

Thank you for choosing

EXHIBIT # 6
FCC ID: ACJ9271ZCAMP
MODEL NO. NV-HD8070PX
OUR REF: MKS98-FLLS

Panasonic
OmniVision **VHS**

Video Cassette Recorder

MODEL NV-HD8070PX

Operating Instructions



Easy Taping.

Please read these instructions carefully before attempting to connect, operate or adjust this product. Please save this manual.

Quick Use Guide is on the back cover.

P6 ~ P9
Connections

P10 ~ P16
Getting Started

P17 ~ P21
Basic Operation

P22 ~ P37
More You Can Do

P38 ~ Back Cover
Other Information

Things You Should Know

Congratulations

on your purchase of one of the most sophisticated and reliable products on the market today. Used properly, it will bring you and your family years of enjoyment. Please fill in the information at right. The serial number is on the tag located on the back of your VCR.

Date of Purchase _____

Dealer Purchased From _____

Dealer Address _____

Dealer Phone No. _____

Model No. **NV-HD8070PX**

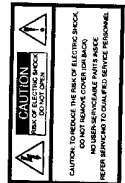
Serial No. _____

Safety Precautions

Warning: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

This video recorder, equipped with the HQ (High Quality) System, is compatible with existing VHS equipment. Only use those tapes with the **VHS** mark. It is recommended that only cassette tapes that have been tested and inspected for use in 2, 4, 6, and 8 hour VCR machines be used.

FCC Warning: Any unauthorized changes or modifications to this equipment would void the user's authority to operate.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

Table of Contents

Important Safeguards and Precautions	3
Unpacking Your VCR • Product Features	4
VCR and Cassette Information (Record Tab, Tape Speeds, Head Cleaning, DST, Specifications)	5
Connections	
Basic Connection (Antenna and VCR, VCR and TV)	6, 7
Other Connections (CABLE, Audio/Video)	8, 9
Getting Started	
Location of Controls (Remote Control, VCR)	10, 11
One Time VCR Setup (On-Screen Language, Channel Memory, Auto Clock Set)	12 - 15
On-Screen Displays (OSD) (Function, Channel, Menu, VCR Status & Clock, Warning)	16
Basic Operation	
Playback a Tape (Main Operation, Special Effects, Quality Picture Features)	17
Record On a Tape (Main Operation, One Touch Record, Select Input Mode, Channel Selection)	18, 19
Timer Recording (Main Operation, Cancel, Clear or Replace Program Contents)	20, 21
More You Can Do	
Tape Operation (Index Search, Repeat Play, One Minute Skip, Zero Search, Auto Functions)	22 - 24
Special VCR Features (VCR Lock, Warning Beeper, Channel Caplock, Time Stamp, Blue Back ON/OFF)	25 - 28
Copying Your Tapes (Dubbing) (Connection, Main Operation, Monitoring)	29
MTS Broadcast/ VHS Hi-Fi Stereo System (Stereo/SAP/Mono Broadcast, Select Audio Mode, Spatializer)	30, 31
VCR Plus+ Setup (VCR Plus+ Channel Setup)	32 - 34
VCR Plus+ Programming (Main Operation, Make Correction)	35
Multi-Brand Control Feature	36, 37
Other Information	
Before Requesting Service (Self-check Items)	38
Quick Use Guide	Back Cover

Important Safeguards and Precautions

FOR YOUR SAFETY, READ AND RETAIN ALL SAFETY AND OPERATING INSTRUCTIONS. HEED ALL WARNINGS IN THE MANUAL AND ON THE UNIT

INSTALLATION

1 POWER SOURCE CAUTION
Operate only from a power source indicated on the unit or in this manual. If necessary, have your Electric Utility Service Company or Video Products Dealer verify the power source in your home.

2 POLARIZED OR GROUNDING PLUG
As a safety feature, this Video product comes with either a polarized power cord plug (one blade is wider than the other), or a three-wire grounding type plug.

POLARIZED PLUG CAUTION:

This plug will only fit into an outlet one way. If you cannot fully insert the plug, do not force it. If you are not sure the plug is properly inserted, do not use the unit. Do not defeat the safety feature by tampering with the plug.

GROUNDING PLUG CAUTION:

This plug will only fit into a three-hole grounding outlet. If you cannot fully insert the plug, do not force it. Do not defeat the safety feature by tampering with the plug.

POWER CORD

Make sure power cords are routed so that they are not likely to be walked on or run over them, or be placed where they can be tripped over. If an extension cord is used, make sure it also has either a polarized or grounded plug and that the cords can be securely connected. Overloaded outlets and damaged or cracked wire insulation are hazardous and should be replaced by a qualified service technician. Overloaded outlets and extension cords are fire hazards and should be avoided.

DO NOT BLOCK VENTILATION HOLES

Ventilation openings in the cabinet release heat generated during operation. If they are blocked, heat build-up inside the unit can cause failures that may result in fire. For protection, follow these rules:

- Never cover ventilation slots or the unit while in use, or operate the unit when placed on a bed, sofa, rug, or other soft surface.
- Do not place the unit on a book rack, such as a book case or rack, unless proper ventilation is provided.

AVOID EXTREMELY HOT LOCATIONS OR SUDDEN TEMPERATURE CHANGES

Do not place the unit over or near any kind of heater or radiator. Do not place the unit near radiating heat sources, such as a stove, oven, or clothes dryer, etc. Do not move the unit suddenly between areas of extreme temperature variation. If the unit is suddenly moved from a cold place to a warm place, moisture may condense in the unit and on the tape.

TO AVOID PERSONAL INJURY

- Do not place unsecured equipment on a sloping surface.

- Do not place this unit on any support that is not firm, level, and adequately strong. The unit is not designed to be supported by a chair, stool, or other furniture.
- An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

- Read and follow all operating instructions and use the proper technique for recommended accessories when operating the unit or connecting it to any other equipment.



OUTDOOR ANTENNA INSTALLATION

- SAFE ANTENNA AND CABLE CONNECTION**
The outdoor antenna system is connected to the equipment. Be sure the antenna or cable system is grounded so as to provide some protection against built up static charges and voltage surges. See also the instructions for the Electrical Code, ANSI/NFPA 70 (in Canada, part 1 of the Canadian Electrical Code) provides information with respect to proper grounding of the antenna system. The size of the lead-in wire to an antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.

KEEP ANTENNA CLEAR OF HIGH VOLTAGE POWER LINES OR CIRCUITS

An outside antenna system should be located well away from power lines, electric light or power circuits and where it will never come into contact with these power sources if it should happen to fall. When installing an outside antenna system, be sure to keep the antenna and its supporting structure, cables, circuits or other power sources as this could be fatal. Because of the hazards involved, antenna installation should be left to a professional.

USING THE VIDEO UNIT

If the unit has been in storage or moved to a new location, refer first to the **INSTALLATION** section of these safeguards.

- KEEP THIS VIDEO UNIT AWAY FROM WATER OR MOISTURE OF ANY KIND.**
- IF EQUIPMENT IS EXPOSED TO RAIN, MOISTURE, OR STRONG IMPACT,** unplug the unit and have it inspected by a qualified service technician before use.

DURING AN ELECTRICAL STORM

During a lightning storm, whether indoors or outdoors, or before leaving the unit, disconnect the antenna and cable system from the power source as well as the antenna and cable system.

WHEN THE UNIT IS PLUGGED IN, DO NOT OPERATE IF LIQUID HAS BEEN SPILLED INTO THE UNIT. IMMEDIATELY UNPLUG THE UNIT, AND HAVE IT INSPECTED BY A SERVICE TECHNICIAN.

- Fire and shock hazards can result from electrical shorts caused by liquid contact inside.
- Never drop or push any object through openings in the unit. Some internal components may be damaged or shorted out, causing a fire hazard.
- Avoid placing the unit directly above or below your TV set as this may cause electrical interference. Keep all magnets away from electronic equipment.

USING ACCESSORIES

Use only accessories recommended by the manufacturer to avoid risk of fire, shock, or other hazards.

CLEANING THE UNIT

Unplug the unit. Then, use a clean, dry, chemically untreated cloth to gently remove dust or debris. DO NOT USE cleaning fluids, aerosols, or forced air. Do not use a vacuum cleaner, or sweep on the unit and cause electrical shock. Do not use a brush or any other object to clean the unit. Do not use any abrasive surface. Exposure to greasy, humid, or dusty areas may adversely affect internal parts.

SERVICE

DO NOT SERVICE THIS PRODUCT YOURSELF

If, after carefully following the detailed operating instructions, this Video product does not operate properly, do not attempt to open or remove covers, or make any adjustments not described in the manual. Unplug the unit and contact a qualified service technician.

IF REPLACEMENT PARTS ARE REQUIRED

Make sure the service technician uses only parts specified by the manufacturer. The use of unauthorized parts may result in fire, electric shock, or other hazards.

HAVE THE SERVICE TECHNICIAN PERFORM A SAFETY CHECK

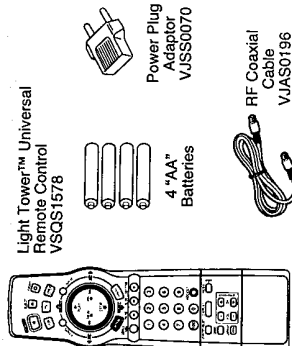
After any service or repairs to the unit, request the service technician to conduct a thorough safety check as described in the manufacturer's service literature to insure that the video unit is in safe operating condition.

Unpacking Your VCR • Product Features

Unpacking Your VCR

The accessories below are provided to help you use or set up your VCR.

Accessories



Loading the Batteries

- 1 Press down on the ► mark and slide the Battery Compartment lid open.
- 2 Install four batteries as indicated inside the Battery Compartment.
- 3 Slide the Battery Compartment lid back into place.

Battery replacement caution

- Do not mix old and new batteries.
- Do not mix alkaline with manganese batteries.

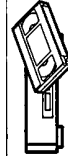
Caution:

- Voltage 110V, 220V and 240V are not for use in USA.
- Operation at a voltage higher than 120V AC may require the use of a different AC Plug. Please contact either a local or foreign Panasonic Distributor Center for assistance in selecting an alternate plug.

Product Features

Auto Clock Set	12 - 14
Auto Daylight Saving Time	5
Auto Features for a Quality Picture	17
Auto Operation Functions (Auto Playback, Rewind, Tape Eject, Power Off)	24
Auto Repeat Function	24
Digital Auto Picture	17
Easy-to-Head English/ Spanish/ French On-Screen Displays	12 - 14, 20, 21
Front-mounted AV In Terminals	29
Head Cleaner	5
Light Tower™ Universal Remote Control	10
MTS Broadcast System (Multi-channel Television Sound-Stereo, SAP, Mono)	30
Multi Brand TV/ Cable Box/ DSS Remote Control	36, 37
One Minute Skip	24
One Month, 8 Program Timer Recording	20, 21
One Touch Recording (OTR)	18
Program Director Remote Control	20, 21
Spatializer	31
Special Effects Playback	31
Special VCR Features (VCR Lock, Warning Beeper, Channel Caption, Time Stamp, Blue Back ON/OFF)	25 - 28
Timer Recording Using VCR Buttons	21
U.S. 181-CH TV/ CATV Tuner/ Europe 54-CH	15
VCR Plus+ Recording	32 - 35
VHS Hi-Fi Stereo System	31
VHS Index Search System (Direct Access Search, Program Index Search, Index Scan Search)	22, 23
Zero Search	24

VCR and Cassette Information

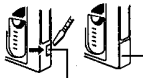


Erase Protection (Record Tab)

Cassettes have a record tab to ensure that recordings are not accidentally erased.

To prevent accidental erasure, break off the tab with a screwdriver.

To record again, cover the hole with cellophane tape.



Reset all VCR Memory Functions

Use when moving the VCR to a new location, or if a mistake was made in the One Time VCR Setup section.

- Make sure a tape is not inserted in the VCR.

- 1 Turn VCR Power on.
- 2 Press and hold both PLAY and CHANNEL ▲ on the VCR for more than 5 seconds.
- 3 Perform the One Time VCR Setup section on page 12.

D.S.T. (Daylight Saving Time)

Your VCR can be set to automatically adjust the clock for Daylight Saving Time. (Page 13.)

Spring (First Sunday in April)

When set to DST-ON, the VCR will automatically set the clock ahead one hour.

Autumn (Last Sunday in October)

When set to DST-ON, the VCR will automatically set the clock back one hour.

- If your area does not observe Daylight Saving Time, select DST-OFF.
- Keep these time changes in mind when programming the VCR for timer recordings.

Specifications

Power Source: 110/120/220/240V AC Auto
50/60 Hz

Power Consumption: Approx. 23 watts (Power on)
Approx. 3.7 watts (Power off)

Video Signal: EIA Standard NTSC color

Video Recording System: 4 rotary heads helical scanning system

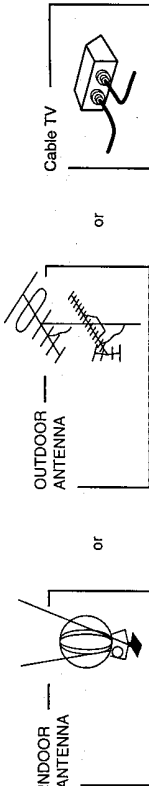
Audio Track: 1 track (Normal)

Tuner: For USA: VHF input ch2-ch13, cable "A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L", "M", "N", "O", "P", "Q", "R", "S", "T", "U", "V", "W", "X", "Y", "Z", "1", "2", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13", "14", "15", "16", "17", "18", "19", "20", "21", "22", "23", "24", "25", "26", "27", "28", "29", "30", "31", "32", "33", "34", "35", "36", "37", "38", "39", "40", "41", "42", "43", "44", "45", "46", "47", "48", "49", "50", "51", "52", "53", "54", "55", "56", "57", "58", "59", "60", "61", "62", "63", "64", "65", "66", "67", "68", "69", "70", "71", "72", "73", "74", "75", "76", "77", "78", "79", "80", "81", "82", "83", "84", "85", "86", "87", "88", "89", "90", "91", "92", "93", "94", "95", "96", "97", "98", "99", "100", "101", "102", "103", "104", "105", "106", "107", "108", "109", "110", "111", "112", "113", "114", "115", "116", "117", "118", "119", "120", "121", "122", "123", "124", "125", "126", "127", "128", "129", "130", "131", "132", "133", "134", "135", "136", "137", "138", "139", "140", "141", "142", "143", "144", "145", "146", "147", "148", "149", "150", "151", "152", "153", "154", "155", "156", "157", "158", "159", "160", "161", "162", "163", "164", "165", "166", "167", "168", "169", "170", "171", "172", "173", "174", "175", "176", "177", "178", "179", "180", "181", "182", "183", "184", "185", "186", "187", "188", "189", "190", "191", "192", "193", "194", "195", "196", "197", "198", "199", "200", "201", "202", "203", "204", "205", "206", "207", "208", "209", "210", "211", "212", "213", "214", "215", "216", "217", "218", "219", "220", "221", "222", "223", "224", "225", "226", "227", "228", "229", "230", "231", "232", "233", "234", "235", "236", "237", "238", "239", "240", "241", "242", "243", "244", "245", "246", "247", "248", "249", "250", "251", "252", "253", "254", "255", "256", "257", "258", "259", "260", "261", "262", "263", "264", "265", "266", "267", "268", "269", "270", "271", "272", "273", "274", "275", "276", "277", "278", "279", "280", "281", "282", "283", "284", "285", "286", "287", "288", "289", "290", "291", "292", "293", "294", "295", "296", "297", "298", "299", "300", "301", "302", "303", "304", "305", "306", "307", "308", "309", "310", "311", "312", "313", "314", "315", "316", "317", "318", "319", "320", "321", "322", "323", "324", "325", "326", "327", "328", "329", "330", "331", "332", "333", "334", "335", "336", "337", "338", "339", "340", "341", "342", "343", "344", "345", "346", "347", "348", "349", "350", "351", "352", "353", "354", "355", "356", "357", "358", "359", "360", "361", "362", "363", "364", "365", "366", "367", "368", "369", "370", "371", "372", "373", "374", "375", "376", "377", "378", "379", "380", "381", "382", "383", "384", "385", "386", "387", "388", "389", "390", "391", "392", "393", "394", "395", "396", "397", "398", "399", "400", "401", "402", "403", "404", "405", "406", "407", "408", "409", "410", "411", "412", "413", "414", "415", "416", "417", "418", "419", "420", "421", "422", "423", "424", "425", "426", "427", "428", "429", "430", "431", "432", "433", "434", "435", "436", "437", "438", "439", "440", "441", "442", "443", "444", "445", "446", "447", "448", "449", "450", "451", "452", "453", "454", "455", "456", "457", "458", "459", "460", "461", "462", "463", "464", "465", "466", "467", "468", "469", "470", "471", "472", "473", "474", "475", "476", "477", "478", "479", "480", "481", "482", "483", "484", "485", "486", "487", "488", "489", "490", "491", "492", "493", "494", "495", "496", "497", "498", "499", "500", "501", "502", "503", "504", "505", "506", "507", "508", "509", "510", "511", "512", "513", "514", "515", "516", "517", "518", "519", "520", "521", "522", "523", "524", "525", "526", "527", "528", "529", "530", "531", "532", "533", "534", "535", "536", "537", "538", "539", "540", "541", "542", "543", "544", "545", "546", "547", "548", "549", "550", "551", "552", "553", "554", "555", "556", "557", "558", "559", "560", "561", "562", "563", "564", "565", "566", "567", "568", "569", "570", "571", "572", "573", "574", "575", "576", "577", "578", "579", "580", "581", "582", "583", "584", "585", "586", "587", "588", "589", "590", "591", "592", "593", "594", "595", "596", "597", "598", "599", "600", "601", "602", "603", "604", "605", "606", "607", "608", "609", "610", "611", "612", "613", "614", "615", "616", "617", "618", "619", "620", "621", "622", "623", "624", "625", "626", "627", "628", "629", "630", "631", "632", "633", "634", "635", "636", "637", "638", "639", "640", "641", "642", "643", "644", "645", "646", "647", "648", "649", "650", "651", "652", "653", "654", "655", "656", "657", "658", "659", "660", "661", "662", "663", "664", "665", "666", "667", "668", "669", "670", "671", "672", "673", "674", "675", "676", "677", "678", "679", "680", "681", "682", "683", "684", "685", "686", "687", "688", "689", "690", "691", "692", "693", "694", "695", "696", "697", "698", "699", "700", "701", "702", "703", "704", "705", "706", "707", "708", "709", "710", "711", "712", "713", "714", "715", "716", "717", "718", "719", "720", "721", "722", "723", "724", "725", "726", "727", "728", "729", "730", "731", "732", "733", "734", "735", "736", "737", "738", "739", "740", "741", "742", "743", "744", "745", "746", "747", "748", "749", "750", "751", "752", "753", "754", "755", "756", "757", "758", "759", "760", "761", "762", "763", "764", "765", "766", "767", "768", "769", "770", "771", "772", "773", "774", "775", "776", "777", "778", "779", "780", "781", "782", "783", "784", "785", "786", "787", "788", "789", "790", "791", "792", "793", "794", "795", "796", "797", "798", "799", "800", "801", "802", "803", "804", "805", "806", "807", "808", "809", "810", "811", "812", "813", "814", "815", "816", "817", "818", "819", "820", "821", "822", "823", "824", "825", "826", "827", "828", "829", "830", "831", "832", "833", "834", "835", "836", "837", "838", "839", "840", "841", "842", "843", "844", "845", "846", "847", "848", "849", "850", "851", "852", "853", "854", "855", "856", "857", "858", "859", "860", "861", "862", "863", "864", "865", "866", "867", "868", "869", "870", "871", "872", "873", "874", "875", "876", "877", "878", "879", "880", "881", "882", "883", "884", "885", "886", "887", "888", "889", "890", "891", "892", "893", "894", "895", "896", "897", "898", "899", "900", "901", "902", "903", "904", "905", "906", "907", "908", "909", "910", "911", "912", "913", "914", "915", "916", "917", "918", "919", "920", "921", "922", "923", "924", "925", "926", "927", "928", "929", "930", "931", "932", "933", "934", "935", "936", "937", "938", "939", "940", "941", "942", "943", "944", "945", "946", "947", "948", "949", "950", "951", "952", "953", "954", "955", "956", "957", "958", "959", "960", "961", "962", "963", "964", "965", "966", "967", "968", "969", "970", "971", "972", "973", "974", "975", "976", "977", "978", "979", "980", "981", "982", "983", "984", "985", "986", "987", "988", "989", "990", "991", "992", "993", "994", "995", "996", "997", "998", "999", "1000", "1001", "1002", "1003", "1004", "1005", "1006", "1007", "1008", "1009", "1010", "1011", "1012", "1013", "1014", "1015", "1016", "1017", "1018", "1019", "1020", "1021", "1022", "1023", "1024", "1025", "1026", "1027", "1028", "1029", "1030", "1031", "1032", "1033", "1034", "1035", "1036", "1037", "1038", "1039", "1040", "1041", "1042", "1043", "1044", "1045", "1046", "1047", "1048", "1049", "1050", "1051", "1052", "1053", "1054", "1055", "1056", "1057", "1058", "1059", "1060", "1061", "1062", "1063", "1064", "1065", "1066", "1067", "1068", "1069", "1070", "1071", "1072", "1073", "1074", "1075", "1076", "1077", "1078", "1079", "1080", "1081", "1082", "1083", "1084", "1085", "1086", "1087", "1088", "1089", "1090", "1091", "1092", "1093", "1094", "1095", "1096", "1097", "1098", "1099", "1100", "1101", "1102", "1103", "1104", "1105", "1106", "1107", "1108", "1109", "1110", "1111", "1112", "1113", "1114", "1115", "1116", "1117", "1118", "1119", "1120", "1121", "1122", "1123", "1124", "1125", "1126", "1127", "1128", "1129", "1130", "1131", "1132", "1133", "1134", "1135", "1136", "1137", "1138", "1139", "1140", "1141", "1142", "1143", "1144", "1145", "1146", "1147", "1148", "1149", "1150", "1151", "1152", "1153", "1154", "1155", "1156", "1157", "1158", "1159", "1160", "1161", "1162", "1163", "1164", "1165", "1166", "1167", "1168", "1169", "1170", "1171", "1172", "1173", "1174", "1175", "1176", "1177", "1178", "1179", "1180", "1181", "1182", "1183", "1184", "1185", "1186", "1187", "1188", "1189", "1190", "1191", "1192", "1193", "1194", "1195", "1196", "1197", "1198", "1199", "1200", "1201", "1202", "1203", "1204", "1205", "1206", "1207", "1208", "1209", "1210", "1211", "1212", "1213", "1214", "1215", "1216", "1217", "1218", "1219", "1220", "1221", "1222", "1223", "1224", "1225", "1226", "1227", "1228", "1229", "1230", "1231", "1232", "1233", "1234", "1235", "1236", "1237", "1238", "1239", "1240", "1241", "1242", "1243", "1244", "1245", "1246", "1247", "1248", "1249", "1250", "1251", "1252", "1253", "1254", "1255", "1256", "1257", "1258", "1259", "1260", "1261", "1262", "1263", "1264", "1265", "1266", "1267", "1268", "1269", "1270", "1271", "1272", "1273", "1274", "1275", "1276", "1277", "1278", "1279", "1280", "1281", "1282", "1283", "1284", "1285", "1286", "1287", "1288", "1289", "1290", "1291", "1292", "1293", "1294", "1295", "1296", "1297", "1298", "1299", "1300", "1301", "1302", "1303", "1304", "1305", "1306", "1307", "1308", "1309", "1310", "1311", "1312", "1313", "1314", "1315", "1316", "1317", "1318", "1319", "1320", "1321", "1322", "1323", "1324", "1325", "1326", "1327", "1328", "1329", "1330", "1331", "1332", "1333", "1334", "1335", "1336", "1337", "1338", "1339", "1340", "1341", "1342", "1343", "1344", "1345", "1346", "1347", "1348", "1349", "1350", "1351", "1352", "1353", "1354", "1355", "1356", "1357", "1358", "1359", "1360", "1361", "1362", "1363", "1364", "1365", "1366", "1367", "1368", "1369", "1370", "1371", "1372", "1373", "1374", "1375", "1376", "1377", "1378", "1379", "1380", "1381", "1382", "1383", "1384", "1385", "1386", "1387", "1388", "1389", "1390", "1391", "1392", "1393", "1394", "1395", "1396", "1397", "1398", "1399", "1400", "1401", "1402", "1403", "1404", "1405", "1406", "1407", "1408", "1409", "1410", "1411", "1412", "1413", "1414", "1415", "1416", "1417", "1418", "1419", "1420", "1421", "1422", "1423", "1424", "1425", "1426", "1427", "1428", "1429", "1430", "1431", "1432", "1433", "1434", "1435", "1436", "1437", "1438", "1439", "1440", "1441", "1442", "1443", "1444", "1445", "1446", "1447", "1448", "1449", "1450", "1451", "1452", "1453", "1454", "1455", "1456", "1457", "1458", "1459", "1460", "1461", "1462", "1463", "1464", "1465", "1466", "1467", "1468", "1469", "1470", "1471", "1472", "1473", "1474", "1475", "1476", "1477", "1478", "1479", "1480", "1481", "1482", "1483", "1484", "1485", "1486", "1487", "1488", "1489", "1490", "1491", "1492", "1493", "1494", "1495", "1496", "1497", "1498", "1499", "1500", "1501", "1502", "1503", "1504", "1505", "1506", "1507", "1508", "1509", "1510", "1511", "1512", "1513", "1514", "1515", "1516", "1517", "1518", "1519", "1520", "1521", "1522", "1523", "1524", "1525", "1526", "1527", "1528", "1529", "1530", "1531", "1532", "1533", "1534", "1535", "1536", "1537", "1538", "1539", "1540", "1541", "1542", "1543", "1544", "1545", "1546", "1547", "1548", "1549", "1550", "1551", "1552", "1553", "1554", "1555", "1556", "1557", "1558", "1559", "1560", "1561", "1562", "1563", "1564", "1565", "1566", "1567", "1568", "1569", "1570", "1571", "1572", "1573", "1574", "1575", "1576", "1577", "1578", "1579", "1580", "1581", "1582", "1583", "1584", "1585", "1586", "1587", "1588", "1589", "1590", "1591", "1592", "1593", "1594", "1595", "1596", "1597", "1598", "1599", "1600", "1601", "1602", "1603", "1604", "1605", "1606", "1607", "1608", "1609", "1610", "1611", "1612", "1613", "1614", "1615", "1616", "1617", "1618", "1619", "1620", "1621", "1622", "1623", "1624", "1625", "1626", "1627", "1628", "1629", "1630", "1631", "1632", "1633", "1634", "1635", "1636", "1637", "1638", "1639", "1640", "1641", "1642", "1643", "1644", "1645", "1646", "1647", "1648", "1649", "1650", "1651", "1652", "1653", "1654", "1655", "1656", "1657", "1658", "1659", "1660", "1661", "1662", "1663", "1664", "1665", "1666", "1667", "1668", "1669", "1670", "1671", "1672", "1673", "1674", "1675", "1676", "1677", "1678", "1679", "1680", "1681", "1682", "1683", "1684", "1685", "1686", "1687", "1688", "1689", "1690", "1691", "1692", "1693", "1694", "1695", "1696", "1697", "1698", "1699", "1700", "1701", "1702", "1703", "1704", "1705", "1706", "1707", "1708", "1709", "1710", "1711", "1712", "1713", "1714", "1715", "1716", "1717", "1718", "1719", "1720", "1721", "1722", "1723", "1724", "1725", "1726", "1727", "1728", "1729", "1730", "1731", "1732", "1733", "1734", "1735", "1736", "1737", "1738", "1739", "1740", "1741", "1742", "1743", "1744", "1745", "1746", "1747", "1748", "1749", "1750", "1751", "1752", "1753", "1754", "1755", "1756", "1757", "1758", "1759", "1760", "1761", "1762", "1763", "1764", "1765", "1766", "1767", "1768", "1769", "1770", "1771", "1772", "1773", "1774", "1775", "1776", "1777", "1778", "1779", "1780", "1781", "1782", "1783", "1784", "1785", "1786", "1787", "1788", "1789", "1790", "1791", "1792", "1793", "1794", "1795", "1796", "1797", "1798", "1799", "1800", "1801", "1802", "1803", "1804", "1805", "1806", "1807", "1808", "1809", "1810", "1811", "1812", "1813", "1814", "1815", "1816", "1817", "1818", "1819", "1820", "1821", "1822", "1823", "1824", "1825", "1826", "1827", "1828", "1829", "1830", "1831", "1

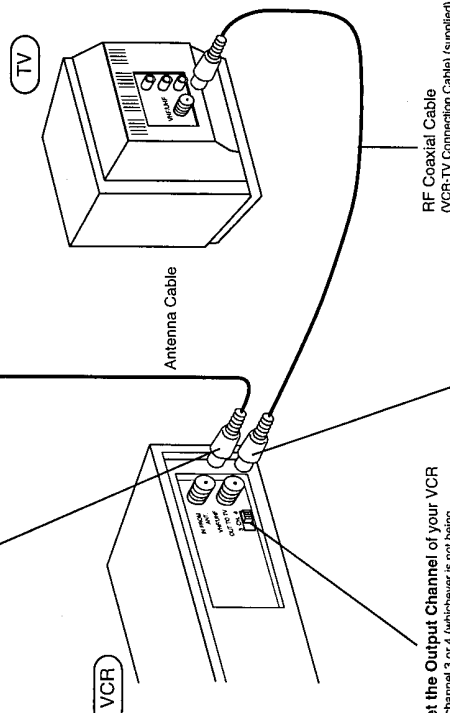


Basic Connection

ANTENNA



- 1** Disconnect the antenna or cable from your TV and connect it to the VCR (IN FROM ANT.)



- 3** Set the Output Channel of your VCR to channel 3 or 4 (whichever is not being transmitted on by a Local TV broadcast).

- 2** Connect the VCR to your TV with the RF Coaxial Cable (OUT TO TV).

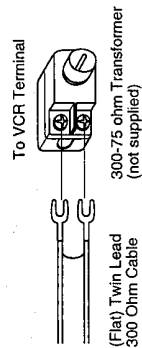
WARNING

When using "Nut type" RF coaxial cables, tighten with fingers only. Overtightening may damage terminals.

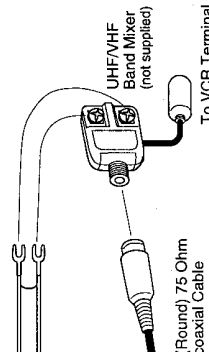
Connections

Between Antenna and VCR

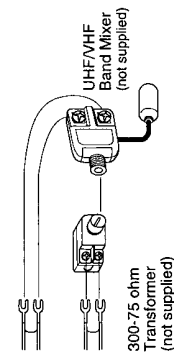
Case 1: Twin Lead Cable Only



Case 2: Twin Lead & Coaxial Cables



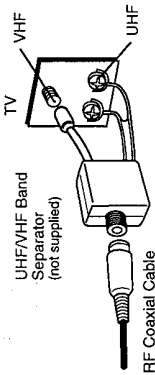
Case 3: Two Twin Lead Cables



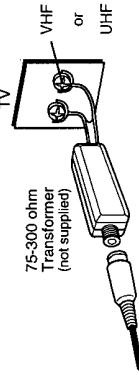
- If your TV has both post and plug-type VHF terminals, the post connection is recommended to minimize signal loss.

Between VCR and TV

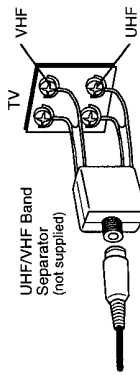
Case 1: Screw & Plug Type Terminal



Case 2: Screw Type Terminal

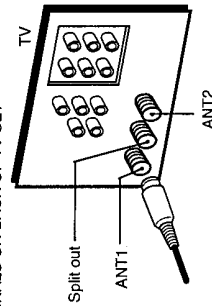


Case 3: Double Screw Type Terminal



Case 4: Complex TV Terminal

TERMINALS ON BACK OF TV SET



- Connect to one of the ANT terminals and select the same antenna number on the TV.

Other Connections

All connections on these pages are made with 75 Ohm coaxial cables.

CABLE CONNECTIONS

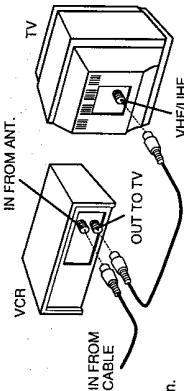
Without a Converter/Descrambler Box

You can:

- 1) Use your VCR Remote Control to select channels.
- 2) Program one or more unscrambled channels for unattended recording.

You cannot:

- record or view scrambled channels with this connection.



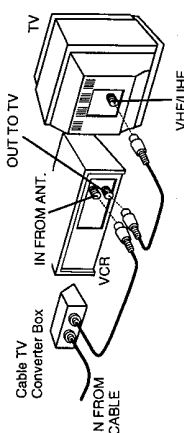
With a (CABLE to VCR) Converter/Descrambler Box

You can:

- 1) Record and view any channel including scrambled channels; channel selection must be made at the Cable TV Converter Box.
- 2) Program one channel for unattended recording.

You cannot:

- select channels from VCR or TV.
- watch one station while recording another.
- place channels in memory other than the Cable box output channel.



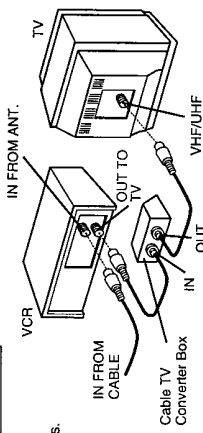
With a (VCR to TV) Converter/Descrambler Box

You can:

- 1) Use your VCR Remote Control to select channels.
- 2) Program unattended recordings of more than one unscrambled channel.

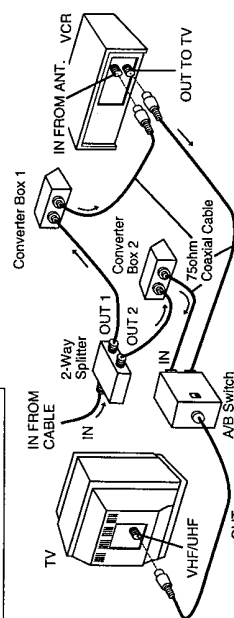
You cannot:

- record scrambled channels with this connection.



With Two Converter/Descrambler Boxes

If you want to record and view a combination of scrambled and unscrambled channels, you will need additional equipment. This connection requires two converter boxes, an A/B switch, and a 2-way splitter as shown here.



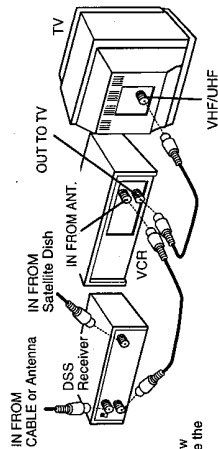
With a DSS Receiver

You can:

- 1) Record and view any channel including scrambled channels; channel selection must be made at the DSS Receiver.
- 2) Program one channel for unattended recording.

NOTE: The DSS receiver must be turned off to view programs from a cable box or antenna. See the DSS manual for details.

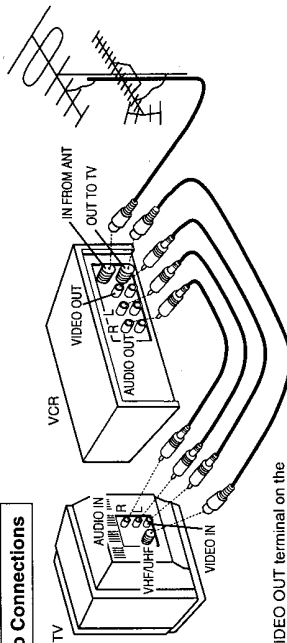
**DSS® is a registered trademark of DIRECTV, INC., a unit of GM Hughes Electronics.



If your TV has AUDIO IN and VIDEO IN terminals, you can connect your VCR to them to receive a higher quality picture and sound. If your TV is not stereo, you can connect a stereo amplifier to the VCR to enjoy stereo sound.

Audio/Video Connections

Audio/Video Connections



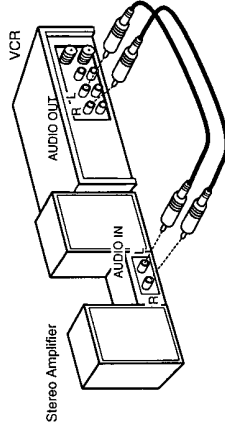
- 1 Connect the VIDEO OUT terminal on the VCR to the VIDEO IN terminal of your TV.
- 2 Connect the "L" and "R" AUDIO OUT terminals on the VCR to the "L" and "R" AUDIO IN terminals of your TV.
- 3 Set the VIDEO/TV selector of your TV (Monitor/Receiver) to "VIDEO."

NOTE: To use your TV as a VCR monitor, set the VIDEO/TV selector on the TV (Monitor/Receiver) to "VIDEO." Use the L Audio in jack for proper sound reproduction when connecting to a monaural TV.

Stereo Amplifier Connections

When you connect your VCR to a Stereo Component System, you can view the picture from the VCR while enjoying stereo from your audio system.

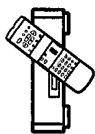
Connect the "L" and "R" AUDIO OUT terminals on the VCR to the "L" and "R" AUDIO IN terminals of your stereo.



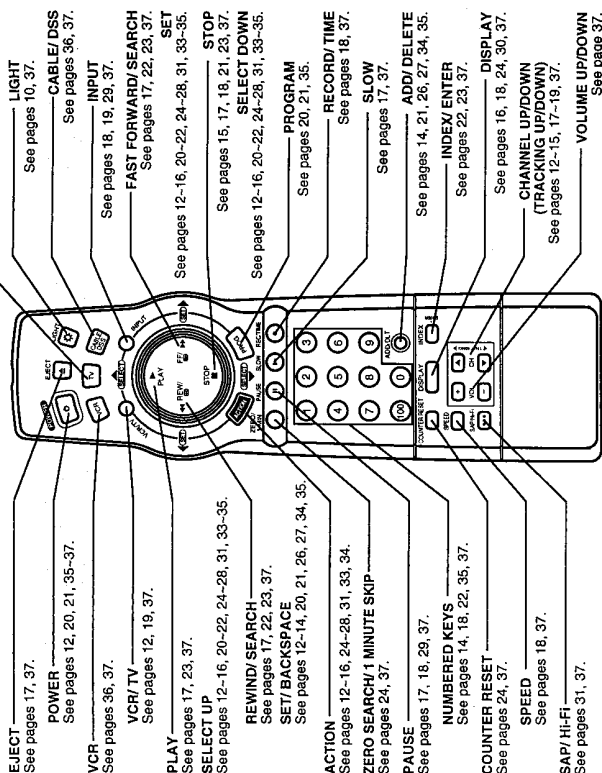
Note to CABLE system installer:

This reminder is provided to call the CABLE system installer's attention to Article 820-40 of the NEC in USA (and to the Canadian Electrical Code in Canada) that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Location of Controls



Remote Control Buttons



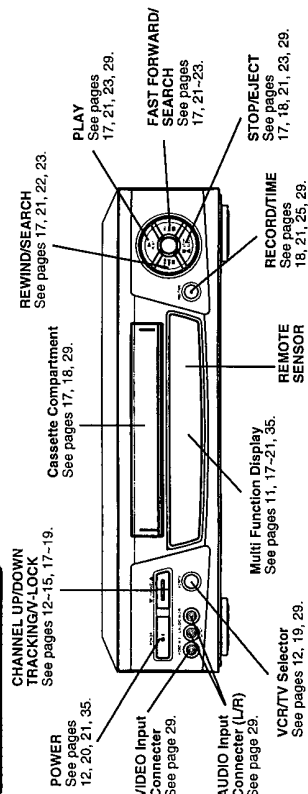
Light Tower Universal Remote Control

Light button: When the LIGHT button is pressed, the buttons which can be activated in the selected mode will light and the selected mode button (TV/VCR or CABLE/DSS) will flash for 5 seconds. If no buttons are pressed within 5 seconds, the light will turn off in order to conserve battery power. Also, while holding down the buttons, the selected mode button will flash so you will be able to see, in the dark, which mode has been selected.

EJECT button: When EJECT is pressed, the tape is ejected from the VCR.

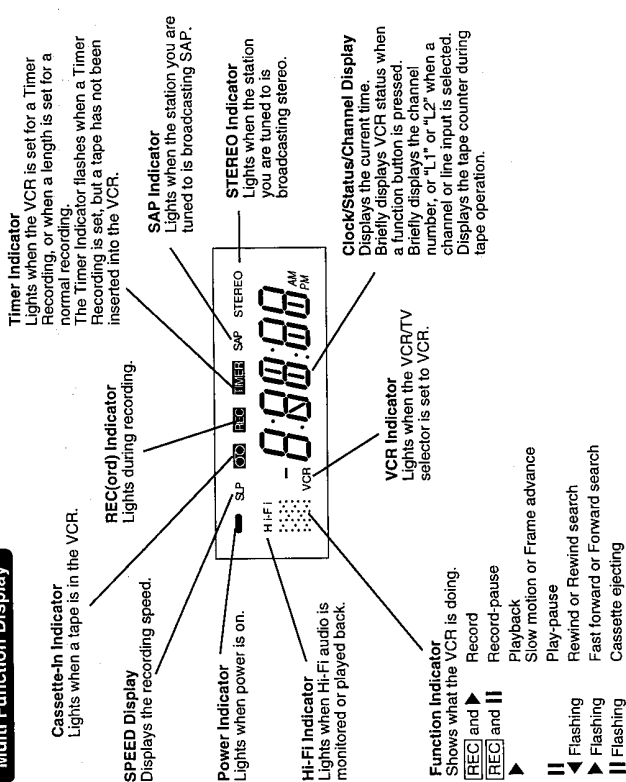
If EJECT is pressed during recording, the VCR will not respond to the command.

Front View of the VCR

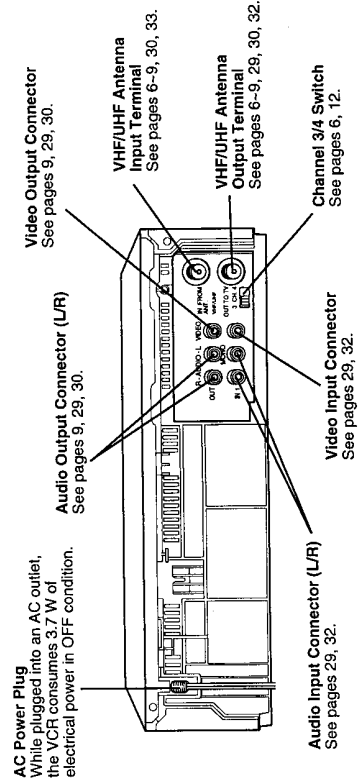


Getting Started

Multi Function Display



Rear View of the VCR



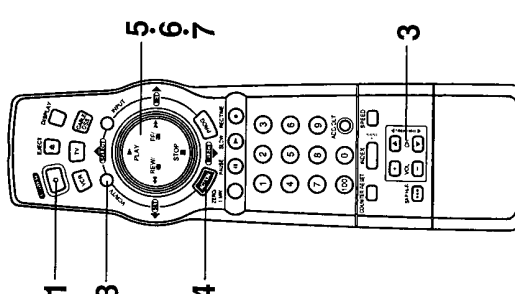
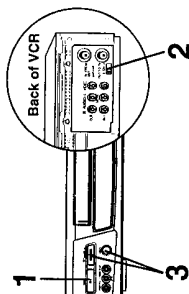
One Time VCR Setup



***Important:** If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

To Set the Language, Channels and Auto Clock

- 1 Turn the TV and VCR on.*
- 2 Tune your TV to the VCR output channel (the same one you set on the back of the VCR: CH3 or CH4).
- 3 Press CH▲ for English on-screen displays.



Using ▲▼ keys
Whenever a menu or program screen is displayed, the PLAY, STOP, REWIND, and F.F. buttons on the remote control function as ▲▼ keys. Use the ▲▼ keys to move the cursor to the left or right for play, stop, rewind, and fast forward. When a program screen is displayed, the REC, FF, REW, and PLAY buttons on the remote control and the VCR functions as ▲▼ keys only. (See Timer Recording Using VCR Buttons on page 21.)

1 Turn the TV and VCR on.*

2 Tune your TV to the VCR output channel (the same one you set on the back of the VCR: CH3 or CH4).

- If you used audio/video jack connection, tune the TV to its video input.

3 Press CH▲ for English on-screen displays.

Or, press CH▼ for Spanish on-screen displays.

Or, press VCR/TV for French on-screen displays.

- You can also set the language using the buttons on the VCR.
- The VCR should be connected to an antenna or cable box (page 6-9).

4 Press ACTION within 1 minute to display the "SET CLOCK" screen.

5 Press ▲▼ and ► to select and set "AUTO SET" or "MANUAL SET."

- If you selected "AUTO SET," continue with step 6. If you selected "MANUAL SET," go to step "b" and "c" below left on page 13.

6 Press ▲▼ to select your hookup, and then press ► to set.

- If you selected "CABLE/DSS BOX" VCR►TV, continue with step 5. If not, go to step 7.
- If you are using the CABLE/DSS BOX VCR►TV connection method, only the cable box output channel will be placed in memory.

7 Press ▲▼ to select your cable box or DSS receiver output channel number, and then press ► to enter.

- If necessary, refer to your cable box manual.
- If you are using Audio/Video jack connections to your cable box, select and set "VIDEO OUT" as the output channel.

8 Turn on the cable box and set it to the PBS channel in your time zone.

- If you use a DSS receiver, it must be turned off.

9 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

3 Press CH▲ to start Channel Auto Set and Clock Auto Set.
• The following messages appear: "CH AUTO SET PROCEEDING" "AUTO CLOCK SET PROCEEDING" "PLEASE PUSH CH UP KEY"

Case 1
1/ 4/2000 TUE 12:00PM
DST: ON
SETTING : CH 02
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Case 2
See below left.

IMPORTANT NOTE FOR AUTO CLOCK SET WHEN USING CABLE BOX OR DSS RECEIVER

- Auto clock set will be performed when the VCR is turned off the first time each day. If you use a cable box and you want auto clock set to be performed, the cable box must be left on and tuned to the PBS channel before the VCR power is turned off.
- If you use a DSS receiver, it must be turned off for auto clock set.
- If you use Audio/Video Jack connection between the VCR and Cable Box or DSS receiver, you must also connect the RF coaxial cable in order to use the auto clock set and channel auto set features.

One Time VCR Setup

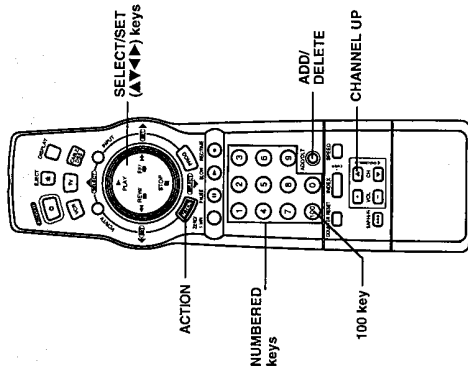
***Important:** If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

To Set or Reset the Clock

In case the clock is wrong, or a power failure occurred.

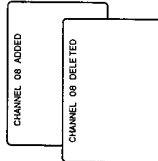
- 1 Press **ACTION** to display the menu.
- 2 Press **▲** to select "SET CLOCK," and then press **▶** to display the "SET CLOCK" screen.
- 3 Press **▲** to select "MANUAL," and then press **▶** to display the SET CLOCK screen.
- 4 Press **▲** and **▶** to select **11:42** and the date, time, and DST (Daylight Saving Time).
- 5 Press **ACTION** twice to start the clock and exit this mode.

- For Auto Clock Set, select "AUTO CLOCK SET," and then press CH ▲ in step 3.



To Add or Delete a Channel

- 1 Select a channel using the **NUMBERED** keys to add or **CH ▲/▼** to delete.
- 2 Press **ADD/DLT** to add or delete the channel.
 - To select a channel once it's deleted, use the **NUMBERED** keys on the remote control.



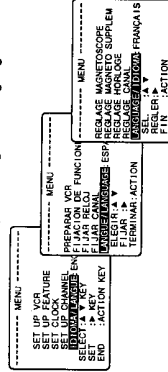
When Using the 100 key

When selecting CABLE channels 100 to 125 with the NUMBERED keys, first press the 100 key and then enter the remaining two digits.
For example, to select channel 125:
Press NUMBERED keys 100, then 2, then 5.

- This VCR will accurately maintain its calendar up to Dec. 31, 2096, 11:59PM.
- Normal TV or Cable channels are automatically selected and placed in memory. VCR is hooked up.

To Change On-Screen Display Language

- 1 Press **ACTION** to display the menu.
- 2 Press **▲** to select the language.
English: LANGUAGE
Spanish: IDIOMA
French: LANGUE
- 3 Press **►** repeatedly to change the language.



- 4 Press ACTION to exit this mode.**

Antenna System in Europe

Select the "EUROPE" antenna system on the screen. Use channel auto set for the UHF and VHF bands. In channel auto set, the antenna system is automatically set to the "TV" mode. This will allow you to receive C.C.I.R. broadcast such as AFN.

TV Band		Channel Chart
Selected Channel indication	Channel Band designations	Channel Received off the Air
02-13	VHF	2-13 (USA)
21-62	UHF	21-62 (C.C.I.R.)

Antenna System in USA

Your VCR is capable of receiving the OFF-THE-AIR and Cable broadcasts available in your area from the standard U.S. reception system.

TV Brand		Channel Chart	
	Selected Channel indication	Channel Band designations	Channel Received off the Air
	02-13	VHF	2-13
	14-69	UHF	14-69

To Change Antenna System and Replace Channels in Memory

Example, if you have cable installed, etc.

This VCR is capable of receiving channels with the US or the European C.C.I.R. standards. The reception of channels in charts shown here are based on menu screen for Tuning System you have chosen and depend on proper cable connections being made between the TV, VCR and antenna.

- 1 Press ACTION to display the menu.
- 2 Press ▲ to select "SET UP CHANNEL", and then press ► to display the "SET UP CHANNEL" screen.
- 3 Press ▲ to select "ANTENNA", and then press ► to set your antenna system (TV, CABLE or Europe).
- 4 Press ▲ to select "AUTO SET", and then press ► to display the "CHANNEL/ CLOCK AUTO SET" screen.
 - If you use a cable box, turn it on and set it to the PBS channel in your time zone.
 - Check right for program chart of CHUCK and EUROPE.
- 5 Press CH ▲ to start Channel AUTO set.

Cable Brand	Channel Chart		
Selected Channel Indication	Channel Band designations	Channel Received off the Air	
02-13	Broadcast VHF	2-13	
14-36	CATV Mid/Super Bands	A-W	
37-64	CATV Hyper Band	2-13	
65-94 100-125	Ultra Band	65-94 100-125	
95-99	CATV Low band	A-5-A-1	
01	Special CATV Channel	5A (between 4 and 5)	

- Clock Auto Set will be performed when channels are replaced in memory. To cancel, press STOP when "AUTO CLOCK SET PROCEEDING" appears on-screen.
- To exit this mode, press ACTION twice.

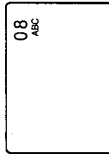


On-Screen Displays (OSD)

*Important: If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

Function & Channel Display

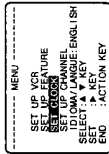
When a function button is pressed, e.g. PLAY, or you change channels, a 4 second display appears first in large and then small characters. (Some Station names may also appear if Channel Caption is set. See pages 26, 27.)



Menu Screen

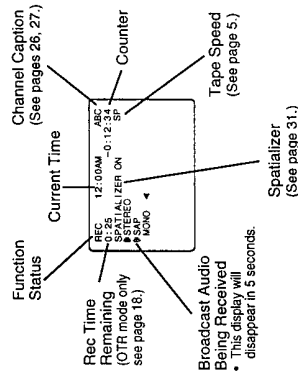
- 1 Press ACTION* to display the menu.
- 2 Press ▲▼ and ►◄ to make your selection.

* To get the most from each feature, please read the Operating Manual before attempting any operation.



VCR Status & Clock Display

Press DISPLAY to display or remove the overlay shown below.



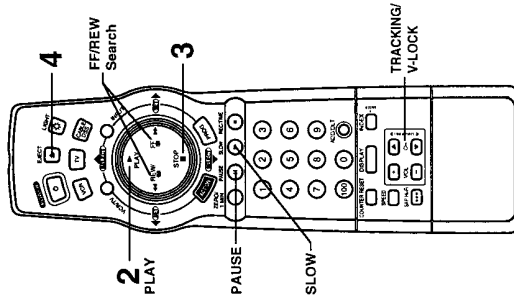
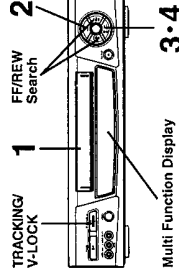
Blank Tape/ No Video Signal Indication

Whenever a blank section of a tape comes up in Play mode, or when the selected channel has no broadcast signal with the Blue Back ON/OFF Feature (page 28) set to ON, the TV screen will turn solid blue.



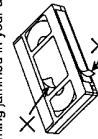
Playback a Tape

- 1 Check list before you begin.
 - ☒ All connections are made. (See pages 6-9.)
 - ☐ TV and VCR are plugged in.
 - ☐ TV is turned on and set to the VCR channel (CH 3 or 4).



Caution:

Please inspect your cassette tapes and remove any loose or peeling labels to prevent them from becoming jammed in your unit.



1 Insert a cassette.

- VCR power comes on automatically.
- VCR lights in the Multi Function Display.

2 Press PLAY on the remote or VCR to start playback.

- Playback begins automatically if cassette has no record tab.

3 Press STOP on the remote or VCR to stop playback.

- To rewind the tape, press REW.

4 Press EJECT on the remote or VCR to eject the cassette.

- You may eject a cassette with power on or off.

To Find a Particular Scene During Playback

Press REW or FF during playback to search for a scene.

- Search speed for SP mode tapes is 7 times and SLP mode tapes is 21 times the normal speed.
- Some noise bars will appear during search.

Special Effects During Playback

These features work best in SP or SLP mode. The sound will be muted.

Slow Motion Playback

Press SLOW to start slow motion playback during playback. Press PLAY or SLOW to release.

Still (Freeze) Frame Picture

Press PAUSE to freeze and release the picture. To reduce picture noise, first press SLOW. Then, use CH (TRACKING) ▲▼ to clear up the picture. Now, press PAUSE.

Frame by Frame Advance

In Still mode, hold down SLOW to advance the still picture one frame at a time. Press PAUSE to release.

Features for a Quality Picture

Digital Auto Picture

This feature automatically controls the video output signal for less noise depending on the tape condition.

Digital Auto Tracking

This feature continuously analyzes the signal and adjusts for optimum picture quality.

Manual Tracking Control (to reduce picture noise)

Use during Playback and Slow Motion mode to reduce picture noise. Press CH (TRACKING) ▲▼ during playback until the picture clears up. To return to Auto Tracking mode, press POWER off and then on again.

V-Lock Control (to reduce picture jitter)

In Still mode, CH (TRACKING) ▲▼ operate as a V-Lock control. Press ▲▼ until the picture is stabilized.



- After the VCR is in Still or Slow mode for 3 minutes, it will switch to the Stop mode automatically to protect the tape and the video head.

Record On a Tape

***Important:** If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

1 Check list before you begin.

- ☐ All connections are made. (See pages 6-9.)
- ☐ VCR is plugged in.
- ☐ TV is turned on and set to the VCR channel (CH 3 or 4).



1 Insert a cassette with record tab.

- VCR power comes on automatically.

2 Press CH ▲▼ or NUMBERED keys to select a channel.

- Or, press CHANNEL ▲▼ on the VCR.
- Holding down CH ▲▼ will increase the channel search speed.
- To record from an outside source, press CH ▲▼ or INPUT to select "LINE1" or "LINE2" (see page 19).

3 Press SPEED to change the recording speed.

- SP = Standard Play
- LP = Long Play
- SLP = Super Long Play (See page 5.)

4 Press REC/TIME on the remote control or VCR to start recording.

- To edit out unwanted portions, press PAUSE to pause the recording in progress. To release, press PAUSE again. (After the VCR has been in Pause mode for 5 minutes, it will stop automatically to protect the tape and video head.)

One Touch Timer Recording (OTR)

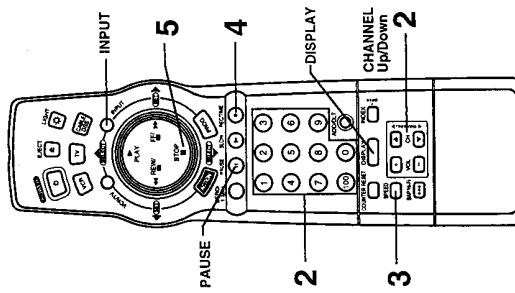
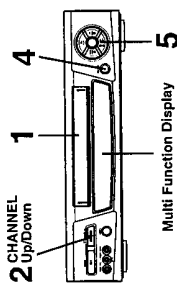
The VCR starts recording and turns itself off at a preset time. In step 4, press REC/TIME repeatedly to set the length of the recording. Each press will change the stop time as shown.

Normal Rec → 0:30 → 1:00
4:00 ← 3:00 ← 2:00 ← 1:30

- "TIMER" lights in the Multi Function Display.
- The remaining recording time can be displayed by pressing DISPLAY in OTR mode.

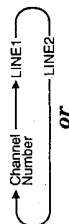
5 Press STOP to stop recording.

- Or, press STOP/EJECT on the VCR.

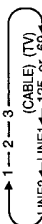


Selecting the Input Mode

Press INPUT.
The display will change in the order below.



Press CH ▲▼.
The display will change in the order below.



- LINE1: For rear audio/video connection.
- LINE2: For front audio/video connection.
- When LINE is selected, "L1" or "L2" is displayed in the Multi Function Display for about 4 seconds.

Record One Program While Watching Another

- 1 Press VCR/TV while recording is in progress to turn off the VCR indicator in the Multi Function Display.
- 2 Use the TV channel controls to select a program. The VCR will continue to record your program while you watch any channel you choose.
 - To switch back and forth between the recording and viewing channel, press VCR/TV.

Selecting Channels at the VCR

- 1 Turn your TV and VCR on.
 - VCR indicator lights on the Multi Function Display. If indicator doesn't light, press VCR/TV to turn it on.
- 2 Use CH ▲▼ on the remote control or VCR to select channels.
 - To switch back to TV channel selection, press VCR/TV to turn VCR indicator off, or simply turn the VCR power off.



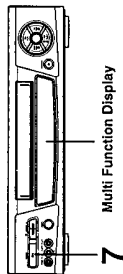
Timer Recording

Important: If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DELETE button does not work when pressed, press the VCR button on the remote and try the button again.

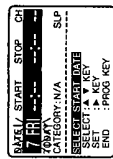
You can set up the VCR to record a one time, daily, or weekly program while you are away or otherwise occupied. Up to 8 programs can be stored in memory.

Check list before you begin.

- ☒ All connections are made.
- ☐ (See page 6-3.)
- ☐ TV and VCR are plugged in and turned on.
- ☐ VCR/TV selector is set to "VCR."
- ☐ Clock is set to correct time.
- ☐ Record tab is in place. (See page 5.)



- 1 Press PROG*** to display the "SET PROGRAM" screen.
- 2 Press ▲▼** to select "TIMER PROGRAM," and then press **▶** to display the program screen.



- If a program is already in memory, press **▲▼** and **▶** to select an unused program number.

- 3 Press ▲▼ and ▶** to select and set one of the following:

- 1-31 = One time recording
- DAILY = Same time MON-FRI
- WEEKLY (SUN-SAT) = Same time once a week

Example

Today's Date — 7 SELECT **▲▼** Selection Order DAILY
 WEEKLY (MON) — (SUN) — 6
 WEEKLY (SAT) — 1 — 2 — 3 — 4 — 5 — 6

- 4 Press ▲▼ and ◀▶** to select and set each of the remaining items at right.

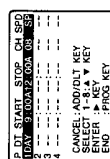
- Remaining items to be set:
- START time • STOP time
 - CH(annel) number, or LINE for outside source recording
 - Category (N/A not applicable), MUSIC, DRAMA, COMEDY,
 - Speed (SP, LP, SLP)

To Make Corrections

Repeatedly press **▶** to move the cursor to the right, or **◀** to move to the left to the incorrect entry and make the correction.

- 5 Press PROG** to end the program.

- This screen appears for confirmation.



To Enter More Programs

Press **▲▼** and **▶** to select and set a blank program number, and then repeat steps 3 and 4.

- 6 Press PROG** to exit this mode.

- 7 Press POWER** off to set the timer.

- When recording programs via a cable box, make sure the cable box is left ON and tuned to the desired channel.

Multi Function Display

Important notes when using a DSS receiver

- When recording programs via a DSS receiver, the DSS receiver must be left on.
- When recording programs via an antenna or cable, the DSS receiver must be turned off.

- A cassette with no record tab is ejected and "TIMER" flashes when the power is turned off to set the timer.
- If the start times of two programs overlap, the lower numbered program will be recorded.
- If the start time for a timer recording comes up during a normal recording or One Touch Recording (page 18), the timer recording will not be performed.
- If there is a power interruption of more than one minute, the recording will not be performed or continue.



20

Basic Operation

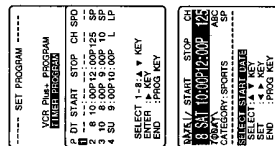
Cancel a Timer Recording:

- (Recording is in progress)
- Press POWER and then STOP within 10 seconds to cancel the timer recording.
 - The TIMER indicator goes out in the Multi Function Display.

Replace Program Contents:

- (Recording is not in progress)

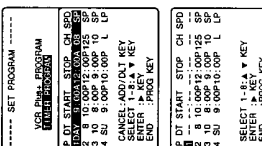
- 1 Press PROG** to display the "SET PROGRAM" screen.
- 2 Press ▲▼** to select "TIMER PROGRAM," and then press **▶** to display all currently set programs.
- 3 Press ▲▼ and ▶** to select and set a program number. (See page 20.)
- 4 Press ▲▼ and ◀▶** to select and set replacement timer information.
- 5 Press PROG** twice to exit this mode.



Review or Clear Program Contents:

- (Recording is not in progress)

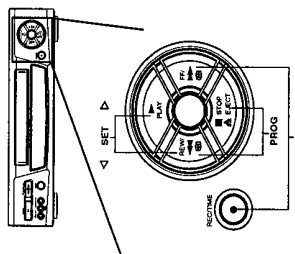
- 1 Press PROG** to display the "SET PROGRAM" screen.
- 2 Press ▲▼** to select "TIMER PROGRAM," and then press **▶** to display all currently set programs.
- 3 Press ▲▼** to select a program number.
- 4 Press ADD/DELETE** if you want to clear the program.
- 5 Press PROG** to exit this mode.



Timer Recording Using VCR Buttons

(Make sure a cassette tape is not inserted in the VCR.)

- 1 Hold down STOP/EJECT** and press **REW** to enter the Program mode.
- 2 Press FF or REC/TIME** repeatedly or hold down to make selections.
- 3 Press PLAY** to set the item and move on.
- To make corrections, repeatedly press **PLAY** to move the cursor to the right, or **REW** to move to the left to the incorrect entry and make the correction.
- 4 Press STOP/EJECT** and **REW** together to display program contents after all items have been entered.
- You cannot clear programs with the VCR buttons.
- 5 Hold down STOP/EJECT** and press **REW**, (release **REW** first, and then release **STOP/EJECT**) to exit this mode.
- 6 Insert** a cassette with record tab and press **POWER** off to set the timer.



21

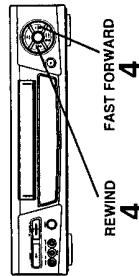


Tape Operation

*Important: If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

VHS Index Search System

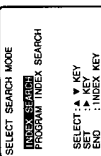
Each time you start a recording, an invisible index mark is placed on the tape. When timer recordings are made, program index and program information (see "Time Stamp Feature" on page 28) are also included. You can then use these index marks to access or scan your recordings.



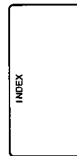
Direct Access

(For normal and/or timer recordings)

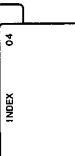
This feature allows you to go directly to the recording you want from anywhere on the tape by entering the appropriate index number.



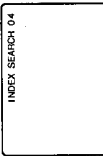
- 1 Press **INDEX** to display the "SELECT SEARCH MODE" screen.
 - This screen appears only if there are timer recordings on the Program Index list. If this screen does not appear, go to step 3.



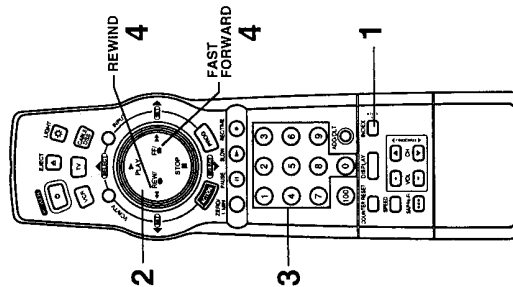
- 2 Press **▲▼** to select "INDEX SEARCH," and then press **▶** to display the "INDEX" screen.



- 3 Press a **NUMBERED** key to select the desired recording.
 - To calculate the number, see below.



- 4 Press **REW** or **FF** to start a reverse or forward search.
 - When the designated location is reached, the VCR goes into Playback mode.



To calculate the Index Number

Count forward or backward each recording starting point, including the recording you want to see, from wherever you are on the tape.

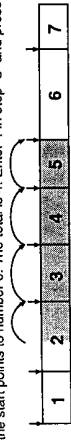
Example 1:

If you are watching recording 4 and you want to watch recording 2, count the start points to number 2. The total is 3. Enter 3 in step "3" and press **REW**.



Example 2:

If you are watching recording 2 and you want to watch recording 6, count the start points to number 6. The total is 4. Enter 4 in step "3" and press **FF**.



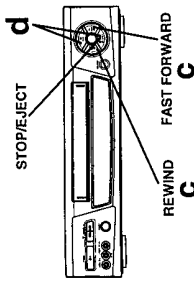
NOTE: ↑ indicates start points of each recording.

- Make each entry within 10 seconds, or the Index Search mode will be canceled.
- Index marks will be placed for: Timer recordings as well.
- If any of the VHS Index Search System are initiated extremely close to an index mark, the index mark may not be counted in the search.
- In the Program Index Search mode, this VCR can memorize a total of 8 programs in order of recording. If you memorize more than 8 programs, the first program will be deleted and the new program will be listed.



Important for Program Index Search:

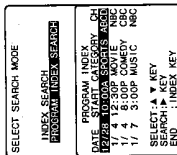
Timer recordings must be recorded back to back in order for them to be placed on the Program Index list. If a timer recording is followed by a function, such as **REW** or **PLAY**, the data is lost.



Program Index Search

(For timer recordings only)

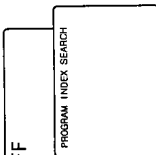
This feature allows you to choose a timer recorded program from a Program Index list and then start a search for the program. Once the tape is opened or normal recording is started, all program Index data are deleted.



- 1 Press **INDEX** to display the "SELECT SEARCH MODE" screen.

- 2 Press **▲▼** to select "PROGRAM INDEX SEARCH," and then press **▶** to display the "PROGRAM INDEX" screen.

- 3 Press **▲▼** to select the desired recorded program, and then press **▶** to start the forward or rewind search.
 - When the designated program is reached, the VCR automatically goes into Playback mode.



Index Scan

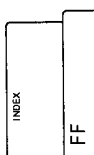
(For normal and/or timer recordings)

This feature allows you to scan (forward or reverse) each recording for 10 seconds in Playback mode.

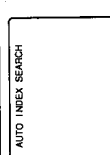
- a Press **INDEX** to display the "SELECT SEARCH MODE" screen.
 - This screen appears only if there are timer recordings on the Program Index list. If this screen does not appear, go to step c.



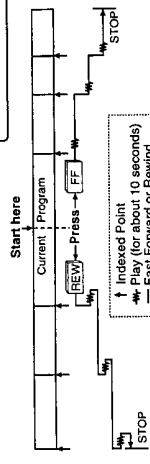
- b Press **▲▼** to select "INDEX SEARCH," and then press **▶** to display the "INDEX" screen.



- c Press **REW** or **FF** to begin the scan.
 - As each index mark is reached, a short playback will be performed after which **FF** or **REW** resumes.



- d Press **PLAY** to cancel the scan and begin playback.
 - You may also press **STOP** to stop the tape.



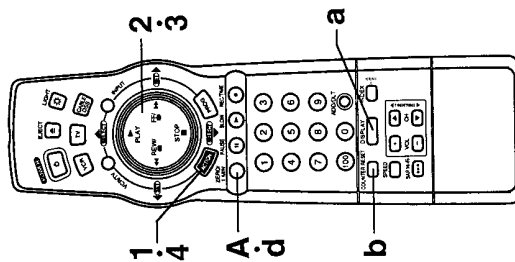
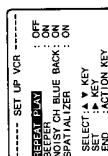
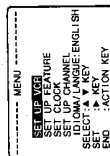
Tape Operation (continued)

***Important:** If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

Repeat Play

The VCR will play your recording over and over.

- 1 Press ACTION*** to display the menu.
- 2 Press ▲▼ to select "SET UP VCR," and then press ► to display the "SET UP VCR" screen.**
- 3 Press ▲▼ to select "REPEAT PLAY," and then press ► to select "ON" or "OFF."**
 - When "ON" is selected, the VCR plays the tape to its end or until a blank portion of over 30 seconds is detected (erased portions are not considered blank). The tape is then rewound and played again and again until Repeat Play is turned off.
- 4 Press ACTION twice** to return to the normal screen.



Auto Operation Functions

Auto Playback

When a tape is inserted, the power turns on (Auto). If the record tab¹ is removed, playback begins (Auto).

Auto Rewind

When a tape reaches its end during playback, fast forward or manual record, the VCR will rewind and go into Stop mode.

Playback Auto Eject

(Repeat Play is "OFF.") When a tape without a record tab¹ is played to its end, the VCR will rewind and then eject the tape.

Memory Rewind Off

When the POWER button is pressed during rewind, the VCR will turn off after rewind is complete.

* For record tab information, see page 5.

Special VCR Features

✓ Check list before you begin.

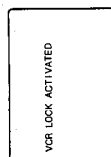
- ☐ All connections are made. (See pages 6-9.)
- ☐ VCR is plugged in.
- ☐ TV is turned on and set to the VCR channel (CH 3 or 4).

VCR Lock Feature

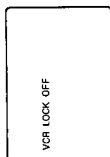
When activated, this feature prohibits all operations except for timer recording and tape eject. This feature may be used to keep young children from operating the VCR.

Hold down REC/TIME on the VCR without a cassette inserted for 7 seconds during Power On mode.

- **"NO CASSETTE PLEASE INSERT A CASSETTE"** is displayed when REC/TIME is pressed. Please disregard this warning and continue to hold down REC/TIME for 7 seconds.



To Cancel the VCR Lock feature, with or without a cassette inserted, hold down REC/TIME on the VCR for 7 seconds again while in Stop mode.

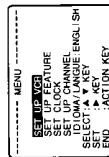


- VCR Lock mode is cancelled automatically after about 24 hours as long as the clock is set.

Warning Beeper Feature

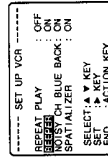
When you select BEEPER ON, a short warning will sound each time an invalid entry or incomplete operation is made.

- 1 Press ACTION** to display the menu.

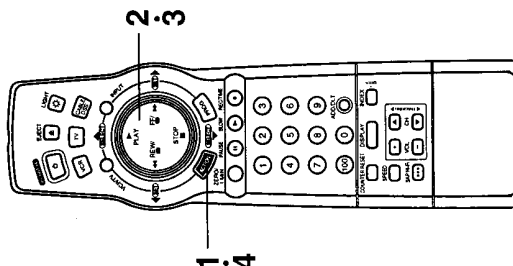
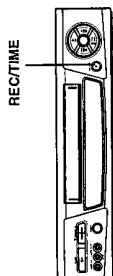


- 2 Press ▲▼ to select "SET UP VCR," and then press ► to display the "SET UP VCR" screen.**

- 3 Press ▲▼ to select "BEEPER," and then press ► to select "ON" or "OFF."**



- 4 Press ACTION twice** to exit this screen.



Special VCR Features

*Important: If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DELETE button does not work when pressed, press the VCR button on the remote and try the button again.

Channel Caption

You can set channel names, i.e. ABC, CBS, so that when selected, the channel name and number appear on-screen for easy identification. You can go with preset names (up to 24), or manually create your own (up to 10).

Note: You will need a list of channels received in your area and the channel numbers you receive them on.

Preset Caption

1 Press ACTION* to display the menu.

2 Press ▲▼ to select "SET UP CHANNEL," and then press ► to display the "SET UP CHANNEL" screen.

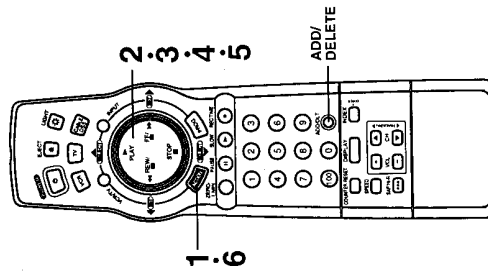
3 Press ▲▼ to select "CHANNEL CAPTION," and then press ► to display the "CHANNEL CAPTION" screen.

4 Press ▲▼ to select "PRESET CAPTION," and then press ► to display the "PRESET CAPTION" screen.
• You can set up to twenty-four channel captions. If you want to set a station name other than these, go to the "Manual Caption" Section on next page.

5 Press ► to move the shaded area to the right side.
Then, press ▲▼ to change the memorized channel number to match the caption.
Next, press ◀ to set the memorized channel number.
Now, press ▲▼ to continue.
Repeat step 5 until the Caption List is complete.

To Make Corrections
Press ▲▼ and ► to select the memorized channel number. Then, press ▲▼ to change, or ADD/DELETE to delete the channel number.

6 Press ACTION four times to exit this mode and return to the normal screen.



----- MENU -----
SET UP VCR
SET UP CHANNEL
SET UP LOCK
PRESET CAPTION
SELECT ▲▼ KEY
END : ACTION KEY

----- SET UP CHANNEL -----
ANTENNA : CABLE
PRESET CAPTION
VCR PUNCH CH SET UP
SELECT ▲▼ KEY
END : ACTION KEY

----- CHANNEL CAPTION -----
PRESET CAPTION
MANUAL CAPTION
SELECT ▲▼ KEY
END : ACTION KEY

----- PRESET CAPTION -----
CHN --
-- INK --
-- FOX --
-- NUC --
-- HBD --
SELECT ▲▼ KEY
END : ACTION KEY

----- PRESET CAPTION -----
TNT 40 CBN 62
LBN 21
INS 35
INS 25
INS 25
CLEAR : ADD/DELETE KEY
SELECT ▲▼ KEY
END : ACTION KEY

Manual Caption

a Follow steps 1~3 in the "Preset Caption" section on page 26.

b In step 4, press ▲▼ to select "MANUAL CAPTION," and then press ► to display the "MANUAL CAPTION" screen.

c Press ▲▼ to select "CH NUMBER," and then press ► to move the shaded area to the right.
• Channels already set in the "Preset Caption" section and channels deleted from Channel Memory are not displayed.
• You can set a total of ten channel captions with up to four characters each.

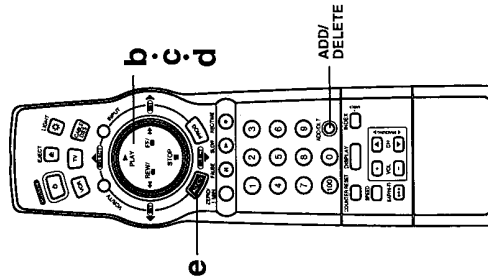
d Press ▲▼ to select, and then press ► to enter each character of the caption.
• Characters will change in the following order.
→ A → B → C → ... → Z → BLANK → → & → 9 → ... → 2 → 1 → 0 → + → - →

Now, press ◀ repeatedly to move the cursor back to CH NUMBER.
Repeat steps 'c' and 'd' as desired.

To Make Corrections, repeatedly press ► to move the cursor to the right, or ◀ to move to the left to the incorrect entry and make the correction.

To Clear the Caption, press ADD/DELETE.

e Press ACTION four times to exit this mode and return to the normal screen.



----- CHANNEL CAPTION -----
PRESET CAPTION
MANUAL CAPTION
SELECT ▲▼ KEY
END : ACTION KEY

----- MANUAL CAPTION -----
CH NUMBER
CAPTION
SELECT ▲▼ KEY
END : ACTION KEY

----- MANUAL CAPTION -----
CH NUMBER
CAPTION
SELECT ▲▼ KEY
END : ACTION KEY

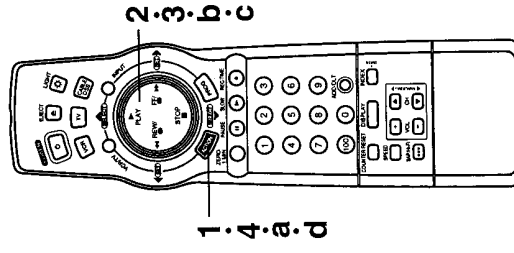
Special VCR Features (continued)

Time Stamp Feature

For about the first 10 seconds of each recording, the VCR automatically writes the following program data on the tape. Start the Scheduled stop time (for Timer Rec. only). Once the VCR has started recording, the information will be displayed about 7 seconds after playback begins for a few seconds.

☒ Check list before you begin.

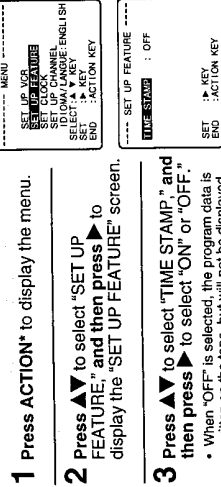
☐ Clock is set to correct time.



NOTE When the VCR is connected to a Combination VCR which has a Blue Back feature, even if the VCR Blue Back is set to "OFF" on the VCR, the screen will go to a blue background.

1 Press ACTION* to display the menu.

For about the first 10 seconds of each recording, the VCR automatically writes the following program data on the tape. Start the Scheduled stop time (for Timer Rec. only). Once the VCR has started recording, the information will be displayed about 7 seconds after playback begins for a few seconds.



2 Press ▲▼ to select "SET UP FEATURE," and then press ► to display the "SET UP FEATURE" screen.

3 Press ▲▼ to select "TIME STAMP," and then press ► to select "ON" or "OFF."

• When "OFF" is selected, the program data is written on the tape, but will not be displayed for the first 7 seconds of playback.

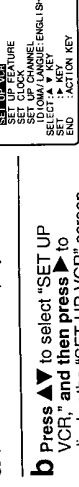
4 Press ACTION twice to exit.



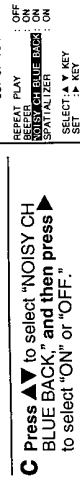
Blue Back ON/OFF Feature

You may choose whether or not you want the VCR to display a solid blue screen when the broadcast signal is very weak or nonexistent.

a Press ACTION to display the menu.



b Press ▲▼ to select "SET UP VCR," and then press ► to display the "SET UP VCR" screen.



c Press ▲▼ to select "NOISY CH BLUE BACK," and then press ► to select "ON" or "OFF."

• When "ON" is selected, a solid blue screen appears whenever the signal is weak or nonexistent. When "OFF" is selected, the picture is displayed regardless of the signal condition.

d Press ACTION twice to exit.

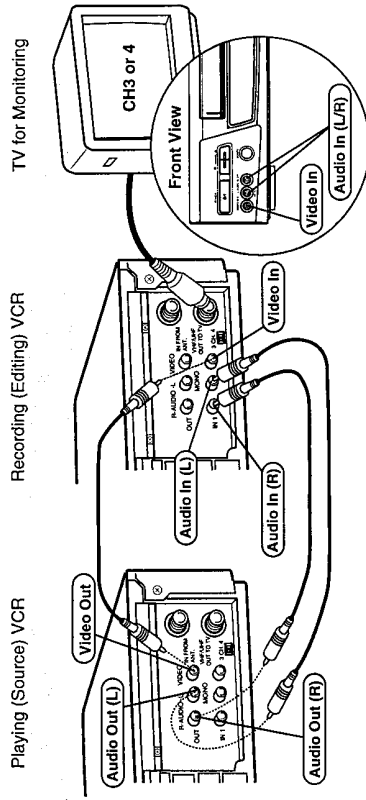
The picture can not always be seen clearly when "OFF" is selected.

Copying Your Tapes (Dubbing)



Connections you'll need to make. (Choose front or rear connection.)

• When connecting to a normal VCR, use the L Audio In jack for proper sound reproduction.



1 Insert a pre-recorded tape into the Playing (Source) VCR.

2 Press PLAY on the Playing VCR. Press PAUSE at the desired starting point.

3 Press REC on the Recording VCR, and then press PAUSE immediately thereafter.

4 Press PAUSE on both VCRs at the same time, to begin copying.

To Edit Out Unwanted Parts Press PAUSE on the recording VCR while copying is in progress. Press PAUSE again to resume copying.

5 Press STOP on both VCRs to stop copying.

Caution:

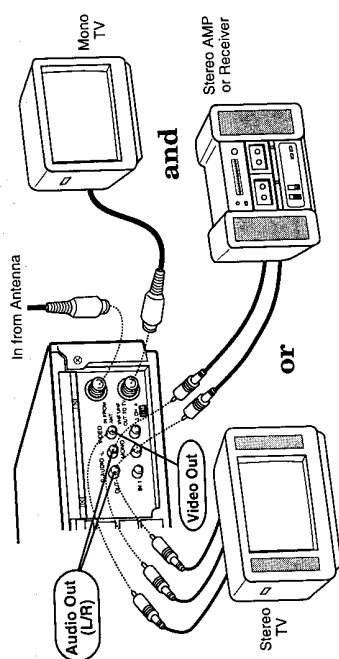
Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.

To Monitor Dubbing on Your TV

1 Turn your TV on and tune to the Recording VCR channel (CH3 or CH4).

2 Set the VCR/TV Selector on the Recording VCR to "VCR."

☐ The VCR is connected to a stereo TV, or a mono TV and an external stereo amp or receiver with speakers.



Connections to Make

When recording, you may monitor in stereo, by connecting the VCR to either a stereo TV, or a mono sound TV with an external stereo amp and speakers.

The following are possible audio broadcast types and on-screen displays.

The signal being received is indicated with an "K" mark while the selected audio mode is indicated with an arrow.

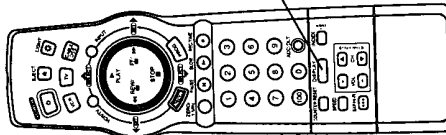
Press DISPLAY to display the broadcast signal currently being received

Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are being received simultaneously. Select STEREO or SAP audio mode.

Multi-channel Television Sound Stereo broadcast. Select STEREO audio mode.

Secondary Audio Program (sub language)
Select SAP audio mode for the broadcast. Select SAP audio mode for the sub language.

MONO broadcast
Normal monaural sound broadcast.



Equipped with **dbx®** -TV Noise Reduction for true MTS reproduction. **dbx®** -TV Noise Reduction is required for good stereo separation and audio fidelity. **dbx®** is a registered trademark, and is licensed by **dbx®** Technology Licensing.

Audio Mode for Recording

- Please refer to the "Receivable Broadcast Types" section on page 30.

- 2** Make a recording. See the "Record On a Tape" section on page 18.

Audio Mode for Playback

- A Playback the tape.**
See the "Playback a Tape" section on page 17.

- B** Press **SAP/Hi-Fi** repeatedly (each press within 5 seconds) to select the desired audio mode (**Hi-Fi** or **NORMAL**).
- Select **"Hi-Fi"** to listen to your stereo recordings with stereo sound, or **"NORMAL"** for monaural sound.

Spatializer Feature

This feature allows you to enhance the stereo sound so that it seems to surround you.

Note: Your VCR needs to be hooked up to a stereo TV or stereo amp/receiver with speakers (see page 30). For playback, tapes must be recorded in Hi-Fi stereo. For TV viewing, programs must be broadcast in stereo.

- a** Press **ACTION*** to display the menu.
- b** Press **▲** to select "SET UP VCR," and then press **▶** to display the "SET UP VCR" screen.
- c** Press **▲** to select "SPATIALIZER," and then press **▶** to select "ON" or "OFF."
- d** Press **ACTION** twice to exit this screen.

Portions of this product manufactured under a licence from Desper Products, Inc. SPATIALIZER, and the circle-in-square device are trademarks owned by Desper Products, Inc.

- When purchasing or renting a stereo system, make sure you can play back with true stereo.
- In order to listen to Hi-Fi music on TV or an external stereo system, you need a Hi-Fi tuner.
- When adjusting the track position, make sure the track position is normal.

30

31



VCR Plus+ Setup

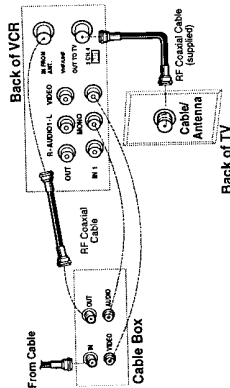
Easy Taping.

VCR Plus+ programming allows you to set most items of a timer recording by simply entering a special code (PlusCode) found in TV GUIDE magazine as well as the TV listings in selected newspapers. In order for your VCR to do a VCR Plus+ recording, or a timer recording of cable stations, some setup is required.

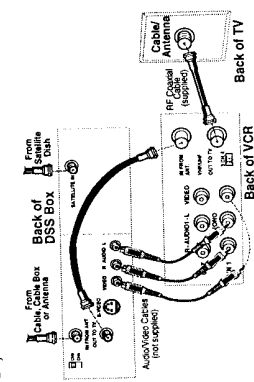
At first, choose your **Connection Type**.
(Then, follow the instructions under the diagram.)

Connection Type A

<CABLE BOX → VCR → TV>



Or, <ANT/CABLE BOX → DSS BOX → VCR → TV>

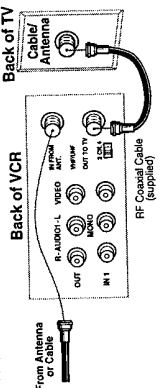


If your system connection looks like one of the diagrams above, do the following.

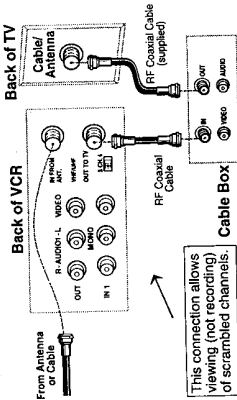
1. Complete "Cable Box Setup" on page 33.
2. Skip page 34 and go directly to page 35 for VCR Plus+ Programming.

Connection Type B

<VCR → TV>



Or, <VCR → CABLE BOX → TV>



If your system connection looks like one of the diagrams above, do the following.

1. Skip "Cable Box Setup" on page 33 and turn to page 30.
2. Complete "VCR Plus+ Channel Setup" on page 34.
3. Turn to page 35 for VCR Plus+ Programming.

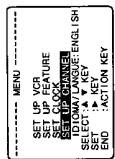
*Important: If the remote control POWER, ACTION, PROG, CH▲▼, INDEX or ADD/DLT button does not work when pressed, press the VCR button on the remote and try the button again.

If you are using a cable box and it is connected to your VCR in one of the ways shown in Connection Type A on page 32, you will need to complete the Cable Box Setup steps below.

Cable Box Setup

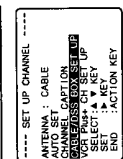
Complete this page only if Type A connection method (pg.32) is used.

1 Press ACTION* to display the menu.

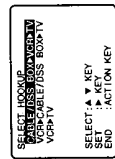


2 Press ▲▼ to select "SET UP CHANNEL," and then press ► to display the "SET UP CHANNEL" screen.

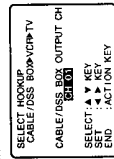
3 Press ▲▼ to select "CABLE/DSS BOX SET UP," and then press ► to display the "SELECT HOOKUP" screen.



4 Press ▲▼ to select your hookup, and then press ► to set.
• If you selected CABLE/DSS BOX, VCR+ TV, continue with step 5.
If not, press ACTION three times and turn to page 34.

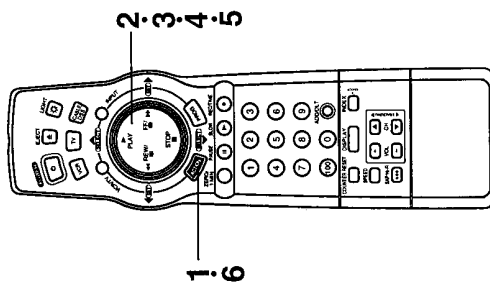


5 Press ▲▼ to select your cable box or DSS receiver output channel number, and then press ► to enter.
• If necessary, refer to your cable box manual.
• If you are using Audio/Video jack connections to your cable box, select and set "VIDEO OUT" as the output channel.



6 Press ACTION twice to end the setup and return to the normal screen.

Go directly to "VCR Plus+ Programming" on page 35.



VCR Plus+ and PlusCode are trademarks of Gemstar Development Corporation. The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

VCR Plus+ Setup (continued)

***Important:** If the remote control POWER, ACTION, PROG, CH▲, INDEX or ADD/DELETE button does not work when pressed, press the VCR button on the remote and try the button again.

In order for the VCR to read the VCR Plus+ code, some set up is required. A Guide (VCR Plus+) channel number is assigned to each local broadcast and cable station. Because this number sometimes differs from the channel your TV receives the station on, it is necessary to program the VCR with local channel information.

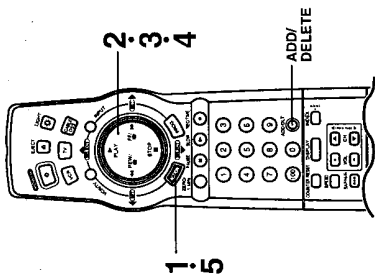
VCR Plus+ Channel Setup

complete this page only if Type B connection method (pg.32) is used.

- Before you begin, complete the Channel Setup Preparations below left.

Important Note:

If your VCR connection type changes from type A to B, repeat steps 1-4 of page 33 and select VCR ► CABLE/ DSS BOX ► TV or VCR ► TV before proceeding with these steps.



Channel Setup Preparations

NOTE: Complete the steps on this page if your cable box can be controlled with the VCR, or your VCR hook-up resembles "B" on page 32.

Prepare a list like the example below.

This list will help you smoothly enter the information needed in step 4, at right.

You will need the following to complete the list:

- The name and local and/or cable stations you receive along with the channel numbers your TV receives them on. A cable channel line-up chart is supplied by your cable company.
- A list of Guide+ (VCR Plus+) channel numbers assigned to stations you receive. This list is available in TV Guide and the TV listings found in selected newspapers.

1 Make a chart with 3 columns like the example below. In the left column, fill in the name or call letters of the stations you receive.

2 In the middle column, fill in each station's assigned Guide+ (VCR Plus+) number found in TV Guide, newspapers, etc.

3 In the right column, fill in the channel number that your TV receives the station on from your channel line-up.

EXAMPLE ONLY

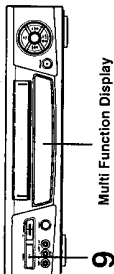
Broadcast or Cable Station Name	Assigned Guide+ (VCR Plus+) channel no.	Channel no. your TV receives the station on
HBO	33	15
Nickelodeon	38	20
CBS	04	04
FOX	11	

34

VCR Plus+ Programming

Easy Taping.

- ✓ Check list before you begin.
- The clock is set.
- VCR Plus+ Setup is complete (see pages 32-34).



1 Press PROG to display the "SET PROGRAM" screen.

2 Press ▲▼ to select "VCR Plus+ PROGRAM," and then press ► to display the "VCR Plus+" screen.

3 Press the NUMBERED keys to enter the PlusCode number.

- Refer to your local TV listings.

To Make Corrections
Press ◀ repeatedly to delete the PlusCode number. Then, enter the correct number.

4 Press PROG to lock in your program.

5 Press the 1, 2 or 3 key to select the program type.

6 Press ▲▼ and ► to select and set each of the remaining items as follows.

- Category (N/A (not applicable), SPORTS, MOVIE, COMEDY, MUSIC, DRAMA)
- Speed (SP, LP, SLP)

To Make Corrections

Repeatedly press ► to move the cursor to the right, or ◀ to move to the left to the incorrect entry and make the correction.

7 Press PROG if contents are acceptable.

To cancel program contents:
Press ADD/DELETE.

8 Press PROG to complete the program.

- If you're using a Cable Box, make sure that it is tuned to the desired channel and the power is left on for timer recording.

9 Press POWER off to set the timer.

- This display may differ depending on your cable box hook-up.



Multi Function Display

Use normal Timer Recording steps if:

- the PlusCode for a program is not listed.
- you anticipate the program, such as a sporting event, to run over the scheduled stop time.

See page 21 to:

- cancel a timer recording in progress.
- replace program contents.
- review or clear program contents once set.

Important notes when using a DSS receiver

- When recording programs via a DSS receiver, the DSS receiver must be left on.
- When recording programs via an antenna or cable, the DSS receiver must be turned off.



- You can obtain unlisted PlusCode numbers by calling 1 - 900 - 454 - 7587. Call costs approximately \$.95 per minute.
- VCR PlusCodes can not be used to program the VCR to record DSS channels.
- Avoid overlapping program times.
- An on-screen display will indicate if an invalid PlusCode number has been entered or when all timer programs are full.

35



Multi-Brand Control Feature

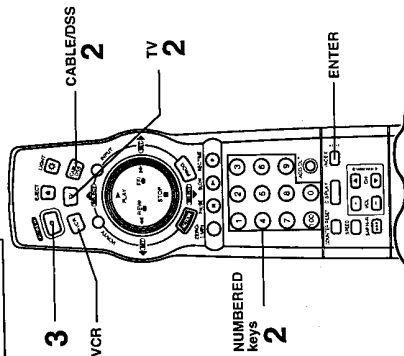
The Remote Control may be set up to control some of the functions on your TV or Cable Box.

TV Brand Code Numbers

Panasonic	01, 02	Toshiba	09
Quasar	01, 03	Sanyo	10
SEA	03	Fisher	10
GE	03	JVC	11
Zenith	04	Hitachi	12
Magnavox	05	Mitsubishi	07, 13
Sylvania	05	Samsung	14
Sharp	06, 07	Gold Star	15, 16, 17
Sony	08		

DSS Brand Code Numbers

Toshiba	103
Hitachi/Hughes	104
Magnavox/Uniden 1	105
Magnavox/Uniden 2	106
Sony	107
SEA	108
Panasonic	109



Cable Box Brand Code Numbers

Archer	01, 29, 44, 88, 91
Cableview	04, 30, 42, 44, 52, 63, 85, 88
Citizen	04, 30, 42, 44, 52, 63, 85, 88
Curtis	08, 09, 56, 61, 87, 90
Diamond	01, 29, 44, 88, 91
Drake	13, 20, 22, 26, 40, 56, 62, 78
Eagle	04, 30, 42, 44, 52, 63, 85, 88
Eastern	04, 30, 42, 44, 52, 63, 85, 88
GC Brand	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
General Electric	14, 15, 28, 41, 97, 100, 102
General Instruments	14, 15, 28, 41, 97, 100, 102
Hamlin	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Hitachi	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Jerrold	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Macom	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Magnavox	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Matsushita	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Movietime	23, 32, 38, 39, 40, 42, 44, 88
NSC	01, 02, 03, 04, 34, 55, 83, 85, 91, 93, 95
Pakasonic	10, 11, 46, 99
Philips	13, 20, 23, 24, 96
Pioneer	05, 06, 78
Pulsar	04, 30, 42, 44, 52, 63, 85, 88
Radio Shack	04, 30, 42, 44, 52, 63, 85, 88
RCA	04, 30, 42, 44, 52, 63, 85, 88
Realistic	16, 17, 101
Regal	04, 30, 42, 44, 52, 63, 85, 88, 94
Regency	23, 32, 38, 39, 40, 42, 44, 88
Rembra	04, 30, 42, 44, 52, 63, 85, 88
Satara	32, 40, 42, 78, 94
Sanyo	08, 09, 56, 61, 87, 90
Scientific Atlanta	08, 09, 56, 61, 87, 90
Sherrilltech	27
SL Marx	32, 40, 42, 78, 94
Spacer	16, 17, 101
Stargate	04, 30, 42, 44, 52, 63, 85, 88, 94
Sylvania	01, 29, 44, 88, 91
Teknika	77, 92
Telecaption	32, 40, 42, 78, 94
Teleview	32, 40, 42, 78, 94
Texcan	01, 33, 34, 42, 48, 49, 91
Tocom	01, 33, 34, 42, 48, 49, 91
Uniden Satellite	65, 69
Unika	01, 29, 44, 88, 91
Universal	42, 43, 44, 52, 63, 88
Viewstar	13, 20, 22, 26, 40, 58, 62, 98
Vidway	07, 23, 50
Vid Tech	07, 23, 50
Vidter	07, 23, 50
Zenith	07, 23, 50

Multi-Brand Control Setup

- 1 Find your TV or Cable Box or DSS Box Brand Code Number from one of the charts on this page.
- 2 Hold down TV or CABLE/DSS. Use the NUMBERED keys to enter your TV or Cable Box Brand code number.
 - For code numbers 100 or greater, first press the 100 key. Then, enter the remaining digit. E.g. for 102, press 100, then press 2.
- 3 To confirm that the correct code was entered, press POWER to turn your TV or Cable Box or DSS Box On/Off.
- 4 Try each of the functions listed on page 37.
 - Due to changes in infra-red commands used by some manufacturers, more than one code may be listed for some TV or Cable Box brands. If your TV or Cable Box does not respond to the first code, please try entering the next code.

Please repeat the TV/Cable Box Set Up procedure when you replace the remote's batteries.

The remote control is designed to control the brands listed. However, it will not operate all TVs, Cable Boxes or DSS Boxes made by these manufacturers. If you get no results, your particular product brand cannot be controlled by this remote control.

Using the Multi-Brand Control

Once the remote control has been properly set up, you can select VCR, TV, or CABLE/DSS mode depending on which functions you wish to control.

Press VCR or TV or CABLE/DSS on the remote control to select the desired mode. (See below for the controllable functions of each mode.)

NOTE: In TV or CABLE/DSS mode, it may be necessary to press ENTER after pressing NUMBERED keys for channel selection.

VCR Mode

In VCR mode, the following buttons are available.

VCR
All function buttons.
TV
VOL UP/DOWN

TV Mode

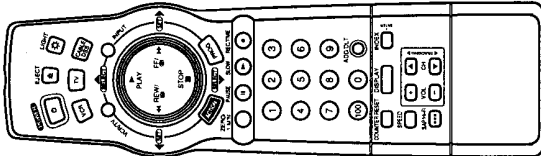
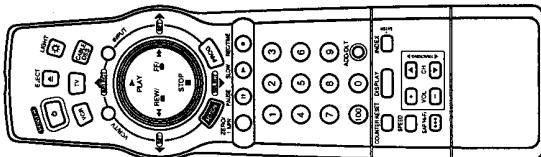
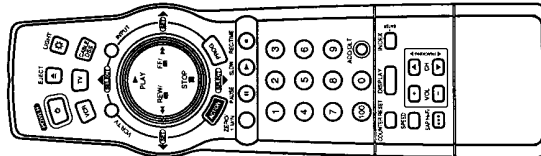
In TV mode, the following buttons are available.

TV
POWER, INPUT, NUMBERED keys, ENTER, CH UP/DOWN, VOL UP/DOWN
VCR
EJECT, LIGHT, VCR/TV, PLAY, STOP, FF, REW, PAUSE, ZERO/1 MIN, SLOW, REC, SAPHI-FI, SPEED, COUNTER RESET, DISPLAY

CABLE/DSS Mode

In CABLE/DSS mode, the following buttons are available.

CABLE/DSS
POWER, NUMBERED keys, ENTER, CH UP/DOWN, TV
VOL UP/DOWN
VCR
EJECT, LIGHT, VCR/TV, PLAY, STOP, FF, REW, PAUSE, ZERO/1 MIN, SLOW, REC, SAPHI-FI, SPEED, COUNTER RESET, DISPLAY



- Some TV, Cable Box and DSS Box brands require you to turn on the power manually.
- Not all functions listed may be controlled by this remote control.



Before Requesting Service

Check the following points once again if you are having trouble with your VCR.

Power	
No power...	Correction • Completely insert the Power Plug into an AC outlet. • Set the POWER button to ON.
Recording & Playback	
TV program cannot be recorded...	Correction • Check connections between VCR, external antenna, and your TV. • Make sure your antenna system (CABLE or TV or EUROPE) is correctly set. (To Change Antenna System and Replace Channels in Memory (P.15)) • Make sure that the record tab is intact on the cassette. (P.5)
Timer recording cannot be performed...	• Set the recording start/stop times correctly. (P.20) • Make sure that the POWER button is set to OFF. (P.20) • Timer recording may not be performed or continued if a power interruption of more than 1 minute occurs before, or during, a Timer Recording, even after power is restored.
There is no playback picture, or the playback picture is noisy or contains streaks...	• Select channel 3 or 4 on the TV to match the Channel 3/4 switch located on the rear panel of the VCR. (P.6) • Set the VCR/TV selector to "VCR". • Check that channel 3 or 4 of the TV is properly tuned in. • Adjust the TRACKING control in either direction. (P.17)
Special effects playback picture may contain some vertical jitter when using a TV with an Automatic Vertical Hold Control...	• Set the TV's Vertical Hold Control to "MANUAL" and then adjust it.
VCR cannot be controlled...	• Make sure that VCR LOCK is set to off. (P.25)
Remote Control	
VCR cannot be remote controlled...	Correction • Aim the Remote Control directly at the remote sensor on the VCR. (P.10) • Avoid all obstacles which may interfere with the signal path. • Inspect the remote batteries for possible replacement. (P.4) • Make sure that VCR LOCK is set to off. (P.25) • Exposing the VCR remote sensor to direct fluorescent or outdoor light may cause signal interference.
ACTION and PROG buttons cannot be used...	• Press the VCR button to select VCR mode. (P.37)
Miscellaneous	
Programs cannot be viewed on TV...	Correction • Set the VCR/TV selector to "TV." (P.19)
Video cassette cannot be inserted...	• Insert the cassette with window side up; record tab facing you.
Video cassette cannot be removed...	• Completely insert the Power Plug into an AC wall outlet.
Video cassette ejects when a recording is started or the power is turned off for timer recording...	• Make sure the record tab is intact on the cassette. (P.5)
In Stop mode, the motor (CYLINDER) continues to rotate...	• To enable the quick play mechanism, the cylinder will rotate for about 5 minutes. This reduces response time from Stop to Play mode from Play to Rewind/Search mode.
The top of the playback picture waves back and forth excessively...	• Because the VCR playback signal is not as stable as an off-the-air TV signal, the top of your TV screen may be bent or unstable during playback. Slowly turn the horizontal hold control on your TV to correct the wavy picture. If your TV does not have a horizontal hold control or adjusting the control does not help, please contact your local TV service center.