

# MEMORANDUM

April 9, 1997

TO: David Marwell  
Jeremy Gunn

FROM: Doug Horne

SUBJECT: Examination of Zapruder Film Original and Selected Copies at the National Archives

1. This product supercedes my earlier memo this subject dated August 2, 1996. Numerous attachments are provided in the way of context, or amplifying information.
2. On Friday, April 4, 1997, Brian Rosen and I examined the Zapruder film designated as the original by the National Archives (200 ZAP 1; 1 ORSK{P} 8 mm) in the presence of Mr. Alan Lewis, Audiovisual Preservation Expert at NARA. Alan Lewis has seen the film countless times; this was my fourth opportunity (subsequent to 8/02/96; 9/11/96; and the period 3/12-14/97). Listed below is a summary of my observations:

-When the frames are viewed in the correct orientation on a light table, the base (or "shiny") side of the film is "up" toward the viewer's eyes, and the emulsion (or "dull") side is "down," on the reverse side from the viewer's eyes.<sup>1</sup>

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<sup>1</sup>At the ARRB Public Hearing on the disposition of the Zapruder film, held April 2, 1997, film expert Moses Weitzman explained that on any camera-original movie film, the base ("shiny") side should be "up" toward the viewer when the frames are oriented correctly on top of a light source. Although not incontrovertible proof that the Zapruder film in the Archives has not been subjected to alteration, this finding (that the base side is "up") is certainly consistent with what one would expect to find on a camera-original film.

-The "home movie" portion of Zapruder's film (consisting of domestic scenes of a woman in blue, a child standing behind a tree, a baby sitting on a green lawn, and a child playing), shot on the "A" side of his reel of double 8 mm film, is *not* present on the reel in the National Archives with the film designated as the original assassination film (200 ZAP 1; 1 ORSK{P} 8 mm).<sup>2</sup> The whereabouts of the "home movie" are presently unknown.

-An affidavit executed by Abraham Zapruder concerning the developing of the original film<sup>3</sup> states that "the end of the processed film and carrier strip, inside the carton, were perforated by Eastman Kodak Company at the time of processing with the following identification number: 0183." Repeated examination has confirmed that this punched number is *not* present on the film designated as the original Zapruder film. Its absence, however, does not appear significant, because careful examination of the two Secret Service copies (onto which this unique number "0183" was photographically printed during the copying process) reveals that the photographically printed number "0183" appears on these copies contiguous with the beginning of the "home movie" (specifically, immediately prior to the "woman in blue" inside a house), not with the assassination sequence; since the "home movie" is not present on the same reel as the original film, one would therefore not expect to find this punched number contiguous with the assassination sequence on the original film.

-A typewritten label, dated May 15, 1973 and affixed to the inside of the film can in which the original film is stored, was photocopied in an enlarged format and is provided here as attachment three.

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<sup>2</sup>The Dealey Plaza (assassination) footage was exposed on the "B" side of Zapruder's reel of film.

<sup>3</sup>The complete set of affidavits (all dated November 22, 1963) prepared by Abraham Zapruder regarding the developing of his original film by Kodak in Dallas, the exposure of three first-generation copies at the Jamieson Film Co. in Dallas, and the subsequent developing of those three copies back at the Dallas Kodak laboratory, are all provided here as attachment one. A letter to C. D. Jackson, publisher of *Life* magazine, prepared by Abraham Zapruder on November 25, 1963, explains the sequence in which the original and copies were developed, and complements the affidavits; it is provided here as attachment two.

-Edge print lettering which reads "Kodachrome II" and "Safety Film," and date code represented by a vertical bar followed by two triangles, appears in the margins of the film.<sup>4</sup>

-Images are present between the sprocket holes in the original film, whereas none of the Zapruder film copies yet examined have any images between the perforations. As previously noted by others, I have also observed that the quality of the images between the sprocket holes is markedly different than the quality of the images in the frames which get projected--the images between the sprocket holes *are* contiguous with the images in each projected frame, but exhibit less vivid color than the projected portion of each image, and appear somewhat "silvery" or washed-out in terms of exposure. Kodak's letter to the ARRB of January 7, 1997 forwarded an enclosed technical report written by Mr. Roland J. Zavada dated December 19, 1996, which expresses the opinion that claw flare, vignetting, and/or development turbidity may account for the differing quality of these intra-sprocket images. If the ARRB chooses to have film tests conducted in Zapruder's camera, a scientific "control" baseline will then exist against which the validity of this expert opinion can then be evaluated by individual researchers.

-During my examination of the original Zapruder film on April 4, 1997, I created a film "map" which diagrams exactly what appears on the reel in the National Archives; this is appended to this memo as attachment five.

-Mr. Alan Lewis of NARA forwarded a memorandum by fax on April 4, 1997 which transmitted to the ARRB a photocopy of a Kodachrome II film instruction sheet which contains information on the film speed, and a daylight exposure table; this is appended to this memo as attachment six.

-Subsequent examination of Secret Service copies 1 and 2 revealed that many frames shot on the "B" side of Zapruder's film, which are present on both Secret Service copies, are missing from the reel of original film in the Archives. Both Secret Service copies 1 and 2 contain about 60 frames of what appears to be a portion of a green chair (possibly shot during a camera test immediately after threading up side "B"), followed by about 117 frames of Dealey

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<sup>4</sup>A date code chart provided by Alan Lewis of NARA, provided here as attachment four, identifies a film with two triangles as having been manufactured in either 1941 or 1961. Since Kodachrome II 8 mm home movie film was first marketed in 1961, the Zapruder film in the National Archives is identified as having been manufactured in 1961.

Plaza bystanders (Marilyn Sitzman, and Charles and Beatrice Hester, near the Pergola), before giving way to the lead motorcycle escort on the assassination portion of the film. On the original Zapruder film in the Archives, the entire "green chair" footage is missing, and only 14.5 frames (of approximately 117 total) of the Dealey Plaza bystander sequence is present immediately prior to the lead motorcycle sequence. Presumably, someone (at some point subsequent to the exposure of the three first-generation copies on November 22, 1963) removed footage that they thought was unimportant from the original film.

3. I have examined various 8 mm copies of the Zapruder film, in August and September 1996, and again in March 1997, and have recorded summary results of these observations on a data chart which is included here as attachment seven to this memo. Noteworthy observations included the following:

-Secret Service copies no. 1 and 2 exhibit characteristics which are consistent with the commonly held belief that they are two of the three first-generation copies created on November 22, 1963; namely:

-When the frames are viewed correctly, the emulsion (or "dull") side is up.<sup>5</sup>

-Secret Service documents written in January, 1964 (attachments ten and eleven), along with Zapruder's letter of November 25, 1963 to C. D. Jackson laying out the terms of his second and final contract with *Life* magazine (attachment twelve), seem to establish that the two Secret Service copies received in November, 1963 were first-generation copies made prior to Zapruder's sale of the film to *Life*.

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<sup>5</sup>On April 2, 1997, film expert Moses Weitzman told me that next-generation copies made in a contact printer should have the opposite-side-up from the original from which they were copied. Thus, he said, if a camera-original film (base "up") is copied in a contact printer, the opposite side should be "up" in the next-generation copies; since the original Zapruder film is base side "up," the fact that the two Secret Service copies are emulsion ("dull") side "up" is consistent with what one would expect in a first-generation copy of the original made in a contact printer. ARRB staff interviews with Mr. Bruce Jamieson and Mr. Frank Sloan (attachments eight and nine) established that the copies made on 11/22/63 at the Jamieson Film Co. were made in a contact printer.

-They both possess the following edge print information: "Kodachrome IIA," "Processed by Kodak Nov 63," and the date code of a vertical bar followed by a dot and a triangle.<sup>6</sup>

-Secret Service copy no. 2, in particular, possesses one of the unique, perforated numbers ("0186") in the processed film and carrier strip called for in a first-generation copy by the affidavits dated 11/22/63. This number is *contiguous with* the image content in the assassination (side "B") portion of the film (i.e., green chair and Dealey Plaza bystanders and lead motorcycle escorts)--see attachments one and two for amplification of this number's significance.

-While Time-Life copy no.1 (or perhaps no. 2) was previously believed to be the third of three first-generation copies, examination of these two films has definitively revealed that neither of these films is a first-generation copy. At the time of this writing, the third of the three first-generation copies of the Zapruder film is unlocated.

-I made film "maps" of Secret Service copies no. 1 and 2, which are included here as attachments thirteen and fourteen.

-The FBI film labeled by the Archives as "JFK.024; 1 MPPSK(P) 8 mm" is not a first-generation copy. It is clearly a photographic print made of Secret Service copy no. 2 early in the life of that film, before that copy was cut in half and reassembled in reverse order. (See attachment seven for amplifying information.)

4. On April 4, 1997, I examined the original notes made by NPIC (National Photographic Interpretation Center) personnel during their examination of a Zapruder film in December, 1963; the original notes, as well as one of two briefing boards (containing blow-ups of individual frames) made by NPIC, are contained in flat # 90A in the JFK Collection at NARA. A photocopy of these original notes is included here as attachment fifteen. It is noted with interest that NPIC shot internegatives (plural) of some version of the Zapruder film, conducted a print test, and made three prints of the film. Who ordered the prints made, to whom they were delivered, and which version of the film (e.g., original, or first-generation copy) was used to make the internegatives, has not yet been ascertained from the documentary record.

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<sup>6</sup>Attachment four reveals that a dot and triangle date code indicates the year 1963.