

# Trader

## SERVICE SHEET

Apart from the case and mounting, the Toshiba PC-330 and PC-4360 stereo cassette decks are electrically and mechanically identical. The PC-330 is intended for rack mounting, and therefore has handles at each end of the front fascia and a plain metal and plastic wrap-around case, whereas the PC-4360 has no handles and is housed in a wood-sided cabinet with feet for table-top or shelf mounting.

Both models are in instrument-style finish, with silver controls and brushed aluminium front panel. Each has a front-loading vertically-mounted cassette deck with a manually-lifted transparent acrylic cover, thereby affording easy access to the heads for maintenance.

Feature of the two decks include separate bias and equalisation switches for ferric and chrome tape, choice of input from line or direct from tuner or amplifier via a DIN in/out socket, and Dolby noise reduction.

Control of recording level is by two rotary concentric conds, interlocked so that once channel balance is obtained, rotation of the outer knob varies level on both channels in proportion. Other features include large peak-level indicating VU meters, input jacks for separate channel microphones, and for stereo headphone output. LED indicators show when the tape deck is in the "Record" mode and when Dolby is in use.

### Brief Specification

Power supply	240V 50Hz a.c. mains			
Consumption	15W			
Fuse	Thermal cut-out (in mains transformer)			
Indicator lamp	Power On: 14V 80mA lamp Record and Dolby: LED			
Transistors	2 SC733-GR (seven), 2SD234-Y (two)			
Integrated circuits	NE545B (two), TA7122AP-JA2 (four), TA7140PJA-1 (two)			
Diodes	1D2C1 (two), 1D2Z1, 1N60 (two), 1N60-FP1 (four), 1S15555 (six), 02Z6-BA.			
Tape speed	1 $\frac{7}{8}$ in (4.75cm) per second			
Tape system	4-track, two channel stereo			
Record bias and erase	85kHz bias, a.c. erase			
Frequency response	30Hz to 16kHz*			
Signal to noise ratio	57dB without Dolby (improved by 5dB at 1kHz and 10dB at 5kHz and above with Dolby)*			
Distortion factor	0.9 per cent at 0dB at 400Hz *using TDK SA tape as reference.			
Wow and flutter	0.07 per cent weighted, rms			
Fast forward/rewind times	Within 105 seconds for a standard C60 cassette			
Inputs	Microphone 0.25mV into 600 ohms to 10 kilohms, via standard jack Line 100mV into 50 kilohms (via phone jacks) DIN in/out 40 kilohms (via DIN 5-pin socket) Line OUT 0.4V into 50 kilohms DIN out: via 5-pin DIN socket Headphones: 0.75V into 8 ohms			
outputs				
Dimensions and weights	Height	Width	Depth	Weight (approx)
(PC-330)	5 $\frac{3}{4}$ in (146mm)	17 $\frac{3}{4}$ in (450mm)	12 $\frac{1}{4}$ in (310mm)	11lb (5kg)
	(Width is 430mm, weight 5.2kg for PC-4360)			
Manufacturer	Tokyo Shibaura Electric Co Ltd, Japan			
UK Distribution and Service	Toshiba (UK) Ltd, Toshiba House, Great South West Road, Feltham, Middlesex TW14 0PG 01-751 1281			

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# Toshiba

## PC-330

## PC-4360

Stereo cassette decks



### DISMANTLING

(PC-330 and PC-4360 except where stated)

(see interior view diagram)

1. Disconnect cassette deck from mains supply, unplug any audio leads fitted, check that there is no cassette loaded.

2. Access for most service requirements is by removal of the top cover plate and the screening plate for the main p.c. board underside.

Proceed as follows:

#### Top cover

PC-4360. Remove two upper screws A with washers from each wood end panel.

PC-330. Remove one upper screw A from each cabinet side.

Remove two screws B from rear panel.

Lift off top cover.

NOTE: if it is necessary to remove the wood ends completely from model PC-4360, note that the upper two of the four screws in each panel are longer than those at the bottom.

#### Bottom cover screen.

Remove five screws D from bottom. If necessary, on model PC-4360 slacken screws D to free wood end panel brackets, then ease off cover.

3. With the top cover removed, access to the component side of the main p.c. board is facilitated by also disengaging and lifting out the rear phono jack ejection panel, which slots into the cabinet rear.
4. Removal of the main p.c. board assembly, or the cassette deck mechanism, or any controls, switches, lamps or front panel jacks requires the removal of the complete front panel. Proceed as follows:
  - (a) Remove recording level and four switch control knobs.
  - (b) Remove two screws C, two Allen-type screws F, and screw J to release cassette loader.



C154	0.68μF	C2
C201	3.3μF	A2
C202	47pF	A2
C203	1000pF	A2
C204	100μF	A2
C205	100pF	A2
C206	3.3μF	A2
C207	3.3μF	B2
C208	470pF	B2
C210	3.3μF	B2
C211	680pF	B2
C212	100μF	B2
C213	47pF	B2
C214	47pF	B2
C215	47μF	B2
C216	3.3μF	B2
C217	3.3μF	B2
C218	5600pF	B2
C219	5600pF	B2
C220	0.1μF	B1
C221	5600pF	B1
C222	10μF	B1
C223	4700pF	B1
C224	0.027μF	B1
C225	3.3μF	B1
C226	10μF	A1
C227	3.3μF	A1
C228	220μF	B1
C229	100μF	B1
C230	0.33μF	B1
C231	0.1μF	B1
C232	10μF	B1
C233	0.047μF	B1
C234	2700pF	C2
C235	3.3μF	C2
C236	220pF	C2
C237	0.082μF	C2
C238	0.047μF	C2
C239	1μF	C2
C240	1500pF	C2
C241	150pF	B2
C242	100pF	B2
C243	3.3μF	A2
C244	47μF	B2
C245	47μF	A2
C246	2200pF	A2
C247	10μF	A2
C248	4700pF	A2
C249	3.3μF	C1
C250	47μF	C1
C251	10μF	C1
C252	1000pF	C1
C253	10μF	C1
C254	0.68μF	C2

**Transistors**

Tr1	2SD234-Y	C2
Tr2	2SC733-GR	C2
Tr3	2SD234-Y	C2
Tr4	2SC733-GR	C2
Tr101	2SC733-GR	C2
Tr102	2SC733-GR	C1
Tr103	2SC733-GR	C1
Tr201	2SC733-GR	C2
Tr202	2SC733-GR	C1
Tr203	2SC733-GR	C1

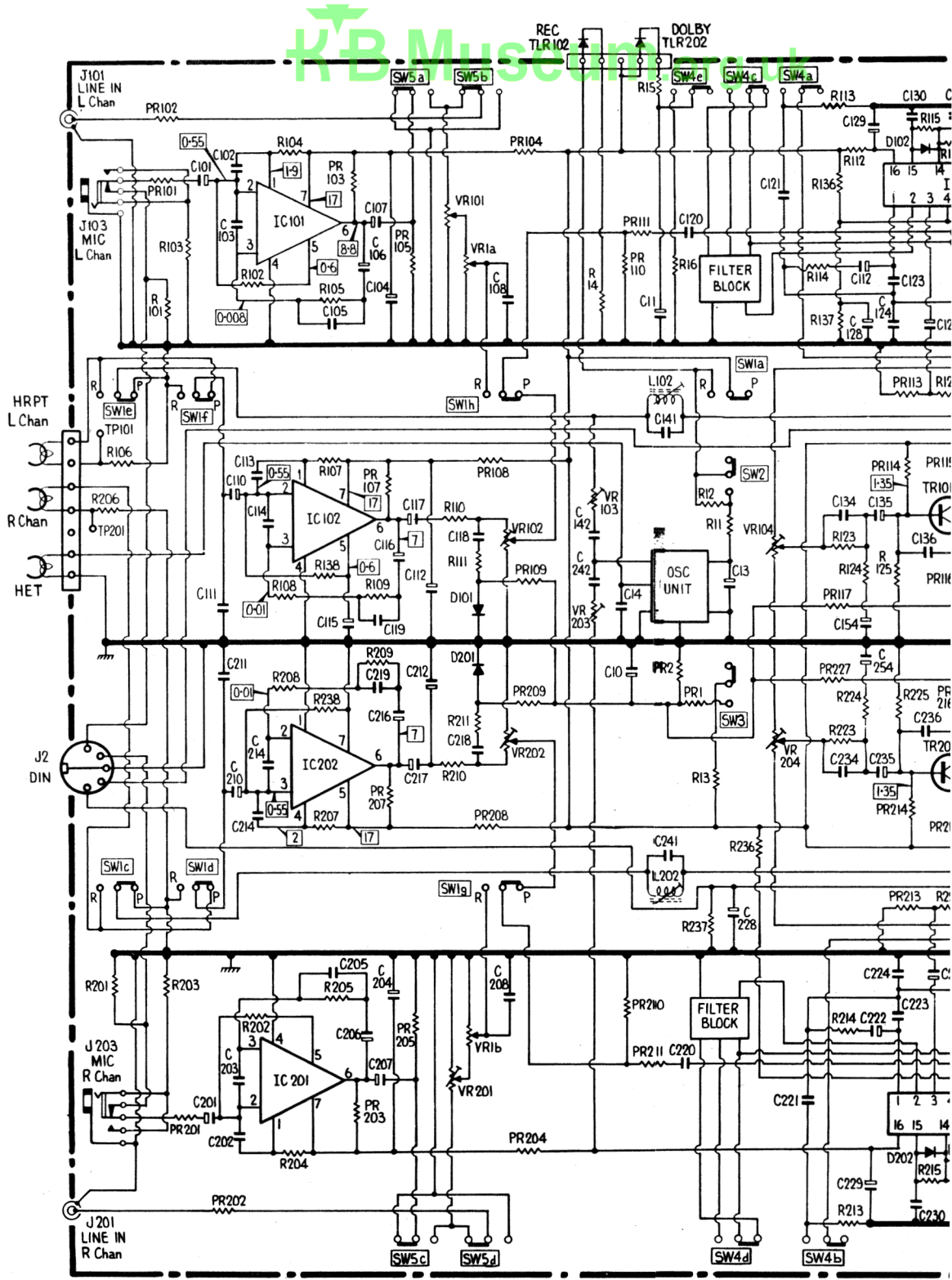
**Integrated circuits**

IC101	TA7122AP-JA2	A2
IC102	TA7122AP-JA2	B2
IC103	NE545B	B1
IC104	TA7140PJA-1	A2
IC201	TA7122AP-JA2	A2
IC202	TA7122AP-JA2	B2
IC203	NE545B	B1
IC204	TA7140PJA-1	A2

**Diodes**

D1	1D221	C2
D2	1D2C1	C2
D3	1D2C1	B2
D4	1S1555	C2
D5	1S15555	C2
ZD1	02Z6.8A	C2
D101	1S15555	B2
D102	1N60	B1
D103	1S15555	C2
D104	1N60-FD1	C1
D105	1N60-FD1	C1
D201	1S15555	B1
D202	1N60	B1
D203	1S15555	C2
D204	1N60-FD1	C1
D205	1N60-FD1	C1

C		101	102	103		105	107	104	117	118	108		142	14	141	11	120	13		121	134	112	128	129	130	136	
R		106	PR102		104	107	PR103	PR107	VR101	VR1a	VR102	PR104		VR103	PR110	15	12		VR104		114	136	124	125	PR113	12	
L		206	101	PR101	103	108	138	105	109	PR105	110	111	PR108	PR109	VR203	PR111	16	11		PR117	123	137	112	PR114	115	P	



C		201	203		205	206	207	204	217	218		208		10	241		228		221	234	254	235	236				
R		201	203	202	208	238	205	209	PR207	201	210	211	VR202	PR209	PR210	PR2	PR1	13	236	VR204	223	214	224	225	PR213	1	
L		PR201	PR202	204	204	207	PR203	PR205	VR201	VR1b	PR208	PR204		PR211	C220				PR227	213	PR214	221	215				





**Bias Leak**

Connect meter across left hand test point **TP103**, set record level controls to maximum, Dolby switch to OUT. Set Bias and Equalisation switches to NORMAL, input selector switch to LINE IN. Select "record" and adjust trap coil **L102** for minimum meter reading.

Repeat for right hand channel, connect meter across **TP203** and adjust trap coil **L202** for minimum.

**Record/playback frequency characteristic**

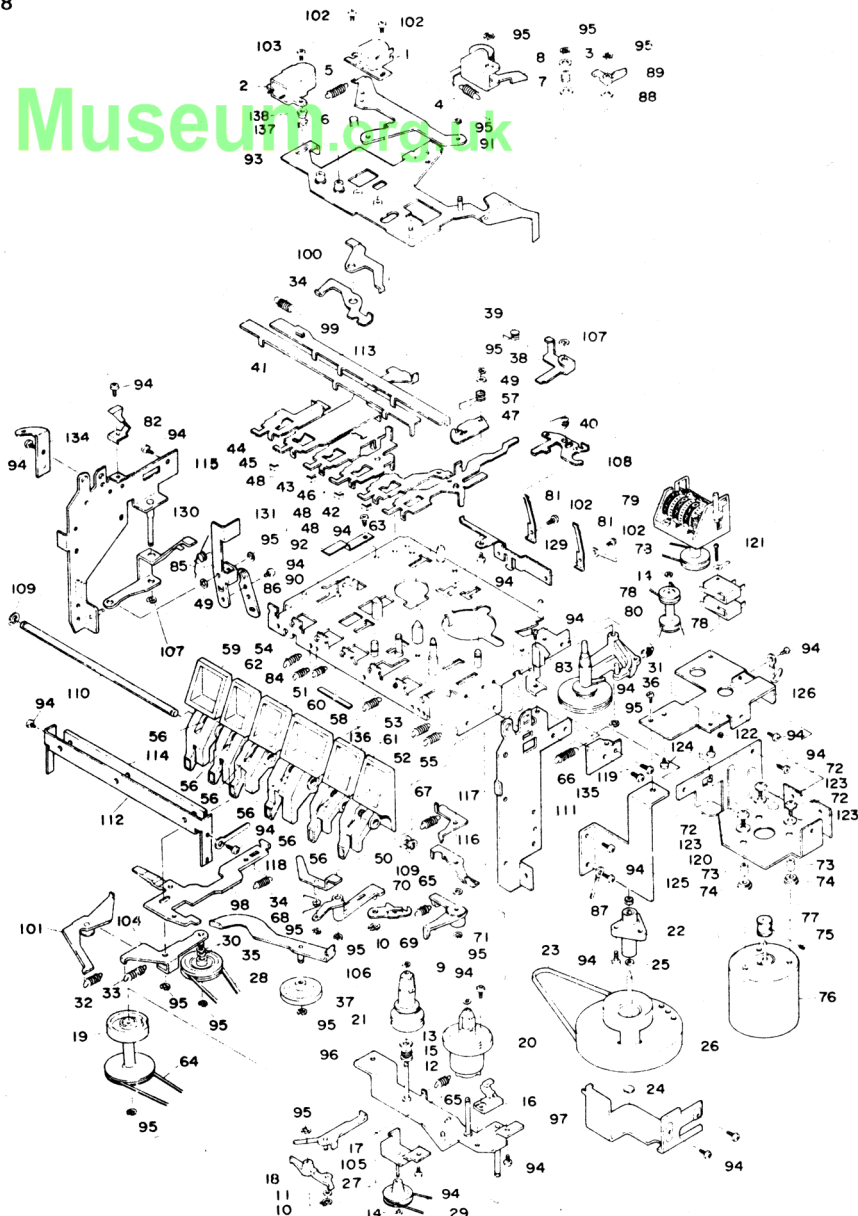
Connect meter across left hand LINE OUT jack **J102**, set Dolby switch to OUT. Set recording level controls to maximum, Bias and Equalisation switches to NORMAL, input selector switch to LINE IN. Using blank cassette, record first a 400Hz and then a 10kHz signal, level -20dBV injected via the left hand LINE IN jack **J101**. Play back the tape and adjust **VR103** until the difference between the outputs at 400Hz and 10kHz is within  $\pm 1$  dB.

Repeat for right hand channel, connecting meter across the right hand LINE OUT jack **J202**, and adjusting preset **VR203**.

**Record/playback sensitivity**

Set recording level controls to maximum, Dolby switch to OUT. Set Bias and Equalisation switches to NORMAL, input selector switch to LINE IN. Inject 400Hz signal, level -20dBV via left hand LINE IN jack **J101** and record on blank cassette. Play back the tape and adjust preset **VR104** until the left hand VU meter registers +3dB.

Repeat for right hand channel, injecting signal via right hand LINE IN jack **J202**, adjusting **VR204** until right hand VU meter registers +3dB.



Cassette deck exploded view  
(numbers not listed not supplied as spares)

- 1 Head, Record/Playback
- 2 Head, Erase
- 3 Washer, 30
- 4 Spring, Pressure Roller
- 5 Spring, Head Chassis
- 6 Spring, Head
- 7 Spring, Head Chassis
- 8 Pressure Roller Ass'y
- 9 E Washer, Reel Plate
- 10 G Washer
- 11 Spacer, Push Lever
- 12 Nylon Washer, Reel Plate
- 13 Washer, Reel Plate
- 14 Washer, Middle Pulley
- 15 Spring, Back Tension
- 16 Lever, Guide
- 17 Lever, Detection
- 18 Cam-wheel Ass'y
- 20 Reel Plate, Take-up
- 21 Reel Plate, Supply
- 22 Holder, Capstan
- 23 Belt, Drive
- 24 Washer, Flywheel
- 25 Washer, Capstan Shaft
- 26 Flywheel Assembly
- 27 Pulley, Middle
- 28 Belt, Rewind
- 29 Belt, Middle Pulley
- 30 Washer, Rewind Lever
- 31 Spring, Take-up Lever
- 32 Spring, Fast-forward Lever
- 33 Spring, Rewind Lever
- 34 Spring, Lock Slider

- 35 Rewind Pulley Assembly
- 36 Take-up Pulley Assembly
- 37 Fast-forward Idler Assembly
- 38 Lever, Erase Prevention
- 39 Spring, Lever
- 40 Spring, Prevention Lever
- 41 Slider, Lock
- 42 Operation Plate Fast-forward
- 43 Operation Plate, Rewind
- 44 Operation Plate, Stop
- 45 Operation Plate, Record
- 46 Operation Plate, Play
- 47 Lock Plate, Pause
- 48 Cushion, Push Button
- 49 Nylon Washer
- 50 Nylon Washer
- 51 Spring
- 52 Spring
- 53 Spring
- 54 Spring
- 55 Spring
- 56 Spring, Push Lever
- 57 Spring, Pause Lock Plate
- 58 Push Button, Play
- 59 Push Button, Stop
- 60 Push Button, Rewind
- 61 Push Button, FF/Pause
- 62 Push Button, Record
- 63 Operation Plate, Pause
- 64 Belt, Cam-wheel
- 65 Spring, Reel Chassis
- 66 Spring
- 67 Spring, ASO Lever

- 68 Spring, ASO Select
- 69 Lever, ASO
- 70 Lever, Release
- 71 Lever, Bias
- 72 Screw (PAN), 2.6' x 8mm
- 73 Spacer, Motor
- 74 Cushion, Motor
- 75 Screw, 2.60 x 4mm
- 76 DC Motor
- 77 Pulley, Motor
- 78 Belt, Counter
- 79 Tape Counter
- 80 Middle Pulley Assembly
- 81 Spring, Cassette Hold
- 82 Pawl Assembly, Left
- 83 Pawl Assembly, Right
- 84 Spring
- 85 Spring, Record Lever
- 86 Holder, Spring
- 87 Gear, Waiting
- 88 Washer, Waiting Lever
- 89 Lever, Waiting
- 94 Screw, 20 x 4mm
- 95 E Washer, 20
- 102 Screw, 20 x 4mm
- 103 Screw, 20 x 4mm
- 113 Slider, Lock
- 119 Screw, 2.60 x 4mm
- 121 Screw, 20 x 16mm
- 122 Nut, 20
- 123 Washer, 2.60
- 137 Sleeve, Erase Head
- 138 Spring, Erase Head.

- (c) Remove three screws K from front panel top rail, and three corresponding screws D from the panel bottom rail.
- (d) The panel can now be removed.

(e) To separate the cassette mechanism from the p.c. board, the spring connecting the mechanism to record/playback switch S1 must be disconnected.

- 5. Mains transformer T1 is secured by two screws G, and the mains cable by a clamp at the cabinet rear.

### Electrical Adjustments

#### Equipment required:

Electronic meter (VTVM)

Audio signal generator

Attenuator

Test tape providing 10kHz and 400Hz signals.

(See interior diagram for locations of presets and test points)

#### Record/playback head azimuth

Connect meter across left hand LINE OUT jack J102, set Bias and Equalisation switches to NORMAL, Dolby switch to OUT. Play back a 10kHz signal from the test tape, and adjust head azimuth screws to give maximum reading on meter.

Repeat with meter connected across right hand LINE OUT jack J202, checking that overall difference between maximum outputs per channel are within 2dB.

#### Playback sensitivity

Connect meter across left hand test point TP102. Set Bias and Equalisation switches to NORMAL, Dolby switch to OUT. Play back the 400Hz signal from the test tape, and adjust VR102 for 580mV.

Repeat for right hand channel, connecting meter across TP202 and adjusting VR201 for 580mV.

#### Recording sensitivity

Connect meter across left hand test point TP102. Set both channel recording lever controls to maximum. Set Bias and Equalisation switches to NORMAL, Dolby switch to OUT. Inject 400Hz signal from generator, attenuated to -20dBV, via the left hand LINE IN jack J101. Using a blank cassette (preferably of UK origin), record the signal. Play back the

recording and adjust preset VR101 for 580mV.

Repeat for right hand channel, injecting signal via LINE IN jack J201, connecting meter across TP202 and adjusting VR201 for 580mV.

#### VU meters

Set record level controls to maximum, Dolby switch to OUT. Set Bias and Equalisation switches to NORMAL, input selector switch to LINE IN. Inject 400Hz signal, attenuated to -20dBV, via left hand LINE IN jack J101, and select "Record". Adjust preset VR105 until left hand VU meter registers +3dB. Repeat for right hand channel, injecting signal via right hand LINE IN jack J201, and adjusting VR205 until right hand VU meter registers +3dB.

### Interior view

