

APPENDIX A

Automatic Time-Lapse Video Monitoring
System

Users Manual

AUTOMATIC TIME-LAPSE VIDEO MONITORING SYSTEM

USERS MANUAL

INTRODUCTION

Source surveillance of visible emissions is a useful enforcement tool in any pollution control program. The information gathered from time-lapse video surveillance allows a control agency to document and better understand the dynamics of source emissions. The Automated Time-Lapse Video Monitoring System can be programmed to begin and end recording at user specified times and record time-lapse images of a user specified view on video cassette for user selected time-lapse intervals. Site specific system settings and recording protocols are documented in the *Time-Lapse Video Monitoring Field Procedures Notebook*.

This manual summarizes routine maintenance procedures. It is intended to supplement detailed operating instructions found in the *Time-Lapse Video Monitoring Field Procedures Notebook*, and associated manufacturers instruction manuals. All routine maintenance and servicing activity should be recorded on the *TIME LAPSE VIDEO MONITORING SITE VISIT STATUS/ASSESSMENT SHEET* provided with each completed tape cassette.

SYSTEM HARDWARE

The system hardware for this installation is shown on page 3 of this user's manual.

FORMS AND SUPPLIES

The following items are necessary for efficient operation of the time-lapse camera system. **Store them in a location accessible to all system operators.** Always keep this manual, Status/Assessment Sheets, and tape cassette labels in the video recording assembly enclosure.

- W Time-Lapse Video Monitoring Field Procedures Notebook
- W Automatic Time-Lapse Video Monitoring System Users Manual
- W Video Camera Operating Instructions

- W Panasonic VCR Operating Instructions
- W Panasonic Color Monitor Operating Instructions
- W S-VHS Video Tape Cassette(s)
- W Time-Lapse Video Monitoring Site Visit Status/Assessment Sheets
- W Tape Cassette Labels
- W Padded Mailing Envelopes
- W Optical Cleaning Supplies
- W Tools

TAPE STORAGE

To ensure proper tape storage, keep all tapes in a environmentally controlled location (e.g. cool, dry). Do not store film in a freezer or vehicle at any time.

ROUTINE MAINTENANCE

A Status/Assessment Sheet must accompany each tape cassette. Document each site visit and the servicing maintenance performed in the appropriate section of the assessment sheet. Complete the following steps during tape loading, system maintenance, and tape removal. Some time-lapse video systems may consist of more than one surveillance camera/recorder. If more than one surveillance system is present, it will be necessary to repeat the following steps (1-8) for each system. Any routine maintenance procedures specific to a multi-surveillance system site are denoted in SMALL CAPITAL LETTERS.

1. **System Condition** - Inspect the camera assembly, video recording assembly, and cables for any physical damage or abnormality. If damage is found, call the ARS photographic data coordinator for instructions and note it on the *Status/Assessment Sheet*.
2. **Clean Camera Assembly** - Clean the camera assembly enclosure view port with the supplied wipes and cleaning solution. The inside of the enclosure view port should be inspected and cleaned only if necessary.
To clean the inside surface of the view port, open the housing door by

turning the knob on top and lifting the lid. Loosen the 2 phillips head screws holding the camera mount and slide the camera back from the view port. Clean the view port. Also inspect the camera lens and clean if necessary.

Inspect the camera enclosure air filter for any accumulation of dust or debris. If necessary, remove and clean with water. Shake out excess water (or dry) and replace.

- 3. Verify Camera Assembly Alignment -**
Verify or realign the camera sled mount to the marks provided. Tighten all associated screws. Close the housing lid and properly secure the assembly.

Verify that the camera assembly adjustable head is aligned properly by inspecting the alignment marks outside of the enclosure. If alignment is not correct, loosen the mounting bolts and realign. Tighten the bolts snugly when alignment is complete.

Note any alignment changes on the Status/Assessment Sheet. Any major alignment changes should also be noted in the Site Specifications section of the Time-Lapse Video Monitoring Field Procedures Notebook.

4. **Inspect Video Recording Assembly Components** - inspect the interior of the video recording assembly enclosure for any physical damage or abnormality. Observe current recorder settings and status of any associated environmental video recording components (heater/air conditioner, power supply). If anything suspicious is found, call the ARS video projects coordinator for instructions and note it on the "Comments/Action Taken" section of the Status/Assessment Sheet.

5. **Video Operation And Review** - If a viewing canopy is part of the equipment for this site, use it to shield the system from sunlight. Continue to use the viewing canopy while performing the following video operation and review procedures.

Turn on the video recording assembly monitor. SELECT THE CORRECT SURVEILLANCE SYSTEM INPUT, BY PRESSING THE VIDEO 1/2/3 BUTTON ON THE MONITOR PANEL.

Stop recorder by pressing the **REC MODE** button until the recording mode in the display is blank (i.e. no **INT TIMER** displayed). Press the **STOP** button. The recording symbol (**REC**) and forward arrow (**>**) should no longer be displayed. Do not eject the tape.

Document the current date, time, and tape counter number in the appropriate section of the Status/Assessment Sheet.

Press **REV PLAY** to rewind a small amount of tape.

Play the tape (press **PLAY**) to verify that the correct date and time, field of view, and focus have been recorded.

Press **STOP** at the point where recording ends.

Document any inaccuracies found in the "Comments/Action Taken" section of the Status/Assessment Sheet. If necessary, contact the ARS video projects coordinator for further instructions.

6. **Tape Load/Positioning**

If continuing on the same tape - Return the tape to the original position. Verify proper

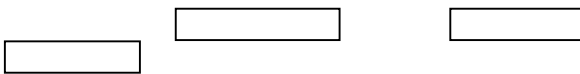
positioning using the block counter on the recorder display and observing the recorded image on the monitor. Use **PAUSE/STILL** and the **REV ADV FWD ADV** buttons to move tape in one frame increments if necessary. Proceed to step 7.

If making a tape change - After the inspection steps discussed above, remove the tape from the recorder by pressing the **EJECT** button. Complete the tape cassette label and Status/Assessment Sheet: denote date, time, and tape counter number when the tape was removed. Initial all documentation.

Fill out a new tape cassette label with the date, time and tape counter number (should be 0000 for a new tape) and place it on the spine of the new tape to be inserted. Load the tape. Press the rewind button and the counter reset button.

7. **Camera Alignment** - Turn on the video recording assembly monitor if it is not already on. Use the monitor viewing canopy as needed. Confirm that the camera vista is aligned properly for the desired field of view. (A reference alignment print has been provided in the Site Specifications section of the Time-Lapse Video Monitoring Field Procedures Notebook). Be aware of both vertical and horizontal framing. If alignment is not correct, loosen the mounting bolts on the camera assembly adjustable head and realign (see step 3).

8. **Reset Recorder in Internal Timer Mode** - After the tape has been positioned properly, restart the tape by pressing the **REC MODE** switch until **INT TIMER** is seen on the recorder display. If the recorder is reset during a scheduled recording period, **REC** will also appear in the display. Turn the power off to the monitor. Return the monitor viewing canopy to its original storage location and close the video recording assembly enclosure.



9. **Additional Procedures For Multi-Surveillance Systems** - Some time-lapse video systems may consist of more than one surveillance camera/recorder. If more than one surveillance system is present, it will be necessary to repeat steps (1-8) for each system. Any routine maintenance procedures specific to a multi-surveillance system site have been denoted in SMALL CAPITAL LETTERS.
10. **Secure System** - Carefully verify that the camera assembly, video recording assembly, and any other access to the time-lapse video system is secure and locked. If the system is located in a shared facility, verify that all time-lapse video monitoring supplies are securely stored in the Video Recording Assembly enclosure or under close supervision.

Air Resource Specialists, Inc.

1901 Sharp Point Drive, Suite E

Fort Collins, CO 80525

(970) 484-7941

Attention: Video Projects Coordinator

Contact us if any questions or
problems arise