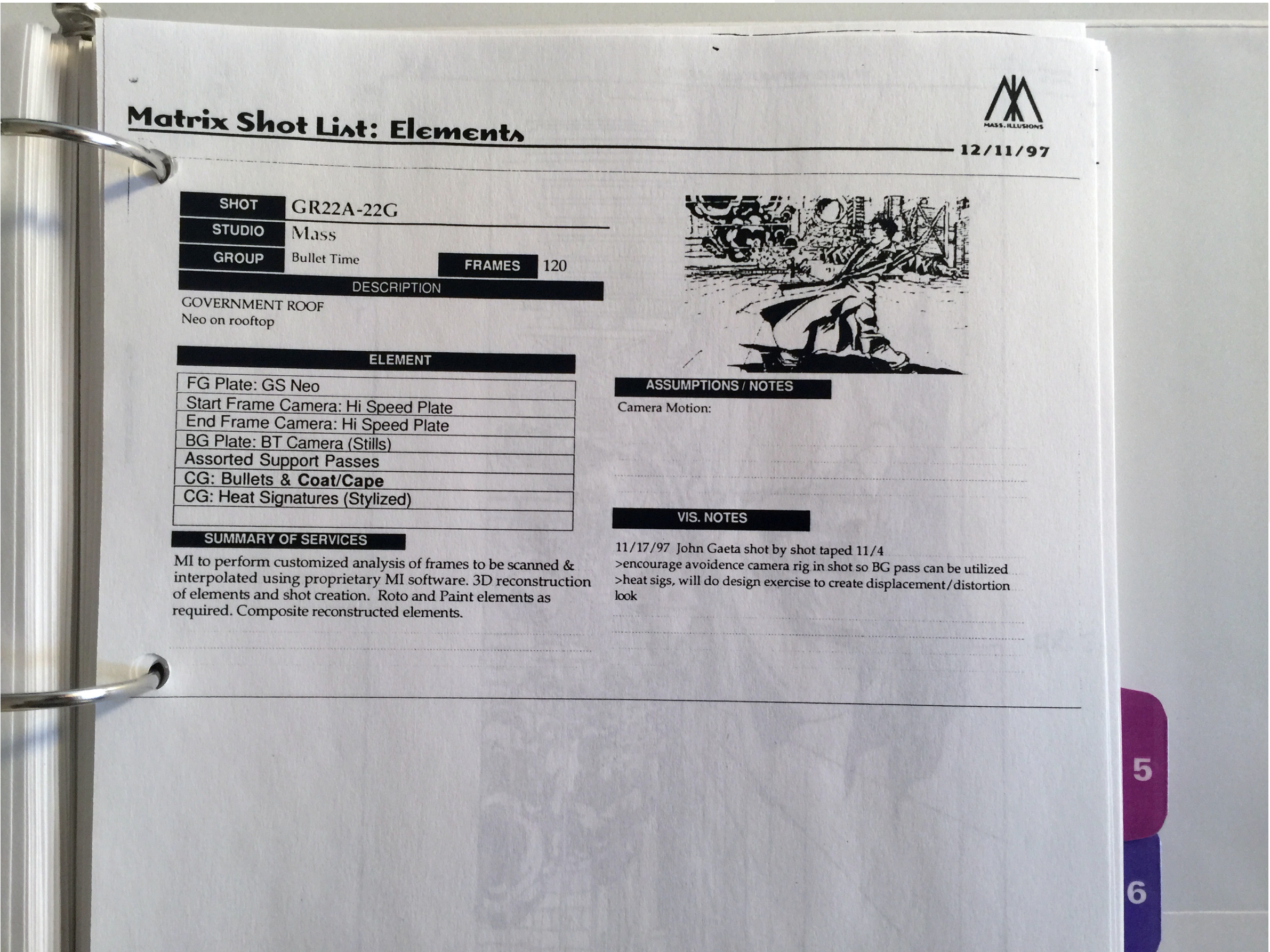


In 2005 Digital Air purchased the original bullet-time rig.



**DRAFT** 1/13/98 7:45 PM

**BULLET TIME CAMERA SYSTEM RESEARCH AND DEVELOPMENT REPORT**

**SUBMITTED BY INNOVATION ARTS**

On December 8, 1997, Innovation Arts was contracted by Mass.Illusions to develop the camera technology and techniques which would make possible the filming of what has become known as the BULLET TIME EFFECT for the Warner Brothers' feature, THE MATRIX.

Herein are the results of that study with descriptions, specifications and drawings, cost estimates and recommendations.

**OVERVIEW**

To film the Bullet Time effect by conventional means would require the use of a motion picture camera in ways which defy the laws of physics. A typical shot would call for the lens and camera to move through space, around or about a live-action subject, at a velocity too high to be possible via dolly move, or other such technique.

Thus, a new way needed to be devised which would accomplish the same result. And, perhaps, in the process to add to our palette of filmmaking possibilities and dramatic content.

Visual time/space manipulation, as is called for in the Bullet Time effect, is currently in the process of development by a number of vendors. For example, there is a sequential still camera array system known as [REDACTED], which is underway by the team at [REDACTED]. On another tack, Dayton Taylor, by employing a contiguous filmstrip with shutter arrangement, is attempting to produce similar results. At present, both systems - while having merit - are too limited (in our considered opinion) for the purposes of this production.

However, both efforts are united in their intent:

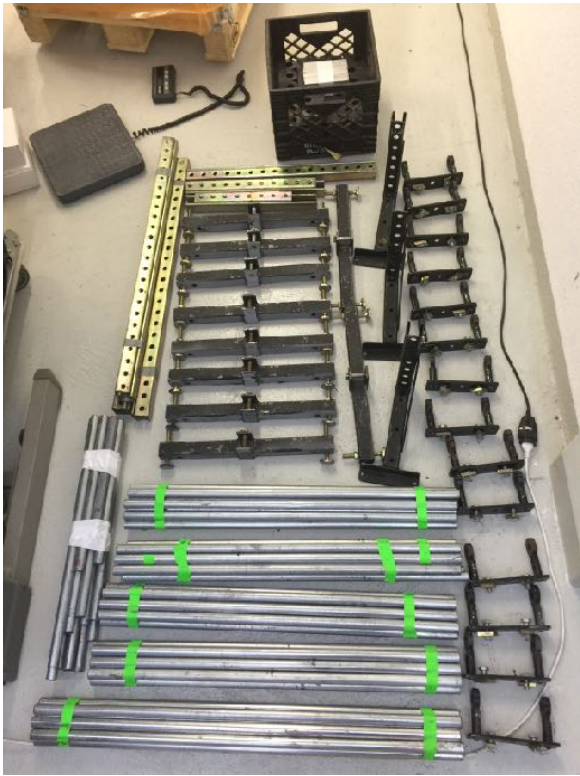
- To mimic the path of a High-Speed Motion Picture Camera traveling around a live action subject at high velocity.

And so must we.

All within the cost and time constraints of this production.



In 2006 we used the rig on Tony Scott's *Déjà Vu*. We then stored it for fourteen years. In 2020 we restored it with digital activation capabilities for exhibition.





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