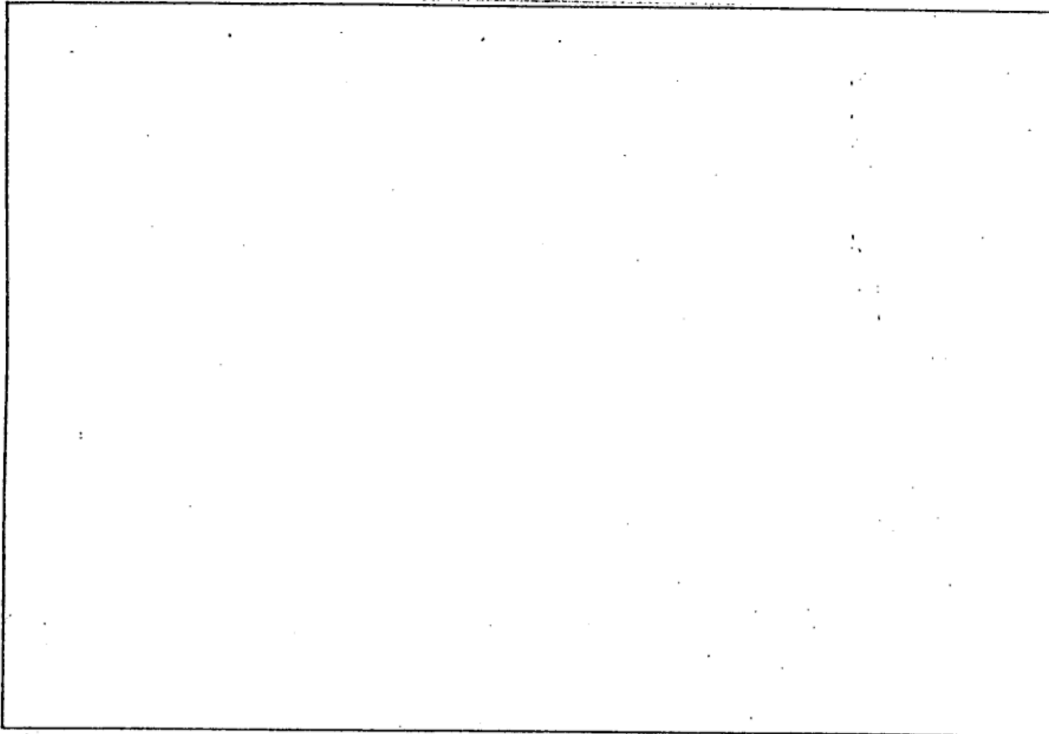


**SINGLE BEAM TRANSMISSION WITH MIRROR MASTER HOLOGRAM
(for 4 by 5 inch Holograms on the EXPERIMENTAL TABLE)**



SKETCH THE SET UP IN THE BOX ABOVE

PARTS LIST

- | | | |
|--------------------------------|-----|--------------------------|
| 1. LASER | | TWO MAGNETIC BASES and |
| 2. SHUTTER | | RIGHT ANGLE CLAMPS |
| 3. SPATIAL FILTER | 6. | 4 by 5" PLATEHOLDER |
| 4. 8 by 10" MIRROR in GOALPOST | | ASSEMBLY |
| CONFIGURATION with TWO | 7. | LITTLE JOKER ASSEMBLY |
| MAGNETIC BASES and RIGHT | 8. | WELL-FIXTURED DIFFUSELY |
| ANGLE CLAMPS | | REFLECTING OBJECT |
| 5. 10 by 12" MIRROR in | 9. | HALF-WAVE PLATE ASSEMBLY |
| GOALPOST CONFIGURATION with | 10. | BAFFLES |

SET UP STEPS

1. Send the Beam from the **LASER** held in its usual position at the end of the **ISOLATION TABLE** to the center of an 8 by 10" **MIRROR** held between two **MAGNETIC BASES** in the **GOALPOST** manner. Check for the **OFFICIAL BEAM HEIGHT** with the **OFFICIAL RULER** at the **MIRROR**.
2. Direct the Beam from **MIRROR (4)** diagonally across the Table to the center of the 10 by 12" **MIRROR (5)** held between two more **MAGNETIC BASES** in the usual **GOALPOST**

manner. Check for the **OFFICIAL BEAM HEIGHT** with the **OFFICIAL RULER** at the last **MIRROR** and tilt **MIRROR (4)** if necessary.

3. Direct the Beam from **MIRROR (5)** across the Table more or less parallel to the Table's edge. Check for the **OFFICIAL BEAM HEIGHT** with the **OFFICIAL RULER** at the edge of the Table and tilt **MIRROR (4)** if necessary.
4. Insert the **SPATIAL FILTER (3)** with a **10X Microscope Objective** after the **SHUTTER (2)**. Center the Spread Beam on a **TARGET CARD** after the **MIRRORS** at the far end of the **TABLE**.

Steps 1-4 are not necessary if the **SINGLE BEAM TRANSMISSION WITH MIRROR MASTER HOLOGRAM SET UP** evolves out of the **SINGLE BEAM REFLECTION HOLOGRAM SET UP**, as there will be a Spread Beam at the Official Height headed for **MIRROR (5)**. To find the proper tilt angle for **MIRROR (5)** follow Step 4a.

- 4a. Trim a piece of Paper to the Official Height. Hold it in front of **MIRROR (5)** to ascertain that the center of the Spread Beam is at this Height. Manipulate **MIRROR (4)** if necessary. Then check that the Spread Beam reflected from **MIRROR (5)** to the opposite end continues along parallel to the Table's top and edge.
5. Mount the **OBJECT** in the bright central portion of the Beam. Object on its **MOUNTING BLOCK** is tipped toward the light in order to be top lit. Notice the orientation of the **OBJECT** in its **HOLDER!** Although the **REFERENCE BEAM** approaches from the side, this will be the **TOP** of the final **HOLOGRAM**, and therefore the **OBJECT'S TOP** should be pointing toward the **REFERENCE BEAM!**
6. The **PLATEHOLDER** on **MAGNETIC BASE ASSEMBLY** loaded with a **4 by 5" PIECE OF GLASS** should be positioned as close as possible to the **OBJECT** without the **GLASS** casting a shadow onto the **OBJECT**. It should be tilted so that the **PLATEHOLDER** is parallel to the **OBJECT'S** Plane. Composition of the scene can be viewed by looking through the **PLATEHOLDER**.
7. With the **GNOMON** in the **PLATEHOLDER**, aim a **REFERENCE BEAM** at it with one of the **LITTLE JOKERS** planted so that it is as far back as the plane of the center of the **OBJECT** and off to its "top" side close enough to reflect some prime beam but not so close to be directly visible from the viewpoint of the **PLATEHOLDER**. Rotate and tilt the **LITTLE JOKER** with the knobs on the **Daedal 5700** until the **REFERENCE ANGLE** is 45 degrees as

indicated by the **GNOMON**.

8. Block **STRAY LIGHT**, especially any that might come from behind the **PLATEHOLDER** that could act as a second **REFERENCE BEAM**!
9. Insert the **HALF-WAVE PLATE ASSEMBLY (9)** after the **LASER (1)** but before the **SHUTTER (2)**. Align the **POLARIZATION VECTOR** for minimum reflection and maximum penetration per the Handout, **ALIGNING POLARIZATION VECTORS**. Now is the time to check the tune of the Pinhole of the **SPATIAL FILTER (3)**.
10. Check the **INCIDENT FLUX** at the **PLATEHOLDER** with the Probe of the **S & M MODEL A-3 PHOTOMETER** placed where the center of the **HOLOGRAPHIC PLATE** will be. See the **HANDOUT, S & M MODEL A-3 PHOTOMETER**, for the **EXPOSURE TABLE**.
11. Expose, process and evaluate the hologram.