



MODEL 3BK 3TUBE STUDENT KIT

PARTS SUPPLIED FOR 3BK KIT

Parts Supplied for Kit No. 3BK

1 Punched aluminum chassis	1 2,200 ohm fixed resistor, R7	11 #6 Lockwashers
1 Punched aluminum panel	1 68 ohm fixed resistor, R8	1 Extruded bakelite washer
1 2-gang variable condenser	1 4-70 uufd. mica trimmer, C1	1 Flat bakelite washer
1 Broadcast band coil, # 18-3501	1 .00047 ufd. mica condenser, C2	1 Brass washer
3 Miniature tube sockets	1 .000047 ufd. mica condenser C3	2 Metal spacers
1 5-prong coil socket	2 .1 ufd. 400 V paper cond. C4,5	2 Bakelite knobs
1 Phone tip connection jack	1 .01 ufd. 400 V paper cond. C6	1 Dial pointer
1 Tie-lug, 2 insulated terminals	1 Electrolytic filter cond. C7	1 Length insulating tubing
1 Tie-lug, 3 insulated terminals	1 .05 ufd. 600 V paper cond. C8	2 Ground lugs
1 50,000 ohm regeneration control with switch	1 .05 ufd. 400 V paper cond. C9	1 Line cord
1 1 megohm fixed resistor, R1	8 #6-32 X 1/4" screws	1 Line cord strain relief
1 100,000 ohm fixed resistor, R2	4 #6-32 X 3/8" screws	1 Regeneration control nut, 3/8"
1 220,000 ohm fixed resistor, R3	1 #6-32 X 5/8" screws	1 6BJ6 tube
1 470,000 ohm fixed resistor, R4	6 #2-56 X 5/16" screws	2 50B5 tubes
1 820 ohm fixed resistor, R5	10 #6-32 hexagon nuts	3 Each mounting screws & washers
1 4,700 ohm fixed resistor, R6	6 #2-56 hexagon nuts	
	1 #6-32 battery nut	
	6 #2 Lockwashers	

This Kit available from your Local Distributor.

ADDITIONAL MATERIALS REQUIRED

Headphones, magnetic type, 2,000 ohms

Pliers with cutters, screw driver, soldering iron

ANTENNA AND GROUND: A good antenna will provide best reception. Antenna should be 50 to 100 feet long, well insulated, and 20 feet or more high. For local reception, an insulated wire 20 to 30 feet long may be used indoors with good results. No ground connection should be used with this set as the power line supplies the ground return.

Wire and Solder

FOLLOW THESE INSTRUCTIONS CAREFULLY

Unpack kit with care to avoid loss of small parts.

Check all parts against list; report any shortage at once.

Knock out the tube socket and line cord half punched holes.

The phone jack mounts from the outside of the chassis; the tuning condenser and line cord strain relief mount from the top of the chassis; all other parts mount from the inside.

Mount tube sockets with # 2-56 screws, coil socket with # 6-32 X 3/8" screws; use lockwashers under each nut and tighten screws firmly. Orient all sockets exactly as shown. Mount phone jack at rear of chassis.

Use lockwashers under nuts as shown in mounting all parts.

Mount regeneration control, securing it with the 3/8" nut.

Mount antenna terminal as follows; slip a ground lug over the # 6-32 X 5/8" screw, next slip on the extruded bakelite washer and seat the shoulder in the 1/4" chassis hole. From the top of the chassis slip on the flat bakelite washer, and screw on a nut. Slip on a brass washer and loosely screw on the knurled nut.

Mount the antenna trimmer and bracket assembly as shown. Mount the tuning condenser on top of chassis, mounting lugs under the mounting screws as shown.

Run line cord through the 1/2" hole to length required and place strain relief parts around wire, squeezing tightly with pliers. Force strain relief and line cord into hole.

Wire the set exactly as shown in Pictorial Wiring Diagram.

Check each wiring operating against the circuit schematic.

Use colored push-back and solid tinned wire as specified, soldering each connection carefully. Be sure iron is hot and well-tinned; heat connection thoroughly as solder is applied, using only the solder furnished.

Connect resistor and condenser leads to the points shown. Place them in exactly the position shown, shortening resistor and condenser leads where necessary. Connect the grounded-foil end of paper condensers as shown.

Use insulating tubing on one lead of the .1 ufd. paper condenser as shown.

Keep all wiring close to the chassis and neatly arranged.

Do not permit bare wires to touch other wires or chassis.

Carefully check all wiring against both the pictorial and the circuit schematic, after completion.

Attach dial pointer to large portion of tuning condenser

shaft, using pliers to hook in place. The pointer is placed over the condenser shaft with the small hook pointing out.

Attach knobs to control shafts, using their set screws.

Turn tuning knob to the left to close the condenser plates and slip the pointer until it points to 0. Be sure that the pointer does not rub the panel when the tuning knob is turned.

Connect the antenna and headphones as shown.

Plug in the broadcast coil, fastening the flexible lead to the antenna terminal. Loosen the antenna trimmer adjustment when using the broadcast band and long-wave coils.

Put on headphones, plug line cord into 105-120 volt AC/DC outlet, and turn on the set. Allow 30 seconds for the tubes to warm up. If the power supply is DC and the receiver does not operate, reverse the line cord plug in the power outlet receptacle. Turn the regeneration control clockwise until the set breaks into oscillation with a soft hiss. Turn the tuning dial slowly until a whistle is heard. Tune this "beat note" to the lowest pitch and turn the regeneration control counter-clockwise until the whistle just stops. This is the most sensitive point of operation. Pull out the line plug, reverse, and replace to determine the position of least hum for AC line.

Do not permit set to oscillate any more than is necessary to locate stations, as this allows radiation of a signal which may cause interference in neighborhood receivers.

Coils are available to give reception on the following bands:

18-3500	170-540 kc
18-3502	1.4-4.5 mc
18-3503	3.2-8.2 mc
18-3504	8 - 18 mc
18-3505	15 - 34 mc

Adjust antenna coupling on the short wave bands with the antenna trimmer, using a loose adjustment of the screw.

Many of the stations heard on the short waves employ radio-telegraphy (CW). These stations must be tuned in with the set oscillating so as to produce a beat note with the incoming signals. The tuning control is adjusted to make the pitch of the beat note such that the code can be copied.

The set may block on strong CW signals so that a beat note is not produced. This condition may be remedied by advancing the regeneration control.

Superregeneration may be obtained on the two highest frequency ranges by advancing the regeneration control beyond the normal point, as indicated by a loud rushing sound. This is a very sensitive condition for reception of 'phone signals such as in the 14 mc and 28 mc amateur bands.

A stage of audio frequency amplification may be added to this set to provide loudspeaker operation. No recommended circuits are furnished for this, since suitable circuits are available in a number of radio publications.

CAUTION: Do not touch any part of the under-chassis wiring when the line plug is connected. Always remove the plug from the power line receptacle before working on the set.

Never use the receiver on or near a grounded metal bench, radiator, sink, or other grounded metal objects.

3 TUBE AC-DC KIT

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