Shugart SA400 floppy drive

From the "OEM Manual"

1.1.1 Performance Specifications

Capacity
  Unformatted
    per disk   109.4K bytes
    per track   3125 bytes
  Formatted (Reference Section 7.0)

	Soft Sectoring	Hard Sectoring
per disk	80.6K bytes	72.03K bytes
per track	2304 bytes	2058 bytes
per sector	128 bytes	128 bytes
sectors per track	18	16

Transfer Rate   125.0K bits/sec.
Latency (average)   100 ms
Access Time
  track to track   40 ms
  average   463 ms
  settling time   10 ms
Head Load Time   75 ms
Disc Motor Start Time   1 sec.

1.1.2 Functional Specifications

Rotational Speed	300 RPM
Recording Density (inside track)	2581 BPI
Flux Density	5162 FCI
Track Density	48 TPI
Tracks	35
Inside Track Radius	1.542 in. (3.916 cm)
Outside Track Radius	2.250 in. (5.715 cm)
Index	1
Encoding Method	FM
Media Requirements	SA 105 or SA107 minidisket (Hard Sectored) SA104 minidiskette (Soft Sectored)

From the "service manual"

1.8 TRACKS

The SA 400 Minifloppy drive is capable of recording up to 35 tracks of data. The tracks are numbered 0-34. Each track is made available to the read/write head by accessing the head with a stepper motor and carriage assembly. Track 00 is the outer most track with track 34 being the intermost track. Track accessing will be covered in Section 3.

Basic Track Characteristics:

No. bits/track	25,000 bits
Bit per inch (inside)	2,581 BPI
Tracks per inch	48 TPI
Access time	40 msec

1.9 TRACK FORMAT

Tracks may be formatted in numerous ways and is dependent on the using system. The SA 400 can use hard sector recording with SA105 and SA107 media or soft-sectoring using SA104 media.

1.10 HARD SECTOR RECORDING FORMAT

In this Format, the using system may record up to 10 or 16 sectors (records) per track. Each track is started by a physical index pulse and each sector is started by a physical sector pulse. This type of recording is called hard sectoring. Figure 6 shows some typical Sector Recording Formats. The using system must do the sector separation. For additional information on sector separation and formatting requirements. Refer to the SA 400 OEM Manual.

1.11 SOFT SECTOR RECORDING FORMAT

In this Format, the using system may record one long record or several smaller records. Each track is started by a physical index pulse and then each record is preceded by a unique recorded identifier. This type of recording is called soft sectoring. Figure 7 shows the soft sector format for 18 sectors and 128 bytes. Refer to the SA 400 OEM Manual for further formatting information.