PRIDE KW-ONE

LINEAR AMPLIFIER

Operator's Manual

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Congratulations! You have just entered the world of high power, high reliability communications with your purchase of a Pride KW-ONE Linear Amplifier. Using a ceramic-metal tetrode, the 4CX-250B, the KW-ONE offers commercial ruggedness at a price the amateur can afford. Designed for easy installation and use, the KW-ONE will be a valuable asset to your amateur station.

SPECIFICATIONS:

Frequency Range

3.5 to 4.0 MHz (80 meters)
7.0 to 7.3 MHz (40 meters)
14.0 to 14.35 MHz (20 meters)
21.0 to 21.45 MHz (15 meters)
28.0 to 29.7 MHz (10 meters)

Spectral Purity

All harmonics are down at least 45 dB from 500 watts peak power output on all bands.

Drive Requirements

Drive required can be user adjusted from 80 to 150 watts for full power output.

RF Power Specifications

Power input is 1KW peak, resulting in at least 650 watts peak power output. CW power input is 750 watts maximum, 50% duty cycle, 30 seconds key down time maximum. Continuous duty modes such as SSTV, RTTY, etc., must be limited to 500 watts input. Maximum key down time at 500 watts input is 5 minutes.

Output Impedance

50 ohms nominal, 2.0 to 1 SWR maximum

Input Impedance

50 ohms nominal, 1.4 to 1 SWR maximum

KW-ONE Features:

Front panel multimeter reads both power output and plate current.

High/Low power switch allows easy tune ups

A 4CX-250B commercial/military standard transmitting tetrode is used with forced air cooling for high reliability and long life.

The power supply components are of the highest quality and were designed especially for the KW-ONE.

High spectral purity is attained with a Pi-L output network, used by the best amateur and commercial amplifiers. Harmonics are usually down by 50 to 55 dB, nominal.

No input tuning required; resistive input circuitry has low input SWR.

Front Panel Controls and Features

Plate tuning
Bandswitch
Plate loading
Power on/off
Meter switch, Plate current/Power output
High-operate/Low-tune switch
Meter, reading power output or plate current
LED indicators for AC on, Standby, Operate, and screen overload

Rear Panel

RF input SO-239 connector
RF output SO-239 connector
Keying jack
10 A fuseholder
Bias adjustment pot.

FCC Requirements

The Pride KW-ONE meets or exceeds all FCC spectral purity requirements

CIRCUIT DESCRIPTION:

The KW-ONE uses a 4CX-250B tetrode transmitting tube in a grounded cathode, driven grid configuration. A 50 ohm attenuator/load is used in the grid circuit to provide a stable, low SWR load for the driver transmitter, and to set up the proper RF drive voltages on the grid of the tube. Taps are provided on the attenuator to allow drivers of different power levels to be used. The tube is run in class AB, which gives good linearity and good efficiency, with low distortion products and harmonics.

The output circuitry is standard Pi-L, with the image impedance at 200 ohms. It will easily match most loads from 25 to 100 ohms, with up to a 2 to 1 SWR. The transmit/receive function is controlled by an internal relay, which is keyed by grounding a pin on the keying jack.

INSTALLATION

WARNING WARNING WARNING

LETHALLY HIGH VOLTAGES ARE PRESENT INSIDE THE AMPLIFIER UNIT. NEVER REMOVE EITHER TOP OR BOTTOM COVER WHEN POWER LINE IS CONNECTED. DO NOT ATTEMPT TO OPERATE UNIT WHEN COVERS ARE REMOVED:

1) Lethal voltages would be open to contact.

2) Protective interlock on top cover will short circuit the high voltage power supply: attempting to operate under these conditions can cause damage to power supply, amplifier tube, or both.

3) Attempting to operate the unit with bottom cover removed causes loss of air pressure to the tube, and can cause rapid failure of the tube.

4) Attempting to operate the unit with top cover removed (with the interlock blocked) may make the amplifier erratic in tuning and performance due to the high level of RF on the top chassis coupling to the coaxial input cable at the rear of the chassis.

If repairs should be necessary, contact the factory, or a repair facility with proper equipment and technical experience for the servicing of high power amplifiers.

If covers need be removed, allow two minutes after turning the unit off and unplugging the line cord before removing the covers.

GENERAL:

1) Connect a short length of coaxial cable from the exciter to the amplifier input connector. RG58/U or RG8/U may be used and a PL 259 connector is required at the amplifier end of the cable. This cable should be as short as is practicle, preferable under five feet.

2) Connect antenna or suitable high power dummy load to the output connector of the amplifier using RG8/U coax. The smaller RG58/U coax may be used with matched antenna systems (better than 1.5 to 1 SWR) But will have somewhat higher loss. The amplifier will match most loads from 25 to 100 ohms.

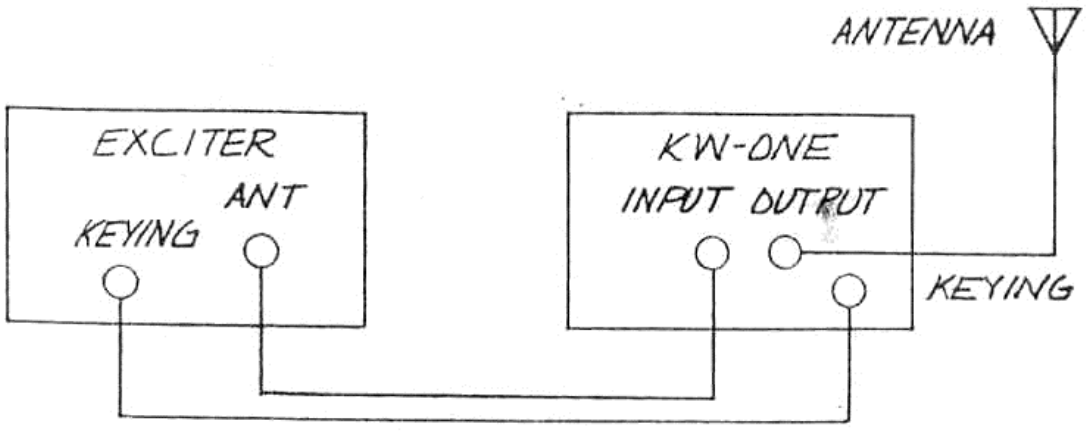
3) Exciter power level can be adjusted by moving the tap on the resistor board underneath the relay board in the main chassis. If your exciter falls in the 80 to 100 watt output region, leave the tap as it comes from the factory. If the output of your rig is around 125 to 150 watts, move the tap down one or two posts, or until you just reach maximum output with the output of your exciter.

4) Connect the keying jack to the accesory relay contacts on your transmitter that close when in the transmit mode. Pin 2 on the keying jack (may be labeled "Metering" on some units) must be grounded on transmit, either by returning it to a chassis ground or to pin 3, which is internally connected to ground.

5) The unit should be grounded for RF by attaching a ground strap of coaxial shield or #10-12 gauge wire to the ground post on the amplifier. This should be connected by a short direct run to a ground rod or cold water pipe. The idea is to have a short direct earth ground to keep the chassis at

radio frequency ground. In many cases normal operation can be had without such a ground, but a good ground can help prevent television interference, and make tuning easier.

6) The AC line cord may be plugged into a three wire outlet. The electrical circuit should be capable of handling a 1[illegible] amp load.



OPERATION

1) Check to see that the HIGH-OPERATE/LOW-TUNE switch is in the LOW-TUNE position, and that the OPERATE/STANDBY switch is in the STANDBY position. Apply power to the unit by switching the POWER switch to the ON position. You will hear the cooling blower come up to speed. Wait 60 seconds for the tube to come up to operating temperature.

2) During the time that the amplifier is warming up or at any time that the unit is in the STANDBY mode, the exciter may be operated normally "straight through" the amplifier.

3) Set the band switch to the same band as that the exciter is tuned to.

4) After warm up, place the HIGH-OPERATE/LOW-TUNE switch into the LOW-TUNE position, and the OPERATE/STANDBY switch into the OPERATE position. The Operate LED will light up, indicating that the unit is ready for operation.

5) Rotate the PLATE LOADING control to the nine o'clock (counter-clockwise) position.

6) Apply some drive from the exciter and quickly peak the PLATE TUNE control for maximum output as indicated on the front panel wattmeter. The screen overload indicator may glow at this time, and will peak in brilliance at approximately the same place of tuning that maximum output occurs.

7) The PLATE LOADING control is then turned clockwise 1/2 division or so, and the PLATE TUNING control is peaked again for maximum output. The brilliance of the screen indicator will peak again, but not quite as brightly as before. This process is continued until a further increase in the PLATE LOADING control will give no further increase in power output.

8) Unkey the exciter and place the OPERATE/TUNE switch into the OPERATE position. When the exciter is keyed again, the power output will be somewhat higher, and the screen indicator may glow brightly again. Repeat the procedure as before, tuning the PLATE LOADING and PLATE TUNING controls alternately for maximum output. The PLATE TUNING control should always be the last control that is adjusted. Power output should be about 500 watts for full drive at this point. When the unit is properly tuned, the screen indicator should glow only dimly. The plate current should be in the neighborhood of 400-450 mA.

9) For continuous duty modes, reduce input power accordingly and repeak all operating controls. It is important to optimize the loading and tuning controls for the lower power level or else the amplifier will run very inefficiently. Limit the input power to around 500 watts(240 mA plate current), with output in the neighborhood of 250-275 watts.

NOTE: The idle bias current on the plate should be in the neighborhood of 35 to 40 mA. If it is different from this, adjust the bias pot on the back panel to correct the reading.

HINTS AND KINKS (or how to keep it amplifing a long, long time):

1) Make sure that the tube always receives a good air flow. Remember that a lot of watts are being packed into that rather small package, and that the only way to keep it cool is to get air through the tube fins. Do not block the top of the cabinet, or stack other equipment on the amplifier. Make sure that the rear of the amp (where the blower gets its air) is open to cool room air. If the bottom cover of the unit has to be removed for service, see that it is replaced properly prior to plugging the unit in (for safety also). The bottom chassis must be pressurized in order to force air through the fins on the tube.

2) Always wait 60 seconds before applying drive to the tube. Allowing the tube to properly warm up will help you get the longest service from it.

3) After a long period on the air, let the amplifier run in the standby mode for a minute or so before turning off the power switch. This allows the blower to bring the tube down to a cooler temperature fairly rapidly.

4) Avoid excessive RF drive to the amplifier.

5) Use care in tuning -- most tube failures are the result of operator error, not equipment failure

The 4CX-250B transmitting tube has been proven in commercial and military uses where long life and reliability are major factors. Although it is destined to work a little harder in amateur service, it will still be extremely reliable if these few rules are adhered to.

PARTS LOCATIONS AND CIRCUIT OPERATION:

1) Power Supplies:

A) High Voltage Supply: The high voltage supply consists of the plate supply transformer located on the top of the chassis, and the two rectifier-filter boards below chassis directly under the plate transformer. A bridge rectifier circuit is used, which allows good utilization of the transformer with less heating than voltage doubler circuits. Both circuit boards are the same, with the exception of the jumpers which determine whether the filter capacitors are on the high side of the s eries filter string, or on the low side. The low side board also contains two 6.8 ohm 2 watt metering resistors. Each board contains one half of the bridge rectifier circuit, with appropriate jumpers between the boards. The filter string consists of six 100 uF electrolytic capacitors in the series, with voltage equalizing resistors across each one. The time constant of the filter when no current is being drawn is approximately 20 seconds, so that supply will be largely discharged 60 seconds after turn off (ALWAYS CHECK!). The high voltage developed by the supply is approximately 2200 VDC no load, and 1800 VDC at 500 mA.

B) Screen and Bias Supplies: The screen and bias supply is also bridge rectified, but with a center tapped transformer and filter string that allows a split output voltage. Approximately 700 VDC is developed across the two 50 uF filter caps, but due to the circuit configuration this shows up as +350 and -350 VDC. The +350 is fed through a 30 ohm metering resistor to the screen. The -350 is fed through two power resistors to provide source current for an 82 volt Zener diode that provides a stable bias supply voltage. This -82 volt supply is dropped in a voltage divider consisting of the back panel bias pot and two 3300 ohm, 2 watt resistors to provide an adjustable stable bias source for the tube control grid.

C) Low Voltage Supply: This supply consists of a full wave voltage doubler which is supplied from the 6.0 volt filament winding on the smaller transformer. Twelve to 15 volts DC is developed for use of the relay and indicators.

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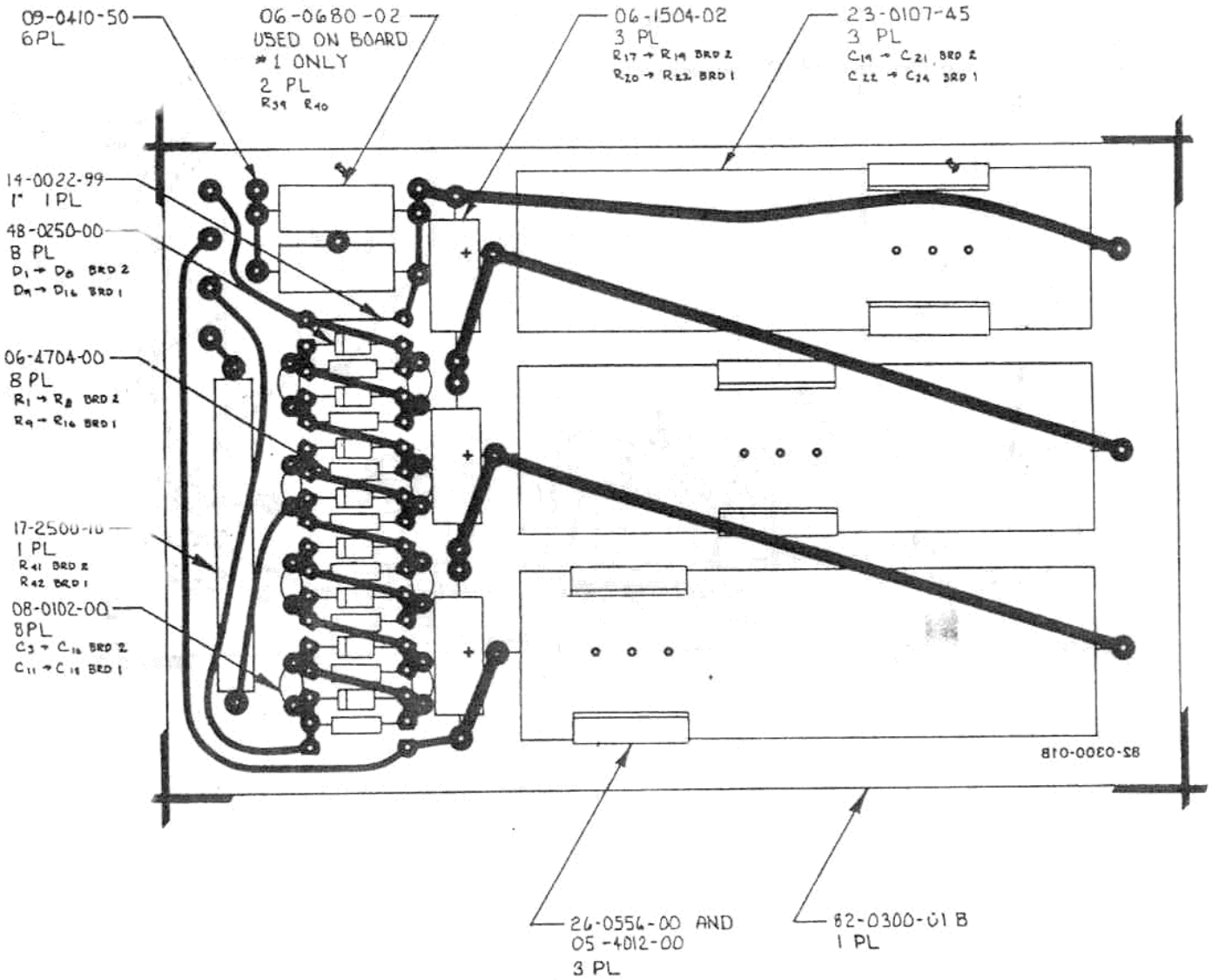
B	REVISED PER ECN 1040	3-18-77



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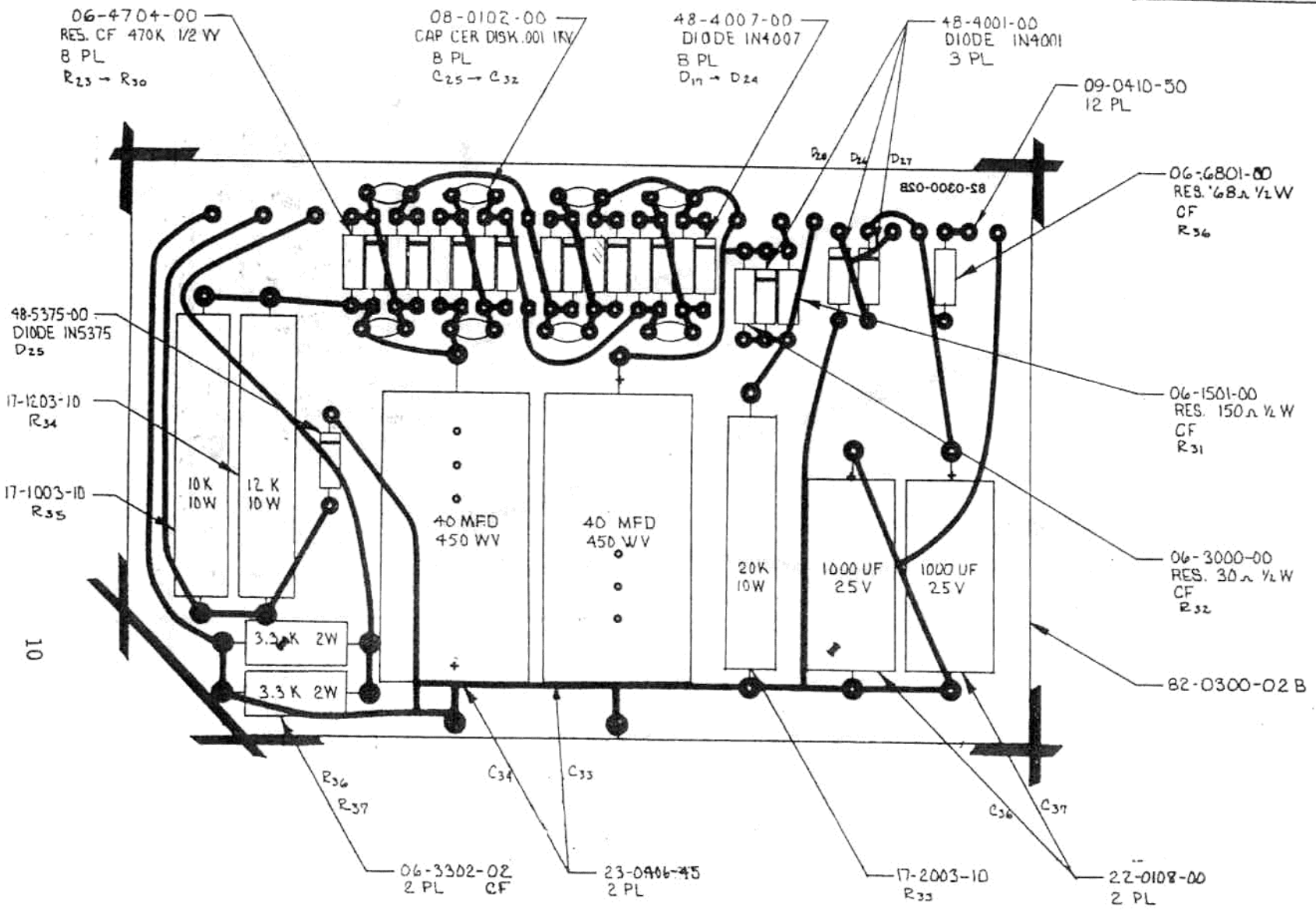

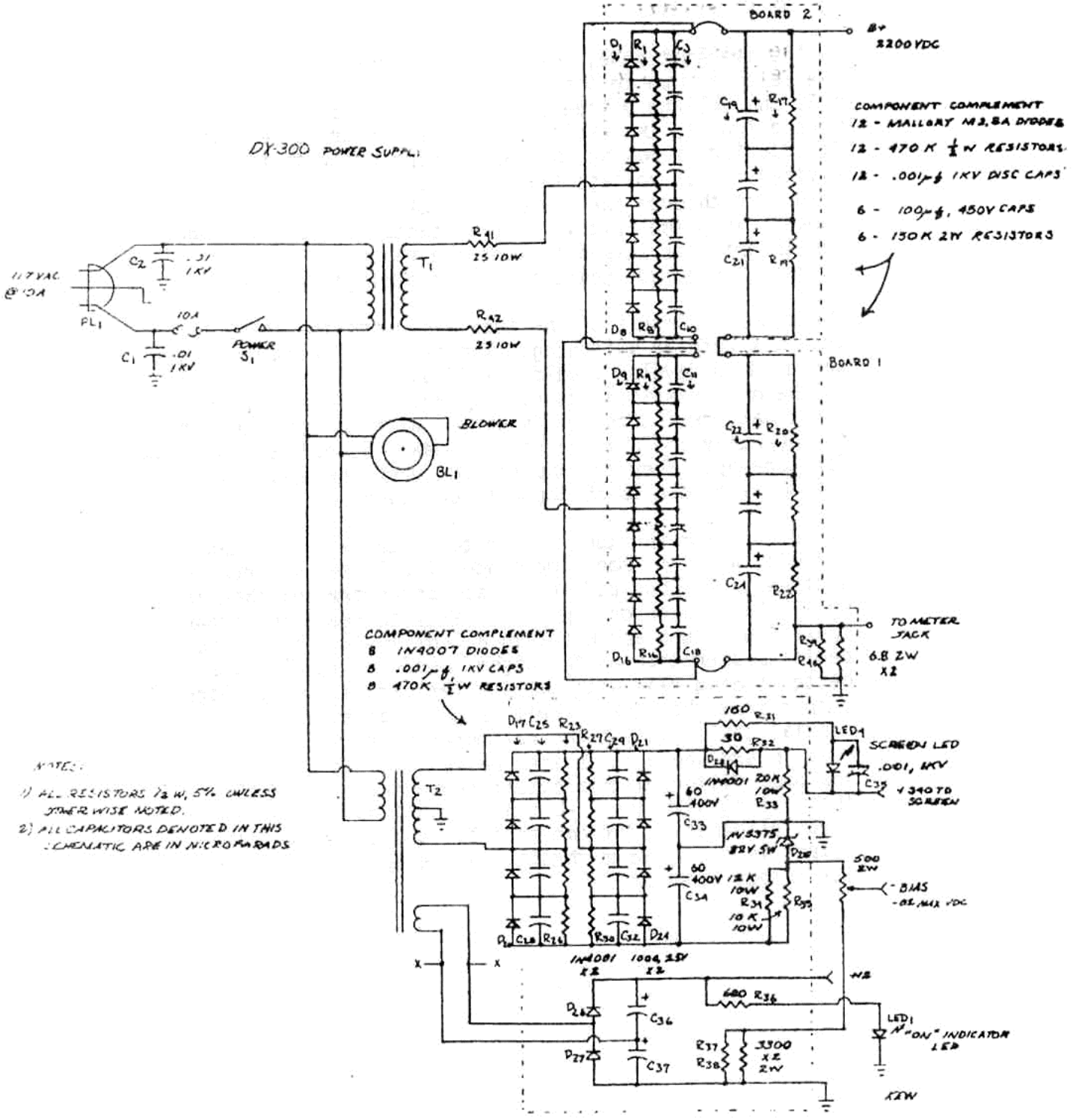

NOTES:

1) ALL RESISTORS 1/2 W, 5% UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS DENOTED IN THIS SCHEMATIC ARE IN MICROFARADS

2) RF Circuitry:

In the transmit mode, the RF drive power is passed through the relay and on to the input attenuator, which is actually a 50 ohm voltage divider, and is responsible for presenting a good load to the exciter. The proper drive sensitivity is adjusted by moving the tap appropriately on this voltage divider. Bias voltage for the tube is impressed upon the grid line through the use of a blocking capacitor and RF choke. When the unit is in the standby or receive mode, the RF drive is passed through the relay and back out through the output connector, with negligible loss.

The cathode circuit of the tube also uses the relay for transmit/receive switching. The two 18K 2 watt resistors are used to develop a self-cutoff bias when the relay is in the open position (standby or receive). The two 270 ohm 2 watt resistors are in series with the cathode line to the relay and are used to cut down the gain of the tube for tune-up. They are shorted out when the operate/tune switch is thrown to the operate position.

RF output from the tube is fed to a standard Pi-L tank circuit, with an image impedance of 200 ohms between the sections. Various padding capacitances are switched in by the bandswitch on the lower bands to reach the proper operating values and maintain a Q of 10-12. This also benifits operation on the higher bands as it allows a better tuning rate with the smaller variable capacitors. Output from the tank circuit is then passed through a coaxial cable through the wattmeter board back to the relay board where it is then passed through a two section low pass filter, with a cutoff frequency of 33 MHz. This, along with the Pi-L tank, should go a long way towards eliminating the amp as a TVI source. The filter output is then passed through the relay and out the coaxial output connector.

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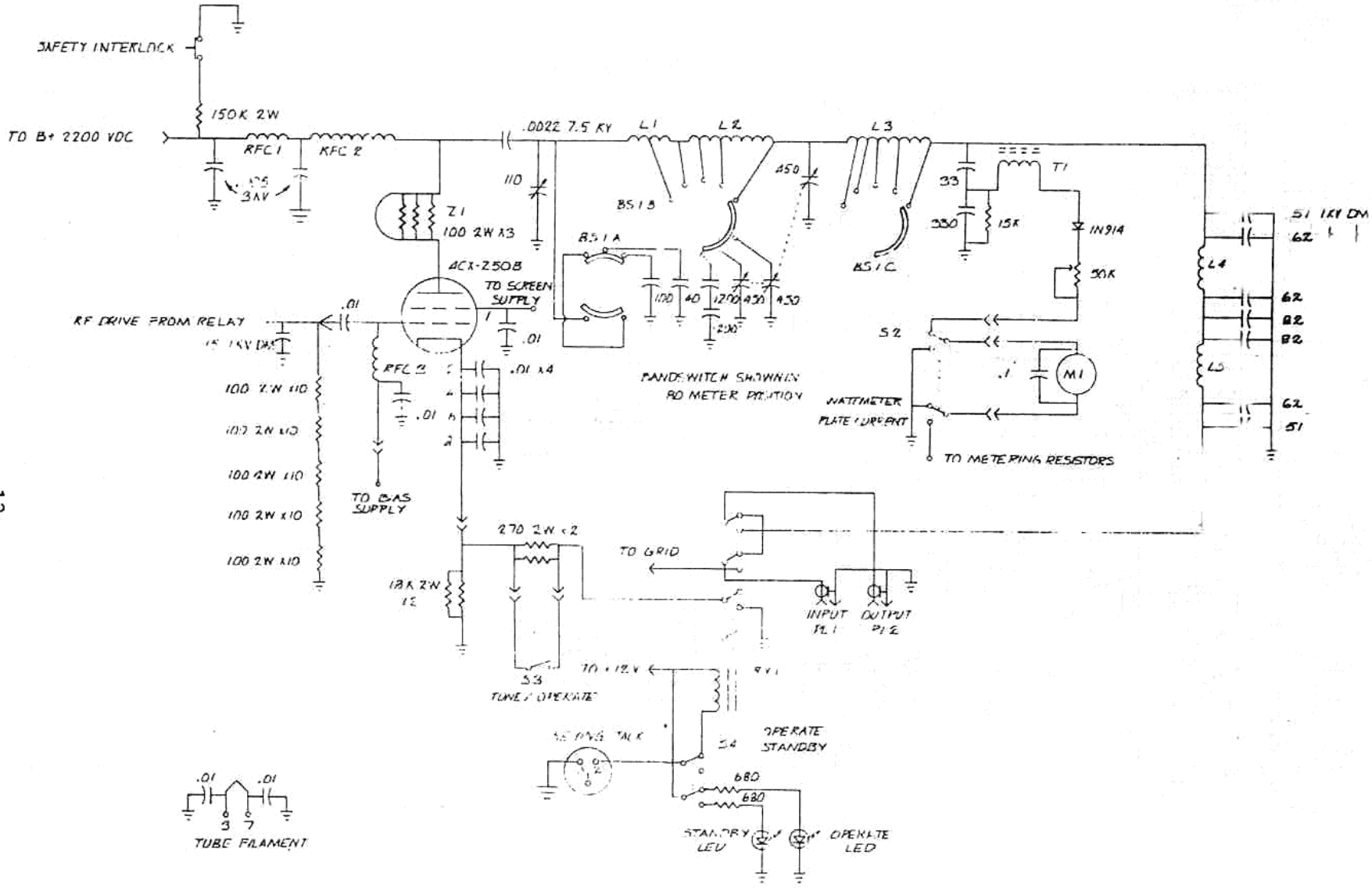

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TOLERANCES UNLESS OTHERWISE SPECIFIED	
FRACTIONS DEC ANGLES	
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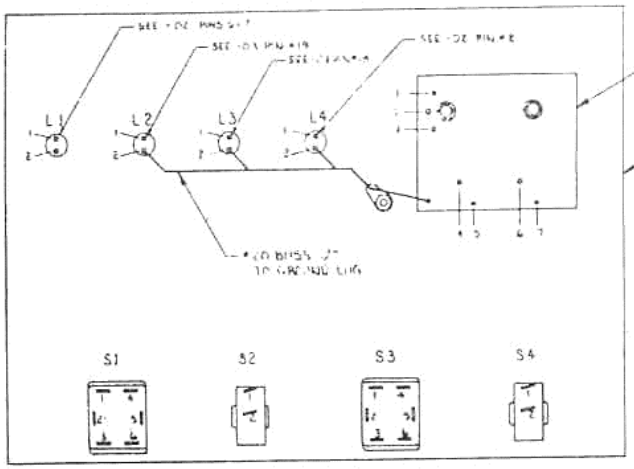
PRIDE KW-ONE

RF DECK SCHEMATIC



NOTES:

1. TWISTED TRIO. BLACK/GREEN/BLUE 34"
2. TWISTED TRIO. RED/ORANGE/VIOLET 28"
3. TWISTED PAIR. BROWN/BLUE 34"
4. TWISTED PAIR. BROWN/BROWN 27"
5. TWISTED PAIR. BROWN/WHITE 24"
6. TWISTED TRIO. BLACK/RED/YELLOW 14.5"
7. TWISTED PAIR. BLACK/BLACK 15.5"

	PIN OR LUG NO.	WIRE	SOCKETS	CLIP ON LUGS	GOES TO
01-0300-01	1	WHITE 6"	BOTH ENDS		PIN #14 ON 01-0300-03
	2	BLACK 5"	THIS END		CHASSIS GROUND LUG
	3	BLACK 5"	THIS END		PIN #3 ON 01-0300-03
	4	H.V. 4"	BOTH ENDS		PIN #1 ON 01-0300-03
	5	H.V. 5"	BOTH ENDS		PIN #5 ON 01-0300-03
	6	H.V. RED	THIS END		HIGH VOLT TRANSFORMER
01-0300-04	1	SEE-01 PIN #4			
	2	NONE			
	3	SEE-01 PIN #3			
	4	H.V. 4.5"	THIS END		HOLE #1 ON 01-0300-16
	5	SEE-01 PIN #5			
	6	H.V. RED	THIS END		HIGH VOLT TRANSFORMER
01-0300-05	1	GREEN 4"	THIS END		LUG #3 ON 01-0300-20
	2	BLACK 31" NOTE 1	THIS END		LUG #1 ON L4 (AC HI)
	3	ORANGE 28" NOTE 2	THIS END	1	LUG #5 ON S1
	4	WHITE 4"	THIS END		LUG #1 ON 01-0300-20
	5	YELLOW 4.5"	THIS END		LUG #1 ON 01-0300-20
	6	BLUE 34" NOTE 3	THIS END		LUG #1 ON L3 (SCREEN)
	7	BROWN 34" NOTE 3	THIS END		LUG #2 ON L3 (SCREEN)
	8	RED	THIS END		LOW VOLT TRANSFORMER
	9	RED	THIS END		LOW VOLT TRANSFORMER
	10	YELLOW 3"	THIS END		PIN #5 ON 18-5001-02
	11	GREEN 3"	THIS END		PIN #1 ON 18-5001-02
	12	BLACK 3.5"	THIS END		LUG #1 ON 01-0300-19
01-0300-06	1	BUSS #18 2.5"	THIS END		GND ON INPUT CONNECTOR
	2	BUSS #18 1.5"	THIS END		CENTER TAP "N" INPUT CONN.
	3	BUSS #18 2.5"	THIS END		GND ON OUTPUT CONNECTOR
	4	BUSS #18 1.5"	THIS END		CENTER TAP OF OUTPUT CONN.
	5	RED 5"	THIS END		LUG #2 ON 01-0300-20
	6	BROWN 27" NOTE 4	THIS END	1	LUG #1 ON S2
	7	BROWN 27" NOTE 4	THIS END	1	LUG #2 ON S2
	8	BLUE 4"	THIS END		PIN # 2 ON 18-5001-02
01-0300-07	9	01-0300-01 GRID	THIS END		CENTER TERMINAL ON 01-0300-20
	10	YELLOW 5"	BOTH ENDS		PIN # 6 ON 01-0301-04
	11	VIOLET 5"	BOTH ENDS		PIN # 1 ON 01-0301-04
	12	LOAN LINE 10"	BOTH ENDS		PIN # 6 ON 01-0301-19
	13	LOAN SHIELD 10"	BOTH ENDS		PIN # 7 ON 01-0301-19
	14	SEE-01 PIN #1			
	15	VIOLET 28" NOTE 2	THIS END	1	LUG #4 ON S1
	16	RED 28" NOTE 2	THIS END	1	LUG #6 ON S1
	17	WHITE 24" NOTE 5	THIS END	1	LUG #1 ON S3
	18	GREEN 32" NOTE 6	THIS END		LUG #1 ON L3 (STAND BY)
	19	BLUE 34" NOTE 3	THIS END		LUG #1 ON L2 (OPERATE)
	20	YELLOW 5"	THIS END		LUG #2 ON 09-7135-00

	PIN OR LUG NO.	WIRE	SOCKETS	CLIP ON LUGS	GOES TO
01-0300-09	1	BLACK 14.5" NOTE 6	THIS END	1	LUG #2 ON S3
	2	RED 14.5" NOTE 6	THIS END	1	LUG #3 ON S3
	3	YELLOW 14.5" NOTE 6	THIS END	1	LUG #6 ON S3
	4	COAX DIA 19"	THIS END		BOTTOM TAP OF 01-0301-17
	5	COAX SHLD 19"	THIS END		GROUND LUG ON 01-0301-05
	6	SEE-03 PIN #12			
	7	SEE-03 PIN #13			
01-0300-19	1	SEE-02 PIN #8			
	2	BLACK 4"			LUG #3 ON 09-7135-00
	2	BLACK			BLOWER 87-1250-00
	2	BLACK 5" NOTE 7		1	LUG #1 ON S4
	3	BLACK			LOW VOLT TRANSFORMER
	3	BLACK			HIGH VOLT TRANSFORMER
	4	BLACK			LOW VOLT TRANSFORMER
	4	BLACK			HIGH VOLT TRANSFORMER
	5	WHITE			LINE CORD, POWER
	5	BLACK			BLOWER 87-1250-00
	6	GREEN			LINE CORD
	6	YELLOW/RED			LOW VOLT TRANSFORMER
01-0300-20	1	SEE-02 PIN #5			
	2	SEE-03 PIN #5			
	3	SEE-02 PIN #1			
	3	GREEN			LOW VOLT TRANSFORMER
	4	NONE			
	5	NONE			
	6	NONE			
	7	SEE-02 PIN #4			
	7	GREEN			LOW VOLT TRANSFORMER
	8	NONE			
S1	1	NONE			
	2	NONE			
	3	NONE			
	4	SEE-03 PIN #15			
	5	SEE-02 PIN #3			
	6	SEE-03 PIN #16			
S2	1	SEE-03 PIN #6			
	2	SEE-03 PIN #7			
S3	1	SEE-03 PIN #17			
	2	SEE-09 PIN #1			
	3	#18 BUSS 2"		1	LUG #4 ON BASE S3
	4	BROWN 11" NOTE 8		1	LUG #5 ON 09-7135-00
	5	SEE-09 PIN #2			
	6	SEE-09 PIN #3			
S4	1	SEE-13 PIN #2			
	2	BLACK 15" NOTE 9		1	SIDE TERMINAL ON FUSE
FUSE	CENTER	BLACK			LINE CORD, POWER
	SIDE	SEE S4 LUG #2			

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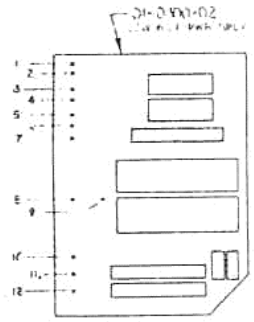
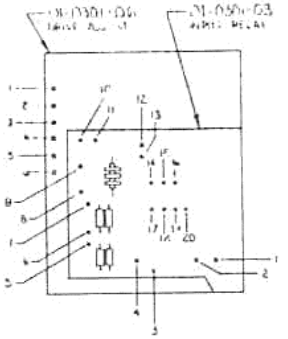
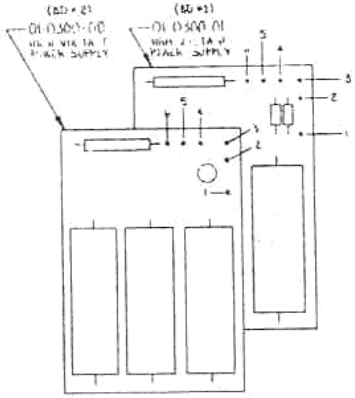
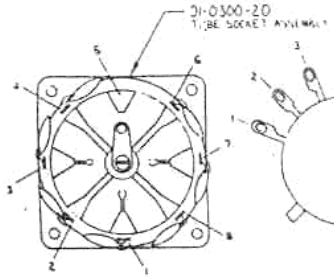
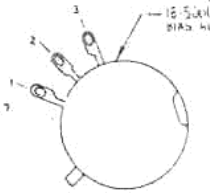
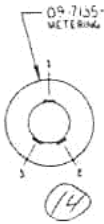


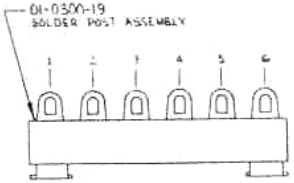


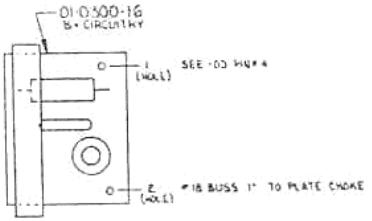












PRIDE ELECTRONICS			
WIRE CHART KW-ONE			
SCALE NTS	SIZE D	DRAWING NO. 88-0301-00	
DO NOT SCALE DRAWING		SHEET 1 OF 1	

TROUBLESHOOTING

General Considerations: When a piece of equipment has been working satisfactorily and suddenly fails, the cause of the failure may be apparent either because of circumstances occuring at the time of failure or because of symptoms analogous to past failures. In this case, it is unnecessary to follow a lengthy and orderly course of troubleshooting in order to localize and isolate the faulty part.

A second short cut is to examine the equipment section by section, for burned out elements, charring, corrosion, arcing, excessive heat, dirt, dampness, etc. It is important to recognize that defective elements may have become defective because of their own weakness or due to some contributing cause beyond their control.

VOLTAGE MEASUREMENT

As the voltages present on the KW-ONE chassis are potentially lethal, the procedure below must be followed when checking voltages.

1) Make sure that the unit is unplugged and has been off for several minutes to allow all voltages to bleed to zero.

2) Remove the top cover. Doing so will engage the safety interlock so never apply AC power when this cover is removed.

3) Loosen and remove the anode clamp from the 4CX-250B tube. Remove the tube, the ceramic chimney, and the anode clamp from the chassis. Make sure the parasitic suppressor is suspended away from any chassis parts.

4) Replace the top cover on the amplifier.

5) Lay the amplifier on its side or top and remove the bottom cover. Remember--the tube must be removed or it will be damaged by the loss of cooling air when the unit is powered without the bottom cover.

6) Apply AC power to the unit. Warning: Extreme caution must be used when working with voltages of this level. Always be cautious and alert while working on the live chassis.

7) Refer to the individual circuit board pictorials for voltage readings and locations. Voltages on the tube socket are as follows:

Pin 1- +350VDC
Pins 3&7- -350VDC
Grid connection- -82 to -64 VDC depending on the setting of the bias control.

CAUTION: When measuring the B+ supply (+2200 VDC), Use only a meter which is designed for safety during operation at high voltage levels.

8) Restore the unit to its original condition.

TUBE REPLACEMENT

Because of the gigh reliability of the 4CX-250B transmitting tetrode, the tube should rarely need replacement. If a tube should need be replaced, a likely reason for this would be a loss of cooling air caused a failure or that one or more of the required operating voltages had failed at the tube socket. Thus, before a tube is replaced, the voltage measurement procedure should be followed to determine if further repairs are necessary. If all required voltages are present, the tube can then be replaced safely.

WATTMETER CALIBRATION

The wattmeter has been adjusted at the factory and should require no further attention. If adjustment becomes necessary, it should be performed only if the following equipment is available:

Exciter: 100 to 200 watts output at 28 MHz
Dummy load: 50 ohm with an accurately calibrated wattmeter. (B&W 334A)

Calibration Procedure:

1) Remove the top cover after allowing several minutes for the unit to discharge to a safe level.

2) Disconnect the right hand (as viewed from the front of the unit) coax cable at the wattmeter board and attach a short length of RG58/U coax cable from the wattmeter board to the output of your exciter.

3) Disconnect the left hand coax cable and attach a short length of RG58/U from the wattmeter board to the input of the dummy load/wattmeter.

4) Apply power and adjust the exciter for an output of 100 to 200 watts as read on the dummy load/wattmeter.

5) Set the potentiometer on the wattmeter board for the same reading.

This now completes the calibration of the wattmeter. Restore the unit to its original condition.

LIMITED WARRANTY POLICY

Pride Electronics warrants this equipment against defects in material or workmanship, when used in normal service, for a period of ninety (90) days from date of original purchase. This warranty is valid only if the enclosed card is properly filled in and mailed to the factory within ten (10) days of purchase. Do not ship the unit to the factory without prior authorization. This warranty is limited to repairing or replacing only the defective parts, and is not valid if the unit has been tampered with, misused, or otherwise damaged.

This warranty is in lieu of all other warranties, expressed or implied.

Specifications and policies outlined in this manual are subject to be changed by Pride Electronics without prior notice or responsibility to effect retroactive changes on units in the field.

PARTS LIST FOR THE KW-1

PART NUMBER	DESCRIPTION	QUANTITY
01-0300-00	ASSY, HIGH VOLT PWR SUPPLY DX-300 #2	1
01-0300-01	ASSY, DX-300 HIGH VOLTAGE PWR SUPPLY #1	1
01-0300-07	ASSY, DX-300 LOW VOLTAGE PWR SUPPLY	1
01-0300-04	ASSY, PLATE STRAP	1
01-0300-05	ASSY, PARASITIC SUPPRESSOR	1
01-0300-07	PARASITIC SUPPRESSOR, GRID	1
01-0300-08	ASSY, PLATE CHOKE DX-300	1
01-0300-09	ASSY, METERING BD. DX-300	1
01-0300-16	ASSY, B + CIRCUITRY	1
01-0300-17	ASSY, CHASSIS REAR DX-300	1
01-0300-19	ASSY, TERMINAL SOLDER POST DX-300	1
01-0300-20	ASSY, TUBE SOCKET	1
01-0300-21	ASSY, COAX CABLE, WATT METER DX-300	1
01-0300-27	ASSY, TORIOD COIL METERING BD 17 WINDINGS	1
01-0300-28	ASSY, TOROID INDUCTOR 10UH 10 WINDINGS	1
01-0301-03	ASSY, INPUT RELAY KW-ONE	1
01-0301-05	ASSY, KW-1 OUTPUT CAPACITOR	1
01-0301-06	ASSY, DRIVE ADJUST KW-ONE	1
01-0301-07	ASSY, LOW PASS COIL 6 TURNS #10 WIRE	2
01-0301-10	ASSY, KW-ONE FRONT PANEL	1
01-0301-11	ASSY, CHASSIS POWER KW-1	1
01-0301-12	ASSY, BAND SWITCH PORCELAIN 10-80 MTR.	1
01-0301-15	ASSY, TANK 10, 15 MRTS	1
01-0301-16	ASSY, 20-80 MTR TANK	1
01-0301-17	ASSY, 10-80 MTR "L" SECTION COIL	1
01-0301-18	ASSY, PLATE TUNING CAPACITOR	1
01-0301-88	WIRE TABLE, KW-1	1
01-0301-99	KW-ONE, MISC.	1
02-0632-01	NUT, 6-32 HEX CAD 1	3
02-0632-03	NUT, 6-32 KEP CAD 1	6
02-1004-00	NUT, 4-40 CAD 1/4	1
02-1032-01	NUT, BRASS 10-32 HEX	1
02-1038-00	NUT, 3/8" HEX POT	1
02-2520-00	NUT, HEX 1/4-20	4
03-0440-07	SCREW, 4-40 X 5/16" PAN HD SLTD MS	1
03-0499-01	SCREW #4X3/8 PHIL OVAL HD SMS PHOS. FIN	4
03-0632-00	SCREW, 6-32 X 5/16" PAN HD SLTD MS CAD	11
03-0632-01	SCREW, 6-32 X 3/8" PAN HD PHIL. MS	1
03-0632-04	SCREW, 6-32 X 1" PAN HD PHIL MS	1
03-0638-05	SCREW #6X3/8" HEX. WASH HD. BLK. PHOS.	2
03-0699-00	SCREW, #6 1/4" HEX WASHER SMS BLACK OXID	36
03-0699-04	SCREW, #6 3/8 PHIL SMS	4
03-2570-00	SCREW, HEX HD MACH 1/4 20 X 1/2 CAD 2	4
04-0004-00	WASHER, LOCK #4 INT STAR	1
04-0006-00	WASHER, LOCK #6 INT STAR	2
04-0300-00	WASHER, FIBER #6	2
04-0391-04	WASHER, CUP PHOS FIN NAS 391-4	4
04-0516-01	WASHER, FLAT 5/16"	3
05-0300-00	STRAIN RELIEF, HEYCO SR6N3-4 3 WIRE CORD	1
05-3647-09	RIVET, STEEL 7/32"	16

PARTS LIST FOR THE KW-1

PART NUMBER	DESCRIPTION	QUANTITY
05-4012-00	RIVET, ALUM 3/16"	6
05-5074-00	CLIP & RING, LED PANEL MOUNTING	4
05-6331-00	GUIDE, CARD REF. SCANBE PN 11633-1	6
06-0680-02	RESISTOR, CARBON FILM 6.8 OHM 2W 5%	2
06-1001-02	RESISTOR, CARBON FILM 100 OHM 2W 10%	3
06-1501-00	RESISTOR, CARBON FILM 150 OHM 1/2W 10%	1
06-1502-00	RESISTOR, CARBON FILM 1.5K 1/2 W 5%	1
06-1503-00	RESISTOR, CARBON FILM 15K OHM 1/2W 5%	1
06-1504-02	RESISTOR, CARBON FILM 150K 2W 10%	7
06-1803-02	RESISTOR, CARBON 18K 2W 10%	2
06-2701-02	RESISTOR, CARBON 270 OHM 2W 10%	2
06-3000-00	RESISTOR, CARBON FILM 30 OHM 1/2W 5%	1
06-3302-02	RESISTOR, CARBON 3.3K 2 W 5%	2
06-4704-00	RESISTOR, CARBON FILM 470K 1/2W	24
06-6800-02	RESISTOR, CARBON FILM 68 OHM 2W 5%	1
06-6801-00	RESISTOR, CARBON FILM 680 OHM 1/2W 5%	3
07-1001-02	RESISTOR, CARBON COMP. 100 OHM 2W 10%	50
07-1501-00	RESISTOR, CARBON COMP 150 OHM 1/2W 10%	1
08-0102-00	CAPACITOR, CER DISK .001 MF 1 KV	28
08-0103-02	CAPACTOR, CERAMIC DISK .01 MFD 1KV	11
08-0104-02	CAPACITOR CERAMIC .1MFD 100V	1
08-0272-07	CAP. CERAMIC DISC .0027 MF 7.5 KV	1
08-0502-00	CAPACITOR, CERAMIC DISK .005 MFD 3KV	2
09-0239-00	RECEPTACLE, COAXIAL	2
09-0250-00	SOCKET, ELECTRON TUBE, 4CX250B	1
09-0250-01	TUBE SOCKET CHIMNEY, 4CX250B	1
09-0410-50	TERMINAL PIN, TIN PLATED	58
09-1070-00	SOCKET, RELAY FOR	1
09-1204-50	TERMINAL, SOCKET TINPLATED	56
09-7135-00	RECEPT, 3-COND ROUND	1
10-0018-99	WIRE, #18 BLACK BULK	1
10-0218-99	WIRE, #18 AWG PVC RED	1
10-0418-99	WIRE, #18 YELLOW BULK	1
10-0518-99	WIRE, #18 GREEN BULK	1
10-0618-99	WIRE, #18 BLUE BULK	1
10-0718-99	WIRE, #18 VIOLET BULK	1
10-0918-99	WIRE, #18 WHITE BULK	1
12-0018-00	WIRE, TWST #18 BROWN/BROWN BULK	1
12-0018-01	WIRE, TWST #18 BROWN/BLUE BULK	1
12-0018-02	WIRE, TWST #18 BLK/RED/YELLOW BULK	1
12-0018-03	WIRE, TWST #18 RED/ORANGE/VIOLET BULK	1
12-0018-04	WIRE, TWST #18 BLACK/BLUE/GREEN BULK	1
12-0018-05	WIRE, TWST #18 BROWN/WHITE BULK	1
12-0018-99	WIRE, TWST 18GA AWG BLACK/BLACK	1
14-0010-99	WIRE, COPPER ENAMAL # 10	2
14-0018-03	WIRE, 18 GA BUSS 3"	3
14-0018-99	WIRE, BUSS #18 AWG BULK	8
14-0070-14	WIRE, #20 COPPER ENAMEL 14"	1
14-0070-99	WIRE, #20 BUSS BULK	1
14-0022-18	WIRE, #22 BELSOL TYPE 18"	1
14-0022-99	WIRE, BUSS 22 AWG	3
14-0613-99	STRIP, BRASS .012 X 3/16 REF. 00-B-613	1
15-0058-20	CABLE, COAX RG58CU 20"	2
15-3218-99	WIRE, HIGH VOLTAGE COLUMBIA #1320, RED	1
16-0017-00	TUBING, TEFLON, #17 CLEAR	1
16-0100-01	TUBING, HEATSHRINK RNF 100 3/16" BLUE	4

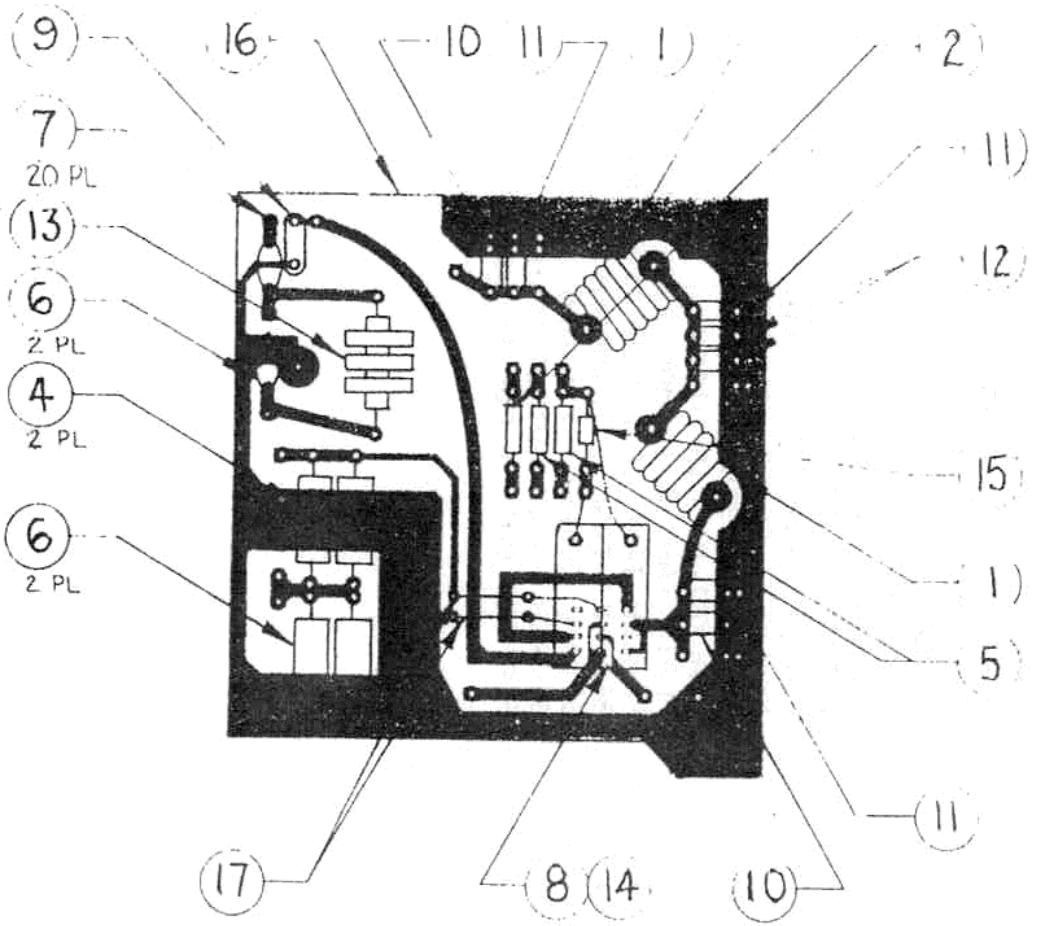
PARTS LIST FOR THE KW-1

16-0100-02	TUBING, HEATSHRINK RNF 100, 1/4" BLUE	4
17-1003-10	RESISTOR, WIREWOUND 10K 10W 10%	1
17-1203-10	RESISTOR, WIREWOUND 12K 10W 10%	1
17-2003-10	RESISTOR, WIREWOUND 20K 10W	1
17-2500-10	RESISTOR, WIREWOUND 25 OHM 10W 10%	2
18-5001-02	POT,500 OHM 2.25W 10% SCR ADJ. .625 SHFT	1
19-5003-00	POTENTIOMETER, TRIMPOT 50K OHM 1/4 W	1
20-1101-03	CAPACITOR, VARIABLE, PANEL 110 PF 3KV	1
20-2450-00	CAPACITOR, VARIABLE,PANEL 1350 PF 750V	1
21-1100-01	CAPACITOR, DIPPED MICA 10PF 1KV 5%	1
21-1127-01	CAP, DIPPED MICA 1200 PF 1KV	2
21-1330-00	CAPACITOR, DIPPED MICA 33PF 1KV 5%	1
21-1331-00	CAPACITOR, DIPPED MICA 330 PF 5% DM-15	1
21-1510-00	CAPACITOR,DIPPED MICA 51PF 1KV 5%	2
21-1620-00	CAPACITOR,DIPPED MICA 62PF 1KV 5%	3
21-1820-00	CAPACITOR,DIPPED MICA 82PF 1KV 5%	2
21-2101-05	CAPACITOR, TRANSMITTING 100PF 5KV	1
21-2400-05	CAPACITOR,TRANSMITTING 40PF 5KV	1
22-0108-00	CAPACITOR, ELECTROLYTIC, 1000 MF 25 V	2
23-0107-45	CAPACITOR, ELECT 100 MF 450 V CAN	6
23-0406-45	CAPACITOR, ELECTROLYTIC 40MFD 450WV	2
24-0014-00	CHOKE, RF PLATE 55UH	1
24-1006-00	CHOKE, RF 1MHY 160 MA	2
25-0300-01	TRANSFORMER, DX-300 HIGH VOLTAGE	1
25-0300-02	TRANSFORMER, DX-300 LOW VOLTAGE	1
26-0116-00	CLIP, REF: ZIERICK #116-144	4
26-0300-01	PANDUIT CABLE TIES	20
26-0301-00	WIRE CLIP,REF: RICHCO KKC-2	1
26-0301-01	WIRE CLIP,REF: RICHCO KKC-5	2
26-0556-00	CLIP, BATTERY REF: ZERICK P/N #556-125	6
26-2148-00	GROMMET,RUBBER 3/8"	2
26-2149-00	GROMMET,RUBBER 1/2"	1
26-8249-00	SPACER, MALE/FEMALE .375 SMITH#8249	2
26-8347-00	SPACER, ALUM # 6 x 1	2
28-3186-00	LINE CORD, 3 WIRE #18 W MOLDED PLUG	1
29-1414-04	LUG, SOLDER #4 INT STAR	2
29-5097-18	LUG, SLIP ON, REF. HOLI P/N 50-9718F-T1	13
30-0006-00	LUG, SOLDER, #6	4
31-0854-00	TERMINAL, SOLDER POST 6, 2 GROUND	1
32-0299-00	DIAL, FIGURE BLACK DX300	3
32-2912-00	KNOB,BLACK DX300	2
32-2912-01	KNOB, BLACK DX300	1
40-8006-00	SWITCH, SPST, 10 A	2
40-8606-00	SWITCH,DPDT 10 A ARCOLECTRIC #C8606	2
40-9003-00	SWITCH,BAND CERAMIC 3 WAFER	1
41-1024-00	RELAY,4PDT (DX-300) (NOT "GOULD")	1
42-0290-00	CAP,KNOB DX300	3
48-0250-00	DIODE, M2.5A MALLORY	17
48-0914-00	DIODE, SIGNAL 1N914	1
48-4001-00	DIODE, RECT 1A 50V PLASTIC	3
48-4007-00	DIODE, RECTIFIER 1 AMP 1000 PIV	8
48-5375-00	DIODE, ZENER 82V 5W 1N5375	1
49-0301-00	METER,1 MA FS WITH CURRENT SCALE KW-ONE	1
49-5074-00	L.E.D. RED DIFFUSED	4
54-0301-00	STICKER, BOX ID KW-ONE	1
54-0301-02	STICKER, SERIAL # KW-ONE	1
56-0300-01	END CAPS, PACKAGING DX-300	2
56-0300-02	PACKING BOX, DX-300	1
56-0300-03	BAG, PLASTIC SHIPPING, DX-300	1

PARTS LIST FOR THE KW-1

65-0010-00	FUSE, AGC 10 AMP	1
65-0250-00	TUBE, 4CX250B	1
67-1200-00	FUSE EXTRACTOR POST	1
68-0301-03	MANUAL, INSTRUCTION	1
74-1206-01	COIL, 13 TURNS OF 74-1206-00	1
74-2006-01	COIL, 13 TURNS OF 74-2006-00	1
75-2135-00	FOOT, RUBBER 31/32"	4
82-0300-01	PCB, DX-300 HIGH VOLTAGE PWR SUPPLY	2
82-0300-02	PCB DX-300 LOW VOLTAGE PWR SUPPLY	1
82-0300-04	PCB, B+ CIRCUITRY	1
82-0300-06	PCB PC BOARD DX 300 METERING CICUITRY	1
82-4000-01	PCB, KW-1 INPUT	1
82-4000-02	PCB, KW-1 RESISTOR	1
84-0301-00	PANEL, DRESS KW-ONE	1
85-0004-01	CORE, FERRITE .250	2
85-0300-01	CHASSIS, FRONT	1
85-0300-02	SUPPORT BRACKET	1
85-0300-03	SUPPORT BRACKET	1
85-0300-09	PLATE STRAP, DX-300	2
85-0300-10	STRAP PARASITIC	1
85-0300-11	COVER	1
85-0300-12	POWER CHASSIS	1
85-0300-13	CHASSIS, REAR DX-300	1
85-0300-14	BOTTOM PLATE	1
85-0300-15	GROUND STRAP, SAFETYINTERLOCK	1
85-0300-16	BRACKET, COVER MOUNT	2
85-0300-17	CAPACITOR STRAP	1
85-0300-18	BRACKET, B+ CIRCUITRY	1
85-0301-01	PLATE, TANK COIL MOUNTING KW-1	1
85-0301-02	SPACER, TANK COIL MOUNTING KW-1	1
85-0301-03	BRACKET, TANK COIL MOUNTING KW-1	1
85-0301-19	STRAP, COPPER 3/16"W, 0.010"L	4
87-1250-00	BLOWER, HIGH OUTPUT MODIFIED	1
87-1250-01	FLANGE, OUTLET FOR BLOWER PN 87-1250-00	1

*** END OF LIST ***



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED FOR PRODUCTION		

ITEM	QTY	PART NUMBER	DESCRIPTION
17	2	14-0020-01	BUSS #20 1"
16	1	82-4000-01	PCB. KW-ONE INPUT
15	1	48-0250 00	DIODE. M2.5A MALLORY
14	1	41-1024-00	RELAY. 4PDT (DX-300)
13	1	24-1006-00	CHOKE. RF 1 MHY 160 MA
12	2	21-1820 00	CAP DM 82 PF 1KV 5%
11	3	21-1620-00	CAP. DM .02 1F 1KV 5%
10	2	21-1510-00	CAP. DM 51PF 1KV 5%
9	1	21-1100 01	CAP. DM 10P 1KV 5%
8	1	09-1020-00	SOCKET, RELAY FOR
7	20	09-0410-50	TERMINAL PIN. TIN PLATED
6	2	08-0103-02	CAP C.D .01MFD 1KV
5	2	06-6801-00	RES.CF 680 Ω 1/2 W 5%
4	2	06-2701-02	RES.CF 270 Ω 2W 10%
3	2	06-1803-02	RES.CF 18K 2W 10%
2	1	06 1502- 00	RES CF 1.5K 1/2W 5%
1	2	01-0301-07	ASSY. LOW PASS FILTER

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC ANGLES

APPROVALS	DATE
DRAWN J.MAY	4-7-77
CHECKED	

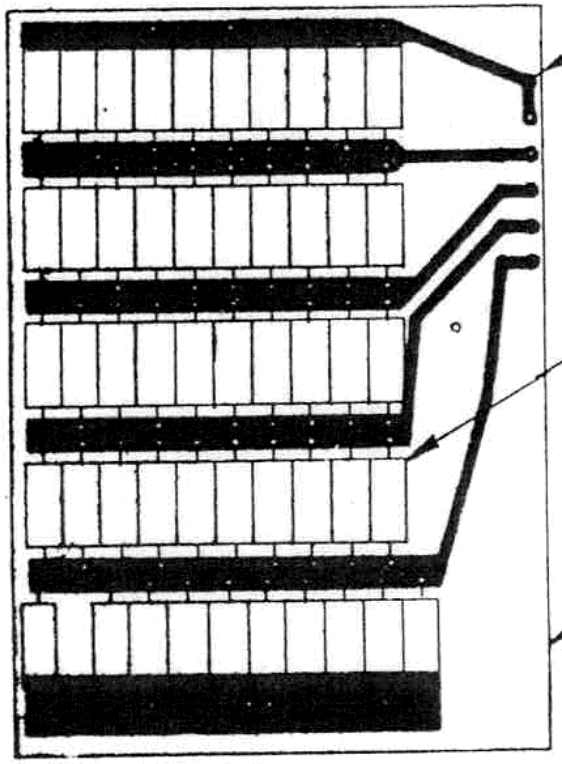
PRIDE ELECTRONICS

ASSY. INPUT RELAY KW-ONE

SCALE NTS | SIZE B | DRAWING NO 01-0301-03

DO NOT SCALE DRAWING | SHEET 1 of 1

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	RELEASED FOR PRODUCTION		



(2) ON FOIL SIDE 6PL

TAPE MASK HOLES PRIOR TO FLOW SOLDER THEN REMOVE TAPE AND INSTALL PINS AFTER FLOW SOLDER

(1) 50 PL

(3)

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	82-4000-02	P.C.B. KW-1 RESISTOR
2	6	09-0410-50	TERMINAL PIN. TIN PLATED
1	50	06-1001-02	RES. CF 100 Ω 2W 10%

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONS DEC ANGLES
. . ±

APPROVALS	DATE
DRAWN J.B.MAY	4-8-77
CHECKED	5-5-77

PRIDE ELECTRONICS

ASSY. DRIVE ADJUST KW-ONE

SCALE NTS | SIZE B | DRAWING NO. 01-0301-06

DO NOT SCALE DRAWING | SHEET 1 of 1