(i) The screen and it's mounting frame work

(ii) The substrate carriage and the associated mechanical feed system which may be manually or automatically controlled,

(iii) The squeegee mechanism and pressurizing system,

(iv) The adjustment mechanism for precise positioning of the screen relative to the substrate.

The screen mounting is provided with micrometer screens to facilitate X, Y and rotational adjustment of the screen relative to the substrate and to place it parallel to the substrate. The clearance between the screen and the substrate can also be adjusted. The snap off distance critically determines the amount of the ink delivered through the screen and the precision of the printed pattern.

The substrate holder comprises a plate form with a recess in which the substrate is placed and held by a vacuum. The substrate holder is mounted on a moving carriage which travels repeatedly from a loading position to the print position.

To obtain uniformity in transfer of paste through the screen. It is necessary to ensure that the printing edge of the squeegee remains parallel to the screen throughout the printing stroke. Another important consideration

is that the squeegee blade should be made of a material inert to the commonly used solvents. An attack angle of 45^0 is often recommended, although, under certain conditions, a blunt edged, relatively soft blade gives better results.

(c) Firing Procedures :

The pattern immediately after screen printing consists of a series of discrete ink spots each corresponding to a mesh opening in the screen. The substrates are then allowed to stand at ambient temperature for a few minutes to enable the ink/paste to coalesce sufficiently to form a coherent, level film. The time required for coalescence is determined by the nature of the paste composition. Temperatures of 70 to 150^0C are commonly employed for periods ranging from 15 to 30 minutes, to dry the printed film and remove the more volatile ink components, close control of the drying step is necessary for good results. Improper can lead to imperfection such as cracks and crazing. Small ovens or infrared lamps are often used. Although the best results are obtained utilizing a low-temperature tunnel kiln with resistance or radiant heating and belt feed. Adequate ventilation during the drying operation is a necessary condition.

The large amount of organic material left in the composite after drying is removed at relatively low

temperature ($\sim$ 400^0C) by carbonizing and oxidizing. Thus, an oxidizing atmosphere is required.

In the second stage of the firing process the print is taken to the firing temperature, which may be upto 1000^0C. The glass component of the ink melts to form a vitreous medium which consolidates the printed layer and promotes adhesion to the substrate.