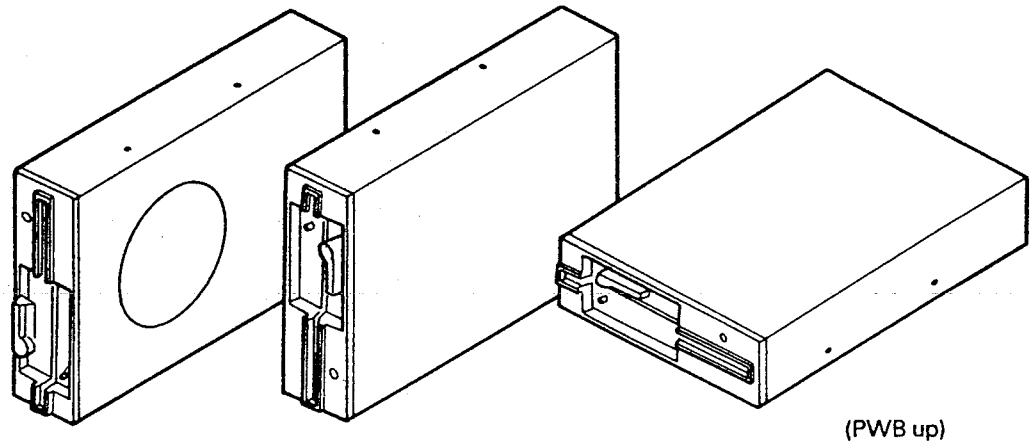


Fig. 6.2 Recommended Mounting

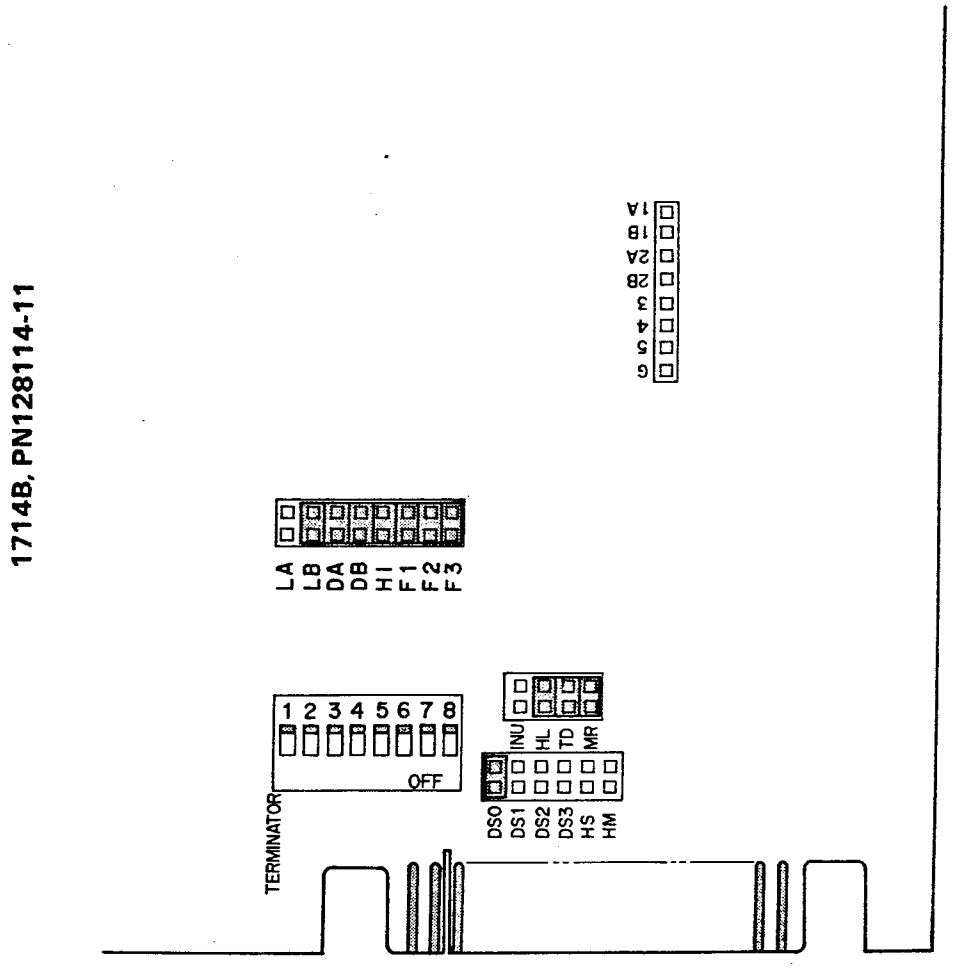


Fig. 6.3 Terminator/Shorting Plug Position Diagram

Chapter 7 Other Functional Characteristics

7.1 Automatic Motor On/Off

With power properly supplied, the drive motor is controlled as follows.
With jumper MO open, Motor On is at low level,
(1) When inserting a disk starts the drive motor.
(a) When removing a disk stops the drive motor.
(b) With jumper MO open, Motor On is at high level,
(2) When drive motor will start automatically when the disk is inserted. After the door lever is closed, the motor will turn for a period of time and then stop.

7.2 Ready Signal Output

With the MR shorting plug open, the Ready signal is output regardless of the Drive Select signal level.

7.3 Mixed Use with 8 Inch Flexible Disk Drives

With the TD shorting plug open, the YD-380B can be daisy-chained with 8 inch flexible disk drives. The drive in a mixed daisy chain must be an 8 inch drive.
last

7.4 Drive In Use Indicator

7.4.1 Standard (setting when shipped)

With the shorting plugs set as shown below, signal pin 4 is assigned as the Head Load signal.

(1) Short the HL shorting plug.
(2) Open the INU shorting plug.
(3) Open the LA shorting plug.
(4) Short the LB shorting plug.

The Drive In Use indicator lights when the following conditions are satisfied.

(1) The Drive Select signal is at low active level.
(2) The Ready Signal is at low active level.

7.4.2 Option 1

With the shorting plugs set as shown below, signal pin 4 is assigned as the Head Load signal.

(1) Short the HL shorting plug.
(2) Short the INU shorting plug.*
(3) Short the LA shorting plug.*
(4) Short the LB shorting plug.

The Drive In Use indicator lights when the following conditions are satisfied.

(1) The Drive Select signal is at low active level.
(2) The Head Load signal is at low active level.

7.4.3 Option 2

With the shorting plugs set as shown below, signal pin 4 is assigned as the Head Load signal.

(1) Open the HL shorting plug.*
(2) Short the INU shorting plug.*
(3) Open the LA shorting plug.
(4) Open the LB shorting plug.*

The drive operates with the In Use signal as described below.

(1) With the In Use line at low active level, the In Use indicators of all drives are on, regardless of the Drive Select signal.
(2) With the In Use line at high inactive level, the In Use indicator in the Drive Selected drive is on.

* Setting is different from the setting when shipped.

7.4.4 Option 3

With the shorting plugs set as shown below, signal pin 4 is assigned as the Head Load signal.

(1) Open the HL shorting plug.*
(2) Short the INU shorting plug.*
(3) Short the LA shorting plug.*
(4) Open the LB shorting plug.*

The drive operates with the In Use signal as described below.

(1) With the In Use line at low active level, the drive latches the leading edge of the Drive Select signal, turning on the In Use indicator. The In Use indicator will stay on even after the Drive Select signal goes off.

(2) With the In Use line at high inactive level, the drive latches the leading edge of the Drive Select signal, turning off the In Use indicator. The In Use indicator will stay off even after the Drive Select signal goes off.

7.5 Head Load Option

7.5.1 Standard (setting when shipped)

With the shorting plugs set as shown below and the Drive Selected Drive ready, a low active signal on the Head Load line loads the heads against the disk.

(a) Short the HL shorting plug.
(b) Open the INU shorting plug.
(c) Open the HS shorting plug.
(d) Open the HM shorting plug.

After activating the Head Load line, a 50 msec delay is required before any read or write operation can be initiated.

7.5.2 Option

When signal pin 4 is used as the In Use signal, either of the following procedures will permit the Head Load operation.

(1) The Drive Select Signal controls the Head Load operation.
  (a) Open the HL shorting plug.*
  (b) Short the INU shorting plug.*
  (c) Short the HS shorting plug.*
  (d) Open the HM shorting plug.

With the shorting plugs set as shown above, the read/write heads are loaded against the disk when the Drive Select signal is activated. The same 50 ms delay as in the standard setting is necessary.

(2) The Motor On Signal controls the Head Load operation.
  (a) Open the HL shorting plug.*
  (b) Short the INU shorting plug.*
  (c) Open the HS shorting plug.
  (d) Short the AM shorting plug.*

With the shorting plugs set as shown above, the read/write heads are loaded against the disk when the Motor On Signal is activated.

Note: Shorting plugs HS and HM should not be simultaneously shorted.

* Setting is different from the setting when shipped.

7.6 Disk Change Option

The following signals are output from signal pin J1-34 by setting shorting plugs DA and DB.

7.6.1 Standard

(1) Short the DA shorting plug.
(2) Short the DB shorting plug.

Output signal will be the Ready Signal. For information, refer to 3.1.2.4.

7.6.2 Option 1

(1) Open the DA shorting plug.
(2) Short the DB shorting plug.

Output signal will be the Disk Change signal. When a disk is removed from the drive, the signal goes to low active level and remains at that level until the following conditions are satisfied.

(1) Drive is selected.
(2) Step pulse is input.

7.6.3 Option 2

(1) Short the DA shorting plug.
(2) Open the DB shorting plug.

The output signal will be the Disk Change signal. When a disk is removed from the drive, the signal will be set to low active level. When the disk is reinserted and the trailing edge of the Drive Select signal is latched, Disk Change will be reset to High.

7.7 Drive Type Option

By changing shorting plugs F1, F2, F3 and HI, the user can select the drive operational mode. Selections include 96 TPI High Density mode, 96 TPI Regular or Double Density mode and several others described below.

7.7.1 Standard

(1) Short the F1 shorting plug.
(2) Short the F2 shorting plug.
(3) Short the F3 shorting plug.
(4) Short the HI shorting plug.

Operation in standard mode is as described in 3.1.1.9 and other sections of this manual.

7.2 Option 1

(1) Open the F1 shorting plug.
(2) Short the F2 shorting plug.
(3) Short the F3 shorting plug.
(4) Short the HI shorting plug.

The Option 1 mode turns the YD-380B into a single speed, 96 TPI High Density only drive similar to the YD-380B-1710B, manufactured by Y-E Data.

7.7.3 Option 2

(1) Short the F1 shorting plug.
(2) Open the F2 shorting plug.
(3) Short the F3 shorting plug.
(4) Short the HI shorting plug.

The Option 2 mode turns the YD-380B into a single speed, 96 TPI double density only drive similar to the YD-480B-1450B, manufactured by Y-E Data.

7.7.4 Option 3

(1) Open the F1 shorting plug.
(2) Open the F2 shorting plug.
(3) Open the F3 shorting plug.
(4) Open the HI shorting plug.

Option 3 turns the YD-380B into a 1.6/1.0 MB drive with a single rotational speed of 360 RPM. In the regular density mode the drive requires 300 K Bits/sec as a transfer rate. With this option the 0.4 sec for switching rotational speeds to match the disk type is not required. Note that the mode latch function using the leading edge of the Drive Select signal cannot be used.
Operation in this mode is the same as the Y-E Data YD-380B-1711B. This type of operation is compatible with the drives used in systems like the IBM PC-AT (t).

7.7.5 Option 4

(1) Open the F1 shorting plug.
(2) Open the F2 shorting plug.
(3) Open the F3 shorting plug.
(4) Short the HI shorting plug.

Option 4 turns the YD-380B into a dual speed (360/300 RPM) drive. As the mode latch function is disabled, when several drives are daisychained together, the modes of all drives are changed at once. When using option 4, it is necessary to allow 0.4 sec for the change in rotational speed. This is a special mode of the YD-380B-1714B.

7.8 Two Step Option

The 2ST jumper is available for using the YD-380B with a 48 TPI disk. Rather than having the controller generate step pulses to match the 48 TPI track density, the drive circuitry generates an internal step pulse to match the step pulses coming from the interface. With this option in place, the drive seeks two tracks per one step pulse. Note that the step rate should be 6 ms when in use. The drive should be used at Low Speed. Operation is limited to reading. Interchangeability is not guaranteed for writing. Opening the LST jumper puts the drive into 48 TPI read-only mode. In all other modes, the jumper must be shorted.

7.9 Switch Filter Option

The SF jumper can be used to select write precompensation or postcompensation.

7.9.1 Standard

The SF jumper is shorted for postcompensation. The characteristics of the read switch filter change between tracks 43 and 44.

7.9.2 Option

Cutting the SF jumper allows use of write precompensation. The read switch filter characteristics do not change.

7.10 In Use Operation

The following table shows the input lines when the In Use option is incorporated.

(1) Drive Select 0 – 3	(9) Low Speed
(2) Motor On	
(3) Direction Select	
(4) Step	
(5) Write Data	
(6) Write Gate	
(7) Side One Select	
(8) **In Use** (normally Head Load)	

Table 7.1 Input Lines (Refer to Table 3.1)

When the In Use option is used, the In Use signal replaces the Head Load Signal at signal connector pin 4, shown in Figure 3.13 and Table 4.8. The following two figures show the read and write timing when the In Use function is used.

Shorting plugs used in the YD-380B are IRISO brand P/N IMSA-9202-HP-GF equivalent.

3.1.1.2 Motor On

A low active level on this line starts the drive motor. A 1.5 second delay after the line goes low is required before any read or write operation can be initiated.

3.1.1.3 Direction Select

This line defines the direction of read/write head movement when the Step line is pulsed.

High level	Out (away from the center of the disk)
Low level	In (toward the center of the disk)

Table 3.4 Direction Select Signal

Any change in the Direction Select line must be made at least 1 μsec before the trailing edge of the Step pulse, and at least 1 μsec after the trailing edge of the Step pulse.
Refer to Figure 3.13 for timing information.

3.1.1.4 Step

This signal moves the magnetic heads in the direction indicated by the Direction Select signal.

Operation takes place when the signal changes from "Low" to "High" level, that is, with the last step pulse, before continuing the seek operation.
The access motion is initiated on each low level to high level transition, or the trailing edge of the signal pulse.

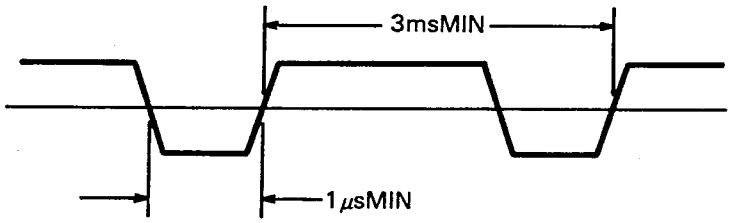


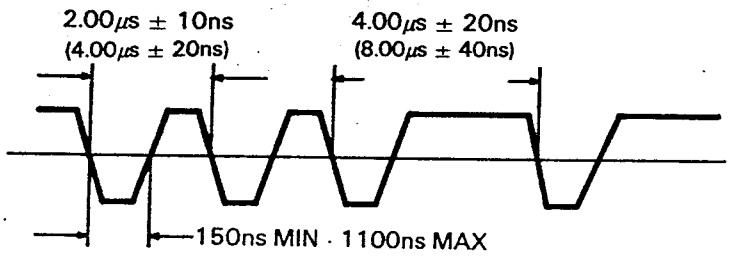
Fig. 3.5 Step

3.1.1.5 Write Data

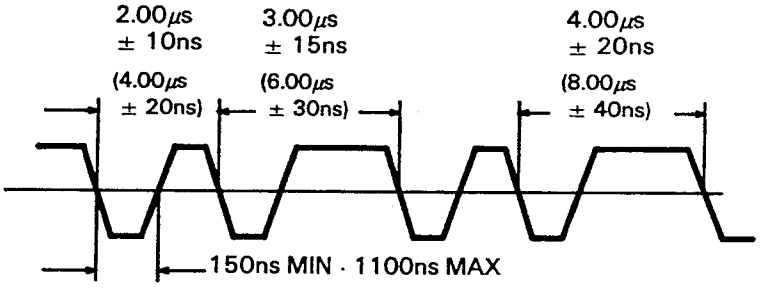
The data to be written on the disk arrives on this input line.

Each transition from a high level to a low active level on this line causes the current through the read/write head to be reversed, thereby writing a data bit. This line is enabled by Write Gate being low active. Refer to Figure 3.17 for timing information.

FM Encoding



MFM Encoding



* Write data accuracy: within ±0.5%

Fig. 3.6 Write Data

3.1.1.6 Write Gate

A low active level on this line allows Write Data to be written on the disk.
A high inactive level on this line enables the read data logic and stepping logic.
Refer to Figures 3.16 and 3.17 for timing information.
Deactivation of Drive Select and Motor On, and/or changing Side One Select must be delayed at least 590 μsec (1000 μsec) after deactivating Write Gate because the erase head remains active for this period.

3.1.1.7 Side One Select

This line defines which side of a two-sided disk is used for reading or writing.
A high inactive level on this line selects the read/write head on the side 0 surface of the disk. A low active level on this line selects the read/write head on the side 1 surface of the disk. When switching from one head to the other, a 100 μsec delay is required before any read or write operation can be initiated.

Note: Figures in parentheses are for Low Speed mode.

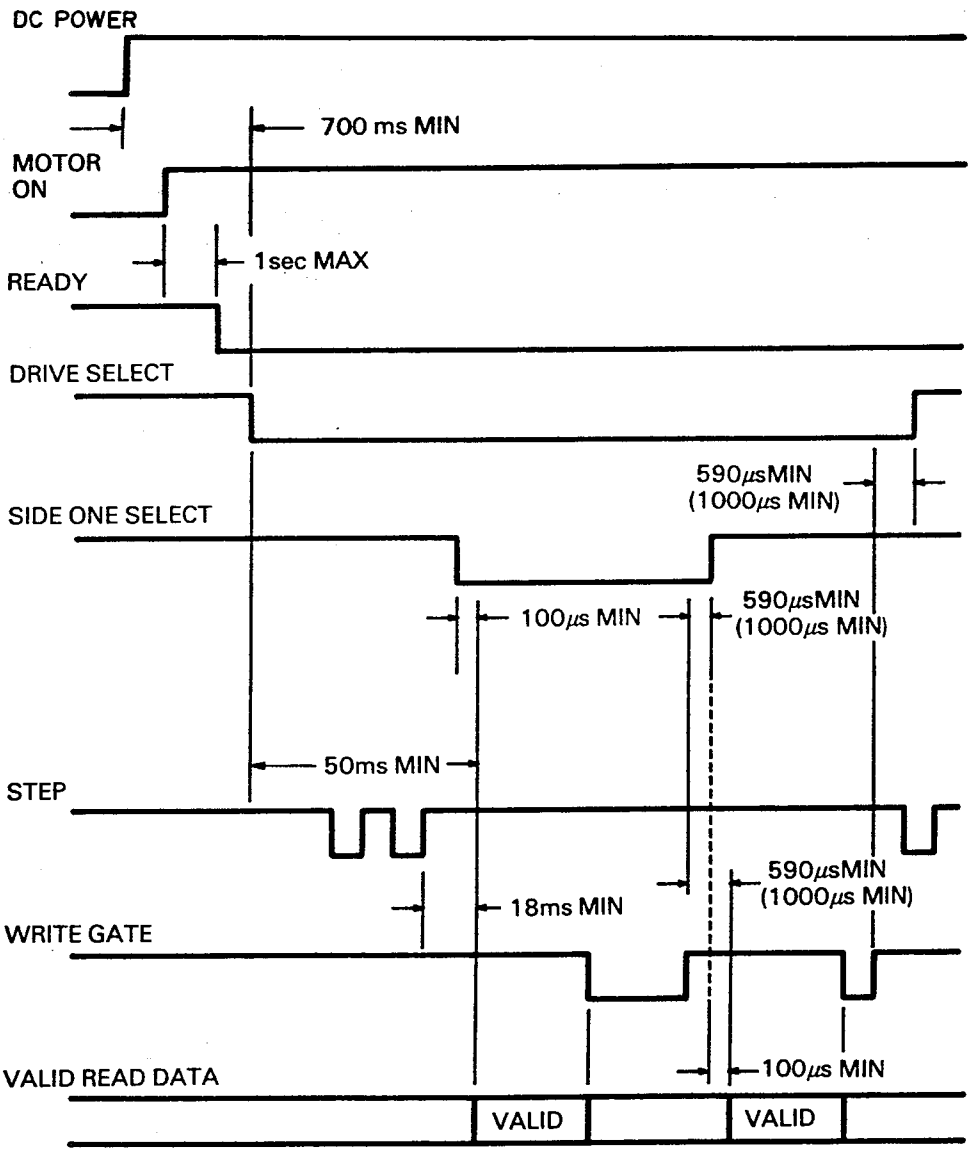


Fig. 7.2 Read Timing (Refer to Fig. 3.16.)

Note: The above chart indicates the read timing when HS is shorted, the Head Load signal is not used, and the heads are loaded by the Drive Select signal. Figures in parentheses are for Low Speed mode.

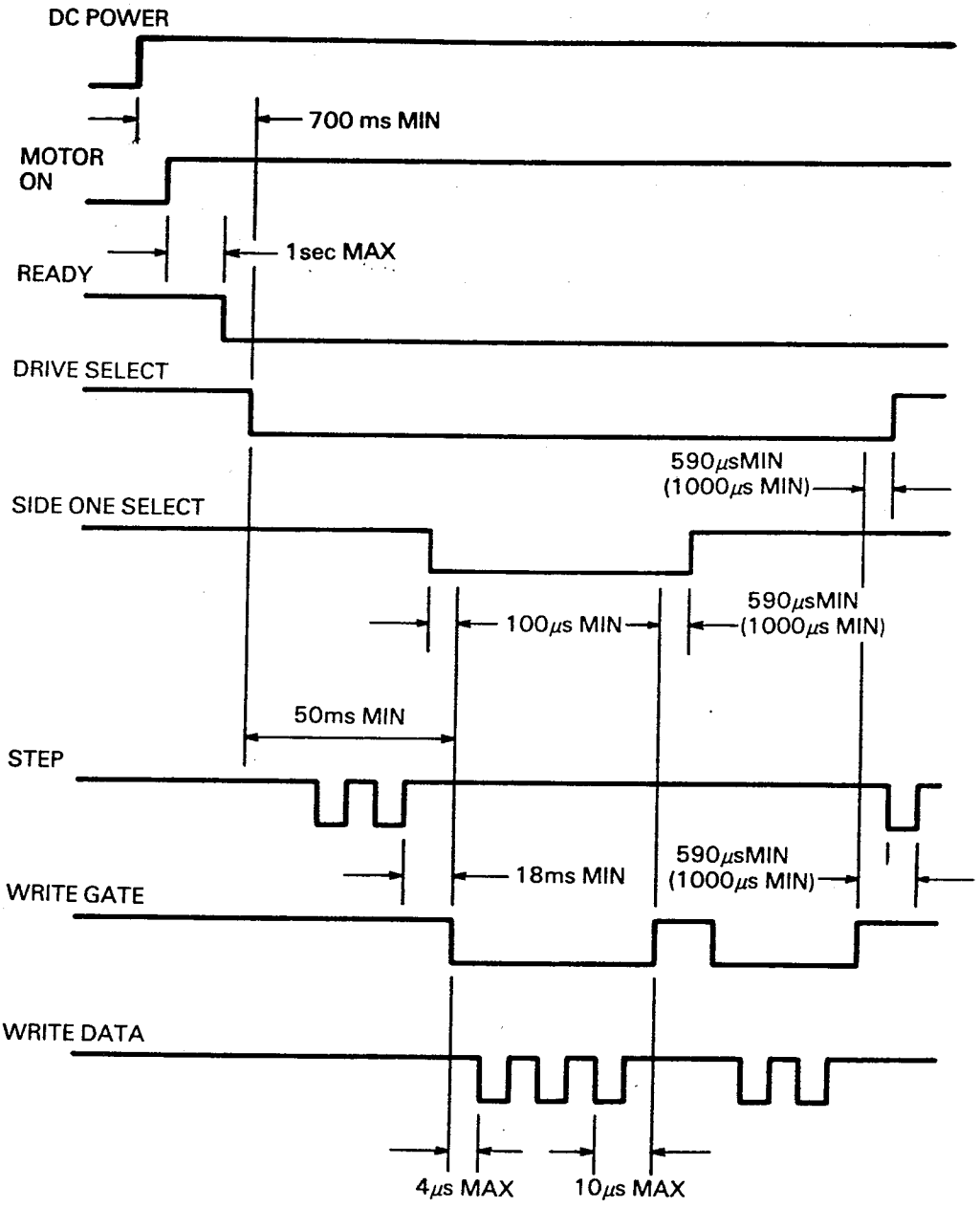


Fig. 7.3 Write Timing (Refer to 3.17.)

Note: The above chart indicates the write timing when HS is shorted, the Head Load signal is not used, and the heads are loaded by the Drive Select signal. Figures in parentheses are for Low Speed mode.

Chapter 8 Table of Test Points

Test points on the PWB are shown below.

Test Points	Functions
TP 1A 1B	Differential output of read/write head amplifier
TP 2A 2B	Output of differentiator amplifier
TP 3	Output of index sensor (high active)
TP 4	Output of erase gate (low active)
TP 5	Output of track 00 sensor (high active)
G	Ground for test points

Table 8.1 Table of Test Points

Note: These points are to be used for troubleshooting and repair work only.