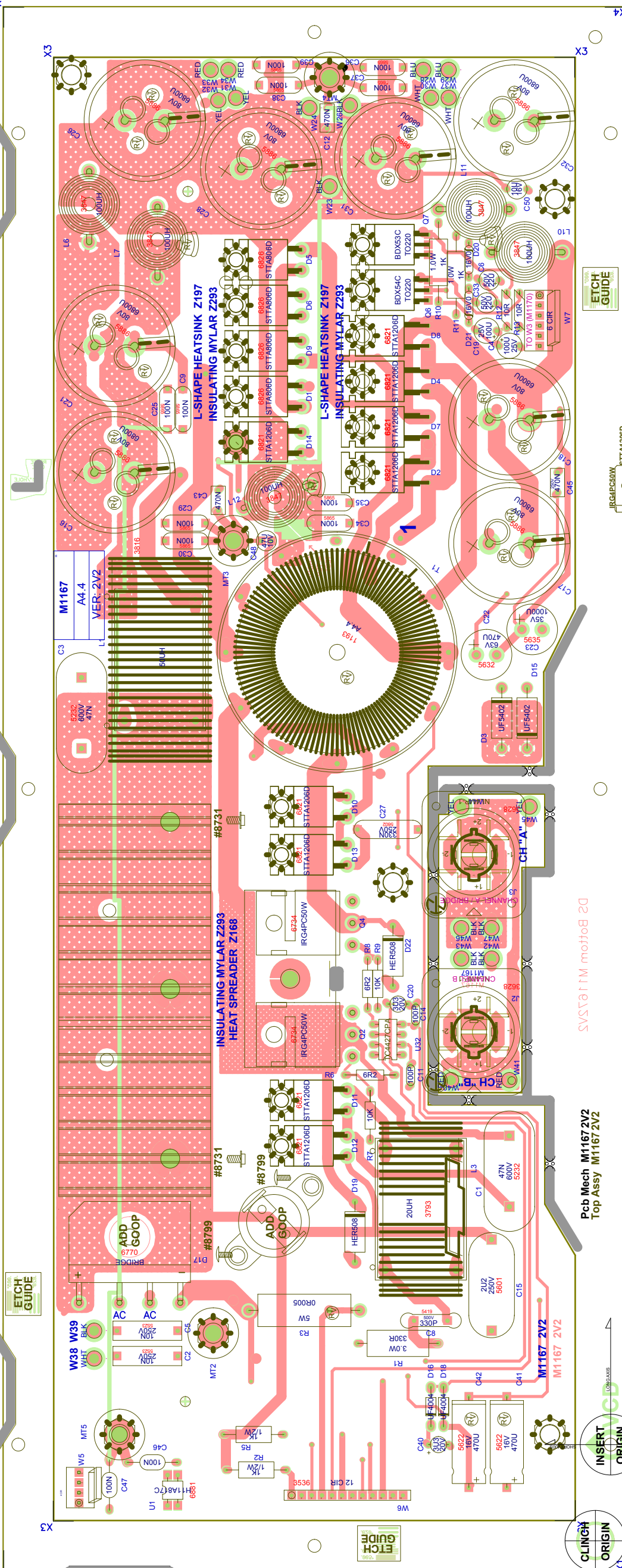
PRODUCTION NOTES:

1. CHECK ALL TO-220 & TO-3 PBL FOR SHORTS BEFORE WAVE SOLDER
2. SHORT SOLDER LINK AFTER FINISHING
3. USE I.C SOCKET FOR U32 PART #3564
4. FOR PARTS USING TEAR DROP SHAPE PAD BEND LEADS TO FOLLOW BARE COPPER OF THE PAD AS SHOWN
5. USE EPOXY TO GLUE T1 AND L1 TO PCB
- USE NUT AND BOLT (8747-8800) TO MOUNT T1

ETCH GUIDE

ETCH GUIDE

ETCH GUIDE



CLINGH ORIGIN

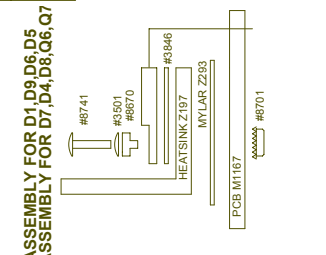
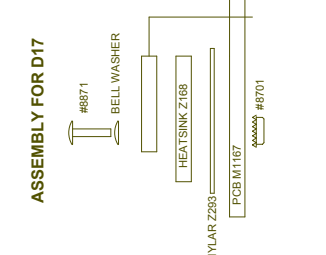
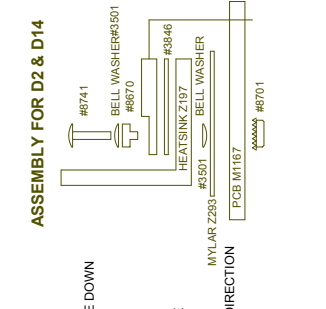
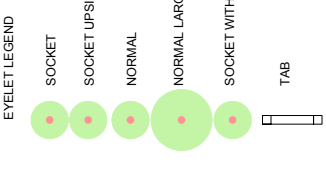
Pcb Mech M1167 2V2  
Top Assy M1167 2V2

SVS5811M motorB 2d

ETCH GUIDE

ETCH GUIDE

MODEL(S):-		A4.4 SWITCH MODE POWER SUPPLY	
#	DATE	DESCRIPTION OF CHANGE	VER#
1	D	Mounting NPH changed from 156 to 189	2.00
2	D	Mounting hole near C24 and C15&C1 moved. Enlarge MTH pad for D14&D2	2.00
3	D	Corrections to some pads	2.10
4	APR/05/02	D2, D4, D7, D8 #6826->#6821	2.20
5	Oct/07/2003	N N N N N N N N N N	V V V V V V V V V V
6	D	N N N N N N N N N N	V V V V V V V V V V
7	D	N N N N N N N N N N	V V V V V V V V V V
8	D	N N N N N N N N N N	V V V V V V V V V V
9	D	N N N N N N N N N N	V V V V V V V V V V
10	D	N N N N N N N N N N	V V V V V V V V V V
11	D	N N N N N N N N N N	V V V V V V V V V V
12	D	N N N N N N N N N N	V V V V V V V V V V
13	D	N N N N N N N N N N	V V V V V V V V V V



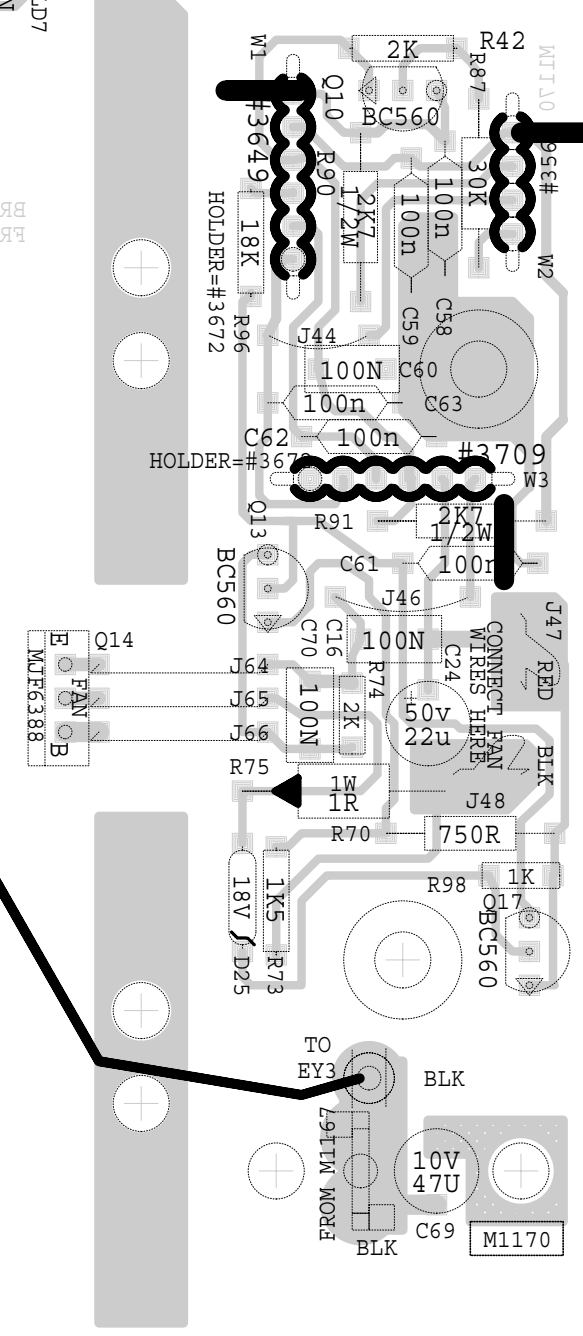
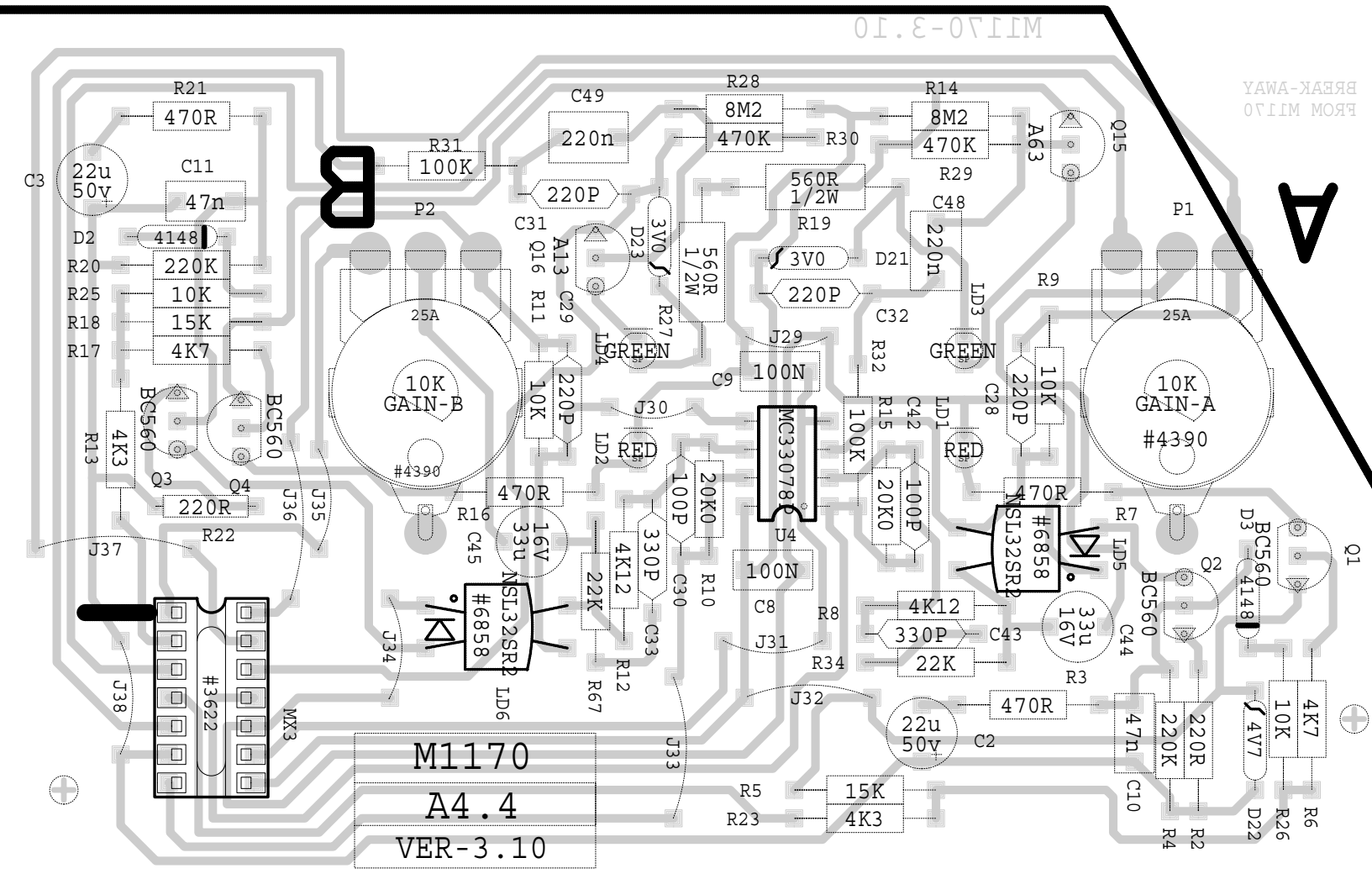
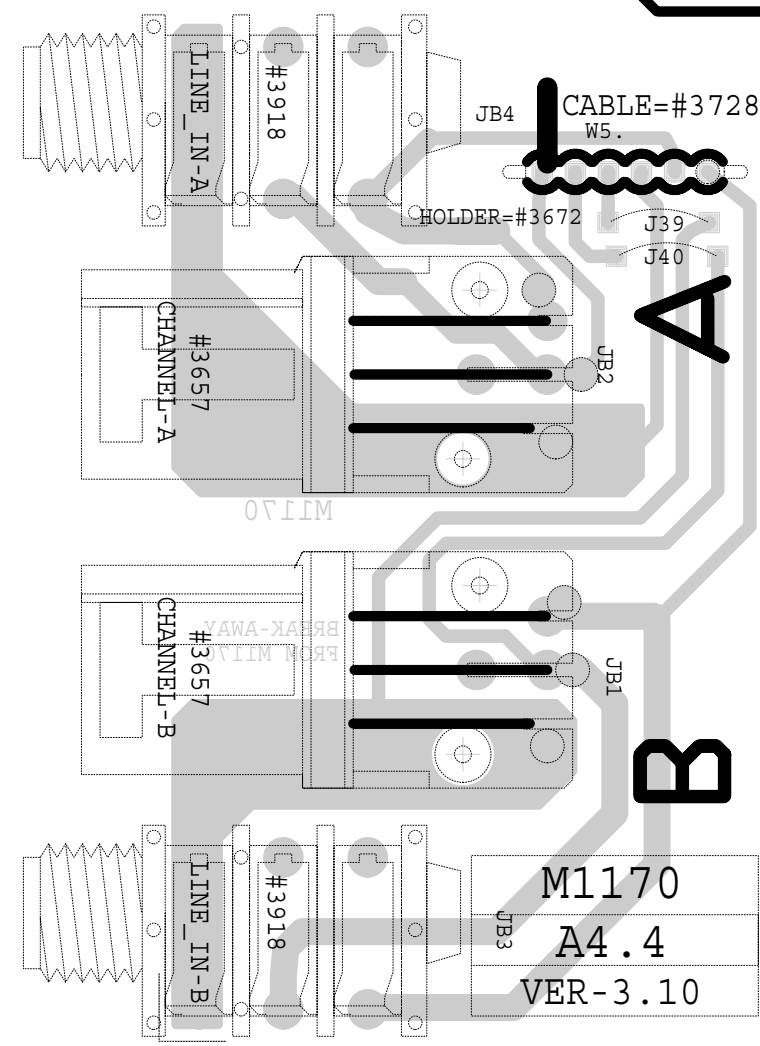
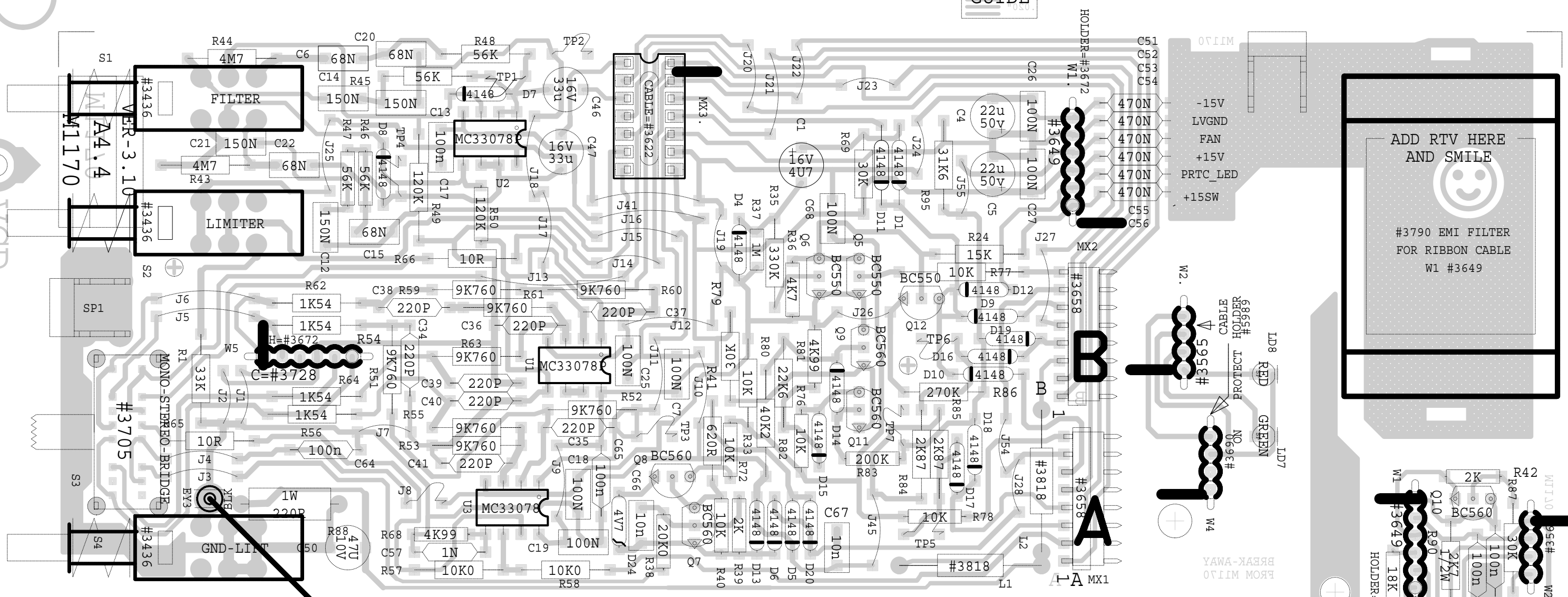
**PRODUCTION NOTES:**

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2. SHORT SOLDER LINK AFTER FINISHING
3. USE I.C SOCKET FOR U32 PART #3564
4. FOR PARTS USING TEAR DROP SHAPE PAD BEND LEADS TO FOLLOW BARE COPPER OF THE PAD AS SHOWN
5. USE EPOXY TO GLUE T1 AND L1 TO PCB
- USE NUT AND BOLT (#8747-8800) TO MOUNT T1



1170CMP.PRN

VCD



GOLDBRIDGE M1170-3.10

M1170.PCB DATABASE HISTORY

M1170.PCB POT LIST

MODEL(S) :- A4.4 PCB MECH M1170-3.10

MODEL(S) :- A4.4

#	DATE	VER#	DESCRIPTION OF CHANGE
1	FEB/07/00	P1	FIRST PROTO
2	MAY/05/01	P2	2nd PROTO
3	AUG/28/01	V2	R33-->10K, R86-->120K, R85&R84-->2K87
4	AUG/28/01	V2	S2, S4 REVERSED--->CHANGED
5	AUG/28/01	V2	JB1, JB2 ADD HOLES FOR MOUNTING
6	SEP/11/01	V2	R73-->1K3, Q14-->MJF6388
7	SEP/11/01	V2	MOVE LED-PCB MOUNTING-HOLE
8	NOV/15/01	2.10	PC#6466 LD5, LD6 NSL28AA->NSL32SR2
9	FEB/11/02	3.00	PC# _____ REPLACE AN WIRE_EYELETS_ WITH RADIAL JUMPERS
11	FEB/25/03	3.10	PC#6588_R86_120K->270K

REF	FUNCTION	PART#	KNOB	AS OF
P1	CHAN_A_GAIN	4395	8433	FEB/07/00
P2	CHAN_B_GAIN	4395	8433	FEB/07/00
R	F	P	K	N
R	F	P	K	N
R	F	P	K	N
R	F	P	K	N

PRODUCTION NOTES:

1. C24 USE #5631 (SHORT) 22U/50V

