JVC®
PROFESSIONAL

DY‾70U

D-9
COMPONENT DIGITAL

COMPONENT DIGITAL
4:2:2

Low Cost Lightweight ENG/EFP Digital
Camcorder Offering Superior Image Quality
and Advanced Features

Shown with optional accessories

Top-quality D-9 Video-capturing Solution Packed with Innovations and Delivering Exceptional Value

JVC's DY-70U camcorder is a high-performance tool for ENG and EFP users that offers enhanced control and creativity under all conditions, yet comes in an exceptionally economical package. Featuring JVC's world-renowned D-9 format with a 124-minute recording time, a 50Mbps data rate, and a 4:2:2 signal, the DY-70U delivers stunning picture quality (The camera section delivers 800 TV lines). And it features the high sensitivity (F11 at 2000 lux) and the wide dynamic range (600%) of high-end cameras for a fraction of the cost. It also offers flexibility — in LoLux mode it captures pictures in low-light conditions (0.75 lux with F1.4), and it comes packed with powerful features designed for today's competitive working environment. The DY-70U — setting a new standard.

COMPONENT DIGITAL
4:2:2

D-9
COMPONENT DIGITAL

Advanced 1/2-inch Interline CCD
F11 at 2000 Lux
800 TV Lines (In-Camera, No Output)
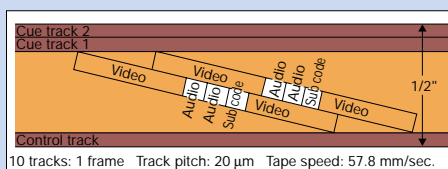600% Wide Dynamic Range
LoLux—0.75 Lux at F1.4

Performance for Production Professionals

Superior Image Reproduction

D-9 Format

JVC's D-9 format has established a reputation as a workhorse format. Broadcasters and production professionals rely on D-9 to deliver picture quality rivaling the most expensive digital formats and reliability superior to any video cassette format, analog or digital.

Cue track 2
Cue track 1
Video — Video — Audio Audio Sub-code — Audio Audio Sub-code Video — Video — 1/2"
Control track
10 tracks: 1 frame   Track pitch: 20 μm   Tape speed: 57.8 mm/sec.

High-quality 4:2:2 Component Digital Recording

COMPONENT DIGITAL 4:2:2

With an extremely mild, perceptually lossless 3:3:1 compression ratio and a data rate of 50 Mbps, D-9 can capture even the most challenging picture in all its splendor without compression artifacts such as pixel noise, edge defects, blockiness and multi-generation degradation produced when 5:1 compression systems record difficult pictures. D-9's low compression intra-frame processing ensures beautiful high resolution pictures when cascading compression CODEC's such as MPEG-2 mastering for DVD.

Highly efficient 50 Mbps intra-frame encoding has emerged as the standard reference for mainstream television production. To maintain superb picture quality from acquisition to production, all D-9 products use a data rate of 50 Mbps.

In 1998, a joint SMPTE/EBU task force test results show that D-9 provides;
• Quality identical to that produced by Digital Betacam
• Superior quality to that found in Beta-SP
• Better quality to 50 Mbps MPEG-2 1 frame only compression

Heavy-duty Tape Transport Mechanism with Die-cast Magnesium Chassis

The heavy-duty tape transport system of the DY-70U ensures high-quality pictures. Moreover, a die-cast magnesium chassis ensures durable, rigid support for both mechanism and electronics, while its integrated drum base improves linearity.

14-bit Digital Signal Processor

The DY-70U applies JVC's new DSP with advanced 14-bit video processing, which brings out natural details, eliminates spot noise, and accurately reproduces dark areas.
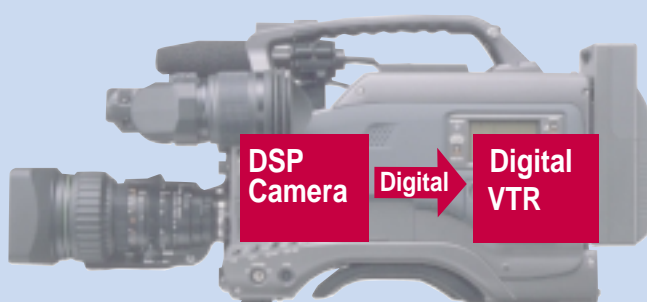
Three High-Density 1/2-Inch CCDs

Featuring three advanced 1/2-inch interline transfer CCDs and a 1/2-inch F1.4 RGB prism, the DY-70U delivers exceptionally sharp pictures. The high-resolution DY-70U features 380,000 effective pixels (768H×493V). JVC's innovative MICRO-LENSES, which are supported by a large light shield to reduce reflections and light leakages for minimal vertical smear, ensure highly efficient light conversion with a sensitivity of F11 at 2,000 Lux.

True Digital Camcorders

The DY-70U is a fully integrated digital camcorder which captures, processes, and records only digital signals for studio-quality acquisition. The result is sharply improved picture sharpness and image quality.

DSP Camera → Digital → Digital VTR

600% Wide Dynamic Range

Multi-stream parallel digital pipeline processing at 40 MHz creates an ultra-smooth gamma curve calculated using a true log scale algorithm. The result is a dynamic range of 600% to accurately reproduce fine details and colors in areas of both shadows and highlights.
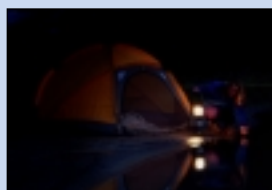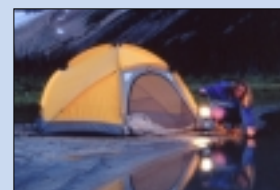
WIDE DYNAMIC RANGE

NORMAL

LOLUX 0.75 Lux

When activated, the LOLUX mode increases sensitivity with almost no increase in noise. LOLUX lets you shoot in low light conditions, so you can capture high-quality video footage with excellent color balance at just 0.75 lux illumination.

NORMAL

LOLUX

Operator Friendly Design

Compact and Weighs just 15 lbs.

The compact DY-70U weighs only 15 lbs., including lens, viewfinder, battery pack, and tape, and that weight is carefully balanced for effortless hand-held shooting.
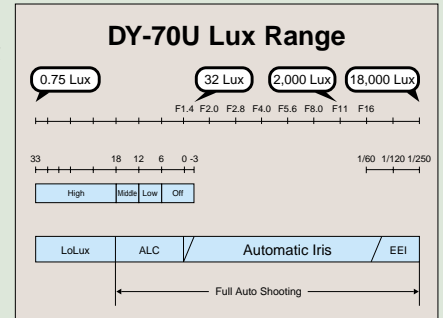
Die-cast Magnesium Body

The DY-70U camcorder features a die-cast magnesium body and frame, which offers the benefits of exceptionally low weight, but with improved rigidity and durability for professional use. It is also ergonomically engineered for maximum operator comfort and utility. It also incorporates engineering innovations which sharply reduce drum noise for quiet operation.

Full Auto Shooting

The Full Auto Shooting Mode provides point-and-shoot ease of operation, leaving the operator simply to zoom, focus, and press the record button. Activating the Full Auto Shooting sets the camera to the Auto Iris Mode, even if the lens is set to manual. Also activated is Automatic Video Level Control (ALC), along with Extended Electronic Iris (EEI) and Full Auto White, which provide both variable gain and variable shutter. So the operator can shoot continuously from a dark area to a bright area without changing gain, iris, or ND filter.

DY-70U Lux Range

0.75 Lux   32 Lux   2,000 Lux   18,000 Lux

F1.4 F2.0 F2.8 F4.0 F5.6 F8.0 F11 F16

33   18 12 6   0 -3   1/60 1/120 1/250

| High | Middle | Low | Off |

| LoLux | ALC | Automatic Iris | EEI |

Full Auto Shooting

Other Professional Features

D-9 Video Tape

The DY-70U captures and stores up to 124 minutes of high-resolution on a high-density 1/2-inch tape which employs an advanced metal-particle formulation. Tape running speed is 57.8 mm/s with a long recording time of 124 minutes. No other digital media offers the length of record/playback time and durability of D-9 video cassettes.

Black Stretch/Black Compress

The Black Stretch/Black Compress function enhances or compresses reproduction of black areas on the screen.

Highlight Chroma Processing

The DY-70U has built-in Highlight Chroma Processing to maintain color saturation in highlights. The result is natural color reproduction even in bright highlight portions of the picture.

Detail Correction

A user control is provided to switch the mixture of in-band and out-band correction, to adjust the picture sharpness and produce a pleasing picture.

Tape/Battery Remaining Indicator

The Tape/Battery Remaining Indicator means you always know exactly how much tape and battery power remains, so that you can change tape and battery before it is too late!

Built-in Phantom Microphone Power

Phantom power can be supplied to optional microphones through XLR connectors and switched off to each channel when not in use.

Time Code Reader/Generator and Time Date Generator

Two SMPTE-standard time code generators digitally record independent time code streams in the sub-code area. The main time code generator can be preset by the operator or slave-locked to an existing time code on the tape, or to an external master time code generator for shooting with more than one camera. The secondary time code automatically records time code data corresponding to date and time of day. D-9 editing decks can accurately read both time codes at any speed.

Continuous Auto Black (CAB)

JVC's Continuous Auto Black (CAB) circuit continually corrects black balance by sampling a CCD's optical black. CAB assures perfect black balance in a changing environment without the operator having to interrupt shooting.

Automatic Level Control (ALC)

ALC with Extended Electronic Iris allows continuous automatic shooting in all light levels, without the operator having to switch gain setting or an ND filter.

Variable Scan View

The Variable Scan View function lets you capture flicker-free footage of a video or data display screen that has a different scan speed than the camera. The DY-70U has a scan speed of 60.1 Hz to 2084.6 Hz.

High-quality Audio Reproduction

4-channel PCM Audio

The DY-70U has four independently editable, high-quality, 16-bit, 48 kHz sampling digital audio channels, with a dynamic range of more than 80 dB. Audio levels for CH1 and CH2 may be displayed on the viewfinder; their respective controls are situated up front within easy reach of the operator. Each channel may be selectively operated in the Auto Mode where a switchable limiter compressor maintains high quality automatic level control.

[DA 1] Connector — [DA 3] Connector

Built-in Monitoring Speaker

A side-mounted speaker lets you monitor audio in playback and record modes without headphones. And the warning alarm are also output through the speaker.

[DA 2] Connector   [DA 4] Connector

Other D-9 Models

BR-D860U Full Quality Low Cost D-9 Editing Recorder

BR-D560U Full Quality Low Cost D-9 Source Recorder

- 4:2:2, 8-bit, 50 Mbps, D-9 signal processing
- High-quality 2-channel digital sound with 16-bit, 48 kHz sampling
- Adanced pre-read function with 5H window (only BR-D860U)
- Instantaneous-lock function
- Viterbi circuit
- Self-diagnosis function via RS-232C interface

DY-90U D-9 Camcorder

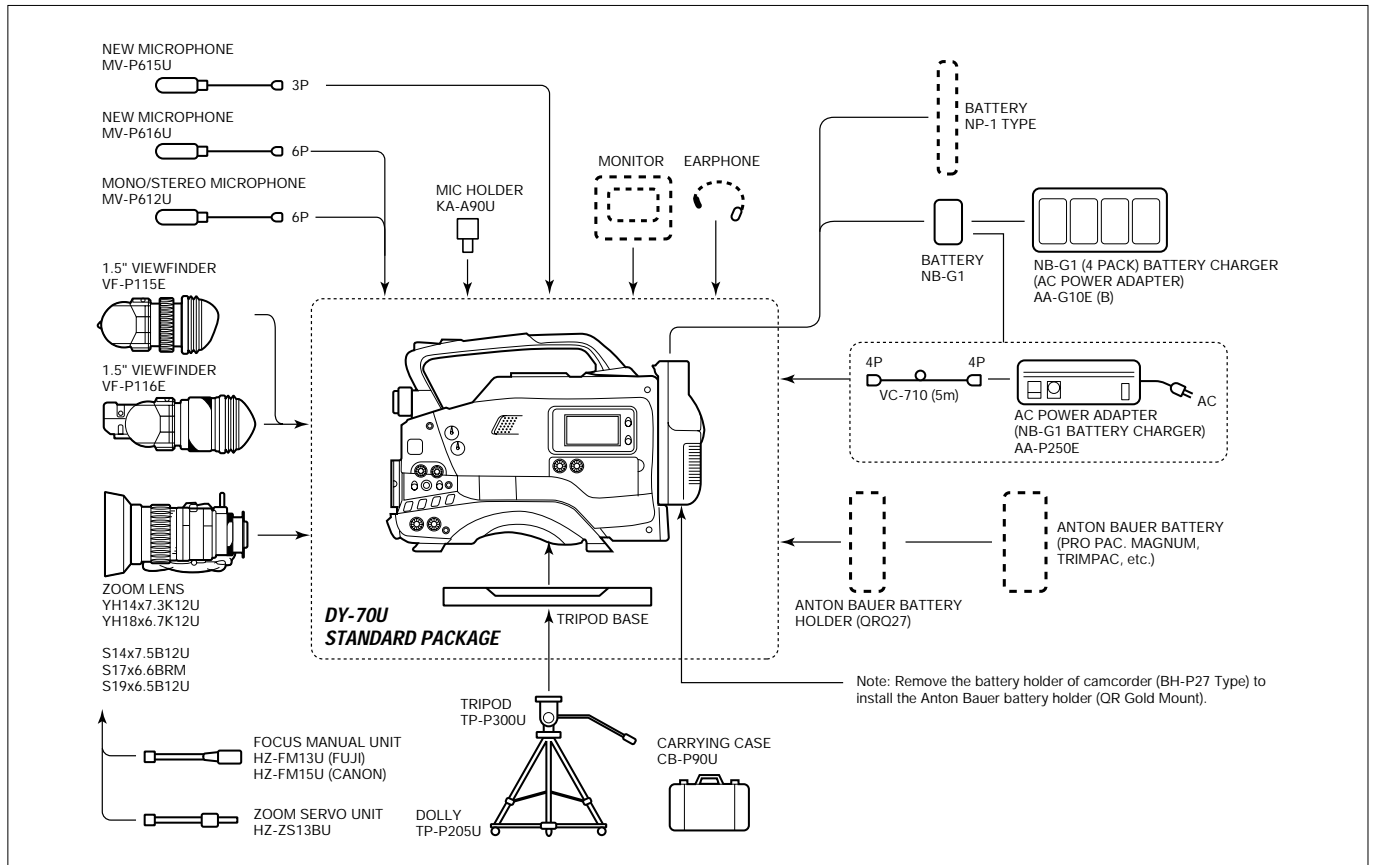## DY-90WU D-9 Camcorder with Variable Aspect Ratio (4:3 &16:9)

- Three high-density 2/3-inch CCDs delivering 380,000 effective pixels (DY-90U) and 480,000 effective pixels (DY-90WU)
- Setup Box function
- 4 optical filters: 3200K/5600K/5600K+1/16ND, EFFECT (STAR)

Nomenclature and Functions of Major Parts

1 Viewfinder mount base, sliding securing ring
2 [VF] Viewfinder connector
3 [DA2 IN (MIC IN)] DA2 (Microphone) input connector
4 [LENS] control connector
5 [ZEBRA] switch
6 [VTR] trigger button (record start/stop button)
7 [AUTO WHITE/ACCU FOCUS] switch
8 Lens mounting ring/Lens lock lever
9 [FILTER] Color temperature conversion filter control knob
10 [DA4 IN (MIC 1 IN)] DA4 (Microphone 1) input connector (6-pin)
11 Mic holder mounting screw holes
12 [GEN LOCK IN] connector (BNC)
13 [TC IN] connector (BNC)
14 [TC OUT] connector (BNC)
15 [MONITOR OUTPUT] connector (BNC)
16 [CAM/VTR] Monitor output CAM/VTR switch
17 Cassette cover
18 [VTR] trigger button (record Start/Stop button)
19 [POWER] switch

20 [VTR] switch
21 [GAIN] switch
22 [AUTO IRIS] level switch
23 [FULL AUTO] Full auto shooting on/off button and indicator
24 [DA1 AUDIO LEVEL] control
25 [DA2 AUDIO LEVEL] control
26 [MONITOR] Audio monitor control
27 [ALARM] control
28 [OUTPUT] Color bar/Camera/Auto knee switch
29 [W.BAL] White balance switch
30 [BLACK] Black stretch/black compression switch
31 [LOLUX] on/off button
32 [SHUTTER] switch
33 [FILE] switch
34 [MENU] button
35 [ITEM] button
36 [UP] button
37 [SET/DISPLAY] button
38 [DOWN] button
39 [PHASE H] Horizontal phase control
40 [PHASE SC FINE] Color sub-carrier phase control
41 [PHASE SC COARSE] Color sub-carrier phase coarse adjustment control
42 Monitoring speaker

43 Lithium battery installation case
44 [DA3 AUDIO LEVEL] control
45 [DA4 AUDIO LEVEL] control
46 [DA1 AUDIO MODE SELECT] switch
47 [DA2 AUDIO MODE SELECT] switch
48 [DA3 AUDIO MODE SELECT] switch
49 [DA4 AUDIO MODE SELECT] switch
50 [WARNING] indicator
51 [AUDIO MONITOR] switch
52 [LIGHT] switch
53 [COUNTER] switch
54 [RESET] button
55 Audio level meters
56 Warning indicators
57 MENU indicator
58 Time code-related indicators
59 Counter display
60 Remaining battery power indicator
61 Cassette/tape direction/remaining tape time indicators
62 [MENU] button
63 [HOLD/GROUP] button
64 [SHIFT/ITEM] button
65 [ADVANCE/SELECT] button
66 [PRESET/DATA SET] button

67 [PRESET/REGEN] switch
68 [REC/FREE] run switch
69 [TC DISP] switch
70 Operation cover
71 [EJECT] button
72 [PLAY] button
73 [STOP] button
74 [REW] button
75 [FF] button
76 Back tally lamp
77 [DC IN] connector (XLR 4-pin)
78 [DC OUT] connector
79 [EARPHONE] jack
80 [DA1 IN LINE/MIC] select switch
81 [DA3 IN LINE/MIC] select switch
82 LINE OUT connector (XLR 5-pin)
83 [DA3 IN] DA3 input connector (XLR 3-pin)
84 [DA1 IN] DA1 input connector (XLR 3-pin)
85 Battery case release button
86 Battery case

System Configuration

SPECIFICATIONS

■ CAMERA SECTION

Image pickup device: 1/2-inch interline CCDs
Color separation optical system: 3-color separation prism
Number of effective pixels: 380,000 pixels (768 (H)×494 (V))
Color system: NTSC (R-Y, B-Y encoder)
Color bars: SMPTE type color bar
Sync system: Internal sync, External sync (VBS or BB)
Lens mount: Bayonet system (compatible with 1/2-inch lenses)
Optical filter: 3200K, 5600K + 1/8ND, 5600K + 1/64ND
Sensitivity: F11, 2000 lx
Resolution: Response equivalent to camera with 800 TV lines (H) or 540 TV lines (H) via monitor output
Gain: –3, 0, 6, 9, 12, 18 dB, LOLUX, ALC
LoLux minimum illumination: 0.75 lx with F1.4
Registration: 0.05% or less (excluding lens distortion)
Contour correction: Horizontal dual-edged, Vertical 2H
Shutter speed: 100, 250, 500, 1000, 2000 Hz
V. SCAN speed: 60.1 Hz to 2084.6 Hz
(60.3 Hz to 2084.6 Hz in V. MAX mode.)

■ VTR SECTION

Format: D-9
Tape width: 12.65 mm
Tape speed: 57.737 mm/sec
Record/Play time: 104 minutes (With a DS-124 cassette)
FF/rewind time: Approx. 4 minutes (With a DS-64)
[VIDEO]
Sampling frequencies: Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz
Resolution: 540 lines (CCIR limit)

Quantization: 8-bit
S/N: More than 52 dB (during BR-D80U/D50U reproduction with component output)
[AUDIO]
Number of channels for recording: PCM×4, cue track×2
Sampling frequency: 48 kHz
Quantization: 16-bit
Frequency response: 20 Hz to 20 kHz (PCM)
Dynamic range: More than 85 dB (PCM)
(during BR-D80U/D50U reproduction)
[Dual Time Code Generators]
Main Generator: TC signal: Compliant with SMPTE part 12
LTC input: 0 ± 6dBs, high impedance, unbalanced
LTC output: 0 ± 6dBs, low impedance, unbalanced
Sub Time Code Generator: TC signal: Compliant with SMPTE part 12. Free Run Mode with time (TC) and date (UB) information.

■ INPUT/OUTPUT SIGNALS

Video signal output: 1 V (p-p), 75 Ω (BNC) (Composite video signal)
Lens: 12-pin connector
DA4 (MIC 1) input: –52 dBs, unbalanced, 6-pin
DA2 (MIC) input: –60 dBs, balanced, +48 V XLR-3-pin
DA1/DA3 input: +4 dBs/10 kΩ (select the switch)
–60 dBs/3 kΩ (select the switch)
+48 V (ON/OFF switch)
(XLR3), balanced
Audio output: 0 dBs, low impedance, (XLR-5), balanced
Earphone output: –60 to –17 dBs, at 8 Ω load (Monaural mini jack)

DC input: 12 V DC (11 to 15 V DC)
Auxiliary power output: 12 V DC: max. 0.1A (11 to 15 V DC)

■ GENERAL

Power consumption: 30W (Max.) with VF-P116U
26W (when recording) with VF-P116U
Mass: Approx. 10.6 lbs (4.8 kg) (main unit only)
Operating temperature: 32°F to 104°F (0°C to 40°C)
Operating humidty: 30% to 80% RH
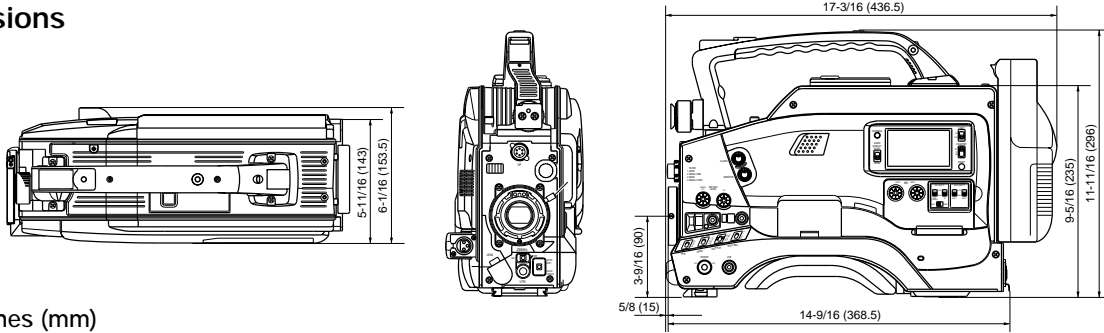Storage temperature: –4°F to +140°F (–20°C to 60°C)

■ ACCESSORIES

Tripod base:×1
Lithium battery:×1 (CR2032)
Instructions:×1
Warranty Card:×1
Label (for tape):×10

■ VF-P116U VIEWFINDER

Input signal: Composite video; 1V(p-p), high impedance
CRT: 38mm (1.5″) diagonal
Resolution: More than 500 lines
Provided circuits: Tally; Top tally (can be defeated), REC lamp/Warning; Low battery (camera power), VTR's tape end and malfunctions
Power consumption: 12V DC, 3.5W
Operating temperature: 23°F to 113°F (–5°C to +45°C)
Weight: 1.7 lbs (750g)

Dimensions

Unit: inches (mm)

17-3/16 (436.5)
5-11/16 (143)
6-1/16 (153.5)
9-5/16 (235)
11-11/16 (296)
3-9/16 (90)
5/8 (15)
14-9/16 (368.5)

OPTIONAL ACCESSORIES

VF-P116U
1.5″ Viewfinder

VF-P115U
1.5″ Viewfinder

YH14×7.3K12U
(CANON)
14:1 Power Zoom Lens

YH18×6.7K12U
(CANON)
18:1 Power Zoom Lens

S14×7.5B12U
(FUJINON)
14:1 Power Zoom Lens

S19×6.5B12U
(FUJINON)
19:1 Power Zoom Lens

AA-P250U
AC Power Adapter/ Charger

AA-G10U
Battery Charger/ AC Power Adapter

NB-G1U
Ni-Cd Battery (2.2 Ah)

NP-1 Type
Lithium Ion Battery

MV-P616U
Stereo/Super Dierctional Microphone

KA-A90U
Mic Holder

Design and specifications subject to change without notice.

® **DISTRIBUTED BY**

Certificate No. EC96J1049   ISO9001/No. FM26586

■ The Hachioji Plant of Victor Company of Japan, Ltd., has received ISO14001 Certification under the global standard for environmental management.