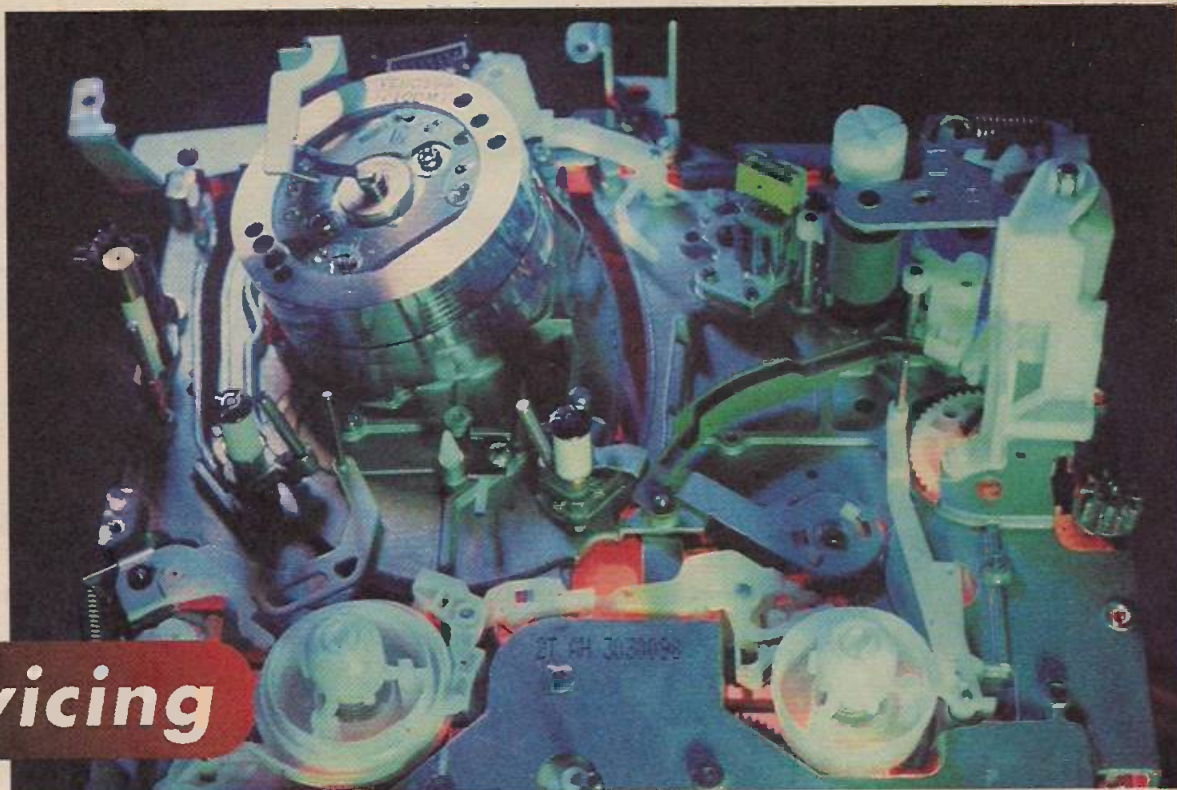




Servicing

The Panasonic K Deck

It's three years since Panasonic VCRs started to use the K deck, long enough for a service history to be prepared. **John Coombes** describes the various fault conditions he has encountered

The design of the Panasonic K deck, used in NVHD and NVSD series models, follows the line adopted by all VCR manufacturers in recent years, with a substantially reduced number of parts in the drive mechanism.

Design Features

A separate motor is used for loading and mechanism control, with the brakes and loading gears directly driven via a multi-function lever. There are no sub-levers or solenoids. A tape end/beginning detector LED is used instead of a slide switch: this reduces the wiring required. There are fewer joint parts, and a smaller and thinner top plate and rack.

There is no longer any take-up reel incline position or P5 post height adjustment. Gear phase position alignment is also reduced. The K deck has only six gear phase alignment positions in comparison with the G deck's twelve positions.

The VCRs that use the deck are easy to dismantle, with the deck coming away from the main PCB. This enables mechanical parts to be replaced very easily. To help with fault finding, the VCR software has a built-in self-diagnostic test system.

The Servicing Position

The K mechanism can be removed from the main circuit board assembly, but an extension cable (part no. VFK0889) between the loading motor and PCB socket P2001 has to be used to maintain operation. With the deck in the service position, its condition and the gear phase alignment can be checked. The loading/unloading operation can also be checked. This can be done by connecting a 4.5V battery across the loading motor pins, or by manually turning the worm gear or worm wheel gear.

If eject occurs when the cassette carriage has been removed, on reinserting it after repair the main cam gear will not engage with the carriage connection gear and will not rotate. To set up the eject operation with the cassette carriage disconnected you have to rotate the carriage connection gear by hand in the anti-clockwise direction.

Faults Encountered

As with so many decks, the most common problem is tape damage because of a faulty pinch roller (part no. VXA2246). The symptom can be tape creasing or chewing. There may also be tape looping, which can cause damage in playback or when the tape is ejected –

you can get looping around the guide poles or the pinch roller itself. The tape can ride up and down a well polished pinch roller, the result being creasing at the bottom and/or top of the tape and possible damage. This problem can also affect the sound and/or picture quality. If there is wow on sound, or picture jitter with missing control pulses, but no tape damage the cause can again be incorrect tape drive because of a polished pinch roller.

If playback of a machine's own recordings produces a noisy picture (poor sound and picture), check whether the audio/control head is dirty. The cause of the problem is missing control pulses. Cleaning the audio/control head usually suffices, but on a few occasions we have had to replace it. Although we have not had any electronic faults in this respect, the control pulses come from pins 34 and 35 of the MN6743VRTB chip IC6001. If there is no sound with a machine's own recordings and the output at pins 34 and 35 of IC6001 is correct, replace the AC head.

A worn lower drum can also affect the sound, and we've had this with a few machines. Because of the wear, the tape wanders up and down the AC head.

Mechanical noise in the fast forward mode can be caused by the tape itself or a faulty idler arm unit. If the VCR won't load correctly after replacing the idler arm unit, check that the idler control lever is correctly fitted and is not broken – replace it if you are not sure.

If the tape becomes stuck when eject is selected, check whether the take-up brake arm unit has come off or broken – this will mean that the take-up reel is unable to rotate.

If the playback picture is noisy, check the lead connections to the lower drum. Be sure to check the RF envelope. If the lead is broken, there will be no FM output from the video heads or upper drum.

On a few occasions we have had a machine whose playback has been spoilt by noise bars. They have been very noticeable with prerecorded tapes, though the machine's own recordings have been free of the fault. The cause has been dust or dirt on the inclined base assembly (guide poles).

Always check whether anything is obstructing the inclined base assembly. If this is OK but the VCR goes into the cuc mode when the play button is pressed, check whether the inclined base units (supply and take-up) are completely locking. Ensure that the V stopper and inclined base assembly is well greased.

If the machine won't accept a cassette, check the cassette holder plate unit. The cause may be just a broken release lever at the side of the unit.

If the video head cleaner arm unit is broken or incorrectly positioned, the head cleaner can be left in contact with the head all the time. This can result in a very badly worn upper drum.

There are several possible causes of chewed tape, including the pinch roller (see previous note). If necessary check the P5 arm unit, which may be bent. This can prevent tape ejection, with damage to the tape. Also check P5's stopper base, which can crack. Visual inspection will show whether either of these faults is present. If the P5

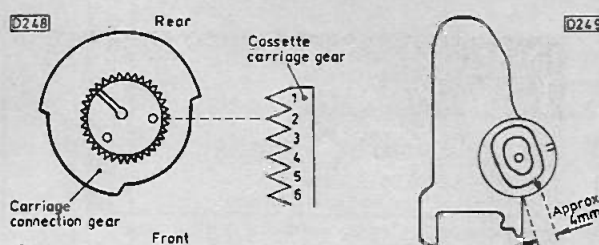


Fig. 1 (left): Carriage connection gear phase alignment.

Fig. 2 (right): Mode switch alignment.

post stopper retaining clip is broken there can be incorrect mechanical functions.

If the cassette blinder flap doesn't close, check the operation of the carriage connection gear with the side plate unit (right-hand side). There may be a phase error between the two assemblies. Remove the cassette unit and ensure that the tape will go in and out of the housing freely by hand. If this is OK, set up the carriage connection gear as laid down in the service manual. If the two side plate units and the carriage connection gear are incorrectly set, the tape may be ejected immediately after it's inserted. For smooth loading and unloading, the carriage connection gear must be set up to fit into the cassette carriage gear as shown in Fig. 1.

For correct operation of all mechanical functions the mode switch must be set correctly. Set it as shown in Fig. 2, in the eject mode, so that there is a 4mm gap between the edge of the switch and the arrow marked on the dial.

Note that if eject is selected when the cassette carriage is not in position, when it's refitted the main cam gear will not engage with the carriage connection gear which will not rotate. To reset, rotate the carriage connection gear by hand so that, as shown in Fig. 1, it's in alignment with the cassette carriage gear.

The mode switch causes its share of problems, many of which are intermittent. No play, fast forward in play and no rewind for example. If any of these operations works intermittently, try cleaning the contacts on the switch and the PCB before resorting to mode switch replacement.

For noisy rewind and/or fast forward operation, check that the take-up and/or supply reels are lubricated so that their rotation is free.

Earlier Models

We've had forward visual search problems with some earlier models, such as the NVSD30 and NVSD40. Because of a worn lower drum unit, line lock is lost during search. The fault has been experienced with three- and four-hour tapes. Playback and cue have remained stable.

The cause of the excessive wear has been a broken take-up brake arm unit. As a result the back tension is increased. A new unit may cure the fault, but the drum assembly will need replacement in the near future. ■

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