



For Double Bass, Color Video, and Electronic Sound

Storyboard Score

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## The Score

This score contains both live and tape parts. A separate performance part with limited cues is provided for the double bassist. The full score is intended to aid in the study of the tape part.

Accidentals:

$\flat$	$b$	$d$	$4$	$\sharp$	$\#$	$\#\#$
-3/4	-1/2	-1/4	1/1	+1/4	+1/2	+3/4

Special equipment needed by the performer: one plexiglas rod, 1/2 inch in diameter, 19 inches long.

It is advisable to microphone and amplify the double bass to achieve good balance with the tape part. A limited amount of electronic reverberation, especially in small halls, may also be desirable.

The Video Double Bass and Emulator portions of the score display the contents of the 8-track tape, without any representation of the digital delay employed in the audio mix. Those sections in which digital delay is used are marked "DDL."

All Emulator sounds (except a single sound in Scene 30) were generated from digital samples of the double bass performed by Robert Black.

For a complete technical presentation guide, see Instructions for Video and Audio Setup.

## Magnetic Music Publishing Co.

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### INSTRUCTIONS FOR VIDEO AND AUDIO SETUP OF CONCERT VIDEOS BY REYNOLD WEIDENAAR (LIVE PERFORMANCE VERSIONS)

#### LARGE VIDEO SCREEN AND PERFORMER

If the video screen is part of a large-screen projection system, place it on center stage, close to the edge (unless it is very large--more than 8 feet). Set it high enough so that the audience will have good sight lines. The performer stands, not sits, right next to the screen and faces the audience, not the video. The performer does not need to watch the video; all performance cues are audio, and are shown in the score. The performer does not give the impression of performing "from the video" or "to the video," as in a dialogue or private relationship that ignores the audience. The two elements are presented as equals to the audience. A small music stand light will not distract from the video, and is a good way of highlighting the performer. If desired, the performer who wishes to watch the video may also mount a small mirror on the music stand. If the video is sufficiently bright--rarely the case with projection systems--the performer may also be quarter- or half-lit with an overhead spotlight. In this case, the performer stands a few feet away from the screen, so the light does not wash out the screen image.

#### SMALL VIDEO SCREENS AND PERFORMER

Multiple video monitors (19" to 25") may be used in any convenient arrangement and amount so that every person in the audience can easily see a screen. Place a monitor on stage next to the performer, provided there will be audience members close enough to the stage for good viewing. The remaining monitors may be placed among the audience, on stands high enough for good sightlines (about 5 to 6 feet above the floor). Place some monitors towards the rear of the hall, as necessary, so that no one is more than 15 feet from a screen. Audience members must be able to scrutinize the image closely, and this is not possible if the monitors are too small or too far away. Do not place the monitors close together (10 feet or less), which can be visually distracting. If an extra small monitor is available, the performer may wish to place it on the stage floor to view while playing. A mirror reflecting a monitor to the performer can also be hung at the rear of the hall.

#### THE ROOM OR HALL

A proscenium stage is ideal. The room should be dark, or near dark. There should be no lights in the audience area which produce reflections on the screens.

Reduce ambient noise where possible by closing doors, windows, etc. Many soft passages in the music can be obscured by outside noise.

#### EQUIPMENT

1. Video cassette recorder (VCR), either 3/4" U-matic or VHS (HiFi sound or normal sound). This will be used to play back the video cassette image and stereo sound.
  - a. The VCR should be intended for U.S.A. standard video (NTSC 525-line system).
  - b. The VCR should have separate left and right audio line outputs.
2. Color monitors or projection system.
  - a. Use a television monitor that accepts a direct "video in" signal from the "video out" of a VCR. A television receiver with "RF" connections will have noticeably lower quality at best.
  - b. Generally, up to six monitors can be driven by one VCR.
  - c. The projection system should be capable of bright, clear reproduction. Beware of older, cheaper units that are impossible to adjust over the entire screen.

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3. (Optional) SMPTE Test Cassette for Receiver/Monitor Setup. This is very useful for adjustment, and will verify the working condition of your VCR and monitors or projector. No test instruments are required. A commentator describes each scene and what it is intended to check. An instruction sheet is included. Order no. V3-RMS for 3/4", no. V2-RMS-V for VHS. Available from the Society of Motion Picture and Television Engineers, 595 W. Hartsdale Ave., White Plains, N.Y. 10607, tel. (914) 761-1100.
4. Stereo power amplifier, capable of filling your hall with clean, loud sound (at least 40-50 watts for a 200-seat hall).
5. Two large speakers, capable of good bass reproduction (down to at least 70-80 Hz). Place these on stands or tables, not on the floor, at the far left and right corners of the stage. Angle them towards the center rear of the hall.

#### CONNECTIONS

1. VIDEO. Connect "video out" on the VCR to "video in" or "ext in" of the monitor or projector. To send to an additional monitor, connect the "monitor out" or "video out" or "ext out" of the first monitor to the "video in" or "ext in" of the second monitor. Keep going until picture degradation is apparent, usually after the sixth monitor. It helps if cables are no longer than necessary: long cable runs will reduce the number of monitors that can be used. This is called "monitor looping." If the monitors have termination switches, set the switch on the last monitor to "on" or "75Ω"; set the others to "off." Other connection methods, such as 8-pin, may be needed on older equipment.
2. AUDIO. Connect the "audio left out" and "audio right out" on the VCR to the "left line (or aux) in" and "right line in" on your stereo power amplifier. Be sure there are no "mono" controls in operation on the VCR or the amp. Connect the power amp outputs to the two large speakers, using heavy speaker wire (AWG no. 18, 16, or 14). The speakers in the television monitors or projector are not used.

#### ADJUSTMENTS

1. VIDEO
  - a. Turn off the automatic gain control (AGC) and automatic color control (AUTO) on the monitors.
  - b. Adjust the color bars using the "hue," "tint," or "chroma" control. The fourth bar from the right is magenta. When it is set as streaky as possible, the remaining bars will usually be correct, left-to-right:  
 WHITE    YELLOW    CYAN(BLUE)    GREEN    MAGENTA    RED    BLUE    BLACK
  - c. Monitor contrast, brightness, and color intensity should all be reduced, since the picture is not competing with ambient room light. The gray chips in the lower right section of color bars should appear black. Observe actual program images and adjust for full, rich blacks in the picture.
2. AUDIO
  - a. The 0 dB VU tone may be used for tuning: A=440 Hz.
  - b. Check stereo delegation and speaker balance with the L,R,L,R tones and white noise bursts that follow the 440 Hz tone. The white noise should sound evenly matched in loudness and timbre from both speakers. The sequence begins with the left channel.
  - c. A slight treble attenuation will help reduce tape hiss (not necessary for VHS HiFi).
  - d. Bass will need to be boosted if the speakers are not large.
  - e. The speaker levels should blend evenly with the live sound of the performer. In a large hall, the performer may need to be amplified.

#### ADDITIONAL AUDIO EQUIPMENT

The use of a digital delay (DDL) or reverb device is necessary for some pieces and optional with others. It can help produce a warmer, more resonant sound in a small, dry room. The connections are:

1. Attach a microphone pickup to the instrument. If a reed instrument, the microphone should contact the air column as high as possible for best results. A Barcus-Berry pickup fitted into a hole bored into the mouthpiece is recommended.
2. Plug the microphone into the "mic in" of the DDL. Set the DDL for 116 ms. Vary the setting if necessary, depending on the size and sound of the room.

3. Connect the "line out" of the DDL to a "line in" of an audio mixer. Set the input for center (L+R) channel delegation.
4. This changes the VCR-power amp connection mentioned earlier. The audio outputs of the VCR should instead be connected to two other inputs of the audio mixer. Be sure to set these inputs for left and right channel delegations, respectively.
5. The "left line out" and "right line out" of the audio mixer are connected to the "left line in" and "right line in" of the power amp.

If a pitch transposer is required--either as part of the score, or because the performer has transcribed the work for another instrument requiring an extended range--connect the microphone pickup to the "mic in" of the pitch transposer, whose "line out" should be connected to the "line in" of the DDL (if the latter is used, otherwise to the mixer). The MXR Model 129 is recommended because it has 4 preset transpositions that are selectable throughout the piece by merely touching buttons. It is easily operated by the performer.

If facilities are available, it may be advantageous to effect a more elaborate setup, connecting the microphone directly to a mixer, and running a cue send bus carrying the signal to the pitch transposer/DDL. The pitch transposer output could then be split, connected both to the mixer and to the DDL, which is also connected to the mixer. This will afford a very flexible mix of direct and processed sounds.

If a separate operator is required for the sound processing equipment, use a shaded light, keeping it as low as possible.

#### REHEARSING; CARE OF VIDEO CASSETTE

3/4" video tape is subject to considerable abrasion from the normal operation of spinning heads. This results in dropouts, in which one or more video lines disappear, to be replaced by a black or white line. The problem also exists with VHS tape, but is not as severe. At best, a video cassette has a life of anywhere from 10 to 35 plays, depending on the VCR, before excessive dropouts render the tape unusable. A greater difficulty is posed by the stress and tension of the threading and unthreading operations as the tape mode is changed from "play" to "stop," "fast forward," or "rewind." Tape stretches and creases created by rough-handling VCR's cause permanent, irreparable damage to the tape. Therefore, start-and-stop, back-and-forth rehearsing should be done with an audio cassette of the soundtrack, not with the video cassette. The performer should of course become very familiar with the video. A knowledge of the images is important to the interpretation of the piece. However, to prolong the life of the video cassette, it should be played without stopping, from about 15 seconds before the program to 15 seconds after it ends.

Do not leave the video cassette tape "tail out" (not rewound), as is commonly done to store audio tapes. The recorded flux level is too low to cause print-through, and the tape is subjected to much greater tension when played than when rewound.

#### PERFORMANCE

Cue the tape to start in the black section after the color bars and audio tones. Do not subject the audience to the test pattern and tones.

If there is an operator at the power amplifier, it can be effective to turn up the treble very slowly, during 30-40 seconds, to a normal setting after the piece has started. It may be necessary to counterride the volume. Most people will not notice the slow intrusion of tape hiss; the restored brightness will enable the amplified sounds to blend better with the live instrument.

#### SUPPLEMENT: VIDEO "RF" CONNECTIONS USING TV RECEIVERS

If television broadcast receivers must be used instead of monitors, you will need the following:

1. A VCR equipped with an "RF" modulator or converter. This will be tuned to a particular channel, usually either 3 or 4.
2. If there is more than one receiver, a 2-, 4-, or 6-way RF splitter.
3. A 75 $\Omega$ -to-300 $\Omega$  transformer connected to the antenna input of each receiver.

Connect the "RF out" or "VHF out" of the VCR to the splitter if you are using one.

Connect a splitter out to the transformer on each receiver. Tune the receiver channels to the channel of the RF converter on the VCR.

It is also usually possible for a VCR to simultaneously feed a monitor from the "video out" and a receiver from the "RF out." There may be a distracting difference in the quality of the two images, however.

THE THUNDERING SCREAM OF THE SERAPHIM'S DELIGHT (1987) 14:29  
Reynold Weidenaar

### Descriptive Notes

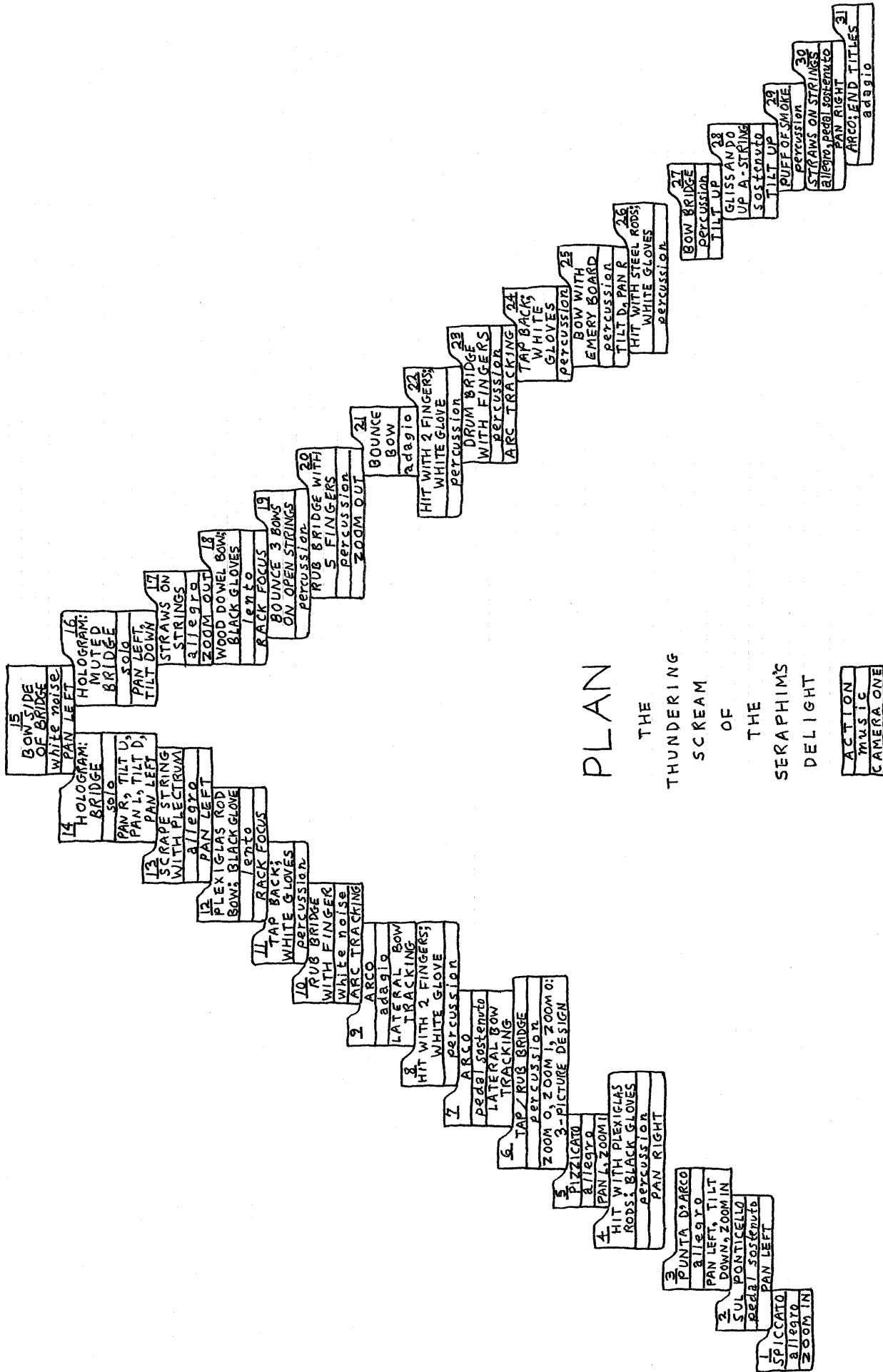
The double bass is revealed on video as a metaphoric micro-cosm of spirited human effort. Close-ups of performance phrases and gestures extract the dance-like suppleness and elegant fluidity, the elusive spontaneity, and the sometimes exuberant drama or wrenching struggle that support seemingly small and minor movements.

Using the extended character of the hands, a luminescent dialogue ensues as the various interactive audio and video performances respond and recoil. The work explores energetic physicality and a spectrum of inner and outer states, from subdued tension to ecstatic whimsy. Thus is disclosed the magically angelic presence and commanding strength of the remarkable instrument upon which these musical dramas unfold.

### Notes on Production and Design

This work is formed as a suite of 31 brief sonic/scenic events; the shortest is 6 seconds and the longest is 64 seconds. The musical and visual materials of each scene were conceived together. Thus, as the basic musical ideas were being composed, certain primary visual elements also were determined: camera angle, framing, lighting, camera movement, and visual composition. After these underlying sights and sounds were synchronously recorded, the piece was formed by incorporating complementary image-processing designs, mimetic performance footage, and digital musical material (derived from the sampled double bass), as well as a live-performance part for the double bass. The piece is arranged in a nearly-symmetrical arch form, with two hologram scenes and double bass solos on either side of the center.





PLAN  
 THE  
 THUNDERING  
 SCREAM  
 OF  
 THE  
 SERAPHIMS  
 DELIGHT

ACTION  
 MUSIC  
 CAMERA ONE

THE THUNDERING SCREAM OF THE SERAPHIM'S DELIGHT (1987) 14:29  
Reynold Weidenaar

Credits and Acknowledgements

Reynold Weidenaar: Production, Direction, Music, Editing, Image Processing, Computer Animation, Holography, Digital Audio Processing.

With Robert Black.

Marty Fegy: Camera.

Hank Rudolph, Reynold Weidenaar: Additional Camera.

John Gaeta: Hologram Camera.

Reynold Weidenaar, Marty Fegy, Alex Noyes: Audio.

Marty Fegy, Hank Rudolph: Lighting.

Robert Black, Reynold Weidenaar: Musicians.

Hank Rudolph: Image Processing Technician.

David Jones, Paul Davis: Video Computer Design.

Ronald R. Erickson: Holography Technician.

Alex Noyes: Emulator/Macintosh Technician.

Rick Feist: CMX Editor.

Tom Fritze: Audio (Composite Version).

Special thanks to the John Simon Guggenheim Memorial Foundation.

Video and audio produced through the Artist-in-Residence Program of Real Art Ways, Hartford, Conn.

Analog and digital image processing produced through the Artist-in-Residence Program of the Experimental Television Center, Owego, N.Y., which is supported in part by the New York State Council on the Arts and the National Endowment for the Arts.

Holograms produced through the Artist-in-Residence Program of the Museum of Holography, New York, N.Y.

Digital audio processing produced through the Artist-in-Residence Program of Harvestworks Inc., New York, N.Y.

Audio post-production at the Creative Sound Studio, Tisch School of the Arts, New York University, New York, N.Y.

Video post-production at Matrix Video/Standby, through the Raindance Foundation, New York, N.Y., and the On-Line Program of Media Alliance, New York, N.Y.

Additional audio production and post-production (Composite Version) at Sync Sound, Inc., through the On-Line Program of Media Alliance, New York, N.Y.

Commissioned by and dedicated to Robert Black.

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THE THUNDERING SCREAM OF THE SERAPHIM'S DELIGHT

Production Chronology: Dates of Completion

1. Still test shots; audio test recordings: September 26, 1985.
2. Composition and design of storyboard/shooting musical score: December 7, 1985.
3. Live-action video test shots: December 11, 1985.
4. Live-action video shots and stereo audio recordings (double system): January 9, 1986.
5. Edit 41 video shots for image processing: January 17, 1986.
6. Image processing with additional live-action video shots: January 27, 1986.
7. Double bass sound sampling on Emulator computer synthesizer: March 1, 1986.
8. Production of two holograms: June 10, 1986.
9. Hologram 16mm film shots: December 12, 1986.
10. Composition of musical score: December 21, 1986.
11. Overdub stereo audio recordings with Emulator recordings: December 22, 1986.
12. Film-to-video transfer of hologram shots: December 30, 1986.
13. Video edit list: January 2, 1987.
14. Audio mix and edit: January 5, 1987.
15. Video shot list: January 9, 1987.
16. Conform audio mix to video camera-original sync audio: January 10, 1987.
17. Video Ampex Digital Optics three-picture design; Digital Video Effects hologram solarization; assemble PCM digital audio master: January 11, 1987.
18. Video master edit: January 22, 1987.
19. Musical score revisions: April 13, 1987.
20. Ink copy of musical score: May 29, 1987.
21. Composite Version soundtrack recording and mix: June 29, 1987.

Systems and Instrumentation

1. Original Video and Audio Footage (Real Art Ways, Hartford, CT):
  - JVC KY-1900CH Color Camera with HZ2100U 10-100mm Lens
  - Sony VO5800 3/4" VCR
  - Crown PZM30GBP Microphones
  - Otari 8-track Audio Recorder
2. Image Processing (Experimental Television Center, Owego, NY):
  - Video Signal Sources:
    - 2 Sony DXC1640 Color Cameras with J6X11 11-70mm Lenses
    - 3 RCA BW003 B&W Cameras
    - 3/4" VCR Playback with Genlock
  - Audio Signal Sources:
    - Wahrenbrock PZM Microphones on Double Bass performed by Robert Black
    - VCR Playback (Hartford Soundtrack)
  - Digital Video Signal Processing Equipment:
    - Cromemco Z-2 8-bit Computer with 7 Channels of A-to-D and 2 CAT-100 Frame Buffers, STROBE64 and NEWGRAB software
    - Jones Digital Frame Buffer, NEWGRAB software
  - Analog Audio and Video Signal Processing Equipment:
    - Korg MS-20 Synthesizer with External Signal Processor (AC Audio-to-Frequency, -Amplitude, and -Trigger Voltages)
    - Waveform Synthesizer with Vertical Sync and Horizontal Sync
    - Oscillators, VCAs, Mixers
    - Video Line
    - 2 Jones Keyers
    - Color Kill
    - Panasonic WJ-4600C Special Effects Generator
    - Paik/Abe Colorizer
    - 2 Jones Voltage-Controlled Colorizer/Keyer/Mixers
    - Jones 8-Channel Sequencer with Binary Control Module
3. Holograms (Museum of Holography, New York, NY):
  - 2 Single-Beam Reflection Holograms on 8" x 10" Silver Halide Glass Plates, of Double Bass Bridge Hot-Glued to Brass Rods
  - :15 Exposures, Pyrochrome Processing
4. Digital Audio Synthesis (Public Access Synthesizer Studio, Harvestworks Inc., New York, NY):
  - Emulator II Digital Synthesizer (Sound Samples of Double Bass Performed by Robert Black)
  - SOUND DESIGNER 1.1 Software
  - Macintosh 512 Computer with 10-megabyte hard disk drive
5. Hologram Film Footage
  - Arriflex SB3 16mm Camera with 25mm Lens
  - Kinoptic 100mm Macro Lens
  - Eastman 7292 and 7293 Film Stock
6. Audio Mix and Edit (Creative Sound Studio, Tisch School of the Arts, New York University, New York, NY):
  - Soundcraft 2400 Mixing Console
  - Lexicon 95 Prime Time II Digital Delay
  - Nagra IV-SL Stereo Recorder

7. Audio to Video Conformation, Edit, and Master (Matrix Video, New York, NY):
  - Sony PCM 1610 Digital Recorder
8. Video Edit (Matrix Video, New York, NY):
  - Ampex Digital Optics
  - Digital Video Effects
  - CMX Computer Editor
  - 1" Master Tape
9. Composite Version Audio Master (Sync Sound, Inc., New York, NY):
  - Neumann KM-84 Microphones
  - Ampex ATR-100 Stereo Recorder

SCENE ①



# THE THUNDERING SCREAM OF THE SERAPHIM'S DELIGHT (1987)

FOR ROBERT BLACK

FOR DOUBLE BASS, COLOR VIDEO,  
AND ELECTRONIC SOUND.

REYNOLD WEIDENAAR

♩ = 110

①

DOUBLE BASS: *spiccato, sul tasto*

VIDEO DOUBLE BASS: *sul tasto*

EMULATOR (COMPUTER SYNTHESIZER): *LOOP: sul tasto*

REPEATS CONTINUOUSLY

D.B. (Double Bass): *f*, *mf*, *mp*

V. D.B. (Video Double Bass)

E. (Emulator): *f*, *LOOP: s.t.*

D.B. (Double Bass): *pp*

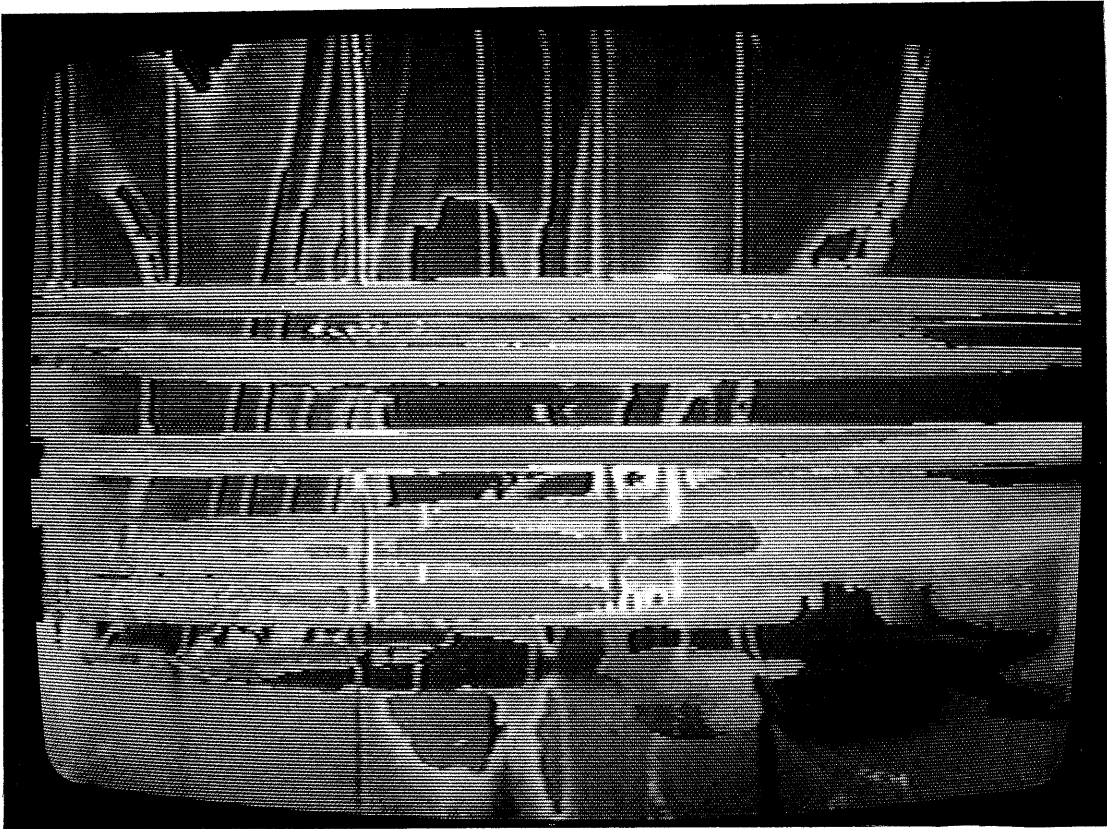
V. D.B. (Video Double Bass)

E. (Emulator): *mp*, *pp*

attacca

TIME :11:2

SCENE ②





2

♩ = 60

HARMONICS SOUND AS WRITTEN. D<sup>♯</sup>

D.B. mp A<sup>♯</sup> A<sup>7</sup> G<sup>7</sup>

V. D.B. sul ponticello pp p mp sim. mf f ff

E. :00 :04 :08 :12 :16 :20 :24

NON-SPECIFIC PITCH LOOP: TAP BRIDGE WITH PLECTRUM mp

LOOP: RUB BRIDGE WITH FINGER NAIL mf

LOOP: RUB BRIDGE WITH FINGER f ff

♩ = 72

D.B. sul pont. f ff mp

V. D.B. sul pont. f ff mp n

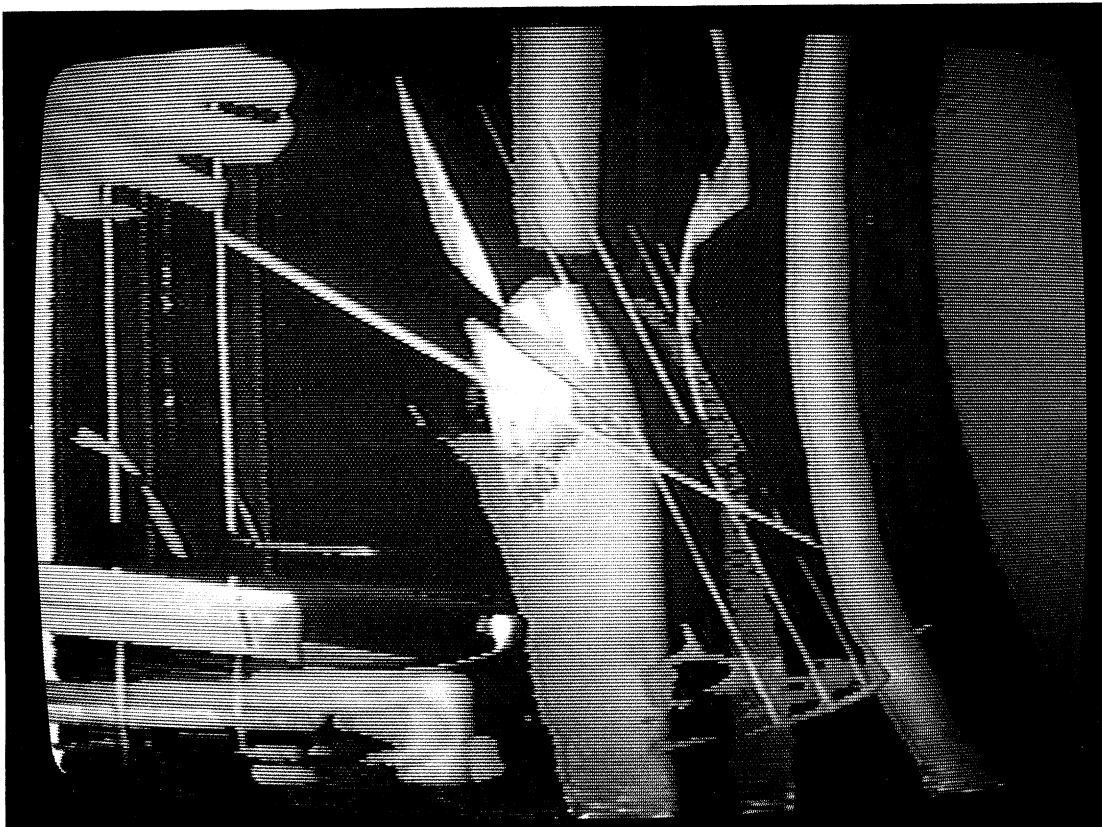
E. :24 :28 :32 :36 :40 :43

attacca

gliss. 3/4

:43.2

SCENE ③



③

♩ = 109

D.B. *mf*

V. D.B. *light, clipped, punta d'arco*  
*mp* *mf* *f* *mp*

E. *DDL: LOCALIZATION*  
*mf* *f* *n*

③

G8 *attacca*

D.B. *p.*  
*mp* *D7*

V. D.B. *p*

E. *n* *LOOP:* *mp*

:06.0