

FAQs

Robot Behavior

- 1. Why does the robot growl sometimes when moving the arm up or down?** The usual cause is lack of lubrication on the robot tower vertical steel rods that the gripper sled rides on. This is especially true if the robot has not been used frequently or is stored in a cold environment. With power off, remove the octagonal sleeve cover on the tower. Clean the old lubricant off the stainless steel rods with a de-greaser. Use a light machine oil on the rods sparingly. The lower belt idler could be causing a squeak also. This easily removed with the one screw securing the pulley, cleaned and oiled. No adjustments will be necessary when replaced. Inspect for loose screws or components on the tower.
- 2. Is it a problem if the steel rods for the input bins are loose?** The bins rods need only be hand tight. Since they act as guides to keep a stack of disc in place, they may have some movement. This is only a problem if the robot cannot pick up the disc reliably or the excessively or allows the disc to rub on the rods. Robot calibration may be required to adjust the transport of discs in and out of bins.
- 3. Why do the disc sometimes touch the face of drives as the robot transports the disc to or from a lower drive on the tower ?** This is usually eliminated by adjusting the robot calibration using the standard procedure. The drives trays must be lined up vertically with each other. Drive positions may be adjusted in a horizontal direction to achieve this.
- 4. Why does the robot fail to pick a disc at the bottom of the input bin occasionally ?** This is normally caused by calibration in the input bins. The disc is being pulled into one of the inside rods and falling from the grip of the gripper. Adjusting calibration usually corrects this problem. Occasionally it is necessary to move the bin assembly held by 3 screws. Mark the bin assembly's position on the plate with pencil for reference before loosen screws. Be sure to check all input and output bins for proper calibration if this assembly is moved. Use Hyperterminal to exercise the robot.
- 5. Why does the robot fail to place the disc on the drive tray and cause the tray to jam when it closes?** Determine if this only occurs to a single drive. Verify that the drive tray is opening sufficiently for the robot to place the disc in the center of the tray. The drive trays have had the small tabs removed to allow robot access, verify these are not present. Verify that the drive holding screws or drive tower screws are not loose. Check robot calibration to the drives. If this results in the discs rubbing on the face of the other drives or not able to set the disc properly in the tray, it may be necessary to move the discs slightly in or out. Newer robot firmware has solved this problem, since drives have become shorter and trays do not extend as far as they formerly did.

- 6. The Robot moves to each bin and only moves down about one inch then moves to next bin. What causes the robot to fail to complete its travel to the bottom of the bin to pick up a the disc ?** The most common cause of this is a failure of an IR sensor. First make sure sunlight is not interfering with the sensors. Below is a test of these four sensors. Sensor 7 is the chief suspect in this failure (90%). Common causes of sensor 7 failure are shorted or chafed flex cable, shorted or broken discrete wire cable, gripper assembly failure, or failed circuit on robot control card in the that probability order.

Sensor testing

Start the Hyperterminal program.

You can check the 4 sensors using the following command: **X** (upper case)

It will display this:

or this :

0123456789ABCDEF
1101111011111111

01234567
11011110

Sensor 0 : rotational position : 1 at home, 0 away from home

Sensor 1 : elevator position: 1 at top of elevator, 0 any place below the very top

Sensor 2 : CD lever in gripper ; 1 with CD is gripper, 0 with NO CD in gripper

Sensor 7: Gripper nose sensor; 1 with sensor blocked, 0 sensor unblocked

Other sensor positions are not used.

You can test sensor 2 by holding the CD lever up on the gripper, and issue an X command :

Lever down= 0

Lever held up= 1

Test sensor 7 by blocking the gripper nose sensor with your finger, and issue an X command

unblocked = 0

blocked = 1

Should sensor 7 be the failing sensor, usually the failure would appear blocked all the time

one the following components is the cause and : Solution.

- The sensor or IR emitter on the Gripper has failed: replace the gripper
- The flat flex cable is shorted or worn an open spot: replace the cable, tape can be a temporary fix.
- A discrete wire in the tower to the control card cable has shorted or broken: fix the damaged wire
- The circuit in the control card has failed: the card may be replaced or reprogrammed to use a spare sensor. Request more info for reprogramming if interested.

Should sensor 2 be failing, it is either a damaged wire problem or mechanical problem with the actuator lever in the gripper.