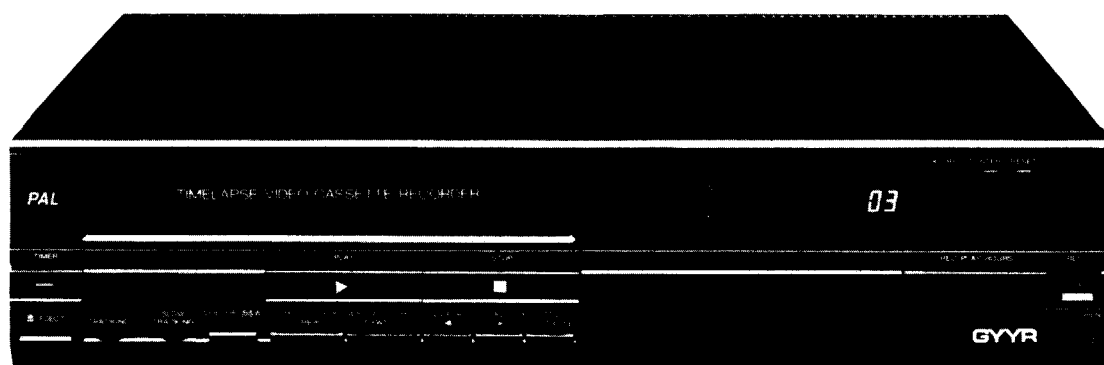


GYR

TIME LAPSE VIDEO CASSETTE RECORDER TLC1600X/TLC1600UK



Instruction manual

page 2

To obtain the best performance and ensure years of trouble-free use, please read this instruction manual completely.

Bedienungsanleitung

Seite 16

Bitte lesen Sie diese Bedienungsanleitung aufmerksam durch, um durch richtige Bedienung jahrelangen und störungsfreien Betrieb zu gewährleisten.

Mode d'emploi

page 32

Des performances optimales et un fonctionnement à long terme seront assurés en appliquant les présentes instructions après avoir entièrement lu ce mode d'emploi.

Manuale di istruzioni

pagina 48

Per garantire le migliori prestazioni e la più lunga durata leggere attentamente e al completo le seguenti istruzioni.

Address:

USA Service Address:

1515 South Manchester Ave.
Anaheim, CA, 92802-2907

Tel: 800-445-9524

8:00 AM ~ 5:00 PM (P.S.T.)

Tlx: 3716642

Fax: 714-535-8532

EUROPEAN Service Address:

Universal Technologies, S.A.
Rue Claude Debussy
22 bte 1

B-1070 Bruxelles, Belgium

Tel: 32/2/522.81.43

Tlx: 25725 UNITEC B

Fax: 32/2/520.03.64

WARNING

- **Mains supply:**
AC 220V, 50 Hz only (TLC1600X)
AC 240V, 50 Hz only (TLC1600UK)
- Do not remove panel covers by unscrewing them. There are no user-serviceable parts inside. Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose this unit to rain or moisture.

Important for United Kingdom

The wires in this mains lead are coloured in accordance with the following code:

BLUE: Neutral BROWN: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED. The wire which is coloured BLUE must be connected to the terminal marked with the letter N or coloured BLUE or BLACK.

NOTE

This product is manufactured to comply with the radio interference requirements of EEC Directive 79/889/EEC & 82/499/EEC.

PRECAUTIONS

Safety

- Should any solid object or liquid fall into the cabinet, turn off the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead, pull it out by the plug. Never pull the lead itself.

Installation

- Choose a location in which air can pass through the ventilation holes in the bottom, top and back of the unit to prevent it from overheating.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibrations or shock.
- Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.
- Do not install the unit in an inclined position. The unit is designed for operation in a horizontal position.

Operation

- **Condensation**
If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is the condensation of moisture.
Condensation on the head drum, one of the most crucial parts of the VTR, will cause damage to the tape. The VTR should not be operated for at least 2 hours after being moved from a cold to a hot environment to avoid condensation from occurring on the head drum.

Cleaning

- Be careful; when the surface of the case is wiped with a volatile agent such as benzine, alcohol, thinner, etc., or a chemically processed cloth, the surface finish may be degraded or its coating may peel off.

Repacking

- It is wise to save the packing materials and box in case you ever need to ship or store your unit.

FEATURES

Recording

- Nine Touch-Selectable Recording Speeds
- Automatic "Alarm-Command" Speedup
- One Shot Recording
- On-Screen and On-Tape Time/Date Information
- 7-Day Programmable On/Off Timer
- "Alarm On" Output
- Usable Audio at 3 Hour Speed
- 12-Hour Recording Lock
- Time-of-Alarm Memory

Playback

- High Speed Visual Search
- Nine Playback Speeds
- Still Field and Field-Advance Playback

Security

- 72-Hour Memory Protection
- Electronic Security Lockout

CONTENTS

CONTROLS AND FUNCTIONS	4
INSTALLATION	7
CASSETTE TAPES	8
SETUP	9
OPERATION	12
PROBLEM GUIDE	14
SPECIFICATIONS	15

WICHTIGE HINWEISE

- **Netzanschluß:**
Nur AC 220V, 50 Hz (TLC1600X)
Nur AC 240V, 50 Hz (TLC1600UK)
- Keine Gehäuseteile abschrauben. Alle Wartungsarbeiten im Geräteinneren dürfen nur von qualifiziertem Kundendienstpersonal ausgeführt werden.
- Gegen Feuer- und Stromstoßgefahr Gerät vor Regen und Feuchtigkeit schützen.

SICHERHEITSHINWEISE

Sicherheit

- Wenn ein Gegenstand in das Gerät gefallen oder eine Flüssigkeit hineingeflossen ist, das Gerät sofort ausschalten und erst nach Überprüfung durch qualifiziertes Kundendienstpersonal wieder in Betrieb nehmen.
- Zum Herausziehen des Netzsteckers nicht am Stromkabel ziehen, sondern den Stecker selbst greifen.

Installation

- Damit das Gerät nicht zu heiß wird, sollte es so aufgestellt werden, daß die Belüftungsöffnungen an Ober-, Unter- und Rückseite nicht verstellt sind.
- Das Gerät nicht in der Nähe eines Radiators, Ofens oder anderer Wärmequellen aufstellen. Vor direktem Sonnenlicht, starkem Staub, Vibrationen und Erschütterungen schützen.
- Niemals einen Magnet oder magnetischen Gegenstand in die Nähe des Videorekorders bringen, da das zu Funktionsstörungen führen kann.
- Das Gerät ist für waagrechte Aufstellung konstruiert. Nicht schräg aufstellen.

Bedienung

- **Kondensation**
Wie an einem Glas, in das eine kalte Flüssigkeit gegossen wurde, kann sich auch an der Kopftrommel, dem vitalen Bestandteil des Videorekorders Feuchtigkeit niederschlagen. Diese Kondensation beschädigt das Band.
Wenn der Videorekorder von einem kalten in einen warmen Raum gebracht wurde, sollte man mindestens zwei Stunden lang warten, damit das Gerät nicht mit beschlagener Kopftrommel betrieben wird.

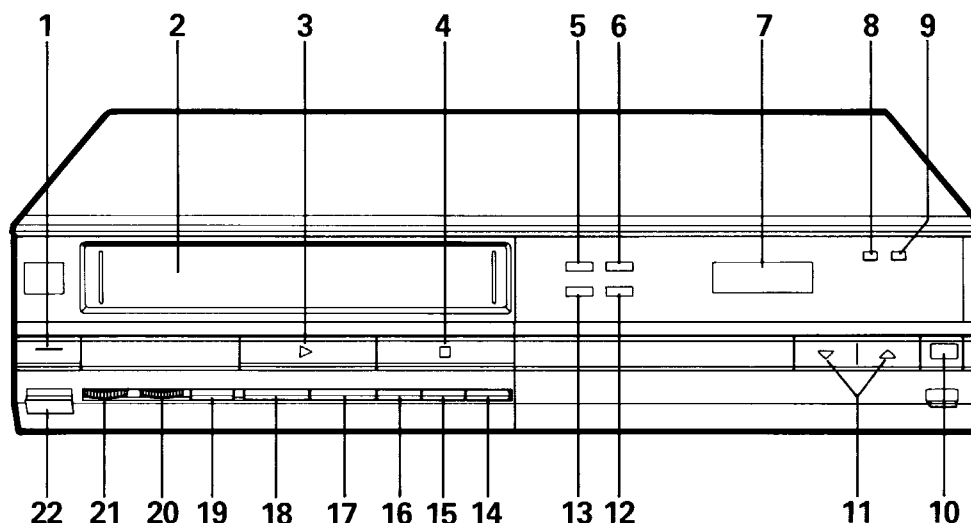
Reinigung

- Vorsichtig reinigen. Wenn man das Gehäuse mit Benzin, Alkohol, Verdünner oder anderen flüchtigen Lösungsmitteln, bzw. einem chemisch behandeltem Tuch abwischt, kann die Oberfläche beschädigt werden oder die Beschichtung abgehen.

Verpackung

- Es empfiehlt sich, die Originalverpackung für einen späteren Transport oder für die Lagerung des Geräts aufzubewahren.

CONTROLS AND FUNCTIONS



1. TIMER SWITCH

Press after programming the TIMER for automatic TIMER recording. See page 10 for TIMER programming.

The TIMER LED indicator will flash on and off:

- When no cassette is in place.
- If the safety tab on the cassette is broken.

2. CASSETTE COMPARTMENT

3. PLAY BUTTON

Press to play recorded material in the forward direction. (The PLAY button will light when the VTR is in the PLAY or VISUAL SEARCH mode.)

4. STOP BUTTON

Press to stop the tape. The STOP button must be pressed to end the RECORD or PLAY mode.

5. TAPE-IN INDICATOR

Lights when a cassette is in the compartment.

6. ALARM INDICATOR

Indicates that a zone violation alarm has been sensed. The ALARM indicator will flash on/off after an alarm has been received and recorded.

7. DIGITAL HOURS/COUNTER DISPLAY

Indicates either the relative position of recorded material on the tape or the selected tape speed mode. The VTR offers nine tape speed modes, plus a ONE SHOT mode. In the HOURS (tape speed) display, the REC/PLAY HOURS button is used to select the desired tape speed. During an alarm, the DIGITAL DISPLAY will show the programmed ALARM record speed appended with an "A". In the 12 hours lock mode, letter "L" appears before the displayed recording speed.

8. HOURS/COUNTER BUTTON

Press to select the display of either the tape speed (HOURS) or the digital count of tape location (COUNTER).

9. COUNTER RESET BUTTON

Press to clear the digital counter to "0000" when the counter is displayed.

10. RECORD BUTTON

Press to start recording. (The RECORD button will light when the VTR is in the RECORD mode.)

11. REC/PLAY HOURS BUTTON

- △ (INCREASE): Press to increase hours to the next higher value when in the HOURS (tape speed) display mode.
- ▽ (DECREASE): Press to decrease hours to the next lower value. Tape speed will be indicated as part of the monitor display. It can also be displayed on the front panel by placing the HOUR/COUNTER button in the Hours mode.

12. LOCK INDICATOR

Lights when the VTR is in the security lock mode. See page 12 for detail.

13. REV (REVERSE) INDICATOR

Indicates that the VTR is in the REVERSE PLAY mode.

14. PAUSE/STILL BUTTON

Press to momentarily stop tape motion when in the play mode. The PAUSE/STILL function allows close inspection of individual scenes. (The PAUSE/STILL LED will light when the VTR is in the PAUSE/STILL mode.) See the description STILL FIELD/PAUSE playback on page 13.

15. F.ADV (FIELD ADVANCE) BUTTON

Press to advance the tape one field when in the STILL FIELD Playback mode.

16. REV. PLAY BUTTON

Press to play recorded material at the 03 or 72 speed in the reverse direction during the PLAY mode.

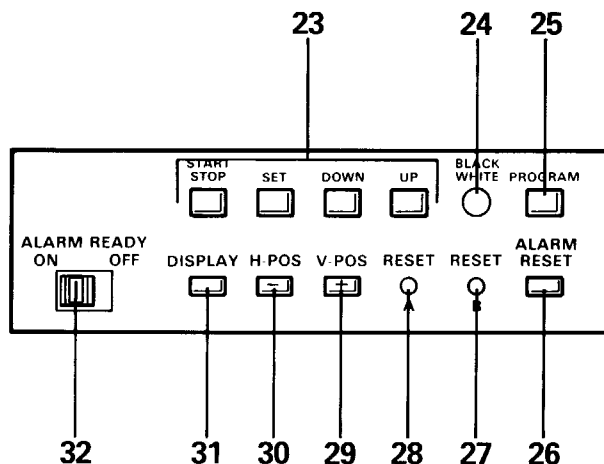
17. FAST FORWARD/VISUAL SEARCH BUTTON

Press to activate fast forward. Press this button during playback and a forward playback picture at high speed can be seen.

SPECIFICATIONS

Video Head Configuration:	3 Heads
Recording:	Rotary Two-Head Helical Scan Azimuth Recording
Tape Speed:	23.39 mm/sec. (03 mode)
Tape Width:	12.7 mm
Operation Temperature:	5°C to 40°C
Video:	PAL colour (system I) & CCIR monochrome signals (625 lines)
Recording Time:	448 hours (when E180 cassette is used and the tape speed set to 480 mode)
Video Input:	1 Vp-p 75 ohm Unbalanced
Video Output:	1 Vp-p 75 ohm Unbalanced
S/N Ratio (Video):	43 dB (03 mode)
S/N Ratio (Audio):	40 dB (03 mode)
Horizontal Resolution:	Colour: 240 lines (03 mode) B&W: 300 lines (03 mode)
Audio Input:	—7.8 dBm 100 Kohm
Audio Output:	—7.8 dBm 600 ohm
Audio Frequency Range:	200 Hz to 8 kHz (03 mode)
Power:	(TLC1600X) AC 220V, 50 Hz (TLC1600UK) AC 240V, 50 Hz
Power Consumption:	33W (including timer)
Cabinet Size:	435 mm(W) x 95 mm(H) x 324 mm(D)
Weight:	7 kg

* Design and specifications are subject to change without notice.



[BEHIND THE DOOR]

18. REWIND/VISUAL SEARCH BUTTON

Press to start rewind.

Press this button during playback and a reverse playback picture at high speed can be seen.

19. COLOUR/B&W SELECT SWITCH

Set this switch appropriately during recording and playback. See page 13 for detail.

20. SLOW TRACKING CONTROL

Adjust to optimize the picture quality during SLOW PLAY mode, e.g. speeds over 12 hours.

21. TRACKING CONTROL

Adjust to optimize the picture quality during playback of time lapse recordings at the three hour speed.

22. EJECT BUTTON

Press to remove the cassette. The EJECT button will not operate when in the RECORD mode.

23. PROGRAMMING CONTROL BUTTONS

See pages 10 and 11 for operations.

24. BLACK/WHITE ADJUSTMENT CONTROL

Adjust (with a screwdriver) the black and white balance of the TIME/DATE, TIMER and ALARM displays on the monitor.

25. PROGRAMME BUTTON

Press to select one of the three programmable functions (TIME/DATE, TIMER, ALARM).

26. ALARM RESET BUTTON

Press to clear all ALARM time/date and POWER LOSS information.

27. RESET B BUTTON

28. RESET A BUTTON

Press these buttons at the same time to clear all (microprocessor) functions.

RESET B: Press to reset if an incorrect function occurs (e.g. tape does not stop if the STOP button is pressed). To release these pushbutton switches, use a plastic screwdriver of up to 2 mm in diameter.

29. V-POS (VERTICAL POSITION) BUTTON

Press repeatedly to control the vertical position of the programmable display on the monitor.

30. H-POS (HORIZONTAL POSITION) BUTTON

Press repeatedly to control the horizontal position of the programmable display on the monitor.

31. DISPLAY BUTTON

Press to display or to eliminate the TIME/DATE, TIMER or ALARM display.

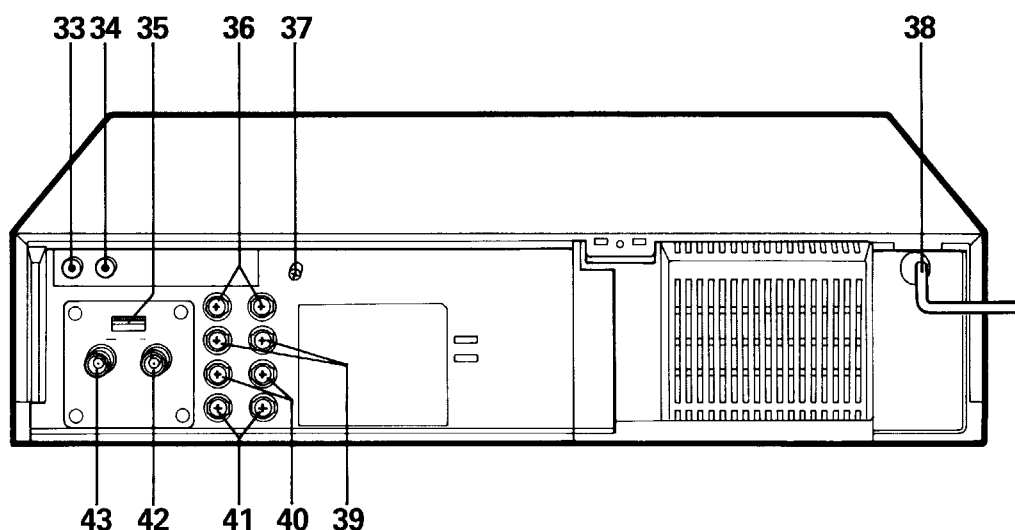
32. ALARM/READY SWITCH

ON: The ALARM recording starts from the STOP or RECORD mode if an alarm is sensed.

OFF: In order for alarm inputs to be recorded, the recorder must be in the RECORD mode. If the unit is in the STOP mode, the alarm will not be recorded.

PROBLEM GUIDE

If you are having this kind of trouble:	Check these things:
■ No power (No indicators ON)	□ Check to see if unit is plugged in. (Power at supply outlet?)
■ Recorder fails to respond to user command/ operation	□ Perform MASTER SYSTEM RESET.
■ No monitor picture	□ Carefully check monitor/VTR/camera connectors.
■ Poor picture during monitor viewing (in the RECORD or STOP mode)	□ Check monitor/camera adjustments. □ Play tape several times.
■ Black streaks on picture during 3-HOUR playback	□ Adjust the TRACKING CONTROL (may need to be returned to center position if previously adjusted). TRACKING CONTROL is only active for the 3-HOUR mode. □ Replace cassette. □ Clean video heads.
■ Recording or playback cannot be done	□ Remove cassette and reinsert. □ Check to see if the unit is in the PAUSE mode. □ Check the LOCK indicator on the front panel. If the indicator is lit, press both SET and DOWN button simultaneously to release the security lock.
■ RECORD functions not operable	□ Check for SAFETY TAB of cassette.
■ PLAY function not operable	□ Be sure there is a cassette in the unit.
■ Extreme noise appears on the playback picture	□ Video heads require cleaning.
■ TIME/DATE information not displayed on the MONITOR	□ Press the PROGRAMME button. □ Perform MASTER SYSTEM RESET. (See ⑳, ㉑ on page 5.)
■ TIMER recording was not done	□ TIMER may not have been set properly. □ Check for SAFETY TAB of cassette. □ Cassette tape length may have been exceeded. □ Multiple ALARMS used up tape.
■ REWIND or FAST FORWARD does not operate	□ Tape may already be rewound or be at the end of tape.
■ Unable to SELECT/CHANGE program feature	□ Check the LOCK indicator on the front panel. If the indicator is lit, press both SET and DOWN buttons simultaneously to release the security lock.
■ Recorder fails to respond to user command/ operation	□ Perform SYSTEM RESET. (See ㉑, ㉒ on page 5.)



33. AUDIO IN

Accepts an audio signal from a camera, external sound equipment, or another VTR (Line: -7.8 dBm, 100 Kohm).

34. AUDIO OUT

Provides an audio output for a monitor or another VTR (-7.8 dBm, 600 ohm, unbalanced).

35. HEAD HOURS

Shows total elapsed hours of video recording and playback.

36. ALARM IN

For Alarm In contact closure connection.

37. VERTICAL SYNC. ADJUSTMENT CONTROL

Reduces the vertical jitter in the STILL/PAUSE mode.

38. MAINS LEAD

39. ALARM OUT

The VTR supplies a $+12V$, 120 mA max. output to these terminals whenever the recorder is in the ALARM mode. This output can be used to drive an external remote LED, relay, etc.

40. ONE SHOT IN

With the VTR in the 00 tape speed mode, a contact closure input signals the VTR to record 6 fields at a rate of 1.7 fields per second.

41. 12H LOCK IN

A contact closure input signals the VTR to record at the twelve hour speed. During this recording, if a further contact closure is received by the Alarm Input or if any button is pushed on the front panel, the unit will not respond to these commands.

42. VIDEO OUT

For monitor connection.

43. VIDEO IN

For camera connection.

Note: This recorder has a rechargeable battery to maintain display functions and recording mode in the event of power loss. When the recorder is received, the unit must be connected to power source for 48 hours to assure the battery has been adequately charged.

TAPE REVIEWING

This VTR allows two reviewing operations, Playback (includes Playback in the STILL FIELD/PAUSE mode) and VISUAL SEARCH.

PLAYBACK

1. Rewind the tape to the desired beginning point. (Press the REWIND button, and observe the digital count of tape location on the HOURS/COUNTER display until the desired number appears.) Press the stop button.
2. Select the desired tape speed mode for playback:
 - Press the HOURS/COUNTER button to select the HOUR display.
 - Press the REC/PLAY HOURS button until the desired tape speed is observed in the HOURS/COUNTER digital display.
3. Press the PLAY button to initiate forward playback. To select reverse playback: press the PLAY button, and then press the REVERSE button.

Note: During reverse play, tape is played back at "03" speed when the HOURS/COUNTER display indicates "03". Tape speed is automatically changed to the "72" mode when the digital display indicates a speed other than the speed "03". Forward playback resumes when the PLAY button is pressed.

Note: The VTR will automatically enter the STOP mode if the reverse play is continued for approx. 5 minutes.

4. Press the STOP button to end the PLAY mode.

Note:

- The tape speed mode can be changed during playback.
- The playback picture may have some noise when playing back a time lapse recording at the 03 mode: adjust the TRACKING control to minimize noise.
- When the tape reaches the end, the unit automatically rewinds to the beginning of the tape and then goes to the STOP mode.
- If the monitor display exhibits distortion in the upper part of the picture, adjust the horizontal hold control on the monitor.
- Adjust the SLOW TRACKING control to minimize noise when playing back at slow speed (more than 24 Hr).

Playback In The STILL FIELD/PAUSE Mode

1. Rewind the tape to the desired beginning point.
2. Press the PLAY button.
3. Press the PAUSE/STILL button to stop the tape.
4. Press the F. ADV button repeatedly to advance fields one at a time.
5. Press the PAUSE/STILL button again to resume normal playback.

Note: An AUTO-PROTECT circuit automatically returns the unit to the STOP mode if the PAUSE/STILL button is not pressed again or if the F.ADV button is not pressed in any five-minute period.

VISUAL SEARCH (High Speed Scan)

Note: The Visual Search function allows the review of recorded material at 3 times the normal three hours rate.

1. Press the PLAY button.
2. Press the SEARCH (F.FWD) button to select the VISUAL SEARCH FORWARD mode, or press the SEARCH (REWIND) button to select the VISUAL SEARCH REVERSE mode.
3. Press the PLAY button again to resume normal playback.

COLOUR/B&W SELECT SWITCH

Use this to switch the picture to be recorded and played back between colour and black-and-white.

When LED is lit, unit is recording in black & white.

Recording

Picture to be input	Position of switch	Picture to be recorded	Picture being viewed
Colour	COLOUR	Colour	Colour
	B & W	Black-and-white	
Black-and-white	COLOUR	Black-and-white	Black-and-white
	B & W	Black-and-white	

Playback

Picture on tape	Position of switch	Picture to be viewed
Colour	COLOUR	Colour
	B & W	Black-and-white
Black-and-white	COLOUR	Black-and-white
	B & W	Black-and-white

Note: When the signal input to this VTR is colour, a colour picture appears on the monitor screen even if the COLOUR/B&W select switch is set to B&W, but the recorded signal will become B&W.

TO SECURE THE VTR

This feature restricts unauthorized use, tampering, or accidental changes in the operation of the VTR. Press the SET and DOWN buttons simultaneously. The VTR will enter the security lock mode and will not accept any button operation. Press the buttons again to release the lock mode.

The security feature does not operate during programming.

INSTALLATION

VIDEO CONNECTIONS (See Figures 1 and 2.)

Use coaxial cables when connecting a camera and a monitor to this VTR.

Note: Long cable runs to distant cameras may cause signal deterioration and/or sync discrepancies. If these problems occur, use video line amplifiers and/or cameras having phase-adjustable line-locked vertical sync.

Video Input

In single camera systems, connect the camera to the Video IN BNC terminal on the VTR rear panel. Use of a 2:1 interlace camera is highly recommended; otherwise, the monitor will show vertical distortion of the TIME/DATE characters.

In multiple camera systems, connect the switcher output to the Video IN BNC terminal. Because multiple camera systems require synchronization, use of cameras having line-locked vertical sync or a genlocked master drive/sync source is highly recommended. The use of vertical interval switchers is also recommended.

Video Output

Connect the monitor to the Video OUT BNC terminal on the rear panel.

ALARM RECORDING CONNECTIONS (See Figures 1 and 2.)

Alarm In: A contact closure input initiates the ALARM sequence. (If the recorder is in the RECORD mode and not already in the ALARM mode sequence.)

The ALARM sequence:

- Turns on front panel ALARM indicator.
- Activates "Alarm Out" (see the next entry).
- Changes recording speed to a pre-programmed recording speed.
- Stores the time and date of the alarm in the ALARM Memory for later recall (ONLY the first and last alarms).

The Alarm In contact closure can be momentary (greater than 100 milliseconds) or continuous. The total number of contact closures (alarms) will appear in the TIME/DATE display on the monitor and on tape. See pages 10 and 11 for important information on the T/D display and the ALARM function.

Note: After the programmed duration of ALARM recording, the ALARM LED indicator will flash on and off to indicate that an alarm has occurred. See page 11 for Alarm Reset procedure.

Alarm Out: The VTR supplies a +12V, 120 mA max. output to these terminals whenever the VTR is in the ALARM mode. This output can be used to drive an external remote LED, relay, etc.

AUDIO CONNECTIONS (See Figure 2.)

Note: Audio recording capabilities are operable at the three, twelve and twenty four hour recording speeds. Audio playback is at the 3 hour speed.

Audio In: Accepts an audio signal from a camera, external sound equipment, or another recorder (Line: -7.8 dBm, 100 Kohm).

Audio Out: Provides an audio output for a monitor or another recorder (-7.8 dBm, 600 ohm, unbalanced).

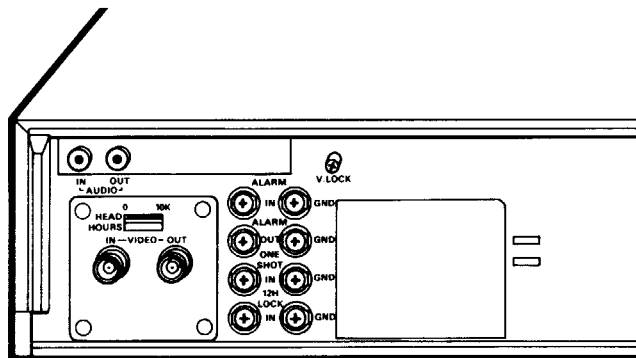


Figure 2 — Rear Panel Connection Detail

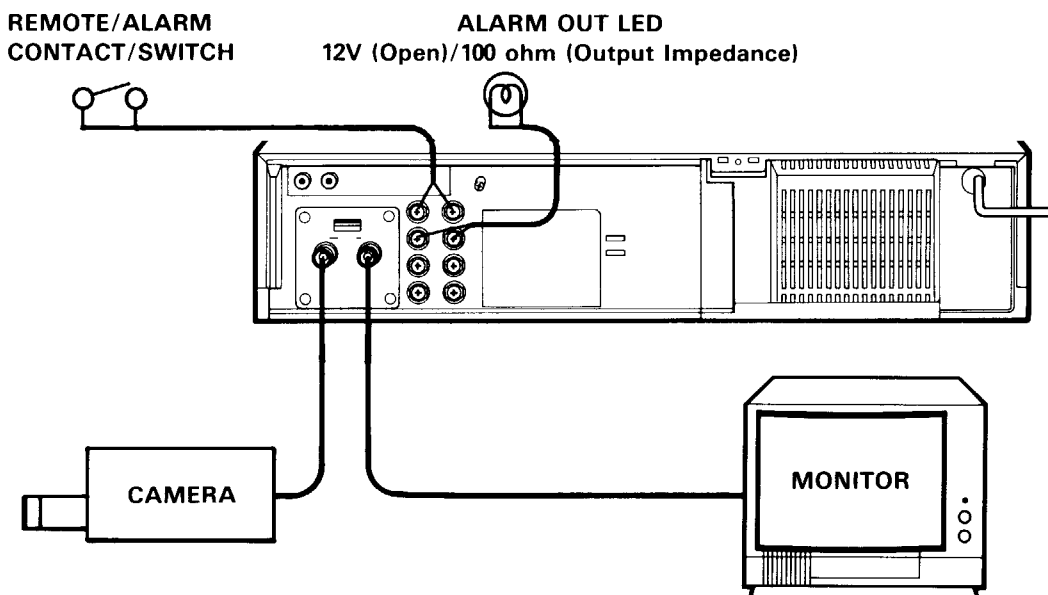


Figure 1 — Video Connections to VTR Rear Panel

OPERATION

TAPE RECORDING

CAUTION: Recording over existing recorded material will completely erase that material. To prevent accidental recording over the end of a previous recording, advance the tape several seconds before beginning the next recording.

1. Insert a video cassette; be sure the cassette safety tab is intact, or the tab slot is covered.
2. Select the desired tape speed mode:
 - Press the HOURS/COUNTER button to select the HOUR display.
 - Press the REC/PLAY HOURS button until the desired tape speed is observed on the HOURS/COUNTER digital display.
3. Press the RECORD button to start recording.
4. Press the STOP button to stop recording.

Note:

- The tape speed mode can be changed during recording.
- AUDIO can be recorded at 03, 12 and 24 tape speed modes.

This VTR offers four special recording functions, ONE SHOT recording, TIMER recording, ALARM recording and 12 HOUR LOCK recording.

ONE SHOT Recording

In the ONE SHOT mode, the contact closure at the input contact ONE SHOT, triggers the recording of 6 fields, the recording of 1.7 fields lasting 1 second.

If the next signal is not received in approx. 5 minutes, the VTR will automatically record 6 fields and repeat them.

To record in this mode: follow the Tape Recording procedure, steps 1 through 3, setting the tape speed mode at 00.

TIMER Recording

This VTR can also record at any speed on TIMER command (turn on/off to record during any 24-hour time period). To programme the TIMER function, refer to page 10.

To operate the TIMER recording function: follow the Tape Recording procedure, steps 1 and 2, and then press the TIMER button to activate the programmed TIMER function.

ALARM Recording

This VTR can automatically record at one of three speeds (03, 12 or 24) on ALARM command.

To programme the ALARM function refer to page 11. The remote/contact switch must be connected to the VTR. See page 7.

To operate the ALARM recording: follow the Tape Recording procedure, step 1, then slide the ALARM READY switch to the ON position.

12-HOUR LOCK Recording

In the 12-HOUR LOCK recording mode, each contact closure at the 12 H LOCK input initiates a single recording at speed "12". The remote/contact switch must be connected to the VTR. See page 7.

When the signal is inputted at the 12 H LOCK IN, VTR continues recording until the contact closure is reopened. (Minimum recording time is 30 seconds.)

Front panel controls and other alarm inputs have no effect during the 12-Hour Recording mode.

TAPE RECYCLE

The "RECYCLE" in the ALARM display decides the mode at the end of tape during recording.

When the "YES" is selected:

- If an alarm has been received during the recording period, the VTR will stop at end of tape and does not start recording even if an alarm is detected.
- If no alarm has been received during the recorded period, the VTR automatically rewinds to the beginning of tape and continues recording.

When the "NO" is selected:

- If alarms have not been received during the recording period, the VTR automatically rewinds to the beginning of tape and then enters to the STOP mode.
- If alarms have been received during the recording period, the unit will stop at end of tape.

MASTER SYSTEM RESET

The MP RESET recessed pushbutton switch is located behind the secondary control door. Press RESET A and RESET B simultaneously to provide a MASTER SYSTEM RESET. Use to reset abnormal displays and operations. The programmable features must be re-programmed.

Recycle	Alarm Ready	Alarms Present on Recorded Tape	Results
YES	OFF	YES	Stops at end of tape. Will not respond to any further alarm inputs.
YES	ON	YES	Stops at end of tape. Will not respond to any further alarm inputs.
YES	OFF	NO	Rewinds tape then continues to record.
YES	ON	NO	Rewinds tape then continues to record.
NO	OFF	YES	Stops at end of tape. Will not respond to any further alarm inputs.
NO	ON	YES	Stops at end of tape. Will not respond to any further alarm inputs.
NO	OFF	NO	Rewinds tape, then stops. Will not respond to alarm inputs.
NO	ON	NO	Rewinds tape. Will not respond to alarm inputs.

CASSETTE TAPES

TAPE LIFE

Slower speed operation in time lapse recording applies stress to video tape. Tapes should be inspected and, if necessary, discarded after the total number of complete tape passes (recording and playback) exceeds the following limits:

Tape Speed	Complete Tape Passes
03, 12, 24, 72	50
120, 168, 240	50
360, 480	10
00	2

INSERTING A CASSETTE (See Figure 3.)

Note: This is the first step in all VTR operations. The VTR will not operate without a cassette in place. To insert a cassette push the cassette through the cassette compartment door until the VTR mechanism pulls it into the compartment. The cassette-in indicator turns on.

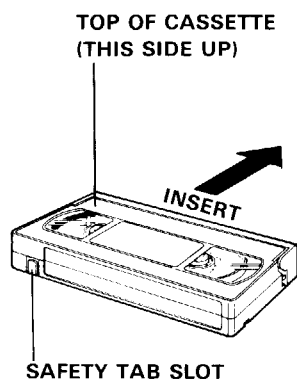


Figure 3 — Tape Insertion Position

REMOVING A CASSETTE

Before removing a cassette: rewind the tape completely. To remove a cassette, press the EJECT button. The cassette will come partially out of the compartment so you can pull it out.

VIDEO CASSETTE SAFETY TAB

To prevent accidental erasure of recorded material, remove the safety tab from the lower left corner of the cassette.

Recording is impossible when the safety tab is removed. See Figure 4.

Note: To record again on a cassette that has its safety tab removed, cover the tab hole with tape. See Figure 4. In the TIMER mode, the TIMER LED indicator will flash on and off if the cassette is inserted without its safety tab slot covered or intact.

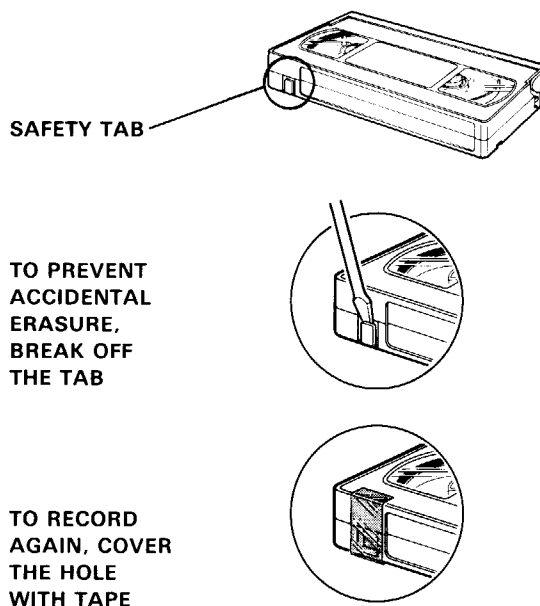


Figure 4 — Video Cassette Safety Tab

TAPE LENGTH

The total recording time at each of the nine tape speeds depends on the length of the tape used.

The table below shows:

1. The total recording time that can be recorded at each tape speed mode on E60, E180 and E240 tapes.
2. The pictures per second at each speed.
3. The speeds at which audio can also be recorded.

Use the table to select the tape length which gives the best compromise between tape cost, total recording time, and elapsed time between pictures.

Tape Speed Mode		00	03	12	24	72	120	168	240	360	480
Total Recording Hours	E60	—	0.9	3.7	7.5	22	37	52	75	112	149
	E180	—	2.8	11	22	67	112	157	224	336	448
	E240	—	3.7	15	30	90	149	209	299	448	597
Pictures/Second	RECORD	2.08	50	12.5	6.25	2.08	1.25	0.89	0.63	0.42	0.31
	PLAYBACK	—	50	6.25	3.13	1.04	0.63	0.45	0.32	0.21	0.16
Audio	RECORD	No	Yes	Yes	Yes	No	No	No	No	No	No
	PLAYBACK	No	Yes	No	No	No	No	No	No	No	No

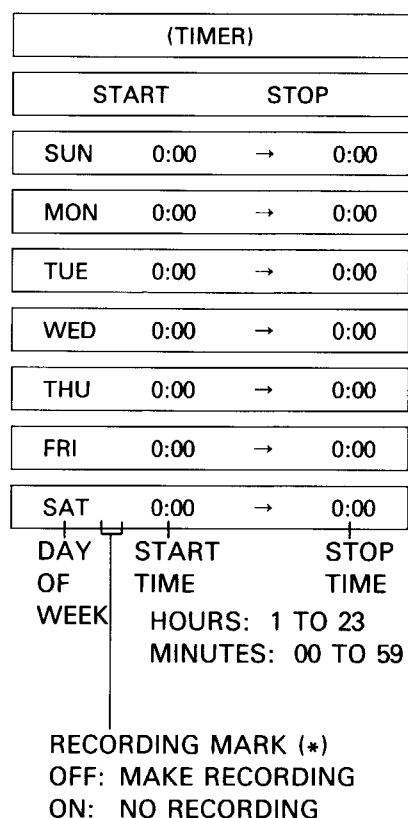


Figure 7 — TIMER Display Format Description

SETTING THE ALARM

The ALARM function allows the user to set the recording duration, speed to be recorded and tape recycle for alarm recordings. When a contact closure occurs at the ALARM IN input, the VTR automatically enters the RECORD mode at the pre-programmed ALARM recording speed. (See Alarm In, page 7 for a complete description of the ALARM sequence.)

The ALARM recording duration can last from 30 seconds to 15 minutes, or until the contact closure is reopened. (Minimum recording time is 30 seconds.)

The ALARM recording speed can be pre-programmed to 03 (real time), 12 or 24.

During the ALARM recording period, two changes will appear in the TIME/DATE display: the pre-programmed recording speed appended with an "A" will replace the non-alarm recording speed, and ALARM stars (*) will replace the colons (:).

Note: The DIGITAL COUNTER will also display the pre-programmed recording speed appended by an "A". When the ALARM recording ends, the unit will return to the original record speed and restore the original record speed values to the T/D and DIGITAL COUNTER displays.

To set the ALARM recording function (See Figure 8.):

1. Press the START button. The Duration, Speed and Recycle positions flash on/off.
2. Press the SET button. The Duration setting flashes on/off.
3. Press the UP or DOWN button until the desired setting appears on the monitor.
4. Press the SET button. The Record Speed setting flashes on/off.
5. Press the UP or DOWN button until the desired setting is observed on the monitor.
6. Press the SET button.
The RECYCLE position flashes on and off.
7. Press the UP or DOWN button to select the mode at the end of tape. See "TAPE RECYCLE" on page 12 for details.
8. Press the STOP button.
The programming for the ALARM has been completed.

Note: To record the time and date press the PROGRAMME button to display them.

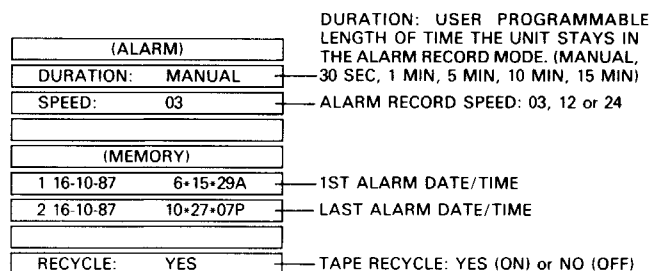


Figure 8 — ALARM Display Format Description

ALARM MEMORY RECALL AND RESET

The VTR signals that an alarm has occurred by flashing the ALARM LED indicator. If a power loss has occurred, a "PL" will appear in the first line of the T/D display. To recall the ALARM display:

1. Press the PROGRAMME button until the ALARM display appears on the monitor.
2. Log the time/date information from the ALARM Memory.

After the alarm time and date have been logged, clear the ALARM memory by pressing the ALARM RESET button. POWER LOSS (PL) indicator is also cleared.

SETUP

On-Screen displays are provided to aid setup of the programmable functions. The three functions on the Programme Menu appear individually on the monitor in this order:

1. TIME/DATE
2. TIMER
3. ALARM

Figure 5 shows the initial function display formats as they would appear on the monitor.

Function Display Formats

TIME/DATE DISPLAY

1-01-87	SUN A00
---------	---------

0 : 00 :	03
----------	----

TIMER DISPLAY

(TIMER)

START	STOP
-------	------

SUN	0:00	→	0:00
-----	------	---	------

MON	0:00	→	0:00
-----	------	---	------

TUE	0:00	→	0:00
-----	------	---	------

WED	0:00	→	0:00
-----	------	---	------

THU	0:00	→	0:00
-----	------	---	------

FRI	0:00	→	0:00
-----	------	---	------

SAT	0:00	→	0:00
-----	------	---	------

ALARM DISPLAY

(ALARM)

DURATION:	MANUAL
-----------	--------

SPEED:	03
--------	----

--

(MEMORY)

1

2

--

RECYCLE:	YES
----------	-----

ESTABLISHING THE PROGRAMME MODE

The TIME/DATE display appears on the monitor screen when the mains lead is first plugged in. Open the concealed control panel.

SELECTING A FUNCTION TO BE PROGRAMMED

The programme menu will always begin with the TIME/DATE function, followed by the TIMER, and then the ALARM functions. Although the programme menu always follows this order, it is possible to skip any of the available functions during the selection process.

To select the desired programme function (and to move from one programme function to the next), press the PROGRAMME button repeatedly until the desired function display format appears on the monitor. See **Figure 5**.

After the desired function has been selected, follow the corresponding procedure to set that function.

Note: Before setting the programme function(s), it may be helpful to review the programming control descriptions on page 5.

SETTING THE PROGRAMME FUNCTION(S)

The first step in each programming procedure is: "Press the START button". The system allows up to five minutes for any function setting to be completed after the START button is pushed. If no change/setting is entered within the five-minute period, the unit will automatically exit the selected programme function and return the TIME/DATE display to the monitor. (If this happens, re-select the desired programme function, and follow the programming procedure for that function.)

The following procedures for setting VTR functions assume that the desired function has already been selected.

Notes:

1. During programming, holding the SET, UP, or DOWN button will move/change the displayed information at a rapid rate.
2. The position of the TIME/DATE display on the monitor can be adjusted by using the H-POS and V-POS button on the concealed panel.
3. The black and white balance of the three displays can be adjusted by using the BLACK/WHITE control on the concealed panel.

Figure 5 — Initial Programme Function Display Formats

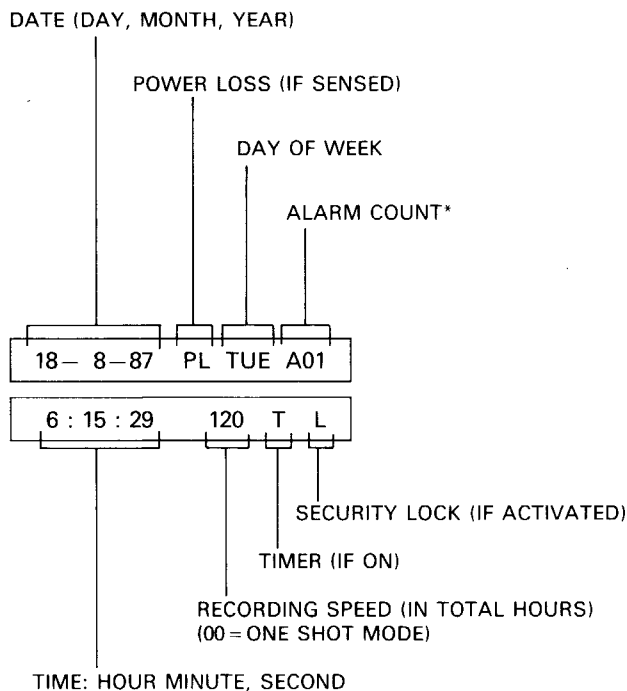
Note: The programmable functions will be initialized to the settings shown above if the AC power has been removed from the VTR for over 72 hours.

SETTING THE TIME AND DATE

To set the TIME/DATE (see **Figure 6**):

1. Press the START button. The Date, Day of the Week and Time flash on/off.
2. Press the SET button. The Day flashes on/off.
3. Press the UP or DOWN button until the desired number appears on the monitor.
4. Press the SET button. The Month flashes on/off.
5. Press the UP or DOWN button until the desired number appears on the monitor.
6. Press the SET button. The Year flashes on/off.
7. Press the UP or DOWN button until the desired number appears on the monitor.
8. Press the SET button. The Day of Week flashes on/off.
9. Press the UP or DOWN button until the desired Day of Week appears on the monitor.
10. Press the SET button. The Hour flashes on/off.
11. Press the UP or DOWN button until the desired number appears on the monitor.
12. Press the SET button. The Minutes flash on/off.
13. Press the UP or DOWN button until the desired number appears on the monitor.
14. Press the STOP button. The seconds are reset to 00. The TIME/DATE has been set.

Note: To record time and date on the tape, display them on the monitor screen. If they are not displayed on the monitor, they cannot be recorded on the tape.



* The ALARM Count Number records alarms from 0 to 99 and then resets to 0 and continues counting. The ALARM Memory stores the times and dates of the first and last alarms.

Figure 6 — TIME/DATE Display Format Description

SETTING THE TIMER

To set the 24 Hour On/Off TIMER function (see **Figure 7**):

1. Press the START button. The Day of the Week and Start/Stop Times will flash on/off.
2. Press the SET button. The SUN and Start/Stop Times flash on/off.
3. Press the UP or DOWN button until the desired day of week flashes on/off.
4. Press the SET button. The day of week flashes on/off.
5. Press the UP or DOWN button once. The asterisk mark (*) appears and the day of week remains flashing on/off. The asterisk mark disappears again by pressing the UP or DOWN button once more.
Note: The asterisk mark (*) shows whether the TIMER function is on or off at that day. If the mark is not present, the TIMER will operate on that day.
6. Press the SET button. The Start Hours flash on/off.
7. Press the UP or DOWN button until the desired number appears on the monitor.
8. Press the SET button. The Start Minutes flash on/off.
9. Press the UP or DOWN button until the desired number appears on the monitor.
10. Press the SET button. The Stop Hours flash on/off.
11. Repeat steps 7 through 9 to set the Stop Hours and Minutes.
12. Press the SET button after setting the Stop minutes. The Day of week and Start/Stop Times of next lower line flash on/off.
13. Repeat steps 3 through 12 to set the TIMER for other days, if desired.
14. Press the STOP button when the TIMER has been set.

Notes:

1. Programming the TIMER function does not activate it. See TIMER recording, page 12.
2. To record the time and date press the PROGRAMME button to display them.
3. The asterisk mark (*) is important. If the mark is present, the recording will not occur on that day even if the On/Off TIMER has been set.
4. The TIMER starts recording one minute before the START time will be reached and stops one minute after the STOP time will be reached.
5. When the preset START time is later than the STOP time, the recording will be made on the following day.
6. When the START time and STOP time are the same, a recording will not be made.