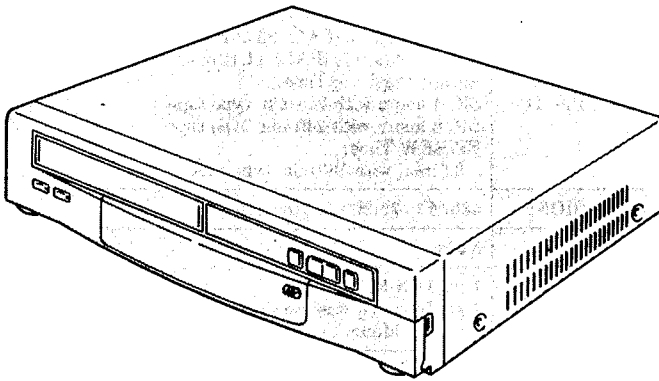


# Service Manual

Video Cassette Recorder

**Panasonic VHS**  
PAL NTSC
**Hi-Fi HQ**
**NV-HD70AM**
**NV-HD77AM**
**NV-HD90EE**

**General Description**  
**Adjustment Procedures**  
**Block/Schematic Diagrams**  
**Exploded Views/Parts List**


**K-MECHANISM**
**MASTER**

JUL. 6. 1994

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**SPECIFICATIONS (NV-HD70AM, 77AM)**

ITEM	SPECIFICATION	ITEM	SPECIFICATION
POWER	SOURCE: 110~240V 50/60Hz	AUDIO	HEAD: 1 Stationary head (Normal Audio) 2 rotary heads (Hi-Fi 2CH)
	CONSUMPTION: 30 watts (NV-HD70AM) 32 watts (NV-HD77AM)		INPUT: AUDIO IN Connector (Phono type) More than -10dBV (316mV), more than 47kΩ
RECORDING SYSTEM	2 rotary heads, helical scanning system		OUTPUT: AUDIO OUT Connector (Phono type) -8dBV (400mV), Less than 1kΩ
	PAL/NTSC		TRACK: 1 track (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)
TV TUNER SYSTEM	VHF I: CH2~CH4 (PAL B/SECAM B) CH1~CH5 (PAL D/SECAM D, KI) CH2~CH6 (NTSC M)	TAPE FORMAT	VHS Cassette tape (Tape width 12.7 mm)
	VHF III: CH5~CH12 (PAL B/SECAM B) CH6~CH12 (PAL D/SECAM D, KI) CH7~CH13 (NTSC M)	TAPE SPEED	SP: 23.39 mm/s (PAL), 33.35 mm/s (NTSC) LP: 11.695 mm/s (PAL), 11.12 mm/s (NTSC) Record/Playback Time: SP: 4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape FF/REW Time: 2.5 min. with 180 min. type tape
UHF: CH21~CH69 (PAL G, H, I/SECAM G, K) CH13~CH57 (PAL D) CH14~CH79 (NTSC M) 75Ω terminated	DIMENSIONS		
RF OUT SYSTEM	UHF: CH38±½ (PAL G, H, I/SECAM G, K) CH25±½ (PAL D) CH29~CH39 (NTSC M) 73±3dBμ, 75Ω terminated	WEIGHT	5.0kg
VIDEO	HEADS: 4 rotary heads 1 pair for SP recording, playback and trick play (L-R heads) 1 pair for LP recording, playback and trick play (L'-R' heads)	STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. Infra-red Remote Controller 1 pc. AC Mains Lead 1 pc. AC Plug Adaptor 1 pc. Separate Transformer Adaptor
	INPUT: VIDEO IN Connector (Phono type) 1.0Vp-p, 75Ω unbalanced		
	OUTPUT: VIDEO OUT Connector (Phono type) 1.0Vp-p, 75Ω unbalanced		

Weight and dimensions shown are approximate.  
 Specifications are subject to change without notice.

**Panasonic**

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## SPECIFICATIONS (NV-HD90EE)

ITEM	SPECIFICATION	ITEM	SPECIFICATION	
POWER	SOURCE: 220-240 V AC 50/60 Hz	AUDIO	HEAD: 1 Stationary head (Normal Audio) 2 rotary heads (Hi-Fi 2 CH)	
	CONSUMPTION: 30 watts		INPUT: EURO AV Connector (21 pin) More than -6 dBV (500 mV), more than 10 k $\Omega$	
RECORDING SYSTEM	2 rotary heads, helical scanning system		OUTPUT: EURO AV Connector (21 pin) -6 dBV (500 mV), Less than 1 k $\Omega$ AUDIO OUT Connector (Phono type) -8 dBV (400 mV), Less than 1 k $\Omega$	
TV TUNER SYSTEM	PAL		TRACK: 1 track (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)	
	VHF I: CHR1~CHR5 (SECAM D) CHE2~CHS3 (PAL/SECAM B)			
	VHF III: CHR6~CHR12 (SECAM D) CHM1~CHU10 (PAL/SECAM B)			
RF OUT SYSTEM	UHF: CH21~CH69 (PAL G/SECAM G. K) 75 $\Omega$ terminated		TAPE FORMAT	VHS Cassette tape (Tape width 12.7 mm)
VIDEO	HEADS: 4 rotary heads 1 pair for SP recording, playback and trick play (L-R heads) 1 pair for LP recording, playback and trick play (L' -R' heads)		TAPE SPEED	SP: 23.39 mm/s (PAL), 33.35 mm/s (NTSC) LP: 11.695 mm/s (PAL), 11.12 mm/s (NTSC) Record/Playback Time: SP: 4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape FF/REW Time: 2.5 min. with 180 min. type tape
	INPUT: EURO AV Connector (21 pin) 1.0 Vp-p, 75 $\Omega$ unbalanced		DIMENSIONS	430(W) $\times$ 96(H) $\times$ 349(D) mm
	OUTPUT: EURO AV Connector (21 pin) 1.0 Vp-p, 75 $\Omega$ unbalanced VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75 $\Omega$ unbalanced		WEIGHT	5.0 kg
		STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. Infra-red Remote Controller 1 pc. AC Mains Lead	

Weight and dimensions shown are approximate.  
Specifications are subject to change without notice.

## INTRODUCTION

*This service manual contains technical information which will allow service personnels to understand and service this model.*

*Section 1 presents you with technical know how for actual servicing and general information of features and controls, enabling you to become familiar with each function.*

*Section 2 presents to your mechanical and electrical adjustment information as well disassembly and replacement procedures.*

*In the case of very common information relating to other models like mechanical adjustments, please refer to the appropriate service manual.*

*Section 3, 4 contains block diagrams which provides you with information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c. ...*

*Section 5 contains exploded views and parts list.*

*Please place orders using the parts list and not the drawing reference numbers.*

*If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.*

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# Technical Information

## Subject: How to install the VPS DECODER (VW-VPS5E: NV-HD90EE)

1. Do not connect the video recorder to the AC outlet
2. Remove the 4 screws(A) and the Top Panel. (Fig.P1)
3. Remove the 2 screws(B), 3 screws(C) and unlock the tab(D). (Fig.P2)
4. Lift the Main C.B.A. up side down and lie it on the Cassette Compartment. Insert the VPS Decoder. (Fig. P3)

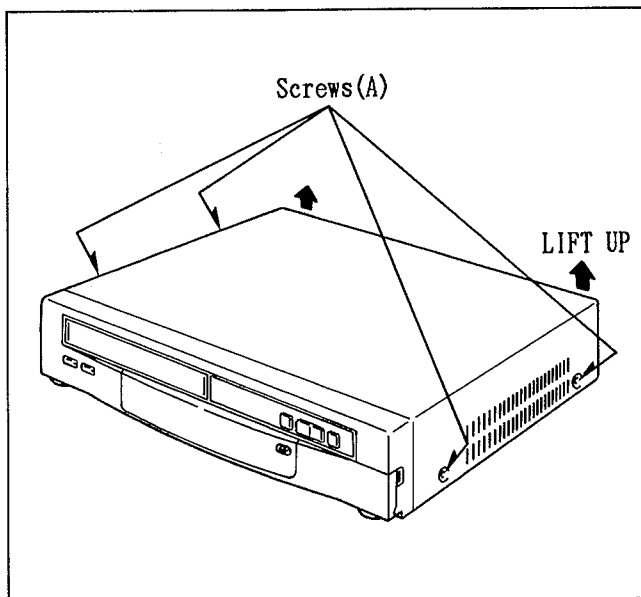


Fig.P1

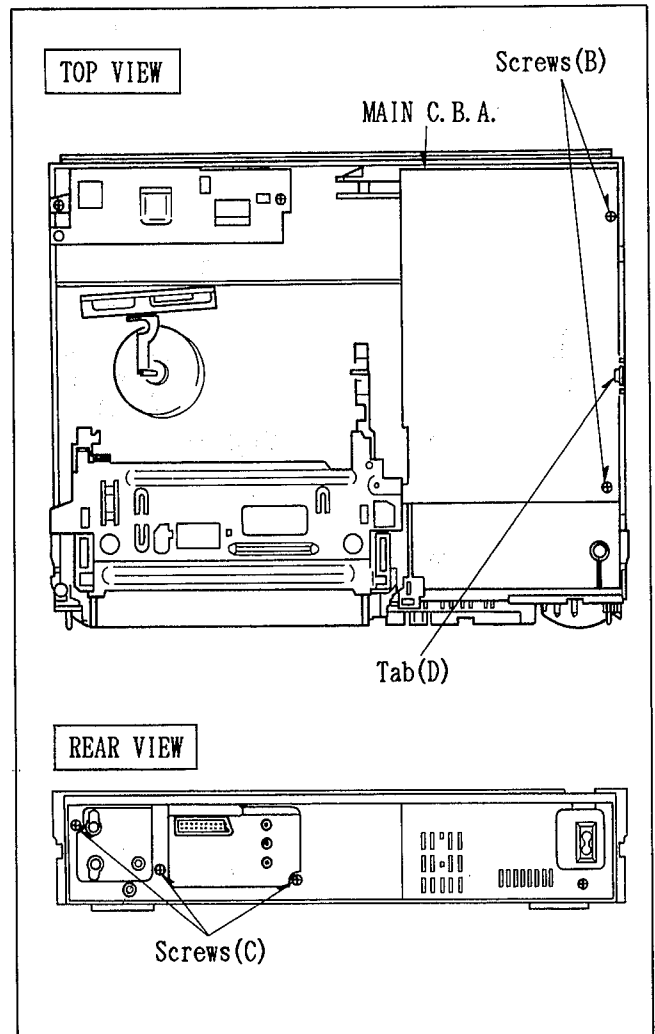


Fig.P2

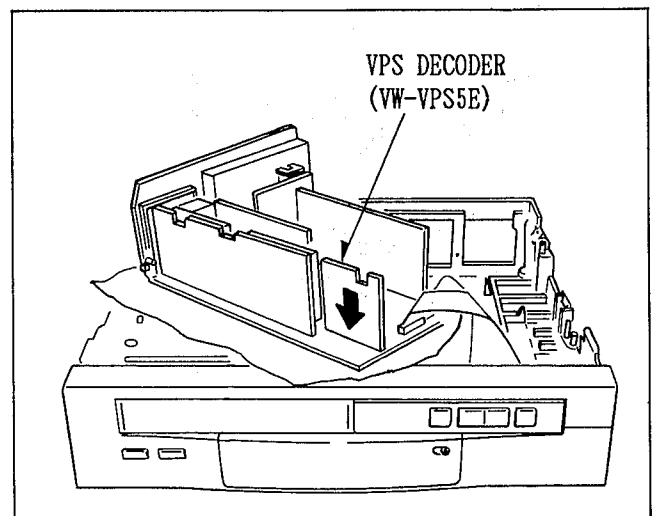


Fig.P3