NOTES ON INK FOR PAGE-TYPE 2101AA AND 2101AB "DATASPEED * " RO (RECEIVE ONLY) PRINTER

This section contains engineering and ordering information for a specially formulated ink having controlled electrical and physical properties for a high speed printing system using the medium speed DATASPEED printer. Since this ink is developed for exclusive use for the DATASPEED printer at operating temperatures between 147 to 160 degrees Fahrenheit, it is unsuitable for use in conventional applications. It is recommended in cases where inks are available from a commercial supplier with whose particular product a customer may be unfamiliar with, a test trial of the special ink under actual service conditions be performed so that a conclusive test be experienced before a large lot of ink be purchased.

Ink may be purchased for use in the DATASPEED printer from Teletype Corporation, 5555 Touhy Avenue, Skokie, Illinois (postal zip 60076), under part number TP301168. The 12-ounce bottle is equipped with a cap and pouring spout.

1. FUNCTION

When installed into the DATASPEED printer, the ink is under an applied stress of an electric field gradient and is drawn into a filament. In the filament the ink is fragmented into charged droplets that are continuously accelerated toward the paper under the direction of the printer vertical and horizontal deflection electrodes to form a character on the paper.

2. COLOR DESCRIPTION

The violet color (bluish-purple) of the ink is essentially a methyl violet tannate pigment which is colloidally dispersed in a vehicle base of petroleum and diester oils. Typically, 98 percent of the pigment particles are 0.6 micron (millionth part of a meter) or less, and 82 percent are 0.3 micron or less.

The violet ink color on paper copy is intense and stable under flourescent lighting, but it will show noticeable fading after moderate exposure to intense daylight.

3. INK INGREDIENTS

The following ingredients and weight in the ink formulization is as follows; 35 percent of Dioctyl Sebacate — DI (2 — Ethylhexyl) Sebacate, abbreviated as DOS — clear; 35.92 percent of Dibutyl Sebacate, abbreviated as DBS — clear; 29 percent of Methyl Violet Toner, abbreviated as MVT; and 0.08 percent of Dioctyl Sodium Sulfosuccinate — DI (2 — Ethylhexyl) Sodium Sulfosuccinate.

4. INK PARAMETERS

The parameters critical to proper ink performance are resistivity, viscosity, surface tension, and density. The relative effect of each, independently considered, is as follows.

Resistivity, high — copy is sharper but lighter
Resistivity, low — copy is fuzzier but darker

Viscosity, high — copy is lighter
Viscosity, low — copy is darker

Surface Tension, high — copy lighter
Surface Tension, low — copy darker with increasing bleed through tendency

Density, high — copy darker
Density, low — copy lighter

5. CONTAMINATION

The ink must be kept free of all contamination by lint, dust, chemical agents, or reaction from its manufacture processing equipment. Silicones are the most damaging of all contaminates and must be scrupulously excluded. It has been determined that less than three parts per million (ppm) of a dimethyl silicone reduces ink surface tension a measurable amount, and that less than ten parts per million degrades the ink beyond use. Ink suspected of being contaminated should be discarded. Because of the need for laboratory equipment, testing ink at a customer location is not feasible.

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TABLE

PHYSICAL REQUIREMENTS FOR "DATASPEED" PRINTER INK

PROPERTY	UNIT	REQUIREMENT		METHOD OF TEST
		MAX	MIN	
Volume resistivity	Megohms per centimeter	1000	500	ASTM Designation D-1169 Condition for test as described except applied voltage shall be 100 volts (dc), electrification time at one minute, and measuring temperature shall be 150 $\pm$1°F. Suggested instrumentation is a three-terminal test cell in tulip-type container with cover, and a General Radio Corporation Model 1644 Megohm Bridge.
Absolute viscosity	Centipoise (poise is grams per centimeter per second)	10		In conducting the test, the measuring temperature shall be 150 $\pm$1°F. Suggested instrumentation is a Brookfield LVF Viscometer with ultralow (UL) adapter at 60 RPM.
Surface tension	Dynes/centimeter (corrected to 72°F)	31.5	29.5	ASTM Designation 1590 Condition for test as described except 0.04D/°F is added to correct value to 72°F using a Fisher Model 120 Surface Tensiometer.
Flammability — flash point	Degrees Fahrenheit		385	ASTM Designation D-92 Cleveland open cup method
Flammability — flash point	Degrees Fahrenheit		370	ASTM Designation D-93 Pensky-Martens closed cup method
Flammability — fire point	Degrees Fahrenheit		420	ASTM Designation D-92 Cleveland open cup method

Note 1: Copy produced by the DATASPEED printer (recorder) under normal operating procedures should have characters showing good intensity and very little ink droplet scatter. If these requirements are met, it is good evidence that the ink supply adequately meets the chart parameter requirements. An exception to this is the resistivity (ohms) requirement, which varies almost imperceptibly over a wide range as determined by visual observation of copy sharpness.

Note 2: Failure to meet the minimum surface tension is considered sufficient cause for rejection of the ink. Any other deviations should be evaluated accordingly to Note 1.

If ink has been stored for a while, a tacky type of residue may be noticed in the ink bottle after its contents have been poured into the electrostatic printer ink manifold. This residue is not reason to suspect ink contamination but is characteristic to the ink formulation and storage. The residue added along with the ink when replenishing the ink supply should not cause operational difficulties.

6. INK CLEANUP

Do not ever attempt ink cleanup with water and detergents since it results in an almost unmanageable amalgamation. Flushing or cleaning of ink is readily accomplished with tetrachloroethylene, trichloroethane, toluene, or Freon TF; all but toluene are nonflammable. Particularly effective is a trichloroethane/methanol mixture of three parts to one part, or four parts to one part. Methanol alone is excellent as a final rinse for dissolving thin ink pigment films. If used directly on undiluted ink, it will cause flocculation.

Extreme care should be taken to prevent ink stains on clothing and contact with the skin. The recommended hand cleaner for removing ink is CRC Chemicals Company, Antiseptic Hand Cleaner which is available in a five-ounce tube from Teletype Corporation under part number TP334508.

7. MARKINGS

All vessels used to contain a 12 ounce supply of ink must show the manufacturing date of the ink contained. This is necessary to maintain control of the process used in ink manufacture and has no meaning relative to shelf life.

8. PACKAGING

All bottles of ink must be tightly capped and checked for leakage prior to packaging for shipment. A bottle of ink should be furnished with a suitable pouring spout and cap for prevention of contamination and spillage. A suitable polyethylene bag should be used to house each ink bottle. The bag should be sealed prior to shipment using normal packaging techniques.