841017

ÄNDRING AV SYSTEMDISKETTEN VID FÖR MÅNGA FELAKTIGA SPÅR

ANTECKNA REDUCERADE KBYTES

1. KOPIERA SYSTEMDISKETTEN TILL WINCHESTERN INKL. COPYSYS

2. BOOTA OM FRÅN WINCHESTERN

3. SÄTT IN SPECIALDISKETT I DRIVEN

4. SKRIV:C:S C:WINRED n
   n=ANTAL REDUCERADE KBYTES AVRUNDAT UPPÅT ENLIGT TABELL

5. TRYCK PÅ RETURN

6. NÄR FLOPPYLAMPAN SLOCKNAT SÄTT IN ORGINALSYSTEMDISKETTEN
   UTAN SKRIVSKYDD.

7. PÅ SKÄRMEN:
```
*** CP/M 3.0 SYSTEM GENERATION DONE ***
A> PIP
CP/M 3 PIP VERSION 3.0
* C:=A: CP/M 3.SYS
* C:=A: BNK BIOS3.SPR
A>
```

8. DET FÅR INTE KOMMA NÅGOT FELMEDDELANDE EFTER DENNA TEXT.

9. SÄTT PÅ SKRIVSKYDDSLAPPEN PÅ SYSTEMDISKETTEN.

TABELL:

34	68	102	136	170	KBYTES

OM DET ÄR ÖVER 170 KBYTES SKICKA MASKINEN TILL SERVICE

No damage will result if power is applied or removed in any order. However, to avoid activating the fault detection circuitry two conditions must be met:

2.5.1. 5V risetime must not exceed 1 second.

2.5.2. 12V must follow the 5V within 5 seconds if the 5V is applied first.

2.5.3. When checking the power supplies, the following loads should be used:

For the 12V supply, the power-up current may be measured using a standard load of 4.8 ohms and the operating current may be measured using 12 ohms. With an 8 ohm resistive load on the 5V supply and the above loads on the 12V supply, noise and ripple should not exceed 100 mV peak to peak up to 500 Hz and 50 mV peak to peak from 500 Hz to 5 MHz.

In operation, the maximum rate of change of the 12V load due to the disk drive is 2 A/ms.

2.6 Indicators Two red LED's fixed to the master electronics board are visible through the facia when they are illuminated.

2.6.1. The " Power-On" LED is on when the drive is READY with no error condition present. It is also used to indicate fault conditions in the drive.

2.6.2. The "Select" LED is on when the drive is selected by the host provided the "Power-On" LED is on.

The "Power-On" LED is positioned furthest from the centre of the facia. Note that this LED will not come on if the condition 2.5.1, 5V risetime, is not met since the microprocessor will not receive an initial reset.

3. FAULT FINDING

3.1 Front panel fault codes

The "Power-On" LED is used to flash error messages should certain fault conditions arise on the drive. A four bit binary code is used (long flash = logical 1, short flash = logical 0) with the most significant bit occuring first:

e.g. short, short, long, short = 2 (0010)

Fault Code 1 (0001) : No index track data burst.

Fault Code 2 (0010) : No flag Ø Ø.

Fault Code 3 (0011) : Motor speed outside ± 1% tolerance at end of power-up sequence.

Fault Code 4 (0100) : Motor speed outside ±10% tolerance in normal operation.

Fault Code 5 (0101) : Flag zero stays TRUE.

Fault Code 6 (0110) : STEP received while WRITE GATE is TRUE.

Fault Code 7 (0111) : Static WRITE FAULT.

Fault Code 8 (1000) : Microprocessor self-test fail (RAM).

Fault Code 9 (1001) : Microprocessor self-test fail (ROM).

Fault Code 10 (1010) : No index.

Fault Code 11 (1011) : Motor not up to speed.

Fault codes 1, 2, 3, 5, 8, 9, 10 and 11 are monitored during the initial power-up sequence of the drive. The remaining codes, namely 4, 6 and 7 are constantly monitored during normal operation. All fault codes are latched by the processor and the drive must be restarted to clear.

3.2 Fault codes at power-up

From power-on to drive READY the microprocessor performs a number of checks and calibrations on the drive. Should any of these checks fail the drive will not come READY and the

ramped and unramped. The interface step rate determines the seek mode automatically. The following table gives the relationship between step rate and seek mode.

Step rate	Seek Mode
N(5 μs-200 μs)	Ramped
N(250 μs-15 ms)	Unramped

Step rates slower than 15 ms per step will cause seek errors.

In the ramped mode of operation the microprocessor accelerates the stepper motor to a maximum step rate of 2500 steps/sec, then decelerates to the requested track. For all seeks the last phase change to the stepper motor is different to all others in order to achieve the correct settling characteristics.

The microprocessor eliminates stepper motor hysteresis automatically by always approaching tracks from the same direction. If a seek is in the OUT direction an overshoot is performed beyond the requested track so that it may be approached from the IN direction. This is achieved within the specified track-to-track access time.

The complete flow chart for the STEP operation is shown in Figure 20 (a) – (c).

7.2 'Soft' end stop protection

The microprocessor has an internal absolute track counter. Protection has been provided to prevent the user from seeking to tracks greater than 305 or less than Ø under normal operating conditions.

It should be noted, however, that these 'soft' end stops are not failsafe. The track counter will lose place in the event of a seek error. Therefore this feature should not be used to recalibrate the drive to track zero in the event of a seek error.

7.3 Power-save on de-selection

When the drive is de-selected for a period exceeding 2 seconds, the microprocessor causes the stepper motor current to reduce to approximately one-fifth of its normal value, a saving of 4 watts. The overall average saving in drive power consumption will depend on the select/de-select duty cycle. Recovery on re-selection is instantaneous i.e., the drive may write, read, or seek to a different track immediately on re-selection.

FIGURE 2
J1 Connector — Control

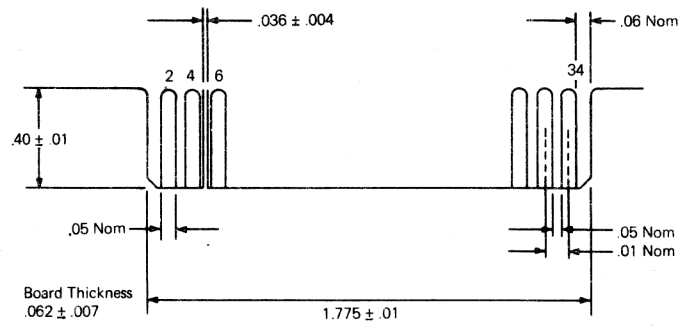


FIGURE 3
J2 Connector — Data

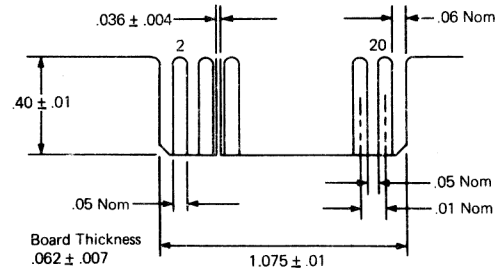
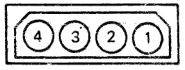


FIGURE 4
J3 Connector — Power



RODIME

FIGURE 5
Control and power bus

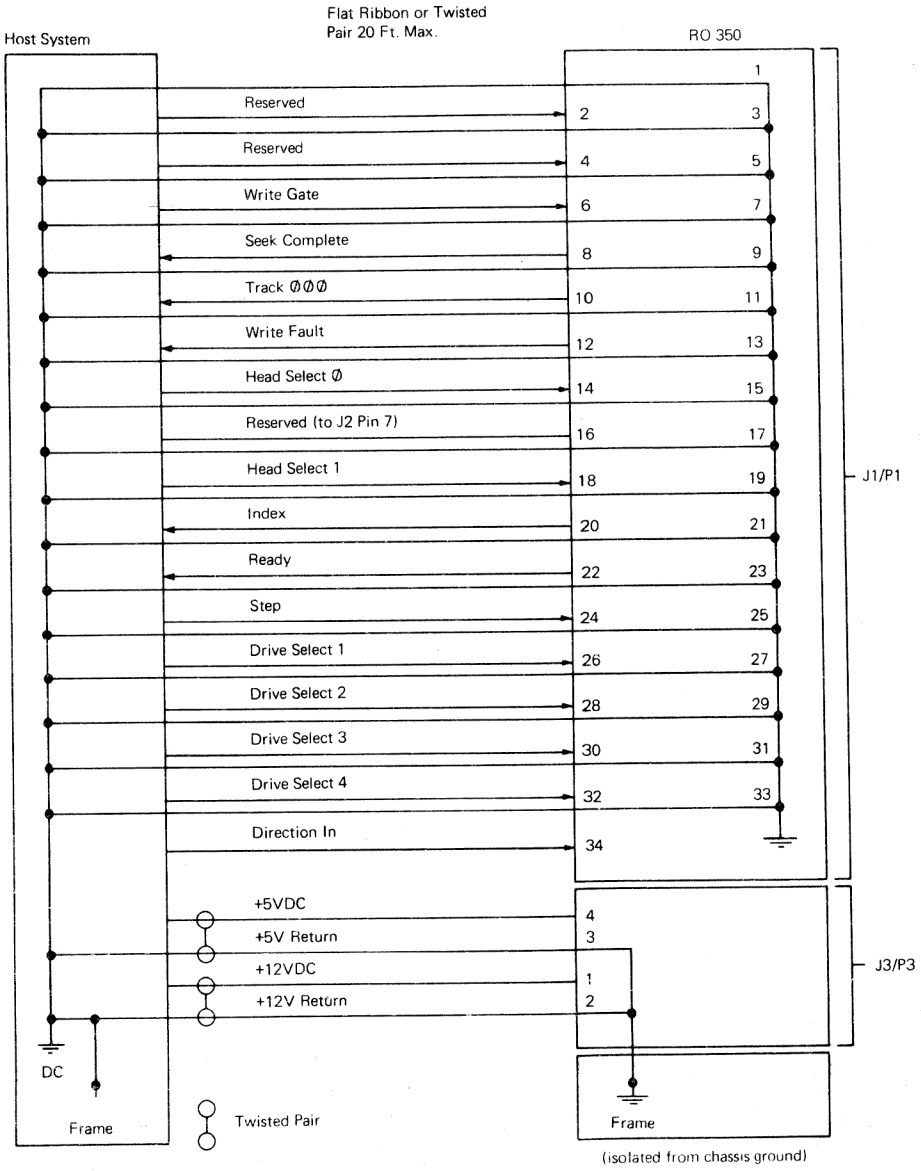


FIGURE 6
Data bus

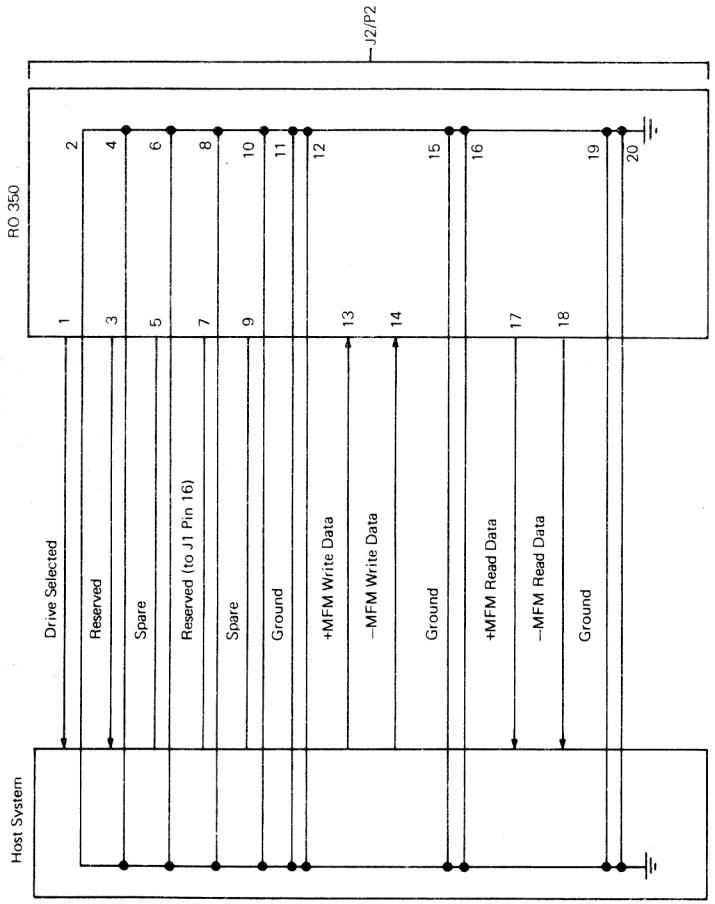


FIGURE 7(a)
RO 350 Mounting details

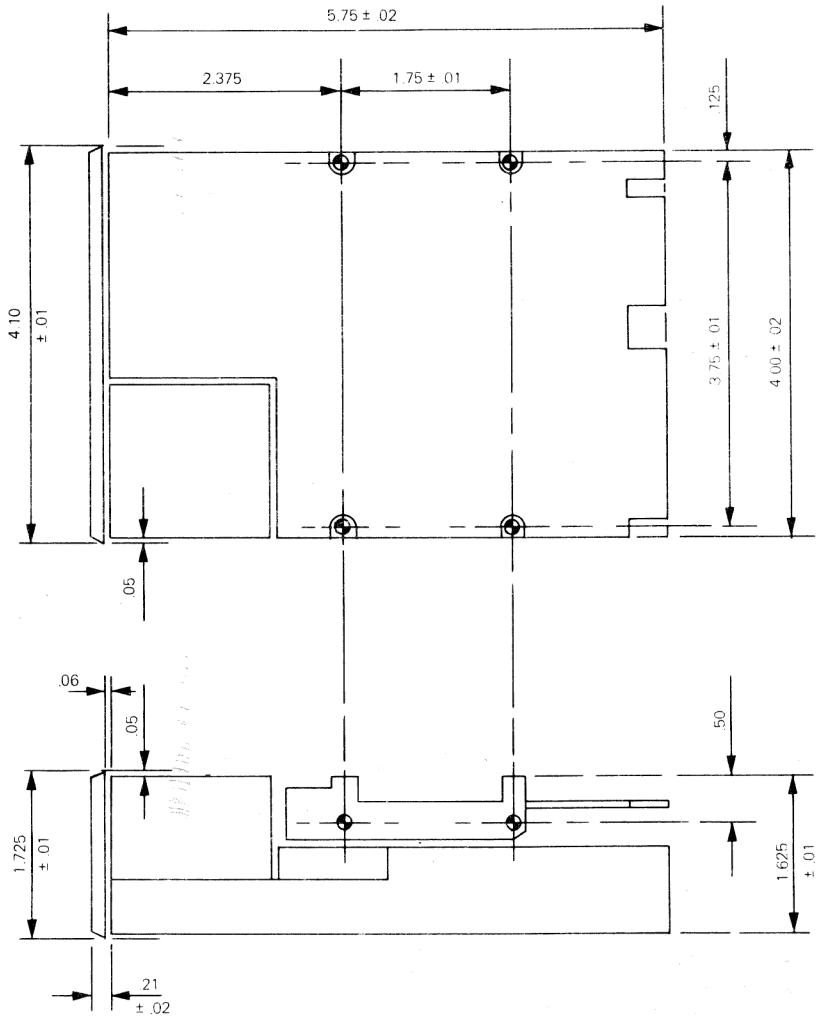


FIGURE 9
Non-Planar section of RO 352

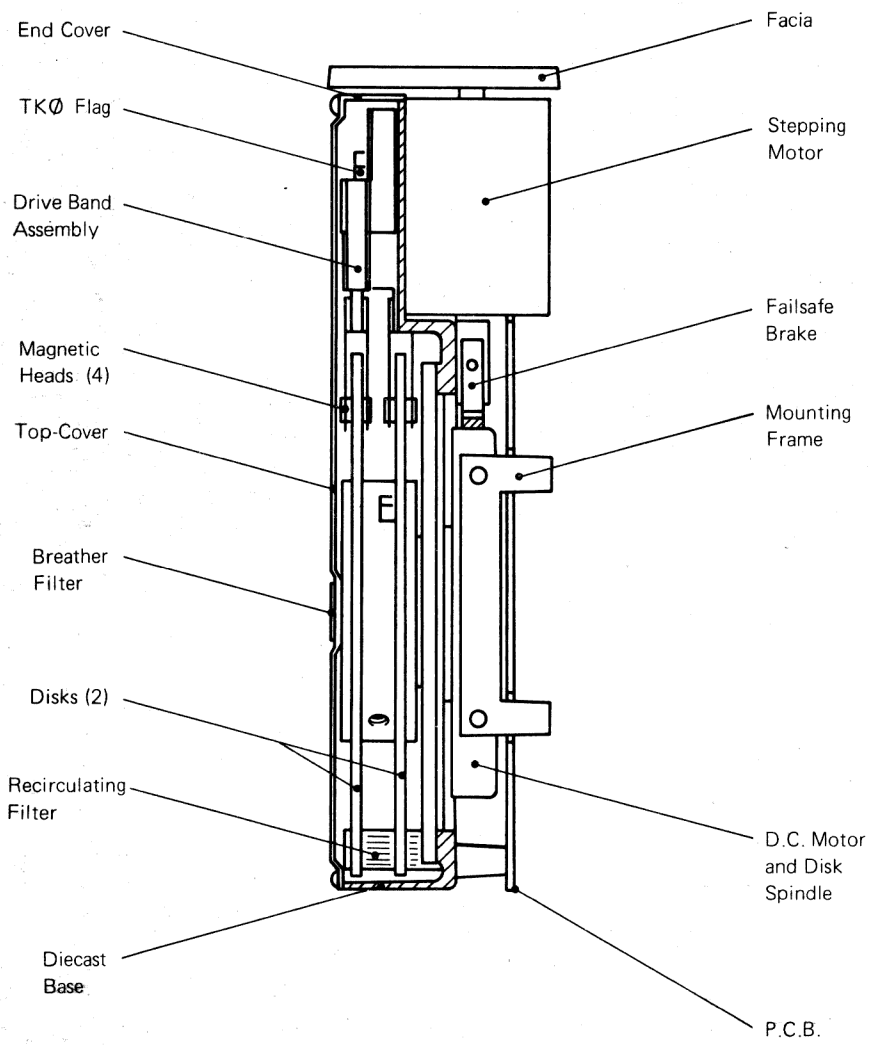


FIGURE 10
PCB layout

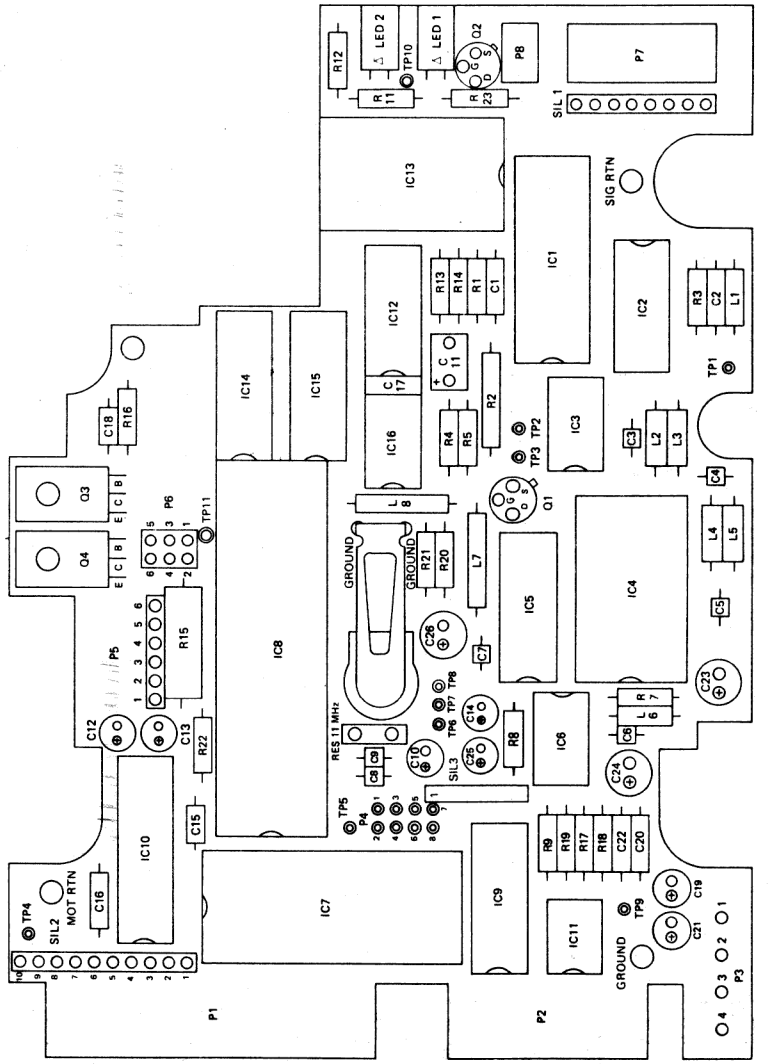


FIGURE 11 (b)
PCB schematic

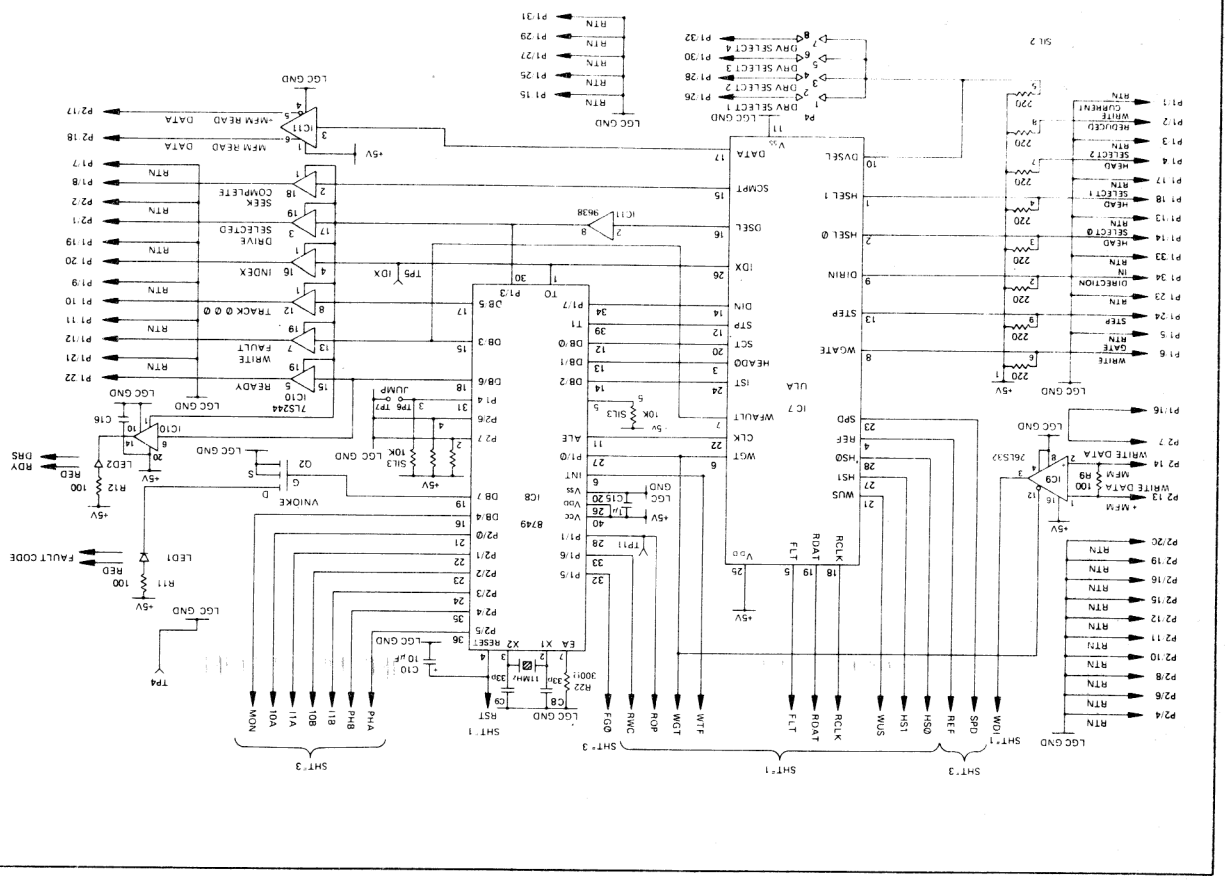


FIGURE 11(a)
PCB schematic

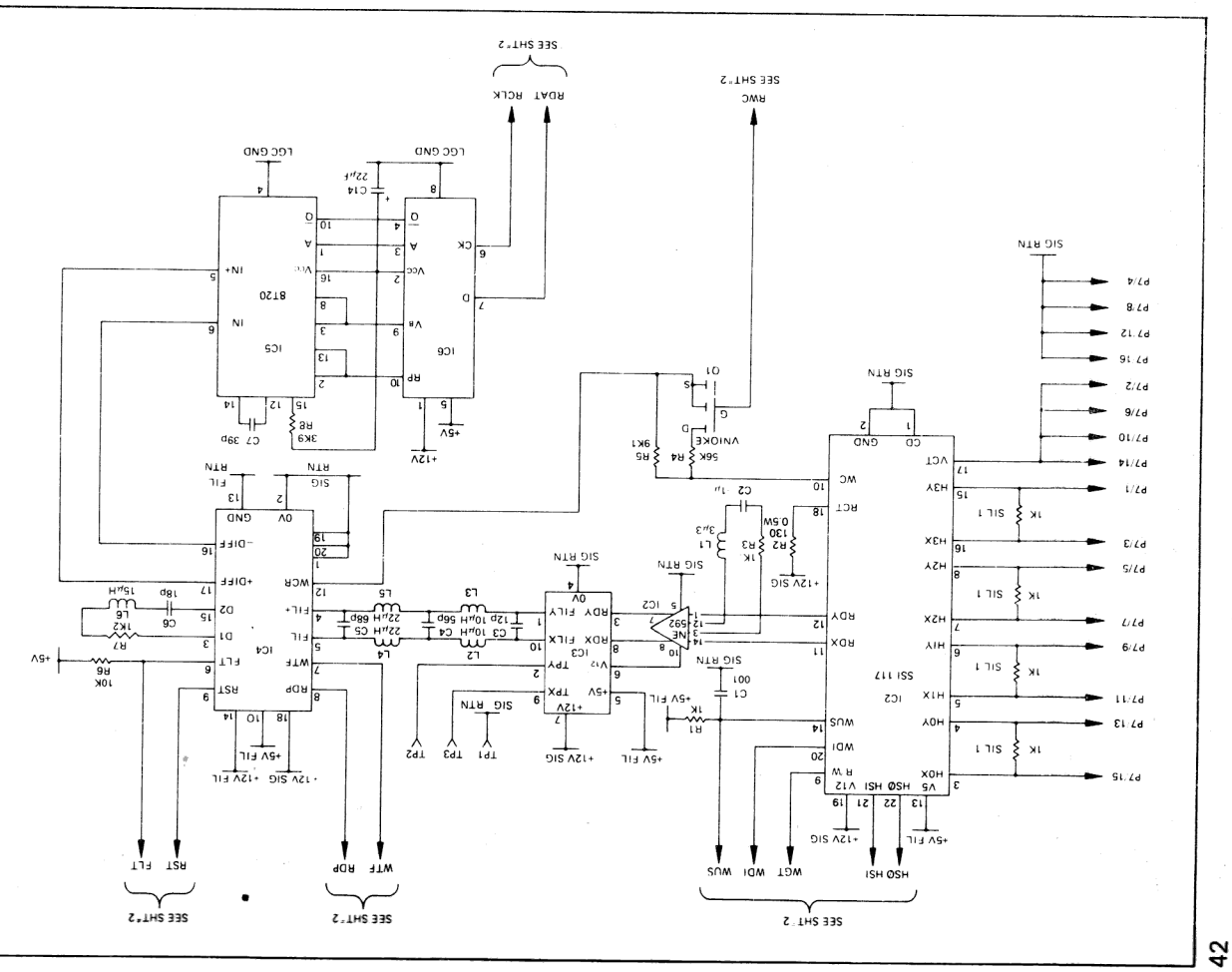


TABLE 4-6 TYPE 0 ERROR CODES, DISK DRIVE

HEX CODE	DEFINITION
0	The controller detected no error during the execution of the previous operation.
1	The controller did not detect an index signal from the drive.
2	The controller did not get a seek complete signal from the drive after seek operation.
3	The controller detected a write fault from drive during last operation.
4	After the controller selected the drive, the drive did not respond with ready signal.
5	Not used.
6	After stepping maximum number of cylinders, controller did not receive track 00 signal from the drive.

TABLE 4-7 TYPE 1 ERROR CODES, CONTROLLER

HEX CODE	DEFINITION
0	ID Read Error: The controller detected an ECC error in the target ID field on the disk.
1	Data Error: The controller detected an uncorrectable ECC error in the target sector during a read operation.
2	Address Mark: The controller did not detect the target address mark (AM) on the disk.
3	Not used.
4	Sector Not Found: The controller found the correct cylinder and head, but not the target sector.
5	Seek Error: The controller detected an incorrect cylinder or track, or both.
6	Not used.
7	Not used.
8	Correctable Data Error: The controller detected a correctable ECC error in the target data field.
9	Bad Track: The controller detected the bad track flag during the last operation.
A	Format Error: During a check-track command, the controller detected one of the following: 1) track not formatted 2) wrong interleave 3) ID ECC error on at least one (1) sector

TABLE 4-8
TYPES 2 AND 3 ERROR CODES, COMMAND AND MISCELLANEOUS

HEX CODE	TYPE	DEFINITION
0	2	Invalid Command: The controller has received an invalid command from the host.
1	2	Illegal Disk Address: The controller detected an address that is beyond the maximum range.
0	3	RAM Error: The controller detected a data error during the RAM sector buffer diagnostic.
1	3	Program Memory Checksum Error: During its internal diagnostic, the controller detected a program-memory checksum error.
2	3	ECC Polynominal Error: During the controller's internal diagnostic, the hardware ECC generator failed its test.

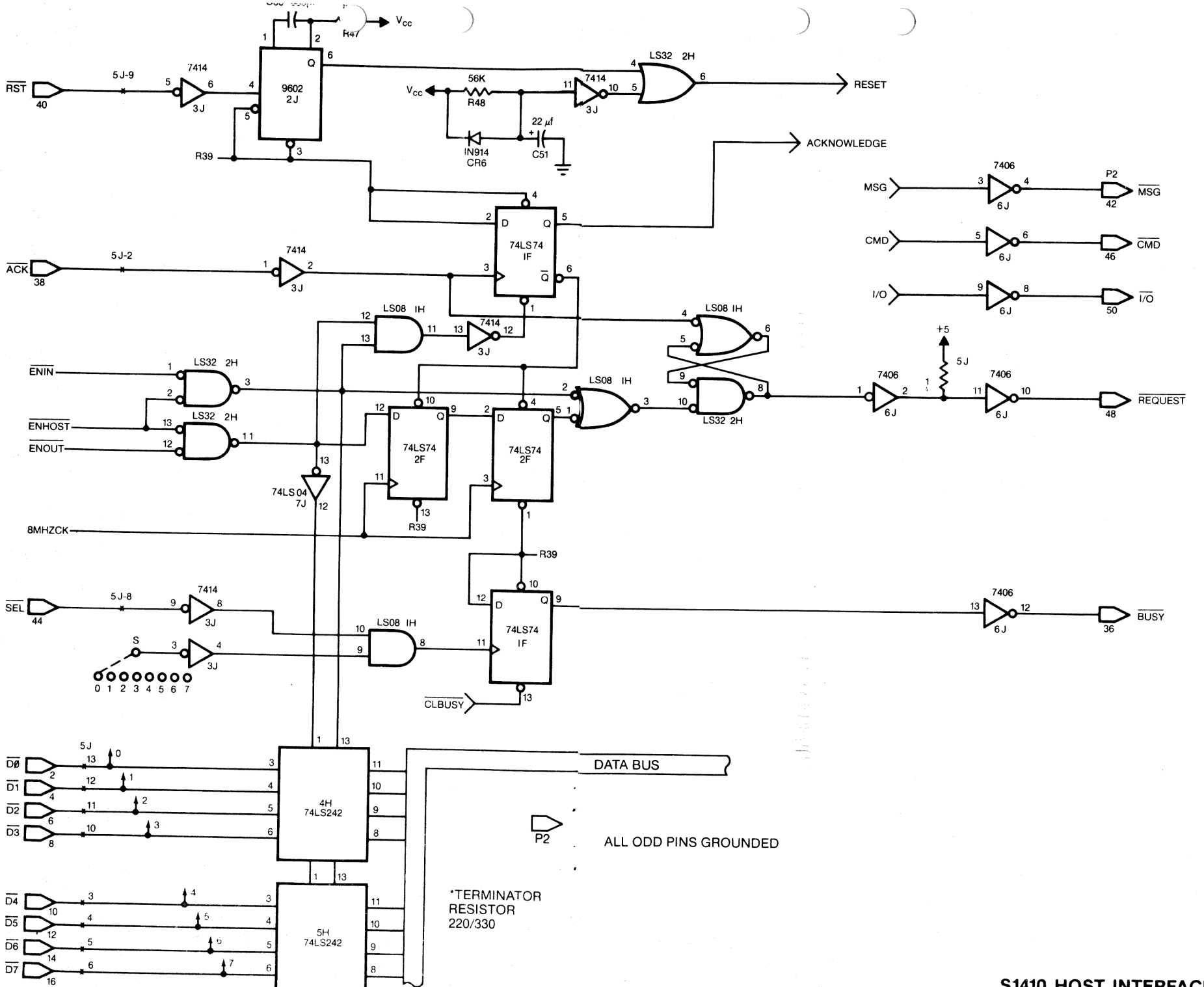
The following is a summary of the error codes returned as the result of the Request Sense Status command.

NOTE: The address valid bit (bit 7) may or may not be set and is not included here for clarity.

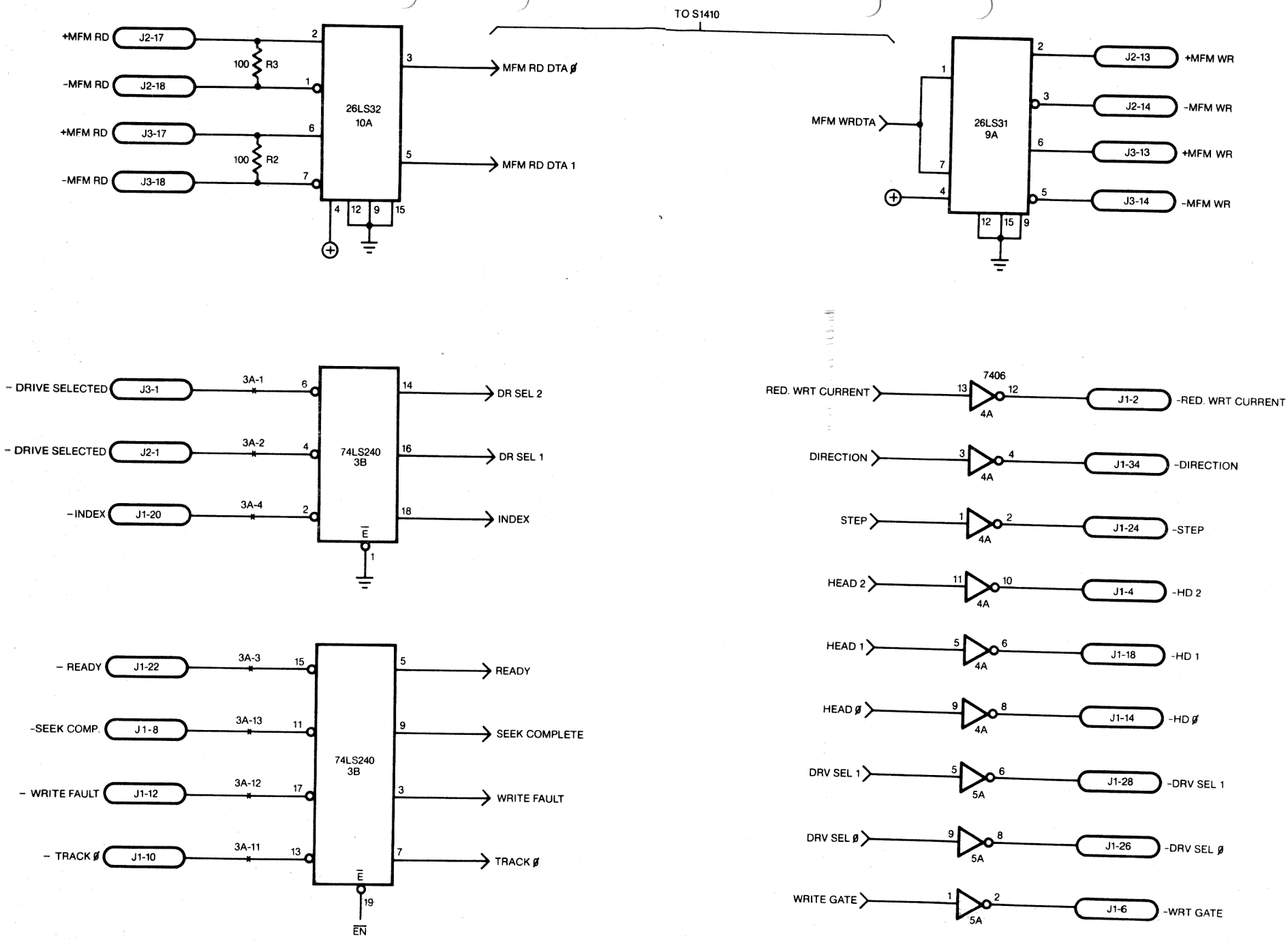
Error Code (hex)	Meaning.
00	No error detected (command completed ok).
01	No index detected from disk drive.
02	No seek complete from disk drive.
03	Write fault from disk drive.
04	Drive not ready after it was selected.
05	Not used.
06	Track 00 not found.
07-0F	Not used.
10	ID field read error.
11	Uncorrectable data error.
12	Address mark not found.
13	Not used.
14	Target sector not found.
15	Seek error.
16-17	Not used.
18	Correctable data error.
19	Bad track flag detected.
1A	Format error.
1B-1F	Not used.
20	Invalid command.
21	Illegal disk address.
22-2F	Not used.
30	Ram diagnostic failure.
31	Program memory checksum error.
32	ECC diagnostic failure.
33-3F	Not used.

4.5.7 Format Drive (Class 0, Opcode 04)

This command formats all sectors with ID and data fields according



S1410 HOST INTERFACE



X TERMINATOR RESISTOR 220/330

Z-80 PROCESSOR INTERFACE TO THE XEBEC S1410 CONTROLLER

Z-80 SIGNAL DEFINITIONS

$\overline{RD}$ — μP NEGATIVE TRUE READ SIGNAL

$\overline{IO}$ — DECODED μP NEGATIVE TRUE INPUT/OUTPUT SIGNAL

$\overline{S}$ — DECODED S1410 DEVICE ADDRESS SELECT LINE WITHOUT 2 LSB'S

$\overline{WR}$ — μP NEGATIVE TRUE WRITE SIGNAL

A1 — TWO LEAST SIGNIFICANT POSITIVE
A0 — TRUE μP ADDRESS BITS