DYNAKIT
MARK II

1019052

THIS NUMBER MUST BE MENTIONED IN ALL COMMUNICATIONS CONCERNING DYNAKIT.

INSTRUCTIONS FOR ASSEMBLING THE DYNAKIT MARK II

* Patented

Price $1.00

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DYNA COMPANY DYNACO 617 NORTH 41st STREET PHILADELPHIA 4, PA.

SPECIFICATIONS

Power Output	50 watts *continuous,* 100 watts peak.
Intermodulation Distortion	Less than 1% at 50 watts; less than .5% below 35 watts. These figures apply for any conventional combination of test frequencies.
Frequency Response	± .5 db 6 cps to over 60 kc. ± .1 db 20 cps to 20 kc at any level between 1 milliwatt and 50 watts.
Power Response	20 cps to 20 kc within 1 db of 50 watts without exceeding 1% harmonic distortion over this range.
Square Wave Response	Essentially undistorted 20 cps to 20 kc *on loudspeaker load.*
Sensitivity	1.5 volts rms input for 50 watts output.
Hum and Noise	80 db below rated output.
Damping Factor	15.
Output impedances	8 and 16 ohms (no restrapping required for changing output impedances.) (Choice of 4, 8, and 16 ohms also available at extra cost.)
Tubes	6CA7 EL-34 (2), (6550's can be substituted in output without wiring changes), 6AN8, 5U4GB.
Size	9" by 9" by 6¾" high.
Weight	27 pounds.
Pre-Amp Provision:	Any pre-amp can be used. For pre-amps without power a spare socket is included which permits drawing 200 to 450 volts dc at 20 ma and 6.3 volts ac at 1 amp.

INSTRUCTIONS FOR ASSEMBLING THE DYNAKIT MARK II

DESCRIPTION

Your Dynakit Mark II is a complete 50 watt power amplifier kit which offers the highest possible fidelity, at low cost and in a compact arrangement. It uses a circuit of outstanding performance characteristics, along with top quality parts, including the new Dynaco A-430 output transformer -- the finest available. The measured specifications show that the Dynakit is an amplifier of unequalled performance, and its listening quality is also unrivalled by any regardless of price.

The design features of your Dynakit which contribute to its superior listening quality do not show up in the usual steady-state laboratory specifications. For example, the Dynakit does not exhibit bounce and flutter when pulsed because of its wide margin of stability. The Dynakit, unlike other amplifiers, has been designed to provide its specified performance on a loudspeaker load, not just a resistive load as in the laboratory. In particular, the connection of a loudspeaker does not distort the high frequency square wave performance. In addition, the Dynakit's power handling capabilities are maintained over the entire audio band without the sharp rise in distortion which characterises most amplifiers at the low and high frequencies.

The Dynakit uses a unique circuit. A pentode voltage amplifier, with parameters adjusted for minimum distortion, is directly coupled to a cathodyne phase inverter. High frequency compensation is employed in a capacitive feedback loop, which corrects the inherent unbalance of this type of phase inverter. The inverter drives the output tubes which are operated with fixed bias. The connection of the output tubes includes a small percentage of screen loading which improves the regulation of the stage and makes it comparatively uncritical of load impedance. The impedance match and bias conditions utilized in the output stage provide minimum distortion operation over a very wide dynamic range. In addition, 20 db of negative voltage feedback lowers the distortion to an unmeasurable proportion at normal listening levels and to less than 1% IM at 50 watts output.

Phase compensation at both high and low frequencies is incorporated into the circuit arrangement to provide a wide margin of stability and to make construction uncritical. This feature of the design means that there is no tendency toward motorboating or oscillation under any conditions of use.

GENERAL INSTRUCTIONS

The mechanical and physical arrangement allows rapid and bug-free assembly using only soldering iron, pliers, wire cutters and screw driver. This rapid assembly is made possible through the use of a pre-assembled printed circuit board on which most resistors and paper capacitors are mounted. Construction of your Dynakit will usually take about three hours.

Check the contents of the carton against the attached parts list. Make sure all the parts are on hand and familiarize yourself with the contents. Any shortages should be called to the attention of the dealer from whom you purchased the Dynakit, and he will supply you with the necessary components. However, if your package was received sealed, there should be no shortage of any of the items.

Read through all the instructions before starting any of the assembly. Where reference is made to a specific part, identify this part so that you will recognize it when the time comes to mount it. Note the color coding which permits you to identify resistors. Where the instructions specify resistors, they will specify the correct color combination and wattage so that you can be sure of using the correct resistor at each point. Other items are either marked or can be identified from the pictorial material.

It is recommended that these instructions be followed step-by-step to insure correct assembly with a minimum of effort.

Whenever a connection is to be soldered, the instructions will specify (S). Otherwise the wires attached to components should be brought to the proper points and crimped in place to hold until soldering is specified.

NOTE: ALL SOLDERING MUST BE DONE WITH ROSIN CORE SOLDER.

Acid core solder is injurious to electronic parts, and the manufacturer will assume no responsibility for any units in which acid core solder has been used. Use a good grade of 50-50 or 60-40 rosin core solder. Solder connections should be made carefully, using the minimum amount of heat necessary to get a soldered connection. If connection points are clean, all the required soldering can be done with a small pencil type iron. Leads should be crimped in place so as to make a secure mechanical connection before the solder is applied

The iron should be applied to the joint and held there until the solder melts and flows over the joint. It is important to heat the joint to the point where solder in contact with it will melt. Otherwise solder will not properly adhere to the joint, and a poor connection will result. Test each joint after soldering by pulling gently on the associated wires and making sure that there is no movement of wires at point of connection.

MOUNTING PARTS TO THE CHASSIS

The following components should be mounted as shown in pictorial diagram #1 using #4 x 1/4" screws. A lockwasher should be used under the nut, and screws should be inserted from the outside of the chassis.

( ) 1. Screw terminal strip (mount so that insulating material is outside the chassis).

( ) 2. Slide switch (note position in pictorial diagram #1). Use long nose pliers to hold nut in place while turning screw until thread catches.

( ) 3. Phono socket (input connector).

( ) 4. Four octal sockets (note orientation of keyway in the socket center hole).

( ) 5. Lug terminal strip.

( ) Mount potentiometer. Place a 3/8" lockwasher on the shaft first, then mount potentiometer on chassis followed by 3/8" nut. See pictorial diagram #1 for correct orientation of potentiometer lugs.

( ) Mount selenium rectifier. To do this, use the #4 x 3/4" screw inserted from the outside of the chassis, add nut and screw nut up tight to the underside of the chassis. Then slip selenium rectifier on screw making sure that the positive (+) or square end is nearest the chassis. Hold the rectifier in place with lockwasher and another #4 nut.

( ) Mount quadruple section electrolytic capacitor in cut-out provided. Note that the orientation of the capacitor is indicated by the engraved markings at the base of each lug. The lug marked with a semi-circle should be placed in the position indicated as #1 on the pictorial diagram. Insert mounting tabs fully and twist each tab 1/4 turn to lock in place. Twist tightly so that the can is held firmly against the chassis and shows no play when wiggled.

( ) Mount A-430 output transformer using #8 screws, nuts and lockwashers. See pictorial diagram #1 for correct orientation of transformer leads below the chassis. Use cable clamp and dress leads under it as shown in pictorial diagram #1. (In the 4 ohm Dynakit the Dynaco A-431 transformer is substituted for the A-430).

Please note on pictorial diagram #1 the identification of the various parts and their respective terminal numbers. These identifications will be used when specifying connections.

Make the following connections from the output transformer:

( ) 1. Connect blue wire to pin 3 of V2 (S).

( ) 2. Connect green wire to pin 4 of V2.

( ) 3. Connect blue-white wire to pin 3 of V1 (S).

( ) 4. Connect green-white wire to pin 4 of V1 (S).

( ) 5. Connect red wire to condenser lug 2.

( ) 6. Connect yellow wire to screw terminal 3.

( ) 7. Connect orange wire to screw terminal 2 (S).

(If the 4 ohm Dynakit is being assembled, the brown wire is the 4 ohm lead. It should be connected to screw terminal 2 (S). The end of the orange wire should be taped and this lead left loose inside the chassis. With this arrangement the output impedances are 4 and 16 ohms. A shift to 8 and 16 output can be made at any time by interchanging orange and brown leads).

( ) 8. Connect black wire to screw terminal 1.

( ) Mount P-782 transformer with #8 screws, nuts and lockwashers. See pictorial diagram #1 for correct orientation of transformer lead colors below the chassis.

Make the following connections:

( ) 1. Connect long black wire to switch lug 1 (S).

( ) 2. Connect short black wire to lug terminal 1.

( ) 3. Connect one red wire to pin 4 of V3 (S).

( ) 4. Connect another red wire to pin 6 of V3 (S).

( ) 5. Connect one yellow wire to pin 2 of V3 (S).

( ) 6. Connect another yellow wire to pin 8 of V3.

( ) 7. Connect red-yellow wire to lug terminal 3.

( ) 8. Connect red-black wire to positive lug on selenium rectifier (S). This is the lug nearest the chassis.

( ) 9. Twist the two green wire tightly together and connect one to pin 2 and the other to pin 7 of V2.

( ) 10. Connect yellow-green wire to lug terminal 2.

( ) 11. Cut off two 5" pieces of insulated wire. Connect one end of one wire to pin 2 on V2 (S) and the second wire to pin 7 on V2 (S). Twist these two wires tightly together and connect free end of one wire to pin 2 on V1 and the second wire to pin 7 on V1.

This now completes more than half the wiring. Chassis should now look similar to pictorial diagram #1.

The following additional steps are required (refer to pictorial diagram #2).

( ) 1. Connect short wire from lug terminal 2 (S) to lug terminal 3.

( ) 2. Use a short piece of wire to connect pin 1 on V2 to pin 8 on V2. Repeat this step on V1 socket.

( ) 3. Connect an insulated wire from pin 8 on V1 to pin 8 on V2. Solder connections at pins 1 and 8 on V2 socket.

( ) 4. Connect 12 ohm resistor from pin 1 on V1 (S) to the capacitor mounting tab (see pictorial II). This connection should be soldered heavily so that solder will also bond the capacitor tab to the chassis forming a good ground connection.

( ) 5. Connect insulated wire from pin 8 on V1 (S) to pin 8 of preamplifier power socket (S).

( ) 6. Connect a 1000 ohm, 1/2 watt resistor (brown-black-red) from pin 5 on V2 (S) to pin 6 on V2. Make resistor leads as short as possible.

( ) 7. Connect a 1000 ohm, 1/2 watt resistor (brown-black-red) from pin 5 on V1 (S) to pin 6 on V1. Make resistor leads as short as possible.

( ) 8. Connect a piece of insulated wire directly from condenser lug 1 (S) to pin 8 on V3.

( ) 9. Connect the 50 ohm. 10 watt resistor from pin 8 on V3 (S) to condenser lug 2. Position this resistor on long leads so that it rests against the lip of the chassis.

( ) 10. Connect a 6800 ohm, 1 watt resistor (blue-grey-red) from condenser lug 2 (S) to condenser lug 4.

( ) 11. Connect a 10,000 ohm, 1/2 watt resistor (brown-black-orange) from potentiometer lug 1 (S) to closest ground lug on V3 socket (S).

( ) 12. Connect a 1000 ohm, 1/2 watt resistor (brown-black-red) from negative (-) lug on selenium rectifier (S) to lug terminal 5. Negative lug on selenium rectifier is the one farthest from the chassis.

( ) 13. Connect insulated wire from lug terminal 5 (S) to potentiometer lug 3 (S).

( ) 14. Connect the 100 MFD capacitor from potentiometer lug 2 to ground lug on V1 socket (S). Make sure that the positive side of the capacitor goes to ground. The capacitor is held across the potentiometer where it is clear of other parts.

CONNECTING PRINTED CIRCUIT BOARD

( ) Mount the printed circuit board from underneath the chassis as shown in pictorial diagram #2 with the tube socket close to the input connector. Use #4 screws, nuts and lockwashers. Please note that a ground connection is made at one of the screw holes. The board should be lightly scraped at this point until the metal is bright to assure a good connection with the mounting hardware. Make sure that the mounting screw at the ground connection is tight enough for a good ground connection. However the circuit board will crack if screws are tightened excessively.

When soldering to the eyelets on the printed circuit board care should be exercised TO AVOID OVERHEATING THE BOARD. The following is the recommended way to solder to the printed circuit board:

1. Tin wire to be soldered to the board by holding soldering iron to wire and flowing a thin coat of solder onto tip of wire.

2. Eyelets on the board are usually filled with solder. Heat eyelet only until solder melts.

3. Poke tinned wire through eyelet, see that solder flows, retract heat and hold wire until solder is firm or has lost its sheen.

Connections to the board are as follows:

( ) 1. Connect insulated wire from potentiometer lug 2 (S) to eyelet 2 (S).

( ) 2. Connect wire from pin 6 on V1 (S) to eyelet 1 (S).

( ) 3. Connect wire from pin 6 on V2 (S) to eyelet 3 (S).

( ) 4. Connect wire from screw terminal lug 3 to eyelet 7 (S).

( ) 5. Connect insulated wire from pin 4 on V2 (S) to eyelet 4 (S).

( ) 6. Connect a 9-1/2" piece of insulated wire from condenser lug 4 (S) to eyelet 5 (S). Dress wire as shown in pictorial diagram #2.

( ) 7. Connect a 9-1/2" piece of insulated wire from condenser lug 3 (S) to eyelet 6 (S). Dress wire as shown in pictorial diagram #2.

( ) 8. Cut off two 7" pieces of insulated wire. Connect one end of one wire to pin 2 on V1 (S) and the second wire to pin 7 on V1 (S). Twist wires tightly together, connect the end of one wire to eyelet 8 (S) and the second wire to eyelet 9 (S). Dress wires as shown in pictorial diagram #2.

( ) 9. Connect wire from input socket center lug (S) to eyelet 10 (S).

Now for the final connections there are just a few steps.

( ) 1. Connect an insulated wire from screw terminal lug 1 to lug terminal 3 (S).

( ) 2. Connect a 680 ohm, 1 watt resistor (blue-grey-brown) from screw terminal 1 (S) to screw terminal 3 (S).

( ) 3. Connect the pigtail fuse from lug terminal 1 (S) to lug terminal 4.

( ) 4. Insert grommet in 3/8" chassis hole.

( ) 5. Insert line cord through chassis from outside toward inside.

( ) 6. Tie knot in line cord about seven (7) inches from the end.

( ) 7. Separate the two strands of line cord up to knot.

( ) 8. Cut off about five (5) inches of one strand.

( ) 9. Connect long end of line cord to lug terminal 4 (S).

( ) 10. Connect short end of line cord to switch lug 2 (S).

INITIAL ADJUSTMENT

You have now finished all the wiring. Plug in the 6CA7/EL-34 tubes in V1 and V2. Also plug 6AN8 into printed circuit socket. Do not plug in 5U4GB rectifier tube. If an ohmmeter is available, measure resistance from condenser lug 1 to ground. This should be in excess of one hundred thousand ohms. Inspect wiring to make sure that all joints are soldered and that no parts are shorting together. Plug line cord into 117 volt ac line and turn on switch. While tubes are warming up, set the bias adjusting potentiometer to the center of its rotation. This is approximately its correct setting and can serve as an emergency operating adjustment if no test instruments are available. (HOWEVER, OPERATION WITHOUT CORRECT BIAS ADJUSTMENT IS NOT RECOMMENDED AS IT RESULTS IN POOR PERFORMANCE AND POSSIBLE DAMAGE TO COMPONENTS.)

Your Dynakit includes Dyna Biaset (patent pending) which greatly simplifies setting of the bias voltage. This can now be done with the most simple and inexpensive types of dc meters as long as they have a rating of 1000 ohms per volt or higher. The correct setting of the bias provides a total cathode current of the 6CA7/EL-34 tubes of 130 ma. This current through the precision 12 ohm resistor produces a voltage drop of exactly 1.56 volts dc, and this voltage can be checked at pin 8 of the preamplifier power take-off socket. 1.56 volts is also the voltage which is furnished by a "D" type flashlight dry cell. Thus any fresh cell of this type can be used for an accurate reference standard for bias setting.

The procedure for setting the bias is to measure the voltage output of a "D" type dry cell and note the meter reading. Then insert the meter probe in the pin 8 hole of the preamplifier power socket (note that outside the chassis the pin numbers are counted counterclockwise from the keyway while inside the chassis they are counted clockwise). Plug in the 5U4GB rectifier tube, and almost immediately there will be a current flow which will cause a meter deflection. As the rectifier warms up, the reading will increase. The bias control should be adjusted until the meter reading at pin 8 is the same as across the dry cell (this reading will be 1.56 volts if the meter is of sufficient accuracy). There may be some drifting of the reading as the tubes heat, but this will stablize in 15 to 30 minutes after which no further adjustment is required. Although the setting is a semi-permanent one, at times of tube replacement or similar repair or maintenance work, resetting of the bias will preserve peak performance and keep distortion at an absolute minimum.

If in the course of bias setting it is found that the control range of the potentiometer is insufficient to obtain the correct setting, do not operate the amplifier until the cause of the difficulty has been established. Operation with incorrect bias can lead to damage to the output tubes and/or other components.

Note that the use of pin 8 as directed in the wiring instructions means that this pin cannot be used as a connection point for a preamplifier. Most preamplifiers do not require the use of this pin. However, for those which do, some other pin must be used as a bias check point. If no other pin is available, the connection from pin 8 of V1 to the preamplifier power socket must be omitted; and bias measurements should be based on voltages read at pin 8 of V1 or V2.

PREAMPLIFIERS

The Dynakit Mark II has provision for powering a preamplifier or control unit which does not have its own power supply. Filament voltage of 6.3 volts at up to 1 amp and B plus voltages up to 450 volts at 20 ma are available at the spare socket on the front panel of the Dynakit.

The power takeoff socket on the Dynakit can be wired to accommodate any preamp commercially available which does not have its own power supply.

The heater leads should be a twisted pair of insulated wires, one each from eyelets 8 and 9 on the printed circuit board. The B + supply should be taken from eyelet 5 of the printed circuit board through a resistor which will drop it to the required value. The ground point should be taken from the input socket unused ground lug. On preamplifiers requiring power from the amplifier, it is often desirable to have the preamplifier on-off switch also turn the amplifier off and on. For this purpose, A-C switch connections can be taken at switch lugs 1 and 2. Many preamplifiers must be used with amplifiers in which no portion of the filament circuit of the amplifier is grounded. In this case, the wire jumper between terminals 2 and 3 of the lug terminal strip should be cut.

For example, outlined below is a suggested preamplifier connection for accommodating the Dynakit preamplifier or any other preamplifier using the same powering arrangement, such as the Heath WA-P2. The two resistors required are not supplied with the Dynakit Mark II but can be obtained from any radio parts store.

1. Connect two short wires, one each to Eyelets 8 and 9 of the Dynaco printed circuit board. Twist these wires together and connect one wire to Pin 1 and the second wire to Pin 2 of the power takeoff socket. These wires should be kept as short as possible. These are the heater leads.

2. A 10 ohm resistor (brown-black-black) of 1/2 watt rating should be connected from Pin 3 of the socket to one of the ground lugs on the socket. This is the power ground connection.

3. A 22,000 ohm resistor (red-red-orange) of at least 1 watt rating should be connected directly from Eyelet 5 of the printed circuit board to Pin 5 of the socket. This is the B plus lead.

4. Cut the jumper between lug terminals 2 and 3.

5. For the Heathkit preamplifier (not required for the Dynakit), a twisted pair of wires should be connected between Pins 6 and 7 of the spare socket and the two lugs on the Dynakit's ac switch. These are the leads which permit turning both the preamp and the amplifier on and off from the preamp. When using the remote switching, the switch on the Dynakit should be left in "off" position.

PROTECTIVE COVER

The protective cover has been designed to be both functional and good looking. The normal heat dissipation of the 6CA7/EL-34 output

tubes is very great and because of the exposed printed circuit board, there is moderately high voltage on the top of the chassis. The cover should therefore be used at all times. Also the amplifier should be placed where there is adequate ventilation. If your Dynakit is put on a shelf, leave air space all around it so that the "chimney effect" of the protective cover can function properly. NEVER place magazines or papers on top of the Dynakit.

The protective cover and base are affixed by first putting the base in place. Place chassis upright on the base and slip protective cover in place (screw holes in cover should be lined up with chassis and base holes). Then screw sheet metal screws through the cover, chassis and base to lock the cover and base together.

INSTALLATION AND SERVICE

Your Dynakit is now ready to play if a preamplifier or tuner is connected to the input and a loudspeaker is connected to the ground and 8 or 16 ohm output screw terminal.

If your Dynakit is inoperative, check the wiring for incorrect connections or shorted leads. Then observe whether the tubes are lighted which indicates that the filaments are operative. Then voltages should be checked in accordance with the enclosed voltage chart. Any discrepancies of more than 10% in voltage readings indicate possible miswiring or faulty components.

Slight red coloring of the plates of the 6CA7/EL-34 tubes is normal and is not a cause for non-operation of the amplifier.

If it is desired to use 6550 tubes for output tubes in place of the 6CA7/EL-34 tubes these can be inserted directly. The only adjustment which need be made is to set the bias to give a reading of 1.68 volts at the bias check point.

The Dynakit has more gain than many popular amplifiers as it puts out 50 watts with only 1.5 volts input. Therefore, it may provide higher than customary noise levels by the extra amplification of hum and noise from preamplifier equipment. If noise is evident on listening, unplug the audio input cable to the Dynakit and note whether the noise decreases. If it does, the fault is in the associated equipment which should be serviced in order to correct it.

However, if hum or noise persists with the input disconnected, the wiring and all solder connections should be checked. If the kit is properly wired, hum and noise may arise from faulty tubes. An occasional 6AN8 tube is noisy, and this can only be tested by substitution of another tube procured locally. Sometimes leakage between 6AN8 tube elements causes hum which can be eliminated by "floating" the tube heater. This can be done by cutting the jumper between lug terminal 2 and 3 (as done for preamplifier connection). Likewise, severe unbalance of the 6CA7/EL-34 output tubes can lead to hum. Again substitution is the most convenient way to check this. If a change in tubes improves the noise level, the factory will replace the tubes if they are returned during the 90 day guarantee period.

It is recommended that the 6CA7/EL-34 tubes be replaced in pairs if a single tube fails after a period of use. Combining an old with a new tube may lead to unbalance which results in excessive hum level.

The 4 amp fuse in the Dynakit normally will not blow from on-off cycling or line voltage surges. If it blows, it generally indicates incorrect wiring of the kit or failure of some component. Since some service is generally indicated in the event of fuse failure, the fuse is located within the chassis where it is readily available during routine trouble shooting. The fuse should not be changed until there is at least a visual inspection of the wiring and components (and a check of tubes if possible). To facilitate fuse replacement a snap-on fuse holder is supplied with the Dynakit. This clips over the pigtail fuse and permits the use of regular 4 amp fuses as replacements without the need for soldering. This snap-on holder can be stored in the kit by leaving it clipped to the pigtail fuse.

The Dynakit is designed to operate at a line voltage of 117 volts ac. It can be used in the range of 110 to 124 volts. Operation outside this range is not recommended since lower than 110 volt operation results in increased distortion, while component failures can be expected with line voltage in excess of 124 volts. It is suggested that either a voltage adjusting device or a voltage regulator be used under conditions where line voltage falls outside the recommended range.

FACTORY SERVICE AND GUARANTEE

Dynaco transformers, which represent more than half the value of your Dynakit, are guaranteed for a period of one year. All other parts are guaranteed for 90 days. This guarantee is not applicable if the Dynakit is operated at more than 124 volts line voltage. Parts which are defective within the guarantee period will be replaced upon return to the factory via your dealer. Many dealers carry Dynakit spare parts in stock to facilitate factory exchange. When transformers are returned to the factory for checking or replacement, the leads should be carefully unsoldered. No transformers will be accepted for replacement if the leads have been cut in removing them from the amplifier.

In the event that routine trouble shooting cannot correct defects in the amplifier, it can be returned to the factory for service. The charge for this service is $5.00 plus the cost of parts which have been damaged in installation or have failed after more than 90 days of use. This warranty does not apply to amplifiers which are not completely wired or in which changes have been made without factory authorization. It is the factory prerogative to limit this service facility to one year from date of purchase.

When shipping the amplifier, make sure that it is securely packed. A suggested packing is to use the original carton, including liner, and to wrap the tubes in protective wrapping within the cover. The cover, chassis, and bottom plate should be fastened together with the sheet metal screws when shipping the amplifier. This entire package should then be placed in a larger carton surrounded by soft packing material such as shredded paper. Shipment should be marked "FRAGILE", and should be made by prepaid Railway Express. Parcel Post is not a safe method of shipment for completed kits.

Dyna Company assumes no responsibility or liability for damages or injuries sustained in assembly or operation of the Dynakit.

Voltage Check Points

Voltages have been measured with a vacuum tube volt meter. If a meter of lower impedance is used, some of the measurements will result in lower readings than those shown.

Pin #	Either 6CA7/EL-34	5U4GB	6AN8
1	1.56	0	*
2	3.15 ac	470	*
3	460	0	*
4	460	430 ac	3.15 ac
5	-37 **	0	3.15 ac
6	-37 **	430 ac	*
7	3.15 ac	0	*
8	1.56	470	0
9	--	--	1.0

Eyelet #4 460 - Eyelet #5 435 - Eyelet #6 370

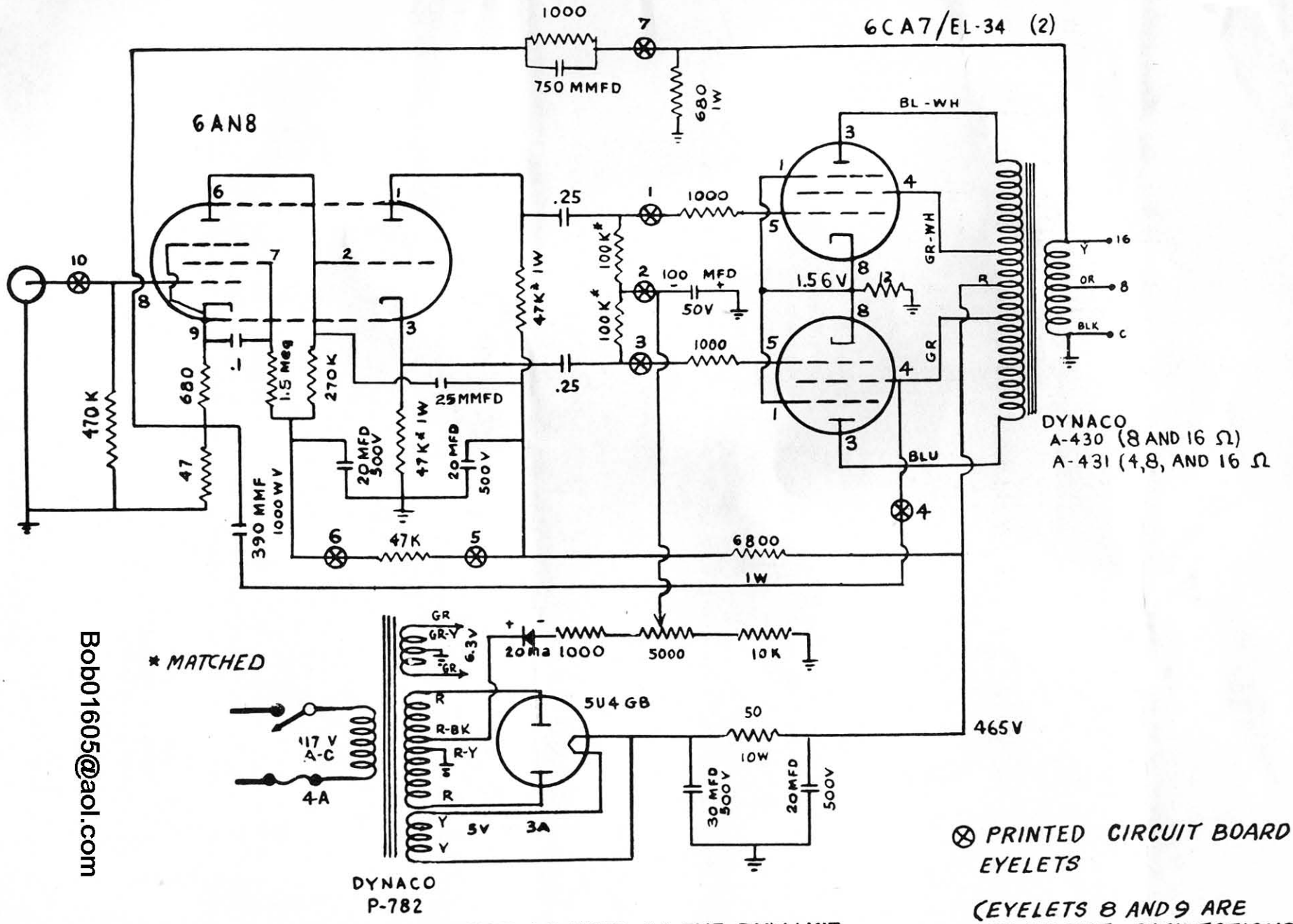
* Minor variations in current drain of the 6AN8 tube will cause large changes in electrode voltages without detrimental effect on performance. Therefore, voltage checks are not applicable at these points.

** Do not make measurements at these points with other than a vacuum tube volt meter.

DYNAKIT MARK II PARTS LIST

(Parts of similar type which do not change performance may sometimes be included as a matter of expediency.)

1 - chassis assembly (chassis, bottom plate & cage)
1 - A-430 output transformer
1 - P-782 power transformer
2 - 6AC7/EL-34 tubes
1 - 5U4GB tube
1 - 6AN8 tube
1 - printed circuit assembly
1 - phono socket
1 - 3/8" grommet
1 - spst slide switch
1 - line cord and plug assembly
1 - three point screw terminal strip
1 - five point lug terminal strip
4 - octal sockets
1 - 20 ma selenium rectifier
1 - 5000 ohm potentiometer (including mounting hardware)
1 - cable clamp
1 - quadruple section, 500 volt capacitor
1 - 100 mfd 50 volt capacitor
1 - 12 ohm precision resistor
1 - 50 ohm 10 watt resistor
3 - 1000 ohm 1/2 watt resistors (brown-black-red)
1 - 10,000 ohm 1/2 watt resistor (brown-black-orange)
1 - 6800 ohm 1 watt resistor (blue-gray-red)
1 - 680 ohm 1 watt resistor (blue-gray-brown)
1 - piece hookup wire
1 - pigtail fuse (4 amp)
1 - snap-on fuse holder
8 - #8 x 3/8" machine screws
8 - #8 nuts
8 - #8 lockwashers
1 - #4 x 3/4" machine screw
19 - #4 x 1/4" machine screws
21 - #4 nuts
20 - #4 lockwashers
4 - #6 sheet metal screws
1 - set of assembly instructions



DYNACO CIRCUIT AS USED IN THE DYNAKIT

⊗ PRINTED CIRCUIT BOARD EYELETS

(EYELETS 8 AND 9 ARE FILAMENT CONNECTIONS FOR 6AN8 TUBE)