

PYE "Black Box" record reproducers

THREE models are covered in this Data Sheet. The Black Box is a four-valve reproducer with push-pull ultra linear output stage with either single-speed or 4-speed record player. The Super Black Box also has four valves and incorporates separate radio and pick-up inputs, switched tone control system and single-ended output.

SERVICING NOTES

Removal of Chassis

All Models: Remove record changer and pull out all plugs from amplifier chassis. Pull off knobs and tilt cabinet on one side. Unscrew the four screws from bottom of cabinet, and lift out chassis.

Replacing 4-Speed Pulley *Changer*

Black Box (Autochanger Model): Set 4-speed knob to N, remove circlip at base of centre spindle and lift off turntable. Slacken two grub screws on pulley, move jockey pulley wheel to left and slide off 4-speed pulley.

Replace with new 4-speed pulley. Set speed knob to 45 or 33 position and adjust pulley until jockey pulley is engaged mid-way on appropriate step. Set knob to N. Tighten grub screws, replace turntable and circlip.

Black Box (Single player): Remove turntable by easing off against centre spindle friction. Switch machine off by setting 4-speed knob in neutral position (half-way between two of the speed positions). Lift off 4-speed pulley with its retaining spring (these should come off together).

Fit spring to new pulley and push

well down on spindle, turning pulley at the same time. Ensure that jockey pulley locates centrally on appropriate step. Replace turntable.

Super Black Box: Remove circlip at base of centre spindle, lift off turntable. Set speed knob to 16 position. Hold the two large jockey pulley wheels apart from 4-speed pulley with thumb and first finger of left hand. With right hand, grip 4-speed pulley and pull off, turning in an anti-clockwise direction.

Fit new pulley by turning in anti-clockwise direction, ensuring that the spring is located well down on fan bush. Also ensure that jockey pulley locates centrally on each step of the 4-speed pulley as the speed knob is operated. Replace turntable, first ensuring that jockey pulley is located inside turntable rim. Refit circlip.

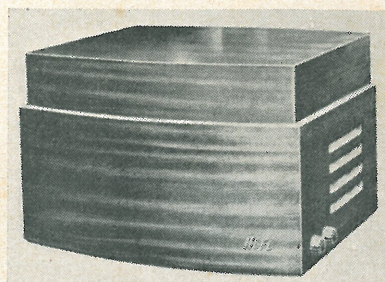
Replacement of Stylus

Black Box: Lift pick-up arm vertically from its rest to fullest extent, ensuring not to strain the arm. With the forefinger, ease the stylus up free of the plastic front locating groove; grip stylus between thumb and forefinger and gently pull with upward and outward movement. Do not use force to free it from plastic anchoring pad at rear, otherwise the centre hole will be enlarged.

Insert new stylus through hole in rear pad, taking care to ensure that the stylus is seated well down in both the rear pad and the front locating groove.

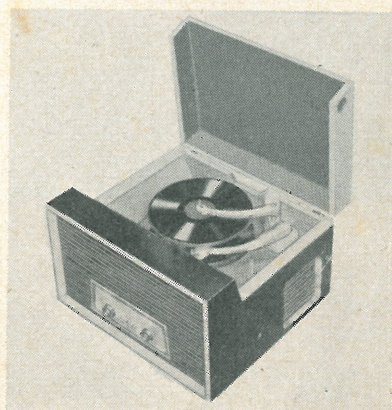
Super Black Box: Lift pick-up arm vertically from rest to fullest extent, ensuring not to strain the arm. Hold pick-up head firmly between thumb and forefinger. The stylus is held to the cartridge by a small screw and this should be removed. Place thumbnail under head of stylus, lever up stylus so that it is free of the plastic support and with a steady pull in an outward direction release the square tail of the stylus. Avoid applying undue pressure to plastic support.

Insert new stylus so that the head rests centrally on plastic support. It is most important that the two claws close over each side of the plastic support. The tail should now be gently pressed downwards into the cavity provided and the screw replaced.



Black Box

Mahogany cabinet, 39 gns. (single-play), 41 gns. (autochange) "Chinese" cabinet, 64 gns. (single-play), 66 gns. (autochange)
Released January 1954



Super Black Box

In either cabinet style, 59 gns.
Released August 1956

SERVICE SNAPS

PYE Black Box

Valves: ECC83 (pre-amp., phase inverter), two EL42 (p/p output), EZ41 (f.w. rec.).

Pilot Lamp: 6.3V, 0.3A.

Volume Control: 1MΩ+1MΩ ganged.

Tone Control: 1kΩ.

Electrolytics: 12μF+25μF, 350V.

Mains Input: 110-120V and 200-250V 50 c/s a.c.

PYE Super Black Box

Valves: EF86 (pre-amp.), EF86 (amp.), EL34 (output), EZ81 (f.w. rec.).

Pilot Lamp: 6V, 0.4A.

Volume Control: 2MΩ.

Electrolytics: Two 32+32μF, 350V.

Mains Input: 100-110V and 200-250V 50 c/s a.c.

VOLTAGE AND CURRENT READINGS "Black Box"

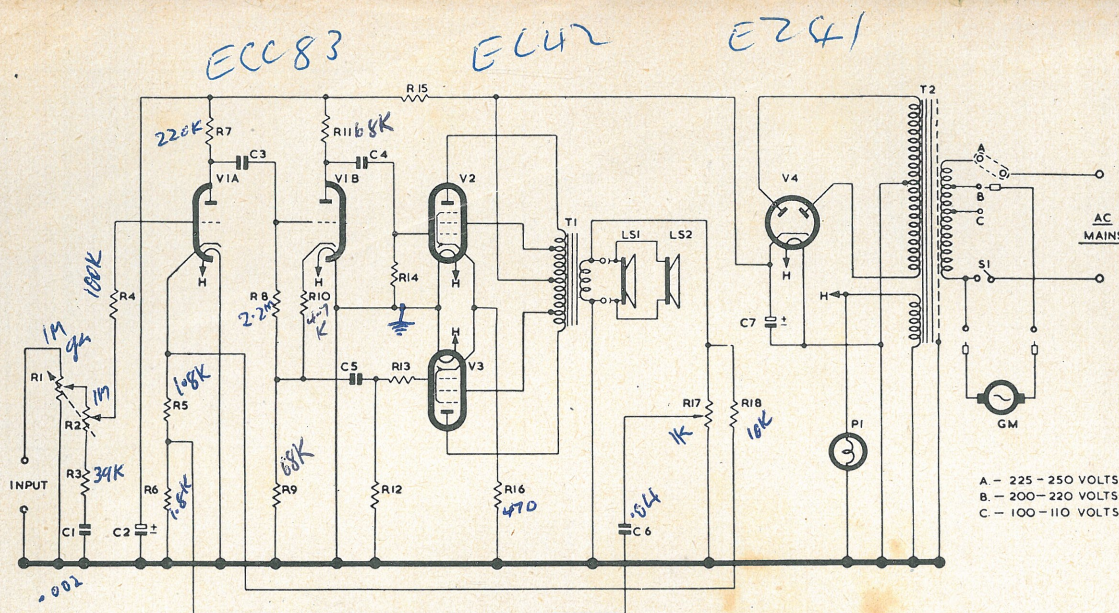
| | Anode | | | Cathode | | |
|-------|-------|------|-----|---------|------|-----|
| | pin | V | mA | pin | V | mA |
| V1 | 6 | 140 | 0.5 | 8 | 1.35 | 0.5 |
| | 1 | 236 | 0.4 | 3 | 26 | 0.4 |
| V2/V3 | 2 | 270 | 16 | 3/7 | 17.6 | 16 |
| V4 | 2/6 | 500* | | 7 | 280 | 37 |

"Super Black Box"

| | | | | | | |
|----|-----|------|-----|---|-----|-----|
| V1 | 6 | 95 | 0.3 | 3 | 1 | 0.3 |
| V2 | 6 | 60 | 0.9 | 3 | 1.3 | 1 |
| V3 | 3 | 275 | 100 | 8 | 16 | 108 |
| V4 | 1/7 | 580* | | 3 | 315 | 110 |

*Anode to anode, a.c.

All readings obtained on 20,000 Ω/V test-meter, with mains input of 240V a.c.



Black Box

| Resistors | |
|-----------|------------|
| R1 | 1MΩ |
| R2 | 1MΩ |
| R3 | 39kΩ |
| R4 | 100kΩ |
| R5 | 1.8kΩ |
| R6 | 1.8kΩ |
| R7 | 220kΩ |
| R8 | 2.2MΩ |
| R9 | 47kΩ-68kΩ* |
| R10 | 47kΩ-68kΩ* |
| R11 | 1MΩ |
| R12 | 100kΩ |
| R13 | 1MΩ |
| R14 | 27kΩ, 1/2W |
| R15 | 470Ω, 1/2W |
| R16 | 1kΩ |
| R17 | 10kΩ |
| R18 | 10kΩ |

*High stability.
All resistors 1/2W
unless otherwise stated.

| Capacitors | |
|------------|---------------|
| C1 | 0.002μF |
| C2 | 0.01μF |
| C3 | 0.005μF |
| C4 | 0.005μF |
| C5 | 0.005μF, 150V |
| C6 | 0.04μF, 150V |
| C7 | 25μF |

All capacitors 350V,
except where other-
wise stated.

| Transformers | |
|--------------|--|
| T1 | pri. 1.6kΩ |
| T2 | 225-250V tap 50Ω sec. 200 + 200Ω |

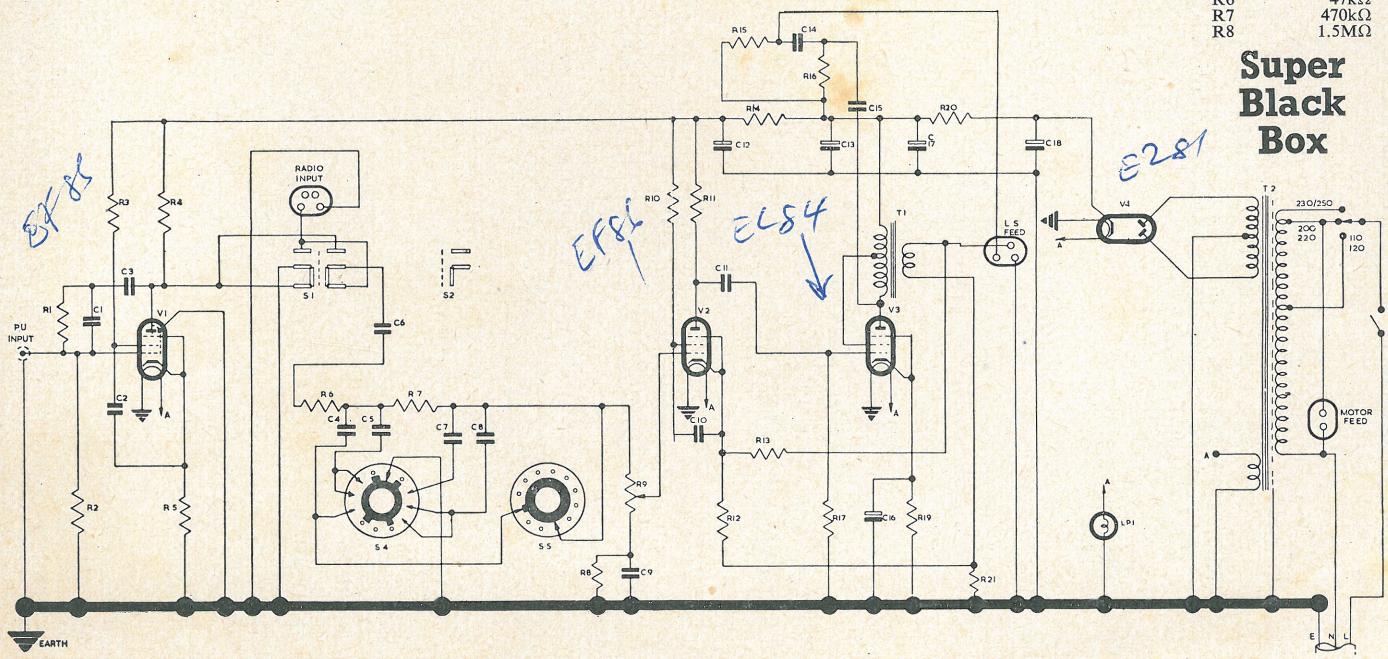
| Valves | |
|--------|-------|
| V1 | ECC83 |
| V2 | EL42 |
| V3 | EL42 |
| V4 | EZ41 |

| Resistors | |
|-----------|-------|
| R1 | 470kΩ |
| R2 | 100kΩ |
| R3 | 3.9MΩ |
| R4 | 470kΩ |
| R5 | 2.7kΩ |
| R6 | 47kΩ |
| R7 | 470kΩ |
| R8 | 1.5MΩ |

| | |
|-----|---------------|
| R9 | 2MΩ |
| R10 | 1.5MΩ |
| R11 | 270kΩ |
| R12 | 1.8kΩ |
| R13 | 6.8kΩ |
| R14 | 22kΩ |
| R15 | 1MΩ |
| R16 | 4.7kΩ, 1/2W |
| R17 | 680kΩ |
| R19 | 150Ω, 3W w.w. |
| R20 | 150Ω, 3W w.w. |
| R21 | 0.11Ω* |

*3 1/2 in. of 22 s.w.g.
Eureka wire.
All resistors 1/2W
unless otherwise stated.

Super Black Box



| Capacitors | |
|------------|---------------|
| C1 | 220pF |
| C2 | 0.05μF, 350V |
| C3 | 560pF |
| C4 | 220pF |
| C5 | 390pF |
| C6 | 0.005μF, 400V |
| C7 | 22pF |
| C8 | 39pF |
| C9 | 0.01μF, 150V |
| C10 | 0.05μF, 350V |
| C11 | 0.05μF, 350V |
| C12 | 32μF, 350V |
| C13 | 32μF, 350V |
| C14 | 0.05μF, 350V |
| C15 | 0.005μF, 400V |
| C16 | 25μF, 25V |
| C17 | 32μF, 350V |
| C18 | 32μF, 350V |

| Transformers | |
|--------------|--|
| T1 | pri 200Ω |
| T2 | 115V tap. 6.7Ω start-finishd 24Ω sec. 250Ω |

| Valves | |
|--------|------|
| V1 | EF86 |
| V2 | EF86 |
| V3 | EL34 |
| V4 | EZ81 |