



\$ 3100 down to \$1300 in quantity

MAGNETIC DRUM

Type 200B

FEATURES

- Basic building block for high speed electronic data reduction systems.
- Miniature-total volume 250 cubic inches.
- Storage capacity 25,000 bits, 20 tracks.
- Access time 2.5 milliseconds, minimum.
- Versatile read and write head configurations.
- Low cost per bit.

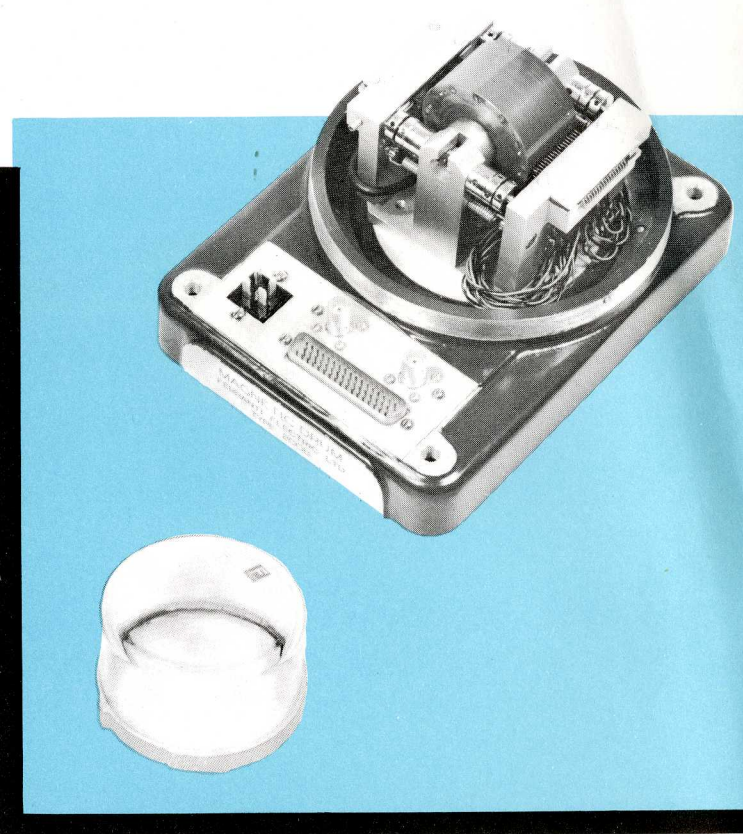
APPLICATION

Ferranti Magnetic Storage Drum, type 200B being both miniature and low in cost, is suitable for many diverse applications, among these serial to parallel conversion, buffer stores, rate changers and programme stores. It may be used in small desk type or other miniature computers.

SPECIFICATIONS

CONSTRUCTION: A fixed spindle carries a wound-stator and a pair of selected precision ball bearings which support a 2-inch diameter brass rotor. The rotor surface is coated with an iron oxide dispersion turned down to provide a run-out of less than 0.0001 inch.

HEAD MOUNTS: Two head mounts are fitted, one on each side of the drum. Each mount will accommodate up to 25 heads, providing 25 tracks each having 2 heads displaced by approximately 180°. The drum, is normally supplied with 20 heads. 18 of these are mounted on one side and connected to a Cannon connector, type DD-50P. The remaining 2 on the other side are fitted with co-axial connectors to provide maximum isolation for clock-track use.



DRIVE: The drum is normally driven at 22,500 RPM by a 400 cycles per second, 117 volt, 3 phase supply. Power input at 400 cycles per second is 5 watts. The rotor may be operated at any supply frequency from 60 to 400 cycles per second to provide a wide range of operating speeds.

DIGIT DENSITY: On current production models digit densities to 1024 bits per track at a digit rate of 250 kilocycles are readily obtained. This represents a drum speed of 17,000 RPM. At rated full speed, digit densities of 700 bits, or less, per track are recommended. For special applications, these limits may be extended.

HEAD DATA: Characteristics at 200 kilocycles:

- Impedance: 12-15 ohms.
- Output: 10 millivolts peak to peak at 22,500 RPM.
- Head to Drum spacing: 0.0005 inches.
- Writing current: 1 ampere peak using Williams phase-reversing return-to-zero recording.
- Read transformer ratio: 1/55

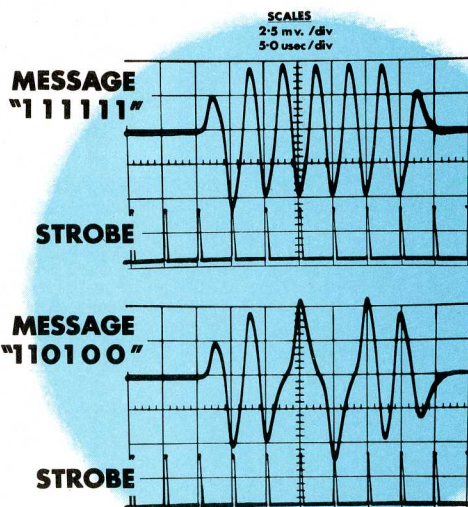
BEARING LIFE: On unsealed drums, life tests for 5000 continuous hours show no measurable wear.

MILITARY TESTS: The rotor and bearing assembly meets RCAF thermal and mechanical specifications:

- Vibrations: 1000 hour running test at .002" to .005" double amplitude at 1500-2000 RPM.
- Acceleration: tested to 20g.
- Temperature: operational at -55°C and +70°C
- Electrical: 1000 volts RMS flash-over: insulation 20 megohms at 500 volts DC.
- Dynamic balance: 75 x 10⁻⁶ ounce-inches.

PHYSICAL SIZES:

- Base dimensions overall: 6" x 8" Weight: 5 lbs. 10 oz.
- Height including glass case: 5 3/8" Mounting centres: 4 3/4" x 6 3/4"



FERRANTI ELECTRIC INC.
30 ROCKEFELLER PLAZA, N.Y., N.Y.

FERRANTI-PACKARD ELECTRIC LIMITED
INDUSTRY STREET, TORONTO 15



200 B MAGNETIC MEMORY DRUM

Featuring

- Basic building block for high speed electronic data reduction systems.
- Miniature-total volume 250 cubic inches.
- Storage capacity 18,000 bits on 20 tracks.
- Engraved clock tracks available.
- Average access time 1.33 milliseconds at 22,500 rpm.
- Flexible read and write head configuration.
- Low cost per bit.

3000 each

2500 each for 2



FERRANTI-PACKARD ELECTRIC LIMITED

ELECTRONICS DIVISION, INDUSTRY STREET, TORONTO 15, ONT.

FERRANTI ELECTRIC INC.

30 ROCKEFELLER PLAZA, NEW YORK 20, N.Y., U.S.A.

Technical Description

APPLICATION

The Ferranti-Packard Type 200B Magnetic Storage Drum, being both miniature and low in cost, is suitable for many diverse applications, among these serial to parallel conversion, buffer stores, rate changers and program stores. It may be used in small desk type or other miniature computers.

SPECIFICATIONS

CONSTRUCTION

A fixed spindle carries a wound-stator and a pair of selected precision ball bearings which support a 2-inch diameter brass rotor. One bearing is pre-loaded to compensate for any differential expansion due to temperature variation effects. The rotor surface is coated with an iron oxide dispersion turned down to provide a run-out of less than 0.0001 inch.

The memory assembly is protected by a circular glass case which allows visual inspection of the desiccant.

HEAD MOUNTS

Two head mounts are fitted, one on each side of the drum. Each mount will accommodate up to 20 heads providing 20 tracks each having 2 heads displaced by approximately 180°.

The drum is normally supplied with 20 heads, 18 for data track and two for clock track use. The data heads are mounted in 2 groups of 9, one on each mount. The 2 clock heads are placed at the opposite end of one mount from the group of 9 data heads to provide maximum clock track isolation.

A variety of other mounting configurations are possible to permit simultaneous read and write functions to suit individual requirements.

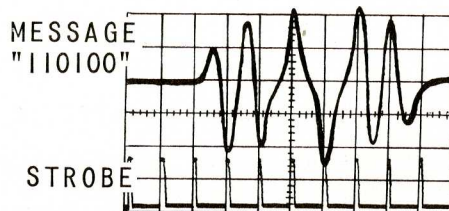
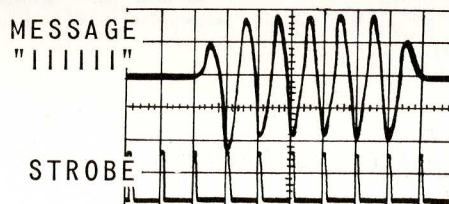
Head leads are brought out to 2 Cannon Type DD-50 connectors.

DIGIT DENSITY

The maximum digit density of 900 bits per track is best obtainable using a drum speed of 11,250 rpm. At full rated speed however, digit densities of 450 bits, or less, per track are recommended.

ENGRAVED SYNC TRACKS (optional at extra cost)

To eliminate the problems of accidental erasure, sync tracks can be permanently engraved on the drum surface up to digit densities of 100 engravings per inch. Several tracks may be engraved providing that all but the most dense and topmost track may be formed by extending the length of the engraved bit from the track above.



SCALES
10mv./div.
10usec./div.

DRIVE

The drum is driven at 22,500 rpm by a 400 cps, 117 volt, 3 phase delta supply. Power input at 400 cycles per second is 5 watts. The rotor may be operated over a wide range of speeds by varying the supply frequency from 60 to 400 cps in combination with a proportionate change in voltage. Various other speeds rotors are available on special request.

HEADS (TYPE 208)

Winding	120 total turns with centre tap
Inductance - at 10 kc	
full winding	90 microhenries
half winding	30 microhenries
Impedance - full winding	
at 100 kc	30 ohms
at 200 kc	45 ohms
Resonant frequency	Greater than 5 Mc
Operating frequency	50 - 500 kc
Write current using return-to-zero doublet pulse (Williams technique)	250 - 500 ma peak
Typical operating conditions	
Head-to-drum spacing	0.0005"
Write current	250 ma peak
Digit frequency	100 kc
Drum speed	22,500 rpm
Playback signal	Greater than 35 mv p-p

BEARING LIFE

On unsealed drums, life tests for 5000 continuous hours show no measurable wear.

ENVIRONMENTAL DESIGN

The basic rotor and bearing assembly is designed to meet RCAF thermal and mechanical specification as follows:

Vibrations:	1000 hour running test at .002" to .005" double amplitude at 1500 - 2000 rpm.
Acceleration:	20g operating 50g drop test
Temperature:	Operational at -55°C and +70°C.
Electrical:	1000 volts rms flash-over: insulation 20 megohms at 500 volts d-c.
Dynamic balance:	75 x 10 ⁻⁶ ounce-inches.

PHYSICAL DIMENSIONS

Base dimensions overall: 6" x 8".
Height including glass case: 5 3/8".
Mounting centres: 4 3/4" x 6 3/4".
Weight: 5 lbs. 10 oz.