3. DEVICE DESCRIPTION

1) GENERAL DESCRIPTION

a) Playback system

* DV-K8F9N, DV-K8G9N, DV-K8R9N : HI-FI Rotary Double Azimuth 4 heads helical scanning system
* DV-K5F9N, DV-K5G9N, DV-K5R9N : Rotary Double Azimuth 4 heads helical scanning system
* DV-K3F9N, DV-K3G9N, DV-K3R9N : Rotary 2 heads helical scanning system

b) Video signal : EIA STANDARD NTSC COLOR

c) Storage temperature :-20℃ to +60℃ (-4 °F to 140 °F)

d) Operation temperature : +5℃ to +40℃ (+41 °F to 104 °F)

e) RF input impedance : 75 ohm Unbal. (U/V one input)

f) RF output impedance : 75 ohm Unbal.

g) Channel coverage : VHF L : 2 to B CH
VHF H : C to W+11 CH
UHF : W+12 to 69 CH

h) VHF output signal : channel 3 or 4 (selectable)

i) Power consumption : 17W

j) Dimension : DV-K8F9N, DV-K5F9N, DV-K3F9N, DV-K8G9N, DV-K5G9N, DV-K3G9N : 360 x 90 x 273 (WxHxD)
DV-K8R9N, KV-K5R9N, DV-K3R9N : 380 x 90 x 273 (WxHxD)

2) VIDEO

a) Input signal : phono type 1.0 ± 0.2Vp-p sync negative 75 ohms unbalanced

b) Output signal : phono type 1.0 ± 0.2Vp-p sync negative 75 ohms unbalanced

c) S/N : better than 45 dB (SP mode)

3) AUDIO

a) Input signal : phono type, -8.8dBm, more then 47k ohms unbalanced

b) Output signal : phono type -5.8dBm, less then 1k ohms unbalanced

c) Frequency response : 100 Hz to 10,000 Hz (SP mode)

d) S/N : Better then 42dB (SP mode)

e) Distortion : Less then 3% at 1,000 Hz (SP mode)

4) TAPE TRANSPORT

a) Tape speed : SP 33.35mm/sec, LP 16.67mm/sec, EP 11.12mm/sec

b) Max. recording time : 9 hours with T-180 (EP mode)

c) Fast forward time : within 5 min (T-120)

d) Rewind time : within 5 min (T-120)

5) TIMER

a) LED array display

b) Count down from 32.768 KHz

6) TIMER RECORDING PROGRAM NUMBER : 8 programs / 1year

7) REMOTE CONTROLLER : Infrared

8) OSD : 24 characteristics x 10 rows, 128 characteristics MAX.

4. PRINCIPLE OF OPERATION

These VCR units are composed of PIF, Video, power, System Control & Servo & Timer and OSD (On screen Display) circuit.

The PIF circuit consists of a tuner, a PIF & SIF circuit, and a modulator circuit. The incoming sinals, induced in the VHF and UHF antenna are converted to stable, video and audio signal that may be fed to the Video and Audio circuit instead of the signals from the other Video equipments.
In the playback of monitoring mode, the signals of Video and Audio circuit may be either fed out directly to the other Video equipments such as monitor TV set, converted to TV singnal (RF wave) in a low VHF channel to receive by a TV sets.

The Video circuit contains a recording and playback amplifier, a noise canceler, and the other funticnal circuit. The composite video signal input to the Video circuit is fed to the AGC and color circuit.
The AGC circuit uses the composite Video signal itself for AGC action. A part of the AGC output signal is fed as an E-E Video signal to the video line output terminal and RF modulator.

On the other hand, the other part of the AGC output signal inputs to Low Pass Filter to eliminate the C (chroma) signal component.
The result is that the Y (luminance) signal component is otained. The Y passes the non-linear pre-emphasis circuit and converted to FM singnal by the FM modulator. The FM Y signal is fed to the recording amplifier circuit.

In the color circuit, the composite Video signal inputs to the 3.58MHz Band Pass Filter to separate the C signal. The gain of C is controlled to a required amplitude by the ACC circuit. It, then is converted to 629KHz, which is fed to the recording amplifier circuit.

The recoding amplifier circuit superimposes the 629KHz converted low frequency C and FM Y signal. The superimposed Video signal is connected to the pair of Video heads. In playback, the Video signal picked up by the pair of Video heads is amplified through the playback amplifier. The FM Y signal passes the DOC (Dropout compensator) circuit, enters the noise canceler, and then comes into the non-linear de-emphasis circuit where the original Y signal is obtained. The 629KHz low frequency C singnal, on the other hand, is converted to 3.58MHz. The Y and 3.58MHz C signal are mixed to playback the original NTSC composite Video signal.

The Audio circuit contains playback, recording, output amplifier, ALC erase oscillator, and electronic switching circuit. This circuitry has the same general arrangement as that of common monophonic tape recoder.

The RCC (Ringing Choke Coverter) type SMPS (Switching Mode Power Spply) is applied to power circuit.

The OSD circuit is activated in superimpose and MENU mode.