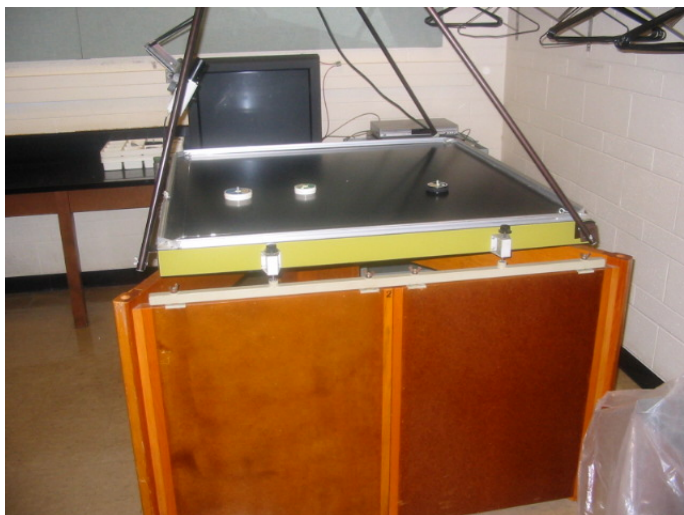


THE AIR TABLE

REFERENCES

Most Introductory Physics texts (e.g. A. Halliday and R. Resnick, *Physics*; M.M. Sternheim and J.W. Kane. *General Physics*.)

INTRODUCTION



The air table provides a surface where pucks can move almost without friction. Hence, it can be used to study (almost) any sort of two-dimensional phenomenon where friction is an unwanted effect, a simple example being the elastic collision of two pucks.

THE EXPERIMENT

Many of the one dimensional experiments described in the Air Track manual (available at the **Resource Centre**) can be adopted to the air table and done in two dimensions. Look at this manual for ideas and then discuss specific plans with your demonstrator.

Equipment suggested:

Air table, pucks (magnetic or regular), in various sizes and masses, pulleys, velcro collars, the camera, recorder and monitor.

The set-up will record positions at given times, which one can use to deduce velocities and accelerations. Together with ancillary measurements (mass, size, etc.), if needed, this should be enough to test many principles of Mechanics. N.B. this equipment does not give satisfactory answers for experiments in circular motion.

A diagram of the cabling is provided in Figure 1. Most of the set-up is already pre-cabled.

The preliminary steps are:

1. Wire the AC cord and The recorder-to-monitor cable.
2. Mount the camera on its support.
3. Turn on (in any order): the Monitor, the Camera Adapter, the Video Timer and the recorder.
4. Turn on the Video Timer mode "*Super*".
5. Adjust the zoom of the camera to your convenience and focus on the air table.
6. Optionally: Set the date and time on the Video Timer.

Note: Please do not attempt to change any of the settings on the recorder.

To record something:

1. Set the hand-held Timer on "*Stopwatch*" and press "*Start*".
2. Press "*Record*" on the recorder.

To stop the recording:

1. Press "*Stop*" on the recorder.
2. Press "*Stop*" on the Timer.

Optionally, you can reset the Timer.

To play back something:

1. Press "*Play*" on the recorder.
2. On the remote press "*Pause*" to freeze the picture
3. Press "*Skip*" to advance the frame one by one.

The positions of the pucks and times can be indicated on transparent Mylar sheets and analyzed at will afterwards. A grid and an angle protractor, as well as plenty of felt-pen markers are available.

PLEASE DO NOT PUT ANY MARKS ON THE MONITOR SCREEN

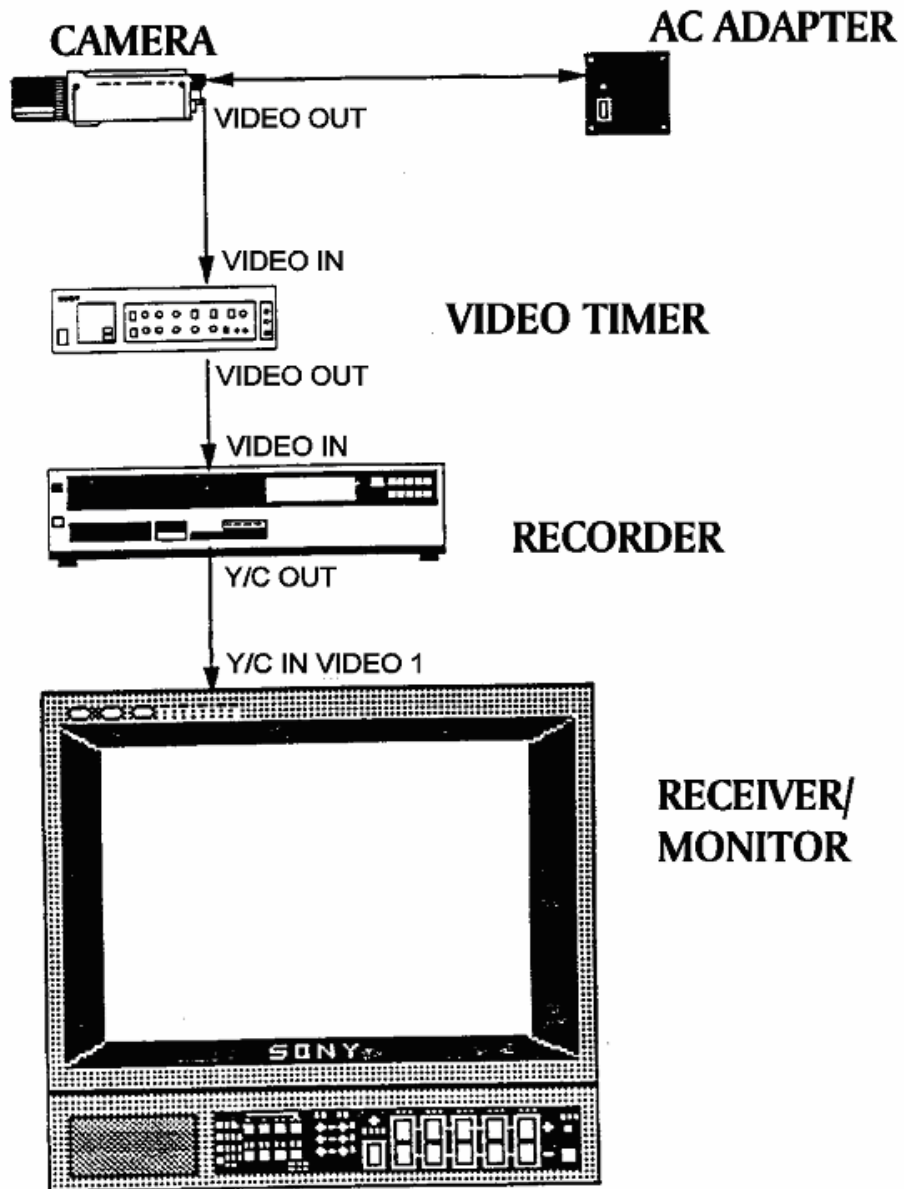


Figure 1.

(efm - 72, jbv - 90, cp - 93)