

Gantry Translation Stage (GTS-1500)

INTRODUCTION

This manual outlines the operation of ASI's GTS (Gantry Translation Stage) control system. The GTS is a large, highly functional, computer-controlled stage system that can be configured in several different ways, depending upon the needs of the user. The basic system consists of the control unit, the GTS X-Y-Z stage.

This manual will describe the installation, operation, and programming for basic system components, plus sections for applicable options. Please contact ASI regarding additional options if you wish to upgrade your system.

Features and Capabilities of the GTS System

- Standard system comes with X and Y travel distance 400mm x 400mm; Z travel distance 100mm
- Closed-loop DC servomotor control of the X, Y, and Z axes for relatively precise positioning and highly repeatable focusing
- Joystick control of X/Y position and Z range.
- Wide dynamic speed range with adjustable trapezoidal move profiles
- Multiple controller options from compact ergonomic tabletop control unit is 3½ x 13 x 7½ inches (9 x 33 x 19 cm) to standard Rack Mount
- Back-lit LCD display shows X, Y, and Z coordinates, and Zoom Magnification
- Smooth adjustable dual-range joystick control
- Microprocessor control with RS232-C serial and USB communications
- X, Y & Z axis Hall-effect limit sensors
- Electronic torque limit on drives minimizes damage by runaway stage
- "Zero," "Home," and the programmable "Special Function" buttons .

PACKING AND SHIPPING

(Unpacking is the reverse of the procedure described below.)

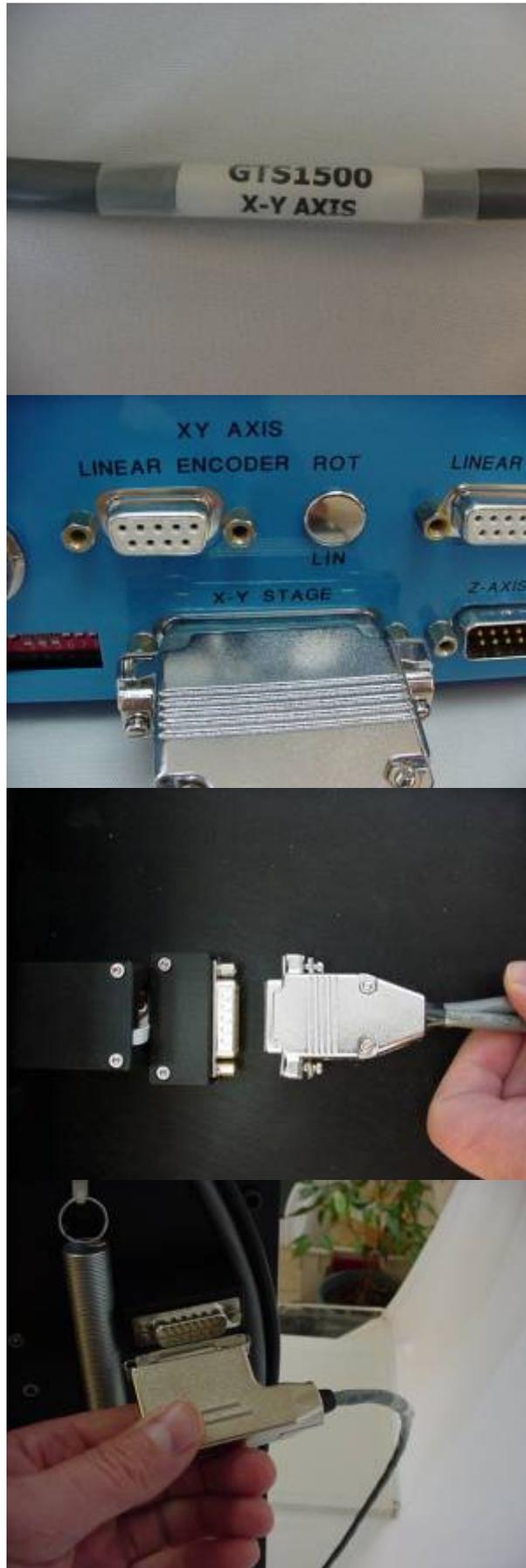
The GTS main assembly is fastened in place in the shipping container. Foam padding is used to protect the rails and provides a platform for the attachments which are packed in separate boxes.

CONNECTING CABLES AND SET-UP

Connecting the Cables

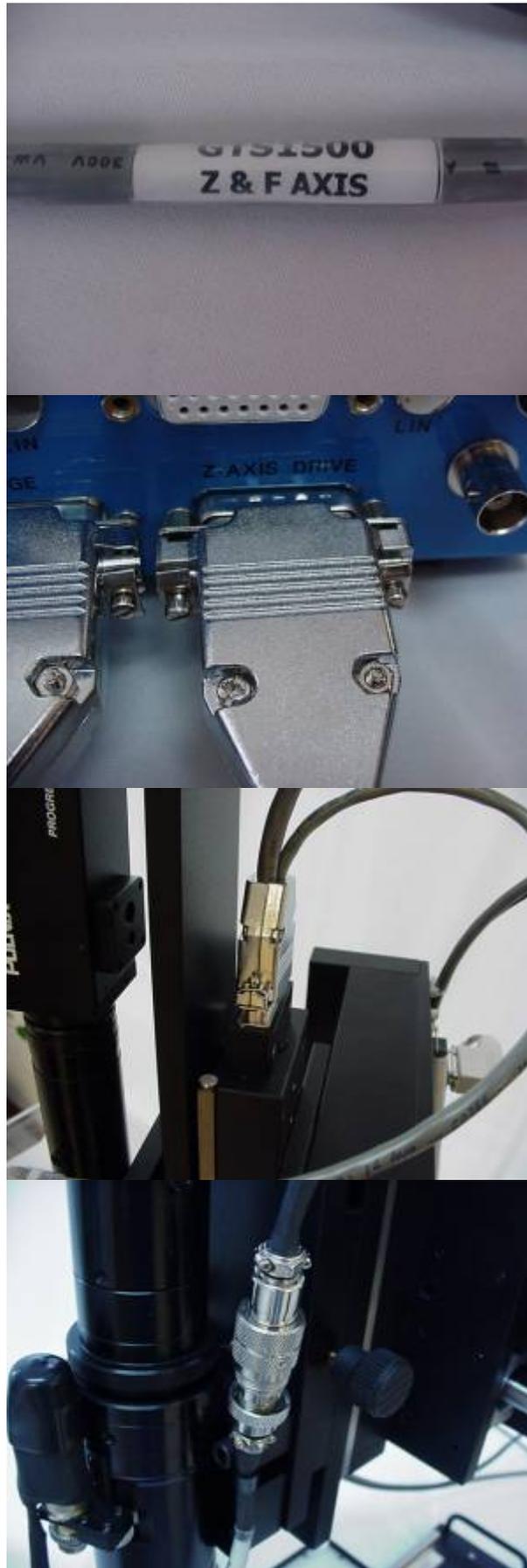
Connect the cables referring to the following pictures if needed:

1) X/Y cable with DB25 Connector to the GTS-2000 Controller.

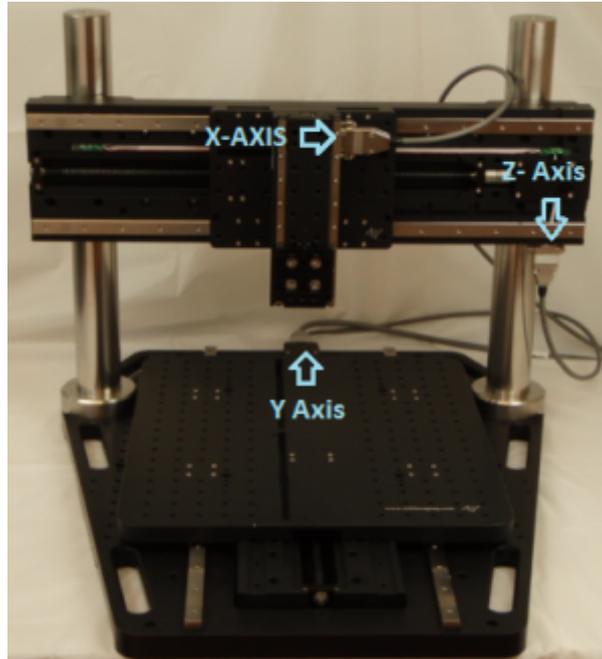


2) Z cable with DB15 Connector to the GTS Controller. Note: Some systems may have and optional F

Axis for zoom capability.



3) Attach the X,Y,& Z Connectors to the GTS as shown in the photo below.



4) Connect the 24V DC 2.7A power supply to back of the GTS controller.

Limit Switches on the GTS

There are three sets of limit switches on the GTS. The limit switches for the Z (focus) axes are fixed and merely prevent the controller from driving the motors past the end of travel. The limits for the X(gantry) and Y (tray) axis may be adjusted to limit the range of travel. Each axis has two magnets that slide on a rail slot which limit the range of motion by activating a hall effect sensor. The limit switches are set at the factory to allow the longest range of travel.



WARNING! Be careful when adjusting the limit switches, if you move the switch past the sensor, you can crash the axis into the end of travel - this can cause damage that may need to be sent in for repair. The current limit protection will protect the motors - but will not cut off the motor voltage till after mechanical contact has already occurred

Adjusting the Y Limit Switches

To adjust the Y Limit switches -locate the two limit switches on the Y(tray) axis.

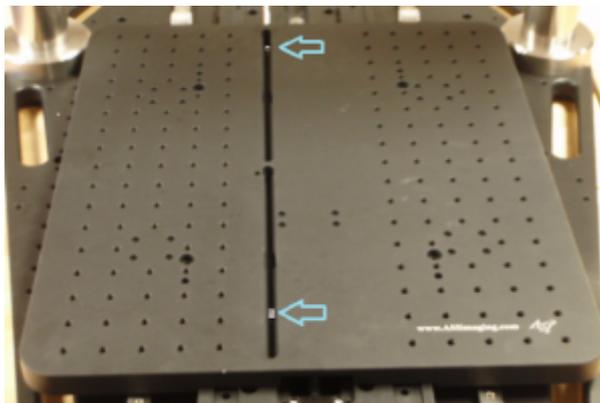


Figure 5 below shows one of the limit switch magnets, which can be moved along the rail after loosening its locking set screw with a 0.050 Allen wrench. To reduce the range of travel, move the magnets inward toward the center of the sample tray.

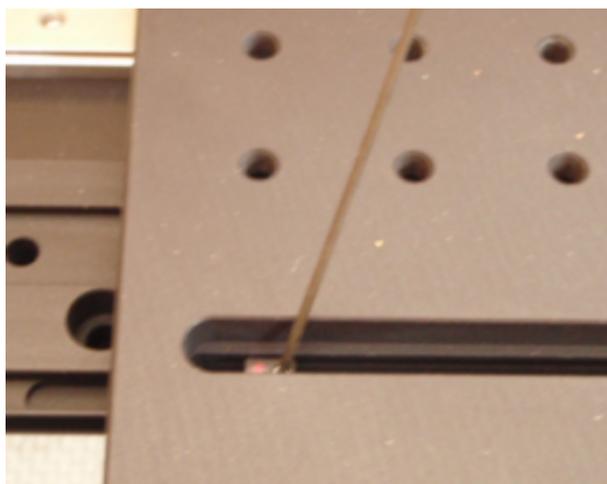
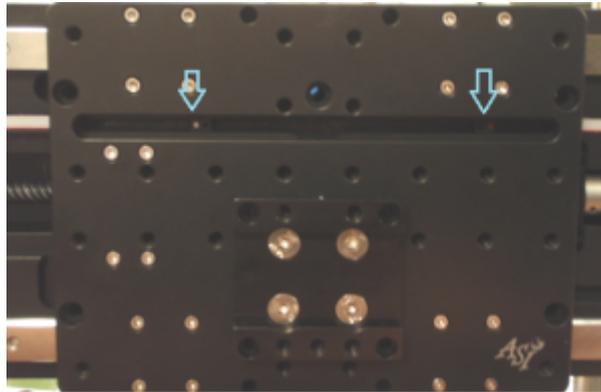


Figure 5: Adjusting a Y-axis Limit Switch

Check the operation of the limit switch by slowly moving the stage toward the end of travel. When a limit is reached, the motion will be terminated and the letter “U” or “L” will appear on the LCD screen showing that the limit is in force

Adjusting the X Limit Switches

To adjust the X Limit switches, locate the two limit switches on the X (gantry) axis.



Just as done with the Y axis, the X axis limit switch magnets can be moved along the rail after loosening its locking set screw with a 0.050 Allen wrench. To reduce the range of travel, move the magnets inward toward the center of the gantry bar.



Check the operation of the limit switch by slowly moving the stage toward the end of travel. When a limit is reached, the motion will be terminated and the letter “U” or “L” will appear on the LCD screen showing that the limit is in force

GTS Operation

Refer to [MS2000 OPERATION](#) on how to setup and use the MS2000 controller with the GTS system.

MAINTENANCE AND SERVICE

The only periodic maintenance necessary for the GTS system is occasional re-lubrication of the lead-screws, should they become dry enough to start squeaking. The recommended lubricant is TriGEL-300S from BSA (800-882-8857). Lubrication is only required when operating at the high speeds. If squeaking becomes a problem, lubrication or reducing the speed are both solutions.

The X-axis lead screw can be lubricated through the slot in the lead screw cartridge without any disassembly.

To lubricate the Y-axis lead screw, it is necessary to remove the stage (and the optional light table, if applicable). This procedure is outlined in figure 10.



Figure 10: Remove the coupling screws

Remove the transport handles from the front end, and once the coupling has been de-attached, the entire stage can be slid off of the rails. The lead-screw can then be lubricated through the slot in the cartridge.

[xystage](#), [gantry](#), [asi](#), [gts-1500](#)

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