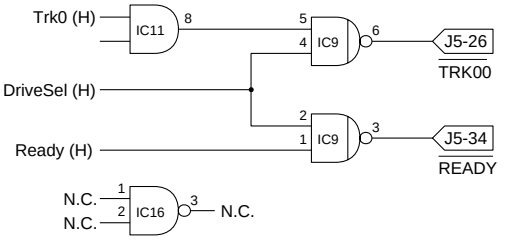
RX50 Floppy Disc Drive

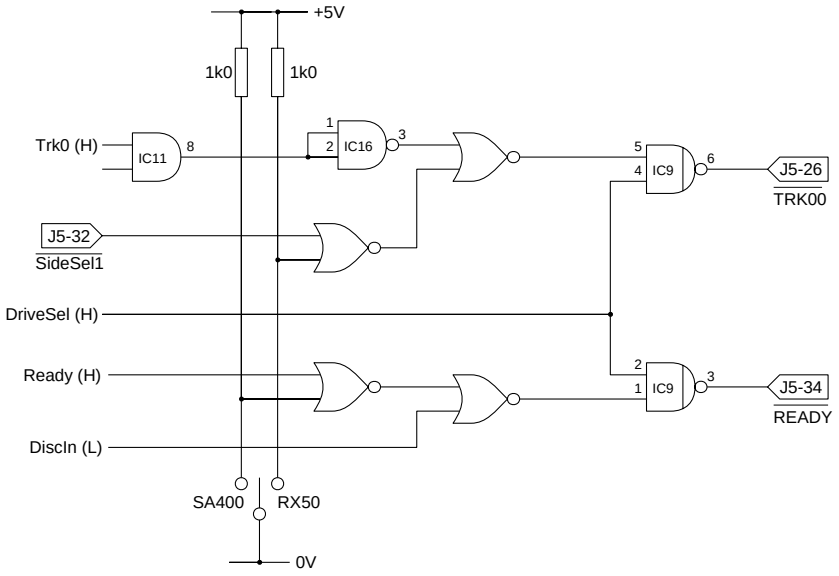
The RX50 floppy drive differs from the SA400 standard in several respects:

1) The RX50 does not need nor use the InUse / HeadLoad signal on pin 4.
2) The RX50 will not respond to STEP pulses unless the drive is both selected, and MotorOn is valid; most SA400-compatible drives will step (if selected) regardless of MotorOn.
3) The RX50 is effectively two drives with a common spindle and carriage; thus any head movement on Drive 0 will also affect Drive 1.
4) The RX50 Ready signal (pin 34) indicates that the drive has a disk in, the door is closed, and is selected, regardless of whether the motor is running or not. On an SA400-compatible drive, this signal indicates that the drive has a disk in, is running at full speed (two consecutive index pulses at the correct time interval), and is selected. The inherent delay (minimum 200ms) prevents an RQDX*n* from seeing the drive as being ready.
5) On the RX50, which is a single-sided device, the SideSelect1 signal is used to disable the Track00 output; the RQDX series controllers use this as a test to determine that the drive really is an RX50 (and really is present).

The first three points are unimportant when using an SA400 drive on an RQDX controller in place of an RX50, but may in rare cases be significant if an RX50 is used on other systems. The latter two points must be catered for when using an SA400-type drive on an RQDX*n* controller. Ideally, this should include disk-in detection, but a simple derivation of the drive-select signal has been found to suffice if this is impractical. However, such a "fudge" will cause an RQDX*n* controller to think a disk is present even if there is not, and any attempt to access the non-existant disk will generate a "Disk Fault" or "Drive Fault" type of error instead of a "No Disk" or "Drive Empty" type of error.

A Canon MD220 drive can be modified to behave as an RX50 (actually, half an RX50) by adding a 74LS02 IC with some minor modifications. The diagram on the right shows the original version of the original circuit; the diagram below shows the modified version. The switch allows the drive to be used either as an RX50, or exactly as it was before.





Trk0(H) taken from IC11-8
SideSel(L) taken from IC06-9
Ready(H) taken from a plated-through hole under IC12
DiscIn(L) taken from a plated-through hole by RA2

The DiscIn(L) signal was originally the DoorClosed(L) signal. The door microswitch was disconnected, and a new microswitch fitted beside the head load solenoid to sense the disk. The drive design is such that this is only effective if the door is closed.

Where it is not possible to provide a DiscIn signal, a simpler circuit will be effective, subject to the note about disk/drive errors mentioned above. This circuit, using an additional 7438, has been used with a Mitsubishi 4853.